

**MODULE 4**

**MARINE PROTECTED AREAS OVERVIEW**

**OBJECTIVE**

To provide a historical perspective of marine protected area programmes in the Caribbean, and to identify existing issues

**THEMES**

- 4.1 Definitions of Protected Areas
- 4.2 Historical Overview of Marine Protected Area Programmes in the Caribbean
- 4.3 Present Status of Marine Protected Areas in the Caribbean

**DELIVERY  
TIME**

3 Hours

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<b>MODULE 4</b>	<b>MARINE PROTECTED AREAS OVERVIEW</b>
<b>THEME 1</b>	Definitions of Protected Areas
<b>OBJECTIVE</b>	To provide clarification of the categories of protected areas, and the proposed management objectives for each.
<b>SIGNIFICANCE</b>	Many of the legal and inter-institutional problems related to protected area establishment and management result from the incorrect use of terms, and ignorance of the evolving philosophies that guide the determination of the management objectives for protected areas.
<b>PRESENTATION</b>	Lecture, Discussion
<b>EQUIPMENT / MATERIALS</b>	Overhead projector
<b>EXERCISE</b>	N/A
<b>TIME</b>	0.5 Hour

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## INTRODUCTION

It was established in Module 3 that the establishment of protected areas is one of the strategies used in the management of environmental resources. However, with environmental philosophy, terms, and approaches changing significantly in the past decade, the international community involved in protected areas policy, planning, and management considered it necessary to review the definition of a protected area, to ensure that the definition embraces the wide range of areas under or requiring protection. This definition was derived at the 4<sup>th</sup> World Congress on National Parks and Protected Areas, held in Caracas, Venezuela, February 1992.

A protected area is therefore defined as *"an area of land and/or sea especially dedicated to the protection and maintenance of biological diversity, and of natural and associated cultural resources, and managed through legal or other effective means"* (IUCN, 1994. P.7). The main purposes for establishment and management of protected areas are identified as:

- ◆ Scientific research;
- ◆ Wilderness protection;
- ◆ Preservation of species and genetic diversity;
- ◆ Maintenance of environmental services;
- ◆ Protection of specific natural and cultural features;
- ◆ Tourism and recreation;
- ◆ Education;
- ◆ Sustainable use of resources from natural ecosystems; and
- ◆ Maintenance of cultural and traditional attributes.

Based on the possible mix of priorities that can be generated by the management objectives stated above, protected areas have been grouped into the following six (6) categories (updated from the ten categories developed by IUCN in 1978):

- ◆ Category I:            Strict Nature Reserve/Wilderness Area - area managed mainly for science or wilderness protection (includes two sub-categories; Strict Nature Reserve - Ia, and Wilderness Area - Ib).
- ◆ Category II:           National Park - area managed for ecosystem protection and recreation
- ◆ Category III:          Natural Monument - area managed mainly for conservation of specific natural features
- ◆ Category IV:          Habitat/Species Management Area - area managed mainly for

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conservation through management intervention

- ◆ Category V: Protected Landscape/Seascape - area managed mainly for landscape/seascape conservation and recreation
- ◆ Category VI: Managed Resource Protected Area - area managed mainly for the sustainable use of natural systems

A review of the management objectives and selection guidelines for each category of protected area (Appendix 4.1) indicates that marine protected areas can be developed under several of the categories, hence the familiar terms of fishery management area, fish sanctuary, fish reserve, marine park, etc.

The review of the system developed by IUCN in 1978 identified a number of pertinent issues, namely:

- ◆ The size of protected areas;
- ◆ Zoning within protected areas;
- ◆ Management responsibility;
- ◆ Ownership of land;
- ◆ Regional variations;
- ◆ Multiple classifications;
- ◆ The areas around protected areas; and
- ◆ International designations.

Many of these issues are relevant to marine protected area management. To complicate matters, marine conservation efforts have evolved to the point where establishment of marine protected areas "...consists of the establishment of a large, multiple-use protected area with an integrated management system providing levels of protection varying throughout the area" (Kelleher & Kenchington, 1991. P.1). However, due to the increasing complexity and number of protected areas, as well as a growing recognition that many of the threats originate outside the protected sites, there is increasing pressure to adopt a systems approach to protected area management. Essentially, the approach of establishing a national system of protected areas is supposed to rationalise the approach to protected area planning, as well as linking conservation efforts to other developmental and human activities.

<b>MODULE 4</b>	<b>MARINE PROTECTED AREAS OVERVIEW</b>
<b>THEME 2</b>	Historical Overview of Marine Protected Area Programmes in the Caribbean
<b>OBJECTIVE</b>	To provide participants with a sense of how protected area development has progressed, as well as identifying the main factors influencing that development.
<b>SIGNIFICANCE</b>	Protected area (PA) development in the Caribbean has taken place primarily on a project by project basis. It has been argued that the project approach has led to some of the sustainability problems being experienced by PAs. The lessons learned from past activities will be useful in influencing the design of future PA projects and programmes.
<b>PRESENTATION</b>	Lecture, Discussion
<b>EQUIPMENT / MATERIALS</b>	N/A
<b>EXERCISE</b>	N/A
<b>TIME</b>	1.5 Hours

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## INTRODUCTION

The Caribbean has a long history of designating protected areas, with the first terrestrial protected area (the Main Ridge Reserve of Tobago) established in 1765, and the first marine protected area (Pedro and Morant Banks in Jamaica) established in 1907 (Putney, 1994). Since that early period, establishment of protected areas has increased significantly, with inventories in the Insular Caribbean listing 158 sites in 1988 (OAS/NPS, 1988) and 284 in 1996 (UNEP, 1996). During the same period, the number of marine protected areas in the Insular Caribbean increased from 51 to 122.

The initiatives to establish protected areas in the Caribbean involved the effort of individuals, national organisations (public sector and civil society), regional non-governmental organisations, regional inter-governmental institutions, international non-governmental organisations, and the international multi-lateral institutions.

## PAST INITIATIVES

A number of the initiatives have taken the form of surveys and action plans, prepared at both the global and regional levels. These include:

- ◆ IUCN Marine Conservation Strategy for the Caribbean (IUCN, 1979);
- ◆ USAID Training Strategy for Natural Resource Management in Latin America and the Caribbean (WWF-US, 1980);
- ◆ Bali Action Plan (global plan for protected areas produced at the III World Parks Congress) (McNeely and Miller, 1984);
- ◆ Nahuel Huapi Action Plan (for protected areas of Latin America and the Caribbean) (IUCN, 1986);
- ◆ Survey of Conservation Priorities in the Lesser Antilles (Putney, 1982); and
- ◆ The Caracas Action Plan (global plan for protected areas produced at the IV World Congress on National Parks and Protected Areas) (IUCN, 1994).

Though none of the above plans have been the basis for regional programmes, a number of regional and international organisations have implemented regional projects or programmes in support of protected areas. In addition to the financial support provided by many

foundations, bilateral, and multilateral organisations, the major regional initiatives are shown below.

### **Caribbean Conservation Association - Marine Parks Project**

The Caribbean Conservation Association (CCA), with the financial support of Canada's International Center for Ocean Development, implemented a marine parks project that focused on a wide range of actions in 10 Caribbean countries during the period 1991-96. One of the outputs of the project was the establishment of the Marine Parks and Marine Protected Areas Managers Network (MPANET).

MPANET was launched at a meeting of Pilot Project Managers in Tobago in 1995, was formed with the following objectives:

- ◆ Sharing, communication, and documentation of information and experience among marine protected area managers;
- ◆ Development and facilitation of training programmes and research methodologies and tools specific to the needs of marine protected area managers operating in small island systems; and
- ◆ Dissemination of knowledge and information to marine resource users and the general public on the need for, and benefits of, marine protected areas.

MPANET was absorbed into CaMPAM in 1997.

### **Caribbean Natural Resources Institute - Parks and Protected Areas Programme**

Protected areas formed one of the two initial programme areas of the Caribbean Natural Resources Institute (CANARI). The programme focused on technical cooperation, training, networking, and demonstration projects. CANARI also published the Caribbean Park and Protected Area Bulletin until 1994.

### **Organisation of Eastern Caribbean States - Protected Area Programme**

Protected areas formed one of the areas of focus for the Natural Resources Management Unit (NRMU) of the OECS during the period 1992-96. Though no longer a programme area, the NRMU continues to support protected area activities in the OECS countries.

## **Lessons Learned**

Putney (1994) identifies the lessons learned from the diversity of protected areas programmes and approaches taken at both national and regional levels (prior to 1992) as:

- ◆ The plethora of assessments, strategies, and action plans are disproportionate to the actual implementation.
- ◆ A long-term process approach is required instead of short projects.

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- ◆ While important areas should be legally protected, priority should be given to management of areas already established.
  - ◆ The small scale of many of the islands (and related institutional arrangements) creates resource problems for protected area planning and management.
  - ◆ Caribbean islands do not, on an individual basis, have the resources to establish and manage a representative system of protected areas, and thus regional cooperation based on stable regional structures is important.
  - ◆ Effective cooperation requires a better flow of information within the region.
  - ◆ The support base for protected area activity needs to be broadened.
  - ◆ There is a need for more partnerships.
  - ◆ Plans for protected areas must concentrate equally on realistic definitions of need as well as sources of support.
  - ◆ It is easier to generate funding for new capital works than for maintenance programmes.

## **EXISTING REGIONAL PROGRAMMES**

### **IUCN-The World Conservation Union**

The Caribbean is one of IUCN's protected areas programme regions. In addition to preparation of the marine strategy for the Caribbean, IUCN maintains an active network of protected area professionals in the region through its World Commission on Protected Areas (formerly CNPPA). The programme, which was guided by a regional steering committee (1989-92), has focused on assistance to regional organisations, networking, information collection and exchange, and training. Efforts to establish a regional protected area trust fund continue.

### **The Nature Conservancy - Caribbean Programme**

The Nature Conservancy (TNC) maintains a protected areas programme in the Caribbean, focusing mainly on assistance to partner institutions in several countries. Major initiatives of the TNC programme are the Parks in Peril programme and the establishment of Conservation Data Centres in several countries of the Wider Caribbean Region.

### **United Nations Environment Programme/Caribbean Environment Programme - Specially Protected Areas and Wildlife Programme**

The adoption in 1990 of the Protocol on Specially Protected Areas and Wildlife by Caribbean governments, provided the basis for what is currently the most extensive protected areas programme in the Wider Caribbean Region. The (SPAW) programme implements activities in the following areas:

- ◆ Promotion of best practices and training for sustainable coastal tourism;

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- ◆ Coral reef monitoring, management, and conservation;
  - ◆ Strengthening of protected areas through technical assistance and a regional training programme for trainers;
  - ◆ Development of a regional network of marine protected area managers (CaMPAM);
  - ◆ Development and implementation of guidelines and recovery plans for species conservation; and
  - ◆ Development and implementation of guidelines for establishment and management of protected areas, and revenue generation.

### **UNESCO - Man and the Biosphere Programme (MAB)**

UNESCO's MAB programme was initiated in 1972, as an approach to protecting entire ecosystems. The programme facilitates monitoring, research, training, implementation of demonstration projects, and site establishment for conservation of representative ecosystems and biodiversity (e.g. Virgin Islands National Park & Biosphere Reserve, approved 1976).

Related initiatives that impact on protected areas include the following (see Module 2 for more detailed information on each initiative):

- ◆ The Caribbean Coastal Marine Productivity Programme (CARICOMP);
- ◆ Caribbean Planning for Adaptation to Global Climate Change Project (CPACC); and
- ◆ SIDS Programme of Action.

### **Protected Area Networks**

A number of networks that are directly or indirectly related to protected area/marine resources management are operating in the Caribbean.

### **Wider Caribbean Marine Protected Areas Management Network (CaMPAM)**

CaMPAM was formed in December 1997, during a workshop on cooperation in marine protected area management that was hosted by the Biscayne National Park and the Regional Coordinating Unit, UNEP/CEP. The Network has adopted as its mission, the "enhancement of marine and coastal area management in the Wider Caribbean Region through sharing and collaboration to strengthen the national and regional systems of existing and future marine and coastal protected areas". Participants from twenty-two (22) countries of the Wider Caribbean Region initially

joined the network, and the number has since increased to 65. The Biscayne National Park, with support from UNEP/CEP/RCU and IUCN, presently coordinate the Network.

### **Caribbean Community Ocean Sciences Network (CCOSNET)**

The Caribbean Community Ocean Sciences Network (CCOSNET) evolved out of the Caribbean Oceanography Resources Exploration Project, and became functional on December 12, 1990. CCOSNET is "a mechanism for marshalling the oceanographic science resources of CARICOM Member States". The Network, which is coordinated by the Institute for Marine Affairs (Trinidad), has the following responsibilities; the establishment and maintenance of a regional ocean sciences database; the establishment and maintenance of an inventory of human and physical resource needs in ocean sciences in the region in the short to medium term; facilitating the procurement of berths and coordinating the use of ships of opportunity and other data-gathering sources in systematically acquiring knowledge in the region; facilitating access to relevant marine and environmental-related data and information regionally and inter-regionally; and providing a forum to facilitate the exchange of information, experience, and expertise in areas of mutual interest.

### **World Commission on Protected Areas (WCPA)**

The WCPA is a worldwide network of experts in protected areas, more than 50 of which are Caribbean residents. The network supports protected area activity through:

- ◆ Collection, storage, and dissemination of information;
- ◆ Provision of technical assistance on protected area policy, planning, and management;
- ◆ Networking;
- ◆ Production of relevant documentation (including guidelines and best practices);
- ◆ Information and policy support to international organisations on protected areas and related issues.

### **Latin American Network for Technical Cooperation in National Parks, Protected Areas, and Wildlife (LAN-NPPAW)**

LAN-NPPAW is a joint FAO-UNEP programme that seeks to improve coordination in protected areas management throughout Latin America and the Caribbean. Activities include:

- ◆ Publication of a bulletin covering network activities;
- ◆ Organisation of workshops and seminars on different aspects of protected areas management;
- ◆ Publication of technical reports; and
- ◆ Facilitation of technical assistance.

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<b>MODULE 4</b>	<b>MARINE PROTECTED AREAS OVERVIEW</b>
<b>THEME 3</b>	Present Status of Marine Protected Area Programmes in the Caribbean
<b>OBJECTIVE</b>	To summarise the current state of protected area development in the Caribbean.
<b>SIGNIFICANCE</b>	Global conservation practices have changed somewhat to focus more on biodiversity conservation, in which PA management is seen as playing a central role. Additionally, Caribbean countries are beginning to use PAs to support their tourism strategies.
<b>PRESENTATION</b>	Lecture, Discussion
<b>EQUIPMENT / MATERIALS</b>	Overhead projector
<b>EXERCISE</b>	N/A
<b>TIME</b>	1 Hour

## INTRODUCTION

UNEP (1996) has identified 324 sites in the Wider Caribbean Region as containing coastal or marine components (Table 4.1, grouped by IUCN categories)

Category		Insular Caribbean		Wider Caribbean Region	
		Total	Coastal/Marine	Total	Coastal/Marine
I	Nature Reserves & Wilderness Areas	15	9	55	17
II	National Parks	49	31	239	73
III	National Monuments	7	4	28	9
IV	Wildlife Sanctuaries	104	47	335	111
V	Protected Landscapes	26	18	165	33
VI	Multiple Use Areas	66	4	471	49
	Biosphere Reserves	8	3	38	13
	World Heritage Sites	0	0	8	5
	Ramsar Sites	9	6	20	14
<b>Totals</b>		<b>284</b>	<b>122</b>	<b>1,359</b>	<b>324</b>

Source: Modified from UNEP, 1996

From Table 4.1 it can be seen that approximately 24% of the PAs contain coastal or marine habitats. This increases to approximately 43% for the Insular Caribbean. These sites were found to provide a range of benefits, including:

- ◆ Wildlife habitat (78 areas);
- ◆ Recreation (68);
- ◆ Fishing income (54);
- ◆ Research activities (53); and
- ◆ Protection of endangered species (16).

<sup>1</sup> The author of the source document indicated that there were gaps in the coverage.

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Despite the identification of the above benefits, the present level of protection was deemed to be inadequate; with only 15% considered to have complete protection, 51% having partial protection, and 32% unprotected (UNEP, 1996).

### **THREATS TO COASTAL AREAS/MPAS**

The major challenge facing MPA management authorities is the problem of inadequate capacity (staff and funding) and experience to deal with the complex ecological, social, economic, political, and institutional challenges that are encountered on a daily basis.

The threats to coastal and marine areas are identified as:

- ◆ Extensive use of coastal environments for recreation and development;
- ◆ Destructive harvesting practices for marine resources;
- ◆ Sediment and nutrient loading; and
- ◆ Pollution (especially from urban areas).

### **IMPACT OF MULTILATERAL ENVIRONMENTAL AGREEMENTS<sup>2</sup>**

UNEP (1996) stated that the participation of countries of the Wider Caribbean Region in 18 international, regional, and sub-regional treaties and agreements averaged 65%. The highest levels of participation (75-100%) were in the Caribbean Environment Programme/SPAW Programme, Convention on Biological Diversity, CITES, and the World Heritage Convention. States with the highest level of participation were Panama, Guatemala, and Costa Rica.

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<sup>2</sup> This issue is covered in much more detail in Module 3, so this section deals only with PAs.

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## Bibliography

- Caribbean Law Institute. 1998. *Implementation of Maritime and Environmental Treaties in Organization of Eastern Caribbean States: Case Study Reports for Antigua and Barbuda, Dominica, St. Kitts and Nevis and St. Vincent and the Grenadines*. Second Draft.
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## Appendix 5.1

### Protected Area Categories and Management Objectives

The current IUCN WCPA categories (IUCN 1994) are as follows:

1. Strict protection
  - a. Strict Nature Reserve
  - b. Wilderness Area
11. Ecosystem conservation and recreation (National Park)
111. Conservation of natural features (Natural Monument)
- IV. Conservation through active management (Habitat/Species Management Area)
- V. Landscape/seascape conservation and recreation (Protected Landscape/ seascape)
- VI. Sustainable use of natural ecosystems (Managed Resource Protected Area)

The mix of management objectives relevant to each of the categories is summarised in the following table (IUCN 1994, p.8):

<b>Management Objective</b>	<b>Ia</b>	<b>Ib</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>VI</b>
Scientific research	1	3	2	2	2	2	3
Wilderness protection	2	1	2	3	3	-	2
Preservation of species and genetic diversity	1	2	1	1	1	2	1
Maintenance of environmental services	2	1	1	-	1	2	1
Protection of specific natural/cultural features	-	-	2	1	3	1	3
Tourism and recreation	-	2	1	1	3	1	3
Education	-	-	2	2	2	2	3
Sustainable use of resources from natural ecosystems	-	3	3	-	2	2	1
Maintenance of cultural/traditional attributes	-	-	-	-	-	1	2

Key: I : Primary objective; 2 : Secondary objective; 3: Potentially applicable objective;  
- Not applicable

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The definitions, objectives and selection criteria for the categories and sub-categories are summarised as follows (IUCN 1994, part 11 and p.9):

**Category I - Strict Nature Reserve/Wilderness Area: protected area managed mainly for science or wilderness protection**

**Category Ia** - Strict Nature Reserve: protected area managed mainly for science

*Definition:* Area of land and/or sea possessing some outstanding or representative ecosystems, geological or physiological features and/or species, available primarily for scientific research and/or environmental monitoring

*Objectives of management:*

- ◆ To preserve habitats, ecosystems and species in as undisturbed a state as possible;
- ◆ To maintain genetic resources in a dynamic and evolutionary state;
- ◆ to maintain established ecological processes;
- ◆ To safeguard structural landscape features or rock exposures;
- ◆ To secure examples of the natural environment for scientific studies, environmental monitoring and education, including baseline areas from which all avoidable access is excluded;
- ◆ To minimise disturbance by careful planning and execution of research and other approved activities;
- ◆ To limit public access.

*Guidance for selection:*

- ◆ The area should be large enough to ensure the integrity of its ecosystems and to accomplish the management objectives for which it is protected.
- ◆ The area should be significantly free of direct human intervention and capable of remaining so.

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- ◆ The conservation of the area's biodiversity should be achievable through protection and not require substantial active management or habitat manipulation (c.f. Category IV).

*Equivalent category, in IUCN (1978):* Scientific Reserve/Strict Nature Reserve.

**Category Ib - Wilderness Area:** protected area managed mainly for wilderness protection

*Definition:* Large area of unmodified or slightly modified land, and/or sea, retaining its natural character and influence, without permanent or significant habitation, which is protected and managed so as to preserve its natural condition.

*Objectives of management:*

- ◆ To ensure that future generations have the opportunity to experience understanding and enjoyment of areas that have been largely undisturbed by human action over a long period of time;
- ◆ To maintain the essential natural attributes and qualities of the environment over the long term;
- ◆ To provide for public access at levels and of a type which will serve best the physical and spiritual well-being of visitors and maintain the wilderness qualities of the area for present and future generations;
- ◆ To enable indigenous human communities living at low density and in balance with the available resources to maintain their lifestyle.

*Guidance for selection:*

- ◆ The area should possess high natural quality, be governed primarily by the forces of nature, with human disturbance substantially absent, and be likely to continue to display those attributes if managed as proposed.
- ◆ The area should contain significant ecological, geological, physiogeographic, or other features of scientific, educational, scenic or historic value.
- ◆ The area should offer outstanding opportunities for solitude, enjoyed once the area has been reached, by simple, quiet, non-polluting and non-intrusive means of travel (i.e. non-motorised).

- ◆ The area should be of sufficient size to make practical such preservation and use.

*Equivalent category in IUCN (1978): no direct equivalent.*

### **Category 11 - National Park: protected area managed mainly for ecosystem protection and tourism**

*Definition:* Natural area of land and/or sea, designated to (a) protect the ecological integrity of one or more ecosystems for present and future generations, (b) exclude exploitation or occupation inimical to the purposes of designation of the area, and (c) provide a foundation for spiritual, scientific, educational, recreational and visitor opportunities, all of which must be environmentally and culturally compatible.

*Objectives of management:*

- ◆ To protect natural and scenic areas of national and international significance for spiritual, scientific, educational, recreational or tourist purposes;
- ◆ To perpetuate, in as natural a state as possible, representative examples of physiographic regions, biotic communities, genetic resources, and species, to provide ecological stability and diversity;
- ◆ To manage visitor use for inspirational, educational, cultural and recreational purposes at a level which will maintain the area in a natural or near natural state;
- ◆ To eliminate and thereafter prevent exploitation or occupation inimical to the purposes of designation;
- ◆ To maintain respect for the ecological, geomorphologic, sacred or aesthetic attributes which warranted designation;
- ◆ To take into account the needs of indigenous people, including subsistence resource use, in so far as these will not adversely affect the other objectives of management.

*Guidance for selection:*

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- ◆ The area should contain a representative sample of major natural regions, features or scenery, where plant and animal species, habitats and geomorphological sites are of special spiritual, scientific, educational, recreational and tourist significance.
  - ◆ The area should be large enough to contain one or more entire ecosystems not materially altered by current human occupation or exploitation.

*Equivalent category in IUCN (1978): National Park*

### **Category III -Natural Monument: protected area managed mainly for conservation of specific natural features**

*Definition:* Area containing one, or more, specific natural or natural/cultural feature which is of outstanding or unique value because of its inherent rarity, representative or aesthetic qualities or cultural significance.

*Objectives of management:*

- ◆ To protect or preserve in perpetuity specific outstanding natural features because of their natural significance, unique or representational quality, and/or spiritual connotations;
- ◆ To an extent consistent with the foregoing objective, to provide opportunities for research, education, interpretation and public appreciation;
- ◆ To eliminate and thereafter prevent exploitation or occupation inimical to the purpose of designation;
- ◆ To deliver to any resident population such benefits as are consistent with the other objectives of management

*Guidance for selection:*

- ◆ The area should contain one or more features of outstanding significance (appropriate natural features include spectacular waterfalls, caves, craters, fossil beds, sand dunes and marine features, along with unique or representative fauna and flora; associated cultural features might include cave dwellings, cliff-top forts, archaeological sites, or natural sites which have heritage significance to indigenous peoples).

- ◆ The area should be large enough to protect the integrity of the feature and its immediately related surroundings.

*Equivalent category in IUCN (1978):* Natural Monument Natural Landmark

**Category IV -Habitat/Species Management Area: protected area managed mainly for conservation through management intervention**

*Definition:* Area of land and/or sea subject to active intervention for management purposes so as to ensure the maintenance of habitats and/or to meet the requirements of specific species.

*Objectives of management:*

- ◆ To secure and maintain the habitat conditions necessary to protect significant species, groups of species, biotic communities or physical features of the environment where these require specific human manipulation for optimum management;
- ◆ To facilitate scientific research and environmental monitoring as primary activities associated with sustainable resource management;
- ◆ To develop limited areas for public education and appreciation of the characteristics of the habitats concerned and of the work of wildlife management;
- ◆ To eliminate and thereafter prevent exploitation or occupation inimical to the purpose of designation;
- ◆ To deliver such benefits to people living within the designated area as are consistent with the other objectives of management.

*Guidance for selection:*

- ◆ The area should play an important role in the protection of nature and the survival of species ('incorporating, as appropriate, breeding areas, wetlands, coral reefs, estuaries, grasslands, forests or spawning areas, including marine feeding beds).
- ◆ The area should be one where the protection of the habitat is essential to the well-being of nationally or locally-important flora, or to resident or migratory fauna.

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- ◆ Conservation of these habitats and species should depend upon active intervention by the management authority, if necessary through habitat manipulation (c.f. Category Ia).
  - ◆ The size of the area should depend on the habitat requirements of the species to be protected and may range from relatively small to very extensive.

*Equivalent category in IUCN (1978):* Nature Conservation Reserve/Managed Nature Reserve/Wildlife Sanctuary.

### **Category V - Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation**

*Definition:* Area of land, with coast and sea as appropriate, where the interaction of people and nature over time has produced an area of distinctive character with significant aesthetic, ecological and/or cultural value, and often with high biological diversity. Safeguarding the integrity of this traditional interaction is vital to the protection, maintenance and evolution of such an area.

*Objectives of management:*

- ◆ To maintain the harmonious interaction of nature and culture through the protection of landscape and/or seascape and the continuation of traditional land uses, building practices and social and cultural manifestations;
- ◆ To support lifestyles and economic activities which are in harmony with nature and the preservation of the social and cultural fabric of the communities concerned;
- ◆ To maintain the diversity of landscape and habitat, and of associated species and ecosystems;
- ◆ To eliminate where necessary, and thereafter prevent, land uses and activities which are inappropriate in scale and/or character;
- ◆ To provide opportunities for public enjoyment through recreation and tourism appropriate in type and scale to the essential qualities of the areas;
- ◆ To encourage scientific and educational activities which will contribute to the long term well-being of resident populations and to the development of public support for the environmental protection of such areas;

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- ◆ To bring benefits to, and to contribute to the welfare of, the local community through the provision of natural products (such as forest and fisheries products) and services (such as clean water or income derived from sustainable forms of tourism).

*Guidance for selection:*

- ◆ The area should possess a landscape and/or coastal and island seascape of high scenic quality, with diverse associated habitats, flora and fauna along with manifestations of unique or traditional land-use patterns and social organisations as evidenced in human settlements and local customs, livelihoods, and beliefs.
- ◆ The area should provide opportunities for public enjoyment through recreation and tourism within its normal lifestyle and economic activities.

*Equivalent category, in IUCN (1978):* Protected Landscape.

**Category VI - Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems**

*Definition:* Area containing predominantly unmodified natural systems, managed to ensure long term protection and maintenance of biological diversity, while providing at the same time a sustainable flow of natural products and services to meet community needs. The area must also fit the overall definition of a protected area.

*Objectives of management:*

- ◆ To protect and maintain the biological diversity and other natural values of the area in the long term;
- ◆ To promote sound management practices for sustainable production purposes;
- ◆ To protect the natural resource base from being alienated for other land use purposes that would be detrimental to the area's biological diversity;
- ◆ To contribute to regional and national development.

*Guidance for selection:*

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- ◆ At least two-thirds of the area should be in, and is planned to remain in, a natural condition, although it may also contain limited areas of modified ecosystems; large commercial plantations are not to be included.
  - ◆ The area should be large enough to absorb sustainable resource uses without detriment to its overall long-term natural values.
  - ◆ A management authority must be in place.

*Equivalent category, in IUCN (1978): no direct equivalent.*

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## **Appendix 5.2**

### **Potential Benefits of Marine Reserves**

Taken from Sobel (1996)

#### **Protects Ecosystem Structure, Function, and Integrity**

- Protects physical structure of habitat
- Protects ecological processes
- Restores population structure (size and age)
- Restores community composition (presence and abundance)
- Protects biodiversity at all levels
- Protects keystone species
- Protects cascading effects
- Protects vulnerable species
- Protects threshold effects
- Protects second order effects
- Protects food web and trophic structure
- Reduces incidental damage.

#### **Improves System Resilience**

- Reduces fishing gear impacts
- Maintains high quality feeding areas for fish and wildlife
- Improves non-consumptive opportunities
- Enhances and diversifies economic activities
- Enhances and diversifies social activities
- Improves peace-of-mind
- Enhances non-consumptive recreation
- Enhances aesthetic experiences
- Improves wildlife opportunities
- Spiritual connection
- Social activity
- Education
- Enhances conservation appreciation
- Increases sustainable employment opportunities
- Creates public awareness about environment
- Leaves less room for irresponsible development
- Encourages holistic approach to management
- Stabilizes economy.

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**Improves Fishery Yields**

- Protects spawning fish stocks
- Increases spawning stock biomass
- Increases spawning density
- Improves stock fecundity
- Provides undisturbed spawning conditions, habitats, sites
- Increase egg and larval production
- Enhances recruitment
- Provides spill over of adults and juveniles
- Reduces chances of recruitment overfishing
- Reduces overfishing of vulnerable species
- Protects diversity of fishing opportunities
- Protects intra-specific genetics from fishery selection
- Enhances recovery from stock collapses and management failures
- Reduces by-catch fishing mortality
- Reduces inadvertent fishing mortality
- Simplifies enforcement and compliance
- Reduces conflicts among users
- Maintains sport trophy fisheries
- Reduces variance of yield
- Allows increased fish outside reserves
- Facilitates stakeholder involvement in management
- Provides fishery management data to improve fisheries
- Increases understanding and acceptance of fishery management
- Reduces impacts of environmental variability
- Provides some protection with limited resources and without data or information.

**Increases Knowledge and Understanding of Marine Systems**

- Provides long-term monitoring sites
- Provides focus for study
- Provides continuity of knowledge in undisturbed site
- Provides opportunity to restore or maintain natural behaviors
- Reduces risks to long-term experiments
- Provides experimental sites needing natural areas
- Provides controlled natural areas for assessing anthropogenic impacts, including fishing and other impacts
- Provides sites for enhanced primary and adult education
- Provides sites for high-level graduate education.