Delivering offshore electricity to the EU

Spatial planning of offshore renewable energies and electricity grid infrastructures in an integrated EU maritime policy

May 2012

Seanergy 2020

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Final project report

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spatial planning of offshore renewable energies
and electricity grid infrastructures in an
integrated EU maritime policy

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The Seanergy 2020 project

Facilitating offshore renewables – wind, wave and tidal – through marine spatial planning (MSP) is the core objective of the Intelligent Energy Europe funded project Seanergy 2020. Seanergy 2020 does this by formulating and promoting policy recommendations on how to best address and remove MSP obstacles to offshore renewable energy generation, in order to implement the EU's Renewable Energy Directive (2009/28/EC). In doing so, it seeks to promote a more integrated and coordinated approach to MSP: that is, an approach that extends beyond national borders. This is particularly important since many human activities as well as ecological concerns at sea have a cross-border dimension. The geographical scope of the Seanergy 2020 project includes the Atlantic Coast and Irish Sea, the Baltic Sea, the Mediterranean Sea, and the North Sea.

The Seanergy 2020 project has centred its work on three main work packages or phases: firstly, analysis of existing national MSP practices and their impact on offshore renewable deployment, and identification of best practices (work package 2); secondly, analysis of different international MSP instruments and their compatibility with offshore renewable deployment (work package 3); and thirdly, analysis of the challenges and opportunities of moving from a national to a transnational MSP approach (work package 4). This third phase compiles findings and recommendations and draws up the overall project recommendations.

This report represents the final publication of the Seanergy 2020 project and presents findings from each of these three sections or phases of the project as well as overall project recommendations.

What is MSP and why is it necessary?

The European sea basins host a number of different activities and resource uses, and as such provide important economic and social benefits to citizens not only in Europe but also worldwide. As a fairly new entrant to the sea, offshore renewables - notably wind but also wave and tidal - are expected to play an important role in reaching the EU's 2020 renewable energy targets. According to their national projections, European Union (EU) Member States are set to achieve around 45 GW of offshore renewable generation capacity by 2020, which is more than a ten-fold increase of today's capacity. Offshore wind energy accounts for the majority of this development (approximately 43 GW) with the remainder (approximately 2 GW) coming from wave and tidal. The European Wind Energy Association (EWEA) and the European Ocean Energy Association (EU-OEA) confirm the projected role offshore renewables will play in 2020, with their expectations of 40 GW of offshore wind power, and 3.6 GW of wave and tidal capacity to be installed in the same time frame.

With an increase of more than ten times today's capacity in Europe in less than a decade, offshore renewables will require significant space at sea. As a newcomer, offshore renewable energy is competing with traditional sea users and other emerging activities for space. Many of these activities, such as shipping, cables and pipelines, coastal tourism and ecological and environmental protection, are also expected to increase significantly. With many such growing activities at sea, and in general increasing pressures and constraints, it is becoming urgent to manage the seas efficiently and effectively, in a coordinated fashion, not only nationally but also across national borders. This implies the need for adopting a more plan-based holistic approach whereby objectives of individual sectors are balanced along with the cumulative pressure on the ecosystem from combined human use, to ensure that any development is achieved sustainably. This is the essence of MSP.

MSP can be understood as a "process of analysing and allocating the spatial and temporal distribution of human activities in marine areas to achieve ecological, economic and social objectives that are usually specified through a political process"[1]. The starting point for Seanergy 2020 is the observation that good MSP practices, be these at the national or transnational level, will be necessary as a consequence of the increasing demand for space at sea.

[1] Ehler, C. and Douvere, F., 2009, Marine Spatial Planning: a step-by-step approach toward ecosystem-based management, Intergovernmental Oceanographic Commission and Man and the Biosphere Programme, IOC Manual and Guides No. 53, ICAM Dossier No. 6. Paris: UNESCO.

National MSP approaches

The first phase of the Seanergy 2020 project – work package 2 – analysed and compared the current MSP regimes in Member States with sea basins and the potential for developing offshore renewables. This analysis and comparison was conducted on the basis of seven criteria – policy and legal framework, data and information management, permitting and licensing, consultation, sector conflict management, cross-border cooperation and finally, implementation of MSP.

Key findings from this phase of the project, with regard to transnational MSP cooperation, are:

- National MSP practices largely reflect traditional planning procedures in EU Member States as well as national needs and priorities, and national institutional frameworks.
- In practice, three basic models for providing a legislative framework for national MSP were identified: i) extension of the basic (land-use) spatial planning regime out to sea; ii) creation of a specific legal framework for MSP within an overall legal framework for marine management; and iii) amendment to related legislation such as an existing Water Act.
- Within these three broad approaches there is no obvious 'winner'. Any of these three approaches can be effective in enabling the deployment of offshore renewable energy when well designed and managed.
- There are several sources of soft guidance on MSP processes and best practices, e.g. the European Commission's MSP Roadmap, the HELCOM-VASAB Baltic Sea MSP principles, and the UNESCO and Intergovernmental Oceanographic Commission guidelines on MSP. These have a large degree of overlap in the basic principles they espouse. Evidently, a more definitive and detailed set of guidance on national MSP best practices could be of use to Member States.
- Many of the existing frameworks for national MSP approaches do not have an explicit focus on transnational cooperation. Furthermore, the available 'principles' tend to deal with the issue of transnational cooperation in only a peripheral or basic way, typically by mentioning that it is important but giving few details on how it might best be structured, or when this should be done.

International MSP instruments

The second phase of the project – work package 3 – analysed existing international MSP instruments, to identify critical elements that impact on a coordinated development of offshore renewables. This phase included two additional aspects; firstly, an inconsistency check between national offshore renewable zoning plans and zones designated as a result of the international MSP instruments in the relevant Member States. Secondly, it comprised an examination of offshore grid infrastructure and cable routing for a pan-European grid at sea, for which strategic planning at international level is necessary. From this work, a number of recommendations and conclusions were developed with regards to how international MSP instruments could be evolved to support offshore renewable energy.

The main findings from this phase are:

- Existing international MSP instruments do not explicitly consider offshore renewables.
- International MSP instruments do not have a strong direct influence on offshore renewables, but can have an indirect impact through their translation to national MSP. Arguably, current international MSP instruments do not stand in the way of the development of offshore renewables.
- There are limited opportunities to change, modify or create international instruments with regard to MSP and offshore renewables. These processes are lengthy and resource intensive. Additionally, international MSP approaches would have to build a very broad consensus which is likely to 'water down' their efficacy.
- Existing international structures should be used where possible. For example, current regional environmental conventions should be taken into account.
- Finally and most importantly, the numerous barriers to truly international MSP approaches strongly suggest that EU level action on transnational cooperation is the most appropriate way forward.

Transnational approach to MSP

The third phase of Seanergy 2020 – work package 4 – focused on the challenges and opportunities of moving towards transnational approaches to MSP in support of offshore renewables. There are important interdependencies between national and transnational levels of MSP. National planning decisions can have an impact on other countries in the same region. Likewise, many issues and sea uses transcend national borders and must be discussed cooperatively. MSP approaches at the national level need to be compatible with a cross-border perspective, and vice-versa, to ensure that together they can deliver the best basis for decision making and planning.

Key findings from this project phase:

- Although there is strong support for cross-border cooperation on MSP from the European Commission, there is little to no firm guidance on how this should be achieved. Related to this, national MSP initiatives have not sufficiently integrated the international context and EU Member States do not have sufficient frameworks in place that will encourage future cooperation.
- For a transnational approach to be embraced by the EU Member States, it needs to be set up to overcome or avoid existing barriers. Thirteen specific barriers to transnational MSP were identified relating to issues of power, interests and capacity.
- Longer term planning frameworks are needed to deal with the significant increase in demand for space that is anticipated up to 2020 and beyond.
- Transnational approaches to MSP can benefit offshore renewables through additional efficiencies from cross-border coordination, reduced planning risks for developers and expanded opportunities for deployment and/or cost savings from shared infrastructure. This was demonstrated in a German-Dutch cross-border MSP case study. It highlights that MSP has the potential to bring real cost reductions for offshore renewables.
- The European Commission has limited options for intervention in MSP as this is, by and large, a Member State competence. Options include:
  a) voluntary guidelines encouraging cross-border cooperation,
  b) support of individual regional projects and initiatives,
  c) forming MSP expert working groups,
  d) using regional sea conventions (OSPAR, HELCOM, Barcelona) as coordinating platforms, and
  e) introducing an MSP Directive that creates a framework for cooperation. An MSP Directive could provide the best chance of overcoming the inertia in moving towards transnational cooperation on MSP.

Overall project recommendations

Although politically challenging, an MSP Directive focused on encouraging cross-border cooperation – supported by national MSP – would require Member States to open direct communication, without dictating outcomes. This option gives cross-border cooperation a firm legal footing, whilst leaving implementation to the Member States, and comes closest to satisfying the understanding of planning competences that exists within the EU. A longer list of recommendations is summarised below:

- A focus on encouraging cooperation, rather than prescriptive approaches to national practices, is the most appropriate form of EU intervention.
- National MSP is a pre-condition of successful transnational cooperation on marine planning and should be promoted.
- The EU should ideally seek to draft an MSP Directive (or if this cannot be achieved, guidelines or approaches based on regional sea conventions or working groups) that focuses on two aspects:
  - requiring Member States to adopt national MSP legislation over an agreed time-frame – the content and form of this should be decided by each Member State.
  - promoting cross-border cooperation and coordination on MSP and maritime development.
- Macro-regional or regional action is the most appropriate starting point for successfully and usefully employing transnational MSP practices.
- The Water Framework Directive should be used as a template for promoting cooperation and designing cooperative structures. An MSP Directive could

similarly create regional sea basins to serve as a forum for planning and cross-border coordination.

- Regional sea basin forums should have a long term perspective in relation to their objectives.
- These forums should be actively used to align national objectives and plans near border areas with broader regional objectives and neighbouring Member State plans.
- Regional sea basin forums offer the opportunity to improve coordination of a number of aspects related to MSP including: planning time frames, onshore and offshore grid infrastructure, data formats and availability, research methodologies and efforts, and some management measures including elements of permitting.

The recommendations in this report are aimed at providing an appropriate framework for promoting cross-border cooperation on MSP, as well as suggesting content for discussions that can encourage the deployment of offshore renewable energy up to 2020 and beyond.

Photo: Alpha Ventus

1 INTRODUCTION

- **Policy context**
- **Objectives and approach**
- **Maritime Spatial Planning: definition, scope and status**
- **Report structure**

European sea basins host a large variety of activities or sea-use functions. Activities range from 'traditional' ones, such as fisheries and shipping to more modern pursuits such as oil exploitation, mineral extraction, dredging, recreation, and more recently offshore renewable energy generation and offshore aquaculture. Most activities make spatial claims to certain parts of the seas, for example to get access to fishing grounds, mineral or energy resources, or to create an efficient transport route between ports. Since all these activities impact the natural marine environment, part of marine space is also reserved for nature conservation.

Spatial claims related to many of these activities have been expanding. The spatial claims from sea-use functions increasingly lead to competition for marine space and increase potential for conflicts. A good spatial management system is therefore required.

Until now, the use of marine space has been planned and managed sector by sector, and separately in different jurisdictions. Each sea-use function generally has its own interest groups. Its management has largely lacked a plan-based holistic approach, with little consideration of objectives from other sectors, the cumulative pressure on the ecosystem from all human uses together, or conservation requirements based on what the ecosystem can sustain[2]. Since many of the uses are incompatible, this approach is not well suited to manage spatial conflicts.

As a newcomer in the marine space, offshore renewables are caught between this multitude of conflicting uses. Given that offshore renewables are crucial to many countries aiming to reduce carbon emissions, marine space will be needed for their deployment. However, many technically well suited (and relatively cheap) sites are already being used for other functions. Finding sufficient and suitable space to accommodate the current and projected post 2020 renewables targets is a challenge.

This led to a questioning of the current approach to allocating marine space. It has highlighted the need to integrate the organisation of human and economic activities at sea, taking into account ecological, economic and social values. Such an approach is fundamental to the concept of MSP, as will be explained later in this chapter.

The Seanergy 2020 project focuses on MSP and offshore renewables. This project, financed under the EU's Intelligent Energy Europe (IEE) programme and running from May 2010 to June 2012 aims to formulate policy recommendations on how best to deal with MSP at national, European, regional[3] and/or transnational level. It also aims to remove policy obstacles to the deployment of offshore renewable power generation in the EU. These recommendations aim to ensure a better management of the marine space and the deployment of offshore renewable energy in Europe's four main sea basins: the Atlantic Coast and Irish Sea, the Baltic Sea, the Mediterranean Sea and the North Sea. Additional information is available on the project's website: http://www.Seanergy2020.eu.

1.1 Policy context

The Seanergy 2020 project was inspired by two major policy developments. Firstly, the 2009 Renewable Energy Directive[4], which introduced binding renewable energy targets for all Member States in the European Union (EU). The directive sets the EU's overall objective at a 20% share of renewable energy in total gross energy consumption by 2020. The national breakdown of this overall target ranges from 10% in Malta to 49% in Sweden. Moreover, the Directive requires every Member State to draft a National Renewable Energy Action Plan (NREAP) breaking down the target between electricity, heating and cooling, and transport and, within these sectors, for each renewable energy technology.

[2] WWF 2010, Future Trends in the Baltic Sea, WWF Baltic Ecoregion Programme, Sweden.
[3] Regional means in this context sea basin level.
[4] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.

The offshore wind projections presented in the members States' NREAPs totals around 43 GW, whilst the ambition for tidal and wave is just over 2 GW[5]. The national projections for offshore renewable technologies in Europe to 2020 are similar to the projections made by the European Wind Energy Association (EWEA) and the European Ocean Energy Association (EU-OEA). EWEA estimates that 230 GW of wind power will be installed in 2020, of which 40 GW will be offshore[6], whereas EU-OEA estimates that a further 3.6 GW of wave and tidal capacity will be installed in the same time frame[7]. This confirms that offshore renewables – mostly wind, but also wave and tidal – will play an important role in reaching the 2020 targets.

Secondly, two European Commission (EC) Communications on MSP highlight the need for an integrated MSP policy in coastal EU Member States. The intensive use of maritime space and the increased competition amongst sea users – not only offshore wind, wave and tidal energy, but also shipping and maritime transport, military, oil and gas, port developments, fisheries and aquaculture, and environmental protection – underline the urgent need to manage this space. In most countries, the various sea activities and interests are regulated according to sector by different agencies and authorities. Each has its specific legislative approach to the allocation and use of maritime space, which leads to fragmented policy frameworks.

1.2 Objectives and approach

The Seanergy 2020 project formulates and promotes policy recommendations on how to best deal with MSP and remove policy obstacles to the deployment of offshore renewable power generation in the EU.

a) In a first phase, the project focused on existing national MSP practices in 17 EU Member States[8], covering four sea basins: the Atlantic Coast and Irish Sea, the Baltic Sea, the Mediterranean Sea and the North Sea. It looked at the MSP policies of the different regions, their effect on offshore renewables project development and the development of offshore electricity grids. Based on this analysis, the project emphasised good practices and bottlenecks in the countries where MSP is developed. It also made recommendations on MSP for Member States less advanced in the MSP process.

b) In a second phase, Seanergy 2020 analysed the different international MSP instruments and their compatibility with the deployment of offshore renewables. Taking current MSP and offshore grid initiatives into account, the project puts forward recommendations and proposals for an internationally coordinated approach to MSP which favours the deployment of offshore renewables.

c) In a third phase, the compatibility between different spatial scales of MSP as well as the opportunities and challenges of moving from a national to a transnational approach were assessed. The project recommended ways to improve MSP coordination amongst Member States.

d) The final phase of the project focused on the dissemination of the results amongst the main stakeholders, including regional and national authorities, EU decision makers, planners and regulators, offshore renewables developers and other users of the sea.

5 During the course of 2011, five Member States changed their offshore RES targets, bringing the EU total to just less than 43 GW for wind energy and 2 GW for tidal and wave.

6 EWEA 2011, Pure Power: Wind energy targets for 2020 and 2030- A report by the European Wind Energy Association, July 2011.

7 EU – OEA 2009, Oceans of Energy: European Ocean Energy Roadmap 2010-2050, 2009.

8 Belgium, Denmark, Estonia, Finland, France, Germany, Greece, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Spain, Sweden, United Kingdom.

1.3 Maritime Spatial Planning: definition, scope and status

Unlike spatial planning on land, MSP is a relatively new concept. There is no internationally accepted definition of MSP. However, internationally, the Intergovernmental Oceanographic Commission, a UNESCO[9] body, defines MSP as:

"a process of analysing and allocating parts of three-dimensional marine spaces to specific uses to achieve ecological, economic and social objectives that are usually specified through the political process… usually results in a comprehensive plan or vision for a marine region. (MSP) is an essential element of sea use management."

This definition indicates that MSP is a process which takes a comprehensive approach to human activities at sea, while planning its space. Though such definitions lay out the basic principles and objectives of MSP – the mapping or zoning of different parts of a maritime space for different uses and purposes – they say little about the level at which it can be carried out. MSP can be applied to anything from the near shore waters of a local municipality to the marine jurisdiction of a given country including its economic exclusive zone (EEZ), and further to transnational/transboundary regions[10]. Throughout Seanergy 2020, a number of terms are used to give additional clarity to the level of MSP discussed.

- **National MSP**

Refers to planning processes carried out by a country in its nationally declared sea space. Typically, this includes both territorial waters and the country's EEZ. Although these processes may be carried out in consultation with other countries that share a border or an interest, it is a nationally governed exercise.

- **Transnational MSP**

Refers to MSP that involves a number of different countries, bilaterally or multilaterally. Here the focus is not always on a shared MSP process, but rather on cooperation or coordination of aspects of national MSP that have relevance across borders.

- **EU MSP**

Refers to the level at which the EU could be involved, but does not specify any particular role for the European Commission. EU MSP could range from guidelines to more binding measures[11].

- **International MSP**

Refers to the level at which the international community maps an area of common interest. This is not a real MSP process. However, if/where international marine planning occurs, this is sector specific – for example the shipping lanes of the International Maritime Organisation. However, many international MSP related instruments influence other levels of MSP. For example, the UN Convention on the Law of the Seas (UNCLOS) provides the basis for a number of governing rules and regulations on different sea uses that must be observed by signatories. It also defines territorial waters (out to 12 nautical miles) and EEZs.

Offshore renewables and MSP

As stated above, offshore renewables are caught between a multitude of conflicting uses, interest groups and rules from different sectors and jurisdictions. This creates project uncertainty, increases the risk of delays or failure of wind, wave and tidal energy projects at sea, impairing the sector's growth potential. These barriers are further aggravated by the absence of a coordinated approach to MSP within the different Member States and sea basins.

MSP's role with regard to offshore renewables is mentioned in the EU's Roadmap for MSP and principles[12]: *"MSP can play an important role in mitigation, by promoting the efficient use of maritime space and renewable energy".*

Moreover, MSP can enable the development of offshore renewable energy by reducing the risk for developers and increasing investment opportunities. This is because if MSP includes the designation of zones for the development of offshore renewables, project developers have greater certainty of access to those sites (and have an idea of when they will get access), increasing the project's appeal to investors.

9 United Nations Educational, Scientific and Cultural Organisation (UNESCO), www.unesco-ioc-marinesp.be/msp_faq

10 Backer, H., April 2011, A pilot trans-boundary plan for the Bothnian Sea: description of the project, cited in Cameron. L., Hekkenberg, M., Veum, K., Transnational maritime spatial planning: Recommendations, Seanergy2020, Deliverable 4.4, December 2011.

11 Idem.

12 European Commission 2008, Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU, COM (2008), 791 final.

Secondly, MSP promotes an efficient use of space by potentially allowing offshore renewables projects to be developed within a given area through integrated planning, taking nature conservation into account.

Thirdly, the marine management measures that emerge from MSP can help provide transparency in permitting and licensing procedures for project developers. The required outcomes of the MSP process are clarified at the beginning of the project[13].

Moreover, MSP has benefits for other sectors and sea uses, including environmental conservation and planning. The different benefits are illustrated in Table 1.1. Although these other benefits are important, they are not the focus of Seanergy 2020, whose primary objective is to study the impact of MSP on the development of offshore renewables[14].

TABLE 1.1: EXAMPLE OF BENEFITS

Ecological / Environmental Benefits	Identification of biological and ecological important areas
	Biodiversity objectives incorporated into planned decision-making
	Identification and reduction of conflicts between human use and nature
	Allocation of space for biodiversity and nature conservation
	Establish context for planning a network of marine protected areas
	Identification and reduction of the cumulative effects of human activities on marine ecosystems
Economics Benefits	Greater certainty of access to desirable areas for new private sector investments, frequently amortized over 20-30 years
	Identification of compatible uses within the same area of development
	Reduction of conflicts between incompatible uses
	Improved capacity to plan for new and changing human activities, including emerging technologies and their associated affects
	Better safety during operation of human activities
	Promotion of the efficient use of resources and space
	Streamlining and transparency in permit and licensing procedures
Social Benefits	Improved opportunities for community and citizen participation
	Identification of impacts of decisions on the allocation of ocean space (e.g., closure areas for certain uses, protected areas) for communities and economies onshore (e.g., employment, distribution of income)
	Identification and improved protection of cultural heritage
	Identification and preservation of social and spiritual values related to ocean use (e.g., the ocean as an open space)

Source: Ehler and Douvere, 2009

[13] Cameron et all, 2011, Seanergy Deliverable 4.4.
[14] Idem.

Status of MSP

MSP initiatives are currently focusing on national, regional and European/international level. To date, MSP is implemented at national level in a handful of EU coastal countries. At regional level, a number of localised initiatives such as the Helsinki Commission[15] (HELCOM) and Visions And Strategies Around the Baltic (VASAB)[16] Joint Working Group on MSP (HELCOM – VASAB MSP Working Group)[17] and the Convention for the Protection of the Marine Environment of the North-East Atlantic (the OSPAR Convention) focus on MSP. These regional instruments foster cooperation between countries and provide useful guidance on tools or concepts related to environmental issues or spatial planning, such as Integrated Coastal Zone Management (ICZM)[18]. At EU level, MSP is promoted within the EU's Integrated Maritime Policy, the Marine Strategy Framework Directive (MSFD)[19] and the Strategy for the Baltic Sea Region[20] as well as the work of the UN Convention on the Law of the Seas.

1.4 Report structure

This report summarises Seanergy 2020 main findings and recommendations, starting at the national level, then moving to the international, European and transnational levels.

Chapter 2 presents the main conclusions of the comparative analysis carried out at national level for the 17 countries in the four sea basins based on seven criteria. It describes the specific arrangements within the different countries and summarises the degree to which MSP has been, or will be put in place. A series of good practices, specific recommendations and overall recommendations for future MSP initiatives and policies, including offshore renewables deployment are formulated.

Chapter 3 gives a brief overview of the main international MSP instruments that impact coordinated development of offshore renewables. It provides key findings on analysis between current MSP instruments and national zoning plans and existing international/EU initiatives relating to offshore grid infrastructure. This chapter provides suggestions and recommendations on future implementation of international MSP for offshore renewables.

Chapter 4 highlights findings on transnational MSP. The expected degree of conflict arising from future increases in demand for space in each sea basin is discussed. A specific case study of the Dutch-German EEZ border is presented, to demonstrate the potential benefits of increased cross-border cooperation on MSP. The barriers that arise from possible transnational approaches to planning are identified. The chapter ends with recommendations for MSP coordination amongst Member States to improve conditions for offshore renewables deployment.

Conclusions are presented in Chapter 5.

15 www.helcom.fi.

16 www.vasab.org.

17 HELCOM stands for the governing body of the "Convention on the Protection of the Marine Environment of the Baltic Sea Area", known also as the Helsinki Convention; VASAB 2010 stands for Vision and Strategies for the Baltic Sea Region 2010, focusing on cooperation on spatial planning and development between countries in the Baltic Sea Region, OSPAR stands for the Convention for the Protection of the Marine Environment of the North-East Atlantic.

18 These organizations and tools will be further explained in Chapter 4 of this publication: 'Transnational MSP'.

19 European Commission 2008, Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive).

20 European Commission 2009, Communication from the Commission to the EU, the Council and the EESC and the CoR concerning the European Union Strategy for the Baltic Sea Region, COM (2009) 248 final.

Photo: ESPO

2 NATIONAL MSP REGIMES: findings and recommendations

- Introduction
- Current MSP state of play per sea basin
- Overarching policy recommendations
- Recommendations per sea basin

This chapter describes the existing MSP regimes, focusing on their effect on offshore renewable energies in four sea basins. Varying political traditions, physical constraints and legal systems across EU Member States make it difficult to propose a single best practice scheme. However, the chapter provides a few general policy recommendations to support the development of the national MSP regimes – particularly for offshore renewables – and specific recommendations for sea basins where they differ.

2.1 Introduction

The first part of the Seanergy 2020 project analysed existing national MSP practices and how they affect the deployment of offshore renewable energy projects and the development of offshore electricity grids.

Before providing details of the national MSP regimes, it is important to understand what a MSP process implies at national level. National MSP refers to planning processes that are carried out by a EU Member State in the context of this project, which covers the nationally declared section of a space. Typically this includes both territorial waters and any claimed EEZs. Although this process may bring in other countries that share a border or an interest, this is a nationally governed exercise based on national legislation and any international instruments a country has adopted.

However, there are currently no international and European wide definitions. In its broadest sense, MSP has been defined as a *"public process of analysing and allocating parts of three-dimensional marine spaces to specific uses or non-use, to achieve ecological, economic, and social objectives that are usually specified through a political process"*[21].

Over recent years, a number of key indicators have been defined[22] to assess the level of MSP development in EU Member States. Seanergy 2020 used the following indicators:

1. Policy and legal framework
2. Permitting and licensing
3. Data and information management
4. Stakeholder consultation
5. Sector conflict management
6. Cross-border and regional cooperation
7. MSP implementation

Each of the seven indicators is related to the MSP aim of sustainable use of the sea space – including ecological, social and economic issues.

A policy and legal framework is considered essential for the promotion of MSP. The aim of indicator 1 is to get an overview of the legislative and political framework that already exists (or is in development) for MSP in the different Member States, including appropriate policies providing incentives for offshore renewable deployment. Permitting and licensing are viewed from the perspective of coordination across sectors, and transparency. Permits and licenses play a key role in most of the activities in the maritime area. Data and information management are important for MSP, not only to create spatial plans but also to help governments assess development plans and to help renewable developers select sites. The ability of MSP to make the best use of the maritime space, avoid conflicts and protect natural resources depends on the availability and quality of the information on which it is based. For offshore renewable developers, as well as public authorities, the existence and availability of data is essential for decision making and planning. Consultation is essential for ensuring that all sea sector priorities, including offshore renewables, are taken into account and integrated into marine planning and management. Cross-border cooperation on MSP in one country may affect, or be affected by, activities in a neighbouring country. Cross border activities are common in a number of sectors, including grid infrastructure and offshore wind farms. For offshore renewables, this is very important, as the number of broad scale infrastructure projects is increasing, for example the North Sea Offshore Grid, along with the wind energy plans necessary to achieve the EU's goal to produce 20% of its energy by renewable sources by 2020. The aim was to estimate whether MSP systems provide scope for transboundary mechanisms. The final indicator, implementation of MSP, evaluates the degree to which MSP is translated into law and practice.

[21] Ehler, C. and Douvere, F., 2009, Op. cit.
[22] MRAG 2008, Study on behalf of the European Commission, DG MARE, October 2008.

The above indicators form the basis of the MSP analysis in 17 EU countries with coastlines, covered by the Seanergy 2020 project. It should be noted that some of these countries have coastlines in more than one sea basin. The four European sea basins analysed and covered by the Seanergy 2020 project are based on the definition taken from the European Atlas of the Seas[23]. One distinction was made with regards to the Atlantic Sea Basin. It combines the Celtic Seas (including the English Channel, the Irish Sea, the Celtic Sea and the waters west of the UK and Ireland) and the Bay of Biscay and the Iberian Coast which stretch from southern Brittany to the south of Spain:

- Atlantic Coast and Irish Sea (France, Ireland, Portugal, Spain, UK)
- Mediterranean Sea (France, Greece, Italy, Spain)[24]
- North Sea (Belgium, Denmark, Germany, the Netherlands, UK)
- Baltic Sea (Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Sweden)

The analysis of the MSP current state of play in the four sea basins is based on the national reports produced by the Seanergy 2020 project consortium, MRAG report[25] and national policy recommendations documents. These papers produced by the Seanergy 2020 consortium are publicly available on the Seanergy 2020 project website, http://Seanergy2020.eu.

Once the MSP analysis for the four sea basins was finalised, recommendations were made in general and for specific sea basins. These could serve as a basis for further implementation of MSP in those basins and for the development of transnational MSP.

2.2 Current MSP state of play per sea basin

Before going into detail on the extent to which MSP is developed, it is useful to outline some general considerations.

Policy and legal framework

An immediate problem is that there is no internationally accepted definition of MSP. Nor is there a formal EU definition, given that there is no EU legislation on MSP. One broadly accepted definition, proposed by UNESCO Intergovernmental Oceanographic Commission (IOC) is that MSP is a public process that takes a comprehensive approach to human activities at sea, while achieving a good balance between ecological, economic and social objectives.

The adoption of policy incentives and legislation on the development of the offshore renewables sector is an important step towards a robust legal and policy framework for the sector. However such instruments cannot fully address MSP because of their single sector focus. Nevertheless, they provide a key prerequisite for the offshore renewable sector by conferring the necessary legal security for investment and avoiding potential negative impacts from planning related decisions in other sectors. To date, in most European countries a comprehensive legal framework for MSP has yet to be developed. The key issue relates to legal certainty: if MSP does not lead to binding results and the contents of a given plan are not mandatory, then it cannot provide for the legal certainty required by investors. This is a particular issue for investors in offshore renewables given the significant costs involved. However the progress in establishing formal legal frameworks for MSP by the Member States has been modest to date.

Permitting and licensing

The issue of permitting and licensing procedures was tackled by Seanergy 2020 because it has a real impact on renewable energy planning and investments. In terms of MSP, permits and licenses are the means by which the overall objectives are translated into the rights and duties of individual projects.

Offshore renewables projects in the four sea basins have to obtain numerous permits and licenses. The procedures can be lengthy and incur considerable costs, both for the project developer and the authorities processing the requests. The extent to which the process is streamlined and coordinated has an important impact on project costs and speed of deployment.

[23] http://ec.europa.eu/maritimeaffairs/atlas/about/index_en.htm.
[24] The survey did not take Malta or Cyprus into account.
[25] MRAG 2011, Comparative analysis of Maritime Spatial Planning (MSP) regimes, barriers and obstacles, good practices and national policy recommendations, Seanergy2020 Deliverable 2.3.

These issues are addressed in more detail by the WindBarriers[26] project.

Data and information management

Data and information is a key factor for a successful MSP exercise. It is important not only to create spatial zones, but also for governments to assess development plans and for renewables developers to be able to select the better sites. How far MSP can make use of the maritime space, avoid conflicts and protect the eco-system, depends on the availability and quality of the information and data provided. Optimally, information management for MSP should look at availability of data, coverage, and mechanisms for collection and dissemination. Table 2.1 lists the key data and information that EU Member States collect.

TABLE 2.1: KEY DATA TYPES REQUIRED FOR MSP

Area	Key categories
Biological/ ecological data	• Habitat mapping/biotopes • Marine Protected Areas (MPAs) • Sea pollution/water quality • Species distributions at similar spatial and temporal scales (sea birds, fish, marine mammals, reptiles and benthic species). Listed and threatened species highlighted • Seasonal water column characteristics • Marine substrates/seabed mapping • Environmental impact studies (from previous developments)
Socio-economic data	• Present and future uses of marine environment • Shipping routes and intensity of use • Location of underwater cables and pipelines • Sector activities (oil and gas aggregates, dredging, disposal, tourism, aquaculture, military, large and small-scale fishing) • Archaeological data • Coastal infrastructure and other built environment including wrecks
Geotechnical data	• Geological mapping (1:50 000) • Bathymetry • Meteorological conditions including wind speed • Salinity • Tide stress and currents • Wind speed data • Climatic scenarios

Source: MRAG 2011

[26] The major objective of the IEE funded project, WindBarriers (01 December 2008 – 30 November 2010) was to obtain quantifiable data on barriers to administrative and grid access affecting the deployment of the wind energy development in the EU countries. This project constituted the first attempt to systematically collect and quantify administrative and grid access data at EU level, http:// www.windbarriers.eu.

Environmental and socio-economic data

In many countries environmental data is more comprehensive than socio-economic data, and while the former is very important in determining all possible environmental impacts, long-term maritime planning also requires knowledge of the current and possible future activities and uses of the maritime space.

Geographical cover

It is important for data sets to cover both the territorial seas (up to 12 nautical miles) and the EEZ. Generally data sets are more complete for the territorial waters and less so for the EEZ. Some countries' data does not cover the EEZ at all, whilst others' data may cover it only partially. However some countries, such as those in the Mediterranean, may not have an EEZ, resulting in an absence of data.

Collection and dissemination

A key part of data and information management for MSP is the coordination and integration of data. Many different data sets and expertise (ranging from oceanographic research to specific species monitoring and socio-economic data collection) are required, meaning that there are often numerous institutions involved.

A large range of data sets might be available, but if these are managed by different institutions, and in different formats, there will be limited ability to integrate them into a spatial platform, such as a Geographic Information System (GIS)[27]. This will severely limit its utility for maritime planning purposes. Data management for onshore planning is often more advanced than for maritime planning. Cadastre systems[28], for instance, can ensure that all involved authorities are legally required to feed in data in a regulated or standardised format, that is then made available to all relevant institutions. It is therefore important to have clear guidelines on who is responsible for the different data sets to be collected, and for the guidelines on data formats and sharing.

The EU's INSPIRE Directive (2007/2/EC)[29] is a driver for EU Member States to harmonise spatial data collection and dissemination. The Directive requires each Member State to develop a national web-based application containing spatial data sets both on land and at sea by 2019. However, the sea element is not very extensive and should be amended so that it encompasses both the territorial sea and the EEZs.

Finally, to be meaningful, data needs to be up to date. This requires regular data collection exercises which are fed into an integrated system. For socio-economic data, it is also important to understand potential future uses of the sea area to assist in planning and to anticipate potential conflicts.

Consultation

Cooperation amongst stakeholders is important in order to minimise MSP conflicts. Although stakeholder involvement can be more time consuming initially, participatory planning brings numerous advantages and cost savings by anticipating and avoiding disputes and legal challenges and improving acceptance by all stakeholders. Moreover, stakeholders' knowledge can bring added value to the process[30]. How successfully MSP is implemented is largely dependent on stakeholders' willingness to cooperate. Moreover, individual stakeholder groups seem more inclined to accept any necessary restrictions if they are involved in the planning process from the outset[31]. The EU Guidelines for

[27] A GIS is a system designed to capture, store, analyse, manage, and present all types referenced data. It digitally creates and "manipulates" spatial areas that may be jurisdictional, purpose or application-oriented for which a specific GIS is developed. In the simplest terms, GIS is the merging of cartography, statistical analysis, and database technology.

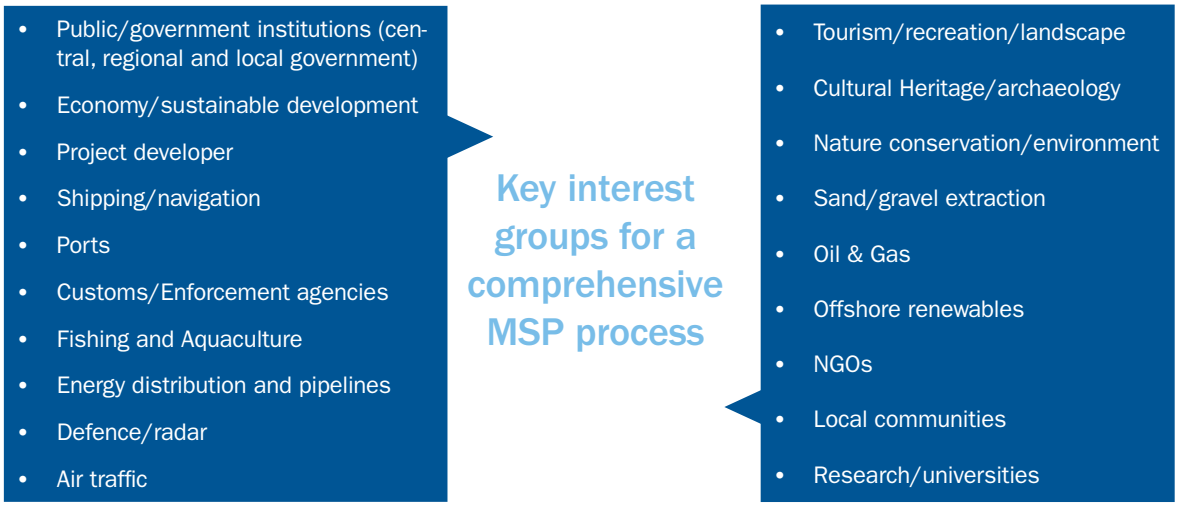
[28] A cadastre is a comprehensive register of the metes-and-bounds real property of a country. A cadastre commonly includes details of the ownership, the tenure, the precise location (some include GPS coordinates), the dimensions (and area), the cultivations if rural, and the value of individual parcels of land.

[29] Directive 2007/2/EC of the European Parliament and of the Council of 14 March 2007 establishing an Infrastructure for Spatial Information in the European Community (INSPIRE) was published in the official Journal on the 25th April 2007. The INSPIRE Directive entered into force on 15 May 2007.

[30] The Plancoast Handbook on Integrated Maritime Spatial Planning outlines three major advantages of stakeholder cooperation, particularly: a) better knowledge, b) cost and time efficiency by avoiding possible disputes and legal challenges and c) improved publicity and policy acceptance, PlanCoast Project, 2006-2008, HANDBOOK on Integrated MSP, 2008.

[31] Idem.

TABLE 2.2: KEY INTEREST GROUPS FOR A COMPREHENSIVE MSP PROCESS



Source: MRAG 2011

an Integrated Approach to Maritime Policy[32] also emphasise the role and benefits of promoting effective stakeholder consultation via widespread participation and through appropriate structures.

A review of the stakeholders involved across the EU countries provides a list of interest groups that may need to be taken into consideration. These include both intra-governmental stakeholders and civil society or private institutions (Table 2.2).

Main types of consultation

Stakeholder consultation can take place on two levels, depending on the extent of MSP development:

a) **Overall MSP plan** – during the MSP development phase (for example in Germany and Portugal). Germany has a detailed MSP for its EEZ. The initial development of the draft MSP was completed with a three month public consultation period and public hearings for the North Sea and Baltic Sea regions. It then took another year until the plan came into force due to the many concerns raised during the consultation process. Portugal also held a number of workshops to help develop MSPs under its Plano Ordinamento Espaço Maritimo (POEM) and used the opportunity to collect spatial data and information. Updates on the development of the spatial plans were provided through a website and several public information sessions. While initial consultations are important to develop a plan, they should not be a one-off activity. This has been recognised in Belgium with stakeholders continually involved in assisting, reviewing and updating the maritime Master Plan for the Belgian North Sea since 2003.

b) **Individual offshore renewable energy projects (permitting procedure)** – the EIA Directive requires all projects that may have an environmental impact to undergo an Environmental Impact Assessment. For countries that have not carried out MSPs, and in which stakeholders are therefore involved, consultation is limited to sector plans or programmes. It is important to stress that a robust and inclusive MSP process should not base itself on this second type of consultation and risks for developers should be streamlined as far as possible, through clear initial planning.

[32] European Commission, 2008, Guidelines for an Integrated Approach to Maritime Policy: Towards best practice in integrated maritime governance and stakeholder consultation, COM (2008) 395 final.

Moreover, the Strategic Environmental Assessment (SEA) Directive stipulates the need for stakeholder consultation while drawing up sector plans and programmes.

There is a clear difference between active consultations where offshore renewable energy project plans may be sent to specified stakeholders or where interest groups are invited to attend meetings, and passive consultation whereby the project documents are made available on a government website or announced in a newspaper, but no specific comments are solicited.

Sector conflict management

Addressing potential sector conflicts early on can prevent objections being raised later in the process and, perhaps, reaching court which can be lengthy, expensive or lead to cancellation of the project. Sector conflict management is also a coordination issue and facilitates development by ensuring that government departments do not give conflicting advice.

Conflict prevention

Consultation and participation in the MSP exercise for offshore renewables development at the earliest possible stage remains a key factor in conflict prevention. Cross-border cooperation across government institutions and authorities involved in maritime issues appears to be an important feature of sector conflict management.

Zoning

Zoning (mapping) maritime space is another tool to manage sector conflicts. It rules out areas not available for some sea users that are already designated for other activities. In addition to mapping, analysing compatible and incompatible sea users is a useful exercise – this has been done in Portugal. It highlights where activities may be able to coexist in the same space, for instance aquaculture may be compatible with offshore wind, whereas protected fish nursery grounds are unlikely to be compatible with sand extraction. Nevertheless, there is discussion on the extent to which zoning is always necessary and whether it is also possible to manage maritime space using a criteria-based approach, which has also proved effective.

Voluntary or binding guidelines

Defining voluntary or binding guidelines to enable sectors to operate side by side with minimal conflict is another approach to conflict management. In Denmark, voluntary guidelines for the offshore wind sector have been developed to provide practical measures for reducing impacts on other sectors. These include lighting requirements for Air Traffic Control, compensation calculations for fisheries and a requirement for farms to be sited at least 200 m from a radio relay link. Germany also has provisions within the MSP such as the use of non-glare materials and measures for noise reduction. Other countries – the UK for example – prefer to resolve issues through consultation and do not favour the voluntary guidelines approach.

Cross-border cooperation

MSP varies across borders therefore one sea zone may be governed by a completely different set of rules to a neighbouring zone. The need for cooperation will tend to arise mainly for economic activities, but the need to coordinate conservation and environmental protection measures within the context of MSP is also important.

As national legislation is limited to a state, it can address cooperation and coordination within its boundaries (regions, provinces, and so on), but it cannot address issues with neighbouring countries. National legislation can, however, encourage decision makers to take relevant maritime activities and spatial plans in neighbouring countries into consideration and, possibly, negotiate across borders.

Complete transnational cooperation mechanisms for MSP can be established at international or European level. EU Member States are party to a large number relevant international sectoral agreements, but there is currently no supra-national instrument or body dealing with transboundary aspects of MSP. In Europe's increasingly congested seas, a sea-basin approach may be more appropriate. However, this cannot be done without it being included in national legislation.

Chapter 4 further explores transnational cooperation highlighting constraints, benefits and possible ways forward.

Implementing MSP

Implementation of MSP is the translation of policies and plans into practice. The benefits of achieving MSP were summarised in a recent UNESCO publication[33].

Based on a range of guidelines that have been published recently on best practice for MSP, it is possible to determine a range of linked steps involved in developing a MSP management plan:

1. Defining goals and objectives of MSP and establishing legal authority
2. Pre-planning
3. Obtaining financial support
4. Information and data collection
5. Defining and analysing conditions and generating alternative spatial options
6. Stakeholder participation
7. Preparing and approving spatial plan
8. Implementing and enforcing the spatial management plan
9. Monitoring and evaluating performance
10. Review and update of the MSP process

All the guidelines stress that many of these activities are likely to be concurrent and the process needs to be cyclical. Development of the plan is followed by reviews and updates that will include the need to review information, data analysis and stakeholder consultations. Based on these steps, it is arguable whether MSP is currently fully implemented in any of the EU Member States included in this study.

2.2.1 Current situation in the Atlantic Ocean and Irish Sea

In terms of legislation, little progress was made towards the adoption of a comprehensive MSP policy framework that takes into account all sea users so that it achieves all ecological, economic and social objectives. Progress was made by Portugal through the adoption of the POEM, an MSP exercise initiated in 2008 and recently finalised, taking all sea users, including offshore renewables, into account. Progress in terms of planning has been made in England, Wales and Northern Ireland with the development of a comprehensive Marine and Coastal Access Act (MCA 2009) and in Scotland with the Scottish Marine Planning Act (2010). The UK approach provides an interesting example of establishing a comprehensive legal framework for marine planning policy, since it does not exclude any zones in the territorial seas (within 12 nautical miles of the coast) nor in the EEZ – from the edge of the territorial seas out to 200 nautical miles). Ireland has carried out a sectoral MSP exercise via its Offshore Renewable Energy Development Plan (OREDP), which includes a number of defined areas for wind only, wind and wave, and wave and tidal. France has defined zones to tender for offshore wind, but has not carried out a full MSP process. Spain has designated go and no-go areas for offshore wind, but, as in France, this is not part of integrated, forward looking planning.

[33] Ehler, C. and Douvere, F., 2009, Op. cit.

The table below summarises the current state of play as regards spatial planning for offshore renewables and MSP policy framework in this sea basin.

TABLE 2.3: THE MSP PROCESS AND NREAP 2020 TARGETS IN THE ATLANTIC OCEAN AND THE IRISH SEA (END OF 2010)

	Spatial planning for offshore renewables	Installed offshore capacity (MW)	NREAP 2020 offshore renewables target (MW)	EEZ	Integrated[34] MSP process
Ireland	Assessment areas designed through "Offshore Renewable Energy Development Plan (OREDP)"	25.2	555 wind 75 wave and tidal	Yes	No
France	Offshore renewables zones/sites	0	6,000 wind 380 wave and tidal	Yes	No
Portugal	Current MSP exercise "Planning and ordering of Maritime Space (POEM)" designates areas for offshore renewables	0	75 wind 250 wave and tidal	Yes	MSP planning exercise in progress
Spain	Defined offshore renewables areas[35]	0	750 wind 100 wave and tidal	No	No
UK	Criteria based approach Marine and Coastal Access Act (MCA 2009) Scottish Marine Planning Act (2010)	1,341[36]	12,990 wind 1,300 wave and tidal	Yes	No

Source: Seanergy2020 project, Deliverable D2.3

In terms of data and information management, progress in countries bordering the Atlantic Coast and Irish Sea is mixed. Portugal and the UK have made the most progress towards integrated and comprehensive information and data management systems. In France, Ireland and Spain, the information appears more sectoral and less integrated. The information available in the latter countries is not always in Geographic Information System format. Although in Portugal the data is not fully comprehensive, efforts are being made to extend its coverage and integrate it into a single Geographic Information System. Much of the data is publically available within a WebGIS interface. In the UK there is extensive environmental, geotechnical and some socio-economic data integrated into a single Geographic Information System known as the Marine Resource System (MaRS)[37], run by The Crown Estate (TCE). The main problem seems to be the lack of access to this data other than for developers who have a commercial relationship with TCE. Both France and Spain have extensive data sets, but these are not always available in a Geographic Information System, although there have been significant improvements in France recently. Ireland's data sets appear to be sectoral and lacking in socio-economic data. Consultation seems to take place mostly on individual projects and is not actively sought.

However, the UK stands apart, with a system of Strategic Environmental Assessments (SEAs) completed for offshore wind energy and the Scottish SEA completed specifically for wave and tidal around the Pentland Firth in 2007. In the UK, consultation is generally sought for sectoral plans, SEAs and individual projects with a high rate of stakeholder participation and responsiveness. There is less evidence of consultation

[34] Comprehensive MSP provides an integrated framework for management in the sense that it is done across sectors and agencies, and moreover, among levels of government, Ehler, C., and Douvere, F. 2009, Marine Spatial Planning: A step-by-step approach toward ecosystem-based management, IOC Manual and Guidelines No. 53, UNESCO.

[35] Atlantic Ocean and Mediterranean Sea.

[36] Most of the UK installed capacity is situated in the North Sea.

[37] http://www.thecrownestate.co.uk/news-and-media/news/2010/mars-wins-association-for-geographicinformation-'innovation-and-achievement-return-on-investment'-award

actively reaching out to all relevant stakeholders and comments being incorporated into decisions in the other countries of this sea basin. France, however, carried out a 'bottom up' stakeholder consultation exercise prior to the designation of its first offshore wind energy zones, in spite of limited MSP development.

Within the Atlantic most countries have developed sectoral plans for offshore renewables identifying both opportunity zones with minimal conflicts and areas with a high level of potential conflicts. These exercises have often been accompanied by SEAs, which provide stakeholders with an opportunity to highlight issues or win-win solutions. Nevertheless, no other specific sector conflict tools were reported within this study.

All countries in the Atlantic basin are signatories to the most important initiatives in regional cooperation on the protection of the marine environment, including the OSPAR convention. The European Commission recently issued a new Communication on Developing a Maritime Strategy for the Atlantic Ocean Area[38], in which MSP for the Atlantic is mentioned as an EU tool to reach a sustainable, eco-system based use of the sea basin's resources.

Keeping in mind the 10 linked steps involved in developing and implementing an effective MSP plan (mentioned above), it can be noted that none of the countries have put such measures in place.

2.2.2 Current situation in the Baltic Sea

Table 2.4 summarises the current status for policy and legal framework for MSP and spatial planning for offshore renewables in the Baltic Sea. In most of the countries, a comprehensive MSP legal framework has yet to be developed. Since 2009, the most advanced country in regards to MSP in this sea basin is Germany, with an integrated MSP policy in its Baltic EEZ and territorial seas.

On the whole, however, there is not much sectoral zoning for offshore renewables, with the exception of Germany, Denmark and Sweden. In Denmark, offshore renewables zoning is in progress, but far from being finalised, while in Sweden, the Coherent Swedish Maritime Policy adopted in March 2009 has been the legal basis for renewable energy development in both its territorial sea and its EEZ.

Looking ahead, Sweden is planning a MSP policy based on the "eco-system approach"[39]. The newly established Swedish Agency for Marine and Water Management is in charge of drafting a programme and plan. The Agency leads work on MSP with support from government county offices, government agencies and municipalities. A MSP should be elaborated for each of the three areas: Gulf of Bothnia, the Baltic Sea, and Skagerrak and Kattegatt. A commission on MSP was set up in November 2009 and started work in January 2010. It includes experts from ministries working in close consultation with other authorities, municipalities and county administrative boards.

Poland's legislation has allowed MSP since 2003 via the Act on Maritime Areas of Poland and Maritime Administration. A pilot MSP was recently launched in the Gulf of Gdansk via the BaltSeaPlan[40] project. Moreover, there are plans to work on a new eco-system based policy from 2012.

On the whole, at regional level, two European funded projects, the BaltSeaPlan and Plan Bothnia[41] provide a useful MSP experience. The regional cooperation approach introduces an important cross-border element of MSP in this basin. Germany and Denmark, who have gathered useful MSP experience with regards to offshore renewable energies in the North Sea are actively participating in the BaltSeaPlan, which will contribute to the dissemination of MSP knowledge and the exchange of proven policy experiences with the other Baltic Sea partners.

[38] European Commission, 2011, Developing a Maritime Strategy for the Atlantic Ocean Area, COM (2011) 782 final.

[39] The eco-system approach calls for a cross-sectoral and sustainable management of human activities as an overarching principle for maritime spatial planning: http://meeting.helcom.fi/c/document_library/get_file?p_l_id=18967&folderId=1338743&name=DLFE-44104.pdf.

[40] BaltSeaPlan Project, 2009 – 2012, "Planning the future of the Baltic Sea", www.baltseaplan.eu.

[41] Plan BOTHNIA project, co-ordinated by the HELCOM Secretariat, will test Maritime Spatial Planning in the Bothnian Sea area as a transboundary case between Sweden and Finland, http://planbothnia.org/about.

TABLE 2.4: OVERVIEW OF THE MSP PROCESSES AND NREAP 2020 OFFSHORE TARGETS IN THE BALTIC SEA COUNTRIES (END OF 2010)

	Spatial planning for offshore renewables	Installed offshore capacity (MW)	NREAP 2020 offshore renewables target (MW)	EEZ	Integrated MSP process
Denmark	Offshore renewables mapping/ zoning in progress	467[42]	1,399 wind[43]	Yes	No
Estonia	The BaltSeaPlan project designated areas for offshore wind farms under the Estonian MSP pilot test[44]	0	250 wind	Yes	No (MSP Pilot tests via the Baltic Sea project)
Finland	No real forward looking planning/ zoning for offshore renewables. The Plan Bothnia MSP pilots test focus on Finnish waters	26	n/a[45] 400 (consented offshore wind, 10 wave and tidal)	Yes	No
Germany	MSP (2009) for EEZ; MSP for Territorial Sea of Mecklenburg-Vorpommern (2005); MSP for Territorial Sea of Schleswig-Holstein (2010)	2.5[46]	10,000 wind[47]	Yes	Yes
Latvia	No specific MSP for offshore renewables, (only experience from the BaltSeaPlan)	0	180 wind	Yes	No
Lithuania	No specific MSP for offshore renewables, (only experience from the BaltSeaPlan	0	0		No
Poland	No specific MSP (only experience via the BaltSeaPlan)[48]	0	500 wind	Yes	No
Sweden	No specific planning for offshore renewables (MSP pilot tests under the BaltSeaPlan focus on Swedish waters at Middle Bank)	163	182 wind	Yes	No

Source: Seanergy2020 project, Deliverable D2.3

[42] Only in the Baltic Sea.
[43] Including the North Sea.
[44] Information available on www.baltseaplan.eu/index.php/Hiiumaa-and-Saaremaa;237/1.
[45] Subsequent to this study, Finland updated its plan with a target of 900 MW offshore.
[46] In 2011, the Baltic 1 installed in the TS of sea of Mecklenburg-Vorpommern was commissioned, adding 48.3 MW to the German Baltic Sea.
[47] Including the North Sea.
[48] The situation refers to end of 2010; new developments were reported at the end of 2011.

In data and information gathering and management, in comparison with other sea basins, the Baltic Sea countries at regional level appear to be most advanced. There is a database run by HELCOM, freely accessible, containing information on different layers such as monitoring, pollution, shipping, fisheries, eutrophication status and other layers, including offshore wind farms, oil platforms, cables and pipelines. However, HELCOM data relies heavily on sources, as they do not produce and gather data. The quality of information differs from country to country and from sector to sector (for example, the data from the shipping sector can be presented differently from fisheries). Moreover, when it comes to updates of the data, it is difficult to estimate if all layers are updated.

Although the majority of Baltic countries possess maritime data and information related to geology, wind statistics, air and water measurements, marine biodiversity and socio-economic activities, it is generally patchy and not coordinated in a single Geographic Information System at national level. Lithuania is something of an exception as efforts to integrate different data sets into a single Geographic Information System are being made through the EU-funded BaltSeaPlan project. The BaltSeaPlan is currently working on a data infrastructure to overcome the differences in common understanding of types of data – a "network of networks". Some guidelines for metadata were prepared under the BaltCoast project. Since some of them are out of date, the BaltSeaPlan partners will prepare an update based on the INSPIRE directive and ISO standards.

The comprehensiveness of consultation practices varies around the Baltic basin. Sweden has an effective public consultation system that takes place within municipal planning processes (which cover coastal areas and the territorial sea) for offshore renewable projects. For specific projects, there are three points at which stakeholders can comment or submit objections. Finland conducts annual consultations on planning issues, and in Germany stakeholders were involved during and after the MSP exercise in the EEZ and territorial seas. Poland has conducted voluntary consultations as part of its pilot MSP for the Gulf of Gdansk. Several pilot MSPs have been launched in the Baltic Sea (see Table 2.4), with considerable stakeholder involvement. However, these plans are for the most part voluntary and have not yet been integrated into national legislation. In some cases, conflicts are managed through consultations as part of Environmental Impact Assessments (EIAs) of individual projects.

The Baltic Sea is also the basin with the largest number of non-binding (cross-border) regional cooperation initiatives related to MSP, energy and grids such as the VASAB-HELCOM, BaltSeaPlan[49], the Baltic Sea Region Energy Cooperation (BASREC) and the EU Strategy for the Baltic Sea Region.

Visions and Strategy around the Baltic Sea 2010 (VASAB 2010) is an intergovernmental forum for the Baltic Sea countries, including Norway and Russia. VASAB 2010 encourages basin-wide planning, proposes guidelines and recommendations for work on greater international consensus and has produced recommendations for coastal zone spatial planning. The latter, however, remains non-binding.

The Baltic Sea countries are also part of HELCOM, a governing body of the Convention on the Protection of the Marine Environment of the Baltic Sea Area – more usually known as the Helsinki Convention. The HELCOM Baltic Sea Action Plan includes recommendations on Broad Scale Maritime Spatial Planning. In 2010 HELCOM and VASAB launched a Joint Working Group on MSP (HELCOM-VASAB MSP WG) to ensure long term sustainable management and planning across the Baltic Sea.

In addition, the EU Members in the Baltic cooperate on grid connections through the Baltic Energy Market Interconnection Plan (BEMIP)[50]. This could serve as a basis for any cross-border renewables projects and for strengthening of interconnections with their EU neighbouring countries.

[49] www.baltseaplan.eu.

[50] http://ec.europa.eu/energy/infrastructure/bemip The Baltic Energy Market Interconnection Plan was launched following the initiative of Commission President Barroso at the 2008 autumn European Council. The two main goals of the BEMIP initiative, within the context of the EU's 20/20/20 objectives are: the full integration of the three Baltic States into the European energy market, through the strengthening of interconnections with their EU neighbouring countries.

Finally, the BaltSeaPlan project is one of the largest projects in recent years dealing with MSP throughout the Baltic Sea region. The project has not only developed pilot plans for eight demonstration areas around the Baltic Sea, but it has also advanced the methods, instruments and tools as well as data exchange necessary for effective MSP.

2.2.3 Current situation in the Mediterranean Sea

The Mediterranean basin is a politically sensitive maritime space. It is characterised by numerous historic and latent conflicts between countries bordering it. Only a handful of its coastal states are members of the EU. The basin's geopolitical situation makes it, therefore, a strategic sea from a military perspective. Furthermore, the sea basin has also witnessed unilateral and oversized EEZ claims (Libya) and fishing zones (Tunisia). Moreover, 53% of its maritime zones are under high sea regimes. Territorial seas, established by coastal states and covering a distance of 12 nautical miles (six miles for Greece), account for only 16% of the total surface area. It covers twenty-two states from three continents. However, within Seanergy 2020 only the Mediterranean waters spanning the borders of France, Italy, Spain and Greece have been analysed. The Mediterranean Sea is characterised by deep waters and steep seabed changes. Its average depth is around 1,500 m, which may represent a challenge for offshore renewable development.

In the Mediterranean Sea, the ability of EU Member States to engage in MSP beyond the 200 nautical miles that are their territorial waters is limited by the activity allocated to specific protection zones. Except for Cyprus (out of the scope of this study) that seems to have an EEZ (recognised by UN and EU, but not by Turkey[51]), no EEZs have been declared in this area for EU Mediterranean countries[52]. The lack of an EEZ for the Mediterranean EU Member States does not favour the development of MSP. EEZs would help the sea space to be better managed by the national jurisdictions, but the sensitive geopolitical context currently seems to constrain any developments.

As Table 2.5 below shows, none of the countries studied by the Seanergy 2020 project have so far adopted legislation on MSP. In terms of sectoral developments for offshore renewables, only Greece and Spain have taken initiatives that are expected to facilitate spatial planning for offshore wind farms.

TABLE 2.5: OVERVIEW OF MSP PROCESSES AND NREAPS 2020 OFFSHORE TARGETS IN THE MEDITERRANEAN SEA (END OF 2010)

	Spatial planning for offshore renewables	Installed offshore capacity (MW)	NREAP 2020 offshore renewables target (MW)	EEZ	Integrated MSP process
France	Five pre-development zones[53]	0	6,000 wind 380 wave and tidal[54]	No	No
Greece	Suggested offshore renewables areas	0	300 wind	No	No
Italy	No	0	680 wind 3 wave and tidal	No	No
Spain	Defined offshore renewables areas[55] via the Strategic Environmental Assessment for the Installation of offshore wind farms	0	750 wind[56] 100 wave and tidal	No	No

Source: Seanergy2020 project, Deliverable 2.3

[51] http://www.todayszaman.com/newsDetail_getNewsById.action?load=detay&newsId=265640&link=265640.

[52] MRAG 2011, Deliverable D 2.3, Seanergy2020.

[53] Five zones have been identified in France after a first zoning exercise and the 2010 tender process; still under development (final tender to be launched this year), but no sites within the Mediterranean Sea basin.

[54] Not in the Mediterranean Sea.

[55] The Strategic Environmental Assessment for the Installation of Offshore Wind Farms identifies three types of areas: 1) areas suitable for deployment of offshore energy; 2) areas with constraints where environmental impact or conflicts must be analysed, and 3) areas of exclusion where significant environmental impact and conflicts with other uses are expected and should be excluded when scouting for potential sites.

[56] Offshore renewables target for both the Atlantic and the Mediterranean.

Concerning data and information management, some ecological and socio-economic information seems to be available in the EU Mediterranean countries in this study. In France, the Ministry of Ecology, Energy, Sustainable Development and Territorial Management (MEESDTM) has identified zones for nature protection and conservation, including marine protected areas, and to make use of Geographic Information Systems for zoning purposes. However, in France and Spain data is not always available in Geographic Information System format. Greece and Italy both collect relevant data, but this is done on a sectoral basis and carried out by different institutions, in different formats. In Greece, efforts were recently made by the Centre for Renewable Energy Resources and Saving (CRES) to collect all relevant data for MSP purposes. Most of the information is available close to coastlines, and information on areas further offshore is limited. Stakeholder consultation and involvement seems to be limited as MSP and offshore renewables developments are still to take off.

Progress has been made towards broader MSP consultations in France. On the whole, the consultation practices in place in this sea basin are limited to the relevant ministries and authorities. An open consultation process, not merely limited to authorities, is the best way to gather support for 'new comers' to the maritime space in the territorial sea, where established sector interests may conflict. Some countries of the Mediterranean have carried out sectoral zoning exercises with appropriate Strategic Environmental Assessments. Their success in managing conflicts is often related to the quality of stakeholder consultation, MSP and offshore renewable development/zoning. But conflict management tools vary across the basin and the situation seems more critical in Italy and Greece than in France or Spain.

Cross-border cooperation has been encouraged through the Barcelona Convention, which may provide a useful starting point for MSP. However, the Mediterranean is a particularly sensitive sea basin for cross-border and regional cooperation due to the geopolitical context. It is fair to say that MSP is still at a conceptual stage for the Mediterranean countries. Its feasibility depends on the level at which the above indicators will be applied, the geopolitical context and future delimitation of EEZ.

2.2.4 Current situation in the North Sea

In comparison with the other three sea basins, the North Sea countries are most advanced in offshore renewable energy deployment, in offshore renewables zoning exercises and in MSP in general. Indeed, MSP policies and legal frameworks have progressed well over the last decade in this sea basin. Countries like Germany have drawn up MSP frameworks for their EEZ in which maritime zones are reserved for offshore renewables. The Netherlands is in a time of transition, with a new framework for MSP, in the form of its National Water Plan, adopted in December 2010. Since December 2010 the National Water Plan has the status of "structuurvisie" (structural vision) which sets the overall development objectives and plans that the regional authorities must implement. In relation to the North Sea, the aim of the Water Plan is one of sustainable (economic) development in balance with the marine ecosystem, and to provide a system for sustainable, spatially efficient and safe use of the area in accordance with the Water Framework Directive, the Marine Strategy Framework Directive and the Birds and Habitats Directives. However, as regards offshore renewables, the plan awaits a commitment of funds to the feed-in premium scheme that supports offshore wind energy[57].

Denmark and Belgium have each conducted a sectoral MSP exercise leading to the setting out of offshore renewables zones. Belgium uses zoning in a Master Plan[58] to allocate marine space for specific maritime uses. Belgium was among the first countries to implement an operational, multiple-use marine spatial planning system that covers its territorial sea and EEZ. Marine spatial planning in Belgium aims to achieve both economic and ecological objectives, including the development of offshore wind farms, the delimitation of marine protected areas, a policy plan for sustainable sand and gravel extraction, the mapping of marine habitats, protection of wrecks valuable for biodiversity,

[57] Cameron, L., Westra, C.,Veum, K., 2010, National MSP practices in the Netherlands affecting the deployment of marine renewable energy sources, Report provided for Seanergy 2020, Work Package 2, November 2010.

[58] Additional information is available at www.unesco-ioc-marinesp.be/spatial_management_practice/belgium.

and the management of land-based activities affecting the marine environment. Together, these objectives provided the basis for a Master Plan, implemented incrementally since 2003.

The UK has a completely different policy that works with a zoning approach that is not defined by the government but based on specific criteria. This leaves more freedom for developers and, in theory, more spatial possibilities for offshore renewable energy development. It may be interesting for MSP experience in the North Sea to be shared with coastal states around other EU sea basins. Table 2.6 summarises the above conclusions.

The North Sea countries are advanced in data and information management for MSP purposes. Germany and Belgium have fairly comprehensive data sets for both the territorial sea and EEZ that are integrated into layered Geographic Information Systems (GIS).

In Belgium, there is one Geographic Information System covering marine environmental data[65], while in Germany there are two: a GeoSeaPortal offering access to environmental data and a system known as CONTIS providing data on different uses of the sea[66]. Belgium has the added advantage of having one centralised institution that coordinates data collection and synthesis. This data is centralized by MUUM (Management Unit of the North Sea Mathematical Models), which is a department of the Royal Belgian Institute of the Natural Sciences. Both countries also make this data freely available and much of it is accessible through the internet.

TABLE 2.6: OVERVIEW OF MSP PROCESSES AND NREAP 2020 OFFSHORE TARGETS IN THE NORTH SEA (END OF 2010)

	Spatial planning for offshore renewables	Installed offshore capacity (MW)	NREAP 2020 offshore renewables target (MW)	EEZ	Integrated MSP process
Belgium	Area composed of 7 concessions	195	2,000[59] wind	Yes	Yes, gradual implementation
Denmark	Offshore renewables zoning[60]	386 (just for the North Sea)	1,339[61] wind	Yes	No
Germany	MSP in EEZ (2009)	90[62]	10,000[63] wind	Yes	Yes, in EEZ
Netherlands	2 OWE area[64] and two search areas	228	5,178 wind	Yes	In the process of being implemented
UK	Criteria based MSP	1,341	12,990 wind 1,300 wave and tidal	Yes	A type of MSP in place

Source: Seanergy2020 project, Deliverable 2.3

[59] The Belgian NREAP does not provide an on- and offshore renewables split for the overall wind energy capacity figure. However, information subsequently obtained by EWEA indicates that the 2020 target for offshore wind capacity is 2,000 MW.

[60] In progress, remains to be agreed.

[61] Including the Baltic Sea.

[62] Just for the North Sea.

[63] Including the Baltic Sea.

[64] The Water Plan Act is more prescriptive in where OWP can be placed. It defines two main OWP areas, "Borssele" (344km2 for ~1,000 MW) and "Ijmuiden" (1,170km2 for 4,000 – 6,000 MW), and furthermore defines two large 'search' areas. These search areas are placed near the coast of the Netherlands and north of the Wadden Islands.

[65] This data is centralised at MUUM (Management Unit of the North Sea Mathematical Models), which is a department of the Royal Belgian Institute of the Natural Sciences.

[66] BSH developed the GeoSeaPortal which offers a central access to basic and specific geological data about the sea and its coasts, available at http://www.bsh.de/de/Meeresdaten/Geodaten/index.jsp; CONTIS is a database provided by the BSH which focuses on the German Continental Shelf and the EEZ, available at http://www.bsh.de/en/Marine_uses/Industry/CONTIS_maps/index.jsp.

Data sets in the Netherlands are also fairly comprehensive and available in Geographic Information System format but are currently not integrated into a centralised GIS system. The primary Geographic Information System for North Sea governance is run by IDON (the North Sea Office). Various Geographic Information System maps covering marine species, biodiversity, wind resource, soil conditions, and so on are available on the IDON website.

Moreover, there are a number of other purpose specific Geographic Information Systems available, such as the Dutch Navy's Hydrographic Service, which produces nautical charts. A Geographic Information System is also used for fisheries and environmental management. The Geological Survey of The Netherlands, the institution that manages geological data, owns a Geographic Information System for its own purposes.

To date, the sharing of data in order to govern and manage the Dutch North Sea tends to be done through informal networks. In order to prevent overlaps, specific institutions were designated "owners" of certain types of data and others update their data from them. Data sharing takes place, but formal data exchange standards have not been established and not all institutions keep metadata[67]. There are, however, plans to improve data sharing and this has been started with metainformation compiled by the National Oceanographic Data Committee (NODC).

In the UK (relevant for the North Sea and the Atlantic) there is an integrated Geographic Information System compiled by The Crown Estate called MaRS. Access is only given to developers who have a commercial relationship with The Crown Estate.

Denmark seems to have made less progress than its North Sea neighbours. Although the National Survey and Cadastre have compiled significant amounts of data, there are still a number of different maritime data sets that have not yet been integrated into a single Geographic Information System.

The North Sea countries have made significant progress on consultation within MSP. Belgium and Germany have consulted all stakeholders on their MSP zoning exercises for offshore renewables before approving them. Moreover, in the Netherlands, the government worked closely with stakeholders for many months to develop a strong MSP plan that is aimed at minimizing conflicts and consultation problems further down the line. Information on how the consultation process influences the final decision is made publicly available.

Zoning exercises have been used extensively in the North Sea to manage sector conflicts. In some countries, such as Germany and Belgium, zoning has been adopted as part of an overall MSP. In other countries, such as the Netherlands and the UK, zoning has been done on a sectoral basis and is non binding. Sectoral guidelines could also be drawn up which aim to minimise conflicts. These could include recommended buffer zones and noise reduction methods.

Consultations – which are widely used in North Sea countries – are a major part of managing conflicts. However, in some countries of the Mediterranean basin, sectors such as aviation or defence might have the right to veto proposals made in the MSP or permitting process – this is also the case in the Baltic Sea and Atlantic Ocean.

All North Sea countries are active in regional cooperation initiatives in marine environment protection, such as OSPAR and the Bonn agreement. A new type of regional cooperation has emerged on offshore electricity grid development: the North Seas Countries' Offshore Grid Initiative (NSCOGI). NSCOGI is a cooperation initiative between EU Member States of the North Sea and Norway to create an integrated offshore energy grid that links wind farms and other renewable energy sources across the northern seas of Europe.

[67] Metadata can be defined as data providing information about one or more aspects of the data, such as, means of creation of the data, purpose of the data, time and date of creation, creator or author of data, placement on a computer network where the data was created.

2.3 Overarching policy recommendations

Although general recommendations for best practice can be made, MSP will always be context specific in every country. It will depend on the particular institutional structures in place and the ecological, social and economic drivers for MSP. Therefore, where different, recommendations per sea basin for a particular indicator/criterion will be made. Part of these recommendations represent the starting point and basis for the next chapters, focusing on international MSP instruments (Chapter 3) and transnational MSP (Chapter 4).

Ensure a coherent MSP policy and legal framework

Although it is not possible to outline the precise content of national MSP policies, it is possible to recommend that they cover all maritime space (inland waters, territorial sea /EEZ and continental shelf) and all relevant procedures (consultation, permitting, enforcement, mitigation measures etc). An MSP policy and legal framework at national level should:

- Set out planning zones or criteria for making spatial planning decisions.
- Detail rules for consultation of stakeholders along with time lines.
- Identify institutions responsible for data collection and ensure they are legally obliged to update and share data.
- Ensure that permitting procedures require SEAs or EIAs covering all relevant impacts as well as ensuring authorities consult at a transboundary level.
- Ensure MSP accounts for all spatial activities and levels and ensures coverage of all relevant maritime activities, as well as transboundary interactions (see recommendations provided in Chapter 4, Transnational MSP).
- Strike for the right balance between ecological, economic and social objectives.
- Include relevant conclusions from valuable EU MSP research projects such as BaltSeaPlan and Plan Bothnia. These projects provide an opportunity to pilot approaches and share lessons, but the key findings need to be integrated into national policies and legislation to be effective.

Ensure spatial planning for offshore renewables via MSP

In terms of the development of offshore renewables, a successful MSP policy should be based on the following pre-conditions:

- Availability of maritime space,
- Clear policy and legal framework for spatial planning related to offshore renewables, including targets,
- Sufficient wind, wave and tidal resources,
- Demand for electricity.

Ensure clear permitting and licensing procedures via MSP

The legal framework for issuing licences or permits should be clear and efficient. Most importantly, the institutional set-up (jurisdiction and cooperation/coordination) should be designed in a way that allows a final decision to cover all aspects in a comprehensive, clear and cost effective way.

MSP should support the development of a more streamlined permitting and licensing process for offshore renewables projects situated in the territorial seas and EEZs:

- Define objectives, duration of procedures, number of agencies involved, content and EIA requirements. The EIA requirements should be in line with the Strategic Environmental Assessment (SEA) Directive[68] and the Environmental Impact Assessment (EIA) Directive[69], OSPAR has made recommendations[70] on minimum criteria for an environmental impact assessment (EIA) to be acceptable for offshore projects licensing. These can serve as a basis for the environmental criteria of the permitting process. The efficiency of the permitting and licensing process is determined not only by the number of documents and/or permits required, but also the number

[68] Directive 2001/42/EC (known as 'Strategic Environmental Assessment' – SEA Directive).
[69] Directive 85/337/EEC, as amended (known as 'Environmental Impact Assessment' – EIA Directive).
[70] OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, 2008 " OSPAR Guidance on environmental considerations for offshore wind farm development", OSPAR Agreement 2008-3.

of agencies they need to be obtained from. MSP can play a role in the coordination of the agencies and in setting up or encouraging a one stop shop. For the Mediterranean Sea, where no EEZs have been claimed, MSP could support the development of clear permitting and planning procedures.

Establish infrastructure that provides high quality data and centralised organisation

The ability of MSP to make the best use of the maritime space, avoid conflicts and protect natural resources depends on the availability and quality of the data and information on which it is based. Seanergy 2020 suggests a number of key steps for good data collection and management:

- Ensure comprehensive ecological, socio-economic and geo-technical data is available for territorial waters and EEZ.
- Coordinate data collection avoiding duplication and ensuring compatibility of formats. Different institutions are designated 'owners' of their data sets.
- A single central institution should coordinate data collection and integration into a spatially relevant format such as a Geographic Information Systems (GIS) that can be used for planning.
- Institutions which 'own' particular data sets should regularly update them and report to the central coordinating institution.
- Data should be made publically available in a Geographic Information System format.
- Data should be used within the MSP process both to develop MSPs and to assess the merits of potential developments.
- Amend the INSPIRE (Infrastructure for Spatial Information in Europe) so that it takes into account the specific features of the sea space.
- Build on the INSPIRE Directive and link in with the recent EMODNET initiative of the Directorate-General for Maritime Affairs and Fisheries (DG MARE), a pilot component for a final operational European Marine Observation and Data Network.

Ensure stakeholder involvement

Stakeholders should be involved throughout the process including during pre-planning, plan development, implementation and monitoring.

The recommendations for the four sea basins are very much linked to the consultation and whether it takes place on a sectoral or on a project specific basis. It is difficult to make recommendations that can apply to all regions. However, based on the criteria designed to assess progress on MSP in the different Member States, it is possible to determine best practice for consultation for MSP:

- Defined and legally binding systems for consultation on individual projects, sector plans and overarching MSPs.
- All relevant institutional and non-institutional stakeholders represented in the processes.
- A central institution responsible for coordinating consultations and facilitating cooperation between partners.
- Stakeholders organised into associations or representative groups to streamline the consultation process.
- Consultation with stakeholders prior to a licensing processes, to anticipate opposition from certain stakeholders during the offshore renewables project consenting phase.

Set up mechanisms to prevent and manage conflicts

It is important to create a level playing field in order to prevent sector conflicts in MSP policy by:

- Engaging in early discussion with all sectors, particularly with those that cannot move their activities, in order to reduce potential conflicts. All relevant sectors should be involved from the start of the MSP process to help shape a plan for co-operation between existing and 'new' sea users.
- Integrating existing tools such as EIAs, SEAs, the INSPIRE Directive and ICZM into the MSP process. These tools provide the legal basis for many of the requirements for MSP – such as consultation and

sector-conflict resolution – and they should be incorporated into a MSP system.

- Exploring conflict mitigation mechanisms, including compensation measures for certain maritime sectors, ideally prior to conflicts arising. For example, for small scale fishing communities, mitigation measures could include sharing the allotted offshore renewables zones for sea farming projects, fish restocking projects or allowing for low cost participation in offshore renewables projects with a fixed return on investment. Another innovative measure would be the establishment of a vocational training centre for offshore renewables professions (construction, operation and maintenance and dismantling services).
- Seeking for/maintaining a balance between the rights of existing sectors and 'new' sectors such as offshore renewables. It is also important to decentralise the decision making process when zoning for renewables, i.e. let local governments in coastal areas propose and regulate offshore renewable energy development. This contributes to increased acceptance of the new activity and helps to prevent sector conflicts that can lead to legal action from local communities.
- Delimiting preferential offshore renewables zones in maritime space.
- Establishing a sector neutral conflict prevention and management body to institutionalise the practice, composed of both public and private stakeholders. Existing initiatives and platforms such as EUROMED[71], HELCOM and VASAB could be used as models for an institutional framework.
- Using consultation mechanisms for spatial planning for offshore renewables that include the following minimum standards:
  - Clear and concise information and data.
  - Consultation of all relevant groups and stakeholders with particular attention to balancing sector interests (for instance, actively involving offshore renewables associations, environmental NGOs, pro-offshore renewables citizen movements).
  - Sufficient publicity via appropriate media.
  - Sufficient time for consultation (four weeks is considered minimum).
  - Dissemination of results and feedback on comments.

Explore the possibilities of cross-border cooperation in each sea basin

Any current and future MSP policies should:

- Explore the possibilities of cross-border cooperation, particularly for offshore renewable policies.
- Build on experiences from current regional initiatives and EU projects in which countries try to jointly develop MSP projects, such as the BaltSeaPlan, the Plan Bothnia, BALANCE, HELCOM-VASAB MSP Group. This can encourage MSP at regional level through cross-sectoral approaches (see recommendations in Chapter 4, Transnational MSP).

[71] EUROMED aims at political and economic cooperation in the Mediterranean Sea.

2.4 Recommendations per sea basin

The Atlantic Sea Basin

All the conditions for the development of offshore renewables are combined in the Atlantic basin, in particular the availability of maritime space and high wind and tidal resources.

The combination of a relatively low population density and the almost optimal conditions for offshore renewables production in this sea basin may, one day, result in a surplus of offshore renewable electricity production. An ambitious policy, such as that of the UK and Ireland, could encourage the development of offshore renewable energy plants at Europe's western-most maritime boundaries because of the favourable production circumstances. That is why a visionary and integrated MSP strategy for the Atlantic sea basin should consider how potentially abundant offshore renewables power can be exported in the most cost efficient way to more densely populated areas. An integrated MSP policy in this sea basin should, if possible, take into account interconnection plans and grid expansion. The 'North Seas Countries' Offshore Grid Initiative' – signed by the UK, France and Ireland, amongst others – seems to be an appropriate policy structure for helping to efficiently transport renewable energy by integrating future offshore grid design into MSP. Any renewable energy planning in all the four sea basins analysed by the project should be carried out in close cooperation with other users of the sea.

Any future MSP developments and offshore renewables spatial planning will need to take into account the need for cross-border cooperation in the Atlantic, as this is currently not in place.

The Baltic Sea

To develop offshore renewable energy, additional policy incentives are needed. The targets of the 2009 EU Renewable Energy Directive[72] have not been a motor for ambitious offshore renewable energy development up to 2020 in many Baltic Sea countries. MSP should build on the results of the BaltSeaPlan project[73] – a regional cooperation initiative aiming to prepare national MSP processes in the Baltic Sea area – to further integrate future development of offshore renewables. This would help the MSPs in the regions become more consistent. Cooperation with organisations such as VASAB 2010[74], HELCOM[75] and their respective initiatives and working groups on MSP is essential. HELCOM - VASAB expressed support for MSP in its recent Baltic Sea Broad-Scale MSP principle, which is a clear political signal that will help pave the way for MSP in this sea basin.

Any Geographic Information System data and information collection in the region should build on existing data bases such as HELCOM. Moreover, the data infrastructure currently developed by the BaltSeaPlan project should be used as a basis for any future initiatives in the region.

For the Baltic Sea countries, given the geography of this semi-closed sea, it is necessary to integrate regional cooperation into national MSPs. Activities in one maritime zone may easily generate conflicts in a neighbouring zone that need to be taken into account. This will enable the management and prevention of conflicts over cross-border impacts of maritime activities.

The Mediterranean Sea

The difficulty for Mediterranean coastal states to claim jurisdiction beyond their territorial seas derives from the sensitive geopolitical situation in the basin.

[72] Directive 2009/28/EC of the European Parliament and of the Council of 23 April 2009 on the promotion of the use of energy from renewable sources and amending and subsequently repealing Directives 2001/77/EC and 2003/30/EC.
[73] In this particular context, regional means the Baltic Sea region.
[74] VASAB, www.vasab.org.
[75] HELCOM, www.helcom.fi/helcom/en_GB/aboutus.

In the absence of EEZs, a policy that aims to develop offshore energy in the context of the 2009 Renewable Energy Directive should try to develop MSP, including offshore renewable energy zoning legislation in the territorial seas, as Greece and Spain did recently. The tourism, fisheries, and shipping sectors should be involved in determining such an offshore renewable energy zoning policy as soon as possible. This would substantially reduce the risk of conflicts between historic sea users and offshore renewables 'newcomers', in line with the MSP integrated approach.

As long as EEZs are not claimed, and looking beyond 2020, it is necessary to explore the legal possibilities of setting out one or more offshore renewable energy test zones in the high seas. This may be an interesting MSP experiment, but should be discussed at international level – that is, International Maritime Organisation (IMO), or at sea basin level (EUROMED)[76]. Such test MSP (similar to those being conducted in the Baltic Sea) or zoning experiments in the high seas, may highlight the potential of offshore renewables zones.

For the Mediterranean, any agreements on data and information collection and management should ideally include the non-EU countries bordering the Mediterranean.

Regional cooperation initiatives similar to EUROMED[77] are necessary for socio-economic cooperation to deal with the zoning of offshore renewable projects. It is also important to lay the foundations for a "win-win model": cross border cooperation within the Mediterranean Sea basin on MSP can create win-win situations for EU and non-EU Member States alike. A joint initiative defining offshore renewable zones within the Mediterranean and the development of innovative offshore renewable energy technologies may create new economic and employment opportunities as well as enhancing the security of energy supply.

The North Sea

MSP policies and legal frameworks are generally well developed in the North Sea basin. However, there is a need to ensure the best possible legal basis for offshore renewable energy development through comprehensive MSP legislation. Anchoring offshore renewables preferential zoning to comprehensive primary MSP legislation seems to offer the legal certainty for offshore renewable energy development, at least from a siting perspective[78]. This is the case of the Dutch MSP policy in the form of the national water policy that includes spatial planning for offshore renewables zones. Ensuring local and public support for the development of MSP policy is also key to successful offshore renewables development. Without this support, legal action against offshore renewables projects in territorial seas is likely. The North Sea should deepen and build on existing initiatives for cross border cooperation on MSP and grid related issues, as in the Baltic Sea.

[76] EUROMED stands for the Union for the Mediterranean, an organisation that promotes economic integration and democratic reform across 16 neighbours to the EU's south in North Africa and the Middle East.

[77] EUROMED brings EU and non-EU states together on a variety of policy priorities, including energy related topics such as the Mediterranean solar energy plan that explores opportunities for developing alternative energy sources in the region.

[78] The most important drivers for offshore renewables development remain support schemes and grid connection.

Photo: Pixelio

3 INTERNATIONAL MSP INSTRUMENTS

- **The impact of international MSP instruments on offshore renewables**
- **Offshore renewables electricity infrastructure and international MSP instruments**
- **Development and/or improvement of international MSP instruments for better offshore renewables deployment**

This chapter provides a brief overview of existing MSP instruments (laws, conventions, agreements) at international, European and regional level. For each of the different instruments, the elements that might influence offshore renewable energy deployment were identified. In addition, the type of influence has been linked to stages in the development and deployment of offshore renewable energy projects.

Secondly, the chapter aims to qualify the effect of MSP instruments on siting for offshore renewable power generation and cable routing for a pan-European grid at sea, for which strategic planning at international and European level is required. Although, strictly speaking, any European institution, legislation or policy initiative could be considered international, for the scope of this chapter the terms "European" and "international" are differentiated.

Lastly, this chapter makes suggestions for a coordinated approach at European and international level for MSP favouring the deployment of offshore renewables and takes into consideration existing EU or international initiatives. These suggestions are elaborated in Chapter 4, in particular with regard to transnational MSP.

3.1 The impact of international MSP instruments on offshore renewables

At international and European level, MSP instruments such as the European SEA Directive (2001) or the Protocol on Strategic Environmental Assessment (SEA protocol, 2010) have been developed. However none of these instruments takes the specific features of offshore renewable energies into account.

The legal framework for maritime issues and offshore renewables exploitation is extensive. All marine legislation comes under the umbrella of the United Nations Convention on the Law of the Sea (UNCLOS). This convention defines the system governing the seas and the oceans at global level, and is supplemented by sector specific or geographical agreements. Using provisions of UNCLOS, contracting parties may set up coastal and marine spatial plans covering their sea within their established EEZ and/or Continental Shelf. In practice, offshore renewable energy infrastructure can be planned by coastal states within their EEZ in compliance with UNCLOS. The following sectors are relevant for offshore renewable development:

- Shipping and navigation legislation,
- Fishery legislation,
- Environmental legislation.

Shipping and navigation legislation

Shipping is the most important economic activity at sea that needs to be taken into account when introducing new uses of marine space. Existing international shipping lanes are regulated by the International Maritime Organisation (IMO). These navigation and shipping routes are considered fixed and immutable. But this assumption should be challenged and shipping lanes should also be subject to change if necessary[79]. For example, it may be[80] more ecological and cost-efficient to divert shipping along new routes than to place wind farms further out to sea. This especially holds for areas that need a higher level of protection from marine pollution. SOLAS[81] and MARPOL[82] have introduced the possibility of defining "special areas" needing protection from pollution – Particularly Sensitive Area (PSSA) – around which shipping lanes could be diverted.

Fisheries legislation

Fisheries are regulated at international and European level. They incorporate the precautionary approach of protecting and conserving living aquatic resources. At European level, the Common Fisheries Policy (CFP) provides a legal basis for sustainable fishing measures. But, in the context of the CFP, the European Commission has not taken advantage of the ability to designate no-take zones. Presently, there are no regulatory restrictions between fisheries and offshore renewable energy activities such as wind farms.

[79] Please note that the authors here focus on international shipping lanes that are regulated by IMO. An agreement on the movement of non-IMO shipping lanes might be achieved with less effort.

[80] Stephen J., 2010, Planners to the rescue: Spatial planning facilitating the development of offshore wind energy, Faculty of Development and Society, Marine Pollution Bulletin, Sheffield Hallam University, United Kingdom, 2010.

[81] International Convention for the Safety of Life at Sea.

[82] Marine Pollution Convention in the framework of the IMO.

Environmental legislation

A wide range of issues relating to the protection of the marine environment are settled by international and regional cooperation and enforced via specific environment programmes. At national level, environment programmes have led to protected areas where certain human activities are restricted or banned. Consequently they restrict offshore renewable deployment. Under the Convention on Biological Diversity (CBD), parties can establish Marine Protected Areas (MPAs) in and outside their national jurisdiction. European legislation on nature conservation is part of the EU contribution to implement the 1992 CBD.

The most significant environmental instruments at European level are the Birds Directive[83], providing a framework for the identification and classification of Special Protection Areas (SPAs), and the Habitat Directive[84], requiring Member States to select, designate and protect sites that support certain natural habitats, species of plants or animals as Special Areas of Conservation (SACs). SACs and SPAs create a network of protected areas across the EU, known as Natura 2000.

The table below lists, according to the sector covered, the maritime instruments relating to this part of the study.

TABLE 3.1: MSP INSTRUMENTS RELATING TO OFFSHORE MARITIME SECTORS

Sector	International	European	Regional
Shipping & Navigation	IMO: · COLREGs · SOLAS · MARPOL		
Fisheries	· Regional Fisheries Management Organisation (RFMOs) · UN Fish Stock Agreement (UNFSA) · International Convention for the Conservation of Atlantic Tunas (ICCAT)	· Common Fisheries Policy (CFP) · Convention on the future multilateral cooperation in North East Atlantic Fisheries (NEAFC) · Agreement for the establishment of a General Fisheries Commission for the Mediterranean (GFCM)	
Nature protection	· Espoo Convention · Protocol on Strategic Environmental assessment · Convention on Biological Diversity (CBD)	· Marine Strategy Framework Directive (MSFD) · Habitats and Birds Directive (Natura 2000) · SEA- and EIA-Directives	· OSPAR Convention · HELCOM · International conferences on the protection of the North Sea · Bonn agreement (pollution) · ICZM Protocol · Barcelona Convention · MAP

Source: 3E for Seanergy2020 project

[83] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:EN:PDF.
[84] http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0043:20070101:EN:PDF.

3.1.1 Impact of legislation on offshore renewables projects

An analysis of existing international MSP instruments was carried out to identify the critical elements for coordinated development of offshore renewable energy. Existing international MSP instruments for planning offshore renewables activities in the sea have been classified according to the different phases of an offshore renewables energy project: location, permitting and licensing, monitoring, construction and operation, and removal/decommissioning.

Table 3.2 below illustrates the impact of international and European instruments on offshore renewable energy deployment with regard to the main development stages. It is striking that while there are instruments that focus on, for instance, fishery and shipping, none explicitly treats offshore renewable energy. However, as space use at sea may cause conflicts, any of these instruments may have an impact on offshore renewables deployment.

As spatial planning mostly regulates the use of space, it is not surprising that most of the instruments have an immediate impact on the space that is available for offshore renewable energy deployment.

A renewable installation is understood as the electricity producing unit including the electrical connection to shore. The latter is often forgotten, even though cables occupy significant maritime space. The following chapter, therefore, focuses on MSP and grid infrastructure.

TABLE 3.2: IMPACT OF LEGISLATION ON THE DIFFERENT PHASES OF OFFSHORE RENEWABLES ENERGY DEVELOPMENT

Phase of project development	Instrument	Relevant elements influencing offshore renewable energy deployment
Shipping & Navigation	UNCLOS	· Offshore renewable energy installations may be built anywhere within the EEZ with a safety buffer of 500 m.
	IMO	· Sea-lanes and traffic separation schemes regulated by IMO are considered as excluded zones in the sea. · PSSA introduced the principle to deviate shipping routes.
	RFMOs	· RFMO establishes fishing limits and controlled zones, for sustainable fisheries. This can conflict with offshore renewables activities.
	CBD	· Under CBD parties can establish marine protected areas (MPAs) in and outside national jurisdiction (including EEZ). The designation of marine protected areas under CBD (a legally binding treaty) may influence the location; meanwhile possible compatibilities need to be clarified.
	Birds and Habitat Directive	· The Birds Directive calls for the establishment of Special Protected Areas for birds. The Habitats Directive calls for the establishment of Special Areas of Conservation for habitats or species. The protected areas defined by these directives are legally binding and restrict or forbid certain human activities. The protected areas defined by these directives are legally binding and Member States must put measures into place to achieve the conservation goals for each site. · The directives allow for industrial developments inside the areas, including offshore wind, as long as they have no significant impacts on those goals. Potential projects are evaluated in this regard through a thorough screening procedure and if necessary, must provide a positive environmental impact assessment. · Possible synergies between user and environmental goals need to be studied.
	CFP GFCM NEAFC	· Currently, there are no regulatory restrictions between fisheries and offshore renewable energy establishment activities such as wind farms. The CFP aims to ensure a sustainable exploitation of fish resources. This means reducing the number of fishing vessels and the duration of fishing period, the establishment of open and closed fishing seasons and areas. These influence the location and some operational phases of offshore renewables. Meanwhile, the compatibility between fisheries and offshore renewables infrastructure should be clarified.
	Barcelona Convention	· RFMO establishes fishing limits and controlled zones, for sustainable fisheries. This can conflict with offshore renewables activities.
	Espoo Convention	· The Espoo Convention promotes consultation and cross-border cooperation in the planning process of various sea activities. It outlines specific conditions to be incorporated into national environmental impact assessment (EIA) procedures.

Phase of project development	Instrument	Relevant elements influencing offshore renewable energy deployment
Permitting & Licensing	SEA-Directive EIA-Directive	· Offshore renewables activities require an Environmental Impact Assessment (EIA) according to the SEA and EIA Directive. The results of the EIA are presented in an Environmental Statement and are submitted together with licence and consent applications.
	OSPAR	· The OSPAR Commission is a legally binding regulation requiring Member States to adopt procedures and actions related to marine environment protection. This can influence the licensing and permitting procedure for the development phase of offshore renewable energy projects. · OSPAR serves as a platform for information exchange and plays an important role in starting discussions on new marine related issues. Under OSPAR, parties are obliged to carry out regular marine environmental
	UNCLOS	· UNCLOS creates obligations to protect the marine environment and to carry out environmental monitoring and assessment.
Monitoring	UNCLOS	· Regarding cable laying, a coastal state cannot control cable laying carried out by other states passing through its EEZ. UNCLOS preserves the freedom to do so (Art. 58). However delineation of cables is subject to the consent of the coastal state (Art 79). Within the territorial sea, the coastal state has more comprehensive control on cable and pipeline laying, and can impose restrictions.
	OSPAR	· The OSPAR Commission adopts legally binding regulation requiring Member States to introduce procedure and actions related to Marine Environment Protection.
Construction & Operation	Bonn Agreement	· Chapter 8 of the Bonn Agreement Counter-Pollution Manual sets out the considerations for problems that appear to be related to wind farms. It uses the polluter pays principle.
	CFP, GFCM, NEAFC	· Construction and maintenance activities could be influenced or restricted during fishing.
	UNCLOS	· UNCLOS (Art. 60) states the principle of removing abandoned or disused offshore renewables installations.
	IMO	· In 1989 the IMO adopted guidelines and standards for the removal of offshore renewables installations and structures on the Continental Shelf and in the EEZ.
Removal/ Decommissioning	CFP, GFCM, NEAFC	· Removal planning could be modified or restricted during particular fishing periods.
	OSPAR	· The OSPAR Commission adopted in 1998 a legally binding regulation for the disposal of disused offshore renewables installations. Parties have the obligation to foresee the disposal of discussed offshore installations.

Source: 3E for Seanergy2020 project

3.2 Offshore renewables electricity infrastructure and international MSP instruments

As mentioned in the previous chapter, no offshore wind power can be delivered without an electrical connection to the onshore consumption centres. Therefore the need for offshore cables will be dramatically increasing. In future, offshore renewables will not only be a national issue but interconnect across country borders. Therefore international strategic planning of offshore grid infrastructure is urgently needed in order to accelerate grid construction and minimise future conflicts.

Therefore, the authors of this chapter investigated whether current grid related European initiatives and EU financed projects such as the Ten Year Network Development Plan (TYNDP), the European Commission Communication Priorities for 2020 and beyond – A BluePrint for an integrated European energy network, the IEE funded project Offshore -Grid[85] have taken strategic planning and international strategic planning into account.

The finding is surprising, as most of the current relevant projects in the field of offshore grid infrastructure do not address MSP at all and none of them conducts an in depth discussion. However, most of them stress that MSP - including offshore renewables - is an important issue.

International MSP is relevant to this study. For example, the current discussions in Germany show that even for the German wind farms that will be connected only to the German transmission grid, the capacity for cabling is scarce. New offshore wind farms often obstruct approved cable connection. Thus the cable has to be rerouted or the new developer has to deal with the far more complex task of constructing a wind farm in an area where cables are already installed.

In Germany the authority in charge (BSH) not only struggles with the technical questions of the grid connection but also the legal disputes over maritime space. It is often noted that far-sighted MSP – for instance a master plan for grid connection – can mitigate these conflicts.

On an international level that approach becomes more complex. For example, there are two adjacent wind farms, each connected to the onshore grid of the host country. As a variety of studies show, it might be beneficial to interconnect the wind farms offshore in order to allow cross border trading and increase the grid stability (n-1 or n-2 security) of the power system. However, if not planned from the start, the direct interconnection between the two wind farms can be obstructed by the wind farm itself and their internal grid connections, as the necessary space for an interconnection was not foreseen. Mid to long-term MSP might reduce constraints of this kind.

3.3 Development and/or improvement of international MSP instruments for better offshore renewables deployment

None of the international MSP instruments listed above contains explicit provisions or restrictive elements for offshore renewables installations. Similarly, MSP has not been explicitly addressed by offshore grid studies and initiatives at EU level. In short, international MSP instruments do not explicitly consider offshore renewable energy.

Offshore renewables deployment can be indirectly hampered by international instruments that give priority over maritime space to other sectors or activities. Moreover, the fact that none of the instruments explicitly considers offshore renewables creates uncertainties as to how the planning and financing of large investments – such as the construction of an offshore wind farm – is considered. At the same time, the existing instruments, most importantly the UNCLOS, allow for the development of new and/or improvement of existing MSP, to take the deployment of offshore renewables into account.

[85] More information on the project available at http://www.offshoregrid.eu/.

International MSP instruments should be results orientated. In order to prevent or minimise international conflicts over offshore renewable deployment, international MSP instruments should ideally result in the establishment of internationally accepted standards and guidelines for best MSP practices. International MSP instruments could set a series of sectoral guidelines and standards constituting best practice for spatial planning for offshore renewables. Coastal states could then integrate the internationally accepted MSP standards into legally binding national MSP regulation.

International agreement on offshore renewables deployment

It is important to give a clear signal to current and future investors that the development of offshore renewable energies will make a substantial contribution to the global ambition of decarbonising electricity generation. This ambition could be expressed at international level by an agreement that a part of the oceans and seas worldwide will be needed for offshore renewables deployment, as they will occupy significant maritime space in the future. Agreements should take into account that offshore renewables are one of the very few maritime activities that need to use a specific maritime space for a relatively long period (a minimum of 20 years). With such an agreement, coastal states could have a firm basis for identifying appropriate sites for offshore renewables development within an integrated MSP approach.

International MSP could facilitate the approval of wind farms close to or across borders

The approval of wind farms close to or across borders can be facilitated[86] by the delimitation of maritime zones of coastal states. The Law of the Sea lays down the general principles that coastal states should establish bi- or multilateral maritime boundary agreements.

If the maritime boundaries are settled by such agreements, the approval of wind farms close to or across borders can still raise problems for neighbouring countries for socio-economic or environmental reasons. Making a bilateral or multilateral consultation on maritime activities mandatory – including a possible cross border social, economic or environmental impact assessment – is likely to contribute to the approval of wind farms close to or across borders. This consultation process should be one of the criteria of international MSP for offshore renewables deployment.

International approaches to facilitate cross-border grid infrastructure

All states are entitled to lay submarine cables and pipelines on the continental shelf and on the seabed in high seas[87]. The infrastructure for transport of offshore renewables electricity should have the same freedom and rights as other utilities' infrastructure connections.

In order to balance the freedom of submarine cable laying and the interests of coastal states, cross border submarine cable projects should be governed by international standards and guidelines for the laying of offshore submarine cables. For instance, a set of MSP criteria – such as recommended burial depths, recommended buffer distances between cables and pipelines, and so on – could be developed.

[86] Within the EU countries, this is the case for most Mediterranean coastal states.
[87] Sohn B, 2010, Law of the Sea, in a nutshell, West Publishing CO, 2010.

There are several organisations that could be suitable for developing international spatial planning standards for submarine cable laying: the Division for Ocean Affairs and the Law of the Sea[88], the International Seabed Authority (ISA)[89] or the International Cable Protection Committee (ICPC)[90]. Given its expertise in this domain, and its experience in facilitating the exchange of technical, environmental and legal information on submarine cable systems, the ICPC may be the most appropriate international organisation for developing such standards. It could set up a new forum to include the views of project developers on offshore renewables.

The European Union should play an active role in the development of an international submarine cable code, given the innovative interconnecting grids and offshore energy transmission projects that are being developed and co-financed within the European Energy Programme for Recovery (EEPR)[91].

International approach to ensure long term planning security (cross border wake effects)

The organisation entrusted with the development of international MSP standards for offshore renewables development could also develop a standard on minimum distances between cross border wind farms, in order to avoid or reduce cross-border wake effects. An international standard for measures reducing or avoiding wake effects between neighbouring wind farms on either side of national maritime borders, could be developed. This could then be included in national MSP policies for offshore renewables.

If recommended distances between offshore wind farms were to be formally approved, this should be recognised as good MSP practice for offshore wind farms close to maritime boundaries of adjacent coastal states. However, this distance will vary for different sea basins depending, for instance, on the prevailing wind directions.

The same standards could be applied to other offshore renewables such as tidal and current energy installations, although less empirical data is available on the vicinity effect of wave and tidal devices. It should be noted that a standard for minimum distances may not be necessary at international level, an EU-level focus could suffice.

International approach to shipping

Moving shipping lanes can be beneficial for both offshore development and shipping itself, in particular with regard to the safety of shipping. The possibility of moving shipping lanes to accommodate new uses of the sea such as offshore renewables should be investigated. The process may, however, be difficult and complex as there are different categories of shipping routes – each more or less suitable for displacement or deviation. It is also important to analyse possible negative ecological impacts, such as higher fuel use and consequent CO_2 emissions: the potential environmental impact of moving a shipping lane would have to be measured against the positive environmental impact of increased offshore renewables energy deployment.

From a legal point of view, but also given longstanding and common practice, relocation of shipping lanes in order to enable the construction and operation of offshore renewable energies can be challenging and requires appropriate supporting analysis.

[88] www.un.org/Depts/los/doalos_activities/about_doalos.htm; The Division for Ocean Affairs and the Law of the Sea serves as the secretariat of the United Nations Convention on the Law of the Sea and provides information, advice and assistance to States to promote a better understanding of the Convention and the related Agreements, their wider acceptance, uniform and consistent application and effective implementation.

[89] http://www.isa.org.jm/en/home; The International Seabed Authority (ISA) is an autonomous international organisation that administers mineral resources in the Area, defined as the seabed and subsoil beyond the limits of national jurisdiction. The ISA is currently developing the "Mining Code", which refers to a comprehensive set of rules, regulations and procedures issued by the International Seabed Authority to regulate prospecting, exploration and exploitation of marine minerals in the submarine cables, which could include recommendations and standards of a technical nature (AC or DC technology, kV standards), or of a nautical nature (cable burial depth recommendations), appropriate siting of offshore renewables HVDC.

[90] www.iscpc.org.

[91] European Energy Programme for Recovery (EEPR): see website DG ENER for the list of EEPR interconnection projects; http://ec.europa.eu/energy/eepr/index_en.htm.

However, if demonstrated that the relocation of navigational routes could have a net benefit without compromising nautical safety, this may identify additional space for offshore renewables[92].

International approach for cross-border permitting and licensing

As mentioned above, an efficient interconnecting offshore grid is an important cornerstone of Europe's future power system. The Offshore Grid[93] project suggests building the grid by modules, based on offshore wind farms and offshore wind farm hubs.

Currently, the approval of a national wind farm and its cable connection is a complex process in most EU Member States, sometimes with different approval procedures for the EEZ and the territorial seas zone.

This process is even more complex for cross-border projects like international hub-to-hub connections, the tee-in[94] of a wind farm or hub into a country-to-country interconnector or, for instance, the concrete three-leg interconnector as suggested for the Kriegers Flak region in the Baltic Sea.

The extent to which the approval process of cross-border projects can be simplified should be assessed. It is also necessary to enhance the compatibility of different national approval regimes. European guidelines – preferably based on best (good) practice examples from approved cross-border projects – could significantly facilitate and accelerate the approval procedures.

92 See Seanergy 2020, Analysis of existing international MSP instruments, p.30.
93 www.offshoregrid.eu.
94 More information available on the OffshoreGrid project, http://www.offshoregrid.eu

Photo: Photocase

4 TRANSNATIONAL MSP

- Introduction
- Demand for space: why is transnational cooperation important?
- The benefits of transnational MSP: a case study
- The barriers to transnational MSP
- Linking national and transnational approaches

The third phase of Seanergy 2020 looked at how national and transnational approaches to MSP should be combined to support the promotion of offshore renewable energy. There are important interdependencies between national and transnational levels of MSP. National planning decisions can have an impact on other countries that share the same marine region or sub-region. Likewise, many issues and sea uses transcend national borders and must be discussed cooperatively. MSP approaches at the national level need to be compatible with a cross-border perspective, and vice-versa, to ensure that together they can deliver the best basis for decision making and planning.

This chapter is structured around four key questions:

- Why is transnational cooperation important?
- What is the impact of transnational cooperation on offshore renewable energy?
- What are the barriers to a transnational approach?
- How can a transnational approach be achieved?

Before looking at these questions in more detail, it is useful to have some background on the broader perceived benefits of cross-border cooperation and the EU's stance, as well as the current status of transnational MSP within the EU.

4.1 Introduction

As many maritime activities have a cross-border dimension, an examination of benefits beyond the national perspective is a key aspect of justifying transnational approaches to MSP. Furthermore, a sea is observed to be a complex and dynamic ecosystem that cuts across administrative borders that are defined in terms of territorial waters or EEZs, as these are largely political outcomes[95].

There is widespread agreement across EU policy documents that cross-border cooperation can lead to improved outcomes. This position is found across the Integrated Maritime Policy (IMP), the Marine Strategy Framework Directive[96] and the European Commission's 2008 Roadmap for MSP[97].

Of particular relevance to offshore renewable energy is the potential additional efficiency of cross-border coordination along with expanded opportunities for deployment and/or cost savings that could result from shared infrastructure. Transnational MSP can offer advantages such as[98]:

- More efficient government coordination resulting in improved decision making. Prior cooperation reduces the need for planning revisions due to cross-border consultation later in the process. A cooperative approach would provide Member States that apply MSP with an opportunity to share expertise.
- Reduced transaction costs (for search, legal, administrative, and opportunity costs) for maritime activities. For example sharing data and research responsibilities could reduce the costs of monitoring and compliance, while harmonising elements of permitting processes could reduce administrative burdens on project developers.

> *"National marine spatial plans should be translated into international spatial policies in which sea uses and biodiversity protection measures are planned to complement one another on an international, or regional scale"*
>
> *(Douvere and Elher, 2009).*

- Enhanced certainty on exploitation potential resulting in an improved investment climate. Projects close to EEZ boundaries can proceed in the knowledge that developments on the other side of the border are less likely to affect them. For example, new wind farms could affect a downwind farm's wind resource, or legal challenges could arise from cross border activities/uses such as shipping, cables or pipelines.

[95] European Commission (2008a): Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU, COM (2008) 791 final.

[96] European Commission, 2008, Directive 2008/56/EC establishing a framework for community action in the field of marine environmental policy known as the Marine Strategy Framework Directive.

[97] European Commission 2008, Roadmap.

[98] Adapted and expanded to a transnational approach from Gold et al. (2011).

- Improved ability to address nature conservation at an ecosystem level, offering greater certainty on environmental impacts and reducing possible resistance to development, due to concerns about cumulative impacts and the precautionary principle. Transnational coordination of, and cooperation on, national MSP plans are arguably key to meaningful ecosystem level environmental management.
- Finally, and perhaps most significantly for offshore renewable energy, improved opportunities to collaborate on cross-border infrastructure, such as offshore grid. This can open up new areas of a sea to development, reduce onshore grid congestion and increase the contribution that offshore renewable energy can make to generation.

Even among countries that are relatively advanced in the implementation of national MSP legislation – such as Belgium, the Netherlands and Germany – there is generally a lack of transnational perspective. To date, MSP initiatives have not sufficiently addressed this broader international context, nor have Member States put suitable frameworks in place to encourage future cooperation[99].

Although there is strong support for cross-border cooperation on MSP from the European Commission, there is little or no firm guidance on how this should be achieved. Recognising this, the European Commission is currently carrying out an impact assessment to determine what further action may be needed[100]. This assessment is carried out jointly by DG Environment and DG MARE with stakeholder involvement. This joint approach addresses the overlap in roles for directorates on MSP and integrated coastal zone management (ICZM), both of which are included in the assessment.

Four different options are examined: do nothing (business as usual), the "soft approach" (in the form of supporting actions), adopting non-binding measures, or adopting a binding measure. Among the key considerations are: a general need for the Member States to implement MSP, a common framework to enhance cross-border cooperation, the importance of subsidiarity. An initial online consultation confirmed the perceived need for EU action, but there was no clear indication whether a binding or non-binding EU instrument was preferred[101].

The possibility of EU action recognises that national MSP legislation is limited in what it can achieve in terms of transnational cooperation. It can only direct decision makers to consider relevant MSP activities in neighbouring states, and possibly to confer the necessary powers to negotiate across borders. There is no supra-national instrument under EU or international law dealing with MSP in general, or transboundary MSP cooperation in particular.

Although territorial cross-border cooperation has a long history within the EU, there are only a few examples of cross-border approaches to MSP. In particular, the Baltic Sea region has been a front runner in transnational MSP through the HELCOM and VASAB Joint Working Group on MSP. By providing a forum for regular meetings focused on MSP, the working group can facilitate discussions on specific transnational issues. However, to date, progress has centred around sharing information on national MSP efforts and relevant projects in the region. This is probably due to varying progress on MSP within the member countries. Still, such a forum provides a departure point for bilateral or multilateral discussions and helps to make regional MSP efforts a government priority.

A number of individual projects – largely concentrated in the Baltic Sea – are also looking at transnational aspects of planning or transnational MSP pilot programmes. The most notable of these is BaltSeaPlan[102]. Its 2030 Spatial Vision for the Baltic Sea Region is based on three considerations – environmental, socio-cultural and economic – and has a large focus on transnational cooperation[103]. It promotes the concept of "connectivity thinking"[104] and recognises that cooperation is necessary on a number of different levels – methodological, strategic and operational.

[99] Ehler, C and Douvere, F. 2009, Op. cit.
[100] European Commission, 2010.
[101] HELCOM-VASAB, 2011, Minutes of the third meeting of joint HELCOM – VASAB MSP working group, Finland, Helsinki, September 2011.
[102] www.baltseaplan.eu.
[103] Gee and all, 2011, BaltSeaPlan Vision 2030, Op. cit.
[104] Connectivity thinking means that planners not only think in their own backyard, but focus on connections to other areas or uses.

Another project, Plan Bothnia[105], aims to test MSP in the Bothnian Sea as a transboundary case study between Sweden and Finland. The minimum requirements for transnational MSP cooperation in the Baltic Sea are being studied within the project. The aim of the study was to come up with proposals for how to improve transnational cooperation on MSP by defining where MSP requires transnational binding agreement. Minimum requirements are focussed on: necessary preparation tools, content and scope of transnational MSP, the institutional framework and supporting measures.

4.2 Demand for space: why is transnational cooperation important?

Driven by binding national targets under the framework of the 2009 RES Directive, offshore renewable energy is expected to grow significantly in Europe over the next decade. Member States' National Renewable Energy Action Plans (NREAPs) indicate a projected offshore renewable energy deployment of 45 GW in the EU by 2020, of which the majority will be wind energy.

Further ambitions to decarbonise the European energy system beyond 2020 will require additional offshore renewable growth. All in all, there are development plans for more than 140 GW of offshore wind energy projects alone in European seas[106]. The market for wave and tidal energy is still at an early development stage, with limited capacities installed. However, a wave and tidal capacity of roughly 2 GW by 2020 is projected.

This growth in offshore renewables will not be distributed evenly. The four sea basins have different physical characteristics such as: size, average depth, distances to shore and renewable energy resources. They also host a large variety of human activities, providing important socio-economic benefits for European citizens. Several of these other sea uses are also expected to increase considerably. Thus, competition for space at sea will intensify, leading to potential conflicts. It is therefore important to understand the spatial demands of sea uses in the four sea basins and where MSP will be needed.

Table 4.1 provides an overview of some of the key human maritime activities in Europe, their presence, main characteristics and future growth.

TABLE 4.1: OVERVIEW OF SEA USES

Sea use function	Future development	Characteristics
Offshore renewables	Moderate to strong growth	Includes offshore wind, wave and tidal technologies. Currently, offshore wind energy is the most advanced and developed technology. All constructed and planned offshore wind farms to date have been at depths of less than 50 m.
Shipping	Moderate growth	Includes movement of vessels for a wide variety of purposes, such as internationally regulated routes (IMO routes) and national/coastal traffic. Safety zones are necessary to provide sufficient space for emergency manoeuvres and unforeseen anchorage requirements. Forecasts predict growth in shipping, including oil transport, container shipping, ferry traffic and cruise ships in all sea basins.
Fisheries	Stable or declining	Diverse and wide ranging sea use that operates across EEZ borders. Fishing activities do not have well defined exclusion areas or zones but instead naturally distribute their effort over time in accordance with targeted fish species and abundance of catch. The broad term 'fisheries' includes a wide range of different fishing gears and vessel sizes corresponding to different fish species being targeted and different preferences on where to fish.
Military areas	Stable	Covering a wide range of activities – including submarine manoeuvres, firing ranges, munitions dumping, aerial exercise and others – military zones are defined by governments in the interest of training and security.

[105] http://planbothnia.org
[106] EWEA, Wind in our Sails, 2011.

Sea use function	Future development	Characteristics
Cables and pipelines	Moderate growth	Cables, e.g. for electricity and telecommunications, and pipelines, e.g. for gas and oil transport, run across large expanses of the sea floor in European sea basins. Increases in many of these usages means that more of the sea floor will be allocated for cables and pipelines in the future, which can restrict offshore renewable installations.
Oil and gas extraction	Decline through decommissioning	Fixed installations, most of which are in the Northern sea basins. Exclusion buffers of 5-6 nautical miles generally exist around them to ensure safe and reliable operation. The number of producing fields in the North Sea is expected to decline. However, the rate of decline is difficult to predict due to little information on when individual platform decommissioning will take place. In addition, there is on-going exploration and new drilling sites can be expected.
Sand extraction	Stable to moderate growth	The extraction of sand and gravel is necessary for a number of onshore activities including land reclamation, beach nourishment and construction. Dredging also occurs in shipping lanes to ensure free passage. The economics of sand extraction favours sites close to shore.
Coastal tourism	Moderate growth	Includes cruise tourism, recreational sailing, near shore activities in combination with beach tourism (camping and rental of summer houses). Tourism appears stable, although some growth is anticipated in different sea basins.
Nature conservation	Likely growth	This sea use function includes the network of protected areas that are identified in international and EU legislation. EU legislation includes the Birds Directive and Habitat Directive (Special Protection Areas and Special Areas of Conservation respectively and the MSFD).

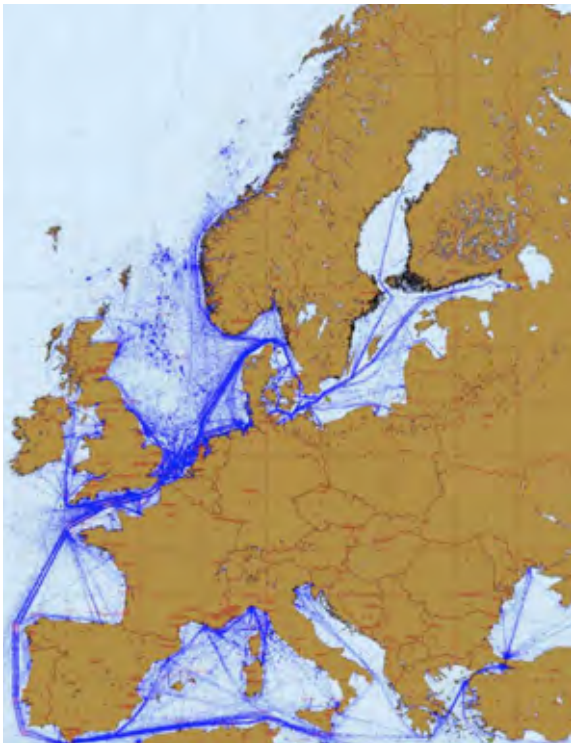
Source: Based on Veum et al., 2011

In terms of demand from other non-offshore renewable use functions, three projected developments are highlighted here.

Firstly, shipping is a key user of the sea with long standing traditions. Growth in this sector – which to a large extent is driven by economic growth as well as goals to reduce carbon emissions from the transport sector by moving transport of goods from road to sea – will imply establishing new routes, expansion of safety zones, and upgrading existing routes. For example, the Maritime Strategy for the Atlantic Ocean area identifies the need for further development of multimodal transport corridors, as part of the European Transport Network (TEN-T)[107].

Figure 4.1 illustrates shipping routes close to shore in areas of the European sea basins. The area with the highest shipping frequency is located in the Southern part of the North Sea, from South-West England, along the coast of the Netherlands and Germany. This is an area where shipping is also projected to grow significantly, and where the largest European ports and harbours are located.

FIGURE 4.1: SHIPPING ROUTE MAP FOR EUROPEAN SEA BASINS



Source: ESA, 2009

[107] European Commission, 2011, Commission seeks views on how to reduce pressures on Europe's coastal and marine areas, Press releases IP/11/353, Brussels.

A second sea use set to expand is cables and pipelines. The number of cables and pipelines in place on the sea bed has increased dramatically over the last decade. This trend is expected to continue with new cables to accommodate new electricity generation from offshore renewable technologies. New cables are also expected to accommodate increasing demand for information and communication (ICT) services.

Thirdly, the conservation of biodiversity and preserving the maritime ecosystem is a growing "use" of the sea space. With increasing pressure from sea uses, protection of maritime ecosystems is becoming increasingly important. Uncertainty over the effects of fixed large-scale offshore wind farm installations on marine ecosystems is a major concern. There is a trend towards increased designation and recognition of the significance of marine protected areas, which is strongly supported by the European Commission.

All in all, the many different users of European seas create a complex spatial pattern of activities and values. In addressing the spatial demands and pressures as well as conflicts between users of the sea, the question of compatibility is raised. There are many examples of overlapping sea use functions. Therefore, there is not a one-to-one relationship between the size of any particular sea use and the area available for offshore renewables. The WINDSPEED project [108] showed that, for Central and Southern North Sea basins, co-use opportunities exist for offshore wind energy, shipping and fisheries, whereas relocation opportunities can be sought for military areas. MSP is valuable in identifying opportunities for compromise, relocation and/or co-existence uses.

Highlights of spatial demand issues and potential conflicts

North and Baltic seas:

- The North and Baltic Sea basins are both highly attractive for offshore wind development.
- Offshore renewables, together with the necessary grid infrastructure, are projected to grow significantly in these sea basins. However, cost and technology constraints are likely to restrict new farms to areas that are already covered by a number of other uses such as shipping, fishing, military use and designated nature conservation areas.
- Both sea basins face extensive growth in human activities. Shipping, cables and pipelines, coastal tourism and nature conservation areas are all expected to grow. Increased shipping is being/will be further facilitated by expansion and upgrading of ports and harbours in both sea basins. Military areas, sand extraction, oil and gas extraction and fisheries are expected to stay stable or decline.
- North Sea countries have fairly well established MSP processes, and several conflicts between offshore renewables and other sea uses are currently being addressed. The Baltic Sea countries are already taking steps to improve MSP processes in this regard. However, a large expansion of offshore wind energy will require more attention through MSP to find adequate space. In particular, opportunities will need to be sought for co-existence or multi-use, such as using the spaces between adjacent wind farms to reduce turbulence and regenerate the wind resource, and for other sea use functions like fishing or lower frequency shipping lanes. This opportunity for co-existence becomes more relevant as future offshore wind farms are developed in large clusters. Furthermore, sea uses which are not location sensitive, or can be relocated or decreased in size without undue impact, should ideally be investigated to find space for additional low cost offshore renewables.
- The cumulative effect of growing sea use and the strain this puts on the maritime ecosystem also needs to be addressed. The cumulative pressures resulting from uses and how these will evolve in the future is important, in particular for uses that

[108] www.windspeed.eu.

include large expansion plans, such as offshore wind energy. As many activities are transnational and can have cross-border impacts, a transnational approach, that includes sharing information, developing a common approach towards the management of certain activities and identifying common resource use and protection objectives, should be adopted.

Mediterranean Sea:

- The Mediterranean basin is currently a less attractive sea basin for offshore renewable energy development, largely because it is a deep sea basin with few suitable areas close to shore.
- The most intensively used areas in the Mediterranean are those situated near the coast. In these, a variety of maritime activities take place, such as aquaculture, fishing, maritime transport (including ports and harbours), dredging/sand extraction, and marine and coastal tourism (for example recreational boating, bathing, diving). The near-to-coast locations are also the most attractive areas for offshore wind energy development. It is expected that activities relating to tourism, aquaculture, shipping, cables and pipelines, and nature conservation areas will grow in the future. In a few areas, such as the coastal waters of Greece, there are also plans to build new oil platforms. It is also important to consider archaeological and heritage sites.
- Future efforts to increase the share of renewable energy in total energy consumption could encourage EU Mediterranean states to scale up ambitions for offshore renewable energy deployment. There are several conflicts that would need to be addressed through MSP processes. One is the social acceptability of wind farms in areas of coastal tourism, bearing in mind that the Mediterranean Sea is a leading tourist destination.

Atlantic Coast and Irish Sea:

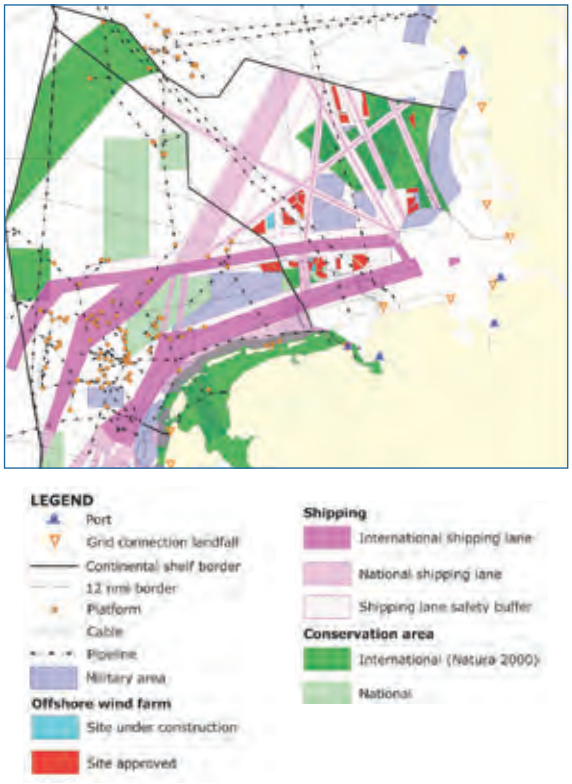
- The Atlantic Coast and Irish Sea are relatively attractive for all three offshore renewable energy technologies – offshore wind, wave and tidal – due to high resource levels.
- In the Irish Sea there are multiple sea uses including tourism and recreation, oil and gas extraction, ports and shipping, naval defence, renewable energy, fishing, aquaculture, and mineral extraction. The Atlantic Coast is an area rich in natural resources and resource potential, supporting traditional sectors such as maritime transport, tourism, fishing, aquaculture, seafood processing and sand and gravel extraction. New sectors, such as offshore renewable energy, marine biotechnology and deep-sea mining are emerging.
- There have been important developments in MSP in this region to facilitate growth in electricity generation from offshore wind, wave and tidal, and to address conflicts with other uses. Designation of further zones for offshore renewable energy development is likely to cause additional friction with these sea uses. In particular, shipping – which is already a significant user – is expected to grow extensively, leading to new shipping routes, increased safety zones along certain routes as well as upgrading of existing routes to higher frequencies.

4.3 The benefits of transnational MSP: a case study

One of the objectives of Seanergy 2020 was to evaluate the benefits of cooperation on transnational MSP. A case study was analysed to determine what benefits, if any, cross-border cooperation on MSP could have for offshore wind energy in terms of costs, risks and planning. Although the results are specific to the case study, they can illustrate how to coordinate MSP in other border areas.

The case study area was selected based on relevance and data availability. The chosen study area extends 30 km on either side of the EEZ border between Germany and the Netherlands, and from 22 km to 300 km offshore. The study considered seven constraints from other activities that were found in the area: a) cables, b) conservation areas, c) military areas, d) oil and gas pipelines, e) oil and gas platforms, f) shipping lanes and buffers and g) existing and planned wind farms.

FIGURE 4.2: CASE STUDY AREA ALONG THE GERMAN/DUTCH EEZ BORDER



Source: Ecofys 2012

The starting point for the case study was the observation that current usage patterns and MSP plans constrain the amount of offshore wind energy that can be developed in this region and its proximity to shore. From here, the benefits of coordination on issues related to MSP were examined using a scenario approach. Three scenarios were defined, each with a different level of cooperation in relation to MSP and cross-border issues. A *theoretical maximum* "scenario" was also considered in which the optimum deployment of offshore wind was examined with other sea uses largely removed. This was included only to illustrate an upper limit to the study, but was not considered as credible.

Scenario 1 Baseline, or business as usual: this represents the current constraints to offshore – wind farm development in the national MSPs of Germany and the Netherlands.

Scenario 2 Initial stage of cross-border MSP cooperation: this scenario provides an example of an initial level of transnational MSP, where some constraints are relaxed to encourage offshore wind farms. This assumed cooperation would include some changes to the existing spatial plan.

Scenario 3 Progressive MSP cross-border cooperation: this scenario assumes far reaching cross-border cooperation on MSP aimed at offshore wind energy, in response to a shifting balance in perceived importance of offshore renewables. It assumes that the spatial plan is re-designed with a priority for designating offshore wind clusters, requiring changes to several aspects of existing MSP.

Theoretical maximum: Only existing fixed infrastructure is considered as a constraint to offshore renewables. It illustrates a hypothetical maximum deployment.

To distinguish the scenarios, a number of possible cooperation aspects or outcomes were defined. These aspects were assigned to the different scenarios depending on the perceived level of coordination required for each outcome. These cooperation aspects relate to:

a) mutually agreed changes to shipping lanes (both non-IMO and IMO),
b) grid connections,
c) large common/shared offshore wind hubs and
d) other sea uses.

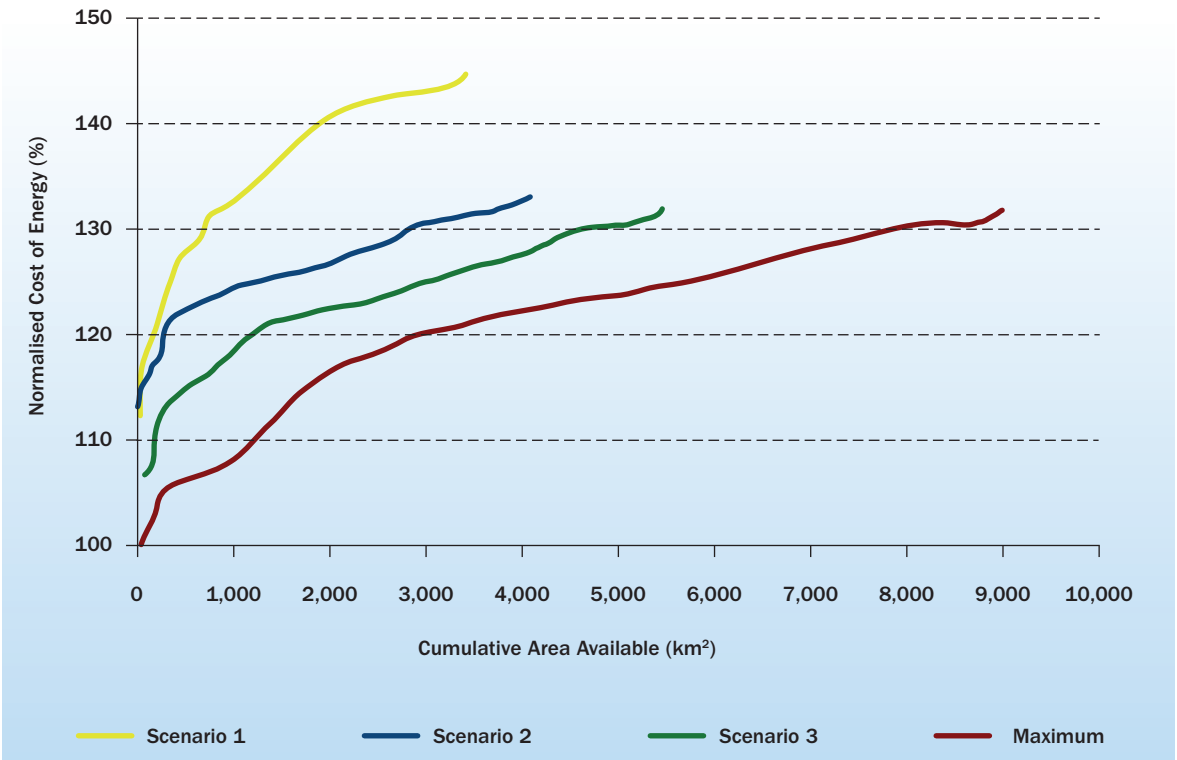
In each scenario, the potential and cost for offshore wind development was evaluated, based on the site-specific conditions throughout the case study area. In order to determine the development costs, a bottom-up cost model is used that includes the procurement, fabrication, installation, electrical infrastructure and operations and maintenance costs at each location in the study area.

The analysis found that energy costs (the levelised cost of delivered electricity) could be reduced by encouraging and making space for wind energy clusters through cooperation on integrated spatial plans, as well as working together on an offshore grid (Figure 4.3). The study also considered possible benefits for risks and planning, which largely relate to certainty on zoning and harmonised or accelerated permitting procedures. However, these factors were not quantified within the project, but would be expected to further reduce costs of offshore renewable energy.

The integrated planning approach assumed in the scenarios would also improve the ability to manage environmental priorities. Cumulative and cross-border environmental impacts are more easily assessed and understood when planning in a cooperative way.

The most important message from this study is that cross-border cooperation on MSP could deliver real cost reductions for offshore renewable energy and improve the investment environment for developers. While the case study considers one particular region of the North Sea, with certain assumptions about co-operation outcomes, it hints at the broader benefits of a transnational approach.

FIGURE 4.3: CUMULATIVE AREA AVAILABLE FOR OFFSHORE WIND DEVELOPMENT VERSUS NORMALISED COST OF ENERGY



Source: Ecofys 2012

4.4 The barriers to transnational MSP

With growing demand for space and real benefits available from a transnational approach to MSP, it is important to understand the obstacles to cooperation across borders at sea. Within Seanergy 2020 an inventory of barriers to coordinated transnational MSP approaches was drawn up. Options to address these barriers were suggested.

Barriers to transnational MSP stem either from existing disconnects between national and international MSP approaches, or from countries' possible objections to specific elements of a transnational MSP approach. Building on conclusions of the chapters on national and international MSP, it was determined that there were no fundamental barriers, or disconnects, between national and international MSP approaches. The report therefore focused on the elements of possible transnational MSP approaches that may deter participation.

The report identified three categories of possible barriers:

- **Power** Who gets the ultimate power to decide? Who is involved in the negotiation process?
- **Interests** Are individual (state's or stakeholder's) interests best served by participation or non-participation in a cooperative approach?
- **Capacity** Political and functional readiness and ability to participate in negotiation process.

Within this framework, 13 specific barriers to transnational MSP were identified (Table 4.2). For a transnational approach to be embraced by the EU Member States, it needs to deal with most of these barriers.

Some of these barriers are primarily linked to the cooperation structure, others have to do mainly with the content of MSP itself. Barriers related to power and, to a lesser degree, those related to interests, can be addressed by setting up an appropriate cooperation structure. The issues related to capacity, but also some of those related to interests, may be addressed by appropriate content, and offering support for planning.

Identifying these barriers has helped to develop the recommendations in this chapter on how to promote cooperation on transnational MSP. They act as a framework against which different cooperation structures and content can be tested, to assess the most appropriate way to increase cross-border coordination and serve the interests of Member States. While not all barriers can be overcome with a particular approach – indeed many can only be mitigated and never absolutely removed – the recommendations for intervention in EU MSP should address the most important barriers listed below.

TABLE 4. 2: BARRIERS TO A TRANSNATIONAL APPROACH

Power	Interests	Capacity
Sovereignty Governance level Challenge to EU community External states Stakeholder engagement	Criteria and weighting Flexibility Benefits Approach	Need / urgency Timing Monitoring Readiness / data

Source: Hekkenberg et al., 2011

4.5 Linking national and transnational approaches

Cooperation has become a central tenet of the EU position towards MSP. Yet to date, an approach to MSP cooperation has not been formalised in any legislation or guidelines.

In attempting to address this, WP4 has drawn on the results of prior work within Seanergy 2020. Chapter 2 analysed and compared MSP regimes in 17 EU Member States around the four sea basins. This analysis led to a number of conclusions on transnational cooperation, including:

- The particular set-up of national MSP is context specific. It depends on factors such as how planning has traditionally been addressed within a Member State as well as what the needs of MSP and the institutional framework that underpins the MSP efforts are. There is no single 'best' framework that would be most appropriate for all Member States.

> *"The only way that a complete mechanism for supra-national cooperation in terms of MSP can be established is at the international level or at the European level"*
>
> *(Payne et al., 2011)*

- A number of the good practices in national MSP – for example transparency throughout the process, involving stakeholders, taking a longer term perspective on marine development and conservation – are equally applicable at the transnational level, or may even benefit from a more international perspective.
- Finally and most importantly, for most countries cross-border cooperation to date has been limited, often only in the form of relatively late consultation.

Chapter 3 looked at international MSP instruments and their interaction with offshore renewables. Importantly, it concluded that transnational MSP is not something that is best achieved through truly international approaches due to large barriers in implementation. Instead, EU level action on transnational MSP was considered to be the most viable and effective approach. The key question is, what form this should take?

In addressing this question, recommendations are provided for each the following topics:

- The recommended role for the EU in relation to MSP.
- The scale at which action on transnational MSP is most appropriate.
- A possible structure for an instrument for EU intervention in MSP.
- The planning horizon that should be adopted.
- Key steps in the process of fostering transnational cooperation on MSP.
- Additional content surrounding MSP that could be a focus during cross-border coordination.
- The relationship of transnational MSP to other EU legislation and initiatives.

4.5.1 EU role and intervention

What opportunities are there for the EU to encourage cooperation on MSP across borders? The European Commission has stated that "the role of the EU is to promote a common approach among Member States that takes account of cross-border impacts[109]." This promotion has so far been in a few main forms:

- High level guidance on the need for transnational cooperation, for example within the EU MSP Roadmap,
- A requirement for some degree of cross-border consultation within other legislation such as the SEA Directive,
- Endorsing an ecosystem approach to biodiversity preservation, for example within the IMP and MSFD,
- Adoption of the EU Strategy for the Baltic Sea Region with accompanying Action Plan that lists a common approach for cross-border cooperation as one of its horizontal actions,
- Support specific projects related to cross-border cooperation, for example BaltSeaPlan and Plan Bothnia,
- Support of and participation in a number of other related transnational working groups and initiatives such as the Member State Expert Group on Integrated Maritime Policy, the North Seas Countries' Offshore Grid Initiative (NSCOGI).

[109] European Commission 2008, Roadmap, Op. Cit.

The potential value of moving beyond these current approaches was discussed earlier in this chapter. To do this it is important to first consider what practical tools, or interventions, are available to the Commission. The broad types of intervention that are open to the Commission range from "suggestive" approaches, such as guidelines or recommendations, to those with stricter or binding requirements such as directives. There are also complementary approaches that the EU can take to encourage cooperation. In particular, the European Commission can facilitate and/or finance different cooperation platforms.

These different approaches represent the formal mechanisms that the European Commission could use to intervene. However, they don't describe what role the Commission could or should actually play. It is important to understand what specific outcomes should be sought in order to accommodate offshore renewable energy deployment. There are many different ways in which the EU can exercise its role and each way can address differing aspects of MSP.

Where the competence for a particular topic lies – in this case planning – largely dictates the choice of approach and limits its scope. The common theme amongst Member State positions – that EU intervention on MSP should be non-prescriptive and focussed on cooperation – is clearly echoed by the European Commission. "Implementation of MSP is the responsibility of the Member States. The subsidiarity principle applies, but action at EU level can provide significant added value"[110].

The assumption that cooperating Member States have implemented some form of national MSP is, to a certain degree, implicit in any EU approach that attempts to foster cooperation. Without national MSP, cross-border consultation and coordination is unlikely to add much value compared to national approaches, as one of the parties involved has little or no framework for providing input. This leads to an initial conclusion, that any EU intervention should further encourage or require Member States to implement national MSP – a pre-requisite for transnational coordination – but the form and substance of such MSP should be decided by each Member State.

Chapter 2 highlighted that even in those sea basins where MSP is the most well established, the level of cross-border coordination and cooperation between Member States was low. This suggests that approaches that are entirely voluntary in nature, with little active promotion of a transnational perspective, may be ineffective in promoting cooperation on MSP and offshore renewables.

Three broad approaches, which move beyond guidelines, were identified: a) the use of regional sea conventions, b) MSP working groups, and c) an MSP Directive.

Regional sea conventions

The cooperation framework in the Baltic Sea – that has been promoted by HELCOM and regional ministers through a regional strategy and action plan along with a working group on MSP – may be an appropriate approach to achieving the necessary transnational perspective. This could, in theory, be extended to other sea basins using regional sea conventions (for example the Barcelona and Helsinki Conventions) to encourage cooperation. However, such an approach is open to two important criticisms.

Firstly, and most significantly, these conventions were put in place with specific mandates in relation to protection of the environment. It is unclear how these institutions would deal with the challenge of balancing the additional perspectives of social and economic development.

Secondly, the evidence to date suggests that, although HELCOM and VASAB have been successful in creating a forum for the discussion and evolution of MSP, transnational cooperation has been hampered by the different stages national MSPs have reached in the countries involved.

Working groups

An alternative approach could use EU MSP working groups as a way to enhance cooperation. This has a history in relation to EIA and SEA, with expert groups at the EU level[111] and at the United National Economic Commission for Europe (UNECE)[112]. In the short term,

[110] Idem.
[111] http://ec.europa.eu/environment/eia/home.htm.
[112] http://www.unece.org/env/eia/workinggroup.html.

establishment of a MSP expert group within the EU has already been requested[113]. However, this approach is arguably not well suited to the details of transnational MSP cooperation. In particular, the benefits of cross-border cooperation on MSP are only likely to be realised when countries discuss and coordinate specific areas of common interest that will differ, depending on the border in question. At the same time, this approach would suffer from the same disadvantage as one based on regional sea conventions; Member States are at different stages of implementing MSP and a working group would not provide a particularly effective tool to encourage progress.

MSP Directive

An MSP Directive, arguably, offers a way to overcome the stumbling blocks of the other approaches. For example:

- Current guidelines have largely failed to introduce cross-border cooperation into national MSP processes. An MSP Directive could require some form of cooperation or coordination.
- Regional sea conventions have a mandate that is focussed on one aspect of planning; good environmental status. An MSP Directive could take a broader scope to also include economic and social development. Regional sea conventions would become an important pillar of these efforts.
- Entirely non-prescriptive approaches (for example, working groups) are limited in their ability to encourage Member States to adopt and progress national MSP practices. An MSP Directive could set timeframes for Member States to implement national MSP regimes.

An MSP Directive focused on encouraging cross-border cooperation – supported by national MSP – would oblige Member States to open direct communication, without dictating outcomes. This option gives cross-border cooperation a firm legal footing, whilst leaving implementation to the Member States, and comes closest to satisfying the understanding of planning competences in the EU.

Having said that, the practical constraints of introducing a new directive are recognised. It can be difficult and time consuming for Member States to agree on. It is, therefore, important that any directive is designed in such a way as to minimise Member State objections and expedite the process. These issues are taken into account when framing recommendations in this report.

Should the concept of a directive on MSP prove to be unacceptable to Member States, many of the recommendations here could – possibly with some loss of efficacy – be implemented in the form of guidelines, regional conventions or working groups. The overall objectives, in terms of content and outcomes, should not change from those described in the following sections, but some forms of intervention are more likely than others to guarantee strong outcomes for cooperation.

- A focus on encouraging cooperation, rather than prescriptive approaches to national practices, is the most appropriate form of EU intervention.
- National MSP is a pre-condition of successful transnational cooperation on marine planning and should be promoted.
- The EU should ideally seek to draft an MSP Directive (or if this cannot be achieved, guidelines or approaches based on regional sea conventions or working groups) that focuses on two aspects:
  - requiring Member States to implement national MSP legislation or amend existing legislation to cover MSP over an agreed time-frame – the content and form of the MSP should be decided by each Member State,
  - promoting cross-border cooperation and coordination on MSP and maritime development.
- National MSP should be designed in an integrated way, according to non-restrictive best practices, the existing Roadmap and new, more detailed, guidelines that support a non-prescriptive MSP Directive.

[113] HELCOM-VASAB (2011b): Minutes of the third meeting of joint HELCOM-VASAB MSP working group, Finland, Helsinki, September.

4.5.2 Scale and aggregation

The scale for action within any EU intervention is important. At the most local level, cooperation can be on a bilateral basis (as much of the limited cross-border consultation on MSP is currently conducted) while at the other extreme, cooperation could be considered as an EU-wide approach involving all Member States.

Somewhere in between lies a regional, or sea basin approach that has been adopted by the European Commission in implementing the Integrated Maritime Policy. Likewise, Seanergy 2020 recommends that a regional approach for promoting cooperation be implemented within any MSP Directive or guidelines. It recognises the need to take account of different regional realities, including ecological characteristics and the structure and intensity of maritime activities.

A regional approach satisfies a number of important aspects. Firstly, it recognises the ecosystem approach to maritime environmental management; the fact that ecosystems do not heed national borders and, as such, a cross-border approach is necessary to manage them most effectively. A regional approach to transnational MSP would also "dove-tail" nicely with this existing approach for fisheries management; allowing regional fishery restrictions to be discussed alongside regional MSP issues[114].

A regional approach also acknowledges many of the identified barriers to cooperation, in particular:

- Community challenge: it is easier to make a case to the European Community for action on MSP on a regional level rather than an overall EU level.
- Differences in approach: although not guaranteed, there is more likely to be some observable degree of regional homogeneity when adopting a regional approach.
- Differences in need/urgency: there are better opportunities and more plans for offshore renewable energy in some sea basins than others.

Finally, and perhaps most importantly for offshore renewable energy, it is only on a regional scale that major multinational infrastructure projects, such as an offshore meshed grid, can be coordinated and planned effectively. Bilateral approaches to cooperation run the risk of being too locally focussed while an EU-wide approach would not sustain the focus of Member States on regional projects. This is already recognised with the creation and functioning of the North Seas Countries' Offshore Grid Initiative (NSCOGI).

The definition of 'region' used above is not firmly linked to a particular level of regional aggregation. Any approach to transnational cooperation on MSP should be flexible enough to account for varying levels of regional definition, as required. This has been recognised in the early planning experiences in the Baltic Sea by HELCOM – VASAB, where sub-regional and bilateral planning is considered when the conditions of the different sub-basins would recommend it.

- Macro-regional or regional action is the most appropriate starting point for successfully and usefully employing transnational MSP practices.
- There should be flexibility to allow sub-regional and bilateral approaches where this would be beneficial.
- Where possible, transnational cooperation approaches should be aligned with those regions and sub-regions defined in the MSFD.

4.5.3 Structure and form of possible new MSP instruments

As argued earlier, the most effective form of intervention by the EU would be an MSP Directive that required Member States to implement national MSP regimes according to their own preferences and encouraged or mandated cooperation on transnational aspects. However, this does not address the important question of how such transnational cooperation could or should be promoted within such a mechanism.

On this topic, there is limited experience within the field of MSP. This makes it advisable to look at approaches to cross-border cooperation on other topics in the EU. The most obviously applicable is the Water Framework Directive (2000/60/EC[115]). Within the Water Framework Directive, water management is based on Member State defined River Basins. Where a river basin includes more than one Member State

[114] Gee K., 2007, Op. Cit.

[115] Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for Community action in the field of water policy.

or crosses from the EU to neighbouring countries, the Water Framework Directive calls for the creation of an international river basin district. The primary focus of the Water Framework Directive is specific, the achievement of "good environmental status" in 2020, yet at the same time it offers a number of relevant ideas for creating cooperation structures without dictating the final approach on national water management to Member States.

In designing an MSP Directive that focused on cooperation, a number of elements in the Water Framework Directive could be used as a guide.

International/regional sea basins

Just as international river basins form the basis for transnational cooperation within the Water Framework Directive, then international or regional sea basins could be defined in relation to MSP in those situations where a sea was shared by a number of Member States or countries outside the EU community. These basins would provide the regional underpinnings of any MSP Directive, or a less prescriptive EU approach when a directive could not be agreed.

It seems logical that any macro-scale defined regions should be aligned with those given in the Marine Strategy Framework Directive (MSFD), Article 4; namely the Baltic Sea, the North-east Atlantic Ocean, the Mediterranean Sea and the Black Sea. However, a more localised sub-regional level could be used, given the large ranges of the North-East Atlantic and Mediterranean regions in the MSFD, and the fact that these two macro-regions cover a number of different OSPAR[116] and ICES Ecoregions[117]. This is an advantage of a regional MSP approach; it is more closely aligned with existing regional conventions, such as OSPAR, HELCOM or the Barcelona Convention. It could allow those regional bodies to interact more coherently with all relevant Member States at a common forum directly linked to the planning processes in each Member State.

The idea of a forum is hinted at in the European Commission (2009) Roadmap, "work on MSP at EU level provides an appropriate forum for Member States to discuss and develop a holistic approach to the management of maritime activities in line with ecosystem requirements", but how this should come about is not clarified. At present there are very few dedicated forums for discussing transnational MSP issues at the EU or regional level. The most relevant is the recently convened Vision and Strategies around the Baltic (VASAB) initiative that aims to promote cooperation on spatial planning and development between the countries around the Baltic Sea[118]. The BaltSeaPlan project's vision for 2030 sees VASAB as a natural precursor to an eventual formal body responsible for endorsing pan-Baltic MSP. This formal ministerial body would be complemented by a transnational coordinating body that would work on practical transnational issues[119].

It is important to note that a regional approach does not preclude the possibility of bilateral or multilateral cooperation occurring in parallel. There will still be instances where specific issues will be most appropriately addressed by a subset of the Member States involved in a particular sea basin.

Responsible authorities

The Water Framework Directive recognises the value of having a particular national authority responsible for involvement in each international basin. Something analogous could be included in any MSP Directive, to provide a central authority in each Member State that can report on MSP for that sea basin. This ensures that there is coherence in the way in which any particular Member State interacts with a defined sea basin. It also improves the ability of the group of authorities concerned with that sea basin to cooperate with other parties.

Marine Management Plans

MSP is one element of an overarching marine management plan that also includes permitting requirements and monitoring plans. It is anticipated that Member States will raise MSP zoning and other management issues when meeting to co-ordinate plans for a certain sea basin. There is no requirement to harmonise or agree on an overall management plan in the Water Framework Directive and there should also be no strict requirement to harmonise within any MSP Directive.

[116] www.ospar.org/content/regions.asp.
[117] www.ices.dk/aboutus/icesareas/ Ecoregions.pdf.
[118] www.vasab.org.
[119] Gee et all, 2011, Op.cit.

However, there is significant value in sharing national perspectives at an international sea basin forum.

Using the Water Framework Directive as a template for promoting cooperation and cooperative structures has a key advantage because this approach is proven and more likely to be acceptable for a new directive. The Water Framework Directive was the result of more than five years of discussions and negotiations, so its approach to cross-border issues is a useful starting point. This type of intervention has been demonstrated to be acceptable to all parties and is a compromise between mandatory cooperation practices or fully voluntary guidelines.

- Regional sea basins should be defined.
- Regional sea basins should ideally be aligned with either the top level regions defined in the MSFD, or sub-regions agreed by Member States.
- The Commission could arbitrate in assigning regional sea basins where Member States cannot reach agreement.
- Each Member State should identify a central responsible authority within each regional sea basin for any MSP Directive.
- Existing regional institutions should be encouraged to engage at the sea basin level with these new forums.

4.5.4 Horizon

A large part of the value of a MSP Directive (or equivalent guidelines) – promoting cooperation in the manner described above – is in the creation and agreement of a regional vision for future marine use. This should take elements from national plans and turn them into clear and, as far as possible, agreed objectives for the sea basin or individual borders. The time frame is important, as it determines how far in advance issues can be anticipated and planned for.

Significant changes in the intensity and pattern of many sea uses can be expected across the different sea basins, with a trend towards increasing competition for space in the medium to long term, often in areas that have cost advantage for offshore renewable energy. It is important to have a planning horizon that can take these trends into account. To date most national planning activities have been driven by the rapid expected growth of offshore renewable energy. In turn, this growth has been driven by the need for Member States to meet their 2020 targets under the 2009 Renewable Energy Directive.

While a 2020 horizon may identify immediate or short term conflicts, it is unlikely to capture conflicts or interactions that will only become important in the longer term. In particular, the deployment of offshore renewable energy is likely to increase after 2020, yet this is typically not captured in government forecasts and rarely accounted for in national MSP. As offshore renewable energy continues to expand, there will be a greater need to identify potential cross border conflicts and possible areas for cooperation/synergy. An example is a shared offshore electrical infrastructure, such as an offshore meshed grid.

- Regional sea basins should define clear environmental, sea research, social and economic objectives.
- Regional forums should have a long term perspective in relation to the objectives they seek to attain – for example a 20 year or longer time frame.

4.5.5 Process

The coordination process will differ between regions and will be largely defined by the sea basins in question. It is unlikely that such a detailed process could be successfully described in any MSP Directive or MSP guidelines. However, there are a number of important areas where guidance could enhance cooperation and opportunities for offshore renewables. These include the timing of national MSP plans, the way in which stakeholder consultation is undertaken, the monitoring of coordinated sea basin plans, the intervals between successive meetings/coordination-efforts between Member States and an approach to conflict resolution.

Timing

Enacting MSP legislation and undertaking the planning process is at different stages in different Member States. Some countries have completed MSP zoning and are implementing plans, while others are at earlier stages or have scarcely begun. This can be seen not only across regions, but also within them. These differences are a barrier to transnational cooperation.

In particular, differences in the timing of target setting and offshore renewable energy zoning can act as barriers to the development of cross-border electrical infrastructure. Transnational grid solutions are difficult to design in the absence of agreement on future generation locations and capacities, as well as the timing of deployment at those locations. Thus there is a need for some level of alignment of timing of national MSP processes. Alternatively, as a minimum requirement, some flexibility in national MSP plans is needed, to make meaningful coordination possible.

Stakeholder consultation

There are two broad approaches to the engagement of stakeholders within transnational MSP. The first involves individual stakeholders interacting directly with any transnational forum and giving feedback at the regional level. The second would see stakeholders engaging at the national level as currently, with this feedback taken to regional forums by each Member State. The challenge is to achieve a regional approach for transnational coordination, without losing a connection to stakeholders.

Consultation on a regional level could disadvantage those sectors or groups that do not have a strong regional voice. It could also duplicate efforts, whereby national MSP is consulted, with this repeated at the regional level. Finally, such an approach could create problems in terms of how to engage with a large number of stakeholders. This could be a barrier to some forms of cooperation.

The second of the two possible approaches may be preferable. Consultation on plans at a Member State level is conducted through national MSP. Preferred visions for each Member State's portion of a sea basin are then brought to central sea basin forums for discussion, with outcomes being referred back to stakeholders, where significant changes have been made.

Monitoring

Transnational MSP cooperation does not end once national plans have been discussed and necessary coordination has taken place. It will also be important to agree on reporting metrics and formats for recording individual Member State progress towards achieving their individual plans. It is proposed that this is left to Member States, with each sea basin agreeing a set of objectives on which they would like to report. These objectives would show the progress of their MSP plans and results.

Updates

Just as with national MSP, transnational approaches should reflect the fact that planning is a continuous process that will need to adapt to changing conditions[120]. The results of coordination in regional sea basins should be able to be updated and revised. This could depend on a number of factors, including the outcome of monitoring maritime plans and their environmental effects, and the possibility of regularly defined intervals for repeating the process. This will be especially relevant for sectors that may experience rapid change, such as offshore renewable energy. The frequency and triggers for updates could either be decided by individual sea basins, or included in any EU guidelines or directive.

Linking MSP to renewable energy targets

It will be important for the Member States to transparently demonstrate reliability of their future use visions as a basis for transnational planning. This means that national MSP processes need to be aligned with broader Member State policies and targets. Of particular relevance is the need to align MSP zoning practices to Member State offshore renewable energy ambitions.

This is complicated by the medium term nature of renewable energy target setting in the EU, with Member State efforts primarily driven by 2020 objectives in the RES Directive. Given the need for longer term MSP visions, there is a need for longer-term renewable

[120] HELCOM-VASAB, 2011, MSP Principles, Plan Bothnia, Finland, Helsinki, March 2011.

energy objectives and, in particular, for Member States to outline the offshore renewable energy component of these objectives.

- Common MSP procedural timelines and planning timeframes should be used by Member States where feasible.
- Member States should prepare a preferred spatial management plan in the form of predicted growth of different uses, management measures, targets and zoning maps.
- National sea basin management plans should then be coordinated at international borders for the relevant sea basin.
- There should be a provision for sharing of information, in particular sea basin management plans,
- Monitoring of objectives should be agreed regionally and build on or be part of assessments carried out by regional organisations.
- The frequency of transnational MSP meetings/ forums and updates of national plans should be agreed. Triggers for non-regular discussions should also be agreed.
- National MSP should be aligned with (that is, provide sufficient zones for) national offshore renewable energy ambitions in the medium and long term (for example NREAPs).
- Longer-term EU RES targets should be implemented to encourage transnational MSP, particularly with regards to offshore renewables and grid infrastructure.
- The Commission should arbitrate where cross-border issues cannot be agreed.

4.5.6 Content

In addition to coordinating different Member State visions for the future of a sea basin, a regional MSP forum can address many other topics that relate to MSP and the cross-border implications of offshore renewable energy. However, it remains important to reduce barriers to cooperative approaches and minimise any possible impingement on Member State solidarity. Therefore, it is recommended that the scope of this additional content is determined at the regional or sea basin level. Some issues, for example coordinated offshore grid planning, are more relevant for one sea than another.

Grid planning

Having offshore renewable energy plans collated at a central forum offers an excellent opportunity for the discussion of offshore grid development and transmission capacity expansion. These are issues that can only be dealt with adequately in consultation with neighbours. Interconnections between countries (both onshore and offshore) depend on the capacity expansion plans of each country. More importantly, investment and operation of common infrastructure, for example in the form of offshore grid, must be shared on the basis of the costs and benefits each party will receive. Finally, the geographic planning of an offshore grid will require reliable information on the location and timing of offshore renewables deployments as well as commitment from national authorities and the market to develop in accordance with those plans.

> *"...each country's territorial or jurisdictional waters are part of a dynamic global system connected by shifting winds, seasonal currents and migrating species. Therefore analysing the processes that govern the present state and future behaviour of these waters cannot rely exclusively on data collected within a country's own jurisdiction. Cooperation across borders is needed."*
>
> *(European Commission, 2009)*

Much of this information could be made available through regional sea basin MSP forums that could allow parties to agree on a master plan for grid connection in the medium term. These forums could also offer the opportunity to engage with transmission system operators (TSOs), or even a regional offshore TSO, should such a role be defined in the future in a given sea basin. The North Seas Countries Offshore Grid Initiative (NSCOGI), which joins a number of North Sea countries in collaboration to create an integrated offshore energy grid, takes a similar approach. NSCOGI is not primarily concerned with MSP, but it works as a platform where Member States exchange info on their planning procedures. Integrating these cooperative efforts on offshore grid into a broader MSP framework and forum could allow a more effective approach to planning offshore grids. It could also make it easier to address interactions with other sea uses and potential ecosystem impacts.

Data and research

Given the history of data collection in the maritime zone and the different expertise required, there are often a large number of institutions responsible for marine data collection.

There is a need to improve the harmonisation, availability and efficiency of collection of data regionally and ideally between regions as well. In stakeholder consultations, such cooperation was thought to offer significant benefits for offshore renewable energy and MSP, by reducing costs of data collection and improving the quality of information on which decisions are based. A regional MSP forum could:

- Develop clear guidelines on who is responsible for the different data sets that should be collected.
- Provide guidelines on common data formats and minimum criteria for acceptance for MSP purposes, including checks on meeting the INSPIRE Directive 2007/2/EC.
- Provide a point of interaction on the Marine Knowledge 2020 initiative and the European Marine Observation and Data Network[121] (EMODNET),
- Introduce data sharing, including identifying who is responsible for MSP related data sets within each Member State to create a network of contacts,
- Provide better distribution and efficiency of research efforts through sharing of current initiatives and cooperating on future research in terms of equipment, expertise, data and methodologies. This would make data more comparable and avoid overlapping work[122].

Management measures (including permitting)

Currently, maritime management measures – in particular permitting procedures for various activities including offshore renewable energy – are nationally determined. Member States differ in the authorities or departments used for offshore renewable energy permitting, the number of authorities required, the process for obtaining permits and the requirements for applying and monitoring. There are significant opportunities for Member States to increase coordination of permitting procedures.

This could improve efficiencies and reduce costs for offshore renewable energy project developers, particularly those considering their options in different Member States or applying for projects in a number of EEZs. It could also help to improve the ease with which cross-border projects (for example offshore grid) are considered and approved. Finally there is the opportunity for Member States with harmonised procedures to share lessons and experience to improve their permitting processes.

Sea use interactions

Another area of possible coordination is on definitions of sea use interactions; what activities/uses are allowed to co-exist or share space with one another and under what conditions. Although there is broad consensus between Member States on how different sea uses are treated with respect to one another, there are a number of instances where Member States take different positions. For example, fishing is generally not allowed within offshore wind farms in the North Sea, except in Denmark where certain types of fishing is permitted. There is an opportunity for regional MSP forums to agree on common principles for treating certain sea uses. This does not necessarily set priorities for different sea uses, and zoning would still be up to Member States. But it could provide clarity over what level of coexistence/co-use/shared-use is possible.

- Regional forums should address all significant sea uses in a sea basin.
- Regional forums should discuss options for agreeing on a common understanding of sea use interactions.
- Regional forums should be used to agree timeframes for improving data quality, commonality and availability, building on the INSPIRE Directive.
- Regional forums should seek to harmonise spatial management measures including permitting requirements and regulations.
- Regional forums should share current research efforts and seek to agree research priorities and responsibilities within a sea basin.

[121] https://webgate.ec.europa.eu/maritimeforum/category/162.
[122] Policy Research Corporation, 2011.

4.5.7 Interactions with existing EU initiatives

New initiatives to promote cooperation on transnational MSP will not exist in isolation. They must complement current EU legislation and efforts. Of particular relevance are the EU initiatives on integrated coastal zone management (ICZM) and the Marine Strategy Framework Directive (MSFD). Both of these have areas of overlap with MSP.

Coastal zones are the interface between terrestrial planning and MSP. Their unique characteristics mean that specialised techniques have been developed to manage this interface, in particular ICZM, which was the subject of an EU recommendation in 2002. Together the Directorate General for Environment and the Directorate General Maritime Affairs (MARE) launched a review of the EU ICZM Recommendation in 2010 including an impact assessment and consultation. The review will be used to explore the need and options for future EU action, including the possibility of combining ICZM with MSP in some way, perhaps through a single instrument. Seanergy 2020 does not take a position on the need for a common instrument or approach to address both ICZM and MSP, with regards to offshore renewables.

The interaction of any new efforts on MSP with the Marine Strategy Framework Directive (MSFD) also needs to be considered. A number of NGOs have expressed the desire to see any binding requirement to apply MSP "enshrined in the MSFD, perhaps as an annex to the existing Directive"[123]. However, the MSFD is designed to achieve or maintain a good environmental status by 2020, with a focus on preserving biodiversity. Given this underpinning environmental perspective, an MSFD centred approach to MSP may not offer the best balance of economic, social and environmental considerations.

Using the MSFD as the main framework for reviewing planning activities could be a barrier to economic development and, in particular, offshore renewable energy. A dedicated instrument and forum for MSP, as proposed in this report, would provide a strong tool for achieving the goals of the MSFD, while balancing this with development objectives.

[123] MSP – Joint NGO position paper 2011, www.mio-ecsde.org/_uploaded_files/article_file_244_S1V18GIL9LNPN.pdf (last accessed: 19/10/2011).

Photo: Eneco

5 CONCLUSIONS

As a tool for planning and integrating different uses of the sea, MSP has strong foundations within current legislation, organisations and initiatives. MSP is promoted within the EU's Integrated Maritime Policy, the Marine Strategy Framework Directive and the Strategy for the Baltic Sea Region as well as the work of UNESCO, HELCOM and OSPAR, amongst others. Its value for offshore renewable energy deployment is clearly referenced in the EU's Roadmap for MSP and principles: "MSP can play an important role in mitigation, by promoting the efficient use of maritime space and renewable energy". Moreover, MSP can enable the development of offshore renewable energy by reducing the risk for developers and increasing investment opportunities. Where MSP includes the designation of zones for the development of offshore renewables, this offers project developers greater certainty of access to those sites, increasing the project's appeal to investors. A clear MSP process will allow for greater transparency in terms of planning and permitting procedures. Moreover, MSP promotes an efficient use of space by potentially allowing offshore renewables projects to be developed within a given area through integrated planning with other users, while respecting the ecological, social and economic objectives.

Work carried out by the Seanergy 2020 project shows that current national MSP efforts are largely fragmented with little emphasis on cross-border consultation or planning. The particular set-up of national MSP is context specific. It depends on factors such as how planning has traditionally been addressed within a Member State, the needs of MSP for that Member and the institutional framework that underpins MSP efforts. There is no single "best" framework that would be most appropriate for all Member States. While there are different approaches for MSP policy and the legal framework, the key to an effective MSP that enables offshore renewable development seems to be a good balance between ecological, social and economic objectives.

Existing international MSP instruments do not explicitly consider offshore renewables. Although they do not have a strong influence on offshore renewables, they can have an indirect impact when transposed into national legislation. There seem to be limited opportunities to modify and create new international instruments for MSP and offshore renewables. These limited opportunities and the difficulties of an international approach provide strong arguments for a transnational approach to MSP.

Because many maritime activities and values, including offshore renewable energy, have a cross-border dimension, a more coordinated transnational approach to MSP could improve decision making. Of most relevance to offshore renewable energy is the potential added efficiency of cross-border coordination, along with expanded opportunities for deployment and/or cost savings from cooperation on shared infrastructure. In particular, transnational approaches to MSP could offer advantages such as;

- More efficient government coordination that results in improved decision making.
- Reduced transaction costs (search, legal, administrative, and opportunity costs) for maritime activities.
- Enhanced certainty on exploitation potential resulting in an improved investment climate.
- Improved ability to address nature conservation at an ecosystem level.
- Improved opportunities to collaborate on cross-border infrastructure, such as offshore grid, that can open new areas of a sea to development.

EU level action on MSP is deemed to be an appropriate way forward. A directive focussed on encouraging cross-border cooperation supplemented by national MSP would require Member States to open direct communication on the details of their national MSP, without dictating outcomes.

This would give cross-border cooperation a firm legal footing, whilst leaving implementation to the Member States, and comes closest to satisfying the understanding of planning competences that exist within the EU. It is possible that a similar approach through less binding interventions such as guidelines, working groups or regional sea basins could also achieve the required outcomes.

An appropriate framework for promoting cross-border cooperation on MSP could create an enabling environment for the deployment of offshore renewables beyond 2020.

Photo: Alpha Ventus

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The project will provide an in-depth analysis of the national and international Maritime Spatial Planning (MSP) practices, policy recommendations for developing existing and potentially new MSP for the development of offshore renewable power generation, and promote acceptance of the results.