

# Sumilon Island: Philippine Marine Park Pilot Site Enjoys Early Success<sup>1</sup>

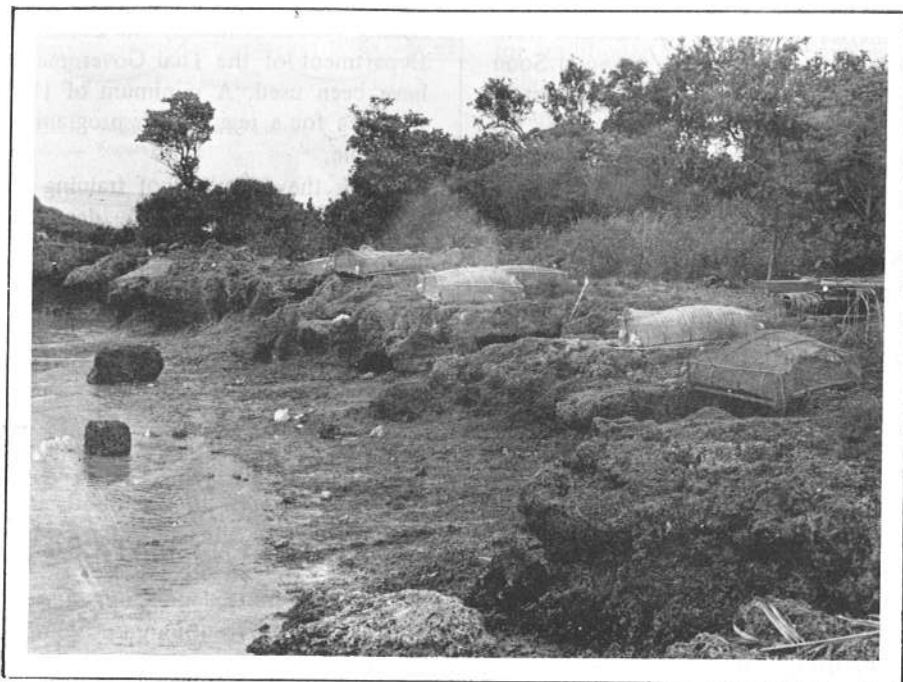
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**S**INCE 1974, Sumilon, a 23-ha island near the southeastern tip of Cebu, Philippines, has been managed by Silliman University as a natural reserve in cooperation with the municipality of Oslob, Cebu. The use of the island as a marine park pilot site has been made possible through the Marine Parks Development Program within the Ministry of Natural Resources.

A strictly protected area fronting the 500-m shoreline on the western side was designated a marine-life sanctuary where no fishing or collecting activities would be allowed (the "core" area), while fishing by ecologically sound methods was to be allowed in the remaining waters surrounding the island ("buffer" zone). Since 1974, the university has built two rest houses and one field station, and maintains a caretaker who monitors all fishing and/or other activities and patrols the

<sup>1</sup>An abstract of Chapter VII, Sumilon: Marine Park Pilot Site, A Case Study; in Marine Park Management in the Philippines, compiled in conjunction with The Natural Resources Management Center under the Philippine Ministry of Natural Resources, and the Environmental Center, Silliman University, Dumaguete, Negros Occidental, Philippines.

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western side to enforce the regulations pertaining to the reserved area.

At present the island is used by four families living at subsistence level on simple agriculture and fish and marine invertebrates. Faculty members and students from the university also use the island for research projects, and divers, both local and foreign, enjoy the spectacular coral gardens. The reef is also frequented by about 80 fishermen, most of whom come from Cebu in unmotorized bancas.

## Sumilon Reef

The total reef area of Sumilon to 10 m depth is 328,000 m<sup>2</sup> and to 40 m depth approaches 491,000 m<sup>2</sup>. Most of the reef is shallow with the outward edge being only 2 to 3 m deep in places. No corals are found deeper than 50 m.

The diversity of coral is great, including an estimated 40 to 50 genera of hard corals and a slightly smaller number of soft corals. Fish density is particularly high on the edge of the fringing reef along the western side where large schools of pelagic fish are often encountered.

## Management of Sumilon

Since the agreement with the town of Oslob, Cebu, Sumilon has been called a marine sanctuary or marine reserve. Although it cannot qualify for status as a national marine park according to criteria outlined by the International Union for the Conservation of Nature (IUCN), it should be called

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Sumilon Marine Park. This will help establish its credibility with the public and influence its management, contributing to its evolution into a real marine park with emphasis on its value as a site for environmental education, scientific studies, and recreation.

The original funding for the reserve came from the Asia Foundation to augment the fishery potential of the reef. The university has also been a contributor and has been more than compensated by benefits derived from use of the island. As goals for development evolve, so will the type of funding sources. More conservation-oriented groups may soon be interested in an involvement. Research scientists using the island or reef for collections or monitoring stations should be required to share in overhead cost of maintaining the park; thus, funding proposals should include this item in their budgets. A fee is presently charged for entrance to the park, and at the same time it is made clear to visitors why their donation is needed.

The question of jurisdiction over Sumilon Marine Park is touchy and will have to be considered in light of the park's long-range goals. Apparently the local people do not want the national government to enter into an agreement to manage the park, either because they fear the national government in general or because the land owners do not have official title to their land and thus fear losing control. The Silliman University Environmental Center, the decision making body for Sumilon, may gain considerably from monetary support by the national and international contacts from the increased credibility of the park management. It appears that the university is in the middle and must arbitrate between both sides. In fact it may be best not to inform the local municipality about national participation.

Certainly the most crucial role of the university in jurisdictional matters is to maintain good rapport with the local fishermen who depend on the reef. Legally the university can change agreements with the town of Oslob, Cebu, to bring about better ecosystem management, but unfortunately this will be impossible if the fishermen offer

much resistance. It is thus imperative that they understand reasons behind any changes made. The original agreement was approved after some opposition by the fishermen, but it was explained to them that by eliminating all fishing activities in the core area of the reserve, the fishes would reproduce faster and help rebuild depleted populations, thus increasing catches in the nonrestricted areas. Time has shown that this contention was true, and presently fishermen are less resistant to the program than they were 4 yr ago (Cadelina 1976). To tighten up management procedures further, extension work in the communities is needed for continued success. All people involved must be reached in such a way that they feel a sense of participation and identification in the protection process, and as if they are enhancing their environment for themselves and others.

#### Environmental Impact

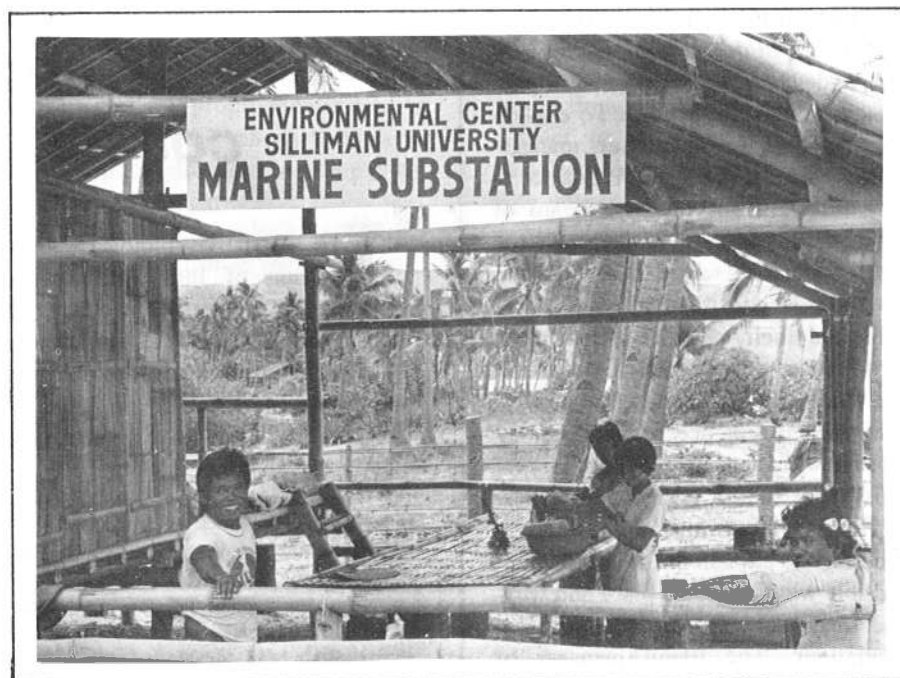
The impact of recreational visitors and students to Sumilon has rarely been negative. The most important consideration is whether scuba divers and snorkelers adequately respect the core reef area when in the water. Novice snorkelers often stand on the bottom or more conveniently on coral heads. Fragile coral is easily broken by this

action, while clumsy scuba divers will inadvertently bang coral with their fins or tank. People will occasionally collect small shells and dislodge other animals, possibly killing them.

Impact on the marine portion of Sumilon is primarily a result of the fishermen who frequent the reef for their livelihood. The core area is strictly protected, so the buffer zone is exploited. Evidence of dynamite fishing is still noticeable but at least it is no longer practiced. Poison is apparently no longer used either; thus, the fishing methods are ecologically sound except for those of an occasional stray fisherman from a distant town who is not aware of the rules. A recent attempt at "kayakas"\* was deterred by Silliman research workers in front of the core area. This is unusual, but regular measures need to be taken to prevent its occurrence, even if infrequent. As long as controlled traditional fishing is considered to be consistent with the park's

\*Kayakas is done in water 1-4 m with a stationary net and scare line made of coconut palm leaves (kayakas). As the scare line is drawn closer to the net, a swimmer begins breaking corals with large poles and rocks to herd fish into the net. Kayakas can devastate about 1 ha of shallow reef flat per day (Carpenter, unpublished).

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aims, only infringements of these rights need to be watched for. A critical task now is to draw up guidelines needed to regulate exploitation of reef invertebrates, but baseline data on the reef must be gathered first.

### Environmental Education and Interpretation

Environmental education programs for the people frequenting Sumilon are planned for three interest groups: island residents and people dependent on the island for their subsistence, foreign visitors who have much formal education but who may be unfamiliar with the reef environment, and nonresident visiting Filipinos from Dumaguete or other parts of the Philippines. The backgrounds of people in the latter group vary but they will tend to have little formal exposure to marine or terrestrial biology and in most cases the ocean-island environment will be new to them.

Local residents and nearby fishermen who frequent the reef are important candidates for an education program, for they affect the environmental quality of the park, have been willing to accommodate its existence, and still depend on its continuation for their livelihood. It is in their interest to participate in its maintenance. Often they have great practical knowledge of the environment including, for example, fish behavior, patterns of movement, or ocean currents, but may not understand the ecological impact of their exploitive actions. To explain the concept of fish biomass management over time is a difficult but necessary task. One of the best means of teaching this is by example, e.g., the case of Sumilon, where maintaining an unexploited core area has ultimately enhanced their catch. The fishermen can readily understand this example and the benefits accruing to certain management practices. Unfortunately most new management policies of reef ecosystems cannot always be exemplified in such an obvious way. Thus, it is necessary to explain in the best manner possible what will take place and why, and then start enforcing the required regulations. The island manager or

caretaker may be a personal friend of the local people and be effective in teaching them about their environment, as on Sumilon where the caretaker does have the confidence of most of the local fishermen.

The island caretaker must be kept up to date on new policies by the Park Decision Board so that he appreciates the scientific rationale for policies and the interests of the people to whom he is conveying the information. He may occasionally take park management courses to upgrade his level of expertise.

Other means by which he and university staff can help educate people about their environment is through ongoing education campaigns in their home towns on the Cebu coast via slide shows, lectures, printed and extension materials geared to their level of understanding. A continuing extension program is recommended. On the island itself, tasteful educational signs can help direct activities, while too many poorly done signs will be ineffective and unsightly. Enforcement of all regulations must be consistent for everyone. This is primarily for the benefit of local residents and fishermen who always watch the actions of other visitors or researchers. Any collection by a researcher in the core area may be easily misinterpreted by the fishermen who will then be tempted to break the rules himself.

### Conclusion

Sumilon Marine Park is the first protected area of its kind in the Philippines. It is just beginning and yet it is already proving successful as a model for realistic marine resource management and protection. We can learn from this example, both from its past success and more importantly from what must be accomplished in the coming few years to make it a "marine park" by the IUCN definition.

The implications for the Philippines are tremendous if we can follow up with continuing support programs that are well defined and directed towards a comprehensive system of marine parks. Instituting marine parks is only a bare beginning in restoring to health the marine ecosystems which have been altered by man over essentially the last 100 yr. We must come more and more to think in terms of total ecosystems and how they interrelate in order to frame effective natural resource management schemes.

### Reference

- Cadelina, A. 1976. Fishermen's perception of Silliman University's Sumilon Island marine conservation program: Preliminary findings. *Silliman Journal*, Fourth Quarter, Dumaguete. ●

## Symposium on coastal aquaculture

**T**HE MARINE Biological Association of India will hold a symposium on coastal aquaculture in Cochin, India, during 12-18 January 1980. Its main objective is to promote and develop coastal aquaculture by disseminating knowledge gained and technologies developed by:

- reviewing the present status of aquaculture;
- discussing technologies for cultivating, harvesting, processing, marketing, and using various coastal zone organisms;
- identifying major inputs required for research and developmental, educa-

tional, and training programs for rapid development of coastal aquaculture leading to establishment of an organized industry;

- intensifying production by integrated crop-livestock-fish farming;
- assessing social, economic, and legal aspects of development of coastal aquaculture; and
- developing linkages and communication, and coordinating activities among organizations involved in research, development, and promotion of coastal