

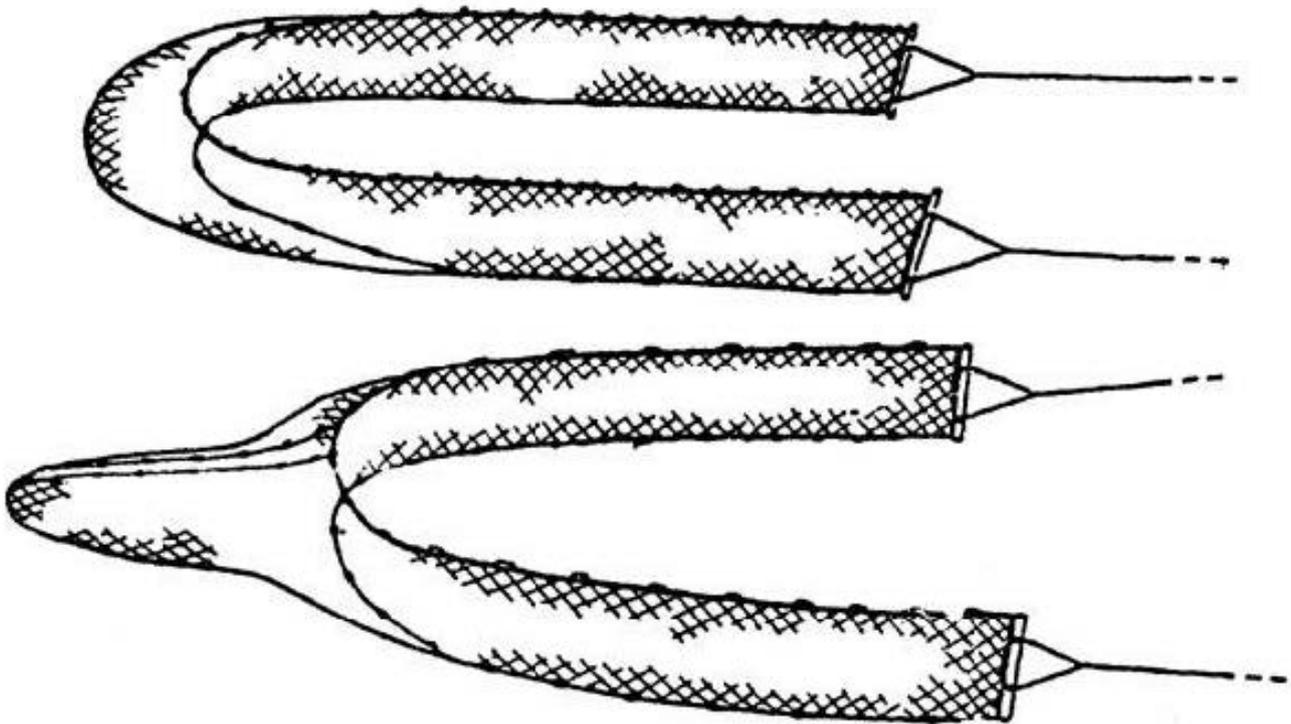
What is this Action Sheet about?

If you live near the coast, you may know of local or national Marine Protected Areas (MPAs) or marine reserves. MPAs are tools to conserve and protect the variety of life in the ocean, helping people keep local and industrial fisheries sustainable. Because marine creatures float about in the currents and swim from place to place, protecting resources in one area can improve resources in surrounding areas. This Action Sheet provides basic information on MPAs and the benefits they can have.

What are Marine Protected Areas?

Marine protected area, marine reserve, marine park and marine sanctuary - these terms mean an area of the sea and/or coast has some protection against disturbances or activities, like fishing, coral mining, mooring by boats, pollution, dumping of waste and building.

MPAs range from areas in which only some regulations exist, for example an area in which a specific type of fishing activity or fishing gear (e.g. beach seines) is banned, to highly protected areas where no disturbance is allowed.



Two types of beach seine net (Image: FAO)

In highly protected areas (often called 'reserves'), the aim is to stop all forms of pollution or damage to the ocean ecosystem - the community of all living and non-living things that interact with each other in the ocean. Highly damaging practices like dynamite fishing are strictly forbidden. Indirect disturbances e.g. pollution by diesel from boats, are also banned.

MPAs often have a mixture of zones with varying levels of protection. For example, *Mafia Island Marine Park (Tanzania)* is known as a multiple use protected area, because people fish in some parts of the reserve, whereas others are used to make money from eco-tourism¹. There is also a core 'no-take' area where no fishing, tourism or any disturbance is allowed. *The Mombassa Marine National Park (Kenya)* has a highly protected core area, where no fishing is allowed, surrounded by an area where traditional fishing is permitted. The core area is protected from fishing but research and tourism activities, such as viewing fish from glass bottomed boats or SCUBA diving, are allowed.

Mafia Island Marine Park, Tanzania was established in 1995 by a resolution of the Tanzanian National Assembly and adjacent villages. A gear exchange programme has led to a reduction in the number of seine nets in the park. To protect the community from loss of income due to reduced fishing areas, seaweed farms have been established and fish cages have been trialled⁷. A microfinance scheme helps families set up alternative businesses⁸. Local fishermen have been able to buy more sustainable fishing gears through an interest free loan scheme run by the WWF¹.

Why do people set up Marine Protected Areas?

MPAs are usually set up to improve fisheries that are suffering from falling catches. They are one way to stop over-fishing where the fish population cannot produce enough offspring to replace those harvested. Healthy fisheries need healthy environments in which fish can feed and breed successfully. In the past, fisheries managers paid most of their attention to managing fish stocks, trying to work out the best way to harvest fish to ensure sustainable catches. With MPAs, fisheries managers now seek to protect the habitat and ecosystem as a whole rather than simply looking at the fish stocks on their own. For fisheries managers, this has the advantage of being a proactive approach that does not necessarily require lots of data or detailed survey work before it is set up.

In an ecosystem, every action has a reaction and protecting a habitat or species from one disturbance can have lots of benefits elsewhere. Preventing dynamite fishing not only protects fish directly, but also protects coral reefs and other habitats from destruction. In turn, the habitat will be healthier and more variable, so it will be able to support greater number and variety of reef fishes.

An MPA set up to protect fish stocks aims to protect areas important for spawning (breeding) and growth (the 'nursery grounds', where young fish grow). By banning fishing inside the MPA, adult fish live longer, grow larger and produce more eggs. Protecting young fish increases the number of fish in the sea, helping to improve fishermen's catches in areas where fishing is allowed.



Mafia Island map (Image: Ruben & Kazimoto, 2003)

What are the benefits of Marine Protected Areas?

Marine reserves protect essential fish habitats from damage. Because of local differences in species and habitats, marine reserves have had different effects in different areas. The following benefits have been reported:

MPAs also provide a focus for education and an opportunity for the public to enjoy the environment.

Benefit	Where?	Comment
More fish	Kenyan Marine Parks	Snapper and wrasse more abundant in parks ²
Bigger fish (length)	Mafia Island Marine Park	Blackspot snapper on average 37% bigger in park ³
More fish caught with same amount of effort	Northern Tanzania Marine Park	Fish in MPAs weighed 3.5 times than outside park ⁴
More fish in areas surrounding the MPA	Mombasa	More emperors, parrotfish and rabbitfish outside park ⁵
Recovery of damaged habitat	Utumbi, Mafia Island Marine Park	More hard coral cover in park ¹

Many of these benefits can provide income for local communities. For example, coral reefs in reserves are likely to have a higher number of fish and a greater variety of fish species. This can be used to attract more 'ecotourists', scuba-divers and snorkellers to the area.

How do people go about setting up an MPA?

The questions to ask are WHO, WHAT, WHERE and HOW

WHO: Community involvement is key! The scheme will not work unless the community supports and champions the idea of having an MPA. Rules on resource use within an MPA may affect livelihoods within the community. It is essential to have clear objectives and information so that everyone is aware of the benefits and drawbacks of changing the rules of marine resource use. Local knowledge is vital. All stakeholders - the people who will use and manage the MPA, and who will be affected by decisions about resources – should be involved right through from initial planning about MPA location and resource use rules to decisions about monitoring and enforcement. Who will make sure that the rules are being kept and what will happen if they are broken? By participating in decisions about the management of the local environment, people will be empowered and encouraged to protect it.

WHAT: Decisions on the rules about uses of ocean resources will vary depending on what people are trying to achieve with an MPA. Following the long process of consulting with stakeholders, the MPA must have clear objectives written down in a management plan. For real results to be achieved, the MPA project should be permanent. Temporary efforts will lose out on both short and long term gain. In terms of size the best results have been found in areas where 10-40% of the marine area or fishing ground has been protected.

Moheli Marine Park, in the Comores Islands (Western Indian Ocean),

was set up in 2001 in collaboration with the government and ten local villages⁶. Stakeholder involvement was a high priority at every stage of the process and the management plan took two years to develop and put in place. Each village has a development association. Many fishing methods are prohibited including dynamite, poisons and spear guns. Paid 'Ecogardes', chosen by their respective villages, are responsible for monitoring, enforcement and education. Some have had special training, including some recent dive training, which will enable them to undertake research and contribute to monitoring programmes.



An ecoguide from Moheli Marine Park undergoing Scuba diving training. Ecoguides are employed for ecotourism work. Image: Chris Poonian, Community Centred Conservation

WHERE: Where to create an MPA depends on your aims. Local knowledge is vitally important. Fishermen know where the spawning sites and breeding grounds are, and can suggest habitats that really need protection. Having clear boundaries will make monitoring and enforcement easier.

HOW: There is often funding available from national governments and international conservation organisations for setting up MPAs. You may find that lots of help is available. If large areas are set up as reserves, some people may need to reduce their dependence on fishing as a source of income. In this case, advice on alternative sources of income may be necessary. Gear exchange programmes may be set up to help fishermen switch from destructive or damaging fishing techniques.

Acknowledgements

This Action Sheet was compiled by Charlotte Marshall (The Marine Biological Association of the UK), reviewed by Dr. Stephen Mangi (The Marine Biological Association of the UK) and is based on the following sources:

- 1 Rubens, Kazimoto (2003) Application of the WCPA – Marine / WWF Guidebook on Evaluating Effective Management in MPAs. Mafia Island – a demonstration case. <http://effectivempa.noaa.gov/cases/MafiaIsland.pdf>
- 2 McClanahan TR, Obura D (1995) Status of Kenyan coral reefs. *Coastal Management* 23: 57-76
- 3 Albogast et al., 2004. Evaluating a marine protected area in a developing country: Mafia Island Marine Park, Tanzania. *Ocean & Coastal Management* 47: 321-337.
- 4 McClanahan TR et al (1999) The effects of marine parks and fishing on coral reefs of northern Tanzania. *Biological Conservation* 89: 161-182
- 5 McClanahan TR, Mangi S (2000) Effects of marine reef National Parks on fishery CPUE in coastal Kenya. *Biological Conservation* 118: 1-13
- 6 www.iucn.org/info_and_news/press/mohelinp.pdf
- 7 <http://effectivempa.noaa.gov/sites/mafia.html>
- 8 www.panda.org/about_wwf/what_we_do/marine/index.cfm?uNewsID=50562

For more information

The World Conservation Union www.iucn.org

WIOMSA www.wiomsa.org / www.wiomsa.org/mpatoolkit/Home.htm includes useful information on Mangrove Restoration.

WWF Eastern African Marine Ecoregion Programme www.panda.org/about_wwf/where_we_work/africa/what_we_do/eastern_africa/eame/index.cfm

Arona Soumare. MPA Programme Officer WWF West Africa Marine Ecoregion asoumare@wwfsenegal.org

Sylvester Kazimoto. Licensing & Enforcement Warden, Mafia Island Marine Park. marineparks@raha.com

Jason Rubens. WWF Technical Adviser e-mail: wwfmafia@bushlink.co.tz

Community Centred Conservation www.c-3.org.uk - Email: info@c-3.org.uk