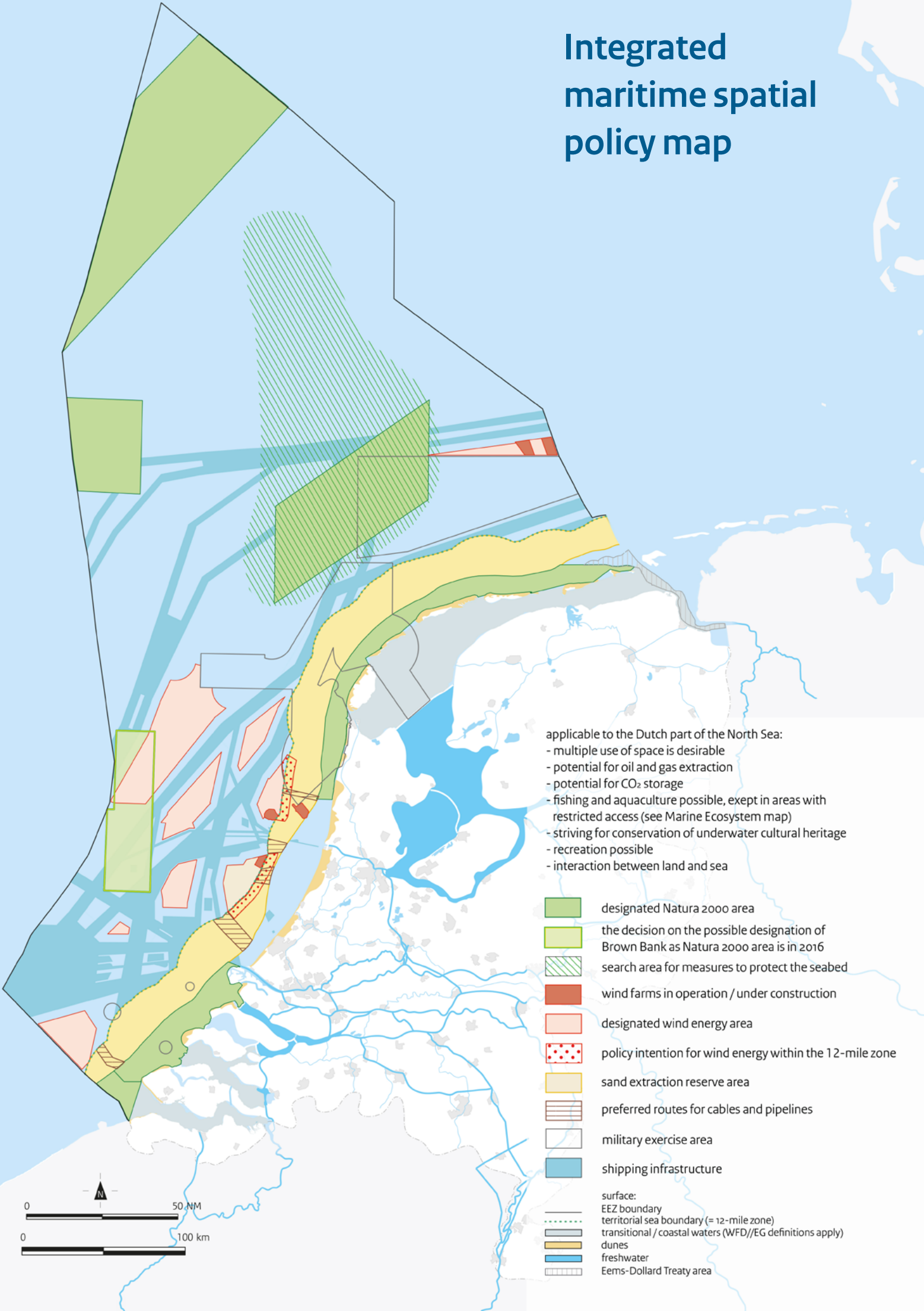
Policy Document on the North Sea 2016-2021

Integrated maritime spatial policy map



Policy Document on the North Sea 2016-2021

including the Netherlands' Maritime Spatial Plan

appendix 2 to the National Water Plan 2016-2021

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Summary

North Sea

The Central Government's North Sea policy sets frameworks for the spatial use of the North Sea in relation to the marine ecosystem. The spatial aspect of the North Sea Policy Document applies to the Dutch Exclusive Economic Zone and the non-administratively classified territorial sea. Other aspects may also pertain to the area that is administratively classified. After all, there is interaction between the marine ecosystem and the designated uses at sea and the (water on) land. The 2016-2021 North Sea Policy Document outlines the current use and developments in the North Sea and the relationship with the marine ecosystem, as well as the vision, tasking and policy. The North Sea Policy Document, including the appendix Marine Strategy Part 3 (programme of measures), forms an integral part of the National Water Plan (NWP).

Long-term vision

The vision on the North Sea has been laid down in the North Sea 2050 Spatial Agenda and incorporated into the North Sea Policy Document.
The Netherlands will benefit from a safe, clean, healthy and ecologically diverse North Sea that helps to provide for economic and social needs. The sea is also of great socio-cultural and historical significance to the Netherlands and it is a source of knowledge. The sea can make an optimal contribution if the natural resilience is (further) restored and increased and its attraction is preserved for everyone. The use of the sea is in a state of transition.
The crux of the new policy for the North Sea is: together with civil-society organisations, steering towards desired use in terms of space and time, ecology and economy, and continuing to develop the natural potential of the sea and coast. The Central Government is aiming for a development-based approach to the sea, one that leaves room for new initiatives and flexible management of the sea.
Based on this vision, the emphasis in the period up until 2050 will be on five themes: building with nature; energy transition at sea; multiple/multifunctional use of the space; connecting land and sea; and accessibility/shipping. International collaboration and export opportunities play a significant role in all five themes.

The marine ecosystem and designated uses

The North Sea is a highly complex, open marine ecosystem, without borders and with specific habitats. The shallow and nutrient-rich area is a habitat for marine mammals, a breeding ground for fish and an important migratory route and wintering area for many bird species. The marine ecosystem can be used as a source of goods (such as fish, sand, shells, oil, gas, wind, tidal and wave power) and to facilitate services (shipping routes, recreation, CO_2 storage, perception) for (Dutch) society.

The expected intensification in the use of the North Sea, which is partly the result of an increase in the number of designated uses, demands responsible use of the limited available space. Increasing use is exerting pressure on the marine ecosystem. Policy is a prerequisite for harmonising the various designated uses of the North Sea and ensuring a healthy ecosystem. The Policy Document on the North Sea 2016-2021 sets out the desired policy for the use of space, within the limits of the marine ecosystem. The Central Government sets the spatial frameworks, allowing the use of space in the North Sea to develop in an efficient and sustainable manner. Multiple use of space is an important principle in this regard. It offers balanced opportunities for all forms of use of the North Sea.

The Framework Vision on Infrastructure and Space presents the following national spatial challenges for the North Sea:

- the preservation of the coastal foundation and implementation of the area-based Coastal and Wadden Region sub-programmes of the Delta Programme in association with local and regional government authorities;
- the preservation and protection of Natura 2000 areas and the marine ecosystem;
- maintaining the unobstructed view of the horizon up to 12 nautical miles from the coast;
- providing space for the main network for the transport of (hazardous) substances via pipelines;
- the protection of archaeological values (submerged settlements, shipwrecks and other archaeological values).

Within the European frameworks (Water Framework Directive, Marine Strategy Framework Directive, Birds Directive, Habitats Directive and the Malta Convention), the Cabinet is giving priority to the activities that are of national interest to the Netherlands:

- Oil and gas extraction: as much natural gas and petroleum as possible is being extracted from the Dutch fields in the North Sea, in order to optimise use of the potential of natural gas and petroleum reserves in the North Sea.
- CO_2 storage: sufficient space for the storage of CO_2 in depleted oil and gas fields or in underground aquifers.
- Shipping: a whole system of traffic separation schemes, clearways and anchoring areas that can accommodate shipping safely and swiftly.
- Sand extraction: sufficient space for sand extraction for coastal protection purposes, countering flood risks and sand for use on land.
- Generation of renewable energy: sufficient areas for wind energy and other forms of renewable energy, combined wherever possible.
- Defence: sufficient military exercise zones in the North Sea.

The policy decisions for all designated uses are described in section 3 and shown in the table at page 12. The spatial implications of the above are shown in the framework vision map of the North Sea.

Realization of societal demands

Three societal demands requiring supplementary policy are set out below. As part of the Marine Strategy Framework Directive, measures have been and will be taken to make and keep the ecosystem healthy and make its use more sustainable. Moreover, the developments in wind energy at sea and sand extraction are leading to major challenges that call for new policy for the period 2016-2021.

1 Programme of measures for marine strategy

The Water Framework Directive provides an integrating legal framework for the protection and preservation of the marine environment, the prevention of its decline and recovery of the environment where it was harmed and where this is feasible. In addition, the framework is designed to prevent, reduce and eliminate, pollution, creating a coherent and representative network of protected areas in the North Sea and encouraging sustainable use. The ultimate goal is to achieve and preserve a 'good environmental status of the marine environment' by 2020 at the latest.

The crux of the Water Framework Directive for the Netherlands is the obligation to adopt a marine strategy for the Dutch part of the North Sea. The marine strategy should take an 'ecosystem-oriented approach to the management of human activity' and allow the 'sustainable use of marine goods and services for current and future generations.

The marine strategy comprises the following three steps: (part 1) initial assessment of environmental status, description of the good environmental status in 2020, environmental targets and indicators and the policy challenges until 2020, (part 2) Water Framework Directive Monitoring Programme and (part 3) programme of measures. The first two steps were laid down in 2012 and 2014 respectively; the third step – the Water Framework Directive programme of measures – is summarised in the 2016-2021 North Sea Policy Document and has been added to this NWP as appendix 5. For a complete overview, the descriptions of the good environmental status, the environmental targets and the indicators are included in appendix 5. The measures set out in the programme will help ensure that the good environmental status is within reach in 2020 or in the subsequent period. The crux is that the current policy efforts to reduce pollution of and disruption to the ecosystem must be continued in order to achieve the good environmental status. Additional policy efforts are needed to protect the ecosystem of the Frisian Front soil and Central Oyster Grounds and to reduce marine litter (*plastic soup*), including microplastics). A new assessment of the environmental status follows in 2018.

2 Space for wind energy at sea

The parties to the Energy Agreement for Sustainable Growth have agreed that 4,450 MW of wind power at sea will be in operation by 2023. This means that an additional 3,500 MW of wind power at sea must be installed, in addition to the existing wind farms and those under construction.

The NWP 2009-2015 designated the Borssele and IJmuiden Ver areas and named the Coast of Holland and the area to the north of the Wadden Islands as search areas. In 2014 - through an interim revision of the NWP 2009-2015 – the Coast of Holland and the area to the north of the Wadden Islands were designated for wind energy at sea. This policy is being continued in the NWP 2016-2021.

Additional policy efforts and investments are needed to achieve this objective. Given the space available within the designated areas and the wind energy areas yet to be designated, the task is to find wind farm locations where 3,500 MW can be installed cost-effectively, while allowing for other interests in the North Sea.

In September 2014, the Cabinet indicated its wish to achieve the 3,500 MW target in the wind energy areas of Borssele, Zuid-Holland and Noord-Holland. It is cheaper to install wind energy capacity closer to the coast than further offshore. The Cabinet wants to add a strip of no more than two nautical miles to the Zuid-Holland and Noord-Holland areas within the 12-mile zone, allowing the area to be used more efficiently in terms of cost and space. The areas within the 12-mile zone have not yet been designated and are beyond the scope of the Policy Document on the North Sea. The designation decision will be worked out in a partial revision of the National Water Plan 2016-2021. To this end, an environmental impact statement will be drawn up, reviewing the alternatives. An Appropriate Assessment will also be drawn up.

As part of the Energy Agreement, it has been agreed that the government will ensure a robust statutory framework in order to achieve the agreed target for wind energy production at sea. To be able to put this new system into practice, the Wind Energy at Sea Act has been prepared in consultation with the wind energy sector. This act allows the Central Government to direct the spatial incorporation of wind energy and carefully balance all interests in the North Sea.

The system will help ensure efficient use of space, reducing costs and accelerating the roll-out of wind energy at sea. Within a designated area, the Central Government will take so-called plot decrees, laying down the site-specific conditions for the construction of a wind farm on that parcel. When drawing up a plot decree, the Central Government will also study the structure of the relevant parcel and the soil, local wind speeds and information on water in the relevant parcel. Together with the plot decree, these studies will provide essential information on which market parties can base their tender, by way of a subsidy tender. The party submitting the best tender will then be granted the exclusive right to build a wind farm within the plot.

3 Space for sand extraction

The sand extraction strategy is aimed at proper and cost-effective management of available sand reserves in this zone. Cost-effective sand extraction can be achieved by extracting sand as close to where it is needed, on the coast or on land. Priority is given to the sand demand for the coming years and the sand extraction areas required to provide suitable sand for replenishment and elevation. The areas with the lowest extraction costs have the highest priority.

Cost-effective sand extraction in the reserved zone is put under further pressure due to the construction of wind farms at sea and power cables through the areas with the most cost-effective sand reserve. If, for other uses (such as cables, pipelines and wind turbines), it is desirable to use the zone between the continuous isobath at NAP (Amsterdam Ordnance Datum)-20 metres and the 12-mile limit, solutions will be sought that do not materially harm the extractable sand reserve. As for cables and pipelines, the aim is to combine these with the existing infrastructure. Preferred routes for this have been marked on the framework vision map of the North Sea Policy Document. If a solution that does not affect the sand reserve proves impractical, an economic assessment will be made on the basis that the costs associated with the other use must balance the costs of sand extraction. If this means additional costs for the sand extraction, these will be borne by the party proposing the other use.

Assessment framework for activities in the North Sea

The assessment framework outlined in the North Sea policy document is the mechanism that the Central Government uses to ascertain whether activities at sea are permitted. The assessment framework combines relevant policies and outlines how decisions on new activities are arrived at within the European and international frameworks. It also outlines what action to take if various activities of national importance clash. The assessment framework is a policy regulation and obliges the competent authority to act in accordance with this framework when issuing permits. The assessment framework applies to all activities in the North Sea that require a permit under all laws and regulations governing the North Sea, the territorial sea and the Exclusive Economic Zone (Water Act, Earth Removal Act, Nature Conservation Act, Flora and Fauna Act, Environmental Management Act, Wind Energy at Sea Act, a number of shipping acts and the Mining Act [1]) [2]. As such, the assessment framework is particularly important for North Sea users who want to apply for a permit and for licensing authorities. It is also instrumental in achieving and maintaining the good environmental status under the Water Framework Directive. The North Sea is listed as a topic for the National Environmental Vision. In preparing the National Environmental Vision, the Cabinet examines whether the North Sea and Marine Strategy policy plan provides an adequate framework for subsequent decisions on the use of the North Sea.

[1] Insofar as this pertains to the aspects affecting the North Sea water system.
[2] For more information about laws and regulations governing the North sea see www.noordzeeloket.nl under policy.

Outline of the policy

	Policy decisions	Section
Marine ecosystem	• The conservation and recovery of the marine ecosystem are assessed when making spatial planning decisions on activities.	§ 5.3
	• Natura 2000 areas at sea: Voordelta, North Sea Coastal Zone, Vlakte van de Raan and, probably from 2016 onwards, Dogger Bank, Cleaver Bank and Frisian Front. The decision on the possible designation of Brown Ridge as Natura 2000 area is in 2016.	§ 3.2
	• Programme of measures for Marine Strategy: - Existing measures, including in terms of the marine ecosystem, invasive exotic species, eutrophication, pollutants, litter and underwater noise; - New measures with regard to litter; - New measures with regard to seabed protection;	§ 4.2
Renewable energy	• Generating renewable energy (from the wind or otherwise) is an activity of national interest.	§ 3.3
	• Space for operational capacity of 4,450 MW of wind energy at sea by 2023.	§ 3.3
	• Wind energy areas: Borssele, Coast of Holland, IJmuiden Ver and North of the Wadden Islands. Search areas: strip between 10 and 12 NM adjacent to the Coast of Holland wind energy area. The Central Government does not grant permission for wind farms to be built outside of designated wind energy areas. Within the designated areas, permission is only granted for wind farms to be built within the bounds of the Offshore Wind Energy Act (*Wet windenergie op zee*).	§ 4.3
	• Development in harmony with other uses of the North Sea: - design criterion 'distance between shipping routes and wind farms'; - design process 'distance between mining sites and wind farms'; - policy with regard to 'passage and multiple use'.	§ 4.3
Surface minerals	• Sand extraction for coastal defences and filling is an activity of national interest.	§ 3.4
	• Sand extraction strategy with preferred routes for cables and pipelines.	§ 4.4
Oil and gas extraction	• Activity of national interest.	§ 3.5
	• Making the most of the potential of the oil and gas reserves.	§ 3.5
CO_2 storage	• Activity of national interest.	§ 3.6
	• Sufficient space for CO_2 storage as a temporary tool in the process of developing a fully renewable energy supply.	§ 3.6
Cables and pipelines	• The activities (wind) energy, oil and gas extraction and CO_2 transport, including requisite cables and pipelines, are of national interest.	§ 3.7
	• Bundling cables and pipelines; removal obligation for cables and pipelines no longer in use.	§ 3.7
	• Tighten up removal obligation for pipelines.	§ 3.7
	• Checklist for determining removal obligation for cables or pipelines revised.	§ 5.3

	Policy decisions	Section
Shipping	• Activity of national interest. • Maintaining a system of traffic separation schemes, clearways and anchoring areas capable of accommodating vessels safely and swiftly. • Implementing measures to reduce pollution caused by shipping (merchant vessels, fishing vessels, offshore, supply and recreation).	§ 3.8 § 3.8 § 4.2
Defence	• Activity of national interest. • Sufficient exercise zones in the North Sea .	§ 3.9 § 3.9
Fishing, aquaculture and mariculture	• Fostering responsible fishing and aquaculture practices and balanced use of fish stocks, striving towards a state of equilibrium between fishing and nature and a different division of responsibilities between government and industry. • Continuing to contribute to the primary objectives of the Common Fisheries Policy (CFP) and implementing measures with regard to the marine ecosystem.	§ 3.10 § 4.2
Underwater Cultural Heritage	• The conservation of underwater cultural heritage is assessed when making spatial planning decisions on activities.	§ 5.2
Tourism and recreation	• Facilitating and encouraging the tourism and recreation sector as a network partner in a partnership between entrepreneurs, market institutions and research institutes. • Engaging in dialogue with local and regional government authorities and other parties where spatial planning or other policy developments in terms of the North Sea impact marine and coastal recreation .	§ 3.12 § 3.12
Interaction between land and sea	• When formulating spatial planning policy, specific attention needs to be paid to the interaction between land and sea, having due regard for the implementation of the Maritime Spatial Planning Directive.	§ 3.13
International cooperation	• Thematic approach to partnerships with neighbouring countries.	§ 6.3

1

Policy for the North Sea

1.1 Introduction

Societal aspect

The North Sea (approx. 575.000 km²) is a relatively shallow marginal sea of the Atlantic Ocean in north-west Europe. The sea is bounded by land on three sides and opens out into the north-eastern Atlantic Ocean in the shape of a funnel. The Dutch part of the North Sea runs from the coast to the outer limit of the Dutch continental shelf and encompasses approx. 58,000 km2, roughly a tenth of the North Sea's entire area. The average depth of the Dutch Exclusive Economic Zone is 35 metres, running to in excess of 60 metres in a northerly direction. The North Sea is a highly complex and open marine ecosystem without boundaries with specific habitats. The shallow, nutrient-rich area constitutes a habitat for marine mammals, a breeding ground for fish and an important migratory path and wintering area for a great many species of birds. The marine ecosystem can be used as a source of goods (such as fish, sand, shells, oil, gas, wind energy, tidal energy and wave energy) and to facilitate services (shipping, recreation, CO_2 storage, perception) for (Dutch) society.

The Dutch part of the North Sea is one of the most intensively used seas in the world. There are both shipping routes to and from Rotterdam, Antwerp, Zeebrugge, Amsterdam, Eemshaven/Delfzijl and international routes passing along our coast. Petroleum and gas are extracted in the North Sea, and wind energy generated by offshore wind farms contributes to renewable energy supply. Cables and pipelines connect mining platforms and wind farms with the land, and telecommunications cables facilitate worldwide communication. The North Sea is also an important source for sand extraction for coastal protection and fill sand for infrastructure and new-build projects. Large sections of the North Sea are fished, making it one source of our food supply. The military engage in seaborne exercises using ships and other equipment. Historic shipwrecks, the vestiges of prehistoric settlements and the remains of early hominids are to be found in and on the North Sea bed. Land and sea are interconnected in a variety of ways, with ports forming a link between sea and hinterland, and coastal tourism and various forms of recreation making a significant contribution to our economy.

The expected intensification of the use of the North Sea, in part due to an increasing number of designated uses, will compel us to manage the (limited) available space sensibly. Increasing usage is putting the marine ecosystem under strain. A dynamic system like the sea calls for a dynamic method of management. The ecosystem approach, enshrined in various treaties and regulations (Convention on Biological Diversity[3], OSPAR[4], Marine Strategy Framework Directive[5]), entails integrated management of human activities, based on knowledge of the ecosystem's dynamics. The aim of this approach is to identify those influencing factors critical to the health of the ecosystem and to take the relevant action, thereby ensuring sustainable use of ecosystem goods and services and preserving the integrity of the ecosystem.

Policy is a prerequisite for harmonising the various designated uses of the North Sea and ensuring a healthy

[3] Convention on Biological Diversity, Tractatenblad (Treaty Series), 1993, no. 54.

[4] Convention for the Protection of the Marine Environment of the North-East Atlantic (OSPAR Convention), Tractatenblad (Treaty Series), 1993, no. 141.

[5] 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.

ecosystem. A decision has been made to abstain from planning on the basis of a Central Government spatial zoning plan[6], but rather to manage things by means of comprehensive area development through development planning, with space being created for the purposes of developing functions.[7] The present Policy Document on the North Sea 2016-2021 sets out the policy for use of space within the framework of a healthy ecosystem.

The Policy Document on the North Sea 2009-2015 was evaluated whilst drawing up this document. The individual sections will describe how developments in terms of environment or policy have given rise to the long-term ambitions and marine and maritime policy decisions for the 2016-2021 period, including the spatial component.

Legal aspect

The Water Act (Waterwet) stipulates an obligation to draw up a national water plan (Section 4.1(1) of the Water Act). In terms of the planning aspects, this plan also constitutes a framework vision as defined by Section 2.3(2) of the Spatial Planning Act (Wet ruimtelijke ordening). Section 4.1(3)b of the Water Act stipulates that ministers must also include the North Sea policy in the National Water Plan. The Ministers responsible in this regard are those for Infrastructure and the Environment and Economic Affairs (Section 1.1(1) of the Water Act).

The obligation under Section 4.1(1) of the Water Act has been fulfilled for the 2016-2021 period by means of drawing up the National Water Plan (NWP) 2016-2021. The Policy Document on the North Sea fleshes out and substantiates the policy described in the main text of the NWP and has been included as a separate appendix to the NWP. With regard to the spatial planning aspects,[8] the Policy Document on the North Sea constitutes a framework vision as defined by Section 2.3(2) of the Spatial Planning Act.

From the European perspective, the Directive establishing a framework for maritime spatial planning [9] requires use of space at sea to be planned. International cooperation is key in this regard, and special attention is paid to the connection between land and sea. Although the Maritime Spatial Planning Directive does not legally have to be implemented before 2016 and an initial *maritime spatial plan* will be established by March 2021 at the latest, the Central Government already acted in accordance with the requirements of the Directive when formulating the Policy Document on the North Sea. In addition to outlining the policy, the Policy Document on the North Sea, as an independently readable appendix to the NWP, also includes a framework vision map and therefore constitutes the Dutch maritime spatial plan.

The Marine Strategy Framework Directive (MSFD) calls for a programme of measures to ensure that a good environmental status of the water system is achieved by 2020 with a sustainable equilibrium between economy and ecology. The Dutch programme of measures has been appended to the Policy Document. A summary has been included in section 4.2.

The Policy Document on the North Sea describes from the perspective of the aforementioned statutory obligations the spatial planning in the North Sea within the framework of the marine ecosystem.

6 Dutch House of Representatives, 2010-2011 session, 29 675, no. 118.

7 Councils for the Living Environment and Infrastructure, 'A Sea of Opportunity, September 2011' and the Cabinet's response: Dutch House of Representatives, 2011-2012 session, 30 195, no. 31.

8 The planning aspects contained in this Policy Document can be found in the description of the policy (or parts thereof) in sections 3 and 4 and in the details of the assessment framework contained in section 5. The translation of these things into spatial planning terms is depicted on the framework vision map.

9 Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning. Hereinafter: Maritime Spatial Planning Directive.

1.2 Procedure, participation and recommendation Environmental Assessment Commission

This Policy Document on the North Sea is being prepared on the basis of part 3.4 of the General Administrative Law Act (*Algemene wet bestuursrecht*), under Article 4.1 of the Water Decree (*Waterbesluit*). Furthermore, additional procedural regulations apply under the Water Act (*Waterwet*), the Spatial Planning Act (*Wet ruimtelijke ordening*) and the Environmental Management Act (*Wet milieubeheer*).

The subsequent National Water Plan and thus with a new Policy Document on the North Sea was announced in the letter to the Dutch House of Representatives dated 16 January 2014[10]. On 2 June 2014 an announcement was issued detailing the proposal to prepare a revised version of the National Water Plan, including the Policy Document on the North Sea, this announcement being published in the Staatscourant[11] (Dutch government gazette) and the Volkskrant newspaper. In line with Section 7.9 of the Environmental Management Act, all parties were given the opportunity to submit their views on the proposal. On 8 July 2014 a letter was sent to the governments of neighbouring countries informing them of the proposal to draw up the Policy Document on the North Sea (Section 7.9 of the Environmental Management Act and Article 4.4 of the Water Decree)

On 2 June 2014 a Memorandum on Scope and Detailing (NRD) for the strategic environmental assessment was made available for public consultation for the purposes of revising the National Water Plan. A strategic environmental assessment (SEA) and appropriate evaluation[12] of the National Water Plan assessed the policy decisions pertaining to the North Sea on the basis of a number of topics (nature, water, soil, landscape, cultural history, archaeology, designated uses and sustainability).

On 25 September 2014 the Counsel for Infrastructure and the Environment (OIM) was consulted on the NWP and specific attention was devoted to the Policy Document on the North Sea. Stakeholders submitted responses verbally and in writing.

The Draft Policy Document on the North Sea was available for public consultation for a period of six months from 23 December 2014.

Consultation procedure 2015

The Draft Policy Document on the North Sea and the draft of the Marine Strategy part 3 was available for public consultation, as part of the NWP, from 23 December 2014 to 22 June 2015. The Cabinet will establish the MFSD programme of measures at the end of 2015, together with the NWP. Within three months of establishing the MFSD programme of measures, in the spring of 2016 a report will be submitted to the European Commission.[13] Once it is established, the Policy Document on the North Sea will be sent in its entirety to the European Commission in accordance with article 14, paragraph 1 of the Maritime Spatial Planning Directive (2014/89/EU).

Public reactions

A total of 110 (partial) reactions were received to the topics in the Draft Policy Document on the North Sea. Roughly half these reactions related to the Marine Strategy (part 3), with attention being requested for marine litter, lead in the sea, fishing techniques and marine nature reserves. The other reactions concern highly diverse elements of the North Sea Policy and the use of space at sea: policy for cables and pipelines, passage and multiple use, but also the visibility of wind farms and the connection with the

[10] Dutch House of Representatives, 2013-2014 session, 31 710, no. 30.

[11] Proposal to draw up a subsequent National Water Plan (NWP) and the Management and Development Plan for National Waters, including Environmental Impact statements, Staatscourant, Year 2014, no. 14691.

[12] Ministry of Infrastructure and the Environment and Ministry of Economic Affairs, PlanMER National Water Plan 2, Arcadis, 21 November 2014.
Ministry of Infrastructure and the Environment and Ministry of Economic Affairs, Appropriate assessment Nature Conservancy Act (Natuurbeschermingswet) 1998 accompanying the National Water Plan 2016-2021 (NWP2), Arcadis, 21 November 2014.

[13] When this draft MFSD programme of measures was completed, the European Commission and the EU member states did not yet have any joint, concrete vision of the way in which article 14 of the Directive should be implemented in practice. This article deals with identifying exceptions to the general policy objective in order to achieve the environmental objectives or good environmental status in 2020. The draft programme of measures therefore refrains from explicitly evoking the possibility of being able to apply article 14. Where appropriate, however, it is indicated that, for certain descriptors, achieving the good environmental status in or around 2020 is uncertain or impossible.

land, the environmental impact and the framework for Ecology and Accumulation of impact on the marine environment, the treatment of archaeological heritage and the policy decisions regarding sand extraction and ammunition dump sites.

All public reactions are answered in the Answer Memorandum.[14] The reactions to the public consultation prompted the Central Government to amend and add to the Policy Document on the North Sea with regard to certain points.

Recommendation from the Commission for Environmental Assesment

On 14 July 2015, the Environmental Assesment Commission issued its recommendation on the Environmental Impact Assessment (EIA), report number 2995-36. The Commission notes that relatively few new policy decisions are being made for the planning period and that, in 2018, a review of the North Sea Policy is foreseen under the National Environmental Vision. The Commission notes that the policy for the North Sea is a continuation of the existing policy in terms of, for example, oil and gas extraction, sand extraction and the installation of wind farms. Regarding the environmental impact, the Commission says that it is possible that the listed developments in the planning period will not lead to problems or conflicting situations. The information in the EIA at the chosen (high) abstraction level is sufficient. For the longer term, the Commission feels there is a risk of insufficient 'development room' for achieving all the objectives and ambitions. To facilitate the preparation of the National Environmental Vision (2018), in addition to the EIA and the Appropriate Assessment, it advises conducting a further analysis of the total impacts on the environment and achievement of the various ambitions for the North Sea and, on that basis, assessing whether (in the longer term) this might lead to conflicts and/or risks of significant environmental impact necessitating the making of choices and/or prioritisation. The Central Government has adopted this recommendation.

During the period when the documents were available for public consultation, in addition to the formal consultation, four paths were followed for officially reinforcing the Policy Document on the North Sea:

1 Further elaboration of current policy for wind energy at sea
2 Detailing of the project for passage and multiple use of offshore wind farms
3 Visit to North Sea countries
4 Project with provinces, municipalities, district water boards and interested parties for better insight into the interaction between land and sea.

1) Detailing of the (spatial) policy for wind energy at sea is included in sections 3.3 and 4.3 of the policy document.

2) Passage and multiple use of wind farms at sea. This project was executed with substantial involvement from the interested parties. Policy on passage and multiple use of operational wind farms from 2017 can be found in section 4.3.

3) Visit to North Sea countries. In the first half of 2015, official visits were paid to the competent authorities in Belgium, Scotland, Norway, Sweden, Denmark and Germany to discuss spatial planning for the Dutch part of the North Sea. There has been contact with England, France and Iceland regarding the maritime spatial developments on the fringes of the European Commission's experts meetings. See section 6.3.

4) Interaction between land and sea. In early 2015, together with various provinces, municipalities and district water boards, the Central Government conducted a joint study into the interaction between land and sea. This resulted in 19 filmed stories with diverse topics and messages.
Attention to the interaction between land and sea, as part of policy-making for space at sea comes in an initial phase of development. The coast is more broadly viewed than those places where coastal defence, coastal ecology and coastal tourism/recreation demand attention and, from that perspective, land and sea constitute one another's backdrop. Logistics flows from sea to land and vice versa and ecological connections far further inland can have a direct or indirect relationship. The essence here is value creation that is related to sea or coast, but can take place deep inland. See section 3.13.

[14] See www.platformparticipatie.nl.

1.3 Relationship with other policy documents

The Policy Document on the North Sea affects several other policy documents or strategies at both national and European level.[15]

Blue Growth

The Policy Document on the North Sea ties in with the 'Blue Growth' strategy, focused on sustainable growth in the marine, maritime and coastal economies, as formulated by the European Commission[16] and recorded in the Limassol Declaration after consultation with the Member States and representatives of the European Parliament.[17] The strategy bolsters efficient and sustainable use of space on the North Sea and encourages parties to capitalise on new opportunities presented by the sea in terms of energy from water, aquaculture and mariculture, tourism, blue biotechnology and sustainable extraction of resources in deep waters.

North Sea 2050 Spatial Agenda

The North Sea 2050 Spatial Agenda[18] developed in 2013-2014 constitutes a long-term vision for the North Sea which has been integrated into this document. The Spatial Agenda specifically looks at the opportunities presented by the sea, dovetailing with the 'Blue Growth' strategy. In addition, it examines the opportunities and problems of multiple use of the sea. From the perspective of current developments and the long-term challenges, the Policy Document on the North Sea indicates what policy will be required during the 2016-2021 planning period, working towards 2050. In this regard, elements of the Spatial Agenda, such as international relations and the interaction between land and sea, are stressed and fleshed out.

Integrated Management Plan for the North Sea

The Integrated Management Plan for the North Sea (IBN) describes management of the North Sea. For example, an assessment framework is set out with respect to permit issuance for activities in the North Sea. This assessment framework has been integrated and expanded upon within this Policy Document on the North Sea. The other background and management information from the IBN can be found at www.noordzeeloket.nl. Consequently, the IBN as separate document will cease to exist.

Framework Vision on Infrastructure and Space

The Framework Vision on Infrastructure and Space (SVIR)[19] provides an overall picture of the spatial planning and mobility policy at Central Government level, thereby constituting the overarching framework for the NWP and thus also for the Policy Document on the North Sea. Within the SVIR a number of designated uses on the North Sea have been deemed to be activities of national interest and these will be expanded upon in the present Policy Document.

Framework Vision on Subsoil

The Framework Vision on Subsoil is a framework for the regulation of subterranean activities both on land and at sea. The framework vision is being formulated in the STRONG programme in consultation with local and regional authorities. The framework vision aims to develop sustainable and efficient policy for the subsoil, with a balance being struck between utilisation and protection. The draft framework vision is expected to be established in early 2016.
In preparation for this, tasks for the subsoil have been formulated in consultation with local and regional authorities and other stakeholders. Three of these tasks relate to the North Sea: sand extraction for coastal defences, cables and pipelines and sites of archaeological interest in the North Sea. The Policy Document on the North Sea sets out the policy for these tasks.

Management and Development Plan for National Waters

The Management and Development Plan for National Waters (Bprw) is being drawn up by Rijkswaterstaat and describes the management of national waters for the 2016-2021 period. The Bprw fleshes out the management into core tasks, designated uses and areas. The core tasks are: flood risk management, sufficient water, clean & healthy water and safe & smooth shipping. The core tasks and designated uses are combined in an area-based elaboration for rivers, canals, the IJsselmeer region, the Wadden Sea, the Southwestern Delta and the North Sea. The Management and Development Plan for National Waters (Bprw) was formulated at the same time as the National Water Plan (including the Policy Document on the North Sea), so policy and implementation are being prepared and harmonised jointly.

[15] This overview is not exhaustive. Further contiguous policy can be found at www.noordzeeloket.nl under policy.

[16] See: Blue Growth Opportunities for Marine and Maritime Sustainable Growth, COM(2012) 494 and Communication from the Commission: Innovation in the Blue Economy: Realising the Potential of our Seas and Oceans for Jobs and Growth - COM(2014) 254/2.

[17] Declaration of the European Ministers responsible for the Integrated Maritime Policy and the European Commission on a Marine and Maritime Agenda for Growth and Jobs - The Limassol Declaration, 9 October 2012.

[18] Dutch House of Representatives, 2013-2014 session, 33 450, no. 24.

[19] Dutch House of Representatives, 2011–2012 session, 32 660, no. 50.

1.4 Creation of an administrative and legal framework for the North Sea

Beyond around one kilometre from the coast, the North Sea is not under the jurisdiction of municipal and provincial authorities[20]. All aspects of the policy and management of the North Sea are the responsibility of the Central Government. Moreover, a distinction is made between territorial waters (within the 12-mile zone), forming part of Dutch territory, and the Dutch exclusive economic zone (EEZ). The Netherlands has less jurisdiction over this latter part of the North Sea than it does over its territorial waters. Furthermore, the North Sea cannot be said to be the property of any nation.
In the legal sense (under the Water Framework Directive and Marine Strategy Framework Directive) the Eems-Dollard and the Western Schelde are regarded as transitional waters and the Wadden and the Eastern Schelde as coastal waters. These areas fall within Dutch spatial planning policy under planning on land. For all these areas, policy has been formulated in the National Water Plan (section 5) and Framework Visions are being drawn up for activities on land as defined by the Spatial Planning Act (Wet ruimtelijke ordening). The spatial planning aspect of the Policy Document on the North Sea applies to the Dutch EEZ and territorial waters that have not been classified administratively. Other aspects may also be appropriate to those areas that have been classified administratively. The marine ecosystem and the designated uses, as a matter of fact, have an interaction with land and the water(s) thereon.

Administrative framework

A variety of divisions from various ministries have policy responsibility for the North Sea. The Minister for Infrastructure and the Environment is the Cabinet member responsible for coordinating the integrated North Sea policy and management. The Interdepartmental Directors' Consultation Body North Sea (IDON) is supporting the Minister when it comes to the creation, elaboration and evaluation of the integrated North Sea Policy. Represented within IDON, based on a variety of policy dossiers, are directors from the Ministry of Infrastructure and the Environment, Rijkswaterstaat (the Dutch maritime and marine management organisation), the Ministry of Economic Affairs, the Ministry of Education, Culture and Science, the Ministry of Defence, and the Coastguard.
Rijkswaterstaat is the coordinating management authority and is collaborating with the other authorities on harmonisation of the various management tasks, particularly permit issuance and information management.
Within the Coastguard, six Ministries are working together on enforcement and services tasks on the North Sea. For the purposes of the services tasks (nautical management and action in the event of incidents and disasters), the Coastguard is directed by the Minister for Infrastructure and the Environment. For the purposes of enforcement (general enforcement, enforcement of environmental legislation, traffic safety and fishing), the Coastguard is directed by the Permanent Contact Group Maintaining North Sea (PKHN), in which the relevant ministries are represented.

Legal framework[21]

To a large extent, international frameworks determine the policy on the North Sea. The United Nations Convention on the Law of the Sea (UNCLOS)[22] is the legal framework

[20] The 1-km boundary is calculated from the low water line. The boundaries are detailed in: Act of 2 November 1990 on the Extension of the Limits of the Coastal Provinces and Communities (Wet houdende regeling provincie- en gemeentegrenzen) along the North Sea coast from the municipality of Den Helder up to the municipality of Sluis, amending the Grants to Municipal Authorities Act (Financiële-Verhoudingswet) 1984 (Bulletin of Acts and Decrees 1990, 553). At the Maasvlakte, the boundary has been set at 3 kilometres. See also the Act of 8 December 1980 on Provincial Classification of the Wadden Sea (Wet tot provinciale indeling van de Waddenzee, Bulletin of Acts and Decrees 1980, 670) and the Act of 12 December 1985 on Municipal Classification of the Wadden Sea (Wet tot gemeentelijke indeling van de Waddenzee, Bulletin of Acts and Decrees 1985, 648).

[21] This overview is not exhaustive. Further contiguous legal frameworks can be found at www.noordzeeloket.nl under policy.

[22] United Nations Convention on the Law of the Sea, Tractatenblad (Treaty Series), 1984, no. 55.

within which all measures and activities in the sea must be implemented and performed. At global level, agreements are being made in a variety of contexts on activities relating to the sea and on protection of the marine environment.

- The conventions of the International Maritime Organisation (IMO), falling under the UN, are important for shipping. In addition to the regulation of shipping routes, important conventions include:
  - The MARPOL Convention[23], which regulates pollution caused by shipping (including oil pollution and the use of antifouling paint);
  - the SOLAS Convention[24], which describes the safety and security requirements seagoing vessels must satisfy;
  - the Ballast Water Convention[25], which is geared towards preventing the introduction of 'foreign species'.
- The Netherlands is party to the London Convention[26] and the accompanying 1996 Protocol[27], which imposes worldwide restrictions on dumping and incinerating waste matter at sea.
- The Netherlands is party to the OSPAR Convention[28]. In connection with this, agreements are being made on:
  - monitoring of contaminants;
  - assessing the condition of the sea;
  - regulating offshore activities, particularly discharges;
  - reduction of phosphates and heavy metals;
  - protection of habitats and species;
  - tackling 'waste at sea'.
- At European level, matters are primarily governed by the Birds[29] and Habitats Directives[30] and the Marine Strategy Framework Directive.
- The Water Framework Directive (WFD)[31] applies to coastal waters: up to 1 mile for good ecological status and up to 12 miles for good chemical status.
- The Common Fisheries Policy regulates fishing on the North Sea at European level[32].
- The Malta Convention[33] is relevant for underwater cultural heritage.
- Several conventions and agreements apply for the purposes of cross-border coordination of activities in coastal and transitional waters: the Trilateral Wadden Sea Cooperation agreements, the Eems-Dollard Convention[34] and the Scheldt Conventions[35]. The overlap with the North Sea Policy is covered within these arrangements.

At national level, a number of statutory frameworks are important for formulating the North Sea Policy of the Netherlands. The common denominator is that they regulate use of the North Sea and prevent adverse effects of activities or keep these within acceptable limits. The underlying interests include safety, ensuring environmental quality (e.g. in terms of water, seabed and subsoil), protecting the ecosystem and sites of natural and archaeological interest.[36]

23 International Convention for the Prevention of Pollution from Ships, Tractatenblad (Treaty Series), 59, 1973, no. 16.
24 International Convention for the Safety of Life at Sea, Tractatenblad (Treaty Series), 1977, no. 77.
25 International Convention for the Control and Management of Ships' Ballast Water and Sediments, Tractatenblad (Treaty Series), 2005, no. 44.
26 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Tractatenblad (Treaty Series), 1973, no. 172.
27 1996 Protocol accompanying the 1972 Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matter, Tractatenblad (Treaty Series), 2011, no. 72.
28 Convention for the Protection of the Marine Environment of the North-East Atlantic, Tractatenblad (Treaty Series), 2008, no. 60.
29 Council Directive 79/409/EEC of 2 April 1979 on the conservation of wild birds.
30 Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
31 Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for community action in the field of water policy.
32 Regulation (EU) no. 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy.
33 European Convention on the Protection of the Archaeological Heritage, Tractatenblad (Treaty Series), 1992, no. 97. It is also referred to as the 'Valletta Treaty'.
34 Treaty between the Kingdom of the Netherlands and the Federal Republic of Germany on the cooperation in the area of the Eems and the Dollard, as well as adjacent areas, Tractatenblad (Treaty Series), 1984, no. 118.
35 See the website of the Flemish-Dutch Scheldt Commission: (www.vnsc.eu) for an overview of the treaties and conventions.
36 For further information on the national statutory frameworks see www.noordzeeloket.nl under policy..

1.5 Reading guide

Section 2 sets out the long-term vision for the North Sea. This vision is based on the North Sea 2050 Spatial Agenda and indicates how the North Sea and the policy will or must develop. Elements from the vision can be found throughout the document.

Section 3 describes the marine ecosystem of the North Sea and the uses from the perspective of the current situation and developments. This is followed by an explanation of the applicable tasks and vision for each designated use, which tallies with the long-term vision from section 2. Subsequently, the section looks at how the current situation, developments, vision and challenges result in the policy for the 2016-2021 planning period. In this regard, actions are delineated for further policy development.

Section 4 elucidates three societal demands for which policy is set out in the Policy Document. These pertain to the MSFD programme of measures, wind energy and the sand extraction strategy.

Section 5 offers an assessment framework for all permit applications for activities relating to functions/designated uses on the North Sea. Based on this framework, decisions can be made in terms of designation of the space on the North Sea, taking into consideration a variety of frameworks.

Section 6 describes the international cooperation: which partnerships the Netherlands is engaged in and what role could and does the Netherlands have to fulfil within these partnerships?

Section 7 concludes with an overview outlining the policy, the actions to be undertaken during the planning period and the financing.

2

Long-term vision

2.1 North Sea 2050 Spatial Agenda

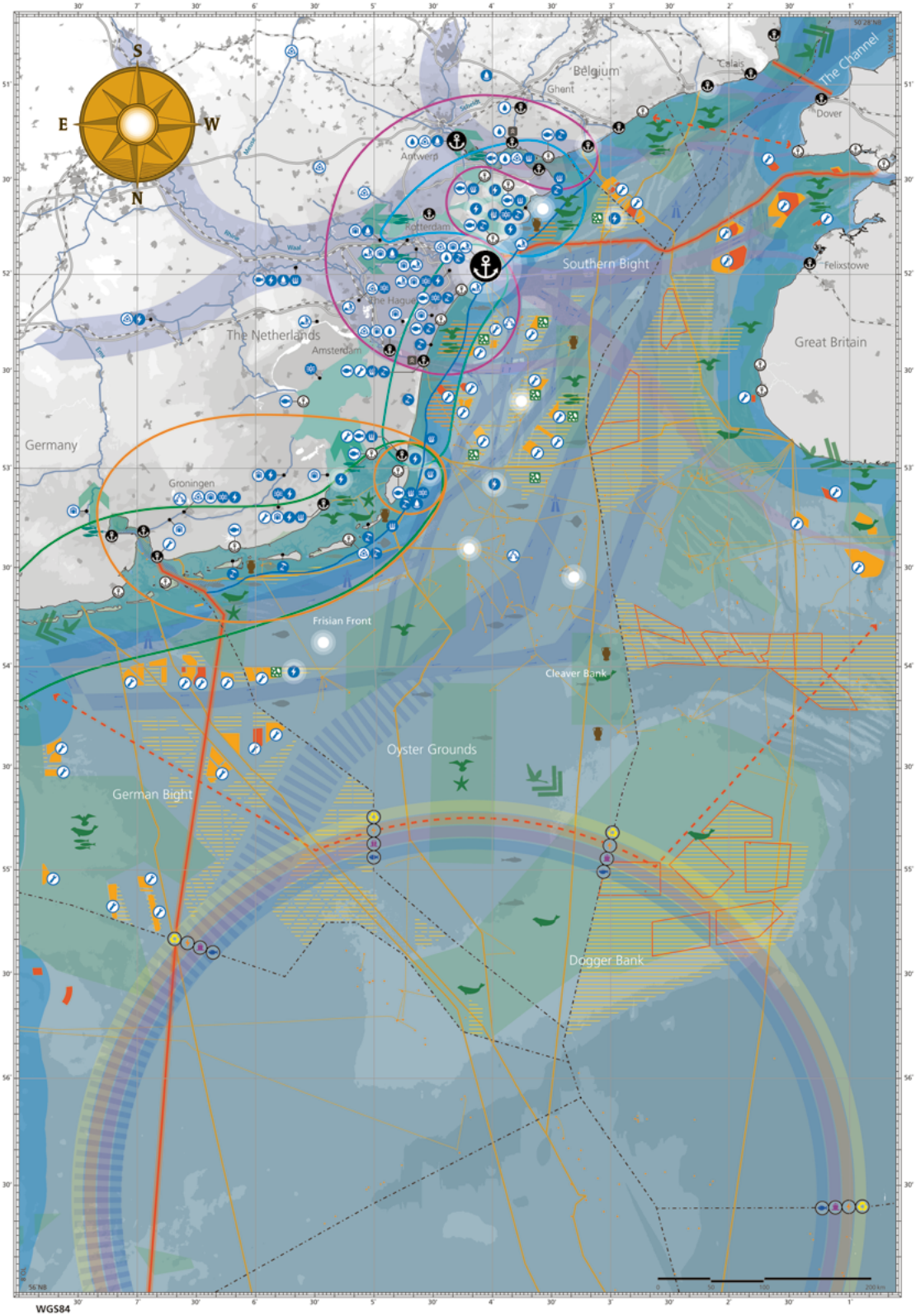
The Central Government embraces in general the main points of the advice issued by the Councils for the Living Environment and Infrastructure on boosting the significance of the North Sea to society[37]. In line with the advice, the Central Government is endeavouring to pursue a development-oriented approach to the sea that leaves room for new initiatives and allows flexible management of the sea. The North Sea 2050 Spatial Agenda[38] fulfils this need for long-term prospects.

The North Sea 2050 Spatial Agenda provides an integrated conceptual framework for marine and maritime policy centring on responsible, safe and space-efficient use of the sea. The Spatial Agenda is geared towards sustainable development and, from a long term perspective, provides an answer to the European Commission strategy for 'Blue Growth'.[39] Attention has specifically been paid to the relationship with activities on land. Joint analysis of the long term, the connection between the ecological and economic system, and the relationship between what is possible internationally, at the level of the North Sea and in the Dutch part of the North Sea, is yielding valuable insights that will allow optimum utilisation of the sea. The North Sea 2050 Spatial Agenda describes a new, keener vision of the sea, identifies five topics requiring extra attention (see section 2.3) and specifies a number of follow-up actions, a proportion of which will be addressed during the 2016-2021 planning period.

The vision for the future is not set in stone. The road to 2050 will depend on the matter of whether the potential of the sea that has been outlined can be successfully developed within the available space at sea. Furthermore, the state of the marine environment will require constant monitoring and an adaptive long-term vision. To arrive at suitable solutions, an enduring, development-oriented approach to realise the potential of the sea, tasks and measures will be necessary. This vision offers frameworks for drawing up policy, also during the planning period of this Policy Document.

37 Dutch House of Representatives, 2011-2012 session, 30 195, no. 31.
38 Dutch House of Representatives, 2013-2014 session, 33 450, no. 24.
39 The long-term strategy for increased sustainable growth in the marine and maritime sectors. See: Blue Growth Opportunities for Marine and Maritime Sustainable Growth, COM(2012) 494 and Communication from the Commission: Innovation in the Blue Economy: Realising the Potential of our Seas and Oceans for Jobs and Growth - COM(2014) 254/2. See also: Declaration of the European Ministers responsible for the Integrated Maritime Policy and the European Commission on a Marine and Maritime Agenda for Growth and Jobs - The Limassol Declaration, 9 October 2012.

Figure 2.1 North Sea 2050 Spatial Agenda



Legend

Cohesion & Cooperation
- North Sea as system:
- Ecosystem in balance
- Energy grid
- Clean shipping
- Sustainable fishing

Three coastal landscapes:
- Wadden area
- Hollandse Boog
- Southwestern Delta

Mainport Rotterdam / Logistical Delta
Energy Valley
12-mile-zone

Knowledge export

Existing economic sectors:
- Carbon Capture & Storage
- Conventional Energy
- Logistics
- Offshore wind & services
- Shipbuilding
- Fishing
- Flood defences

Blue Growth Sectors:
- Blue Biotech
- Deep Sea Mining
- Energy from water
- Mariculture
- Recreation and tourism

Blue Growth Sectors testing ground (indicative)

Energy

North Sea Energy Grid:
- existing international high voltage cable
- new international high voltage cable (indicative)
- existing international gas pipeline

Reuse of 'local' oil and gas infrastructure
Exploration of multi-functional offshore windfarms:
- existing/awarded/subsidy application
- wind farm: lease or agreement for lease

Multi-functional wind farms from construction:
- in designated wind energy area
- in search area within 12-mile-zone

Nature & Food

Ecoshape (indicative)
Marine Natura 2000 areas & ecologically valuable areas
Target group species:
- sea mammals (SCI)
- birds (SPI)
- fish (SCI)
- benthos (SCI)

Flyway
Fish migration to rivers
Balanced fish stocks (indicative)

Transport & Mobility

Motorways of the Sea
Robust traffic separation scheme (TSS)
Ro-Ro corridors (indicative)
Reservation Willem Barentszroute
Expansion of LNG facilities:
- existing/planned import terminal

Land & Sea

Integrated vision 12-mile-zone
Archaeologically valuable areas
Protection of coastal foundation (-20m NAP line)

Ministry of Infrastructure and the Environment in co-production with Ministry of Economic Affairs
Cartography MUST urbanism, June 2014

2.2 Overarching vision

The Netherlands benefits from a safe, clean, healthy and ecologically diverse North Sea that contributes to the country's economic and social needs. The sea also has important sociocultural and historical significance for the Netherlands, and is a source of knowledge. The contribution of the sea can only be optimal if its natural resilience is – further – restored and augmented and the appeal of the sea is maintained for everyone. The crux of the policy for the North Sea is to collaborate with parties in society so as to steer towards desired usage in terms of space and time, ecology and economy and to further develop the natural potential of sea and coast. Furthermore, efforts are being made to combine functions. In some cases, functions will have to remain separate, for instance for reasons of safety aspects or ecological vulnerability.

Long-term development of the sea to its full potential will help limit the strain on the available space. Strenuous efforts are being made to bring about integrated spatial development at sea and along the coast.

The basis for sustainable use is a clean and healthy sea, created by means of the nature and environment policy. The activities at sea are sustainable and integrated: (designated) uses have been harmonised with one another. This gives rise to development-oriented, policy-based steering in terms of use of the sea. By making the most of the available space collectively and sustainably, the Dutch ports preserve the opportunity to be competitive and to fulfil their role as an international economic hub. Moreover, sand extraction continues to guarantee the safety of the coast and facilitates a transition to a sustainable, combined energy supply, with due consideration for the tourist appeal of the coastal area. By demonstrating the opportunities for sustainable usage presented by the North Sea in practice (in testing grounds, for instance), the sea offers a springboard for the Dutch business community to market our offshore maritime knowledge and know-how. This ensures that the Netherlands retains a leading position.

The transition towards development-oriented policy for the sea demands another role from the parties involved. For the government it means a more active role when it comes to protecting nature, supporting the sustainable market sectors and bespoke regulations. For market parties there are opportunities to be found in cooperation with other users, making use of the power of the maritime cluster and formulating proposals where policy is lacking. Research institutes, NGOs, universities and other higher education institutes could unite with market parties more to tap into the potential of the sea and carry out research into effects on the marine environment.

To a greater or lesser extent, the developments outlined are relevant to all North Sea countries. The administrative and political division of responsibilities for territorial waters in particular (up to 12 nautical miles) differs from nation to nation. The Maritime Spatial Planning Directive[40] calls for closer international cooperation when it comes to formulating plans and for the incorporation of the interactions between land and sea therein. When putting the long-term vision into practice, the regional authorities of the countries around the North Sea are working together on sustainable prosperity matters, for example in relation to the tourism industry, interconnectivity between ports, energy and climate change and adaptation.

[40] Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.

Climate change and climate adaptation

Climate change, in the long term, leads to rising sea levels and warming of the seawater and has a negative effect on the quality of seawater (acidification).

Where coastal defence is concerned, analyses have shown that, in the Dutch part of the North Sea, there is sufficient sand for the necessary sand replenishment. A sand extraction strategy has been developed that is incorporated in its entirety into this policy document (see section 4.4).

Climate change impacts the marine ecosystem. It affects habitats and the presence and condition of various species. Changes in the condition of the ecosystem are monitored and analysed within the Marine Strategy programme (see section 4.2). The results will be included when updating the initial assessment of the marine ecosystem in the North Sea in 2018. This could lead to new protection and/or adaptation measures during the NWP planning period. The effects of climate change on fishing (the distribution of species, fishing quotas, opportunities and threats for aquaculture) are topics on the agenda of the Ministry of Economic Affairs.

Sea users will have to be aware of changes in the climate. Weather extremes and rising sea levels will have to be calculated in when installing winter turbines.

The North Sea can also contribute to the transition to a sustainable (CO_2-neutral) energy supply and therefore combat climate change. Consequently, the Central Government is allocating space for wind energy in the Dutch part of the North Sea and has started exploring the possibilities of other techniques (tidal and wave energy and deep geothermal power) (see sections 3.3 and 4.3). The North Sea also offers opportunities for CO_2 storage (see section 3.6).

2.3 Five topics

The Spatial Agenda specifies five topics that are instrumental in developments on the North Sea in the run-up to 2050: These are described in this section.

Building with nature in the North Sea

A good environmental status is a precondition for human use of the sea. The transition task encompasses reinforcement of the intrinsic, natural power of the sea, from both an ecological and an economic perspective. There are opportunities to create a robust, resilient North Sea by building with nature at sea. In this respect, the sea and marine environment are utilised in a way that bolsters the marine ecosystem.

Coastal safety increasingly integrates with spatial development. [41] Affordable, sustainable extraction of sand is necessary for the purposes of reinforcing our coast, building infrastructure and in the construction sector. The Cabinet prefers coastal defences that are as natural as possible: sand replenishment using sand obtained from the sea wherever possible and 'hard' defences where needed. In order to ensure a sufficient supply of sand in the short and long term, a strategy for sand extraction is required. Section 4.4 of this Policy Document sets out this strategy.

Where necessary, it is important to spare vulnerable areas, particularly if at North Sea level these areas make a decisive contribution to producing a rich and diverse ecosystem.

But conservation of the marine ecosystem will not be achieved solely by protecting nature and the environment and tackling current problems in the short term – more is possible. Use of the sea in ways that make the sea cleaner and healthier (for example, cultivating seaweed), or that help it to recover more swiftly after use (for example, the state in which sand extraction pits are left) must be fostered. Furthermore, the possibilities for (natural) hard substrate, such as the return of oyster beds and the contribution of such things as wind farms to the recovery of biodiversity, should be the object of further study. This research has been included as an action in section 7.2.

A sustainable food supply from the sea (fishing) and the marine environment are two topics that exhibit interdependence and interconnectedness. This interconnectedness partly explains the inherent tension that surrounds the two topics. Nonetheless, both benefit from a healthy ecosystem. This common denominator is useful when fleshing out both challenges in more detail.

Energy transition at sea

Due to the roll-out of wind energy, energy production at sea will take up more space. In some cases, commercial and recreational sailing vessels will need to alter their course, and the fishable area will shrink. The trick is to manage the space as economically as possible and to make the most of the opportunities to increase renewable energy generation per square nautical mile. Market parties will be given a chance to test new forms of energy generation at sea. The market for tidal and wave energy is increasingly focused on the capability of converting the low current velocity and limited wave height in Dutch waters into electricity. In energy zones and energy farms at sea, various technologies are used to convert the power of the wind and sea into electricity.
From the perspective of increasing use of space, there is a need for an Energy Master Plan covering the 2030-2050 period. Numerous other developments could feature in this plan, such as a production platform / artificial island for wind energy, opportunities for deep geothermal power and an international electricity grid at sea (*North Sea grid*). Additionally, possibilities could be fleshed out vis-à-vis making the most of existing and future infrastructure at sea for offshore oil and gas extraction and electricity generation, such as for the storage and transport of CO_2, or technologies like *Power2Gas*. After all, investments in this regard do extend over a long period. The Energy Master Plan has been included as an action for the 2016-2021 planning period (see section 7.2).

[41] National Coastal Vision. Part of the Delta Programme 2014, Dutch House of Representatives, 2013-2014 session, 33 750-J, no. 4 (appendix).

Multiple use of space

Sparing the ecologically most important areas in combination with the task of safeguarding areas for safe, smooth shipping, fishing and recreation will require smart, alternative means of dealing with locations offshore so as to enable added value to be delivered.

Cooperating on spatial planning tasks in a busy country with a limited surface area and stringent ecological requirements is one of the Netherlands' strengths. This strength is also being put to use at sea. Multifunctional use of the North Sea by 2050 is based on comprehensive planning in terms of space and time by combining functions. The vision for 2050 entails only limiting areas (temporarily or permanently) to a single form of usage if the vulnerability of the marine environment requires this in situ. This means that users will already be obliged to take one another into consideration at an early stage (planning, design, construction). The majority of opportunities for multiple uses relate to combining activities that logically go together from an ecological and/or economic perspective. In this regard, it pertains to such things as combining types of electricity generation on the one hand and nature and food on the other.

Connection between land and sea

Connecting challenges and developments on land and at sea will bolster the identity and economy of coastal areas. In addition to the physical relationship between the coastal development, coastal safety, sand extraction and the relationship between the coast and the marine ecosystem, coastal areas are a breeding ground for new developments at sea. Involving provinces, municipalities as well as district water boards in policymaking on matters pertaining to the sea is desirable in view of their considerable interests in these matters. Many Dutch people depend directly or indirectly on the sea, professionally or recreationally for instance. Tourists are drawn to the iconic waterworks landmarks along and beyond the coastline, but in addition to this they also come sailing to our cities and coastal resorts. Making the most of the opportunities the sea offers will be easier to do if these opportunities are supported by society.

Accessibility and shipping

The increased scale of cargo flows means that the number of vessels heading for the ports in Zeeland, Rotterdam and Amsterdam will remain roughly the same. The size of the vessels will increase, however, and the route through the Arctic Ocean past the North Pole will become increasingly navigable. Maritime traffic policy will change as a result of increased intensity of coastal shipping, including coastal shipping traffic to and from Great Britain, and the movement of vessels to and from offshore activities such as construction and maintenance of wind farms. A close eye will have to be kept on the effects of this in terms of space, safety and ecology.
Safe and environmentally friendly shipping, the accessibility of Dutch ports and good passage are ambitions for shipping that will prevail for both the present and the future.

3

The marine ecosystem and designated uses

3.1 Introduction

Safe and sustainable economic development

The North Sea 2050 Spatial Agenda is focused on bringing about safe and sustainable economic development of the North Sea, whilst conserving and restoring the integrity of the marine ecosystem. This section describes how designated uses (economic or otherwise) develop within the frameworks of the marine ecosystem. For each designated use an indication is given of the present situation, the developments under way, the vision and the tasks, as well as the resultant policy. A closing section describes the interactions between designated uses at sea and on land.

In the case of wind energy at sea and sand extraction, the changes are such that, even in view of the long-term vision, they will result in societal challenges. These challenges require essentially new policy for the 2016-2021 period. This policy is set out in more detail in section 4. The section also incorporates the specific measures for the purposes of implementing the Marine Strategy Framework Directive (MSFD), geared towards fostering and maintaining the health of the ecosystem and rendering usage sustainable.

In addition to sustainable use of the marine ecosystem, *safe* use is key. More attention needs to be devoted to safety as a consequence of increasing, more diverse use of the North Sea with a greater number of permanently installed objects. Multiple use of space calls for effective harmonisation of the designated uses.

Nautical risks on the North Sea are periodically inventoried and assessed. Measures are taken if need be. In addition to the probability and effect of an unsafe situation, risk perception and acceptance also play a role when it comes to taking measures. Stakeholders are involved when devising safety measures. They can contribute their knowledge and experience when drawing up new policy, such as for the possibility of recreational vessels to pass through wind farms.

The topic of safety is multifaceted, including aspects relating to such matters as spatial planning, the environment, human behaviour, the safety of the hardware, safety in emergency situations, etc. These aspects, in combination with existing policy and existing laws and regulations, call for a transparent assessment process. The fundamental principles for that process and the way in which they should be substantiated by the Ministry of Infrastructure and the Environment are anchored in the vision 'Dealing With Safety Consciously: Key Themes'.[42] Such assessments have the potential to result in specific policy for each designated use. The Policy Document on the North Sea focuses on the use of space and the marine ecosystem. The safety aspects associated with these are described along with the designated uses in the remainder of this section and in section 4.

[42] Dutch Senate, 2013-2014 session, Parliamentary Paper 32 862 no. L, Appendix "Dealing with Safety Consciously: Key Themes".

Table 3.1 Actual use of space in the Dutch part of the North Sea

Designated use		Numbers	Use of space in km²
Oil and gas extraction		161 platforms	126
Commercial surface mineral extraction		13 million m³/annum	60-90 in 5 years
Coastal replenishment sand extraction		12 million m³/annum	
Dumping sites for dredging		6	37
Cables (in use)		3300 km	3300
Pipelines		4500 km	4500
Shipping routes			3600
Military exercise zones		5	4200
Wind energy	Completed Under construction Planned	228 MW 730 MW 3500 MW	43 125 575 at 6MW/km²
Nature conservation areas	Voordelta Vlakte van de Raan North Sea Coastal Zone Dogger Bank Frisian Front Cleaver Bank		924 175 1445 4715 2880 1235
Fishing			EEZ and territorial waters minus areas closed for nature and energy
Dutch part of the North Sea			58000 (approx.)

Examples of safety aspects in the Policy Document on the North Sea

- A design criterion has been developed for wind farms to regulate the distance from shipping lanes.
- When extracting surface minerals, flood risk management in a changing climate plays a significant role.
- Mining platforms require a safety zone off limits to vessels and an obstacle-free zone for landing helicopters.
- For shipping there is a comprehensive routing system in place, and the fact of the route through the Arctic Ocean becoming increasingly navigable presents new safety questions.
- The Ministry of Defence uses the North Sea to ensure that the armed forces are well trained and operational, enabling it to guarantee the country's safety.
- Safety is an important criterion when considering allowing passage through for recreational vessels.
- The increasing number and capacity of cruise ships will require extra efforts in emergency situations.

National policy tasks and activities of national interest

The Framework Vision on Infrastructure and Space[43] formulates the following national spatial planning tasks for the North Sea:

- The preservation of the coastal foundation zone and implementation of the area-based Coastal and Wadden Region sub-programmes of the Delta Programme in association with local and regional government authorities.
- The preservation and protection of Natura 2000 areas and the marine ecosystem.
- Maintaining the unobstructed view of the horizon up to 12 nautical miles from the coast.
- Providing space for the main network for the transport of (hazardous) substances through pipelines.
- The protection of archaeological values (submerged settlements, shipwrecks and other archaeological values).

Within the European and international frameworks (Water Framework Directive, Marine Strategy Framework Directive, the Birds and Habitats Directives, and the Malta Convention), the Cabinet will give priority to activities that are of national interest:

- Oil and gas extraction: as much natural gas and petroleum as possible is being extracted from Dutch fields in the North Sea, ensuring that the most is made of the potential of natural gas and petroleum supplies.
- CO_2 storage: sufficient space for storing CO_2 in depleted oil and gas fields or in underground aquifers).
- Shipping: a whole system of traffic separation schemes, *clearways* and anchoring areas that can accommodate shipping safely and swiftly.
- Sand extraction: sufficient space for sand extraction for coastal protection, countering flood risks and sand for use on land.
- Generating renewable energy: sufficient areas for wind energy and other forms of renewable energy.
- Defence: sufficient military exercise zones in the North Sea.

With the aid of the assessment framework, the Central Government will evaluate permissions for sea-based activities (see section 5).

[43] Dutch House of Representatives, 2011–2012 session, 32 660, no. 50.

3.2 Marine ecosystem

Current situation and developments

Due to differences in water depth, nutrient richness, salt level, currents and composition of the seabed, the North Sea is home to a variety of organisms.

Warmer water flows in from the English Channel, colder Atlantic water flows in from the north, and nutrient-rich freshwater is introduced by the major rivers. Rich frontal systems can be found where these flows meet, such as at the Frisian Front.

The seabed varies from fine to coarse sand in the southern part of the North Sea and along the coast, with silt-rich ground in the centre (such as the Central Oyster Grounds), sandbanks (such as the Brown Ridge and Dogger Bank) and a small surface area of gravel and stones (such as the Cleaver Bank).

The strip along the coast requires extra attention. Here we find a strong interaction between land and sea. Salt water and freshwater mix, and the shallow sections along the coast constitute an important source for nature as a whole. These are important breeding grounds and nurseries for many species of fish. Together with the Wadden Sea and the Southwestern Delta, the North Sea is a significant link in the international system of migration routes and foraging territories for birds (such as the common guillemot and red-throated diver) and fish (such as the sea lamprey and eel), as well as being a habitat for seals and porpoises. The qualities of the ecosystem and marine environment in the Dutch part of the North Sea, and the parts of the North Sea of other countries situated thereon, influence one another. Consequently, international harmonisation and cooperation are being effected to ensure a clean, healthy, species-rich sea through such initiatives as the Marine Strategy Framework Directive (MSFD).

The Dutch have had a close relationship with the North Sea for centuries. First and foremost in terms of shipping and fishing, but later on for recreational purposes, generating energy and extracting (surface) minerals and quarrying. The North Sea is one of the most intensively used seas in the world. Human activity and climate change have resulted in changes in and damage to nature.

The initial assessment carried out in light of the MSFD demonstrated that the effects of physical, chemical and organic disturbances in the previous century are impacting the current state of the marine ecosystem to varying degrees. Barriers in the form of dykes and dams, seabed disturbance, disturbances caused by recreation and underwater noise, and the introductions of non-native (exotic) species have adverse effects on the natural communities. It is not possible to single out a threat greater than the others. Rather, it is a sum of effects of human activity in a natural system as yet not fully understood. Certainly, on the seabed in particular, vulnerable communities have been affected by physical damage to the seabed, mainly as a result of traditional bottom trawling ('dragging'). Fish stocks have become less diverse; large fish are rare or have disappeared. Populations of some vulnerable species (such as sharks and rays) have declined. Others have disappeared, such as the European sea sturgeon, common skate and European flat oyster. A North Sea action plan is therefore currently being drawn up for the recovery of vulnerable sharks and rays and pilot projects are being set up in the Voordelta with a view to the recovery of shellfish banks. These are actions included for the 2016-2021 planning period (see section 7.2).

In recent years a turn for the better has become visible in the marine ecosystem. The majority of fish species fished commercially (such as plaice and herring) are doing better than they were previously. There are rapid developments taking place in terms of alternative fishing techniques that are more environmentally friendly. A cautious, positive trend reversal is evident in the development of marine mammal populations. Fish migration is made possible again by slightly opening the Haringvliet locks and the prospect of constructing a fish migration river in the IJsselmeer Closure Dam. There has fortunately also been a reduction in pollution of the sea.

Marine Strategy Framework Directive (MSFD)

The MSFD obliges EU member states to draw up a marine strategy for their marine waters and to implement the necessary measures to achieve or maintain a good environmental status by 2020. The scope of the Directive is the comprehensive environmental and ecosystem policy and encompasses biodiversity, exotic (not-native)

species, fish stocks, food web, the seabed, hydrography, pollutants and eutrophication, litter and underwater noise. The starting points are the ecosystem approach and the precautionary principle.

Part 1 of the Marine Strategy for the Dutch part of the North Sea 2012-2020 was adopted by the Cabinet in 2012[44] and reported to the European Commission. This part encompasses the initial assessment of the current environmental status and the description of the good environmental status and environmental objectives to be achieved by 2020 along with associated indicators and the policy objectives arising from these in the period leading up to 2020. It also describes the Cabinet's vision on the implementation of the MSFD obligations and analyses the policy's efficacy. Based on this, the policy objective has been formulated, and the Cabinet has indicated three starting points for additional measures. Priorities have also been specified for the knowledge programming. In 2018 this aspect of the marine strategy will be updated, and this has been included as an action for the 2016-2021 planning period (see section 7.2).

Part 2 of the Marine Strategy, the MSFD monitoring programme, was reported to the European Commission in October 2014.[45] It describes the measurement programme used to monitor the environmental status and guides the monitoring required for the purposes of the implementation of the Birds and Habitats Directives. The point of departure is the current monitoring stemming from national and international obligations (such as the WFD, Birds and Habitats Directives/Natura 2000, Common Fisheries Policy, IMO, OSPAR). The programme is adjusted each year on the basis of new insights and international harmonisation in connection with OSPAR and the International Council for the Exploration of the Sea (ICES). The annual update has been included as an action for the 2016-2021 planning period (see section 7.2).

The measures required to be able to achieve the good environmental status and environmental objectives by 2020 are detailed and explained in section 4.2, and will be reported to the European Commission as Part 3 of the Marine Strategy at the beginning of 2016. By means of this broad programme of measures, the Cabinet is dedicating itself to achieving and maintaining a good environmental status in the North Sea. The emphasis is on cooperation with neighbouring countries, working on sustainability, and tackling the key sources of pollution and monitoring the developments.

Vision and policy tasking

In the future the North Sea will be a clean, healthy and productive sea. The ecosystem will function optimally and will be resilient, the water will be clean and use of the North Sea will be sustainable. This will ensure that the North Sea provides opportunities both for nature and the environment and for economic activities.

Within this vision of the future, the North Sea has a characteristic diversity of species in, on and above the water, with balanced composition in terms of age. There is ample room for a diversity of robust, resilient marine habitats within a coherent network. In a large proportion of the North Sea, vulnerable seabeds will not be disturbed, or will be disturbed less, as a result of which life on the seabed will have been able to recover. In some places, organically formed hard bottom substrates, such as shellfish banks and tubeworm reefs, will arise. These will present a fertile (breeding) ground and opportunities for settlement for other species (returning or otherwise).
The nutrient and food supply will ensure a varied food web, from seabed creatures to top predators such as sharks, harbour porpoises and seals. Enabling barriers to be passed and effecting gradual transitions from salt water to freshwater will have increased the number of migratory fish (like salmon, eel and sturgeon) migrating between sea and rivers.
Sustainable use of the natural resources of the North Sea will not put strain on the ecosystem.

The objective is to reach (international) targets for the marine ecosystem and environmental quality by way of comprehensive policy, measures to protect marine

[44] Dutch House of Representatives, 2012-2013 session, 33 450, no. 1.
[45] Dutch House of Representatives, 2013-2014 session, 33 450, no. 25, Appendix "Marine Strategy for the Dutch Part of the North Sea 2012-2020, Part 2".

biodiversity, creation of a network of marine protected areas and reduced pollution. The ecosystem approach and the precautionary principle will be actively applied.

The following three starting points are used in efforts to achieve these goals:

1 *Rendering use sustainable*: In order to prevent changes in the status of the marine ecosystem and the marine environment as well as loss of biodiversity, and in order to foster recovery, it will be necessary to take measures geared towards making use of the sea sustainable. Use here refers to various activities engaged in on the North Sea and at the coast, as well as the pressure these activities exert on the North Sea environment. The assessment framework for permit issuance (see section 5) provides preconditions from the perspective of the North Sea as part of the Network of Protected Areas and from the perspective of the EIA Directive. Within the scope of the IMO and Common Fisheries Policy, the Cabinet seeks to make shipping and fishing sustainable. For the purposes of reducing pollution caused by sources on land, joint efforts will be made with the implementation of environmental policy for the land and the implementation of the Water Framework Directive (WFD). The Cabinet aims to build with nature and effect synergy with designated economic uses such as wind energy, sand extraction and fishing (see also section 2.3).

2 *Area-based and species-oriented approach*: The Cabinet aims to employ an area-based approach to safeguard protection of vulnerable ecological areas and species (where necessary), as in the case of Natura 2000 areas and the MSFD search area for seabed protection measures. The fundamental principle is not to close off areas as such, but rather to regulate or suppress use that endangers the protective environmental values.

3 *Creating additional opportunities for ecosystem recovery*: By means of the marine strategy, the Cabinet aims to reinforce the intrinsic natural robustness and resilience of the sea. This will enhance the sea's value to society. To this end, the MSFD's programme of measures contains a number of studies that in time could lead to actions and measures to actively restore ecosystems that have disappeared (see section 4.2).

Policy

The Cabinet is opting for sustainable, space-efficient and safe use of the North Sea in harmony with the marine ecosystem. Protection and development of the marine ecosystem, improving the environmental quality and rendering use sustainable have been recorded as objectives in the WFD, the MSFD, and the Birds and Habitats Directives.

Habitat protection

The Birds and Habitats Directives, MSFD and OSPAR Convention stipulate that marine areas with particular ecological value are to be protected. In time, protection of these areas must give rise to a coherent network of protected areas at sea. Management plans are drawn up for designated areas. This has been included as an action for the 2016-2021 planning period (see section 7.2).

As of 1 January 2014 the scope of the Nature Conservancy Act 1998 and the Flora and Fauna Act was extended to the outer limits of the Dutch EEZ. In the case of Habitats Directive areas Dogger Bank and Cleaver Bank, and Birds Directive area Frisian Front, the procedure for designating these as Natura 2000 areas was initiated in autumn 2014. The final designation of the areas is planned for 2016. Within three years of this designation, management plans will have to be completed for these areas, containing the conservation objectives, the details of these in terms of scope, space and time, how these objectives will be fulfilled and what this means for existing and new activities.

During the 2009-2012 period, research was carried out into possible additional protected areas in the North Sea.[46] From this it emerged that the areas Gas Seep and Zeeland Ridges did not meet the criteria for designation as Habitats Directive areas. After subsequent study of Borkum Reef Ground and Brown Ridge, a decision will be made in 2016 regarding the possible designation of Brown Ridge as a Natural 2000 area pursuant to the Birds Directive. Borkum Reef Ground will not be designated as a Natura 2000 area.[47] This area will be included in the evaluation of the network of marine protected areas as part of the update of the assessment of the environmental status of the North Sea in 2018 (update to Marine Strategy part 1).

The Cabinet regards the areas Central Oyster Grounds and Frisian Front as search areas for implementing spatial

[46] Dutch House of Representatives, 2012-2013 session, 32 670, no. 67.
[47] Dutch House of Representatives, 2014-2015 session, 33 450, no. 42.

planning measures to protect the seabed ecosystem within the framework of the MSFD.[48]

For the purposes of the Natura 2000 area Voordelta, the management plan came into effect in 2008. This management plan formulates measures for fulfilment of the conservation objectives and regulates what activities can or cannot be engaged in, or can be engaged under certain conditions. The seabed protection measures in this area have been linked to the compensation task for the construction of the extension of the port of Rotterdam (Maasvlakte 2). In 2014 the management plan was evaluated and the new plan was made available for public consultation.

The Vlakte van de Raan, in front of the Western Schelde estuary, were designated as a Natura 2000 area in March 2011, subsequently being changed in 2012 (porpoise conservation objective). In this regard, it is particularly about protecting permanently submerged sandbanks, marine mammals (porpoises, grey seal and common seal) and migratory fish (twaite shad, river lamprey and sea lamprey). The management plan is expected to be established late 2015 / early 2016.

The North Sea Coastal Zone, a Birds and Habitats Directives area, received the designation in 2009, with the decision being subsequently revised in 2011 (change to boundaries and conservation objective habitat type permanently submerged sandbanks) and 2012 (change to conservation objective grey seal and porpoise). The draft management plan has been made available for public consultation in 2015.

In the Vlakte van de Raan and the North Sea Coastal Zone the measures stem from the Fishing in Protected Areas agreement (VIBEG) signed by the fisheries sector, nature conservation organisations and Central Government. This agreement is fleshed out in legal terms in an amendment to the Fishing Implementation Regulations (Vlakte van de Raan) and an Access Restriction Decree (North Sea Coastal Zone). One important agreement in the Fishing in Protected Areas agreement (VIBEG) is that fishing with tickler chains in both areas is ended if the European ban on pulse fishing is lifted.

The vision North Sea 2050 Spatial Agenda[49] and the Natural Capital Agenda (Uitvoeringsagenda Natuurlijk Kapitaal)[50] identify opportunities to build with nature. Restoring natural hard substrate or creating artificial hard substrate may enable degraded ecosystems to recover and the return of lost biodiversity in the North Sea, and bring about a better breeding ground function for all kinds of marine organism. Research into building with nature has been included as an action for the 2016-2021 planning period (see section 7.2).

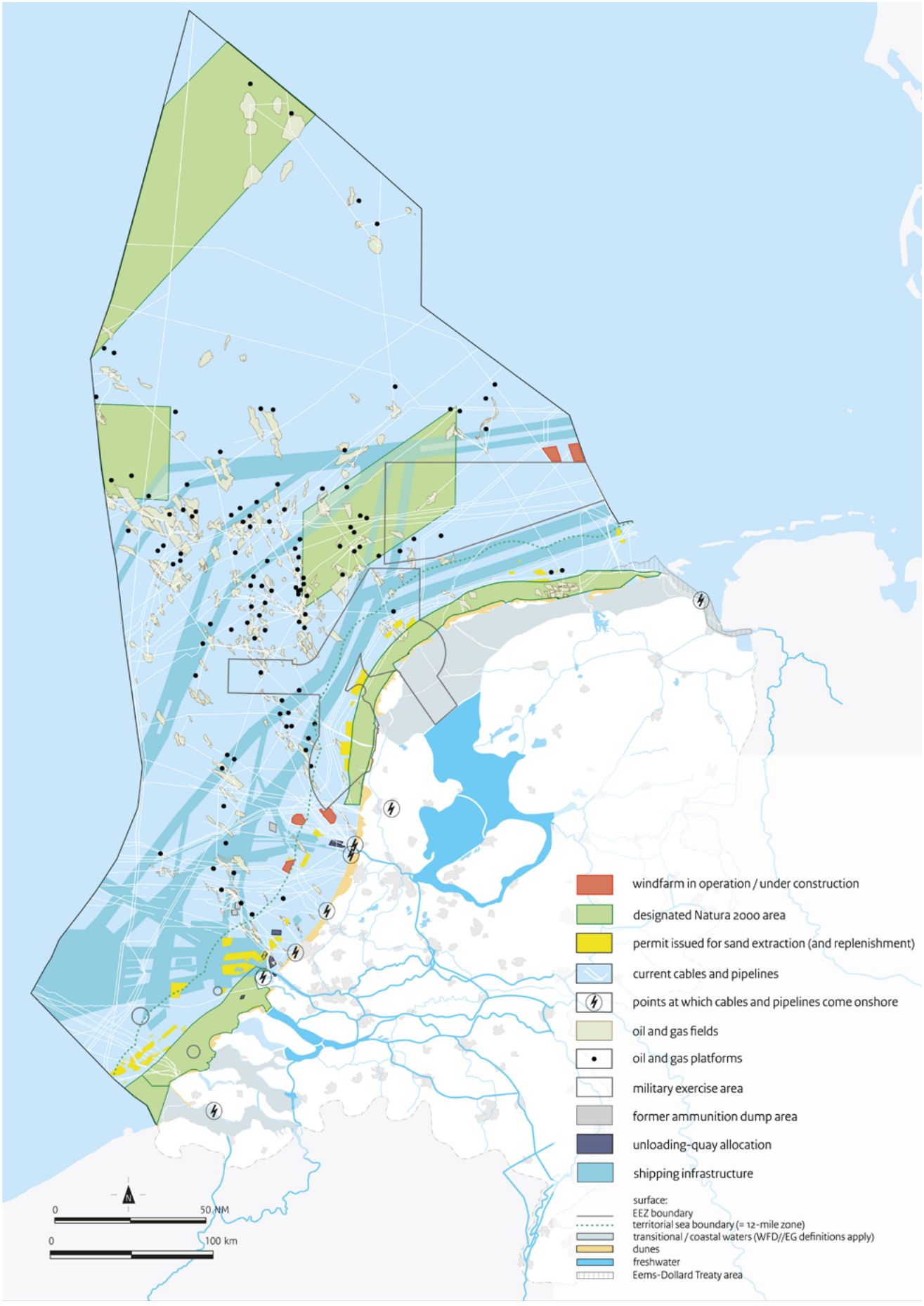
Species protection

In addition to the general environmental policy (such as policy in terms of water quality), the policy for the North Sea's protected species is primarily being fulfilled within the framework of Natura 2000 and by enforcing the Flora and Fauna Act. The latter prohibits activities with possible effects (killing, catching, disturbing) on protected native species of plants and animals (including certain marine mammals, species of birds and non-commercial species of fish) or activities that damage, destroy or disturb breeding grounds, resting sites or sites inhabited by these species. For these activities, exemption can be obtained with a duty of care for those engaged in initiatives at sea.

The Cabinet adopted a specific porpoise protection plan was adopted by in December 2011.[51] The aim of the plan is to contribute to the favourable conservation objectives for the porpoise. The implementation of this plan sees the Netherlands fulfilling various international obligations under the Habitats Directive, Common Fisheries Policy Regulation 812/2004 and the Agreement for the Conservation of Small Cetaceans in the Baltic and North Sea (ASCOBANS). Research is being carried out into the consequences of by-catch and underwater noise on the porpoise population. This has been included as an action for the 2016-2021 planning period (see section 7.2). Based on this, the need for additional measures will be looked into. Concrete actions include: setting up a national scientific commission to supervise implementation of the prioritised knowledge agenda; monitoring (or intensifying monitoring) the population, ascertaining the size and growth or decline data; carrying out a scientific by-catch observation programme; research into the controlled use of pingers; amending the relevant European fishing regulations, making them applicable to the Dutch situation.

[48] Dutch House of Representatives, 2012-2013 session, 33 450, no. 1
[49] Dutch House of Representatives, 2013-2014 session, 33 450, no. 24.
[50] Dutch House of Representatives, 2012-2013 session, 26 407, no. 85.
[51] Dutch House of Representatives, 2011-2012 session, 29 675, no. 138.

Figure 3.1 **Current space utilisation North Sea**



Implementation of the Marine Strategy Framework Directive

The Cabinet has devised a broad programme of measures geared to achieving and maintaining a good environmental status in the North Sea. In 2012 in the Marine Strategy Part 1, the Cabinet described the good environmental status in the following terms: "The North Sea is clean, healthy and productive, the ecosystem is functioning optimally and is resilient, and use of the North Sea is sustainable". Consequently, the North Sea offers prospects for both ecology and sustainable use through (economic) designated uses. In addition, the marine strategy constitutes an integrating framework for existing and new policy within a variety of policy areas, which contributes to achieving or maintaining the good environmental status. The emphasis is on cooperation with neighbouring countries, society and the business community. The marine strategy fleshes out the important starting points for the marine ecosystem, focusing on rendering use sustainable, an area-oriented approach to the most important sources, species policy and creation of opportunities for active ecological recovery. In this respect, adaptive management based on monitoring plays a significant role.

In the marine strategy, the Cabinet has opted for a pragmatic approach to achieve and/or maintain the good environmental status. The emphasis is on "doing what is necessary" to restore the marine ecosystem and "making the most of opportunities" to ensure that sustainable economic growth and a healthy ecosystem go hand in hand. The Cabinet wishes to encourage leaders in business and society to engage in sustainable development, such as in the case of the *green deals* for reducing litter. This emphasis fits in with the ambition of the North Sea 2050 Spatial Agenda and the topics included in it. This approach also contributes to the European sustainable 'Blue Growth' policy for Europe's seas.

Using existing and new policy, it will be possible to achieve the good environmental status in many respects, such as reducing pollution and eutrophication, protecting biodiversity and seabed ecosystems, developing healthy fish stocks, excluding invasive exotic species, reducing litter, and mitigating and compensating for hydrographic interventions. This underlines the importance of the policy being implemented in terms of these elements.

Due to the dynamic nature of the North Sea, the manifold elements that collectively determine its environmental status and the diversity of activities affecting this status, it is, despite a great deal of effort, impossible to say what condition the Dutch part of the North Sea will be in by 2020. This is also due to the fact that it is impossible to predict the extent to which measures will result in the recovery of the adversely affected ecosystem and how swiftly it will do so. Another factor that must be taken into consideration is the lag effect of a number of substances that have accumulated in the North Sea as a result of past activities. Moreover, there is a great deal of uncertainty about such things as microplastics and underwater noise, which will require more detailed research.

The Netherlands will not be able to solve all of the problems in its part of the North Sea by itself. International efforts are required. The MSFD obliges member states to adopt a regional approach. Consequently, the importance of cooperation in OSPAR will increase. The Netherlands will support initiatives for international cooperation and actively participate in these within OSPAR, EU and other relevant international frameworks.

The MSFD Monitoring Programme (Marine Strategy Part 2) contains a comprehensive package of monitoring activities focused on the condition of the North Sea environment and on the efficacy of measures. The monitoring programme is adjusted annually. The monitoring data amassed will be used to carry out evaluations of the marine strategy and the development towards a good environmental status. The first evaluation is expected for 2018, when the initial assessment of the marine environment will be updated. In part, this assessment will be drawn up in conjunction with the other North Sea countries based on common indicators developed in connection with OSPAR.

This approach of directing efforts towards reducing the most significant sources of adverse effects on the North Sea environment in combination with a monitoring programme presents the possibility to reconsider a measure or timely intervention if the environmental status were to develop too slowly or in the wrong direction (the 'hand on the tap' principle). The second MSFD cycle, from 2018 onwards, presents a framework for examining this in greater detail.

The second implementation cycle of the MSFD will commence during the planning period for the National Water Plan (NWP) 2016-2021. In 2018, Marine Strategy part 1 will be reviewed, including a progress report on the programme of measures. Marine Strategy part 2 will be reviewed in 2020.

3.3 Renewable energy

Current use and developments

At present, there are three operational wind farms in the Dutch part of the North Sea: the Offshore Windpark Egmond aan Zee (OWEZ), 6 nautical miles (NM) off the coast of Egmond aan Zee with a capacity of 108 MW, the Prinses Amalia wind farm, 12 NM off the coast of IJmuiden with 120 MW and the Luchterduinen wind farm in the Coast of Holland area (12 NM out) with 129 MW. The Gemini Offshore Windpark (34 NM out) with 600 MW in the area to the north of the Wadden Islands is under construction.

Vision and tasking

Energy is a prerequisite for a functional society. In order to be able to meet energy needs in the long term as well, the production of renewable energy will have to be increased. Within the European context, the Netherlands has accepted a target of 14% of energy consumption from renewable sources by 2020.

The target for wind energy generated at sea has been agreed in the Energy Agreement for renewable energy (September 2013)[52]. 4,450 megawatts (MW) of wind energy must be being generated at sea by 2023. This is 3,500 MW extra over and above the existing wind farms and wind farms under construction. Consequently, wind energy generated at sea will be going a long way towards achieving the Cabinet's target of 16% renewable energy by 2023. Significant policy efforts and substantial investments are required to achieve all this.

The North Sea presents opportunities for large-scale generation of wind energy, but also for such things as extraction of aquatic biomass and the generation of tidal and wave energy. In the longer term, opportunities are seen for further growth of energy generation in the North Sea and an international approach entailing energy sources in the North Sea being connected to a *North Sea grid*. What further growth is required in terms of renewable energy after 2023 will depend on many factors, such as:

- the extent to which renewable energy is competitive with energy derived from fossil fuels;
- the development of renewable energy: wind, biomass, solar, geothermal, tidal and wave;
- the development of CO_2 storage;
- the effects of the ETS (*Emissions* Trading *Scheme*);
- the EU's renewable energy policy for the period after 2020.[53]

Policy

Generating renewable energy (from the wind or otherwise) is an activity of national interest.

Wind energy at sea

Within the National Water Plan 2009-2015 the Cabinet has chosen to take charge of planning the development of wind energy at sea. Areas have been designated where the construction of wind farms will be allowed. Outside of designated areas the central government does not grant permission for wind farms. Within designated wind energy areas the central government only grants permission for wind farms to be built within the bounds of the regulations for wind farms.

[52] Dutch House of Representatives, 2012-2013 session, 30 196, no. 202 (appendix).

[53] European Parliament, Renewable Energy, information page (website). In response to the publication of a green paper in March 2013 entitled 'A 2030 framework for climate and energy policies' (COM(2013)0169), the European Commission proposed in its communication of 22 January 2014 entitled 'A policy framework for climate and energy in the period from 2020 to 2030' (COM(2014)0015) to not extend the national binding targets for renewable energy after 2020. Only at EU level will a mandatory target of 27% be set for the share of energy consumption derived from renewable energy. The Commission anticipates that national binding greenhouse gas emission targets will foster growth in the energy sector. The change of course has resulted in discussions with the Council and Parliament.

In the National Water Plan 2009-2015 – and the partial revision thereof – the areas of Borssele, IJmuiden Ver, Coast of Holland and North of the Wadden Islands were designated. This designation is being continued in the National Water Plan 2016-2021. The areas are outside of the 12-mile zone. Within the designated areas there are still issues regarding harmonisation with other designated uses and the marine ecosystem. These have the potential to reduce the available space for wind energy generation at sea (see section 4.3).

At the end of September 2014, in a letter to the Dutch Senate and Dutch House of Representatives[54], the Cabinet indicated how it intended to achieve the target under the Energy Agreement of 3,500 MW of additional installed offshore wind power capacity. One of the conclusions drawn by the Cabinet is that cost-effective fulfilment of this target will require a strip between 10 and 12 nautical miles off the coast of Noord-Holland and Zuid-Holland. This strip will be contiguous with the designated areas, but has not yet been designated. For the purposes of designating it, a process to amend this National Water Plan 2016 - 2021 will follow (see section 4.3).

Other forms of renewable energy

The North Sea 2050 Spatial Agenda identifies opportunities for the longer term to integrate alternative forms of renewable energy into wind farms. This will create potential for the energy output to be increased, achieve multifunctional use of space and give rise to opportunities for energy cost reduction. In order to safeguard the development of renewable energy in the longer term, a variety of actions are already being undertaken.

There are initiatives in place for both wave/tidal energy and (deep) geothermal energy, which entail knowledge of these technologies being developed and pilot projects being carried out. To identify the potential of these and other technologies, research is being commissioned by the government during the planning period of the Policy Document on the North Sea. This research has been included as an action for the 2016-2021 planning period (see section 7.2).

To clarify the effects of combined energy farms, research will be carried out. This research has been included as an action for the 2016-2021 planning period (see section 7.2).

The development of energy in the North Sea is closely related to developments in the field of oil and gas extraction, energy storage and transport and CO2 storage (see sections 3.5, 3.6 and 3.7). In order to organise the transition to renewable energy while capitalising on the potential of new technologies, a North Sea Energy Master Plan 2030-2050 will be developed. This Master Plan has been included as an action for the 2016-2021 planning period (see section 7.2).

54 Dutch House of Representatives, 2014-2015 session, 33 561, no. 11.

3.4 Extraction of surface minerals

Current use and developments

Sand and shells are the surface minerals being extracted from the North Sea.

Sand is extracted from the North Sea in shallow waters (<2 metres) and deep waters (>2 metres) in the form of replenishment sand, fill sand, concrete and masonry sand. Replenishment sand is used for coastal reinforcement, with sand replenishment for the purposes of coastal safety. Fill sand and concrete and masonry sand are used for construction and infrastructure. In addition, fill sand is used to combat flood risks (for example, dyke improvement or elevating industrial estates lying outside dykes).

Among the countries bordering the North Sea, the Netherlands extracts the most sand from the sea. It regularly happens that in excess of 25 million m^3 [55] per annum is extracted, half of which is replenishment sand and half of which is fill sand. This equates to an area of roughly 60 to 90 km^2 every five years. Furthermore, occasional large-scale sand extraction is carried out for projects such as Weak Links (Zwakke Schakels) and the construction of Maasvlakte 2. The construction of the first phase of Maasvlakte 2 has resulted in extremely large-scale sand extraction from the sea (roughly 213 million m^3).

At present, all the replenishment sand and roughly one third of the fill sand for construction and infrastructure is being extracted from the North Sea. In terms of the fill sand, the greatest proportion is used in the western part of the Netherlands, given that it is here (in the urban areas) that there is practically no room for sand extraction and the sand is primarily to be found under layers of clay and peat.

Sand has regularly been extracted in recent years at a depth of more than two metres, for such things as the Sand Motor and the construction of Maasvlakte 2 (in this case extraction efforts went as deep as 20 m). Greater depth is preferred for extraction as long as the risk of delayed recolonisation of seabed creatures and oxygen depletion is kept to a minimum and the gradient of the pit remains limited. In the case of excavation penetrating down to two metres, the recovery period for life on the seabed is from four to six years. In the case of excavation penetrating down to six to eight metres, the recovery time is probably similar given that such 'excavations' also occur on the seabed as a natural phenomenon. This is still the subject of more detailed study.[56]

Potential extraction areas for concrete and masonry sand are located in a zone to the west of the Zuid-Holland islands and Zeeland. Because this sand is located some metres below the seabed, large quantities of sand have to be removed from the cover layer, which can serve as replenishment or fill sand. A proportion of the concrete and masonry sand is already to be found at the surface as a result of the extraction work for Maasvlakte 2.

The sea-level rise anticipated due to climate change will have consequences for the required quantities of replenishment sand and fill sand. The Cabinet is investigating how much sand will be needed to maintain equilibrium between the sandy system and the sea-level rise. This study will also clarify when and where the sand must be deposited.[57] If efforts are made to widen dykes and terps (artificial dwelling mounts) on land, these will be accompanied by a sharp increase in demand for fill sand. In the case of areas off the coasts of Katwijk, Egmond, Texel and Vlieland/Terschelling, the capacity to guarantee sufficient sand at reasonable costs for the next 50 years is already under pressure. There is no shortage of sand in the other areas, but efforts should be made to prevent depletion of the most cost-effective proportion of the sand reserves.

It is anticipated that the requisite quantity of replenishment sand will remain broadly the same for the coming period (to 2021): 12 million m^3 per annum. Partly due to the economic crisis, the need for fill sand remains around

[55] National Committee on the Coordination of Extraction Policy.

[56] Rijkswaterstaat, Evaluation of MEP Maasvlakte 2 Construction 2013, 2014.

[57] Delta Programme 2015. Working on the Delta. Dutch House of Representatives, 2014-2015 session, 34 000 J, no. 4.

13 million m³ per annum. For the second phase of Maasvlakte 2, roughly 80 million m³ of sand will be required.[58] If the sand extraction activities in the Western Schelde are ceased, these may be replaced by sand extraction in the North Sea. This involves 0.5 to 1 million m³ of sand per annum.

Shells can be found in ever-growing layers on the seabed. They are extracted by specialist firms and used for various purposes, such as drainage systems, insulation and path surfacing.

Vision and tasking

The availability of sufficient quantities of affordable sand for coastal safety, construction activities and infrastructure must be safeguarded, for the long term as well. In the light of climate change, a new strategy for sand extraction is required, with options for spatial management.

The extraction must be done in a socially acceptable way. The starting point of policy on raw materials for the construction industry is economical and high-quality use. This entails not permitting the use of high-grade coarse sand and gravel for filling purposes.

Relative to the overall scale of the Dutch part of the North Sea, the spatial requirement for sand extraction is not particularly sizeable, but cost-effective sand extraction does mean that demand for space predominantly affects the busy southern part of the North Sea. This is where the highest volume of shipping, oil and gas extraction, recreation and fishing takes place. The spatial pressure in this area will increase due to the construction of wind farms at sea and the laying of electric cables through the areas with the most cost-effective sand reserves and where sand extraction has the highest priority.

Policy

Sand extraction for the purposes of coastal defences and filling is an activity of national interest. In order to cope with the challenges in the short and long term, the policy focuses on safeguarding adequate sand reserves at sea for replenishment and filling purposes at acceptable, reasonable costs.

A sand extraction strategy with increased spatial management is required in order to achieve the policy target. A start was made on the sand extraction strategy in the Integrated Management Plan for the North Sea. This has now been further expanded on the basis of the experiences in the previous planning period and an inventory detailing the location of suitable quantities of sand in the reserve area. The consequences that other designated uses transecting this area (such as cables and pipelines) have for the available sand reserves can now be much better charted. The sand extraction strategy is described in section 4.4.

Apart from sand, smaller quantities of shells are extracted. Policy dictates that shells can be extracted seaward of the NAP –5m isobath in quantities that are commensurate with natural accretion.

[58] The 1st phase is now complete, and the 2nd phase depends on economic development until 2033.

3.5 Oil and gas extraction

Current use and developments

Around 30% of the gas extracted in the Netherlands is derived from marine sources. For oil, this exceeds 85%. There are 161 production units at sea, 93% of which are for gas extraction and 7% for oil extraction. For the purposes of conveying oil and gas, these production units are connected to a network of pipelines which run to a couple of landing points on the Dutch coast.

In the Energy Report 2011[59] the Cabinet assumes a considerable rise in global demand for energy over the next few decades. Fossil fuels continue to be an important energy source.
It is anticipated that around two to four new extraction sites will be put into development on the North Sea each year for the next decade.
The rate at which existing extractions are phased out will depend on such factors such as oil and gas prices and the development and application of new methods and technologies for detection and extraction. A gradual decline in extraction is expected in the future.[60]
Installations for oil and gas extraction that are no longer in use must be removed. This is not expected to be very relevant in this planning period. It is anticipated small fields will produce gas into the 2040s, albeit to a lesser extent (25% of current production level).

In recent decades, gas and oilfield operators have implemented measures to reduce adverse effects on the environment. At present, discharges that are the product of oil and gas projects have minimal adverse effects on the natural values of the North Sea. It is possible that some negative effects could be caused by seismic research (underwater noise) and by platform lighting (disorientation of migratory birds). With regard to underwater noise during seismic research, the mining industry is taking measures (such as increasing the sound level gradually). If the results of national or international research give rise to change , the prescribed measures can be revised. With regard to rig lighting, adequate mitigating measures are being sought within the applicable safety requirements. In 2015, within OSPAR, voluntary guidelines were formulated in close cooperation with the oil and gas industry to combat the effects of offshore lighting on birds. The Dutch oil and gas industry is playing an active role in this and has indicated that it will apply the guidelines in the North Sea.

Vision and tasking

In the future, too, as much oil and gas as possible will be extracted from the available fields at sea.

Fossil fuels, however, are becoming depleted. Sometime between 2040 and 2100 the last gas and oilfields on land and at sea (both the Groningen gas field and the so-called 'small fields') will also be exhausted. Furthermore, wind energy generation is on the rise, and other forms of renewable energy are becoming available. Not surprisingly, then, in terms of spatial use considerations, there is a need for an energy programme for the longer term.
In the period after 2020, the large gas fields becoming vacant could be make available for CO_2 storage (see section 3.6).

Policy

Oil and gas extraction, including the requisite pipelines, are regarded as activities of national interest (see section 3.7). The policy is geared towards making the most of the potential of the oil and gas reserves available, even at sea. Oil and gas reserves can be situated under the entire EEZ and territorial waters.
Use is regulated primarily by means of permit issuance within the framework of the Mining Act (Mijnbouwwet). Platforms no longer in use must be removed.

[59] Ministry of Economic Affairs, Agriculture & Innovation, Energy Report 2011. Dutch House of Representatives, 2010-2011 session, 31 510, no. 45.
[60] See also Ministry of Economic Affairs, Minerals and Geothermal Energy in the Netherlands, annual report 2013.

Shipping is not permitted around existing oil and gas platforms, with a minimum safety zone of 500 metres (Mining Act). Where platforms with a helipad are concerned, the starting point is an obstacle-free zone of five nautical miles to guarantee access to these platforms. In specific situations customisation may prove possible, as a result of which wind turbines could also be permitted partly in this area (see the design process in section 4.3). When contemplating sites for new wind farms, consideration must be given not only to existing platforms but also to the prospects (potentially extractable oil or gas reserves) and the possible necessity of improving access by means of a production platform with a helipad.

3.6 CO_2 storage

Current use and developments

The Cabinet's Climate Agenda[61] describes the policy for combating climate change. The aim is to achieve a CO_2-reduction of 80-95% in 2050. Capturing CO_2 at the source and transporting it to storage locations deep underground, a technique aptly called Carbon Capture and Storage (CCS), can achieve this.

The Netherlands' CO_2 storage capacity in gas fields (current and former) is estimated to be 2,700 to 3,200 megatonnes (Mt) (not counting the Groningen gas field). In this regard, some 1,500 to 2,000 Mt are under land and around 1,200 Mt under the sea. The storage capacity of the Groningen gas field is estimated to be around 9,000 Mt, but will probably not become available until after 2050. Furthermore, there is still uncertainty as to what proportion of this capacity will be available for CO_2 storage. The potential for aquifers is much less clear, and at present it is estimated at 700 to 1,500 Mt both on land and at sea. Further research may result in a different estimate of this potential.

In order to facilitate CO_2 capture and storage, part of the pipeline infrastructure will have to be renewed. Existing oil and gas pipelines can only be used once the fields in question have been completely exhausted. At present, the Mining Act mandates the decommissioning of depleted fields (removal of platforms not in use). In a CCS vision under development, the Central Government is assessing whether policy changes would be desirable in this respect.

For the 2009-2015 period an objective had been set to carry out large-scale demonstration projects for CO_2 capture, transport and storage on Dutch territory, both onshore and offshore. The ROAD pilot project (Rotterdam Storage and Capture Demonstration Project) was launched in 2009. The preparatory studies are complete and the permit for storage was issued in July 2013. The project has experienced delays due to the business case no longer being sound as a result of the low CO_2 price within the European Emission Trading Scheme (ETS). In connection with the allocated EU subsidy, the European Commission has given the ROAD project until the end of 2014 to make a definitive investment decision.

Vision and tasking

In the long run, the ambition is to arrive at a situation in which all energy is produced sustainably. The capture, use and storage of CO2 is a temporary solution during the transition to this situation. The Central Government is currently working on a long-term vision with regard to Carbon Capture and Storage.

Policy

CO_2 storage as a temporary solution on the path to a fully renewable energy supply is an activity of national interest. Having sufficient space for CO_2 storage in vacant gas and oilfields or in aquifers and for the accompanying pipelines is a prerequisite. This could potentially be done throughout the EEZ and territorial waters.

[61] Dutch House of Representatives, 2013-2014 session, 32 813, no. 70 (appendix). Climate Agenda.

3.7 Cables and pipelines

Current use and developments

The first cables on the seabed were transatlantic telecommunications cables between Europe and North America. These were laid from the 19th century onwards. Since that time the number of telecommunications cables has grown steadily, though it has now stabilised. The outdated copper cables have been abandoned and partly removed. The current, active cables are fibreglass cables. The capacity of these cables is still sufficient for the planning period, though there are initiatives in place for the laying of more cables.

At present, the Netherlands has two international marine electricity connections (interconnectors), namely the cable between the Netherlands and Norway (NorNedkabel) and the cable between the Netherlands and Great Britain (BritNedkabel). With the opening up of the European electricity market, demand for interconnectors is on the rise, as is demand for connecting offshore (wind) energy farms with one another by means of a North Sea grid. At present, around 3,300 km of cabling (for communication and electricity) is in use.

Building offshore wind farms creates an additional need for electricity cables between the wind farms and the Dutch coast. The Cabinet has commissioned TenneT to prepare interconnectors / 'plugs at sea' for the purposes of large-scale offshore wind turbine sites. Possible connection points are Borssele, Maasvlakte, Wateringen, Vijfhuizen (from 2018), Beverwijk and Eemshaven. For more details see section 4.3.

Since the introduction of oil and gas extraction, an extensive network of pipelines has developed in the North Sea. Gas pipelines (around 4,500 km) come ashore at Velsen, Maasvlakte, Callantsoog and Uithuizen. Oil pipelines come ashore at Hook of Holland and IJmuiden. As a result of the government's small field policy, the pipeline infrastructure is being further extended. In view of the prospects for oil and gas extraction in the North Sea, the number of pipelines may be expected to stabilise after 2020. If CO_2 storage takes place at sea, then extra pipelines will be installed for that purpose.

Under the water permit, there is a removal obligation for decommissioned cables and pipelines. A removal obligation for telecommunications cables within territorial waters applies under Section 5.2.8 of the Telecommunications Act (Telecommunicatiewet). The Mining Act stipulates that the Minister is entitled to issue an order for removal. Removal is desirable as old cables and pipelines can impede other uses of the seabed, such as sand extraction or installation of wind turbines.

Based on the assessment of the social costs and benefits, the environmental effects and safety aspects of leaving cables or pipelines in place versus removing them, pipelines are often left in place, whereas more recently decommissioned telecommunications cables are usually removed in practice. At present, there are around 268 km of abandoned pipelines and in excess of 3,000 km of abandoned cables on the North Sea bed.

Decommissioned pipelines that are not removed have to be cleaned by the owner and annually inspected (monitoring obligation).

Vision and tasking

The existing infrastructure will efficiently meet expected demand for communication connections and transport of gas, oil and electricity.
In conjunction with the surrounding countries, further work will be done on creating an international network (grid) of sustainable (wind) energy in the North Sea for the long term. The plan includes a high-voltage cable between the Netherlands and Denmark (COBRA cable) At some point, there may be a second BritNet cable. It is also known that Belgium would like a connection with Norway, part of which will run over the Dutch continental shelf. Germany has designated specific locations in their part of the North Sea as proposed sites for grid connections at sea.

In light of burgeoning demand for (electricity) cables, the task is to continue making efficient use of space by means of bundling (partly in response to increasing demand for sand extraction) and a more detailed removal obligation.

Policy

Space for (wind) energy, oil and gas extraction and CO_2 storage, including requisite cables and pipelines, is of national interest.

To promote efficient use of space in the North Sea, electricity cables, telecommunications cables and pipelines will be bundled to the fullest extent possible. As far as possible, decommissioned cables and pipelines will be removed, unless the benefits to society outweigh the costs to society. 'Plugs at sea' will have to ensure that the growing quantity of energy generated by wind farms is efficiently connected to the grid on land.

The Third National Structure Plan for Electricity Supply, Key Planning Decision Part 1 (SEV III, 2008) constitutes the spatial planning assessment framework for planning electricity works on land. It reserves space for large-scale production and transport of electricity. The grid for wind energy projects at sea and the interconnectors should connect with the routes established on land in the SEV. The Pipeline Structure Plan (Structuurschema Buisleidingen) establishes future routes for pipelines on land, which those coming in from the sea will connect to.

In conjunction with the surrounding countries, further research will be carried out into an international network of renewable (wind) energy in the North Sea, connected by means of high-voltage cables. This research has been included as an action for the 2016-2021 planning period (see section 7.2).

Bundling

To ensure efficient use of space, efforts are being made to bundle cables and pipelines in consultation with the initiator, to downsize maintenance zones wherever possible and to remove decommissioned cables and pipelines. This is particularly important for sand extraction, where cables and pipelines can pass through the relatively inexpensive sand reserves along the coast.

During the planning process for the laying of new cables and pipelines, efforts are made in consultation with the initiator to have routes run in parallel. In order to facilitate passing through the sand extraction zone, preferred routes need to be determined, based on the availability of extractable sand (i.e. routes through areas where extractable sand has been depleted or where sand extraction is less attractive) and possible landing points for cables and pipelines. The sand extraction strategy (section 4.4) sets out in more detail how to deal with this. The assessment framework has been elaborated and sharpened in order to implement the bundling policy (see section 5).

For initiatives that take up a considerable area, the Central Government can prescribe a spatial reservation for future cables and pipelines. TenneT has been asked to develop a plan to bundle offshore wind farm connections by means of standardised platforms instead of having a connection for each wind farm (see also section 4.3). Existing cables and pipelines will not be bundled due to the high costs associated with moving them.

Maintenance zone

There is a maintenance zone of 500 metres around cables and pipelines in the North Sea, and sand may not be extracted within this zone.
Research has shown that in principle, when building wind farms, a 500-metre zone should be adhered to for pipelines and electricity cables and a 750-metre zone for telecommunications cables.
With a view to efficient use of space, maintenance zones for cables and pipelines can be reduced where possible.

Removal obligation

In principle, old cables that are no longer in use must be removed. A removal obligation also holds for new pipelines for which permits have been granted (under the Mining Act). In both cases, exemption from this obligation can be granted where the benefits to society outweigh the costs to society. The checklist for abandoned cables or pipelines applies to assess this. This has been extended to include the possible financial consequences for other functions (see assessment 2 of the integrated assessment framework in section 5). This checklist will also be used for pipelines for which permits have already been issued under the Mining Act.

As with the wind farms themselves, cables for transporting electricity from wind farms are also subject to this removal obligation, i.e. without applying the aforementioned checklist. This removal obligation also applies to new control and telecommunications cables.

In the case of pipelines that can be left in place, the options of whether the pipelines can be left in place

without further monitoring, whether the monitoring obligation can be taken over by the government or the pipelines will still have to be removed will be explored. This research has been included as an action for the 2016-2021 planning period (see section 7.2).

3.8 Shipping

Current use and developments

The North Sea is one of the most intensively used seas in the world. In addition to commercial vessels, deep-sea towage and hydraulic engineering projects, the North Sea also accommodates fishing vessels and recreational sailing. Vessels with different degrees of manoeuvrability, sizes and speeds come together in a small area.[62] Traffic on the North Sea will get busier and more diverse in the future. Maritime traffic policy will change as a result of increased intensity of coastal shipping, including coastal shipping traffic to and from Great Britain, and the movement of vessels to and from offshore activities such as construction and maintenance of wind farms. The economic value of shipping for the Netherlands is high. In addition to the direct and indirect economic significance of shipping itself, this value also derives from the significance of Dutch ports, of which Rotterdam is one of the largest in the world (on the subject of ports, see also section 3.13 on the interaction between land and sea).

Shipping routes

With a view to maritime traffic safety, accessibility of ports and increasing space for offshore wind energy, the system of shipping routes off the Dutch coast was adapted in August 2013. The current capacity of maritime traffic systems is sufficient to accommodate expected growth in terms of cargo flows until 2021.

Maritime traffic measures in the Dutch part of the North Sea

In the Dutch part of the North Sea, routing measures and other measures apply (such as *clearways* and anchorage) for the purposes of regulating maritime traffic:

- The traffic separation scheme (TSS) and accompanying 'precautionary areas' and *inshore traffic zones* have been established by the International Maritime Organisation (IMO) of the United Nations. The objective of these systems is to regulate traffic so as to prevent vessels colliding.
- Precautionary areas are areas where vessels must take extra care, as multiple traffic separation schemes converge here.
- Tankers in the Dutch part of the North Sea are obliged to follow the deep-water routes designated by the IMO. Furthermore, tankers are under an obligation to take the shortest way when approaching a port from a deep-water route and vice versa. The reason for setting mandatory routes for tankers is the status of the Wadden Sea as a *Particularly Sensitive Sea Area* (PSSA). In order to protect this PSSA, the deep-water route is located further out from the coast, ensuring that any oil discharged as a result of an accident can be combated before it reaches the protected area.
- *Clearways* are shipping zones between traffic separation schemes in which mining installations may not be built. Vessels are not obliged to use these areas. Recognising that these areas must remain free of obstacles, a clearway holds the status of *recognised sea lane essential for navigation* as referred to in the United Nations Convention on the Law of the Sea. The *clearways* have been established in the regulations accompanying the Mining Act.
- Anchorages are 'parking spaces' for ships.

[62] Policy letter on maritime shipping: 'Responsible navigation and a strong fleet'. Dutch House of Representatives, 2008-2009 session, 31 409, no. 2.

To ensure safe, guaranteed access to the various ports, the access channels are periodically dredged. The Meuse channel was widened during the previous planning period. The Planning Procedures Decree for widening the Eems channel is in preparation. If the quality of dredged material is sufficient, then this material can be distributed in the marine system. Six unloading sites have been allocated for the purposes of distributing clean dredgings derived from ports and channels. As far as possible, so-called 'lowered unloading' facilities are used, created after deepening caused by sand extraction. In an evaluation, expansion of the current location off the coast of the Hook of Holland on the north-easterly side has been proposed, due to the economic benefits and non-negative environmental developments in the area. That way, the combination of sand extraction and dredged material storage can be continued at one and the same location until 2030. If the dredged material is not of sufficient quality, it should be stored in depots on land to prevent the spreading of contamination.

Vision and tasking

Shipping on the North Sea will remain safe in the future and be sustainable.

The challenge is to make this vision a reality whilst faced with an increasing volume and diversity of shipping.

Policy

Shipping is an activity of national interest.
The policy for shipping is geared towards enhancing competitiveness, improving accessibility and safe-guarding safe, environmentally friendly shipping. In terms of spatial planning, the focus is on guaranteeing good sea access and shipping routes. The system of routing measures, *clearways* and anchorages that can accommodate vessels in a way that ensures safety and fluency will be maintained.

The changes in terms of the maritime traffic situation (as described in 3.8) and the possible consequences of this for the economy, safety and the environment will have to be studied. In order to explore the longer-term tasks, the potential consequences of increased use of the route through the Arctic Ocean will also be examined. This research has been included as an action for the 2016-2021 planning period (see section 7.2).

Mining installations or other individual permanent structures will not be permitted within the shipping routes or in a 500-metre zone surrounding these shipping routes. For the purposes of establishing a safe distance between shipping routes and offshore wind farms, a design criterion was developed in 2013. This design criterion is explained in section 4.3.

Within a global context, the Netherlands is striving towards common fundamental principles for spatial planning at sea regarding distances between wind farms and shipping routes. Consultation on this matter has been included as an action for the 2016-2021 planning period (see section 7.2).

As the North Sea's largest user group, maritime traffic requires particular attention when it comes to reducing water and air pollution. To protect the marine ecosystem, measures and initiatives will be implemented to reduce pollution caused by shipping (see section 4.2).

3.9 Defence

Current use and developments

A proportion of the North Sea is used for the purposes of military exercises. This pertains to various areas being used as shooting ranges, flying zones or exercise zones for the purposes of laying and detecting mines. The intensity of usage varies. For each area the predominant activity has been ascertained. Depending on the area, shooting may be engaged in by ships and/or aeroplanes. Furthermore, a few areas have been allocated where shooting from the land occurs. In this regard, it is partly about exercise zones but also about areas for testing military systems. Occasionally the areas can overlap.

The anticipated requirement in terms of space for these military areas is stable. No substantial changes are expected in the coming period.

All military areas have been designated as such. The precise delineation has been provided for by the mining regulations and by the aviation regulations. The boundaries have been communicated on aviation maps as well as in the Notices to Mariners and through the General Rules (Spatial Planning) Decree. They have also been broadly designated on the framework vision map.

Shortly after the Second World War, surplus stocks of ammunition were deposited in the sea at two sites specially designated for this. These former ammunition dump sites are indicated on sea charts as areas to be avoided and have been buoyed off. The ammunition dumpsites are not managed by the Ministry of Defence and no military activities are engaged in there. TNO has carried out extensive research into possible environmental effects of the ammunition dump sites. In this regard, no negative effects have been demonstrated.

Vision and tasking

Military exercise zones at sea are necessary to ensure the armed forces remain well trained and prepared.

The ongoing task is to reserve sufficient space for the various military activities and testing of various military systems in spite of the increasing use of space by other designated uses on the North Sea.

Policy

Defence is of national interest. In concrete terms, this means that there needs to be sufficient space in the North Sea for military training purposes. Within exercise zones, the fundamental principle is that collective use of these areas is permitted insofar as this is compatible with the military exercises being engaged in. Initially, the Minister for Defence will decide.

Most defence areas on and above the sea surface are unsafe when being used for shooting and flying activities. When not in use, these areas can be used for other activities. Due to the risk of damage and the possible restrictions it would impose on military use, the siting of drilling platforms or wind turbines is not permitted in military exercise zones.

3.10 Fishing, aquaculture and mariculture

Current use and developments

The Dutch marine fisheries sector encompassed some 600 vessels in 2012, with in excess of 1,900 crewmembers. In total, more than 28,000 people were working in the supply and processing industry. In 2012, the sector yielded around €425 million (0.1% of GDP, not including the processing industry). Despite forecasts predicting a fall of between 8% and 50%, the economic value of fishing on the Dutch continental shelf is estimated to have remained roughly the same during the 2005-2015 period. In addition to the economic value, the fishing industry has socio-cultural significance due to its traditional link to the identity of coastal towns in the Netherlands.

The space available for fishing in the North Sea is increasingly coming under pressure from such things as offshore wind farms and Natura 2000 measures. Furthermore, there is increasing social pressure on the sector to make its practices more nature-friendly/animal-friendly. Throughout the world, the marine ecosystem is becoming impoverished as a result of systematic overfishing due to a rise in the need for food/protein caused by world population growth.

The sector has an economic overcapacity and the Common Fisheries Policy restrict fishing opportunities. The method of fishing commonly used (bottom trawling or 'dragging') is energy-intensive. Several changes to the Common Fisheries Policy were implemented in 2013 to bolster progress on the path towards increasing sustainability and combating waste.
The exact significance of climate change for the fishing sector is still relatively unknown. Some species of fish may migrate north, thereby becoming less interesting in economic terms. New, economically interesting species may come to the region.

The aforementioned developments will have consequences for the fishing sector in the Netherlands. It is anticipated that the fleet will undergo further downsizing. At the same time, opportunities will arise for the sector to promote itself with responsible fishing practices by adopting eco labels to reassure consumers (*Marine Stewardship Council*, MSC).

Aquaculture (cultivation of fish, crustaceans and shellfish) and mariculture (cultivation of marine plants such as macro algae and seaweeds) are on the rise. In the Netherlands a number of developments are under way in terms of food sourced from the sea. Examples include cultivating seaweed in the North Sea and cultivating mussels in the Voordelta area with the aid of mussel seed capture installations (MZIs). Moreover, the government is looking into the extent to which collective use of wind farms will be among the options in the future. The North Sea 2050 Spatial Agenda[63] describes opportunities for 'keeping fish' in wind farms. It would appear that for the time being the offshore energy areas are unsuitable for the purposes of cultivating algae and seaweeds. Over the next few years, feasibility studies, experiments and pilot projects will be carried out to look at whether the aqua-culture and mariculture activities specified will be technically and economically viable as well. This research has been included as an action for the 2016-2021 planning period (see section 7.2).

Vision and tasking

The transition to sustainable forms of fishing and fish farming will be continued. The fishing sector is taking the initiative in this regard and the government is adopting a more facilitative, stimulatory role. Fishing remains a socio-economic staple for parts of the coastal region. Having sustainable (economic) development in equilibrium with the marine environment is key. To this end, it will be necessary to continue the dialogue.

The development of aquaculture and mariculture within the EU is primarily geared towards increasing production and sales, particularly by encouraging innovation and cooperation and improving the accessibility of the available knowledge.

In the face of increasing pressure on the part of consumers, social interest groups, the Dutch government and the EU, the task is to foster the sustainable economic development of the fishing industry.

[63] Dutch House of Representatives, 2013-2014 session, 33 450, no. 24.

Policy

Spatial planning policy

In principle the fishing industry has 'access to all areas'. Nonetheless, activities of national interest are given priority. Furthermore, preconditions are set by European nature legislation (Natura 2000). The Natura 2000 areas of Voordelta, the Vlakte van de Raan and the North Sea Coastal Zone are – partially or subject to conditions – closed to forms of fishing (see section 4.2). The sustainability drive already underway within the fishing sector will lead to considerably less disturbance of the seabed, amongst other things. The opportunities for marine aquaculture are also increasing. Merging of fishing activities with other uses seems increasingly more feasible.

Sustainable fishing

The Common Fisheries Policy determines the marine fishing policy at European level. The most important objective of the Common Fisheries Policy is to maintain fish stocks so as to enable sustainable fishing practices. The Netherlands is also making efforts to ensure that, in the planning period for the European Maritime and Fisheries Fund (EMFF), measures are taken for making fishing and aquaculture more sustainable. National policy also ties in with the fulfilment of European objectives. The policy with regard to sustainable fishing in the light of the Marine Strategy Framework Directive is fleshed out in section 4.2.

3.11 Underwater Cultural Heritage

Current situation and developments

The North Sea contains valuable archaeological heritage. Countless ships have sunk here over the centuries. What remains of the wrecks now litter the North Sea bed like genuine time capsules. Going back much further, ten thousand years ago, the North Sea was not yet a sea, and our distant ancestors lived in this area as hunter-gatherers. The material remains and relics of human activity in the North Sea constitute an important source of knowledge on our past. As long as these are on the seabed, they can be preserved for thousands of years or even longer.
However, increasing spatial planning developments at sea also heighten the risk of valuable archaeological sites or artefacts being inadvertently lost. In addition, deliberate plundering of wrecks for their precious cargo or, in the case of more recent wrecks due to their metal value, is on the rise. Detection and salvage technologies are becoming increasingly advanced, as a result of which wrecks, even those at greater depth, are becoming more and more accessible.

Vision and tasking

The North Sea has important sociocultural and historical significance for the Netherlands, and is a source of knowledge. The Vision on Cultural Heritage and Space[64] includes as an objective for the North Sea positioning cultural heritage properly in spatial developments in the North Sea.

The task is the conservation of sites or items of archaeological value. There is potential here for tensions to arise in relation to activities of national interest. By inventorying sites or items of archaeological value on time, it is usually possible to assimilate archaeological sites and thus combine them with other uses of space. If this is not possible, then the scientific value can be secured by excavating the sites of archaeological interest. The information gathered is set down in a basic report that can then be used by scientific institutions to conduct fundamental scientific research. This scientific research is outside the responsibility and charge of the party disturbing the seabed.

Policy

The government policy is based on the fundamental principles of the Valetta Convention (also known as the Malta Convention), which aims to protect archaeological heritage as a source of European common memory and as a resource for historical and scientific study. It aims, in particular, for the maximum retention of items of archaeological value in the seabed (in situ), a reporting obligation for archaeological finds, the consideration of archaeological interests in spatial planning and the guarantee that environmental impact statements and the ensuring decisions take sites of archaeological interest and their context into account. Finally, the basic premise is that the costs of the requisite archaeological study are borne by the party disturbing the seabed (the 'disturber pays' principle).

Spatial planning

To position the protection of cultural heritage in maritime spatial developments and to provide initiators beforehand with an idea of whether they will encounter archaeological values in their project, it is important to ensure that sufficient information on archaeological values is available. Information on wrecks is available from Geoweb, to which the wreck databases of Rijkswaterstaat, the Hydrographic Service and the Cultural Heritage Agency of the Netherlands are linked. In conjunction with Rijkswaterstaat, the Cultural Heritage Agency of the Netherlands has commissioned the production of a policy advice map for the North Sea's submerged archaeological landscapes. This map will comprise landscape zoning for the North Sea accompanied by (geo-archaeological) research guidelines for each zone

[64] The Cultural Heritage Agency of the Netherlands, the Ministry of Education, Culture and Science, and 'Kiezen voor karakter' ('Choosing Character', the mission of the Vision on Cultural Heritage and Space, 15 June 2011).

for the purposes of EIA procedures and permit issuance. The database with historic ship sites will also be updated by the Cultural Heritage Agency of the Netherlands. This has been included as an action for the 2016-2021 planning period (see section 7.2). Both products will promote better consideration of archaeological interests within spatial planning and the permit procedure.

Requirements in terms of excavations

Within territorial waters and the contiguous zone (the area beyond territorial waters out to 24 nautical miles), the excavation of archaeological heritage, which includes the wrecks cited above, requires an excavation permit under Sections 45 to 47a of the Monuments and Historic Buildings Act (Monumentenwet) 1988. Moreover, the Monuments and Historic Buildings Act 1988 stipulates that when carrying out work any objects found that may reasonably be assumed to be of cultural-historical interest to be reported to the Cultural Heritage Agency of the Netherlands.

In the case of wrecks of cultural-historical value, more detailed consideration is required before these are salvaged or removed. Such consideration should be guided by the fundamental principles of the annex to the UNESCO Convention on the Protection of the Underwater Cultural Heritage (2001). The aim of this convention is to combat the plundering of underwater archaeological heritage, particularly shipwrecks. In particular, as well as being a legislative instrument, it is the mechanism for international cooperation that the convention provides that is important. Furthermore, the Malta Convention and the UNESCO Convention oblige states that are party to the conventions to protect underwater cultural heritage and mitigate adverse effects within the scope of these conventions for economic activities falling under their jurisdiction. At present, the Cabinet is looking into steps to ensure ratification of the UNESCO Convention on the Protection of the Underwater Cultural Heritage.

Designating national heritage sites

The Minister for Education, Culture and Science is authorised to designate archaeological sites as protected national heritage sites. All activities that alter or disturb a protected national heritage site require a permit from the Minister of Education, Culture and Science. The Minister implements the policy of only designating national heritage sites if there is a prospect of preservation in the medium to long term. It is carried out on the basis of a designation programme, also referred to as a protection agenda. Criteria for designation are the beauty, scientific significance and cultural-historical value of such a site. The authority to designate national heritage sites extends to the boundary of territorial waters. To date, this authority has not been exercised in the North Sea. In the 2013 Archaeology Protection Agenda the Minister states her intention to designate the shipwreck Aanloop Molengat, a 17th-century wreck located some 3 nautical miles to the west of the island of Texel. This designation process is expected to be completed in 2016.

3.12 Tourism and recreation

Current use and developments

The perceived value of the sea and coast is considerable. From the coast, the sea appears to be a boundless expanse of water. Due to the influence of the elements, the swell of the sea, ebb and flow, the North Sea never looks the same. This landscape and the unique characteristics of the different coastal towns contribute to the sociocultural value of the North Sea and coast. This value finds expression in the number of recreational users of the sea and coast. The 250-km long sandy beach and the dune area behind it draw tourists from home and abroad. Marinas and bathing resorts have sprung up along the coast. For the Netherlands as a whole, tourism makes up 3% of the Netherlands' Gross Domestic Product and 5% of jobs. Around 25% of overnight stays in the sector are along the coast. A 2013 study commissioned by the European Commission estimates that the added value for the Netherlands of maritime and coastal tourism, including cruise ships, marinas and pleasure cruising, amounts to 3.7 billion euros.[65]

Recreational sailing on the North Sea has been on the rise for decades. This involves privately owned sailing boats and motorboats as well as charter vessels. Accessibility of marinas, space on the open water and safety are important to these people. The increase in demand for berths has given rise to a shortage of coastal marinas. At present, provinces are looking for new sites. The rise in recreational sailing is also evident from the fact that an increasing number of cruise ships are calling in at Dutch ports.

Even anglers (recreational fishing with rods) are increasingly active at sea. There are now 650,000 of them. 165 million euros are spent on angling each year. The anglers fish from the shore, from small boats and from chartered boats.

Sport divers dive down to shipwrecks.

A wide range of recreational activities takes place close to the shore. Nearly 2.6 million people take part in some form of sport at sea or at the seaside once or more frequently each year. In addition to sailing, there is also surfing, waterskiing and diving. Swimming, diving and snorkelling require good water quality and biodiversity.

The increasing use of space on the North Sea is impacting recreation at sea. Wind farms are pushing recreational sailors out into regular shipping lanes. When crossing military exercise zones, it is imperative to keep abreast of notices to skippers.

Recreational activities at sea and on the coast affect the marine ecosystem. They generate waste, littering the dunes, the beaches and the sea itself. Recreational vessels and cruise ships emit greenhouse gases. Nature needs to make way for buildings, and the high volume of visitors to coastal areas disturbs the peace and quiet. At sea, shipwrecks make apposite breeding grounds for fish, which are vulnerable to the activities of plunderers.

Vision and tasking

Marine and coastal recreation is an important factor in the spatial planning of the North Sea and, as such, matters must be properly coordinated between the responsible regional parties.

It is anticipated that use of the sea and coast for various recreational purposes will become more intensive in the future. Increasing participation in recreational sailing will create a need for more, better-equipped marinas along the North Sea coast. Furthermore, future as well as current farms call for a reconsideration of the ban on passage, with safety being an issue here. The increasing volume of cruise ship traffic will also give rise to tasking pertaining to logistics and the environment.

[65] European Commission, DG MARE. Blue Growth. Scenarios and drivers for Sustainable Growth from the Oceans, Seas and Coasts. Third Interim Report. 13 March 2012.

Policy

As a network partner, the Central Government is actively engaging in collaboration efforts between entrepreneurs, market institutions and research institutes forming a 'top team' to facilitate tourism and recreation and to give it a boost.[66] Local and regional government authorities are usually active in a similar context at and close to the coast. The Central Government consults with local and regional government authorities and other parties when spatial planning or other policy developments on the North Sea impact maritime and coastal recreation.

Activities on the North Sea can limit space for recreational use. Multiple use of space is the fundamental principle for the Central Government when it comes to considering the activities that require space on the North Sea (see also section 4.3 on the considerations surrounding passage and collective use of wind farms).

In addition, tourism and recreation play a role in several other policy areas. Fundamental to the National Coastal Vision[67] is unifying protection of the coast and spatial development. An unobstructed view of the horizon is important for the perceived value of the North Sea and coastal recreation (see section 5.3). For reasons pertaining to cultural history and biodiversity, measures are being implemented to protect shipwrecks (see section 3.11).

66 Dutch House of Representatives, 2013-2014 session, 26 419, no. 58.

67 Part of the Delta Programme 2014, Dutch House of Representatives, 2013-2014 session, 33 750-J, no. 4 (appendix).

3.13 Interaction between land and sea

Current use and developments

Designated uses at sea cannot be considered separately from (related) designated uses on land. The interaction between the use of the sea and the use of the land plays a role in the spatial planning, in natural systems, from a sociocultural perspective and from the point of view of social and administrative involvement.

Both the long-term vision for the North Sea (see section 2.3) and the Maritime Spatial Planning Directive[68] ask that the interactions between land and sea are transparent. This demands a broader perspective than the coast and the Wadden Region alone, to which the National Water Plan devotes individual attention. The interaction also concerns (the use of) the salt-water inland waterways and transitional waters and the economic, ecological and sociocultural affinities with the sea further inland. It goes further than the places where coastal defence, coastal ecology and coastal tourism/recreation demand attention and where, from that perspective, sea and land constitute one another's backdrop such as the logistics flows from sea to land and vice versa and the direct or indirect ecological connections inland.

Several designated uses, particularly shipping and fishing, have historical connections with the land. After all, coastal areas have traditionally been settlement areas because of the close proximity of fishing grounds and the good connection to other (overseas) territories. From the point of view of shipping, therefore, it is not only ports and the excellent connections with the hinterland via the rivers and canals that are important, but also shipbuilding. Due to those waterways, shipbuilding in the Netherlands is spread throughout the interior. For fishing, the relationship with and access to the sea are important for fishing communities, fishing ports and the processing industry.

Spatial development of the Coast

The Netherlands continues to aim for applying Integrated Coastal Zone Management according to the 2012 European recommendation. The 2013 National Coastal Vision presented collectively by the government authorities represents a comprehensive vision for the development of a safe, attractive and economically robust coast. The regional government remains responsible for spatial development. The Cabinet wants to contribute to the regional preference for multiple use of the flood defence systems and to experiment with agreements on adaptation concepts for areas around the flood defence systems while preserving safety. The Coastal Policy will be revised to create greater scope for these processes. In the coming period, an attempt will be made to ascertain how more societal goals can be served with the amount of sand available for sand replenishment. In this context, possibilities for further flexibilisation of the coastline preservation will be reviewed. This means that nature will be given more free rein in certain places and less in others, depending on the requirements for flood defence system, beach recreation or other purposes.

The flip side of this was that the land needed to be protected from the effects of the sea: floods caused by storms, and the ingression of salt in agricultural areas. The fundamental philosophy underlying the coastal defence policy is to be 'soft' wherever possible (by means of sand replenishment using sand obtained from the sea) and 'hard' where necessary (flood defences). Dutch water policy is focused on preserving freshwater and combating ingression of salt water by means of separation of river discharge and the location of inlet points for drinking water and water for agricultural use. To a large extent, these aspects have shaped the spatial outlay of the Netherlands.

[68] Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.

Table 3.2 Indicative overview of sectors/usages with their spatial land-sea interactions/connections

Sector/designated use	At sea	On land
Electricity production	(Wind) energy farms	Assembly in ports Building of special ships
	Cables	Landing / connection to the grid
	Cooling water inlet / outlet	Power stations
	Room for experimentation	
Commercial mineral extraction	Sand extraction sites	Desalination / transshipment port
	Shell extraction	Trans-shipment port
Coastal defence	Sand extraction sites	Beach and foreshore replenishment
Oil and gas extraction	Exploration	
	Production platforms	Service industry (including helicopters, supplies) Maritime sector (construction, research, etc.)
	Pipelines and cables	Landing / connection of pipelines and cables
	Dismantling	Processing capacity
		Search & Rescue (SAR) capacity
CO_2 storage	Vacant gas fields	CO_2 capture units
	Platforms	
	Pipelines	Landing points
Shipping	Shipping routing measures	Ports
	Anchorages	Trans-shipment Passenger terminals for ferries and cruises Inland shipping
	Dumping sites for dredging	Dredging ports
	Floating trans-shipment	Ports
		Shipbuilding Shipping assistance / coastguard Search & Rescue (SAR) capacity
Military use	Exercise zones	Military airbases Exercise zones and shooting ranges Military ports
Fisheries	Fishing zones	Fishing ports Fish processing industry
Aquaculture and mariculture	Hatcheries	Fishing port Processing industry
Telecommunications	Cables	Landing points / exchanges
Recreation	Free routes Dive sites Fishing locations	Marinas Beach, pier
	Swimming and surfing locations	Beach
		Maritime sector (building, maintenance)
	Unobstructed view of the horizon	Beaches / dykes
		SAR / rescue operations (KNRM)

In recent decades other designated uses of the sea have arisen, each with their own dependence on the land. For the purposes of oil and gas extraction, and more recently the generation of renewable energy, primarily by means of wind turbines at sea, pipelines and cables connect the platforms and wind farms to landing points on the coast and then with the hinterland. The tourism and recreation sector on land has been able to develop in part thanks to the appeal of the sea and the opportunities the sea offers. Potentially, new marinas will be developed. In addition, there are developments anticipated in terms of aquaculture and mariculture. Decision-making regarding these issues will take place outside the framework of the Policy Document on the North Sea. The Policy Document presents no obstacle to these developments, however, other than that the frameworks of the marine ecosystem, the sand extraction strategy and the designated uses of national interest must be taken into account. The assessment framework in section 5 of this document serves this purpose.

Table 3.2 presents an indicative overview of relevant sectors / designated uses, accompanied by their spatial dependency relationships on land and at sea.

Spatial planning

In the spatial planning of activities at sea and on the coast, at least the interaction between land and sea is taken into account insofar as this pertains to the direct physical relationships, such as the location of a port and a shipping route or the cable connection between a wind farm and the landing point.

Full consideration is not always given in advance to more indirect relationships, such as the requisite space for assembling wind farms. In connection with the feasibility of the policy, carrying out a more systematic analysis of these derivative relationships would be efficient. Here are opportunities on which the private sector can capitalise. For instance, an innovative idea was developed privately to use a port at sea for the purposes of assembling wind farms, not just in the Dutch part of the North Sea but also for the benefit of neighbouring countries.

Natural systems of sea and land

The natural systems of the coast and of the sea are inextricably intertwined. Coastal waters provide a breeding ground for all kinds of species of fish, the coast and the coastal waters, including the Wadden, are a breeding ground for birds, and the sand and the dykes present a habitat for dozens of species of bottom dwellers and a habitat for salt-tolerant plants. People are increasingly developing an understanding of how biochemical and morphological processes are linked and affect and shape the system's qualities. Not surprisingly, land-based and marine nature reserves are interconnected. This ties in with the criteria stemming from application of the Birds and Habitats Directives.

Coastal policy is aimed at working wherever possible with soft sea defences so that natural life can develop there. A similar shift can be seen in the low parts behind the coastal area, where the 'fight' against the sea is beginning to make way for living with salt water, which is being responded to with the development of saline crops. Restoring the transitions between fresh and salt water through intervention in the Haringvliet Locks and fish migration in the IJsselmeer Closure Dam and elsewhere is helping to restore the natural systems for species that require both fresh and salt water habitats.

Even activities on land determine the quality of the marine ecosystem. Tackling sources of pollution on land and at sea and purifying wastewater has resulted in a great deal of improvement. The Water Framework Directive is the instrument for a catchment area-oriented approach. Litter is an aspect that has been receiving the necessary attention more recently. Upstream sources are a significant element in the origin of waste at sea, alongside waste generated by activities associated with the sea and waste produced by those engaging in recreational activities at the coast.

Sociocultural

Since time immemorial there have been links between coastal residents and activities at sea. Generations of fishermen have determined the culture of local coastal towns. In more recent times, the recreation sector has had a significant impact. Perception of the sea plays an important role. As cultural heritage, the sea as a whole contributes to the identity of the Netherlands. That heritage is also to be found further inland in museums and on historic buildings in Amsterdam and Groningen, for example.

Social and administrative involvement

Due to the fact that developments at sea often set requirements (e.g. in terms of spatial planning) for or affect the land and vice versa, it is important to ensure that various parties are appropriately involved,

particularly coastal residents and those representing their interests. From an administrative point of view, the relationship between the competent authority at sea and the competent authority on land is relevant. During the public consultation period for the National Water Plan and this Policy Document, the Central Government carried out a joint study of the interaction between land and sea. This resulted in 19 film stories with diverse topics and messages[69]. The activities depicted, the majority of which are onshore, especially benefit from the sea. There is currently no need to revise the sea policy as a result of these activities.

Vision and tasking

From a variety of perspectives, coastal and maritime developments are closely connected and affect each other. Linking land and sea with one another in spatial planning policy enables potential to be exploited and qualities to be reinforced. From this point of view, an integrated approach is necessary to ensure optimum area development. Developments at sea and on land are considered in a comprehensive fashion with active participation on the part of interested parties and thorough administrative harmonisation.

In view of the potential presented by the interaction between land and sea, the task is to actively involve local coastal communities, local and regional government authorities and other interested parties as early on as possible in developments at sea that will have consequences for the land and for the coast in particular.

Policy

When formulating spatial planning policy, specific attention needs to be paid to the interaction between land and sea, having due regard for the implementation of the Maritime Spatial Planning Directive. Dialogue with neighbouring countries on how to do this is important in this respect. This has been included as an action for the 2016-2021 planning period (see section 7.2).

[69] These stories can be viewed at www.noordzeeloket.nl.

4

Policy for societal demands

4.1 Introduction

Section 3 described the marine ecosystem and the designated uses of the North Sea. The fundamental principle in those respects is sustainable use preserving the integrity of the ecosystem. In the case of a number of the designated uses described, the changes are such that these will, also in the light of long-term policy, generate societal demands that call for new policy for the 2016-2021 planning period. This section sets out what is required in order to fulfil the tasks set. It pertains to the programme of measures in connection with the marine strategy and the tasks for wind energy at sea and sand extraction.

4.2 Programme of measures for marine strategy

The Netherlands' marine strategy is geared towards achieving and maintaining a good environmental status for the Dutch part of the North Sea from 2020 onwards. This good environmental status will entail the North Sea being clean, healthy and productive, the ecosystem functioning optimally and being resilient, and use of the sea being sustainable.

The Cabinet is working with three policy-related starting points in order to accomplish this (see section 3.2):
1 rendering use sustainable;
2 area-oriented and species-oriented approach;
3 creating additional opportunities for ecosystem recovery.

Fulfilling the objectives pertaining to nature and the environment will require measures to be implemented. These measures are described in Marine Strategy part 3 of the MSFD's Programme of Measures which, along with the Policy Document on the North Sea, has been appended to the National Water Plan. This section includes a summary of this programme of measures.

The marine strategy integrates preconditions and ambitions in terms of nature, the environment and sustainable economic development, and where necessary supplements these so as to achieve or maintain the good environmental status. This ties in with the context of European policy, where the MSFD constitutes the environmental pillar of the integrated maritime policy.

Even at international level, increasing integration of marine environmental policy is under way, for example when it comes to indicators and monitoring, protection of marine areas, and measures, both at European level and in connection with OSPAR. Furthermore, the revised Common Fisheries Policy is contributing to the good environmental status. Finally, within international frameworks, such as the IMO, more and more measures are being proposed to achieve a sustainable sea and sustainable use thereof.

The programme of measures contains both existing and supplementary measures, insofar as these fall under the jurisdiction of the Netherlands. The programme of measures also includes a variety of measures being implemented by the Netherlands in conjunction or in harmony with other countries in an international context. The programme of measures describes (where relevant) Dutch efforts and coordinating activities within the scope of this international context.

Cooperation with the business world and civil society is a key success factor for marine strategy.

The measures have been categorised by descriptor (element that describes the environmental status). The descriptors are described in annex 1 to the MSFD. They pertain to:
1 Biodiversity,
2 Exotic species,
3 Fish,
4 Food webs,
5 Eutrophication,
6 Seabed integrity,
7 Hydrographic properties,
8 Pollutants,
9 Pollutants in fish,
10 Litter,
11 Energy supply, including underwater noise.

In view of their interconnectivity, descriptors 1, 3, 4 and 6 are described together.

At the end of section 4.2 a description is provided of the anticipated efficacy of the programme of measures in terms of contribution to achieving the good environmental status.

Measures pertaining to the marine ecosystem

For 2020, Dutch efforts relating to the marine ecosystem (descriptors 1, 3, 4 and 6) are geared towards reversing the deterioration of the marine ecosystem caused by damage to seabed habitats and biodiversity to development in the

direction of recovery. The ambition is to ultimately arrive at a situation where habitats and species are in harmony with physiographic, geographic and climatological circumstances. This will entail a number of environmental objectives:

- -Efforts to foster biodiversity (descriptor 1) will, in terms of species covered by the Birds Directive, be determined by national targets under the Birds Directive. For marine mammals covered by the Habitats Directive (common seal, grey seal and harbour porpoise), the targets stipulated in the Habitats Directive will prevail. Furthermore, with regard to the demographic characteristics of fish, bird and marine mammal species, the goal is to arrive at a composition of natural size and age groups, sex ratios, reproduction and death that characterise resilient populations.
- Efforts for commercially exploited species of fish, crustaceans and shellfish (descriptor 3) are focused on improving the size and condition of the populations and spreading vulnerable fish species, limiting deaths due to fishing, sufficient biomass of spawning aggregations and minimising fishing discards.
- Efforts to ensure healthy food webs (descriptor 4) are geared towards reducing the effect of human interventions on interactions between different trophic levels in the food web.
- Efforts to preserve seabed integrity (descriptor 6) are geared towards improving the quality of the deeper, silt-rich parts and deeper, non-dynamic sand beds in the Dutch part of the North Sea and improving the size, condition and propagation of populations of long-lived and vulnerable benthos species.

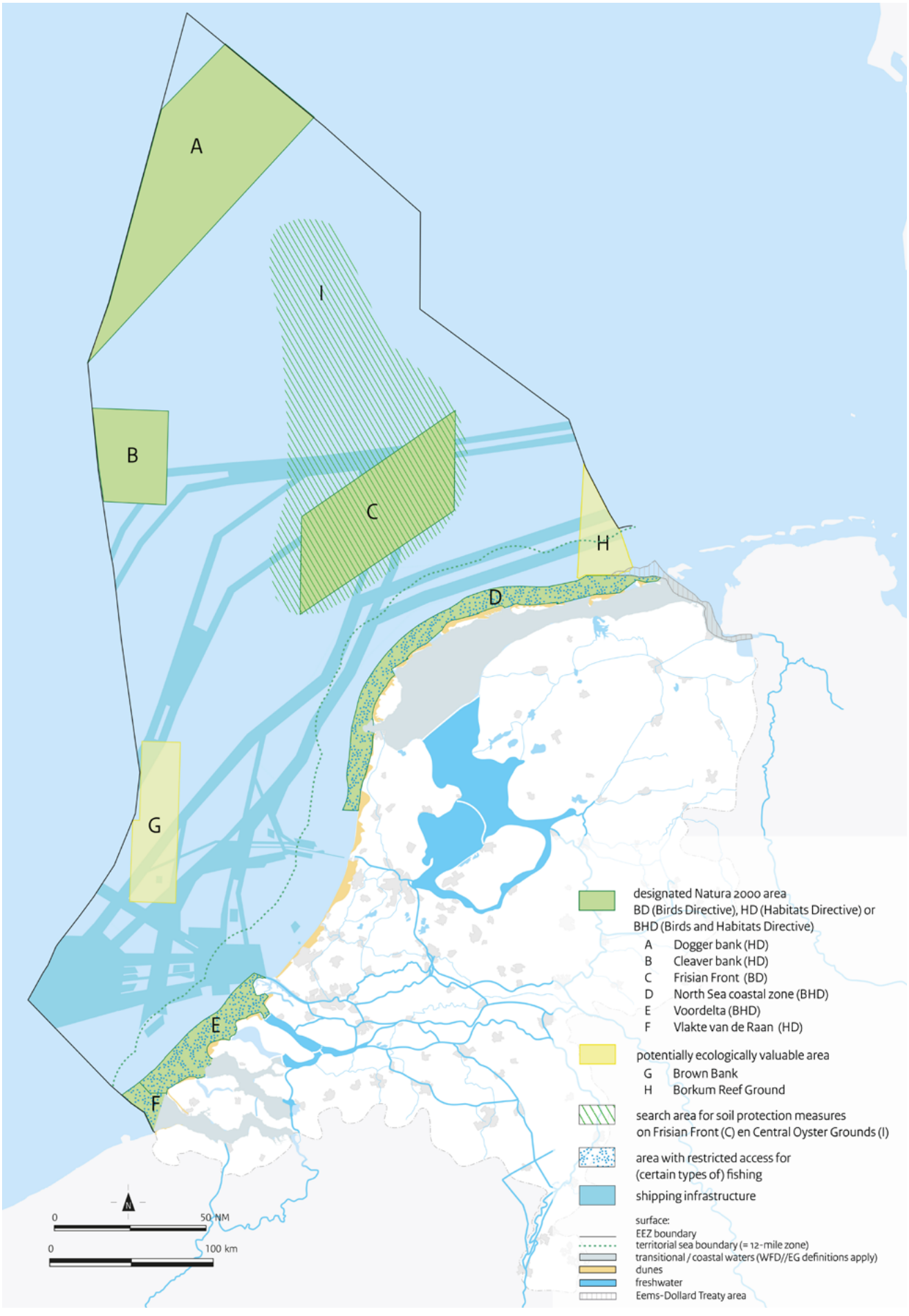
Measures in relation to areas and species

Existing measures

- In 2003 the OSPAR Commission drew up a list of threatened and declining species and habitats. Based on this list, the OSPAR Commission accepted 44 recommendations during the 2010-2014 period, on the basis of which the parties to the Convention are to ascertain whether collective and/or national measures are required. In the case of the Netherlands, this pertains to 16 species and 5 habitat types, including harbour porpoise, shark, ray and European flat oyster. The Netherlands is looking into whether or not to introduce further protection for these species and, if so, how to go about this.
- Within the Coastal Zone, the Natura 2000 areas of Voordelta, the Vlakte van de Raan and North Sea Coastal Zone were designated, with management plans having been drawn up for these areas. Activities are regulated within these areas by way of conditions for exemption, permit conditions and mitigating measures, such as codes of conduct and the temporary closure of areas. The temporary and permanent closure of areas is designed to give birds and seals sufficient peace and quiet in such places as foraging areas and breeding and nesting grounds. These areas also serves to protect the seabed and the species dwelling there. In the Voordelta, there are seabed protection measures linked to the compensation task for the construction of Maasvlakte 2. One important provision of the VIBEG Agreement is that bottom trawling with tickler chains in the North Sea Coastal Zone and the Vlakte van de Raan will be ended once the European ban on pulse fishing is lifted.
- - When engaging in coastal (beach) replenishment activities (including extraction and transport), maintenance of cables and pipelines in the Natura 2000 area of North Sea Coastal Zone and management of beaches, consideration is given to the presence of breeding sites, by observing zoning for the field of operations and by carrying out the work outside the breeding season.
- The Natura 2000 areas Cleaver Bank and Dogger Bank (Habitats Directive areas in the Dutch EEZ) are protected from fishing practices that disturb the seabed in line with agreements stemming from the international FIMPAS/Dogger Bank Agreement[70]. For part of the year, Frisian Front (which is being designated as a Birds Directive area) is closed to fishing with standing rigging in connection with hibernating seabirds. The measures will be implemented in combination with research and monitoring performed for the purposes of acquiring more knowledge. These measures dovetail with current efforts to make fishing more sustainable combined with

[70] FIMPAS: *Fisheries Measures in Marine Protected Area's*

Figure 4.1 **Marine ecosystem**



adjustments to the management of fish stocks. The proposed Common Fisheries Measures for Dogger Bank, Cleaver Bank and Frisian Front will only become effective once the European Commission has assented to the measures and has enshrined these in a legal instrument. The areas are expected to be designated in 2016; agreement on the measures follows later.
- The Haringvliet Locks Management Decree (Kierbesluit, 2011) means that the Haringvliet locks are 'left ajar' if the water level in the Haringvliet is lower than sea level. That promotes international fish migration. Migratory fish such as salmon and sea trout can therefore pass the locks on their way to their spawning grounds upstream.

Additional measures

In addition to the implementation of the Birds and Habitats Directives and to generic efforts to make fishing sustainable, protection will be offered to the seabed ecosystem in the areas of Frisian Front and Central Oyster Grounds.
Within the Marine Strategy part 1, these areas are regarded as search areas for spatial planning protection measures. Preconditions in this respect are: the ambition to protect 10-15% of the Dutch part of the North Sea from appreciable seabed disturbance and to minimise the impact of the fishing sector.

Based on these preconditions, and following consultation with fisheries organisations and nature organisations, the Central Government has formulated a number of fundamental principles for developing a package of measures in its MSFD Programme of Measures.
The fundamental principles:
- At the Frisian Front and Central Oyster Grounds, one or more areas will be designated with a minimum surface area of 1,200 km² and a maximum of 4,200 km² for which seabed protection measures will be in force. In this area or in these areas, fishing that appreciably disturbs the seabed will no longer be permissible. As a result, at least 10% of the Dutch part of the North Sea bed (including protected areas already designated under the Habitats Directive) will not be appreciably disturbed. The search area is shown on the map accompanying this section.
- The measures are geared towards protecting the ecologically most valuable areas and, wherever possible, towards ensuring the recovery of the seabed ecosystem.
- Within the area or areas where seabed protection measures apply, parts can be designated in which another management system applies, enabling mutual comparisons of two protection systems.
- When ascertaining the economic impact of measures, consideration will be given to various fishing technologies, current fishing data and the interests of Dutch and foreign fishermen. Development towards sustainable fishing will also be looked at.
- A social cost-benefit analysis will be prepared for the potential measure(s). In addition, any effects (socio-economic, ecological) of possible relocation of fishing activities will be factored in.

It is reasonable to expect that the ecosystem's recovery will be take at least two to three six-year MSFD cycles. After careful monitoring of the developments, it may be possible to draw initial conclusions on ecosystem recovery and efficacy of the two protection regimes in 2028. If need be, the measures will be adjusted (up, down or in some other way) on the basis of this evaluation at that juncture. A zero measurement was made in 2015.

Aside from Dutch stakeholders, foreign fishermen who fish at the Frisian Front and Central Oyster Grounds will also be involved when a proposal for the measures is being prepared, as will stakeholders from these other countries. In consultation with other member states that have an interest in both areas, the Netherlands can, within the framework of the procedure from Article 11 of the Common Fisheries Policy, submit a joint recommendation for a measure to the European Commission. The European Commission will subsequently establish the measure. International consultation on a joint recommendation for measures on the Frisian Front and Central Oyster Grounds will be formally initiated during the course of 2016. Prior to the definitive proposal for protection measures being submitted to the European Commission in 2016, this will be presented to the Dutch House of Representatives.

Measures pertaining to commercial fish, crustaceans and shellfish

Only the EU has the authority to implement fishing measures, with the European Commission having the right of initiative. The Common Fisheries Policy was amended in 2013, its aims being to protect the marine

environment (in line with the MSFD and Natura 2000), to manage all commercial species sustainably and to bring about a good environmental status by 2020.

National policy with regard to coastal and shellfish fishing is geared towards promoting responsible fishing practices and well-balanced exploitation of fish stocks, striving to strike a balance between fishing and nature and to effect a different division of responsibility between government and the industry. National policy contributes to the primary objective of the Common Fisheries Policy, namely to develop management based on ecosystems. In due course, this must create a stable, sustainable foundation for fisheries, in a way that fits in with the economic, social and employment objectives, and which contributes to the food supply.

Existing measures

- The aim is to *manage stocks* at the level of Maximum Sustainable Yield (MSY) by 2015, or by no later than 2020 if doing so earlier proves to be impossible due to the economic and social consequences. The central government is dedicated to producing management plans geared towards the mixed nature of the fishing industry, enabling better harmonisation of objectives for each species and actual catch composition.
- Another priority centres on minimising unwanted by-catch by introducing the landing obligation. This will have considerable consequences for the sector, for individual firms and for future methods of fishing. In June 2015, the member states around the North Sea submitted recommendations for the introduction of the landing obligation in the 2016 - 2018 period. The Dutch government is committed to producing an implementable, enforceable landing obligation that is not difficult to comply with and fulfils the requirements of the Common Fisheries Policy. Focal points of the approach are selectivity, survival, regulations, market and compliance. Consideration is also being given to the diversity of the fleet, the contribution being made to the problem of *discards* and the impact of the landing obligation.
- In 2014 an experiment was launched using pulse fishing, to study the extent to which this type of fishing can contribute to the introduction of the landing obligation.
- Sustainability Certificates (such as that of the *Marine Stewardship Council*, MSC) can help when it comes to increasing support from society and making the sector more sustainable. The European Commission is looking into the possibility of developing minimum criteria for an eco-label for fishing and aquaculture that applies to the Union as a whole.

Measures pertaining to exotic species

Non-native (exotic) species (descriptor 2) can have adverse effects on biodiversity and ecosystem services. They can also have a (potentially serious) social and economic impact. The aim is to minimise the risk of new introductions of exotic species. Furthermore, work is being done on controlling and managing these species. This is the crux of the Policy Document on Invasive Exotic Species (2008). Implementation of the policy also entails devoting attention to identifying new species.

Existing measures

- Conditions attached to the issuance of permits under the Nature Conservancy Act must prevent relocation of invasive exotic species when transporting shellfish for aquaculture and when moving live shellfish to Natura 2000 areas.
- The management programmes for the Natura 2000 areas include measures geared towards preventing the import of exotic species and combating the presence of invasive exotic species.
- The implementation of the International Convention for the Control and Management of Ships' Ballast Water and Sediments (Ballast Water Convention), although not yet in force, has already been enshrined in Dutch legislation and regulations. The Convention obliges shipowners to purify ballast water. With a view to the exception provision in the convention, the OSPAR/HELCOM guidelines have been revised, making them far more appropriate for studying exotic species in the ports in the North Sea.
- Within the IMO, further consultation is being engaged in on a common approach to implementing the voluntary hull fouling directive to limit the introduction of exotic species by way of fouling on the ship's shell.
- A EU[71] convention to combat or limit the introduction and spreading of exotic species obliges member states to devise a surveillance system and an action plan.

[71] EU Convention 1143/2014

Measures pertaining to eutrophication

Eutrophication (descriptor 5) is detrimental to biodiversity, has adverse effects on the ecosystem and causes harmful algal blooms and aquatic hypoxia in bottom waters. Eutrophication in the North Sea is caused by sources at sea and by the introduction of nitrogen and phosphates by rivers and atmospheric deposition from sources on land and at sea. Consequently, efforts are focused on reducing concentrations of nutrients.

Tackling sources at sea is governed by IMO frameworks. Measures for sources on land form part of the updated catchment area management plans for Rhine, Meuse, Schelde and Eems. These plans implement the Water Framework Directive (WFD) and constitute part of the National Water Plan.
It is estimated that with regard to eutrophication a good environmental status will be within reach from 2020 onwards. However, a precondition here is that the (international) measures agreed in connection with the WFD for meeting the targets for nutrients are implemented. The fact that there are as yet only few signs of eutrophication in the Dutch part of the North Sea shows that we have set out on the right track.

Existing measures

- Marine pollution caused by shipping is regulated in the MARPOL International Convention for the Prevention of Pollution from Ships, or MARPOL Convention, drawn up by the IMO. MARPOL regulates the emission of substances and chemicals into the air and water as well as the discharge of domestic waste materials.
- The Cabinet introduced mandatory manure processing as of 1 January 2014. This measure obliges livestock farmers to have a percentage of surplus manure production processed, this percentage being determined by the government. These measures have been incorporated into the Fifth Action Programme for the Nitrates Directive.
- In addition to the Fifth Action Programme for the Nitrates Directive, the agriculture and horticulture sector drafted the Delta Plan on Agricultural Water Management. To this end, work is being done in conjunction with water managers on devising a coherent, integrated approach, the aim of which is to come up with a customised programme to fulfil targets for nutrients, pesticides and water quantity.
- The Netherlands has implemented the EU Directive on urban waste water and fulfils the minimum area output requirements for phosphorus and nitrogen.
- District water boards plan to improve, or are already engaged in improving, purification efficiency at regional level in a substantial proportion of sewage treatment plants prior to 2021.

Measures pertaining to hydrographic properties

The policy relating to descriptor 7 is geared towards ensuring that human activities do not cause a change in hydrographic conditions bringing about permanent large-scale negative effects.

The effects of new large-scale developments, such as the construction of Maasvlakte 2 and the Sand Motor recently, have to be studied in environmental impact assessments, as prescribed in the Environmental Impact Assessment Directive.[72] In the Netherlands this Directive has been implemented in the Environmental Impact Statement Decree. Relatively limited interventions, such as sand replenishment activities and dredging work, are regulated by way of permits. In general, an environmental impact statement is mandatory. If the environmental impact statement reveals that the effects on the ecosystem at the macro scale do not constitute irreversible changes, no further action will be required. Adverse effects on the marine ecosystem have to be mitigated. In the event of significant effects on species and habitats, the procedure from the Nature Conservancy Act will be initiated (alternative solutions, imperative reasons of overriding public interest, mitigation and compensation). Thus the seabed protection measures in the Voordelta area compensate for the construction for the Maasvlakte 2 in this Natura 2000 area. See also section 5, which describes the assessment framework for activities in the North Sea.

Measures pertaining to pollutants

The policy in relation to descriptor 8 is geared towards reducing concentrations of pollutants in the sea and preventing the effects of these substances, such as TBT (this substance is used to combat hull fouling).

[72] Council Directive 85/337/EEC of 27 June 1985 on the assessment of the effects of certain public and private projects on the environment.

The key players and pressure factors for pollutants are marine sources, such as shipping and mining, and sources on land, such as industry, transport and agriculture. Pollutants are also introduced through the English Channel from neighbouring marine areas.

European regulations, agreements in connection with OSPAR and agreements in connection with the IMO have resulted in falls in concentrations of pollutants in the marine environment since the 1970s. Seals and seabirds being threatened with extinction due to pollutants are now a thing of the past, and concentrations of a great many substances are in keeping with standards appropriate for a healthy environment.

A considerable proportion of the measures on land have been incorporated into the catchment area management plans under the WFD. A few persistent substances, such as PAHs, still occur in excessively high concentrations and will continue to have a lag effect in the seabed, long after the implementation of all measures pertaining to their usage, production and/or emission.
The presence of medicines in surface water will require attention over the next few years as a potentially growing threat to the marine environment.

Existing measures

- The Bathing Water Directive[73] was implemented in the Swimming Facilities Hygiene and Safety Act (Wet hygiëne en veiligheid badinrichtingen en zwemgelegenheden). This established standards that must be fulfilled in terms of bathing water quality, with bathing water including coastal waters.
- The significance of the MARPOL Convention for combating discharges caused by shipping has already been stated in the description for the descriptor eutrophication.
- Marine pollution caused by shipping has been driven down by a ban on TBT in the International Convention on the Control of Harmful Anti-fouling Systems on Ships (2008[74]).
- The change to shipping routes in 2013 in the Dutch part of the North Sea is enhancing shipping safety, thereby also reducing the risk of adverse environmental effects arising as a result of accidents.
- Discharges from mining installations in the Dutch part of the North Sea are regulated under the Mining Act,for example by way of conditions attached to the issuance of environmental permits for mining activities.
- The EU Directive on Industrial Emission[75] has been implemented in the Environmental Licensing (General Provisions) Act, the Environmental Management Act (Activities Decree) and the Water Act. The implementation of Seveso III[76] in the Major Accidents (Risks) Decree 1999 limits the consequences of major accidents for humankind and the environment.
- Under the Ships' Waste Decree Rhine and Inland Shipping, a ban on discharging domestic waste water into surface water has been in place for passenger vessels and cabin vessels since 1 January 2012.
- The EU Directive on sustainable use of pesticide[77] has been fleshed out in the Netherlands to form the Sustainable Crop Protection Action Plan[78]. National policy stemming from the Directive has been recorded in the 2nd Sustainable Crop Protection Document (Healthy Growth, Healthy Harvest Document)[79].
- The most important agreements for preparation, cooperation and coordination for disaster response and dealing with incidents at sea have been recorded in the North Sea Cooperation Regulation on Countering Coastal Pollution and the Incident Response Plan (tactical/operational level). International cooperation is also in place under the Bonn Convention.

73 Directive 2006/7/EC of the European Parliament and of the Council of 15 February 2006 concerning the management of bathing water quality and repealing Directive 76/160/EEG.

74 International Convention on the Control of Harmful Anti-fouling Systems on Ships, Tractatenblad (Treaty Series), 2008, 146.

75 Directive 2010/75/EU of the European Parliament and of the Council of 24 November 2010 on industrial emissions (integrated pollution prevention and control) (recast).

76 Directive 2012/18/EU of the European Parliament and of the Council of 4 July 2012 on the control of major-accident hazards involving dangerous substances, amending and subsequently repealing Council Directive 96/82/EC.

77 Directive 2009/128/EC of the European Parliament and of the Council of 21 October 2009 establishing a framework for Community action to achieve the sustainable use of pesticides.

78 Staatscourant, 2012, 14051.

79 Dutch House of Representatives, 2012-2013 session, 27 858, no. 146.

Measures pertaining to pollutants in fish

Current levels of pollutants found in fish (descriptor 9) and fish products do not exceed the standards set by national and international legislation. Measures described under eutrophication and pollutants are contributing factors in this regard. This means that in the current situation the environmental status is good. If policy remains unchanged, it is anticipated that the Netherlands will be able to maintain the status quo until 2020 and beyond.

Measures pertaining to litter

Marine litter (descriptor 10) stems from human activity at sea and on land. Throughout the world there is a growing awareness of the problem presented by plastics and other litter in the sea. The fundamental principle is that litter does not belong in the sea. In the Netherlands there is already a great deal of policy in place, and there are plenty of positive developments under way among citizens and the business community.

A good environmental status will be achieved in terms of litter in the North Sea and along the coast once the properties and quantity of litter at sea (including break-down products such as plastic fragments and micro-plastics) do not cause any harm to the coastal and marine environment, and the quantities diminish over time. The environmental targets are geared towards reducing the quantity of visible litter on the coast and the quantity of litter in marine organisms.

Existing measures

Agenda-setting and increasing awareness

- Over the past decade policy on litter and waste has been optimised and implemented at national and local level. Initiatives such as Supporter van Schoon ('Supporter of Clean'), the Landelijke Opschoondag ('National Cleaning Day') and *Keep it Clean Day* are geared towards positively influencing behaviour in terms of litter. Even the *Plastic Heroes* campaign is helping to increase awareness among Dutch consumers of the importance of collecting plastic packaging waste separately.
- In 2014 the Ministry of Infrastructure and the Environment launched the site www.duurzaamdoen.nl, the aim of which is to transform sustainable thinking among citizens and entrepreneurs into sustainable action. This is effected by (for instance) inspiring examples of such action.

Beaches

- Stakeholders around beaches, including coastal communities, are contributing to creating and maintaining a state of good cleanliness on Dutch North Sea beaches. Moreover, initiatives and actions such as Blauwe Vlag ('Blue Flag'), the Cleanest Beaches contest (instigated by the Netherlands Clean Foundation) and MyBeach (instigated by the North Sea Foundation) are helping to increase awareness among visitors to beaches.

Catchment areas

- SchoneMaas Limburg is a joint venture involving in excess of 30 parties cooperating in harmony with one another to set ambitions. In addition to annual clean-up campaigns covering a large section of the banks of the Meuse, SchoneMaas Limburg does its utmost to increase awareness and set the agenda. The Litter Collection Scheme introduced by Rijkswaterstaat Southern Netherlands entails waste collected by third parties along riverbanks being collected and processed at the expense of Rijkswaterstaat.

Shipping

- The Netherlands enshrined the EU Directive on port reception facilities[80] for ship-generated waste and cargo residues in legislation in 2005. Adequate port reception facilities are in place in all Dutch ports.
- The revised Annex V of the MARPOL Convention from the IMO came into force on 1 January 2013, partly on the initiative of the Netherlands. The revision introduced an outright ban on ships discharging waste, with the exception of food waste. On the initiative of the Netherlands, it was agreed in the IMO that the *marine environmental awareness* course would become a mandatory component in maritime training throughout the world.

[80] Directive 2000/59/EC of the European Parliament and of the Council of 27 November 2009 on port reception facilities for ship-generated waste and cargo residues.

Table 4.1

Top 10 of most commonly found items on Dutch reference beaches * and the most important sectors to deal with the items **

No.	Objects	Approach primarily through sector
1	(Plastic) nets and ropes	Fishing
2	Pieces of plastic and polystyrene	All sectors
3	Plastic bags	Plastic products
4	Plastic lids and caps	Plastic products
5	(Plastic) crisp bags, sweet bags and lolly sticks	Beaches
6	Balloons, including ribbons, seal and valve	Plastic products
7	Plastic drinks bottles	Plastic products
8	Wood < 50 cm	Not relevant - no action
9	Plastic packaging for food including fast food	Beaches
10	Plastic industrial packaging and sheeting	Shipping

* The reference beaches are not situated next to bathing beaches; this is why cigarette butts (for example) do not feature in the top 10, though measures are being implemented to tackle these.

** Using a top 10 list of items found on beaches ties in with the development of (specific) targets within OSPAR and with the proposal from the EC for a 30% headline reduction target (reference document).

Fishing

- Since 2000, around 90 fishing vessels have been participating in the *Fishing for Litter programme*, which entails waste that is caught as by-catch being collected and processed in ports free of charge.

Plastic products

- Policy on litter and waste is enshrined in various directives and agreements. Domestic and industrial waste is collected separately, processed and reused in a sustainable way. Emissions of microplastics from cosmetics products are being reduced by Dutch cosmetics companies voluntarily replacing plastic microplastics.
- The State Secretary for Infrastructure and the Environment has launched the programme Van Afval Naar Grondstof ('From Waste to Raw Material', or VANG), the aim of which is to halve the quantity of waste being dumped or incinerated within a decade. The Raamovereenkomst Verpakkingen ('Framework Agreement on Packaging') 2013-2022 is encouraging a reduction in packaging and increase in recycling by placing the onus on manufacturers. In the national approach to litter, Central Government, municipalities, businesses and other stakeholders are working together on developing a deposit system for small PET bottles and cans, for example.
- The Ketenakkoord Kunststofkringloop ('Plastic Cycle Chain Agreement'), which around 90 parties have now signed, is an important stepping stone towards addressing measures in conjunction with companies, research institutes and NGOs within the context of the VANG programme and the MSFD. The Landelijk Afvalbeheerplan ('National Waste Management Plan', or LAP2) contains national targets for separated waste collection and general principles for tools such as permit issuance and enforcement.
- A ban on giving away carrier bags free comes into force on 1 January 2016. This ban is part of a broad approach for reducing the use of all carrier bags as an interpretation of the EU guideline. Exceptions will be made for extremely fine plastic bags necessary for food hygiene and to prevent food wastage.

Additional measures

The above makes clear that plenty of initiatives have already been taken in the Netherlands As described in the initial assessment (Marine Strategy Part 1), it is anticipated that, despite the manifold initiatives, there has been no decline in the amount of litter in the Dutch part of the North Sea. Furthermore, the breakdown of the plastic already present in the North Sea into microplastics will (initially) increase the quantity of these secondary microplastics in the future. For that reason, a supplementary policy task has been formulated for 2020.

The starting point for the supplementary measures is a 'top 10 of most commonly found items' on Dutch reference beaches. In addition to the top 10, the topic of microplastics merits special attention.

In order to create effective new policy and to expand existing policy, work is being done at national and international level with government authorities, the business community and social organisations. Close cooperation with stakeholders has generated wide-ranging public support. Various measures have been enshrined in agreements, so-called *Green Deals*. This is a formal legal document. During the implementation period the *Green Deals* are actively maintained as a 'platform', which an increasing number of parties are able to join. Regular evaluations are carried out to ascertain whether the ambitions recorded are being achieved and follow-up agreements are made.

On 28 June 2014 the OSPAR Regional Seas Convention established the *Regional Action Plan (RAP) for Prevention and Management of Marine Litter*. The plan sets out actions for joint measures and targets. The Netherlands has a leading role in the development of the next OSPAR measures:

- giving a binding recommendation on responsible waste management on board;
- implementing regional coordination for port reception facilities directive and improving implementation of ISO standards;
- reducing impact of dolly rope (included as an action for the 2016-2021 planning period in section 7.2);
- exchanging best practices to reduce waste in rivers;
- tackling microplastics in cosmetics products and other sources;
- bolstering the agreements for the *Fishing for Litter* programme.

Agenda-setting and increasing awareness

- With regard to increasing awareness of the litter problem and to putting it on the agenda, efforts to this end will dovetail with existing initiatives. Actions to put the litter problem on the agenda of stakeholders include: including the litter / plastic soup problem in the continuous learning line (with the Curriculum Development Foundation) and increasing the prominence of the subject in education and among education professionals (through the Dutch Institute of Biology). An *EU education call* will be used to ask NGOs and other organisations actively working in education to provide education to Dutch schools for 7 years.

Beaches

- Coastal communities, entrepreneurs (e.g. owners of business on beaches), volunteers and social organisations signed the *Clean Beaches Green Deal* on 20 November 2014. This agreement shows how the various parties are working to reduce waste on beaches and bring about more sustainable beach management, and establishes concrete new actions and targets for 2020:
  - All coastal communities are participating in the *Green Deal* and the number of beach-based catering establishments, social organisations and other entrepreneurs taking part is increasing each year;
  - 15-20 coastal communities are actively participating in influencing behaviour;
  - 10-20 coastal communities have a specific approach to dealing with cigarette butts;
  - 15-20 coastal communities are actively facilitating cleaning campaigns on the beach involving volunteers;
  - The number of beach-based catering establishments with the *Green Key* eco label (for increasing the use of sustainable methods of operation) will double between 2012 and 2020;
  - At least 10 coastal communities are participating in monitoring the effects of certain measures.

The Ministry of Infrastructure and the Environment is seeing to it that knowledge is safeguarded, exchanged and developed. The instigator and coordinator of the *Green Deal* is KIMO (Local Authorities International Environmental Organisation) Netherlands and Belgium[81].

Catchment areas

- There is still scant attention being paid to the issue of dealing with litter in catchment areas. The Ministry of Infrastructure and the Environment is highlighting at local level the importance of reducing litter and disseminating knowledge on the matter. This pertains to the following actions:
  - Information provision on dealing with litter, the litter problem and putting it on water managers' agendas;
  - Facilitating the exchange of knowledge, *best practices* and tools between water managers by means of knowledge meetings, the litter knowledge guide and assistance;
  - Supporting projects and knowledge development in terms of the comprehensive approach to litter in water by participating and by extracting and sharing knowledge.
- The OSPAR Regional Action Plan (RAP) for Prevention and Management of Marine Litter concentrates efforts on exchanging *best practices* so as to reduce waste in rivers.
- The successful approach of SchoneMaas Limburg is being scaled up to other catchment areas and water systems.
- By rolling out the Litter Collection Scheme throughout the Netherlands to the regional services of Rijkswaterstaat as water manager, the Central Government is encouraging partnerships for clean catchment areas. The Litter Collection Scheme serves as a service and as a means of communication.

Shipping

- The Shipping Waste Chain *Green Deal* was signed with chain parties in shipping on 10 September 2014. This entails port authorities, shipowners, ship suppliers, managers of port reception facilities, the North Sea Foundation and the Central Government making concrete agreements to close the maritime waste cycle. The instigator of the *Green Deal* is the Ministry of Infrastructure and the Environment.
  Concrete objectives are geared towards separated collection of plastic maritime waste and recycling:

[81] KIMO Netherlands and Belgium is an association of local authorities. The organisation is engaged in combating pollution of the North Sea, Irish Sea, north-eastern Atlantic Ocean and the Baltic Sea.

- By 2017, 50% of the ships handing over plastic waste will have separated it prior to handing it over in those Dutch ports where separated collection and processing are possible;
- By 2017, 75% of the ships belonging to members of the Royal Association of Netherlands Shipowners (KVNR) handing over plastic waste will have separated it prior to handing it over in those Dutch ports where separated collection and processing are possible;
- By 2017, all separated plastic waste handed over will also be collected separately by members of the Association of Maritime Environmental Service Providers (VOMS)[82], 100% of the ('clean') plastic waste collected by VOMS members will be recycled or turned into fuel, and as much of the mixed plastic handed over as possible will be sorted and recycled.

The measures from the Green Deal concentrate efforts on four topics:

- Preventie: actief beleid KVNR[83] shipowners on board and waste prevention when it comes to supplies;
- Enforcement: make more use of waste reporting and actual data pertaining to waste handed over;
- Harmonisation of procedures pertaining to port reception facilities: Efforts are being concentrated on this at bilateral, OSPAR and EU level. What is now concrete is a joint cost recovery system agreed with Flemish ports;
- Separated collection of maritime plastic waste: Several measures have been introduced to encourage ships to hand over plastic waste separately and to ensure that this is recycled or turned into fuel on land.

Fishing

- The Fisheries *Green Deal* for a Clean North Sea sees the fisheries sector joining forces with other parties (the Ministry of Infrastructure and the Environment, ports, waste processing firms, etc.) to look for ways to close the waste cycle, and in doing so to prevent waste ending up in the sea. The *Green Deal* was signed on 20 November 2014. One of its fundamental principles is that operational and domestic waste from fishing vessels will be handed over onshore in 2020. The *Green Deal* relates to the fisheries' primary waste flows. Possible actions are geared towards such things as:
  - storage on board and removal of domestic waste;
  - removal of operational maritime waste;
  - fine-tuning of port-based collection facilities to the needs of fishermen;
  - continuation and reinforcement of the *Fishing for Litter* programme;
  - encouraging behavioural change on board in relation to dolly rope.

  The instigator and coordinator of the *Green Deal* is KIMO (Local Authorities International Environmental Organisation) Netherlands and Belgium. To increase awareness of the waste problem within the fisheries sector, a course has been set up by ProSea, one of the parties to the Deal.

Plastic products

- Voluntary reduction of the use of balloons by way of cooperation with local authorities and by joining in with initiatives that are under way.
- Reduced emissions from microplastics in cosmetics by working towards a European ban on microplastics in cosmetics and detergents. Efforts are being concentrated on related actions at bilateral, OSPAR and EU level.[84]

Measures pertaining to underwater noise

Efforts with regard to underwater noise (descriptor 11) are geared towards preventing harmful effects on marine fauna caused by specific activities that produce impulse noise, such as pile-driving and seismic studies. The intensity of anthropogenic noise is much greater than that of natural sounds, and the distances over which it can be heard are likewise greater. The effects of anthropogenic underwater noise on, for example, marine mammals vary from minor, subtle changes in behaviour, avoidance of areas and diminished hearing capacity, to (in extreme cases) immediate death. In 2018, once more knowledge and information is available, it will be possible to set additional objectives in an international context (OSPAR, IMO) for background noise, such as that created by shipping, and for the accumulation of effects of all forms of underwater noise on populations or the ecosystem. Subsequently, it will be possible to formulate additional policy if need be.

[82] Dutch port reception facilities.
[83] Dutch shipowners.
[84] Emissions from microplastics attributed to sources on land other than cosmetics are also being looked into. Efforts are being concentrated on this at bilateral, OSPAR and EU level.

Existing measures

- The permit system for wind farms has been revised with the coming into force of the Wind Energy at Sea Act. The Plot Decrees for the planned wind farms impose amended conditions for pile-driving for wind turbine farms with a view to reducing the effects on marine wildlife. New insights gleaned from research into underwater noise could result in amendments to the conditions attached to permits.
- Under the Nature Conservancy Act and the Flora and Fauna Act in the EEZ, a permit under the former act and/or exemption under the latter act is usually required for the purposes of carrying out seismic surveys at sea. The procedure provides for an appropriate assessment (under the Nature Conservancy Act), a species protection test (Flora and Fauna Act) and accompanying mitigating measures to address possible harmful effects of underwater noise.
- In 2014, the IMO adopted the non-mandatory Guidelines for the Reduction of Underwater Noise from Commercial Shipping, the aim of which is to reduce underwater noise caused by commercial shipping. This recommendation pertains to ships to be newly built.
- The use of active sonar is regulated in an instruction to the Navy Command MWC 320 'Responsible use of active sonar' which aims at preventing minimising harmful consequences of the transmissions of anti-submarine sonars on marine mammals.
- The existing code of conduct for explosives ordnance disposal from the Ministry of Defence describes measures and an assessment framework for the purposes of disposing of explosives with the aim of preventing potentially significant effects. The Ministry of Defence will develop a new code of conduct in 2016 to further reduce environmental impacts by explosive ordnance disposal by looking at feasible options for introducing alternative technologies or mitigating measures. This has been included as an action for the 2016-2021 planning period (see section 7.2).
- Agreements have been made with the Dutch oil and gas industry concerning the implementation of the guidelines established within OSPAR in 2015 for reducing the effects of lighting on offshore platforms on birds.

Fiscal instruments

The MIA scheme, offering a tax refund on environmental investment, and the Vamil scheme providing for voluntary depreciation on environmental investment are geared towards encouraging tax-efficient investment in environmentally friendly technologies. The list of environmentally friendly technologies to which these schemes applies is updated on an annual basis. The schemes encompass a considerable number of technologies relevant to fulfilling the objectives of the marine strategy, particularly in terms of rendering fishing more sustainable, preventing the introduction of invasive exotic species, and reducing pollution, eutrophication, underwater noise and litter. The list for 2015 explicitly mentions that pyrolysis units are also intended for the thermal disintegration of plastic maritime waste. For the purposes of the 2016 list, the investments in terms of fishing and beaches that will be eligible for tax refunds under the MIA/Vamil schemes are being explored, in conjunction with the Fisheries *Green Deal* for a Clean North Sea and the Clean Beaches Green Deal. Moreover, each year the list features a variety of investments that contribute to the circular economy.

Investigative studies and opportunities for the future

In order to increase opportunities for sustainable use of the North Sea and further limit strain on the marine environment and nature, a number of investigative studies are being performed. These will provide insight into the nature and scale of activities and the opportunities to prevent or limit the effects of these on the North Sea. The studies are also looking at where new opportunities can be found to contribute to enriching biodiversity and, if possible, fostering recovery of the North Sea ecosystem, possibly in combination with sustainable collective use.
In the case of making use more sustainable, various studies are being carried out to investigate such things as:

- innovation in the fisheries (dolly rope; damage to ropes);
- angling (use of lead);
- possible designation of the North Sea as a NO_x Emission Control Area (NECA);
- research underwater noise (explosives, sonar);

- examination of the possible reduction of emissions from microplastics from land sources this has been included as an action for the 2016-2021 planning period (see section 7.2).
- practicability of aquaculture and mariculture.

The iSea project is stimulating ideas for sustainable use.

The area-oriented and species-oriented approach is geared towards studying the ecological significance of artificial hard substrate for the marine ecosystem, recovery of vulnerable sharks and rays, and the porpoise protection plan. This constitutes an elaboration of OSPAR recommendations to protect threatened and declining species and habitats.

Active ecosystem recovery is focused on carrying out pilot studies in the Voordelta on the recovery of oyster beds in the deep part of the North Sea and reintroduction of the European sea sturgeon.

Knowledge development

For the purposes of implementing measures, ensuring the marine ecosystem is functional and assessing the effects of human activity, questions must be answered to generate the requisite knowledge. Amongst other things, the process of answering these questions must contribute to updating the national assessment of the Dutch part of the North Sea in 2018. To analyse the issues and manage a study, the Ministry of Infrastructure and the Environment has drawn up a knowledge agenda for the North Sea. Logically, a great many questions can only be answered at regional scale. The importance of cooperating on joint research programmes in the context of OSPAR and the EU will increase over the next few years.
In connection with OSPAR, the Netherlands is doing its bit towards the development and application of common indicators for such things as waste on the seabed, microplastics and background noise. Amongst other things, the Netherlands is contributing to research into methods to enable the exposure of marine organisms to impulse noise to be quantified. One important question also pertains to the cumulative effects arising as a result of humankind's use of the North Sea. Also high on the knowledge agenda are developing criteria to enable assessment of networks of protected areas in terms of coherence and representativeness, studying the effects of human activity on species and areas and long-term processes like climate change and acidification and the systemic implications of increasing sand extraction. Each year a knowledge agenda is established for the MSFD. This has been included as an action for the 2016-2021 planning period (see section 7.2).

Contribution to achieving a good environmental status

The programme of measures contains a considerable number of measures that, using a risk approach and precautionary principle, will help achieve the environmental targets set by the Cabinet for the Dutch part of the North Sea by 2020. The measures are contributing to the three policy-related starting points: rendering use sustainable, area-oriented and species-oriented approach, and active ecosystem recovery.

The measures focus on the most significant human activities on the North Sea from the perspective of environmental impact. The programme covers the vast majority of the relationships between use, strain and effect on marine ecosystem and response. Existing and proposed policy will bring a good environmental status within reach by 2020 or in the ensuing period, in terms of such things as reducing pollution and eutrophication, developing healthy fish stocks, excluding invasive exotic species and mitigating and compensating for hydrographic interventions. This underscores once more the importance of the policy in these areas. For a number of elements work is being done on a supplementary policy effort: seabed protection, making fishing sustainable and reducing litter and underwater noise. The existing and supplementary measures are helping to bring a good environmental status within reach by 2020 or in the subsequent period.

Due to the dynamic nature of the North Sea, the manifold elements that collectively determine its environmental status and the diversity of activities affecting this status, it is impossible to say what exact condition the Dutch part of the North Sea will be in by 2020. This is also due to the fact that it is impossible to predict the extent to which implementing measures will result in biodiversity, the seabed ecosystem and food webs recovering where it has been adversely affected and how swiftly it will do so. Another uncertain factor that must be taken into consideration is the lag effect of the presence of a number

of substances, litter and microplastics that have accumulated in the North Sea as a result of past activities. Moreover, there is a great deal of uncertainty and gaps in our knowledge of, for example, microplastics and underwater noise, which will require more detailed study.

For the time being it cannot be concluded that the protected areas in the Dutch part of the North Sea (Natura 2000 and MSFD) collectively constitute a representative and coherent network of protected areas in line with the requirements stemming from Article 13.4 of the MSFD and the Cabinet's ambition. The Netherlands is joining in with initiatives in the context of OSPAR and the EU to evaluate the coherence and representativeness of protected areas. In connection with these initiatives, the Cabinet is dedicated to a region-specific approach to the North Sea in conjunction with neighbouring countries. The aim is to be able to draw conclusions on this when updating the assessment of the environmental status of the North Sea in 2018.

The environmental status of the Dutch part of the North Sea will be closely monitored. The organisation and working methods are set out in Marine Strategy Part 2 Monitoring Programme MSFD. The approach – directing efforts towards reducing the most significant sources of adverse effects on the North Sea environment in combination with a monitoring programme – presents the possibility of timely intervention if the environmental status were to develop too slowly or in the wrong direction (the 'hand on the tap' principle). The second MSFD cycle, from 2018 onwards, presents opportunities to examine this in greater detail.

4.3 Wind energy

Spatial planning task

In the Energy Agreement for sustainable growth it was agreed with the parties involved that 4,450 MW of offshore wind energy will be operational by 2023[85]. This means that an additional 3,500 MW of wind power at sea must be installed, in addition to the existing wind farms and the ones under construction. Additional policy efforts and investments are required to achieve this target. Given the available space within the designated areas and wind energy areas yet to be designated, the task is to identify wind farm sites where it will be possible to produce 3,500 MW in a cost-effective manner, allowing for the other interests in the North Sea.

As part of the Energy Agreement, it has been agreed that the government will ensure a robust statutory framework in order to achieve the agreed target for wind energy production at sea. To be able to put this new system into practice, the Wind Energy at Sea Act has been prepared in consultation with the wind energy sector. This system makes it possible for the Central Government to take control of the spatial assimilation of wind energy and carefully weigh up interests in the North Sea. With this new legislation existing unused permits have l expired.

The system will help ensure efficient use of space, reducing costs and accelerating the roll-out of wind energy at sea. Within a designated area, the Central Government will take so-called plot decrees, laying down the site-specific conditions for the construction of a wind farm on that parcel. When drawing up a plot decree, the Central Government will also study the structure of the relevant parcel and the soil, local wind speeds and information on water in the relevant parcel. Together with the plot decree, these studies will provide essential information on which market parties can base their tender, by way of a subsidy tender. The party submitting the best tender will then be granted the exclusive right to build a wind farm on the parcel.

In September 2014[86] the Cabinet announced its intention to fulfil the target of 3,500 MW within the wind energy areas of Borssele and Coast of Holland. These wind energy areas have already been designated. Creating wind farms nearer to the coast is cheaper than doing so further out to sea. The Cabinet wishes to add a strip of no more than two nautical miles (NM) to the Coast of Holland area within the 12-mile zone, thereby enabling spatial and more cost-effective use of the area. The areas within the 12-mile zone have not yet been designated and are beyond the scope of the present Policy Document on the North Sea. The designation decision will be fleshed out in a partial revision of the National Water Plan 2016-2021. To this end an environmental impact statement will be drawn up looking at alternatives. An appropriate assessment will also be prepared.

The Policy Document on the North Sea 2016-2021 reaffirms the designated wind energy areas of Borssele, IJmuiden Ver, Coast of Holland and North of the Wadden Islands. For the purposes of designating new areas and the actual assimilation of wind farms, fundamental spatial planning principles have been formulated in this Policy Document on the North Sea. These will be discussed later on in this section. The designated areas and policy intention for the strips within the 12-mile zone will also be described. In addition to the spatial planning policy for the wind energy areas and wind farms, new policy will be required to connect wind farms to the grid so as to fulfil the terms of the Energy Agreement. The policy for this grid at sea is described in this section.

[85] At present, there are three operational wind farms in the Dutch part of the North Sea: the Offshore Windpark Egmond aan Zee (OWEZ), 6 nautical miles (NM) off the coast of Egmond aan Zee with a capacity of 108 MW, the Prinses Amalia wind farm, 12 NM off the coast of IJmuiden with 120 MW and the Luchterduinen wind farm in the Coast of Holland area (12 NM out) with 129 MW. The Gemini Offshore Windpark (34 NM out) with 600 MW in the area to the north of the Wadden Islands is also under construction.

[86] Dutch Senate and Dutch House of Representatives, 2014-2015 session, 33 561, no. 11.

Design criterion: distance between shipping routes and wind farms

For the purposes of reserving space, the 'reference ship' is important. Depending on the route, the reference ship is 300 or 400 metres long. The routes to Amsterdam, for example, have a reference ship 300 metres long.

The largest manoeuvre a ship must be able to make, and hence for which there must be sufficient space, is the so-called round turn. 6 ship lengths are required for this. An extra 0.3 NM evasive manoeuvre is necessary on the starboard side prior to a ship executing the round turn, because an initial effort will be made to avoid performing a round turn. The overall space required on the starboard side is therefore 0.3 NM + 6 ship lengths. Moreover, a safety zone of 500 metres around *single objects* (wind turbines) is in force. Within this zone no passage is possible at present. The requisite safe distances for shipping are therefore:

- In the case of ships 400 metres in length: 1.87 NM on the starboard side and 1.57 NM on the port side;
- In the case of ships 300 metres in length: 1.54 NM on the starboard side and 1.24 NM on the port side.

For the *clearways*, the connecting routes between the formal routes, these distances have been included in the width of the *clearway* path. For anchorages and *precautionary areas*, the same safe distances can be maintained as for a traffic separation scheme.

Design process: distance between mining sites and wind farms

The characteristics of a mining platform, the location and format of the wind farm, and the possibility of multiple use of space will vary for each site. Consequently, accessibility to helicopters will have to be assessed for each platform individually. To this end consultation will be held with the mining company concerned, with due regard for relevant aspects from the perspective of flight safety and the interests of the future wind farm operator.

The procedure leading up to the establishment of a draft plot decree for a wind farm is:

- All relevant interests are considered in the draft decree.
- Specifically for mining, sites are sought within the areas where the new wind farm can be built where the spatial planning tension with mining is kept to a minimum. In addition, consideration is paid to the current status of the prospects present (as these are known to the Ministry of Economic Affairs/TNO), existing mining installations and transport pipelines in place.
- If the distance between the site of the proposed wind energy plot and the existing mining platform is less than 5 NM or if this plot encroaches upon the maintenance contour of a transport pipeline present, then things will be fine-tuned with the mining firm(s) concerned.
- With regard to the *prospects*, the location of and conditions for the proposed wind energy plot will – based on all information (confidential or otherwise) in the possession of the Ministry of Economic Affairs/TNO – be established in such a way that they will have minimal impact on future mining interests.
- Bilateral fine-tuning will be done with individual mining companies that hold a prospecting or extraction permit covering areas within 5 NM of the site for the proposed wind energy farm, in part keeping in mind any prospects present and work plans in place.
- In addition to the 'customisation in terms of space' described here, the options for 'customisation in terms of time' will also be taken into consideration for the purposes of a specific wind energy plot.
- When looking for a customised solution, efforts are geared towards jointly coming up with a safe and practicable solution for all parties. If an agreement is reached on the customised solution with the mining firm(s) concerned during the preparatory phase, the relevant provisions will be legally enshrined in, for example, the draft decree.
- If such agreement with the mining firm(s) concerned proves impossible during the preparatory phase, the Minister for Economic Affairs will, in conjunction with the Minister for Infrastructure and the Environment (jointly competent authority), establish a draft decree on the location of and conditions for the specific wind energy plot. For the purposes of this decree, consideration will be given to the interests of the wind farm site on the one hand and the consequences of this for the mining company involved on the other hand.

A number of actions have been included for the 2016-2021 planning period with regard to the distance between mining sites and wind farms and with regard to flight safety in wind farms (see section 7.2).

Ecology and Accumulation

Within the Framework for Ecology and Accumulation, the Central Government explores the ecological effects and mitigating measures in greater depth. Relevant parties have been involved in the development of the assessment framework (including wind farm developers and nature conservation organisations).

The objective of the assessment framework is to clarify how cumulative ecological effects must be charted. This assessment framework will have to be used in future decision-making on offshore wind energy. Based on the assessment framework, when making spatial planning decisions on such matters as the future designation of wind energy areas and plot decrees, an assessment will be made as to whether or not it is possible to rule out an offshore wind farm having undesirable ecological effects, either individually or cumulatively with other wind farms and other activities. In order to prevent any undesirable effects, rules will be incorporated into the terms and conditions applicable to the plot. In the most extreme of cases, further development of sites could be prohibited.

Fundamental principles

Priority development of economic uses of national interest to the Netherlands.

The spatial planning tension between various activities of national interest is being kept to a minimum. To this end, the following points of departure apply:

Wind energy

Within the frameworks of the legislation and regulations for wind energy at sea, the following is being sought from the point of view of costs:

- a spatially efficient layout for wind farms and landing points;
- areas where a capacity of (a multiple of) 700 MW can be achieved. The choice here relates to the selection of TenneT as grid operator and the selection of TenneT to connect wind farms to standardised platforms of 700 MW.

Shipping

The 'Design criterion: distance between shipping routes and wind farms'[87] has been worked out together with the shipping sector. It is intended to determine the space between the shipping route and wind farms at sea that shipping needs to be able to navigate swiftly and safely. It has been applied to the wind energy areas Coast of Holland and North of the Wadden Islands. The design criterion has not been applied to the wind energy areas Borssele and IJmuiden Ver, designated in 2009. In this regard a provisional distance of 2 NM applies for the shipping route.

Oil and gas extraction and CO_2 storage

For mining platforms with a helipad, the starting point is an obstacle-free zone of 5 NM round these platforms so as to guarantee safe helicopter traffic to and from these platforms in all weather conditions. In specific situations, the possibility of a customised solution can be looked into. This would be appropriate where, to ensure cost-effective roll-out of offshore wind farms, consideration is being given to siting a wind farm partially or entirely within a platform's 5 NM zone. Furthermore, when it comes to planning new wind farms, subterranean oil and gas reserves must be taken into consideration – the so-called prospects. In consultation with the mining sector, a design process has been drawn up which needs to be worked through when producing a draft plot decree.

Defence

The existing military exercise zones adjacent to the designated areas beyond the 12-mile zone are being maintained. Certain forms of multiple use may well be possible, but in principle multiple use involving permanently installed objects is excluded on the grounds of safety.

Sand extraction

The designated wind energy areas fall outside of the zone in which sand extraction has priority.

Efficient and safe use of the North Sea in balance with the marine ecosystem

Natura 2000 areas and other areas that are potentially valuable in ecological terms

- To prevent any undesirable effects, designated Natura 2000 areas are avoided when designating wind energy areas.
- Future spatial planning decisions for offshore wind energy, such as plot decrees, will be assessed on the basis of the Ecology and Accumulation assessment framework. Points for attention include the (cumulative) effects of wind farms on the lesser black-backed gull and porpoises.

Passage and multiple use

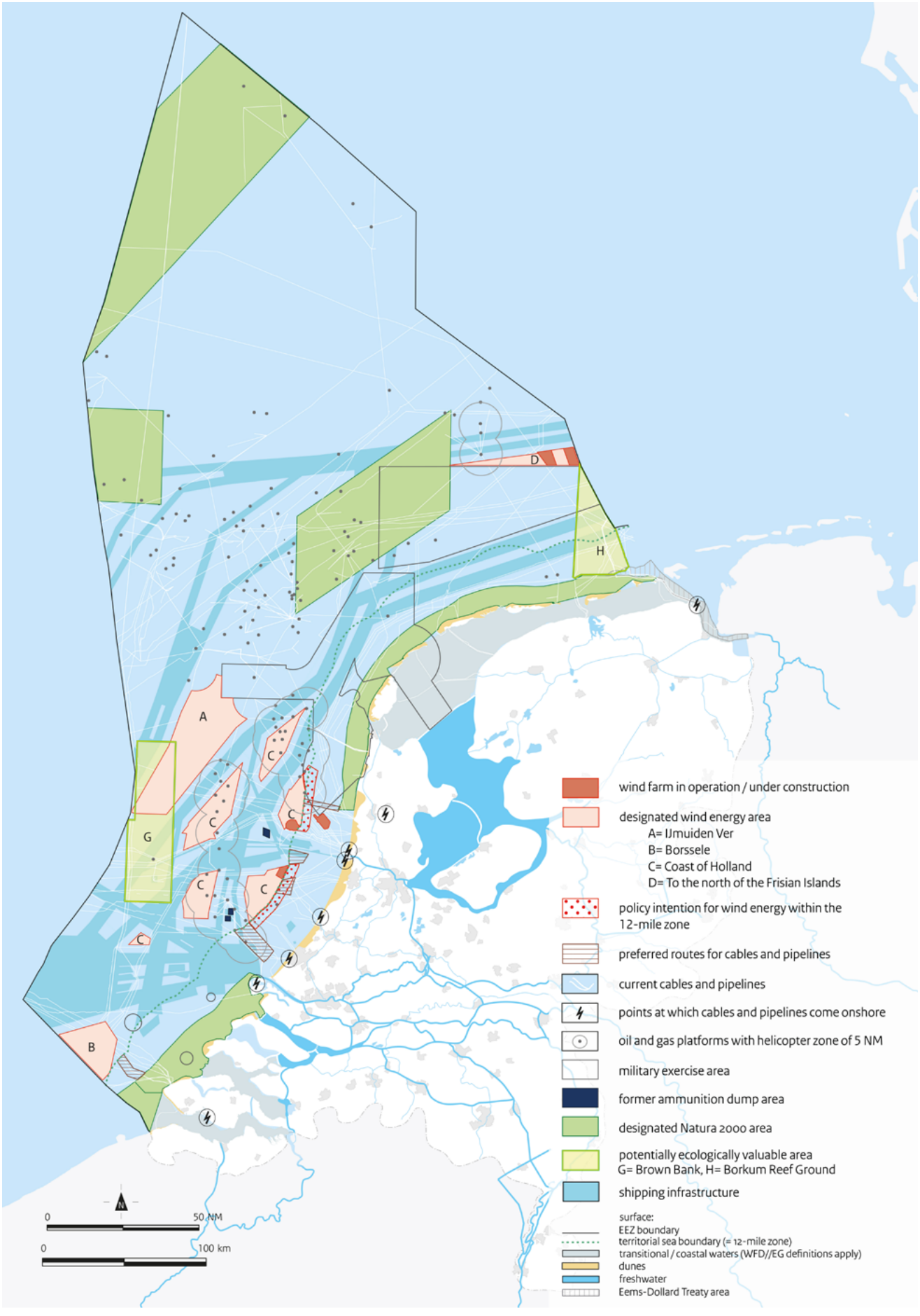
At present, passage through and multiple use of wind farms at sea are not permitted. Various users of the North Sea, such as recreational sailing and (professional) fishing, want these areas to be accessible. The closure of the wind farms for these and other users will, in the future, cause increasing pressure, due to wind farm development within the framework of the Energy Agreement, the increasing activities at sea and the reduction of the fishing zones. Passage through and multiple use of wind farms can contribute to efficient use of space, as well as presenting opportunities to bolster the sustainable use and biodiversity of the North Sea.

The policy is that, from 2017, passage and multiple use will be allowed in all operational wind farms under the following conditions:

- Passage will be facilitated for smaller vessels with a maximum length, under enforceable conditions that ensure an acceptable level of SAR possibilities.

[87] Previously entitled 'Assessment framework: distance between shipping routes and wind farms'.

Figure 4.2 **Wind energy**



- Multiple use will be made possible for recreational purposes and activities that do not disturb the seabed, as well as for aquaculture and other forms of sustainable generation of energy. Furthermore, interests will be weighed up in the context of installing a safety zone around the wind farm or - where the various uses of permanent constructions are concerned - in the context of granting a permit pursuant to the Water Act.
- For the purposes of innovative activities that do not require a permit, not all forms of passage through and multiple use of wind farms can be allowed. Approval needs to be obtained for each individual initiative on the basis of an assessment of: the risks related to possible nuisance and damage to the wind farm, the legally protected ecological values and enforceability.

Not all forms of passage and multiple use are deemed suitable, due to the safety risks, the chance of damage to the wind farm or obstruction of its management and maintenance and ecological risks. On the other hand restrictions in multiple use can also create possibilities for ecological development. For these reasons and to be able to maintain responsible passage and multiple use, this policy will be elaborated in policy rules.

In the operational farms to be opened in 2017, the activities taking place there and their frequency will be monitored. Effective implementation will be carried out by revising the Act of General Application regarding Installing a Safety Zone (besluit van algemene strekking met betrekking tot de instelling van een veiligheidszone) for each individual wind farm.
Prior to opening the wind farms, the Central Government will provide the infrastructure and facilities necessary for setting the conditions and, in cooperation with the sectors involved, initiate an information campaign.

On the basis of monitoring and evaluation of the farms opened from 2017 onwards (for two high seasons following opening), any amendment to the policy rules and the acts for installing a safety zone will take place in mid-2020. The stakeholders will be expressly involved in the monitoring and evaluation.

Because of high costs for enforcement of the conditions for passage and multiple use in the remote windfarm Gemini, this farm will remain closed. In the foreseen evaluation of 2020 this decision could be reconsidered.

Perception
The desire to ensure that the view of the horizon remains unobstructed means that to date no wind energy areas have been designated within the 12-mile zone. In a general sense, it means that permanently visible structures associated with activities of national interest are permissible within the 12-mile zone if there are no reasonable alternative sites for these and no significant effects are produced to the detriment of coastal protection. In such cases, adverse effects on the view of the horizon, recreational activities and fishing should be kept to a minimum.

In order to be able to achieve 1,400 or 700 MW in the Coast of Holland area, the Cabinet would like to add a strip of no more than two NM within the 12-mile zone. These areas are adjacent to the Coast of Holland area already designated outside of the 12-mile zone. The decision to designate extra wind energy areas within the 12-mile zone will be elaborated on in the form of a partial revision to the National Water Plan 2016-2021, including the drawing up of an environmental impact statement looking at alternatives and an appropriate assessment.

The following points for attention apply when fleshing out the policy intention:
- The 'design criterion for distance between shipping routes and wind farms' will be applied to the approach area to IJmuiden. In this regard, consideration will be given to a possible new anchorage between the IJ Channel and the wind energy area.
- The strips partly overlap with the zone in which sand extraction has priority. The effects will be studied in connection with the partial revision.
- The strip between 10 and 12 NM in the area of Noord-Holland partly overlaps with the military training area and will only be feasible if the military training area is rotated somewhat. This will be looked at in more detail in connection with the partial revision.
- Clustering the strips with the areas beyond the 12-mile zone will minimise the effects on the view of the horizon and preserve the view of the horizon in the rest of the 12-mile zone. The effects of the possible building of wind farms in the strip between 10 and 12 NM on view and perception will be studied in connection with the partial revision.

Wind energy areas

The designated wind energy areas are Borssele, IJmuiden Ver, Coast of Holland and North of the Wadden Islands. The overall surface of the areas already designated is around 2,900 km². Assuming an average 6 MW per km², this comes to a potential wind energy capacity of some 17,400 MW. In this case it is important to note that this is the gross surface area. In all areas there are still issues surrounding harmonisation with other designated uses and the marine ecosystem:

- Wherever possible, consideration will be given to preservation of fishing grounds when making decisions on concrete wind farms.
- A relatively large number of cables and pipelines run through a proportion of the areas already designated, as a result of which not all the surface area is available for wind farm siting. With a view to efficient use of space, maintenance zones can be reduced.
- In the case of seabed interventions in the Exclusive Economic Zone (EEZ), consideration will have to be given to the obligation to preserve archaeological and cultural heritage (or information thereon) in accordance with the Malta Convention, which has been implemented in Dutch legislation.

Connecting wind farms to the national grid

In the case of existing wind farms and wind farms under construction, the wind farm operator is responsible for the connection to the national grid. Within the framework of the Energy Agreement, it has been agreed that a grid will be created at sea wherever this is more efficient than connecting wind farms directly to the national high-voltage grid and that grid operator TenneT will be assigned responsibility for this. The Cabinet's decision on 18 June 2014[88] to appoint TenneT as grid operator to construct the requisite infrastructure at sea constitutes fulfilment of this agreement. This puts the grid in public hands. The same principle applies to the grid at sea as to the grid on land, namely that it is extremely important to have a reliable, affordable and renewable energy supply.

The Cabinet is fleshing out the task for TenneT as grid operator at sea in the legislative agenda STROOM, the announced revision of the Electricity Act 1998 and the Gas Act.

The starting point for the road map for the roll-out of offshore wind energy is that TenneT will create the connection by siting five standardised platforms of 700 MW, which will be connected to the national high-voltage grid using two 220kV cables. The wind farm's turbines will be connected to the platform directly. TenneT will expand on this within the framework of the offshore grid development plan.

The intended growth of the wind energy generation capacity will make demands on the grid on land. The implementation of major wind energy projects might compel TenneT to reinforce the national main transmission grid (>110 kV). The ambitiously generated wind energy capacity should ultimately be assimilated into the national high-voltage grid. The areas of Borssele and Coast of Holland will be connected to the national high-voltage grid at Borssele, Wateringen and Beverwijk. Separate spatial planning procedures will be followed to this end.

The policy set out in sections 3.7 and 4.4 applies to the marine cable routes. In addition, the assessment framework for activities in the North Sea applies to the procedure for the cable routes (section 5).

[88] Dutch House of Representatives, 2013-2014 session, 31 510, no. 49.

4.4 Sand extraction strategy

Task

Sand extraction is regarded as an activity of national interest. The policy is geared towards reserving sufficient sand reserves at sea for the short and long term for replenishment and filling purposes at attractive and reasonable costs.
A sand extraction strategy with increased spatial management has been developed in order to achieve this policy target. Starting points are: ecologically responsible, cost-effective, sustainable sand extraction that is smart in relation to supply and properly adapted in spatial planning terms.

The zone between the continuous NAP -20m isobath and the 12-mile boundary is regarded as a reserve area for sand extraction for the purposes of coastal replenishment and flood protection as well as for sand extraction for filling purposes and concrete and masonry sand for construction and infrastructure.

Priority is being given to the requisite demand for sand for the coming years and the sand extraction areas that will be needed to this end, with sand suitable[89] for replenishment and use in construction and infrastructure, at the lowest possible costs of extraction. This zone will amply meet the demand for sand over the coming decades. For that reason, other activities of national interest will be given priority over sand extraction in the event of stacking of activities of national interest outside the 12-mile zone.

Method of extraction

In principle, deeper sand extraction is assumed than the previously customary two metres to limit the possible effects of sand extraction on seabed creatures and fisheries and to guarantee the availability of sand extraction to the fullest extent possible within the 12-mile zone. Deep sand extraction is permitted from two kilometres seaward of the continuous NAP -20m isobath. More research into the effects of greater depth of extraction is required, particularly in relation to the relevant area's speed of recolonisation. A monitoring programme on recolonisation will be carried out in the extraction area for Maasvlakte 2 during the next few years. A definitive evaluation will be drawn up once the seabed creatures have finished recovering. This evaluation has been included as an action for the 2016-2021 planning period (see section 7.2).
Digging through shallow layers of clay and peat is to be avoided as this can stir up sediment and/or silt. For that reason the maximum depth of sand extraction is restricted to one metre above these layers.

In principle, deep extraction of concrete and masonry sand and fill sand is permitted. With a view to possible future use, an area has been reserved off the coast of Zuid-Holland and Zeeland for the purposes of extracting coarse sand for concrete and masonry sand production. The principle of economical and high-quality use of surface minerals remains unimpaired. Consequently, this coarse sand that has been reserved will not be used for filling or replenishment. In order to utilise an area efficiently, the competent authority will issue a permit to several initiators for the same extraction area, if possible. An environmental impact statement is mandatory in the case of permits issued for sand extraction exceeding a volume of 10 million m^3 or an area of 500 ha.

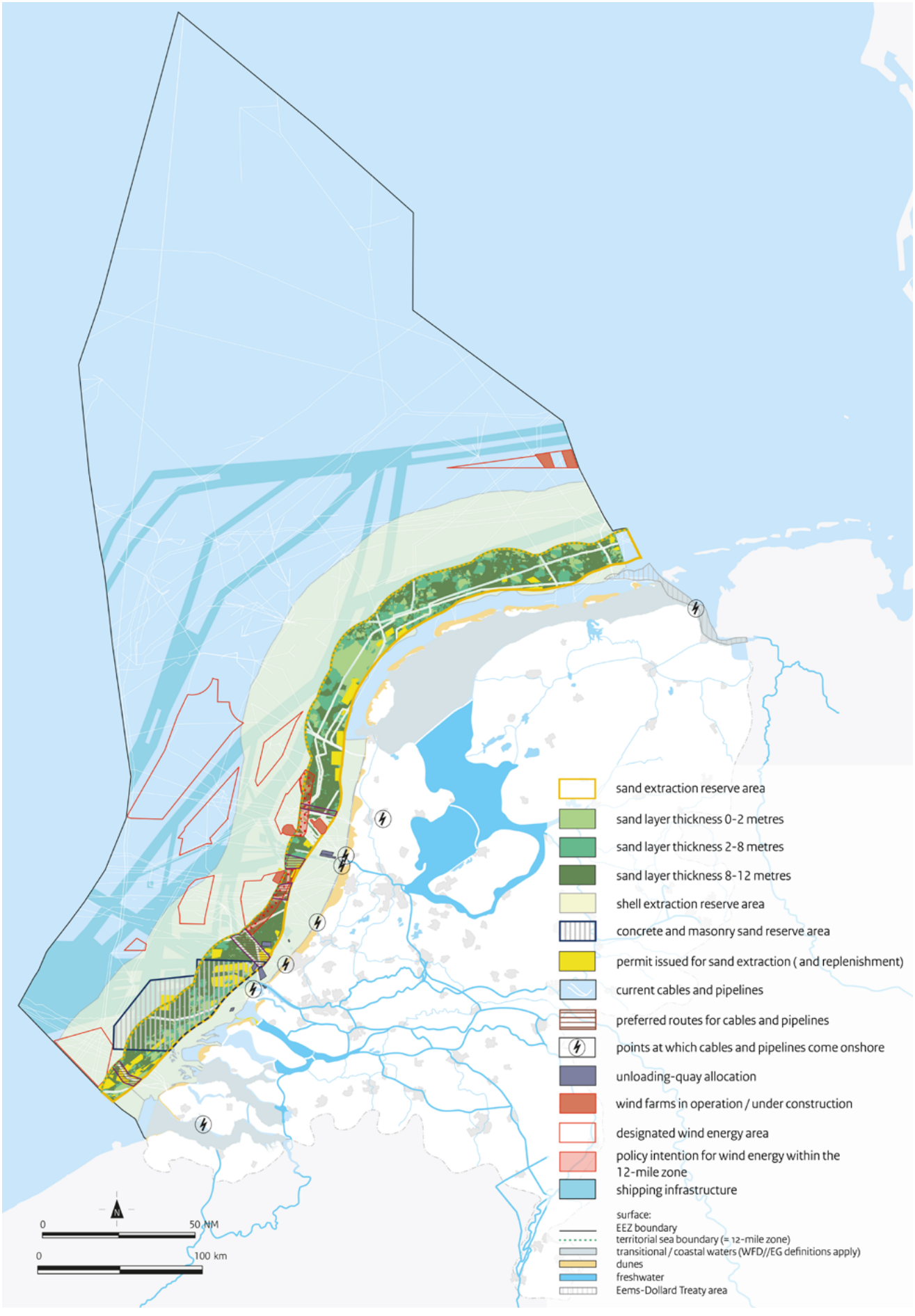
Sand extraction in relation to other designated uses

Sand extraction combines well with several other designated uses, such as shipping and fishing. Not surprisingly, the fundamental principle is that the sand extraction zone is accessible for other designated uses on the proviso that they do not impede the sand extraction activities either now or in the future. In this regard, the future requirement for sand from this zone should be taken into account.

No sand may be extracted within a radius of at least 500 metres of cables and pipelines.

[89] The suitability of the sand is partly dependent on its intended use, such as replenishment (foreshore, beach) or filling.

Figure 4.3 **Sand extraction strategy**



If parties engaged in other activities of national interest, such as oil and gas extraction and wind energy, wish to use the area reserved for sand extraction, then a solution tailored to the specific situation will be sought.

In the case of cables and pipelines, including inter-connector and telecommunications cables, the following will be examined in succession: 1) whether a route is possible with the new cables and pipelines being bundled with existing cables and pipelines; and 2) whether a route is possible without appreciably affecting the supply of extractable sand. These preferred routes are shown on the framework vision map and are based on:

- location of less suitable sand extraction zones (thin package, see figure 4.3);
- existing bundling of cables and pipelines, enabling maintenance zone to be limited;
- landing points for gas, oil and electricity;
- location of sand extraction sites that have already been depleted.

If use of a preferred route is impossible for economic or environmental reasons, or if no route has been designated in an area, then customised work will be necessary. In exceptional cases it may be possible to extract sand in this area prior to it being used for cables or pipelines. If this is not possible and the new route will force the sand extraction activities out to another site entailing extra costs, the initiator will have to compensate these extra costs.

No extraction is permitted landward of the continuous NAP -20m isobath. Exceptions to this rule are extraction from fairways, the construction of trans-shipment depots, extraction activities where removal of surface minerals from the extraction site is to the benefit of coastal protection, and restoring the seabed of former dumping grounds to their original condition.

5

Assessment framework

5.1 Introduction

The Central Government sets frameworks to enable use of space in the North Sea to evolve efficiently, safely and sustainably. Multiple use of space is an important principle in this regard. It offers balanced opportunities for all forms of use of the North Sea. The assessment framework is the mechanism utilised by the Central Government to assess the permissibility of activities at sea. Activities are projects for which a permit is required. Collections of such activities are referred to as designated uses. The policy pertaining to the designated uses was described in sections 3 and 4. Also mentioned are several activities of national interest to which the Cabinet has given priority. The assessment framework ties together relevant policy and sets out how, within European and international frameworks, new activities are weighed up. It also provides an indication of what to do if various activities of national interest conflict with each other.

The spatial planning repercussions with regard to activities of national interest are shown on the framework vision map for the North Sea. These and other fundamental principles and the scope of the assessment framework are described in section 5.2. The assessment framework comprises five steps, working from broad to fine and completed sequentially, though they are not necessarily all applicable.

5.2 Scope and fundamental principles of the assessment framework

Scope

The assessment framework for activities in the North Sea applies to all activities for which a permit is required under the laws and regulations applicable to the North Sea in territorial waters and the EEZ insofar as this pertains to aspects affecting the North Sea's water system. The assessment framework for the Nature Conservancy Act has been integrated into this to the fullest extent possible. Activities for which a permit is required are also taken to include existing usage for which a permit is being extended or increased in scope.

In the case of uses for which a permit is not required (shipping, a proportion of military use, and recreation), the aspects of the framework of assessment will only become relevant when policy is revised or new policy is introduced.

Another exception concerns fishing activities in the EEZ. The European Union's Common Fisheries Policy regulates this.

When assessing the permissibility of an economic activity, a set procedure is followed. The following aspects are taken into consideration: the spatial planning aspects, safety, and the effects in ecological and environmental terms. This may result in conditions and restrictions being applied to a permit. When working through the assessment framework, another factor subject to scrutiny is whether or not the activity will fulfil the objective of the MSFD, namely to achieve or maintain a good environmental status by 2020. Important in this respect are the precautionary principle and the use of the ecosystem approach.

Status and application of the assessment framework

The assessment framework is a policy regulation and obliges the competent authority to act in accordance with this framework when issuing permits. As such, the assessment framework is chiefly of importance to permit authorities and users of the North Sea wishing to apply for a permit under the[90] Water Act, Earth Removal Act, Nature Conservancy Act, Flora and Fauna Act, Environmental Licensing (General Provisions) Act, several shipping laws[91] [92] [93] and the Mining Act[94]. The policy regulation is applied by the competent authorities, viz. Rijkswaterstaat (on behalf of the Minister for Infrastructure and the Environment) and the Minister for Economic Affairs[95]. The assessment framework as described here will supersede the assessment framework of the revised Integrated Management Plan for the North Sea (IBN) 2015.

Relationship with Nature Conservancy Act and Flora and Fauna Act

As stated, the assessment framework also applies to activities that, under the Nature Conservancy Act and Flora and Fauna Act, require a permit or exemption respectively. This is the case where:

- activities may have significant adverse effects on a Natura 2000 area; or
- activities may have effects (disturbing, catching, killing) on protected native species of plant or animal; or
- activities will damage, destroy or disturb breeding grounds, resting sites or sites inhabited by these species.

[90] For further information on the national statutory frameworks see www.noordzeeloket.nl under policy.
[91] Prevention of Pollution from Ships Act.
[92] Shipping Traffic Act.
[93] Territorial Seas Shipping Regulations.
[94] Insofar as this pertains to the aspects affecting the North Sea water system.
[95] Matrix of competent authority (relevant law, service point and competent authority for each designated use) at www.noordzeeloket.nl under spatial management, permits.

Activities do not require a permit under the Nature Conservancy Act if a permit is issued or will be issued under other laws and with due regard for Article 6, paragraphs 3 and 4 of Council Directive 92/43/EEC (this only applies to activities in the EEZ) or the activities engaged in within the Natura 2000 area have already been assessed and enshrined in the management plan for the relevant area.

If it is impossible to rule out the possibility of a plan or project having significant effects, then the Nature Conservancy Act requires a so-called ADC test to be carried out. This test makes it possible to grant permission for plans or projects that, in the absence of alternative solutions, do have to be implemented for pressing reasons of overriding public interest. In such cases, permission is granted on the proviso that the initiator takes all necessary compensatory measures to guarantee that the overall consistency of Natura 2000 continues to be preserved.

Fundamental principles

- General: Within the European and international frameworks (Water Framework Directive, Marine Strategy Framework Directive, the Birds and Habitats Directives and the Malta Convention), the Cabinet is giving priority to activities of national interest: shipping, oil and gas extraction, CO_2 storage, generation of sustainable (wind) energy, sand extraction and replenishment, and defence. Multiple use of space is encouraged to the fullest extent possible.
- Room for experimentation: The Central Government can designate an area and, if possible, temporarily deviate from this assessment framework for experiments aimed at bolstering the sustainable development of the North Sea in the longer term. The permit authority will set conditions and/or restrictions to ensure that the experiment does not endanger the safety of other existing uses. Adverse effects on other forms of use must be kept within reasonable limits.[96]

[96] The precautionary principle remains in force. The steps 'choose location & assess requisite space/time' (step 2), 'utility & necessity' (step 3) and 'compensate for effects' (step 5) lapse.

Figure 5.1 The five steps comprising the assessment framework

5.3 The five steps comprising the assessment framework

Figure 5.2 presents the five steps comprising the assessment framework. It makes clear that the assessments are worked through successively, but not necessarily all of them are performed. An explanation of the assessments is provided in subsequent sections.

Step 1: Defining spatial claim & applying precautionary principle

Defining the spatial claim is actually not a real test; rather, it provides a description of the relevant activity. This information is needed for the other tests. Following and in consultation with the competent authority, the initiator adheres to a set format for the description, with the following sections being included as a minimum: nature and purpose of the activity, start and duration, requisite space and intended location, the potential effects, and one or more alternatives. The initiator particularly has to go into more detail on spatial claim and potential effects, where necessary substantiating statements by means of research results.

Calculating spatial claim

Preliminary discussions of an informal nature with the competent authority may be regarded as the start of a process geared towards optimum assimilation, involving other interested parties too, if need be. The fundamental principle for the competent authority is to encourage and enable new activities at sea within the set frameworks by adopting a development-oriented approach in which designated uses are harmonised with one another in a sustainable, integrated manner.

These preliminary discussions put the initiator in a position to take into consideration all spatial interests in the planning area in advance. It is anticipated that this will result in a lower incidence of legal proceedings once formal permit applications have been submitted. Furthermore, the preliminary discussions will also enable the initiator to acquaint themselves with the formal test criteria and procedure for permit issuance at an early stage.

For each initiative there is a single service point where the competent authority, in conjunction with the initiator, looks at whether or not it will be possible to offer the space within the bounds of the North Sea policy.
The formal process starts once the formal permit application has been submitted. The formal test criteria for permit issuance are set out below.

Ecosystem approach and precautionary principle

For sustainable development and sustainable use of the North Sea, the ecosystem approach is being applied. In other words: not only the impact on individual species counts, but also the effects on the entire cohesion of communities and their habitats. Existing laws and regulations provide for the ecosystem approach by means of such things as a test of the effects on nature and the environment and application of the precautionary principle. This principle has had a place in international and national policy for years now (OSPAR, NWP, MSFD and Natura 2000). It is a crucial point of departure when it comes to developing and planning activities at sea. The principle entails a user having to take preventive measures if there are reasonable grounds for concern that the activity could cause potential irreparable damage to the marine environment, human health and/or other lawful use. Adequate proof of a causative relationship between activity and consequences is required.
The preventive measures must preclude undesirable, long-term, irreversible effects being caused by activities, or minimise such effects where they cannot be prevented. Examples of preventive measures are: temporal zoning, using clean technologies, introducing checking systems and managing flows of substances/materials/waste.

Effects of existing and new activities

The way in which the precautionary principle is applied depends on whether the activity relates to an existing or new designated use. After all, policy and regulations are already in force for existing use, whereas there are more questions and uncertainties surrounding new use.
If an environmental impact statement is mandatory for new activities, then the environmental impact statement will provide sufficient insight into the effects to enable

Table 5.1 Coordination of activities in the national interest

Activity of national interest	Precondition
Shipping	In traffic separation schemes, deep-water routes, anchorages, *precautionary areas* and *clearways*, shipping has priority over other forms of use. For safety reasons, mining installations and other permanent individual structures are not permitted within shipping routes or within a 500-metre radius of these shipping routes.
Oil and gas extraction	The greatest possible use is made of the potential presented by oil and gas supplies, including the 'small fields'. Shipping or other forms of use are not permitted within a 500-metre safety zone around the mining platform. For mining platforms with a helipad, the starting point is an obstacle-free zone of 5 NM round the platform so as to guarantee safe helicopter traffic to and from the platform in all weather conditions. In specific situations, the possibility of a customised solution may be looked into by applying the design process: distance between mining sites and wind farms (see section 4.3). In principle, new pipelines should use preferred routes when transecting the sand extraction zone (see section 4.4).
CO_2 storage	The greatest possible use is made of depleted oil and gas fields and of *aquifers* (suitable for CO_2 storage). Shipping or other forms of use are not permitted within a 500-metre safety zone around a platform equipped for CO_2 storage. In principle, new pipelines should use preferred routes when transecting the sand extraction zone (see section 4.4).
Generating renewable (wind) energy	The use of the North Sea for generating renewable (wind) energy takes precedence over other forms of use. In the designated wind energy areas efforts are made to harmonise things in timely fashion between the use (or future use) of the area for the purposes of wind energy on the one hand and oil and gas extraction (or future oil and gas extraction) on the other. Harmonisation between wind energy and oil and gas extraction is customised work. A multiple use harmonisation clause has already been incorporated into the round 2 permits for wind farms. When allocating plots (round 3) the design process: distance between mining sites and wind farms applies (see section 4.3). Coordination with the fellow user could result in the wind farm's layout being changed. Shipping is not permitted in a wind farm nor within a 500-metre safety zone round the wind farm. The intention is to open up operational wind farms subject to conditions (see section 4.3). When designating wind energy areas the design criterion: distance between shipping routes and wind farms applies (see section 4.3). For the distance required between cables and offshore wind farms for safety and maintenance, a maintenance zone of 500 metres is required for electricity cables and 750 metres for telecommunications cables. In principle, new cables should use preferred routes when transecting the sand extraction zone (see section 4.4).
Sand extraction	Sand extraction for the purposes of coastal defences and filling is given priority within the reservation zone between the continuous NAP -20 m isobath and the boundary of the 12-mile zone. In principle, new cables and pipelines should use preferred routes when transecting the sand extraction zone (see section 4.4). In the case of 'stacking' beyond the 12-mile zone, other activities in the national interest take precedence over sand extraction. No sand extraction is permitted landward of the continuous NAP -20m isobath. In principle, exceptions to this rule are extraction from fairways, the construction of trans-shipment depots, extraction activities where removal of surface minerals from the extraction site is to the benefit of coastal protection, and restoring the seabed of former dumping grounds to their original condition.
Defence	Multiple use is permitted in defence areas to the extent that this is compatible with the military exercises there. The Minister for Defence will decide in the first instance.

the activities to be tested against the precautionary principle. In the case of activities for which an environmental impact statement is not mandatory, the competent authority will apply the precautionary principle on the basis of existing policy, existing regulations and common practice. If there are no new insights regarding ecological effects or effects on human health or on other lawful use, then this fact will be sufficient for the purposes of the precautionary principle. If new insights do provide grounds for doing so, the competent authority will ask the permit applicant to supply further information on the possible effects and, if need be, to take preventive measures.

In addition to the basic information for the spatial claim, the information supplied by the applicant must contain the following elements:

- a description of the natural values in the area (proceeding from the ecosystem approach) and the siting of the activity;
- a description of the effects that the activity could have by itself and in combination with other activities;
- an assessment of the potential effects based on the best available knowledge.

If sufficient knowledge of the consequences of an activity is lacking, then this should not constitute grounds to permit that activity to proceed. In such cases the permit authority could decide:

- not to permit the activity;
- to permit the activity, but on the proviso that the initiator minimises and/or compensates for the effects;
- to have further research (e.g. monitoring) carried out and to issue the permit for a set term (duration of the research);
- to impose other restrictions, such as (for example) the 'hand on the tap' principle, in which the activity is permitted until a certain norm is exceeded.

Measures to limit effects must be established at the time of the decision being made on permit issuance.

If, when assessing a permit application (including environmental impact statement if relevant), sufficient assurance is obtained that there is no risk of significant adverse effects, the remainder of the assessment framework will not have to be completed, with the exception of the test of choice of location (step 2).

Step 2: Choosing location & assessing requisite space/time

For each permit application the competent authority assesses whether the initiator's spatial claim is realistic or whether a more efficient spatial integration is possible based on the aspects fleshed out below.

Visible, permanent works (taken to mean structures installed for 6 months or longer) within the 12-mile zone are not permitted. Exceptions to this rule are permanent works associated with activities of national interest. These are permissible within the 12-mile zone if there are no reasonable alternative sites for these and no significant effects are produced to the detriment of coast protection. In such cases, adverse effects on the view of the horizon, recreational activities and fishing should be kept to a minimum. For the policy with regard to wind energy within the 12-mile zone, see section 4.3.

Multiple use of space where possible

In areas designated for activities of national interest (see framework vision map), other activities are not allowed to hinder this use. Here it should be noted that a permit-holder may indeed have an exclusive right to utilise, or prospect in, the relevant marine area for the purposes of the activity for which the permit was issued, but this does not confer upon them an exclusive right to all uses of the relevant area. In principle there is space for multiple use, on the proviso that the permit-holder concerned does not experience any unreasonable adverse effects or impediment as a result. The impact on other sectors, including fishery, also needs to be examined. When it comes to the conditions subject to which other initiatives are possible in the same area, the competent authority's considerations and decision are final. If a user claims to be experiencing adverse effects arising from another lawful form of use, they will be entitled to submit an appeal to the competent authority to have these compensated. This solely relates to losses sustained by individual users that they cannot reasonably be expected to bear themselves and which extend beyond the normal social risk. If the permit authority is the Ministry of Infrastructure and the Environment, then the compensation scheme provided by the Water Act can be used. The Policy Regulation on Compensation for Loss Infrastructure and the Environment 2014 provides for this.

Preliminary research

To establish the presence of items of archaeological interest in the seabed in concrete cases, archaeological preliminary research is necessary. This research is conducted in phases, with a decision moment after each step. Two categories of such research can be distinguished: Research into wrecks (aeroplane and ship wrecks) on one hand and research into prehistoric settlements and landscape use on the other.

Wrecks

Research into wrecks will, in principle, always be necessary, as they may have sunk anywhere. The research begins with a desk study describing known wrecks, previously conducted research and the impact of the intervention on the archaeological remains. In most cases there then follows an 'at sea study' (from a ship) in which geophysical methods are used to search the seabed for anomalies that could indicate the presence of wrecks. This research can generally be carried out at the same time as a search for obstacles and unexploded ordnance. For such studies, the discipline has developed quality standards - incorporated into the Dutch Archaeologists' Quality Standards (DAQS) - that stipulate, among other things, that the results are reported on by experts in marine archaeology.

The results of the at-sea study may lead to investigation of one or more anomalies by divers to determine whether there really is a wreck. If there do turn out to be actual wrecks in the area, then the choice can be made to either ignore them or study them further.

Further study involves first a diving study to establish the archaeological value of the wreck. If the Competent Authority then decides that the wreck is of little or no archaeological value, then it may be removed. If it is of archaeological interest and cannot be left there, then it is necessary to carry out an archaeological excavation.

Submerged landscapes

The research into submerged landscapes and traces of settlements focuses, initially, on gaining more insight into these landscapes themselves. The initiator will be asked to provide a description of the subsoil on the basis of existing geological data. If, on this basis, it is concluded that intact prehistoric landscapes could be present, then a refinement process is requested on the basis of supplementary probing, drilling and seismic data. These data are sometimes already generated within the framework of the project.
In a few cases, supplementary research will be requested with the aim of studying actual traces of human activity. This research is of a different character from onshore research, in which archaeological traces and artefacts are analysed by excavation. At sea, this research is conducted by making boreholes and taking soil samples that are subsequently sieved on land. The research in the context of Maasvlakte 2 can be taken as an example. Three locations varying from 25 to 100 m^2 in Rotterdam's Yangtzehaven were excavated in sections with a crane.

Coordination of activities of national interest

Where activities of national interest are stacked in the same area, the fundamental principle will once again be to strive towards combined, efficient use of space. However, several specific preconditions apply in this regard (see table 5.1).

Alternatives

When considering ecological or spatial planning aspects, the competent authority may also wish to include proposals for alternative sites and, in the case of activities requiring an environmental impact statement, ask the initiator to carry out – additional – research in relation to both the preferred and alternative locations, particularly with a view to preventing possible significant ecological effects.

Items of archaeological and cultural-historical value

The North Sea is a unique archaeological resource, containing historic shipwrecks, submerged prehistoric landscapes and other sites of archaeological interest. When performing seabed interventions on the Dutch continental shelf, consideration must be given to the obligation to conserve items of archaeological and cultural-historical value (or information thereon) in line with the Malta Convention. This Convention has been implemented by way of the Archaeological Heritage Management Act (Wet op de archeologische monumentenzorg, 2006) in such legislation as the Monuments and Historic Buildings Act 1988, the Earth Removal Act and the Environmental Management Act, while also permeating other legislation, such as the Water Act and the offshore wind energy Act.

Items of archaeological and cultural-historical value are taken into consideration in granting permits for projects in the North Sea. Analysing the effects on these items is a compulsory part of the environmental impact assessment for projects. For those activities that require a permit under the Water Act or the Earth Removal Act but for which no project EIA has to be drawn up, the initiator submits a report along with the permit application, sufficiently defining the items of archaeological interest in the area in the opinion of the competent authority.

If, on the basis of the aforementioned report, it is concluded that the work could adversely impact on items of archaeological value, then the competent authority could attach further provisions to the permit, such as an obligation to take technical measures to in situ conservation, an obligation to carry out excavations or to have the activities supervised by an expert in the field of maritime archaeological heritage.

For mining activities requiring an EIA, such as deep drilling and laying of certain pipelines, the protection of items of archaeological and other cultural-historical value is taken into account in the decision as to whether to grant a permit. Under mining regulations, research data for installing a mining installation or laying a pipeline must be made available to the Minister for Education, Culture and Science insofar as that data can provide information on the presence of archaeological heritage or possible archaeological heritage in or on the seabed of the territorial sea or the continental shelf[97]. Moreover, mining regulations provide for the regulation of accidental finds while mining. The reporting obligation pursuant to the Monuments and Historic Buildings Act then applies and the Minister for Education, Culture and Science can also give instructions to partly or fully halt work. For the application of this authority, the compensation provision of article 58 of the Monuments and Historic Buildings Act 1988 also applies.

Term of permit

A permit is always issued for a set term. Activities at sea are usually of a temporary nature, due to such factors as the considerable dynamics of the sea. Whether or not considerations regarding use of space still correspond to the actual situation is something that will be reviewed regularly. This also prevents space from continuing to be allocated for a purpose when in fact it is not actually being used for that purpose. The competent authority determines a term when granting permits. This is sometimes legally compulsory. Temporal phasing presents opportunities to combine several activities in a certain area.

Removal of objects

The fundamental principle is that objects be removed once a permit has reached the end of its term due to environmental protection measures prohibiting dumping. This removal obligation ensures that more space is freed up. The competent authority communicates the removal obligation to the initiator prior to issuing the permit and lays down specific details regarding the removal obligation in the permit. The competent authority may even demand financial security for the costs of removal.

97 Mining Act, article 8, paragraph 2.

- *Platforms for oil and gas extraction*: The removal of installations no longer in use is provided for in Section 44(1) of the Mining Act. The Minister for Economic Affairs can limit this obligation to a certain depth below the bottom of the surface water. In such cases, removal to the same depth as the pits (six metres under the seabed) is the most obvious.
- *Wind turbine farms*: A term of 20 years applies to permits currently being issued for wind farm operations. This term is based on the lifespan of the turbines. The term can be extended. To be certain that it will be possible to remove the turbines after the permit has expired, a bank guarantee for the costs of removal is a mandatory condition for permit issuance.
- *Cables and pipelines*:
  - In principle, cables no longer in use must be removed. This policy is implemented by way of permit requirements under the Water Act. An assessment is made on a case-by-case basis of the actual effects on the environment, safety and use of space as well as the costs associated with removal. This is done based on the 'cables and pipelines removal obligation checklist'.[98]Cables for transmission of electricity from wind farms are subject to the same removal obligation as the wind farms themselves. This removal obligation also applies to new control cables and telecommunications cables.
  - In principle, even pipelines installed under the Water Act must be removed, to which the same checklist applies.
  - For old pipelines installed under the Mining Act, removal can be required by the Minister. The same checklist is used for this.

Step 3: Utility & Necessity

In the event of significant adverse effects in terms of spatial planning or ecology, the reason why the relevant activity in the North Sea should be permitted must be demonstrated.

For a number of activities of national interest, this interest has been rendered explicit in government policy (see 5.2). The importance of these activities for society does not have to be resubstantiated. All other tests from the assessment framework, on the other hand, will be applied to these activities.

For all other activities causing significant adverse effects in terms of spatial planning or ecology, the initiator must demonstrate utility and necessity. They are required to substantiate why the activity has to take place in that particular location and why another location, including on land, would not suffice for the purpose. In case of doubt regarding the utility and necessity of a new activity, the competent authority is entitled to request that the initiator carry out a social cost-benefit analysis (SCBA), based on which the competent authority will make a final assessment. Once utility and necessity have been successfully demonstrated, the remaining tests from the assessment framework have yet to be completed.

In accordance with the Nature Conservancy Act, no new activities with a risk of significant ecological effects are permitted in or near to areas with particular ecological value (the designated Natura 2000 areas), unless no realistic alternatives are available and there are pressing reasons of overriding public interest for allowing the activity to go ahead. If both of these conditions are fulfilled, the competent authority can balance the public interest against the interests of nature. If the permit authority allows the activity to go ahead, the initiator will have to take measures to minimise the adverse effects (mitigation) or compensate for them (see assessments 4 and 5).

Step 4: Mitigation

If an activity has unavoidable, significantly adverse ecological effects, the initiator must take measures to minimise these in accordance with the provisions of the Nature Conservancy Act.

The initiator submits a programme of measures providing a detailed description of the following:

- the activities (or aspects thereof) that will cause adverse effects, when these will be performed and under what circumstances;
- the effects that will be caused, in terms of nature, scale, time and place;
- the preventive measures (their effect, implementation and ultimate result) to be taken in order to minimise the adverse effects.

The competent authority will assess whether the mitigation plan has been adequately substantiated.

[98] See Annex 1.

Step 5: Compensating for effects

Under the Nature Conservancy Act, harm caused to the North Sea water system that, despite mitigation, cannot be prevented must be compensated for as satisfactorily as possible.

Compensatory measures are part of the conditions subject to which permits are issued. Based on monitoring data, the competent authority will assess whether the proposed compensatory measures are sufficient. Consequently, it is important for the monitoring to tie in with the compensation task. In relation to the Nature Conservancy Act, this only becomes relevant once the ADC test has been completed.

For activities in a Natural 2000 area, a result obligation applies to compensation. For activities in other areas affecting a Natural 2000 area, a best endeavours obligation suffices. The following fundamental principles apply for the purposes of implementing compensatory measures:

- compensation is required only for significant effects that persist after measures have been taken to limit/ mitigate these;
- compensatory measures must be taken prior to the proposed activity taking place;
- wherever possible, compensation must be provided in kind, preferably in, or otherwise directly adjacent to, the North Sea;
- the initiator draws up a compensation plan that must be approved by the competent authority.

6

International cooperation

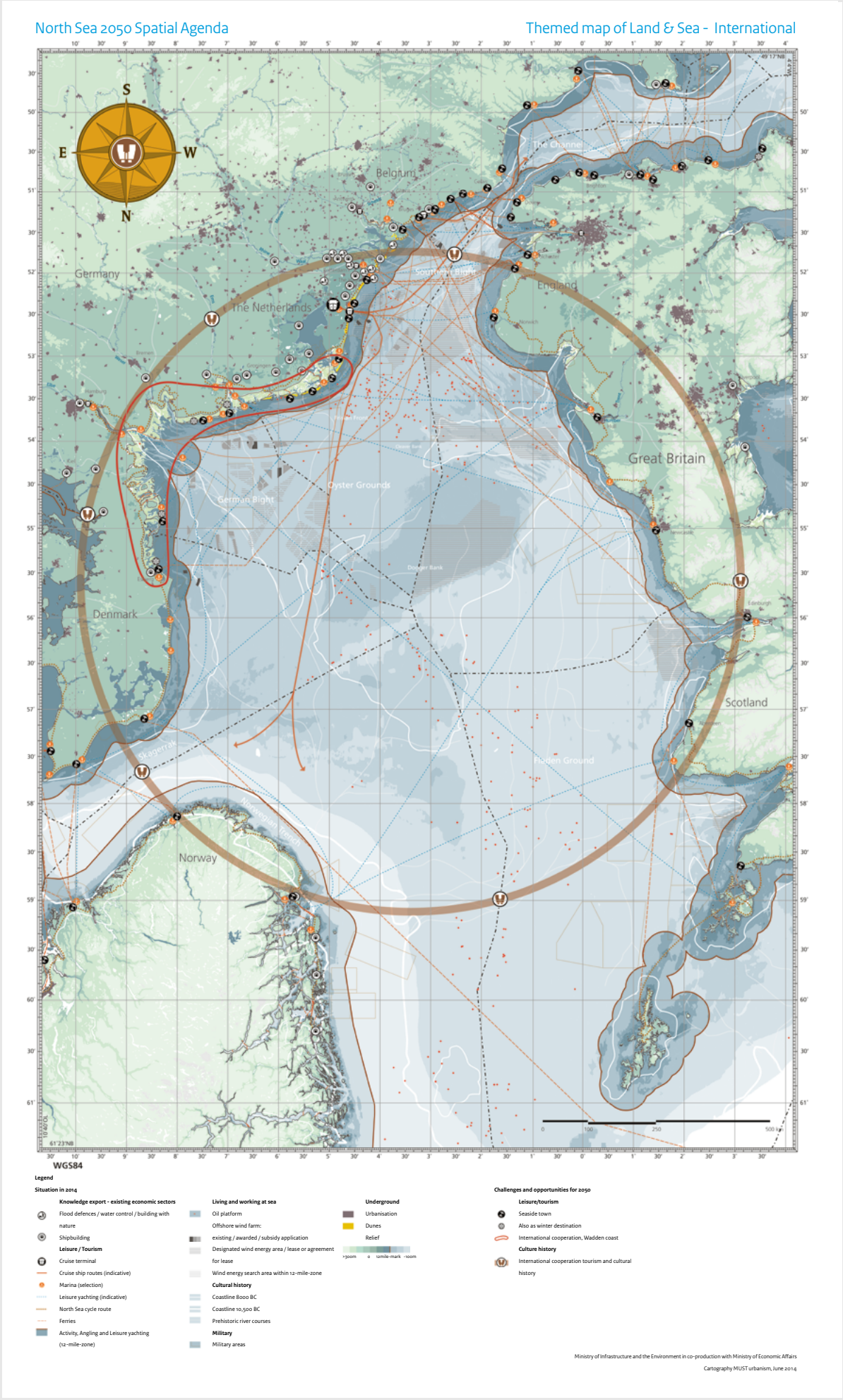
6.1 Developments

The importance of international cooperation for the North Sea is universally acknowledged. After all, the sea does not have any boundaries. In terms of the ecosystem, this relates to water quality and biodiversity, as well as use of the sea for such activities as shipping and fishing. Partly in response to advice issued by the Council for Infrastructure and the Environment in 2011[99] , the perspective has broadened from the southern part of the North Sea to the North Sea in its entirety, including the junctions with the English Channel and the Kattegat/ Skagerrak. This whole area has been considered in the process of the North Sea 2050 Spatial Agenda[100] and consultation has been held with the other North Sea countries on North Sea-wide planning and any developments to be expected. For the coming planning period, it is primarily sustainable energy developments that will play a role: the energy transition, including international network connections, as well as those ensuing from national and European policy for European energy. Additionally, the focus in the planning period is on achieving the good environmental status and mastering a methodology for the cumulation of effects on nature and ecology. Finally, there are changes in the use of the sea as a result of increasing coastal traffic and traffic to and from offshore energy farms that require attention. These are all cross-border themes.

In recent years the Netherlands has, in various respects, been drawing attention to common fundamental principles for spatial planning at sea, for example with regard to distances between offshore wind farms and shipping routes as well as the possibility of connecting up the traffic separation scheme in the southern part of the North Sea. Cooperation has been sought with North Sea countries on research into an international electricity grid in the North Sea which will be capable of connecting up offshore energy production by 2030.[101]
Continuing to work towards this ambition has been included as an action for the 2016-2021 planning period (see section 7.2). Within the context of OSPAR, work is being done on such things as methods for cumulative effects of use on the ecosystem.

[99] Councils for the Living Environment and Infrastructure, 'A Sea of Opportunity, September 2011' and the Cabinet's response: Dutch House of Representatives, 2011-2012 session, 30 195, no. 31.
[100] Dutch House of Representatives, 2013-2014 session, 33 450, no. 24.
[101] See www.benelux.int/nscogi.

Figure 6.1 International North Sea



6.2 Vision and tasking

The international importance of the southern part of the North Sea is increasing, both from the sustainable economic perspective (transport, oil and gas reserves, renewable energy) and from the ecological perspective. International cooperation has the capacity to ensure that the most is made of the North Sea's potential, enabling synergetic benefits to be gained. That cooperation primarily concerns the coordination of plans and the coherence of policy principles. We are not talking about economic cooperation such as the joint development of offshore energy farms.

From the perspective of the Marine Strategy Framework Directive, it is anticipated that countries will consider the entire ecosystem, in this case the North Sea (or southern part thereof), when determining marine strategy, thereby striving towards increased coherence between the policies of the various countries. This cooperation entails assessing environmental status, formulating objectives on the basis of indicators, designing a monitoring programme and implementing measures. More intensive cooperation on these points, in the context of OSPAR for example, will be substantiated during the planning period.
The Maritime Spatial Planning Directive[102] calls for closer international cooperation in planning. This directive also requires the interaction between land and sea to be taken into account. To this end, cooperation between the Netherlands and international coastal provinces is necessary. These coastal provinces are collaborating within a cooperative platform, the North Sea Commission, which presented a comprehensive vision on pragmatic cooperation within the North Sea region in 2012.

From the perspective of the European Commission, 'Blue Growth' is the policy for sustainable economic development of the marine and coastal economies. The North Sea 2050 Spatial Agenda provides an initial contribution to this development by investigating the (spatial) opportunities for developments in the Netherlands with a view to exports. This involves various sectors, amongst which energy from water technologies could become significant. No large-scale areas for offshore tidal or wave energy are proposed in the planning period, but room has explicitly been made for innovations and experimental opportunities in this field (see figure 6.1 as illustration). To strengthen the maritime economy in the Netherlands, in January 2015 the Ministry of Infrastructure and the Environment issued the Netherlands Maritime Strategy 2030 The strategy was drawn up in intensive consultation with the Netherlands Maritime Cluster.

The Netherlands will continue to dedicate itself to bolstering international harmonisation in terms of North Sea policy, in which the merging of various activities in space and time is a major task. The high-priority spatial topics of energy, ecology and shipping receive international support
.

[102] Directive 2014/89/EU of the European Parliament and of the Council of 23 July 2014 establishing a framework for maritime spatial planning.

6.3 Policy

The agenda for international cooperation over the coming years can be organised according to the topics that, from the point of view of the Netherlands, require the most international cooperation.

From the Netherlands point of view , the following topics have been distinguished as high-priority in the cooperation:

Spatial planning

The Maritime Spatial Planning Directive requires cooperation and harmonisation between countries situated within a common sea basin such as the North Sea. According to this directive, it is not so much a question of content but rather of the process of leading towards spatial management of the North Sea. The start of the implementation process consists in exploring and subsequently consulting one another's policy vision and approach. In addition, from the point of view of this directive, it is also anticipated that the interaction between land and sea will be reinforced. In many countries the mandate for the land rests with the regions (subsections). How to involve these in the process is something that will be looked at in more detail with neighbouring countries.

Renewable (wind) energy

This topic is one of the most significant driving forces behind international cooperation. Plans with sites for offshore wind farms steer a number of developments, such as the way in which wind farms are connected to the grid, possibly multifunctional energy farms (for other use and other forms of energy generation), fine-tuning of permit conditions, safe distance to shipping routes, regulation of safe operational traffic, use of service ports, and research into and fine-tuning of methodologies to ascertain cumulative ecological effects. Finally, synergy can be achieved when it comes to exchanging innovation in terms of all facets of wind farms and knowledge and information in terms of other forms of renewable energy.

Ecosystem

Partly on the basis of the Marine Strategy Framework Directive, further coherence is being sought between the countries surrounding the North Sea ecosystem. This is one of the European Commission's recommendations on the reports submitted by member states. In this regard, it is about harmonising programmes of measures and monitoring programmes, developing common indicators for the benefit of the MSFD, enriching the Natura 2000 directive, and defining and managing a coherent network of Natura 2000 areas.

Shipping

In the area of shipping, aspects pertaining to safety, efficiency and the environment require international coordination. Development is under way with regard to optimisation of maritime electronic data exchange, use of electronic navigation tools and better supervision of shipping to promote safety. A new topic is the possible development of the route through the Arctic Ocean. In 2015, the economic effects of an all year round open connection to Asia were published by the Netherlands Central Planning Bureau in collaboration with the University of Bern.[103] Research into the effects on shipping movements and routes in the North Sea is still in the early stages of exploration. Limiting emissions from ships is something that is regulated internationally through the IMO, with the possibility of regional implementation for the North Sea (for example, by way of a Nitrogen Emission Control Area). This requires a regional approach. A regional approach is also needed to limit the amount of waste at sea stemming from ships.

Food supply

Het European Common Fisheries Policy (CFP) calls for a regional elaboration of a number of aspects, such as drawing up *discard* plans for the North Sea and north-western waters.
Opportunities exist for innovation in aquaculture and mariculture (including shellfish cultivation and seaweed cultivation) by using natural processes in the North Sea, involving the opportunity to learn from the knowledge and experience acquired in the countries around the Netherlands.

[103] www.cpb.nl/publicatie/smeltend-poolijs-de-economische-effecten-van-de-opening-van-de-noordelijke-zeeroute

Strategy for spatial policy and cooperation in the North Sea

Talks held with neighbouring countries in 2015 have shown that it is not currently opportune to work on a common vision and strategy for the entire North Sea. This is partly due to the fact that a number of countries have just established a spatial plan. They will have to draw up a new national plan by 2021 that complies with the obligation pursuant to the Maritime Spatial Planning Directive.

Administrative and political division of responsibilities differs from country to country. This particularly applies to the territorial waters (up to 12 nautical miles) but also, in many cases, to the EEZ. Even the way in which policy, management and implementation are organised varies by country. Moreover, there are already various partnerships in place in all manner of subareas, such as research or enforcement, for which the best way to cooperate must be considered. Also, the nature of the cooperation depends on the (collective) ambition. In a few cases, it will be sufficient to exchange information: consultation (on plans with possible consequences for neighbouring countries) is sometimes legally compulsory and harmonisation (of research programmes and monitoring, for example) increases efficiency. Finally, cooperation is necessary for the purposes of achieving coherence (e.g. for the use of indicators), not least in view of creating a level playing field.

The Policy Document on the North Sea 2016-2021 was drawn up in accordance with the requirements of the EU Directive (partly due to the international harmonisation and the attention to the interaction between land and sea). The best strategy for the Netherlands is to build further on the elements already attracting interest or support from neighbouring countries. Facilitating the transition to generating sustainable energy offshore, especially wind energy, is currently a topical aspect in many countries.

One important principle in the Netherlands' strategy is to avoid duplicating work and to deploy the already available fora to advance certain aspects. There is, as yet, no existing umbrella forum for the topic of sustainable energy. This activity demands a great deal of space at sea and has consequences for many other policy fields such as the environment and safety for shipping and other users (fishers, recreational sailing). The sub-topics are being discussed in the most relevant consultation structure, such as IMO, OSPAR and informal North Sea consultations in order to combine the results at a national level. Under the joint implementation of the Marine Strategy in an OSPAR context, an interim report on ecological quality of the North Sea is planned in 2018.

In consultation with the competent authorities in other North Sea countries (especially the EU members), the Netherlands will aim for a common long-term analysis of developments of a cross-border character, such as infrastructure for energy, shipping and the marine environment (particularly area-related aspects, such as marine protected areas). The Netherlands is also devoted to cooperating on the aspects of data and information exchange and the participation of stakeholders in the next generation of maritime spatial planning. European funding facilities offer the possibility to propose projects in this regard together with other member states. The Dutch government intends to take advantage of this opportunity.

To fulfil the requirement under the Maritime Spatial Planning Directive to establish a functional network of competent authorities to coordinate the implementation of the Directive and ensure coherence in the plans (particularly for topics of a transnational nature), the North Sea member states have set up an informal work group, of which Norway and Ireland are agenda members.

In late 2016/early 2017, an evaluation will be made of the state of affairs with regard to the cooperation and to determine the best time for consultations on new spatial plans for the North Sea, including the fruits of the cooperation already set in motion. This has been included as an action for the 2016-2021 planning period (see section 7.2).

7

Outline of the policy, actions and financing

7.1 Outline of the policy

	Policy decisions	Section
Marine ecosystem	• The conservation and recovery of the marine ecosystem are assessed when making spatial planning decisions on activities.	§ 5.3
	• Natura 2000 areas at sea: Voordelta, North Sea Coastal Zone, Vlakte van de Raan and, probably from 2016 onwards, Dogger Bank, Cleaver Bank and Frisian Front. The decision on the possible designation of Brown Ridge as Natura 2000 area is in 2016.	§ 3.2
	• Programme of measures for Marine Strategy: - Existing measures, including in terms of the marine ecosystem, invasive exotic species, eutrophication, pollutants, litter and underwater noise; - New measures with regard to litter; - New measures with regard to seabed protection;	§ 4.2
Renewable energy	• Generating renewable energy (from the wind or otherwise) is an activity of national interest.	§ 3.3
	• Space for operational capacity of 4,450 MW of wind energy at sea by 2023.	§ 3.3
	• Wind energy areas: Borssele, Coast of Holland, IJmuiden Ver and North of the Wadden Islands. Search areas: strip between 10 and 12 NM adjacent to the Coast of Holland wind energy area. The Central Government does not grant permission for wind farms to be built outside of designated wind energy areas. Within the designated areas, permission is only granted for wind farms to be built within the bounds of the Offshore Wind Energy Act (*Wet windenergie op zee*).	§ 4.3
	• Development in harmony with other uses of the North Sea: - design criterion 'distance between shipping routes and wind farms'; - design process 'distance between mining sites and wind farms'; - policy with regard to 'passage and multiple use'.	§ 4.3
Surface minerals	• Sand extraction for coastal defences and filling is an activity of national interest.	§ 3.4
	• Sand extraction strategy with preferred routes for cables and pipelines.	§ 4.4
Oil and gas extraction	• Activity of national interest.	§ 3.5
	• Making the most of the potential of the oil and gas reserves.	§ 3.5
CO_2 storage	• Activity of national interest.	§ 3.6
	• Sufficient space for CO_2 storage as a temporary tool in the process of developing a fully renewable energy supply.	§ 3.6
Cables and pipelines	• The activities (wind) energy, oil and gas extraction and CO_2 transport, including requisite cables and pipelines, are of national interest.	§ 3.7
	• Bundling cables and pipelines; removal obligation for cables and pipelines no longer in use.	§ 3.7
	• Tighten up removal obligation for pipelines.	§ 3.7
	• Checklist for determining removal obligation for cables or pipelines revised.	§ 5.3

	Policy decisions	Section
Shipping	• Activity of national interest. • Maintaining a system of traffic separation schemes, clearways and anchoring areas capable of accommodating vessels safely and swiftly. • Implementing measures to reduce pollution caused by shipping (merchant vessels, fishing vessels, offshore, supply and recreation).	§ 3.8 § 3.8 § 4.2
Defence	• Activity of national interest. • Sufficient exercise zones in the North Sea .	§ 3.9 § 3.9
Fishing, aquaculture and mariculture	• Fostering responsible fishing and aquaculture practices and balanced use of fish stocks, striving towards a state of equilibrium between fishing and nature and a different division of responsibilities between government and industry. • Continuing to contribute to the primary objectives of the Common Fisheries Policy (CFP) and implementing measures with regard to the marine ecosystem.	§ 3.10 § 4.2
Underwater Cultural Heritage	• The conservation of underwater cultural heritage is assessed when making spatial planning decisions on activities.	§ 5.2
Tourism and recreation	• Facilitating and encouraging the tourism and recreation sector as a network partner in a partnership between entrepreneurs, market institutions and research institutes. • Engaging in dialogue with local and regional government authorities and other parties where spatial planning or other policy developments in terms of the North Sea impact marine and coastal recreation .	§ 3.12 § 3.12
Interaction between land and sea	• When formulating spatial planning policy, specific attention needs to be paid to the interaction between land and sea, having due regard for the implementation of the Maritime Spatial Planning Directive.	§ 3.13
International cooperation	• Thematic approach to partnerships with neighbouring countries.	§ 6.3

7.2 Overview of actions

Subject	Campaigns	Leader	Year
Marine ecosystem	Annually updating WFD monitoring programme.	Ministry of I&E	Annually
	Establishing and implementing MSFD knowledge agenda.	Ministry of I&E	Annually
	Updating marine strategy (initial assessment and description of good environmental status).	Ministry of I&E	2018
	Drawing up / establishing management plans Natura 2000 / MSFD areas at sea.	Ministry of I&E	2016-2020
	Exploring options for building with nature.	Ministry of Economic Affairs	2016
	Pilot projects in the Voordelta aimed at the recovery of shellfish banks (including the recovery of the European flat oyster.	Ministry of Economic Affairs	2016
	Carrying out research into the wind farms' contribution to biodiversity.	Ministry of Economic Affairs	2016
	Carrying out research into the combined functions of use and nature development on artificial hard substrate (building with nature).	Ministry of Economic Affairs	2016-2018
	Drawing up North Sea action plan for the recovery of vulnerable sharks and rays.	Ministry of Economic Affairs	2016
	Launching a project to find an alternative to dolly rope on a national and international scale.	Ministry of I&E	2016
	New code of conduct for further reduction of environmental impacts of explosive ordnance disposal	Ministry of Defence	2016
	Carrying out research into underwater noise arising as a result of explosives ordnance disposal and sonar and research into background noise.	Ministry of Defence / Ministry of I&E	2018
	Carrying out research into the extent and effects of by-catch, contaminants and underwater noise on porpoises.	Ministry of EA	2015-2021
	Exploring (at administrative level) options to prevent the fishing gear of bottom trawlers getting caught up in stationary fishing equipment (gill nets, crab traps).	Ministry of I&E	2016
Renewable energy	Drawing up North Sea Energy Master Plan 2030-2050.	Ministry of EA	2016
	Carrying out research into the potential of new technologies and encouraging tidal / wave energy.	Ministry of EA	2016-2021
	Research into combined energy farms.	Ministry of EA	2016
	Detailing possible scenarios for a seamless international network of locations for sustainable (wind) energy (and the associated grid connection) in the North Sea, together with surrounding countries.	Ministry of EA/I&E	2016-2018
	Distance between mining sites and wind farms: • If need be, adapt Helicopter Main Routes Flight safety: • Research into and decision-making on applicability of segment approach. • Studies of effects of wake turbulence in and around offshore wind farms in terms of flight safety.	Ministry of I&E	2016-2019

Subject	Campaigns	Leader	Year
Surface minerals	Evaluation of deep sand extraction Maasvlakte 2.	Ministry of I&E	2016-2019
Oil and gas extraction	No actions relating to Policy Document on the North Sea.	N/A	N/A
CO_2 storage	No actions relating to Policy Document on the North Sea.	N/A	N/A
Cables and pipelines	Research into how to deal with monitoring obligation for indefinite period for pipelines that are no longer in use.	Ministry of EA / Ministry of I&E	2016-2018
Shipping	Engaging in dialogue on international common fundamental principles for marine spatial planning regarding distances between wind farms and shipping routes.	Ministry of I&E	2016-2018
	Exploring the changes in traffic policy as a result of more intensive coastal shipping, offshore activities and the increasingly navigable route past the North Pole (through the Arctic Ocean), as well as the possible consequences of this for the economy, safety and the environment.	Ministry of I&E	2018
Defence	No actions relating to Policy Document on the North Sea.	N/A	N/A
Fishing, aquaculture and mariculture	Carrying out studies and pilot projects in aquaculture and mariculture.	Ministry of Economic Affairs	2016-2018
Underwater Cultural Heritage	Updating existing historic ship sites.	Ministry of ECS	2016
Tourism and recreation	See interaction between land and sea.	N/A	N/A
Interaction between land and sea	Exchanging information with neighbouring countries on the best way to incorporate interaction between land and sea into implementing the Maritime Spatial Planning Directive (statutorily by 2016, initial plan by March 2021 at the latest).	Ministry of I&E	2016-2021
International collaboration	Evaluation of the progress of international cooperation	Ministry of I&E	2016-2017

7.3 Financing

A variety of divisions from various ministries manage the North Sea collectively. Both public and private parties are developing activities in connection with the designated uses.
For the purposes of the North Sea policy (see section 7.1), these are covered by the budgets of the Ministry of Infrastructure and the Environment and the Ministry of Economic Affairs. Rijkswaterstaat is implementing the policy and, as such, it is assigned 'tasks' along with the accompanying budgets. This is fleshed out in the Management and Development Plan for National Waters (Bprw). Where this pertains to the actions specified (see section 7.2), the fundamental principle is that the instigator is responsible for organising financing for the relevant action.

Annex 1

Cables and pipelines removal obligation checklist*

Criterion	Checklist
Space	Requisite space including operational and safety zones Fragmentation of free space Barrier effect Impediments caused to other existing and future designated uses
Environmental consequences	Disturbance caused to seabed ecosystem Consequences in terms of water quality Release of substances not naturally occurring in the area Disturbance to fish fauna Disturbance to birds and marine mammals Net energy consumption Recycling options
Safety	If removing: - risks to workers and material during removal. If leaving in place: - risks in terms of becoming exposed, rupture, etc.; - risks to fishing; - risks to shipping.
Costs	If removing: - Balance of removal and processing costs and any revenue. If leaving in place: - cleaning costs; - inspection costs; - liability costs; - extra costs for other existing or future designated uses as a result of hindrance caused.

* This checklist does not apply to cables for wind farms.

Colophon

Design	CO3
Photografy	Ministry of I&E image bank (p.6, 22, 24, 66, 110)
	Tineke Dijkstra, Hollandse Hoogte (p.14)
	Peter Hilz (p.32)
	Thomas Fasting (p.104)
	Mischa Keijser (p.92)
	Ingimage (p.30, 64)
Cartography	Ministry of Infrastructure and the Environment (inside cover, p.36, 70, 86, 90)
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