

Managing Coastal Marine Biodiversity and Protected Areas

For MPA managers

Module 6

Coastal and Marine Protected Areas



On behalf of:



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Disclaimer:

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Summary

This module provides much needed information on the basics of marine protected areas (MPAs). The module provides insights into the differences between them 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 coastal and marine biodiversity management. Module also contains information on different types of MPAs in India and their locations, and the benefits and challenges that MPAs management involves.

Key Messages

- Presently, only about 1% of the global ocean is protected. There has been a worldwide collapse in fisheries and attendant environmental damage and disruption to ecosystem structure and function. 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 have all committed to a goal of establishing a global network of marine protected areas by 2012, including on the high seas.
- An effective MPA system is needed to ensure that the oceans recuperate, 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 community participation in management of the marine protected area is need of hour.
- As these pressures intensify, Marine Protected Areas (MPAs) are increasingly recognized as a critical management tool to protect, maintain, and restore natural and cultural resources in coastal and marine waters. A network of marine protected areas, 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% of fishing in developing countries is carried out near a coral reef and more than 70% of the world's fisheries are in danger. Studies have shown that the knock-on effect of “no take” marine protected areas, not only doubles the amount of fish but also their size in a very short period of time. The global MPA network, including 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 Marine Protected Areas (MPAs):

The need to manage the use of existing aquatic resources for sustainability and to safeguard their 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 marine protected areas has taken on greater importance and reverse the degradation of aquatic habitats. MPAs are commonly described as a tool for biodiversity

conservation and as 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 ,

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 (CBD, 2004).

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:

However, in India, PAs that fall-in whole or in part-within swath of 500 m from the high tide line and to marine environment are included in the Marine Protected Area Network. Based on this definition, there are 24 Marine Protected Areas present in the Peninsular India and more than 100 MPAs in its islands. Simply, any marine geographical area that is afforded with greater protection than the surrounding waters for biodiversity conservation (or fisheries management) purposes will be considered an MPA

The marine protected area network is still in its infancy. As of December 2014, 6594 MPAs were established around the world which covers 2.09% of total marine areas available.

6.2 Characteristics of the marine environment that affect protected areas.

Characteristic	How does this characteristic affect MPAs?
Multi-dimensional environment	<p>MPAs are designated in a fluid multi-dimensional environment. As a result, in some cases different 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 depth. There is a general presumption against the use of vertical zoning, as there is increasing evidence of strong ecological benthic-pelagic coupling (see Section 5.5 below), and the subsequent vertically tiered management is particularly difficult, if not impossible, to effectively police and enforce.</p> <p>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 protected areas where activities such as mining might potentially impact on the protected area below ground.</p>
Currents and tides causing flows/ impacts	<p>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 protected areas, MPAs are perhaps more consistently subject to such influences.</p>

Lack of clear tenure or ownership	<p>Tenure and ownership in the marine environment is often different from on land, where there is usually clear public or private ownership.</p> <p>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. There are some exceptions, generally in inshore areas: thus in the UK, the Crown Estate owns about 50% of the foreshore (tidal land between Mean High Water and Mean Low Water as well as most of the seabed from Mean Low Water out to 12 nautical miles (i.e. the territorial sea); and in many countries, coastal communities may own or have tenure and rights over of certain marine areas or resources, as in Fiji where local communities have customary rights over traditional fishing grounds known as ‘qoliqoli’.</p> <p>Outside the EEZs, i.e. 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</p>
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 protected areas (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 technology 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 (see discussion in Section 2.1). 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 protected area for a seamounts) or to the seabed. However, such boundaries are difficult if not impossible to mark and thus effective and practical compliance is also extremely difficult, if not impossible (see section 5.5).
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 adequate protection of ecosystem values.

Boundaries of MPAs

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'.

6.3 Why do we need MPAs to conserve the oceans?

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

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

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, 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 wave erosion of the shore or shelter moorings;
- providing opportunities for the public to enjoy natural or relatively natural marine environments, and opportunities for public education and to allow 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 disperse “spill over” into the surrounding area where they become available to fishers;
- producing more offspring (from a greater density of breeding adults within MCPAs) which are then dispersed by currents to eventually recruit into surrounding fisheries;
- 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 MCPAs by providing a refuge from the collection of organisms (e.g., corals, sponges, aquarium fish), and from fishing and making overfishing more difficult;
- providing insurance by preserving populations

Spanish fishermen fight for MPAs

After years of overfishing, 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 semistructured interviews. These findings were also used to analyse issues related to the implementation process, employing a governance analysis framework. 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.

6.4 Where are the MPAs located in India?

India has a vast coastline of 7,517 km, of which, 5,423 km belong to Peninsular India and 2,094 km to the Andaman, Nicobar, and Lakshadweep Islands, and with an EEZ of 2.02 million sq. km. This coastline also supports a huge human population, which is dependent on the rich coastal and marine resources.

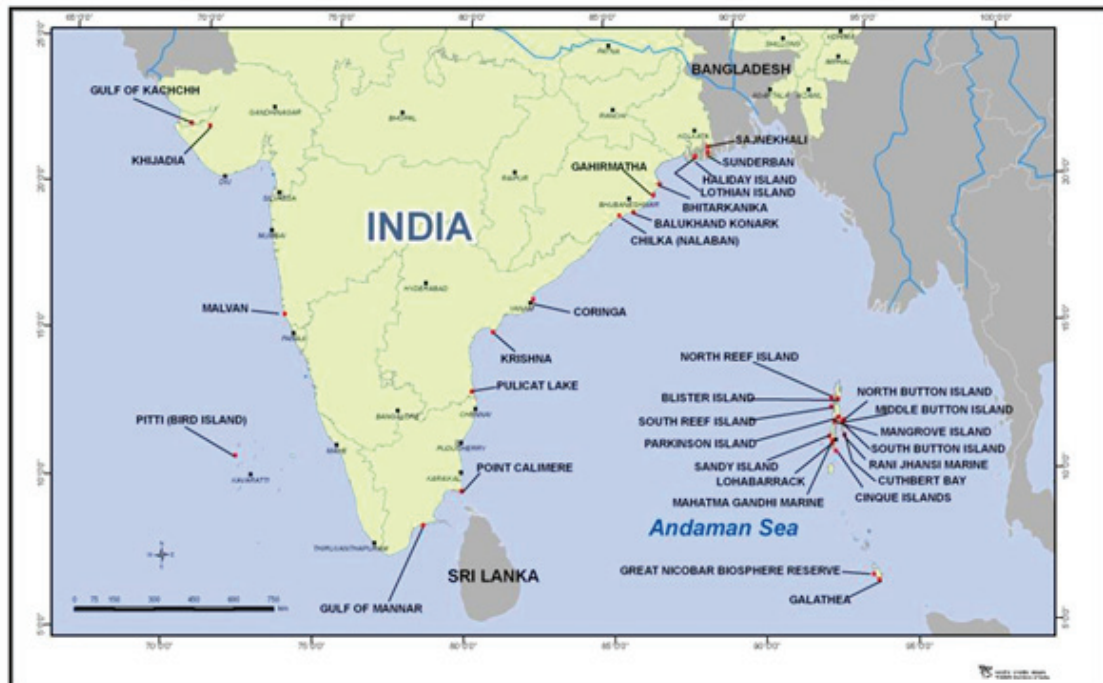
It is estimated that nearly 250 million people live within the swath of 50 km from the coastline of India. Therefore, the ecological services of marine and coastal ecosystems of India play a vital role in India's economic growth. India represents 2.5 percent of the world's landmass and supports a population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

In India, PAs in whole or in part that falls within swath of 500 m from the high tide line and to marine environment are considered in the Marine Protected Area Network. Based on this definition, India has designated four legal categories of PAs, National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves.

India has designated four legal categories of protected areas viz. National Parks, Wildlife Sanctuaries, Conservation Reserves and Community Reserves. India has created a network of PAs representing all its 10 biogeographic regions. A total of 693 protected areas have been established comprising, 103 National Parks, 525 Wildlife Sanctuaries, 61 Conservation Reserves and 4 Community Reserves, besides designating 26 wetlands as Ramsar sites.

There are 24 Marine Protected Areas present in the Peninsular India and more than 100 MPAs in its islands. Of the 24 MPAs in the peninsula, Gulf of Mannar Marine National Park, Sundarbans National Park, Gulf of Kutch National Park, Bhitrakanika National Park, Coringa Wildlife Sanctuary, Chilika Wildlife Sanctuary have unique marine biodiversity and provide a range of services to local communities around these MPAs.

India has taken several steps for achieving Aichi Biodiversity Targets especially Target No. 11 (at least 10% 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).

Along the west coast of India 62 ICMBAs and along the east coast of India 44 ICMBAs have been identified. These sites have also been proposed as Conservation or Communities Reserves with participation of local communities. Efforts are currently underway in securing and strengthening community participation in management of the marine protected area network in India.

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

6.5 When is a marine area that may achieve conservation outcomes not an MPA?

A protected area as defined by CBD describes a precise set of management approaches with limits, and must have nature conservation as a primary rather than a secondary aim, as explained above.

There are however many managed areas that protect biodiversity, either indirectly, incidentally or fortuitously. Indeed, it is a principle of the Convention on Biological Diversity's "ecosystem approach" that all land and water management should contribute to conservation, and as a result the distinction between what is and what is not a protected area is sometimes unclear.

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 and a growing interest in spatial planning and spatial management of other activities that often have no stated aim or interest in nature conservation – it is just an incidental or apparent link. Understanding the IUCN protected area definition is thus critically important.

Areas subject to some form of management could be MPAs or parts of MPAs in some cases, but MPA status should not be assumed and decisions must be made on a case-by-case basis, the essential criterion being whether nature conservation is the primary objective.

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 to build up biodiversity around underwater structures by excluding fishing and other vessels.
- Marine and coastal areas set aside for other purposes but which have an indirect conservation benefit: military training areas or their buffer areas (e.g. exclusion zones); disaster mitigation (e.g.

coastal defences that also harbour significant biodiversity); communications cable and pipeline protection areas; shipping lanes, etc.

- Large areas (e.g., regions, provinces, countries) where certain species are protected by law across the entire region.

AREAS MANAGED FOR FISHING

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 PAs even though they may well reflect good fishery management. For such sites to meet IUCN's definition of a PA, 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.

6.6 Challenges in managing coastal and marine biodiversity and MPAs:

FAO Guidelines of Fisheries Management within MPAs (2011) reiterate that MPAs relatively close to the coast can either help or hurt the local people and communities. Diverse groups within a community or within the fisheries sector may be affected in different ways. For example, resource users that have relatively high economic mobility (such as large-scale fleets that can move their fishing operations to other areas) are affected differently from small-scale fishers, who may be dependent on nearby fishery resources. Subsistence or traditional fishers, depending on fishing for their livelihoods, are more vulnerable to restrictions in resource access than recreational fishers. When certain fishing activities continue to be allowed (e.g. with small-scale passive gear), while others are prohibited (e.g. trawling), there may be a significant reallocation of benefits among diverse groups of fishers.

An important distributional issue for MPAs is that the benefits tend to be diffuse while costs are concentrated. A potential cost to the fisher is that catch (and revenues) may be decreased, at least in the short term, as a result of the implementation of a closure. Coastal communities adjacent to the MPA, especially those with a high economic dependence on the fishery, may face a disproportionate impact as a result of aggregate reduction in fishing revenue. On the other hand, they could also potentially capture most of the benefits in the form of reduced variations in aggregate catch levels, increased total catches or more valuable larger-sized fish catches owing to spillover effects. Such benefits may not occur immediately, although there are cases in which the biological response – and hence the socio-economic impact – is quite rapid. Examples include coral reef MPAs or where the establishment of an MPA limits the use of destructive fishing methods.

The way costs and benefits are distributed will depend on the particular circumstances and the way the MPA has been designed – including access and tenure arrangements. Resource reallocation can be an explicit objective of the MPA. By prohibiting or limiting certain activities and regulating access to a protected area, benefits and costs among diverse resource users are redistributed and the interests of, for example, traditional or small-scale fishers can be protected.²⁹ If the benefits are likely to be generated only in the longer term for certain groups of fishers or other community members, 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 not socially and culturally desirable.

Protected Area managers face a wide range of challenges, from lack of governmental 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 of marine protected areas would help generate sustainable livelihoods through revenue from fishing and tourism.

Managing MPAs in India: General issues

- Having clear rules and boundaries
- Ensuring adequate enforcement
- Undertaking active restoration work where necessary to help an area recover from past damage
- Provision of goods and services for users (e.g., visitor facilities)
- Gathering information to assess the achievement of the objectives and support management decisions
- Undertaking activities to facilitate stakeholder understanding and support and allow stakeholder participation
- Undertaking activities to ensure appropriate benefits are generated and equitably shared (e.g., allocation of resource usage)
- Controlling activities within or affecting the area to prevent additional damage from occurring
- Preventing entry of or eradicating/controlling alien species.

Integrated Marine and Coastal Area Management (IMCAM) 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]

6.7 Participatory planning of MPAs:

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 actors, mobilizes and validates popular knowledge and skills, supports communities and their institutions to manage and control resources, and seeks to achieve sustainability, economic equity, and social justice while maintaining cultural integrity.

The IUCN definitions of 'protected area' and management categories are neutral about the type of ownership or management authority. With respect to who holds decision-making and management authority and responsibility for protected areas, IUCN distinguishes four broad governance types—governance by governments, shared governance, private governance and governance by indigenous people and local communities—which are described in the 2008 Guidelines (reproduced in Annex I). All combinations of protected area categories and governance types are possible in an MPA. IUCN suggests that the governance type of a protected area be identified and recorded at the same time as its category in national environmental statistics and accounting systems and in protected area databases.

Participation is relevant to all aspects of development and environmental management. The challenge for policy-makers, planners and managers is to define the form of participation which is the most appropriate to a given situation.

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

- It contributes to improved management by incorporating popular knowledge and practices;
- It increases the likelihood of stakeholder compliance and support through participation in decision-making;
- 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 to them;
- It can contribute to community empowerment and local institutional development, especially when

the sharing of management responsibility is involved.

Planning processes can be described as participatory when they also include:

- The identification and involvement of all stakeholders, early in the process;
- The incorporation of the diverse views and opinions of the individuals within these groups;
- The sensitization of stakeholders to the issues being addressed;
- Provision of information needed to shape opinions and make decisions, in forms that are accessible to all participants;
- The recognition of and accommodation for the inequities among stakeholder groups and among individuals, in order to assure that those that are more powerful do not dominate or manipulate processes;
- Respect for the process and the decisions that are reached: participatory planning cannot manipulate participation to arrive at a predetermined conclusion or even to start from a predetermined point.

Ideally, participation in the context of MPAs will start at the earliest planning stages for the protected area. However, any stakeholder (management agency, non-governmental organization, community, researcher, external agency) can take the initiative for a participatory planning exercise. The initiative can come from the manifestation of a conflict or a crisis resulting from resource utilization, or from the realization by the initiator that there are management issues requiring attention. It is at this early stage that the initiator must decide that the planning process will be participatory and make arrangements for the facilitation of the process.

The **next steps in a participatory planning process** involve the following:

- **Identification of the groups, sectors, communities, and individuals who have a stake in the resource or issue** which is the object of the planning initiative. This activity is generally not participatory, as its purpose is to identify those who should participate in the process;
- **Analysis of the expectations, rights and responsibilities of these various stakeholders.** This step is ideally conducted in a participatory manner, and can be an excellent mechanism for conflict management, because it provides a forum for each party to hear and understand the perspectives of others, and to make its own perspectives heard and understood;

- **Analysis of needs, issues, causes and options.** This is the first main step in a classical planning process. In a participatory process, these analyses follow the identification and analysis of stakeholders, and must therefore involve all these stakeholders. A wide range of tools is available and used to conduct such analyses, including those described in the literature as participatory rural appraisal and rapid rural appraisal techniques, as well as scientific methods such as biological and socio-economic surveys, impact assessment studies, and literature reviews;
- **The identification of options.** This is a critical step in a participatory process, as this is where all participants use the results of the various analyses to define priorities and to identify the various options available to them, with an appreciation of the costs and benefits associated with each.

One of the added benefits of these participatory appraisals and assessments is that they build the confidence and ability of all participants, notably the powerless, to become involved in decision-making and management. On the basis of information gathered, partners in the planning process must be in a position to define objectives, formulate action and management plans, design monitoring and evaluation procedures, and begin implementation.

Because the purpose of a participatory planning process is change (in perceptions, relations, practices and outcomes), it is not linear, but creates change at every step along the way. Inherent in the concept of participatory planning, therefore, is the idea that change is constant and that action can take place at any stage in the process. Participatory planning processes do not require the completion of a plan to witness changes on the ground. Their purpose is to change conditions, and thus to provoke action. In the participatory approach to planning, implementation does not follow planning. It is a part of the planning process.

Constraints and Obstacles in applying a participatory approach:

- A major constraint to participatory planning processes is the general lack of enabling policies and the prevalence of centralized systems of management. While there are a few countries in the region where participatory planning is encouraged through policy, legislation, or institutional cultures, this is far from the norm.
- Participatory approaches require radical changes within the culture of organizations, notably those of the state. From a culture of enforcement and control, they need to move to the new attitudes that are required of facilitators and supporters.

- A great challenge to participatory planning is making the process legitimate to those who have the power to influence decisions through other means. These stakeholders may feel they have little to gain from their involvement in a participatory planning process and may seek to coopt or circumvent it. The issue is further complicated by the inherently political nature of participatory processes and the high likelihood of political interference.
- Involving all the agencies that have jurisdiction or responsibility over the area and its surroundings can be extremely difficult, but if any are not included, it may prove impossible to implement the decisions that are reached.
- Effective participation requires that participants all have a good grounding in the issues being addressed. The process of awareness-building that is required to assure this can be time-consuming and expensive.
- Facilitation is key to effective participation, and facilitators must be skilled and appear to be impartial, while assuring that stakeholder participation is fair and equitable. Many participatory planning processes are spoiled by poor or biased facilitation.
- Finally, participatory planning requires high investments of time as well as human and financial resources. There are no cheap and easy shortcuts.

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

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.’

Determining when an ICCA is also a PA, and therefore eligible for listing on the WDPA, is more complex than for some other PA governance types and has two stages:

- Agreement by the indigenous people or community involved: no community-managed site should be identified as a PA or listed on the WDPA without express consent by the community.
- Recognition and listing can bring benefits but also costs, such as increased exposure. Alignment with the IUCN definition of a PA: the 2008 definition of a PA stipulates that for a site to be a PA, priority must be given to nature conservation; other values present may be of similar importance, but in the event of conflict between values, nature conservation must be considered the most important. As is the case with other governance types, community areas managed primarily for sustainable extraction of marine products will not be considered PAs according to the IUCN definition unless nature conservation is the primary stated objective of the management regime.

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, that 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.

The assessment was based on a comparison of time–depth testimonies of surviving older male and female fishers with results from more recent surveys in an effort to record and correlate observed changes with factors such as intense overfishing, use of fish poisons, increased pollution, a 1953 tsunami and the establishment of locally managed marine areas in 1991.

At present, local vernacular names for over 1000 species have been recorded and the recovery status of almost 900 assessed. 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 for 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.

Source: UNESCO

Main Sources

Day J., Dudley N., Hockings M., Holmes G., Laffoley D., Stolton S. & S. Wells, 2012. Guidelines for applying the IUCN Protected Area Management Categories to Marine Protected Areas. Gland, Switzerland: IUCN. 36pp.

Secretariat of the Convention on Biological Diversity (2008). Synthesis and Review of the Best Available Scientific Studies on Priority Areas for Biodiversity Conservation in Marine Areas beyond the Limits of National Jurisdiction. Montreal, Technical Series No. 37, 63 pages available from <http://www.cbd.int/doc/publications/cbd-ts-37-en.pdf>

FAO (2011). Marine protected areas: Country case studies on policy, governance and institutional issues. FAO

IUCN 2004. Managing Marine Protected Areas: A Toolkit for the Western Indian Ocean. IUCN Eastern African Regional Programme, Nairobi, Kenya, xii + 172pp. Retrieved on 29 September 2015 from https://cmsdata.iucn.org/downloads/mpa_toolkit_wio.pdf

Further Resources

Jones, PJS, Qiu W, and De Santo EM (2011): Governing Marine Protected Areas - Getting the Balance Right. Technical Report, United Nations Environment Programme.

Kelleher, G. (1999). Guidelines for Marine Protected Areas. IUCN, Gland, Switzerland and Cambridge, UK. xxiv

Krishnan, P., Ramakrishnan, R., Saigal, S., Nagar, S., Faizi, S., Panwar, H. S., Singh, S., Ved, N., (2012). Conservation Across Landscapes: India's Approaches to Biodiversity Governance. UNDP, New Delhi, India. Retrieved on 10 1st October 2015 from <http://www.undp.org/content/dam/india/docs/EnE/conservation-across-landscapes.pdf>

Pomeroy, R. S., Parks, J E., and Watson, L. M. (2004). How is Your MPA doing? A Guidebook of Natural and Social Indicators for Evaluating Marine Protected Area Management Effectiveness. IUCN. Gland. Switzerland and Cambridge, UK. xvi + 216 pp.

Sue Wells and Sangeeta Mangubhai. 2004. Assessing Management Effectiveness of Marine Protected Areas: A Workbook for the Western Indian Ocean. IUCN Eastern African Regional Programme, Nairobi, Kenya, i-viii and 62 pp.

Swiderska, K., Roe, D., Siegele, L., Grieg-Gran, M., The Governance of Nature and the Nature of Governance: Policy that works for biodiversity and livelihoods. IIED. Retrieved on 10 September 2015 from <http://pubs.iied.org/pdfs/14564IIED.pdf>

Vishwas B. Sawarkar. 2005. A Guide to Planning Wildlife Management in Protected Areas & Managed Land- scapes. Wildlife Institute of India, NATRAJ PUBLISHERS, Dehra Dun. 360pp

Wells, S., (2015). Case Study I Evaluation of marine protected areas in the Western Indian Ocean. Retrieved on 26 September 2015 from <https://portals.iucn.org/library/efiles/html/bp14-evaluatingeffectiveness/Case%20Study%20I.html>

Wells, S., Mangubhai, S., (2004). A Workbook for Assessing Management Effectiveness of Marine Protected Areas in the Western Indian Ocean. International Union for Conservation of Nature and Natural Resources. Nairobi, Kenya. Retrieved on 12 September 2015 from <https://portals.iucn.org/library/efiles/documents/2004-138.pdf>

Bell, J.D., Craik, G.J.S., Pollard, D.A. and Russell, B.C. (1985). “Estimating length frequency distribution of large reef fish underwater”. Coral Reefs 4: 41–44. Retrieved from http://frst411.sites.olt.ubc.ca/files/2015/01/Ludwig_etal1993.pdf

Bolster, W. Jeffery (2012). The Mortal Sea: Fishing the Atlantic in the Age of Sail. Belknap Press. ISBN 978-0-674-04765-5.

Caswell, H. 2001. Matrix population models: Construction, analysis and interpretation, 2nd Edition. Sinauer Associates, Sunderland, Massachusetts. ISBN 0-87893-096-5.

Clarke, K.R. and Warwick, R.M. (2001). Change in marine communities: An Approach to Statistical Analysis and Interpretation. 2nd edition. Primer-E, Plymouth, UK. [link]

Dartnall, H.J. and Jones, M. (1986). A manual of survey methods of living resources in coastal areas. ASEAN-Australia Cooperative Programme on Marine Science Hand Book. Australian Institute of Marine Science, Townsville, Queensland, Australia.

Day J., Dudley N., Hockings M., Holmes G., Laffoley D., Stolton S. & S. Wells, 2012. Guidelines for applying the IUCN Protected Area Management Categories to Marine Protected Areas. Gland, Switzerland:IUCN. 36pp.

Done, T.J. and Reichelt, R.E. (1998). "Integrated coastal zone and fisheries ecosystem management: generic goals and performance indices". Ecological Applications 8 (supplement): 110–118.

Elliot, J.M. (1977). "Some methods for statistical analysis of benthic invertebrates". Freshw. Biol. Assoc. Sci. Publ., U.K 25: 1–156.

English, S., Wilkinson, C. and Baker, V. (eds.) (1997). Survey Manual for Tropical Marine Resources. 2nd Edition. Australian Institute for Marine Science, Townsville, Queensland, Australia.

Europa: European Union (2006) Management based on maximum sustainable yield. Retrieved from <http://europa.eu/scadplus/leg/en/lvb/l66037.htm>

FAO (1997) Fisheries Management Section 1.2, Technical Guidelines for Responsible Fisheries. FAO, Rome.

FAO 1991. Fisheries Technical Paper - T306/2Rev.1

Govan, H. 2011. Good coastal management practices in the Pacific: experiences from the field. – Apia, Samoa : SPREP, 2011. 42 p.

Grumbine, R.E. (1994). "What is Ecosystem Management?" Conservation Biology 8(1): 2738.

Hilborn, R. and Walters, C.J. (1992). Quantitative Fisheries Stock Assessment: Choice, dynamics, and uncertainty. Chapman and Hall, New York, NY, USA.

Kunzig, R (April 1995). "Twilight of the Cod". Discover: 52. Retrieved on 1 May 2012 from <http://discovermagazine.com/1995/apr/twilightofthecod489>.

Lackey, R.T. (1995). "Ecosystem Management: Implications for Fisheries Management.". Renewable Reso

