

Management of ASEAN Coral Reef Resources

Coral reefs are significant from ecological and economic standpoints. Roughly 30% of the world's coral reefs are found in the ASEAN region. The most dominant and valued use of coral reefs is that they support the marine fisheries that produce large fish yields, comprising about 10-15% of the total fisheries catch annually. Fringing reefs also play an important role in maintaining coastline stability by acting as efficient physical barriers or as natural breakwaters that protect low-lying coastal areas from erosion and other destructive sea action. In addition, the esthetic appeal, biological richness, clear waters and relative accessibility of coral reefs make them popular recreational areas for local and foreign tourists.

However, these resources have been subjected to rampant exploitation and subsequent destruction by unregulated human activities, mostly carried out for short-term economic gains. The greatest contributors to reef stress include siltation, destructive fishing methods, coral mining, tourism-related activities and pollution.

In order to reverse continued degradation of marine resources, proper management and conservation of coral reef resources is needed. The establishment of marine parks/reserves is a common management strategy to conserve or protect coral reefs in the ASEAN region. Other forms of reef management and conservation, sometimes within the definition of a marine reserve include: controls of fishing methods and rates of exploitation; involvement and organization of local fishing communities in managing their own reef resources; and education of the coastal population.

The level of exploitation of the reef areas in Bolinao, Pangasinan, a province in northwestern Luzon, Philippines, is discussed in the article of McManus et al. The article also shows the need for an extensive monitoring program for the formulation of reef management guidelines.

In Thailand, coral reef destruction is associated with tourism activities and destructive fishing methods. To address the situation, a zonation plan for islands is discussed in Garces' article. *T.E. Chua.*

Coral Reef Management in Thailand

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Introduction

Coral reefs can be found along the coastline and around the islands of Ban Don Bay, Thailand (Fig. 1). The ASEAN/US Coastal Resources Management Project (CRMP) in Thailand has focused its attention on the study of these islands' reefs. Under CRMP's Task 420 (Recreation and Tourism Sector), it set out to investigate their condition, major problems and management potentials. It later identified tourism-related abuses, dynamite fishing and other destructive fishing practices (e.g., use of poisons) as the major causes of coral reef destruction in the area. To address this situation, a zonation plan will be implemented in managing the nearshore habitats found in these islands. This management scheme will require the cooperation of appropriate government agencies in supervising community organizations.

Management Issues and Strategies

Issues and problems

Coral reef degradation has been a major resource conservation issue in Ban Don Bay for several years. The sources of coral damage can be linked to economic activities which have been classified into destructive fishing, shoreline/upland development, and recreation and tourism (Fig. 2).

Existing management and constraints

On the national level, coral reefs are protected from coral collection and trawling by two statutes: the Fisheries Law of 1947 and the National Park Act of 1961. The Fisheries Law governs marine fisheries and the conservation of selected marine species. It prohibits the collection and

export of corals, and the use of poison and explosives for fishing and trawling and push-net operations within 3 km from the shore. The National Park Act, on the other hand, prohibits visitors from littering and collecting corals.

At the provincial level, reef management consists mainly of sanctions against dynamite fishing and depends primarily on the policies handed down by the governor. In 1983, the governor of Surat Thani issued such a policy prohibiting hotels from causing further reef destruction. His action was prompted by a major resort's decision to dig out the reef along its beach front to improve the swimming area. The governor was also instrumental in gaining local cooperation to lessen practices destructive to corals, particularly dynamite fishing¹.

Despite these regulations and policies, coral reef degradation continues at Ban Don Bay because of the following:

1. The public's appreciation of coastal resources has been generally low since little effort has been made to raise the awareness of those engaged in the tourist industry, as well as the local inhabitants in the value of

and, in many cases, apathy on the part of the local implementers.

However, an encouraging development in the region has been the formation of a Nature and Environment Conservation Club (NECC) at Ko Samui¹. The NECC is

spearheaded by the village headman of Ko Taen (a small island just south of Ko Samui), a pioneer in protecting the coral reefs around his island for well over a decade. NECC's members include the local leaders, community members and bungalow owners who hope to protect the island's natural environment, maintain the native culture and traditions, and promote public awareness on conservation.

Management strategies

One of the goals of the tourism management portion of the ICZM plan for Thailand is coral reef conservation. The geographical extent of the tourism plan is limited to the coastal environments of the four islands of Ko Samui, Ko Phangan, Ko Taen, Ko Tao and their satellite islands. The Mu Ko Ang Thong National Park is not as comprehensively discussed as the others in the plan because it is under the authority of the National Park which is developing a separate management plan for it.

The zonation plan for nearshore habitats in the islands will be implemented through the cooperation of community organizations and

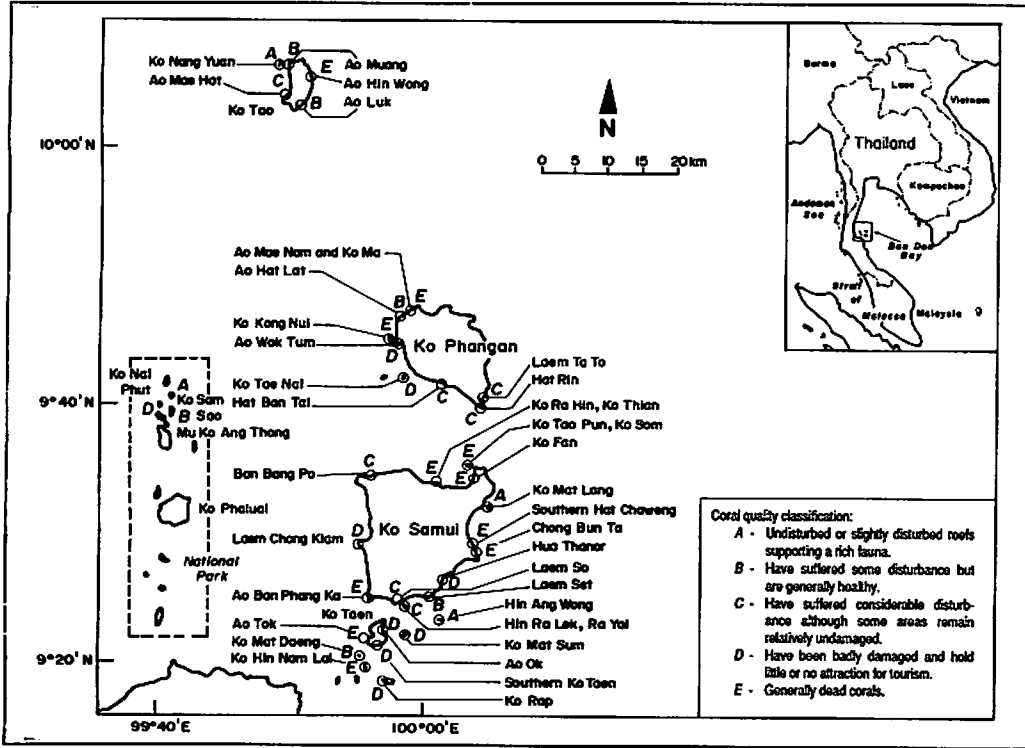


Fig. 1. Locations and relative qualities of coral reefs in Ban Don Bay. (Based on Office of the National Environment Board-Ministry of Science, Technology and Environment. 1992. The integrated management plan for Ban Don Bay and Phangnga Bay, Thailand. ICLARM Tech. Rep. 30, 161 p.).

healthy coral reefs through informative education programs.

2. As a result, government officers, tourist industry operators and the local people have poor knowledge of the workable management options that they can carry out at the local level.
3. Government agencies directly responsible for coral reef protection lack sufficient boats, equipment and manpower to patrol the reefs effectively.
4. The government agencies' poor coordination, both at the local and national levels, prohibits effective action in the conservation of coral reef resources. Often, those who make the plans and those who are expected to implement them do not interact well, leading to confusion

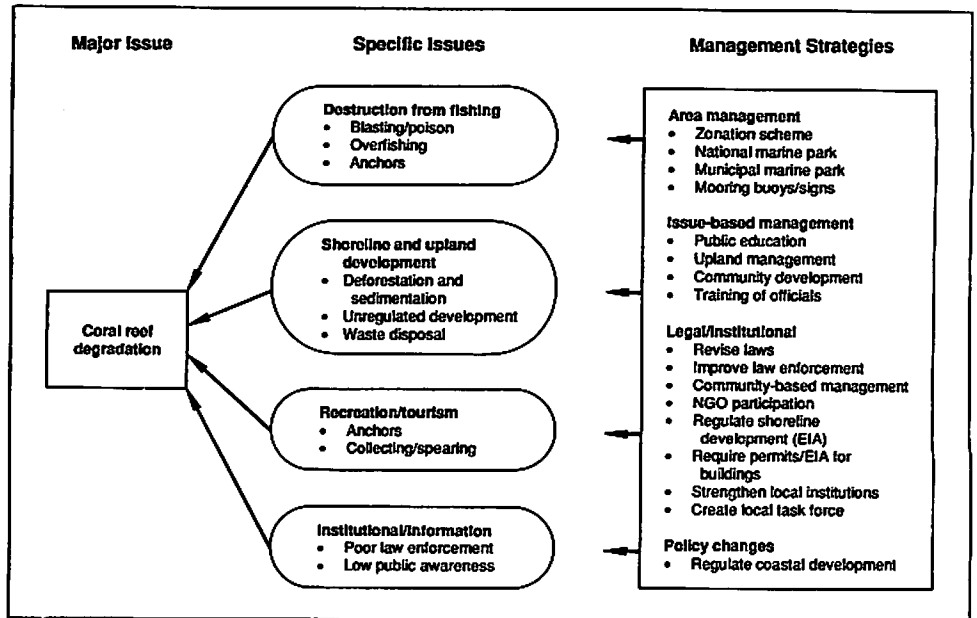


Fig. 2. Coral reef management issues/problems in Ban Don Bay, Thailand, together with strategies or management actions to address them.

appropriate government agencies in order to protect the habitats effectively from destructive uses. It incorporates three basic zones into the scheme and includes the following details²:

1. Sanctuary zone - No fishing, collecting or boat anchoring is allowed. Only "no touch" research is permitted. Living coral cover should exceed 75%. The reefs should be attractive. For the protection of the area, no serious conflicts of interest should occur.
2. Conservation zone - Traditional fishing and most recreational activities are allowed. However, no boat anchoring on the reef or any destructive fishing method is permitted. Selected area

should have a living coral cover of more than 50%. The general esthetic value of the reef should still be good. There should not be any serious conflicts of interest in implementing this type of zone.

3. Development zone - Those activities necessary for tourism development, such as boating and traditional fishing, can continue unabated, but destructive fishing methods are not permitted. The zone should be selected on the basis of proximity to tourist attractions and noninterference with zones "1" and "2".

The zonation scheme also lists the coral reefs' classification, as recommended by the Tourism Authority of Thailand

(TAT) (see Fig. 3).

Other management programs that would help address the issues related to coral reefs are those on: (1) fisheries management; (2) water quality maintenance; and (3) public awareness and education.

The management targets of the ICZM Plan are the islands of Ko Phangan, Ko Taen and Ko Samui. To implement the strategies and actions proposed for these islands' coastal environments, three projects have been formulated:

- Ko Phangan community-based resource management project;
- Ko Taen community marine reserve project; and
- Ko Samui shoreline management, education and overall plan coordination project.

These projects will be administered by the Office of Environmental Policy and Planning together with the Department of Fisheries, Population and Community Development Association, TAT and the provincial government of Surat Thani. Pertinent details of the projects are included in the ICZM Plan for the Upper South, Thailand.



References

¹Bunpapong, S. and A. Ngernvijit. 1991. Coral reef management plan for the islands of Ban Don Bay, Thailand, p. 405-412. In L.M. Chou, T.-E. Chua, H.W. Khoo, P.E. Lim, J.N. Paw, G.T. Silvestre, M.J. Valencia, A.T. White and P.K. Wong (eds.) Towards an integrated management of tropical coastal resources. ICLARM Conf. Proc. 22, 455 p.

²Baker, I. and C. Indhapanya. 1990. An issue-based action plan for the Upper South sub-region's coastal zone: a contribution towards regional sustainable development. ASEAN/US Coastal Resources Management Project, Office of the National Environment Board, Bangkok, Thailand. (Unpublished).

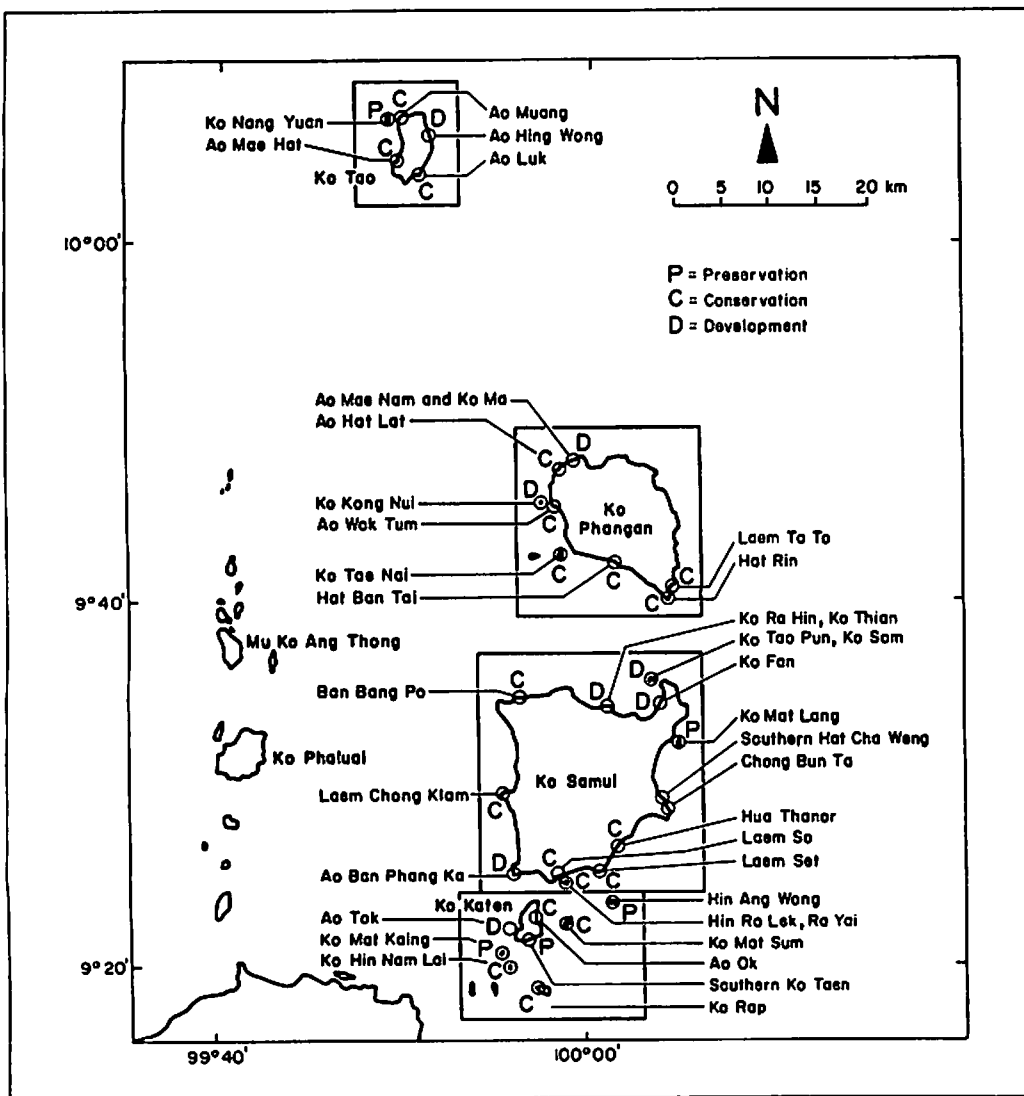


Fig. 3. Coral reef classification as recommended by TAT Master Plan. (Based on Thailand Institute of Scientific and Technological Research. 1988. Summary: a study on carrying capacity for tourism development of Ko Samui. Tourism Authority of Thailand, Bangkok).

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²ICLARM Contribution No. 891; also extracted from The Integrated Management Plan for Ban Don Bay and Phangnga Bay, Thailand (ONEB-MSTE 1992).