Training Resource Material

Coastal and Marine Biodiversity and Protected Area Management

Module 6

Marine and Coastal Protected Areas

For MPA Managers

भारतीय वन्यजीव संस्थान
Wildlife Institute of India

giz Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH

On behalf of:
Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety
of the Federal Republic of Germany

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Marine and Coastal Protected Areas

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Summary

This module provides the much needed information on basics of marine protected areas (MPAs) and provides insights into the differences between MPAs and terrestrial protected areas, special conditions that affect the management of MPAs, and the categories and types of MPAs. This module covers the key issues of community participation and the role of indigenous communities in managing the MPAs and in coastal and marine biodiversity management. The module also contains information on different types of MPAs in India, their locations and on the benefits and challenges that management of MPAs involves.

Imprint

Training Resource Material:
Coastal and Marine Biodiversity and Protected Area Management
for MPA Managers

Module 1: An Introduction to Coastal and Marine Biodiversity
Module 2: Coastal and marine Ecosystem Services and their Value
Module 3: From Landscape to seascape
Module 4: Assessment and monitoring of coastal and marine biodiversity and relevant issues
Module 5: Sustainable Fisheries Management
Module 6: Marine and Coastal Protected Areas
Module 7: Governance, law and policies for managing coastal and marine ecosystems, biodiversity and protected areas
Module 8: Coasts, climate change, natural disasters and coastal livelihoods
Module 9: Tools for mainstreaming: impact assessment and spatial planning
Module 10: Change Management and connectedness to nature
Module 11: Communicating Coastal and Marine Biodiversity Conservation issues
Module 12: Effective management Planning of coastal and marine protected areas

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Acronyms

CBD	**Convention on Biological Diversity**
CCAMLR	**Commission on the Conservation of Antarctic Marine Living Resources**
CRZ	**Coastal Regulation Zone**
EEZ	**Exclusive economic zone**
FSI	**Forest Survey of India**
GEC	**Gujarat Ecology Commission**
GOM	**Gulf of Mannar**
GOMNP	**Gulf of Mannar National Park**
IBA	**Important Bird Area**
ICCAs	**Indigenous peoples and community conserved territories and areas**
ICMAM	**Integrated coastal and marine area management**
ICMBAs	**Important Coastal and Marine Biodiversity Areas**
IUCN	**International Union for Conservation of Nature**
LMMA	**Locally managed marine area**
MMS	**Malvan Marine Sanctuary**
MPA	**Marine protected area**
MTHL	**Mumbai Trans Harbour Link**
PA	**Protected area**
SAC	**Space Applications Centre**
SCME	**Sindhudurg Coastal and Marine Ecosystem**
UNCLOS	**United Nations Convention on the Law of the Sea**
UNEP	**United Nations Environment Programme**
WCMC	**World Conservation Monitoring Centre**
WDPA	**World Database on Protected Areas**
WII	**Wildlife Institute of India**

Key messages

- A clearly defined geographical space, recognized, dedicated and managed, through legal or other effective means, is mandatory to achieve the long-term conservation of nature with associated ecosystem services and cultural values. One of the most effective means for protecting marine and coastal biodiversity is through the establishment and proper management of marine protected areas (MPAs).

- Presently, only about one percent of the global ocean is protected. There have been many global calls to create many more marine protected areas. The World Summit on Sustainable Development, the World Parks Congress and the Convention on Biological Diversity all committed to a goal of establishing a global network of marine protected areas (MPAs), including in the high seas.

- In India, PAs that fall–in whole or in part–within a swath of width 500 m along the high tide line are included in the MPA network. There are 25 MPAs in peninsular India and about 106 MPAs in its islands.

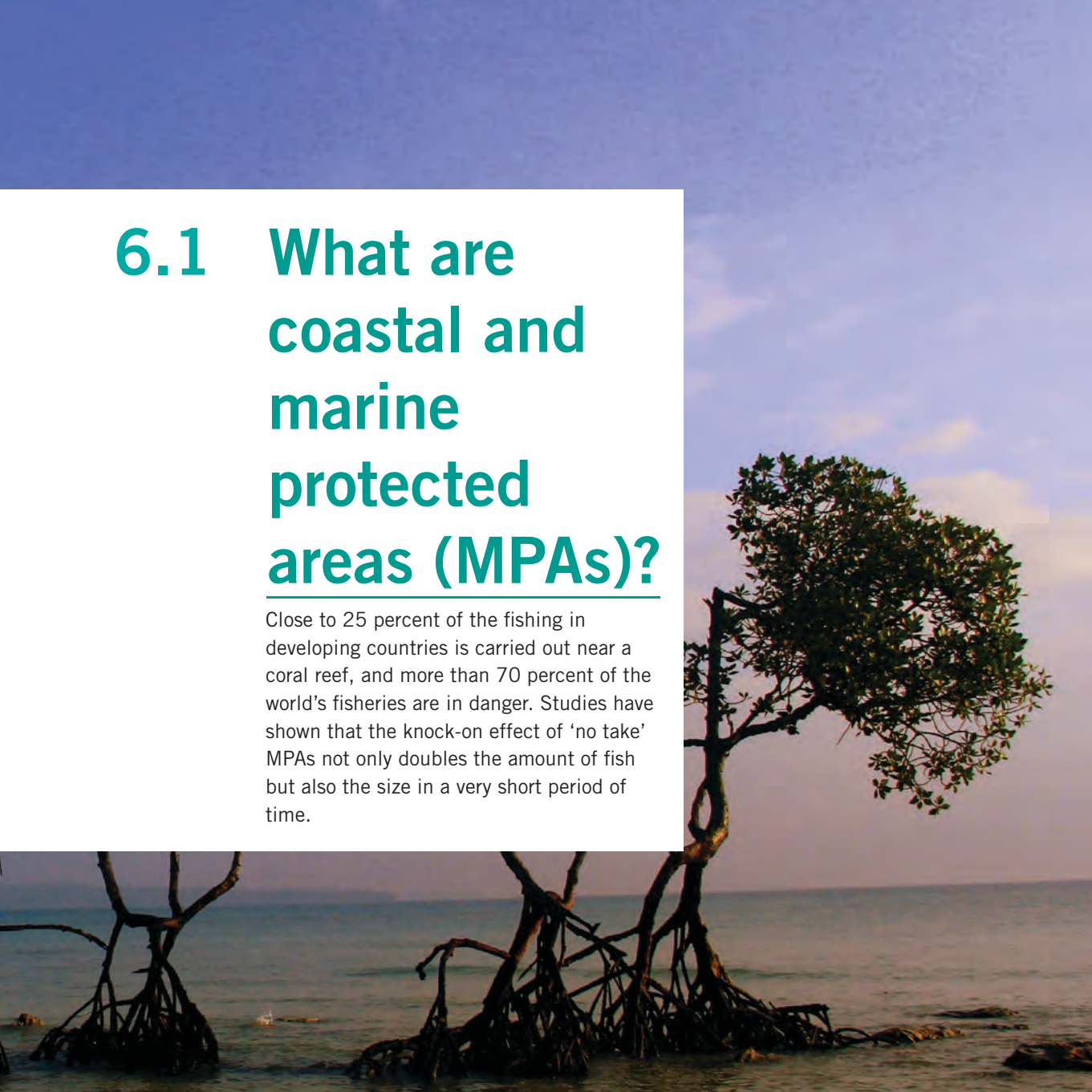
- An effective MPA system is needed to ensure that the oceans recuperate and continue to store carbon dioxide, that fish stocks recover and that coastlines are protected from harsh climatic conditions. It is no longer a technical question but a matter of survival for the planet and humankind.

- Some existing and proposed MPAs have been criticized by local communities as impinging on land usage rights. This criticism is stronger in poor and developing countries. Therefore, securing and strengthening the participation of communities in the management of MPAs is the need of the hour.

- As these pressures intensify, MPAs are increasingly being recognized as a critical management tool for protecting, maintaining and restoring natural and cultural resources in coastal and marine waters. A network of MPAs, elimination of destructive fishing practices and the implementation of ecosystem-based management could help meet the global goal of maintaining or restoring fisheries stocks to levels that can produce the maximum sustainable yield no later than 2015.

6.1 What are coastal and marine protected areas (MPAs)?

Close to 25 percent of the fishing in developing countries is carried out near a coral reef, and more than 70 percent of the world's fisheries are in danger. Studies have shown that the knock-on effect of 'no take' MPAs not only doubles the amount of fish but also the size in a very short period of time.



The global network of MPAs, including those in the high seas, are key to replenishing biodiversity and nourishing the growing human population. They also serve as nurseries for key threatened species, including whales and turtles, whilst protecting a variety of marine ecosystems and the rich biodiversity they sustain. Furthermore, global networks of MPAs provide 'stepping stones' for migratory species.

6.1.1 Protected areas

Protected areas have been used as a tool to manage natural resources for biodiversity conservation and for the well-being of people dependent on these resources. They are widely regarded as one of the most successful measures implemented for the conservation of biodiversity, drawing upon traditional and community-based approaches, governance regimes, scientific and traditional knowledge and contemporary practices of governments and conservation agencies (IUCN).

IUCN defines a protected area as 'A clearly defined geographical space, recognised, dedicated and managed, through legal or other effective means, to achieve the long-term conservation of nature with associated ecosystem services and cultural values'.

6.1.2 Overview of MPAs:

The need to manage the use of existing aquatic resources for sustainability and for safeguard the environment better is increasingly being recognized worldwide. In sustainable fisheries management, the consideration of wider ecosystems, including the human component, is now extensively accepted, and methods such as the ecosystem approach to fisheries (EAF) are being promoted (FAO, 2011). Therefore, the use of MPAs has taken on greater importance in reversing the degradation of aquatic habitats. MPAs are commonly described as a tool for biodiversity conservation and as a part of the ecosystem. Spatial temporal fishing closures are also used in fisheries management, and MPAs and fisheries are linked through this common avenue of spatial management and through EAF.

As defined by the Convention on Biological Diversity (SCBD, 2004), a

'Marine and Coastal Protected Area' means any defined area within or adjacent to the marine environment, together with its overlying waters and associated flora, fauna, and historical and cultural features, which has been reserved by legislation or other effective means, including custom, with the effect that its marine or coastal biodiversity enjoys a higher level of protection than its surroundings.'

As defined by the IUCN, *'... a marine protected area is any area of the intertidal or sub-tidal 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' (Kelleher 1999).*

6.1.3 MPAs in India

In India, PAs that fall-in whole or in part-within a swathe of 500 metres from the high tide line and to the marine environment are included in the MPA network. By this definition, there are 25 MPAs peninsular India and more than 106 MPAs in the islands of India[1].

The MPA network is still in its infancy. As of December 2014, 6594 MPAs have been established around the world, which cover 2.09 percent of the total marine area.

The latest update to the Protected Planet Report 2016 shows that there are now just under 15,000 Marine Protected Areas (MPAs) spread across 18.5 million square kilometres of ocean and sea. Up to 13% of territorial waters are now protected. https://www.protectedplanet.net/

1 http://wiienvis.nic.in/Database/MPA_8098.aspx

Boundaries of MPAs [Source: Day et al 2012]

There are a number of issues to consider when determining the boundaries of an MPA. On the landward side, it is important to make it very clear as to exactly what boundary is being used and this must be explained; for example 'Mean Low Water' is a different boundary from that of 'Lowest Astronomical Tide'. Wherever possible highest astronomical tide or high water mark should be used (highest astronomical tide generally suits areas with large tidal ranges, whereas high water mark suits small tidal ranges). Both low water and high water marks can result in boundaries that are difficult in legal and administrative terms because:

- The low water mark is usually covered by water. It is thus difficult to inform the public of its precise location, and therefore to enforce; in addition, low water mark moves with erosion and accretion and is often not marked on charts or defined in any publically available way.
- Boundaries based on high water mark may cause problems as, for example, what may appear to be relatively stable 'lines' can also be influenced by erosion and accretion. Also established rights of use often reflect terrestrial ownership of the adjacent land.
- In rivers, estuaries or narrow bays, there are no clear principles for defining low or high water and it may be unclear as to which bays and channels are part of a MPA, and which may be regarded as 'internal waters'.

6.2 Why do we need MPAs to conserve the oceans

[Source: Kelleher, 1999]

Clearly, conservation of the seas is vital, but why MPAs? This question is often asked, especially in the light of what marine scientists term the inter-connectivity of the sea.

Fish, algae, nutrients, pollutants and much else besides move freely in the water column. There are few natural boundaries in the oceans. Setting up an MPA will not stop fish moving out nor prevent pollutants moving in.

A summary of major benefits of MPAs

- Protecting ecosystem structure, functioning and beauty; allowing recovery from past damage; and serving as stepping stones for migratory/dispersive species
- Protecting the genetic variability of exploited species
- Improving fishery yields, including through protecting spawning stocks, enhancing recruitment and reducing over-fishing of vulnerable species
- Providing other direct and indirect social and economic benefits, such as attractions for tourists, by providing benefits to traditional users of biodiversity or preserving reefs, which prevent erosion of the shore by waves or shelter moorings
- Providing opportunities for the public to enjoy natural or relatively natural marine environments and opportunities for public education and to allowing the public to develop an understanding of the effects of humans on the marine environment.

MAJOR BENEFITS OF MPAs FOR FISHERIES MANAGEMENT

- Producing fish of exploitable size, which then directly "spill over" into the surrounding area, where they become available to fishers
- Producing more offspring (from a greater density of breeding adults within marine and coastal protected areas) which are then dispersed by currents to be eventually recruited into the fisheries of the surrounding areas
- Providing information that is necessary to make regulatory decisions about controls (e.g. measures of natural mortality, reproduction, maximum size, trophic interactions, etc.)
- Providing insurance against resource management mistakes outside of marine and coastal protected areas by providing a refuge where there is no collection of organisms (e.g., corals, sponges, aquarium fish), or from fishing and by making over-fishing more difficult
- Providing insurance by preserving populations

Spanish fishermen fight for MPAs

After years of over-fishing, illegal fisheries and the consequences of a big oil spill caused by a ship accident, the fishermen's association (COFRADIA) of Lira, a small town in the coast of Galicia (northwestern Spain), has pioneered a co-management initiative in the region by proposing the creation of a marine reserve. The proposal was designed and developed by the fishers in partnership with biologists, social scientists, environmentalists and members of the autonomous government of Galicia in a highly participatory process.

The views of different stakeholders on the implementation process for the marine reserve were assessed through a programme of semi-structured interviews. These findings were also used to analyse issues related to the implementation process, in which a governance analysis framework was used. It was observed that the inclusion of fishers in the decision-making and the use of their traditional ecological knowledge in the design of the reserve promoted a better understanding of its benefits and an improved compliance with the fishing regulations. The effectiveness of the marine reserve was very high during the first years, but it has been recently undermined due to the reduction of state financial support for enforcement in the light of the current economic recession in Spain. Though this marine reserve is driven by the stakeholders, the prospects depend on an adequate state enforcement capacity.

Source: de Oliveira, L.P. 2013.

6.3 Where are the MPAs located in India?

India has a long coastline of approx. 8000 kilometres, with the length of the coast of peninsular India being 5423 kilometres and that of the Andaman & Nicobar and Lakshwadweep islands being 2094 kilometres. This coastline also supports a huge human population, which is dependent on the rich coastal and marine resources.

It is estimated that nearly 250 million people live within the swath of 50 kilometres along the coastline of India. Therefore, the ecological services of marine and coastal ecosystems of India play a vital role in India's economic growth. India represents 2.5 percent of the world's landmass and supports a population of over 1 billion people. India is also one of the 17 mega-biodiverse countries of the world, with 7.8 percent of the recorded species of the world, including 45,500 plants species and 91,000 animals species.

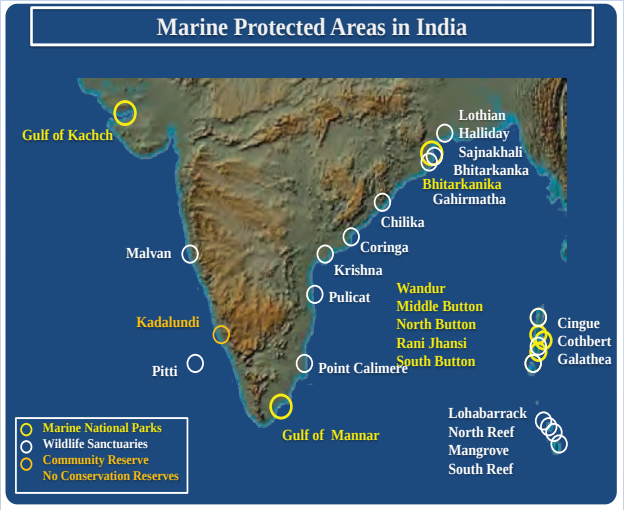
In India, protected areas that fall within a swathe of 500 metres from the high tide line in the marine environment are considered to be part of the MPA network. India has four legal categories of protected areas: national parks, wildlife sanctuaries, conservation reserves and community reserves.

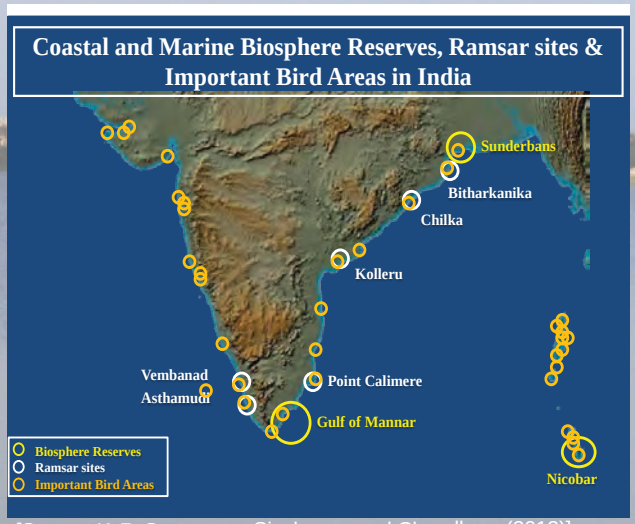
India has created a network of protected areas representing all its 10 biogeographic regions. A total of 733 protected areas have been established, comprising, 103 national parks, 537 wildlife sanctuaries, 67 conservation reserves and 26 community reserves[2]. Further, 26 wetlands have been designated Ramsar sites.

There are 25 MPAs in peninsular India and 106 MPAs in its islands. The Marine National Park Jamnagar, Gulf of Mannar Marine National Park, Sundarbans National Park, Gulf of Kutchch National Park, Bhitarkanika National Park, Coringa Wildlife Sanctuary and Chilika Wildlife Sanctuary, in peninsular India, have unique marine biodiversity and provide a range of services to local communities around them. The latest addition is the Thane Creek Flamingo Sanctuary in Maharashtra.

India has taken several steps for achieving the Aichi Biodiversity Targets, especially Target No. 11 (at least 10 percent of coastal and marine areas are conserved in networks of protected areas) and Target No.14 (ecosystems that provide water, health, livelihoods and well-being are restored and safeguarded). Towards achieving these two targets, 106 coastal and marine sites have been identified and prioritized as Important Coastal and Marine Areas (ICMBA).

2 Source: http://www.wiienvis.nic.in/Database/Protected_Area_854.aspx

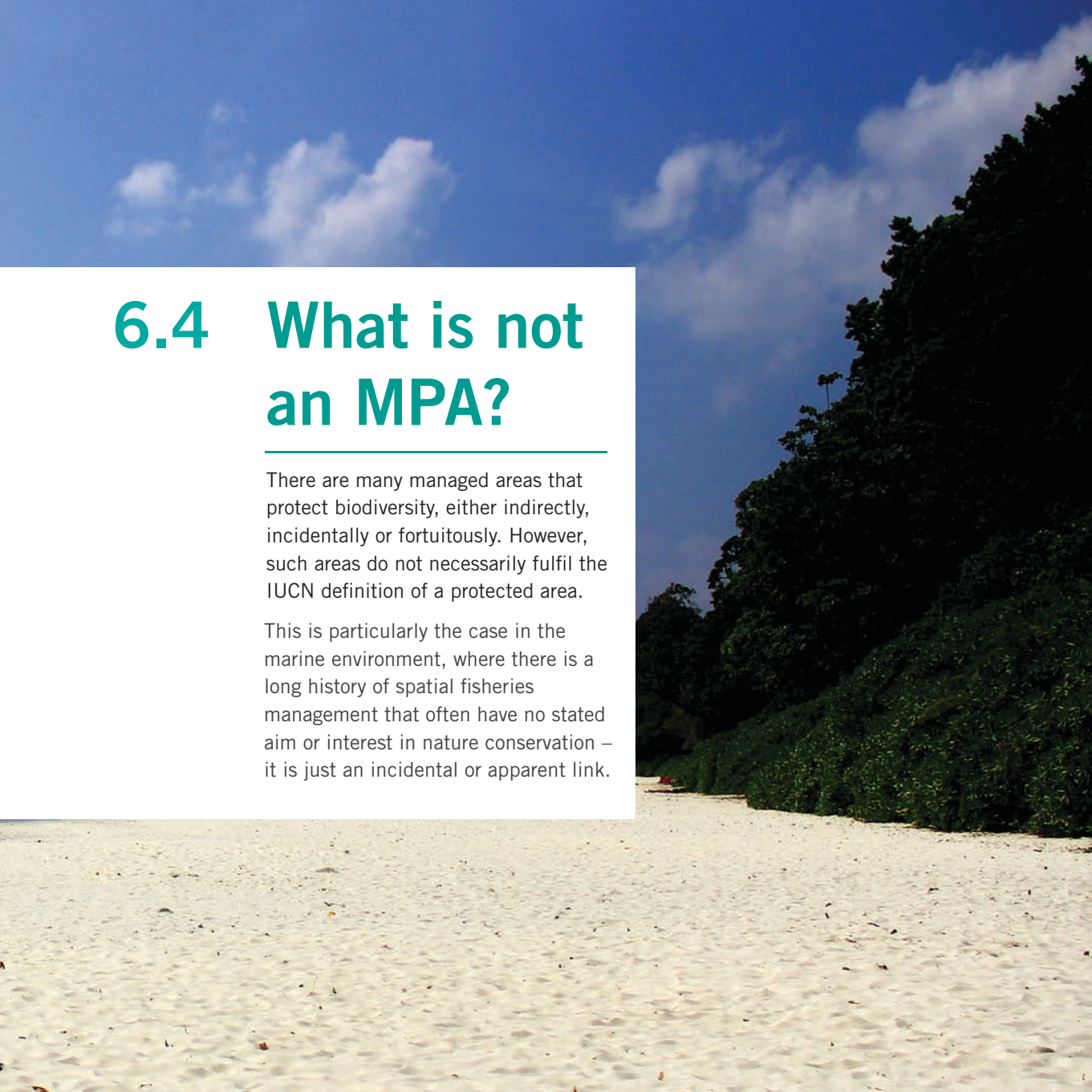




[Source: K. R. Saravanan, Sivakumar and Choudhury (2013)]

A total of 62 ICMBAs have been identified along the west coast of India, and 44 ICMBAs have been identified along the east coast. It has been proposed that these sites be declared conservation or community reserves. Efforts are currently under way to secure and strengthen the participation of communities in the management of the MPA network in India.

India has also identified 12 protected areas as trans-boundary protected areas under the framework of the IUCN Transboundary Protected Area programme. Among these sites, two are MPAs, namely Sundarbans Tiger Reserve and Gulf of Mannar Biosphere Reserve. India has also designated five of these sites as UNESCO-World Heritage Natural sites, and Sundarbans National Park is one among them.



6.4 What is not an MPA?

There are many managed areas that protect biodiversity, either indirectly, incidentally or fortuitously. However, such areas do not necessarily fulfil the IUCN definition of a protected area.

This is particularly the case in the marine environment, where there is a long history of spatial fisheries management that often have no stated aim or interest in nature conservation – it is just an incidental or apparent link.

The following types of management area are not necessarily MPAs:

- Fishery management areas with no wider stated conservation aims
- Community areas managed primarily for sustainable extraction of marine products, e.g., fish
- Marine and coastal management systems managed primarily for tourism, even where these also include areas of conservation interest
- Wind farms and oil platforms that incidentally help build up biodiversity around underwater structures by excluding fishing and other vessels
- Military training areas or their buffer areas (e.g., exclusion zones); disaster mitigation structures (e.g., coastal defences that also harbour significant biodiversity); communications cable and pipeline protection areas; shipping lanes.
- Large areas (e.g., regions, provinces, countries) where certain species are protected by law across the entire region

It is important to combine resource management with the promotion of livelihood opportunities that provide economic benefits in the short run to address any economic disruptions to the individual or household. However, the local context must be considered, as viable alternative livelihoods are not always feasible or are not socially and culturally desirable.

AREAS MANAGED FOR FISHING

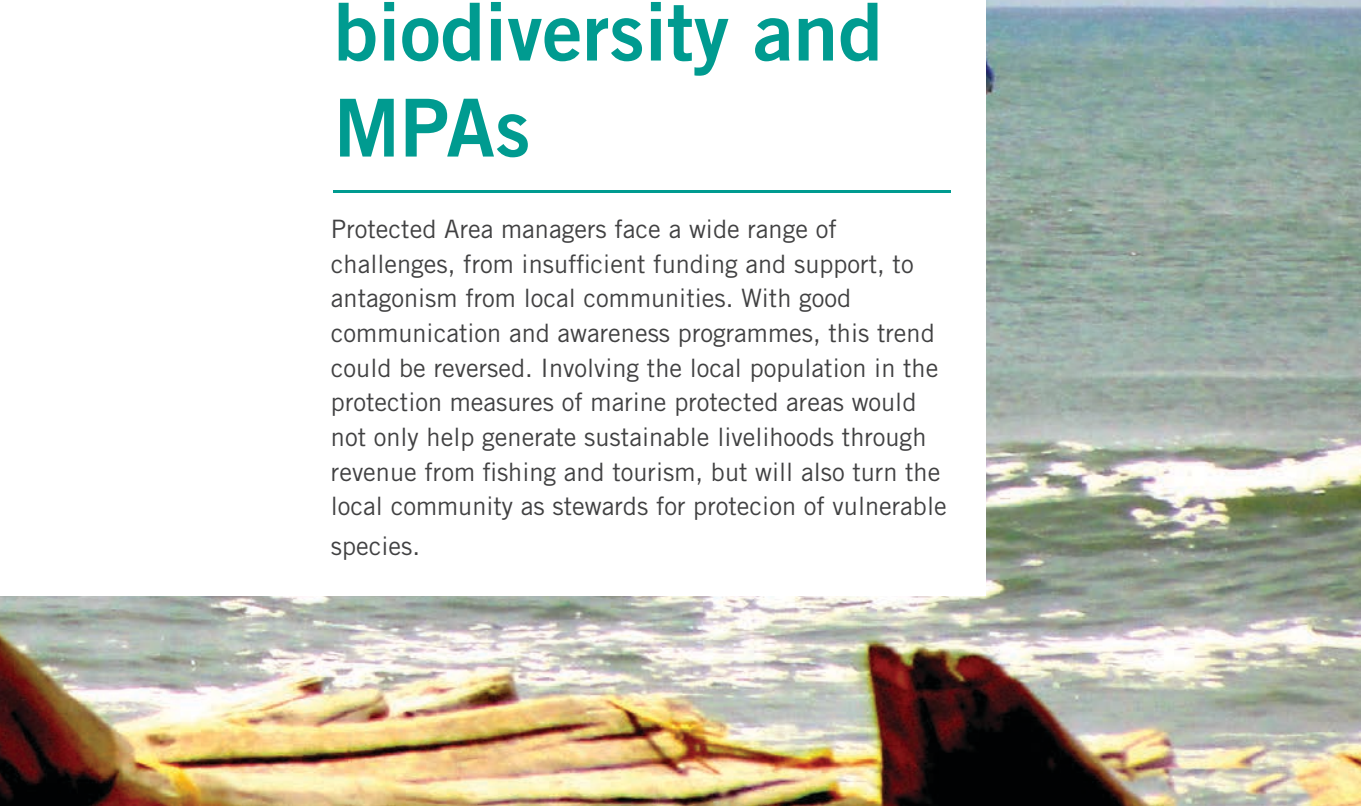
[Source: Day et. al. 2012]

Temporary or permanent fishing closures that are established primarily to help build up and maintain reserve stocks for fishing in the future and have no wider conservation aims or achievements are not considered to be MPAs. For example, Norway, Iceland and the Faroe Islands close areas to fishing at short notice if the percentage of juveniles or bycatch goes above a certain number. These areas do not qualify as MPAs. IUCN's advice is that areas set aside purely to maintain fishing stocks, particularly on a temporary basis, should not be considered to be protected areas even though they may well reflect good fishery management. For such sites to meet IUCN's definition of a protected areas, managers would need to address the overall health and diversity of the ecosystem and have a stated primary aim to this effect.

Such areas, however, may be important components in the management of an MPA. For example, seasonal closures of fish spawning aggregation areas or pelagic migratory routes, at specific and predictable times of the year for certain species when they are extremely vulnerable, may be essential to the effective management of an MPA.

6.5 Challenges in managing coastal and marine biodiversity and MPAs

Protected Area managers face a wide range of challenges, from insufficient funding and support, to antagonism from local communities. With good communication and awareness programmes, this trend could be reversed. Involving the local population in the protection measures of marine protected areas would not only help generate sustainable livelihoods through revenue from fishing and tourism, but will also turn the local community as stewards for protecion of vulnerable species.



6.5.1 Characteristics of marine ecosystems

[Source: Secretariat of the Convention on Biological Diversity, 2004]

Key aspects of the marine and coastal environment that are relevant to MPAs:

- Ocean and coastal environments cover most of the earth and contain all marine biodiversity. All the 29 known phyla of free-living, multicellular animals are known to have occurred in the ocean and 14 are known only from the oceans.
- Most marine organisms in offshore waters are very sensitive to 'unknown' disturbances and pollution, especially as they are physiologically 'open systems,' not well protected against external harmful agents.

> *Marine and coastal environments are three-dimensional and highly dynamic in space and time. Primary productivity is often accomplished by small, mobile organisms. Marine food webs are in general more complex than terrestrial food webs. There are strong linkages between the pelagic and benthic components, as well as between the land and nearshore waters. All of these characteristics make the understanding of marine biodiversity, and its management, more complex and difficult. Most marine organisms have at least one free-swimming or floating stage in the life cycle, enabling wide dispersal. It is not possible to physically enclose the marine portion of MPAs. This has the advantage of allowing dispersal from the MPAs to enhance biodiversity in the surrounding areas ('stepping stone' function), but carries the substantial disadvantage that the MPA is strongly affected by 'upstream' events, for example, water quality and sedimentation.*

Human exploration of these areas is difficult, and so we cannot easily observe and measure what is happening. Our knowledge of marine biodiversity is poor (e.g., new species are constantly being discovered), as is our knowledge of the way in which marine ecosystems and processes operate.

Acquisition of new information is generally a good deal more expensive and requires more sophisticated equipment than terrestrial equivalents.

Environmental degradation is less easily observed by both scientists and others than on land, making it more likely that degradation will need to reach a catastrophic level before it is recognized and addressed. It also makes gaining political and public support for measures such as MPAs more difficult.[3]

3 Vallega, A. 1999. Fundamentals of Integrated Coastal Management. Kluwer, Dordrecht, The Netherlands.

6.5.2 Characteristics of the marine environment that affect MPAs

[Source: Day et. al. 2012]

The marine environment has particular characteristics that are often absent or relatively uncommon on land. As a result, MPAs present management challenges that may need different approaches from those used for PAs in terrestrial environments.

Characteristic	How does this characteristic affect MPAs?
Multidimensional environment	**MPAs are designated in a fluid multidimensional environment.** As a result, in some cases, different types of management may be needed at different depths. In some MPAs vertical zoning has been used to achieve this. In others, there may be no vertical zoning, but the management put in place may nevertheless vary with the depth of water. The sub-seafloor may also need management, if there is a potential impact such as mining below the seabed. This is similar to the situation in terrestrial PAs, where activities such as mining might potentially impact the PA below the ground.
Currents and tides causing flows/ impacts	**MPAs are subject to surrounding and 'up-current' influences from tides and currents.** These are generally outside the control of the manager or management agency and cannot be managed. Although similar to the situation of airborne or wind-borne impacts on terrestrial PAs, MPAs are perhaps more consistently subject to such influences.
Lack of clear tenure or ownership	**Tenure and ownership in the marine environment is often different from those on land, where there is usually clear public or private ownership.** Under the United Nations Convention on the Law of the Sea (UNCLOS), nations have the right to use their Exclusive Economic Zones (EEZs), which extend from shore out to 200 nautical miles, and to establish management regimes such as MPAs. However, within an EEZ, there is generally no individual ownership of either the seabed or water column, and the EEZ may often be used and accessed by all those belonging to the nation concerned. Outside the EEZs, that is, on the high seas, the oceans are invariably considered to be 'commons' which may be used and accessed by all nations. MPAs can represent a legitimate restriction on such rights under the UNCLOS or Regional Sea Agreements, according to provisions of the Convention on Biological Diversity (CBD) or Regional Fisheries Agencies.

Characteristic	How does this characteristic affect MPAs?
Multiple jurisdictions	Often, the water column, seabed, sea life and foreshore are managed by different jurisdictions or government agencies, which may create difficulties for designation and management.
Difficulties in enforcement and management	Restricting entry to, and activities in, an MPA is often more difficult than for terrestrial PAs (and often impossible) as there are usually multiple access points, the site is often remote and thus difficult and expensive to patrol, and under international law, rights of 'innocent passage' are afforded to all vessels. While controlling activities in the marine environment is more difficult than on land, modern satellite technology is making it easier.
Lack of visibility of features being protected	Being unable to see sub-tidal features poses particular problems in terms of management and enforcement. Illegal or unregulated activities may damage features within an MPA without anyone knowing, unless appropriate monitoring or surveillance is undertaken (and this may be expensive, requiring scuba diving).
Boundary demarcation	It is often difficult to know where the boundary of an MPA is, both seawards (where electronic charts, a global positioning system (GPS) or similar technologies are needed), and on the landward side where boundaries based on high and low water marks may be difficult to locate in the field or may be only loosely defined. In a few cases, vertical zoning has been attempted, and horizontal boundaries have been established at certain depths if an MPA does not extend to either the sea surface (such as a PA for a seamount) or to the seabed. However, such boundaries are difficult if not impossible to mark and thus effective and practical compliance is also extremely difficult.
Connectivity between ecosystems and habitats	The scale over which marine connectivity occurs can be very large. Since the extent of connectivity may be critical to the health of an MPA, sufficiently large areas must be considered to ensure that ecosystem values are adequately protected.

Integrated Marine and Coastal Area Management Approaches for Implementing the Convention on Biological Diversity

Elements of the framework

A national framework that will deliver ICMAM should comprise the following three elements, representing, respectively, high, intermediate and low levels of resource protection for biodiversity:

- a representative network of highly protected areas where extractive uses are prevented, and other significant human pressures are removed (or at least minimised) to enable the integrity, structure, functioning and exchange processes of and between ecosystems to be maintained or recovered
- an ancillary network of areas that support the biodiversity objectives of the highly protected network, where specific perceived threats are managed in a sustainable manner for the purposes of biodiversity conservation and sustainable use
- sustainable management practices over the wider coastal and marine environment.

[Source: CBD 2004]

In India, seven threatened marine species have been selected for preparation of recovery plans, for the Dugong, the Whale Shark, marine turtles (two species), giant clams, holothurians (sea cucumbers), the Horseshoe Crab and sea horses. The MoEFCC has already chosen the threatened Dugong, marine turtles, coral reefs and mangroves under its Integrated Development of Wildlife Habitats programme as a priority. Conservation actions have already been initiated.

Further resources:
http://www.moef.nic.in/division/introduction-19

http://www.wiienvis.nic.in/Database/SRP_8555.aspx

6.6 Relationship between the categories of MPAs and the permissible activities therein

Fishing and extraction of wild living resources are widespread in the marine environment. A large part of the population is dependent, for their subsistence and livelihood, on the exploitation of wild marine resources. As a result, the conflict between fishing and conservation goals tends to be a much greater issue in the MPAs, than that of extraction of living resources in terrestrial PAs.

Matrix of marine activities that may be appropriate for each IUCN management category [1]

[Source: Day et. al. 2012]

Activities	Ia	Ib	II	III	IV	V	VI
Research: nonextractive	Y*	Y	Y	Y	Y	Y	Y
Nonextractive traditional use	Y*	Y	Y	Y	Y	Y	Y
Restoration/enhancement for conservation (e.g., invasive species control, coral reintroduction)	Y*	*	Y	Y	Y	Y	Y
Traditional fishing/collection in accordance with cultural tradition and use	N	Y*	Y	Y	Y	Y	Y
Nonextractive recreation (e.g., diving)	N	*	Y	Y	Y	Y	Y
Large scale low intensity tourism	N	N	Y	Y	Y	Y	Y
Shipping (except as may be unavoidable under international maritime law)	N	N	Y*	Y*	Y	Y	Y
Problem of wildlife management (e.g., shark control programmes)	N	N	Y*	Y*	Y*	Y	Y
Research: extractive	N*	N*	N*	N*	Y	Y	Y
Renewable energy generation	N	N	N	N	Y	Y	Y
Restoration/enhancement for other reasons (e.g., beach replenishment, fish aggregation, artificial reefs)	N	N	N*	N*	Y	Y	Y
Fishing/collection: recreational	N	N	N	N	*	Y	Y
Fishing/collection: long-term and sustainable local fishing practices	N	N	N	N	*	Y	Y
Aquaculture	N	N	N	N	*	Y	Y
Works (e.g., harbours, ports, dredging)	N	N	N	N	*	Y	Y
Untreated waste discharge	N	N	N	N	N	Y	Y
Mining (seafloor as well as sub-seafloor)	N	N	N	N	N	Y*	Y*
Habitation	N	N*	N*	N*	N*	Y	N*

1 Key on the next page

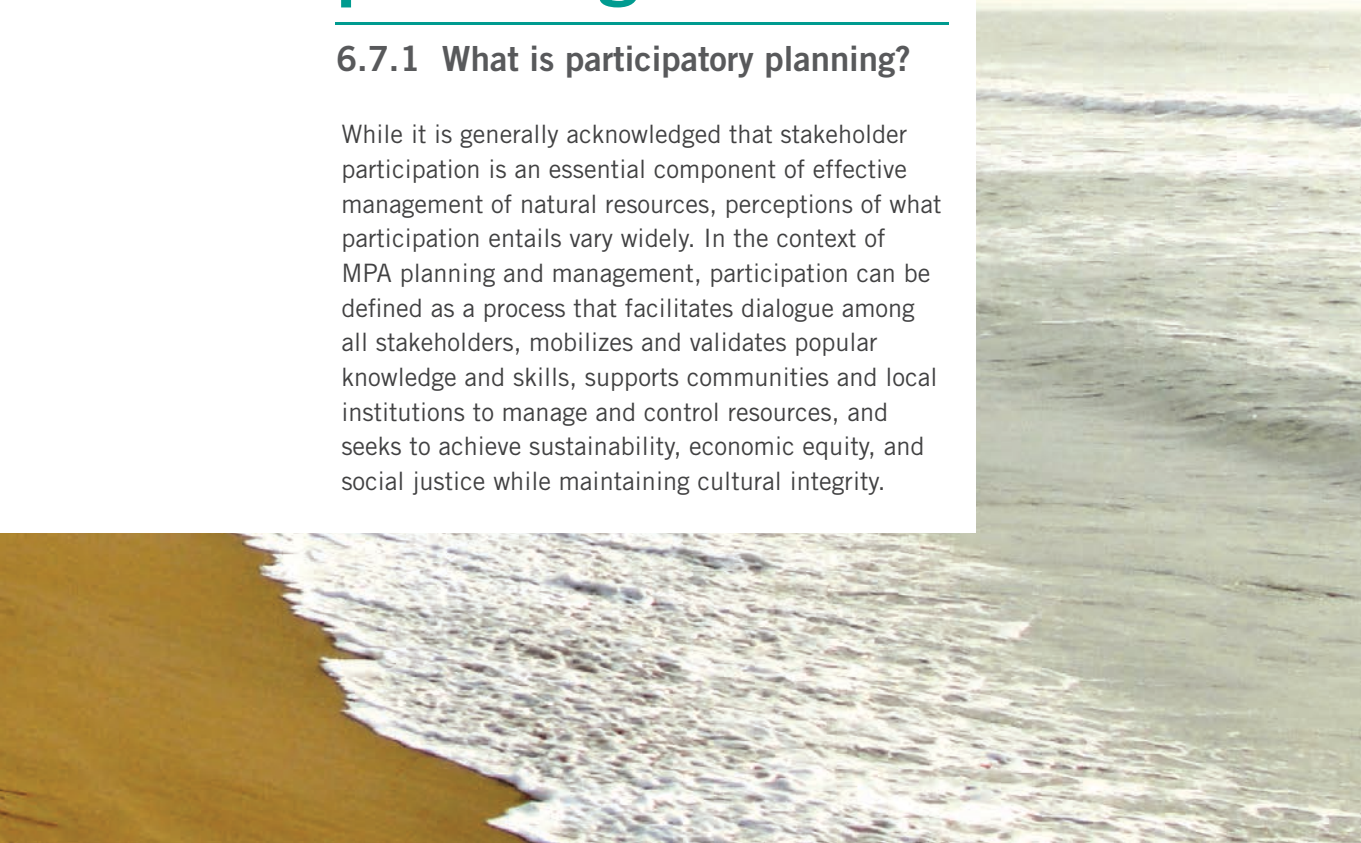
Key:

No	N
Generally no, unless special circumstances apply	N*
Yes	Y
Yes because no alternative exists, but special approval is essential	Y*
* Variable; depends on whether this activity can be managed in such a way that it is compatible with the MPA's objectives	*

6.7 Participatory planning of MPAs

6.7.1 What is participatory planning?

While it is generally acknowledged that stakeholder participation is an essential component of effective management of natural resources, perceptions of what participation entails vary widely. In the context of MPA planning and management, participation can be defined as a process that facilitates dialogue among all stakeholders, mobilizes and validates popular knowledge and skills, supports communities and local institutions to manage and control resources, and seeks to achieve sustainability, economic equity, and social justice while maintaining cultural integrity.



Participation is relevant to all aspects of protected area management management. The challenge is to define the form of participation that is the most appropriate for a given situation.

The advantages of participation in planning and managing MPAs include the following:

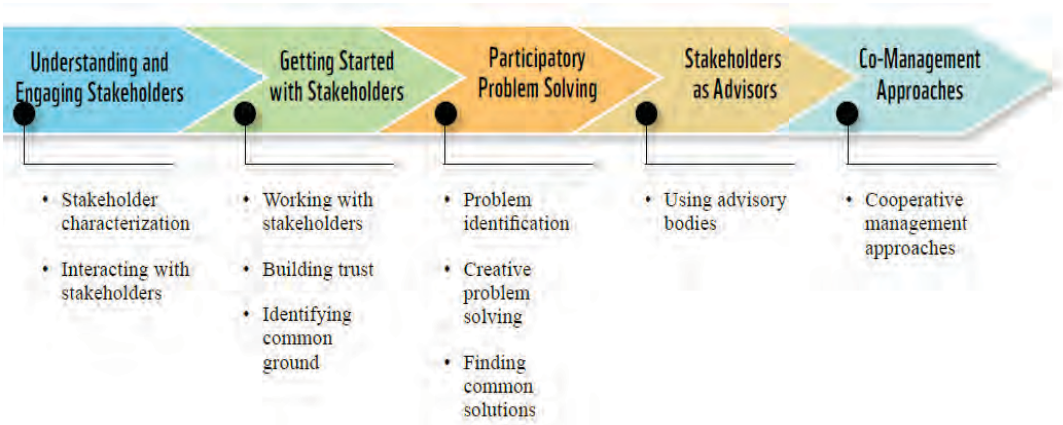
- It contributes to improved management by incorporating local traditional knowledge and practices.
- It increases the likelihood of stakeholder compliance of the law and guidelines related to conservation of coastal and marine species and habitats.
- It incorporates a wide range of perspectives and ideas, resulting in improved management decisions and actions.
- It provides a forum for identifying conflicts between users and negotiating solutions in a conducive environment.
- It can contribute to community empowerment and local institutional development, especially when the sharing of management responsibility is involved.

6.7.2 Key steps in participatory process [Source: Walton and Di Carlo, 2013]

Stakeholder engagement in Marine Protected Areas (MPAs) can be described as a process of maturity from initial stages to more developed and self-sustaining stages. At early stages, practitioners may consult stakeholder communities as they plan, designate and implement an MPA. As the MPA development process evolves, stakeholders take a more active role, reaching consensus on MPA structure and management, and then perhaps negotiating with MPA managers to ensure their specific goals and values are represented. At full maturity, MPAs may share authority between their management body and stakeholders, or even transfer authority completely to local communities, with the MPA management authority only providing advice and consultation.

Walton and Di Carlo (2013) describe the following five steps to help practitioners navigate the process of stakeholder engagement:

1 Understanding and engaging stakeholders;
2 Getting started with stakeholders;
3 Participatory problem solving;
4 Stakeholders as advisors; and
5 Co-management approaches



At each step toward increased stakeholder engagement maturity, different techniques will be required. Some techniques and/or tools may be more useful at some stages of the MPA process than others.

Case study: MPAs secure fish supply in the Philippines

The current nationwide productivity of fishing grounds in the Philippines is only ten per cent of what it used to be during the 1970s. This is mainly due to overfishing, but illegal practices such as cyanide fishing have also caused damage to fish stocks and coral reefs, which are important breeding grounds of fish species.

Some years ago, the coral reefs in the Visayas Region were in a pitiful condition. The local fisher folk and administration recognized that they had to act if they wanted to secure food supply and income. In 2005, local authorities designated MPAs. People learned to manage and to protect these zones, focusing not only on the ecological implications of destructive fishing methods but also on rights and law.

To better control the areas, volunteer patrols received equipment and watch towers were built in selected areas. Neighbouring communities joined the programme, which now covers 93 MPAs, with a total surface of more than 400 km^2. Many of the PAs show positive trends in fish stocks in terms of abundance, biomass and biodiversity.

Source: *GIZ (2013)*

Case study on Media reporting on coastal and marine biodiversity issues: Fishermen ride sustainability wave

Source: Richard Black
Environment correspondent, BBC News website[4]

Colourful boats bob on the waves, children play their breathless games along the sandy tracks and fishermen and their families chat in the village's small pine-clad bar. But some here fear the future is less than bright for the sea and the catches it brings; they fear the sun is about to go down on an entire way of life. 'Since the 1990s, there has been a big depletion of species in this area,' says Juan Manuel Gomez Leis, over a glass of brown beer. 'In general, all of them have been depleted; here in Lira, octopus, squid, brown crab and turbot have virtually disappeared. We think overexploitation and overfishing is a large part of this, and we as fishermen have a responsibility.' The Lira fishermen, led by Mr. Gomez Leis, have embarked on a radical plan to safeguard their fishery–they are asking fishers to catch less. They want to establish a marine reserve along their stretch of coast, which lies between La Coruna and Vigo, two major ports in the province of Galicia. Within the reserve, fishing will be prohibited at certain places and in certain seasons of the year. They hope this will allow the stocks of brown crab, octopus and turbot to recover, so the grounds where they do fish will regain their former bountiful condition. They hope that catching less now will enable them, at some point in the future, to catch more.

Precautionary principle

The Lira marine reserve will by no means be the first in the world, of course, or even the first in Spain; though it is a Spanish first in the sense that the fishermen themselves are demanding the restrictions. And with global stocks in such stark decline that there may be no commercially viable marine fisheries within half a century, the logic behind them appears irrefutable. 'Marine reserves are a new, different and additional idea to marine management generally,' says Bill Ballantine, a New Zealand marine biologist who has spent three decades campaigning for the issue. 'Ordinary marine management doesn't do anything until there's some sort of problem.

4 http://news.bbc.co.uk/2/hi/science/nature/7067795.stm

But marine reserves are precautionary, they say "we're going to leave some bits alone so they can and will continue in their natural state, or that they will restore themselves, revert towards a more natural state."'

The price of fish

Across the globe you can find various types of reserves, ranging from places where all fishing is banned—the so-called no-take zones—to those where, like Lira, certain species can be caught at certain times of the year. The key, usually, is to protect the grounds where creatures spawn and reproduce, and the nurseries which shelter and feed the young. 'Reserves give incredible results,' asserts Ricardo Aguilar, Research Director of the campaign group Oceana. 'In some areas they are multiplying the catch by a factor of 25, because destructive fishing gear is not there. In an area of Sicily, for example, they decided to ban trawling for mullet; and the catches by local fishermen using gillnets multiplied by 27, in only five years.' Such tales are becoming more commonplace as coastal waters gain protection. Britain has one no-take reserve, established in 2003 around the Isle of Lundy off the north Devon coast, historically fertile ground for lobsters and other shellfish. 'Initially we were somewhat sceptical of the marine nature reserve, as we weren't quite sure what was being asked of us,' recalls John Butterwith, head of the North Devon Fishermen's Association. 'The wardens and different people such as the divers who look after the area report a huge increase in the stocks of shellfish and also the sizes; so yes, an MPA is a very good thing.' Evidence such as this was one of the factors persuading the community in Lira to push for their own PA. They were helped by a local academic, Antonio Garcia Allut, from the University of La Coruna, for whom making fisheries sustainable is a grail-like quest. He believes that establishing the reserve is just one link in the chain. Another is to make sure that fishermen are properly rewarded for their efforts. If they receive a higher price per fish, there is less pressure to catch more. Currently, he says, a big slice of the final market price is commanded by middlemen who may not care where the fish comes from or how it is caught. 'I found that some products, for example shrimp, you could buy firsthand from the fishermen at 15 euros, and then finally the product would be sold in the market for 50 or 60 euros,' he tells me. Hence the establishment of Lonxanet, a cooperative venture which aims to change the paradigm and remove the financial reason to overfish.

Premium rates

The price of fish in the early morning markets where newly returned Galician skippers sell their catch is set by the market. Lonxanet buyers pay a premium over that market price. Fish are transported to the depot in La Coruna. A small sales team contacts potential buyers all over Spain, and products are despatched the same afternoon. 'In general, buyers want something that's certified as authentic Galician produce,' says Javier Vitancourt, Lonxanet's manager. 'On top of that, they want to buy a good fish caught by traditional means, and more and more restaurateurs favour the philosophy of protecting artisanal fishermen; and there are 'ecological' restaurants which look for our products.' By cutting out the traditional network of middlemen, Lonxanet says it will return about 90 per cent of the final price to the fisherman. On the face of it, it is a win–win situation. By certifying their wares, fishermen are able to enter the relatively new and lucrative marketplace of the discerning gourmand who demands fish produced to social and ecological standards. By making sustainability part of the certifying process, Lonxanet ensures that if fishermen want to continue reaping the rewards, they must harvest the shrimps, crab and hake with techniques that leave stocks healthy.

Open verdict

Combining the concepts of certification and marine reserves may be a model for the truly sustainable fishery. But there are limits. Clearly, not every consumer is willing to spend time selecting the supplier, or spend extra funds for the clean bill of ecological health that comes with these selected products. It is also doubtful whether the Lonxanet approach could work on large-scale open-water fisheries, though bodies such as the Marine Stewardship Council are doing their best to extend certification into these areas. The notion of marine reserves is probably more generally accepted than certification, but out on the water there is a long way to go. The CBD recommends that about 10 per cent of the oceans should be protected from fishing; currently the total stands at about 0.5 per cent. There is some doubt, too, whether protecting 10 per cent would be enough. 'I've been recommending 10 per cent of everything for a quarter of a century now,' notes Bill Ballantine, 'and that is what we'd need for science and recreation and education. But if you wanted to be serious about conservation, keeping the options open for our grandchildren, you'd need at least 20 per cent of everything.

If your primary concern was fishing, what you'd be recommending is 30 per cent.' After four years of preparatory work, the Lira fishermen hope to have their reserve established soon. They will regulate and police it themselves; and perhaps, in time, add to the evidence that in fisheries, less can be more. 'Many people who were against the project are now in favour, and we hope others will join us,' says Mr. Gomez Leis.

'We think that with the project of a marine reserve we can earn a living while allowing the next generation to continue fishing.'

6.8 Indigenous people and community-conserved territories and areas (ICCAs)

Indigenous peoples and local communities are defined by their relationship with and dependence on natural resources, including land and water resources (add footnote here: Convention on Biological Diversity document Guidance for the Discussions Concerning Local Communities within the Context of the Convention on Biological Diversity[5].

5 UNEP/ CBD/ AHEG/ LCR, 2011.

This long association and reliance upon local resources has resulted in the accumulation of local and traditional knowledge that contains insights, innovations and useful practices that relate to the sustainable management and development of these areas. The CBD now recognizes these communities collectively as "Indigenous Peoples' and Community Conserved Territories and Areas" (ICCAs) (Corrigan, and Hay-Edie, 2013)

Indigenous peoples and community conserved territories and areas (ICCA) are defined by IUCN as 'natural and/or modified ecosystems containing significant biodiversity values, ecological functions and benefits, and cultural values voluntarily conserved by indigenous peoples and local communities both sedentary and mobile–through customary laws or other effective means' (Day et.al. 2012).

According to the established definition, all ICCAs should exhibit the three following characteristics (Source: Corrigan, and Hay-Edie, 2013)

1. Community : A well defined community possesses a close and profound relation with an equally well defined site (territory, area, or habitat) and/or species.

2. Decisions : The people or community is the major player in decision-making and implementation regarding the management of the site and/or species, implying that a local institution has the capacity to develop and enforce decisions, either by law or practice. Other stakeholders may collaborate as partners, especially when the area is owned by the government/ in case of a legally protected species.

3. Conservation : The community's management decisions and efforts lead to the conservation of habitats, species, genetic diversity, ecological functions/ benefits and associated cultural values, even when the conscious objective of management is not conservation

Many ICCAs have been established by coastal communities in marine ecosystems. The ICCA Registry website is an online information portal and secure database, developed by UNEPWCMC with support from UNDP's GEF Small Grants Programme, which documents indigenous and community conservation areas, including in the marine environment.

It aims to increase awareness of the biodiversity values of areas managed by communities and provide information on a wide range of aspects. As part of this process, it is hoped that further guidance on implementing the IUCN categories in terrestrial and marine ICCAs will be developed. Additional information is available through the ICCA Consortium, and the primary reference for determining whether a marine community conservation area is an MPA will be the 2008 Guidelines.

Source: http://www.iccaregistry.org/

Combination of indigenous and scientific knowledge for Fiji's marine biodiversity

Fish workers and scientists have worked hand in hand on an assessment of changes in the occurrence and abundance of over 1000 species that have occurred over the past 50 years within the fishing grounds of Vanua Navakavu, in the Fiji Islands.

At present, local vernacular names have been recorded for over 1000 species and the recovery status assessed for almost 900 species. Results show that the successful restriction of fish poisons, dynamite fishing and small-mesh gill netting, combined with the establishment of a successful MPA, seems to be largely responsible for the return and increasing abundance of many species not seen for decades.

The basis of this success was a partnership of local fishers and communities, who had personally witnessed and been involved in the collapse of their fisheries, with the Fiji national and provincial government agencies, NGOs, private industry, the University of the South Pacific and international funders. More than 200 villages have entered the Fiji Locally Managed Marine Areas Network. They can see impressive improvements in reef ecosystems and gains in marine biodiversity.

The results show that the combination of the best indigenous and modern scientific and taxonomic knowledge may be the only way of really determining how our efforts at marine conservation are impacting on, and will ultimately affect, marine biodiversity.

Source: Thaman (2013)

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