Marine Protected Areas in the context of Marine Spatial Planning – discussing the links

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November 2004

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1. INTRODUCTION

There are many ways of managing activities in the marine environment, depending on the type of activity and the desired objective. This report discusses the links between two specific management tools – Marine Protected Areas and marine spatial planning – and explores how they might be used to progress the conservation of marine biodiversity and economic activity in a positive and complementary way.

Marine Protected Areas (MPAs) are most often established to promote the conservation of marine biodiversity, although they can also be used to benefit other interests such as fisheries and recreation. Marine spatial planning (MSP) has a much broader remit, providing an overall framework for managing activities in the marine environment. While there has been more than two decades of experience with MPAs in UK waters, MSP is still at the ideas stage, with the full scope and implications of any such system, if it were to be introduced in the UK, still to be determined.

In the UK WWF is campaigning for the Government to pass a Marine Act in order to address the many issues associated with the management of human activities affecting the marine environment[1]. One component of the proposed bill is the designation of a nationally representative network of Marine Protected Areas set within the context of Marine spatial planning.

Marine Protected Areas

Marine Protected Areas (MPAs) have been defined by IUCN, the World Conservation Union, as:

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

There are many types of MPA, with management arrangements ranging from multiple-use to strict protection within "no-take zones" (NTZs) where all extractive activities are prohibited. They include examples of all categories of protected areas defined by IUCN and reflect the varied objectives of MPAs. In the UK, most are Natura 2000 sites set up under the EU Habitats and Birds Directives. There are also a number of Voluntary Marine Conservation Areas, and three Marine Nature Reserves (which are within Natura 2000 sites). There is a longer-term commitment of establishing a network of MPAs for nationally important sites.

Although usually considered to be areas designated for biodiversity conservation, there are also other types of MPAs. They include fisheries reserves or "boxes" where there may be seasonal closures or gear restrictions as part of a management regime for commercial fisheries, areas of archaeological interest, military exercise areas, and safety zones around marine structures (such as oil platforms and offshore wind turbines) where access is restricted and which act as *de facto* reserves.

Within the context of MPA policy and development, WWF has had a particular interest in the benefits to nature conservation of establishing NTZs and has produced reports which explain these[2] .

[1] In Scotland WWF is calling for a Scottish Marine Act to be passed as the Scottish Executive has devolved control of certain marine and coastal matters.

[2] e.g. Gell, F.R & C.M. Roberts (2002) The Fishery Effects of Marine Reserves and Fishery Closures. WWF[0]; Gubbay, S. (1996) Marine refuges. The next step for nature conservation and fisheries management in the North-East Atlantic. WWF-UK.

Marine Spatial Planning

Marine Spatial Planning (MSP) is a much more recent idea and is seen as a way of improving decision-making and delivering an ecosystem-based approach[3] to the management of marine activities. In essence, it is a plan-led framework that enables integrated, forward-looking, consistent decision-making on the use of the sea. MSP will also provide a more transparent process of conflict resolution in a situation where there are many demands for the use of marine resources and sea space.

The main elements of MSP are likely to include an interlinked system of plans, policies and regulations; the components of environmental management systems (e.g. setting objectives, initial assessment, implementation, monitoring, audit and review); and some of the many tools that are already used for land use planning. Whatever the building blocks, the essential consideration is that they need to work across sectors and give a geographic context in which to make decisions about the use of resources, development, and the management of activities in the marine environment.

Some elements needed to operate a system of MSP in the UK already exist. They include the requirement for Strategic Environmental Assessment, which will help link decisions on sea use to agreed broad objectives and provide an ecosystem-based approach to management if it is linked across sectors. Data sharing, risk assessment, ecological and socio-economic mapping including use of Geographic Information Systems (GIS) will also help deliver spatial planning and there are already many operational and developing GIS systems that could be harnessed[4].

Zoning schemes are also likely to be an element of MSP and examples of this in UK waters are specific to particular sectors (such as the exclusion zone for licensing offshore wind operations close to the coast) and across disciplines, for example in parts of the country where coastal management plans have been prepared. Most of the latter are focused on estuaries and have been developed to clarify roles, responsibilities and desirable actions for the sustainable use of such areas.

Key drivers for action on MPAs and MSP

There is momentum for the establishment of MPAs and development of a system of MSP driven by international, European and national initiatives.

In the case of MPAs, commitments stemming from the Convention on Biological Diversity (CBD) and the Oslo & Paris Commission (OSPAR) are important influences on the UK MPA programme.

The CBD and the Jakarta Mandate include principles and timetables relevant to MPAs. The CBD has marine and coastal protected areas as one of its themes and has taken on board the goal adopted at the 2002 World Summit on Sustainable Development to establish representative networks of protected areas in the maritime environment by 2012.

The 1992 Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention) came into force in 1998. Annex V (on the Protection and Conservation of the Ecosystems and Biological Diversity of the Maritime Area) gives the OSPAR Commission a duty to develop means, consistent with international law, for instituting protective, conservation, restorative or precautionary measures related to specific areas or sites or related to particular species of habitats.

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[3] Defined in the Convention on Biological Diversity as "a strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way".

[4] See Coast Map News, Issue 7, September 2004. www.cefas.co.uk/coastmap

Workshops under the auspices of the OSPAR working group on Marine Protected Areas and Species & Habitats (MASH) have developed guidelines for identifying, selecting and managing MPAs. A target date of 2010 has been set to achieve "an ecologically coherent network of well managed Marine Protected Areas". This is linked to an agreement made by environment ministers at the Fifth North Sea Conference to establish such a network of MPAs by that date.

At a European level, the EU Habitats and Species Directive (92/43/EEC) has had a major influence on the UK MPA programme. The Directive requires the establishment of protected areas (Special Areas of Conservation – SACs) for a number of listed habitats and species in areas of sea under the jurisdiction of member states (ie. out to the 200nm limit).

Current UK policy on MPAs is set out in the Marine Stewardship Report[5] which supports the establishment of MPAs and includes commitments:

(a) to build on marine protection afforded in territorial waters under the Habitats and Birds Directives by applying these Directives out to the limit of jurisdiction of UK waters

and

(b) to identify and designate relevant areas of the UK's seas as areas of marine protection belonging to a network of well-managed sites by 2010.

Support for MPAs is also found in more detailed documents such as biodiversity action plans. The Review of Marine Nature Conservation (RMNC), published by the Department for Environment, Food and Rural Affairs, also makes recommendations on MPAs which the government will respond to in due course.

Interest in MSP has come from a much broader base, with a variety of users seeing the value of a system of planning in territorial waters and, in some cases, the entire UK Continental Shelf Area. This is also an issue which has international drivers, such as the commitments made by environment ministers at the Fifth North Sea Ministerial Conference[6], and the associated request for OSPAR to take forward a number of initiatives, including:

"to investigate the possibilities for further international cooperation in planning and managing marine activities through spatial planning of the North Sea States taking into effect transboundary and cumulative effects".

The European Commission (EC) is also promoting the idea of marine spatial planning. In its strategy for the marine environment, published in 2002, it indicated that it *"will address the integration of nature protection measures and the various sectoral activities impacting on the marine environment, including spatial planning*". A subsequent stakeholder conference on the strategy concluded that *"principles from spatial planning should be considered to establish a good basis for a more integrated approach of the marine area"*. There is no indication yet as to how the Commission might help put this into practice.

The EC initiative on Integrated Coastal Zone Management (ICZM) is also relevant. A Council Recommendation, adopted in 2002, called on Member States to carry out "stocktakes" to analyse which actors, laws and institutions influence the planning and management of their coastal zones. From these findings, the recommendation is that each Member State should

[5] Defra (2002) Safeguarding Our Seas. A strategy for the conservation and sustainable development of our marine environment.
[6] Bergen Declaration. The Fifth International Conference on the Protection of the North Sea, 20-21 March 2002, Bergen, Norway.

develop a national strategy for ICZM. The relevance of this to the issues discussed here is that ICZM will provide the link between land use planning and any system of MSP.

The UK will contribute to the developing initiatives of MSP at regional and national levels as part of a programme of work on integrated stewardship. This includes exploring how coordination between departments might be improved in the issuing of individual consents for activities that impact on the seabed, and reviewing legislation affecting development in the coastal area with a view to simplifying the regulatory system protecting the marine environment[7]. The findings of this review are likely to refer to MSP and are due to be published in the near future.

The UK government's Marine Stewardship Report and response to its consultation paper *Seas of Change*[8] have also made commitments to consider the idea of MSP in the UK (Table 1).

Table 1: Key current drivers for Marine Protected Areas and Marine Spatial Planning in the UK

Level	MPAs	MSP
International	**WSSD & CBD –** Establish representative networks of MPAs by 2012. **OSPAR** – establish an ecologically coherent network of well-managed MPAs by 2010.	**OSPAR** – requested by the Fifth North Sea Conference to investigate the possibilities for further international cooperation in planning and managing marine activities through spatial planning of the North Sea States, taking into account transboundary and cumulative effects.
European	**EU Habitats & Birds Directives** – set up the Natura 2000 network of protected areas. **Fifth North Sea Conference** – establish an ecologically coherent network of well-managed MPAs by 2010.	**Fifth North Sea Conference** – to investigate possibilities for further international cooperation in planning and managing marine activities through spatial planning of the North Sea States, taking into account transboundary and cumulative effects. **EU Marine Strategy** – will address the integration of nature protection measures and the various sectoral activities impacting on the marine environment, including spatial planning.
National	**Marine Stewardship Report** – apply Habitats and Birds Directives to the limit of jurisdiction of UK waters. Identify and designate relevant areas of UK seas, as part of a network of well-managed sites, by 2010.	**Marine Stewardship Report** – contribute to European/international work on MSP as part of a programme of work on integrated stewardship. **Seas of Change** – undertake a pilot scheme on MSP to test ideas and approaches.

[7] Defra (2002) Safeguarding Our Seas. A strategy for the conservation and sustainable development of our marine environment. Defra, London.
[8] Defra (2004) The Government's response to its Seas of Change consultation to help deliver our vision for the marine environment. Defra, London.

	RMNC – recommends identifying areas important for marine biodiversity and geodiversity in UK waters, and those requiring priority conservation action. Also identify, establish and take appropriate measures for an ecologically coherent and representative network of MPAs. **Irish Sea Pilot** – recommended identifying and managing ecologically coherent network of important marine areas.	**RMNC** – recommends UK government should undertake a trial of MSP at the Regional Sea scale to determine the suitability of implementing such an approach across all UK waters. **Irish Sea Pilot** – recommended introduction of a statutory process of MSP involving national planning guidelines, strategic plans at the Regional Sea scale and more detailed local plans.

2 MARINE PROTECTED AREAS – ISSUES AND OPPORTUNITIES

The process of selecting, establishing and managing MPAs requires careful planning and sensitive management. Experience from the UK and other parts of the world shows that many issues need to be addressed if MPAs are to be successful, and that the process should be inclusive: i.e. a fair representation of stakeholders should be involved in planning, and in sharing responsibility for managing the MPA whenever possible.

Two important considerations discussed in this report are how MPAs link in with other marine management regimes, and whether there are opportunities to realise benefits for nature conservation and other maritime interests at the same time. Both these questions depend on the management objectives of MPAs, which can be very wide-ranging despite the emphasis on the conservation of marine biodiversity. One suite of objectives, listed by IUCN[9], indicated that MPAs may be set up to:

- protect and manage substantial examples of marine and estuarine systems to ensure their long-term viability and to maintain genetic diversity;
- protect depleted, threatened, rare or endangered species and populations and, in particular, preserve habitats considered critical for the survival of such species;
- protect and manage areas of significance to the life cycles of economically important species;
- prevent outside activities from detrimentally affecting the Marine Protected Area;
- provide for the continued welfare of people affected by the creation of MPAs;
- preserve, protect and manage historical and cultural sites and natural aesthetic values of marine and estuarine areas;
- facilitate the interpretation of marine and estuarine systems for the purposes of conservation, education and tourism;
- accommodate, with appropriate management regimes, a broad spectrum of human activities compatible with the primary goal in marine and estuarine settings; and
- provide for research and training, and for monitoring the environmental effects of human activities including the direct and indirect effects of development and adjacent land-use practices.

[9] Objectives of a global representative system of MPAs as adopted by the 17th General Assembly of IUCN. In: Gubbay (Ed), 1995 Marine Protected Areas. Principles & Techniques for Management. Chapman & Hall. Conservation Biology Series.

The implementation of MPAs within the framework of MSP will necessitate a clear understanding and communication of MPA policy, nested within a broader marine nature conservation policy, to the full range of stakeholders. A transparent overview of the aims and objectives of MPAs, including the role and benefits of sustainable use and strictly protected areas, need to be clearly articulated in order to seek understanding and engagement by stakeholders. This will need to be reflected through site selection, establishment and management, and network design and implementation.

More specific issues and opportunities which come with the designation of MPAs are discussed below in the context of the management of fisheries, the offshore oil and gas industry, and the developing marine renewable energy programme. In each case the sector-specific spatial management arrangements are described, as these are particularly relevant to MPAs and MSP. This is followed by a discussion of the issues and opportunities for the sector, in relation to MPAs.

2.1 Fisheries and Marine Protected Areas

In 2002[10], there were 7,033 UK-registered fishing vessels. In the same year, 686,000 tonnes of sea fish worth £546 million were landed in the UK and abroad by the UK fleet. There were around 12,700 fishermen involved in sea fishing. The changing scale of the industry is apparent when this last figure is compared with two decades ago, when there were over 23,000 UK fishermen.

The greatest quantity and value of UK landings are from the demersal sector which largely comprises cod, haddock, plaice and whiting. The main pelagic fisheries are for herring and mackerel and most shellfish landings are for crabs and nephrops. Since the 1970s there has been a growth in the catch and landings of deep-water fish such as blue ling, black scabbard fish and orange roughy from parts of the North-east Atlantic.

The fishing techniques used by the UK fleet include trawling, seine netting, dredging, gill netting, tangle netting and trammel netting. Traps are used to catch salmon, eels, crustaceans and molluscs, and longlines and handlines are used to catch demersal and pelagic species. Molluscs are gathered by hand from the shore and there is also an aquaculture industry for the production of salmon, turbot, halibut, mussels, oysters, clams and scallops.

The Common Fisheries Policy (CFP) provides the framework for the management of fisheries in EU waters. It was formally adopted in 1983 and has been repealed and replaced twice since then. The current version was adopted in 2002[11].

The CFP covers five major topics: access, conservation, market management, production and marketing structures, and the organisation of international relations. The main elements by which it operates are the setting of quotas (derived from an agreed Total Allowable Catch), technical measures such as minimum mesh sizes and minimum landing sizes, and a surveillance system to ensure compliance. It also declares that national measures should not discriminate against fishermen in other member states.

The UK fisheries departments are the Department for Environment, Food and Rural Affairs, the Scottish Executive Rural Affairs Department, the National Assembly for Wales Agriculture Department and the Department of Agriculture for Northern Ireland. There is an additional tier in England and Wales, where 12 Sea Fisheries Committees can make bylaws to

[10] UK Sea Fisheries Statistics 2002. Defra.
[11] Council Regulation 2371/2002 on the conservation and sustainable exploitation of fisheries resources under the Common Fisheries Policy.

regulate local fisheries (i.e. those operating within 6nm from the coast). Since 1993, there has been a restrictive licensing scheme for all vessels fishing for designated stocks in UK waters.

Aquaculture is another component of the fishing industry. In 2003 salmon production amounted to more than 151,000 tonnes. Licences are required for the placing and operation of facilities in coastal waters as well as a seabed lease from the Crown Estate. Applications to develop a new site, vary an existing site or renew the development consent for a site, are made to the Crown Estate (except in the Shetland Islands and parts of Orkney where a Works Licence system applies). The Crown Estate advertises the proposals and copies the application to the relevant local authority – the Scottish Environment Protection Agency, Scottish Natural Heritage, the district salmon fishery board (where constituted) and the Scottish Executive (Statutory Consultees). All comments from respondents to the consultation are sent for consideration to the local authority, which will issue a recommendation[12]. In the Shetland Isles and Orkney Harbour Authority areas, the local authority undertakes the consultation procedure and grants Works Licences for any new or modified development. The Crown Estate will grant a consent with any associated conditions if there is a favourable view from the relevant authority.

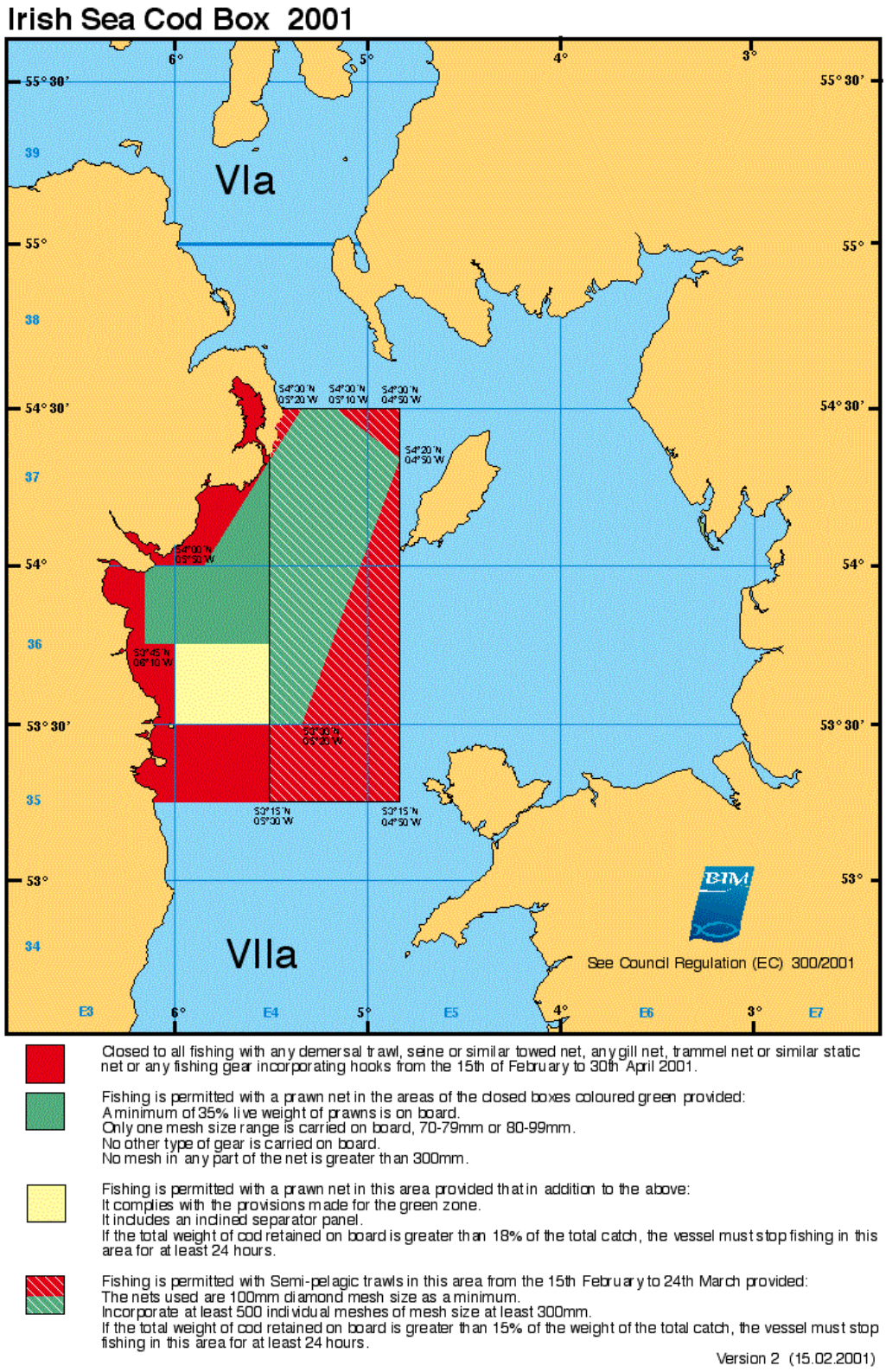
2.1.1 Sector-specific spatial management arrangements relevant to MPAs

The European Fishing Zone extends up to 200nm offshore from the baseline. Under the terms of the Common Fisheries Policy, coastal states have exclusive fishing rights within 6nm of their coastline. Between 6 and 12nm other countries may have historic rights of access to fish and beyond 12nm, all EU member states have rights of access. Other countries may also be permitted to fish, through third party agreements with the EU.

Conservation "boxes" are another aspect of the spatial regulation of fishing activity. These are areas, specified by the EU, where there may be seasonal, full-time, temporary or permanent controls on fishing methods and/or access. The Irish Sea cod box, which is one element of the cod recovery measures introduced by the EU, is an example (Figure 1).

[12] www.crownestate.co.uk/53_fish_farming_04_02_07.htm

Figure 1. Spatial limitations relating to the cod fishery in the Irish Sea in 2001 www.irishseafood.com/maps/codbox_gif.html



Similar types of spatial zoning also exist in inshore waters. These are established through bylaws which can specify permanent or temporary closure of sea areas to certain types of fishing, or specify the size and/or type of vessel that can operate in a particular area. Since 1999, Area Management Agreements, which may also include an element of zoning relating

to aquaculture facilities and codes of practice, have been developed by some Scottish local authorities for a number of sea lochs.

2.1.2 Main issues for fisheries from MPAs

Site Selection

Identifying areas as potential MPAs is often an issue of concern to fisheries interests, especially where the sites overlap with important fishing grounds. The focus provided by the *Natura 2000* network (where MPAs are directed at specific habitats and species) may be seen as helpful by showing the scope of proposals but, as they are reviewed by the EC from a regional (the Atlantic biogeographic region) perspective, it is not necessarily helpful in giving a clear picture of how many sites will be selected and how large an area they will cover.

Site selection also has implications beyond the boundaries of the MPA if it displaces fishing activity. This may result in a concentration of fishing activity around the fringes, or closure of a particular type of fishery. Such considerations will need to be taken into account within a marine spatial plan and future decision-making.

The full extent of any MPA network in UK waters is unclear at present. This creates uncertainty and difficulty in long-term planning for fisheries.

Establishment

Fishermen and fishing industry representatives are much more involved in the MPA consultation process than a decade ago, but there may still be concerns about whether they are involved early enough. Another issue can be whether their interests, and the information provided by fisheries interests, are taken on board fully.

Management

Managing activities in MPAs is often a major issue of concern to fishermen, especially when this means the restriction of fishing activity within the site. The restrictions that are sought may be temporary or permanent and may relate to existing or long-standing fishing practices as well as proposed new fishing activities. With management plans usually reviewed regularly, another concern can be uncertainty about the operations which may be permitted in the long term, and the levels at which they can operate.

Finally, MPAs can be seen as another layer of bureaucracy if the requirements are not integrated into the existing fisheries management regime.

2.1.3 Main opportunities for fisheries from MPAs and MSP

The principal direct benefit to fisheries from MPAs is the potential to restore, safeguard, sustain and even enhance some of the fish stocks on which the industry depends. This is especially important where existing tools for fisheries management are falling short of delivering sustainable fisheries for most North Sea and Irish Sea stocks. The contribution that MPAs can make to this process (especially where they are strictly protected "no-take zones") include[13]:

- protecting exploited populations, and enhancing production of offspring which help restock fishing grounds;
- supplementing fisheries through spill-over of adults and juveniles into fishing grounds;
- providing a refuge from fishing for vulnerable species;
- preventing habitat damage and promoting habitat recovery;

[13] Roberts, C.M. & Hawkins, J.P. (2000) Fully-protected marine reserves: a guide. WWF Endangered Seas Campaign.

- maintaining biodiversity by promoting development of natural biological communities that are different from those in fishing grounds; and
- facilitating ecosystem recovery after major human or natural disturbances.

MSP is a familiar idea to the fisheries sector, which has many years experience of working with ideas such as zoning, targets and guidance on methods of operation in particular areas. Bringing other sectors into a similar framework, and the more integrated approach to decision-making which is one of the aims of MSP, should therefore be beneficial to the industry because it will provide more certainty about management options for particular areas. Other elements of MSP – such as taking into account cumulative and in-combination effects in decision-making, easily accessible stakeholder involvement and improved ability to minimise conflicts of use – will also benefit the fishing industry, which often feels marginalised in sea use management decisions.

The continuing Marine Fisheries and Environmental Enforcement Review[14], the fisheries report from the Prime Minister's Strategy Unit[15] and the various calls for fisheries to be subject to Strategic Environmental Assessment, may be able to identify opportunities for enforcement activities to benefit both sectors. For example, the enforcement review considered there was a strong case for the fishing industry to contribute to the costs of management and enforcement, and the Irish Sea Pilot recommended that fisheries decisions and activities should be brought within the scope of SEA plans and programmes, and within the scope of plans and projects in relevant EU legislation.

2.2 Oil and gas extraction and Marine Protected Areas

Oil and gas extraction has been a major commercial venture in UK waters since the 1970s. Following the discovery of the Forties Field in 1970, the initial activity was centred on the North Sea but it is more widespread today. There are three main regions of extraction in the North Sea: southern (predominantly gas), central (oil and gas), and the East Shetland basins (mainly oil). In the Irish Sea, most extraction is for gas, and takes place in the north-eastern area.

The largest and most easily developed oil fields are now past their production peak[16]. Since the early 1990s offshore areas have therefore been the focus of exploration and there has been a surge of activity associated with the discovery and opening up of the Foinaven and Schiehallion fields in the "Atlantic Margin" to the north and west of Scotland. Onshore fields also exist – for example, Wytch Farm, which extends off the coast of Dorset and is the largest onshore field in Europe.

There are around 240 offshore fields in production at present[17]. Total crude oil production in 2002 was 96,811,000 tonnes, with the greatest production from the Scheihallion, Alba and Elgin fields and the largest onshore production from Wytch Farm (1,915,000 tonnes)[18]. Total offshore gas production in 2002 was 109,050 million cubic metres[19]. The results of a survey of operators suggest that they are expecting to drill around a further 39 exploration and appraisal wells on the UK Continental Shelf (UKCS) in 2004 and 37 in 2005 [20].

All oil and gas on the UKCS belongs to the Crown and companies need a licence from the Department of Trade and Industry (oil and gas directorate) to carry out any exploration and

[14] Marine Fisheries and Environmental Enforcement Review
[15] Net Benefits: a sustainable and profitable future for UK fishing.
[16] SEA 2.
[17] www.dti.gov.uk/sectors_iep.html
[18] www.og.dti.gov.uk/information/bb_updates/appendices/Appendix9.htm
[19] www.og.dti.gov.uk/information/bb_updates/appendices/Appendix10.htm
[20] www.og.dti.gov.uk/information/bb_updates/chapters/Charts4_1-4_2.htm

development. The DTI's licensing system covers oil and gas within Great Britain, its territorial sea and on the UKCS. Northern Ireland issues its own licences, independently of the DTI, to cover its onshore area. These confer rights over a limited area and for a limited period.

Strategic Environmental Assessments (SEAs) are being undertaken prior to future wide-scale licensing of the UKCS with reference to the EU Strategic Environmental Assessment Directive[21]. The UKCS has been divided into eight sectors for this exercise, with SEA 1 covering an area to the north-west of Shetland, carried out in 1999/2000. Consultation on SEA 5 is currently under way, and data assessment projects have started in advance for SEAs in respect of areas 6, 7 and 8.

2.2.1 Sector-specific spatial management arrangements relevant to MPAs

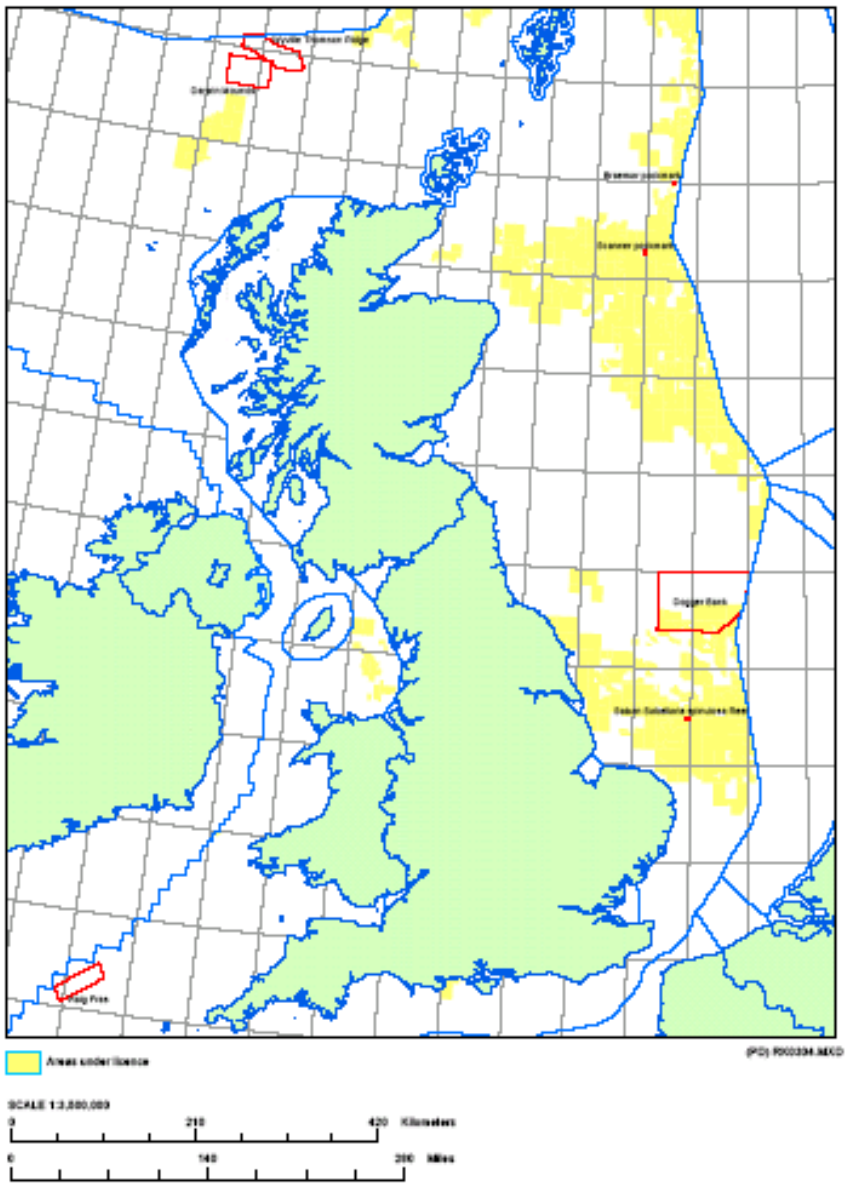
For the purposes of licensing oil and gas exploration and extraction, the UKCS has been sub-divided into blocks based on a grid of 10' latitude by 12' longitude. Applications are invited for specific blocks in licensing "rounds". Offshore rounds have been held roughly every two years since the first in 1964. Onshore licences are also issued in rounds and related to those areas of sea which lie within the UK baseline.

The 22nd seaward licensing round was announced in March 2004 and the potential for overlap with proposed offshore MPAs (possible SACs under the Habitats Directive) has been indicated in guidance from the DTI (Figure 2). SEAs are being carried out for the entire UKCS, divided into eight regions.

[21] EU Directive 2001/42/EEC on the assessment of the effects of certain plans and programmes on the environment.

Figure 2. Offshore areas under licence on the UK Continental Shelf and location of potential offshore Special Areas of Conservation

www.og.dti.gov.uk/upstream/licensing



Zoning schemes operate at a more local level in the vicinity of oil and gas platforms where, for reasons of safety, there is restricted access to vessels and activities such as trawling and dredging. These extend for 500m around all platforms and are areas from which vessels are excluded unless directly involved with the structure.

2.2.2 Main issues for oil and gas from MPAs

Site Selection

The location of existing MPAs and designation of future sites is important information for the offshore oil and gas industry, given national and international obligations to safeguard the biodiversity interest in these areas. *Natura 2000* sites are due to be designated on the UKCS and there will be OSPAR and nationally important MPAs in offshore areas in the future.

These types of protected area may restrict the locations in which the industry might wish to operate, although this is probably only an issue in the less explored areas as most of the sites

in the North Sea and Irish Sea are either in production, planned or at the decommissioning stage. Restrictions would not only be relevant to the location of platforms, but also the associated infrastructure such as submerged well heads and pipelines and activities such as seismic survey.

The idea of closed areas is already accepted by the industry, as indicated in the UK Offshore Oil and Gas Industry Strategy[22]. This states that "oil and gas reserves are sometimes found in areas of particular environmental sensitivity and it may be concluded that some discoveries cannot be developed".

Establishment
There is good stakeholder involvement in MPA establishment. The offshore industry has the opportunity to be part of this, and to participate through organisations such as UKOOA.

Management
Day to day activities relating to the offshore oil and gas industry can have an impact on the species and habitats protected within MPAs and as a result these may need to be managed in a particular way, or even prohibited. The offshore industry is already subject to environmental regulation which seeks to minimise environmental impacts, but the presence of an oil platform within the zone of influence of an MPA may require more stringent regulation and operational constraints which could be an issue for the industry.

2.2.3 Main opportunities for oil and gas from MPAs and MSP

The operational practices of the offshore minerals industry can help the UK achieve objectives set for the conservation of marine biodiversity. The resources and effort that the industry and research establishments have put into scientific survey and exploration have also been of benefit by identifying at least one area that has subsequently become an MPA (the Darwin Mounds). A collaborative project between the oil and gas industry and scientific institutes (SERPENT[23]) is an example where the partners see an advantage of using existing industrial technology and, in particular, Remotely Operated Vehicles, to increase knowledge and awareness of marine resources. The information collected from exercises such as these may contribute to the development of marine spatial planning.

A system of MSP could be of considerable benefit by giving the industry a framework in which to operate that also applies to other sea users. This allows longer-term planning and a clearly stated, more accessible approach to decision-making in the marine environment. MSP could provide a directed approach towards *overall objectives*, rather than the current reactive, application-led system with inherent risks of poorly integrated or piecemeal decision-making on the use of marine resources. There would also be an improved ability to *minimise conflicts* of use in existing and future MPAs, and to take into account *cumulative and in-combination* effects[24] in decision-making. This would provide information on where pressures are greatest, specific management is needed and where MPAs may best be placed. A framework of marine spatial planning would also make it possible to be *forward looking* and provide a clear, easily accessible mechanism for *stakeholder involvement* in planning and managing activities in the marine environment.

[22] UKOOA (2001) Striking a Balance. The UK Offshore Oil and Gas Industry Strategy for its Contribution to Sustainable Development, 2001. UKOOA, London.
[23] www.serpentproject.com
[24] Effects which accumulate as a result of a recurrence of the same activity or as a result of the combined effect of different activities.

2.3 Renewable energy generation from offshore wind farms and Marine Protected Areas

Harnessing renewable energy from the marine environment is a developing sector of economic activity which involves the most advanced programmes in the offshore wind sector. Tidal and wave energy generation programmes are mostly at the experimental stage.

Companies wishing to develop offshore wind farms have been able to submit their applications in a series of "rounds". In Round 1, 18 projects, aimed at generating 1.2GW of electricity, were given permission to seek the necessary consents. The sites were put forward by potential developers on the basis of a range of relevant factors including water depth, wind resource and grid connection. All the proposed Round One wind farm sites were in water depths of less than 20m, and no further than 12km offshore. The area of seabed to be developed was limited by the Crown Estate to 10km², a maximum of 30 turbines and a minimum installed capacity of 20MW. A subsequent site, 5km off Portstewart on the north coast of Northern Ireland, may install up to 60 turbines[25].

Round 2 followed a strategic review and consultation which recommended restricting development to three areas of shallow sea: the Thames Estuary, Greater Wash, and the North West. Fifteen projects, representing between 5.4 and 7.2GW of new wind capacity, were offered leases by the Crown Estate in Round 2. Of the 15 wind farms, three are fully outside territorial waters and include the world's largest proposed offshore wind farm, in the Greater Wash area, which is predicted to provide up to 1.2 GW of generating capacity[26].

Also in 2002 the DTI asked the Crown Estate to make available a seabed site for a co-generation scheme off Barrow in the north-west of England. This is the Ormonde project, which aims to produce electricity and derive energy from both wind and gas reserves.

The first offshore wind farm, located off the coast at North Hoyle in Wales, was commissioned in November 2003. The development at Scroby Sands off Great Yarmouth is well under way, and indications are that construction will also start this year (2004) at the Kentish Flats and Gunfleet Sands off the east coast of England. In the Irish Sea alone, it has been estimated that wind farms will occupy an area of 135 km^2 by 2010 and 254 km^2 by 2020, although maximum credible estimates could be double this[27].

Various consents are required before proceeding with the development of offshore wind farms. For electricity generation in England and Wales, this is the responsibility of the DTI; in Scotland similar applications are dealt with by the Scottish Executive, and in Northern Ireland by the Department of Trade, Industry and Investment (DETINI). Consents are also required under the Food & Environmental Protection Act, 1985 (FEPA) from Defra, and under the Coast Protection Act, 1949 from the Department for Transport. In the case of territorial waters off Wales, similar consents may be given by the Welsh Assembly Government. Environmental Impact Assessments are also required, and under the EU Habitats Directive "an appropriate assessment" may be necessary to determine the likely significant effects on the internationally important habitats and/or species for which protected areas have been designated.

The Offshore Renewable Consents Unit, established by the DTI, was set up to act as a "one-stop-shop" for applications to make the process of gaining the various consents more streamlined. There are, however, still calls for more effective communication between the

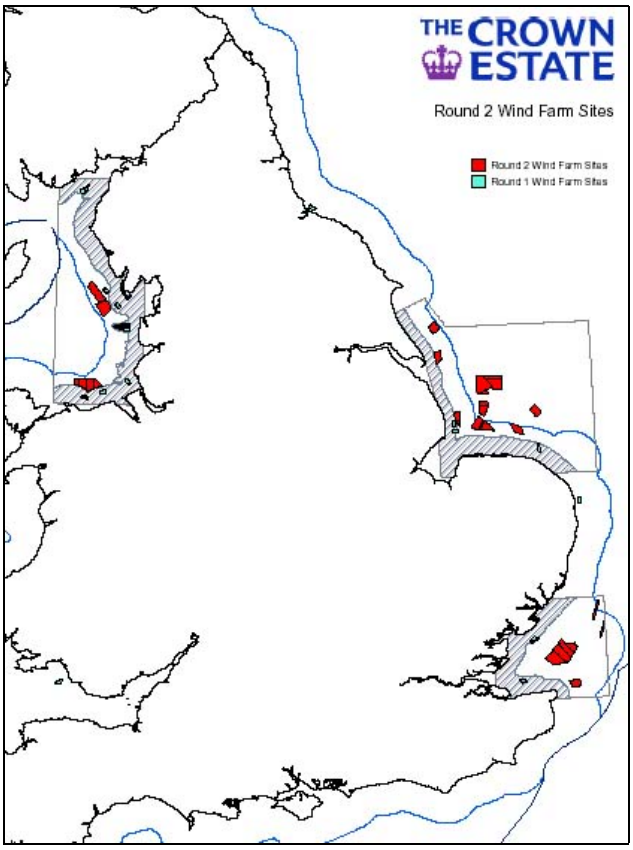
[25] www.thecrownestate.co.uk/34_wind_farms_04_02_07
[26] BWEA press release www.britishwindenergy.co.uk/media/news/round2results.html
[27] Vincent *et al.* (2004) Marine nature conservation and sustainable development – the Irish Sea Pilot. Report to Defra by the Joint Nature Conservation Committee, Peterborough.

many government departments involved[28]. Once statutory consents are received from the relevant departments, the areas of seabed on which turbines are to be placed need to be leased from the Crown Estate.

2.3.1 Sector-specific spatial management arrangements relevant to MPAs

Similar consent and licensing arrangements exist for renewable energy as for the offshore oil and gas industry. Applications for development are invited in "rounds" and specific locations are highlighted. In the first Round, potential sites were identified by the developers, but in Round 2 applications were limited to three specified areas. Furthermore, following a Strategic Environmental Assessment (SEA) of these three areas the DTI issued guidance, which included details of a coastal exclusion zone of between 8 and 13km from the coast where there was to be no development of offshore wind farms in order to reduce the visual impact of development and avoid sensitive, shallow water feeding areas for common scoter (Figure 3). The principle of zoning is therefore already accepted practice by this industry.

Figure 3. Licensed areas for offshore wind farm sites and the inshore "exclusion zone" (hatched area)



2.3.2 Main issues for renewable energy from MPAs

Site Selection

The location of existing MPAs and designation of future sites is important information for the offshore industry, given national and international obligations to safeguard the biodiversity of these areas. Establishing a coastal exclusion zone in the three target areas for development in Round 2 will not necessarily resolve this issue as sites are due to be designated in offshore areas as part of the Natura 2000 network. There may also be OSPAR MPAs which could impinge on the sites of interest to the offshore wind energy industry.

[28] Whitehall is told to cut red tape for wind farms. Money. The Telegraph. 18/8/04.

Establishment
There is good stakeholder involvement in MPA establishment because of the consultation process, for example. Wind farm developers have the opportunity to be part of this, and to participate through organisations such as the British Wind Energy Association. However, there are issues related to the timeframe: the industry has an ambitious programme, linked to the UK renewable energy targets, and may therefore wish to proceed at a faster pace than MPA programmes. At this stage, there is no clear guidance for the industry on where the offshore sites will be, and indeed where additional inshore MPAs might be located, leading to uncertainty and lack of investment[29]

Management
Day to day management of offshore wind farms may become an issue if research reveals currently unknown implications for marine wildlife – for example, from electro-magnetic disturbance, an aspect which is the subject of research. New restrictions might therefore come into force, even if wind farms are operating outside MPAs, if certain activities are considered to impact upon the biodiversity within these protected areas. Required changes in operational practice may therefore only come to light once the facilities are operational.

2.3.3 Main opportunities for renewable energy from MPAs and MSP

The offshore wind energy industry can contribute to UK targets for the conservation of biodiversity in their operational practices. These benefits are apparent at all stages from site selection to management. The idea of wind farms operating as NTZs is another possibility. As such, they could contribute to efforts to protect marine biodiversity and enhance or protect certain fish and shellfish stocks – but the contribution to these objectives will be limited by the fact that the sites have been selected with energy generation in mind, rather than conservation and fisheries enhancement. Management measures, such as the use of antifoulants, may also make them less than ideal for this task.

The potential benefits of MSP to the renewable energy programme are the same as those given for the oil and gas industry (section 2.2.3). A clear and commonly agreed framework in which to operate, linked to objectives, as well as providing an accessible mechanism for stakeholder involvement.

3. MPAS IN A SYSTEM OF MSP

The recent report of the Review of Marine Nature Conservation (RMNC) examined the effectiveness of the present system for protecting nature conservation in the marine environment and made recommendations on how this might be improved[30]. In broad terms the RMNC called for a marine nature conservation framework of Wider Sea, Regional Seas, Marine Landscapes, important marine areas and priority marine features in UK waters.

The RMNC recommended that an ecologically-coherent and representative network of MPAs should be identified and established, and appropriate and proportionate measures applied to ensure their conservation needs are met. Related issues, which are discussed below, are for procedures to be developed to assess the impact of human activities at each level of the framework and to develop and agree indicators and procedures to monitor the state of marine biodiversity and impacts of human activities at each level of the framework.

The RMNC also recommended that a trial of MSP should be undertaken at the Regional Sea scale to determine the suitability of implementing such an approach across UK waters.

[29] Building the economic case for Integrated Management of the UK Marine Environment, a report prepared for WWF by PricewaterhouseCoopers. January 2004.
[30] Defra (2004). Review of Marine Nature Conservation. July 2004.

Although MSP for UK waters is an idea still being discussed, a number of reports and papers have already considered possible stages and components of such a system[31] and a trial, building on the work of the Irish Sea Pilot, has just begun. Work to date suggests that the three likely stages of MSP are plan making, implementation, and monitoring and review[32]. If sustainable development is the aim, such a system may be founded on principles relating to sustainable economic development, nature and heritage conservation, and equity[33]. MPAs can contribute to all these elements as a practical example of putting the precautionary principle and an ecosystem approach into practice, as conservation measures for marine biodiversity, and as a tool in conflict resolution.

MSP is likely to include an element of zoning, with MPAs incorporated into such schemes as areas where the conservation of biodiversity has priority. Some of these may be "no-take zones", whereas others may allow a variety of extractive activities to take place, but only under certain conditions. If MPAs are to be a type of "use zone" within MSP, the development of a system of MSP will be an opportunity to expand the role and design of individual and networks of MPAs and clarify this role to other user groups.

Strategic Environment Assessment is likely to be another component of MSP. The process can have a role beyond giving guidance in relation to plans and projects by providing the context for policy development. The work and associated data collection required for SEA may also help identify locations that would benefit from being designated as MPAs in any system of zoning. This is in addition to helping design a network of MPAs by providing supporting information on aspects such as sensitivities of habitats and species to disturbance from human activities, and identifying areas where there are likely to be greater pressures for development for commercial activities.

At a more general level, MSP would be a practical tool for an ecosystem-based approach to the management of activities in the marine environment, working with overall objectives, in mind. Day to day operation of such a system should help reduce conflicts of use and take into account cumulative and in-combination effects of marine activities. A framework of marine spatial planning would also make it possible to be forward-looking and to provide a clear, easily accessible mechanism for stakeholder involvement in the planning and management of activities in the marine environment.

With MSP gaining momentum, it is useful to consider how MPAs might fit into such a system in a way that works with other sectoral interests (as discussed above with the three examples of fisheries, oil and gas, and offshore wind farms). This is represented spatially in Figure 4 and schematically in Figure 5.

[31] e.g. Spatial Planning in the Marine Environment: Next Steps to Action. Conference briefing for CoastNet Conference, October 2003; Marine Spatial Planning, WWF/The Wildlife Trusts Marine Update 55 (2004).
[32] Tyldesley & Hunt (2003) Review of how the land use planning system could influence the development of a marine spatial planning system for England. English Nature Research Report, No.566.
[33] Irish Sea Pilot Project. Coastal and Marine Spatial Planning Framework. Report to the Joint Nature Conservation Committee by David Tyldesley and Associates. 2004.

Figure 4 – Schematic illustration of how MPAs might fit into a regional marine spatial plan

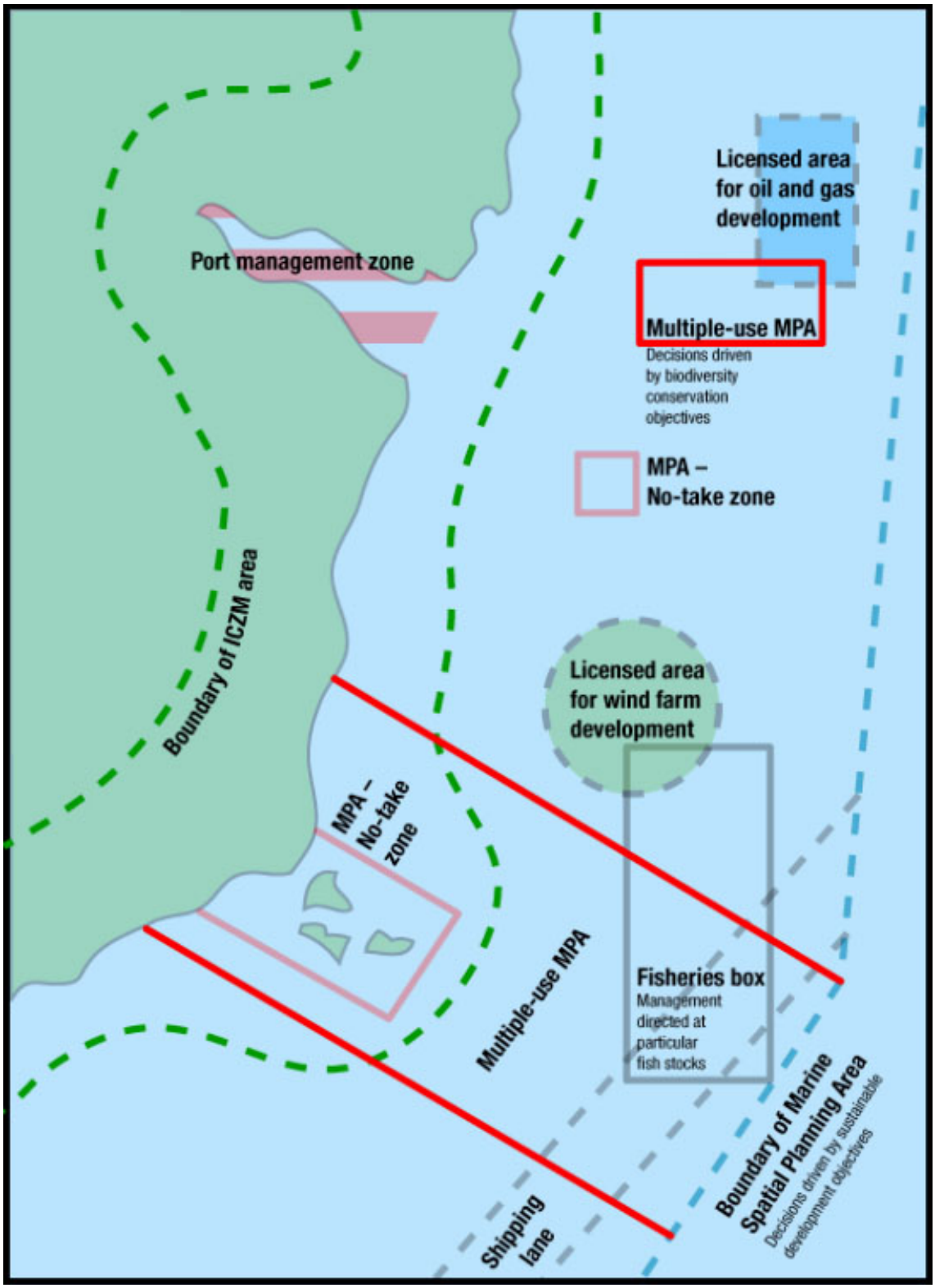
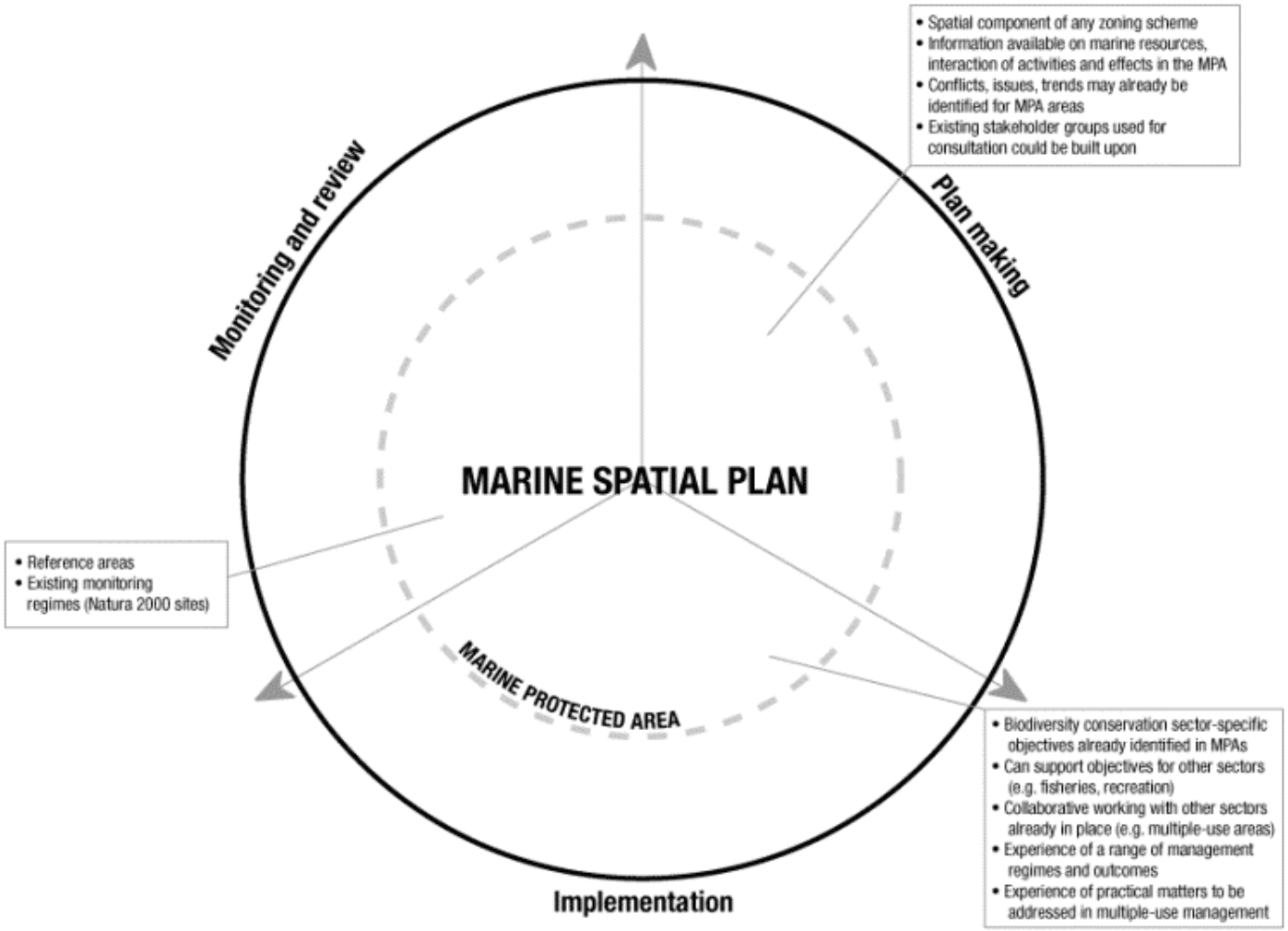


Figure 5 – Illustration of the potential role of Marine Protected Areas in the likely stages of Marine Spatial Planning



4. CONCLUSIONS

MPAs are one of many "interests" which will need to be integrated into any future system of MSP. While they will stand in their own right as a sectoral interest, there will also be links with other sectors. In the case of oil and gas extraction or offshore wind farms, for example there is potential for these industries to help achieve nature conservation objectives. In the case of fisheries there may be direct resource benefits from establishing MPAs. A system of MSP might be able to resolve some of the issues of concern between these sectors and develop some of the opportunities.

The most obvious area for co-operation over MPAs is with fisheries management, as both nature conservation and fisheries managers already use MPAs as a sectoral management tool. Even so, it has taken many years for the two interest groups to come together to exchange ideas and information, and to explore whether there are joint or cumulative benefits from protecting specific localities. The sectoral approach which typifies management in the marine environment is partly to blame, as is long-standing suspicion between the two sectors. However, this is changing with a growing recognition that both sectors have much to gain from cooperation over MPAs.

The offshore energy sector – oil and gas as well as renewable energy – will not benefit in the same way as fisheries eg. potential increase, stability, and security of the resource being exploited. However, operational practices of the industries can benefit the nature conservation sector. In the case of oil and gas, unexpected benefits have already come from identifying areas of marine biodiversity importance during surveys of the more remote parts of the UKCS.

From an industry perspective, MSP is likely to be seen as beneficial if it creates a planning and management framework for UK waters that gives increased consistency in decision-making, and an overview that is simple, understandable, robust and pragmatic. MPAs will be part of such a scheme, and experience with their establishment and their associated management schemes, monitoring, review, consultation and collaborative working, will be invaluable in taking forward MSP. Furthermore, MSP should offer a transparent strategic approach which allows all industries to be given equal and fair consideration of how their activities may be affected by MPA site selection and management, and network design.

It will be important to seek an understanding among stakeholders that, particularly for the offshore and pelagic components of the marine environment, there is limited information on habitat and species. It will therefore be necessary to adapt any MSP to accommodate new information as it comes to light, and any further need for MPAs. Likewise, new technologies may allow industry to carry out activities without having a detrimental impact on the integrity of MPAs or their features and to demonstrate there would be no detrimental effect of any short, medium, long-term, cumulative or in-combination effects.

The effectiveness of MPAs and the success of MSP requires some flexibility in the systems which are introduced. While providing greater clarity and certainty for decision processes, MPA management and MSP will inevitably require a dynamic approach, particularly in the longer term where, for example, there will be a need to respond to the likely impacts of climate change.

Discussions about the possibility of a Marine Act for UK waters[34], the publication of results of the RMNC[35], recommendations from a recent House of Commons EFRA Select Committee

[34] 'A Draft Marine Bill' prepared on behalf of WWF (in development) by Fenners Chambers. August 2004.
[35] Defra (2004) Review of Marine Nature Conservation. Summary of Working Group Report to Government, July 2004.

marine inquiry[36], the findings of the Irish Sea Pilot[37], the publication of the UK stocktake on ICZM[38], and the Marine Stewardship process[39] including the government response to the *Seas of Change* consultation, have created a momentum for further action on MPAs and MSP in the UK. Interested organisations can inform process and explore the opportunities created by these initiatives. Particular elements that could be given attention at this stage are:

- proposals for stakeholder involvement in a system of MSP;
- elaboration of how MSP might be applied by the devolved administrations;
- elaboration of how the SEA process might be linked to a system of MSP;
- elaboration of how a system of MSP might be linked with ICZM in the UK;
- elaboration of how sectoral enforcement needs can be combined to support a system of MSP;
- proposals for developing, administering and accessing a common database that will support MSP in UK waters;
- identification of a network of nationally important MPAs within an MSP framework; and
- development of joint initiatives on MPA/MSP with commercial users of the marine environment.

[36] HMSO (2003) House of Commons Environment, Food & Rural Affairs Committee. Marine Environment. Sixth Report of Session 2003-2004. HC.76.
[37] Vincent *et al*., (2004) Marine nature conservation and sustainable development – the Irish Sea Pilot. Report to Defra by the Joint Nature Conservation Committee, Peterborough.
[38] Atkins (2004) ICZM in the UK: A stocktake. Report to Defra, March 2004.
[39] Defra (2002) Safeguarding Our Seas. A Strategy for the Conservation and Sustainable Development of our Marine Environment. Defra, London.