# The Need for Malaysia National Marine Protected Area (MPA) Policy

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ABSTRACT

Experience have thought us that without effective management many of our coastal and its resources become over exploited, overused, and degraded to the point where social and economic benefits can no longer be derived from them. The management of our coast requires a coordinated and integrated approach to sustain the benefits coastal ecosystems and resources provide and upon which sustainable development of the country depend. A national MPA policy will enable the optimization of the benefits that can potentially be derived from the coast especially in Malaysia Marine Parks.

*ABSTRAK*

*Pengalaman telah mengajar kita bahawa sekiranya tidak mempunyai pengurusan yang efektif, kebanyakan perairan dan sumber laut kita akan diekploitasi, penggunaan yang tak terkawal dan akan mengalami degradasi sehingga tidak dapat menampung kepentingan sosial dan ekonomi. Pengurusan perairan kita memerlukan koordinasi dan kerjasama untuk mengekalkan kepentingan ekosistem perairan dan sumber yang ia dapat bekalkan yang mana penting bagi negara yang membangun. Suatu polisi MPA kebangsaan akan dapat meoptimumkan sumber yang dapat diperolehi daripada perairan kita, terutamanya daripada kawasan Taman Laut Malaysia.*

**Keywords:** MPA; policy; management

# Introduction

The Marine Protected Area (MPA) of Malaysia is rich in natural resources and provides numerous benefits to its people. Its beautiful seascapes, fisheries, and forest resources provide many opportunities for continuing economic and social development and the marine waters are vital to shipping, national security and defense.

The management of the Malaysia MPAs, at present is sectoral and largely undertaken by federal, state and local government agencies. Administratively, the Local Authorities are responsible for approving physical development in the coast based on published structural and local plans, rules and guidelines for development.

There is at present no national policy to provide the framework for the development of a cross-sectoral and holistic management of the Malaysia MPAs and minimize multiple use conflicts, a priority identified as one of the major concerns in the 9th Malaysia Plan. Furthermore, the value of MPAs coastal ecosystems and resources in national development is not fully acknowledged in decision-making. The diversity, health and productivity of the MPA must be wisely managed to keep options open for development and bio-prospecting in the future.

A few areas of marine and coastal habitats in Malaysia are protected individually or through national or regional systems of marine protected areas (MPAs). The success of either depends on the existence of appropriate legal frameworks, acceptance by coastal communities, an effective and well supported management system, and the delineation of areas so their boundaries are clear and they can be treated as self-contained units.

A Malaysia MPA is formed by a part of the sea and (often in state park) shorelands habitat designated by the owner or custodian as a conservation area. Each MPA has boundaries and a declaration of permitted and non-permitted uses within it. The owner or custodian (public or private) grants authority to a specific entity to manage the area within the MPA boundaries according to the purposes for which the MPA was created. A complex example would be a multiple use area created by the Government (custodian) wherein a variety of uses are permitted – snorkeling, diving, boating, beach use – but no removal of any marine life and non-living materials permitted (example: Malaysia Marine Park).

An MPA may be designated for any one or a combination of reasons (multiple use): (1) it is the best example of an important ecosystem or habitat type; (2) it is needed for sustainability of fisheries such as through "no-take" zones; (3) it has high species diversity; (4) it is a location of intense biological activity; (5) it is a "natural wonder" or a tourist attraction; (6) it provides a critical habitat for particular species or groups of species; (7) it has special cultural values (such as historic, religious, or recreational sites); (9) it protects the coastline from storms (Figure I-2), and (10) it facilitates necessary research or determination of "natural" baseline conditions (Salm *et. al.* 2000).

There is increasing need to justify protected areas in measurable and convincing terms to satisfy social, commercial, development, and planning interests. Solely ethical arguments (spiritual values) are convincing only in a few privileged nations, and then not always. For these reasons conservation agencies and protected area planners should have a well defined policy and a clear idea of the purpose of each protected site, stressing the practical (material) aspects (Kelleher 1999 & Salm *et. al.* 2000).

Malaysia has to embark on fully integrated MPAs management in order to fully realize and sustain the benefits and opportunities the MPAs offers. A National MPA policy is crucial in order to fully realize and sustain benefits from the Marine Protected Area (MPA), and to promote proactive and co-operative governance in the MPA.

# Why a National MPA?

## Value of MPA

*Diverse Coastal Ecosystem*

Malaysia's coastline is estimated to be 4,810 kilometers long (Status Document, 1999). Evolution of the coastline has produced coastlines of many different shapes such as protruding deltas and indented inlets, and they can either be sandy, rocky or muddy. About 52 % of the coastline is sandy, most of which are on the east coast of the Peninsula. Mangroves fringe many parts of the coastline, especially where rivers meet the sea. Sabah has the longest coastline because sea level rise during the Holocene period created a highly indented coastline not observed in the other regions of Malaysia. Only a very small proportion of the coastline is rocky (EPU-DMP & UPM, 2003).

The coastal zone contains a wide range of climatic, geological and oceanographic regions that house a very rich store of biological diversity. There is a diverse and interacting mixture of terrestrial, estuarine and marine ecosystems, ranging from coral reefs to coastal forests. Any discussion on coastal matters must focus on the shoreline, coastal waters and islands, estuaries, other tidal waters, coastal wetlands and the land immediately adjacent to these features (Ray 1988).

*The Sea is Rich in Biodiversity*

It is popular to use tropical rainforests as the yardstick by which to compare biodiversity. However, as Ray and Grassle (1991) pointed out, "…marine systems are extraordinarily diverse in all aspects, from genetic to taxonomic to ecological." The ocean floor communities may be as diverse as any land area. Ray (1988) stated that tropical reefs have a variety of species equal to tropical forests, but overall, the seas have about twice the number of phyla as land. As the majority of marine phyla occur in the coastal zone, the marine portion of this zone could be considered the most biologically diverse area of the world (Ray, 1991) and, by extension, the most in need of protection.

Malaysia is one of the 12 Mega Biological Diverse Countries in the World. Approximately 80% of the World's coral species dwells in our Malaysian sea floor, with the total of 323 species in the marine parks islands alone and we has at least 4,000 species of marine fishes inhabitating our wonderful waters (450 species identified in Marine Park waters). Malaysia houses a wide variety of microorganisms, flora and fauna, many of which are unique and endemic (MOSTE, 1997 and MPD-DOFM & CCC, 2000).

Conserving the diversity of life is an objective of all MPAs, regardless of the specific intent for their creation. But it is necessary to recognize the difference between *biodiversity*, reflected by the number of species, and *genetic diversity* (a subset of biodiversity),

reflected by the variation within species. The land has more species than the sea, and hence greater biodiversity. Marine organisms, however, tend to exhibit more genetic variability; thus they have great genetic diversity. Both types of diversity are important and of value to people.

The variety of species offers us opportunities for the discovery of new uses for them, as in medicine and mariculture (the farming of marine organisms). The genetic variation within a species offers opportunities to refine its uses, for example, by selective breeding for increased growth rate or resistance to diseases.

The application of marine taxa in biomedical research and pharmacology is a real value backed up by numerous examples. Many marine organisms have highly active biochemical compounds that have yielded extracts with direct antimicrobial, antileukemic, anticoagulant and cardio-active properties. The species producing these compounds may be important in the direct production of pharmaceuticals, such as anticancer drugs, or their compounds may provide models for the synthesis of new and effective drugs (Ray & Grassle 1991).

*The Sea is Important for Ecological Balance*

In this complex ecosystem, each of the marine components has a role to play in maintaining the ecological balance creating a healthy and conducive environment. The destruction of any single element in the system will cause imbalance to the environment, which could lead to total damage to the whole system. It does not only support a great diversity and vast array of organisms but the oceans also play an essential role in climatic cycles and other global processes. All the above characteristics increase the conservation value of these marine resources (Ray 1988).

*Realizing Coastal Benefits*

Marine ecosystems are extraordinary diverse in all aspects, harboring a wealth of biological resources, from genetic to taxonomic to ecological that give immense benefit to mankind. Undeniably, marine ecosystem and resources are fundamental to the sustainable development of coastal countries, providing food, minerals, pharmaceuticals and construction materials, and a multiple and huge range of other products. Economically, the aesthetically and magnificent underwater scene and beautiful sandy beaches grants an intense growth of the tourism industries. They are an intrinsic part of the culture not just of tribal and coastal people but of all of us. For coastal countries, they are essential to development. In short, the seas are a vital part of the natural and cultural heritage of the world.

These biological resources are very important to economic progress, particularly for developing countries. 11 out of the 12 mega biological diverse countries are developing countries. At least 40 per cent of the world's economy is now dependent on biological products and processes. The significance of biodiversity becomes obvious. Furthermore, according to the report of the World Summit on Sustainable Development, the economic value of biodiversity is estimated at US$2.9 trillion per year, while ecosystem services amount to US$33 trillion per year. Clearly, biodiversity is a significant source of wealth and income for many countries, provided that it is harnessed responsible and sustainably.

*Degradation of Marine Ecosystem*

Throughout the world the seas are suffering degradation. Too many fish are caught, too much rubbish is dumped in the sea, too many pollutants from the land end up there. Bottom-trawling can change habitats over vast areas of the sea-bed: on average, under this practice over 80% of the catch is discarded, most of it dead. In Malaysia, unsustainable fishing practices are still common, for example fish blasting.

Threats are most acute in the coastal zone, particularly from increasing human populations. In much of the tropics, marine productivity of the sea is concentrated in small areas of coral reefs, sea-grass beds and mangroves around the coasts, which provide rich feeding and breeding grounds for fish. Coral reefs are particularly at risk, from global warming, mining for building materials, land-based pollution and siltation, over-fishing or destructive fishing and unregulated tourism. While such areas are small in comparison with the open oceans, they are the most diverse and threatened, as well as the source of much of the livelihood of coastal communities.

However, it is a misconception that the only productive parts of the sea are near the coast. Soft-bottom sea areas without hard structures often contain an abundance of sponges, invertebrates, worms, nematodes and algae. These areas badly need protection too. Conservation efforts for the high seas are caught in the tragedy of open access. The seas are used by everyone but owned by no-one. Usually no single agency or organization in society is responsible for the careful management and conservation of the seas. This makes marine conservation doubly difficult.

If problems exist now, they are likely to be even greater in future because of climate change. The predicted sea-level rise could be devastating to many islands. Pacific and Indian Ocean countries are particularly vulnerable, because of their hundreds of low-lying islands and atolls. The effects will be worst during cyclones, storm surges, king tides and the El Niño fluctuations. The coastline will be more prone to erosion, putting coastal infrastructure at risk. Mangroves will disappear and farmland will be inundated with salt water. Here is an environmental threat that is putting the survival of whole nations at risk.

One of the marine ecosystems that is most vulnerable to climate change is the coral reef. The rate of sea-level rise can exceed the rate of vertical growth of coral formations. Temperature increases can cause coral bleaching followed by death. However, the vast algal flats, which lie at sea level on the surface of mature coral reefs, may be replaced by living coral as sea level rises, and coral reefs may extend further from the equator as sea temperatures rise.

The impact of climate change is multi-factorial, i.e. biodiversity may be lost as a result of the interaction of different effects. For example, there is some evidence that, if stressed by nutrient levels and/or increased sediments, coral reefs are more vulnerable to temperature changes and increases in ultraviolet radiation. Also, if vegetative cover on land is lost on a large scale, the increased erosion will be very damaging to coral reefs. Increased storm activity, too, will lead to more freshwater run-off, probably including higher erosion and nutrient run-off rates: the resulting lower salinity will adversely affect the coral.

Impacts of climate change are not confined to the tropics. There is already evidence of increased ice-melting rates, salinity changes, shifts in thermoclines and productivity changes. Sea-level rise in many parts of the world will lead to the loss of intertidal habitats such as mangroves, salt marshes and productive mudflats. Changing sea temperatures can lead to changes in the spatial range of marine species. Warm water species can spread polewards, interacting with local species, possibly depleting their numbers or displacing them. The species composition and structure of many marine habitats, particularly in temperate regions, may change. The big danger is that the rate of climate change and consequent effects on the sea may exceed the adaptive capacity of marine ecosystems.

It is thus important to acknowledge that marine resources have been subjected to tremendous pressure due to increasing human population. Ignorance and irresponsible behavior had lead to unchecked and uncontrolled pollution, over-exploitation, conflicting uses of resources and destruction of vital habitats. As such pro-active management of the marine environment and its biodiversity is therefore a high priority (Ray 1991; Ray & Grassle 1991; Glowka *et. al*. 1994; Edward L.M. 1996; MOSTE 1997; EPU-PMD & DANCED 1999; Kelleher 1999; Salm *et. al*. 2000; MIMA 2001; EPU-PMD & UPM 2003).

*We Need MPAs to Conserve the Oceans*

Clearly, conservation of the seas is vital, but why MPAs? This question is often asked, especially in the light of what marine scientists term the inter-connectivity of the sea. Fish, algae, nutrients, pollutants and much else besides move freely in the water column. There are few natural boundaries in the oceans. Setting up an MPA will not stop fish moving out nor prevent pollutants moving in.

There are two principal reasons for MPAs: to protect habitat and biodiversity, and to help maintain viable fisheries. By protecting habitats, MPAs safeguard the vital life-support processes of the sea, including photosynthesis, maintenance of food chains, movement of nutrients, degradation of pollutants and conservation of biological diversity and productivity. They protect both biodiversity and water quality.

The protection of marine habitats in their natural state provides an essential foundation for sustainable, nature-based tourism, which is becoming a world industry and provides major benefits to local communities. MPAs act as an insurance policy for fisheries. The conventional method of conserving fish stocks is to attempt (often unsuccessfully) to control "fishing effort" and total catch, the allowable levels of which are determined from a prediction of fish stocks. But many stocks are unstable and behave in ways that mathematicians term chaotic. For example, a small increase in fishing effort could lead to the collapse of a fishery. It also means that predicting fish stock levels over anything other than short periods will be unreliable. Thus controlling fishing effort and total catch has failed to prevent many fisheries around the world from degradation and even collapse.

MPAs, if partially or entirely closed to fishing, have proved very effective in association with conventional fisheries management in rebuilding damaged fish stocks and in giving all stocks some stability. In several regions, fish stocks have increased

rapidly following establishment of MPAs. Far from hurting the fishing industry, the MPAs led to enhanced catches, so providing a direct economic benefit. The larger stocks inside the reserves export their offspring to fishing grounds by ocean currents. Juveniles and adults may also emigrate from the reserves, so boosting nearby fisheries (Ray 1991; Ray & Grassle 1991; Glowka *et. al*. 1994; EPU-PMD & DANCED 1999; Kelleher 1999; Salm *et. al*. 2000; EPU-PMD & UPM 2003).

*A Summary of the Benefits of MPAs*

- Conservation of biodiversity, especially critical habitats of threatened species;
- Protection of attractive habitats and species on which sustainable tourism can be based;
- Increased productivity of fisheries by: insurance against stock collapse; buffer against recruitment failure; increase in densities and average sizes of individuals; increase in reproductive output; provide centres for dispersal of propagules and adults (spillover); contain more natural species composition, age structure, spawning potential and genetic variability;
- Contribute to increased knowledge of marine science through information on functional linkages, implementation of the precautionary principle, provision of control sites for research and ecological benchmarks against which to measure human-induced change; potential as nodes in monitoring networks; more "natural" systems where natural mortality can be compared with fishing mortality;
- A refuge for intensely exploited species;
- Protection of genetic diversity of heavily exploited populations;
- Protection of cultural diversity, e.g. sacred places, wrecks and lighthouses.

*Recent International Agreements that Support the Establishment of MPA*

In recent years, much decision-making on environmental questions has moved from the national to the international stage, especially where issues have a clear international dimension, such as climate change, migratory birds and use of biodiversity. The management of the sea is clearly such an issue. International agreements and programmes that could be of particular value to the establishment of MPAs include:

1. The UN Convention on the Law of the Sea (UNCLOS)

Increasing technical capability to exploit mineral resources on or beneath the sea bed and to exploit fishery resources in deep waters led to the Third United Nations Conference of the Law of the Sea which ran from 1973 to 1977. The outcome was an agreement to enable nations to take measures, including regulation of fishing and protection of living resources of the continental shelf, to a distance of 200 nautical miles from their national jurisdictional baseline. This provided a legal basis on which MPAs could be established and marine resources conserved in areas beyond territorial seas. Importantly, this convention, which came into force in November 1994, creates a formal responsibility for countries to protect the sea from land-sourced pollution (Kelleher 1999 & Salm *et. al.* 2000).

2. The Convention on Biological Diversity (CBD)

Entering into force in December 1993, this framework agreement is for the conservation of biodiversity (which is defined so as to include biological productivity), sustainable use of biological resources and the sharing of benefits from the use of biodiversity. It contains many clauses supporting the case for marine conservation in general and the establishment of MPAs in particular. Countries are obliged, among many other things, to develop national biodiversity strategies, to identify and monitor important components of biodiversity, to establish a system of protected areas to conserve biodiversity, to promote environmentally sound and sustainable development in areas adjacent to protected areas and to rehabilitate and restore degraded ecosystems.

This agreement is described in detail in IUCN's *Guide to the Convention on Biological Diversity* (Glowka *et. al*., 1994). Under the Jakarta Mandate on Marine and Coastal Biological Diversity, adopted by the Parties to the CBD in 1995, Governments affirmed the importance of marine and coastal biodiversity. Five thematic issues were identified for action, including Marine and Coastal Protected Areas. Programme activities were approved in two areas:

- Research and monitoring on the values of marine and coastal protected areas, and the
- Development of criteria for their establishment and management.

3. The Ramsar or Wetlands Convention

The Convention on Wetlands of International Importance (Ramsar, Iran, 1971) has as its mission, "The conservation and wise use of wetlands by national action and international cooperation as a means of achieving sustainable development throughout the world". Although initially focused on wetlands for migratory waterbirds, the Convention now takes into account the full range of wetland functions and values, and the need for an integrated approach to their management.

A principal obligation of Contracting Parties is to designate sites for the Ramsar List of Wetlands of International Importance. Sites on the List must be managed to avoid changes in their "ecological character." There are currently 116 Contracting Parties and 1005 listed sites (Ramsar Sites) worldwide, the majority at least partially covered by protected area designations at national or sub-national level. Parties are assisted by a Secretariat, the Ramsar Bureau, based in Gland, Switzerland.

Some 48% of the designated Ramsar sites include the coast and so may contain marine components. MPA managers may therefore see a Ramsar designation as an additional form of protection that could be added relatively easily to at least part of their sites. The Conference of Parties of the Convention has urged countries to give priority to designating new sites from wetland types that are currently under-represented on the Ramsar List so far, including coral reefs, mangroves and sea-grass beds (Kelleher 1999 & Salm *et. al.* 2000).

4. The World Heritage Convention

The Convention Concerning the Protection of the World Cultural and Natural Heritage, known as the World Heritage Convention, adopted by the UNESCO General Conference

in 1972, entered into force in 1975 and now has 158 State Parties. The UNESCO World Heritage Centre provides its Secretariat. The Convention aims to identify and protect cultural and natural sites of outstanding, universal value.

Sites are nominated by governments and, following acceptance by the World Heritage Committee, are inscribed on the World Heritage List, as Natural, Cultural, or Mixed Natural/Cultural Sites. By the end of 1998, the World Heritage List contained a total of 582 sites – 445 Cultural, 117 Natural and 20 Mixed in 114 States. The Convention has proved a powerful lever in preventing damage to listed sites, which can be added to the List of World Heritage in Danger. Some financial assistance is available from the World Heritage Fund, provided by UNESCO's Member States.

The two main marine areas covered so far are the Belize Barrier Reef and the Great Barrier Reef (Australia), though World Heritage sites such as Tubbataha Reef (Philippines), Ujong Kulong (Indonesia), Shark Bay (Australia), Galapagos Islands (Ecuador) and Glacier Bay (Canada) contain large marine components, and others are estuarine, such as Banc d'Arguin (Mauritania) and the Sunderbans (Bangladesh) (Kelleher 1999 & Salm *et. al.* 2000).

5. The UNESCO Man and the Biosphere Programme and its Work on Biosphere Reserves

The concept of the biosphere reserve is of great relevance to MPAs. Indeed, it would be hard to find a significant difference in concept between a biosphere reserve and the large multiple-use MPA. A UNESCO conference in 1968 conceived the idea of biosphere reserves as places to emphasize the human dimension of conserving and using the resources of the planet.

Today, they are defined as "areas of terrestrial and coastal-marine ecosystems which are internationally recognized for promoting and demonstrating a balanced relationship between people and nature." A biosphere reserve has three functions:

- Conservation, contributing to the conservation of landscapes, ecosystems, species and genetic variation;
- Development, fostering economic development which is ecologically and culturally sustainable;
- Provision of sites and facilities to support research, monitoring, training and education related to local, regional and global conservation and development issues.

The combination of these three functions provides an outcome that is greater than the sum of its parts. This is the special character of the biosphere reserve. Biosphere reserves are organized into three inter-related zones:

- A **core** area, which should be legally established to ensure long-term protection and which should be large enough to meet defined conservation objectives. There is minimal human activity.
- A **buffer** zone around or next to the core, where activities must be regulated to protect the core zone. This can be an area for research to develop approaches for sustainable use of natural resources in the wider ecosystem in an economically viable way. It is also the area for ecosystem restoration. Education and training, as well as carefully designed tourism and recreation activities, can take place here.

- An outer **transition** area or area of cooperation, whose limits may not be fixed. It is here that local communities, nature conservation agencies, scientists, cultural groups, private enterprises and other stakeholders should agree to work together to manage and develop the area's resources sustainably, for the benefit of people who depend on the area.

Countries nominate individual sites to UNESCO for addition to the World Network of Biosphere Reserves, of which there were some 357 sites by October 1999. A Statutory Framework sets out the rules for governing the functioning of the World Network, but falls short of any legal obligations. However, more important is the innovative concept itself, which has proved of decisive significance in influencing the management of all large protected areas, whether or not inscribed on the UNESCO list.

The objectives of the biosphere reserve scheme are appropriate for marine environments, but few MPAs have been formally established as biosphere reserves and guidelines for marine biosphere reserves are needed. India is presently establishing Asia's first marine biosphere reserve in the Gulf of Mannar. Perhaps the best example of an MPA that meets all the criteria for a cluster biosphere reserve is the Great Barrier Reef Marine Park. This is administered by a single agency and consists of about 120 core areas (totalling in area 16,398 $km^2$) linked by buffer and transition zones, covering a total area of almost 350,000 $km^2$ (Kelleher 1999 & Salm *et. al.* 2000).

*Sustaining MPAs Benefits*

MPA is the site of complex interactions between the human and the natural systems. These interactions often lead to multiple use conflicts and degradation of the very resource that provided the opportunities of development in the area. Although resilient, coastal ecosystems are finite and vulnerable to overuse, pollution and damage. Inappropriate and uncoordinated decision-making can result in the exposure of life and property to high-risk situations, damage to the environment and resource depletion. The myriad of activities undertaken in the MPAs especially Malaysia Marine Parks are seldom coordinated or well-managed and opportunities to optimize the long term benefits are sometimes lost.

Experience have thought us that without effective management many of our coastal and its resources become over exploited, overused, and degraded to the point where social and economic benefits can no longer be derived from them. The management of our coast requires a coordinated and integrated approach to sustain the benefits coastal ecosystems and resources provide and upon which sustainable development of the country depend (Edward 1996; Kelleher 1999; Salm *et. al.* 2000; EPU-PMD & UPM, 2003).

As such a national MPA policy and MPA Act will enable the optimization of the benefits that can potentially be derived from the coast especially in Malaysia Marine Parks.

# Example of Current Malaysia MPA Administration System

## Malaysia Marine Parks Three-tiered System of Administration

The administration of the Malaysia Marine Park is complex affair that involves all three levels of Government (Federal, State and Local) in the country. Policies formulated by the Federal Government that govern national development such as the multi-national Malaysia Plan documents as well as sectoral policies such as National Agricultural Policy 3 and the National policy on Biological Diversity. Whilst, the state government has the control over land matters of the Marine Park islands and decides on the development and land-usage. The Local Authority, such as the District and Land Office, Municipal Councils and Tioman Development Authority, implements many of the decisions of the State Government and administer amenities of island and in principal manage physical development activities.

The tiered system of government provides a good coverage of issues where MPs is concerned but it also results in dichotomy between the management of Marine Park by Federal, State and Local Government. This schism has sometimes resulted in conflict between the conservation objectives of the establishment of MPs and the economic objectives of the State and Local Governments in developing the MP islands (MPS-UNDP, 2005).

A number of mechanisms exist to resolve the problems, particularly the National Advisory Council for Marine Park and Reserves, which include representative from Federal, State and Local Governments, Non-Governmental Organization (NGOs), Marine Research Agencies, Local Universities and Private Companies.

# Example of Current MPA Legislative Framework

## Malaysia Marine Parks

The Fisheries (Prohibited Area) Regulations 1983 was first enacted under the Fisheries Act 1963. In 1985, the Fisheries Act was amended to provide policy mechanisms for establishments, control and protection of marine parks. 40 islands was successfully gazetted under the establishment of Marine Park Order 1994 as Marine Park areas, consisting of 2 nautical miles seaward from the outermost points, measured from the low water mark. The regulations for Marine Park are governed by Section 43 and 44 of the Fisheries Act 1985, under which actions or activities deemed to be offences include fishing or attempt to fish, removal or possession of any aquatic animal or plant be it dead or alive, erection of any building structure, extraction of sand, discharging of pollutants, anchoring, destruction or defacing any object in a Marine Park. In 1998, the enactment of the Fisheries Regulation (Prohibited Area) (Amendment) 1998 had finalized gazetted the six coastal areas as the Fisheries Prohibited Areas. Therefore, no collection of shells,

mollusks or corals is permitted. The killing or capture of any fish in this area must be with license.

Section 27 of the Fisheries Act 1985 also provides for the protection of all aquatic mammals. This is complemented by the Fisheries (Control of Endangered Species of Fish) Regulations 1999 which provides protection to species of whales, dolphins, whale sharks and giant clams. It is also noted that the Protection of Wildlife Act 1972, although mainly focused on the protection of terrestrial animal species and habitats, provides for the protection of marine mammals, for example the dugong.

Legislative pertaining to the general protection and preservation of the marine environment, through the control of discharge or pollutants is afforded by the Exclusive Economic Zone Act 1984. As for the legislation set up that covers the area of conservation, use and management of coastal land areas, including islands that are adjacent to marine waters is also relevant to marine biological resources. For example of such laws are the Environmental Quality Act 1974, Town and Country Planning Act 1976, National Forestry Act 1984 and National Land Code 1965. The Environmental Quality (Prescribe Activities) (Environmental Impact Assessment) Order 1987 requires an EIA to be conducted on 19 prescribed activities that are particularly significant to the marine environment. Recent policy established by the Department of Environment where all marine and coastal development projects in the Marine Parks need to have a Detail Environment Impact Assessment clearly shown the Government efforts and interest in the MPAs well being (Yana 2005).

## Example of Enforcement Activities in MPA – Malaysia Marine Parks

The challenge of planning and managing the marine park islands of Malaysia continues to be the federal-state separation of legislative powers for land and sea resources as defined in Schedule 9 of Federal Constitution. Furthermore, the conservation of marine parks and marine resources is a federal territory, development of tourism infrastructure and promotion of mass tourism or large scale island development are priorities of State Economic Planning Units (EPUs) and agencies such as Ministry of Tourism.

The Marine Park Units have a limited authority that covers only the two-nautical mile water body surrounding the marine park islands. The Marine Park Unit of each main state (Terengganu, Kedah, Pahang and Johor) oversees the Marine Park Centre in each main Marine Park islands and responsible for the management and conservation of each respective marine park, the enforcement of regulation and operation of the visitor centres (A.K.A.K. 1999 & Salehan 1999).

As today, the regulations governing the Marine Parks are still provided under the Malaysia Fisheries Act 1985, where it empowers the Minister of Agriculture and the Director General of Fisheries Department in the management of MPs (legislatively). Whereas administratively, the agency who are responsible in managing MPs, is the Marine Park Section under the Ministry of Natural Resources and Environment. In pursuing to develop mechanisms for effective multi-sectoral policymaking, a revised legislation need to be done and a new Marine Park Act are hopefully will be regulated in the near future.

Administratively, there is no shortage of laws and guidelines to regulate development and conservation activities in MPs and on islands. Table 1 shows the multi regulatory bodies, that govern specific areas that are related to the protection and conservation of the Marine Park ecosystem both land and sea. For example the Marine Parks Section, Department of Fisheries, and Marine Department covers the water area of MPs whereas the Department of Environment, Department of Wildlife, The Town and Country Planning Department (TCPD) and Ministry of Tourism covers much of the land matters in Marine Parks.

Each agency has its own sets of activities that need to be monitor and regulate. For example, Marine Department covers all the marine affairs and in the case of Marine Parks, it is responsible for the safety of all passenger boats that bring the tourists to the Marine Parks, Fisheries Department governs all activities related to fisheries and Marine Park Section governs all the activities that can and might harm the coral reef environments. The Department of Environment is a regulatory body that, enforce the Environmental Impact Assessment provisions and environmental pollutions, the Town and Country Planning Agency regulates proper use, conservation and development of land and Ministry of Tourism is responsible for the regulation of tourism enterprises and matters relating to such regulation and licensing in Marine Parks, whilst the Department of Wildlife enforce its Protection of Wildlife Act of 1972 that, provides protection of wildlife and its habitat in Malaysia (Alan & Lim 1998; Philip & Salehan 1999). Cooperation and effective collaboration between enforcement agencies are crucial in making sure the wellness of MPs.

As more and more emphasize is being given to the conservation and management of the marine environment, there is a need for a more comprehensive set of regulations and laws to govern the exploitation of this environment. Marine Park Act or Marine Protected Area Act is need where it will be formulate solely to manage and conserve the marine environment. In this new law a more comprehensive set of regulations can be enacted, more control can be exercised on the exploitation of MPA. Visitor management will also be given emphasis, giving the authority governs the MPA more power to control the activities and visitors in the MPA (A.K.A.K. 1999).

On the whole, legislation can contribute and play a vital role in tapping the MPA other's potential such as one of the main marine research area for further economic generating products such as in the field of biotechnology and pharmaceutical products and as one of main education and training centres for marine resources management. Through legislation, areas within the Marine Park islands and other MPA coastal areas, which have a high priority for research potential can be preserves and protected and also areas that are highly valued in terms of biodiversity richness can be conserves and studied. It is clear; one of the effective management efforts to help ensuring the protection of marine environment is by strict enforcement of regulations. However, it is also important to also realize that it is insufficient to rely strictly on regulatory of activities and behavior. Enforcement of Marine Park (MP) regulations cannot stand alone, but must instead complement other effective management strategies (Lim 1998).

TABLE 1: Examples of Related Regulatory Bodies that Carry Out Enforcement Activities and Its Jurisdictions in Marine Park Islands

| Regulatory Bodies | Legislative Tools | Jurisdiction Coverage |
|---|---|---|
| **Marine Park Section (MPS)** | The enforcement of regulations for Marine Park under Section 43 and 44 of the Fisheries Act 1985, towards the conservation and protection of marine ecosystem especially the coral reefs. | Covers the areas of two-nautical miles water body surrounding the water body of marine park island. |
| **Department of Environment (DOE)** | The Environmental Quality Act 1974 is the principal legislation in Malaysia regulating the prevention, abatement, control of pollution as well as the enhancement of the environment The Environmental Quality Act 1974 prohibits the pollution of inland waters as well as Malaysian waters. DOE carry out The enforcement of Environmental Impact Assessment (EIA) provision and implementation of Environmental Management Plan of any development project in Marine Parks. | Covers the whole area of Marine Parks |
| **Department of Fisheries (DoFM)** | The Fisheries Act 1985 provides for the conservation, management and development of maritime and estuarine fishing, marine turtles, and riverine fishing. DoFM enforcement also covers protection of aquatic mammals. DOFM also enforce under the Exclusive Economic Act 1984 on the control of discharge or pollutants in the marine waters. | Covers the whole water area of Marine Parks |
| **Department of Wildlife** | The Protection of Wildlife Act of 1972 provides for the protection of wildlife and its habitat in Peninsular Malaysia. Licenses are necessary for the shooting, killing, breeding, importing or exporting of protected wild animal or birds. The Act contains detailed lists of totally protected, protected and game animals, and (in an amendment) animals from foreign sources requiring import or export permits under the Convention on International Trade Endangered Species of Flora and Fauna (CITES). The Act does not apply to animals which are unlisted, or to plants. The enforcement that covers the protection of terrestrial animal species and habitats. Under the Protection for Wildlife Act 1972, also provide protection of marine mammals for example the dugong. | Covers the whole terrestrial area of Marine Parks |
| **Ministry of Tourism** | The Tourism Industry Act of 1992 provides for the licensing and regulation of tourism enterprises and matters relating to such regulation and licensing. The Act requires any of the following businesses to be a licensed tour operating business; travel agency business; business providing tourist accommodation/premises; business of providing tourist restaurants; and business of providing tourism training institutions. | Covers the area of Marine Parks |
| **The Town and Country Planning Department (TCPD)** | The Town and Country Planning Act of 1976 (Act 172) regulates land use as an important instrument towards integrated planning and management of land resources through proper use, conservation and development. | Covers the land area of Marine Park |
| **Marine Department** | Merchant Shipping Ordinance 1952 – outlines the requirements on registration of ships, certification of seamen, prevention of marine pollution, shipboard safety | Covers the water area of Marine Park |

*Source*: R.H.R. Yana, 2005

# The Need to Develop MPA Legal Framework and Establishment of MPA Act

For most countries a broad, integrated approach to conservation and management of marine resources is a new endeavour which is not adequately provided for in existing legislation. Thus, before a proper Malaysia MPA Department can be established, it may be necessary to review and revise existing legislation and/or develop new legislation. There are several different approaches, ranging from new, specific-purpose legislation to continued use of existing legislation with relatively minor modifications. In many cases, MPAs have been established under fisheries legislation and, in others, under forestry legislation. In any country, the right approach requires a detailed understanding of that country's culture, tradition and legal processes. There are, however, several general principles which should be followed.

Before legislation is proposed, the decision makers need to decide whether to advocate large number of small MPAs with a regime of environmental management operating in their surroundings or a few large multiple-use MPAs.

Kelleher (1999) has stressed out that the commonest mistake in establishing new MPA Act is to make legislation for small MPAs without the complementary controls for the wider environment around them. A second fundamental question is whether the national law should provide a detailed framework of administrative aspects or only the broad basis for a management regime.

Sometimes, powerful local interests in an area favour short-term economic benefits, leading to strong local pressure for over-exploitation of resources. In other cases, the local community will favour the sustainable use and protection of marine resources. Therefore, the law should protect management from unreasonable local pressures by including a sufficiently detailed statement specifying clear objectives and a process for achieving them. Any detail added to the law should be carefully considered because inevitably it will limit the management's flexibility in addressing the unexpected.

Because the enactment process for a new comprehensive law specifically for marine protected areas may require years, it is important to make use of existing legislation or other instruments (e.g. executive decrees) to begin the process in the short term, even if these approaches are not suitable over the long-term. Simultaneously work can begin both on-the-ground to safeguard the conservation integrity of important sites and with the drafting process for a new law. If the conservation work proceeds well, it is likely the community will become involved and more aware of the long-term benefits, improving the climate for the new law and informing its content along the way. The law is an important means of promoting national policy, but the lack of a new comprehensive law should never be allowed to delay action where irreversible damage to a critical MPA proposed site is at stake. Conservation managers should therefore be alert to additional, complementary or alternative measures – such as fisheries permits, tourism regulations, commercial licences, or direct inter-governmental negotiations – which might be tapped to minimize long-term harm where a near-term conflict needs attention.

Whatever law is chosen, simple regulations work best. Many national regulations are so complex that they confuse the beneficiaries. In general, the simpler the national

rules, the more likely it is that they will be followed at the local level. Specific MPA rules should be as simple and clear as possible. A strict no-fishing rule inside MPAs is much easier to understand than "prohibition of fishing between May and June, between the high water mark and 1 mile from the shore."

In Establishing an MPA, the Following Should be Specified, Whether in Umbrella Legislation or in Site-specific Legislation (Kelleher 1999; Salm et. al. 2000):

a. Objectives;
b. Management rules and penalties applied (with any special rules and administrative measures that may be needed, and safeguards to ensure and enhance compliance by Government, including transparency of decision-making and provision for NGOs);
c. Delineation of boundaries;
d. Providing adequate statements of authority, precedence and procedures;
e. Advisory and consultation processes;
f. Criteria for decision-making;
g. Relationship with other national and local authorities, and procedures for coordination and conflict resolution;
h. Management plans, zoning and regulation;
i. Monitoring and review; and
j. Compensation.

## The Establishment of National MPA Department – An Approach of Very Large MPAs

*The need to decide whether each MPA will be governed by a separate legal instrument or whether to create umbrella legislation for MPAs in general.*

Most countries make umbrella legislation for MPAs, but if the area to be protected is very large and distinctive, it may be appropriate to make it the subject of specific legislation. A good example is the Great Barrier Reef Marine Park Act in Australia, which established the world's largest MPA and set up an Authority to run it. A feature as important as the Great Barrier Reef deserved legislation of its own. Separate legislation for an MPA may be harder to enact politically than umbrella legislation, requiring its advocates to show that the issues and objectives are significantly different from those of other MPAs, but it has advantages in that the legislation is tightly tied to the individual site.

IUCN Guidelines strongly recommended that legislation be based upon sustainable multiple use managed areas (e.g. the Biosphere Reserve concept), as opposed to isolated highly protected pockets in an area that is otherwise unmanaged or subject only to piecemeal regulation or industry-specific rules (e.g. relating to fishing). However, it is recognized that the latter scenario can often be the foundation for the subsequent development of integrated management regimes.

The advantage of umbrella legislation for a country's entire MPA system is that it allows principles to be established for all MPAs, with flexible arrangements for implementation by the executive. The decision whether to create umbrella legislation

may depend on the types of threats: if they are mobile, only national legislation may be effective. Such a policy should also give effect to the requirements of the CBD and UNCLOS, as well as to the country's other international obligations (Kelleher 1999; Salm *et. al.* 2000).

In designing umbrella legislation the following objectives merit consideration:

- Provide for conservation management regimes over as large areas as practicable;
- Provide several levels of access, such as strict protection, fishing and collecting in different zones;
- Provide for the continuing, sustainable harvesting of food and materials over most of the country's marine areas; and
- Address national legislative and juridical loopholes that allow destructive practices to continue.

## Conclusion

There is increasing need to justify protected areas in measurable and convincing terms to satisfy social, commercial, development, and planning interests. Solely ethical arguments (spiritual values) are convincing only in a few privileged nations, and then not always. For these reasons conservation agencies and protected area planners should have a well defined policy and a clear idea of the purpose of each protected site, stressing the practical (material) aspects.

Malaysia has to embark on fully integrated MPAs management in order to fully realize and sustain the benefits and opportunities the MPAs offers. A National MPA policy is crucial in order to fully realize and sustain benefits from the Marine Protected Area (MPA), and to promote proactive and co-operative governance in the MPA.

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