



MARINE update 60

Fisheries MPAs

WHAT ARE MARINE PROTECTED AREAS?

Across the world, closing areas of ocean and seas to specific activities or for certain periods of time is a tool commonly used for nature conservation or fisheries management purposes. These are generally known as 'marine protected areas' (MPAs).

MPAs were developed as tools to provide species and habitats with spatial protection from human interference. Given the current debate on spatial measures for fish stock protection and recovery, WWF believes it is appropriate to distinguish between marine protected areas with a conservation objective and those with a fisheries management objective such as stock recovery. The latter are known as fisheries MPAs.

Closures for fisheries management have a long history. For example in the EU, fisheries management measures may apply in defined closed areas known as 'fisheries boxes'. The plaice box was set up in 1989 to protect juvenile plaice by restricting beam trawling across 38,000 sq km of the North Sea. Studies indicate that the box reduces mortality of younger fish¹.

The case for fisheries MPAs has been championed following their success in providing targeted protection for sedentary species living on tropical reefs. It is in the warmer zones of the world that the concept has come most successfully to fruition. However, it is important to note that fisheries MPAs do not only benefit sedentary

species – mobile finfish stocks such as cod, mackerel or plaice, will also benefit where environmental conditions are right, or where strong management significantly reduces fishing mortality.

It is not just warmer waters in which fisheries MPAs are successful: in the Georges Bank Fisheries MPA off the US east coast, the spawning stock biomass of yellowtail flounder, haddock and cod had increased by 800%, 400% and 50% respectively after six years of closure². Furthermore, recent tagging research has shown that migratory species display considerable intra-species differences in movement behaviour – a proportion of the population may remain in a relatively small area, while others undertake significant migrations. This enables the resident population to build up and other localised aggregations to amass within MPAs³

WHY DO WE NEED FISHERIES MPAs?

Although fisheries MPAs may seem like a new approach, they are not. In the past there were always places that could not be fished because they were too deep, too dangerous, too hard to reach, or where the bottom was too rough. Modern technology has enabled access to these areas, so the amount of sea that is not fished has dwindled. Unfished areas once played a critical role in supporting fisheries; fisheries MPAs reinstate some of these vital refuges for fish breeding stocks.

DIFFERENT TYPES OF PROTECTED AREA

The term 'marine protected area' (MPA) can refer to a wide, and sometimes surprising, variety of area-based approaches to marine conservation.

Marine protected areas (MPAs)

An MPA is an area designated to protect marine ecosystems, processes, habitats and species including the essentials of marine biodiversity. It can contribute to the conservation, restoration and replenishment of resources for social, economic and cultural enrichment, and provide environmental stewardship. Areas such as catchments and islands enclosed within MPAs may well have an influence on how an area needs to be managed⁴.

Nature conservation MPAs

Marine nature conservation MPAs are areas identified for biodiversity protection, whose primary objectives relate to the conservation and recovery of marine biodiversity and ecosystems. They are usually designated around permanent geographic features to allow the recovery and maintenance of biodiversity, and have different management strategies ranging from multi- or managed use to strict protection of Highly Protected Marine Reserves (HPMRs).

In the UK and Europe, nature conservation MPA management has focused on multi-use. Nature conservation MPAs are an important feature of the marine nature conservation tool kit; but to address wider issues such as pollution, shipping and fisheries, they need to be set in a broader marine nature conservation policy and wider environmental management framework – a marine spatial plan. Nature conservation MPAs can be established under both fisheries and conservation legislation.

Fisheries MPAs

Fisheries MPAs are spatially defined areas of sea or estuary where natural populations of commercial species (finfish and/or shellfish) are protected either in part or completely from exploitation or other detrimental human activities. Fisheries MPAs provide a

tool for issues such as stock management and fish stock recovery. They can be permanent or non-permanent, gear type specific, fish species specific, vessel type or size specific, etc. There are two main sub-types of fisheries MPAs:

Closed areas (aka 'fisheries boxes')

A closed area is a fisheries management tool that relates to a sea area which is closed (either permanently or seasonally) to a certain fishing gear or vessel size, or for a certain target species usually for the purpose of fish stock management or recovery. Since fishing is not totally prohibited, these 'boxes' are not true 'no-take zones'.

Several 'fisheries boxes' are already in use in Europe, such as the Norway pout, mackerel and plaice boxes, or those that protect spawning herring.

No-take zones (NTZs)

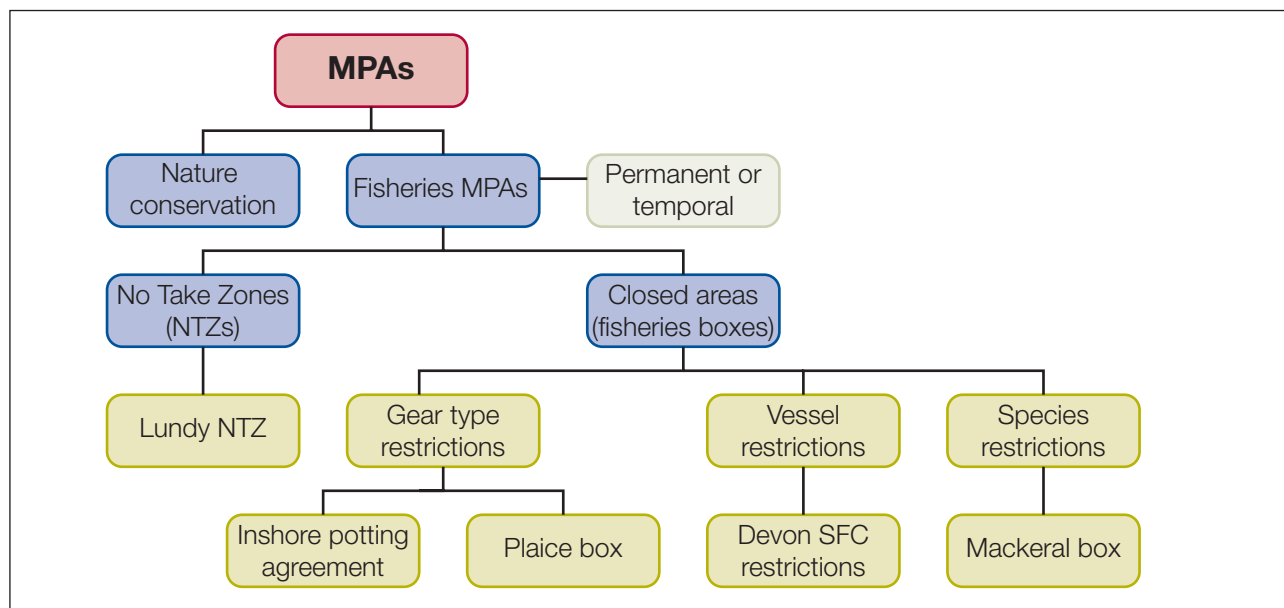
An area of sea that has been temporarily or permanently closed to all fishing (not just some gear types) to protect fish stocks and/or natural habitats. NTZs can enable the ecosystem within the area to recover (at least partially) from the effects of fishing.



© WWF-UK / S PEPLOWSKI

The Inshore Potting Agreement is a form of gear restriction 'Closed Area'

The relationship between the types of MPAs with focus on fisheries MPAs



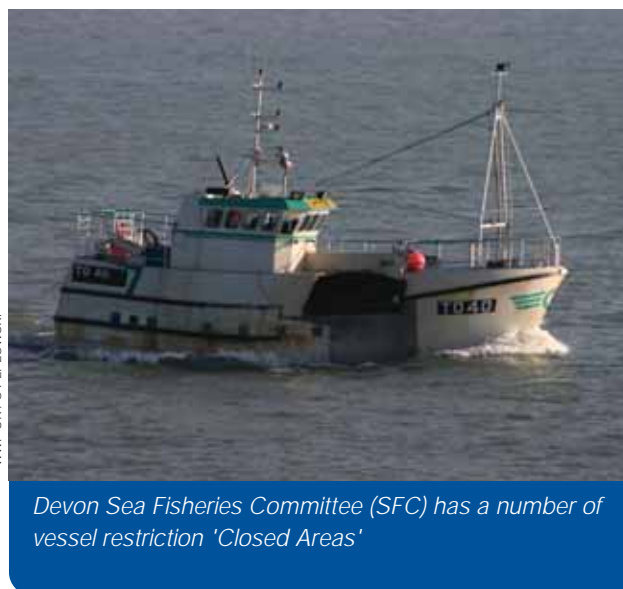
NATURE CONSERVATION AND FISHERIES MANAGEMENT

In Europe the political commitment to MPAs with nature conservation objectives is fairly well developed. Every country in Western Europe has either designated some nature conservation MPAs or developed a process by which nature conservation MPAs will be designated. The majority of governments have not only committed to designating nature conservation MPAs, but have committed⁵ to designating fully representative and effective networks of nature conservation MPAs and are taking steps towards achieving this. Political commitment to fisheries MPAs is not so well developed despite their being recognised as a tool for fisheries management.

While WWF is aware of the arguments to integrate MPAs for nature conservation and fisheries purposes (in cost and resource terms), any original commitments to developing marine protected areas as a tool for nature conservation should not be jeopardised by mixing the two approaches, since both types of MPA differ significantly in their overall intention, governance and management needs when put into practice.

“WWF considers fisheries MPAs to be a different tool from nature conservation MPAs, which fulfils a different purpose”

However, in some cases nature conservation MPAs will provide benefits for fish stocks and for fisheries management, such as the protection of nursery and spawning grounds, and decreased fishing mortality, which in turn can lead to spillover effects into the surrounding areas where resources can be fished. Similarly, fisheries MPAs have the potential to provide benefits for conservation – healthier stocks will not only support the fishing industry but also the wider ecosystem. In some cases it may be possible to combine objectives for both nature conservation and fish stock management within one site.



Devon Sea Fisheries Committee (SFC) has a number of vessel restriction 'Closed Areas'



© Nicola Saunders

The Lundy No-Take Zone - an area to the east of Lundy Island, 12 miles off the North Devon coast - was set up in 2003 to enhance conservation of marine wildlife. It is the first time in the UK that an area has been designated where the removal of any living creature has been permanently banned by law.

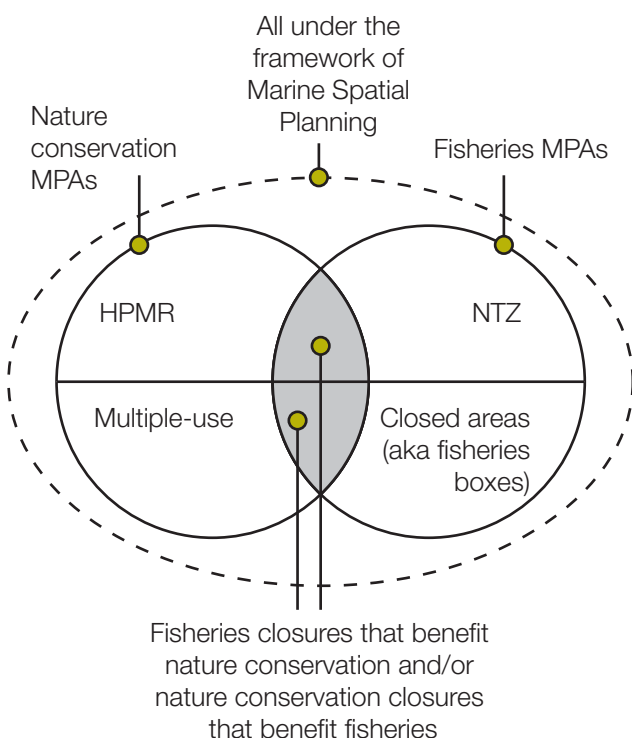
Nature conservation MPAs – Some definitions

Highly Protected Marine Reserves (HPMRs)

Areas of the sea that are set aside from all extractive uses and other damaging activities to allow the recovery and conservation of habitats, species and the structure and function of the ecosystem to maintain its goods and services.

Multiple-use MPAs

It is often believed that all MPAs are closed to all activities – in fact the majority often permit both extractive and non-extractive activities. These multiple-use MPAs function both to protect ecosystems and, at times, to support sustainable commercial activities (for example ecotourism where licences are issued to limit activity levels). Activities can take place within the protected area if they are deemed not to have an adverse impact on the conservation features, hence they may be zoned or be subject to certain conditions. One example is the seasonal restrictions on access to parts of MPAs to minimise disturbance to nesting seabirds.



An example of an area closed to fishing because of damage to sensitive habitats or conflict with vulnerable species is the Darwin Mounds closure.

HOW WILL FISHERIES MPAs WORK?

The successful delivery of fisheries MPAs relies on setting clearly defined objectives and encouraging stakeholder participation in the planning, design and implementation process.

Fisheries MPAs are proposed as a way of helping to manage fish stocks for exploitation, or possibly as a restoration tool for a fishery that has been over-exploited. However, they will never be the sole tool for fish stock and fisheries management. Fisheries MPAs (including temporal closures) can also be introduced as a way to manage fishing mortality.

Protected areas can increase sustainability and stability in a fishery through:

- Helping to maintain a predicted and secure level of yield from a fishery.
- Providing for spillover or larval export that can be considered as securely linked to natural or broad scale environmental changes but uncoupled from fishery-induced impacts.
- Providing for unfished reference sites where important parameters for the fishery may be estimated, free from the effects of fishing.
- Acting as reference sites where benchmark environmental conditions can be established so that the impacts of external factors affecting the fishery and local habitats can be assessed and predicted.
- Providing a form of insurance against the effects of unexpected problems that may arise from the existing system of stock management.



© WWF-UK / S PEPLOWSKI

Fisheries MPAs are a key part of the toolkit for managing fisheries effectively



© WWF-UK / S PEPLOWSKI

Inside a Fisheries MPA the resulting reduction in fishing mortality and changes in habitat can result in increased biomass and catch rates.



© Paul Naylor

The UK'S first no-take zone off Lundy has produced promising results, with lobsters showing a huge increase in numbers after just two years.

WWF POSITION

While some recent reports have recommended that defined proportions of an area be designated for fisheries closures⁶, WWF has not made recommendations as to how much of the seas should be managed through MPAs for fish stock management

It has been suggested that closing access to fish stocks should not be determined on a spatial basis, but rather should be based on fish stocks. It is also likely that the quality and relevance of an area will have a greater impact than its overall size.

One large closed area is not always the best solution. For closed areas to promote the build-up of exploited species, they must be large enough to protect individuals from fishing by encompassing their full ranges of movement. And for surrounding fisheries to benefit, closed areas must be small enough to yield spillover.

The best solution is often a network including a number of fisheries MPAs of different sizes. Such a network must comprise carefully selected key life-stage histories (such as spawning grounds, feeding aggregations, nursery areas), and include important routes for migratory species and ecological corridors across ocean basins.

WWF is advocating the establishment of such a comprehensive network of fisheries MPAs in the north-east Atlantic. Such a network will include fisheries MPAs encompassing restrictions that can be permanent or non-permanent, gear type specific, fish species specific, vessel type or size specific, and that in some cases will overlap with a network of MPAs with nature conservation objectives. In Australia, the government recently declared a network of no-fishing zones in the Great Barrier Reef National Park.

NEXT STEPS

The most important next step is to identify pilot areas for fisheries MPAs.

Evidence suggests that benefits to mobile fish species are more likely to be associated with MPAs that reflect areas associated with critical life stages, such as nursery areas, recruitment grounds or spawning grounds. We need to develop work that identifies potential benefits for commercial fisheries. WWF-UK is commissioning a study that should deliver further information on this later this year.

References

1. Grift, RE, Tulp, I, Clarke, L, Damm, U, McLay, A, Reeves, S, Vigneau, J and Weber, W (2004) Assessment of the ecological effects of the Plaice Box, Report of the European Commission Expert Working Group to evaluate the Shetland and Plaice boxes.
2. Sweeting, CJ and Polunin, NVC (2005) Marine Protected Areas for Management of Temperate North Atlantic Fisheries: Lessons learned in MPA use for sustainable fisheries exploitation and stock recovery. Defra.
3. Gell and Roberts (2003) Benefits beyond boundaries: the fishery effects of marine reserves. *TRENDS in Ecology and Evolution* 18: 448-454.
4. From 'MPA Designations: A summary of definitions and objectives', WWF-UK. Summer 2005
5. Through the EU Natura 2000 network of protected areas (based on the EU Directives 79/409: conservation of birds, and 92/43: conservation of natural habitats and wild fauna and flora) and the OSPAR, Barcelona and Helsinki (HELCOM) Conventions.
6. Thirty per cent of a sea area is a figure that has been used by other bodies (e.g. the UK's Royal Commission on Environmental Pollution).

The mission of WWF is to stop the degradation of the planet's natural environment and to build a future in which humans live in harmony with nature, by:

- conserving the world's biological diversity
- ensuring that the use of renewable resources is sustainable
- promoting the reduction of pollution and wasteful consumption



wwf.org.uk

for a living planet®

WWF-UK

Panda House, Weyside Park
Godalming, Surrey GU7 1XR
t: +44 (0)1483 426444
f: +44 (0)1483 426409