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Marine Protected Areas – A compact introduction



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2 Introduction

The intention of this book is to give project managers and other interested persons an introduction, what Marine Protected Areas –MPA- stands for, where information sources for creating, managing and financing are located and what the current involvement of the GTZ is. After reading this paper relevant termini and information sources for management, financing and international networking regarding MPAs should be known.

There is still a lot of discussion about the terminus Marine Protected Area. IUCN has identified over 140 names (e.g. national park, sanctuary, nature reserve, etc.) for marine and terrestrial protected areas around the world. Names are used differently around the world and discussions about “real MPAs” “multi-use MPAs” or “no-take zones” are ongoing.

Often the selection of MPAs was driven by concerns for tourism or fisheries replenishment. Both are important sources of revenue in most developing countries and so these are given high priority (Salm, 2001).

Nevertheless should the main reason for establishing MPAs focus on conservation. The book concentrates on protection for conservation and excludes temporary conservation as a pure fishery management tool.

Globally, MPAs are a well-established mechanism for protecting marine species habitats and ecosystems. Areas have been established to protect sea turtles, fish, mangroves, coral reefs, seamounts, and banks, among others. Kelleher et al. (1995) identified approximately 1,306 MPAs around the world, and the number is increasing. Most MPAs are located close to shore within territorial waters or even in internal waters and may include land areas.

The conservation of marine areas is subject of many treaties and conventions.

- **UNESCO Man and the Biosphere Programme (1971).** The Biosphere Reserve Programme includes the establishment of marine biosphere reserves that represent the marine ecosystems of the world..
- **Ramsar Convention (1971).** This international agreement protects wetlands of international importance. It includes as “wetlands” ocean areas up to 6 m deep at low tide (e.g., coastal wetlands, coral reefs).
- **World Heritage Convention (1972).** Sites are selected to protect outstanding natural features (e.g., Great Barrier Reef).
- **The UNEP Regional Seas Program (1974 -)** The result of this ongoing Program are several conventions and action plans around the world, which support sustainable management of marine resources. Examples are the Barcelona Convention (1978), the Lima Convention (1986), the Nairobi Convention (1996), the Noumea Convention (1990), and partner programs like the Helsinki Convention and the OSPAR Convention to name a few.¹
- **Bonn Convention (1979).** Signatory nations agree to conserve or restore habitats of endangered migratory species according to various objectives. Canada is not a signatory to this convention.
- **Western Hemisphere Shorebird Reserve Network (1985).** This initiative provides international recognition to critical shorebird habitats (e.g., intertidal mud flats, wetlands).
- **United Nations Convention on the Law of the Sea (UNCLOS)(1982).** The convention does not, of itself, provide for the designation of MPAs. It provides an international basis upon which to pursue establishment of MPAs and conservation of marine resources beyond the 12-nautical mile territorial seas of coastal nations.
- **Conservation of Arctic Flora and Fauna (CAFF)(1991):** Part of this agreement among the eight circumpolar countries focuses on a Circumpolar Protected Areas Network that includes MPAs.
- **Agenda 21 (UNCED, 1992).** Chapter 17 (Oceans) recommends that states should, among other measures, establish and manage protected areas to maintain biological diversity and productivity of marine species and habitats (s.17.7).
- **International Maritime Organization (IMO).** This agency can designate special areas, areas to be avoided, and particularly sensitive sea areas—based on criteria for an area's sensitivity to ship pollution or maritime activities (IMO Resolution A.720(17) 1992).
- **Convention on Biological Diversity (1992)-** mainly the **Jakarta Mandat** on Coastal and Marine Biodiversity (1996). This international agreement includes marine species

¹ For a full list please see <http://www.unep.ch/seas/main/hconlist.html>

and recognizes the importance of protected areas as part of sustainable development. (Zubrigg, 1996)

- **European Union Habitat directive (1992)** legally obligates EU member states to designate and establish protected areas when specific selection criteria are fulfilled.

Table 1 : Relevant treaties and conventions

3 Why do we need MPAs?

With growing pressure on marine resources the danger of destroying important ecosystems and populations is a threat to marine biodiversity, essential habitats and fish stock. A lot of damage is already done and one instrument to prevent these dangerous developments is the creation of Marine Protected Areas. They serve different intentions. The most important are the prevention of destruction and the conservation of vital parts of marine and coastal ecosystems. The restoring of earlier conditions is an important reason in already damaged areas. Protected areas play an important role as nursing habitats for fish stock. MPAs offer the chance to increase fish stock and provide better conditions for tourism on places where it is appropriate. Many regions depend on undisturbed nature to attract tourism. MPAs are a useful instrument for that.

They not only protect areas for tourism and commercially valuable species, they also contribute to high biodiversity and genetic diversity. Barrier reefs and Mangrove forests offer reliable protection from natural hazards and need to be protected. Undisturbed nature, the goal of creating an MPA, is vital for scientific research and education. Besides playing an important role in conservation of endangered habitats and species, particular areas need to be protected as MPAs to conserve these areas for human inspiration, spiritual enrichment, recreation and enjoyment.

Nevertheless should the conservation of natural assets always be the most important reason.

4 MPA Definition

There are several definitions of MPAs worldwide. The range of MPAs goes from “no-take” areas to “multi-used” MPAs. Except the point of view of “hard conservationists” all definitions include more or less human activities.

The most used and worldwide accepted definition is the definition provided by **IUCN**. (DAVIS, 2002; MPA NEWS, 1999; ZUBRIGG, 1996)

“Any area of intertidal or subtidal terrain, together with its overlying water and associated flora, fauna, historical and cultural features, which has been reserved by law or other effective means to protect part or all of the enclosed environment”.

(Resolution 17.38 of the IUCN General Assembly, 1988, reaffirmed in Resolution 19.46 (1994))

The IUCN definition for protected areas is used as the international standard for determining which lands are part of the world's nature conservation system, regardless of formal names or categories. The criteria do not require that protected areas be reserves, such as national parks, but do require that their explicit purpose is nature conservation and they are managed effectively. (Government of NSW/ Australia, 2001)

The IUCN definition applies to areas managed principally for biodiversity conservation. Associated cultural and other values are also covered in the definition.

Some users have found certain difficulties in applying this definition; for example, Nijkamp and Peet (1994) have these objections:

- The IUCN definition refers primarily to terrain rather than to marine waters, which seems to emphasize the value of the seabed rather than the value of the overlying water or associated flora and fauna.
- The reference to fauna and flora is too restrictive as it might exclude such marine features as ocean vents, upwelling areas, and so on.
- An area that is reserved by law is not necessarily protected by law.

The **AIDEnvironment study** (NIJKAMP and PEET 1994) therefore suggests a modified definition of an MPA:

"[An MPA is] any area of sea or ocean—where appropriate in combination with contiguous intertidal areas—together with associated natural and cultural features in the water column, within, or on top of the seabed, for which measures have been taken for the purpose of protecting part or all of the enclosed environment."

Australia as a leading country regarding Marine Protected Areas works with the IUCN definition.

Australian Conservation Agencies use the IUCN definition for Protected Area (above) as the basis for their definition of MPA. Notably, in establishing its National Representative System of MPAs, Australia has elected to distinguish MPA from other "marine managed areas" -- such as exclusive economic zones -- in that an MPA is established especially for the conservation of biodiversity and can be classified according to at least one of the six IUCN categories. (MPA NEWS, 1999)

There is another definition published as well.

"A marine protected area is an area of sea especially dedicated to the protection and maintenance of biodiversity, and of natural and associated cultural resources, and managed through legal or other effective means. Marine parks, nature reserves and other marine protected areas can include: reefs, seagrass beds, shipwrecks, archaeological sites, tidal lagoons, mudflats, salt marshes, mangroves, rock platforms, underwater areas on the coast and seabed in deep water."

AUSTRALIAN MARINE CONSERVATION SOCIETY (<http://www.amcs.org.au/links/mpa.htm>)

The United States define MPAs according to their Executive Order 13158 as *"any area of the marine environment that has been reserved by Federal, State, territorial, tribal, or local laws or regulations to provide lasting protection for part or all of the natural and cultural resources therein."*

There are many different types of MPAs in U.S. waters.

For example, U.S. MPAs may include national marine sanctuaries, fishery management zones, national seashores, national parks, national monuments, critical habitats, national wildlife refuges, national estuarine research reserves, state conservation areas, state reserves, and many others. MPAs have different shapes,

sizes, and management characteristics, and have been established for different purposes. (<http://mpa.gov/mpadescriptive/whatis.html>)

Joseph Uravitch, Acting Director, National Marine Protected Area Center comments as follows:” *...We use the term MPA very generally in the United States and it can have a different meaning depending upon who you are speaking with. We are working on a Users Guide to MPA Terms and Definitions. It will be completed in draft this month and should be available on our web site, mpa.gov, later in the year [2002]. The definition for specific kinds of MPAs comes from the Federal or State law, which established them such as National Marine Sanctuaries (the National Marine Sanctuary Act), National Estuarine Research Reserves (the Coastal Zone Management Act), etc. Some states, such as California and Florida, may have 5 to 10 different kinds of MPAs all authorized by different legislation and with different names.*”

(UPRAVITCH, 2002)

To build an US MPA inventory, a set of working criteria have been developed, based on five key terms in the definition of an MPA given in the Executive Order: "area," "reserved," "marine," "lasting," and "protection." The definition and working criteria for including sites in the inventory can be found in “The MPA Inventory” (http://mpa.gov/mpaservices/mpa_inventory.html)

In **Canada** under Section 35 of the *Canada Oceans Act* (1996) an MPA is defined as “*an area of the sea designated for special protection that forms part of the internal waters of Canada or the exclusive economic zone of Canada*”.

An area can be designated as an MPA to conserve and protect one or more of the following:

1. Commercial and non-commercial fisheries resources, including marine mammals and their habitats
2. Endangered and threatened marine species, and their habitats
3. Unique habitats
4. Marine areas of high biodiversity or biological productivity
5. Any other marine resource or habitat as is necessary to fulfill the mandate of the Minister of Fisheries and Oceans

In Canada, under the *Canada Wildlife Act* and *National Parks Act*, MPAs may be established in the Great Lakes as well as the oceans, whereas MPAs proposed under the draft *Canada Oceans Act* pertain only to the oceans.

For the protection of areas in the North-East Atlantic the following definition was given in **Europe** with respect to the OSPAR Convention².

On the basis Annex V of the OSPAR Convention, in particular of its Art. 2, and on the basis of Art. 194 para. 5 UNCLOS MPAs can be briefly defined as follows:

“MPAs are such marine areas, whose ecosystems and biological components

- *based on the general obligations under the OSPAR Convention, Art. 1 para. 1 a), and the Convention on Biological Diversity (CBD), Art.6,*
- *because of their biodiversity, rareness and/ or fragility*
- *by means of appropriate measures and programmes (see Art. 194 para. 5 UNCLOS)*
- *against damages and deterioration due to adverse effects of human activities are protected or, if they have already been adversely affected, must be restored where practicable.“*

(CZYBULKA AND KERSANDT, 2000)

In connection with new selection and management criteria for MPAs in the North-East Atlantic a new definition is in preparation, which is close to the IUCN definition. Publication of these criteria and definitions are planned for the official OSPAR meeting in June 2002. (RITTERHOFF, 2002)

² Please see Appendix I for the text of mentioned paragraphs

5 Categories of Protected Areas

There is a wide range of classification and names worldwide. The leading classification is once again the classification given by IUCN 1994.

Protected areas are divided into six types, depending on their objectives:

Category I – Protected area managed mainly for science or wilderness protection (Strict Nature Reserve/Wilderness Area);

Category II – Protected area managed mainly for ecosystem protection and recreation (National Park);

Category III – Protected area managed mainly for conservation of specific natural features (Natural Monument);

Category IV – Protected area managed mainly for conservation through Management intervention (Habitat/Species Management Area);

Category V – Protected area managed mainly for landscape/seascape conservation and recreation (Protected Landscape/Seascape);

Category VI – Protected area managed mainly for the sustainable use of natural ecosystems (Managed Resource Protected Area). (IUCN, 1994)

Full description of each category is provided in Annex II.

Table 2: Protected Areas Categories (IUCN, 1994)

This language essentially means that:

- An MPA always includes the marine environment but may also include coastal land areas and islands. It is commonly called an MPA when the total area of sea it encompasses exceeds the area of land within its boundaries, or the marine part of a large protected area is sufficient in size to be classified as an MPA in its own right;
- It has some form of protection, usually legal but not necessarily. For example, in the Pacific, many MPAs are established by customary tradition;
- The degree of protection is not necessarily the same throughout the area; indeed most large MPAs are of necessity zoned into areas of different impact and usage;
- The MPA (and so the provisions for its management) should cover not only the seabed but also at least some of the water column above with its flora and fauna;

- MPAs are not just relevant for natural features but also for protecting cultural features such as wrecks, historic lighthouses and jetties.

One thing the definition does not say. It does not state that an MPA should keep people out. Indeed, marine conservationists are very keen to challenge the frequent perception that the major aim of MPAs is to exclude people. As these guidelines emphasize, MPAs only work if all the users of the marine environment have a stake in their success. And this usually means some form of managed access for each set of stakeholders. (Kelleher, 2000)

The management objectives determine the IUCN category.

The following matrix describes the relations between objectives and IUCN categories.

MANAGEMENT OBJECTIVE	CATEGORY							
	Ia	Ib	II	III	IV	V	VI	
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:

1 Primary objective
 2 Secondary objective
 3 Potentially applicable objective
 - Not applicable

Table 3: Category/ Objectives Matrix (IUCN, 1994)

Workgroups defining categories for the area covered by the OSPAR convention will do this closely to the categories of the IUCN (RITTERHOFF, 2002)

In practice there is a classification of types of MPAs regarding legal control as well. They include MPAs, which are:

- Set up under customary tenure (e.g. in the Pacific region);
- Managed on a voluntary basis (e.g. in the UK);
- Developed and operated by the private sector (e.g. Chumbe, Zanzibar, Tanzania);
- Based and run by a local community (e.g. Philippine fishing villages);
- Set up and operated under collaborative management systems (e.g. Inuit communities) and
- Run by government agencies.

In addition, a number of MPAs have international designations, e.g. biosphere reserve, Ramsar site or World Heritage site. (KELLEHER, 2000)

Another classification exists regarding size. There are

- Large
- Small and
- Networks of MPAs

Most preferable are networks of MPAs to assure exchange of nutrients, larvae etc.

Despite the international nomenclature provided by the IUCN there are still national categorizations in use. New South Wales for example works with the following categories (besides assigning each protected area to an IUCN category):

1. Marine Parks
2. Aquatic Reserves
3. National Parks and Nature Reserves

Often national names stand for areas in different categories of the IUCN nomenclature. “National Park” for example may be populated in one country and totally restricted for human uses in other countries. National Parks in the UK for

example would be labeled with category V instead of II according to the old classification from 1978.

6 Management of MPAs

6.1 The Management plan

The basis of all actions related to the administration should be the Management plan of the MPA. Guidelines how to write such a management plan are online in KELLEHER (1999), Annex 2 and in SALM (2000), chapter 2³.

The Management Plan for a particular site is a working document that is updated periodically. Because its arrangement and complexity it must be tailored to the needs of the site, generic models may be suggestive but not prescriptive. Each site needs its own customized plan, which needs review on a regular basis.

The **value** of such a plan is that it specifies particular courses of action for interested persons, decision makers and the site manager, for whom it will serve as an operational guide for daily management action. The plan will set realistic objectives and lead managers and other involved parties through the process to achieve the objectives. The plan should be flexible and easy to adapt to new conditions.

There are **many practical considerations** in designing MPAs that are to be addressed during the planning phase: location of MPA facilities; types of boats and motors for surveillance and transport; boundary demarcations; zoning of activities to separate incompatible uses where necessary; recruiting and training of staff; the development schedule and budgets; analysis of visitor use compatibility and safety considerations; conflict resolution and cooperative arrangements with local communities and industries; and such ecological factors as the types of habitats to include, and the size of the protected area and its different zones. Also there should be consideration of external impacts on the site and procedures to minimize these effects.

Examples of Australian management plans are available on the Internet.

The following list contains a number of online published management plans for MPAs.

³ A model management plan is provided in Appendix III

IUCN Category I

Environment Australia (2002). Ashmore Reef National Nature Reserve and Cartier Island Marine Reserve Management Plans.

<http://www.ea.gov.au/coasts/mpa/cartier/plan/management.html#iucn>

Environment Australia (2001). Coringa-Herald National Nature Reserve & Lihou Reef National Nature Reserve Management Plan.

<http://www.ea.gov.au/coasts/mpa/coringa/plan/chapter2.html#national>

IUCN Category II

Environment Australia (2002). Ningaloo Marine Park (Commonwealth Waters) Management Plan This is the second Management Plan for Ningaloo Marine Park (Commonwealth Waters). <http://www.ea.gov.au/coasts/mpa/ningaloo/plan/index.html>

IUCN Category III

At this time there is no management plan available online.

IUCN Category IV

Environment Australia.(2001). Lord Howe Island Marine Park (Commonwealth Waters) Draft Management Plan.

<http://www.ea.gov.au/coasts/mpa/lordhowe/draft-plan.html>

IUCN Category V

At this time there is no management plan available online.

IUCN Category VI

Environment Australia (2000). Great Australian Bight Marine Park (Commonwealth Waters) Plan of Management. <http://www.ea.gov.au/coasts/mpa/gab/plan/index.html>

Environment Australia (2001). Solitary Islands Marine Reserve (Commonwealth Waters) Management Plan. <http://www.ea.gov.au/coasts/mpa/solitary/plan/index.html>

Examples of **Australian wetlands management plans** are available on the Internet as well. (http://www.ramsar.org/wurc_mgtplan_australia_towra1.htm)

6.2 Selection of MPAs

According to Salm there are 4 Guiding principles for the selection of appropriate sites.

1. The needs, priorities and abilities of the country define the objectives and scope of the marine protected area program.
2. The objectives of the marine protected area programme provide the foundation for the selection process.
3. The scope of the MPA programme (national, provincial, number and size of MPA) defines the limits of the selection process.
4. Because each nation has different social, political, economic and environmental parameters, there can be no one definitive model for site selection.

The following steps are necessary during the selection process.

1. Data collection from all available sources
2. Analysis of these data
3. Synthesis of all relevant information
4. Identification of suitable sites

If urgency, opportunity and political and popular pressure make the first areas for protection obvious, criteria are not necessary. If there is a list of potential areas criteria's are needed.

Priorisation of criteria depends on the objectives of the MPA.

This is a short list of potential criteria. Similar to other issues in this paragraph more information is available in the guide (SALM, 2000)

6.2.1 Social Criteria.

Social benefits are measured in the following terms:

1. *Social acceptance*, the degree to which the support of local people is ensured.
2. *Public health*, the degree to which the creation of a protected area may serve to diminish pollution or other disease agents that contribute to public health problems.
3. *Recreation*, the degree to which the area is, or could be, used for recreation by country residents.

4. *Culture*, the religious, historic, artistic, or other cultural value of the site.
5. *Aesthetics*, a seascape, landscape, or other area of exceptional scenic beauty.
6. *Conflicts of interest*, the degree to which area protection would affect the activities of local residents can minimize such conflicts.
7. *Safety*, the degree of danger to people from strong currents, surf, submerged obstacles, waves, etc. that they are able to pursue their activities safely.
8. *Accessibility*, the ease of access across both land and sea. Areas to be used by visitors, students, researchers, and fishermen must be accessible to them.
9. *Benchmark*, the degree to which the area may serve as a “control group” in the scientific sense, an un-manipulated area used to measure changes elsewhere.
10. *Education*, the degree to which the area represents various ecological characteristics and can serve for research and demonstration of scientific methods.

6.2.2 Economic Criteria.

Economic benefits are measured in the following terms:

1. *Importance to species*, the degree to which certain commercially important species depend on the area.
2. *Importance to fisheries*, the number of dependent fishermen and the size of the fishery yield.
3. *Nature of threats*, the extent to which changes in use patterns threaten the overall value to people.
4. *Economic benefits*, the degree to which protection will affect the local economy in the long term.
5. *Tourism*, the existing or potential value of the area to tourism development.

6.2.3 Ecological Criteria.

The values of ecosystems and species are measured in the following terms:

1. *Diversity*, the variety or richness of ecosystems, habitats, communities and species.
2. *Naturalness*, the lack of disturbance or degradation.
3. *Dependency*, the degree to which a species depends on an area, or the degree to

which an ecosystem depends on ecological processes occurring in the area.

4. *Representativeness*, the degree to which an area represents a habitat type, ecological process, biological community, physiographic feature or other natural characteristic.
5. *Uniqueness*, whether an area is “one of a kind.”
6. *Integrity*, the degree to which the area is a functional unit—an effective, self-sustaining ecological entity.
7. *Productivity*, the degree to which productive processes within the area contribute benefits to species or to humans.
8. *Vulnerability*, the area’s susceptibility to degradation by natural events or the activities of people.

6.2.4 Regional Criteria.

The contribution of an area to a regional network of protected areas can be assessed in the following terms:

1. *Regional significance*, the degree to which the area represents a characteristic of the region, whether a natural feature, an ecological process, or a cultural site.
2. *Subregional significance*, the degree to which an area fills a gap in the network of protected areas from the sub-regional perspective.
3. *Awareness*, the degree to which monitoring, research, education, or training within the area can contribute knowledge and appreciation of regional values.
4. *Conflict and compatibility*, the degree to which the area may help to resolve conflicts between natural resource values and human activities, or the degree to which compatibilities between them may be enhanced.

6.2.5 Pragmatic criteria.

The feasibility and appropriate timing of protection can be measured in terms of the following:

1. *Urgency*, the degree to which immediate action must be taken, lest values within the area be transformed or lost.
2. *Size*, which and how much of various habitats need to be included in the protected area.
3. *Degree of threat*, present and potential threats from direct exploitation and

development projects.

4. *Effectiveness*, the feasibility of implementing a management programme.
5. *Opportunism*, the degree to which existing conditions or actions already under way may justify further action.
6. *Availability*, the degree to which the area is available for acquisition or can be managed satisfactorily by agreement with the owners.
7. *Restorability*, the degree to which the area may be returned to its former natural state.

6.3 Guidelines for good MPA management

Most of the management guidelines listed below are regional examples and have been formulated after identifying the problems that managing agencies face in managing their respective MPA in republic of Seychelles. Successes have also been noted and thus incorporated in the listed guidelines. These guidelines for good management are not only valid in this region but also worldwide.

- Stakeholders should be invited to get involved and actively participate at all level of planning and policy formulation before an area is designated as a protected area. This participatory approach will help to identify potential conflict areas at an early stage, thus solutions and/or alternatives may be put forward at this early stage.
- Clear goals and objectives should be set out in the management plan of protected areas; taking into accounts the availability of human and financial resources available. Indicators of successes or failures should be unambiguous and easy to measure. Regular check-up of the indicators is essential.
- Local community involvement in the day-to-day management of a designated area should be encouraged as far as possible. Experience shows that increased responsibility is demonstrated if economic benefits derived from resource rent is accrued to the local community rather than to an administrative entity that is from outside the community.
- Fiscal sustainability is a requirement for successful park management.

- Since most marine protected areas cannot function in isolation, that is, away from anthropogenic activities, an integrated management approach is indispensable. At this juncture it is important to note that the location of an MPA will, to a large extent, determine the level of integration required for its management.
- Where there are multiple users of resources within a MPA, the introduction of activity zones will greatly help to reduce conflicts between different groups of resource users. Ideally zoning should emanate from traditional use of the different areas within the MPA.
- Education of the general public on the purposes of creating MPA and the differences that may exist between different MPA is imperative if the managing agencies are to achieve the co-operation of the public.
- Information dissemination is essential to maintain public awareness of what is happening within MPA and to generate the interests of the general public in these areas.
- The public needs to know what are their rights regarding MPA, and they should feel confident to contribute towards the management of these areas through constructive criticisms. All too often, because of a lack of information, stakeholders have taken the back seat whilst decisions, which affect the livelihood of their community, have been taken.
- Regulations need enforcement. If there are regulations, management should ensure that resources are used to enforce these restrictions.

Whilst this is not an exhaustive list, it seeks to bring out some of the essential points which should not be overlooked by management agencies of MPA in order to enhance their level of management success.(Domingue, G.,n.y.)

The chapter Lessons learned contains also important facts how to run a MPA successful and efficient.

6.4 Effectiveness of MPA management

There are more than 1000 MPAs created around the world. Unfortunately that does not have always the impact we could expect for the conservation of marine areas. A

lot of so called MPA suffer from bad management and the lack of enforcement. These “paper parks” need improvement and this problem is addressed by the International Marine Protected Area Management Effectiveness Initiative . This initiative is implemented by WCPA-Marine, the WWF and National Oceanic and Atmospheric Administration's National Ocean Service .

The primary objective of the initiative is to develop a tool for MPA managers and staff to use to measure how well site goals and objectives are being met and therefore able to adapt future plans to meet objectives more effectively.

The main elements of the initiative consist of:

- Developing MPA-specific indicators for measuring the effectiveness of MPA goals and objectives;
- Building on existing methodologies in assessing protected area management to produce guidelines specific to MPAs for managers to use in conducting planning, monitoring and evaluation;
- Testing the indicators and guidelines in a range of MPA pilot project sites;
- Increasing awareness and use of monitoring and evaluation in the management of MPAs.

The website of this initiative (<http://ipo.nos.noaa.gov/mgmteffect/welcome.html>) offers the MPA Management Effectiveness Guidebook and operational indicators for governance, biophysical and socioeconomic indicators to measure effectiveness. Periodical review of these indicators and appropriate action if necessary ensure a well managed park .

6.5 Logistics

Certain minimum equipment and circumstances are needed to ensure proper protection of an area. The equipment needed for any MPA is usually specific for that particular site- binoculars, boats, radios, vehicles, computers, or etc. Essential equipment should be:

- Buoys

Marking marine protected area boundaries in the sea is usually difficult and expensive to do and to maintain and is often unnecessary. Installing buoys may be

expensive and difficult. These buoys require regular and costly maintenance and vigilant surveillance against theft.

Colour-coded buoys can be used to mark navigation problems (e.g., dangerous reefs) and identify boat channels. Mooring buoys are useful to demarcate snorkeling and diving sites and to prevent anchor damage

- Signs and Signboards

Strategically placed markers, signs, or buoys can contribute to enforcement by encouraging visitors to follow trails and reminding them of zoning regulations. Signboards above water are often essential (turtle nesting beaches, bird nesting or roosting colonies, dangerous marshes, and vulnerable sand dunes) to which the public would normally have ready access. It may be necessary to fence off particularly sensitive habitats to discourage public entry.

- Legal background

Protected areas need to be integrated in local or national laws to provide the staff with a legal background.

- Surveillance and Enforcement equipment and standards

An enforcement programme is especially important in the early stages of establishing a protected area, before the interpretive programme begins to take effect. Necessary equipment depends on the location, resources and circumstances. On one location local observers with binoculars might be enough, while other areas require motorboats and external guards.

- Cooperation with universities, NGOs or similar institutions

External institutions with knowledge and experience are needed to ensure research and observation of the marine resources to track changes in the ecosystem.

- Training of local staff

Local employees need to be trained if necessary to ensure appropriate maintenance and enforcement. More on that later in this paper.

6.6 Methods and tools

Methods and tool important for the management of MPAs are described in SALM (2000). Due to the fact that only remote areas are easy manageable as “no take areas” different uses have to be incorporated into the MPA plan. The importance of zoning justifies the introduction to the zoning guidelines of the largest and most visited MPA – the Great Barrier Reef. This is an example and needs to be changed to local conditions.

Example of guidelines used to make zoning decisions: The Great Barrier Reef Marine Park

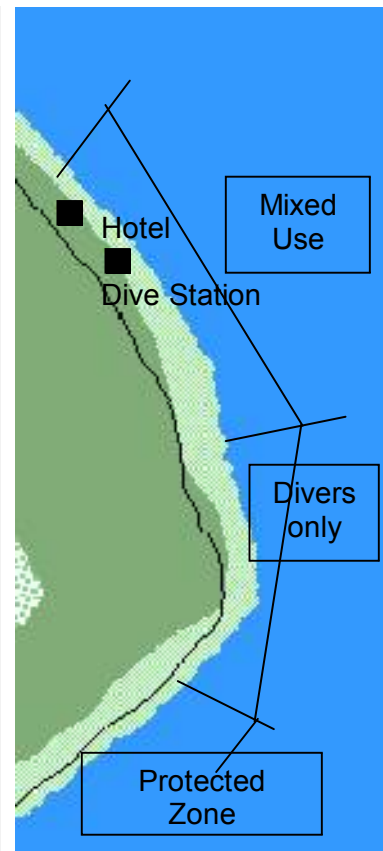
These guidelines were used in the preparation of zoning plans for several sections of the Great Barrier Reef Marine Park. Each section covers a large area, of the order of 70,000km². Each section of the Park is in effect a large MPA. Each section incorporates highly protected (IUCN categories I or II) zones. Other zones provide for a range of multiple uses such as commercial and recreational fishing, mariculture and tourism.

The guidelines used in the Great Barrier Reef Marine Park may be adapted for use wherever zoning of MPAs of any size is appropriate. However, in zoning a small

MPA which is surrounded by areas managed for sustainable use, there may be no need to provide for commercial and recreational activities within the MPA.

General, Legislative and Management Requirements

- The zoning plan should be as simple as practicable.
- The plan should minimize the regulation of, and interference in, human activities, consistent with meeting the goal of providing for protection, restoration, wise use, understanding and enjoyment of the MPA in perpetuity.



Example of a simple Zoning Plan

- As far as practicable, the plan should be consistent with existing zoning plans in the country's other MPAs.
- As far as practicable, the pattern of zones within the MPA should avoid abrupt transitions from highly protected areas to areas of relatively little protection.
- The concept of buffering should be applied so that highly protected zones are generally adjacent to, or surrounded by, zones which provide for moderate protection.
- As far as practicable, single zonings should surround areas with a discrete geographic description, e.g. an island or reef.
- As far as practicable, zoning boundaries should be described by geographical features (based on line of sight to aid identification in the field).
- As far as practicable, zoning plans should complement current regulations and management practices.

Conservation of Significant Habitat

- As far as practicable, areas of world, regional or local significance to threatened species (for example, dugong, seals, whales, turtles, crocodiles) should be given appropriate protective zoning.
- As far as practicable, significant spawning, breeding or nursery sites should be given a high degree of protection, particularly for species subjected to harvesting (e.g. with IUCN Category I or II zoning, or by appropriate Seasonal Closure or Replenishment Area designation).
- As far as practicable, sources of coral and other sedentary species' larvae which replenish other areas should be identified in "source-sink" studies of larval movement and settlement, and given highly protected status by zoning.
- As far as practicable, representative samples of characteristic habitat types should be included in IUCN Category I or II zones.
- As far as practicable, protective zoning should be applied to a wide range of habitat types within one unit (e.g. reef/shoal complexes).

National Parks, Reserves and Historic Shipwrecks

As far as practicable, zoning of reefs and waters adjacent to existing National Parks, fisheries reserves and historic shipwrecks should complement the objectives of those reserves.

Commercial and Recreational Activities

- As a general rule, areas recognized and/or used for reasonable extractive activities (uses that involve removing any animal, plant or object) should be zoned for general use.
- As a general rule, areas of significance for non-extractive activities should be given IUCN Category I or II zoning.
- When a reef or reefs are zoned to exclude a particular activity, provision should be made for access to alternative areas as far as possible.

Traditional Hunting and Fishing

Where there is a continuing tradition of hunting or fishing by local inhabitants using appropriate methods for subsistence or cultural reasons, this should be normally allowed in the plan. However, where target species are endangered or very scarce, it may be necessary to restrict or exclude such traditional use. Nevertheless, as far as practicable, provision should be made for traditional hunting and fishing by indigenous people in protected areas.

Anchorage

Zoning of major anchorage sites should permit most current overnight or longer anchoring of vessels to continue. The plan should retain access for small boats to important all-weather anchorages. Access to all zones during emergency conditions should always be allowed. Ideally, in sensitive and potentially heavily used areas, the need for anchoring should be removed by the provision of moorings and a requirement that these should be used.

Shipping

The plan must not impede the access of commercial shipping along recognized, or proposed, shipping routes or to existing ports on the coast. Nor should it impede access to potential ports.

Defence Areas

The plan must recognize defence requirements.

Scientific Research

Provision should be made for the conduct of scientific research throughout the MPA. However, areas should be zoned exclusively for scientific research only where existing and probable future research programmes indicate that they are likely to be used for that purpose on a frequent and regular basis.

KELLEHER (1999)

6.7 Lessons learned from project management

These Lessons Learned are only examples from a wide range of publications. They address general recommendations and claim no completeness.

KELLEHER (1999) emphasizes the following lessons learned from project management.

- Participants function best when they have a broad understanding of the total picture.
- Time spent in group discussion of problems and solutions will help achieve this broad understanding and build a team.
- The number of key participants must be kept to a realistic minimum, and their quality to a maximum.
- The participants should be selected carefully and rationally **after** a detailed preliminary analysis of the MPA, and the skills that are required.
- The individual(s) who will eventually manage the MPA system or sites should be a key member of the team.
- The project manager's function is that of integrator, coordinator, communications centre, tactician and consensus-builder.
- The project should be organized in an organic/adaptive fashion. All aspects should be orchestrated so that decisions follow an orderly progress, and maximum flexibility is retained.
- Scheduling should concentrate on the broad aspects of key project elements rather than getting bogged down in detail.
- Cost control should rely on advance development of remedial tactics to stay

within budget.

- Almost all MPAs contribute to the maintenance or restitution of both biological diversity and abundance, both of which are relevant to sustainable fisheries. It is not feasible in today's marine environment to divorce the questions of resource use and conservation, because marine natural resources and their living space are all sought now by many different users for many different purposes;
- The tendency in some areas to oppose the recognition of fishery reserves as MPAs seems to be counterproductive, inhibiting cooperation between fishers and environmentalists in creating and managing MPAs;
- There has been a long history in almost all areas of the world of conflict and lack of cooperation between environmental and fisheries management agencies. This lack of joint action inhibits progress in establishing MPAs and managing them wherever it is manifest. Individual MPAs and system plans should be designed to serve both sustainable use and environmental protection objectives, and relevant agencies should work together in planning and management;
- Local people must be deeply involved from the earliest possible stage in any MPA that is to succeed. This involvement should extend to them receiving clearly identifiable benefits from the MPA;
- Socio-economic considerations usually determine the success or failure of MPAs. In addition to biophysical factors, these considerations should be addressed from the outset in identifying sites for MPAs, and in selecting and managing them;
- It is better to have an MPA which is not ideal in the ecological sense but which meets the primary objective than to strive vainly to create the 'perfect MPA';
- It is usually a mistake to postpone action on the establishment of an MPA because biophysical information is incomplete. There will usually be sufficient information to indicate whether the MPA is justified ecologically and to set reasonable boundaries;
- Design and management of MPAs must be both top-down and bottom-up;
- An MPA must have clearly defined objectives against which its performance is regularly checked, and a monitoring programme to assess management effectiveness.
- Management should be adaptive, meaning that it is periodically reviewed and revised as dictated by the results of monitoring;

- There is a global debate about the merits of small, highly protected MPAs and large, multiple use MPAs. Much of this debate arises from the misconception that it must be one or the other. In fact, nearly all large, multiple use MPAs encapsulate highly protected zones, which can function in the same way as individual highly protected MPAs. Conversely, a small, highly protected MPA in a larger area subject to integrated management can be as effective as a large, multiple use MPA;
- Because of the highly connected nature of the sea, which efficiently transmits substances and forcing factors, an MPA will rarely succeed unless it is embedded in, or is so large that it constitutes, an integrated ecosystem management regime.
(KELLEHER IN *PARKS* 8(2), 1998)

6.8 Recent trends in protected area management

The IVth World Parks Congress in Caracas, Venezuela (1992) set out a number of objectives and high priority actions for protected areas worldwide in the Caracas Action Plan. Since 1992, increasing emphasis has been given to:

- Bioregional planning, as an integrated approach to link protected area management to the use of land and water in the surrounding landscape. This is essentially a similar approach to integrated coastal management and emphasizes the links between terrestrial and marine environments.
- Co-management, which encourages good relations with the local community and their active involvement in the planning and management of the area. It is proving an ideal way of involving fishers and other stakeholders in MPA management.
- The changing structure of management. The trend has been for more private sector, local community, indigenous peoples and NGO involvement in the management of protected areas, following devolution of government functions as part of democratization and other trends. Not so well developed as on land, this trend is only just starting in the seas.
- Financial sustainability. The need is for protected areas to be more financially self-sustaining, by generating their own income and not relying on government budgets as their only source of funding. This depends on governments allowing MPA managers to retain the income they have generated for management, a practice, which finance departments sometimes oppose.

- The use of protected area models in which people work and live, as a way of combining conservation of biodiversity with continuation of local livelihoods and services. As a result, protected areas in Category V (protected lived-in landscapes) and Category VI (sustainable use reserves) are increasingly used.

KELLEHER (1999)

7 Financing MPAs

There are several publications explaining and describing ways to fund protected areas.

They are accessible through the Internet and therefore always available.

A comprehensive guide to financial resources is the publication by Dirk Kloss from the GTZ: **Guide to Sustainable Financing of Biodiversity and Protected Areas-**

A compilation and coarse analysis of financing mechanisms at different levels for project-managers, their counterparts and national/international decision makers.

This publication is available under

http://www.conservationfinance.org/Documents/GTZ_CF_Guide/guide.pdf.

Other sources are:

Bayon R., J. Steven Lovink, Wouter J.Veening.(2000).Financing Biodiversity Conservation. Sustainable Development Dept. Technical papers series ; ENV-134

<http://www.iadb.org/sds/doc/ENV-134FinancingBiodConservaE.pdf>

U.S. Environmental protection agency(1999): A Guidebook of Financial Tools.

340 financial tools are collected in this online publication

<http://www.epa.gov/efinpage/guidbk98/index.htm>

Philips, A. (2000). Financing Protected Areas. Guidelines for Protected Areas Managers. Best Practice Protected Area Guidelines Series No.5. IUCN. Gland.Switzerland

A very useful overview is given by Barry Spergel (Spergel, 2001) from the WWF.

<http://www.pacificbiodiv.org/Files/Financing%20Biodiversity%20Conservation.doc>

The WWF dedicated a website for financing problems as well.

(<http://www.worldwildlife.org/conservationfinance>)

A short summary about sources of finance is given in the article:

Finding International Funding for MPAs: Places to Search in

MPA NEWS Vol. 3, No. 10 May 2002.

A very useful publication to get an overview of chances to fund a protected area is

“Funding Protected Area Conservation in the Wider Caribbean: A Guide for Managers and Conservation Organizations by Ruth Norris.

The chart on the following pages is a schematic look at the possibilities, with comments about advantages, disadvantages, and circumstances under which each is most useful and appropriate.

Source or Mechanism	Definition	Who Can Use It	Advantages	Disadvantages
Government Appropriations	Funds appropriated in national budgets for protected area management agency	National protected area agencies	Regular, recurrent income Maximum compatibility with national environmental priorities	Usually inadequate to needs Funds sometimes not available in timely fashion or when needed Complex budgeting and accounting rules
Taxes, Levies, Surcharges	Fees and levies imposed on certain classes of activities, sales or purchases	Government prerogative to impose and collect; proceeds may be earmarked for annual use, trust funds, etc.	Regular, recurrent income, use generally unrestricted Can capture economic benefits from resource uses (tourism, water consumption, hunting/fishing, boating, tourism, etc.)	Can result in promotion of inappropriate activities as a means to capture income May require special authorizing legislation May generate controversy, especially among constituencies to be taxed (requires public education on advantages and purposes of levy)
Entry Fees	Charge for visitation, usually "per person" or "per vehicle"; may include such variations as seasonal or annual passes, charges to tour firms bringing escorted groups	The entity with jurisdiction over a protected area can collect fees itself or designate another party to do so on its behalf, depending on applicable law	Regular, recurrent income, use generally unrestricted Embodies "user pays" principle Can be used to regulate access, control over-use, manage visitation flow among protected areas Easy to implement in areas with	Not appropriate for little-visited areas (projected revenue should exceed cost of collection) Potential equity issues (can be addressed by lowering fees for national/local residents, scheduling one free day per week) Introducing fees for areas that previously were free can generate

			limited number of access points	controversy (requires local outreach and education before implementation)
Leases and Concessions	Legally binding agreements between the entity with authority over the protected area and private organizations or entrepreneurs, who market goods and services related to the protected area and return some share of the profits, or a flat fee	Protected area agencies, private reserves, NGOs, businesses	<p>An effective mechanism to provide services with little up-front investment by the protected area.</p> <p>Concessionaire incurs the risks associated with potential unprofitability</p> <p>Concessionaires bring marketing and business skills to the table</p> <p>Frees management agency to focus on resource protection</p> <p>Provides opportunities for local entrepreneurs</p>	<p>Concessionaires operate for profit motive, may not share values of protected area and need to be carefully monitored</p> <p>Estimation of fees is complex and difficult; need to ensure healthy and safe service at reasonable price to visitor; fair return to both protected area and entrepreneur.</p> <p>Not appropriate for little-visited areas.</p>
Sale of goods and services	Gift and souvenir shops, sale of items such as maps and guides, fee-for-service tours, anchorage, mooring, equipment rental, camp or picnic space rental, entry to exhibits, etc.	Parks agencies, NGOs, concessionaires	<p>Goods and services can do double duty as sources of income and visitor education, promotion</p> <p>Generally does not require additional legal authorization; easy to keep proceeds within area</p>	<p>Initial investment required for production of inventory of goods, recruitment of providers of services</p> <p>Goods and services should be limited to those related to protected area purposes</p> <p>Potential for competition with other local providers of goods and services</p>

Source or Mechanism	Definition	Who Can Use It	Advantages	Disadvantages
Cause-related Marketing	Sale of mostly intangible items (membership, "adopt an Acre," voluntary add-ons to hotel and restaurant bills, etc.) whose primary value is the purchaser's knowledge of having helped conservation	Most often used by NGOs	<p>Combines promotion, education, and fundraising</p> <p>In some cases contributions may be tax-deductible</p> <p>Markets can be easily identified (park visitors, NGO members, etc.)</p> <p>Involves local business community in protection</p>	<p>Many areas have no built-in market, must develop visitor logs, etc.</p> <p>Requires fairly sophisticated understanding of marketing and what will sell, or an experimental approach</p>
Biodiversity Prospecting	Contracts in which a pharmaceutical company or other entrepreneur secures rights to genetic resources (plant materials collected and processed for analysis) in return for cash payments and/or royalties on any medicines/products that may be developed	Generally government or parastatal agencies, sometimes private research institutions with consent of appropriate government agencies	<p>Up-front cost is minimal</p> <p>Opportunity to train and employ local researchers in collection and initial processing</p>	<p>Speculative enterprise, impossible to know potential financial return up front</p> <p>Requires skilled legal representation for contracts</p>
Debt-for-Nature Swaps	Transactions involving the forgiveness or buy-back of foreign debt in return for commitments to conservation (usually local-currency payments into a conservation project or fund)	Key actors include national government (Ministry of Finance); country or commercial bank to whom the debt is owed; intermediary organization that raises funds to purchase discounted debt (in commercial swaps)	<p>Reduction of national debt, substituting local-currency payments to national fund or bonds for hard-currency debt service</p> <p>Donor increases conservation investment by buying debt notes below face value and redeeming</p>	<p>Potentially controversial due to debt legitimacy issues</p> <p>Valuable only when debt is deeply discounted or creditor is willing to write off</p> <p>Requires policy authorization and full participation of national government</p>

		national beneficiary entity (often a parks trust fund) To participate, the country must have a significant amount of commercial or bilateral debt in arrears.	them at full value Net transfer of funds to conservation purposes Can help to capitalize national protected areas trust funds	
Global Environment Facility	A funding mechanism that supports activities under the Biodiversity and Climate Change conventions, implemented by World Bank, UNDP, and UNEP	Governments and NGOs	Source of new money for conservation planning and implementation	Restricted to areas of global significance and to the <i>incremental</i> costs of their protection. Application procedures can be time-consuming and cumbersome Generally not applicable to ongoing or recurrent costs
Bilateral Donors	Aid agencies of developed countries, e.g. USAID, JICA, GTZ, etc.	Most aid is government-to-government but there are significant opportunities for funding of NGO activities	Significant source of revenue, particularly for start-up and public-involvement aspects of protected area management	Funds will be restricted to specific uses Generally not a source for recurrent costs Long application procedures and complex reporting requirements
Philanthropic Foundations	Grant-giving organizations	Generally available only to nonprofit organizations	Can be a significant source of revenue for specific project activities or start-up of new programs	Not a source of recurrent funding Intense competition for limited funding often leads to significant investment of effort in proposals with low-to-medium chance of funding

Source or Mechanism	Definition	Who Can Use It	Advantages	Disadvantages
Corporations	Sponsorship or other types of voluntary payments by companies	Parks agencies, NGOs	<p>Generally a means of raising both national and international support for facilities or management</p> <p>Corporate donors' expectations often can be met with simple acknowledgment placards</p> <p>Means to link companies that benefit from protected areas to supporting them (tourism, hospitality industries)</p>	<p>Often corporations desiring to be sponsors are those with whom the protected area may not wish to be associated (resource exploitation sector)</p> <p>What corporate sponsors get in return needs to be carefully limited before donations are solicited and accepted</p>
Individual Donations	Gifts by individuals through a variety of mechanisms - direct gifts, memberships, wills and bequests, etc.	Generally NGOs but sometimes protected areas agencies	<p>Potential donors come to you and only need to be asked</p> <p>No cumbersome application process</p> <p>Can build donor loyalty over time</p> <p>Usually unrestricted gifts</p>	<p>Requires insight into potential givers and what motivates them</p> <p>Some gifts, especially bequests, may take years to cultivate and eventually realize</p>

Table 4: Sources for funds (Norris, 1999)

Another useful resource for learning more about financing and selecting the right methods to acquire funds is the publication on CD “MOBILIZING FUNDING FOR BIODIVERSITY CONSERVATION- A User-friendly Training Guide for Understanding, Selecting, and Implementing Conservation Finance Mechanisms”

This Guide – and the set of highly practical tools that it contains -- is being developed as a centerpiece of a comprehensive **Conservation Finance Capacity Building Program (CFCBP)**. The survey identified many critical gaps in the available body of existing tools (see Table below). Most importantly, existing materials are not written in ways that support on-the-ground, practical application of conservation finance mechanisms by individuals with limited knowledge of the field and with limited or no assistance from technical experts. Conservation practitioners and planners require information packaged in much more user-friendly and action-oriented formats that help them better understand various finance mechanisms and select/ implement appropriate options for their particular situation by guiding them through systematic decision-making processes.

This Guide has been designed primarily to assist five target audiences that are most critical to putting innovative conservation finance mechanisms in place. These “change agents” are:

- government officials;
- protected area managers;
- conservation NGOs;
- technical consultants; and,
- donor agencies.

This guide is available online as well:

http://www.conservationfinance.org/training_guide.htm

KELLEHER (1999) gives the following recommendations to finance parks.

Some possible ways of funding protected areas

- **Develop alternative sources of income.** One possibility is bioprospecting, using the safeguards of the CBD to ensure revenues return

to the protected areas and local communities.

- **Create Environment Funds.** In developing countries, debt renegotiation between States, and between the State and private banks,

can lead to the creation of environment funds as a condition of debt forgiveness. These capital funds can be used in perpetuity or for a fixed period. The funds created are usually national in scale rather than specific to a particular protected area.

- **Start a Friends Organization**, to capitalize on the goodwill of the visitors. This can cover nationals, especially business people who want to help the MPA, and overseas visitors who want to maintain links with a place they have enjoyed visiting.
- **Try to capture existence values**, for example by encouraging donations by wealthy visitors to the area.
- **Demand heavy compensation** for uses that cannot be avoided and are damaging to the MPA, for example from pollution caused by passing ships.

- **Press for ecosystem services** provided by the MPA to be charged. This could include a charge for sewage discharge from towns where this affects a nearby MPA.

- **Obtain sponsorship from business**. This is a strong tradition in many developed countries and has potential elsewhere as economies develop. For example, the national wildlife NGOs of East and Central Africa have all had sponsors from local businesses.

- **Raise revenue from users as far as the market will stand**. This includes fees for divers and leases of moorings and other facilities. Bonaire Marine Park in the Netherlands Antilles is almost entirely funded by visitor fees.

8 Training of Staff

Many organisations and programs offer training courses for MPA management.

Local programs of the UNEP like the Caribbean Environmental program offer training courses on various subjects.

(http://www.cep.unep.org/pubs/cepnews/v15n4/education_training.htm)

They offer a **manual for the training of trainers** in English and Spanish.

UNEP-CEP (1998). Training of Trainers in Marine Protected Areas Management.

CEP.Kingston, Jamaica. <http://www.cep.unep.org/issues/MPA%20manual.htm>

Examples of NGO arranged courses are WWF-Scripps scholarships and conservation training courses, which include a degree program in marine conservation offered through the new Scripps Center for Marine Biodiversity and Conservation (CMBC). In this degree program, students will work with both Scripps

and WWF staff to gain both theoretical and real world training in the challenges and rewards of conservation work.

<http://www.worldwildlife.org/news/headline.cfm?newsid=342>

ICLARM offers a Coastal Management Training Program as well. It is available under

http://www.iclarm.org/resprg_2.htm

An interesting programme is the **TRAIN-SEA-COAST Programme** - an inter-country cooperative training network composed of training/educational centres in developing countries, countries in transition and developed countries.

It aims at strengthening the capabilities of institutions and individuals having responsibilities in the field of coastal and ocean management.

They develop concepts for courses about special topics, which are demanded by other parties. After that they offer these courses, provide a lecturer and adapt the course to the target group.

http://www.un.org/Depts/los/tsc_new/TSCprog.htm

There is expertise **within the GTZ** as well. R. Hermes for example, working in the Philippines right now, organized these kinds of courses in the past for locals in the Philippines.

9 Relevant Organisations and Programs

The following collection of organisations and programs is a small selection of important institutions. There are many more, but these selected addresses are entry points for further research on local levels.

UNEP World Conservation Monitoring Centre – WCMC

The UNEP World Conservation Monitoring Centre provides information services on conservation and sustainable use of the world's living resources, and helps others to develop information systems of their own. WCMC maintains a large amount of information relating to marine and coastal environments and their conservation. Increasingly, this information is managed using Geographic Information Systems (GIS). <http://www.unep-wcmc.org/>

UNEP Regional Seas Programme

The Regional Seas programme at present includes 13 regions and has over 140 coastal States and Territories participating in it. It is conceived as an action-oriented programme having concern not only for the consequences but also for the causes of environmental degradation and encompassing a comprehensive approach to combating environmental problems through the management of marine and coastal areas. Each regional action plan is formulated according to the needs of the region as perceived by the Governments concerned. <http://www.unep.ch/seas/>

The Global Environmental Facility

The GEF is a financial mechanism structured as a trust fund that operates in collaboration and partnership with the three implementing agencies (UNDP, UNEP, and the World Bank) for the purpose of achieving global environmental benefits. GEF is an important source of financial support for implementing organisations.

<http://www.undp.org/gef/index.html>

International Union for Conservation of Nature - IUCN

The World Conservation Union brings together States, government agencies and a diverse range of non-governmental organizations in a unique world partnership: over 980 members in all, spread across some 140 countries.

The goal of the Marine Programme (IUCN-MP) is to contribute towards conservation of marine biodiversity by promoting, influencing and catalyzing sustainable uses and equitable sharing of the resources as well as protecting the ecosystems.

IUCN periodically publishes books, analyses, guidelines, occasional papers and other documents related to conservation, management and sustainable use of marine resources and ecosystems, either independently or in co-operation with partner organisations. IUCN is one of the leading organisations regarding MPAs.

<http://www.iucn.org/themes/marine/>

World Commission on Protected Areas - WCPA

The World Commission on Protected Areas (WCPA) is the world's leading global network of protected area specialists. The IUCN Programme on Protected Areas (PPA) is the focal point within the IUCN Secretariat for Protected Areas and serves

as the Secretariat for WCPA. WCPA's international mission is to promote the establishment and effective management of a worldwide representative network of terrestrial and marine protected areas, as an integral contribution to the IUCN mission.

To achieve this goal, WCPA-Marine is focused on three primary themes:

- Demonstration of the effectiveness of marine protected areas (MPAs) as a tool of sustainable fisheries management and for protecting and restoring marine biodiversity;
- Implementation of MPAs as exemplary systems of participatory and adaptive management in the context of integrated coastal management; and
- Encouragement of sustainable tourism by creating new partnerships with the tourism community and engaging it in MPA management.

<http://wcpa.iucn.org/biome/marine/marine.html>



World Wide Fund – WWF WWF's Endangered Seas Campaign is urging governments, businesses, local communities, fishers and conservation organizations to protect and restore our fisheries. The campaign is working to:

- Safeguard fisheries and marine biological diversity by establishing marine protected areas.
- Reduce wasteful government subsidies that contribute to overfishing.
- Create market incentives for sustainable fishing through the Marine Stewardship Council's new certification initiative.

WWF was 1998 involved in over 120 MPA-related projects in nearly 60 countries, in a wide variety of roles. Together with the IUCN they are the leading promoters for MPAs on High Seas and management effectiveness measures and improvements.

<http://www.panda.org/endangeredseas/>

The International Coral Reef Initiative – ICRI

The International Coral Reef Initiative (ICRI) is a partnership among nations and organisations seeking to implement Chapter 17 of Agenda 21, and other international Conventions and agreements for the benefit of coral reefs and related ecosystems. The Initiative was established in order to stop and reverse the global degradation of coral reefs and related ecosystems. The ICRI partnership and approach thus far has been to mobilize governments and a wide range of other stakeholders in an effort to improve management practices, increase capacity and political support, and share information on the health of these ecosystems.

<http://www.icriforum.org/>

Conservation International - CI

CI is a field-based, nonprofit organization that protects the Earth's bio-logically richest areas and helps the people who live there improve their quality of life. The key marine areas in which CI works are:

Abrolhos Bank, Brazil; Gulf of California, Mexico, Papua New Guinea; Palawan Province, Philippines; Togians-Banggai Corridor, Indonesia.

<http://www.conservation.org/>

The International Coral Reef Action Network – ICRAN

ICRAN is an innovative and dynamic global partnership of many of the world's leading coral reef science and conservation organizations. The partnership draws on its partners' investments in reef monitoring and management to create strategically linked actions across local, national and global scales. ICRAN is thus the first partnership to respond to conservation needs at the global scale by recognizing both traditional and scientific perspectives of coral reef dynamics and respective social dependency. <http://www.icran.org/>

The World Bank Group

The World Bank is a founding member of the *International Coral Reef Initiative* and has remained actively engaged in development of the ICRI Partnership since its inception in 1995.

Since the early 1990s, *World Bank projects* involving coral reefs and associated

marine environments are estimated at more than 235 USD\$ million. In particular, the Bank is supporting several regional initiatives designed to address transboundary environmental issues that affect poverty alleviation and sustainable development.

In partnership with IUCN and the Great Barrier Reef Marine Park Authority, the World Bank produced the four volume set “A Global Representative System of Marine Protected Areas”

The World Bank group maintains a Database of Coastal and Marine Projects, of Biodiversity Projects and World Bank Coral Reef Projects in the World Bank. In Addition to that they have an evaluation report of Integrated Coastal and Marine Management projects.

<http://Inweb18.worldbank.org/ESSD/essdext.nsf/42ByDocName/CoastalandMarineManagement>

The Center for Tropical Marine Ecology – ZMT

An important German institution is the Center for Tropical Marine Ecology at the University of Bremen. Its tasks are manifold. The Center

- plans and implements partnership projects to better understand and manage tropical marine ecosystems
- engages in educational activities in the field of tropical aquatic ecology and cooperates in scientific capacity building in tropical countries
- facilitates coordination and communication among scientists and institutions active in the field of tropical marine ecology

<http://www.zmt.uni-bremen.de/>

Government Offices

Very useful sources for information gathering and examples how to maintain MPAs are parks managed by several government offices. Leading countries are

- Australia: [Great Barrier Reef Marine Park Authority - GBRMPA](#)
- United State of America: [U.S. Agency for International Development](#), [U.S. Department of Commerce - National Oceanic and Atmospheric Administration](#) - NOAA, [U.S. Department of State](#)
- Canada: <http://www.ncr.dfo.ca/oceanscanada>

10 MPA Management in the GTZ

The GTZ as the leading development cooperation corporation supports and implements numerous projects in the fishery and aquatic resource management sector.

Many fishery projects include conservation for breeding grounds for example as well, but the main intention as a fishery management tool does not match with the topic of this book.

The management of Marine Protected Areas is a field where the GTZ is not heavily involved. There is a lot of expertise regarding biodiversity and resource management, but the management of a MPA is only targeted in one project- the management improvement of the Banc d' Arguin National Park in Mauretania.

Main tasks are:

- Consulting and support for a more effective administration of the park
- Optimizing of management and administrative processes
- Promotion of usage of the park by locals according to the protection objectives
- Training of employees
- Coordination with other donor organisations
- Development of functioning sustainable financial instruments

As mentioned in chapter 6 the GTZ is able to provide profound knowledge in the field of financing national parks (Mack, R a.o., Conservation).

There are small projects as well where employees of the GTZ support the creation and management of marine protected areas (sanctuaries) in connection with the management of fishery resources. Examples are the **FCDRMP** in Sri Lanka (Schirm, B. and M. Waltemath, FCDRMP 2001) or the financial support for the **SYMCOR** Project in the Philippines with financial resources gained by selling special stamps (TÖB Program) .

There are other departments in the GTZ, which touch the protection of natural resources as well, like projects focusing on implementing the Biodiversity Convention (BIODIV) or projects working on improvement of coastal zone management or

activities in land based parks. Nevertheless these projects do not suit the intention of this paper.

11 Other Internet based MPA Information Sources

Literature Search:

UNEP-WCMC Library Catalogue

<http://nessie.wcmc.org.uk/dbtw-wpd/outwcmc/default.htm>

ConserveOnline

<http://www.conserveonline.org/>

Coral Literature Search for each Country:

http://www.reefbase.org/References/ref_literature.asp?Country=PHL&searchactive=yes

IUCN publications

<http://www.iucn.org/themes/marine/pubs.html>

Information about Protected Areas sorted by country

http://www.reefbase.org/management/man_mpa.asp?country=PHL

WCMC Database of Protected Areas

http://www.unep-wcmc.org/protected_areas/data/nat2.htm

Coastal Guide Experts Database of coastal expert institutes and consultants

<http://www.coastalguide.org/experts/index.html>

Links to organisations doing research in marine and coastal areas:

<http://www.coastalguide.org/links/index.html>

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Appendix I - Relevant paragraphs for the OSPAR definition

Annex V, article 2 of the OSPAR Convention

In fulfilling their obligation under the Convention to take, individually and jointly, the necessary measures to protect the maritime area against the adverse effects of human activities so as to safeguard human health and to conserve marine ecosystems and, when practicable, restore marine areas which have been adversely affected, as well as their obligation under the Convention on Biological Diversity of 5 June 1992 to develop strategies, plans or programmes for the conservation and sustainable use of biological diversity, Contracting Parties shall:

- a. take the necessary measures to protect and conserve the ecosystems and the biological diversity of the maritime area, and to restore, where practicable, marine areas which have been adversely affected; and*
- b. cooperate in adopting programmes and measures for those purposes for the control of the human activities identified by the application of the criteria in Appendix 3.*

Article 194 UNCLOS

Measures to prevent, reduce and control pollution

of the marine environment

1. States shall take, individually or jointly as appropriate, all measures consistent with this Convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and they shall endeavour to harmonize their policies in this connection.

2. States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other States and their environment, and that pollution arising from incidents or activities under their jurisdiction or control does not spread beyond the areas where they exercise sovereign rights in accordance with this Convention.

3. The measures taken pursuant to this Part shall deal with all sources of pollution of the marine environment. These measures shall include, inter alia, those designed to minimize to the fullest possible extent:

- (a) the release of toxic, harmful or noxious substances, especially those which are persistent, from land-based sources, from or through the atmosphere or by dumping;*
- (b) pollution from vessels, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, preventing intentional and unintentional*

discharges, and regulating the design, construction, equipment, operation and manning of vessels;

(c) pollution from installations and devices used in exploration or exploitation of the natural resources of the seabed and subsoil, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices;

(d) pollution from other installations and devices operating in the marine environment, in particular measures for preventing accidents and dealing with emergencies, ensuring the safety of operations at sea, and regulating the design, construction, equipment, operation and manning of such installations or devices.

4. In taking measures to prevent, reduce or control pollution of the marine environment, States shall refrain from unjustifiable interference with activities carried out by other States in the exercise of their rights and in pursuance of their duties in conformity with this Convention.

5. The measures taken in accordance with this Part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted, threatened or endangered species and other forms of marine life.

OSPAR Convention, Art. 1 para. 1 a),

"Maritime area" means the internal waters and the territorial seas of the Contracting Parties, the sea beyond and adjacent to the territorial sea under the jurisdiction of the coastal state to the extent recognised by international law, and the high seas, including the bed of all those waters and its sub-soil, situated within the following limits:

Develop national strategies, plans or programmes for the conservation and sustainable use of biological diversity or adapt for this purpose existing strategies, plans or programmes which shall reflect, inter alia, the measures set out in this Convention relevant to the Contracting Party concerned.

Annexes II – Description of IUCN categories.

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; and
- 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.
- 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).

Organizational Responsibility

Ownership and control should be by the national or other level of government, acting through a professionally qualified agency, or by a private foundation, university or institution which has an established research or conservation function, or by owners working in cooperation with any of the foregoing government or private institutions. Adequate safeguard and controls relating to long-term protection should be secured before designation. International agreements over areas subject to disputed national sovereignty can provide exceptions (e.g. Antarctica).

Equivalent Category in 1978 System

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 wellbeing of visitors and maintain the wilderness qualities of the area for present and future generations; and
- to enable indigenous human communities living at low density and in balance with the available resources to maintain their life style.

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.

Organizational Responsibility

As for Sub-Category Ia.

Equivalent Category in 1978 System

This sub-category did not appear in the 1978 system, but has been introduced following the IUCN General Assembly Resolution (16/34) on Protection of Wilderness Resources and Values, adopted at the 1984 General Assembly in Madrid, Spain.

CATEGORY II

National Park: protected area managed mainly for ecosystem protection and recreation

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 perpetual, 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; and
- 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

- 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.

Organizational Responsibility

Ownership and management should normally be by the highest competent authority of the nation having jurisdiction over it. However, they may also be vested in another level of government, council of indigenous people, foundation or other legally established body which has dedicated the area to long-term conservation.

Equivalent Category in 1978 System

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; and
- 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.

Organizational Responsibility

Ownership and management should be by the national government or, with appropriate safeguards and controls, by another level of government, council of indigenous people, non-profit trust, corporation or, exceptionally, by a private body, provided the long-term protection of the inherent character of the area is assured before designation.

Equivalent Category in 1978 System

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 purposes of designation; and
- 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.
- 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.

Organizational Responsibility

Ownership and management should be by the national government or, with appropriate safeguards and controls, by another level of government, non-profit trust, corporation, private group or individual.

Equivalent Category in 1978 System

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 distinct 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; and
- 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.

Organizational Responsibility

The area may be owned by a public authority, but is more likely to comprise a mosaic of private and public ownerships operating a variety of management regimes. These regimes should be subject to a degree of planning or other control and supported, where appropriate, by public funding and other incentives, to ensure that the quality of the landscape/seascape and the relevant local customs and beliefs are maintained in the long term.

Equivalent Category in 1978 System

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.

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; and
- to contribute to regional and national development.

Guidance for Selection

- The area should be at least two-thirds in a natural condition, although it may also contain limited areas of modified ecosystems; large commercial plantations would *not* be appropriate for inclusion,
- The area should be large enough to absorb sustainable resource uses without detriment to its overall longterm natural values.

Organizational Responsibility

Management should be undertaken by public bodies with a unambiguous remit for conservation, and carried out in partnership with the local community; or management may be provided through local custom supported and advised by governmental or non-governmental agencies. Ownership may be by the national or other level of government, the community, private individuals, or a combination of these.

Equivalent Category in 1978 System

This category does not correspond directly with any of those in the 1978 system, although it is likely to include some areas previously classified as "Resource Reserves", "Natural Biotic Areas/Anthropological Reserves" and "Multiple Use Management Areas / Managed Resource Areas".

Appendix III - Model Outline for MPA Site Management Plan

Executive Summary

Introduction

- A. Purpose and scope of plan
- B. Legislative authority for the action

Management Content

- A. Regional setting: location and access
- B. Resources (facts pertinent to management; other data in an appendix or separate document)
 - 1. Physical: beaches, dunes, shoals, bars, reefs, currents, bathymetry, hydrology
 - 2. Biological: ecosystems (coral reefs, seagrass beds, mangroves, dunes, forests, Grasslands); critical habitats (nesting, feeding, spawning, roosting); species (endangered, commercial, showy)
 - 3. Cultural: archaeological, historical, religious.
- C. Existing uses (description, facilities, etc.)
 - 1. Recreational
 - 2. Commercial
 - 3. Research and education
 - 4. Traditional uses rights, and management practices
- D. Existing legal and management framework
- E. Existing and potential threats and implications for management (i.e., Analysis of compatible or incompatible uses, solutions)
- F. The plan
 - 1. Goals and objectives
 - 2. Management tactics
 - a. Advisory committees
 - b. Interagency agreements (or agreements with private organizations, institutions or individuals)
 - c. Boundaries
 - d. Zoning plan
 - e. Regulations
 - f. Social, cultural, and resource studies plan
 - g. Resource management plan
 - h. Interpretive plan
 - 3. Administration
 - a. Staffing
 - b. Training
 - c. Facilities and equipment
 - d. Budget and business plan, finance sources
 - 4. Surveillance and enforcement
 - 5. Monitoring and evaluation of plan effectiveness

G. Appendices

H. References

(SALM, 2000)