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Balancing Environmental Protection and Production of Marine Renewable Energy through Maritime Spatial Planning

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Master's thesis

Author:
Elina Soininen

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Abstract page

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This thesis systemises the legal framework of maritime spatial planning and the implementation of ecosystem-based approach in the European Union. The aim is to assess whether the EU's Maritime Spatial Planning Directive can work as an instrument to safeguard environmentally safe production of renewable energy at sea. It is discussed whether the MSPD can help resolve the conflicting interests of marine protection and climate change mitigation by producing marine renewable energy. In this thesis it is argued that the Directive is vague in its obligations and leaves too much discretion to the Member States. To answer this question, this thesis also examines the framework of the ecosystem-based approach, which is required by the Maritime Spatial Planning Directive to be applied in the national planning of the Member States. Finally, this thesis seeks to assess how the objectives of marine protection and the promotion of renewable energy can be reconciled in the future.

The analysis is built on legal dogmatics in the systematisation of EU legislation. As this thesis ultimately looks to the future and makes recommendations, regulatory theory is also used as a method to develop a framework in which the desired objectives can co-exist. In addition, the ecosystem-based approach is used, as this thesis analyses EU legislation from the ecosystem perspective. The primary object of analysis is the Maritime Spatial Planning Directive and main research material consists of legal literature and official communications by the European Commission.

While the promotion of renewable energy often refers to the need to ensure environmental protection, and while the Maritime Spatial Planning Directive requires the application of the ecosystem-based approach, this paper argues that these instruments do not provide adequate protection for the marine environment and thus does not resolve the conflict between the objectives. The obligations are vague, and it is uncertain what the Member States should assess in individual projects and individual areas. Furthermore, it is concluded, that the vague application of the ecosystem-based approach globally does not support the assessment of environmental factors. For maritime spatial planning to successfully work as a means to resolve these conflicts, it should recognise environmental requirements. This thesis argues that the co-existence of these two objectives requires better guidelines on what is expected of the Member States and how these objectives should be weighed in balancing the interests.

Keywords: renewable energy sources, protection of the seas, maritime spatial planning, ecosystem-based approach, sustainable development, biodiversity, EU law

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Tiivistelmäsivu

Pro gradu -tutkielma

Oppiaine: Ympäristöoikeus
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Tässä tutkielmassa tarkastellaan Euroopan unionin merialuesuunnittelun oikeudellista kehystä ja ekosysteemiin perustuvan lähestymistavan soveltamista Euroopan unionissa. Tavoitteena on arvioida, voiko EU:n merialuesuunnitteludirektiivi toimia välineenä, jolla turvataan ympäristöturvallinen uusiutuvan energian tuotanto merellä. Keskeistä on tutkia, auttaako direktiivi ratkaisemaan ristiriitaiset intressit, jotka liittyvät meriensuojeluun ja uusiutuvan energian tuottamiseen merellä ilmastonmuutoksen hillitsemiseksi. Tutkielmassa argumentoidaan, että direktiivi on velvoitteiltaan epäselvä ja jättää liikaa harkinnanvaraa jäsenvaltioille. Lisäksi tutkielmassa tarkastellaan myös ekosysteemiin perustuvan lähestymistavan puitteita, sillä merialuesuunnitteludirektiivissä edellytetään, että lähestymistapaa sovelletaan kansallisten suunnitelmien laadinnassa. Lopuksi arvioidaan, miten meriensuojelun ja uusiutuvien energialähteiden käytön edistämisen tavoitteet voidaan sovittaa yhteen tulevaisuudessa.

Tutkielman analyysi rakentuu lainopin varaan EU:n lainsäädäntöä tulkiten ja systematisoiden. Koska tutkielmassa suunnataan katse tulevaisuuteen ja annetaan suosituksia, menetelmänä käytetään myös sääntelyteoriaa kehitettäessä puitteita, joissa näitä kahta tavoitetta voidaan edistää rinnakkain. Lisäksi menetelmänä hyödynnetään ekosysteemiin perustuvaa lähestymistapaa, koska tutkielmassa analysoidaan EU:n lainsäädäntöä ekosysteemin näkökulmasta. Analyysin ensisijainen kohde on merialuesuunnitteludirektiivi, ja pääasiallinen tutkimusaineisto koostuu oikeuskirjallisuudesta ja Euroopan komission virallisista tiedonannoista.

Vaikka uusiutuvan energian edistämisessä viitataan usein tarpeeseen varmistaa ympäristönsuojelu, ja vaikka merialuesuunnitteludirektiivissä edellytetään ekosysteemiin perustuvan lähestymistavan soveltamista, tutkielmassa väitetään, että nämä instrumentit eivät tarjoa asianmukaista meriensuojelua ja siten eivät voi selventää näiden tavoitteiden välistä konfliktia. Velvoitteet ovat epäselviä ja on epävarmaa, mitä elementtejä jäsenvaltioiden pitäisi arvioida yksittäisissä hankkeissa ja yksittäisillä alueilla. Lisäksi tutkielmassa todetaan, että ekosysteemiin perustuvan lähestymistavan epäjohdonmukainen soveltaminen globaalisti ei sinänsä tue ympäristötekijöiden arviointia. Jotta merialuesuunnittelu toimisi asianmukaisena keinona ratkaista nämä ristiriidat, sen olisi tunnustettava ympäristövaatimukset asianmukaisesti. Jotta nämä molemmat tavoitteet voidaan toteuttaa rinnakkain aiheuttamatta haittaa toiselle, tässä tutkielmassa esitetään, että olisi laadittava paremmat EU-tason suuntaviivat siitä, mitä jäsenvaltioilta tarkalleen odotetaan ja kuinka tavoitteita tulisi painottaa.

Avainsanat: uusiutuvat energialähteet, meriensuojelu, merialuesuunnittelu, ekosysteemiin perustuva lähestymistapa, kestävä kehitys, biodiversiteetti, EU-oikeus

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List of Abbreviations

EU	European Union
IMP	Integrated Maritime Policy
MRE	Marine Renewable Energy
MSFD	Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy
MSP	Maritime Spatial Planning
MSPD	Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning
OECD	Organisation for Economic Co-operation and Development
RED II	Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources
TFEU	Treaty on the Functioning of the European Union
UN	United Nations
UNCLOS	United Nations Convention on the Law of the Sea
UNESCO	United Nations Educational, Scientific and Cultural Organization
WWF	World Wildlife Fund

1 Introduction

1.1 Background

The need for marine protection increases as new ways of using the ocean space are developing in addition to the current uses, and to answer this need, this thesis aims to systemise maritime spatial planning (MSP) from environmental protection perspective. In the European Union (EU) the Maritime Spatial Planning Directive[1] (MSPD) was adopted in 2014 and maritime spatial planning is defined in its Article 3 as "a process by which the relevant authorities of the Member States analyse and organise human activities in marine areas to achieve ecological, economic and social objectives". Maritime spatial planning consists of the co-organisation and coordination of the activities in the marine areas and the exploitations of marine resources in a sustainable way.[2] Through it, the EU tries to fit together the different activities taking place in the seas and oceans.

The relevance of maritime spatial planning has increased in the EU through the promotion of marine renewable energy (MRE) as, naturally, installations in the offshore areas will have an effect on the marine ecosystems. Marine renewable energy has an essential role in the battle against climate change and thus, it is important to increase its production. At the same time, however, the environmental protection of the seas must be ensured. The operation of the devices and transmitting the produced energy to the shore by cables may cause harm to the marine environment and to the species inhabiting the marine ecosystems.[3] With marine renewable energy, as with any other use of the sea, several legal questions arise concerning for example the conflicts of use and sustainable development, as well as the exploitation of common resources.[4] Therefore, this thesis analyses whether maritime spatial planning can work as a means to coordinate the different activities of the ocean, by using as an example the deployment of renewable energy.

The exploitation of the marine resources has been based on the belief that the resources are infinite, or at least far greater than then economic and social needs of humans.[5] However, the management of human activities has not taken marine conservation sufficiently into account,

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[1] Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.
[2] Soria-Rodriguez 2019, p. 99.
[3] van Hees 2019, p. 28.
[4] Boillet – Gueguen-Hallouet 2015, p. 136.
[5] Pyć 2019, p. 380.

and this assumption of endless resources has been proven to be faulty, as the continuous degradation of the marine environment and ecosystems have been indicated by research.[6] This is now intensified with global threats such as sea-level rice, ocean acidification and other negative effects caused by climate change. Oceans are vital for the life on the planet, which should highlight the importance of building more sustainable management measures that include biodiversity conservation.[7] Therefore, it is important to combat climate change to protect the oceans and their ecosystems, but also to find a way to do it without harming the oceans on the way.

In addition to marine renewable energy having climate change objectives, it can also be driven by economic interests. To this date, the issue of balancing between economic development and conserving the marine environment has been a significant challenge for maritime spatial planning as well.[8] Therefore, there is a risk that economic objectives are prioritised also when considering marine renewable energy and protecting the oceans. In general, maritime spatial planning is considered an important process to ensure the sustainable exploitation of marine resources and areas and is seen as an implementation measure of the ecosystem-based approach.[9] However, it has been argued that many of the current maritime spatial planning processes do not consider the conservation objective enough, which could create the foundation for a sustainable future, but instead prioritise economic goals over environmental interests.[10] In the Article 5 of the MSPD, a direct requirement for adopting an ecosystem-based approach was made, but the actual application of the principle has been left open.

The ecosystem-based approach has been seen as a way to resolve the clashing interests regarding the use of oceans, so it is natural to analyse maritime spatial planning and ecosystem-based approach together. By conducting this analysis, the aim is to find out, if the ecosystem-based approach is the foundation for the implementation of the MSPD. There is no commonly agreed definition for the ecosystem-based approach, nor terminology[11], but one definition could be “the comprehensive integrated management of human activities based on the best available scientific knowledge about the ecosystem and its dynamics, in order to

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[6] EEA Report No 17/2019, p. 24.
[7] Pyć 2019, p. 380-381.
[8] Frazão Santos – Agardy – Andrade – Crowder – Ehler – Orbach 2021, p. 2.
[9] Friess – Grémaud-Colombier 2021, p. 1.
[10] Frazão Santos – Agardy – Andrade – Crowder – Ehler – Orbach 2021, p. 2.
[11] See for example De Lucia 2014, p. 10.

identify and take action on influences which are critical to the health of marine ecosystems, thereby achieving sustainable use of ecosystems goods and services and maintenance of ecosystem integrity".[12] From the perspective of marine protection, the ecosystem-based approach forms an essential part of the MSPD. Thus, in this thesis, it is essential to first identify the framework of ecosystem-based approach to discuss the environmental objectives of the Directive, and then ultimately analyse the conflict between production of marine renewable energy and marine protection. The term ecosystem in itself is defined in the Article 1 of the 1992 Convention on Biological Diversity[13] as "a dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit". The marine environment can be considered both as an ecosystem and as a network of ecosystems.[14]

The increased promotion of marine renewable energy stems from the obligation to hold the increase in the global average temperature to below 2°C above the pre-industrial levels, which is stated in the Article 2 of the UN Paris Agreement[15]. Climate change is a major threat to the world and over 75 % of the EU's greenhouse gas emissions come from the production and the use of energy.[16] Thus, the EU aims to decarbonise the energy system as a means to battle climate change, which means increased usage of renewable energy. The recast Renewable Energy Directive's[17] (RED II) Article 3 requires that by 2030 the share of energy from renewable sources in the EU's gross final consumption of energy is at least 32 %. To achieve this goal, and the additional goal set by the EU Green Deal[18] to be the first climate-neutral continent, the European Commission has fostered marine renewable energy as a means. [19]

This objective to foster marine renewable energy is clarified in a communication from the Commission on the EU's Blue Economy,[20] which set out a plan for achieving the objectives of climate neutrality and zero pollution via marine renewable energy.[21] The EU's Blue Economy agenda highlights the potential which the seas have in making the European

[12] ICES 2005, p. 4.
[13] United Nations Convention on Biological Diversity 1992.
[14] Long 2010, p. 3.
[15] United Nations Paris Agreement 2015.
[16] COM(2019)640 final, p. 4.
[17] Directive (EU) 2018/2001 of the European Parliament and of the Council of 11 December 2018 on the promotion of the use of energy from renewable sources (recast).
[18] COM(2019) 640 final.
[19] COM(2020)741 final, p. 1.
[20] COM(2021)240 final.
[21] COM(2021)240 final, p. 3 and 6-7.

Union's economy fairer, more flexible, and more sustainable.[22] The global goal of decarbonising the energy market has led to unpresented interest in marine renewable energy sources.[23] This creates one of the main challenges of the Blue Economy, as it needs to be ensured that the deployment of new technologies, which are necessary for climate change mitigation, does not compromise the preservation of the marine environment.[24] In line with EU's Strategy to Harness the Potential of Offshore Renewable Energy[25], the role of marine renewable energy will significantly increase in the future with technological improvements and reductions in manufacturing costs. [26]

The conflict around a technology that could mitigate the impacts of climate change, but itself can damage the marine environment, is a good example of the difficult choices that need to be made in the use of marine resources.[27] Thus, in this thesis, it is examined how the objectives of promotion of renewable energy and protection of the environment can co-exist through maritime spatial planning.

1.2 Research Questions, Objective and Scope

This thesis aims to advance both the discourse of maritime spatial planning and ecosystem-based approach through research on the marine renewable energy. Marine renewable energy is of particular interest as it represents the challenge of combining different, positive interests and as it is a new industry. As the political and commercial interests in marine renewable energy have increased, the interest in legal literature is also emerging, with growing number of studies on the aspects of marine renewable energy development, for instance considering policy and financing issues.[28] Marine renewable energy has been the principal driver of maritime spatial planning, and thus it is useful to analyse MSP by using marine renewable energy as an example in the coordination of different activities.

The main research question thus is, can the conflicts between marine protection and promotion of marine renewable energy be solved through maritime spatial planning? In order to answer the main question, also two support questions will be discussed; what kind of

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[22] COM(2021)240 final, p. 1.
[23] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 126.
[24] COM(2021)240 final, p. 1.
[25] COM(2020)741 final.
[26] COM(2020)741 final, p. 15-16.
[27] See for example Van Doorn – Gahle 2018, p. 81.
[28] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 127.

framework does the ecosystem-based approach offer to maritime spatial planning, and how can these two important goals of protecting the marine environment and increasing the production of renewable energy co-exist?

It is been argued that there is a significant tension between the Commission's renewable energy targets and the goal of preserving the oceans, even though the EU has previously emphasised the compatibility of the use of marine renewable energy, conservation measures, and sustainable management of marine ecosystems.[29] In previous research it has been suggested that the ecosystem-based approach could be the key in maritime spatial planning to achieve the goals of preserving and securing the seas and oceans while pursuing the other objective as well in a sustainable way, thus resolving the dilemma.[30] However, as the implementation of the approach is not universally agreed upon, this creates further challenges in determining how to apply it in the maritime spatial planning processes. This is the crucial problem in the application of sustainable development in general, how to both protect the environment and exploit it at the same time, and it is particularly challenging in questions concerning the oceans as in many ways they are still poorly understood.[31] Thus, in this thesis the framework of the ecosystem-based approach will be analysed and whether it offers guidance in the implementation of the EU's legislation concerning maritime spatial planning.

Through systemising the EU's MSP legislation and the ecosystem-based approach in it, it is argued in this thesis that the EU's maritime spatial planning is not yet sufficiently coherent with the different policies, and it cannot solve the conflict between protecting the marine environment and producing more renewable energy. The goal is to help identify what kind of improvements should be made in the EU's policy framework on maritime spatial planning for it to take better into account the different objectives.

The importance of this thesis stems from a key point which has been suggested for legal research in marine renewable energy, that it needs to be ensured that the innovation of new technologies does not endanger the marine environment, particularly in the deployment of marine renewable energy technologies.[32] This is because there is a concern that processes currently existing to protect the ecosystems are going to be replaced by the policies

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[29] Decision No 1386/2013/EU Annex, para. 21.
[30] Ehler – Zaucha – Gee 2019, p. 3.
[31] Ehler – Zaucha – Gee 2019, p. 3.
[32] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 128.

attempting to achieve the carbon reduction goals, thus causing "paradoxical harm" to the marine ecosystems.[33] Previous research on legal environmental aspects of marine renewable energy have focused on issues such as the permitting processes for MRE. However, in legal literature, it has been acknowledge that there is a great necessity to establish the regulatory frameworks concerning the environmental impacts and restrictions in the deployment of marine renewable energy.[34] The importance of recognising the positive effects of marine renewable energy have been established as well.[35] Thus, when researching this topic, it is important to establish the guiding principles of these developments, and the priorities of the ocean.[36] Hence, this thesis aims establish the EU's MSP regulatory framework regarding environmental impacts, and to find out, have the priorities been established in the MSP and renewable energy legislation in order to balance the objectives.

When dealing with marine renewable energy and other uses of the ocean, the legislation governing the protection of the seas is of great importance. The multi-level legislation on the substance and the fragmented EU legislation on the protection of the marine environment create their own challenges for research. For this reason, international analysis will be left out to produce a coherent picture of the EU-level legislation, even though international obligations should be also kept in mind when discussing about this issue. As implied, there is no single instrument regulating the protection of the marine environment from the impact of marine renewable energy, as the EU has over 200 pieces of legislation that concern the issue.[37] The EU's protection of the marine environment is largely scattered in many directives, so it is not easy to get the legislation to cover every question but also to not overlap. Thus, the identification of the most relevant instruments and building a coherent picture from those is also one of the challenges this thesis has. For this reason, this thesis concentrates on maritime spatial planning, as it has been recognized as the key instrument in trying to combine the uses of seas and the many legislative instruments concerning the protection of the marine ecosystems. It has been suggested that for maritime spatial planning to truly work in a sustainable manner, the national planning authorities should cooperate with their neighbouring authorities during the planning process, and the planning should move

[33] White 2012, p. 68. Author writes about biofuels, but same principles could be applied in the case of marine renewable energy, as it also effects the biodiversity.
[34] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 132.
[35] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 128.
[36] See also for example Ehler – Zaucha – Gee 2019, p. 4.
[37] Soria-Rodríguez 2020, p. 97.

away from national maritime spatial planning processes towards regional and international processes.[38] For that reason, the scope of this thesis is the EU legislation and national analysis will be left out, even though the subject also has national interests as, according to the Article 15 of the MSPD, the Member States were obligated to create their own national maritime spatial plans by 2021 and implement the Directive into their national legislation. This thesis builds on previous research concerning the EU regulation on marine environment, which, for example, *Soria-Rodriguez* and *Long* have thoroughly simplified and explained.

Furthermore, as oceans in itself are a multi-dimensional concept and the sustainable use of the marine resources requires efforts from various scientific disciplines and different types of knowledge, typically the research concerning oceans requires the adoption of a multidisciplinary approach.[39] As this thesis is legal, it is noted, that the multi-dimensionality of the oceans causes some challenges in the research, because other knowledge would be required to fully understand the effects on the marine environment.

1.3 Research Method and Materials

In pursuance of systemising maritime spatial planning and the framework for promotion of renewable energy, this thesis uses legal dogmatics as a method in its analysis, as the method's main task is often to systemise law.[40] This thesis discusses and assesses the relevant legal instruments and norms, as well as clarifies their contents. Legal dogmatics offers suitable tools to critically analyse maritime spatial planning, as well as the ecosystem-based approach as a theory.[41] This provides the answer to the main research question and the second research question. What comes to the field of law, this thesis is a part of environmental law research, in particular maritime and energy law. As is often the case with environmental law, this thesis looks forward and gives recommendations, which requires regulatory theory method.[42] The method, which most often considers the effectiveness of a regulation, is used when answering the third research question.

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[38] Frazão Santos – Agardy – Andrade – Crowder – Ehler – Orbach 2021, p. 2.
[39] Ehler – Zaucha – Gee 2019, p. 2-3. Environmental law research in general often requires multidisciplinary approach, see Kokko 2014, p. 288.
[40] Määttä 2015, p. 11.
[41] Kokko 2014, p. 293-294.
[42] Kokko 2014, p. 286.

In addition, the ecosystem-based approach is used as a method in this thesis.[43] Even though maritime spatial planning and renewable energy promotion implements many interests, such as economic, in this thesis those legislative acts will be analysed from the ecosystem point of view. The use of many methods simultaneously is not uncommon in environmental law research and can even be argued to be a criterion for a successful research work.[44] Thus, this thesis is not limited to the use of a single method but uses several methods for a deeper dialogue.

In this thesis, the main objects of analysis are the legislative works of the EU, more precisely MSPD. For instance, communications and reports adopted by the EU are of utmost importance in the assessment of these legislative works. Much of the research material consists of legal literature, too. It should also be noted that previous studies concerning maritime spatial planning have mainly considered licensing procedures and marine management in general. Very little research has been yet conducted on the maritime spatial plans adopted by the Member States, which creates limitations to the in-depth analysis of the plans and their effectiveness. Previous studies on the promotion of marine renewable energy have considered the marine protection laws of the EU in general, but very little focus has been on the maritime spatial planning from the environmental protection point of view. The existing material has, however, helped to deepen into the issues handled in this thesis.

1.4 Structure

This thesis consists of six chapters. The first chapter presents the introduction to the subject and introduces the research questions and objectives. The second chapter outlines the theory on ecosystem-based approach, which helps analysing maritime spatial planning from environmental protection perspective. The chapter also presents the ecosystem viewpoint for this thesis. The third chapter outlines the EU legislation for maritime spatial planning from environmental perspective, its implementation and achieved goals, and examines how the ecosystem-based approach can be seen in the legislation. Thus, the second and third chapters both help create the answer to the first research question and answers the second question. In the fourth chapter the environmental limitations for the promotion of marine renewable energy are discussed. This provides the concluding answer to the first research questions, as the conflict between marine renewable energy and marine protection will be analysed. In the

[43] See for example Laplante 2005, p. 398-399, further discussion in section 2.1.2.
[44] Määttä 2015, p. 52.

fifth chapter the potential for co-existence will be discussed, which provides an answer to the third research question. After that, in chapter six, the concluding remarks are presented and answers to the research questions will be summarised.

2 The Ecosystem-Based Approach

2.1 Introductory Remarks

2.1.1 (Lack of) Definition of the Ecosystem-Based Approach

To find an extensive answer to the main research question, in this chapter, the legal theory framework of the ecosystem-based approach will be discussed to answer the second research question. This discussion is based on relevant literature and on examples of the implementation of the approach in the EU law. Understanding the background of the ecosystem-based approach to the maritime spatial planning will help understand the conflict resolution analysed later, as the MSPD involves the application of an ecosystem-based approach.

As a response to the hopes of stopping, and reversing, the increasing global overexploitation of natural resources and degradation of the biodiversity, the ecosystem-based approach has been created to "protect the environment, maintain healthy ecosystems, preserve biological diversity, and achieve sustainable development".[45] A Report by the UN Secretary-General on the Oceans and the Law of the Sea in 2004 has recognised that the ecosystem-based approach is one of the most fundamental policy measures in environmental and natural resource management developed in the last decades.[46] As a policy measure, *Morgera* has proposed that the implementation of the ecosystem as an object into a legal structure has created the foundation for the regulatory development of the ecosystem-based approach, thus having a "law-making effect"[47]. The approach introduces a way to balance the management of the different elements of the marine ecosystems, such as biological and physical, and it incorporates human activities with the ecosystems, including the production of marine renewable energy,[48] and thus has a similar objective as MSP. The ecosystem-based approach as a theory develops as more scientific knowledge on the ecosystems, their functions, and how they response to human activities is received.[49] Generally, despite the lack of a commonly recognized definition of the approach in international law, there appears to be no significant problems in the adoption of the concept.[50] As the concept of ecosystem-based

[45] De Lucia 2015, p. 92.
[46] UN Doc. A/59/62/ Add.1 2004, p. 63, para. 244.
[47] Morgera 2017, p. 71.
[48] Soria-Rodriguez 2016, p. 327.
[49] Long 2012, p. 421
[50] UN Doc. A/61/156, para. 6.

approach and its definition very much depend on the context, and as its functioning does not depend on the actual definition, this thesis does not try to find one single explanation to it. In this thesis, however, it is held that the main idea of the ecosystem-based approach is to combat fragmentation by prioritising ecosystems in the different activities. The differing approaches will be discussed to create a framework where maritime spatial planning can be managed. Likewise, as the definitions vary, also the term used in different instances varies between "ecosystem-based approach", "ecosystem-based management" and "ecosystem approach"[51], but in this thesis the first one is chosen.

Sustainable development is a key element in the application of the ecosystem-based approach as well as in the development of marine renewable energy. Thus, in this thesis, sustainable development is defined as "the development that meets the needs of present generations without compromising the ability of future generations to meet their needs"[52].

The ecosystem-based approach started to first emerge in international law through the adoption of the Convention on Biological Diversity in 1992 through the different requirements which aimed to manage human activities to conserve biodiversity. The Summit in which the Convention was signed, resulted in a Rio Declaration which requires that the states should cooperate in global partnership to conserve, protect and restore the health and integrity of the ecosystems.[53] The Convention on Biological Diversity or Rio Declaration do not clarify what the ecosystem-based approach means, but later it has been described as a "strategy for the integrated management of land, water and living resources that promotes conservation and sustainable use in an equitable way"[54]. The approach has been further clarified by for example the "Malawi Principles"[55], which suggest that the ecosystem-based approach should seek to consider the effects of the activities, the priority should be the conservation of ecosystem structure and functioning, it should seek the appropriate balance between, and integration of, conservation and the use of biological diversity. The principles

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[51] The terms ecosystem approach and ecosystem-based management has slightly different nuances and could argued to be different terms, but sometimes the ecosystem-based management is even referred to as ecosystem approach. Ultimately, these two terms have the same idea and goal, and thus the little nuances in the definitions (which neither universally has), does not matter when discussing about the matter. Most often the term "ecosystem approach" is preferred. Thus, in this thesis, weight is not given to which of these terms is discussed. For further discussion about the terms see Delacámara – O'Higgins – Lago – Langhans 2020, p. 43-46.
[52] COM(2019)22 final, p. 6.
[53] Report of the United Nations Conference on Environment and Development 1992, p. 4.
[54] COP 5 Decision V/6, Description of the ecosystem approach.
[55] UNEP/CBD/ COP/4/Inf.9 1998, twelve principles/characteristics of the ecosystem approach to biodiversity management were identified.

further propose that all relevant information, such as scientific and indigenous and local knowledge, as well as knowledge regarding innovations and practices should be used in the application of the approach.[56] However, as previously stated and referring to the definition used in the introduction of this thesis, other possible definitions may be used. For example, the ecosystem-based approach could be summarised as representing several ecological principles of law: it combats fragmentation, and takes attention away from individual objects, such as individual species and individual management and policy options, and instead leads to restoration and enhancing the resilience of the ecosystem as a whole.[57] The idea for developing this ecosystem-based approach is that as the ecosystems cannot be managed, the human activities that have an effect on the ecosystems and interact with them are managed instead, by measures that should conserve the biodiversity and promote sustainable development.[58]

The extensive recognition of the ecosystem-based approach is argued to be a reaction to continuous failures in environmental protection and management, which have led to fragmented approaches to management measures.[59] This underlines the value of the ecosystem-based approach in fixing past mistakes in the global environmental protection work. The progress of the ecosystem-based approach to a key management measure also in the European Union law has been an important step towards taking political responsibility for protecting the environment and guaranteeing the sustainable use of natural resources.[60]

As there is no single definition for the approach, there seems to be a lack of coherent implementation policy of the ecosystem-based approach as well, which is why the implementation is very much contingent upon the specific context.[61] Hence, this presents challenges within the EU, because there is no specific implementation policy of the ecosystem-based approach and the characteristics of marine areas differ significantly, as will be discussed later in this chapter. However, it has been proposed that the application should focus on interconnections within the ecosystems, improve sharing of benefitting practices, deploy adaptive management measures, and ensure cross-sector cooperation.[62] The

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[56] UNEP/CBD/ COP/4/Inf.9 1998.
[57] De Lucia 2014, p. 3.
[58] Long 2010, p. 4.
[59] Ryan Enright – Boteler 2020, p. 333.
[60] Long 2010, p. 3.
[61] Ryan Enright – Boteler 2020, p. 345.
[62] See COP 5 Decision V/6 2000, para. 12 and CBD Guidelines 2004, Annex I.

ecosystem-based approach concentrates on cumulative effects, which can be described to be changes to ecosystems as a result of a combination of actions from past, present and future.[63] It is thus easy to argue that even though the approach sounds very ideal in theory as it attempts to govern the ecosystems as a whole, taking into account the past, present and future, it is also very sensitive to wrong interpretations and even negligence due to the lack of coherent definition and application guidelines.

2.1.2 Ecosystem-based Approach as a Method

In addition to the ecosystem-based approach being a theory and a means to preserve the ecosystems, it can be also used in other ways. For instance, *Laplante* and *De Lucia* have observed that the concept of ecosystem can be utilised in three ways: as an object, as a theory and as a method.[64] As a method, it can be used as applying ecosystem methodology to other fields of interests. When used in this way, the ecosystem-based approach is a type of research characterised by "an ecosystem approach *to* …", and it can be applied to virtually any subject, for example environmental management, to public health, different economic activities or city planning.[65] On the one hand, this type of research typically varies from application to application, and on the other hand, it involves a certain system of investigation situated within a broader environmental context,[66] as is the case in this thesis. However, also this method is subject to a range of meanings, as it is possible that some question the use of the ecosystem as an object of study, and some can promote the use of ecosystem-based approach without referring to ecosystems as objects.[67] In this thesis, the specific research questions are considered from the ecosystem point of view.

The methods main feature is the notion that at least some of the properties of the subject under analysis are dependent on contacts and relations with the environment where the object of the study is located.[68] Moreover, when using this approach, it is assumed that a proper understanding of the subject matter under investigation requires analysing the system-environment relation within the field.[69] In the next section, the ecosystem-based approach in

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[63] De Lucia 2014, p. 2-3.
[64] Laplante 2005, p. 398-399. The three descriptors can be seen also in De Lucia 2014, p. 98.
[65] De Lucia 2014, p. 8-9.
[66] Laplante 2005, p. 399.
[67] Laplante 2005, p. 400.
[68] De Lucia 2014, p. 8-9.
[69] Laplante 2005, p. 400.

the EU is discussed, and the question of MSP and renewable energy are analysed using the ecosystem-based approach method throughout this thesis.

2.2 Ecosystem-Based Approach in the European Union

2.2.1 Duty to Integrate Environmental Protection

The ecosystem-based approach has been implemented in the EU from international instruments and it stems from the obligation to integrate environmental protection in the EU activities. However, as discussed, there are challenges on the international level in the implementation and definition of the approach, and the same has been true also on the EU level. The Article 11 of the Treaty on the Functioning of the European Union[70] (TFEU) implicitly introduces the obligation to apply the ecosystem-based approach in the EU policies as it the requires that "environmental protection requirements must be integrated into the definition and implementation of the Union's policies and activities, in particular with a view to promoting sustainable development.". While creating the foundation for EU's policy on ecosystem-based approach, the Article 191(3) of the Treaty requires the EU to consider all available scientific and technical data, environmental conditions of the different regions in the European Union, the possible benefits and costs of action or lack of action, as well as the economic and social development of the European Union as a whole and the balanced development of the EU regions.[71] Thus, although implicitly, it seems that there is a fairly strong normative basis in the TFEU for the approach,[72] which is important when considering the implementation of the maritime spatial planning and other EU instruments. Without a strong basis for an ecosystem-based approach, the impact of policies that require the approach to be taken into account in other activities would be undermined.

As the EU is a legal person and has the power to join international agreements, the previously mentioned several international instruments concerning the ecosystem-based approach form an integral part of EU law in this area.[73] Even though this thesis does not concentrate on international law, it is important to note that the basis for implementing the ecosystem-based approach also within the EU can be found from international law and is in line with the

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[70] Consolidated Version of the Treaty on the Functioning of the European Union, C 326/47, 26.10.2012.
[71] See for further discussion Long 2012, p. 459-460.
[72] Long 2012, p. 460.
[73] The EU has established its commitment to apply the ecosystem-based approach in its policies based on the 2002 World Summit on Sustainable development and the Johannesburg Plan of Implementation, COM(2006) 216 final, p. 3.

international principles of the approach.[74] This can be seen in the various agreements, recommendations, directives, and strategies the EU has adopted and that require a movement from an industry- and species-based management to ecosystem-based, universal environmental management.[75] Examples of this can be seen in the European Integrated Maritime Policy[76] (IMP) and the Marine Strategy Framework Directive[77] (MSFD), which are briefly discussed in the following sections.[78]

2.2.2 European Integrated Maritime Policy

In 2007, it was concluded that the regulatory measures of the European Union should concentrate on the preservation of the marine ecosystems and should ensure the sustainable use of sea and coastal areas.[79] One of the first times the ecosystem-based approach was in evidence in the EU policies, especially concerning the oceans, was through the EU's Integrated Maritime Policy. It has several objectives which aim to create a coherent governance structure for the use of marine space within the Member States. This is aimed by making the structures more cooperative, promoting and building on scientific knowledge regarding the marine environment, as well as adopting management measures that are adaptive to specific problems and can take into account the specific characteristics of the different EU marine areas.[80] Even though the IMP does not have specific environmental goals and is not an environmental policy, the Commission has endorsed the application of the ecosystem-based approach among the other fundamental principles, such as the principles of subsidiarity and competitiveness, in the national policies of the Member States.[81] This thus lays the foundation for further marine management, which should also include the ecosystem-based approach.

Furthermore, the General Affairs Council of the European Union supported this policy approach in 2009 by acknowledging that the role of ecosystem-based approach should be the "overarching principle" in the organisation of the different activities and uses of marine

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[74] See for example Long 2012, p. 432.
[75] Apitz – Elliott – Fountain – Galloway 2006, p. 80.
[76] COM(2007) 575 final.
[77] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy.
[78] Others include for example the Habitats Directive, Wild Birds Directive, Water Framework Directive, and EU Biodiversity Strategy for 2030.
[79] COM(2007) 574 final, p. 7.
[80] COM(2007) 575 final, p. 4-11.
[81] COM(2008) 395 final, p. 9.

space.[82] Since then, the importance of coordination to achieve sustainable development has been highlighted, as competition for space increases. In addition, in this context, the MSP has been presented as a solution.[83] The IMP covers many of the policy fields which are discussed in this thesis, such as Blue Economy and MSP,[84] thus forming an important basis for analysis. Whether the ecosystem-based approach truly has been the sought-after overarching principle is discussed next as the EU legislation implementing the approach is looked into.

2.3 Implementation of the Ecosystem-Based Approach

2.3.1 Basis for the Implementation

As the ecosystem-based approach is an important principle in the EU's framework, and it has a strong foundation in the TFEU, this section presents the implementation measures taken regarding the oceans. However, sufficient implementation of the ecosystem-based approach and its coherent assessment will require significant integration efforts,[85] thus posing some challenges. The integration should involve different governance levels, modern and traditional sciences, legal and management strategies,[86] different environmental objectives, different uses of water and land, existing and future legislation and policy instruments in a common framework, and different levels of decision-making and governance in EU Member States. [87] As the implementation and definition have many possible options and a wide range of aspects to consider, the integration requires broad cooperation and studies to successfully work.

The implementation of the ecosystem-based approach has been attempted by several regional management organisations, but the success of the implementation has been varying[88] and thus, guidance should not be drawn from those. In addition, implementing the ecosystem-based approach within the marine area of the European Union is significantly different from other organisations because of the legal nature of the European Union as a supranational legal entity,[89] and thus the implementation in the EU should be considered individually. Although

[82] General Affairs and External Relations Council, Press Release 2009.
[83] COM(2012) 0491 final, p. 4.
[84] Fact Sheets on the European Union, Integrated Maritime Policy of the European Union.
[85] Apitz – Elliott – Fountain – Galloway 2006, p. 81.
[86] Ryan Enright – Boteler 2020, p. 337.
[87] Apitz. – Elliott – Fountain – Galloway 2006, p. 81.
[88] For a critical view see Redgwell 1999.
[89] Long 2010, p. 17.

progress has been made in implementation by including notions in several instruments, challenges still remain, as can be seen when the MSPD is examined.

To summarise, there are many methods and options that can be applied in the implementation of the ecosystem-based approach, and the approach can be defined in many ways. Despite these differences, there appears to be consensus between legal scholars that the adoption of the ecosystem-based approach involves a policy change from the sectoral and industry specific management of maritime activities to an ecosystem-wide management policy. This allows more flexible systems and better policy consistency that includes a wide range of social, economic, and environmental objectives.[90] *Apitz et al*. has concluded that for effective marine management policies to be developed, seven factors should be fulfilled: the management should be sustainable, economically feasible, achievable technologically, permitted by legislation, administratively attainable, socially acceptable, as well as politically expedient.[91] Significantly, due to the possibilities for open interpretation, the policy options for applying the ecosystem-based approach are practically infinite.[92] It is therefore not possible to assess all implementation policies in the EU legislation, but the next section discusses how the approach is implemented in the Marine Strategy Framework Directive, which is an important instrument for ocean protection.

2.3.2 Implementation in Practice

In the Marine Strategy Framework Directive, the ecosystem-based approach is a central element and thus the approach is implemented through the Directive. The MSFD is described as aiming to safeguard the marine resource base upon which economic and social activities depend.[93] The Article 1 of the MSFD requires all Member States to achieve or maintain good environmental status in the marine areas by 2020. The Directive's goals were not met, as the good environmental status was not reached by 2020, and the Directive is now under review by the EU with a report due by 2023.[94] For example, Finland's goal for the good environmental status is set to be reached by 2027.[95] This highlights the importance of taking further steps in the marine protection, and it can be already concluded that the measures taken in MSFD are

[90] Long 2012, p. 425.
[91] Apitz. – Elliott – Fountain – Galloway 2006, p. 84.
[92] Belsky 1985, p. 763.
[93] Long 2012, p. 464 and European Commission, About the MSFD.
[94] EEA Report No 17/2019, p. 24 and European Commission, Protecting the marine environment – review of EU rules.
[95] YM/2021/69 Esittelymuistio, p.15.

not enough. In addition, the need for restoring good environmental status has been further demanded in the Biodiversity Strategy for 2030[96] adopted in 2021.[97]

The notion of "good environmental status" principally builds on the need to conserve the biodiversity and sustain ecosystem health and integrity.[98] The preamble for the Directive describes that by applying an ecosystem-based approach, priority should be given to achieving or maintaining good environmental status in the marine environment, when planning the management of human activities and enabling a sustainable use of marine resources. The policy measures promoted by the Directive, as suggested in Article 3(5), are based on the precautionary approach, and according to the preface are intended to be both flexible and adaptive with an ability to respond quickly to new features such as scientific knowledge and technological developments.

Even though the Directive sets out these general guidelines and obligations, it does not give concrete guidance on how to apply the ecosystem-based approach in practice. In general, this has not been seen as a weakness in the legal literature concerning the ecosystem-based approach, but in the Member States' implementation phase it can be problematic. The Directive has been criticised for its ambiguity and inconsistency regarding terminology and indicators, which could lead to an insufficient application of the ecosystem-based approach.[99] Therefore, the Commission has called for sufficient resources when applying the holistic ecosystem-based approach.[100] It is interesting to see, what this means in practice, and whether more guidance will be given in the future. Based on this discussion, better guidelines would seem necessary to sufficiently apply the ecosystem-based approach.

The Directive has some unusual features. Firstly, the development of the MSFD brought a significant shift in the European Union's legislative characteristics as the maritime management and the decisions-making is not organised in line with industry policies, but in a more integrated decision-making procedure.[101] From this could follow, that the management measures focus more on the mitigation of impacts on the marine environment, and the

[96] COM(2020) 380 final.
[97] COM(2020) 380 final, p. 11.
[98] Long 2012, p. 464.
[99] See for example Berg – Fürhaupte – Teixeira – Uusitaloa – Zampoukas 2015.
[100] COM(2020)259 final, p. 24.
[101] COM (2008) 395 final, p.8.

measures might not be restricted by the boundaries of Member States.[102] This is an important shift, as the effects on marine environment do not follow state borders.

Secondly, the Directive does not require the implementation of operational procedures at the EU level but suggests the enactment of Regional Seas Conventions in order to take better into account the different features of the sea areas, which then implements the regional management measures. Thus, according to the preface for the Directive, the objective of good environmental status should be promoted by using the institutional structures established under Regional Sea Conventions. However, also this regional approach suffers from several weaknesses. A main challenge is caused by the fact that few, if none, of the bodies set up under the regional agreements have the authority to deal with the issues that affect the marine areas as a whole.[103] Furthermore, the regional seas agreements have not established a normative content for the ecosystem-based approach, and thus the interpretation can vary in changing circumstances.[104]

However, also the development of these agreements into legally binding instruments might be difficult, as the development of obligations at national or at regional level often depends on the political will of the national governments, as well as on the available resources. Therefore, the progress in this regard could be difficult,[105] and would not work as the solution to the issue if for example the national governments prioritise economic objectives. In theory, the move to a more regional approach sounds ideal, but in this case, it does not improve the already vague application of the ecosystem-based approach.

2.4 Concluding Remarks

As has been stated by the UN Secretary-General already in 2004, the ecosystem-based approach has the potential to work as an effective instrument in the protection of the seas. In addition, globally, the ecosystem-based approach is regarded as a valuable concept in marine management. [106] However, the definition and implementation offer varying interpretations, which may also lead to differences of opinion on its effectiveness. Based on this discussion it can be concluded that in order to create a coherent framework in which the different

[102] Long 2010, p. 12.
[103] Long 2012, p. 441.
[104] Soria-Rodríguez 2016, p. 327.
[105] Long 2012, p. 441.
[106] Long 2012, p. 482.

instruments referring to the ecosystem-based approach can operate, more guidelines need to be formed.

As the application of the ecosystem-based approach is very fragmented and includes challenges, the systemising of a coherent framework for the maritime spatial planning has not been simple. However, it can be argued that the basic principles and ideas construed can offer a framework in which the maritime spatial planning will be analysed, especially considering the need to further take ecosystems into account.

The IMP and MSFD both aim to find the right balance between sustainable use of marine resources and the conservation of the ecosystems in order to keep the ocean environment delivering services. However, they do not clearly demonstrate how the ecosystem-based approach in practice should be implemented.[107] Despite this, the notions are already significant steps forward in putting the ecosystems in the core of the EU policies. Basically, these principles could be further endorsed by the EU through adopting legally binding measures which would give further obligations for the Member States.[108] However, as the operationalisation of the ecosystem-based approach is dependent on the governance framework within which it is applied, the multilateral governance structure of the EU's regional seas can be also problematic.[109]

If the ecosystem-based approach is properly applied, the features of the EU legislation can help the EU to realise its environmental objectives. If not, the ecosystem-based approach will be more of an aspirational concept in the EU rather than effective management approach.[110] The EU has made some attempts to systemise the application with the discussed measures and has offered propositions on how the approach can be applied[111], but actual guidance is still lacking and can lead to insufficient application of the EU regulation as a whole.

After discussing the framework of the ecosystem-based approach, in the next chapter it is discussed how the maritime spatial planning is situated in this context, and how the ecosystem-based approach is implemented in the EU's maritime spatial planning. This will

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[107] See in addition O'Hagan 2020, p. 366.
[108] Long 2012, p. 483.
[109] Farmer – Mee – Langmead – Cooper – Kannen – Kershaw – Cherrier 2012, p. 10.
[110] O'Hagan 2020, p. 369.
[111] For example Altvater – Passarello 2018 for European MSP Platform.

help in the coordination of the different objectives, after the environmental objectives of the MSPD have been established.

3 Environmental Protection in the Maritime Spatial Planning

3.1 Introductory Remarks

This chapter discusses the legislation on MSP and how it reflects the ecosystem-based approach. Based on the framework presented for the ecosystem-based approach in the previous chapter, the concluding answer to the second research question will be given. It will be argued that the implementation of MSPD has not been sufficient, but in theory placing it within the framework of the ecosystem-based approach could clarify planning objectives. However, as was seen, also the implementation of the ecosystem-based approach is not simple. This chapter also already shapes the answer to the main research question by addressing the environmental protection framework for MSP. Thus, this chapter lays the groundwork for the analysis between these two objectives in the next chapter. To strike the right balance between the objectives, it needs to be ensured that environmental aspects are considered properly.

Regarding maritime law, the international legal framework, especially the United Nations Convention on the Law of the Sea[112] (UNCLOS), plays an integral part. The international law of the sea presents a framework of rules and solutions to be implemented to impose control on marine waters, as well as obligations.[113] Thus, to define the environmental questions regarding marine renewable energy, the international landscape must also be considered. Due to the scope of this thesis, international law is not analysed in detail, but the basic principles derived from the international maritime law must be borne in mind when discussing them in the EU context, as all the seas within the EU territory border non-EU countries and the international legislation is heavily embedded in the EU law.[114] That being said, Article 145 of the UNCLOS establishes the universal obligation to protect the marine environment from harmful effects and forbids pollution of the marine environment. Pollution of the marine environment is defined in the Article 1 of the UNCLOS as "the introduction by man, directly or indirectly, of substances or energy into the marine environment … that results or is likely to result in deleterious effects". This forms the basis for all marine protection, which must be kept in mind in this analysis.

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[112] United Nations Convention on the Law of the Sea of 10 December 1982.
[113] Tanaka 2019, p. 3.
[114] Govaere – Garben 2019, p. 2.

In line with the planning for sustainable marine management and governance, the maritime spatial planning processes have significantly progressed both globally and in the EU in the recent years. Maritime spatial planning has been widely spread and is being developed on several continents.[115] Despite this, the development of the national plans and implementation of the MSP objectives still face several challenges, as is discussed next. In theory, in the EU, maritime spatial planning is not necessary as a Member State could fulfil the same obligations under the MSFD and the EU's Integrated Marine Policy, without the actual planning process. However, because there are so many instruments to consider, there may be pragmatic reasons why spatial planning is the most appropriate instrument for successful and sustainable governance of maritime activities.[116] Thus, in this chapter, the maritime spatial planning will be considered as a fundamental part of the EU's marine protection.

The preface for the EU's Maritime Spatial Planning Directive identifies in line with the EU's Integrated Maritime Policy that MSP is a cross-sectoral policy tool that allows public authorities and stakeholders to apply a coordinated, integrated, and transboundary approach to marine management. Need for such a management tool is emphasised by the increasing demand for maritime space for the different activities, for example marine renewable energy production, oil and gas drilling, shipping and fishing activities as well as tourism, but also because of the need to protect ecosystems and the biodiversity while conducting these activities.[117] This creates tremendous pressure on maritime spatial planning, as it must work coherently, taking all aspects into consideration, in order for all the different objectives to be achieved. Whether this can actualise, is discussed in this chapter.

3.2 Policies Behind the Development of Maritime Spatial Planning

To assess the achievement of the goals of EU's maritime spatial planning, the policies and driving forces behind it should be discussed. This will help understand the guiding principles of MSP and the ultimate objective. The Commission's Communication Roadmap for Maritime Spatial Planning: Achieving Common Principles in the EU[118] from 2008 identifies key principles for MSP which can be used in the interpretation of Directive. These key principles include defining the objectives to guide MSP, stakeholder participation,

[115] UNESCO 2021, p. 14.
[116] Van Doorn – Gahlen 2018, p. 82.
[117] Friess – Grémaud-Colombier 2021, p. 1.
[118] COM(2008) 791 final.

coordination, ensuring the legal effect of the plans, monitoring and evaluation, as well as coherence and strong knowledge.[119] Much of these principles were also included in the MSPD.

Several workshops at the EU level and discussions with the Member States after the roadmap revealed varying degrees of implementation of MSP, with several regions in the early stages of MSP that would benefit from cooperation and common guidelines, and others without any process to develop an MSP process. As the EU's goal was to create an integrated maritime policy, it was considered important to have an EU-wide framework for MSP which enables cross-border cooperation and common guidelines for the planning process.[120] It can be concluded that the main objective of the MSPD was to bring coherence to the EU's maritime spatial planning, and it can be argued that it was necessary to adopt an instrument that would make the management of the ocean and the coastal zones through marine planning mandatory.[121]

When considering MSP as a tool for environmental protection, the European Commission has declared already in the development phase of the legislative instrument that MSP is an essential policy for balancing the interests of different sectors in order to achieve sustainable use of marine resources, based on an ecosystem-based approach.[122] This was further elaborated by the Commission later as it stated that the ecosystem-based approach must form the overall basis for MSP.[123] It could be concluded that the application of the MSP should be established on the ecosystem-based approach framework, and analyse the different activities from the perspective of the environment. This premise would also be in line with the original global ides on the MSP, as originally the development of MSP in the US, for example, was mainly supported by the premise that maritime spatial planning is primarily a way to conserve the marine environment.[124]

Despite the promotion for ecosystem-based approach in the development phase, also contracting standpoints have been adopted. The need to increase the production of MRE has essentially motivated the growth of marine spatial planning in EU the most,[125] which in itself

[119] COM(2008) 791 final, p. 9-11.
[120] COM(2010) 771 final, p. 10.
[121] van Doorn – Gahlen 2018, p. 82.
[122] COM(2009) 540 final, p. 6.
[123] COM(2010) 771 final, p. 3.
[124] Gopnik – Fieseler – Cantral – McClellan – Pendleton – Crowder 2012, p. 1140.
[125] Quero García – García Sanabria – Chica Ruiz 2019, p. 129.

is commendable for accelerating climate change mitigation. However, as stated, the renewable energy objectives have also economic interests. For example, Germany and the Netherlands have aimed to establish a framework which would take into account the marine renewable energy industry's demand for space, and to rationalise the building of the installations for energy production in the high seas.[126] Furthermore, the legal framework of MSPD ultimately has a "maritime" approach to spatial planning, not only ecosystem-based, as it is held that maritime spatial planning is in reality a means to promote economic growth in accordance with the EU Blue Growth Strategy[127], a predecessor of the EU's Blue Economy agenda.[128] Based on this, it could be argued and it can also be seen in the EU's discussions that MSP is driven by economic goals,[129] and thus the MSPD could be viewed as an economic instrument. This is an interesting development as a measure that was previously seen as a conservation measure is now used as a method to promote economic developments. This could create drawbacks in the balancing of different objectives if priority is given to economic ones. Therefore, the issue of balancing different objectives starts at the policy phase of the MSP.

3.3 Objectives of the Maritime Spatial Planning Directive

3.3.1 Basic Principles of the Directive

The previously mentioned policy objectives of the EU have been attempted to be put into action in the Maritime Spatial Planning Directive. The Directive mainly creates procedural requirements for the development of national maritime spatial plans in the marine waters of the EU.[130] As presented earlier, the increasing use of marine renewable energy is a new activity in the marine environment, which means that it could further distort the current balance.[131] The substantially increasing demand for space in the marine areas for the conflicting purposes demands an integrated planning and management approach, and the Directive is presented as an applicable solution.[132] This Directive is a first of its kind in the world as it sets out legal requirements for the Member States to create transparent marine

[126] Quero García – García Sanabria – Chica Ruiz 2019, p. 129.
[127] COM(2012) 494 final.
[128] Frazão Santos – Agardy – Andrade – Crowder – Ehler – Orbach 2021, p. 2.
[129] COM(2012) 491 final, p. 4.
[130] Soria-Rodríguez 2019, p. 99.
[131] Boillet – Gueguen-Hallouet 2015, p. 143.
[132] COM(2022) 185 final, p. 2.

planning procedures and to cooperate with the neighbouring countries to implement the requirements[133], which makes it a unique instrument from a research perspective.

Article 5 of the Directive states that the objectives are to support the sustainable development and growth of the marine industries, in view of economic, social and environmental aspects. Furthermore, the Article states that the Member States' national maritime spatial plans should aim to contribute to the sustainable development, and include considerations for energy sector, maritime transport, fisheries and aquaculture sectors, and the preservation, protection and improvement of the environment, including resilience to climate change impacts. Based on the objectives, it can be concluded that the Directive primarily attempts to promote the sustainable development of different economic aspects, and not specifically aim at protecting the environment. In theory, it seems that the Directive should work as a means of combining these different uses of the sea. However, this thesis aims to analyse, whether this works in practice.

As the Directive does not set requirements for many objectives, Member States may also pursue other objectives according to the Article 5 of the Directive. This possibility to decide the objectives which are to be pursued within a Member State could potentially ensure that all necessary activities of the oceans are covered and that stakeholders are involved in the planning,[134] if the Member States decide to do so.

The Article 5 of the Directive places additional emphasis on sustainable development and requires that "(…) maritime spatial planning should apply an ecosystem-based approach (…)". Maritime spatial planning and the ecosystem-based approach thus both focus on having a universal, general view on ecosystems rather than concentrating on individual species. They should both take into account the state of the ecosystem when conducting their application, and thus the state of the marine environment should be one of the main objectives which the Member States need to consider in their national plans.[135] As discussed previously, the concept of ecosystem-based approach itself has been offered many options for interpretation, but the practice of ecosystem-based approach in MSP is somewhat problematic, too.[136] In the MSPD, ecosystem-based approach is barely defined. From the purposes of the Directive, it

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[133] Friess – Grémaud-Colombier 2021, p. 1.
[134] Friess – Grémaud-Colombier 2021, p. 2.
[135] Kirkfeldt – van Tatenhove – Calado 2022, p. 29-30.
[136] See for example Arkema – Abramson – Dewsbury 2006; Tallis – Levin – Ruckelshaus – Lester – McLeod – Fluharty – Halpern 2010 and Ansong – Gissi – Calado 2017.

could be derived that the focus of the planning processes should be on protecting and improving the environmental status of oceans as well as the resilience and health of the ecosystem,[137] but how this is considered in the planning in practice is another question. Examples of ecosystem-based approach practices in MSP have been minimal, which in part can be blamed on the lack of experience both in the application of the ecosystem-based approach as well as maritime spatial planning.[138] Thus, the next sections will discuss how the environmental factors have been considered and whether enough attention has been paid to them.

3.3.2 Main Requirements

The Directive does not impose specific details on how the national plans should be conducted, what they should include nor management objectives, as the Member States should define those themselves. The Directive, however, requires in its Articles 1 and 2 that the planning processes need to be implemented in all marine areas of the EU and that the processes must facilitate cross-border cooperation. Thus, the MSPD aims to create a framework in which the Member States should plan their marine activities, and thus establish a transnational framework for marine renewable energy installations.[139] Despite the obligation for the coastal states of the EU to adopt national maritime spatial plans by March 2021, several states in the Mediterranean and Black Sea are yet to adopt plans,[140] which signifies the challenges the implementation of the Directive has.

Minimum requirements for the Member States in the planning process are stated in the Article 6 of the Directive. According to the Article, States must take into account land-sea interaction, take into account environmental, economic and social aspects, as well as safety aspects, aim to promote coherence with other processes, involve stakeholders, use the best available data, ensure cross-border cooperation in the EU as well as promote cooperation with third countries, and review the plans at least every 10 years. These minimum requirements are quite straightforward and typically Member States have been successful in implementing them.[141] However, the application of these requirements should involve the application of the ecosystem-based approach, and the Directive does not clarify how it should be conducted and

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[137] Kirkfeldt – van Tatenhove – Calado 2022, p. 30.
[138] Trouillet 2020, p.445.
[139] Friess – Grémaud-Colombier 2021, p. 2.
[140] COM(2022)185 final, p. 6.
[141] COM(2022)185 final, p. 6-14.

how it should be recognised with the other requirements. The Member States must find guidance elsewhere. In practice, it has been suggested that the application of the ecosystem-based approach should require that the management is conducted in a way that does not degrade the marine environment, for example by prioritising preventive measures and having mitigation and compensation measures only as a last resort.[142]

The requirement for cross-border cooperation has been viewed as one of the most important elements of the MSPD.[143] The scattered experience on the application of maritime spatial planning, built on various political and administrative frameworks as well as differing political interest at the national level, makes the efficient transboundary implementation quite challenging.[144] Thus, in order for this important element to further lead to successful implementation of maritime spatial planning, the differences in Member States need to be taken into account and create a policy in which these differences are recognised but still are able to work together.

3.3.3 Application of the Marine Strategy Framework Directive through Maritime Spatial Planning

The Maritime Spatial Planning Directive proposes that the distribution of activities and uses of the sea should be managed by applying the ecosystem-based approach, in order to achieve the objectives stated in the Marine Strategy Framework Directive.[145] Thus, when studying the objectives of the MSPD, also the objectives of the MSFD must be discussed. The MSFD's objectives according to the preface are for the Member States to develop national marine strategies, which should promote to the achievement and maintaining of good environmental status in the marine environments by the year 2020. However, as it was discussed before, the Directive needs to be reviewed by the EU and further analysis conducted as the good environmental status was not achieved by the set date.[146] The Directive is significant for the marine protection, but its actual effect can be questioned as the status of the marine ecosystems has not improved.

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[142] Kirkfeldt – van Tatenhove – Calado 2022, p. 34.
[143] WWF 2022, p. 20.
[144] Friess – Grémaud-Colombier 2021, p. 2.
[145] Preface of the Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.
[146] EEA Report No 17/2019, p. 48.

Article 1 of the MSFD states that the aim of the marine strategies is to protect and to preserve the marine environment, to prevent deterioration and, where applicable, to restore marine ecosystems in areas where they have been negatively affected. The strategies should, according to Article 5 of the Directive, develop a program of measures in each marine region or sub-region to achieve or to maintain good environmental status. The definition of the good environmental status is clarified in the Article 3 of the Directive, and the achievement of good environmental status means that all marine species and habitats are protected, human-induced decline of biodiversity is prevented, and diverse biological components' functions are in balance. This also means that the achievement of good environmental status should not be prevented by the development of marine renewable energy. From the nature of MSPD it can be concluded that these are the guiding objectives that should be balanced when moving on with maritime spatial planning.

Even though the objectives of the Directive are quite clear, challenges in attaining the goals exist, too. For example, in many Member States, different authorities are responsible for the implementation of the MSPD and the MSFD, and it can be said that they do not want to be held responsible for each other. Thus, the challenges in the integration of different policies in the Directives may also reflect to the execution level.[147] The exact interrelationship between marine spatial planning and the Marine Strategy Framework Directive, given its focus on environmental issues, has been heavily debated,[148] as the MSPD has other focuses, as well. The implementation of the MSPD and MSFD should be combined in the context of the requirements stated in the MSFD, and, in principle, the directives should be integrated together. However, improved harmonisation between the instruments is still to be achieved in the Europe Union.[149] This is yet another example of the fragmentation of EU legislation and the difficulty of harmonising the different instruments. This fragmentation can cause challenges in the achievement of the goals set forth in the directives, as is discussed in the next section.

3.4 Are the Goals Achieved?

The Maritime Spatial Planning Directive as well as the Maritime Strategy Framework Directive provide many different goals and objectives, but their monitoring is not always

[147] Schultz-Zehden – Weig – Lukic 2019, p. 122.
[148] Van Doorn – Gahlen 2018, p. 81.
[149] Schultz-Zehden – Weig – Lukic 2019, p. 122.

simple and challenges stem already from which point of view they should be assessed. Consequently, the debate on the achievement of these objectives can be divergent.

Firstly, although the ecosystem-based approach is a central element of the MSPD, there are few visible signs of the approach being applied to MSP, as MSP processes seem to be more oriented towards economic growth in marine areas than towards the ecosystem-based approach.[150] This is in line with the global development. A study on 44 marine spatial plans found that 27 of the studied plans were not considered ecosystem-based.[151] As the marine ecosystems continue to degrade and at the same time activities in the marine areas increase, the maritime spatial planning practices will surely spread globally, and so will increase the need for creating coherent practices for the application of the ecosystem-based approach in MSP.[152] The Baltic Sea area is the first regional sea area to establish MSPs. Even though the full effectiveness of the plans cannot be yet assessed, World Wildlife Fund (WWF) has published an Assessment Report on the Maritime Spatial Planning in the Baltic Sea. In the report, nine of the Baltic Sea countries' plans were assessed, and, according to the report, the MSP process has been only partly successful.[153] The report found that the plans are a big step forward, but especially the implementation of ecosystem-based management needs strengthening.[154] A cause for concern is that some of the plans have not taken environmental protection into account at all.

The ambiguity in the application of the ecosystem-based approach may act as a political tool that enables for the Member States to make their own decisions regarding the national application of the ecosystem-based approach. In general, policy ambiguity is typical of policies that are likely to be controversial or policies that involve new practices, and it can therefore be argued that marine spatial planning is both sensitive to conflicts and is also a newly developed practice.[155] The less positive or, even disastrous consequence of the policy ambiguity can be only a symbolic attempt for implementation with no real impact, or experimental implementation where Member States may use ambiguity to promote their own

[150] Kirkfeldt – van Tatenhove – Calado 2022, p. 30.
[151] Trouillet 2020, p. 449.
[152] Kirkfeldt – van Tatenhove – Calado 2022, p. 30.
[153] WWF 2022, p. 8.
[154] WWF 2022, p. 14.
[155] Matland 1995, p. 163 and Kirkfeldt – van Tatenhove – Calado 2022, p. 30.

priorities.[156] These types of drawbacks can be prevented by clarifying the ecosystem-based approach.

Secondly, the role of environmental protection in MSP is far from settled, but progress could be promoted by using the identification and valuation of ecosystem services in MSP, by implementing flexible approaches and conducting critical analyses, and further examining them in the light of experience. [157] For the maritime spatial planning to work successfully, the political and management frameworks are critical. Governments hold the authority and responsibility in the planning, and thus institutional frameworks need to support their application measures. Many of the initiatives for national planning have been hampered by this lack of support.[158] WWF recommends that the plans should be better aligned with EU legislation on marine biodiversity and the protection of marine habitats, as the plans usually mention EU goals but do not take into account concrete actions.[159]

To achieve the set goals for MSP, there needs to be a further increase in the regional cooperation and move away from country specific planning, as the ecosystems of the ocean do not follow country borders. Developing common priorities for each marine area will enable a sustainable marine economy. In this respect, the transnational approach of the EU's MSPD is its strength and may even contribute to developing better international ocean governance.[160] However, EU-wide cooperation is not enough, and to ensure healthy oceans that provide resources, and to minimise the effects of climate change on oceans, global collaboration needs to be expanded for further development of maritime spatial planning at an international level.[161] The WWF report also stressed the need for cooperation, as there are substantial differences between the various plans, particularly in terms of their binding nature.[162]

Looking beyond 2030, the ocean industry has more potential to develop than many of the other sectors of global economics. The Organisation for Economic Co-operation and Development (OECD) estimates that the value of the global ocean industry, valued at USD

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[156] Matland 1995, p. 168 and 165.
[157] Frazão Santos – Agardy – Andrade – Crowder – Ehler – Orbach 2021, p. 2.
[158] Frazão Santos – Agardy – Andrade – Crowder – Ehler – Orbach 2021, p. 1.
[159] WWF 2022, p. 22-23.
[160] Friess – Grémaud-Colombier 2021, p. 2.
[161] Frazão Santos – Agardy – Andrade – Crowder – Ehler – Orbach 2021, p. 2.
[162] WWF 2022, p. 8.

1.5 trillion in 2010, would double by 2030[163], while the oceans are subjected to increasing pressure from unsustainable economic activities, climate change, and pollution. Thus, designing the use of maritime spaces in a way that avoids conflicts and ensures that economic activities do not damage the ecosystems is the aim of the MSP. Looking to 2030, WWF has highlighted that to meet the goals of the EU Biodiversity Strategy for 2030, it is important that the Baltic Sea Countries take further measures in the implementation of the ecosystem-based approach.[164] The Biodiversity Strategy for 2030 is an important part of the EU's Green Deal, which will be further discussed in the next chapter. The Strategy further highlights the need to take marine ecosystems into consideration with maritime spatial planning.[165] The Strategy forms an important element of the future measures, as discussed later in this thesis.

3.5 Concluding Remarks

To lay foundation for the answer to the first and the main research question, which will be given in the next chapter, some conclusions can be already made. To safeguard a functioning planning process in a marine area, there must be a policy framework in which different national maritime spatial plans can be developed coherently and in cooperation, taking into account national differences. Earlier research has shown that carrying out an ecosystem-based approach is not a simple task. The application within the maritime spatial planning process should be coherent with the MSFD and draw the desired objectives from other relevant policy frameworks as well.[166] The MSPD and MSFD contain important obligations and objectives to consider in the promotion and production of renewable energy, and in theory can help balance these different objectives.

While the results of the MSPD implementation are still pending, it already appears that additional research and discussions are needed to support the proper development of MSP. More research is especially needed in the implementation of the ecosystem-based approach to MSP, as well as the integration of objectives for good environmental status and other measures under the MSFD into the MSP processes. More knowledge and research are also

[163] OECD 2020, p. 3
[164] WWF 2022, p. 24.
[165] Biodiversity Strategy 2030, p. 11.
[166] Kirkfeldt – van Tatenhov – Calado 2022, p. 34.

required on how these objectives are to be balanced with other interests such as economic ones,[167] as discussed in more detail in the next fifth chapter.

Adopting an ecosystem-based approach can, in theory, ensure the sustainable use of marine resources in a way that protects the ecosystems, while promoting the economic growth of marine industries.[168] However, in an answer to the second research question, it can be concluded that the ambiguity of the MSPD may lead to different practices within the ecosystem-based approach, as the Directive does not provide any procedural obligations for the integration of environmental obligations.[169] It can also be concluded that the general framework for the ecosystem-based approach has not clarified the implementation of the approach within MSPD, as it has been established that the national plans have not taken sufficiently into account the ecosystem-based approach.

The ambiguity can potentially also have positive outcomes, such as developing innovative solutions to the adoption of the ecosystem-based approach. However, mainly challenges are issued for the implementation of the ecosystem-based approach in MSP, as it is still seen in some cases as a theoretical concept rather than a policy tool.[170] For this reason, it is recommended that more operation-specific guidelines are established to clarify what it means in an individual case. One of the issues relating to the ecosystem-based approach in MSP is that monitoring and mechanism indicators do not exist.[171] In addition, it is encouraged that Member States continue to share experiences and methodologies, which would support a forward-looking development of ecosystem-based approach practices.[172] Some guidance could be derived from the general framework provided for the ecosystem-based approach, but it can also result in various interpretations. Thus, this thesis suggests that in order to properly place MSPD in the ecosystem-based framework, the ecosystem-based approach should be clarified in the EU legislation, and through more extensive data collection and closer cooperation, the different effects and objectives should be balanced.

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[167] Friess – Grémaud-Colombier 2021, p. 2.
[168] See in addition Friess – Grémaud-Colombier 2021, p. 1.
[169] See in addition Soria-Rodríguez 2020, p. 99.
[170] Kirkfeldt – van Tatenhov – Calado 2022, p. 41.
[171] WWF 2022, p. 5.
[172] Kirkfeldt – van Tatenhov – Calado 2022, p. 41.

4 Mapping the Framework for Marine Renewable Energy

4.1 Introductory Remarks

This chapter takes a closer look on the EU's regulation on renewable energy and the relation to the framework of MSP legislation. In particular, the limitations resulting from the environmental objectives of the MSP are discussed, and how the two objectives can be combined. The promotion of renewable energy is also addressed, as it is used as an example of combining different objectives of the seas. This analysis provides the definitive answer to the main research question.

Offshore wind energy and ocean energy are estimated to substantially contribute to the goal of achieving the renewable energy targets presented in the EU's Renewable Energy Directive. Despite this positive income, it is at the same time argued that further increases in renewable energy production conflicts with the EU's environmental objectives of species protection, as well as water and ocean protection. So far, the installations in the marine areas have been quite small, and such tensions are especially likely to increase when larger marine renewable installations begun to be deployed. This chapter therefore examines in more detail the limitations that the previously mentioned obligations to protect the marine environment place on the promotion of renewable energy, and how they could be coordinated with the promotion of renewable energy. As the upcoming analysis shows, it can be argued that a lack of integration is possible, despite the fact that both policy areas are equally valuable and oriented towards sustainability.[173] Thus, it should be investigated whether MSP can help integrate them.

Marine renewable energy sources can be divided into offshore wind energy, to ocean renewable energy which uses the ocean itself for production, such as tidal and wave energy, as well as to geothermal energy from submarine geothermal sources, and to bioenergy from marine biomass.[174] In the EU, offshore wind energy and ocean renewable energy are mainly fostered,[175] and the offshore wind energy is promoted the most, as will be seen next from the EU's goals to promote the production of these energy sources.

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[173] van Hees 2019, p. 27.
[174] Nerzic – Mazé 2012, p. 2.
[175] See COM(2020)741 final, p. 1.

4.2 Promotion of the Marine Renewable Energy

4.2.1 Renewable Energy Directive and the Horizon Beyond 2030

The promotion of renewable energy, which is a key point in the climate agenda, has been fostered primarily through binding obligations for the Member States. Most importantly, RED II, adopted in 2018, takes significant steps to promote and emphasise the importance of renewable energy. The RED II establishes an EU-wide regulatory framework for the promotion of renewable energy production, as it sets rules for the cooperation in energy projects, guarantees of origin for the renewable energy, administrative procedures, and the access to the electricity grid. For the post 2020-period, the binding EU target set in RED II is a 32 % share of renewable energy by 2030. Significant measures in the production of renewable energy need to be taken to achieve these goals and go even further.

The Blue Growth Strategy, adopted already in 2012, states that marine energies have the potential of improving efficiency in the utilisation of energy resources, reducing the demand from the energy sector in the use of land as well as cutting greenhouse gas emissions.[176] This vision was reinforced in the Offshore Energy Strategy as a part of the EU's Green Deal, which is further discussed in the next section. The promotion of marine renewable energy is not, however, straightforward, and the Commission has previously recognised that the Blue Growth Strategy, if not executed in a sustainable way, could be in contrast with the MSFD's goal of achieving good environmental status, especially in the sector of marine energy. Furthermore, the Commission suggested, that the MSPD could work as a bridge between these policies.[177] As the Offshore Energy Strategy sets out concrete measures and targets for the production of marine renewable energy, it is considered essential in this thesis that the potential conflict between these two objectives must be kept in mind also in future binding measures.

4.2.2 Green Deal

A further revision of the RED II has been suggested as a component of the Green Deal, which the EU adopted in response to the environmental challenges facing the Union. The new directive would update the EU's renewable energy target for the year 2030 and present an

[176] COM(2012) 0494 final, p. 6.
[177] COM(2020)259 final, p. 26-27.

obligation that the share of energy from renewable sources should be at least 40% of the Union's gross final consumption of energy.[178] This would be better in line with the Green Deal's aim of achieving a carbon neutral economy by 2050 as set out in the Article 1 of the European Climate Law[179]. This requires an increase in renewable energy production, as to achieve this goal, more than 80% of the EU's electricity should be produced from renewable energy.[180]

The objectives of RED II are further promoted through the Offshore Energy Strategy. While the Strategy does not set out any binding obligations for the Member States with regard to marine renewable energy production, it presents a framework for scaling up the production and promoting it as an EU priority.[181] Thus, it sets targets of at least 60 GW of installed capacity for offshore wind and 1 GW for other forms of ocean energy by 2030, and 300 GW and 40 GW, respectively, by 2050.[182] In comparison, the installed capacity of offshore wind in 2021 was 28 GW,[183] while the installed capacity for other forms of ocean energies covered only 11.9 MW[184]. To achieve these targets, the strategy highlights the importance of access to sea-space, regional and international cooperation and technological transfer.[185] The implementation of the strategy is still ongoing, but investments and further planning are needed to meet the challenges facing the industry.

However, the Green Deal is not only a package for climate mitigation, and it also has other objectives. To promote the UN Decade of Restoration[186] at the EU level, the Green Deal signifies a dedication to take legally binding measures for the halting of the environmental degradation, to safeguard the resources the ecosystems provide as well as protect their biodiversity, by providing financial aid for ecosystem restoration.[187] Despite these measures promoting environmental protection, the deployment of marine renewable energy, most specifically offshore wind, is at the core of the Green Deal.[188] However, these objectives could in theory be compatible, as the Offshore Energy Strategy identified the challenges to

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[178] COM(2021)557 final.
[179] Regulation (EU) 2021/1119 of the European Parliament and of the Council of 30 June 2021 establishing the framework for achieving climate neutrality and amending Regulations (EC) No 401/2009 and (EU) 2018/1999.
[180] COM(2018) 773 final, p. 9.
[181] COM(2020)741 final, p. 26.
[182] COM(2020)741 final, p. 1-2.
[183] WindEurope 2022, p. 9.
[184] Ocean Energy Europe 2022, p. 3.
[185] COM(2020)741 final, p. 9, 11 and 16.
[186] UN Doc. A/RES/73/284 2019.
[187] COM(2022) 304 final, preface. The proposal implements the objectives of the Green Deal.
[188] European Commission's website, Offshore renewable energy,

reach a functioning marine renewable energy industry, stressing, for example, the need to study the environmental impacts resulting from MRE deployment.[189]

The European Commission highlights in its Green Deal the importance of EU's natural capital, the need to take action to conserve it, as well as recognises the need to protect the health and well-being of citizens from environment-related risks and impacts.[190] The Green Deal could therefore be a fundamental change in the EU's policy, by prioritising biodiversity conservation over traditional EU objectives, such as economic objectives, and finally promoting the long-demanded need to integrate biodiversity conservation more firmly into other industry policies.[191]

The Biodiversity Strategy for 2030 aims at "bringing back nature into our lives"[192]. It implements the Green Deal's objectives, as it provides concrete policies on how to prioritise biodiversity. The Strategy establishes measures in three areas: protecting and restoring the nature in the EU, by widening the network of protected areas and by developing an ambitious EU Nature Restoration Plan; enabling transformative change by putting in place a new European biodiversity governance framework, which will help map obligations and place in monitoring mechanisms; and raising the ambition for global biodiversity agenda, as the EU cannot work on the matter alone and the global trade policies need to be further developed in order to halt the consumption of particularly sensitive resources.[193] The Strategy is thus essential when assessing the achievement of good environmental status through MSFD and MSPD, and it sets further obligations for marine protection in ocean activities through the requirement to restore and maintain the good environmental status of the marine ecosystems.[194]

The Green Deal thus includes a number of measures to promote renewable energy production through the Offshore Energy Strategy, as well as the conservation of the environment through the Biodiversity Strategy. Nonetheless, it could be argued that the Green Deal includes

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[189] COM(2020)741 final p. 21.
[190] COM(2019) 640 final, p. 2.
[191] Hermoso – Carvalho – Giakoumi – Goldsborough – Katsanevakis – Leontiou – Markantonatou. – Rumes. – Vogiatzakis – Yates 2022, p. 264.
[192] COM(2020) 380 final, title.
[193] COM(2020) 380 final, p. 3, 15 and 19-20.
[194] COM(2020) 380 final, p. 11.

conflicting interests as well. To avoid these conflicts, cooperation is needed when the implementation measures are applied to achieve the goals stated in the Green Deal.

4.3 Effects of Marine Renewable Energy on the Marine Environment

When addressing potential conflicts between the objectives of producing renewable energy and the protection of the oceans, the effects of marine renewable energy production should be presented in order to understand the full magnitude of the conflict. While marine renewable energy offers various advantages in climate change mitigation, the installation, maintenance, and operation of the devices, as well as the transmission of energy to the grid, affects the marine environment and can therefore compromise the protection of the ecosystems. The effects must be assessed as *potential* effects, as most of the energy projects so far have been small-scale pilot projects, so there is no certainty on the large-scale impacts. [195] It can be safely argued that marine renewable energy production has some damaging effects on the marine environment, but the precise effect and extent still requires further research.

These effects of large-scale marine renewable energy production may be considered as "disturbance" which is prohibited in Article 12 of the Habitats Directive[196] and Article 5 of the Birds Directive[197], because the installations can make it challenging for fish and marine mammals to migrate to areas which they typically use for resting, feeding and breeding. In addition, the species may begin to completely avoid marine areas where the installations are located or they may even be injured by the moving parts of marine renewable energy devices.[198] These aspects also need to be considered regarding MSPD and MSFD. The potential impacts of marine renewable energy on biodiversity, which cause concern, includes habitat loss and ecosystem degradation, risks of collision, and negative effects caused by noise, vibration, and electromagnetic fields.[199] As the research has only observed direct changes on few species so far, the overriding concern which still remains unanswered is whether the effects observed are ecologically meaningful, such as population-level change resulting from reduced fitness of individual animals.[200]

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[195] Bergström – Kautsky – Malm – Rosenberg – Wahlberg – Åstrand Capetillo – Wilhelmsson 2014, p. 2.
[196] Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
[197] Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.
[198] van Hees 2019, p. 30.
[199] Inger – Attrill – Bearhop – Broderick – James Grecian – Hodgson – Mills – Sheehan – Votier – Witt. – Godley 2009, p. 1146-1148.
[200] Gill – Birchenough – Jones – Judd – Jude – Payo-Payo – Wilson 2018, p. 132.

In two cases marine renewable technologies suffer from insufficient knowledge, as there is not enough practical experience on the operation of marine renewable energy technologies and the marine environment is extremely difficult to study.[201] Some of the existing and future effects of marine renewable energy exploitation are likely to be undetected given the difficulty of monitoring marine species. However, there are species, such as seabirds or fish, that are sensitive to marine renewable energy installation and operation, and they may prove to be ideal indicators of marine ecosystem health. Therefore, the environmental effects of marine renewable energy measured by such indicators could foster the development of general guidelines for maritime spatial planning.[202] This uncertainty may, however, also limit the ability to account for environmental changes associated with MRE development in maritime spatial planning processes, subsequently reducing confidence in planning decisions which promote an energy mix to combat climate change.[203]

Therefore, the production of marine renewable energy should be sustainable and ensure sufficient protection for the marine environment. This requirement also comes from international environmental law. The precautionary principle is one of the fundamental principles in EU environmental law and it requires that in the face of scientific uncertainty, there is a normative necessity of taking appropriate and timely actions.[204] Thus, operation and construction of the installations requires further research on the effects on the marine environment in order to provide proper guidelines on the planning and operation.

4.4 Restrictions from the Legislation Concerning the Protection of the Seas

4.4.1 Maritime Spatial Planning Directive

In the previous sections, the effects of the marine renewable energy on the marine environment, as well as the potential conflict between the objectives of the Green Deal were assessed. Next, it will be discussed whether the Maritime Spatial Planning Directive can help plan the deployment of MRE in a way that takes account of environmental objectives and helps to balance these goals. This assessment is based on the framework illustrated in the chapters two and three. This section mainly clarifies environmental restrictions on the

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[201] Wright 2018, p. 82.
[202] Gill – Birchenough – Jones – Judd – Jude – Payo-Payo – Wilson 2018, p. 156.
[203] Gill – Birchenough – Jones – Judd – Jude – Payo-Payo – Wilson 2018, p. 132.
[204] Bándi 2020, p. 45 and joint cases T-74,76, 83–85,132,137 and 141/00, *Artegodan GmbH and others v Commission*.

development of marine renewable energy, and whether environmental considerations have been incorporated adequately.

The Maritime Spatial Planning Directive unequivocally in the Article 8(2) requires Member States to include the installations and infrastructures for the exploration of energy sources, and the production of renewable energy, as well as nature and species conservation and protected areas in their national plans. It can be concluded that the Directive incorporates the use of marine renewable energy with the other activities to be considered when developing national plans. In theory, this should provide the obligation to take environmental issues into account already in the planning phase when considering the installations of marine renewable energy and the transmission of energy. In principle, this is another issue, as the Directive does not provide much substance to what the plans should actually contain, and merely states the minimum requirements for the national processes in order to achieve the objectives of maritime spatial planning. [205] Since, unfortunately, only minimum requirements have also been set for the procedure, it can be argued that it is not clear how these requirements should be effectively integrated into the development of the various activities.

According to *Kyriazi et al.*, when attempting to achieve the good environmental status of the ecosystem, nature conservation should be the main way to do this. Therefore, based on the conflict resolution aspect of the maritime spatial planning, nature conservation should be a central objective in the process.[206] However, there are also challenges, as the Directive does not provide guidelines for the preparation of Marine Spatial Plans or the balance between the different objectives to be taken into account, this may result in an insufficient level of marine protection. Thus, it can be concluded that, ultimately, the potential of the Directive in providing protection for the marine environment against the impacts of the deployment of marine renewable energy depends purely on what kind of national plans do the Member States develop and how they decide to prioritise environmental objectives in their plans. For example, as discussed in chapter three, very little consideration to the environment was given in the Baltic Sea area.

The controversy started at the very beginning of the MSPD's planning phase, as to what is the aim of maritime spatial planning. While some argue that the aim is first and foremost to protect the environment, some view it as a reconciliatory tool. Past experience with maritime

[205] Soria-Rodríguez 2020, p. 99.
[206] Kyriazi – Maes – Rabaut – Vincx – Degraer 2013, p. 136-138.

spatial planning could suggest that currently "soft" sustainability is the middle ground which should be applied in the case of conflict, even though the MSPD clearly refers to the ecosystem-based approach.[207] This has gone as far as arguing that the limited view of sustainability results in a situation where the maritime spatial planning is actually diminishing existing environmental protection.[208] Thus, a major question is, what is prioritised in the MSP processes? There is no simple answer to that question, as the MSPD does not clarify it.

All in all, the MSPD does not create many obligations or restrictions in relation to environmental protection in the production of marine renewable energy and does not alone provide the elements to assess the conflict between these two objectives. Application of the MSPD in this context would require knowing what the priorities between the different types of uses are, but before the priorities can be established, it must be understood how and to what degree these conflicting interests for the oceans collide.[209] To discuss the question, it must be also kept in mind that while the Member States have a wide margin of discretion in the implementation of the MSPD, they still have to comply with the requirements set out in other legal instruments, for example in the MSFD.[210] Thus, it seems that a more appropriate instrument in granting specific obligations in the MRE processes is the Marine Strategy Framework Directive, and the Maritime Spatial Planning Directive could work as an instrument governing it.

4.4.2 The Marine Strategy Framework Directive

As the MSPD should be implemented according to the objectives stated in the MSFD, it is also essential to investigate the environmental limitations stemming from the MSFD to understand the conflict between environmental objectives and marine renewable energy. The Article 9 of the MSFD stipulates more specifically than the MSPD that the Member States must themselves determine a set of characteristics for good environmental status according to the 11 qualitative descriptors listed in the Annex 1 of the Directive. Several of the descriptors have a direct link with the environmental effects associated with the production of marine renewable energy. The relevant descriptors are linked to the pressures on biological diversity,

[207] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 131.
[208] Qiu – Jones 2013, p.
[209] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 131.
[210] Soria-Rodríguez 2020, p. 100.

sea-floor integrity, pollution, marine litter, and energy.[211] If these are properly considered in the deployment of marine renewable energy projects, they can provide the needed protection for the environment against the impacts of marine renewable energy.[212] In addition, the Article 1 of the Marine Strategy Framework Directive requires that the Member States must apply the ecosystem-based approach in the management of the activities in marine environment to ensure that the collective pressure is kept within levels compatible with the achievement of good environmental status. The MSFD sets forth these obligations which can be used when assessing the limitations provided by environmental objectives regarding the deployment of marine renewable energy. However, neither are they always sufficient to guarantee the protection of the marine environment. For instance, in the deployment of marine renewable energy in the Rentel offshore wind farm in the marine waters of Belgium, it was found that the mitigation measures of the energy emission were incompatible with the Belgium's allowed levels for underwater sound.[213] Based on practical experience, it can therefore be argued, that although the Directive provides mitigation measures to be applied to reach a good environmental status, they are not always enough to protect the environment.

In addition, *Soria-Rodriguez* has presented three significant weaknesses in the Directive which cause challenges in guaranteeing an effective environmental protection on the projects. Firstly, good environmental status is not a specific requirement that would have to be considered in the planning of individual projects, but instead the MSFD requires achieving good environmental status in the marine region as a whole. Secondly, due to the absence of specific procedural obligations for the implementation of the environmental obligations, most importantly the ecosystem-based approach, the development of individual marine renewable energy projects can result in a situation where these obligations are disregarded. And lastly, Article 14(1) of the MSFD provides for a derogation clause for the achievement of good environmental status in Member States' marine waters, allowing for the modification of the physical characteristics of marine waters when there is an overriding public interest which outweighs the negative impact on the environment.[214]

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[211] Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy, Annex I.
[212] Soria-Rodríguez 2020, p. 99.
[213] Norro 2018, p. 24.
[214] Soria-Rodríguez 2020, p. 99.

Mainly, the derogation clause in Article 14 of the MSFD can be an important weakness regarding the environmental protection against the impacts of marine renewable energy production. It might lead to a situation where a Member State does not comply with its obligation to achieve a good environmental status in the marine areas, because the production of marine renewable energy is presumed to be a public interest that would meet the criteria set out in the derogation clause.[215] This derogation clause does not guarantee an actual integration of the Marine Strategy Framework Directive and the Renewable Energy Directive. This is due to the challenges that could arise if the derogation clause is applied and the balancing of interests is done on the basis of the Directive, as it does not specify the weight of the interests, i.e., renewable energy projects, in relation to the objective of achieving good environmental status. Thus, there is a risk that the renewable energy objectives have priority over the other objectives. On the other hand, some of these marine renewable energy projects may be essential to achieve the targets of the Renewable Energy Directive.[216] This ultimately reflects the founding challenge of this assessment, which Directive to prioritise? There is no simple answer to this question, and this issue reflects the significant lack of integration between these two policies.

Although the MSFD obliges Member States to establish environmental impact assessment standards aimed at achieving or maintaining good environmental status, which could also be applied to marine renewable energy projects, the level of priority given to the environment depends on the Member States. Therefore, the barriers that marine renewable energy projects may face also depend on the Member States. As the MSFD only sets minimum requirements, it can be interpreted that it does not require a licensing process on individual projects in a way that would take sufficiently into account the environmental impacts. In practice, it is possible that the MSFD only has little impact on marine renewable energy projects.[217] To summarise, it may be noted that the magnitude of the MSFD affecting marine renewable energy projects is purely contingent on how the good environmental status is defined in the national marine

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[215] In the case of C-346/14, *Commission v. Austria*, paras 71–74, Concerning the Water Framework Directive the European Court of Justice stated that the production of renewable energy can be an overriding public interest, as established in the Directive. In that case the Court highlighted the importance of renewable energy sources, and the priority it has within the European Union. It is expected that similar justification could be applied in cases concerning the MSFD. For a further discussion see van Hees 2018a, p. 26–27.

[216] van Hees 2019, p. 31.

[217] In contrast, the Water Framework Directive and Birds and Habitats Directives require that individual projects which cause prohibited negative impacts on the environment must be prohibited.. Thus, it could be that a marine renewable energy project is prohibited based on these directives. See van Hees 2019, p. 30.

strategies and how the Member States have adopted the obligations related to it.[218] As good environmental status was not achieved by 2020 as originally targeted in the MSFD, it can be argued that this is also a significant drawback for the future implementation of marine renewable energy projects, and could possibly endanger the marine environment even more if the obligations are not clarified.

The MSFD cannot bring proper protection to the environment in renewable energy projects, nor can it give guidance on balancing these objectives. Maritime spatial planning has been proposed as the instrument to balance marine protection and marine energy projects in line with the EU regulation on the protection of habitats and species.[219] Hence, it is possible that the MSFD objectives could be properly applied through the MSPD, if the implementation of the MSPD is clarified. Potentially, maritime spatial planning could work in balancing the objectives of MSFD and RED II when conducting spatial choices, as the MSFD alone cannot provide sufficient balancing of the interests. If Maritime Spatial Planning Directive was used in this manner, the spatial planning process could integrate the objectives of the Marine Strategy Framework Directive into management measures. This would require the national authorities to consider all relevant policy sectors, rather than conducting a single-sector assessment.[220]

4.5 Positive Effects of Maritime Spatial Planning for the Development of Marine Renewable Energies

The discussion in this thesis already suggests that the maritime spatial planning does not offer complete environmental protection. However, it should be acknowledged that the MSP provides some positive effects in the development of marine renewable energies, which is essential as the marine energy is vital for climate change mitigation.[221] It can also be already seen that, if properly implemented, the MSP can help reduce environmental impacts.[222] Thus, not only concerns and negative aspects of maritime spatial planning should be acknowledged, but also the solutions it may provide for the climate at the moment.

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[218] See for example Soria-Rodríguez 2020, p. 99.
[219] Quero García – García Sanabria – Chica Ruiz 2019, p. 129.
[220] See for example van Hees 2019, p. 36-37.
[221] Global Wind Energy Council 2022. p. 52.
[222] Soria-Rodríguez 2020, p. 100.

Practical experience of the maritime spatial planning processes has shown that the use of maritime spatial planning in the development of marine renewable energy has in some cases successfully reduced environmental impacts. This can be achieved if the planning allows the identification of protected sites and takes the possible environmental risks into account in advance.[223] In the Netherlands, the designation of specific areas for marine renewable energy and identification of protected sites is clear, as the government chose specific areas for the deployment of offshore wind energy but does not allow it in other areas.[224]

In practice, the MSPD can help determine best locations for the installations[225], as was the case in Netherlands. This can then simplify and speed up decision making, licensing and authorisation procedures. In addition, the MSP reduces conflicts with other economic activities and increases stakeholder participation when the processes are planned in advance.[226] This is, however, currently only the case in certain Member States. The incoherency in authorisation processes for the installations of marine renewable energy and the lack of detailed regulation may even form an obstacle to the growth of marine renewable industry,[227] which is a problem for climate change mitigation. The differences in the application of the MSP should be turned around towards integration of the different characteristics of the Member States, which would create a common regime for the management and development of the activities.[228] This could further increase the development of the industry.

If interpreted in a coherent and inclusive way, the MSP can help address the complexity and lack of coordination in marine governance by increasing incorporation of different goals and creating a framework that can clearly identify what should be prioritised for important sectoral policies, for example renewable energy.[229] This kind of support from EU level would promote the creation of a stable environment for the renewable energy industry in which commercial risks are minimized and long-term investments encouraged.[230] These are needed for proper development.

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[223] Quero García – García Sanabria – Chica Ruiz 2019, p. 128.
[224] Government of the Netherlands 2015, p. 42.
[225] Soria-Rodríguez 2020, p. 99.
[226] Quero García – García Sanabria – Chica Ruiz 2019, p. 128.
[227] Peeters – Schomerus 2014, p. 301
[228] Quero García – García Sanabria – Chica Ruiz 2019, p. 129.
[229] This was the case in many Baltic Sea countries according to the report by WWF, which is not good from the environmental perspective.
[230] Quero García – García Sanabria – Chica Ruiz 2019, p. 128.

Thus, the maritime spatial planning could have many positive effects on the marine renewable energy industry, and furthermore on the climate change mitigation objectives. However, as much of the practical contribution depends on how Member States implement the measures,[231] the steps taken may not be compatible between Member States. In the next section it is discussed whether proper implementation can be ensured, in line with environmental objectives.

4.6 Discussion

As evidenced, the marine renewable energy, especially the offshore wind sector, continues to grow and demand space especially in many Northern EU countries. For spatial decisions, the consideration of the marine renewable energy sector is especially important, as the installation requires a lot of resources, the structures remain in place for a notable period of time and it has extensive consequences for other maritime activities.[232] Thus, the different aspects of the issue need to be discussed together.

To assess the conflict between these objectives, this chapter established what kind of environmental limitations the marine renewable energy production has in practice from the MSPD and MSFD. The EU's environmental regulation considering marine renewable energy is fragmented and the different instruments consider only certain sectors. It consists of different instruments, which belong to different policy areas, but some of them are connected and some not at all, but each of them is an important element in the protection of the environment against the impacts of marine renewable energy.[233] This is one of the overarching problems maritime spatial planning tries to tackle. To overcome the issue of fragmentation, integration would have to include different legal instruments, different interests and it would have to take place at different levels.[234] If applied properly, the Maritime Spatial Planning Directive could function as the umbrella which would organize the different instruments.[235] Currently, it seems that the MSPD does not work accordingly as planned.

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[231] Soria-Rodríguez 2020, p. 100.
[232] Schultz-Zehden – Weig – Lukic 2019, p. 140.
[233] Giannopoulos 2022, p. 5.
[234] UNESCO 2021, p. 26 and 59.
[235] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochett – Kerr 2016, p. 131.

The issue concerning fragmentation becomes even more difficult, as the MSPD and MSFD mostly provide general obligations. They lack specific requirements which would have to be taken into account in individual cases or individual marine areas. The Directives leave the significant elements into the discretion of the Member States.[236] Comparing to the MSPD, the MSFD provides a little more specific guidelines regarding environmental protection. It includes indicators and descriptors that can be used when assessing the stressors of marine renewable energy in addition to assessing the environment affected by these stressors.[237] However, this is not enough, as this discussion indicates that the MSFD also has significant weaknesses, and it is not always a sufficient instrument for ensuring environmental protection in marine renewable energy projects. Help should therefore be found somewhere else.

To answer the main research question of this thesis, it can be concluded that, in theory, concept of maritime spatial planning is an appropriate method to resolve the conflict between marine renewable energy and environmental protection. In practice, however, the situation is different. The Directive does not provide requirements regarding environmental protection, which can mean that marine protection is not assessed in the planning, as was the case in some Baltic Sea states. As always with EU directives, it only sets out the objectives which must be achieved but leaves the means to do so to the discretion of the Member States. The Member States are required to decide for themselves the structure and substance of their national maritime plans, and they alone are responsible for them. Ultimately, it is also in the discretion of the Member States to interpret the objectives of the MSPD and decide how to prioritise them in their national maritime spatial plans. This can result in a situation where some objectives are left completely out of the plan, which, of course, is not the purpose of the MSPD. In the case of MSPD, little more guidance could have made a significant difference in solving this conflict between different objectives. However, considering that the EU has only limited, definite competencies and that legislative projects must be allocated under a common policy, it seems that the adoption of a more detailed directive would have been difficult.[238]

Even if it was possible to use the MSP as a tool to integrate different policy sectors, it does not guarantee a proper balance in the process as it does not clarify what the weight of each objective should be. As stated above, the principle of integration under the TFEU is an important part of the concept of sustainable development, and in this thesis the view is taken

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[236] Giannopoulos 2022, p. 5-6.
[237] Soria-Rodríguez 2020, p. 105.
[238] Van Doorn – Gahlen 2018, p. 82.

that integration requires that clashing policies have appropriate tools to ensure that the objectives of each policies concerned can in theory be achieved.[239]

While the cross-border nature of the MSPD has been praised, the Directive does not offer guidance how this cooperation should work in the actual planning, as the differences between Member States in the same marine area need to be considered. As often marine renewable energy projects may have transboundary effects, this drawback in the Directive may diminish the effectiveness of the cooperation requirement, unless further policy measures or guidelines are adopted. This challenge was already reported by the WWF, and the better implementation of the maritime spatial planning needs more cross-boundary cooperation.

The ecosystem-based approach could be of some help in resolving conflicts. If properly applied, the ecosystem-based approach could help accomplish the intertwined objectives of preserving biodiversity, exploiting ecosystems in sustainable way, adapting to the many impacts of climate change, and the measures needed for climate change mitigation.[240] However, in this regard the challenges in the application of the ecosystem-based approach much be acknowledged, as it is unclear in the international framework, too, what it should mean in practice. If taken the view that ecosystems should be prioritised, this would offer some instruments for solving the conflict.

It has been argued that the MSP is essentially a means to use the maritime space in line with the EU's economic policy by promoting the potential for sustainable development of the seas, thus inspiring the private sector to exploit the potential of the oceans' and manage the locations to do so.[241] Given the fragmented EU legislation on marine protection, it is a pity that MSP is seen as an economic tool rather than a means of combining the different activities in a way that ensures environmental protection and better addresses issues such as climate change.

Despite these challenges, the importance of the maritime spatial planning cannot be ignored, as for example the monitoring program conducted over ten years in Denmark presented that "proper spatial planning" can guarantee that the development of offshore wind farms does not cause substantial harm to the marine biodiversity and environment.[242] As these conclusions

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[239] See van Hees 2019, p. 36-37.
[240] Chong 2014, p. 12.
[241] Schultz-Zehden – Weig – Lukic 2019, p. 144.
[242] Danish Energy Agency 2013, p. 12.

date from 2013, it is likely that additional measures can provide even more protection if properly planned. Nevertheless, the fairness of spatial planning must be ensured so that the spatial planning can truly achieve its potential. It must also be kept in mind that MSP is only one tool for ocean governance and not the ultimate solution in every case.[243].

Biodiversity and ecosystems play a fundamental part in sustaining life and are therefore essential in building up human resistance to the many difficult effects of climate change.[244] Thus, one way of combating climate change, preserving the oceans, should not be destroyed by another. The best results could be achieved by combining these two. As it is concluded in this chapter that so far, the MSP cannot sufficiently solve the conflict between these two objectives, in the next chapter it is discussed how they can possibly co-exist in the future.

[243] Van Doorn – Gahlen 2018, p. 84.
[244] Chong 2014, p. 11.

5 Road to a More Coherent Framework

5.1 Introductory Remarks

It can be easily concluded that the law regime concerning marine renewable energy in general, and the environmental limitations, is very fragmented. It is not an easy task to deduce the relevant legislation from the sea of both mandatory and voluntary instruments. As the marine renewable energy production further develops, a more unitary and coherent legal regime is needed.[245] Consequently, this chapter takes a closer look to the future of combining the objectives of marine renewable energy and marine protection and answers the third research question, i.e., how these two goals can co-exist.

To ensure the proper balance between precaution and risk, it is essential to further develop the regulatory framework of marine renewable energy and the Blue Economy in general.[246] The insufficient regulatory framework leads to data gaps in the development of renewable energy, and the regulatory framework is therefore not adapted to manage uncertainty and the emerging technologies. Where there is uncertainty, the framework should be suitable to balance precaution and risk, but at the moment it is not able to do that. As the regulators proceeded with precaution themselves when enacting the legislation and adopted cautiously vague obligations, the marine renewable energy industry has captivated a "depth of scrutiny from environmental regulators and statutory nature conservation bodies that more established marine industries such as fishing, and shipping have managed to escape"[247]. The framework should be able to adapt to new information, especially as the effects of marine renewable energy are still to be discovered.[248]

The EU has the potential to take a leading role in the shaping of ocean governance at an international level as well, by working with the United Nations and other key global partners.[249] This is one of the policy goals of the European Union, as it has taken on the agenda for the oceans together with United Nations Educational, Scientific and Cultural Organization's (UNESCO) Intergovernmental Oceanographic Commission. The organisations

[245] See for example Scovazzi – Tani 2014, p. 258.
[246] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 129.
[247] Merry 2014, p. 1–2.
[248] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 129.
[249] Friess – Grémaud-Colombier 2021, p. 5.

adopted a Joint Roadmap to accelerate MSP processes worldwide in 2017.[250] The goal of the process was to establish global guidelines for maritime spatial planning, and while the work still continues, in 2021 the organisations published together the "MSPglobal: international guide on marine/maritime spatial planning". As the European Union has created the unique instrument for the promotion of maritime spatial planning within the Union and significantly increased the number of spatial plans in the world, it has a good legitimization to further lead the global efforts of promoting ocean governance through maritime spatial planning. The international ocean governance framework requires strengthening, the multiple pressures on the oceans should be decreased, as well as the resource exploitation must be used in a sustainable way.[251] The EU can play a strong role in the shaping of the way the oceans are managed, but this needs to be done in collaboration, and the challenges in the EU legislation should not be transferred to international policies. For the EU's adopted MSP framework to be extended globally, an EU-wide system must first work effectively, as discussed in this thesis.

5.2 Coherent Legislation

It is established in this thesis that the sustainable development of marine renewable energies requires an appropriate regulatory framework which also takes environmental aspects into account. Challenges are caused by the rapid development of marine renewable energy technologies, as it is possible that marine renewable sources will be exploited faster than the policy and legislation for their deployment is developed. Appropriate framework would make MRE better compatible with other uses as well as guarantee the right level of protection for the marine ecosystems.[252] This would require revising, for example, the MSFD and RED II. In the absence of concrete legislation governing these issues, the maritime spatial planning could, in theory, be an appropriate concept to fulfil these requirements, if properly applied. However, as has been established, the MSP is not yet functioning correctly, and that framework needs revising as well.

The EU's 2030 and 2050 objectives for climate change mitigation presented in the RED II and the Green Deal highlighted the importance of marine renewable energy, most importantly offshore wind energy. These goals together with the aim of the Biodiversity Strategy for 2030

[250] European Commission and UNCESO 2017.
[251] Friess – Grémaud-Colombier 2021, p. 5.
[252] Quero García – García Sanabria – Chica Ruiz 2019, p. 123.

could promote the need for increased coordination of maritime spatial planning and thus, ultimately lead to the establishment of a common framework,[253] which should also include the assessment of environmental impacts. This could function as a justification for placing resources in the development of a better legislation.

On the other hand, the development of renewable energy, if poorly planned, could place a further burden on biodiversity conservation.[254] In a similar manner, the Blue Economy and its requirement for sustainability may provide new opportunities and innovations for conservation but may also put conservation endeavours in danger through a slippery slope of trade-offs.[255] Thus, the further developments on the framework should be carefully planned.

When looking at possible options to further improve the marine renewable energy framework, some guidance could easily be adopted from other policies, as the EU has put in place policy structures to secure environmental protection in other industries, as well. For instance, the European Agricultural Fund for Rural Development financially supports agricultural measures which are aimed at encouraging sustainable management of natural resources and climate action.[256] Likewise, the Common Fisheries Policy[257] aims to balance activities between the environment and the fishing industry by supporting the designation of marine protected areas and the application of an ecosystem-based approach in fisheries management. The main goal is to maintain marine resources and to foster their sustainable use.[258] However, despite these attempts for integration, most fish populations continue to decline, partly due to lack of enforcement of the Common Fisheries Policy.[259] Same kind of policies could be adopted regarding the marine renewable energy, but this type of poor integration highlights the need for further work. Thus, in the development of a coherent legislation between marine

[253] COM(2020) 741 final, p. 16.
[254] Hermoso – Carvalho – Giakoumi – Goldsborough – Katsanevakis – Leontiou – Markantonatou – Rumes – Vogiatzakis – Yates 2022, p. 268.
[255] Katsanevakis – Coll – Fraschetti – Goldsborough 2020, p. 6 and 14.
[256] Lomba – Moreira – Klimek – Jongman – Sullivan – Moran – Poux – Honrado – Pinto-Correia – Plieninger – McCracken 2020, p. 36.
[257] Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC.
[258] The preface and objectives in Article 2 of Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy.
[259] Hermoso – Carvalho – Giakoumi – Goldsborough – Katsanevakis – Leontiou – Markantonatou – Rumes – Vogiatzakis – Yates 2022, p. 266.

protection and production of renewable energy, these past mistakes in other industries should not be repeated.

Given the ambiguity of EU legislation on maritime spatial planning and renewable energy, further guidance could be obtained from international legislation, which covers the seas in the EU area, as well. For example, the UNCLOS and Convention on Biological Diversity can be seen as specifying several obligations to encourage the EU to safeguard the marine protection in the deployment of marine renewable energy. They also provide guidelines for the regulation and management of environmental stressors linked to the development of the installations, in addition to the obligations arising from EU legislation.[260] This analysis and conclusion would support prioritising environmental factors in the planning processes. However, also international instruments offer only generic protection, and complete guidance cannot be derived from them. It has been suggested that also the international framework requires furtherer development to ensure a comprehensive protection from the impacts of marine renewable energy technology.[261] While the EU seeks to promote and establish an international framework for maritime spatial plans, it should find a way to minimise these issues both in the international framework as well as in the EU legislation.

Some possible solutions could be found by promoting in the legislation the co-location of the different maritime activities, such as offshore wind installations and fisheries, which could improve space use efficiency, thus creating mutually beneficial renewable energy systems[262], and reduce conflicts by leaving more space for nature.[263] In the marine management, nature conservation can be integrated with other policies by creating regionally optimised national maritime spatial plans, but it is essential that they focus on conservation in addition to maximising the use of marine resources and activities.[264] Hence, also this solution depends on the development of maritime spatial planning framework.

Even if a suitable plan could be developed to further improve maritime spatial planning in a legally binding way, and to address the issues raised in this thesis, another difficulty is that the EU can only act within the competences granted to it by the EU treaties. Firstly, Article 4

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[260] Soria-Rodríguez 2021, p. 59.
[261] Soria-Rodríguez 2021, p. 59.
[262] See for example Burke 2018.
[263] Yates – Schoeman – Klein 2015, p. 208.
[264] Markantonatou – Giakoumi – Koukourouvli – Maina – Gonzalez-Mirelis – Sini – Maistrelis – Stithou – Gadolou – Petza – Kavadas – Vassilopoulou – Buhl-Mortensen – Katsanevakis 2021, p. 2286.

(2)(i) of the TFEU provides that the EU and the Member States share competence in matters of energy policy. Also, the objectives of the TFEU for renewable energy have been described as *avant-garde,*[265] as referring to the Article 194(1), the policy of renewable energy also aims to ensure the functioning of the energy market, ensure the security of energy supply, to promote energy efficiency and energy savings, as well as the development of new and renewable forms of energy, and lastly to promote the interconnection of energy networks. Thus, not only climate measures. The key point is that the Treaty gives the Member States absolute discretion to decide how they want to exploit energy resources, and leaves them free to choose between the different methods of energy production as well as to build the energy supply structure to meet their national needs, as stated in the Article 194 of the TFEU. Thus, it seems that taking more binding measures to ensure environmental protection in the MRE development would be difficult. The development of marine renewable energy is strongly reliable on the politics of the Member States, and this could be a challenging hurdle to defeat as all the differing national interests need to be considered. A more likely solution is for the EU to draw up clearer, non-binding guidelines for the Member States, for instance on balancing the different interests.

5.3 Balancing Act

As was discussed in the previous sections, the integration of environmental objectives and the ecosystem-based approach in MSP requires that the different goals should be balanced. When first looking at balancing and combining different goals, trade-offs seem inevitable. However, it should be possible to meet the goals in one policy area without causing harm to the other policy areas. When managing the different interests, such as marine conservation and renewable energy, both policies should be treated equally.[266] This balancing is called the balancing act, which the Member States should conduct when drawing up their national maritime plans and considering the objectives of the plan. Thus, it has been argued, that for the balancing to follow the principles of the policy integration of TFEU, the Member States should seek to balance both policy objectives in an equal manner.[267] So far, in the adopted national plans, shortcomings have been present especially in providing national goals and

[265] Long 2014, p. 699.
[266] van Hees 2018b, p. 15.
[267] van Hees 2019, p. 36-37.

targets.[268] To achieve a proper balancing, the Member States should know what the balanced standards are.

On the one hand, in environmental policy, the standards and goals are fairly straightforward to achieve the good environmental status, even if some of the terms are vague. On the other hand, in renewable energy policy the standards are not as clear. The goal of increasing renewable energy production, indicated as a percentage, is very broad, and it does not express what should be achieved in a specific project. The maritime spatial planning does not offer a solution, as the Directive does not elaborate on how to balance different interests.[269] In order to find a solution, the Member States should know the weight of an individual energy project against the environmental interests.[270]

The problem of finding a balance became more concrete as some Member States adopted their spatial plans without priorities or with priorities that varied from one Member State to another in the same marine area. For example, it was analysed that the Finland's national maritime spatial plan does not provide any guidance or priorities for sea areas for 2030.[271] While the MSP may create the need to balance different interests, the Maritime Spatial Planning Directive does not give guidance on the balancing and determining the factors which need to be considered in the national plans.[272] Therefore, this thesis suggests as a solution to the co-existence of these objectives that the EU should formulate guidelines on how to balance and prioritise different interests in the national plans.

The challenges in the further improvement of the maritime spatial planning framework in relation to the development of marine renewable energy industry have been uncovered, but the ultimate solution to these challenges may not be found any time soon, as more knowledge is needed on the effects on the environment.[273] These guidelines should, therefore, be also able to adapt to new information and to new technology. Without these guidelines, large-scale installations could be built without this balancing act, leading to environmental degradation.

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[268] WWF 2022, p. 14.
[269] Soria-Rodríguez 2020, p. 99.
[270] van Hees 2019, p. 36-37.
[271] WWF 2022, p. 16-17.
[272] van Hees 2019, p. 36-37.
[273] Friess – Grémaud-Colombier 2021, p. 3.

5.4 Concluding Remarks

On the basis of the discussion the answer to the third research question can be concluded. The framework of maritime spatial planning includes several instruments which require taking varying policy aspects into account, but the instruments do not grant specific obligations per se. As the maritime spatial plans are used to combine these legislative instruments and their goals, the co-existence of the objectives of promoting renewable energy and protection of the marine environment requires that MSPD, MSFD and the RED II should be revised to be more coherent and precise in their objectives.[274] Creating clearer legislation would be the most effective way to ensure a safe co-existence of these marine uses, as it would provide specific obligatory measures for the Member States to make sure all different elements are considered. However, as creating obligatory legislation might be difficult in the policy framework of the EU, another possible solution for securing the co-existence in harmony is to create guidelines for a successful balancing act. It can be argued that although the MSP has taken policy measures to strike a balance between environmental and economic goals, as in the case of marine renewable energies, it is not possible for the Member States to conduct a proper balancing without knowing what the elements to be balanced are.

Until this balance of interests is clarified, the plans seem to give priority to certain uses of the seas, such as transport and fishing, simply because they are "traditional".[275] If these policies and objectives of the different EU instruments could be coordinated and their mutual application clarified by common guidelines, MSP could secure a sustainable future for us all. Properly implemented, MSP could work as a support for all other instruments[276] and provide a framework for the co-existence of these conflicting, but important, objectives of protecting the ecosystems and mitigating climate change. The EU's policy is clearly on the way towards this position, but some improvements and guidance are still needed to make it work consistently in practice.

The EU is already an international front-runner in the growth of maritime spatial planning. Thus, the successful integration of different activities and preserving nature could further enhance EU's role as a leader in global politics of biodiversity conservation. It could lead the way both in the production of marine renewable energies and conserving marine ecosystems

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[274] See for example the recommendations in WWF 2022, p. 22.
[275] WWF 2022, p. 23.
[276] Wright – O'Hagan – de Groot – Leroy – Soininen – Salcido – Castelos – Jude – Rochette – Kerr 2016, p. 131.

through successful maritime spatial planning.[277] Creating a more effective framework for maritime spatial planning would also promote the EU's international role and give legitimacy for its policy efforts.

[277] Hermoso – Carvalho – Giakoumi – Goldsborough – Katsanevakis – Leontiou – Markantonatou – Rumes – Vogiatzakis – Yates 2022, p. 269.

6 Concluding Remarks

In this thesis, the assumption that there are conflicts between the goals of protecting the biodiversity of the oceans and increasing the production of marine renewable energy has been analysed. Furthermore, the MSPD was assessed as a way to solve this conflict. The analysis was conducted by using legal dogmatics, regulatory theory and ecosystem-based approach as a method. These methods were used in the systemisation of EU legislation and legal literature.

It is concluded that maritime spatial planning is not yet a successful instrument for combining the promotion of renewable energy with protection of the seas, despite the attempts to portray it as such. The Maritime Spatial Planning Directive requires Member States to take into account the ecosystem-based approach but does not set binding obligations or even guidelines on how to do this. The actual application is left to the consideration of the Member States and depends on the political interests of each country. Maritime spatial planning has increasingly been promoted as a critical approach to ensure the efficient and equitable use of maritime space and sustainable exploitation of marine energy resources. As concluded in this thesis, it can be argued that the maritime spatial planning has the *potential* to be used as such an approach, but more efforts are needed if the MSP is to succeed in this endeavour.

The future developments and frameworks for the promotion of renewable energy mean further increases in the development of marine renewable energy. But this also means that there needs to be better guidance on how to combine marine protection and building installations at seas. The national maritime spatial plans were to be finalised in 2021, so further research must concentrate on the effectiveness of those plans, and what further amendments should be made. Some of the States were not successful in developing these plans by the required timeframe, which can also be seen as an indication of the challenges arising from the Maritime Spatial Planning Directive.

The issues concerning the MSPD start from the policy background of its development, and it must be recognised that the Directive was planned to simplify the operation of the many EU instruments relevant to the marine area, not just to facilitate environmental protection. Even though there is a direct notion to the ecosystem-based approach in the Directive, the main aim of MSP is still controversial, as it can be argued that the Directive was mainly motivated by economic goals.

Further difficulties arise from the fact that despite the increases in EU conservation initiatives in the last years, there are still critical gaps in knowledge, poor practices and uncoordinated policies to protect the seas. This creates challenges in the attempts to coordinate different activities when the environmental aspects are not known. Systemic prioritisation of economic needs often prevail the objectives related to the environment, despite the continued degradation of the biodiversity. Therefore, the European seas suffer from poor conservation policies, and straining impacts of the pressure caused by human activities, which result in deterioration and continuous failure to stop the deterioration of biodiversity. This fragmented legislation is a weakness both in marine protection as well as in the promotion of renewable energy, which are expensive to build and require a secure framework.

The key concern thus remains how to prioritise the different activities in relation to each other. The promotion of renewable energy and protection of marine environment are both crucial goals for a functioning world in which to live in. A way must be found to achieve these two objectives in parallel without causing harm to each other. So far, the EU framework has not been effective to do so.

To answer the main research question of whether MSP can resolve the conflict between marine conservation and the promotion of renewable energy, this thesis first assessed the second research question, what kind of framework does the ecosystem-based approach provide for MSP. This was essential in order to get a complete answer to the main research question, as the MSPD requires Member States to apply an ecosystem-based approach.

To answer the second research question, this thesis assessed the legal theory behind the ecosystem-based approach, how the maritime spatial planning has been developed in the EU, and how the MSPD implements the idea of the ecosystem-based approach. Even though the ecosystem-based approach is directly mentioned in the MSPD, it does not explain how it should be applied in practice. This can be seen as a challenge, as it is easy for the Member States to ignore the notion of ecosystem-based approach, and, even if they wanted to apply it, they would not know how. In chapter two of this thesis, it was concluded that there is no commonly accepted definition or practice of implementation for the ecosystem-based approach. In general, this has not been seen as a problem, but in practice, the lack of implementation guidelines can lead to insufficient application. In conclusion, a general framework for an ecosystem-based approach cannot be taken as a guide, but the legal theory

framework of the ecosystem-based approach could, however, support the argument that the MSPD's primary aim should be to protect the ecosystems.

As was discussed in the second chapter, the idea behind the ecosystem-based approach is that all measures should be evaluated from the ecosystem point of view, and that actions should be taken in a way that leaves the ecosystem unharmed. However, further challenges are expected as the Directive does not clarify how this approach should be implemented in the national plans. As in the EU's policy discussion it has been established that the primary goals of the MSPD are mostly economic, and if it is not determined how these economic activities should be managed by taking an ecosystem perspective, the MSPD cannot be seen as successfully implementing the framework of the ecosystem-based approach. To support the economic goals of the Directive from an ecosystem perspective and thus contribute to sustainable development, the measures for the application of the ecosystem-based approach should be clarified. The framework of the ecosystem-based approach, however, offered a perspective for analysing the environmental aspects of the MSPD, as the Directive does not include many obligations regarding environmental protection.

To answer the main research question, this thesis analysed the goals of marine protection and promotion of renewable energy together through the application of MSPD. One of the main drivers of creating maritime spatial plans in the EU was the need to better plan production of marine renewable energy. An analysis of the potential environmental restrictions and obligations on marine renewable energy suggests that most of them come from other directives, such as the MSFD, rather than the MSPD. Thus, maritime spatial planning itself does not impose many limitations in relation to environmental concerns. The requirements set forth in the MSFD, which also must be taken into consideration when constructing maritime spatial plans, set more restrictions to the planning of locations for marine renewable energy, and thus could help in the assessment of these objectives. However, as was seen in chapter four, the functioning of MSFD as a tool for environmental protection has also been strongly criticised. It can be concluded that due to the vagueness and high amount of discretion left for the Member States, neither the MSFD guarantees sufficient protection for the environment. It cannot work as a means to combine these objectives. Therefore, maritime spatial planning should be the instrument used to combine these objectives and to ensure that the objectives of MSFD are sufficiently achieved in the production of renewable energy, but further developments are still needed to achieve this.

It can be concluded that maritime spatial planning has the *possibility* to serve as the umbrella for these different objectives. For example, the MSPD is to be commended for the requirement to conduct cross border planning. As the sea areas also extend to the jurisdiction of many states, it is possible that renewable energy installations and their environmental impacts are also scattered to the areas of multiple states. It is therefore essential that the Member States cooperate in the planning process. Within the EU, this is one of the most important aspects of the MSP.

However, the debate also suggests that currently maritime spatial planning does not adequately address the conflicts between marine protection and the promotion of marine renewable energies, as it does not explain how these objectives should be taken into account in national plans. MSPD does not impose any concrete obligations on how Member States should take environmental factors into account, potentially resulting in a situation where Member States have not considered this conflict of interests at all. Although the overall impact of the national plans cannot yet be assessed, it can already be seen that, for example, the national plans of the Baltic Sea region have not taken sufficient account of environmental issues, as the Directive did not contain direct obligations on how it should be carried out. Therefore, more guidance on the actual measures is needed to effectively address these different objectives and to establish a coherent prioritisation policy for EU marine areas. Until then, MSP cannot be considered a successful measure to resolve the conflict between these two objectives. On the basis of these conclusions, it can be argued that until the MSPD takes proper account of environmental aspects, it cannot serve as a means to resolve the conflict between these two objectives.

To answer the main research question, it can be argued that there is a conflict between the objectives of protecting the oceans and promoting marine renewable energy. The magnitude of the impact of marine renewable energy sources on marine ecosystems is unknown, as most of the existing installations are still small-scale. Marine spatial planning has been promoted as a way to resolve this conflict, but it is clear that it cannot resolve it alone, at least at the moment. It is essential to obtain more information to assess the problem between these two objectives and to increase cooperation between Member States and between different industries. The legislative framework should also be more coherent in general. If the Marine Spatial Planning Directive could be made to work properly, it could help resolve these conflicts over the use of marine resources.

From these conclusions it can be argued that there is a need for further research on the legal issues between marine renewable energy and the other instruments governing marine environment as well. Precise conclusions on the environmental limitations of MRE cannot be concluded only based on the MSPD and the MSFD, and it is possible that other instruments establish stricter guidelines for the marine renewable energy installations and planning. As there are over 200 instruments that could be applied in the development of marine renewable energy, also the other instruments need to be assessed. As they were not in the scope of this thesis, the analysis of other instruments should be conducted in further research.

The answer to the third research question, i. e., how these two objectives can co-exist, was addressed throughout the thesis, but most clearly in chapter five. Even though there is this tension between these two goals of protecting the marine environment and producing marine renewable energy, both are equally important, and there must be a way for them to peacefully co-exist. As it seems impossible to prioritise one more than the other, a way must be found for them to exist without causing harm to the other. It is argued in this thesis that the main cause for this contradiction is the fragmented regulation and non-existent guidance. Balancing these objectives should take place at the level of individual projects and in national plans, but this requires a coherent policy. An ideal solution would be to create a legislation which would be in better coherence with the different policies, and which would create binding measures and principles for the production of renewable energy. However, as the Member States have a wide discretion in energy policy, it seems difficult to create such binding obligations.

Secondly, the promotion of these two objectives and the creation of a framework in which both can exist, could be promoted by more specific non-binding guidelines. Guidelines for the balancing of renewable energy installations in relation to marine protection in the national maritime spatial plans and individual projects should be created. The co-existence is achieved by conducting a balancing act, which, in principle, the MSPD promotes. However, as the Directive does not clarify how this act should be conducted, each of the objectives to be balanced should be clarified. Both the environmental objectives and the marine renewable energy objectives, in particular, are unclear, making it impossible for the Member States to know what weight should be given to them in individual projects. As discussed in chapter four, the EU is continuously and increasingly promoting the use of marine renewable energy. When implementing these measures, the legislation and guidelines should also be amended to better reflect the need to ensure environmentally safe activities. The establishment of

appropriate guidelines to balance these objectives would ensure the co-existence of both policies.

As the climate and biodiversity are deteriorating rapidly and measures should have been taken decades ago, this problem of competing objectives should be addressed now.