EARLY EXPERIENCE IN MARINE SPATIAL PLANNING:

PLANNING THE GERMAN EXCLUSIVE ECONOMIC ZONE

Stephen Jay1, Thomas Klenke2, Frank Ahlhorn2 and Heather Ritchie3

1 Department of Architecture and Planning, Sheffield Hallam University, Sheffield S1 1WB, United Kingdom, [s.a.jay@shu.ac.uk](mailto:s.a.jay@shu.ac.uk)

2 COAST - Centre for Environment and Sustainability Research, Carl von Ossietzky University of Oldenburg, P.O. Box 2503, 26111 Oldenburg, Germany, thomas.klenke@uni-oldenburg.de‎; [ahlhorn@icbm.de](mailto:ahlhorn@icbm.de)

3 School of the Built Environment, University of Ulster, Jordanstown, County Antrim, BT37 0QB, United Kingdom, [h.ritchie@ulster.ac.uk](mailto:h.ritchie@ulster.ac.uk)

KEYWORDS

Marine spatial planning, Germany, Marine activities, Exclusive economic zone

ABSTRACT

Marine spatial planning is emerging as an integrated, resource management-led approach to governing the use of the seas. Recent initiatives include those of some north European countries, including Germany, which has now completed a plan for its federal offshore territory. In this article, an analysis is presented of this pioneering plan and the consultation process behind its production, with a particular emphasis on the treatment of different sectoral interests around which the plan was structured. This revealed the attempts to coordinate the different demands at sea by means of allocation of areas and cross-sectoral considerations, but also the uneven representation of activities with certain interests gaining strongly and others effectively marginalised. This study provides early empirical evidence of the tensions involved in the attempt to adopt a spatial approach to marine governance. This new domain for planning is situated in the overlapping, but distinct domains of marine management and spatial planning. The conceptual backgrounds of both are drawn upon in assessing the strengths and weaknesses of the plan and in suggesting how marine plans might gain by giving close attention to the broader principles of marine and strategic planning.

1. INTRODUCTION

1.1 The Emergence of Marine Spatial Planning

Marine spatial planning (MSP) is now a recognised concept in marine policy and management circles. The idea of MSP has emerged over the last few years as a much-needed, comprehensive approach to organising and managing the use of the seas and oceans, analogous to systems of terrestrial planning. It is reckoned that MSP could provide a better means of dealing with the tensions between marine interests than the conventional, fragmented regimes that exist for controlling marine activities, and could therefore contribute to minimising environmental harm and maximising the sustainable use of marine resources. The need for MSP is perceived to be urgent because of growing pressures upon the seas for both traditional activities such as fishing and navigation, and for new demands such as renewable energy and environmental protection (Ardron, 2008; Douvere, 2008; Douvere and Ehler, 2009; Gilliland and Laffoley, 2008; Maes, 2008; MSPP Consortium, 2006).

The idea of MSP has been promoted internationally by regional sea organisations, notably the OSPAR and Helsinki commissions, and by UNESCO and the European Union (CEC, 2008; Ehler and Douvere, 2007; HELCOM, 2007; OSPAR, 2009; UNESCO, online). It has caught the attention of a growing number of marine and coastal organisations, interests, policy-makers, practitioners and scientists, who have contributed to the development of the concept and the forms and techniques of planning that might be appropriate within the marine environment, bringing into play a new emphasis on establishing stronger spatial arrangements at sea (Crowder and Norse, 2008; Degnbol and Wilson, 2008; Flannery and Ó Cinnéide, 2008; St. Martin and Hall-Arber, 2008). Practical trials have also been carried out (Maes et al., 2005; Vincent et al., 2004). Furthermore, some European nations have legislated for MSP for the offshore areas over which they have jurisdiction, to complement to their terrestrial planning systems, and are now preparing marine plans (Defra, 2007, 2009; MVW, 2008). For the EU as a whole, MSP is reckoned to be a key element of the community’s emerging maritime strategy, in which the development opportunities and environmental responsibilities associated with Europe’s seas are being increasingly recognised (CEC, 2007).

Until now, little academic research has been undertaken into the emerging expressions of MSP. Most work has been concerned with arguing the case for MSP and discussing appropriate methods and techniques, with some reporting on practical progress to date (see above references). This has reflected the youthfulness of the field and the lack of practice which might form the object of empirical investigation (though see Trouillet et al. (2011) for an MSP-focused assessment of a precursor system). However, plans prepared under the principles of MSP are now appearing. Earlier examples, outside Europe, have generally dealt with environmental protection or a limited range of activities for specific sea areas. But more comprehensive approaches to MSP tackling multiple marine pressures at a national scale are now appearing, especially in northern Europe (Ehler & Douvere, 2007). In this article, we present a study of the plan for the German exclusive economic zone, the first document of this kind to reach completion.

1.2 Analysis of a Marine Plan

Some of the questions that arise about the implementation of MSP relate directly to its marine management origins and conceptual base, focusing on the extent to which a given marine plan achieves the internal goals of MSP as presented by its proponents. Analysis can thus initially be approached from the broad perspective of integrated resource and environmental management. In the study below, we assess the German plan in part against certain normative principles of MSP itself (Jay, 2010), with a view to reflecting back to the MSP community the actualities of marine plan-making. However, the incorporation of a spatial dimension to marine management and the idea of creating a counterpart to terrestrial planning demand that MSP initiatives are also viewed in the context of wider spatial planning thought and practice (Kidd and Ellis, forthcoming). So a second, partly overlapping, analytical frame for this study is adopted, based on a recent conceptualisation of spatial planning as expressed primarily in strategic planning in the UK (Tewdwr-Jones et al., 2010), putting the plan under the light of broader planning expectations. These twin frameworks, and the kind of issues posed within them, are summarised in Table 1. They are addressed directly in the concluding section of this article, but also inform the extended account below of plan-making.

The criteria outlined in Table 1 suggest a focus on both the substance and process of plan-making, the former including the representation of interests and inter-relationships, and the latter the role of actors and their knowledge, attitudes and influence. This leads into an exploration of the principle drivers, dynamics and outcomes evident in the plan in question. We approach this from a broadly institutionalist perspective, emphasising the role and interaction of actors involved, the wider forces within which they operate and which they influence and the final expression of planning processes (Healey et al., 1997; Vigar et al., 2000). So in the following account, after setting out the legal framework for MSP in Germany, two elements are analysed: firstly, the planning document itself, and secondly the interventions of consultees during the preparation of the plan. This analysis was carried out during the latter stages of plan-making, during 2008-09, and involved examination of draft and final versions of the plan and of consultation responses, supplemented by data from semi-structured interviews held with representatives of key stakeholder organisations and agencies. Given the pioneering nature of the plan, its process and content are described in some detail, with reflection on the extent to which the plan achieves the stated aims of MSP and on how it might be placed in the context of recent developments in wider spatial governance.

2. THE STATUTORY BASIS FOR MSP IN GERMANY

The notion of carrying out spatial planning offshore was first mooted in Germany in the 1980s. Buchholz (1985) foresaw the escalation of marine activities and proposed an adaptation of terrestrial planning for coastal and open marine areas. However, it has taken the current, wider movement for MSP to bring these ideas to fruition.

MSP in the Federal Republic of Germany builds upon existing legislation for terrestrial planning, which has simply been amended to incorporate marine territory. This has been done at two levels of governance, reflecting Germany’s federal structure (Ehler and Douvere, 2007). Firstly, under a 2004 amendment to the Federal Spatial Planning Act (Raumordnungsgesetz), the ministry responsible for planning (Bundesministerium für Verkehr, Bau and Stadtentwicklung (BMVBS)) must prepare an ordinance setting out planning objectives and principles for waters under federal authority. This is the sea area beyond territorial waters as far as the limit of national jurisdiction, the exclusive economic zone (EEZ), established under the United Nations Convention on the Law of the Sea (UNCLOS) (Churchill and Lowe, 1999). Under the terms of the convention, Germany has significant territorial rights in its EEZ to exploit natural resources and supervise scientific research and nature conservation. Secondly, each of the coastal states (Länder) in the north of the country has extended its planning practice beyond the coastline to include its area of territorial sea. This is being done within the framework of existing state laws, which technically had already allowed for planning at sea, but are only now being interpreted in this sense. This article considers only planning the EEZ.

Importantly, the planning framework for the EEZ represents not only a new geographical domain for planning, but also a new federal role in implementing planning. Historically, terrestrial planning has been the responsibility of the states (and practiced at various levels of government within them), with federal government simply providing policy guidance (Larsson 2006). So as far as institutional responsibility is concerned, planning the territorial waters is a relatively natural evolution of existing state functions, but planning the EEZ is an unprecedented launch of the federal government into planning practice.

Germany’s EEZ consists of two areas separated from each other by Schleswig-Holstein. The North Sea section is a large, irregular wedge-shape, adjoining the Netherlands’ sea area to the west, Denmark’s to the north and the UK’s on Dogger Bank. The other section of the EEZ is a snaking strip of the Baltic Sea meeting Danish and Swedish waters to the north and Polish waters to the east. The EEZ has significant ecological importance, but is also intensively used in some areas, especially for major shipping lanes, and is moderately affected by other uses such as aggregate extraction, fishing, underwater cables and military training. However, the EEZ is now the centre of attention for exploiting offshore wind energy, which is arguably a major factor in the establishment of MSP in Germany (Douvere and Ehler, 2009; Jay, 2009).

The planning process for the EEZ began in 2005. BMVBS delegated the task to its maritime agency (Bundesamt für Seeschifffahrt und Hydrographie (BSH)), who prepared the ordinance for approval by the ministry (BSH online). This process was completed in 2009, after consultation with stakeholders on an initial scoping report in 2005 and a draft ordinance in 2008. In the end, one ordinance was brought into force for the North Sea part of the EEZ and another for the Baltic Sea section (BMVBS, 2009a, 2009b).

The ordinances each begin with a legal preamble, followed by the plan itself, which consists mostly of text, setting out broad principles for spatial development and more detailed considerations and regulations for various marine sectors. There is also a map showing actual and intended locations and zones for different sea uses. Each plan is supported by a lengthy environmental report, also prepared by BSH with input from the federal agency for nature conservation (Bundesamt für Naturschutz). For the purposes of this article, the two plans are treated collectively, as a single planning and consultation process was involved For the sake of simplicity, cited references below are from the North Sea document, specifically the 2009 final draft version, which was amended slightly before being brought into force.

3. CONTENT OF THE PLAN FOR THE EEZ

The plan opens by stating the need for co-ordination to solve “the growing conflict of maritime uses” and stresses the desire for “an integrative and sustainable approach” to the development of the German EEZ (BMVBS, 2009a, p3). However, emphasis is immediately placed on offshore wind farms and environmental protection, which are described as new pressures in the EEZ, adding to traditional demands such as shipping and fisheries. Five over-arching principles are set out.

1. The importance of international maritime trade to the German economy and the need to protect traffic from impediments. Hence, “the main navigation routes... form the basic framework for overall planning. Other uses in the EEZ must align themselves with this framework” (BMVBS, 2009a, p4).
2. The principle of coordinating different uses, with a view to orderly spatial development and maximising the economic opportunities presented by the EEZ.
3. The promotion of offshore wind energy, with reference to high-level strategies and targets, seen as constituting “the basis of the Spatial Plan” (BMVBS, 2009a, p4).
4. Concepts for the sustainable use of the EEZ, such as reversibility of development, with the efficient use of space in mind and preserving characteristics like the sea’s openness.
5. Protection of natural resources and systems, by avoiding pollution, promoting biodiversity and ensuring careful intervention, and hence contributing to good environmental status under European law.

The plan then takes the form of regulations for various sectors: shipping, non-living resources (hydrocarbons and sand and gravel), pipelines and cables, scientific research, energy production (especially wind energy), fisheries and mariculture, and the marine environment. For each of these, principles are laid down, the legal framework is summarised and detailed provisions are given. The plan thus reinforces the grouping of interests around a number of clearly defined marine activities.

The main approach to meeting the needs of the EEZ is to establish geographical areas within which defined uses are given favourable treatment (Figure 1). Areas with precise coordinates are designated as priority areas, in which a use has priority over others, or a lesser class of reservation areas, in which special consideration is given to a particular use. But only some sectors benefit from this approach.

* Shipping: a network of priority areas, including internationally-recognised lanes and reservation areas for safety zones and anchorage.
* Pipelines and cables: various gas and oil pipeline corridors, allowing for expansion; gates for cable corridors with wind energy schemes in mind.
* Research: large reservation areas for scientific research.
* Wind energy: priority area blocks, mostly closer to the coast and defined by shipping areas.

An area-based approach is also taken to the other sectors, but only by referring to existing legal designations, which are shown on the maps simply by way of information.

* Natural resources: large areas licensed or planned for extracting sand and gravel and a small area licensed for natural gas.
* Nature conservation: extensive Natura 2000 areas.
* Military: exercise areas.
* Additional locations for shipping, offshore wind energy and pipelines and cables.

There is significant overlap between areas where uses are not considered incompatible. The only exception to this zoning approach is fishing, for which no areas are given.

INSERT FIGURE 1 NEAR HERE

In its detail, the plan focuses largely upon the sectors given priority and reservation areas. Other uses are only allowed if they do not compromise the primary use. For example, structures such as wind turbines are not allowed in shipping areas, but pipelines and cables may be. However, designations do not necessarily stop an activity elsewhere; for example, ships may still navigate outside their areas. The draft plan did prevent wind farms outside their priority areas, but this restriction was overturned before adoption of the plan (see below), allowing them to be located elsewhere. So areas for different uses are not necessarily exclusive nor obligatory. The purpose of designated areas is to create a broad structure, establishing a pattern of primary and compatible interests across the EEZ. The inclusion of the areas shown on the maps ‘for information only’ adds further to overlapping demands and multiple interactions.

In addition, more general considerations are given for each sector. Firstly, the need to accommodate each sector is justified with reference to legislation and regulations, especially UNCLOS and the OSPAR Convention. For example, legal frameworks underline the freedom of navigation, the right to exploit mineral resources and responsibilities for nature conservation. In the case of shipping, legislation also supports the allocation of certain areas, which are based upon internationally-agreed shipping lanes.

Secondly, principles and supporting arguments are given for each sector with a number of recurring themes.

* Cross-sectoral considerations. The need to have regard to other uses is repeatedly stated. For example, offshore wind farms shall not impair navigation, shall take account of fisheries and military defence, are not allowed in Natura 2000 areas, and shall maintain their distance from pipelines and cables (BMVBS, 2009a, pp19-20).
* Hierarchy of interests. Some of these considerations suggest a ranking of importance. For example, if dismantling of redundant pipelines and cables “would cause greater environmental harm than leaving them in place, the dismantling requirement may be waived unless dismantling is required to ensure the safety and efficiency of navigation” (BMVBS, 2009a, p12).
* Environmental protection. Environmental issues are repeatedly stated, especially the need to ensure best environmental practice, take into account ecological processes and protect cultural heritage sites.
* Efficient use of resources. The best use of space is emphasised, such as by concentrating sand and gravel extraction, bundling cables, arranging wind turbines optimally, and managing fish stocks sustainably. Similarly, redundant infrastructure should be dismantled.

In addition, a design specification is given for wind energy: the hub height of turbines visible from land must not exceed 125m.

Finally, the plan comments on the findings of the environmental report on the first draft of the plan, prepared under strategic environmental assessment requirements. The report contains large amounts of environmental data about the EEZ, and describes how environmental conditions are generally likely to be affected by the activities covered in the plan. Its overall conclusion is that environmental interests will benefit from implementation of the plan. The plan comments that the report’s findings have been taken into account when drawing up proposals, especially for the designation of areas.

4. CONSULTEE PERSPECTIVES

Investigating the role of actors is a key means of understanding the process and outcome of plan-making, and thus to assessing the plan against the wider features of interest as summarised in Table 1. In this section, an account is given of the involvement and attitudes of stakeholders, leading to a synthesis of the dynamics at work in the production of the marine plan.

The main consultation followed the publication of the 2008 draft resulting in written responses from 65 organisations from the following stakeholder groups:

* Nature conservation / environmental organisations (8)
* Scientific research institutions (4)
* Offshore wind energy association (1)
* Mineral resource associations (3)
* Oil and gas industry association (1)
* Fishing associations (2)
* Leisure boat associations (3)
* Coastal municipalities (18)
* Regional and state authorities, for planning / transport (3), shipping (4), minerals / energy (2), economy / employment (2), environment / agriculture (5), cultural heritage (1) and overall governance (3)
* Federal ministries and agencies, for environment / agriculture (3), finance (1) and police (1)

4.1 Attitudes towards MSP and the Plan

Overall, consultees were positive about the principle of MSP, arguing that it would help to coordinate sea uses and benefit certain interests such as environmental concerns. For some participants, this expectation derived from wider knowledge and discussions about MSP, whilst others drew upon their experience of terrestrial planning in formulating their expectations; for example: “I am a fan of spatial planning because you can organise all the different demands and interests at a very early stage, and everybody gets their share” (offshore wind energy association interviewee).

However, attitudes towards the actual plan were mixed. There was appreciation of the representation of different concerns, and acknowledgement of the pioneering nature of the plan; one participant was “generally happy with the plan as a first step, a temporary instrument” (federal agency 1 interviewee). But a more prevailing view was that the plan did not succeed in balancing conflicting interests and that bias was shown towards certain sectors: “the plan prioritises uses which are covered by the responsibility of BSH” (environmental organisation 1). It was also judged to lack integration with neighbouring areas and long-term vision.

These perspectives reflected a sectorally-based division of opinion towards the plan, with a fault-line running between interests that were well represented and those that were not. Indeed, the responses within individual sectors were generally cohesive, so the sectorally-based arguments advanced during the process are now explored further.

4.2 Shipping

The commercial shipping sector was represented by regional and state bodies, including shipping authorities, and backed by some coastal municipalities and bodies. For them, “the concept of freedom of the seas and security and safety of shipping activity is essential” (coastal organisation), so they gave their backing for the ‘pre-eminence’ of shipping. However, there was also pressure for stronger measures for shipping. Firstly, some consultees called for more space between shipping lanes and wind farms to reduce the risk of collision. Secondly, there were suggestions that more room is needed for safety manoeuvres and to accommodate future traffic growth; for example, reservation areas should be promoted to priority areas, access to harbours should be improved and a 2 nautical mile (nm) wide zone should be increased to 5nm. So even for the sector that received the most favourable treatment in the plan, claims were made for more space in the EEZ.

4.3 Offshore Wind Energy

A number of consultees lent their support to the plan’s aim to facilitate wind energy production, including environmental groups, coastal and state authorities and a federal agency: “Marine wind farms are important for German climate/energy goals and regional maritime economies” (environmental organisation 2). One participant “demanded MSP right from the beginning of offshore wind, we always said that we need a coordinated planning process” (environmental organisation 3 interviewee). However, others were concerned about possible impact upon conservation, landscape and coastal tourism, dangers to shipping and impeding oil and gas exploration. They proposed measures to deal with these tensions, sometimes couched in terms of a precautionary approach: “let’s go step by step, make the first 5,000 megawatts and see what happens” (federal agency 2 interviewee). Multifunctional use of wind energy areas was also suggested, by allowing some fishing or mineral exploitation within wind farms.

However, the main stakeholder here was a trade association, the Offshore Forum Windenergie (OFW), initially set up to liaise with BSH about licensing arrangements. OFW was content with the exclusion from shipping lanes and nature conservation areas and the height restriction on turbines visible from the coast, but reacted strongly against being restricted to priority areas, as licenses had already been granted for projects in these areas, meaning that the plan offered virtually no opportunity for expansion. “We were horrified, because projects would only be permitted inside those priority areas which were already full” (offshore wind energy association interviewee).

BSH’s reasoning was that even though many projects had been approved, none had yet come to fruition; the plan would focus attention on implementation in the priority areas.“Our agency was saying that all these areas that we are offering are enough for the first 5-10 years, let’s do an assessment in 5 years of what has been built and offer new areas for offshore wind energy if necessary” (BSH interviewee). However, OFW argued that the non-realisation of projects was for reasons that were being overcome, and that the industry would soon need to expand if the government target was to be met (25,000 megawatts of capacity by 2030). So OFW pressed for a stronger vision for offshore wind and for the exclusive nature of priority areas to be lifted. Some coastal authorities supported this, possibly with an eye to economic benefits: “Investors will be uncertain and will not undertake any investment in planning or infrastructure on sea or land with the restrictions and limitations foreseen” (state authorities 1 and 2).

BSH maintained its position, but OFW continued to lobby, finally gaining the ear of the ministry. BMVBS invited OFW to present its case in face-to-face meetings, which led to the plan being amended to OFW’s satisfaction: the exclusivity criterion was removed. Inevitably, this heightened tensions with participants who were calling for greater restrictions on offshore wind energy. It also weakened the status of the offshore wind priority areas, which remained in the plan with the reasoning that gaining consents will be more straightforward within them.

4.4 Nature Conservation

Nature conservation was represented by environmental organisations, research institutions and the federal environment agencies, with backing from some state authorities and municipalities. They highlighted the ecological value and sensitivity of the EEZ; for example, the nature conservation agency gave a detailed description of the possible impacts of marine activities on sea birds, the benthos, etc, claiming that these were not being adequately considered. Though for some of the stakeholders, such as the environmental agency, there was a tension between conservation concerns and support for offshore wind. They had hoped that the plan would resolve this conflict, but felt that it failed. “We were very disappointed when we saw the result, as our motivation was ecosystem-based, sustainable management, and to have integration not only of different uses but also of the environment” (environmental organisation 3 interviewee).

A major issue here was the Natura 2000 areas, designated under EU bird and habitat directives, and covering about 30% of the EEZ. Many environmental consultees wanted them to be made into nature conservation priority areas on a par with those for shipping etc. BSH’s response was to display Natura 2000 areas on the maps, but simply ‘for information only’, arguing that as they were designated under other legislation, they did not need further protection through the plan. The consultees remained extremely unhappy and “asked, even demanded, to have a priority area for nature conservation” (BSH interviewee). They felt that this would not only demonstrate they were getting fair treatment, but also add to the narrow provisions of the Natura 2000 legislation: “there would be additional value” (environmental organisation 3 interviewee). But BSH maintained its position, reckoning that management plans under Natura 2000 would be sufficient. The agency also pointed to the plan’s broader provisions for nature conservation, in that other uses are required respect ecological concerns throughout the whole of the EEZ, and not just in Natura 2000 areas.

4.5 Mineral Resources

Sand and gravel extraction takes place in several locations in the EEZ. There is also a natural gas field in the North Sea, and oil and gas exploration is carried out widely. Some consultees pointed out tensions with other interests, especially wind energy and nature conservation; “exploration of sand and gravel severely impact on the marine environment especially on sea beds” (coastal organisation). Nonetheless, there was a lower sense of conflict involving mineral resources. Also, some participants suggested that multiple use is possible, especially between mineral exploitation and wind energy.

These activities were represented mainly by trade associations and regional and state authorities with economic responsibilities who felt that the industries received poor treatment given their economic significance: “access to mineral resources is of national importance, but this is not seen in the plan” (mineral resource association). For instance, the oil and gas industry saw itself as losing out to wind energy: “The energy chapter should not only be for offshore wind energy, but also for hydrocarbons” (state authority 3).

These consultees’ main complaint was similar to that of nature conservation interests, that the sector had not been allocated any priority areas; areas licensed for exploitation are simply shown for information with the reasoning that existing provisions for mineral exploitation were sufficient. However, consultees felt that their interests should be better expressed, drawing some analogy with terrestrial planning: “BSH has to make the resources available for minerals to be exploited, on land this is done by priority areas” (mineral resource association). It was also argued that the plan could protect areas for future exploitation, by using reservation areas to denote consents rather than licenses (regional authority). The lack of representation on the maps was felt most strongly by the oil and gas industry, for whom the small area of current exploitation is shown, but not the possibility of future exploration. “Our frustration is that there is only one site for us” (oil and gas industry association interviewee).

4.6 Fishing

The input for commercial fishing came from industry associations, with support from other bodies, especially coastal municipalities. Their tone was one of weakness compared to other interests: pressures on fishing will only increase as a result of the plan. “There are already restrictions with regard to shipping, areas for dredging, sand and gravel, offshore wind farms and Natura 2000” (fishing association). “Offshore wind farm is the biggest exclusion, and we expect problems with Natura 2000” (fishing association interviewee). However, one body thought that excluded areas may be beneficial by providing “nursery/regeneration areas for schools” (coastal organisation).

No fishing areas are shown in the plan, partly because the sector did not want any. Although BSH had asked for information about heavily fished areas, this was not forthcoming on the basis that fishermen do not report this and because of the mobile nature of the resource: “this year’s important fishing grounds is not the most important for next year; the distribution of fishing ground is dynamic” (fishing association interviewee). Also, to have heavily fished areas prioritised could be to the detriment of fishermen working in other grounds: “so we say nothing about the distribution of fishing, we have to protect each square metre” (fishing association interviewee)/ This defence of the freedom to fish as widely as possible was tacitly accepted by BSH, who claimed to be “neutral on this issue”, but also pointed to the cross-sectoral considerations in the plan, whereby “if you build a wind farm in a priority area we say please take account of fishery interests” (BSH interviewee).

Consultees did suggest measures to promote fishing: stating the importance of fishing to coastal economies; allowing fishing in Natura 2000 areas; setting an upper threshold for wind farms; allowing small-scale fishing and mariculture within wind farms; offering compensation to fishermen affected by wind farms. In addition, regional and state authorities suggested designating fishing reservation areas (see also Fock, 2008). However, there the sector felt it had little influence and that the plan had failed to accommodate their concerns: “We are too small and unimportant” (fishing association interviewee).

4.7 Other Activities

*Cables and pipelines*

Comments on cable and pipeline proposals were made by environmental etc organisations and government bodies. Minor remarks included support for the removal of decommissioned cables, but most attention focused on the boundary with coastal waters where cable gateways are located and pipeline corridors enter. There were objections to one gateway, but general support for the principle of corridors and for providing gateways for an offshore system linking to the onshore grid. However, a more comprehensive system was also envisaged (possibly incorporating energy storage projects): “implications of large wind farms on terrestrial net are not considered sufficiently” (coastal municipality). Some coastal authorities also called for fuller negotiation about the best locations for gateways etc.

*Scientific research*

Although large areas within the EEZ are designated for research, overlapping with other uses, they only provoked minor remarks. Two bodies questioned the designations themselves, one commenting that research and shipping are incompatible. Some consultees made suggestions for research priorities.

Brief comments were made in relation to some other activities, calling for greater consideration to be given in the plan to certain issues, such as leisure and tourism, cultural heritage, and energy storage. However, virtually no comment was made about the military exercise areas.

4.8 Integrated Perspectives

In addition to these sectorally-focused views, some participants took a more integrated perspective, without aligning themselves strongly with particular interests. These were mostly state authorities (especially those with a broad remit, often including responsibility for planning), along with some municipalities, a regional authority, a coastal association and a research institution.

Their remarks have been included above, but their more broadly-based responses should also be noted. They tended to criticise the plan for being weighted in favour of certain uses, manifested by the lack of priority areas for other interests; for example, “This plan shows too many things for information only and therefore is more of an inventory than a plan” (state authority 3). They stressed the importance of achieving integration: “there are goals for different sectors, but there is not a balanced and comprehensive view for the region and all the uses” (state authority). Another participant argued for a stronger overall vision: “the guiding principle is missing for a spatial development within this draft especially for economic and ecological aspects” (regional authority). Finally, some stated the need to integrate planning the EEZ with that of neighbouring areas, especially coastal waters: “the planning coordination needs to be improved and activities within the territorial sea have to be considered within the EEZ” (regional authority).

5. TWIN EVALUATION OF A MARINE PLAN

To summarise, the German federal government has succeeded in producing the first statutory marine plan of its kind. The main interests affecting an extensive, national marine area have been incorporated to a greater or lesser extent into a strategic-level plan, and spatial allocations and considerations have been set out, with new provisions for certain sectors. The initiative generally met with support from stakeholders and raised expectations of an integrative framework for marine activities in line with wider MSP principles. However, the plan did not achieve the degree of integration for which many actors had hoped, with the focus remaining largely on individual sectors, leading to differential results for marine interests with a sense of winners and losers in the process.

We now explore further the performance of the plan for the German EEZ by returning to the criteria set out in Table 1, and consider the plan against some of the key expectations of MSP and spatial governance. Evaluating the plan with reference to these overlapping, but distinctive, domains reveals a number of areas of attention for future marine planning. Initially, the plan is viewed against principles characterising the promotion of MSP.

Firstly, regarding the extent to which the plan was based upon a scientifically-informed, *ecosystem understanding* of the marine environment, it did draw upon knowledge of this kind, via certain consultation responses and the environmental report, but this was not the starting-point for the planning process; direction was given rather by sectoral demands. For instance, the impacts of the planned uses on the marine environment were not properly evaluated (or even considered), and no assessment was made in order to identify low impact options amongst various spatial arrangements.

Secondly, notwithstanding the lack of a structural ecosystem approach, there was evidence of an underlying *environmental imperative* for the plan. Although the demands for nature conservation priority areas were not met, environmental protection and biodiversity were emphasised throughout the plan in cross-considerations requiring other uses to heed environmental issues constantly. The lengthy environmental report also placed the plan in a data-rich environmental framework.

Thirdly, the plan adopted an *area-based* approach, with the clear definition of areas for different interests. However, this was compromised by the differential status of areas (some being ‘for information only’), and the limitations of this approach became apparent in relation to some mobile activities; the plan was unable to represent meaningfully oil and gas exploration and fishing activities, which are by nature spatially diffuse and unbounded.

Fourthly, there was acceptance of *development needs*, as all major economic uses were incorporated into the plan and the goal of achieving sustainable use of marine resources was implicit throughout. However, certain activities fared better than others; for instance, commercial shipping was prioritised from the beginning and an extensive network of shipping lanes was established, whilst exploitation of mineral resources and fishing appeared to gain little from the plan.

Fifthly, *sectoral integration* was presented as a goal of the plan, but was not convincingly achieved. The plan itself was structured sectorally and single-minded rationales were presented for each sector. Nonetheless, there was some inter-weaving of interests in the plan, with sets of complex criteria that aimed to govern the inter-relationships between different uses. For instance, the need for economic activities to consider environmental issues was repeatedly stated.

Finally, *stakeholder involvement* was comprehensive, covering a wide range of marine activities, levels of governance and affected territories. But this was only carried out through a formal consultation process, without any meaningful interchange taking place between groups. Hence plan-making was permeated by the assertion of causes and sectoral struggle, during which most groups, even shipping, continued to argue for a greater use of marine space. Individual lobbying reached its height with the offshore wind energy industry making its case directly to the ministry and succeeding, against the plan-making body’s wishes, in getting restrictions upon it lifted.

So in terms of the aspirations associated with MSP, the plan is partial in its achievements, lacking in its ecosystem base and the extent to which it harmonised competing demands. However, this assessment is based upon assumptions about the purposes of MSP, which embody a scientifically-rationalist, resource management approach to planning. Considering the plan from a more governance-oriented, spatial planning point of view reaches conclusions with different emphases.

First is the all-pervading theme of *integration*, understood as the coordination of sectoral policies insofar as they have a spatial dimension; this overlaps with MSP’s aim of sectoral integration, but also includes the integration of layers and agencies of delivery. There was some inter-agency cooperation in plan-making, as in the preparation of the environmental report, but institutional weaknesses were also experienced, such as unresolved tensions between different arms of government, on nature conservation, for example. Also, uncertainties remained about the implementation of certain aspects of the plan, for instance in the development of offshore wind energy.

Secondly, *consensus building* should be sought through collaborative planning processes. As noted above, only a narrow consultee approach to stakeholder involvement was adopted, hence the plan-making body was in the position of reacting to the arguments of individual stakeholders’ rather than facilitating exchanges between them. Neither did the consultees seek a more active role, or initiate parallel or informal discussions, but accepted the degree of involvement that they were offered and did not express interest in implementation and revision of the plan. A more collaborative approach might have led to mutually acceptable solutions to certain difficulties, such as the controlled expansion of offshore wind power.

Thirdly, *differentiation*, implying that different trajectories might be adopted to reflect varying contexts and that distinct places should be shaped within a territory. The plan does offer some diversity between different areas, as in the concentration of nature conservation areas to the east of the North Sea section (Figure 1), but this came about incidentally rather than as a result of decisive strategy-making. There was scope, for instance, for stronger definition of primary spatial interests within broad geographical areas.

Fourthly, *strategic governance*, referring to the joining-up of otherwise-fragmented components of government. The plan, in line with broader MSP thinking, is a move in the direction of integrative marine management, though did not fully succeed in linking together governmental systems, as mentioned above. Similarly, political boundaries were only crossed via mechanisms of formal consultation, with only relatively minor links being made with the planning of coastal waters and land and with adjoining national sea areas.

Fifthly, *identity-building*, referring to the discursive construction of a region by its actors. The plan was a significant step in the formation of a sense of identity for the EEZ, expressed in the process of plan-making itself, the forms of representation used, the priorities advanced, the knowledge gained, and so on. However, the character created for the EEZ was dominated by certain interests, partly because of the regulatory approach by which new legal provisions were given greater prominence. The plan-making body’s more established responsibilities may have favoured these interests; for example, the extensive network of shipping areas was prioritised from the beginning as the framework for the plan. In contrast, the visual representation of other areas ‘for information only’ was perceived as inferior to priority areas, and demoted them to a more marginal place in the plan’s contribution to creating an identity for the EEZ.

6. CONCLUSIONS

Conceptually, MSP has its origins in the science and policy-led movement to improve the management and environmental status of the world’s seas and oceans, partly with a view to enabling more sustainable use of their resources (Douvere, 2008; Jay, 2010). The marine management community has adopted the notion of MSP with enthusiasm, reckoning its particular contribution to this wider agenda will be greater spatial control over human intervention in the seas than has been possible hitherto, and therefore better harmonisation of marine interests (Crowder and Norse, 2008). Arguably, one of the factors behind this shift towards spatial solutions is growing nation-state jurisdiction over sea areas (in the wake of developments in international maritime law), itself an assertion of geographically-defined influence (Maes, 2008). However, now that it has been given the language and broad notion of spatial planning, and is being set up as an equivalent to ‘terrestrial’ planning (Douvere, 2008), MSP inevitably comes under the critical scrutiny of wider spatial planning thought and practice. This exposes MSP to a wide spectrum of social-science oriented standpoints with the potential partly to call into question certain presuppositions of MSP as it is being presented, but also to give MSP greater potency as a means of contributing to the future shaping of the seas. Indeed, a social science deficit is readily acknowledged within marine management thinking (Crowder and Norse, 2008; McLeod and Leslie, 2009).

The evaluation of the plan for the German EEZ given here illustrates the possibility of considering emerging expressions of MSP from dual perspectives and of MSP benefiting from a greater range of spatial planning insights than has been drawn upon to date. The particular strand chosen for this exercise, that of a recent analysis of the spatial turn in strategic planning, is particularly pertinent where MSP is being located institutionally within national planning frameworks, as is the case in Germany. MSP elsewhere is also taking on a strategic dimension (Day et al, 2008). It is likely that MSP will take on an increasingly important role of shaping marine space at a strategic scale, particularly within the EU, where coastal member states are being encouraged to develop systems of MSP (CEC, 2008). This is a move which could be interpreted as the inclusion of marine space in an evolving spatial policy for the community, now being articulated in the language of territorial cohesion (Faludi, 2009; Jensen and Richardson, 2004; Schön, 2005; Suárez de Vivero, 2007). Indeed, the plan for the German EEZ could be interpreted as a grasping of the opportunity to territorialise marine hinterlands, in line with EU aspirations; the unprecedented federal ownership of the planning process heightens the sense of nation state control being sought over the EEZ and the arrangement of activities within it.

MSP initiatives might well, therefore, consider the directions being taken by regional planning, as drawn out by the analysis presented here. To conclude, therefore, from the twin viewpoints of MSP and wider spatial planning thinking, a number of pointers emerge for the future development of marine plans.

1. There should be inclusion of all marine interests in the development of strategies; human needs and values and natural processes should be mediated through participants, with recognition of the potential of the seas to contribute to societal goals, possibly couched in the language of ecosystem goods and services (Frid et al., 2011).
2. Greater attention should be given to the key MSP principle of an ecosystem-based approach (Kidd et al., 2011). This implies not just a scientific understanding of natural marine and coastal ecosystems, but also of the consequences of human actions upon them, so that the focus of attention is upon coupled ecological-social systems (McLeod and Leslie, 2009). However, the emphasis upon inclusive participation (below) should warn against the supremacy of natural science knowledge in MSP, and place it in dialogue with other perspectives.
3. More creativity should be exercised in drawing up scenarios and visions for marine space and constructing identities for distinctive sea areas (places), based on varying configurations and trajectories of spatial interests (Maes et al., 2005). Again, collaborative processes of exchange are called for, with the aim of forming a ‘”dynamic, fluid mix of ideas… about what places are and could be” (Healey, 2007, p 27).
4. A continued geographical emphasis is needed, with the definition of spatial patterns of interests, but with greater consideration of the representation of locationally non-specific and dynamic activities and processes, drawing, for example, on concepts of soft spaces and boundaries (Davoudi and Strange, 2009; Haughton et al., 2010). Generic criteria can also allow for spatial flexibility and cross-sectoral considerations in planning decisions.
5. More interactive forms of actor participation should be used, in which consensus, shared goals and integrative solutions are developed, rather than defensive positions taken. This is a common argument within both the marine management and spatial planning worlds (eg. Albrechts, 2004; Kay and Alder, 2005), and it is reckoned that the principles of collaborative planning (Healey, 2006) could be especially beneficial to MSP by helping, for example, to set priorities for marine planning and bring about learning amongst diverse participants (Ritchie and Ellis, 2010).
6. Stronger structures of governance should be developed, to bring about horizontal and vertical collaboration involving stakeholders, different agencies and levels of government, communities and territories, and so on (Kidd, 2007; Vigar, 2009), thus creating partnerships for the development and implementation of marine plans (Plasman, 2008).

Finally, the development of MSP demands that attention should be given to the specificities of the marine context, especially the radically different nature of the physical and social environments than on land. The challenges that this poses to the invention of suitable forms of planning for the sea have been partly recognised (Tyldesley, 2004), but call for a rigorous exchange of ideas between the perceived needs of MSP and evolving notions of spatial planning. For example, an understanding of the greater inherent dynamism and mobility of the sea and human activities within it may resonate with the concept of planning as strategic navigation (Hillier, 2010). Here, not just an apt metaphor is being offered for MSP, but also substantive ideas about planning as dealing with inherent uncertainties and potentialities brought about by complex relations and attempting “to embrace a future that is not characterised by the continuity of the present... but by a difference that can never be fully grasped” (p455).

ACKNOWLEDGEMENTS

We wish to express our grateful thanks to all those who contributed to the study described in this article, especially the interviewees representing a number of the key consultation bodies. The support of the British Council and the German Academic Exchange Service (Deutscher Akademischer Austausch Dienst) is also gratefully acknowledged.

REFERENCES

ALBRECHTS, L. (2004) Strategic (spatial) planning re-examined, Environment and Planning B: Planning and Design, 31(5), pp. 743–758.

ARDRON, J., GJERDE, K., PULLEN, S. and TILOT, V. (2008) Marine spatial planning in the high seas, Marine Policy, 32 (5), pp. 832-839.

BUNDESAMT FÜR SEESCHIFFFAHRT UND HYDROGRAPHIE (BSH) (online) Spatial Planning in the German EEZ.

<http://www.bsh.de/en/Marine_uses/Spatial_Planning_in_the_German_EEZ/index.jsp>

BUNDESMINISTERIUM FÜR VERKEHR, BAU UND STADTENTWICKLUNG (BMVBS) (2009a) Directive on Spatial Planning in the German Exclusive Economic Zone of the North Sea. Berlin: BMVBS.

<http://www.bsh.de/en/Marine_uses/Spatial_Planning_in_the_German_EEZ/index.jsp>

BUNDESMINISTERIUM FÜR VERKEHR, BAU UND STADTENTWICKLUNG (BMVBS) (2009b) Directive on Spatial Planning in the German Exclusive Economic Zone of the Baltic Sea. Berlin: BMVBS.

<http://www.bsh.de/en/Marine_uses/Spatial_Planning_in_the_German_EEZ/index.jsp>

BUCHHOLZ, H. (1985) Territorialplanung zur See, Jede begrenzte Ressource bedarf der vorausschauenden Planung, das Beispiel Nordsee, Berliner Geografische Studien, 16, pp. 153-168.

CHURCHILL, R. and LOWE, A. (1999) The Law of the Sea, 3rd edition. Manchester: Manchester University Press.

COMMISSION OF THE EUROPEAN COMMUNITIES (CEC) (2007) An Integrated Maritime Policy for the European Union, COM 575. Brussels: CEC.

http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0575:FIN:EN:PDF

COMMISSION OF THE EUROPEAN COMMUNITIES (CEC) (2008) Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU. COM 791. Brussels: CEC.

<http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2008:0791:FIN:EN:PDF>

CROWDER, L. and NORSE, E. (2008) Essential ecological insights for marine ecosystem-based management and marine spatial planning, Marine Policy, 32 (5), pp. 772– 778.

DAVOUDI, S. and STRANGE, I. (Eds.) (2009) Conceptions of Space and Place in Strategic Spatial Planning. London: Routledge.

Day, V., PAXINOS, R., EMMETT, J., WRIGHT, A. and GOECKER, M. (2008) The Marine Planning Framework for South Australia: a new ecosystem-based zoning policy for marine management, Marine Policy, 32 (4), pp. 535-543.

DEGNBOL, D. and WILSON, D.C. (2008) Spatial planning on the North Sea: a case of cross-scale linkages, Marine Policy, 32 (2), pp. 189-200.

DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA) (2007) A Sea Change: A Marine Bill White Paper. Cm 7047. London: Defra.

<http://www.defra.gov.uk/marine/pdf/legislation/marinebill-whitepaper07.pdf>

DEPARTMENT FOR ENVIRONMENT, FOOD AND RURAL AFFAIRS (DEFRA) (2009) Implementing Marine Planning. London: Defra.

<http://www.defra.gov.uk/environment/marine/documents/implementing-mp.pdf>

DOUVERE, F. (2008) The importance of marine spatial planning in advancing ecosystem-based sea use management, Marine Policy, 32 (5), pp. 762– 771.

DOUVERE, F. and EHLER, C. (2009) New perspectives on sea use management: Initial findings from European experience with marine spatial planning, Journal of Environmental Management, 90 (1), pp. 77–88.

EHLER, C. and DOUVERE, F. (2007) Visions for a Sea Change. Report of the First International Workshop on Marine Spatial Planning, Intergovernmental Oceanographic Commission and Man and the Biosphere Programme. Paris: UNESCO.

<http://ioc3.unesco.org/icam/images/stories/SEA%20CHANGE%20VISION%20.pdf>

FALUDI, A. (2009) A turning point in the development of European spatial planning? The ‘territorial agenda of the European Union’ and the ‘First Action Programme’, Progress in Planning,71, pp. 1-42.

FLANNERY, W. and Ó CINNÉIDE, M. (2008) Marine spatial planning from the perspective of a small seaside community in Ireland, Marine Policy, 32 (6), pp. 980–987.

FRID, C., ELLIS, G., LINDERBAUM, K. BARKER, T. and PLATER, A. (2011) Marine planning and management to maintain ecosystem goods and services, in KIDD, S., PLATER, A. and FRID, C (Eds.) The Ecosystem Approach to Marine Planning and Management, pp 92-130. London: Easrthscan.

FOCK, H. (2008) Fisheries in the context of marine spatial planning: defining principal areas for fisheries in the German EEZ, Marine Policy, 32 (4), pp. 728-739.

GILLILAND, P. and LAFFOLEY, D. (2008) Key elements and steps in the process of developing ecosystem-based marine spatial planning, Marine Policy, 32 (5), pp. 787-796.

HAUGHTON, G., ALLMENDINGER, P., COUNSELL, D. and VIGAR, G. (2010) The New Spatial Planning: territorial management with soft spaces and fuzzy boundaries. London: Routledge.

HEALEY, P. (2006) Collaborative Planning: Shaping Places in Fragmented Societies, 2nd edition. Basingstoke: Macmillan.

HEALEY, P. (2007) Urban Complexity and Spatial Strategies: Towards a Relational Planning for our Times. London: Routledge.

HEALEY, P., KHAKEE, A., MOTTE, A. and NEEDHAM, B. (Eds.) (1997) Making Strategic Spatial Plans: Innovation in Europe. London: UCL Press.

HELSINKI COMMISSION (HELCOM) (2007) Recommendation 28E/9: Development of broad-scale marine spatial planning principles in the Baltic Sea. Helsinki: HELCOM.

[http://www.helcom.fi/Recommendations/en\_GB/rec28E\_9/](http://www.helcom.fi/Recommendations/en_GB/rec28E_9/%20)

HILLIER, J. (2010) Strategic navigation in an ocean of theoretical and practice complexity, in HILLIER, J. & HEALEY, P. (Eds.) The Ashgate Research Companion to Planning Theory, pp. 447-480. Aldershot: Ashgate.

JAY, S. (2009) Planning for offshore wind energy in Northern Europe, in DAVOUDI, S., CRAWFORD, J. and MEHMOOD, A. (Eds.) Planning for Climate Change: Strategies for Mitigation and Adaptation, pp. 167-180. London: Earthscan.

JAY, S. (2010) Built at sea: marine management and the construction of marine spatial planning, Town Planning Review, 81 (2), pp. 173-191.

JENSEN, O. and RICHARDSON, T. (2004) Making European Space: Mobility, Power and Territorial Identity. London: Routledge.

KAY, R. and ALDER, J. (2005) Coastal Planning and Management. Abingdon: Taylor and Francis.

KIDD, S. (2007) Towards a framework of integration in spatial planning: an exploration from a health perspective, Planning Theory and Practice, 8 (2), pp. 161-181.

KIDD, S. and ELLIS, G. (forthcoming) From the land to sea and back again? Using terrestrial planning to understand the process of marine spatial planning, Journal of Environmental Policy and Planning.

KIDD, S., PLATER, A. and FRID, C (Eds.) (2011) The Ecosystem Approach to Marine Planning and Management. London: Easrthscan.

LARSSON, G. (2006) Spatial Planning Systems in Western Europe: An Overview. Amsterdam: IOS Press.

MAES, F. (2008) The international legal framework for marine spatial planning, Marine Policy, 32 (5), pp. 797-810.

MAES, F., SCHRIJVERS, J. and VANHULLE, A. (2005) A Flood of Space: Toward a Spatial Structure Plan for Sustainable Management of the North Sea. Brussels: Belgian Science Policy.

McLEOD, K. and LESLIE, H. (Eds.) (2009) Ecosystem-Based Management for the Oceans. London: Island Press.

MINISTERIE VAN VERKEER EN WATERSTAAT (MVW) (2008) Ontwerp Nationaal Waterplan. The Hague: MVW.

<http://www.verkeerenwaterstaat.nl/Images/Ontwerp%20Nationaal%20Waterplan(%201)_tcm195-234652.pdf>

MSPP CONSORTIUM (2006) Marine Spatial Planning Pilot: Final Report. unpublished document.

<http://www.abpmer.net/mspp/docs/finals/MSPFinal_report.pdf>

OSPAR COMMISSION (OSPAR) (2009) Overview of National Spatial Planning and Control Systems Relevant to the OSPAR Maritime Area. London: OSPAR.

<http://www.ospar.org/v_publications/download.asp?v1=p00444>

PLASMAN, I. (2008) Implementing marine spatial planning: a policy perspective. Marine Policy, 32 (5), pp. 811-815.

RITCHIE, H. and ELLIS, G. (2010) A system that works for the sea? Exploring stakeholder engagement in marine spatial planning, Journal of Environmental Planning and Management, 53 (6), pp. 701 – 723.

ST. MARTIN, K. and HALL-ARBER, M. (2008) The missing layer: geo-technologies, communities, and implications for marine spatial planning, Marine Policy, 32 (5), pp. 779-786.

SCHÖN, P. (2005) Territorial cohesion in Europe?, Planning Theory & Practice, 6 (3), pp. 389-400.

SUÁREZ de VIVERO, J. (2007) The European vision for oceans and seas: social and political dimensions of the Green Paper on Maritime Policy for the EU, Marine Policy, 31 (4), pp. 409-414.

TEWDWR-JONES, M., GALLENT, N. and MORPHET, J. (2010) An anatomy of spatial planning: coming to terms with the spatial element in UK planning, European Planning Studies, 18 (2), pp. 239-257.

TROUILLET, B., GUINEBERTEAU, T., DECACQUERAY, M. and ROCHETTE, J. (2011) Planning the sea: the French experience, contribution to marine spatial planning perspectives, Marine Policy, 35 (3), 324-334.

TYLDESLEY, D. (2004) Making the case for marine spatial planning in Scotland, report commissioned by RSPB Scotland and RTPI in Scotland, unpublished document.

<http://www.rspb.org.uk/Images/marineplanning_tcm9-132919.pdf>

UNESCO (online) Marine Spatial Management.

<http://www.unesco-ioc-marinesp.be>

VIGAR, G. (2009) Towards an integrated spatial planning?, European Planning Studies, 17 (11), pp. 1571-1590.

VIGAR, G., HEALEY, P., HULL, A. and DAVOUDI, S. (2000) Planning, Governance and Spatial Strategy in Britain: An Institutionalist Analysis. Basingstoke: Macmillan.

VINCENT, M.A., ATKINS, S.M., LUMB, C.M., GOLDING, N., LIEBERKNECHT, L.M. and WEBSTER, M. (2004) Marine Nature Conservation and Sustainable Development: The Irish Sea Pilot. Report to Defra, Peterborough: Joint Nature Conservation Committee.

<http://www.jncc.gov.uk/pdf/irishseapilot_all.pdf>

TABLE 1: Twin frameworks of analysis

FIGURE 1: Map for the North Sea section of the German EEZ