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Integrated Coastal Management in Negros Oriental: Building on Experience

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Negros Oriental's marine landscape and underwater seascape is famous for its dolphins and reefs attracting thousands of tourists each year thus, providing substantial income for local people. Most families in the coastal areas also depend upon fisheries for their livelihood and a greater number supplement their diet with protein from the catch from part-time fishing or gleaning of the shallows at low tide. Truly, Negros Oriental is a province with vast coastal resources which have great productive potential and play an integral role in the lives of the local people.

W.F. Perrin

A Fraser's dolphin near Bais Bay.

Yet, despite impressive harvests, the marine resources are overexploited and marine habitats have been degraded over the last 50 years. Additional sources of income for fishers are scarce (Vogt 1997) and poverty is a pressing issue. Destructive fishing practices, siltation and lack of wastewater treatment facilities are degrading the marine habitats and depleting the resources.

In an effort to combat habitat destruction and conserve the resources, Negros Oriental has been experimenting with coastal resource management (CRM) for the last two decades. The Coastal Resource Management Project (CRMP) is the latest and the most extensive undertaking working to effect sustainable change by implementing integrated coastal management (ICM). Through ICM, CRMP is working with community members, local government units (LGU), resource users, non-government organizations (NGO) and others to address these problems and improve conditions in the coastal area. Negros Oriental's unique history of

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editorial

TAMBULI—A NEWSLETTER FOR COASTAL MANAGEMENT PRACTITIONERS is on its fifth issue. The demand keeps increasing as more people submit their address forms to be put on the mail list. We are trying to fill an expanding niche and we are extremely pleased with the response so far. We get many positive comments but we also need good articles and news items to broaden our coverage of the country and some international events. We really encourage you, our readers, to send in useful material. And, if your writing skills are lacking, do not worry, our editorial staff is willing to assist with corrections and improvements!

Negros Oriental Province, "learning area" of the Coastal Resource Management Project (CRMP) and its coastal management concerns are analyzed in the lead article of this issue. The nine municipalities of this learning area within the Province are leading examples of how local governments can become fully engaged in coastal management activities. Although Negros Oriental is not spared from the resource degradation problems common in Philippine coastal areas the attitude among local government is very upbeat. The municipalities together with the Province have the opinion that there are solutions on the horizon and that it is worth their time and money to address the management issues of overfishing, coral reef and mangrove destruction, and increasing pollution among others.

Without preempting this informative article, it is worth noting that the nine municipalities met in January 1999 to develop both individual and common work plans for 1999 vis-à-vis coastal management. The Coastal Resource Management Project facilitated the workshop and the Province, through the Vice-Governor, was very active and even pledged support to each municipality for their coastal projects. This was a land mark event in the Philippines where rarely, if ever, a group of municipalities joined to make individual and common work plans for a natural resource management activity. This is indicative of what needs to happen for us to see improved and more integrated coastal management in the country.

It is insightful to share the coastal resource management results framework used to develop the work plans in Negros. This results framework is promoted by the CRMP in all its learning areas and is intended for use by any municipality to help guide its coastal planning. The primary indicators of success for improved coastal resource management can be measured through the factors in this results framework. Improved local implementation of CRM can be measured and demonstrated by:

1. Annual local government unit budget allocated for CRM
2. Resource management organizations formed and active
3. Best CRM practices being implemented that include:

- CRM plan drafted and adopted
- Fisheries and coastal management ordinances implemented
- Enforcement units operational
- Marine sanctuaries functional
- Environment friendly enterprises established
- Mangroves under community-based forest management agreements
- Municipal water boundaries enforced
- Other habitat protective measures and open access restrictions in place

The best CRM practices mentioned above are all being adopted in Negros Oriental in relation to the needs of each municipal and *barangay* (village) unit. The CRMP monitors all these factors as indicators of success both for the project and all its partners. In the lead article on Negros, you will read about how far along the local governments are in this endeavor. One major and key result so far is that each municipality in the area now allocates a sizable budget to support its CRM program. This is an important first step. There is much more to follow but the commitment of the local government and politicians is essential through their political will and budgets!

Any ideas you have on how to improve and encourage CRM through your organization are welcome. Your thoughts and comments on these subjects are welcome! Please send your contributions to the Editor of TAMBULI. This is one way we can spread our experiences and ideas so others can learn from them. We look forward to hearing from you!

Editor

Coastal ***from page 1***

involvement in coastal resource management provides a strong foundation from which to begin the ICM process and provides good reason to believe that ICM will work well there.

Negros Oriental and Its Resources

Negros Oriental is located in the Central Visayas region of the Philippines, about 620 kilometers southeast of Manila. It is the eastern province of the two-province Negros Island and is separated from the other province, Negros Occidental, by steep mountains. On the east, the Tañon Strait separates it from Cebu Island. CRMP is working in nine municipalities called a learning area which covers 102 of the 300 km of provincial coastline and 1,592.8 km^2 (Figure 1). It encompasses 71 *barangays* (village, smallest political unit) with a population of 140,493 (NCSO 1995). The poverty incidence in the province of Negros Oriental was 48.3% for 1991 (NEDA 1998) and the average annual family income for the province was P40,603 (US$ 1,015) in 1994 (PPDO 1997). Forty-one percent of the people in the learning area work as full-time fishers earning an average annual income of less than P17,500 (US$ 438) (Calumpong *et al*. 1999). Those with the highest average incomes in the learning area are engaged as middlemen in fisheries-related activities. These activities include selling fresh fish, shells or other marine organisms, or the manufacture and trade of their products and other activities. These middlemen account for less than eight percent of the labor force and earn P52,281 per year (US$ 1,307) (Calumpong *et al*. 1999).

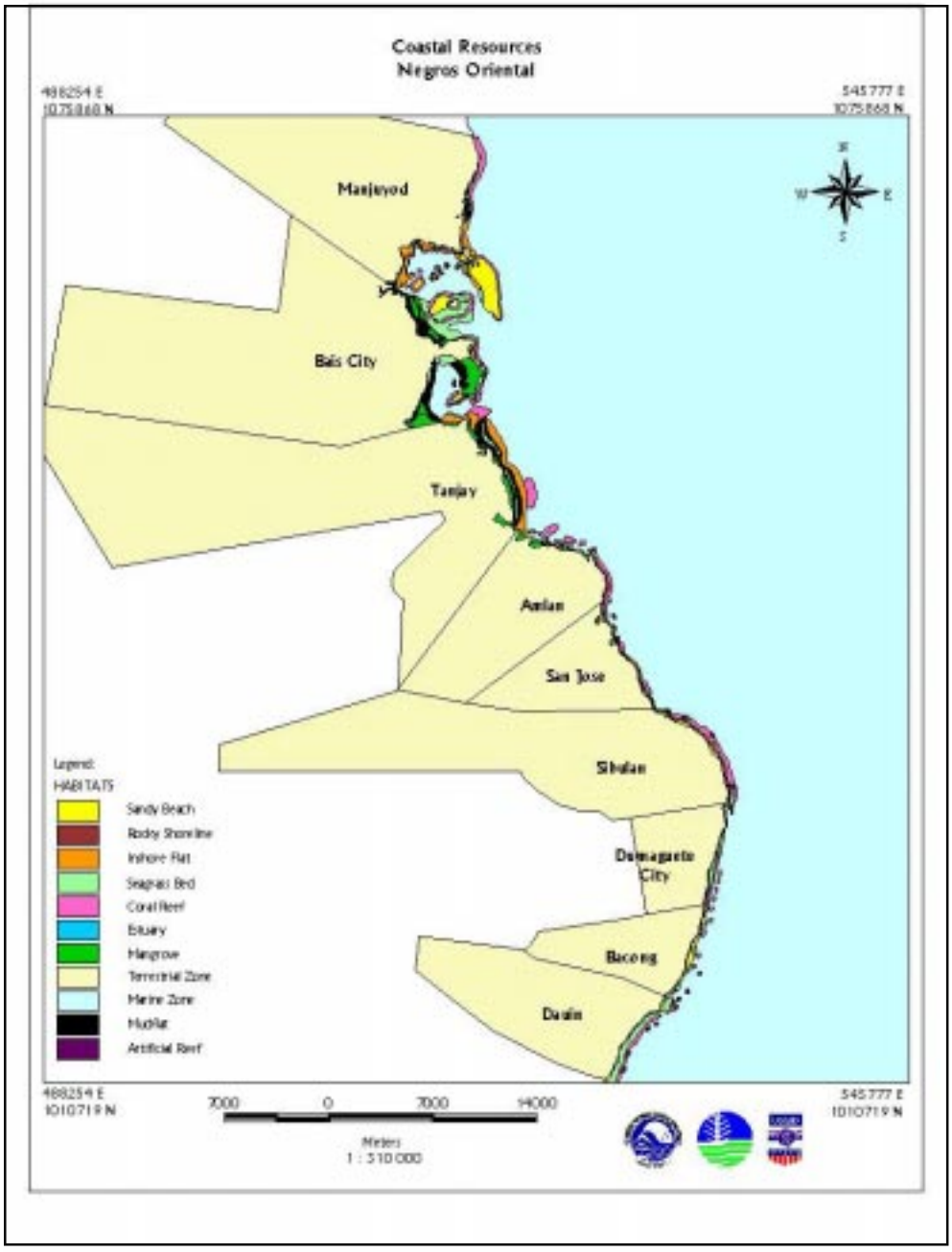

Figure 1. Map of Negros Oriental learning area with coastal habitats.

Tañon Strait is one of the top ten richest municipal fishing grounds in the country. The province is a major exporter of fisheries products to the Visayas region and parts of Mindanao. According to the Bureau of Fisheries and Aquatic Resources, the province produced a total of 32,360 metric tons of fishery products with a value of approximately P1.618 billion (US$40,447,500) in 1998. Municipal fishers accounted for the highest recorded yield, 25,038 metric tons, followed by aquaculture pond production and commercial fishers with almost equal amounts of production. The main marine harvests in the province include tuna, anchovies and sardines. Other sea products which generate earnings are: *bangus* (milkfish) and prawn fingerlings; Eucheuma seaweed (Kappaphycus alvarezii); shells; oysters; mussels; crabs; octopus; flying fish; squid; and sea

cucumber. In addition to the traditional salting and drying of fish, there is the potential to expand and upgrade processing to include smoking and canning fish. However, the signs of overexpolitation are evident. Based on results of the participatory coastal resource assessments, several municipalities within the learning area have been experiencing a decline in fish catch over the last two decades from just over 15 kg/fisher/day to under 3 kg/fisher/day.

While most of the fish sold to areas outside the province are pelagic (deep-water), the coral reef associated fish are primarily sold for local consumption. The coral area stretches over 186 km of the provincial coastline with fringing reefs covering an estimated 26.5 sq km (Montebon 1997). There has been a decline in the overall live coral cover in Negros Oriental from 1981 to 1995 and a 1995 survey showed that only 5% of the reefs have excellent cover, which is defined as more than 75% living coral cover (CEMRINO 1995). Thus, with the majority of the reefs in sub-optimal condition, the level of fish catch for local consumption is well below the potential harvest that could be obtained from healthy reefs. The prime threats to coral areas are from siltation and destructive fishing which includes dynamite and cyanide fishing and use of drive-in nets.

Other coastal resources include mangroves, seagrass beds and intertidal flats. The learning area has over 318 hectares of mangroves. The largest area of mangroves is in Bais Bay where mangroves covered 811.6 hectares in 1979. Today, however, there are only about 250 hectares remaining (Calumpong and Luchavez 1997). The decrease in mangroves here and throughout Negros is primarily due to conversion to fishponds. Because mangroves support nearshore fisheries and provide other functions, mangroves are a conservation and management priority in Negros.

Coastal Resource Management in Negros Oriental

Negros Oriental's history of involvement in CRM began in 1984 with the Central Visayas Regional Project (CVRP) that was funded by the World Bank. This project, which lasted until 1992, focused on poverty and marine environmental destruction in Negros Oriental using a community-based resource management approach. Because of the community's interest in, and need for, coastal management in Negros Oriental, the work begun during this project was continued through the efforts of the then-provincial governor Macias, other local officials and the German Development Service, who established the Resources Management Division (now the Environment and Natural Resources Management Division) and the Centre for Establishment of Marine Reserves in Negros Oriental (CEMRINO), Inc. (Ablong 1995, Ablong and Waltemath 1996).

Silliman University, through its Marine Laboratory (SUML) and its Center of Excellence in Coastal Resources Management (COE-CRM), has also been active in promoting marine research and conservation. Silliman's Sumilon and Apo Island projects of the late 1970s and its Marine Conservation and Development Program (1985–1987) assisted local communities in designing and implementing marine reserves. In addition to helping the local communities, these projects and other research have contributed to the collective national knowledge regarding community-based resource management, as well as contributing to the information available about the local resources (White 1989a and 1989b, White 1988).

Building on Negros Oriental's high level of interest and past experiences, CRMP embarked on a new period of management beginning in July 1996, when it established an office within the Center of Excellence in Coastal Resources Management at Silliman University. This new period of management employs ICM, which is a more comprehensive form of CRM and is defined as the process of planning, implementing and monitoring beneficial uses of coastal resources through participation and sound decision-making involving all relevant stakeholders and sectors. The key steps of the ICM process are: resource information gathering and assessment; prioritization of issues and analysis of causes; policy and plan formulation; plan/project implementation; and monitoring and evaluation (White 1997). This basic framework is responsive to community input and feedback and therefore, becomes refined to meet the specific needs of the learning area.

At the beginning of the project, CRMP gathered together leaders from both the

Alan White

White sand beach at Apo Island where boats carrying divers and tourists from Negros and Cebu land.

public and private sectors and facilitated the identification of a common vision for Negros Oriental:

> *An agro-aqua province with a strong determination to preserve the natural beauty of the ecosystem through community involvement and enforcement of logging and fishery laws as well as the rehabilitation of denuded areas to conserve, protect and develop the environment geared towards a happy, healthy, clean and progressive Negros Oriental.*

Community members, resource users, LGUs, NGOs, Silliman University and CRMP are now working together to implement ICM to achieve this vision. LGUs designate manpower and allocate a portion of their budget to ICM activities while CRMP and Silliman University provide technical assistance and training for the various aspects of ICM. NGOs, such as the Rotarian Martin "Ting" Matiao Foundation, Inc (TMF), the Young Men's Christian Association (YMCA) and St. Catherine's Family Helper Project, also contribute resources for ICM activities.

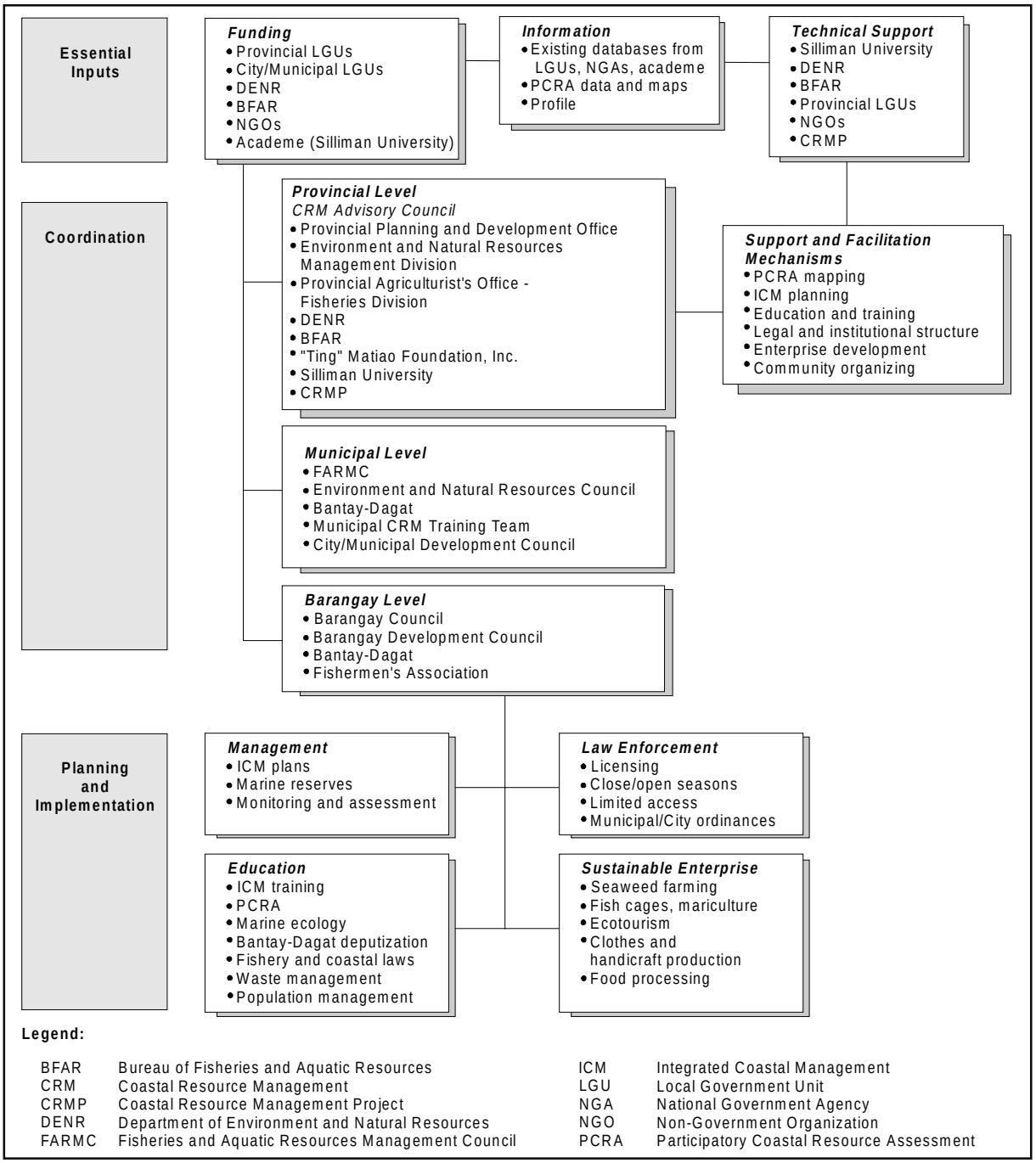

Figure 2. Institutional diagram and CRM process in Negros Oriental.

Community members and resource users conduct resource assessment, formulate local ICM plans and engage in law enforcement through the *Bantay Dagat*, the local deputized sea watch group. To assist with coordination, there is a CRM advisory council at the provincial level. In addition, there are several organizations involved in the ICM process at the municipal and barangay levels (Figure 2).

TMF, CRMP's partner in implementing ICM and the community organizer for the learning area, conducts ICM planning workshops to train local barangay members to conduct participatory coastal resource assessments (PCRA). The PCRA engages the community in the management of the resources and draws upon the knowledge of the community through mapping of the resources, gathering information on resource abundance and trends and conducting socio-economic surveys. PCRA results are reconciled with primary and secondary information to create a coastal environmental profile and digitized maps for use by decision-makers and community members as a basis for future policy decisions and provides the necessary baseline data for subsequent monitoring.

At the barangay level, community members draft ICM plans based on the PCRA. These plans are then presented to the LGU. The community identifies the pressing issues and form concrete actions to address these issues. Included in the plans are the community's expected results, what the lead institutions will be, who the target participants are and what the sources of funding for implementation are. Government, CRMP and TMF then assist in implementing the actions as prescribed by the plans (Box 1).

Many of the communities identify resource overexploitation as one of their more pressing issues. One of the prime causes of resource overexploitation is the lack of alternate sources of income for

Box 1. Cangmating barangay profile

Barangay Cangmating is 1 of 15 barangays in the municipality of Sibulan, Negros Oriental. It is located 5 kilometers away from Dumaguete on the coast of the Tañon Strait. The barangay has a total land area of 170 hectares, 90% of which is used for agriculture. The population of the barangay is 2,206 with 441 households. Of this population, 128 of them are fishers and they produce a total of roughly 22,000 kilograms of fish per year. Forty-six percent of the children in the barangay under the age of 6 suffer from some level of malnutrition.

As one of the two targeted barangays in Sibulan, Cangmating has conducted a participatory coastal resource assessment (PCRA). Through the PCRA, the community members assessed their coral reefs to be in fair condition and their seagrass beds to be in poor condition. In addition, the community members identified issues and problems relating to their coastal habitats. These problems and issues include: fishing by outsiders; siltation; illegal construction of a seawall and illegal reclamation; beach erosion; theft of fish from fish pot; improper solid waste disposal; and the presence of scuba divers. Based on the PCRA, the barangay has drawn up an integrated coastal management plan.

Specific objectives	Activities	Expected output	Source of funding
Regulate fishing by outsiders	Pass a resolution to regulate fishing by outsiders and conduct sea patrols	Approved resolution and regular patrols conducted	Donations, Barangay
Stop illegal beach quarrying	Information drive on the prohibition of beach quarrying and enforcement of ordinance on beach quarrying	Beach quarrying decreased or stopped	Barangay
Enforce national laws and local ordinances regarding illegal construction of sea walls and illegal reclamation	Review national laws and local ordinances, conduct information drive and hold a meeting of land owners	Barangay residents and land owners made aware of the existing municipal ordinances and national laws and local ordinances enforced	LGUs, Barangay, CRMP, DENR, PAO
Promote proper solid waste disposal	Conduct training/seminars on solid waste management and place signs and garbage cans in strategic sites	Three training/seminars conducted and two garbage cans and two signs placed in every *purok* for a total of 12 each	Barangay

fishers. In an effort to address this problem, TMF and CRMP, in collaborative agreement with the local government and communities, are promoting alternative livelihood for resource users through enterprise development. Current projects include ecotourism in Bais Bay and on Apo Island and mariculture. In Bais Bay, a successful tourist attraction has been built around its abundance of resident dolphins and migratory whales. Apo Island attracts an average of 70 visitors per week, particularly scuba divers, who come to enjoy the underwater seascape that flourishes there as a result of the successful community-based marine sanctuary (Box 2). Mariculture activities in the learning area include fish cages, seaweed farming and mud crab breeding. These enterprise development projects aim to be environmentally and economically sustainable by not further degrading the natural resources.

In addition to finding alternative livelihood activities, LGUs are strengthening their local ordinances to protect and manage their resources. Several of the municipalities have passed ordinances regulating fisheries, fishing access and effort and gear types, including prohibiting the use of compressors and SCUBA tanks. Another common resource management tool is the establishment of marine sanctuaries; there are 10 such sanctuaries within the learning area. In addition to fishery-related ordinances, there are ordinances declaring tourism areas and regulating the reclamation of seawaters, water skiing and other water sports. Issues relating to waste management, pollution abatement and access to potable water are also being addressed by some of the municipalities through ordinances.

Another significant component of ICM is education. In addition to training government and non-government leaders, ICM aims to inform the general public about coastal resources and the management efforts taking place in their area. Marine ecology seminars have been conducted in each municipality within the learning area. The nearly 500 participants consisted of a cross-section of the community, including science teachers, LGU officials, fisherfolk and the Bantay Dagat. Providing community stakeholders the basic environmental knowledge regarding their coastal resources may help the people better manage their resources. Also, the provincial government, with the assistance of CRMP and the Department of Education, Culture and Sports, is

Box 2. Apo Island Marine Reserve: A Negros success story

Apo Island has become a well-known diving and snorkeling destination for tourists from around the world because its well managed marine sanctuary and reserve support a great diversity of healthy coral and an abundance of marine life. This small island community, located 4 km off the southeast coast of Negros Oriental, has come a long way towards realizing sustainable management of its limited resources. Since 1986, the community of 600 inhabitants has supported and managed a small marine sanctuary which was initially touted for its benefit to the island-wide coral reef fishery. Indeed, the fish catch has increased and in addition to the small sanctuary area, the community had the foresight to declare the entire island coral reef a marine reserve. The reserve status, under municipal ordinance, limits the kind of fishing methods which can be used and emphasizes the need to conserve the entire reef and island. Thus, over the years, the coral reef has more living corals and the fish abundance and diversity have increased for the benefit of the island fishers.

By 1990 the island had become a popular diving and tourist destination as a result of the protection by the community. Conservative estimates by researchers from Silliman University showed that by 1996 the benefits to the island community from tourism had grown significantly over those derived from the increased fish catch. In fact, tourism was bringing in over three times the benefits attributed to improved fishing. While tourism has been known to have adverse effects on the environment and social fabric of some areas, this has not been the case on Apo Island where tourism is relatively small-scale. Tourism has actually improved the conservation ethic and the incomes of the community. Donations, souvenir sales, services, food and lodging have all contributed to the economy.

Some signs of danger are on the horizon, however, and they will need to be addressed in order to sustain the success. An ever present problem with community-based management is ensuring that the community retains control of the benefits of the management. In the case of Apo Island, this issue has become more pressing because of the declaration of the area as a National Protected Seascape in 1993. With this declaration, the management system comes under the influence of the national government. To continue successful preservation of the island's resources, the community must remain responsible for the management. The proposed development of a user fee system must be equitable and remain beneficial to the community. Other pending management issues for Apo Island include: managing the visitors and their boats to the island so the coral reef is not damaged; preventing the proliferation of tourist facilities directly on the island; and, educating the Negros-based users of Apo Island about the fragile nature of the island, its reef and people. If these issues are addressed properly, community members and tourists will be able to enjoy the island and its resources for many generations to come.

introducing marine ecology into the curriculum for Grades 5 and 6 in selected schools in 1999. In another effort to reach the general public in Negros Oriental, the learning area hosted an exhibit entitled "Our Seas, Our Life." This free exhibit, produced by CRMP with contributions from Silliman University, received close to 50,000 visitors during its 17-day stay in Negros. The exhibit showcased national marine habitats and species, as well as informed the public about the threats to the habitats and species (see related story on page 37).

Table 1. Number of CRM interventions in the learning area.

Municipalities allocating funds for CRM	8
Active resource management organizations	27
Municipal PCRAs completed	9
Barangay CRM plans drafted	9
Fisheries and coastal management ordinances implemented	20
Operational municipal-level coastal law enforcement units	9
Operational barangay-level coastal law enforcement units	57
Functional marine/fish sanctuaries	10
Mangrove areas under Community-based Forest Management Agreements	1
Environment-friendly enterprise established	3

Signs of Progress

Coastal resource management seems to be taking hold within the learning area with more LGUs allocating funds for CRM activities as shown in Table 1. Since 1997, eight of the nine LGUs reserved funds for CRM, and despite a dip in 1997, the overall amount allocated for CRM has increased over 400% since 1995 (Figure 3). There are also several organizations participating in the ICM process. CRMP has assisted the LGUs in establishing Bantay Dagat within the barangays and federations of Bantay Dagat at the municipal level. The Department of Agriculture, LGUs and CRMP are jointly establishing the Fisheries and Aquatic Resource Management Councils (FARMC) in each municipality. The FARMCs will assist in formulating fishery policies and fishery management plans and will assist with the law enforcement of these plans and policies. Thus far, four have already been established. In addition, there are a number of fishermen's associations that specifically manage and monitor marine sanctuaries. To enhance the management capabilities of groups within the learning area, CRMP has established municipal CRM training teams.

Additional CRM interventions include marine sanctuaries and improved CRM plans. The number of marine sanctuaries is expected to increase over the next few years as other barangays witness the success of the 10 currently in place. Although all municipalities have some form of CRM plans, there is a need to develop new CRM plans that are more integrated and participatory, ensuring greater success with implementation and compliance. Workshops are currently being held to develop these new plans. Also, the public is becoming more involved in CRM. During the "Our Seas, Our Life" exhibit, the "I Love the Ocean" campaign was launched. Over 500 people registered as members and pledged their commitment to safeguard the ocean and its resources. The members hold regular meetings and organize events such as coastal clean-ups.

Although much remains to be done, the Negros Oriental learning area has accomplished a great deal in its efforts to bring the natural resources of the learning area under integrated, sustainable management for the benefit of the people who rely on those resources. In essence, the

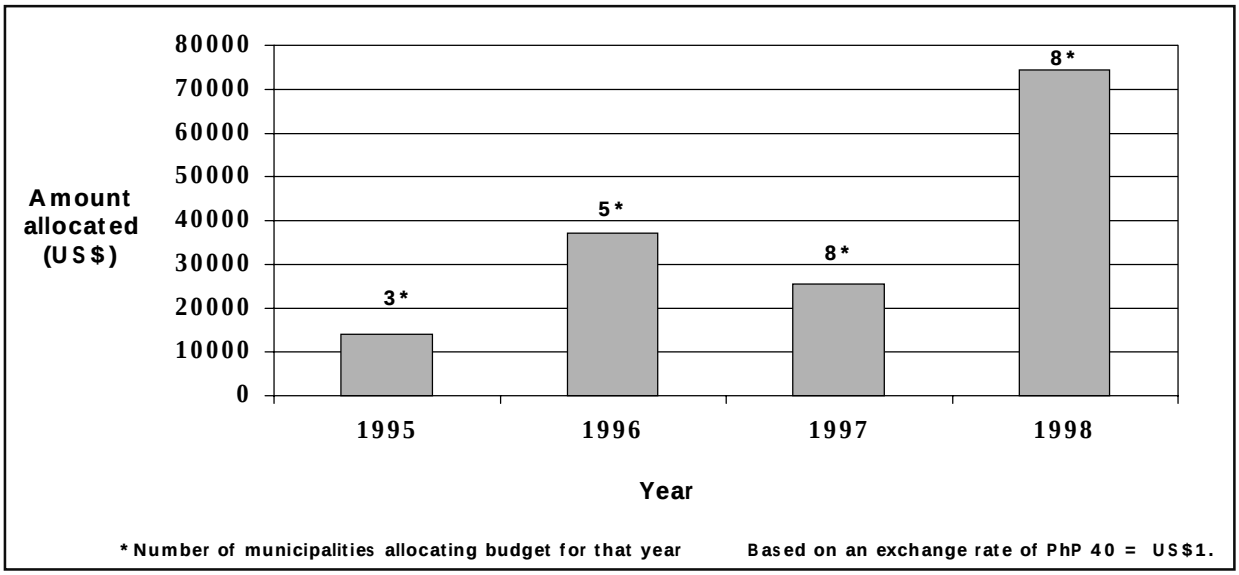

Figure 3. Total municipal budget allocations for coastal resource management within the learning area.

successes achieved in Negros Oriental are the result of a sound management process and the participation of the stakeholders. CRMP hopes that the work done in Negros and the other learning areas will provide models, lessons and encouragement to other areas in the Philippines wishing to undertake co-management of their coastal resources for their own benefit and that of future generations.

[Negros Oriental is one of the six learning areas in the Philippines in which the CRMP is implementing ICM. This is the second in a series featuring each of the learning areas. Editor]

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Fishing and Biodiversity: The Complex Tale of the Komodo National Park, Indonesia

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Komodo National Park (KNP, Figure 1), famous for the Komodo dragon, Varanus komodoensis, is one of the richest areas for coral reef biodiversity in Indonesia and has one of the richest fish fauna in the world with an estimated 1,000 species. The Park contains 132,000 hectares of marine waters, with a variety of habitats including coral reefs, rocky shores, seagrass beds, sandy bays and mangroves.

Sadly, live reef fish have priority for space on the airplane flying away from the park while visitors who come to see the Komodo dragon and the world's richest coral and fish life must take a 12-hour ferry! The demersal fish stocks and coral reefs, which have suffered considerable damage from destructive fishing practices already, still continue to be threatened. Reef gleaning, fish traps, gillnets, bottom lines and the use of hookah compressors in both dynamite and cyanide fishing are all continuing problems. On paper, legislation protects all animals, plants and habitats within the National Park. Yet, Park authorities and police officers do not seem to be aware of the destructive impact of commonly practised fishing methods like compressor fishing, reef gleaning and trap (*bubu*) fishing. While patrols have successfully decreased the incidence of large-scale dynamite and cyanide fishing, considerable further protection is still needed before the Park can be truly considered a protected area.

Komodo National Park is located between the islands of Sumbawa and Flores in Indonesia. The Park was established in 1980 and declared a Man and Biosphere Reserve and a World Heritage Site in 1986. KNP includes three major islands, Komodo, Rinca and Padar as well as numerous smaller islands that total 41,000 hectares of land. About 2.300 inhabitants live within the Park, spread out over three settlements (Komodo, Rinca and Kerora). An estimated 15,000 people live in fishing villages directly surrounding the Park. Park inhabitants mainly derive their income from a pelagic lift net (*bagan*) fishery (95% of their yield comes from this gear type) which target squid and small schooling pelagic fish. Additional income and food is derived from reef gleaning (*meting*), a method whereby corals are destroyed in search of marine invertebrates. Non-inhabitant fishers use pelagic lift nets and a variety of other gear types in KNP waters. Although

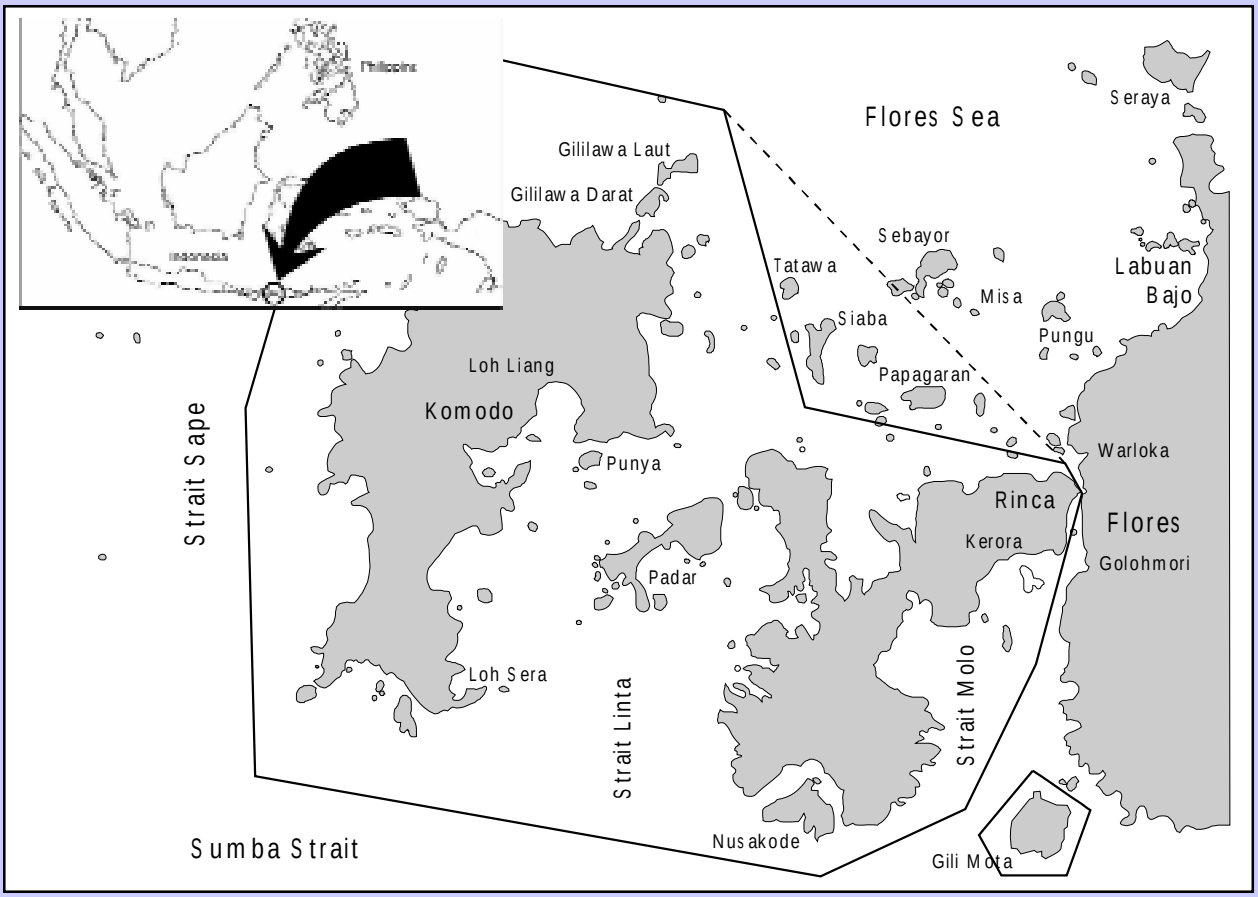


Figure 1. Komodo National Park, Indonesia. ***Inset: Map of South East Asia.***

the pelagic lift net forms the most important gear type in KNP in terms of yield, other fishing methods noted above are major threats to the Park's marine resources.

Upon request from the Ministry of Forestry, The Nature Conservancy (TNC) is assisting the National Park's authority in managing the marine component of the Park. In October 1996, a draft management plan was completed for the marine component of KNP. The objective, to protect the demersal and sedentary marine life forms of Komodo National Park, their ecosystems and their habitats. Key components of the management plan are: a) marine park zonation; b) cross-sectoral enforcement program; c) community participation; d) enterprise development; e) environmental mooring buoy program; and f) monitoring and research program.

The coral reef monitoring program covers 185 sites which are all surveyed every 2 years and at 3 different depths. Data from points within the 25 square mile area of the Park are used to estimate the overall status of the coral reefs (Figure 2). Results of the 1996 monitoring show that serious damage has occurred in most areas inside and outside the Park. The most heavily affected areas inside the Park are found in areas bordering the buffer zone in the northeastern region of the Park, the reefs off northeast Komodo, north Padar and north and east Rinca.

Monitoring the size frequencies of a number of commercially targeted fish species on a number of known aggregation sites makes it possible to evaluate changes in the fish populations in a cost-effective manner. Also, areas that need special protection are determined by identifying mass spawning sites for important fish species. Preliminary results show that a number of aggregation and spawning sites are found in the northeastern and southeastern areas of Komodo. Spawning aggregations of four species of grouper and of Napoleon wrasse were observed to occur in these areas around the month of October. The spawning aggregation sites contain concentrations of these species

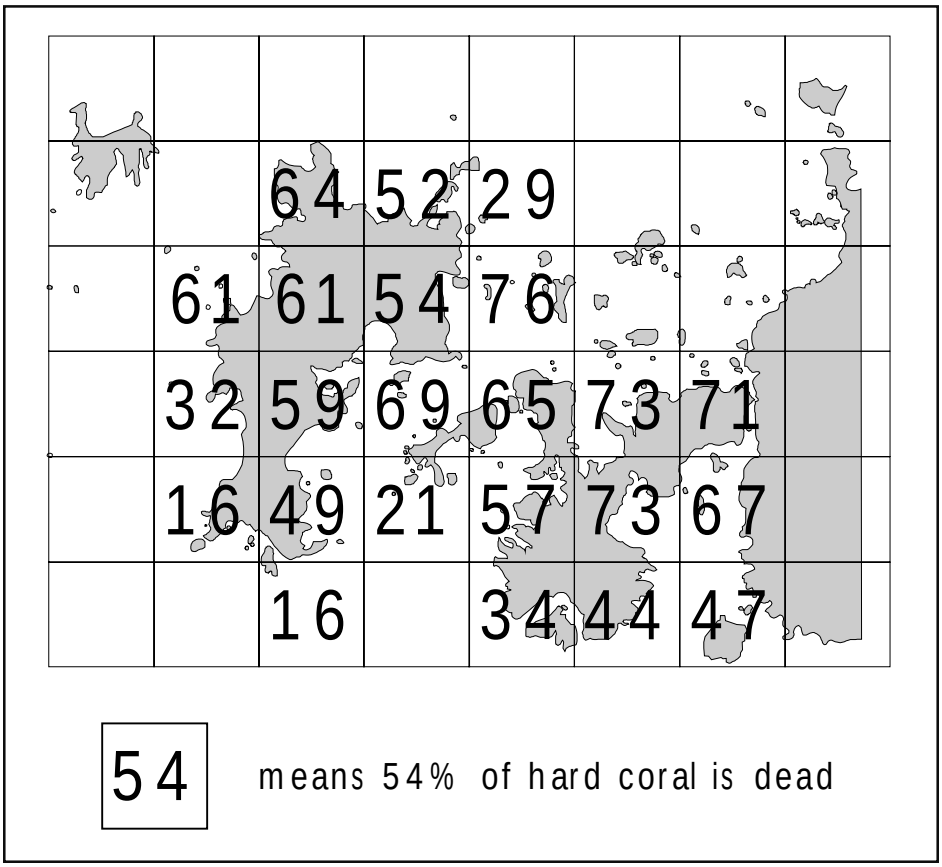


Figure 2. Results of the coral reef monitoring activity in 1996.

during all months of the year. Many fish spawning aggregation sites are thought to exist within the borders of Komodo National Park.

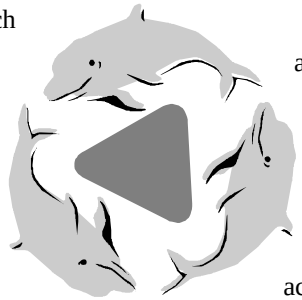
A routine patrolling and enforcement program began in May 1996 with two-day patrols covering the entire park area on a weekly basis. The number of incidents of dynamite and cyanide fishing dropped significantly during the first period of intensive patrolling in 1996. A reduction of more than 75% was recorded for dynamite incidents. Several arrests were made for other destructive fishing methods.

Members of the enforcement team have been trained to record data on resource utilization patterns during routine patrols in the KNP area. The data includes number, type and origin of fishing crafts, their catches and their distribution in space and time. The database helps Park Managers know which community groups are involved in certain fishing activities and where and when they fish. Over time, this data will also show any changes in the behaviour of fishers due to management measures and it will indicate which fishers/groups or areas in the Park may need extra attention.

Generally, the area with the highest fishing effort is also the area with the highest coral mortality. Fishing effort is also relatively high in areas where fish spawning aggregation sites are located thus, forming a direct threat to fish species aggregating at these sites.

Most gear types specifically yield selected target species. Exceptions are "compressor" and "reef gleaning" (Figure 3). The latter two gear types typically yield a widely varied catch, ranging from live fish and lobster (often caught with cyanide) to sea cucumber, shellfish (mostly abalone and pearl oyster), coral and seaweed. These two methods form major threats to the marine ecosystem of Komodo National Park.

The most common gear types used in the park, bottom hook and line and gillnets, account for 48% of total effort in the Park. These methods threaten the sedentary fish stocks especially when they are used in areas where fish are aggregating to spawn. Large quantities of discarded nylon fishing line were encountered at fish spawning aggregation sites. Certain species like the square tail coral trout (*Plectropomus aerolatus*) has been decimated.



It is estimated that around 1,000 tons of fish, lobster, shrimp, pearl oyster and abalone were harvested from Komodo National Park in 1997. Fishers from Komodo maintain that non-*bagan* activities are important to them since the *bagan* fishery is exploited by middlemen which leave very little of the profits for local fishers.

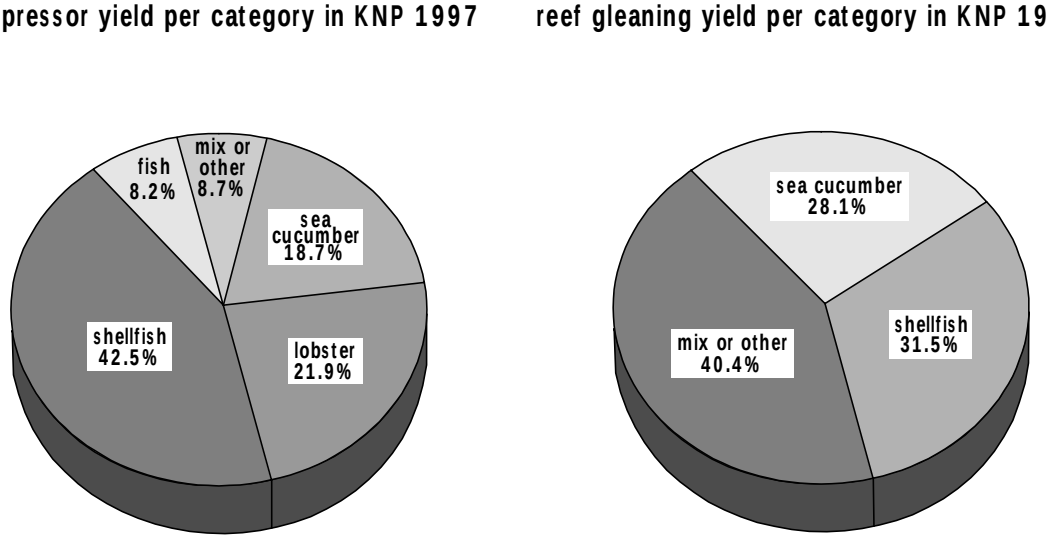
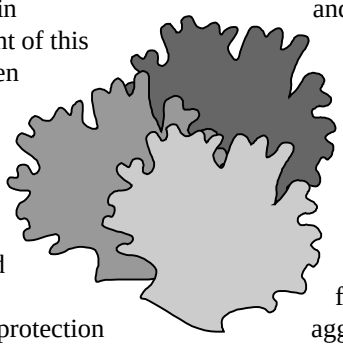


Figure 3. Yield categories per gear type for compressor fishing and reef gleaning (tons per year).

Although the frequency of dynamite fishing in the Park has been low during recent years, destructive fishing practices and local overfishing remain a constant threat to the Park's sedentary marine ecosystems. The local Fisheries Service, for example, feels that the KNP waters are fishing grounds where yields have to be maximized. Although Park Managers concede that legislation is already in place to protect all animals, plants and their habitats within National Parks in Indonesia, enforcement of this legislation has not been implemented. Supporting materials from outside sources would help to convince the Park authorities of the need of a ban on hookah compressors. For the protection of the marine environment in KNP to be taken seriously, the following phases of increasingly strict law enforcement need to be implemented.



1. Removal of all large- and small-scale dynamite and cyanide fishers within the Park and in the buffer zone. This includes dynamite and cyanide operations using big boats and dive crews in canoes with hookah compressors.

2. Prohibition of key destructive gear types from within the Park's borders especially the hookah compressor.

3. Closure of the Park for demersal gear types like gillnets and bottom hook and line. Only by banning the widespread use of gillnets and bottom hook and line from the Park, starting with a closure of fish spawning aggregation sites, can sedentary fish stocks truly be protected. Exceptions will have to made for Park inhabitants.

4. Establishment of multiple-use zones near settlements in the Park, where inhabitant fishers have exclusive fishing rights to use demersal gear types. The Park waters should remain open for pelagic fisheries, preferably with exclusive fishing rights for Park inhabitants and neighboring communities.

Indeed, the KNP is degraded and its reefs are continuously being damaged by high fishing effort and destructive fishing practices. To put a stop to this will largely depend on an effective enforcement program, provision of alternative livelihood activities and cultivation of political will. It will also require firm partnerships to be forged with stakeholders as well as other entities capable of providing the necessary assistance.

[Unfortunately, the destructive fishing problems are similar in Indonesia as the Philippines. In response, more integrated management approaches will also be required to find solutions. Editor]

Local Government Management of Coastal Resources: Defining the Outer Limits of Municipal Waters in the Philippines

[This paper has been adapted from an article in **Geo Asia Pacific**, April 1999.]

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Intrusion of commercial fishing vessels, unsustainable use of coastal waters and conflicting resource uses are major problems faced by local government units in the Philippines where the responsibility for managing municipal waters has largely been devolved to municipalities and provinces. Delineating municipal water boundaries is a first step in improving local government management of coastal resources.

Coastal resources, such as finfish and shellfish, and the habitats that nurture them—coral reefs, seagrass beds and mangrove forests—are among the most fundamental elements of the Philippine environment. Approximately 30% of the world's total coral reef area exist in Southeast Asia, with the Philippines having one of the highest diversity of marine species.

However, massive poverty in fishing villages, combined with a rapid population growth, overfishing, illegal fishing and habitat destruction have resulted in an alarming environmental degradation of the coastal environment. Research has shown that large nearshore areas in the Central Philippines are in a critical ecological state and can not be rehabilitated under the existing socio-economic situation.

Local solutions to these problems are being sought world-wide as the responsibility for coastal resource management is being devolved to the most fundamental tier, the local government. In the Philippines, the responsibility for managing municipal waters, which extends out to a distance of 15 km from the shoreline, has largely been devolved to the local government unit under the 1991 Local Government Code (Republic Act 7160). This mandate was recently reinforced with the passage of the 1998 Philippine Fisheries Code (Republic Act 8550) which allows licensed small and medium-scale commercial fishers, with local government approval, to fish in the municipal waters between 10.1 and 15 km from the shoreline. However, that mandate may have also been weakened by the provision that municipal waters exclude areas declared protected under the National Integrated Protected Area System (NIPAS). National legislation thus renders the jurisdiction and responsibility for coastal resource management complex.

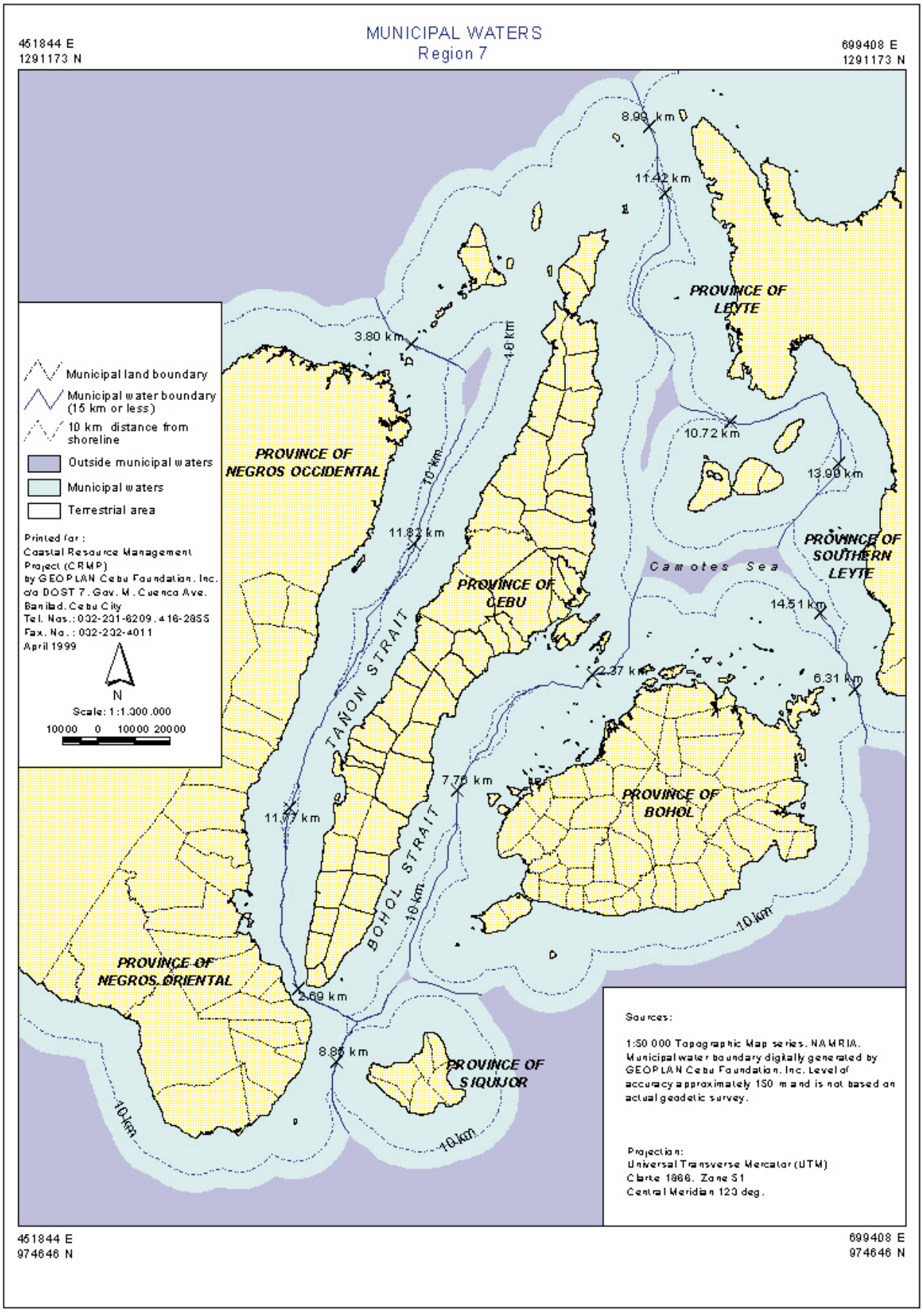


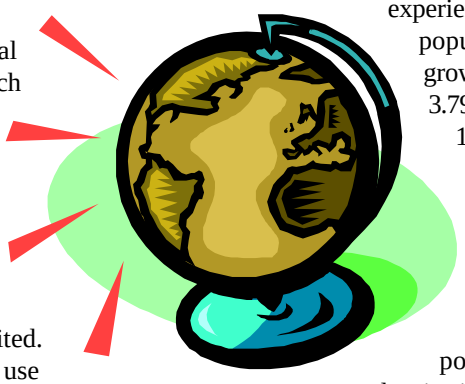
Figure 1. Map of the municipal waters of Region 7, Central Visayas, Philippines.

Unfortunately, most local government units in the Philippines do not know where their legal jurisdiction extends because maps delineating the outer boundaries of municipal waters have never been made. In addition, the delineation process becomes complicated when two municipalities are so located on opposite islands that there is less than 30 km of marine waters between them. Under these conditions, municipal water boundaries are delineated along a line equidistant between two or more municipalities. Maps showing municipal water boundaries are a critical first step to aid local governments manage coastal resources for sustainable use.

Geographic Tools for Local Government

Geographic Information Systems (GIS) and Global Positioning Systems (GPS) are cost-effective tools that can be used to help local government and coastal communities delineate and manage their municipal waters. GIS coupled with GPS can be used to delineate and map:

- Municipal water boundaries to define legal and jurisdictional mandates for local government which may serve as a basis for revenue generation.
- Municipal waters where commercial fishing is prohibited.
- Municipal water use zones for sea ranching and other economic uses in order to manage these activities within sustainable limits.
- Marine sanctuary boundaries which are used to protect coastal habitats and allow regeneration of fish stocks.
- Community-based mangrove management agreement boundaries which are used to promote sustainable use of mangroves.
- National protected areas, marine parks and seascapes.



GIS-based Method for Delineating the Outer Limits of Municipal Waters

The Coastal Resource Management Project (CRMP) of the Philippine Department of Environment and Natural Resources and Geoplan Cebu Foundation, Inc., a non-government organization specializing in GIS and assisted by the Philippines' Department of Science and Technology and the German Government, embarked on a collaborative initiative to develop a GIS-based method to delineate the outer boundaries of municipal waters in 1998.

This pioneering undertaking was developed for the first time in the Philippines and focused on the provinces in Region 7: Cebu, Bohol, Negros Oriental and Siquijor in the Central Philippines. These four islands are experiencing rapid population growth (from 3.79 million in 1980 to 5.01 million in 1995) combined with an ever increasing population density in the coastal areas of up to 6,000 persons per km^2 (Mandaue City, Cebu Province).

The methodology chosen to define the 15 km water boundary or, where necessary, the equidistant line between neighboring islands, consisted of a combination of several steps, employing both raster and vector GIS.

First, all shorelines were digitized from official topographic maps at scales of 1:50,000 and rasterized at 20 m pixel size. The Euclidean Distance ("as the crow flies") between the shorelines of the four islands of Cebu, Negros Oriental, Bohol and Siquijor was calculated. The Euclidean Distance is the shortest distance between each pixel representing the shoreline of one island (e.g. Negros) and the nearest of a set of target features (representing the shoreline of e.g. Cebu). The resulting image shows a continuous distance surface between the two islands, represented in grey values.

In the second step, all 10 and 15 km lines were digitally extracted from the distance image through simple reclassification and vectorized. The 10 and 15 km isolines enclose all those areas which are more than 10 and 15 km away from all shorelines (baseline starts at offshore islands). The 15 km boundary defines the areas outside municipal waters.

Since the municipal waters between neighboring provinces are in most areas less than 30 km apart, it was necessary to determine, in a third step, the equidistant line between the neighboring islands. In order to find and extract the equidistant lines between Cebu, Negros Oriental, Bohol and Siquijor for those areas where the islands are less than 30 km apart, an interpolation process was applied.

Through this process, all resulting vector files (the 10 and 15 km lines, equidistant line) plus other data (shorelines, municipal boundaries etc.) were combined

together and further edited and processed for the final map composition including the municipal water boundary between two islands (Figure 1).

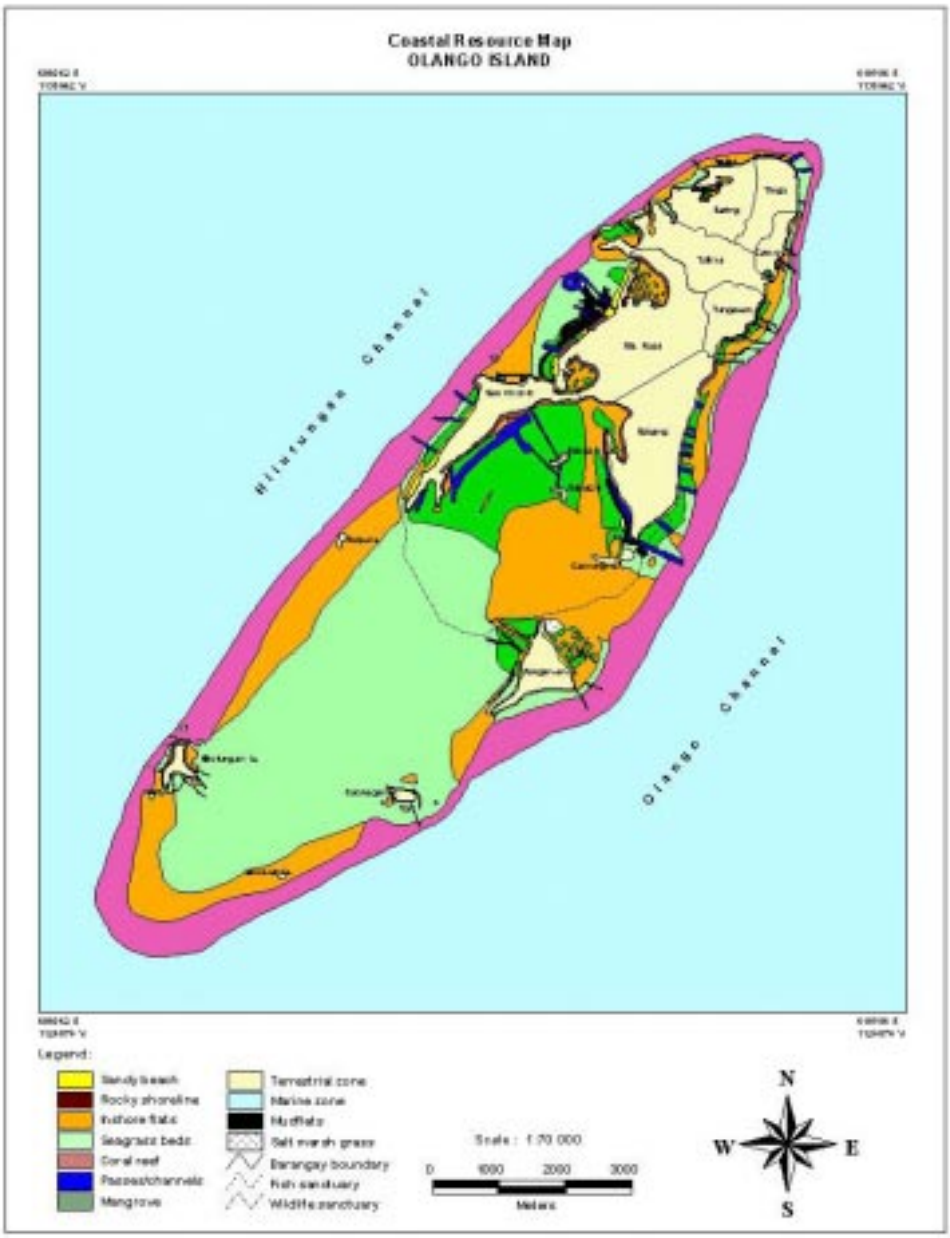


Figure 2. Map of coastal resources and protected areas at Olango Island.

Improving Local Management of Coastal Resources

Coastal resource management is the process of planning, implementing and monitoring sustainable resource use through sound decision-making and collective action. Accurate information and data presented in a format that is easily communicated to others is vital to improving the local management of coastal resources. Delineating and mapping municipal water boundaries and uses are necessary to assist planners and decision-makers in developing and implementing coastal resource management plans, local policies and ordinances. Coastal law enforcement is further aided by the use of maps and GPS to patrol municipal water boundaries and enforce multiple use zones.

Delineating the outer limits of municipal waters can help local government units answer basic questions such as: do commercial fishing zones exist?; should commercial fishing be allowed within the 10.1 to 15 km limit?; are these areas enforceable? The dark blue areas in Figure 1 indicate the open sea areas outside the municipal waters (>15 km) where properly licensed commercial fishing activities may take place. The light blue areas indicate municipal waters. The blue line indicates the municipal water boundary where neighboring islands are less than 30 km apart. The dotted 10 km line encloses the waters between 10 and 15 km from the shore where licensed small and medium-scale commercial fishing may take place with local government approval.

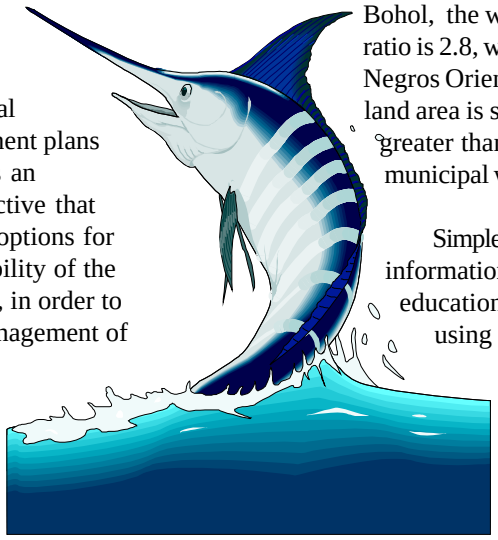
The map shows that the dividing sea channels between the islands of Cebu, Negros Oriental, Bohol and Siquijor basically do not provide significant area where commercial fishing could be allowed. Only the waters off the south east coast of Bohol (lower right corner of the map in Figure 1) and off the north east tip of Cebu (upper right corner) are outside the jurisdiction of any municipality, and hence could be used for commercial fishing.

Table 1. Comparison of municipal water and land area for coastal municipalities of three provinces in Region 7.

Province	Coastal Municipalities			Shoreline Length (km)
	Total Municipal Water Area (km^2)	Total Municipal Land Area (km^2)	Water/Land Ratio	
Siquijor	1,715	318	5.4	102
Bohol	6,427	2,329	2.8	642
Negros Oriental	3,260	4,336	0.8	369

Since the geographic coordinates of these boundaries are available in digital form, these data could be used in a next step as waypoints, which can be uploaded into GPS-based navigation systems of fishing and law enforcement vessels.

Theoretically, every municipality would not only have a municipal water boundary that shows the seaward extent of their legal jurisdiction but also perpendicular boundaries that delineate the municipal waters between municipalities. Since the land-based boundaries between municipalities is not available for many areas of the Philippines, it is difficult to determine these perpendicular water boundaries. In addition, at this mapping scale, there is a certain value to coastal resource management of not drawing the perpendicular boundaries. First, fish and other coastal resources do not abide by political boundaries. Coastal resource management plans should encompass an ecosystem perspective that provides the best options for ensuring sustainability of the resources. Second, in order to achieve sound management of coastal resources, local government units must work together to implement consistent policies and practices. Collaboration may be enhanced when political boundaries are not extended into the water.



GIS can be used to map and compute other types of information such as the location and condition of critical coastal habitats, protected areas, boundaries of marine sanctuaries and multiple use zones (Figure 2). Also, the area of municipal waters and other coastal habitats can be computed for management purposes. For instance, an examination of the land to municipal water ratio of coastal municipalities from three provinces in Region 7 (Table 1) provides an estimate of the areal magnitude of responsibility of local government in managing municipal waters. For a small island province such as Siquijor, the area covered by municipal waters is 5 times the land area of the coastal municipalities. In Bohol, the water to land ratio is 2.8, whereas, for Negros Oriental, the land area is slightly greater than the municipal water area.

Simple information and education tools using maps can be developed and distributed by local government to coastal communities and commercial fishers to explain policies and laws aimed to improve coastal management.

While local government units, being closest to the day-to-day problems, will have the unique insight and incentive to implement sound practices in coastal resource management, they also represent the last safety net. Increased capacity, technology and leadership are needed to manage the coastal resource base that supports economic development in coastal areas. Using GIS as a tool, data and information management and mapping can serve as a catalyst for coastal management initiatives. Since the presented GIS-based method of delineation of municipal waters proved to be a fast and cost-effective way to solve the problem of defining outer water boundaries in an archipelago like the Philippines, this might become a standard operation in the future as local government units throughout the country will have the information needed to implement responsible coastal resource management programs.

[We need to start this process with good maps of our municipal waters. Hopefully, the mapping agencies can assist to provide basemaps quickly! Editor]

Bakauan Hybrid, The Fourth Rhizophora Species in the Philippines?

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Bakauan (Rhizophora) is the most popular mangrove species, not only in the Philippines, but probably in the whole world because of its economic value and the ability to establish itself naturally in large areas. In the Philippines, the mangrove forest itself is called bakauan. Worldwide, there are eight species of Rhizophora, the first five ranging from East Africa to the Western Pacific and the last three from Western Africa to the Pacific coast: 1) R. mucronata (*bakauan babae*); 2) R. stylosa (*bakauan bato* or *bangkao*); 3) R. apiculata (*bakauan lalaki*); 4) R. samoensis, R. x lamarckii, a hybrid between R. apiculata and R. stylosa; 5) R. x selala; 6) R. mangle; 7) R. x harrisonii, a hybrid between R. mangle and R. racemosa; and 8) R. racemosa.

Chan Hung Tuck

Close up of "bakauan hybrid" with bulbous flower buds and red terminal bud like that of "bakauan lalaki" (Rhizophora apiculata), only the petioles are longer than the latter. There is strong possibility that this species is actually R. lamarckii, the sterile cross between "bakauan bato" (R. stylosa) and "bakauan lalaki".

Of the eight species, the first three are present in the Philippines. However, recent findings indicate the presence of a fourth. This possibility has been noted upon sighting of a tree that fits the description of R. x lamarckii Montr in Central Visayas (Yao 1987).

The presence of a mangrove hybrid in Central Visayas was first observed by the author in the village of Okiot, Dewey island, Bais City, where it is called *bakauan hybrid pula* because of its reddish terminal bud like that of R. apiculata, in contrast to R. mucronata which has a white terminal bud. The stalk is short with two to four buds. At a distance, the hybrid can be distinguished from the rest of the Rhizophora species because of its large and branchy crown that tends to stand out. The tree is 5 m in height with several leaders averaging 10 cm diameter. It has numerous flowers but no propagules. Few other trees were observed within a 100 m radius of it. Bakauan hybrid seems to be closely associated with R. stylosa, R. apiculata, Sonneratia alba, Avicennia marina and R. mucronata.

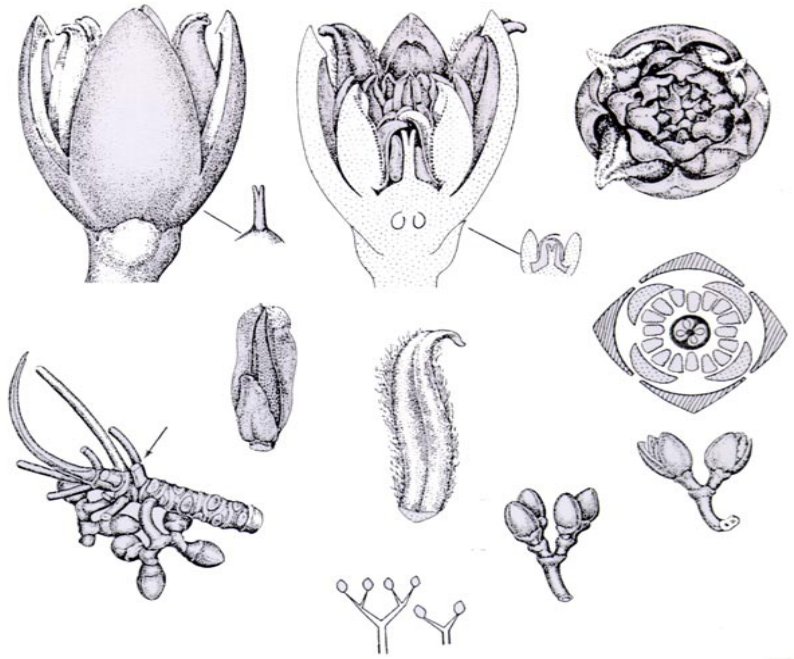

Figure 1. *Rhizophora lamarckii* floral morphology (Tomlinson 1986).

The second sighting was in Taug, Carcar, Cebu in 1985. The single tree, about 2 cm in diameter at breast height and 3 m in height, was aligned with the strip plantation of R. stylosa, protecting a fishpond dike, indicating that the tree was planted, unlike in Bais City where the tree must have grown naturally. Five years later, the same species was again sighted in Tinguib, Ayongon, Negros Oriental. The tree is also seen in Pangangan Island, Calape and Handayan Island, Getafe, both in Bohol.

Botanical Description

At first glance, ***bakauan* hybrid** appears more like R. mucronata because of its broader, dark green leaves. However, the flower buds are that of R. apiculata, only a bit bigger, creamy in color, the stalk twice longer, sometimes with more than two buds in a stalk. The style is shorter (2 mm) than that of R. stylosa but broad-based with a pinkish tip similar to R. apiculata's very short and red tip style. Other observations found common in all the sightings: 1) flowers failed to develop propagules (except in Bais City where it was reported to have produced long propagules reaching 80 cm); 2) solitary; and 3) always close to R. stylosa with the presence of R. apiculata nearby.

According to Tomlinson (1986), " the species was first described from and considered to be endemic to New Caledonia. More recently, its existence in isolated localities in Queensland, New Guinea, the Solomon Islands and the New Hebrides has been established on the basis of field observation and herbarium records. On abundant circumstantial evidence, it is recognized as a hybrid of R. apiculata and R. stylosa and always coexists with its putative parents."

Zalvoza (1936 in Ding Hou 1958) described the species thus: "flowers per inflorescence usually in fours (sometimes in twos); peduncle is rather stout and short, at about 15 mm. Furthermore, the stamens vary in number (8-15) with some often distorted, aborted or represented by a filamentous staminate. The petals have inconspicuous marginal hairs and the style 2-3 mm long. Trees are usually sterile and do not produce seedlings."

Zalvosa also mentioned R. lamarckii which must have been the species that was later identified or believed to be the sterile hybrid R. x lamarckii that is a cross between R. apiculata and R. stylosa, considering that both were cited to be endemic in New Caledonia.

Field (1996), in discussing the possible hybridization in mangroves, cited R. x lamarckii "as often sterile and have intermediate structural features of their parental species".

From the above botanical description and habitat occurrence, it is likely that the one sited in Central Visayas is of the same species. The species may also be present in other regions but has not been reported because of its close resemblance to R. mucronata. Perhaps, this publication would alert others about the potentially new Rhizophora species in the country and spark more interest among mangrove enthusiasts.

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techno-pack

Ecotour Product Development

Marino Dizon. *Inset:* Mitsuru Saito

Birdwatching, a respite for the LUBID (leadership training) participants and trainers.

Defining Ecotourism and Ecotour Product Development

Ecotourism refers to responsible travel to natural destinations to experience nature and the culture of a region while contributing to environmental conservation and to the well-being of the local people. Ecotourism covers a wide range of activities: strategic planning, product development, physical development, visitor education and management, market research, enterprise development, tourism stakeholders management and environmental impact management. Ecotourism also involves the development of different kinds of products that ensure safe, enjoyable, comfortable and well-informed travel that are then sold to tourists. Products and services include all types of transportation to and from the tourist destinations, food and drinks, accommodation, tours, tour guiding, tour books, facilities for interpretation, rest, recreation and other things.

Based on a pre-determined itinerary and time, an ecotour product is created by skillfully combining different kinds of tourism resources (tourism attractions and activities), tourism workers (e.g. guides, boatmen, cooks), tourism products (crafts, food, accommodations) and many others to enable tourists to have an active experience with the natural environment and local culture.

Ecotourism must, at least, contribute to the following to be considered true "ecotourism".

a. conservation of nature and/or culture;
b. education of tourists and local communities;
c. economic development of local communities;
d. experiences which motivate people to conserve; and
e. participatory development.

An ecotour is a good product for developing community-based enterprise ventures. Once linked to a viable market, an ecotour venture can provide a good income source for a core group of community owners, while providing supplemental incomes to more people who are providing services and supplies to the tour. As the flow of tourism grows, ancillary enterprises can be developed around new products and activities such as handicrafts, biking or kayaking, bed and breakfast, camping facilities and others.

By providing economic incentives to a wide group of local people, an ecotour venture can catalyze environmental awareness and commitment by the local people to protect the natural resources on which their livelihood depends. Moreover, the tour visits help bring national and international attention to protected areas, providing additional opportunities for leveraging policy and resource support for conservation.

In order to optimize the benefits of ecotourism for the local community and environment, one must pay attention to market information and linkages, planning, local participation and benefits, stakeholder education and natural resource management.

Ecotourism Facts and Figures

Ecotourism represents the fastest growing sector of a US$3-trillion global industry, growing at 25-30% per annum.

Natural environments and culture attract most tourists coming to the Philippines. But few operators offer true ecotour packages which meet the above criteria.

How do you determine if an ecotour venture is appropriate for your area?

- Do you have appropriate ecotourism resources to attract visitors to come to your area?
- Are you offering something unique (attraction, experience, knowledge, package, price) that is competitive in relation to other tour products in the area or those being visited by your target tourists?
- Is your area accessible to tourists, safely, reliably and regularly?
- Are there tour operators (marketers) who could sell your product directly to tourists and who could be responsible in bringing the tourists to your area?
- Are there dedicated tourism workers (people who will work in the venture) who enjoy relating with people and working hard and are willing to commit to work even in difficult times?
- Are the people in the community organized for and involved in decision making on ecotourism development in their area?
- Will the community share in the economic benefits of the ecotour venture?
- Are government bodies on local development, resource and tourism management in the area supportive of the planned venture?
- Do the community, concerned public agencies or private groups integrate the ecotour venture in a larger environmental conservation effort?
- Will there be a professional business management system to run the venture in the locality?
- Is there access to financing for starting the venture?

The Ecotour Development Process

1. Identify and assess existing and potential ecotour resources in the target area

Ecotour resources are natural, cultural or historical attractions in a given locality. These are the core resources for ecotour product development. Attractions can be places, objects, events and people's unique way of life. Natural attractions include surf and beaches, coral reefs, mangroves, rivers and waterfalls, caves, mountains and cliffs, forests and lakes. Cultural and historical attractions include churches, artifacts, festivals, rites and rituals, traditional production (such as fishing, loom weaving, woodcarving and brass making) as well as annual local competitions like *banca* (boat) and carabao races.

Marino Dizon

Other important resources that need to be identified and assessed are: food and accommodation services, stores (for souvenirs, film, rentals or sale of outdoor gear), transportation, information services, access to infrastructure (ports, communications, roads and trails), public services (police, rescue, health and medical) and local skills (cooks, guides, boatmen, entertainers, natural and cultural interpreters, etc.). If any of these resources are not available locally, identify the nearest place where they are available or what training is required.

Knowledge of available financial services and organizations assisting in ecotourism development is useful.

To start the identification process, make a list of attractions with a brief description of what is unique or special about them. Begin with attractions that are already popular with locals and visitors. Proceed to list other less popular but potential ecotour attractions.

Score the resources identified for: attractiveness, ability to draw visitors, accessibility, integrity and contribution to environmental conservation and cultural promotion. The higher the score, the greater the resource potential for ecotour product development.

2. Identify market segments

Identify and analyze existing local tour destinations and products. Destinations are places and events that attract visitors. Products are tour packages that are put together by tour operators. In places where there are no tourists yet, get information about destinations and products near the locality. What kind of visitors go there (include both

local and foreign)? Where do they come from? How many and from what month to what month do they visit (seasonality)? Who brings them (tour operator)? What activities do they engage in? How long do they stay? How much do they spend? Be specific with the data gathering. List down names and places. Primary and secondary data can be gathered from the nearest Department of Tourism (DOT) office, local tour operators, guides and local residents around the destination. Interviews with the visitors themselves are very useful.

Group the visitors according to activities that they engage in. List the visitor groups under one column and the activities under another column. This exercise should give a good picture of the nature of the existing accessible visitor markets. Remember that schools and companies are also potential markets.

Please note that unless otherwise stated, all the examples provided are from the Philippines.

Divers	Shipwrecks and coral reefs of Coron: diving and snorkelling
Surfers	Cloud nine surf in Siargao: surfing and swimming
Birdwatchers	Bird sanctuary in Olango: birdwatching
Nature enthusiasts	Tañon Strait: whale and dolphin watching
Researchers	Mangroves, sea turtle nesting places
Mountaineers	Mountains and rocky cliffs, Batangas
Collectors	Craft villages, Lake Sebu
Adventure travellers	Kayaking, camping, trekking, remote areas
Schools/students	Nature parks

Figure 1. Visitor groups and resources.

3. Match resources and market segments

Organize the list of local resources and visitor groups into a matrix. One column for resources and another one for visitor groups (Figure 1). Draw lines connecting resources that match with a market segment and vice-versa. Count the number of matches for each resource and market segment. The three highest scores in each column will be the resource and market segment that should be pursued for tour product development (Figure 2).

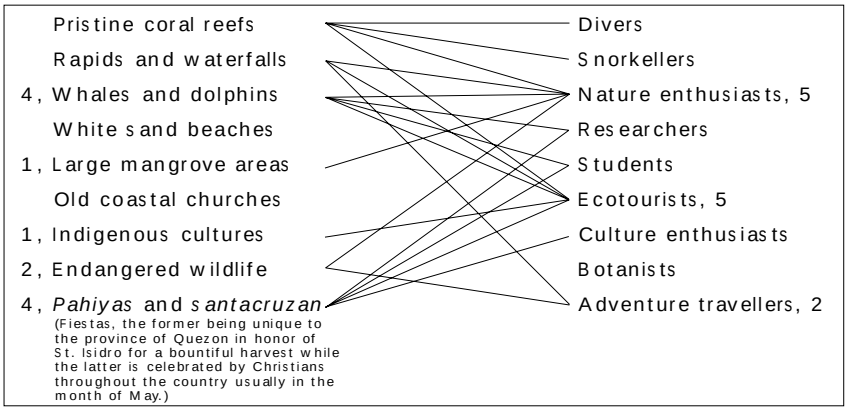


Figure 2. Matching visitor groups and attractions.

4. Develop a theme

A tour theme is a clear, concise statement that aptly describes and captures the combination of natural resources resulting from the resource-market matches. The tour theme provides guidance on how to weave the activities and itinerary that will be developed from the identified resources and target market segment. Try to differentiate the theme from existing tour products.

Examples:

Mount Isarog is but a glimpse into the vanishing biological diversity of ancient Philippines.

Six hundred years in the making, the eruption of Mt. Pinatubo demonstrated the raw power simmering inside the earth.

If a tour has a variety of attractions, it can have different sub-themes that are unique to each attraction.

Examples:

Migratory birds from Japan, Russia and China are genetically programmed to stop over Olango, Cebu during their seasonal round trips to avoid cold weather.

Seahorses are monogamous and will not breed once separated from their partners (Bohol).

5. Put the tour product together

Develop a tour product that reflects the theme. A tour product is a combination of identified resources, services and activities organized around the theme in a way that will interest and satisfy the target market segment (Figure 3).

Step 1. Identify product components by answering the questions: what to see, where to go, how to go, what to do

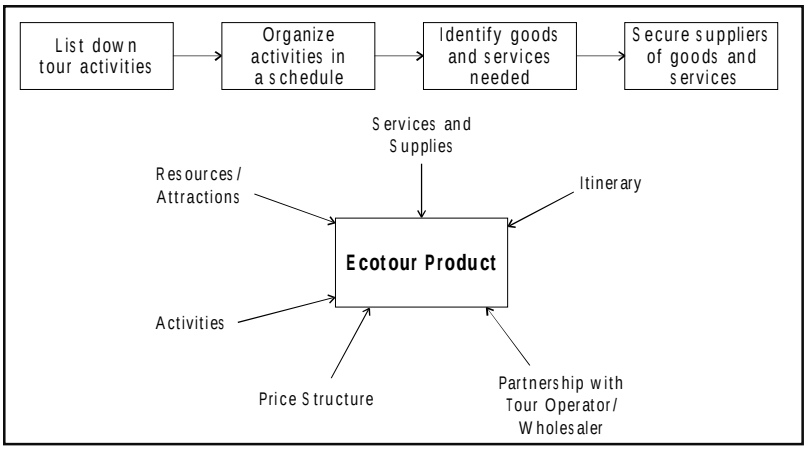


Figure 3. A tour product is more than the sum of its individual components.

(activities), what to eat, where to eat and where to stay (to rest and sleep).

Step 2. Arrange activities sequentially into a tour itinerary including stops for meals and rest. Specify the duration of the entire tour and the duration of each activity including travel time. A half-day or one-day tour product is recommended for starters. Identify the goods and services needed.

Step 3. Identify and secure suppliers for required goods and services necessary for the operation of the tour.

6. Secure suppliers of goods and services and cost the tour

The starting and ending point of the tour should be made the references for determining the kind and frequency of goods and services that the tour product would need. Generally, these are:

- ***Transfers*** from visitor pick-up point to tour starting point and back
- ***Accommodations*** such as homestay, camp, hotel and/or lodges
- ***Food*** (meals, snacks, drinks) for all
- ***Charters*** (for boats, jeeps/ trucks) for travel between attractions
- ***Guide services***
- ***Local entertainers***

List down suppliers of goods and services, get price quotations, put them together and then add 30% to estimate the selling price of the tour.

7. Test and fine-tune the product

Do several test runs of the tour and evaluate every run. Cultivate relationships with tour operators by inviting them to the test runs (commonly referred to in the industry as "fam tours" or familiarization tours). Another way of testing and promoting the new ecotour product is to mark the tour as a promotional or exploratory run and offer the product at cost. Again, make sure that the tourists give their feedback about the tour.

Depending on how quick fine-tuning can be made, test runs can graduate to full commercial runs after three to five trial runs. This usually takes a full tourist season or one year.

8. Establish marketing partnerships and promotion

Establish marketing partnerships with tour operators and guide associations. Tour products are best marketed through established tour operators and guide associations. They have links to the market and know their way around the industry. Choose tour operators that share or are sympathetic to the mission and objectives of your ecotour. At least, get operators who deal fairly in business.

A familiarization tour of the chosen tour operators is one of the best ways to establish marketing partnerships. While usually covered by the product tour developer, the costs of the "fam tour" may be shared with the guests.

Once it is agreed that the tour product is viable, get down to the details of pricing, bookings and payment systems. Tour operators add on at least a 30% margin to the tour product price to cover their marketing and administrative expenses plus profit.

For additional advice, get in touch with the nearest DOT office or ecotourism-oriented non-government organization. Box 1 offers an example of an ecotour that is operated by a community on Olango Island.

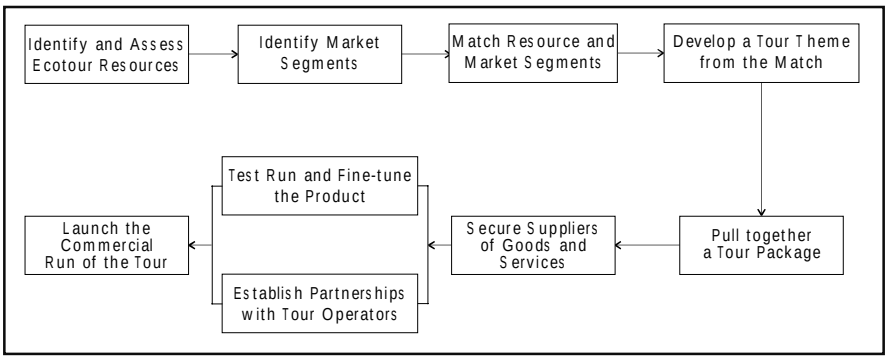


Figure 4. Ecotour product development flow chart.

Box 1. The Olango Birds and Seascape Tour

The Olango Birds and Seascape Tour is an ecotour product owned and run by the villagers of Suba, Brgy. Sabang in Olango Island, Cebu. It features a boat tour around several islets just off Mactan Island; a canoe ride through shallow waters and mangroves to see several species—some endangered—of migratory birds; and the hospitality of a quiet and friendly coastal village. There are 41 fisherfolk, women and youth that benefit from the venture who have become active community partners in the conservation of the Olango Island Wildlife Sanctuary and the surrounding seas. Leading national inbound tour companies have committed to promote and sell the product to their clients. The community ecotourism venture is assisted by the Coastal Resource Management Project and enjoys the support of the local Protected Area Management Board, the Department of Environment and Natural Resources and the Department of Tourism in Region 7.

Costing and Pricing
(Based on 10-20 tourists per trip)

Costing per trip:

Items:		**Total Cost (Pesos)**	**Cost per tourist (Pesos 1998)**
Local services		3,295	329.5
(for paddling, cooking, hospitality, entertainment)			
1 Local tour coordinator	200		20
1 Head paddler	175		17.5
1 Head cook	175		17.5
1 Hospitality coordinator	150		15
2 Paddler-guides (P150 each)	300		30
10 Paddlers (P100 each)	1,000		100
1 Assistant cook	120		12
2 Demo-cooking attendants (P100 each)	200		20
3 Food assistants (P75 each)	225		22.5
5 Guest attendants/cleaners (P75 each)	375		37.5
5 Entertainers (P75 each)	375		37.5
Naturalist interpreters (P400 x 2 persons)		800	80
Sanctuary entrance fee (P8 x 10 tourists)		80	8
Environmental fund contribution (P50 x 10 tourists)		500	50
Community fund contribution (P50 x 10 tourists)		500	50
Hut rental		300	30
Water for washing		120	12
Meals and fruits (P150 x 13 tourists and guides)		1,950	195
Buko (coconut), softdrink, bottled water, ice (P50 x 13)		650	65
Ingredients for demo-cooking of native delicacy		200	20
Use of binoculars (P20 x 10 tourists)		200	20
Tour brochure and other literature (P50 x 10 tourists)		500	50
Welcome necklace (P10 x 10 tourists)		100	10
Boat rental		1,200	120
Miscellaneous transportation		800	80
Communication		200	20
Total		**11,395** (US$ 285)	**1,139.5** (US$ 28.5)
Add: Profit margin		4,205 (US$ 105)	420.5 (US$ 10.5)

Exchange Rate: PhP 40 = US$ 1

By **Ma. Monina M. Flores**
Enterprise Development Specialist, CRMP

[Additional guidelines for and/or considerations in the development and implementation of ecotourism activities will be published in the next issue. Editor.]

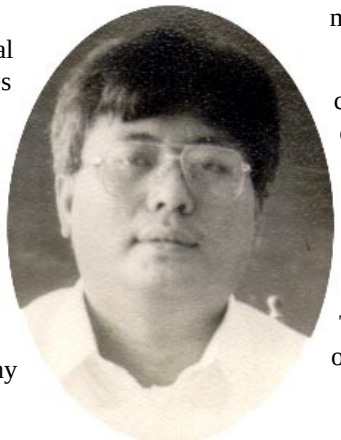
Acknowledgement

Mr. Darwin Flores of Conservation International contributed ideas.

leadership models

A Tandem Spearheads Siganid Conservation in Palompon, Leyte

When Republic Act 7160 (Local Government Code) devolved many functions of the National Agencies to the Local Government Units (LGU) in 1992, many local executives were reluctant to assume some functions because of inadequate budgets provided for additional personnel. Another reason was the inadequate technical capacity of the municipality to manage coastal management programs beset with seemingly insurmountable problems of illegal fishing and cutting of mangroves. Of late, however, a good number of LGUs have taken bold steps in addressing recurrent environmental issues. Success stories in the fight against dynamite fishing and pollution include Puerto Princesa City, Palawan under the leadership of Hon. Edward Hagedorn. This story has served as a role model for many LGUs.



Mayor Ramon C. Oñate

The positive change in attitude toward the big challenges that face them can largely be attributed to the continuing government advocacy on effective local governance. Orientation seminars and cross-visits for local officials are continuously being undertaken to prepare them as managers of their resources. The ***Galing Pook Award***, a much coveted prize for local government innovation awarded by the Local Government Academy, and the Clean and Green program, have also motivated LGUs to excel in their chosen projects. Another boost is the implementation of several foreign-assisted projects that focus on strengthening local government units.

Palompon, Leyte, under the leadership of Mayor Ramon C. Oñate and Vice-Mayor Eulogio S. Tupa, is one of those that have boldly institutionalized environmental reforms. Their government launched the Environmental Amelioration for Sustainable Development Program (EASDP). It was developed in 1995 after a multi-sectoral consultation was held to address illegal fishing; a festering problem that had progressively reduced fish catch among small fisherfolk. The program includes: a) enjoining local participation in law enforcement (*Bantay Dagat*, deputized fish wardens); b) mangrove rehabilitation; and c) a Rabbitfish or Siganid (*danggit*) ban during its spawning season and from the fourth to sixth days before the new moon of February to April.

The Siganid ban was originally conceptualized by Vice-Mayor Tupa. It was one of several legislative measures passed by the LGU to regulate over-fishing of *danggit*, a major species in the area. The project was initially the most unpopular among the components of EASDP because of the large number of fisherfolk and consumers adversely affected. Today, however, it is the most popular because of its positive impact on the community: significant increase in Siganid catch, the subsequent creation of a new livelihood (processing of boneless *danggit* for value added products) and for the originality of the project.

Vice-Mayor Eulogio S. Tupa

Initially, Mayor Oñate and Vice-Mayor Tupa were worried that the Bantay Dagat component would not work due to very limited manpower and other resources. So they rallied the support of concerned environmentalists until finally, more and more people eventually joined the *danggit* watch. Residents who could not join the *danggit* patrol contributed snacks for the Bantay Dagat team. Less than a year later, some fisherfolk started to notice the increase in

danggit catch. After two years of the ban, "the catch has dramatically increased by 500%", according to Agustin Cabagte, an officer of the fishers' association.

Another interesting fact is that after the resulting increase in catch, fish vendors had to find ways of disposing stock that could not be absorbed by the local market. They started processing the extra catch into boneless *danggit*, a local delicacy favored for breakfast or as finger food. The new venture generated new income for both fisherfolk and fish vendors. At present, the municipality is trying to develop products out of waste materials from the Siganids such as the intestines and bones. The intestines can be preserved into *dayok* or *bagoong* (fish paste) which sells at P35.00/bottle. The bones are made into fertilizer.

These successes finally convinced the community of the project's viability. Many have now recommended the inclusion of other species in the ban, taking full consideration of their respective spawning seasons.

Aside from the Siganid ban, other component projects of the EASDP have equally done well: 1) the Bantay Dagat, which has been very effective in curbing illegal fishing practices such as dynamite fishing and superlight; 2) the declaration of Tabuk Island as a Bird and Fish Sanctuary which made the return of wild ducks possible, now numbering 2,000; 3) the banning of coral extraction and cutting of mangroves; and 4) mangrove rehabilitation. Together, they make an integrated program.

Palompon has thus been rewarded with a **Galing Pook Award** in 1997. Also, the success of the EASPD ensured the tandem's re-election enjoying a larger mandate as evidenced by their landslide victory in 1996.

The above is a clear manifestation of an environmental vote which has profound implications to politicians and the people and the ensuing political maturity that recognizes the fact that self-sufficiency can only be attained through sustainable management. Truly, politicians need not fear losing votes due to strict implementation of fishery and forestry laws or simply, for doing what they should be doing in the first place. The people, on the other hand, must realize that they have the power to choose who could and would serve their best interests and that sustainable use of resources is certainly in their best interest.

By ***Calixto E. Yao***
Mangrove Technical Specialist
CRMP

Acknowledgement
Photographs were provided by the Mayor and the Vice-Mayor.

the news

May is the Month of the Ocean

President Joseph Estrada signed Proclamation No. 57 on January 9, 1999 citing the month of May as the Month of the Ocean in the Philippines. The Proclamation encourages national agencies and local governments to provide full support for the observance of the annual Month of the Ocean. The Department of Environment and Natural Resources (DENR) and the Bureau of Fisheries and Aquatic Resources (BFAR)-Department of Agriculture (DA) are to lead other agencies and organizations in the observance.

The President announced the signing of the declaration during the Annual Convention of the League of Municipalities of the Philippines in November 1998. Estrada urged the members of the league, "particularly our local government units to provide all out support and encourage participation in the observance of the Month of the Ocean in the Philippines", even as he set food

security and sufficient income for every Filipino family as the ultimate goal of local governments.

May was chosen as the month for the celebration because it is within the peak fishing season in the Philippines and is a time when fishers enjoy calm seas and good harvests. Historically, May is also the month when activities gear towards the use and appreciation of ocean resources, including tourism, transport and educational and scientific undertakings.

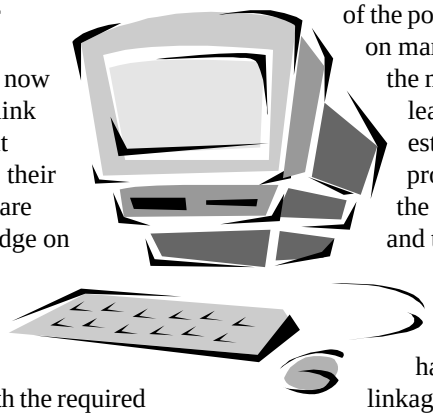
The allocation of a specific month for the pursuit of activities related to marine and coastal development and conservation follows through on the celebration of 1998 as the International Year of the Ocean (IYO). The United Nations General Assembly identified 1998 for the IYO saying the celebration would provide "a window of opportunity for governments, organizations and individuals to become aware of the ocean and to consider the actions needed to undertake common responsibility to sustain the greatest common heritage we have and without which we cannot exist."

The Philippine observance of the Month of the Ocean is one of the steps which the country has taken in support of global initiatives for the sustainable use and management of ocean and coastal resources.

By **Rosario E. Mariño-Farrarons**
Corporate and Media Relations Officer, CRMP

Coastal Management Uses the Internet

An Internet-based communication platform, Internet Collaboration Center (ICC), was developed at the University of Washington, USA in response to the growing interest of universities and coastal management projects in developing cross-cultural, international learning experiences for their students and staff. Internet technology now has the potential to link people from different countries to discuss their perspectives and share their unique knowledge on coastal issues. The ICC platform, which is accessible only to project members with the required password, allows participants to easily post documents and data files, discuss issues by topic and make links to websites. The experimental online linkage between University of Washington graduate students and Silliman University students, Haribon Foundation staff and the Coastal Resource Management Project in the Philippines began in February 1999 and will expand as participants see fit.



To date, discussions on the ICC site have focused on legal frameworks, the influence of the political context on management and the mechanisms leading to the establishment of protected areas in the United States and the Philippines. University of Washington students have used the linkage as a tool for a class project: a profile of coastal management in the Philippines. Through the ICC , they have access to people with up-to-date information, which compliments the published literature. In turn, the students have posted their review of the published literature, which they have access to through the University of Washington's extensive library system, on the ICC site. Each party is also involved in an ongoing evaluation of the process and technology in order to determine the platform's potential to foster mutually-beneficial communication. At present, access to the Internet and slow telephone lines have proven to be a significant, but not insurmountable, barrier.

The ICC is financially supported by the National Science Foundation.

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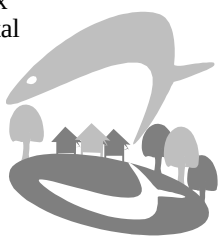
Best Municipalities in Coastal Management Awarded by National Body

The League of Municipalities of the Philippines (LMP) and the Coastal Resource Management Project (CRMP) conferred the citations for the nation's six best municipalities in coastal management on November 23, 1998.



The municipalities of Malalag, Davao del Sur; President Carlos P. Garcia, otherwise known as Pitogo, Bohol; Prieto Diaz, Sorsogon; Calabanga and Pasacao, Camarines Sur; and Tanauan, Leyte surpassed the 11 other nominees. Malalag, President Garcia and Prieto Diaz were cited in the "Externally Assisted" Category and Calabanga, Pasacao and Tanauan were awarded for excellence in the "Not Externally Assisted" Category.

Malalag, Davao del Sur was the pilot site of the coastal resource management (CRM) program of the Philippine Council for Aquatic and Marine Research and Development-Department of Science and Technology (PCAMRD-DOST). At present, Malalag is a CRMP learning area. President Garcia was assisted by the Small Islands Agricultural Support Services Programme and now boasts of six marine sanctuaries. Mariculture and other enterprise development activities are undertaken to ease pressure off the marine environment. Meanwhile, Prieto Diaz, one of Sorsogon's seven municipalities on the Pacific Ocean side, is being assisted by the Coastal Environment Program of the Department of Environment and Natural Resources (DENR).

The Search for the Best Coastal Management Programs Awards was launched during the LMP Convention in October 1997. A National Search Committee was convened to undertake a multi-stage evaluation of the nominees. The Committee comprised representatives from the following: DENR, Bureau of Fisheries and Aquatic Resources-Department of Agriculture, Department of Interior and Local Government, PCAMRD-DOST, Silliman University, Fisheries Resource Management Project, LMP and CRMP.

Selection criteria included the active partnership between the local government unit (LGU) and other sectors of the community in the management of coastal resources; sustainability, impact and holism of the management program; and the presence of intergovernment linkage and mechanisms to promote open communication among LGUs and different national agencies.

The Awards were conceptualized to recognize the achievements of LGUs in CRM, document CRM practices which may serve as examples for other LGUs to emulate, define CRM standards to be used by LGUs, encourage LGUs to undertake or find ways to improve their own CRM programs and promote the development of intermunicipal linkages in support of integrated management initiatives. The term "Best CRM Program" is taken to mean the total package of management tools, projects, approaches, techniques and values employed by each municipality in the performance of its role as steward of the coastal resources under its jurisdiction. The search recognizes the performance of the local officials in managing, overseeing or supporting coastal resource management as well as institutional performance to emphasize the sustainability and totality of the programs.

The Search is supported by government and private sector partners of the CRMP and the LMP, including Coca-Cola Bottlers Philippines, Inc., ABS-CBN Foundation's Bantay Kalikasan, the United Nations Development Program Global Environment Facility Small-Grants Programme and the "I Love the Ocean" Movement.

The Best Coastal Management Programs Awards was held during the Recognition Night of the 8th National Convention of the LMP at the Manila Midtown Hotel in Ermita, Manila.

By **Rosario E. Mariño-Farrarons**
Corporate and Media Relations Officer, CRMP

Aquaculture Communities Band Together to Launch Mangrove Friendly Aquaculture

The aquaculture communities in Southeast Asia have formally launched mangrove friendly aquaculture (MFA) through the First International Workshop on Mangrove Friendly Aquaculture, Iloilo City, Philippines, January 15-19, 1999. This was sponsored by the Aquaculture Department of the South East Asian Fisheries Development Center (SEAFDEC) with funds from Japan. The workshop aimed to: 1) assess the existing MFA practices in Southeast Asia; 2) identify issues and/or problems affecting operations; and 3) to come up with recommendations for a viable, sustainable and socially acceptable aquasilviculture.

Thirty participants from 10 countries attended: Burma, Brunei, Cambodia, Japan, Indonesia, Thailand, Malaysia, Myanmar, Vietnam and the Philippines. Three guest speakers presented papers on breakthroughs in MFA, including Dr. William Fitzgerald who presented his pioneering work in Indonesia. There were also 60 observers from various sectors including international and local non-government organizations, the academe, government offices and other coastal resource users. Some of the observers were likewise given the opportunity to present their MFA-related activities.

Highlights of the workshop include:

- Sharing of existing practices

Malaysia and Thailand seem to be more advanced in shrimp culture in spite of Indonesia's 30-year experience in aquasilviculture.

Vietnam is a recent player who is fast catching up with Thailand and Malaysia with regard to shrimp and mud crab culture. The Philippines is catching up now that SEAFDEC is working with them in several areas.

Brunei, Burma and Cambodia are only beginning to get into MFA. Hopefully, the SEAFDEC and other marine laboratories will be able to provide them the necessary assistance to fast track their MFA activities.

- Field Trip

The participants were able to see the polyculture sites of Dr. Jurgenne Primavera and Veling Trano of SEAFDEC on shrimps and mud crab and observe the monoculture of crab, shrimps and grouper within a five-year old growth of Rhizophora mucronata in Kalibo, Aklan.

The workshop confirmed interest in MFA among Asian countries that have been experiencing the same problem, diminishing mangrove stands believed to be caused by unregulated shrimp production. Ironically, governments generally encourage shrimp production. The Philippines, for example, funded fishpond development in the 1950s with a loan of US$23M and in 1980, funded shrimp production for a loan of $25M from the Asian Development Bank. Toward the end of the workshop, the participants discussed the formulation of a Code of Conduct on MFA for participating countries to ensure sustainability and profitability of the emerging wood and seafood production system.

By **Calixto E. Yao**
Mangrove Technical Specialist
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Judges and Prosecutors Urge Stronger Enforcement of Fisheries Laws

Noting the decline of the country's marine resources partly due to some obstacles that hamper the effective prosecution of illegal fishing cases, selected judges, prosecutors and law enforcement personnel gathered together in two workshops held late in 1998. The first was in a seminar-workshop entitled, "Towards the Development of a Legal Arsenal for Fisheries Management and Protection". The second, also in Cebu, focused on how to improve localized enforcement operations with deputized officers.

Participants to the first workshop called on the Department of Justice (DOJ) to implement a 1995 Memorandum of Agreement whereby the DOJ committed to designate special prosecutors to handle illegal fishing cases and to render legal assistance to civilians who are subjected to harassment suits by illegal fishers. The participants also prepared a checklist of and collated the legal forms needed for the effective prosecution of illegal fishing cases in an effort to simplify the legal process. In the participants' endorsement to the Secretary of Justice and the Philippine National Police (PNP) Chief, they requested that the checklist and forms be formally communicated to the respective field personnel. They also called on the Department of National Defense to utilize the Philippine Air Force assets in the surveillance and monitoring of illegal fishing

activities and apprehension of violators. And in a dramatic simulation of the enforcement continuum, the participants enacted its different stages starting from detection and apprehension all the way to investigation, prosecution and trial to facilitate internalization of the procedural stages.

The seminar-workshop aimed to sensitize law enforcement personnel, specially the prosecutors and judges, to the problem of illegal fishing by acquainting them with the provisions of the new Fisheries Code (Republic Act 8550) and familiarizing lay participants with the esoteric legal procedures for the purpose of legal empowerment and the development of a learning module for later dissemination to other prosecutors and judges nationwide.

The second workshop was organized by Regional Trial Court Executive Judge Priscila Agana and the PNP Regional Director P/Sr. Supt. Danilo G. Flores. It explored how Cebu, with an active *Bantay Dagat* (community volunteers deputized by the government to patrol the coasts against illegal fishing) Commission already in place, can be the pilot site for the implementation of swift legal procedures to curb the rampant criminality in coastal areas.

By **Atty. Antonio Oposa**, Consultant, CRMP and **Leo Pura**, Policy Research Assistant, Policy Component, CRMP

Coastal Management Practitioners Convene in Davao City, Philippines

Graduates, trainers and organizers of the National Course on Integrated Coastal Management (NCICM) held a "grand reunion" at the Grand Men Seng Hotel, Davao City from November 10-12, 1998 and were joined by guests from Indonesia, Malaysia, Vietnam and the ASEAN-Canada Project. The convention provided a venue for the approximately 100 participants to share the wealth of coastal management experiences in the country, formalizing networks of communication and information, assessing the impact of the NCICM as well as providing an update on integrated coastal management (ICM) materials and evolving paradigms. The convention also provided the opportunity to formulate ICM directions in the nation.

Twenty-one papers including one each from Malaysia, Indonesia and Vietnam were presented while four poster presentations were prepared by the NCICM graduates. Topics ranged from various policies relating to resource management, governance, livelihood, marine protected areas, community development and current ICM programs.

Discussions on the future directions of the Broad-based Coastal Management Training Program in the Philippines focused on coordination with local government units (LGU), institutionalization of ICM and networking. Identification of regional trainers was recommended to reduce training costs. To further facilitate the expansion of the number of ICM practitioners nationwide, it was also recommended that LGUs, other environment units, other Departments (e.g. Department of Trade, Philippine Tourism Authority, Philippine Coast Guard) be tapped for technical assistance and funds and that their field personnel assigned to ICM-related activities be trained in NCICM. Other recommendations include tie-ups with existing projects such as the Fisheries Resource Management Project and networking activities expanded to regional and international networks. A consensus on a region-based network was reached with a focal person in the region. The Organizing Committee will provide the interim support as a national coordinating body of the network.

The ICM Training Manual and Directory of ICM Practitioners/ Collaborators were distributed at the convention.

Dr. Rafael D. Guerrero III, Executive Director of the Philippine Council on Aquatic and Marine Research and Development (PCAMRD), highlighted the significance of the cause that the practitioners committed themselves to—ICM, a people to people program—managing resources through people for the people. In his keynote address, Mr. Peter Riggs, Program Officer of the Rockefeller Brothers Fund, cited the interplay between the national policy frameworks and the provision of coastal management training in the Philippines. He also acknowledged the partnership efforts among all organizations involved as well as the creativity, hard work and pioneering spirit of the Core Group as the key to the success of the project.

The Convention was organized by the Marine Resources Division of PCAMRD in collaboration with the Organizing Committee composed of representatives from the Department of Environment and Natural Resources, Bureau of Fisheries and Aquatic Resources-Department of Agriculture, Haribon Foundation, International Center for Living Aquatic Resources Management and the International Institute for Rural Reconstruction. The Rockefeller Brothers Fund provided financial assistance.

By **Dolores Ariadne D. Diamante-Fabunan,** CRM Specialist, CRMP

Bolinao, Pangasinan, Philippines Paves the Way for More Participatory Management

On January 19, 1998, the *Sangguniang Bayan* (Municipal Council) of Bolinao, Pangasinan , one of 17 municipalities bordering the Lingayen Gulf, passed a resolution approving the proposed Coastal Development Plan (CDP). The plan was formulated to ensure the proper and effective management of the municipal waters in perpetuity and provide appropriate regulatory mechanisms for the wise utilization of coastal resources. In view of this, the plan was developed in a participatory manner leaning towards integrated and community-based coastal resource management. It is hoped that the plan will bring solution to conflicting human activities and engender harmonious relationship between and among stakeholders. Initiated by peoples' organizations, the formulation of the plan was completed by the Multi-Sectoral Committee on CDP, otherwise known as CDP-TWG, composed of 21 representatives from the different stakeholders in the municipality (e.g. fishers, LGU, business and tourism, environmental advocates). The Community-based Coastal Resource Management Project (CBCRM) of the University of the Philippines Marine Science Institute, University of the Philippines College of Social Work and Community Development and the Haribon Foundation provided the technical assistance in the formulation of the plan.

From January to October 1997, the CDP-TWG conducted community and sectoral consultations in all the coastal *barangays* (villages). Issues, problems and opportunities were identified by the people. In November 1997, copies of the proposed CDP were submitted to the Municipal Government for appropriate action. The Municipal Development Council approved and endorsed the plan to the Sangguniang Bayan for final approval. The CDP is now being implemented.

Under the plan, the municipal waters of Bolinao is designated into 4 zones: (a) Zone 1 is for Ecotourism; (b) Zone 2 is for Multi-Use; (c) Zone 3 is for Fishery Management; and (d) Zone 4 is for Trade and Navigation. This prioritization of use, however, does not preclude the conduct and management of other activities as appropriate within the zones. The plan also provides for designation of Marine Protected Areas, *Bangus* (milkfish) Fry Gathering Areas, Sanctuary for *Sabalo* (mother milkfish), Mangrove Reforestation Area, Fish Pen and Fish Cage Belt and Navigational Routes. Likewise, the plan contains provisions on water quality monitoring, fish production monitoring, preferential treatment to the fishers organization in the grant of exclusive fishery privileges, aquaculture, open and close seasons, beach and coral mining, protection of mangroves and seagrasses, port and harbor construction and development and reclamation. The mechanism that will facilitate consultation and coordination in the implementation of the Plan, which is provided in the Plan, is embodied in the proposed Bolinao Coastal Development and Management Council.

The Bolinao experience in participatory coastal development planning underscores key strategies in institutionalizing sustainable collective management practices from grassroots through the hierarchy of governance (local, regional and national). The first lesson is that knowledge empowerment of community sectors through a vigorous public environmental education is a fundamental element in orienting a community towards any collective form of action. Second, direct resource users must be mobilized, oriented and empowered through knowledge and skills. Third, the active involvement of the executive and legislative branches of the municipal government and the barangays is critical in the overall institutionalization of a CRM planning process. Fourth, a development research project, such as the CBCRM Project, could play a catalytic role in empowering key community sectors to take collective action.

A comprehensive fisheries ordinance was also prepared based on the provisions of the plan and is currently being deliberated by the members of the Sangguniang Bayan.

Spurred by the Bolinao experience, other municipalities bordering the Lingayen Gulf are replicating its CDP planning process.

By **Alexis Cao Yambao,** CRM Specialist, CRMP and **Liana Talaue-McManus,** Professor, Marine Science Institute, University of the Philippines, Diliman, 1101 Quezon City

Philippine Mayors Hold Historic Conference of Coastal Municipalities

The Philippines' celebration of its first-ever "Month of the Ocean" ended on a high note with the successful staging of the historic Conference of Coastal Municipalities last May 26-28. The Conference, held at the Manila Midtown Hotel, was participated in by about 600 mayors from the country's more than 800 coastal municipalities, who drafted a resolution "calling for the enactment/ implementation of measures empowering the local government units for integrated coastal management" (see Box 1).

The Conference was attended by the country's top leaders, led by Philippine President Joseph Estrada himself, who delivered a State of the Ocean Address (SOA) on the last day of the Conference. In his SOA, the President reported that the Philippine seas, "the very lifeblood of the Filipino people, are being degraded so rapidly that we stand to irreversibly lose the resources that support food security and the economic development of our country."

The Philippines, the President noted, is a maritime nation internationally recognized as the center of the richest tropical marine biodiversity in the world, with over 400 species of corals, more than half of all the coral species worldwide. "Our seas supply us with more than 50% of our annual dietary protein," he said. "Our coastal and marine resources contribute more than P140 billion in national economic benefits each year."

"Unfortunately, we are equally distinguished as the most likely place in the world to lose this national wealth within the next 50 years, if no action is taken."

Over the last 10 years, Philippine municipal fisheries have declined dramatically to an all-time low, with fish catch decreasing to 2 kg per fisher per day today from 10 kg per fisher per day a decade ago. Fish stocks have become over-harvested beyond their ability to replenish themselves to feed an exploding Filipino population. The country's vast coral reefs – about 27,000 square kilometers – have been "blasted, poisoned, collected and bulldozed" that not even 5% can be considered in excellent condition. Its mangrove forests have shrunk from 450,000 hectares in the 1900s to less than 140,000 hectares today, primarily because of conversion to fishponds and other economic uses.

"Even as our nearshore areas are being depleted," said the President, "our Exclusive Economic Zone, which is vast and holds a huge potential for growth, is underexploited by Filipino fishers, but is regularly being poached by foreign fishing vessels."

"We have been robbing our seas and we have been stealing from the natural resource bank accounts of our children, our grandchildren and those yet unborn Filipinos," he added. "We have missed the early warning signs that should have brought us out of our complacency. We have taken the threats to our seas' sustainability for granted for so long, so much so that we now must face up to the fact that our seas and coasts are already in need of emergency attention and intensive care. We have run out of time and we are running out of options. We must act now."

Calling for measures to save what remains of the country's ocean and coastal resources, the President said, "In order for us to save our seas, we must begin today by changing our perspective of our ocean and coasts, and recognizing the real value of these national assets. We must recognize that our ocean and coasts are worth more than their fisheries. Indeed, equally if not more important than the fish that we harvest from our seas is the very environment that nurtures the rich and diverse marine life that is so important to maintaining life on our planet. We must recognize that fisheries can only last for as long as our marine and coastal environment remains intact and healthy, and its rich diversity is preserved."

The President created an inter-agency task force that would review the mayors' proposals and formulate a national coastal and marine policy framework incorporating the strategies and action program contained in the Philippine Agenda 21. The task force is expected to assist local government units in the delineation of municipal waters, in

accordance with the provisions of Republic Act No. 8550, also known as the Philippine Fisheries Code of 1998.

The Departments of Agriculture, Environment and Natural Resources and Interior and Local Government have been tasked to coordinate the preparation of "action documents" that would operationalize the task force. The task force has been directed to submit an initial report to the President by the end of June this year.

The President also directed the concerned government agencies to review the resolutions submitted by the coastal mayors and study ways of "implementing all of them." The resolutions include proposals for an increase in national funding for coastal management by legislation, the passage of the bill localizing the Philippine National Police "so as to ensure effective implementation of the country's fisheries laws"; the issuance of "the corresponding Fisheries Administrative Order (FAO) of RA 8550"; the provision of funds for the purchase of two patrol boats for each coastal municipality; and the allocation to the LGUs of a share in the revenues collected by the Philippine Ports Authority from port operations.

The Conference was also attended by key government leaders, including Supreme Court Chief Justice Hilario Davide, Executive Secretary Ronaldo Zamora, Interior and Local Government Secretary Ronaldo Puno, Environment and Natural Resources Secretary Antonio Cerilles, Agrarian Reform Secretary and Convenor of the National Anti-Poverty Commission Horacio Morales, Tourism Secretary Gemma Cruz-Araneta, Presidential Adviser on Agriculture William Dar, Presidential Assistant for Poverty Eradication Donna Gasgonia, League of Municipalities of the Philippines (LMP) National President Jinggoy Estrada, and other dignitaries.

The Conference was organized by LMP in partnership with the Coastal Resource Management Project of the Department of Environment and Natural Resources, Governance for Local Development, Department of Agriculture-Bureau of Fisheries and Aquatic Resources, Fisheries Resource Management Project, Evelio B. Javier Foundation, Inc., the Office of the President on Poverty Alleviation and the Office of the Press Secretary. It is the first conference of its kind to be held in Asia, and only the second in the world after Canada.

*A mayor's elegy to the sea: Moved by the often passionate discussions on coastal issues during the conference, Mayor **Gody Ferrer** of Hermosa, Bataan wrote "Taghoy ng Yamang-Dagat" (Sighs of the Sea), a plaintive poem mourning the loss of our coastal and marine resources. English adaptation by **Asuncion Sia**.*

Taghoy ng Yamang-Dagat

Ako ay isang bayang mayaman sa dagat
Nguni't ang buhay ko ay salat na salat
Mayroon nga akong dagat, wala namang alat
Mayroon nga akong buto, wala namang balat.

Ang buhay na sagana, sa una lang nalasap
Dahil tao ay kaunti, yamang-dagat ay laganap
Isda ay marami, dagat ay malinis
Walang dinamita, plastik, bote at langis.

Isang umaga, tayo ay gumising
Bayang masagana, nawala sa atin
Tubig na malinaw, ngayo'y malabo na
Isdang hinihintay, lumiit at nawala pa.

Ikay ay nagtanong, bakit naging gayon?
Parang hindi alam, ang laman ng tanong
Hindi ba ang tao, sa bayan ding yaon
Ang siyang pumatay, sa dagat natin ngayon.

O, ang tao, kapag nagkasala
Sisisihin ang tahong, pati ang talaba
Ang kamay ay itituro, sa mukha ng iba
Habang hindi pansin, maling gawa niya.

Sighs of the Sea

I, land embraced by the sea
My life, mired in misery
The sea, my sea, but Earth's salt no more
All bones, no skin, so ravaged, so poor.

Once, a life overflowing
No crushing crowd, the ocean so teeming
Fish aplenty, waters unsoiled
No bombs, no muck, no poison, no oil.

One day, suddenly awake
I, land once rich, now lying in wreck
Waters clear, turned dark and foul
Bounty sought, all shriveled, then gone.

What has wrought this, you ask
Blind, unseeing, forgetting the past
Don't you recall, the town turned mob
The sea, they plundered, they killed, they robbed.

Ah, man, guilty as sin
Blaming it, them, her and him
Finger pointing, his words accusing
Never realizing, his own hands' doing.

Box 1. RESOLUTION NO. 01
Series of 1999

A RESOLUTION CALLING FOR THE ENACTMENT/IMPLEMENTATION OF MEASURES EMPOWERING THE LOCAL GOVERNMENT UNITS FOR INTEGRATED COASTAL MANAGEMENT

WHEREAS, the League of Municipalities of the Philippines (LMP), a league of local government units (LGUs) created under the Local Government Code of 1991 (LGC), has served as a venue for member municipalitites to articulate, ventilate and crystallize issues affecting municipal government administration and secure through proper and legal means solutions to these issues;

WHEREAS, 832 (54%) of the 1,527 member municipalities of the LMP are classified as coastal municipalities;

WHEREAS, recent studies indicate that such coastal municipalities are among the poorest of the poor municipalities of the Philippines;

WHEREAS, there is a need to develop a general program for coastal municipalities that will address, among others, the following issues: coastal resource management for food security; poverty eradication in coastal municipalities; jurisdictional issues in municipal waters; coastal law enforcement; and financing mechanisms for managing coastal resources;

WHEREAS, the government is now confronted with the serious problem of depletion of marine resources;

WHEREAS, infrastructure and facilities for an efficient and effective implementation of coastal management are seriously lacking;

WHEREAS, coastal LGU's generally do not have sufficient funds to implement their municipal coastal management and development plans;

NOW THEREFORE BE IT RESOLVED AS IT IS HEREBY RESOLVED THAT:

1) The League of Municipalities of the Philippines through its President Mayor Jinggoy Estrada be urged to request His Excellency President Joseph Ejercito Estrada to direct the proper agency to finally establish water boundaries of coastal municipalities within the soonest possible time;
2) The Congress be urged to amend the LGC to include "municipal waters" for purposes of IRA computation so as to increase the LGUs' resources to fund programs/projects for the development/preservation of marine resources;
3) His Excellency President Joseph Ejercito Estrada be urged to certify a bill as urgent to Congress calling for the amendment of the LGC to enhance enforcement of existing fisheries laws and to create a special Task Force to be headed by the local chief executive to monitor the implementation of the same;
4) The Congress be urged to review existing laws, policies and programs on coastal resource management with the endview of according more powers to local governments and ensuring integration for national development; henceforth,
    a) Coastal LGUs be urged to establish monitoring, control and surveillance mechanisms to come up with strategies for the effective enforcement of the country's fisheries law;
    b) Coastal LGUs be urged to formulate a comprehensive and sustainable municipal coastal resource management development plan;
    c) Coastal LGUs be urged to organize their municipal/barangay coastal resource management councils;
    d) Coastal LGUs be urged to source funds from local/national funding agencies in relation to the municipal coastal resource management development action plan that may be formulated;
    e) Coastal LGUs be urged to strictly implement ordinances imposing taxes/fees involving marine products;
    f) Coastal LGUs legislative bodies be encouraged to pass more ordinances that will aim to increase coastal resource management finances.

5) Congress be urged to ensure the passage of the bill localizing the Philippine National Police so as to ensure effective implementation of the country's fisheries laws;

6) His Excellency President Joseph Ejercito Estrada be requested to direct the concerned national agency to issue the corresponding Fisheries Administrative Order (FAO) of RA 8550;

7) His Excellency President Joseph Ejercito Estrada be urged,

- to facilitate the delineation of functions of various national government agencies (DENR, DILG, DA, among others), public corporations (Laguna Lake Development Authority, Philippine Ports Authority, among others), and the local government with respect to coastal resource management;
- to direct the Department of Justice to adopt measures that would strengthen enforcement and prosecution mechanisms;
- to fill up vacant courts for speedy disposition of cases.

8) His Excellency President Joseph Ejercito Estrada be urged to provide augmentation funds for coastal resource management programs and projects and release the same directly to local governments;

9) His Excellency President Joseph Ejercito Estrada be urged to certify as urgent a bill giving to local governments a portion of the revenues raised and collected by the Philippine Ports Authority;

10) His Excellency President Joseph Ejercito Estrada appropriate the necessary funds for the purchase and maintenance of at least two patrol boats for every municipality;

11) The LMP be urged to identify the different private and government agencies that may provide grants/funding sources for coastal resource management;

12) The proper government agency be urged to promulgate the necessary rules and regulations to ensure that local government units (LGUs) are oriented with their powers and responsibilities under the LGC with respect to the collection of fees/taxes and other regulatory revenues over coastal resources;

13) Coastal LGUs be urged to source funds from local/national funding agencies in relation to the municipal coastal resource management development action plan that may be formulated;

14) The proper government agency be urged to implement an information and/or education campaign where seminars/conferences shall be conducted to:

a) equip the LGUs with skills to resort to alternative livelihood programs;
b) orient the LGUs with the different coastal resource management financing schemes;
c) enlighten participants with the need to preserve the country's coastal resources.

15) Congress be urged to enact a law creating a Department of Fisheries and Aquatic Resources.

Adopted.

May 28, 1999, City of Manila, Philippines.

Certified correct:

Mayor RAYMUNDO ROQUERO
Secretary-General
League of Municipalities of the Philippines

Approved by:

Mayor JINGGOY EJERCITO ESTRADA
National President
League of Municipalities of the Philippines

By **Asuncion Sia,** IEC Specialist, CRMP

updates

The Blue Tapestry Sails Proudly

Indeed, 1998, the International Year of the Ocean (IYO), provided a window of opportunity for ocean issues to be addressed and to increase the awareness of the general population about the value of the ocean to humankind. Among the many activities initiated by the Coastal Resource Management Project is the Blue Tapestry, a community arts project, in celebration of the IYO and the Philippine Centennial. The undertaking was inspired from the Scrap of Pride and the AIDS Memorial Quilt projects in the United States.

Asuncion Sia

The Blue Tapestry initiative aims to bring together people from many coastal municipalities all over the Philippines by providing them the opportunity to reflect on the country's maritime heritage and their own personal experiences with the seas. Participants discuss issues and concerns affecting their coastal community and respond to these problems with a statement translated in fabric art. The tapestry is both a process and a product.

The Girl Scouts of the Philippines have taken a special interest in this project although this activity is open to any interested party. A circular from the national office endorsing the Blue Tapestry as an alternative activity during Girl Scout camping has been passed. But even before the circular, many of the regional chapters have already taken on the fabric art. Some held contests on the best tapestries while others have translated the designs to table runners, throw pillows and placemats. In some cases, entire families are involved in the making of the Blue Tapestry.

Great interest in the ocean was generated during the National Encampment of the Girl Scouts of the Philippines, April 12-23, 1999 at the Upper Mau, Freeport Subic, Olongapo City. The Blue Tapestry was one of the choice activities for the 2,500 Girl Scouts. Here, all finished products from all over the country were shown by tying them together and displaying them for everyone to see.

After the national encampment, each block was returned to the creators. Yet, with the way the Blue Tapestry is being adopted by different groups and agencies, it can never really be "finished". Already, various groups are discussing future activities revolving around the tapestry. At last, the Blue Tapestry has taken a life of its own, with more people creating more blocks to express their message and commitment to the coastal environment.

By **Romina Astrid V. Lim**
Social Mobilization Specialist
CRMP

Year of the Ocean Program Awarded Anvil

"Year of the Ocean: A Philippine Response to the Call to Action for Our Seas", a year-long package of special events and public education activities was recently bestowed the Anvil Award of Merit by the Public Relations Society of the Philippines (PRSP).

Launched in February last year, the Year of the Ocean program was organized by the Coastal Environment Program-Department of Environment and Natural Resources and the Coastal Resource Management Project (CRMP) in collaboration with the UNESCO National Committee on Marine Sciences and supported by the United States Agency for International Development. The program was implemented in celebration of the International Year of the Ocean (IYO) 1998.

The Anvil Award is coveted as the annual "Oscar" of public relations (PR) in the Philippines where a multisectoral jury, currently headed by Senate

President Marcelo Fernan, selects the best PR programs and tools implemented during the previous year. Now on its 34th year, the Anvil Awards is a tradition of the PRSP that is envisioned to elevate the status and standards of the public relations profession.

Being awarded the Anvil came as a fitting conclusion to the series of high-impact activities which were held in celebration of the IYO. The successful exhibit "Our Seas, Our Life" was the centerpiece of the Year of the Ocean program. The exhibit, highlighting the importance of marine life to human existence, was well received in Cebu City, Manila, Dumaguete City, Davao City and Gen. Santos City where it was viewed by over one million people.

The other components of the program were the Save the Ocean competitions and events, the CRMP website oneocean.org, distribution of information and education materials during the exhibit and other events, mass media activities and the Blue Tapestry community arts project. The "I Love the Ocean" Movement, now fast growing as an organization with nationwide reach, is also part of the Year of the Ocean program.

Undersecretary Ramon Paje (3rd from right) of the Department of Environment and Natural Resources and Dr. Catherine Courtney of the Coastal Resource Management Project (3rd from left) receive the Anvil Award of Merit for the "Year of the Ocean" program from the Public Relations Society of the Philippines.

"I Love the Ocean" serves as the citizens' mobilization arm. With more than 10,000 members, it is now working to ensure the continuity of action towards rehabilitation and conservation of marine and coastal resources. The movement has adopted the theme song "Ang Dagat Ay Buhay", a piece composed by Vehnee Saturno and performed by young artist Cris Villonco.

CRMP Chief of Party Catherine Courtney says the Year of the Ocean is the result of "effective collaborative effort" among government and non-government organizations, the corporate sector and individuals. "We were fortunate that a lot of organizations and people pushed the celebration forward, giving support, initiating action to promote appreciation for and protection of our resources," she said.

Among the partners involved with the Year of the Ocean program were the Department of Agriculture-Bureau of Fisheries and Aquatic Resources, Philippine Information Agency, Banco Filipino Savings and Mortgage Bank, SM City Cebu and SM Prime Holdings, Gaisano Citimall-Davao and Gaisano General Santos, Islands Souvenirs, Universal Aboitiz, WG and A, the hotel,food and beverage industries and travel companies.

By **Rosario E. Mariño-Farrarons**
Corporate and Media Relations Officer, CRMP

2nd Training Course on Community Organizing and Mangrove Management Signals More Aggressive Pursuit of CBFMAs

The Mangrove Management Component of the Coastal Resource Management Project (CRMP) conducted its "Second Training Course on Community Organizing and Mangrove Management" at the Crystal Coast Resort, Panglao, Bohol from February 8-18, 1999. This is in line with the Community Based Forest Management Program (CBFMP) of the Department of Environment and Natural Resources (DENR).

The CBFMP is one of the banner programs of the DENR demonstrating the department's paradigm shift in forest management, from the traditional regulatory approach to people empowerment. Under CBFM, the community or people's organization is given the privilege and the responsibility to manage remaining forests, including mangroves. The joint implementation of CBFM by the DENR and the local government (LGU) also allows for active participation from and instills a sense of ownership within the municipality. Sustainable use is facilitated through a tenurial instrument called CBFMA or community-based forest management agreement. This is good for 25 years and renewable for the same length of time. With CBFMA, illegal cutting and other problems arising from open access will eventually be minimized as the community ensures protection of the area in exchange for the right to use it in a sustainable manner.

Aside from implementing CBFM in mangrove areas, the training course was also designed to develop Mangrove Specialists among the DENR staff, LGUs and the Bureau of Fisheries and Aquatic Resources who will promote mangrove management long after the project (CRMP) life.

To accomplish these objectives, resource persons from the DENR and CRMP covered the following topics:

- The coastal zone
- Planning for sustainable use
- Mangrove taxonomy
- Livelihood options
- Community organization
- Participatory resource assessment and profile development
- Mangrove management and re-entry planning
- Mangrove ecology
- The CBFMA application process
- Formulation of the community resource management framework

Among the highlights were:

- Practicum on species identification

Participants were exposed to field conditions and required to identify some of the common and major mangrove trees.

- Practicum on Participatory Resource Assessment and Mapping

The participants conducted interviews and assessed the status of mangrove, seagrass, coral and other coastal resources in the study site, the results of which they later reflected on a base map.

- Re-entry Planning

A re-entry plan was the final output of the workshop. The plan helps ensure a successful identification of mangrove areas for CBFM and where possible, the successful implementation of activities toward the issuance of CBFMA.

Teodoro Manit

- Founding of the Bohol-Mindanao-Leyte Coastal Association (BOMILECA)

A common desire to promote mangrove management in the Visayas and Mindanao, where large mangrove areas are still relatively intact, led the group to form BOMILECA. Interestingly, the acronym sounds like "you buy" in Tagalog (a Filipino dialect widely understood in the country) although, it may be taken to mean "buy the idea of CRM". Plans are underway for the Secretary of the DENR to induct the officers. Also, BOMILECA, being regionally based, may change its name as it gains new membership from other parts of the country owing to its mission and relevance.

The group is fully supported by CRMP in line with its mandate on effective networking and advocacy on coastal resource management.

By **Calixto E. Yao**
Mangrove Technical Specialist
CRMP

CRMP ICM Training Course Graduates from the Learning Areas

Nineteen ninety-nine is a busy year for the Training Component of the Coastal Resource Management Project (CRMP). Not only is the Training Component continuing to implement the 10-day Integrated Coastal Management Training Course (ICM-TC), it is coordinating the various field-level training courses initiated in the six Learning Areas as well as packaging new courses. Two of the new courses being packaged for country-wide dissemination are the Short Course on ICM and the PCRA Training Course.

In order to make the various training courses widely available to local coastal resource managers, the CRMP recently signed a Memorandum of Agreement with the Agricultural Training Institute for the institutionalization of training and information materials through the seven Regional Fishermen's Training Centers (RFTC) that are strategically located throughout the Philippines. As an initial step, training staff from the various RFTCs are participating in the ICM-TCs as trainees and then trainers. These trainers can then effectively implement a variety of other courses for their regional customers. The use of the RFTC facilities will enable other government agencies such as the Bureau of Fisheries and Aquatic Resources and the Department of Environment and Natural Resources to pool their training resources in the field of coastal resource management.

The schedule of ICM-TCs for 1999 is based on the regional location of the Learning Areas:

- March (RFTC7; Cebu)
- May (RFTC7; Olango Island)
- July (RFTC11; Davao Gulf)
- September (RFTC4; Palawan)

Short Courses on ICM are being implemented in Bohol, Mindanao and Cebu. Other courses will be offered on a case-by-case basis. For more information contact either Tom Bayer or William Jatulan at the CRMP Cebu office.

By **Thomas Bayer**
Training Coordinator, CRMP

CRM Planning for Bais Bay Initiated

The conduct of the Negros Oriental Coastal Resource Management (CRM) Strategic Review and Planning Workshop earlier this year highlighted the need to integrate all CRM Plans of the local government units (LGU) sharing Bais Bay as a common fishing ground. Bais Bay in Negros Oriental is bordered by the municipalities of Manjuyod and Tanjay and the city of Bais. The rich marine biodiversity and the ecotourism potentials of the bay are just a few of the many reasons that spell the need for an effective and integrated bay-wide management system.

In an effort to address this concern, the three concerned LGUs, in collaboration with the Coastal Resource Management Project (CRMP) and the Rtn. Martin "Ting" Matiao Foundation, Inc. (TMF), initiated a two-day Municipal CRM Planning Workshop in their respective areas. The planning workshop aimed to formulate draft CRM plans for the three LGUs—including a draft zonation scheme for the bay with appropriate broad policy guidelines per zone—a pre-requisite to integrated bay-wide management planning. More specifically, the activity envisioned to provide the participants a working knowledge of their coastal resources as well as a catalogue of relevant problems, issues and opportunities in their municipalities/city. The workshop process flow is shown in Figure 1.

At the end of the two-day workshop, a CRM Plan Technical Working Group (TWG) was organized to facilitate a participatory CRM planning process. The TWG is tasked to conduct community consultations and facilitate the technical writing and finalization of the CRM Plan. Participants to the workshops included local chief executives, members of the *Sangguniang Bayan* (Municipal Council), the Municipal Agriculturist, Municipal Planning and Development Coordinator, *Punong Barangay* (village head), members of the Fisheries and Aquatic Resources Management Council (FARMC) and representatives from the Department of Environment and Natural Resources, Department of Agriculture-Bureau of Fisheries and Aquatic Resources, Department of Interior and Local Government, Department of Education, Culture and Sports, Philippine National Police and the private sector. Representatives from the Provincial Agriculture Office-Fisheries Division, the Environment and Natural Resource Management Division and the Provincial Development Task Force were also present during the workshops. Main facilitators were Alexis Yambao and Astrid Lim of the CRMP.

The high level of CRM awareness of the LGUs concerned and the support of the local government officials significantly contributed to the success of the activity (Box 1). It became an avenue to foster a dialogue-oriented approach in planning that builds on consensus.

By **Rey G. Bendijo**, Rtn. Martin "Ting" Matiao Foundation, Inc.
109 San Jose Extension
Dumaguete City, Philippines

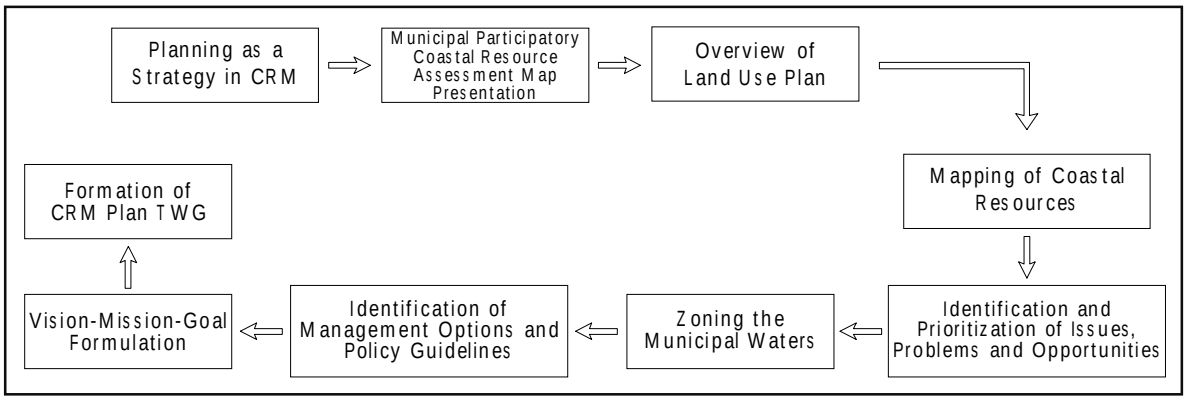

Figure 1. Workshop process flow.

Box 1. Factors contributing to the success of the municipal CRM planning workshops in Bais Bay

- High level of awareness on CRM and the Fisheries Code among coastal communities and their leaders
- Supportive local government officials
- Active participation of the local legislative bodies of concerned LGUs
- Adequate multi-sectoral representation
- Technical support from the provincial and national agencies
- Active FARMCs in the three LGUs concerned
- Technical and financial assistance from CRMP and TMF

Crown-of-Thorns Dive Nets 600

Teams of six divers took to the waters for the Crown-of-Thorns Collection Dive. Here, divers armed with their pointed sticks and collection bags start off in the waters off Hadsan Beach Resort.

An estimated 600 kilograms of Crown-of-Thorns Seastar (*Acanthaster planci*) were harvested from coral reefs along Mactan, Cebu during a Collection Dive last February 27, 1999.

One hundred and sixty people, 147 of them certified divers, participated in the social mobilization effort. The event was organized by the Coastal Resource Management Project with the support of government agencies, local government units, the private sector and volunteer groups led by the "I Love the Ocean" Movement.

The operation took off on the beachfront of Hadsan Beach Resort where it buzzed with activity as volunteers manned the registration desks and participants grouped into dive teams. A total of 14 teams were formed.

Each team was managed by a leader and took special instructions on spotting and handling of the seastar, safety and rescue from diving instructor Rudy Balbuena. A running video on-site, aside from giving tips on drawing the seastars out of the water, warned of the organism's poisonous spikes and explained how the decrease in natural predators caused by various human activities led to the population explosion of the Crown-of-Thorns.

> ***"A running video on-site, ... explained how the decrease in natural predators caused by various human activities led to the population explosion of the Crown-of-Thorns."***

The hotel, resorts and aquasports industries were heavily involved in the Crown-of-Thorns Collection Dive. Their support came in the form of packed lunches, snacks, beverages and manpower. The dive shops and diving instructors also lent their resources to the activity, providing pumpboats, rubberboats, catamarans, air fills and other equipment for the participants.

The following organizations went all out to contribute to the Crown-of-Thorns Collection Dive: Department of Environment and Natural Resources, Department of Tourism, Bureau of Fisheries and Aquatic Resources-Department of Agriculture, Philippine Tourism Authority- Philippine Commission on Sports Scuba Diving, Philippine Navy, Philippine Coast Guard and the Philippine Coast Guard Auxiliary. Also providing assistance to the activity were the City Government of Lapulapu, the *Barangay* (village) Councils of Agus, Maribago and Marigondon, the Philippine National Red Cross- Cebu Chapter, Emergency Rescue Unit Foundation, Philippine Fast Ferry Corporation, Costabella Tropical Beach Hotel, Cebu Beach Club, Shangri-la's Mactan Island Resort, Tambuli Beach Club and Villa, Maribago Bluewater Beach Resort, Coral Reef Hotel, Cebu Marine Beach Resort, Plantation Bay Resort Hotel, Triple S Dive Shop, Boy La Dive Center, Buyong Divers, Scuba World, Club Kon Tiki, Philippine Seaquest, Scuba Star Dive Services, Seawalker, Crispina Aquatics, Blue Coral, Aquamania Coral Point Divehause, Cebu-Mactan Members Club, Nanami Dive Center, Sazanami Dive Center, Liquid Assets and Tropical Island Adventures.

By **Rosario E. Mariño-Farrarons**
Corporate and Media Relations Officer, CRMP

Alan White

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The Coastal Resource Management Project invites you to send in burning questions that you may have on any CRM-related issue. Please contact us at the CRMP, 5/F CIFC Towers, J. Luna cor. Humabon Sts., North Reclamation Area, Cebu City, Philippines Tel. 1-800-1-888-1823 Fax (032) 232-1825 E-mail: prccebu@usc.edu.ph

Questions and Answers about Fishpond Development

Recently, in some provinces, there has been a large increase in the development of illegal fish and shrimp ponds resulting in the loss of important mangrove forests. Oftentimes, the local community affected are discouraged and feel that they have no control over these developments. They believe that because the projects are already underway, they can not be stopped because the developer already "bought" the area in question or because the area was formerly a fishpond and for many other similar reasons.

Hopefully, this question and answer format will provide information that can be used to counteract illegal developments and protect the people's mangrove resources. It is quite valuable to know where and when it is appropriate to build fishponds and what the regulatory requirements are for their construction. It is also important to remember that for a fishpond to be legally built, the developer must have a Fishpond Lease Agreement (FLA), an Environmental Clearance Certificate (ECC), and if they are cutting mangroves, a permit from the Department of Environment and Natural Resources (DENR).

The questions below are frequently asked. They are organized in three sections. The first section talks about problems in developing fishponds (fishponds here are defined as a land-based facility enclosed with earthen or stone material to impound water for growing fish, shrimp or other marine products). The focus is on problems that arise when people try to develop or re-develop fishponds in areas where there are already FLAs. The second problem talks about trying to develop fishponds in what are called "private areas". Private areas here refers to lands that people consider to be their own either because they have paid taxes and acquired a tax declaration regarding the land or have used the area for their own livelihood activities; perhaps cutting wood or gathering *nipa* using nipa (Nypa fruticans)/ *bakauan* (Rhizophora) permits, or even fishing for so long that they naturally feel the area belongs to them. The third section discusses the illegality of buying foreclosed FLAs or fishponds.

Questions on Fishpond Development

Q I have an FLA for 25 hectares which I got in 1979. I developed 10 hectares but then the money ran out and I was only able to cut down the mangrove trees in the remaining 15 hectares. The mangroves have all grown back but I would like to build the rest of my pond. Can I do that?

A No. First, the terms of the FLA state that all improvements to fishponds and shrimp ponds must be made within the first five years of development. Areas that were not developed within that period are not covered by the terms of the FLA therefore, are no longer under the FLA. (Developed means that the pond has been improved with dikes, a level bottom and any other necessary features to the point where it is able to support the routine production of fish, shrimp or other animals.) The "real area" of your FLA is limited to that which you developed in the first five years. Second, it has to do with the presence of mangrove trees. DENR issued Memorandum Circular No. 5 in 1990 that require an FLA holder to apply for and be granted a permit for the removal of any mangrove trees on land that has to be converted to fishponds. DENR will only issue such a permit in cases where an area has been determined to cover less than 10 percent of the total area. Since your remaining area is covered with trees, it would not qualify for a permit and it would therefore be illegal for you to cut down or harm the trees in any other manner.

Q My friend put a dike around the mangroves in the area that he wanted to develop. Can I do that?

A No. Neither you nor your friend may put up a dike to kill mangroves prior to developing a fishpond. You may not perform any work whatsoever in terms of developing a fishpond prior to the issuance of the appropriate clearances from the Bureau of Fisheries and Aquatic Resources (BFAR) and DENR. You may only develop fishponds in areas that have been set aside for such development. Should DENR find that your friend constructed a dike in order to remove mangroves from the area, they will bring a case against him for destroying mangroves and also for beginning a project without the appropriate Environmental Clearance Certificate. BFAR, too, could bring a case since the area is being developed illegally without the FLA documentation.

Q Is it alright to flood a pond and keep it flooded until the mangroves die and then clear the pond?

A No. Flooding ponds in ways that kill mangroves is illegal and amounts to the same thing as cutting the trees down. Anyone who does this is liable for prosecution. The community is completely legally right to file complaints against any such practices.

Q Is it okay to girdle mangrove trees in order to remove them?

A No, girdling trees (cutting the bark completely around the tree) is the same as cutting because it results in the tree's death. Therefore, the same legal penalties apply to girdling. The community is completely legally right to file complaints about any such practices.

Q Is it legal for a claimant to develop a "family fishpond" without an FLA?

A No, current law makes it completely illegal to develop any fishpond that does not have an FLA, and claimants who construct fishponds without FLA's are subject to legal action. The community has the legal right to file complaints about any such practices.

Q Does the fact that dikes already exist make it legal to reactivate and clear a fishpond?

A No. Unless a fishpond has an FLA and the operator has permission from BFAR and DENR to build new dikes, it is completely illegal to rebuild the dikes and/or clear the pond by cutting or in any way killing the mangroves that are there (no matter if they were there originally or have regrown). The only way to obtain an FLA is to apply for one from BFAR. It is illegal to purchase an FLA from any third party.

Q Doesn't the fact that BFAR and DENR have not previously prosecuted illegal development of family fishponds show that it is alright to build them?

A No. Family fishponds and all other fishponds are illegal and DENR and BFAR will prosecute fishpond developers. The community has the legal right to file complaints about any such practices.

Q I recently applied for an FLA in an area where there were no mangrove trees. DENR and BFAR performed a joint survey and DENR issued me a cutting permit for the 10- hectare area. What else do I have to do before I can begin the actual development work?

A Before commencing actual development, you must apply for and be granted an ECC. Contact DENR about the requirements for obtaining these documents.

Questions on Fishpond Development in "Private Areas"

Q I bought two separate areas from a man who said he had been paying taxes on them and that they would make good fishponds. Both areas are shown to be in forest zones. One area has no mangroves on it and has been diked for fishponds and the other area is completely covered with trees. Neither area is zoned for fishpond development. Is it legal to build fishponds there?

A No, it is not legal to build a fishpond in any area (other than those that are alienable and disposable) that is not zoned for fishpond operations.

In addition, it was not legal for the person to sell you those areas. Some people feel that if they pay municipal taxes on land or if they extract resources from a particular piece of land, they already own the area. Unfortunately, since these lands have been zoned as forest land, the person who sold it to you had no right to do so; regardless of whether he had paid taxes on the areas or not. Should somebody try this on you again, ask the seller to produce the land title for the area they are selling first. Only then should you consider the purchase.

Q A man sold me land that has been zoned for fishpond development. He had a tax declaration on it. Does that mean that I am allowed to develop my fishpond?

A No person can sell land that is zoned for fishpond development. Land that is zoned for fishpond development is not alienable and disposable and therefore can not be owned or sold, regardless of whether the seller has paid taxes on the land or not. In order to develop an area for any kind of aquaculture pond you must first apply for an FLA from BFAR. You then must apply for an ECC and if there are mangroves present on the land, you must apply to the local DENR-CENRO (Community Environment and Natural Resources Office) for a permit to cut the mangroves prior to doing so. Please note that it is not legal to cause the mangroves to die prior to applying for the permits in order to make the land appear barren.

Questions About Development of Fishponds at Foreclosed or Abandoned Ponds

Q I recently bought an FLA for an area that has not operated as a fishpond for more than 10 years. Does the purchase of the FLA allow me to convert the mangrove forest back into a fishpond?

A No. It is not legal to sell FLAs. If a fishpond, or a portion of a fishpond, ceases operation for five years, it must be reverted to DENR and returned to forest status. That effectively takes it out of FLA status.

Q But I bought the FLA from the regional office of the Development Bank of the Philippines (DBP)! Surely that is legal?

A Unfortunately, it is not. Some regional offices of DBP have been "selling" FLAs that they obtain from foreclosed loans. Unfortunately for you, what should happen is that these FLA should be turned over to DENR for reversion to forest status.

By **Joe Atchue**, Former Consultant, CRMP

With or Without Giant Clams: Is This a Choice We Face for the Future?

Giant clams, of the Family Tridacnidae and locally known either as *taklobo* or *tilang*, command high commercial prices for its meat and shell. The meat is sold as food although it is also used as a traditional medicine due to its supposed rejuvenating powers. The shell, on the other hand, is used as an ornamental. Today however, giant clams have been over collected so much so that some species are thought to be locally extinct already. The ones usually seen during market days or *tabo* are small and undersized. In the effort to conserve this resource, gathering giant clams has been prohibited. Unfortunately, this prohibition is hardly known.

There are seven species in the Philippines:

1. Tridacna crocea (crocus or boring giant clam; *letlet, lotlot, manlot, dagatan*)
2. T. derasa (smooth giant clam; *taklobo, tilang dako*)
3. T. gigas (true giant clam; *taklobo, tilang dako, dagatan, buka*)
4. T. maxima (elongated or rugose giant clam; *manlet, saliot*)
5. T. squamosa (fluted or scaly giant clam; *hagdan-hagdan, manlot*)
6. Hippopus hippopus (strawberry giant clam, bear paw; *kukong kabayo, buntogon*)
7. H. porcellanus (china or porcelain giant clam; *porcelana*)

All the seven species are included in the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES) Appendix II. CITES is an international treaty drawn up to protect wildlife against overexploitation and to prevent international trade from threatening species with extinction. The Philippines is a signatory to this treaty. Besides the most endangered, Appendix II covers species that are nevertheless at serious risk unless their trade is subject to strict regulation as well as species whose trade must also be regulated so that the former can be effectively controlled. Republic Act No. 8550, "The Philippine Fisheries Code of 1998", Section 97, prohibits the taking of rare, threatened or endangered species listed in the CITES and as determined by the Department of Agriculture. The penalty for violating

the law is 12 to 20 years of imprisonment, P120,000 fine, forfeiture of the specimens and cancellation of the fishing permit.

The regulation for the culture of giant clams is governed by Fisheries Administrative Order No. 168, series of 1990, which has been devolved to municipal and city governments. Only Filipinos, registered partnerships, associations and corporations where 60% of the capital is owned by Filipinos, and registered cooperatives with license can culture giant clams. The maximum area allotted for giant clam culture is one hectare for individuals and five hectares for partnerships, associations, corporations and cooperatives. Culture areas should at least be 500 meters from each other. They should not obstruct navigational lanes or be established in areas where there is conflict on water rights. The permit to culture carries a term of five years and is renewable if there are no violations of the terms of the permit which includes compliance with existing laws, licensee's accountability for the acts of his/her employees, keeping of records, submission of reports, veracity of the records and reports, actual operation and use of the area among other things. A gratuitous permit for research, educational and scientific purposes may be granted.

Silliman University Marine laboratory, University of the Philippines Marine Science Institute and some Bureau of Fisheries and Aquatic Resources' Research Outreach Stations (e.g. Guiuan,. Eastern Samar) grow giant clams to restock coral reefs.

Giant clams are found only in tropical Pacific coral reefs. They are bivalves, molluscs with two shells or valves, hinged along one edge and held together by two strong muscles. Because of their photosynthetic requirement, giant clams are seldom found beyond 40 feet. Some species can grow more than one meter.

Giant clams are filter feeders, straining plankton from the surrounding waters. Additional nutrition is provided by the zooxanthellae, similar to those found in stony corals. Living in the clam's fleshy mantle, the zooxanthellae give the mantle a green or blue color. Giant clams sometimes produce pearl-like growths that lack the luster of oyster pearls. The ingestion of toxic microorganisms occasionally make giant clams poisonous. Giant clams are hermaphrodites that spawn every full moon. In their larval stage, they are preyed upon by plankton-eating fish and filter-feeding invertebrates. In their juvenile stage, predators include crabs, lobsters, triggerfish, wrassess, pufferfish, rays, octopusses and snails. Perhaps, the only predator in their adult stage is man, notorious for his uncontrolled harvesting and destruction of the giant clams' habitat.

By **Ruperto Sievert,** Former Technical Assistant, CRMP

information section

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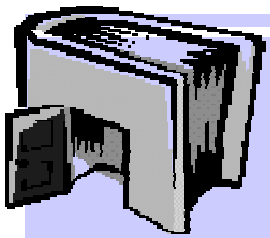

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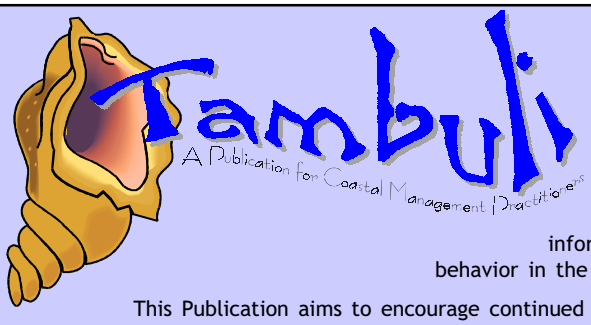

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