

MARCH 2021  
DANISH MARITIME AUTHORITY

# STRATEGIC ENVIRONMENTAL ASSESSMENT OF DENMARK'S MARITIME SPATIAL PLAN

ENVIRONMENTAL REPORT OF TRANSBOUNDARY IMPACTS



**COWI**



MARCH 2021  
DANISH MARITIME AUTHORITY

# STRATEGIC ENVIRONMENTAL ASSESSMENT OF DENMARK'S MARITIME SPATIAL PLAN

ENVIRONMENTAL REPORT OF TRANSBOUNDARY IMPACTS

PROJECT NO. DOCUMENT NO.

A118775

9

VERSION DATE OF ISSUE DESCRIPTION PREPARED CHECKED APPROVED

1.1

16-03-2020

Environmental Report

KHHI

UKJ

KHHI



# CONTENTS

1	Introduction	7
1.1	Detailed information of the MSP <b>Fejl! Bogmærke er ikke defineret.</b>	
1.2	The environmental assessment of the MSP	7
2	The Maritime Spatial Plan (MSP)	9
2.1	Detailed information of the MSP	10
2.2	Planning approach applied	10
3	Legal basis and process for SEA	12
3.1	Scoping of the SEA	13
3.2	Approach and methodology applied in the SEA-report	14
3.3	Assessment of likely transboundary environmental impacts	15
3.4	Appropriate assessment	16
4	Strategic Environmental Assessment	17
4.2	Birds and bats	18
4.3	Seabed and habitats	19
4.4	Marine mammals	19
4.5	Fish	20
4.6	Visual impacts	21
4.7	Climate	21

5	Assessment of impacts on environmental objectives	23
6	Precautionary measures	27
7	Monitoring of Denmark's MSP	28
8	References	29

# 1 Introduction

The Danish Maritime Authority has drawn up Denmark's first maritime spatial plan (MSP). The plan is prepared in consultation with other ministries as well as coastal municipalities and relevant NGOs. The MSP is based on Denmark's marine strategy II<sup>1</sup>. The MSP contains designations of areas for several specific purposes as well as individual projects, cf. Danish Act on Maritime Spatial Planning<sup>2</sup>.

## 1.1 The environmental assessment of the MSP

The MSP was subjected to an SEA according to § 8(1) in the Danish Act on environmental assessment<sup>3</sup>. Therefore, an environmental report has been prepared.

The environmental report must contain an assessment of the likely significant impacts of adopting the MSP.

The environmental report is based on the information that may reasonably be required taken into account as well as based on current knowledge and methods of assessment that matches the contents and level of detail in the MSP, taking into account the place of the MSP in the decision-making hierarchy and the extent to which certain matters are more appropriately assessed at different levels in that process, cf. § 12(1) and (2) in the Danish Act on environmental assessment.

In parallel with the environmental assessment of the MSP an appropriate assessment of the MSP's impacts on Natura 2000 sites, which the MSP is likely to affect has been carried out. The appropriate assessment was preceded by a screening of the potential impacts on Natura 2000 sites based on the

---

<sup>1</sup> Ministry of Environment and Food: Denmark's marine strategy II, part 1 – good environmental status, base analysis and environmental aims, April 2019.

<sup>2</sup> Consolidated Act no. 400 on maritime spatial planning of 6 April 2020

<sup>3</sup> Consolidated Act no. 1225 of 25 October 2018 on environmental assessment of plans, programmes and of certain projects

conservation objectives of the Natura 2000 sites in accordance with art. 6(3) of the Habitat Directive

The screening of potential impacts on Natura 2000 sites resulted in a demand for an Appropriate Assessment of a number of designations in the MSP. The appropriate assessment report was drawn up concluding that, on the basis of the available information and the level of detail in the MSP, significant impacts on nearby Natura 2000 sites could be excluded. However, it was emphasized in the Appropriate Assessment report that attention to and particular care will be needed in the subsequent planning and consent procedures in a number of the designations in the MSP when planning and permitting is developed in order to ensure that Natura 2000 sites are not adversely affected by activities permitted within the designated areas of the MSP .

Prior to the preparation of the environmental report a scoping process was undertaken involving the hearing of a number of environmental authorities in Denmark and in neighbouring states. This report contains the environmental report on the likely transboundary environmental effects of adopting the MSP and the measures envisaged to avoid or mitigate such effects.

## 2 The Maritime Spatial Plan (MSP)

The MSP is prepared in accordance with the obligations in the Danish Act on Maritime Spatial Planning. The MSP contains designations of areas delineated in the maps of the MSP.

The MSP covers the energy sector at sea, maritime transport, transport infrastructures, fisheries and aquaculture, sea-bed mining, certain types of land reclamation and preservation, protection and improvement of the environment.

The maritime spatial plan designates development zones for the following purposes:

- > Renewable energy (Ev)
- > Renewable energy and energy islands (Ei)
- > Oil and gas exploration and extraction (Eo)
- > CO2 storage (Ec)
- > Infrastructure-projects
  - > New Limfjord link (Ib)
  - > New Kattegat link (Ib)
  - > New Vejle Fjord link (Ib)
  - > New Fehmarn Belt link (Ib)
  - > New Helsingør-Helsingborg link (Ib)
  - > New Storstrøm link (Ib)
  - > New Nordhavn tunnel (Ib)
  - > New Østlig Ringvej (Ib)
- > Cultivation and transplantation banks for the production of mussels and oysters (Ak)
- > Farming of mussels and oysters in the water column (Ao)
- > Marine aquaculture (Ah)
- > Natural resource extraction (R)

The maritime spatial plan also designates zones for the following purposes:

- > Shipping corridors (S)
- > Protective measures for aviation (II)
- > Compensation excavations at the Great Belt Bridge (Ik)
- > Holmene (L)
- > Cable corridors for renewable energy (Ek)
- > Nord Stream 2 (Er)
- > Baltic Pipe (Er)

## 2.1 Detailed information of the MSP

The MSP is available in English. For further details on the MSP, please see:

Executive Order on Denmark's maritime spatial plan ([www.havplan.dk/en](http://www.havplan.dk/en))

Explanatory notes ([www.havplan.dk/en/about/explanatory-notes](http://www.havplan.dk/en/about/explanatory-notes))

## 2.2 Planning approach applied

The maritime spatial planning is based on five elements:

- > Ecosystem-based approach
- > Vast availability of space
- > Inclusion of best available knowledge
- > Coexistence
- > Correlation between land and sea

### Ecosystem based approach

The preparation of Denmark's first MSP is based on an ecosystem-based approach.

The ecosystem-based approach includes the consideration of:

- > Best available knowledge and practice

- > Use of a general precautionary principle
- > Investigation of alternative solutions in case of significant environment impacts
- > Identification of eco-system services
- > Minimising negative environmental impacts
- > Rational understanding of life and activities at sea
- > Open consultation of interested parties and citizens as well as improved dissemination of knowledge of marine issues
- > Subsidiarity and coherence
- > Adoption of the plan subjected to an SEA process

The SEA is based on the same holistic mindset in the ecosystem-based approach as Denmark's marine strategy which has led to an increased focus on geographical scoping, coherence between man and ecosystems as well as taking into account potential cumulative effects.

During the planning process of the MSP the environmental assessment has been employed for the purpose of refining the planning undertaken in order to avoid and mitigate potential adverse impacts stemming from draft planning guidelines. Several iterations between draft planning guidelines and draft environmental assessments have been undertaken in order to reach the final MSP.

### 3 Legal basis and process for SEA

Denmark's MSP is subject to the requirement of strategic environmental assessment (SEA) in the Danish Environmental Assessment Act, cf. § 8(1.1) of the Act. The environmental assessment will be carried out according to the five steps in Figure 3-1 **Fejl! Henvisningskilde ikke fundet.** below.

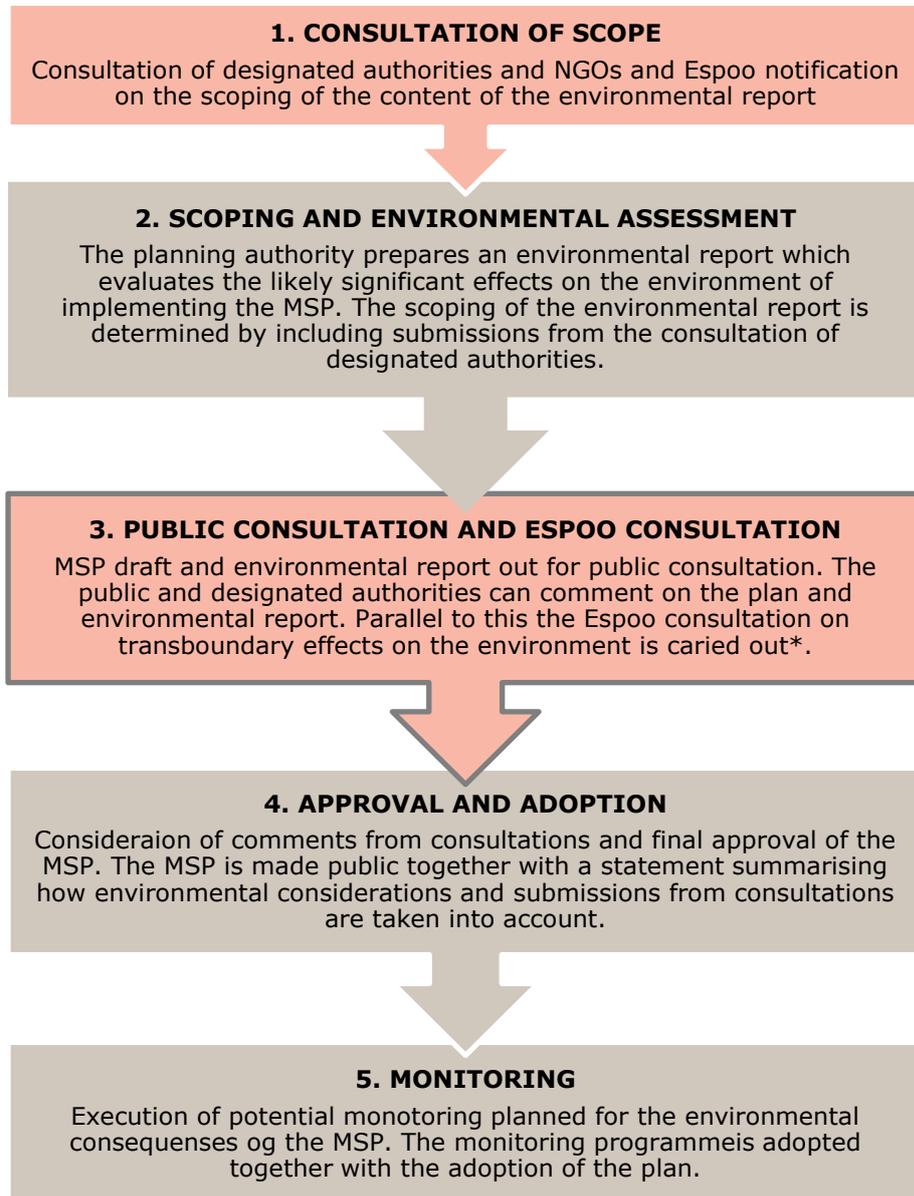


Figure 3-1 Graphic overview of the phases in the SEA process.

- Authorities processing: Danish Maritime Authority
- Public comment period
- Current phase in the SEA process

\*The Danish Environmental Protection Agency is point of contact

### 3.1 Scoping of the SEA

Before carrying out the SEA, a scoping process was carried out. A draft scoping report was submitted for consultation among environmental authorities in Denmark as well as in neighbouring states that potentially could be affected by the MSP.

The purpose of the scoping process was to identify:

- > The likely environmental impacts resulting from the adoption of the MSP
- > The environmental factors that are likely to be affected by the MSP
- > The relevant environmental objectives (national/regional/international) which must be included in the environmental assessment.
- > Evaluation criteria attached to the likely environmental impacts, including mapping of data needs and data availability

All neighbouring states were notified of the drafting of Denmark's MSP and were asked to inform whether they wanted to participate in the SEA process. On the basis of the Espoo notification the following states replied that they wanted to participate:

- > Germany
- > Norway
- > Finland
- > The Netherlands
- > Sweden
- > Lithuania
- > Poland
- > Latvia

Some of these states then forwarded remarks on the draft scoping report, which have been taken into consideration in the final scope of the SEA.

Estonia replied that they did not wish to participate in the SEA process but wanted to receive a summary of the environment report.

## 3.2 Approach and methodology applied in the SEA-report

The environmental assessment is carried out as an objective based assessment where the respective initiatives in the MSP is held up against the environmental objectives of the respective areas at sea. The assessment is furthermore based on the environmental factors, which are described in the Environmental Assessment Act § 1(2). The environmental factors cover a range of specific environment topics used as a basis for a description of the potentially significant environmental impacts. The likely significant environmental impacts are described for each of these environmental factors both isolated for each factor per se and across the factors where relevant.

The assessments undertaken are mainly of a qualitative nature and are made on the basis of identified evaluation criteria. The evaluation criteria are designed on the basis of the designation of the specific activities for which an area is designated in the MSP. Based on both general knowledge and specific experiences of the intended activities for which an area is designated in the MSP a generalised description of the potential environmental impacts are accounted for and assessed in the view of the specific environmental features of the Danish jurisdiction at sea.

Whether an identified impact is significant or not is determined on the basis of existing knowledge and general experiences from carrying out environmental assessments of activities in marine areas. Furthermore, the information and level of detail in assessments are based on information that may reasonably be required taken into account in the light of the level of detail in the MSP.

During the iterations between the environmental assessment and the draft versions of the MSP it has been evaluated whether potential adverse impacts may be avoided, mitigated, off-set or compensated by altering the designations in the draft MSP, and thereby reducing potential adverse impacts of proposed measures in the draft MSP. As part of this iterative approach in drafting the MSP and assessing early drafts the application of precautionary measures has formed an intrinsic part of the planning process and the assessment of planning carried out. Several iterations between draft MSP and early drafts of the SEA-report were carried out in order to assure that potential adverse impacts are avoided and/or mitigated to the extent possible at this aggregated planning level.

As part of the process of carrying out the SEA of the draft MSP a screening of the potential impacts on designated Natura 2000 sites were also carried out during autumn 2020. The outcome of this screening could not effectively exclude significant impacts on a number of Natura 2000 sites, and an appropriate assessment in line with requirements in art. 6(3) the Habitats-Directive<sup>4</sup> were carried out during winter 2020/2021. The results of the appropriate assessment show that, at the planning stage of the MSP significant impacts on the integrity of Natura 2000 sites may be avoided. Recommendations set forth in the

---

<sup>44</sup> EU Directive 92/43/EU on the conservation of natural habitats and of wild fauna and flora of 22nd May 1992

assessment, however, calls for further investigation of potential impacts on the integrity of Natura 2000 sites that must be carried in subsequent planning and permitting procedures.

The starting point of the SEA is the description of the existing state of the environment (reference scenario). In this context a description of the expected development of the existing state of environment in case the MSP is not adopted (the so-called zero alternative) is also briefly drawn up.

### 3.3 Assessment of likely transboundary environmental impacts

Pursuant to the Espoo Convention<sup>5</sup> Denmark is required to involve neighbouring states, who potentially may be affected by the adoption of Denmark's MSP, in the SEA process.

If a plan is expected to have significant impacts on the environment in another state the planning authority shall as soon as possible inform The Ministry for Environment in Denmark (The Danish Environmental Protection Agency) regarding the consultation of neighbouring states, cf. Environmental Assessment Act § 38(1).

The affected neighbouring states are involved in the SEA process simultaneously and in the same manner as the Danish public, Danish NGOs and affected national authorities.

#### 3.3.1 The notification process undertaken

Step one in the Espoo-process undertaken was submitting an Espoo notification in which Denmark informed neighbouring states, which may be affected by the plan of the envisaged planning and notification procedure. The purpose of the notification was partly to ask neighbouring states whether they intended to participate in the assessment process, and partly if they had any remarks on the forwarded draft of the proposed scope of the environmental assessment. Furthermore, states were also urged to forward opinions on supplementary issues that they believed important to be included in the assessment of potential transboundary impacts. Furthermore, the concerned states were informed of the expected time schedule for the consultation process of the MSP and the adjoining SEA report, as well as informed about the expected nature of the decision to adopt the MSP as well as guidance of how to file a complaint.

Step two in the Espoo-procedure is a consultation of the concerned states that have declared an intention to participate in the SEA process. The information made available for this consultation includes the environmental report of the transboundary environmental impacts that the Danish MSP may have on the

---

<sup>5</sup> Executive order on convention of 25 February 1991 on assessment of environmental impacts across national boundaries

affected states as well as a draft of the MSP itself. The neighbouring states will be given the opportunity to comment the SEA report.

If a neighbouring state wants to set forth questions or remarks to the SEA report these must be answered/resolved in co-operation with the neighbouring state before the MSP may be adopted.

### 3.4 Appropriate assessment

In accordance with the Habitats Directive (92/43/EU) the Danish Maritime Authority has carried out an appropriate assessment of the Danish MSP following a screening of the potential significant impacts on Natura 2000 sites.

The result of the assessment was that the plan in itself will not lead to significant impacts on the integrity of marine Natura 2000 sites within the Danish jurisdiction.

The appropriate assessment concluded that, on the basis of the merits of the current level of aggregation of the MSP, it is possible to design and carry out the development projects foreseen in the designated areas in a manner that they will not adversely affect the integrity of the Natura 2000 sites concerned.

An Appropriate Assessment report with relevant details about approach, methodology, process and results of the assessment is available in Danish.

## 4 Strategic Environmental Assessment

### 4.1.1 Approach and methodology applied

The MSP contains designations of zones for particular purposes/activities, in some instances zones are designated for multiple purposes. Whether or not particular or multiple activities will be implemented within the designations of the MSP goes beyond the decision to adopt the MSP. The assessment is for these reasons focussed on the potential impacts of designating the geographical locations of development zones in the MSP in the light of the environmental sensitivity of the chosen locations.

The assessment takes its outset in descriptions of and existing knowledge of possible future activities and general experiences of impacts that such activities may have on the environment at large. The assessment is also, to the extent possible, focussed on assessing the combination of designations across the marine areas in order to identify, where relevant, the likeliness that cumulative impacts may occur as a result of the chosen designations.

Finally, it is important to take into account that the assessment of the MSP is carried out at an abstract level and cannot be taken as evidence for the potential impacts of individual activities that may be implemented in the designated development zones of the MSP. The assessment of the MSP may be taken as guidance for focussing subsequent planning and permitting procedures on possible environmental sensitivities that needs to be addressed in these procedures and their adjoining environmental assessments. The vast part of individual activities that may be permitted in subsequent permitting procedures is likely to be subjected to an EIA-procedure in due course.

### 4.1.2 Assessment of impacts

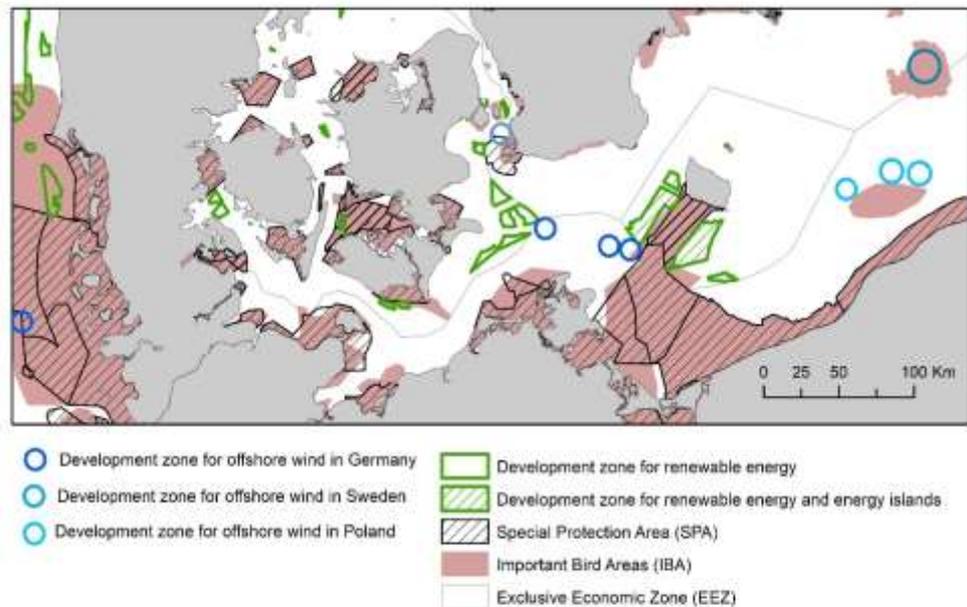
In the following chapter the likely transboundary environmental impacts of the Danish MSP are assessed.

Some migrating birds and marine mammals are protected species and some of the species for which Natura 2000 sites in e.g. Sweden, Germany, Great Britain and The Netherlands are designated lives and/or migrates across jurisdictions. Therefore, there may be a connection between the future activities for which areas are designated within the Danish marine areas and potential impacts on Natura 2000 sites – mostly in an indirect manner in the marine areas of neighbouring states.

It is stressed that the environmental assessment is focussed on the likeliness that transboundary environmental impacts should occur as a result of the adoption of the MSP.

## 4.2 Birds and bats

Vast areas are designated for wind-power development in the Danish parts of North Sea and to a lesser degree in the Baltic Sea. Denmark is geographically located in the corridor that connects the Scandinavian peninsula with the European mainland. Migrating birds use this corridor to migrate twice a year from South Europe/North Africa to the Northern part of Scandinavia and Russia.



Map 4.2: Development zones in the Western Baltic Sea

The designation of development zones for offshore wind in particular in the southern part of the North Sea and in the Baltic Sea (south of Bornholm) may have a cause blocking effect on migrating birds when they migrate. The designation of these development zones may also cause displacement and loss of international important habitats of birds which may also impact migrating birds in other states. The designation of development zones for renewable energy and wind power hubs in the Danish MSP (in particular in the southern part of the North Sea and south of Bornholm) may have a negative impacts on overwintering and resting sea birds as well as migrating birds.

The extent to which these effects may be characterised as significant negative impacts is not possible to assess at this stage of planning, since the materialisation of such effects to a large degree relies on the co-operation between neighbouring states in planning as well as in subsequent national planning and permitting procedures carried out in the future. Specific mitigation measures adopted at this stage of planning involves requirements set forth as guidance for subsequent planning as well as a requirement to investigate such impacts when project development consent becomes relevant.

The development of offshore wind may have a blocking effect on bats in their migration routes as well as cause collision with the offshore wind turbines. The development may therefore lead to increasing death rates of bats in the western part of the Baltic Sea, which may impact bat populations that migrate over frontiers.

The development zones for renewable energy and wind power hubs in the MSP may therefore have a negative impact on migrating bats. The risk of a significant negative impact on bats is however considered to be very low.

### 4.3 Seabed and habitats

The MSP contain designation of a development zone for CO<sub>2</sub> storage as well as maintains the possibility to continue the exploration of oil and gas in existing reservoir in the central part of the North Sea close to Dogger Bank.

The activities in the development zones for oil and gas and CO<sub>2</sub> storage may impact the integrity of the coherent seabed types that constitute the specific features of Dogger Bank. Local disturbances of Dogger Bank and the part of Dogger Bank within the Danish EEZ may have transboundary impacts on the German part of Dogger Bank, which is designated as a Natura 2000 site.

The extent to which these effects may be characterised as significant negative impacts is not possible to assess at this stage of planning, since the materialisation of such effects to a large degree relies on the subsequent planning and permitting procedures carried out in the future. Specific mitigation measures adopted at this stage of planning involves requirements set forth as guidance for subsequent planning as well as a requirement to investigate such impacts when project development consent becomes relevant.

### 4.4 Marine mammals

Supplementary to the potential impacts mentioned in the previous sections, the implementation of activities in the development zones designated in the MSP may result in increased activities in some areas at sea, which may block migrating marine mammals, including seals and harbour porpoises. At the same time the designation of development zones means that the marine areas that are not designated in the MSP may become more peaceful zones/areas because these areas are not eligible for activities unless they are designated in future versions of the MSP. Therefore, the MSP may also contribute positively to the conservation of species by offering activity-free areas for the marine mammals.

There is a risk that activities in development zones may have an impact on migrating marine mammals. Marine mammals may be affected by underwater noise from construction works from the development of renewable energy infrastructures, oil and gas production activities as well as activities related to the exploration and utilisation of locations for injection and storage of CO<sub>2</sub>. These risks particularly concerns the population of harbour porpoises in the Baltic Sea area, which is in a critical state with a rather limited population.

A series of Nature 2000 sites are designated to ensure the natural habitat of the Baltic population of harbour porpoises in Germany, Sweden and Poland. It is expected that when construction works in designated development zones in the Baltic Sea are carried out in the future, in particular in the mid and western part of the Baltic Sea, for e.g. large scale wind turbine developments across jurisdictions specific measures should be employed. Such measures could be the application of traditional early warning and soft start procedures and scaring-off mechanisms<sup>6</sup> as part of these works.

The large-scale wind turbine developments envisaged in the Danish MSP in the North Sea may also have an impact on migrating marine mammals (especially harbour porpoises, minke whale and white-beaked dolphin) in the North Sea. However, the more open character of the North Sea area as compared to the Baltic Sea, may provide less stress to these species when trying to avoid underwater noise. It is expected that the application of soft start procedures and other relevant measures applied as part of construction works may counteract any negative impacts on these mammals.

The likeliness that possible negative transboundary impacts on marine mammals, sea birds, and bats may occur must be assessed in the subsequent planning and permitting procedures in connection with strategic environmental assessment and environmental impact assessments and/or appropriate assessments of the individual development projects.

## 4.5 Fish

Larger oil spills and emissions of pollutants from oil and gas production, which may occur from accidents such as blow outs and leaks from pipelines, may have an effect on water quality and the possible finding of increasing amounts of pollutants in fish and shellfish in coastal waters in states bordering the North Sea.

However, it must be noted that blow outs (i.e. uncontrolled blow outs of gas, oil or water from the drill hole) are extremely rare. The latest blow outs nearby Danish waters happened in 1977 by the Ekofisk field in Norway. Smaller leaks (< 1 ton) may occur but constitute only a small part of the oil that ends up in the sea.

A broad political agreement in Danish Parliament in which the future tendering rounds for licenses to exploit for oil and gas in the Danish part of the North Sea has been cancelled. The logic behind the cancellation being that the broad political agreement supporting the reduction 70% of Denmark's CO<sub>2</sub>-emissions in 2030 must be followed up by a decision to cease any further fossil fuel activities within Danish jurisdiction.

---

<sup>6</sup> So-called seal-scarers

It is therefore expected that the designation of development zones in the Danish MSP does not in itself increase the risk of oil spills due accidents or other risks of a similar nature.

## 4.6 Visual impacts

Large scale development of the offshore wind-based energy production capacity forms a core in the designation of development zones in the Danish MSP. Depending on the proximity of such wind turbines to coastal areas they may potentially constitute a visual intrusion in coastal landscapes.

The development of offshore wind in the northern part of Kattegat may affect the visual landscape from the western coast of Sweden. In a similar manner, the development of offshore wind turbines in the Baltic Sea may also affect the visual landscape from the southern coasts of Scania in Sweden. The extent to which all areas laid out in Danish MSP eventually will be exploited and the adjoining visual impacts become a reality cannot be assessed at this stage in the decision-making processes. The likely significant impacts will depend on the final choice of locations for large scale wind turbine development and design-criteria applied in each location. These impacts must be assessed in subsequent planning and permitting procedures evolved around each major location as well as in connection with strategic environmental assessment of subsequent plans and environmental impact assessments of the individual development projects.

The Danish MSP also designates areas for future transport infrastructure projects such as the Elsinore-Helsingborg infrastructure project, and the Fehmarn Belt infrastructure project. The implementation of the infrastructure projects – whether carried out as bridges or tunnels – may have significant local impacts visually in the coastal landscapes around Helsingborg in Sweden and Puttgarden in Germany respectively. It should be taken into account that an impact on the coastal landscape from the Fehmarn Belt project is avoided since the project will be implemented as an immersed tunnel.

Mitigation of these impacts are to a large extent relying on project-specific design criteria and subsequent execution of these criteria, however subsequent project specific planning should take into account the vulnerability of coastal landscapes and the features of the immediate hinterland when deciding the specific location of infrastructures. The assessment of the impacts in coastal landscapes cannot be carried out as part of the assessment of the MSP but more relevant carried out in later stages in subsequent planning and project specific assessments.

## 4.7 Climate

The designation of development zones for renewable energy and wind power hubs in the MSP is likely to have a significant positive impact on Denmark's emissions of CO<sub>2</sub>. Furthermore, the MSP will provide a spatial framework for implementing large-scale energy infrastructures (wind power parks) and thereby contribute in a positive manner to establishing vital infrastructure in the Danish

part of the North Sea and the Baltic Sea. The MSP will thereby contribute to creating common hubs for off-shore wind between Denmark and their neighbouring states and thus contribute to at greening of economy and a related reduction of CO<sub>2</sub> emissions.

The MSP makes it possible to employ a vast part of the marine area at large to develop and implement infrastructures supporting the greening of economy. The positive impact from adopting the MSP as a central mechanism in achieving a 70 % reduction of national CO<sub>2</sub> emissions cannot be underestimated.

## 5 Assessment of impacts on environmental objectives

In the below table the objectives adopted in several international, EU-wide and national frameworks are considered vis-à-vis the content of designations in the Danish MSP.

The assessment of the impacts of the MSP on the identified objectives are characterised in the following manner:

- > The MSP may contribute to/support the achievement of the objective in question
- > The MSP does not affect the possibility of achieving the objective in question
- > The MSP is a barrier to achieving the objective in question

The table is divided in three columns, these are:

- 1 The framework (legal or political) in which the objective is adopted
- 2 The objective's content
- 3 An assessment of the MSP's impact on the objective

Framework	Objective	Assessment
<b>Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning</b>	<p>1. To promote the sustainable growth of maritime economies, the sustainable development of marine areas and the sustainable use of marine resources through maritime spatial planning applying an ecosystem-based approach.</p> <p>2. To promote the coexistence of relevant activities and uses</p>	<p>1. Maritime spatial planning is a tool for coherent management of maritime areas and works across frontiers and sectors to safeguard that human activities at sea are efficient and sustainable. Denmark's first MSP is drafted with an ecosystem-based approach where the SEA has identified possible conflicts between activities (pressures) and natural deposits (ecosystem components) which has made it possible to adapt the plan in some marine areas to manage sea and living resources in a way that promotes conservation and sustainable use. The size of the development zones in the MSP safeguards the possibilities of growth within the different sectors covered. However, the development zones are limited considering the locations of natural habitats. The adoption of the plan is assessed to contribute to fulfilling the goal of the directive on promoting economic growth, development of maritime areas and use of marine resources applying an ecosystem-based approach.</p>

	<p>as well as considering land-sea interactions.</p> <p>3. To ensure that marine spatial plans are coherent and coordinated across the marine region concerned, considering issues of transnational nature.</p>	<p>2. By adopting the MSP some areas are designated for several purposes of use and types of activities. In these areas some interests may be accommodated and co-exist within the same development zones. When drafting the MSP, an assessment of the activities that were able to co-exist in the same activity zones and whether the co-existence was possible simultaneously or temporarily shifted was carried out. Coastal areas in the MSP are to a certain extent exempted from designation for new, larger installations which significantly could prevent or complicate shipping, fishery, tourism and recreational use of the sea. Furthermore, the relation between on one hand installations and use of sea areas and, on the other hand, land-based infrastructures has been included in the drafting of the MSP. However, some activities cannot co-exist. The adoption of the MSP is assessed to promote co-existence of the activities planned for in the MSP, which can co-exist technically, environmentally and in terms of safety.</p> <p>3. The adoption of the plan causes designation of areas for ensuring the establishment of the power supply grid network, shipping corridors, pipelines, submarine cables and other activities linking the EU member states. The adoption of the plan is assessed to contribute positively to obtaining and expanding transboundary cooperation. Furthermore, the process of the adoption of the plan can contribute to strengthening the transboundary cooperation between Denmark and the neighbouring states who expressed their intent to participate in the SEA process within the framework of the Espoo consultations.</p>
<p><b>UN's Sustainable Development Goals</b></p>	<p>Target 7.2: By 2030, increase the share of renewable energy in the global energy mix.</p> <p>Target 9.1: Develop quality, reliable, sustainable and resilient infrastructure, including regional and transborder infrastructures, to support economic development and human well-being, with a focus on</p>	<p>Target 7.3: The MAP designates larger parts of the maritime areas for development of renewable energy. The adoption of the plan can thereby contribute with a framework under which an increase of the share of renewable energy can happen.</p> <p>Target 9.1: The MSP designates areas for future pipelines (Baltic Pipe and North Stream 2) for securing both national and international energy supply. These types of energy supply are however non-renewable resources (natural gas). Furthermore, the MSP designates areas for a new Fehmarn Belt link, which allows the establishment of a new fixed tunnel</p>

	<p>affordable end equitable access for all.</p> <p>Target 12.2: By 2030, achieve the sustainable management and efficient use of natural resources.</p> <p>Target 13.2: Integrate climate change measures into national policies, strategies and planning.</p> <p>Target 14.c: Enhance the conservation and sustainable use of oceans and their resources by implementing international law as reflected in UNCLOS, which provides the legal framework for the conservation and sustainable use of oceans and their resources, as recalled in paragraph 158 of The Future We Want.</p>	<p>link with a four -lane motorway and a double railway lines. A fixed connection does not depend on wind and weather like ferry connections. However, the establishment of a fixed link may lead to changes in transport patterns changing from hybrid ferries to mixed car- and train traffic.</p> <p>The designation of an area for the new Fehmarn Belt link is likely to contribute to achieving target 9.1. by reserving a corridor for enabling a new robust infrastructure.</p> <p>Target 12.2: The MSP constitutes a framework of spatial planning for the use of areas and management of these areas as well as allows exploitation of resources at sea across sectors to ensure that human activities at sea are efficient, safe and carried out in a sustainable manner. However, the MSP also designates areas for continuously exploitation of non-renewable natural resources.</p> <p>Target 13.2: The MSP designates large areas for the development of renewable energy. Thereby, the MSP creates a framework of subsequent planning for the development of e.g. offshore wind and CO<sub>2</sub> storage in the seabed, which are a part of the green transition. The MSP is therefore assessed as potentially contributing to the achievement of target 13.2.</p> <p>Target 14.c: The MSP designates large coherent areas for nature- and environment protection. These areas, however, are designated in accordance with other legal obligations does not solely rely on the designation in the MSP alone. Maritime spatial planning may however be applied as a tool for sustainable management of oceans and their resources. Hence, Denmark's first MSP is assessed to provide a legal framework, which may contribute to the objective regarding conservation and sustainable use of oceans and their resources. However, this contribution is neither concluded to be significantly negative nor significantly positive as the MSP exclusively designates the spatial framework of where specific use and activities can occur. The actual assessment of whether a specific project may take place within the designated area as well as the determination of terms and conditions that applies to the use/activity</p>
--	--	--

		<p>is carried out when granting the permit compliant to sector laws respectively.</p>
<p><b>Roadmap to a resource efficient Europe, EU/KOM/2011/0571</b></p>	<p>Support the sustainable use of marine resources and identify innovative business opportunities in the maritime and coastal economy and aim to ensure sustainable management of fishery resources</p> <p>Achievement of good environmental status of all EU marine waters</p>	<p>Maritime spatial planning as a tool may become a vehicle for sustainable and efficient management and efficient use of marine resources. The MSP designates developments zones for some of the key marine sectors and thereby allow the possibility of innovative growth within maritime and coastal economies. The MSP however does not designate specific areas for fisheries and the development zones designated in the MSP does not in themselves cause restrictions on the freedom of navigation or the access for fisheries. On the other hand, the MSP designates areas for general use which among other purposes shall ensure the possibilities for e.g. fisheries. A limitation on fisheries will not occur before the fixed installations such as offshore wind turbines are established. The adoption of the plan might contribute to support a sustainable use of marine resources. However, the MSP itself is assessed not to contribute to the achievement of supporting the sustainable management of fishery resources.</p> <p>The MSP designates development zones for aquaculture within water bodies where the objective of good environmental status has not yet been achieved. If permits for projects causing increasing nutrient emissions are granted a significant impact on the environmental status is likely to be the result. The sustenance of good environmental status in marine waters depends on the sectoral planning to ensure that the extent of loss and negative effects on habitats does not exceed the threshold values determined by the EU. Adoption of the MSP may in certain instances be followed up in subsequent permitting procedures with strict conditions on the emissions of pollutants to the water bodies in question, however these instances are few and isolated. In general, the MSP is assessed not to have an impact on the achievement of good environmental status in marine waters.</p>

## 6 Precautionary measures

The environmental report includes information on the planned precautionary measures for avoiding, limiting and compensating any negative impacts on the environment including guidance on issues that need specific attention in subsequent planning and permitting procedures.

Precautionary measures and recommendations for avoiding, limiting and compensating for the potential significantly negative impacts on the environment are listed in Table 6-1 below.

Table 6-1 Precautionary measures and recommendations

Development zone purpose	Precautionary measures and recommendations
<b>Development of renewable energy (offshore wind)</b>	
Recommendations	<p><b>Birds</b></p> <ol style="list-style-type: none"> <li>1. Mapping of important migration routes and assessing the impacts on migrating birds across frontiers focusing on cumulative effects</li> </ol> <p><b>Bats</b></p> <ol style="list-style-type: none"> <li>2. Mapping of important migration routes of bats and assessing the impacts of <i>Pipistrellus nathusii</i> in the North Sea and the Baltic focusing on cumulative effects.</li> </ol> <p><b>Marine Mammals</b></p> <ol style="list-style-type: none"> <li>3. Limiting underwater noise (seismic og piling works) to the extent possible and coordination with other noisy activities at sea across frontiers.</li> </ol>
Precautionary measures	<p><b>Birds</b></p> <ol style="list-style-type: none"> <li>4. Development of offshore wind should avoid primary migration routes for birds listed on the annexes of the Birds Directive.</li> <li>5. Development of offshore wind should avoid important Bird and biodiversity Areas (IBAs).</li> </ol> <p><b>Bats</b></p> <ol style="list-style-type: none"> <li>6. Before establishing installations for renewable energy and wind power hubs an appropriate assessment of the projects implications according to the Habitat Directive should be carried out.</li> </ol> <p><b>Marine mammals</b></p> <ol style="list-style-type: none"> <li>7. Before establishing installations for renewable energy and wind power hubs an appropriate assessment of the projects implications according to the Habitat Directive should be carried out</li> </ol>
<b>Development of oil and gas production</b>	
Recommendations	<p><b>Marine mammals</b></p> <ol style="list-style-type: none"> <li>8. Limiting underwater noise (seismic og drilling) to the extent possible and coordination with other noisy activities at sea across frontiers.</li> </ol>

## 7 Monitoring of Denmark's MSP

According to the Danish act on Environmental Assessments § 12 (2), the environmental report should include a description of the planned measures for monitoring the possible environmental impacts of Denmark's first MSP. Through monitoring measures, the expected environmental impacts can be either confirmed or invalidated.

In connection to the SEA, it will be determined whether a separate programme for monitoring the environmental impacts should be made or if these can be made through existing monitoring activities.

The monitoring of the significant impacts on the environment caused by the adoption of the plan as well as the environmental status in Danish waters will be carried out through existing monitoring activities in programmes monitoring the environmental state of water bodies, programmes under Denmark's marine strategy and programmes supporting the protection of areas/sites designated under EU Nature Directives as well as in connection to the Danish NOVANA programme.

## 8 References

- Brandt M.J., A.C. Dragon, A. Diederichs, M.A. Bellman, V. Wahl, W. Piper, J. Nabe-Nielsen, G. Nehls (2018). Disturbance of harbour porpoises during construction of the first seven offshore wind farms in Germany. *Mar. Ecol.Prog.Ser.* Vol 596:213-232.
- Däne M. et al (2013). Effects of pile driving on harbour porpoises (*Phocoena phocoena*) at the first offshore windfarm in Germany-*Environmental Research letters* 8: 025002.
- DMU (2006). Havvindmøllers effekter på miljøet. *Energistyrelsen DMUNyt* Årg. 10, nr. 16 - 15. december 2006
- Krijgsveld K.L., Akershoek K., Schenk F., Dijk F., Dirksen S (2009) Collision risk of birds with modern large wind turbines. *Ardea -Wageningen*.
- Madsen P.T., Wahlberg M., Tougaard J., Lucke K., Tyack P. (2006) Wind turbine underwater noise and marine mammals: implications of current knowledge and data needs. *MEPS*: 309: 279-295
- Naturstyrelsen (2015) VVM-redegørelse. COBRACable. Maj 2015. Udarbejdet af Energinet.dk og NIRAS.
- Naturstyrelsen og Energistyrelsen (2014) Havmøllepark Horns Rev 3 VVM-redegørelse og miljørapport. Udarbejdet af Orbicon
- Petersen, J.K. (red) (2018). Menneskeskabte påvirkninger af havet: – Andre presfaktorer end næringsstoffer og klimaforandringer. DTU Aqua-rapport nr. 336-2018. Institut for Akvatiske Ressourcer, Danmarks Tekniske Universitet. 118 pp. + bilag.
- Sjollema A.L., Gates E., Hilderbrand R.H., Sherwell J. (2014) Offshore Activity of Bats along the Mid-Atlantic Coast. *Northeastern naturalist* 21(2): 154-163
- Thompson et al. (2010). Assessing the responses of coastal cetaceans to the construction of offshore wind turbines. *Marine Pollution Bulletin* 60: 1200-1208.
- Tougaard et al (2009). Pile driving zone of responsiveness extends beyond 20 km for harbour porpoise (*Phocoena phocoena* (L))-*The journal of the Acoustical Society of America* 126: 11-14.
- Tougaard, J. (2014). Vurdering af effekter af undervandsstøj på marine organismer. Del 2 – Påvirkninger. Aarhus Universitet, DCE – Nationalt Center for Miljø og Energi, 51 s. - Teknisk rapport fra DCE - Nationalt Center for Miljø og Energi nr. 45.