PROPOSAL FOR A SET OF FISHERIES MANAGEMENT MEASURES IN BELGIAN WATERS

Description of a set of fisheries measures proposed in order to achieve a 'good environmental status' of the marine waters in the Belgian part of the North Sea.

This Background Document is the Belgian proposal for a set of fisheries management measures that are necessary for the purpose of complying with the obligations under Directive 2008/56/EC. This document has been discussed with Member States with a direct management interest affected by the Measures. It will be used to provide the EC sufficient information on the proposed measures. This basic document serves also for Belgium and the involved Member States as a starting point to find an agreement on the measures. In other words, the regional process as described in the Common Fisheries Policy has been initiated with the development of this Background Document.

Draft for submission to the European Commission

Background Document

June 2016

Proposal for a set of Fisheries Management Measures in Belgian waters

Description of a set of fisheries measures proposed in order to achieve a 'good environmental status' of the marine waters in the Belgian part of the North Sea.

1 INTRODUCTION

1.1 General remarks

The Belgian part of the North Sea (BPNS) is surrounded by sea areas under the jurisdiction of the Netherlands, United Kingdom and France and is one of the most intensively used seas in the world. Shipping, tourism, fisheries, sand exploitation, windmills etc. make use of what the sea has to offer. Several activities may conflict with one another and may also have an impact on the environment.

Belgium has a very small maritime area under national jurisdiction, corresponding to about 0.5% of the North Sea and representing 3454 km² (Fig. 1). In order to balance all activities in such a small maritime zone, the Belgian authorities have drawn up a marine spatial plan (MSP) for the Belgian part of the North Sea. This plan includes all activities, including fisheries. The zones that are being proposed for fisheries measures are located in the maritime area under Belgian jurisdiction and are hence very small in an international perspective.

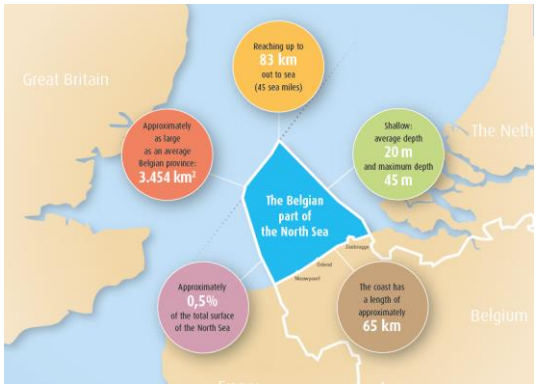

Fig 1. Belgian part of the North Sea with indication of facts and figures

As an initiating Member State, it is the intention of the Belgian government to take measures in its territorial waters and in the Exclusive Economic Zone, with respect to fishing activities exercised by all vessels including fishing vessels carrying the flag of other Member States. In order to apply these measures to international fleets, Belgium is bringing its proposal to a European/regional level through the application of Art. 11 of EU Regulation 1380/2013. The application of this procedure is done following the framework of the Scheveningen group.

1.2 Aim of this proposal

As a first aim, this document serves as a background document providing the relevant information on the measures required, including their rationale, scientific evidence in support and details on their practical implementation and enforcement. It is important to note that this document has been discussed within the Ad Hoc Group and on a bilateral basis with all individual Member States with management interest. Therefore, the present proposal includes the supplementary scientific documentation and other relevant information requested by the Member States with a direct management interest.

The second aim of the present background document is to present a scientifically sound document to serve as a basis for discussions on a possible Joint Agreement with the Member States having a management interest in the fishery to be affected by the proposed measures.

2 PROCESS

2.1 Legal Framework

2.1.1 CFP

The Common Fisheries Policy (CFP), i.e. Regulation 1380/2013, states in Art. 11(1)[1] that Member States are empowered to adopt conservation measures to comply with obligations under the Natura 2000 Directives and the Marine Strategy Framework Directive. According to Art. 11(3)[2] of the CFP, Belgium shall provide the Commission and the other Member States having a direct management interest with relevant information on the measures required, including their rationale, scientific evidence in their support and details on their practical implementation and enforcement.

Following the same article, Belgium and the other Member States having a direct management interest intend to submit a joint recommendation within six months from *the provision of sufficient information*[3]. According to the procedure, the Commission can adopt the measures, taking into account any available scientific advice, not before the expiry of the six months period and within three months from the Joint Recommendation. According to Art. 18 of the CFP, this Joint Recommendation for achieving the objectives of the relevant Union conservation measures, has to be submitted by the Member States having a direct management interest affected by the measures.

Member States having a direct management interest affected by those measures may, within a deadline to be stipulated in the relevant conservation measure and/or multiannual plan, agree to submit joint recommendations for achieving the objectives of the relevant Union conservation measures

Belgium has identified the Member States having fisheries rights and a potential direct management interest that is affected by the proposed fisheries measures as being the following: The Netherlands, France, United Kingdom, Germany and Denmark. Since these Member States have been identified, Belgium has taken steps to discuss its proposal on the fisheries measures, which will apply to all fishing vessels carrying out fishing activities in the concerned sites.

2.1.2 Scheveningen Group

The application of the CFP Art. 11 procedure in order to achieve a "joint recommendation" for the Belgian fisheries measures proposal, is done following the framework of the Scheveningen group, in accordance with the Terms of Reference for the Scheveningen North Sea FISH- ENVI technical expert group adopted on 23 September 2014.

The first informal international meeting took place on April 29 2015 followed by the activation of an Ad Hoc Group by Belgium the 10th of July 2015, to discuss the proposal with all Member States having a direct management interest in the fishery to be affected by the proposed measures. Besides the mentioned Member

[1] Member States are empowered to adopt conservation measures not affecting fishing vessels of other Member States that are applicable to waters under their sovereignty or jurisdiction and that are necessary for the purpose of complying with their obligations under Article 13(4) of Directive 2008/56/EC, Article 4 of Directive 2009/147/EC or Article 6 of Directive 92/43/EEC, provided that those measures are compatible with the objectives set out in Article 2 of this Regulation, meet the objectives of the relevant Union legislation that they intend to implement, and are at least as stringent as measures under Union law.

[2] The initiating Member State shall provide the Commission and the other Member States having a direct management interest with relevant information on the measures required, including their rationale, scientific evidence in support and details on their practical implementation and enforcement. The initiating Member State and the other Member States having a direct management interest may submit a joint recommendation, as referred to in Article 18(1), within six months from the provision of sufficient information. The Commission shall adopt the measures, taking into account any available scientific advice, within three months from receipt of a complete request. If not all Member States succeed in agreeing on a joint recommendation to be submitted to the Commission in accordance with the first subparagraph within the deadline set therein, or if the joint recommendation is deemed not to be compatible with the requirements referred to in paragraph 1, the Commission may submit a proposal in accordance with the Treaty.

[3] i.e. formal notification to the European Commission through the submission of this Background Document

States, representatives of the European Commission (DG ENV and DG MARE) participated as an observer in the Ad-Hoc Group meetings and were being informed bilaterally during the progress. Belgium is holding the chair of the Ad Hoc Group and provides the secretariat for the Group. The proposal has been discussed within this Ad Hoc group during a physical pre-consultation meeting on September 14th 2015, during email discussions, during bilateral meetings and during a physical Ad Hoc Group meeting on July 5th 2016. The High Level Group and North Sea Member states were informed on the progress on June 13th 2016.

The Ad Hoc Group is the forum that guides and contributes throughout the whole CFP Art 11(3) process to come to a Joint Recommendation. As a first step, all relevant information has been shared with the Member States with management interest and the background document is fully developed (i.e. to serve as provision of information to the EC).

2.1.3 MSFD

Following the obligation under the Marine Strategy Framework Directive (MSFD), Directive 2008/56/EC, the Good Environmental Status (GES) and the environmental targets for the Belgian marine waters were defined on the basis of the eleven qualitative descriptors listed in Annex I of the MSFD. Specifically in relation to descriptor 6 "sea-floor integrity", MSFD defines the GES as follows:

"Seafloor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected." Belgium further specified that the GES for seafloor integrity will only be reached if, amongst other things, *"physical disturbance of the seafloor is minimised to a sustainable level, taking account of the relative sensitivity of habitat types"*. [4]

Studies show that seafloor integrity is closely linked to human activities, such as marine aggregate extraction, large scale developments and bottom trawling. These human activities have therefore been taken into consideration when developing environmental targets in order to reach GES for seafloor integrity. Specifically in relation to the disturbance of the benthic habitats by fisheries, Belgium defined the following targets:

- *"Positive trend in sea floor surface area permanently devoid of bottom-contacting fishing gear disturbance within each of the benthic habitat types (= pressure indicator), as to allow a natural development of the benthic fauna and flora and as to minimise artificial fragmentation of the seafloor (= desired state)."*

- *"Positive trend in sea floor surface area impacted only by alternative, environment-friendly fishing gear which pursues a substantial reduction of bottom disturbance within each of the benthic habitat types (= pressure indicator), as to allow for an improved benthic habitat quality and as to minimise artificial fragmentation of the seafloor (= desired state)."*

Belgium intends to achieve progress towards these targets "*through spatially-explicit management actions related to the sectors concerned (i.e. delineation of areas devoid of bottom disturbance and areas open only for environmental-friendly bottom-contacting gear)*".[5]

2.1.4 MSP

Belgium designed its fisheries measures proposal within the framework of Marine Spatial Planning (MSP)[6], see overview map in Fig. 2. This process started in 2012, followed by public consultations and international consultation with neighboring countries in 2013 to end up in a legally binding MSP in 2014.

[4] Report on the determination of "GES" in Belgian Marine Waters: Belgische Staat, 2012. Omschrijving van Goede Milieutoestand en vaststelling van Milieudoelen voor de Belgische mariene wateren. Kaderrichtlijn Mariene Strategie – Art 9 & 10. BMM, Federale Overheidsdienst Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu, Brussel, België,., p. 8.

[5] Report on the determination of "GES" in Belgian Marine Waters: Belgische Staat, 2012. Omschrijving van Goede Milieutoestand en vaststelling van Milieudoelen voor de Belgische mariene wateren. Kaderrichtlijn Mariene Strategie – Art 9 & 10. BMM, Federale Overheidsdienst Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu, Brussel, België, p. 10-11

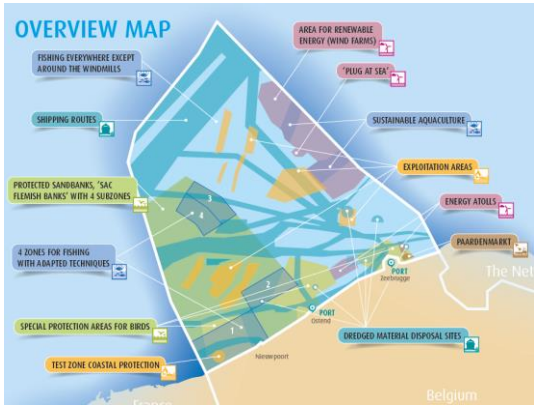

Fig 2. Overview Map of Belgian Marine Spatial Plan (MSP)

The legal basis for MSP was established in 2012 by amending the 1999 Marine Environmental Protection Act (MEPA). The formal procedure to come to a MSP was published in November 2012 (Royal Decree of 13/11/2012 concerning the installation of an Advisory Council and the procedure to adopt a Marine Spatial Plan in Belgian waters). This procedure formally insured the integration between the federal government departments and regional authorities. Furthermore, advisory bodies, provinces, municipalities, Flemish authorities and neighboring countries were able to comment on the 2014 draft-MSP after which the plan was adopted by the Government and was published as a Royal Decree the 20th of March 2014 (*cf.* Summary of full MSP in Annex 1).

In this Marine Spatial Plan, several environmental measures have been put in place. This concerns a wide range of measures in Natura2000 areas and outside these areas (Fig. 3). Within the framework of reaching the Good Environmental Status, several measures have been taken, including for sand extraction activities, recreational fisheries and commercial fisheries (*cf.* Annex 1). Hence, the commercial fisheries measures that are being proposed, aim to contribute to the good environmental status according the European Marine Strategy Framework Directive (see MSP figure on fisheries Fig. 4). The draft-proposal was developed by the Belgian Marine Environment Service of the Directorate-General for the Environment of the Federal Public Service Health, Food Chain Safety and Environment and by the Fisheries Policy and Animal Production quality Division of the Flemish Agriculture and Fisheries Department; this proposal was developed as part of the MSP in which fisheries and other activities in the Belgian MSP-process were balanced to each other.

Fig 3. Illustration of Environmental measures in BPNS

[6] For a summary of the MSP, a brochure has been made explaining all spatial decisions for the Belgian part of the North Sea:
http://www.health.belgium.be/sites/default/files/uploads/fields/fpshealth_theme_file/19094284/Something%20is%20moving%20at%20sea%20....pdf

Fig 4. Illustration of Fisheries and Aquaculture in BPNS

In other words, the MSP-process was the process during which the Belgian proposal for fisheries measures was developed. This proposal has been published in the Royal Decree of 20/03/2014 and explicitly states that the proposal has to be adopted by the European Commission and hence based on a Joint Recommendation with the Member States with fisheries management interests.

2.2 National coordination and consultation

Several consultations were held as the proposed fisheries measures have been included in the Belgian MSP. The draft MSP and the fisheries measures contained therein were subjected to a wide survey of both the neighbouring countries and various Belgian institutions, the users of the BPNS and the general public.

The public consultation was organised based on the following legal sources: (i) the Royal Decree of 13 November 2012 establishing an advisory commission and the procedure for the adoption of a marine spatial plan in the Belgian sea areas and (ii) the Law of 13 February 2006 on the assessment of the environmental impacts of certain plans and programmes and public participation in the development of the plans and programmes relating to the environment.

On this legal basis, the draft MSP was subjected to several consultations. Firstly, for 90 days (between 2 July 2013 and 29 September 2013) a public consultation was set up, during which the draft MSP was presented to the general public.[7] This resulted in 140 remarks and proposals from private persons, authorities, federations and companies. Secondly, there was a specific consultation of 5 Belgian institutions: the SEA Advisory Committee, the Federal Council for Sustainable Development, and the Flemish, Walloon and Brussels Regional Governments.

2.3 Peer review of the proposal

The measures that are proposed in the present proposal have been sent to several marine institutes as a part of all the measures included in the MSP. Research institutes that provided comments on the MSP measures include Ghent University, Royal Belgian Institute of Natural Sciences, Flanders Marine Institute and Institute for Agricultural and Fisheries Research.

2.4 International consultation – regionalization

2.4.1 MSP Process

[7] The advice, reactions and comments and the respective answers are available on the website of the FPS Health, Food Chain Safety and Environment, DG Environment (www.consult-leefmilieu.be / www.consult-environnement.be).

International consultations were performed during the MSP-process as the proposed fisheries measures have been included in the Belgian MSP: the Netherlands, France and the United Kingdom were asked for their advice on the draft MSP by letter.[8]

In addition, specifically in relation to the fisheries measures, informal consultations with The Netherlands and France took place.

The draft MSP was adapted taking into account the results of the consultations. For instance, where the fisheries measures are concerned, exceptions were included with respect to the prohibition for recreational fishermen to fish in the Flemish Banks using seabed-disturbing fishing techniques.

2.4.2 CFP Process

According to Art. 18 of CFP, Member States having a direct management interest affected by the measures have to cooperate with one another to formulate joint recommendations (which is reinforced through the Scheveningen Group, *cf. supra*).

During the formulation of the present background document, a range of informal meetings have been held, both in plenary and bilaterally.

- 29th of April 2015: Plenary informal international meeting in Brussels with The Netherlands, France, United Kingdom, Germany and Denmark (plus EC representatives and Belgian scientists as observers);
- 14th September 2015: Plenary formal preconsultation meeting of Scheveningen group in Brussels with The Netherlands, France, United Kingdom, Germany and Denmark (plus EC representatives and Belgian scientists as observers);
- 10th of May 2016: bilateral meeting with France in Paris;
- 16th of May 2016: bilateral meeting with United Kingdom (teleconference);
- 17th of May 2016: bilateral meeting with Germany (teleconference);
- 19th of May 2016: bilateral meeting with Denmark (teleconference);
- 6th of June 2016: feedback meeting with European Commission (DG ENV) in Brussels;
- 7th of June 2016: bilateral meeting with United Kingdom (teleconference);
- 21st of June 2016: feedback meeting with European Commission (DG MARE) in Brussels;
- 22nd of June 2016: bilateral meeting with the Netherlands in The Hague;
- 5th of July 2016: Ad Hoc Group Meeting to discuss final version of background document, in Brussels with The Netherlands, France, United Kingdom, Germany and Denmark (plus EC representatives, NSAC representatives and Belgian scientists as observers).

2.5 Process leading to the adoption of measures

The process leading to the adoption of fisheries measures is visualized in Fig. 5. The Belgian proposal has been designed in the period 2012-2014 (within **MSP-process**). This proposal is now brought to a European/regional level through the application of Art. 11 of the Common Fisheries Policy (**CFP-Process**). This process must lead to a Joint Recommendation (**J.R.**) of all Member States having a direct management interest in the fishery to be affected by the proposed measures. This J.R. can lead to the **adoption of the measures** through a delegated act.

[8] MSP, Annex 1, p. 11-13

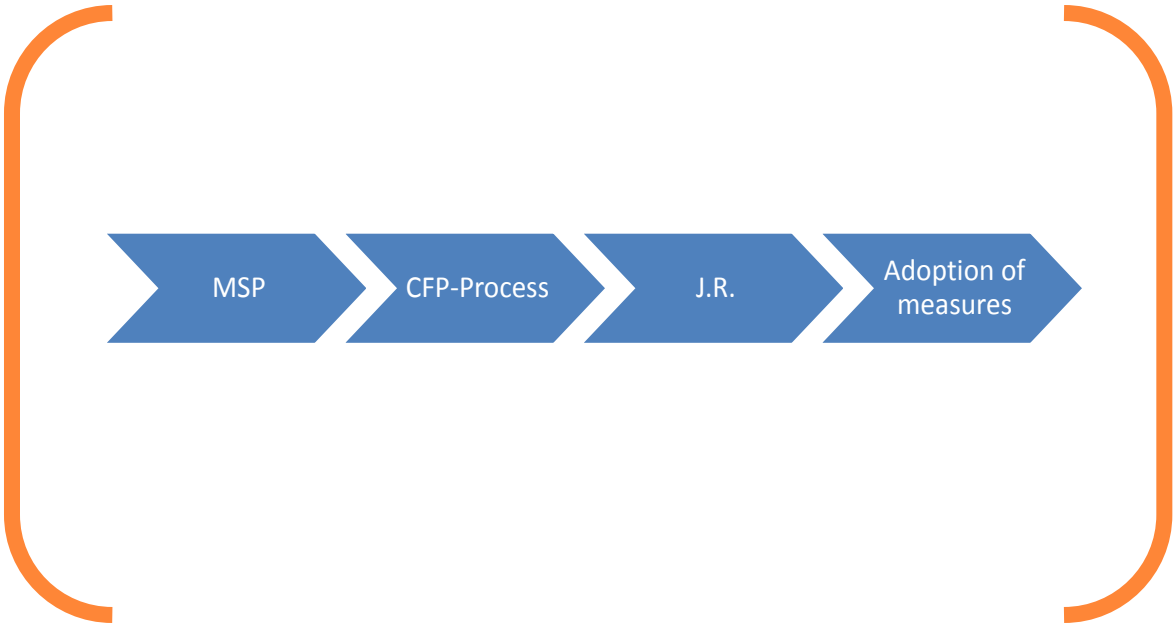

Fig 5. Schematic overview of Process leading to the adoption of measures

Belgium has started the CFP-process in 2015, starting with an **informal meeting** in April 2015, followed by the formal activation in July 2015 by Belgium of an *Ad Hoc Working Group* under the North Sea Fish-ENVI technical expert group of the *Scheveningen Group*. A first meeting of the Ad Hoc Group took place in September 2015 (**pre-consultation meeting**). The draft **background document** was thoroughly reworked based on the comments of Member States during these meetings (and via email contacts). A final version of the background document was sent to all members of the Ad Hoc Group in December 2015, with the request to deliver final comments by end of January 2016. The North Sea Advisory Council (**NSAC**) was consulted in September 2015. The steps of 2015 are visualized in Fig. 6.

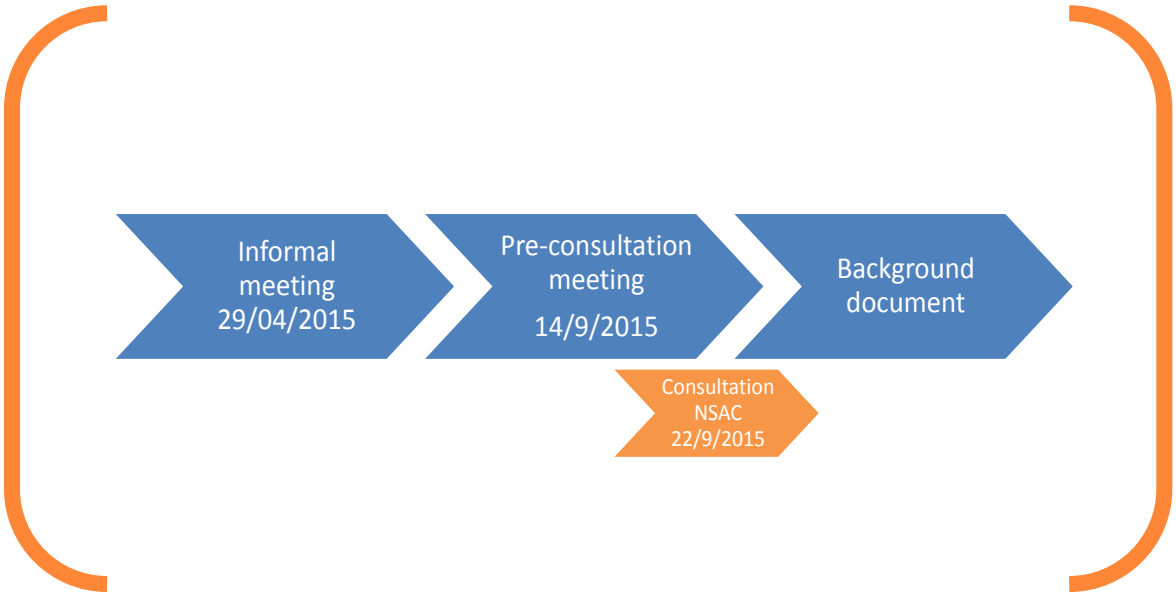

Fig 6. Schematic flow chart of different steps in 2015

Belgium took the process through the next steps in 2016. Based on all comments received on the background document, Belgium finalized the background document, in close collaboration with the members of the Ad Hoc

Group. As far as possible, Belgium integrated all comments to come to a scientifically sound background document. In parallel, some 'points to discuss' have been listed in a separate document (Annex 2). The background document serves as the background information on the fisheries measures to provide to the Member States with management interest and to the European Commission and therefore contains the relevant information on the measures, their rationale, scientific evidence and details on the implementation and enforcement. The process during 2015 (Fig. 6) and the finalizing of the background document by mid-2016 based on the last comments have led to the inclusion of supplementary scientific documentation and other relevant information on the proposed measures. The submission of the background document to the EC (**notification EC**) will be the formal provision of sufficient information on the measures proposed by Belgium and will be the start of a 6 months period to find a Joint Recommendation with the Member States with management interest. During this period several **multilateral meetings** will be organized by Belgium. The negotiation to come to a **J.R.** will be based on the list with identified discussion points and will be done in the Ad Hoc Group. Once agreement has been reached, final approval of J.R. will take place in the "High Level Group". The formal submission of the J.R. to the European Commission will be prepared by Belgium. Different steps will be taken to come to the final Joint Recommendation in the beginning of 2017. The steps to be taken are visualized in Fig. 7.

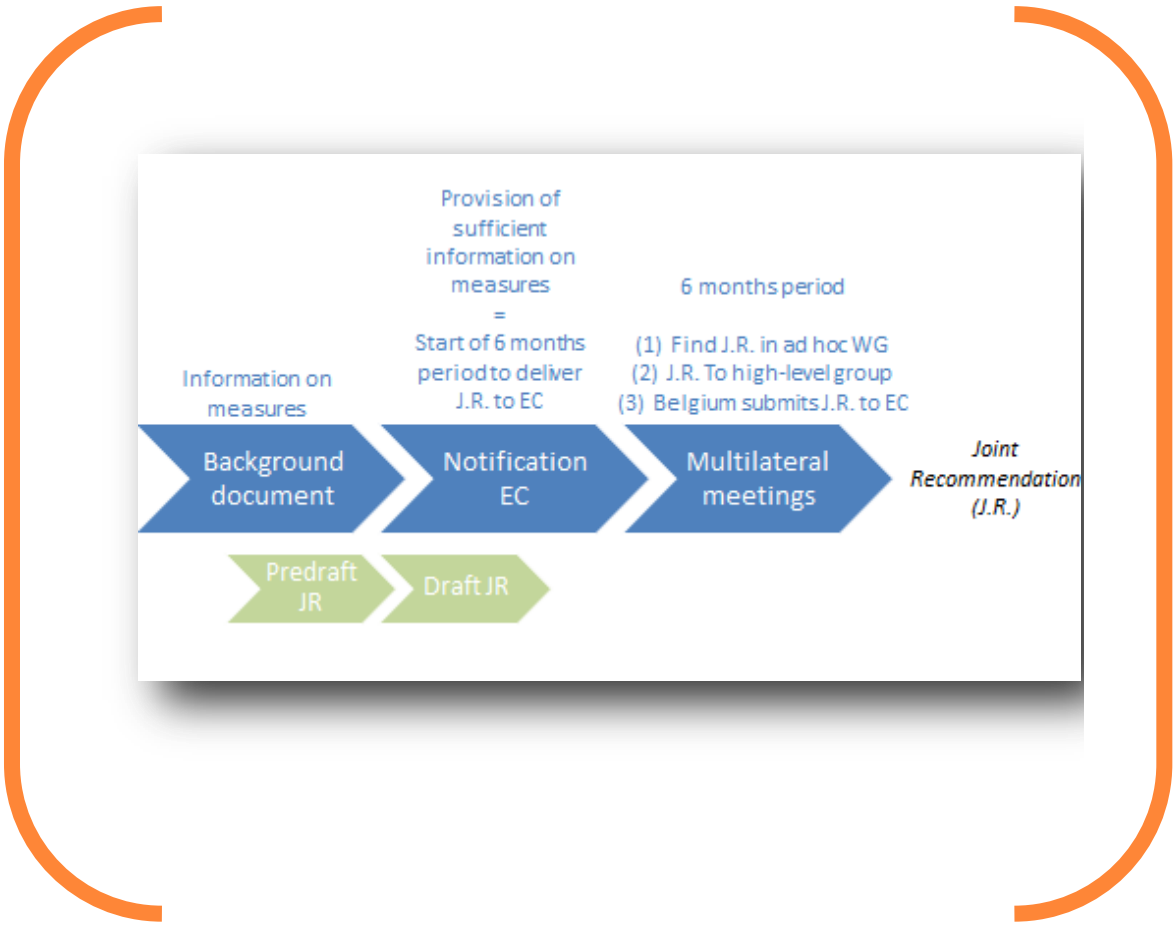

Fig 7. Overview chart indicating different steps of the process

After having reached a Joint Recommendation and the adoption of measures through a delegated act, the Belgian Royal Decree of 20 March 2014 (MSP Decree) has to be evaluated for potential changes to the measures. Belgium will adapt the Decree and refer to the Delegated Act. The whole process, including this feedback loop is visualized in Fig 8.

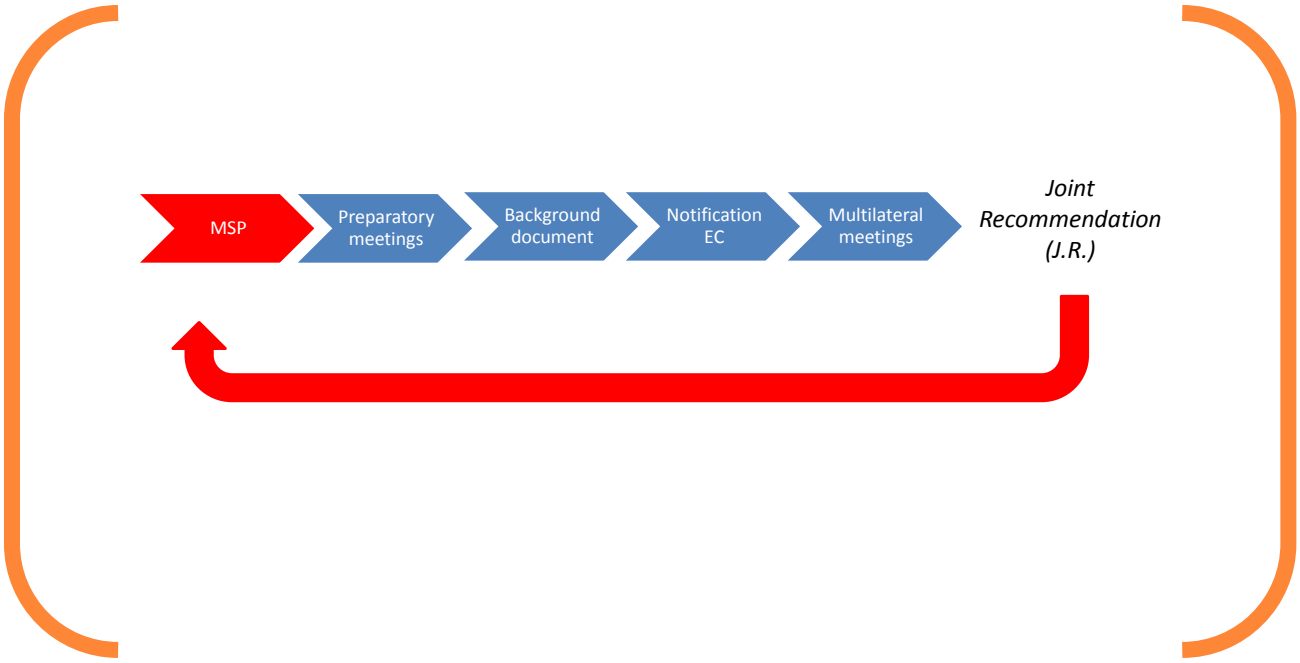

Fig 8. Full process with feedback loop to Belgian MSP

3 PRINCIPLES AND RATIONALE

3.1 Transparency

Transparency is a leading principle during the proposal of fisheries management measures. During the entire process (MSP and CFP, *cf. supra*) stakeholder involvement, regional coordination, non-discrimination and scientific advice are the basic principles. The ecological data on which the proposal is based as well as the fishing fleet information is made available through this background document. The different steps of the process are fully described in order to further increase transparency.

3.2 Proportionality

The natural environment on the seabed is influenced by different activities on and in the North sea. Given that the seabed is of great importance for different ecosystems in the North sea, every human activity which affects the seabed may have great and sometimes permanent consequences for the marine environment. Belgium chose to introduce spatial measures which are (i) limited in surface and (ii) which encourage the development of techniques that are less harmful to the seabed. In this manner, commercial fisheries will be able to continue their activities with no loss of fishing grounds, while at the same time, the most sensitive areas to seabed disturbance will be given the chance to recover.

The proposed measures balance the sustainable exploitation of resources and the need to reach the Good Environmental Status. Therefore, there is no intent to close any areas off for fisheries. Only small areas have been selected to protect very sensitive habitats resulting in five relatively small zones where access for fisheries is conditional.

The surface area where bottom impacting activities will be excluded is very limited: it represents merely 5 % of the total surface area of the BPNS. In reality the surface area where bottom impacting fishing activities will be prohibited will be even smaller for a considerable period of time since the prohibition will only be immediate in zone 3. In zone 1, the prohibition will only apply to new vessels.

As for the coastal measure, section 4.2 above describes the biological importance of the coastal zone until 6 NM. The extension of the existing measure from 3 NM to 4.5 NM would hence result in 50% improvement of the protection of the coastal zone, while fishing vessels (above 70 GT) would only "lose" 6% fishing grounds in the BPNS.

The small areas also relate to a low displacement of the fishing effort. Given the very small zones for fisheries measures, any possible higher pressure in adjacent areas will in any case be diluted within the remaining parts of the Belgian part of the North Sea.

3.3 Precautionary approach

As a leading principle, scientific evidence is the basis to shape the fisheries measures. However, the lack of extensive scientific knowledge on specific impacts can never be a reason not to take action if there is a plausible risk to deteriorate the seafloor integrity in areas with a high biological value.

3.4 Consistency and continuity

The fisheries measures need to be consistent and rely on the general rationale; moreover, continuity with existing measures is an important leading principle, and (spatial) fine tuning according to information on the biological value ensures consistent use of the best available science.

3.5 Habitats and biological value

3.5.1 Habitats of the Belgian part of the North Sea

The seabed is characterised by the presence of sandbanks, which are located parallel to the coast, sloping upward. The sandbanks stretch 15 to 30 km and can reach heights of approximately 20 metres measured from the bottom of the sea.

The substrate of the BPNS mainly consists of sand and also clay, silt and gravel. Silt deposits are found in the coastal area, approximately between Ostend and the Dutch border. The sandbanks coarsen from fine to coarse sand in a seaward direction.

The BPNS is characterised by the presence of a complex system of sandbanks, including biogenic and geogenic reefs (*cf.* Annex 3 for full description of habitats). Studies show that these habitats are sensitive to seabed disturbance (see for example Degraer et al. (2009)).

3.5.2 Most valuable areas of the Belgian part of the North Sea

3.5.2.1 Biological Valuation Map

In 2007, the Belgian Federal Science Policy Department developed a biological valuation map (the "BWZee project"[9]) showing the intrinsic biological value of the different subzones in the BPNS. This biological valuation map (BVM) compiles as much biological information as is available (*cf* Annex 4 for description of methodology). The map is of important value to be able to make objective, scientifically-sound and sustainable policy decisions. This methodology increases transparency and ensures that Best Available Science is used.

Fig. 9 shows a general appreciation of the biological value of different areas within the BPNS and "visualizes the high biological value of the coastal zone and the lower value of the offshore area."[9]

[9] http://www.vliz.be/projects/bwzee/index.php; Derous S., Verfaillie E., Van Lancker V., Courtens W., Stienen E.W.M., Hostens K., Moulaert I., Hillewaert H., Mees J., Deneudt K., Deckers P., Cuvelier D., Vincx M., Degraer S., 2007, *A biological valuation map for the Belgian part of the North Sea: BWZee, Final report*, Research in the framework of the BELSPO programme "Gobal chance, ecosystems ans biodiversity" – SPSD II, March 2007, pp. 99 (+ Annexes).

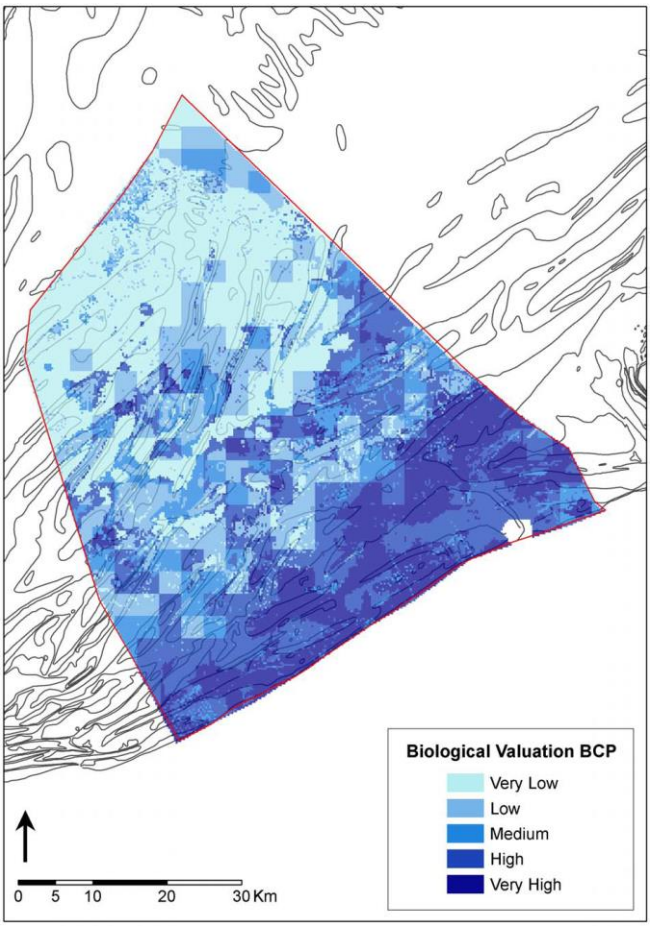

Fig 9. The marine biological valuation map of the BPNS which integrates the seabird, macrobenthos, epibenthos and demersal fish valuation.

3.5.2.2 Sand bank scoring

Within the process of defining potential SCIs (as obligation within the Habitats Directive), all sand banks have been scored relatively to one another, making use of the above-described biological valuation map combined with biodiversity indicators (*cf.* Annex 5 for methodology and conclusion for potential SCI area). This report of Degraer et al. (2009)[10] is an important scientific basis for the proposed measures.

3.5.2.3 Gravel beds offshore and *L. conchilega* aggregations near shore

The BPNS contains two habitat vulnerable habitats: geogenic gravel beds and biogenic *Lanice conchilega* aggregates (Degraer *et al.* 2009; see Annex for full description).

Gravel beds are found in the Hinderbanken area: historical data from the Gilson collection of the Royal Belgian Institute of Natural Sciences indicates that at the end of the 19th century, gravel beds were the most dominant type of habitat in the channel between the Oosthinder and Westhinder and that they contained a very high biodiversity (Van Beneden 1883, Houziaux et al. 2008). Moreover, two small zones near the Hinderbanken that are characterised by a remarkably well-developed gravel-bed fauna have been found. These locations are considered as refuge-sites situated in a natural shield against seabed-disturbing activities (such as fishing disturbance). These refuges imply an ecological potential of the Belgian gravel banks (i.e. if the pressure were to be reduced). The value of these sites lies not in the locations itself but in the insight that recovery of the habitat is possible (as the specific species are still around).

[10] An English version of the report was send around to the Ad Hoc Working Group members

Lanice aggregations on the other hand are hotspots of benthic biodiversity in the BPNS and are located in the coastal area. Thanks to their structuring effect (changing the micro-topography of the seabed), macrobenthic biodiversity is four to six times higher than the surrounding sediment, while the macrobenthic density exceeds it by 34 times. Furthermore, the aggregates are an important foraging and shelter area for, among others, juvenile flat fish. Especially the western section of the BPNS, has potential for the expansion of the *L. conchilega* aggregations (*cf.* Annex 3 for full habitat description).

This potential to expand depends on a successful larval recruitment to the benthos, which is estimated to be vulnerable to bottom trawling. Moreover, only a fraction of the suitable habitat contains *L. conchilega* aggreagations. An increase in coverage is expected if no bottom impacting fishing gear was applied.

These two vulnerable habitats were taking into account in the designation op SCIs (*cf.* Annex 5).

3.5.2.4 The coastal zone

As mentioned above, the biological value of the coastal zone has been established long before the development of the biological valuation map. In 2002, the Flemish Institute for the Sea ("Vlaams Instituut voor de Zee" – VLIZ) prepared a guidance note for policy makers about the ecological value of the Belgian coastal zone[11]. In particular, the note examined whether it makes sense to distinguish between 3, 6 and 12 NM from the coast based on the ecological value of BPNS.

In relation to macrobenthos, the note concluded that *"no substantial difference in 'ecological importance'(measured in terms of density, species richness, the amounts of shellfish and the relative presence of the trophically most important communities) can be demonstrated between 0-3 and 3-6 NM. These two coastal areas do score significantly better than the more offshore areas"*, i.e. areas beyond 6 NM.

The study also mentioned that the density of epibenthos and hyperbenthos is also significantly higher in coastal areas (more or less corresponding to the 6NM mark) than in the areas more offshore. These higher densities in the coastal area indicate that the coastal area serves the function of "nursery grounds" for fish and shrimp.[12]

The importance of the coastal zone was also confirmed by the BVM of 2007 and by the report of Degraer et al. (2009) (*cf.* supra). These studies confirm that the importance of the coastal zone is not limited to the western part of the coastal zone. In the protection scenario 2 (Fig. 10), which is the scenario coinciding with the 10% preferential biotope (*cf.* Annex 5), of the report of Degraer et al. (2009) three coastal sandbanks were selected as important: the large sandbank at the eastern part of the BPNS, Wenduine Bank (*cf.* Annex 5).

[11] Seys, J.; Cattrijsse, **A.;** Mees, J. (2002). Hoe ver uit de kust liggen België's ecologisch meest waardevolle mariene habitats? Een analyse van de meest actuele beschikbare wetenschappelijke informatie. Adviesnota VLIZ/AN/2002/1. Vlaams Instituut voor de Zee (VLIZ): Oostende, Belgium. 10 pp.
[12] Seys, J. et al (2002), p.7.

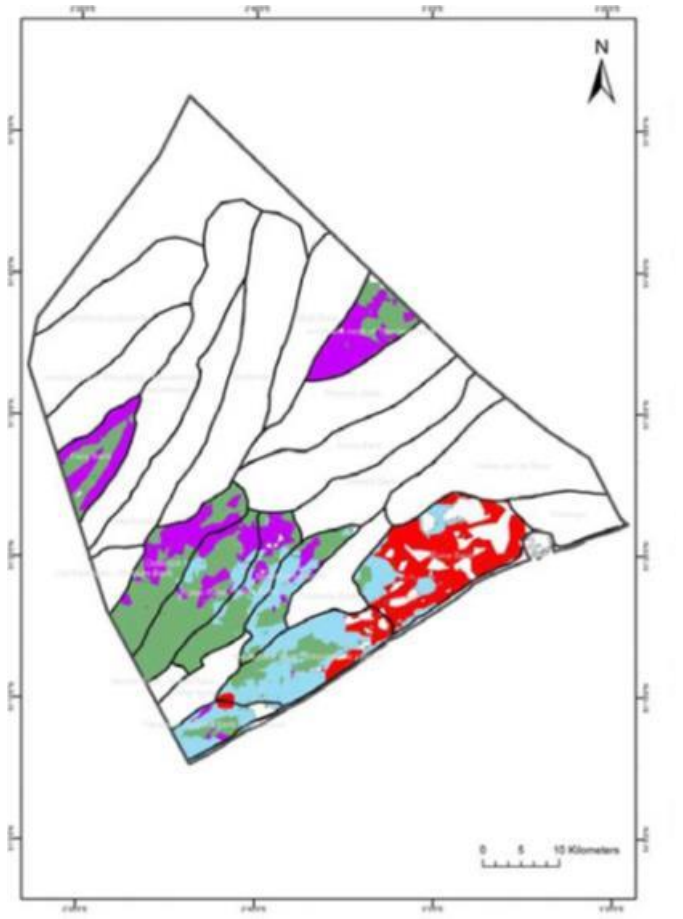

Fig 10. Degraer et al. (2009): Nine sandbanks were selected as potential Habitat Directive area. The following three coastal sandbanks were selected: Trapegeer – Broers Bank – Den Oever, Nieuwpoort Bank – Stroombank system and Wenduine Bank

The biological value of the coastal zone is further illustrated by the integrated BVM and in particular the valuation of macro and epibenthos. For macrobenthos, the highly valuable areas seemed to occur mostly in the coastal area, ranging from very nearshore in the western part to approximately 15 km offshore in the eastern part (*cf.* Annex 3 Fig C). Also the epibenthos valuation map shows that the coastal area has the highest biological value.

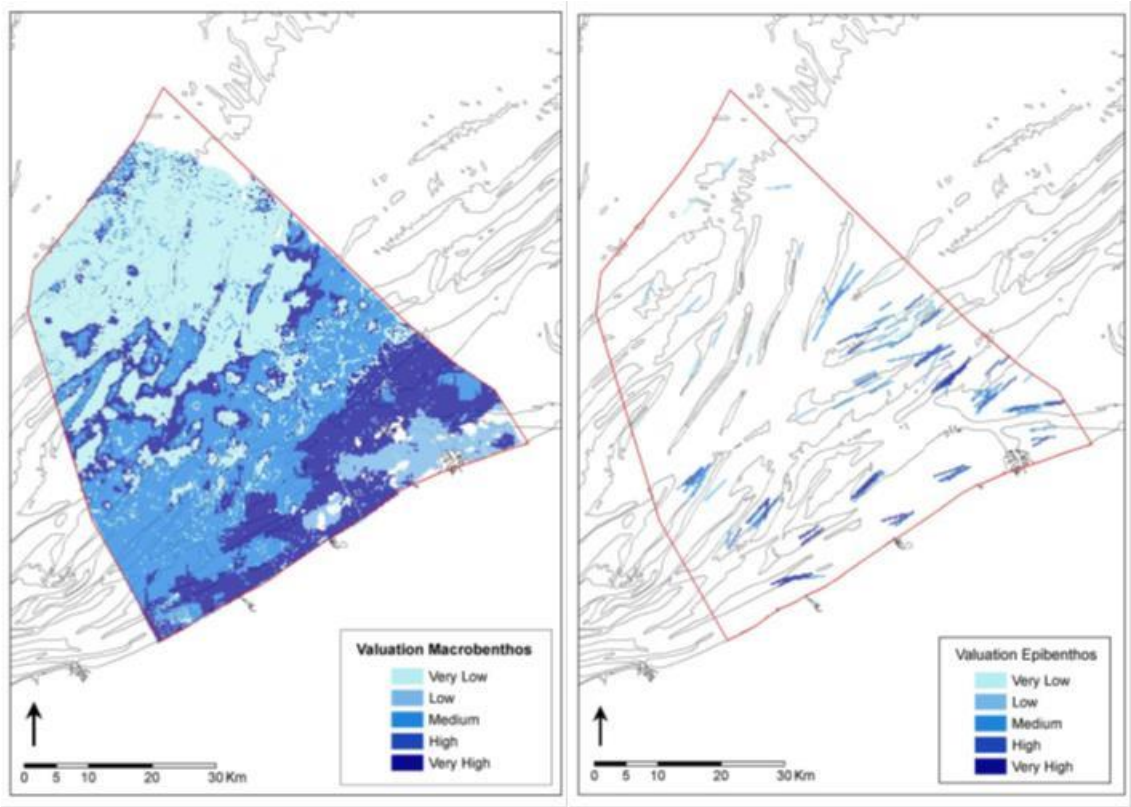

Fig 11. The marine biological valuation maps of macrobenthos (left) and epibenthos (right) that for part of the integrated BVM.

The high biological value of the coastal area, largely coincides with vulnerable *Abra alba* biotope and biogenic reef potential. The coastal system is known to suffer from significant ecosystem changes, including local extinctions. Moreover, bottom disturbance is considered to be the primary threat to the biogenic reefs in the coastal zone (Degraer et al, 2009).

3.6 No no-take zones

The measures relate to the targets defined in the Belgian Marine Strategy to reach the Good Environmental Status. As such, there is no incentive to create closures for fisheries and no no-take zones are being proposed as fisheries management measure in the Belgian part of the North Sea.

3.7 All proposed measures contribute to GES

The five zones are designed to reduce bottom impact to increase the seafloor integrity (and hence to reach the Good Environmental Status). However, different management measures are designed as such to allow for comparison and increasing insight.

4 MEASURES PROPOSED

4.1 Description of fisheries management measures proposed

4.1.1 Background and definitions

The proposed fisheries management measures are the result of extensive scientific research performed by the Institute for Agricultural and Fisheries Research (ILVO) and the scientific service of the Royal Belgian Institute of Natural Sciences (BMM) on the biologically most valuable areas and well as the sensitivity of these areas to seabed disturbing activities (mainly fisheries, but also sand and gravel extraction). The main scientific sources for the delineation of the zones with fisheries measures were (i) the Report on the biological valuation map for

the BPNS[13] as well as (ii) the study regarding the creation of a list of potential Habitats Directive Areas in the BPNS[14].

As for seabed disturbing activities in particular, the study relating to the establishment of a list of potential Habitat directive areas in BPNS (Degraer et al. 2009) stresses that beam trawling causes *"spading and changes in the morphology of the seabed, as well as re-suspension of fine sediments"*. The study also mentions that *"different local extinctions of amongst others bivalve molluscs are for example attributed to beam trawling and other seabed disturbing activities*". Degraer et al. (2009) particularly stresses that both biogenic reefs and gravel beds *"suffer loss of their ecological integrity as a result of seabed disturbing fishing techniques"*.[15]

Therefore, 5 zones harbouring sensitive habitats and high biological valuation have been selected to exclude or reduce bottom trawling impact to counteract the loss of ecological integrity. Four small sensitive zones have been delineated to come to exclusion of seabed disturbing, while the protected 3NM zone is proposed to be spatially extended to be consistent with the high biological valuable coastal area, largely coinciding with vulnerable *Abra alba* biotope and biogenic reef potential. Given that (1) seabed disturbance have brought about significant changes in the coastal ecosystem, including local extinctions, and (2) that bottom disturbing fisheries are considered to be the primary threat for loss of seafloor integrity[16], the application of the precautionary approach in the coastal zone is necessary.

Where the fisheries measures are concerned, the following definitions apply with a view to the application of the Royal Decree (Chapter 1, Article 1):

> *Seabed-disturbing fishing techniques*: active fishing techniques that disturb the seabed habitat by dragging the fishing equipment along the seabed;
>
> *Alternative seabed-disturbing fishing techniques*: active seabed-disturbing fishing techniques which have modifications to reduce the impact on the seabed;

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[13] Derous, S.; Verfaillie, E.; Van Lancker, V.R.M.; Courtens, W.; Stienen, E.; Hostens, K.; Moulaert, I.; Hillewaert, H.; Mees, J.; Deneudt, K.; Deckers, P.; Cuvelier, D.; Vincx, M.; Degraer, S. (2007). A marine biological valuation map for the Belgian part of the North Sea: BWZee, Final Report, Research in the framework of the BELSPO programme "Global change, ecosystems and biodiversity" – SPDS II, March 2007, pp. 99 (+ Annexes).

[14] Degraer, S., U. Braeckman, J. Haelters, K. Hostens, T. Jacques, F. Kerckhof, B. Merckx, M. Rabaut, E. Stienen, G. Van Hoey, V. Van Lancker & M. Vincx (2009). Studie betreffende het opstellen van een lijst met potentiële Habitatrichtlijn gebieden in het Belgische deel van de Noordzee. Eindrapport in opdracht van de Federale Overheidsdienst Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu, Directoraat-generaal Leefmilieu. Brussel, België. 93 pp. The original version of this document is in Dutch, but the relevant parts of this study have been translated into English for the purpose of the fisheries measures proposal.

[15] See study Degraer (2009) p. 21 and 27.

[16] Also the Report on the Initial Assessment of the Belgian Waters in the framework of Article 8, paragraphs 1a and 1b of the MSFD describes in detail the negative effects of beam trawling on the seabed: *"The physical effects of beam trawling depend on the size and intensity of the interactions between the fishery activities and the sediment/habitat. The significant impact on the seabed from beam trawling is due to the high intensity of the interaction rather than the fished surface (Løkkeborg 2005; Polet et al. 2010). The main effects of beam trawling include the removal of physical structures as a result of sediment homogenisation, as well as removal of sand ridges and of accumulations and tubes formed by organisms. Other effects are sediment resuspension with local loss of or coverage by sediment, the loss of three-dimensional structures, changes in turbidity and visibility under water and sediment compression (Løkkeborg 2005, Depestele et al. 2012). Beam trawling leaves detectable traces that remain visible for a number of days (Fonteyne 1999, 2000; Van Lancker et al. 2009). According to an estimate involving beam trawling activity in an area near the Thornton bank, local damage to the seabed covered 30-73% of the sandbank area (Van Lancker et al. 2011). In places, the seabed was completely fragmented as a result of fishery activities. Although this spatial impact data is not yet available for other areas, similar damage as a result of fishery activities may be assumed. Fishery activities generally are concentrated in the channels between the sandbanks and their largest impact can be found alongside the slopes of the banks."*[16]

Traditional seabed-disturbing fishing techniques: active seabed-disturbing fishing techniques which do not have modifications to reduce the impact on the seabed;

Non-seabed-disturbing fishing techniques: active and passive fishing techniques that do not disturb the seabed habitat as this type of fishing only fishes in the water column or places static fishing equipment in the water;

Coastal fisheries: fisheries active with fishing vessels with a gross tonnage of 70 or less;

In the table below (Table 1), an overview is given of the different fishing techniques used by the Belgian fleet at the time of drafting of the MSP. As the table is part of the informative Annex 1 of the MSP describing the situation "as is", the table in question is neither exhaustive nor binding. However, it may be used as guidance for which techniques can be covered by the above-mentioned definitions of "alternative" and "traditional seabed disturbing" fishing techniques.

Passive fishing methods	Active fishing methods		
No seabed disturbance	Seabed disturbance (techniques which disturb the sea bottom habitat as the gear touches the sea bottom)		No seabed disturbance
Trammel nets **Gill nets** **Pots** **Lines** **Fyke nets**	Alternative (with adaptations to reduce the impact on the bottom)	Classic (without adaptations to reduce the impact on the bottom)	Classic
	Pulskor shrimp trawler Pulskor flatfish trawler Light on-board nets Alternative beam trawler Sumwing trawler Shrimp trawler trawl shoe with wheels*	Beam trawler Otter trawler shrimp trawler	Pelagic fisheries

Table 1. Overview of fishing techniques – Gear code specification: cf. description of measures (Table 2)

4.1.2 Proposed measures description

Fig 12. Map showing the fishing zone limits for 3, 4.5 and 12 nautical miles

*(**Translation of the legend**: Visserij en mariene aquacultuur: Fisheries and mariculture - Limiet visserijzone 3M: 3NM limit of the fisheries zone - Limiet visserijzone 4,5 NM: 4,5 NM limit of the fisheries zone - Limiet visserijzone 12M: 12NM limit of the fisheries zone - Vaarverbod munitiestortplaats "Paardenmarkt": Closure of area for shipping munition disposal site "Paardenmarkt" - Speciale zone voor bodemintegriteit: Special zone for seabed integrity - Zone voor aquacultuur: Zone for aquaculture)*

4.1.2.1 Spatial measures in 4 sensitive areas

In Habitats Directive area the 'Flemish Banks', 4 zones were defined based on based on the most valuable and vulnerable zones (*cf.* 3.5.2):

Within **zone 1**, with the following coordinates (in projection WGS 84):

1° 51.09469 N 2.54140 E
2° 51.14990 N 2.49385 E
3° 51.22609 N 2.70173 E
4° 51.17053 N 2.75699 E

all fishing vessels currently present in the area may continue their activities on condition that beams with wheels ("roller shoes") are incorporated into the fishing equipment. For shrimp fishing a sieving net is obligatory. Existing vessels may be replaced. New vessels are allowed to fish in the area using non-seabed-disturbing fishing techniques. This means that vessels that were up until now were not active in this area cannot use seabed-impacting techniques.

More concretely, sieving net shall mean the following: a conical shaped net rigged in the inside of a trawl net, at the front connected with its full circumference to the surrounding trawl net and at the rear part connected to an outlet in the belly of the trawl net. The mesh size of the sieve net is significantly larger than the mesh size of the trawl net. As such the smaller organisms go through the sieve net meshes into the cod-end, the larger organisms are guided by the sieve net to the outlet.

Roller shoes are defined as: trawl heads rigged with wheel shaped rollers allowing the trawl heads to roll over the seafloor rather than shove over the seafloor.

Zone 1 General remarks:

The main objective is to increase seafloor integrity. Therefore, Belgium envisions a full prohibition of seabed disturbing gear type on the long term in this zone (*cf.* 3.5.2.3). The exception for existing operating vessels is considered as a transition period; this exceptional use will fade out over time as new vessels that were not active in the zone before can only enter with non-seabed disturbing gear. The extent of the fade out period is depending on how long existing vessels stay (and/or renew their vessels). Nevertheless, the exception to enter the zone is subjected to gear modifications. The Belgian fisheries industry as well as ILVO supported these adaptations as having a lower environmental impact[17].

In other words, the use of roller shoes and sieving nets is a condition that applies only for the exception for vessels already fishing in zone 1 as on the long term only non-seabed impacting techniques will be allowed.

Within **zone 2**, with the following coordinates (in projection WGS 84):

1° 51.22179 N 2.72067 E
2° 51.26197 N 2.68164 E
3° 51.31412 N 2.82199 E
4° 51.27949 N 2.87263 E

only non-seabed-impacting fishing gear is allowed. Moreover, testing of alternative seabed-impacting fishing gear is allowed under a permit system. A three-year transition period is established during which existing fishing techniques in the area are still allowed.

Zone 2 General remarks:

The main objective is to increase seafloor integrity. To this end, both non-seabed-impacting and alternative less-impacting gear is allowed. The latter only if scientific testing of impacts is guaranteed for which a specific authorisation is required.. The procedure for authorisation for testing will be discussed within the Ad Hoc Group before the submission of the Joint Recommendation.

The transition period of three years allows time to adapt fishing gear to be able to enter the zone.

Within **zone 3**, with the following coordinates (in projection WGS 84):

1° 51.42224 N 2.58086 E
2° 51.45833 N 2.52708 E
3° 51.48834 N 2.45091 E
4° 51.51663 N 2.48007 E

[17] See for example: http://www.sdvo.be/en/research/alternative-fishing-techniques-for-inshore-fishing-boats/; http://www.sdvo.be/websites/1/uploads/files/documents/12517-boomkor-low_28-1-2014_11_08_55.pdf

5° 51.48100 N 2.57800 E
6° 51.44485 N 2.63069 E

only non-seabed-impacting fishing techniques are allowed.

Zone 3 General remarks:

The main objective is to increase seafloor integrity. Given that this zone has been selected for the restoration of biologically valuable gravel beds which have diminished in the BPNS (*cf.* 3.5.2.3), only non-seabed-impacting gear is allowed.

No transitional measures apply in this zone and commercial fisheries are required to switch immediately to non-seabed impacting fishing techniques.

Within **zone 4**, with the following coordinates (in projection WGS 84):

1° 51.39540 N 2.51862 E
2° 51.42010 N 2.49147 E
3° 51.44974 N 2.41779 E
4° 51.48821 N 2.45186 E
5° 51.45833 N 2.52708 E
6° 51.42224 N 2.58086 E

only non-seabed-disturbing fishing techniques and testing of alternative seabed-impacting fishing techniques are permitted.

Zone 4 General remarks:

The main objective is to increase seafloor integrity. To this end, both non-impacting and alternative less-impacting gear is allowed. The latter only if scientific testing of impacts is guaranteed for which a specific authorisation is required.. The procedure for authorisation for testing will be discussed within the Ad Hoc Group before the submission of the Joint Recommendation.

No transitional measures apply in this zone and commercial fisheries are required to switch immediately to non-seabed impacting fishing techniques.

4.1.2.2 Zone 5: Ecological valuable coastal zone

In order to preserve seabed integrity, fishing within an area of 4.5 nautical miles (NM) offshore is prohibited for fishing vessels having a gross tonnage of more than 70 or a total length exceeding 20m. This zone is measured from the baseline that serves as the reference for the width of the territorial sea of Belgium[18].

Zone 5 General remarks:

The main objective is to increase seafloor integrity. Therefore, the restrictions that currently apply within 3NM from the baseline, are proposed to be spatially extended to be consistent with the high biological value coastal area, largely coinciding with vulnerable *Abra alba* biotope and biogenic reef potential (*cf. supra* 3.5.5). Given that (1) seabed disturbance has brought about significant changes in the coastal ecosystem, and (2) that bottom impacting fisheries are considered to be the primary threat to the biogenic reefs in the coastal zone, the application of the precautionary approach (leading principle, *cf.supra* 3.3), based on the best available scientific

[18] Art. 6 §3 MSP; the 4.5 nautical mile limit is shown graphically in Annex 4 of the MSP, Map 4.

insights, in the coastal zone is necessary.

In other words, an existing coastal fisheries management measure is spatially extended based on ecological information and plausible risk for impacts. The distinction based on tonnage is an existing threshold for the smallest commercial vessel segment in Belgium. The existing measure with the Gross Tonnage threshold of 70 was based on an existing threshold in the Regulation 850/98 (Technical Measures) where it is mentioned that this threshold coincides to an overall length of 20m.

4.1.3 Summary of the proposed measures

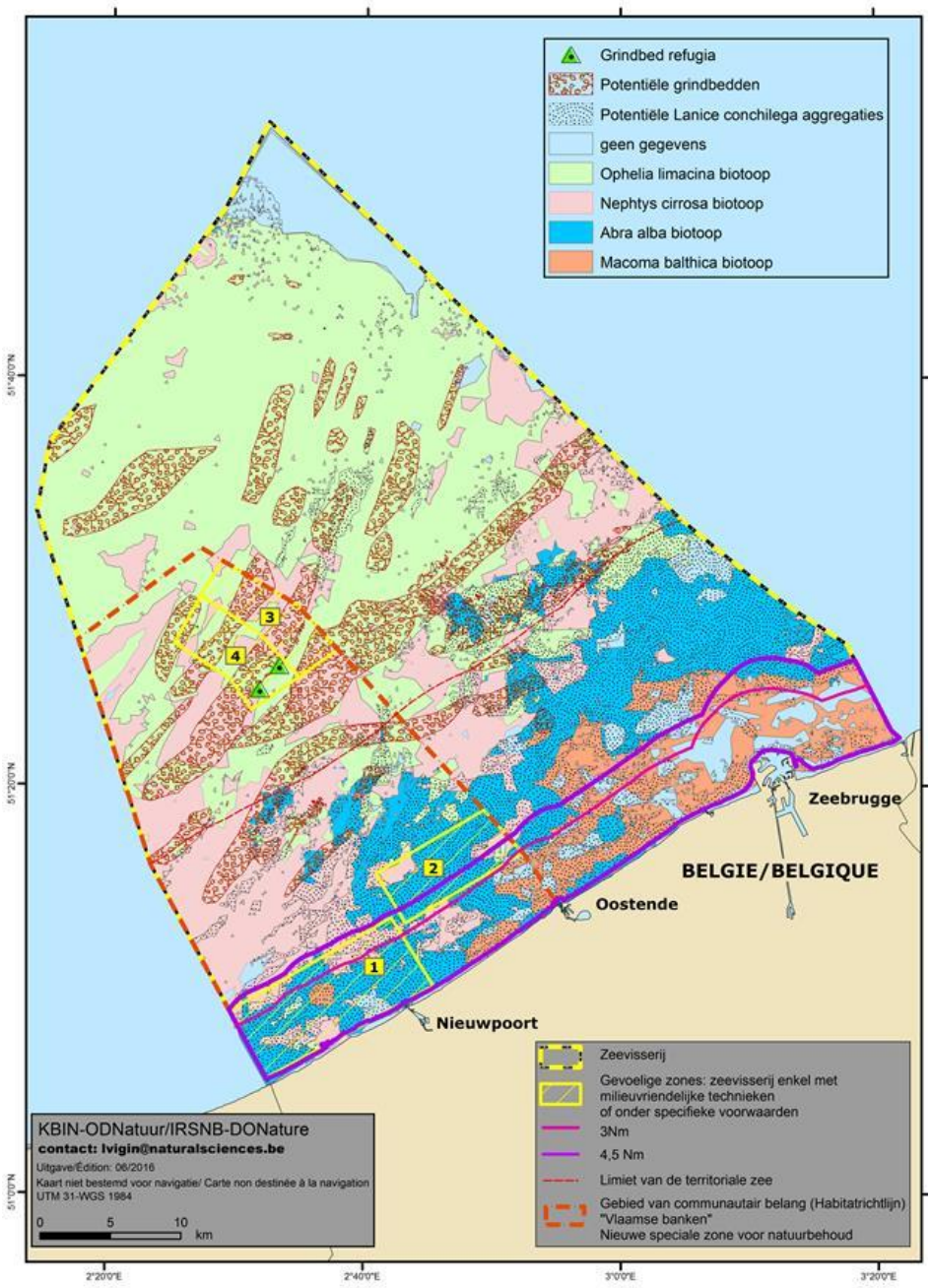

Fig 13. Overview map of the proposed fisheries measures and of the different habitat types within BPNS orange: *Macoma balthica* biotope; blue: *Abra alba* biotope; light pink: *Nephtys cirrosa* biotope; green: *Ophelia borealis* biotope. Green triangles: 2 refuges areas in gravel beds

Zones 1 and 2 are places where the *Abra alba* community is found. This community comprises various so-called 'ecosystem engineers'. These habitat-structuring species create biodiversity hotspots and are sensitive to bottom-impacting fishing gear.

Zones 3 and 4 comprise the gravel beds: the gravel beds are home to a rich fauna and flora with a high species richness, both of infauna and of epifauna on the rocks. These rich communities can only develop if the habitat is not strongly subject to natural and/or anthropogenic disturbance. Especially the gravel beds in the Hinderbanken area are important: historical data (Gilson collection: early 20th century) indicate that gravel beds were the most dominant type of habitat in the channel between the Oosthinder and Westhinder (Houziaux et al. 2008), and that they contained a very high biodiversity (Van Beneden 1883).

Zone 5 is the highly biologically valuable coastal area, largely coinciding with vulnerable *Abra alba* biotope and biogenic reef potential.

In short, several small zones have been delineated to reduce the fisheries' impact on the seafloor integrity. The purpose of the measures is to reduce seabed impacting fishing techniques and hence increase seafloor integrity. In zones 1 and 3, only fishing techniques that do not disturb the seabed habitat will remain allowed. Both traditional and alternative seabed disturbing techniques will be fully prohibited. These zones will hence remain solely available for techniques fishing only in the water column or passive fishing techniques.

The prohibition will be immediate for zone 3 as this zone is meant for the preservation of valuable gravel beds, while in zone 1 the proposed measure will only apply to new vessels. This means that the assignment of zone 1 to solely non seabed impacting fishing techniques will be more gradual (transition period). This fade out period is defined by the fact that vessels that were not active in the zone before can only enter with non-seabed disturbing gear. The extent of the fade out period depends on how long existing vessels stay (and/or renew their vessels).

Zones 2 and 4 are both zones where mobile fishing gear is prohibited. However, exceptions will be allowed within the framework of testing alternative seabed-disturbing fishing techniques, *i.e.* techniques with a lower impact on the seabed than the classic beam trawlers. Any party wishing to perform testing activities in these zones will have to present a request to do so. For zone 2, there is a transition period of 3 years after the adoption of the proposed measures.

The coastal measure (zone 5) intends to find a better consistency between the biological value of the coastal area and the protection of this valuable area (which is currently limited to only 3 NM).

In the remaining part of the BPNS, all fishing techniques will take place as before. This differential approach will allow for more accurate evaluation on the effectiveness of the measures. A comparison will be possible (a) between zones 1 and 3 where no seabed disturbing activities take place, (b) between zones 2 and 4 where only seabed disturbing fishing activities with a reduced impact on the seabed take place, (c) between the effect of zone 5 and the effects of the zones 1-4 and (d) between zone 1-5 and other areas of the BPNS where seabed disturbing activities take place as before.

An overview of the measures per gear code is added in Table 2 below.

Gear types	International standard classification of fishing gear	Zones in which gear is banned
Beamtrawls	TBB	(1)*, 2, 3, 4, (5)**
Bottom trawls/otter trawl	OTB, PTB	2, 3, 4, (5)**
Seine nets	SDN, SSC	2, 3, 4, (5)**
Gill nets/static gear/Other	GN, GT en LHP	No limitations

Table 2. Summary of proposed measures: Indication of Gear Type and Gear Codes for each zone (*beamtawl only allowed for existing vessels and use of roller shoes/sieve nets, ** trawling with vessels <70GT allowed)

4.2 Fleet activity

4.2.1 Fishing rights in the Belgian part of the North Sea

The Regulation 1380/2013 (CFP) provides that European fishing vessels have a right to fish in the exclusive economic zone (EEZ). Within the EEZ, Belgium identified five Member States with fisheries activities: The Netherlands, France, United Kingdom, Germany and Denmark. The territorial sea is, in principle, reserved for national fishing vessels. However, on the basis of bilateral agreements, Belgium has granted additional fishing rights to Dutch and French fishing vessels in the Belgian territorial sea. Further subdivision was made between 3 and 12 NM.

Between 3 and 12 NM, Dutch fishing vessels are allowed to fish on all fish species. French ships only have access between 3 and 12 NM to fish herring.

Between the baseline and 3 NM, in addition to Belgian coastal fishing vessels, also Dutch fishing vessels are allowed access. This 3 NM limit allowing fishing access to Dutch vessels dates back to the Benelux Treaty and will not be modified by the proposed measures. Moreover, bilateral agreements in relation to the performance of seasonal fishing activities have existed between France and Belgium since 1976.

4.2.2 Fleet activity analysis

At the request of the Marine Environment Service, the Institute for Agricultural and Fisheries Research (ILVO) gathered information about the Belgian, Dutch and British vessels that were active in the BPNS during the period 2010-2012 (ILVO study)[19]. To this end, Vessel Monitoring System ('VMS') and logbook data were used. Additionally, this study was complemented with a new study for the analysis of French data for the same period (2010-2012) (ILVO study[20]). The methodology for both studies is the same[21]. Denmark provided processed data and Germany preferred not to include their fleet activity as their management interest affected by the proposed measures is minimal.

4.2.2.1 Belgian fisheries activities

The Belgian fleet is rather limited (89 vessels in 2011) and is mainly active in non-Belgian waters. During the period 2010-2012 only 9.4% of the total number of 'active' VMS signals from the Belgian fishing fleet came from the BPNS.

4.2.2.2 Dutch fisheries activities

The Dutch fleet is much larger as compared to the Belgian fleet (831 vessels in 2008). In the period 2010-2012 VMS pings of 125 Dutch fishing vessels were recorded. The ILVO study showed that the Dutch fishing fleet is mainly active in (i) shrimp fishing and (ii) beam trawling for demersal fish using nets with a mesh size between 80 and 99 mm. Other métiers present within the Flemish Banks were beam trawling with a different mesh size than 80 to 99 mm, otter trawling and gill netting, pelagic fishing and pot fishing.

Dutch beam trawling was also observed all over the BPNS. Fishing activities took place all year round in all 4 of the proposed sectors of the Flemish Banks. However, the highest intensities were measured beyond the 3 NM limit. Thus, generally speaking, beam trawling activity was less intense in zone 1. The spatial distribution of Dutch beam trawling activities varies depending on the season. In autumn and winter there was more offshore

[19] Pecceu E, Vanelslander B, Vandendriessche S, Van Hoey G, Hostens K, Torreele E, Polet H (2014). Beschrijving van de visserijactiviteiten in het Belgisch deel van de Noordzee in functie van de aanvraag bij de Europese Commissie voor visserijmaatregelen in de Vlaamse Banken (Habitatrichtlijngebied). ILVO-mededeling nr. 156, 92 p.

[20] Vanelslander B (2016). French fishing activities in the Belgian part of the North Sea (BPNS), ILVO 26/02/2016, 24p.

[21] Methodology: to process the data and to visualize it on maps, the R software has been used (open source programme) to perform statistical analyses as well as graphical applications. The *VMStools R Package* was used to do so. This tool has been developed in the EU Project "Development of tools for logbook and VMS data analysis (MARE/2008/10 lot 2)" and can be found on http://code.google.com/p/vmstools (Hintzen *et al*, 2012).

fishing (in zones 3 and 4), whereas in spring and summer fishing took place closer to the coast, especially in the area between 3 and 12NM (in zone 2).

Fig. 14 below illustrates that the Dutch beam trawl fleet is also very active in the coastal zone beyond 3 NM (as the Dutch fleet is highly present in the entire BPNS). The proposed coastal measure is likely to have effects on large Dutch beam trawls (above 70 GT), while smaller beam trawls will remain allowed. As a result of the proposed coastal measure, large vessels will in practice have to give up only 6%[22] of their fishing grounds in the BPNS. In return however, the protection of the biologically valuable coastal area (which is most valuable until 6 NM – see section above 4.2) will increase by 50%[23].

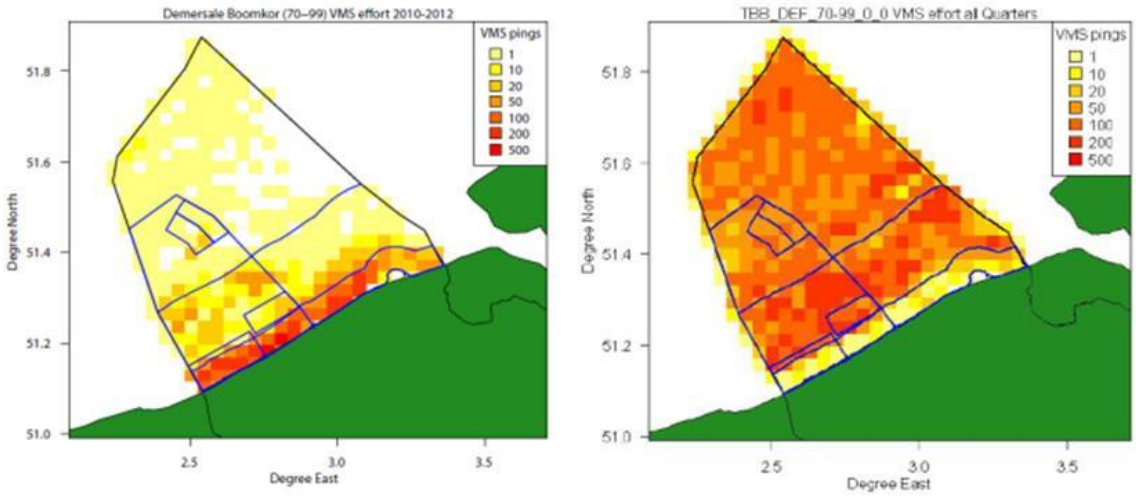

Fig 14. Spatial distribution of VMS efforts for demersal beam trawls of the Belgian (left) and Dutch (right) fleet in 2010-2012

As Belgian and Dutch fishing fleets are active in large parts of the BPNS, a more detailed comparison between the two fleets is provided in Annex 6.

4.2.2.3 French fisheries activities

The majority of the French fleet activity in the BPNS concerns trawling (91.5% OTB gear type), while other gear is almost not represented.

[22] 6% is the surface area of the extension of the coastal measure from 3 to 4.5 NM.
[23] 50% protection increase, the increase being from 3 NM to 4.5 NM.

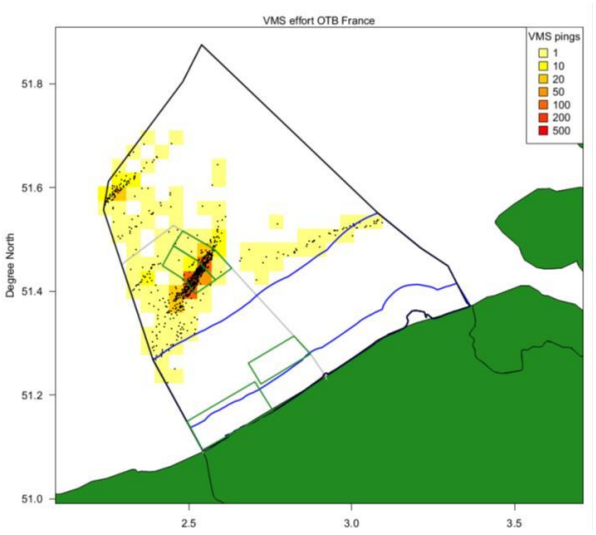

Fig 15. VMS effort of French OTB vessels inside the Belgian part of the North Sea for 2010-2012. Black line shows the borders of the Belgian part of the North Sea. Blue lines are the 3 and 12 NM borders. Grey line shows the "Vlaamse Banken" and green lines the 4 proposed protected areas.

It should be kept in mind that only 29% of the OTB gear fishing trips in the logbook data are covered with VMS data. So the patterns observed in figure 15 might give a fragmented view of the actual fishing activity of the OTB gear. For all gear together, only 2% of the fishing trips in the logbook are covered by the delivered VMS data.

Maps of the landings for the OTB gear were made for species that had a catch higher than 10 tonnes spread over 2010:2012. These species were European seabass (BSS), Dab (DAB), European plaice (PLE), Atlantic Cod (COD), Atlantic horse mackerel (HOM), Atlantic mackerel (MAC) and Whiting (WHG) (*cf.* Annex 7).

4.2.2.4 German fisheries activities

Germany preferred not to include their fleet activity as their management interest affected by the proposed measures is minimal.

4.2.2.5 British fisheries activities

The activity of the British fleet in the BPNS is very limited (*cf.* Annex 8). The British fishing fleet is active in the BPNS in beam trawling, otter trawling, pot fishing, seine trawling, gill netting and longline fishing. UK fishing activity is very low (rare) within the boundaries of the 4 fishing zones and non-existent in zone 5. It is very unlikely that any UK vessels will be affected by the fishing restriction defined in the Belgian fisheries measures proposal.

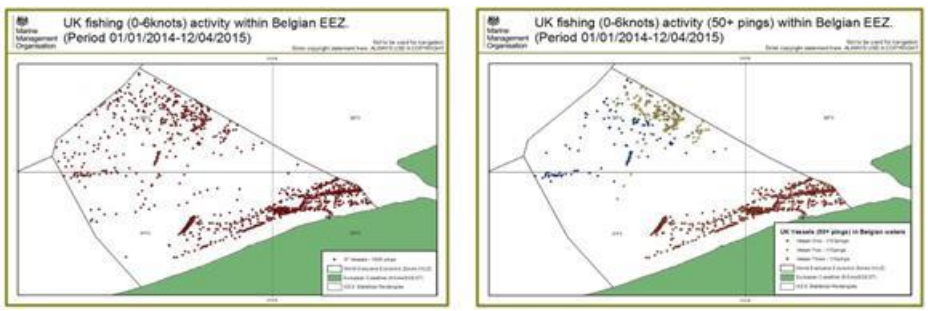

Fig 16. UK Fishing fleet activity in BPNS

4.2.2.6 Danish fisheries activities

An analysis of the Danish fishery in Belgian zone of the North Sea for mobile bottom contacting gears, pelagic gears and other gears has been provided by Denmark (*cf.* Annex 9). There is no bottom impacting gear used in the BPNS by Danish vessels. The only fisheries activities take place in the EEZ and consist for 100% of gill net fisheries.

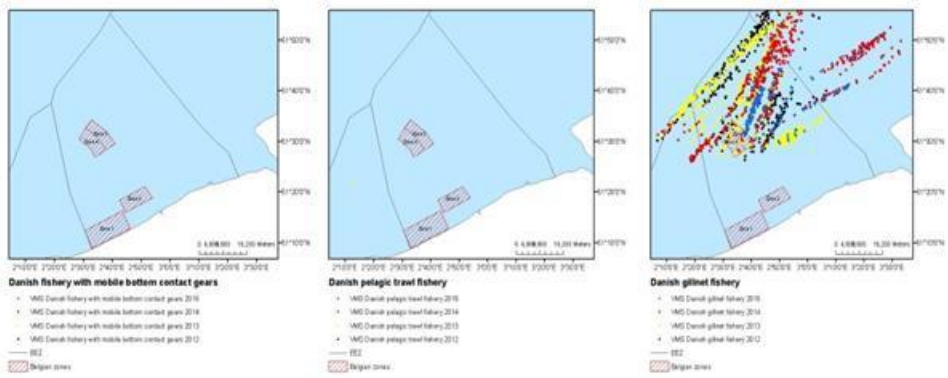

Fig 17. Danish Fishing fleet activity in BPNS

4.3 Control, enforcement and monitoring

4.3.1 Control

To control environmental and/or fisheries measures, traditionally a combination of procedures has been used, concretely remote monitoring using the VMS or the AIS (*automatic identification system)*, aerial and marine control and technical control on board of the vessel itself.

4.3.1.1 Administrative control

The introduction of an additional licensing system is explicitly not taken into consideration. This is because the Belgian authorities are of the opinion that the conditions for awarding fishing licences and permits must be determined at the European level, and that this principle cannot be deviated from.

Lists of fishing vessels with their characteristics, in particular the gross tonnage, are available for national and foreign fleets. The lists will be kept available on board of the surveillance units (patrol vessels and plane) and updated when necessary.

4.3.1.2 Remote control

According to EU regulations, vessels with a LOA ('length over all') of more than 12 m are subject to the VMS. Moreover, vessels with a LOA of more than 15 m are also subject to the AIS as of May 2014. Both electronic monitoring systems are used to monitor the presence of vessels. Although fishing activities as such are not reported by the systems, these can indirectly be deduced from the pattern of consecutive positions.

Monitoring with the VMS is done in near real time during office hours from the FMC (*fleet monitoring centre)* in Ostend.

4.3.1.3 Surveillance on the spot

Marine units of the Navy, Maritime Police and Customs will be assigned the permanent duty to monitor and report on the presence and activity of fishing vessels.

The flight plan and route of the control plane will be adapted in order to fly over the different zones during their routine operation. The annual aerial programme of the Sea Fisheries Department comprises the performance of missions with the OO-MMM plane for a total of 40 flying hours over sea. The Marine Environment Service of the Directorate-General for the Environment carries out helicopter flights for training and environmental monitoring tasks at sea for a total of approximately 20 flying hours over sea per year.

During missions at sea, so-called boardings will be performed of vessels during their activity. Aside from an inspection of the documentation and the catch, in particular the fishing equipment will be subjected to a technical inspection. Arrangements have been made with the partners/owners of seagoing vessels within the coast guard structure on the use of patrol vessels for monitoring operations at sea. For instance, the Sea Fisheries Department has an agreement with the Ministry of Defence on the use of patrol vessels during 100 days at sea per year. The Directorate-General for the Environment has a similar agreement with the Ministry of Defence on the use of patrol vessels during 50 days at sea per year. With the putting into service of the BNS CASTOR (2014) and the BNS POLLUX (2015) it will be possible to achieve this objective. There is an agreement with DAB Vloot on the use of the ZEEHOND for sea fisheries inspections during 30 days at sea per year. The Sea Fisheries Department and the competent federal departments will plan and perform their inspections in a coordinated manner, taking into account possible synergies and cooperation and attempting to make an optimal use of the existing means for fishing and environmental monitoring at sea.

However, inspections of the fishing equipment in the ports are not planned, because, as a general rule, the mere presence of fishing equipment which may be used illegally is not prohibited under European or national regulations.

The monitoring teams will have the lists and descriptions of permitted alternative seabed-disturbing fishing equipment at their disposal. The research institute ILVO will be asked to provide an approach for this. The fishing industry will be informed of the result of this study.

4.3.2 Enforcement

The enforcement is taken care of by Flemish (Sea Fisheries Department) and federal (Directorate-General for the Environment) officials, who derive their respective powers from the Decree of 28 June 2013 on the Agriculture and Fisheries Policy and the the 1999 Marine Environmental Protection Act (MEPA).

4.3.3 Monitoring and evaluation

As the proposed fisheries measures are based on obligations under the MSFD, the MSFD-monitoring scheme will cover the monitoring of the proposed measures. This monitoring programme was developed and discussed under the coordination of the Management Unit of the North Sea Mathematical Models (BMM), in charge of the design and implementation of the Belgian monitoring programmes for the continuous assessment of the marine environmental status[24]. This programme was established in cooperation with experts and policy-makers of the various Belgian administrations and public research institutions.

The final monitoring plan aims for consistency by bringing together the relevant provisions on assessment and monitoring established in the legislation of the European Union and/or by virtue of international agreements. Existing monitoring schemes stay therefore in place, are integrated and adapted where necessary. The monitoring programme covers all environmental targets, with the exception of pressure- or need-oriented environmental targets, for which, rather than a number of environmental data, measures will be required with respect to pressure or ad hoc considerations during the environmental impact assessments.

Evaluation is guaranteed by the national MSP-process. Given that the proposed fisheries measures are part of the MSP for the years 2014-2020, the fisheries measures will need to be evaluated by the end of each 6 year period. Moreover, fisheries measures may also be adapted through an interim review of the MSP if the monitoring results show this to be necessary.

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SUMMARY

For the implementation of the EU Marine Strategy Framework Directive (MSFD), several activities at sea are managed to meet the obligation to reach the Good Environmental Status in the Belgian part of the North Sea. Amongst other activities, fisheries activities are impacted in five relatively small zones where access for fisheries is conditional. As Belgium intends to achieve progress towards the MSFD targets through spatially-explicit management actions related to the sectors concerned, several activities, including fisheries, are impacted, specifically in relation to descriptor 6 ("sea-floor integrity"or "sea-floor integrity is at a level that ensures that the structure and functions of the ecosystems are safeguarded and benthic ecosystems, in particular, are not adversely affected."). The Belgian proposal has been developed in the period 2012-2014, within the process of Marine Spatial Planning (MSP). It is the intention of the Belgian government to take measures in its territorial waters and in the Exclusive Economic Zone as an initiating Member State, with respect to fishing activities exercised by all vessels including fishing vessels carrying the flag of other Member States. In order to apply these measures to international fleets, Belgium is bringing this proposal to a European/regional level through the application of Art. 11 of EU Regulation 1380/2013. The application of this procedure follows the framework of the Scheveningen group.

The process must lead to an agreement of all Member States having a direct management interest in the fishery to be affected by the proposed measures (a so-called Joint Recommendation). As a first step, all relevant information is shared with the Member States with management interest and this document is the background document which has been developed to serve as provision of sufficient information to the EC. The overall aim of the present background document is to present a document which is scientifically sound as a basis to discuss a Joint Recommendation with the Member States having a management interest in the fishery to be affected by the proposed measures.

The rationale of the proposed measures is that there is no intent to close any areas off for fisheries. Only small areas have been selected to protect those habitats that are very sensitive. Moreover, the proposed measures intend to act as an incentive to consider less seabed impacting techniques.

In order to preserve the seafloor integrity, the most vulnerable and valuable zones have been selected for the measures. Four of the five selected zones are situated within the Habitats Directive area SAC Flemish Banks.

Zone 1 intends to exclude any seafloor disturbing fishing gear in the long term. As a transitional measure, existing coastal ships are allowed to continue all fisheries activities. The conditions to make use of this transitional measure towards exclusion of bottom gear are the obliged use of roller shoes to reduce the impact on the bottom and to apply a sieving net for shrimp fisheries. Existing vessels may be replaced and new vessels may enter the zone only with non-seabed disturbing techniques. The use of roller shoes and sieving nets is a condition that applies only to the exception for vessels already fishing in zone 1 as on the long term only non-seabed disturbing techniques will be allowed.

Zone 2 is situated near zone 1 and allows only non-seabed disturbing fishing techniques. Besides, alternative seabed-disturbing techniques are allowed if they are framed within a scientific research project. Belgium is in the process of designing the procedure to use these testing zones. The procedure will be presented to the Ad Hoc Group. The measures in zone 2 will apply after an interim period of 3 years during which all existing fishing techniques are still allowed.

Zone 3 allows only non-seabed-disturbing fishing techniques.

Zone 4 is situated near zone 3 and allows only non-seabed impacting fishing techniques. Besides, alternative seabed-disturbing techniques are allowed if it they are framed within a scientific research project. Belgium is in the process of designing the procedure to use these testing zones. The procedure will be presented to the Ad Hoc Group.

Zone 5 concerns a spatial extension of an existing fisheries measure in Belgian waters. Within 3NM from the coast, only vessels with <70GT are allowed to fish to protect the valuable coastal area. This threshold has been

used in analogy to the threshold that is mentioned in Regulation 850/98 (Technical Measures). As the valuable coastal zone goes up to 6NM, this ecological information has been used to extent the measure spatially with 50%, implying that the <70GT rule applies up to 4,5NM from the coast.

The present proposal will be submitted to the European Commission (i.e. notification), which serves as the provision of sufficient information in accordance with the Basic Regulation Art. 11(3).

RESUME

En vue de la mise en œuvre de la directive-cadre 2008/56/CE « stratégie pour le milieu marin » (DCSMM), plusieurs activités en mer font l'objet d'une gestion afin de rencontrer l'obligation d'atteindre le bon état écologique dans la partie belge de la Mer du Nord. Parmi d'autres activités, les activités de pêche sont impactées dans cinq zones relativement petites où l'accès aux pêcheries est soumis à certaines conditions. Particulièrement en ce qui concerne le descripteur 6 ("Intégrité des fonds marins" ou « le niveau d'intégrité des fonds marins garantit que la structure et les fonctions des écosystèmes sont préservées et que les écosystèmes benthiques, en particulier, ne sont pas perturbés »)., plusieurs activités, dont la pêche, sont impactées dans la mesure où la Belgique projette d'accomplir des progrès en direction des objectifs de la DCSMM au travers d'actions de gestion explicitement spatiales liées aux secteurs concernés. La proposition belge a été élaborée au cours de la période 2012-2014, dans le cadre du processus de plan d'aménagement des espaces marins (PAEM). L'intention du gouvernement belge est de prendre des mesures dans ses eaux territoriales et dans la zone économique exclusive en tant qu'État membre demandeur, relatives aux activités de pêche exercées par tous les navires, y compris les bateaux de pêche portant le pavillon d'autres États membres. Afin de rendre ces mesures applicables aux flottilles internationales, la Belgique soumet sa proposition au niveau européen / régional en application de l'article 11 du règlement UE 1380/2013. L'application de cette procédure s'effectue conformément au cadre défini au sein du groupe Scheveningen.

Le processus doit déboucher sur un accord de tous les États membres ayant un intérêt direct dans la gestion de l'activité de pêche qui seront affectés par les mesures proposées (ce que l'on appelle une "recommandation commune"). Dans une première étape, toute l'information pertinente est partagée avec les États membres ayant un intérêt dans la gestion et le présent document constitue le document de base qui a été élaboré dans le but de fournir une information suffisante à la CE. Le but général du présent document de base est d'offrir un document scientifiquement cohérent servant base à la discussion d'un accord commun avec les États membres ayant un intérêt dans la gestion des activités de pêche qui sera affecté par les mesures proposées.

La logique sous-jacente aux mesures proposées est que l'intention n'est nullement de fermer à la pêche quelque zone que ce soit. Seules de petites zones ont été sélectionnées afin de préserver les habitats les plus sensibles. En outre, les mesures proposées se veulent un incitant pour encourager des techniques de pêche moins perturbatrices des fonds marins.

Afin de préserver l'intégrité des fonds marins, seules les zones les plus vulnérables et les plus précieuses ont été sélectionnées pour ces mesures. Quatre des cinq zones sélectionnées sont situées à l'intérieur de la zone directive Habitats Vlaamse Banken.

La zone 1 vise l'exclusion à long terme des engins de pêche perturbateurs des fonds marins. En guise de mesure transitoire, les navires côtiers existants sont autorisés à poursuivre toutes leurs activités. Les conditions pour bénéficier de cette mesure transitoire en attendant l'exclusion à terme des engins traînant sur le fond sont l'utilisation obligatoire des engins de coulisses pour réduire l'impact sur le fond et l'emploi du chalut de séparation pour la pêche aux crevettes. Les navires existants peuvent être remplacés et de nouveaux navires peuvent pêcher dans la zone exclusivement avec des techniques non perturbatrices des fonds marins. L'utilisation des engins de coulisses et des chaluts de séparation est une condition qui s'applique uniquement à l'exception prévue pour les navires qui pêchent déjà en zone 1 étant donné qu'à long terme, seules les techniques non perturbatrices des fonds marins seront autorisées.

La zone 2 est située à proximité de la zone 1 et autorise uniquement les techniques de pêche non perturbatrices des fonds marins. Par ailleurs, des techniques alternatives perturbatrices des fonds marins sont autorisées si elles s'inscrivent dans le cadre d'un projet de recherche scientifique. La Belgique est occupée à définir la procédure pour l'utilisation de ces zones de test. La procédure sera présentée au Groupe ad hoc. Les mesures en zone 2 s'appliqueront après une période intérimaire de 3 ans au cours de laquelle les techniques de pêche existantes sont toujours autorisées.

La zone 3 autorise uniquement les techniques de pêche non perturbatrices des fonds marins.

La zone 4 est située à proximité de la zone 3 et autorise uniquement les techniques de pêche non perturbatrices des fonds marins. Par ailleurs, des techniques alternatives perturbatrices des fonds marins sont autorisées si elles s'inscrivent dans le cadre d'un projet de recherche scientifique. La Belgique est occupée à définir la procédure pour l'utilisation de ces zones de test. La procédure sera présentée au Groupe ad hoc.

La zone 5 concerne une extension dans l'espace d'une mesure existante en matière de pêche dans les eaux territoriales belges. La pêche au sein de la zone des 4,5 MN de la côte est interdite aux bateaux de pêche jaugeant plus de 70 Tonnage brut (c.-à-d. extension de 3 à 4,5 MN).

Le seuil de 70TB a été appliqué par analogie avec celui mentionné dans le règlement 850/98 (mesures techniques) et correspond à 20m de longueur. Puisque la précieuse zone littorale s'étend jusqu'à 6 MN (cartes de valeur biologique,), cette information écologique a été utilisée pour étendre la mesure dans l'espace à raison de 50%,.

La présente proposition sera soumise (c.-à-d. notifiée) à la Commission Européenne, ce qui constitue la fourniture d'une information suffisante conformément à l'article 11 (3) du règlement de base.

SAMENVATTING

Voor de toepassing van de EU-Kaderrichtlijn Mariene Strategie (KRMS) worden er op zee verschillende activiteiten beheerd om te voldoen aan de verplichting om te komen tot een 'Goede Milieutoestand' in het Belgische gedeelte van de Noordzee. Hieronder vallen onder meer visserijactiviteiten in vijf relatief kleine zones, waar de toegang voor visserij aan voorwaarden is onderworpen. Meer specifiek in verband met het beschrijvende element 6 ("integriteit van de zeebodem" of "Integriteit van de zeebodem is zodanig dat de structuur en de functies van de ecosystemen gewaarborgd zijn en dat met name bentische ecosystemen niet onevenredig worden aangetast") slaat deze regelgeving op verschillende activiteiten, waaronder de visserij. België wil namelijk vooruitgang boeken in de realisatie van de KRMS-doelstellingen via expliciet ruimtelijke beheeracties met betrekking tot de betrokken sectoren. Het Belgische voorstel werd opgemaakt in de periode 2012-2014, binnen het proces van de Mariene Ruimtelijke Planning. De Belgische regering wil als initiërende Lidstaat in zijn territoriale wateren en in de Exclusieve Economische Zone maatregelen nemen rond visserijactiviteiten die worden verricht door alle vaartuigen, ook vaartuigen die onder de vlag van andere Lidstaten varen. Om deze maatregelen toe te passen op internationale vloten, tilt België zijn voorstel op een Europees/regionaal niveau door toepassing van art. 11 van de EU-Verordening 1380/2013. De toepassing van deze procedure gebeurt volgens het kader van de Scheveningen-groep.

Het proces moet leiden tot een akkoord tussen alle Lidstaten die een rechtstreeks beheersbelang hebben in de visserijactiviteiten die onder de voorgestelde maatregelen moeten vallen (een zogenaamde Gezamenlijke Aanbeveling). In eerste instantie wordt alle relevante informatie gedeeld met de Lidstaten die beheersbelang hebben en dat document vormt de basis die volledig wordt uitgewerkt om de Europese Commissie voldoende informatie te kunnen aanreiken. Het doel van dit basisdocument is om een wetenschappelijk kader te kunnen voorleggen als basis voor de bespreking van een Gemeenschappelijke Aanbeveling met de Lidstaten met een rechtstreeks belang bij het beheer van de visserij waarvoor de maatregelen gevolgen sorteren. De rationale van de voorgestelde maatregelen is dat er geen intenties zijn om gebieden af te sluiten voor visserijactiviteiten. Enkel kleine gebieden werden geselecteerd om de meest gevoelige habitats te beschermen. De voorgestelde maatregelen willen bovendien een stimulans zijn om alternatieve bodemberoerende technieken in overweging te nemen die de zeebodem minder verstoren.

Om de integriteit van de zeebodem te vrijwaren, worden de meest kwetsbare en de meest waardevolle zones uitgekozen voor maatregelen. Vier van de vijf gekozen zones liggen binnen het Habitatrichtlijngebied Vlaamse Banken.

Zone 1 beoogt op lange termijn bodemverstorend vistuig uit te sluiten. Bij wijze van overgangsmaatregel hebben bestaande kustschepen de toelating om alle activiteiten verder te zetten. De voorwaarden om zich op deze overgangsmaatregel ten aanzien van de uitsluiting van bodemberoerend vistuig te mogen beroepen, zijn het verplichte gebruik van rolsloffen om de bodemberoering te verminderen, en zeefnetten te gebruiken voor garnaalvisserij. Bestaande schepen kunnen worden vervangen en nieuwe schepen mogen de zone enkel binnen met technieken die de zeebodem niet verstoren. Het gebruik van rolsloffen en van zeefnetten is een voorwaarde die enkel slaat op de uitzonderingsmaatregel voor schepen die nu al in zone 1 vissen, aangezien op lange termijn enkel technieken zullen worden toegelaten die de zeebodem niet verstoren.

Zone 2 ligt in de nabijheid van zone 1, en daar zijn enkel visserijtechnieken toegelaten die de zeebodem niet verstoren. Daarnaast zijn er weliswaar alternatieve zeebodemverstorende technieken toegelaten indien zij kaderen in een wetenschappelijk onderzoeksproject. België is bezig de procedure uit te werken om toelatingen te geven. De procedure zal aan de Ad Hoc Werkgroep worden voorgelegd. De maatregelen in zone 2 zullen van toepassing zijn na een overgangsperiode van 3 jaar, waarbinnen bestaande visserijtechnieken nog steeds toegelaten zijn.

In Zone 3 zijn enkel niet-zeebodemverstorende technieken toegelaten.

Zone 4 ligt in de nabijheid van zone 3 en daar zijn enkel visserijtechnieken toegelaten die de zeebodem niet verstoren. Daarnaast zijn er weliswaar alternatieve zeebodemverstorende technieken toegelaten indien zij

kaderen in een wetenschappelijk onderzoeksproject. België is bezig de procedure uit te werken om deze testzones te gebruiken. De procedure zal aan de Ad Hoc Werkgroep worden voorgelegd.

Zone 5 betreft een ruimtelijke uitbreiding van een bestaande visserijmaatregel in Belgische wateren. Binnen de 3 zeemijl buiten de kust hebben enkel schepen van <70BT toestemming om te vissen, teneinde de waardevolle kuststreek te beschermen. Deze drempel werd gebruikt naar analogie met de drempel die is opgenomen in Verordening 850/98 (Technische Maatregelen). Aangezien de waardevolle kuststreek zich 6 zeemijl in zee uitstrekt, werd deze ecologische informatie gebruikt om de maatregel ruimtelijk met 50% uit te breiden, wat betekent dat de <70BT-regel van toepassing is binnen de 4,5 zeemijl buiten de kust.

Het voorliggende voorstel zal als basisdocument aan de Europese Commissie worden voorgelegd (d.w.z. notificatie), wat overeenkomt met het aanreiken van voldoende informatie conform Art. 11(3) van het Gemeenschappelijk Visserijbeleid.

ANNEX 1 – MARINE SPATIAL PLAN

An English summary of the Belgian MSP is provided below

1. Introduction

Taking the analysis of the current situation into account, in this section we develop a global vision and determine the general and specific spatial principles. To this end, we are looking in particular for multiple uses of space. This is possible by taking into consideration overlapping activities in four dimensions, such as the possibility to fish, extract sand, navigate and organize firing exercises in function of defence, all in the same zone (not always at the same time). The fourth dimension is the time frame. This section in addition includes the specific objectives and indicators and the spatial policy choices, including the integrated map of this marine spatial plan. Revisiting the binding stipulations in the Royal Decree, activities for implementing the marine spatial plan are included in Annex 3 and are binding for the Federal Government.

2. Spatial structural vision for the BPNS

The spatial principles form the basis for formulating a spatial structural vision for the BPNS. This is an abstract schema in which prior principles are synthesized into one future image for the long-term: how do we see the spatial situation of the BPNS in the long term? This is therefore the long-term policy framework against which all the objectives, measures and actions in the short term will be measured.

The long-term spatial vision of the future for the BPNS is summarized as follows.

The BPNS is a sea of space

The structural vision demonstrates the way in which activities within this sea of space can develop. Activities are possible to a greater or lesser extent within certain spatial wholes (or structures). These large structures are represented as zones with white, continuous edges on the figure at the end of this paragraph:

- The coastal zone: this is a zone containing both land and sea. This space should be considered as one spatial whole because important economical, ecological and social challenges are situated here (coastal defence, economic development of the ports, tourist-recreational development of the coastal region, ecological function of the valuable sandbanks, dunes and polders, coastal fisheries, military exercises and sea landscape in which the relationship of sea-land is important ...). There is shared competence within this zone (federal and Flemish). Spatially, the base line indicates the border between these competencies. At the seaward side of the baseline, the Flemish Region has a number of assigned competencies. Residuary powers, including spatial planning, are the competence of the federal government.

- The deeper sea: further at sea, the intensity and dynamics of activities decreases and the relationship with the land is of lesser importance. The deeper sea is the ideal area for productive activities in which the raw materials of the sea (energy, fish, sand, gravel ...) can be extracted sustainably. In addition, this zone is also suitable for military exercises.

The BPNS is a sea of balances between activities.

The North Sea is one of the most heavily used seas in the world. The Belgian part is embedded in this and demonstrates a high level of activities. This means that a balance must be sought, as well as complementarity with the mainland in the spatial allocation of activities. Spatial emphases are therefore laid down within the

spatial structures, but multiple uses of space and looking for win-win situations is still the order of the day. The spatial emphases are situated within the sub-areas, displayed in the figure below by means of zones with dotted and dashed lines and shades.

- The naturally most valuable zone is shaded within the coastal zone. The ecological value of the coastal zone proposes important preconditions on the spatial possibilities of other activities which may be situated in the coastal zone (displayed by a zone with a grey dotted line).
- Landscape value plays an important role within the coastal zone. Constructions at sea within the coastal zone can have an important influence on visual pollution (value of landscape). Important heritage value is also found within these coastal zones, but also further at sea.
- There are three important sub-zones deeper at sea:
    - there is an area of potential for generating renewable energy located at the eastern side of the BPNS. This zone in fact continues into the Dutch part of the North Sea. This is a zone for wind farms, but also for other forms of renewable energy. This zone is displayed by a dashed-dotted line.
    - Situated to the west of this area is a potential zone for all forms of productive activities (fisheries, sand and gravel, energy…), displayed by a white dotted line.
    - Further west in the deep sea, nature protection is important (shaded). Other activities are possible here, but in balance with the important natural value of this area. Nature protection is also applicable in the bordering French portion of the North Sea.

The BPNS is an open sea with structural connections and cross-border relationships

As a relatively small sea space, the realization that the sea is an open system is of great importance to the spatial vision: the relationship and spatial continuity with neighbouring countries is essential in this. This is why structural connections are also indicated (displayed by dashed and dotted lines) in this structural vision:

- In the first instance, important shipping connections are shown; this concerns the IMO routes and the connections to the Westerschelde, Westpit route and the shipping lanes to the ports of Ostend and Zeebrugge.
- The coastline is an important structural connection on land and at the same time forms the spatial dividing line between land and sea. Currently this line is a hard border and mainly serves as a connection between the various coastal locations. The intention in the longer term is to adapt this hard border so that more spatial relations are possible between land and sea in the framework of integrated coastal area management. In this way, strong, dynamic zones on land can be extended into dynamic zones at sea: for instance, ports and large cities protected by hard coastal defence infrastructures are installed at sea through shipping lanes, potential areas for activities on the level of production and storage, corridors for cables and pipelines ... On the other hand, land areas with great potential on the level of ecological value, are extended to sea as areas with attention for nature conservation, coastal defence, as an 'open system' ...
- Furthermore, the structural cable and pipeline connections are very important. These form corridors within the BPNS. The most important connections are indicated on the structural scheme: connections to the zone for renewable energy, connections to Great Britain, corridors to Zeebrugge and Ostend. They constitute the impetus for an energy grid at the European level.

The BPNS is a sea of strategic possibilities

Certain locations in the BPNS are of structural importance at the scale of the entire BPNS. These locations are indicated in the structural scheme as strategic locations by their own symbols (circles, squares, triangles, stars, diamonds):

- In the renewable energy zone, a number of energy platforms are provided as links in the Belgian and European energy grid (circles);

- The two most important economic ports bordering on the BPNS (in addition to Antwerp, at the Westerschelde) are Ostend and Zeebrugge. They constitute the motor of the spatial dynamic, on land as well as at sea (squares);
- The Port of Nieuwpoort forms an important recreational junction for recreational sailing (at sea and internal waterways) is being expanded further to become one of the largest marinas in Europe.
- A number of strategic locations in the coastal area are indicated for research and testing.

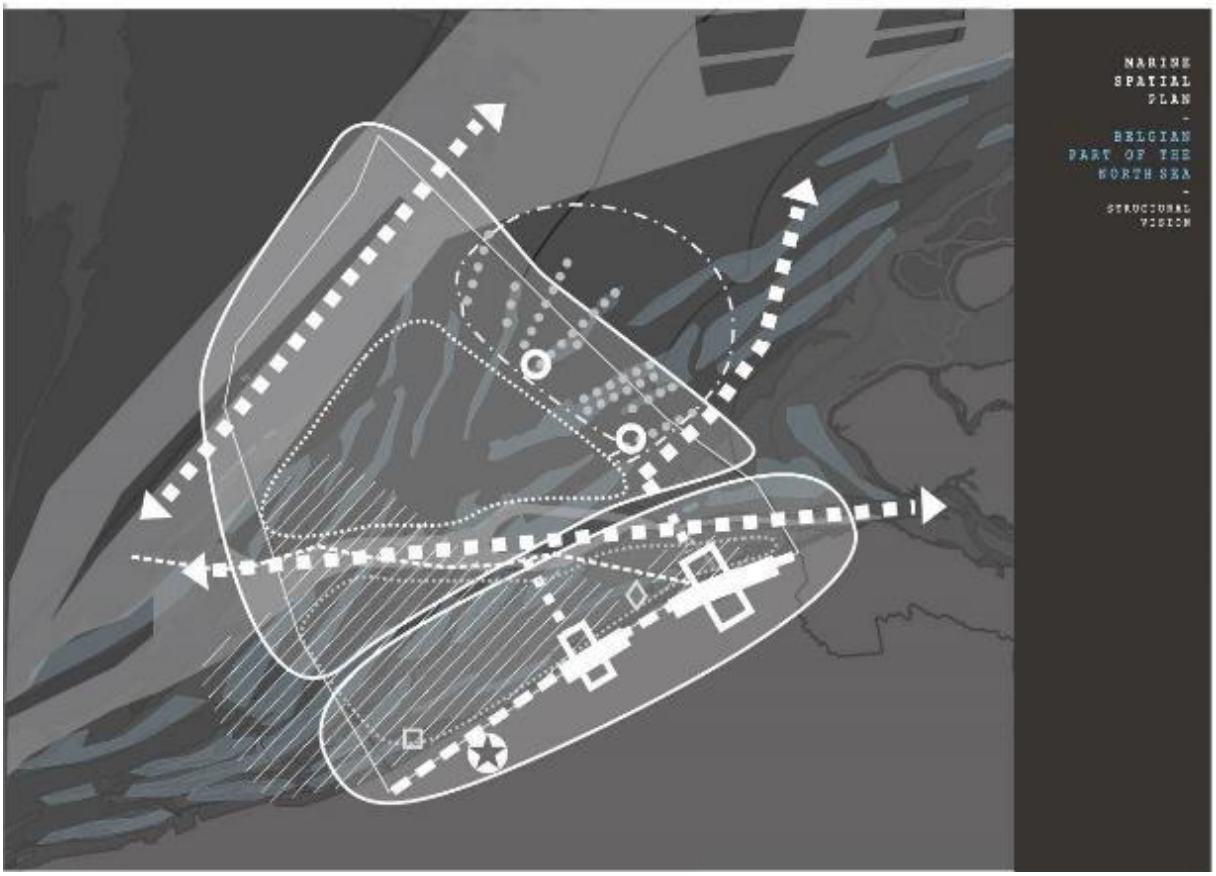


Figure: Spatial structural vision for the BPNS

3. Economic, social, environmental and safety objectives and indicators

In what follows, the vision and long-term objectives are translated into specific objectives for the BPNS for the 2020 plan horizon. These are the objectives that Belgium has proposed for the coming 6-year planning period (2014-2020). These are situated at the social, economic, ecological and safety level and are defined as much as possible as SMART: specific, measurable, acceptable, realistic and time-bound. The objectives are not binding in themselves, but form the basis for binding measures. Naturally, this concerns objectives with spatial relevance.

The government is committed to implementing a facilitative and stimulating policy so that these objectives can be reached. Whether all the objectives will effectively be met by the plan horizon, however, also depends on other parties and external conditions (economic situation, will of the market parties ...). The objectives are translated in to measurable indicators which, in 2020, should enable politics to evaluate the decisions taken and to adjust them where necessary.

The pursuit is to establish indicators for objectives that concern the use of space. In practice, it is also the case that such indicators are not always available. Marine spatial planning, after all, provides for the coordination of not postponing and possibly even desirable use of space, without this meaning in every case that this use of

space also must necessarily be carried through. This is in fact often determined by sectoral policy making and regulations. In this way, providing space for aquaculture projects within the marine plan does not mean that this Marine Spatial Planning also forms the policy domain for developing the sector of marine aquaculture. For this reason the objectives are formulated in such a way that an evaluation can be made at the end of the first cycle as to whether they have been achieved or not.

Environmental objectives

- For the whole BPNS, in accordance with the Marine Strategy Framework Directive and the Water Framework Directive, a 'good environmental status' (by 2020) and a 'good surface water status' are pursued. The achievement of a favourable conservation status (habitat and birds directive) en the implementation of the biodiversity strategy are also pursued.
- Specific environmental measures to achieve this situation are preferentially taken in the protected areas insofar as there is a link with the state of conservation of the habitats and species for which these areas are designated. Further description of these objectives and the translation of these objectives into measurable parameters can be found in the "Determination of Good Environmental Status and establishment of Environmental Targets for the Belgian Marine Waters" (July 2012).
- On the level of renewable and sustainable energy production, the objective is to provide at least 2000 MW capacity at sea.
- Furthermore, the objective of this marine spatial plan is that the entire current project for the generation of wind energy in the designated area for renewable energy will be operational in 2020.
- By 2020 there must also be additional insights acquired as to the feasibility of different techniques for alternative forms of renewable energy in the BPNS. In the first instance in this regard, the thinking is about techniques with respect to wave energy.
- Finally, as an objective it is also proposed that active environmental measures are tested in the zone for renewable energy. These measures to promote biodiversity must be sufficiently tested by 2020 in order to implement them in other locations.

Safety objectives

In this marine spatial plan, safety objectives are translated into objectives for the safety of shipping, objectives for protection against the sea and for defence. The spatial policy decisions for every activity are considered against these objectives.

With regard to shipping, the objective is to continue to guarantee safe passage and safe access to all Belgian ports, not only for the current generation of ships, but also for ships from the coming generations (larger dimensions, increasing draught). The chance of back-flow for dredging dumping is minimized.

The above also includes that during the planning period, sufficient space is continually provided for dumping dredged material in the best possible conditions, this means with the least possible chance of back-flow. The efficiency of the dredging dumping sites must be increased by reducing the chance of back-flow based upon scientific research and monitoring.

On the level of protection against the sea and floods we refer to the measures and objectives from the Masterplan Coastal Safety (http://www.kustveiligheid.be).

In conclusion, the objective is that the BPNS continues to provide sufficient space for conducting military exercises, attuned to other activities and uses in the BPNS.

Economic objectives

The goal is, within the planning period, to guarantee sufficient space for all economic activities at sea:

- All of the existing fishing grounds remain accessible, except in the designated areas for renewable energy subject to infrastructural constructions for energy storage and transport. Space will be created for integrated aquaculture as a complimentary activity for the 'traditional' fisheries activity.
- Corridors for cables and pipelines, aligned with other activities and uses in the BPNS and with attention to efficiency. Therefore, the objective is to lay all new cables and pipelines in the corridors already provided and to pursue common cables as far as possible;
- Sufficient sand and gravel extraction zones in function of the demand for building sand and gravel and in function of the coastal defence activities. To this end, the objective is to sufficiently monitor the impact on the sea floor and biodiversity and to limit the amount, and if necessary the duration of extraction in function of this impact. Per successive periods of 5 years (2010-2015 and 2015-2020), a maximum volume of 15 million m^3 (3 million m^3/year as progressive average over 5 years) may be extracted. In addition to this, extractions for coast replenishment with the goal of maintaining the current profile of the beaches will be taken into account;
- The current zone for renewable energy must offer sufficient space for the generation of sustainable forms of energy. The specific objective is, by 2020, to have approximately at least 2,000 MW installed capacity in this zone;
- The marine spatial plan provides for the spatial potential for the expansion of the Belgian ports;
- The existing space at sea for recreational activities will be maintained to the extent possible;

By the end of the plan horizon (2020), the realization of the Belgian Offshore Grid must be started.

By 2020 there will be an electricity connection with Great Britain.

Cultural, Social and Scientific Objectives

- An important social objective is therefore a strong respect for the maritime landscape (seascape) and the underwater heritage of the BPNS.
- The sea landscape (seascape) is the landscape of the sea surface to the horizon and has great experiential value due to its integrity for the coastal resident as well as tourists and recreational users. This is one of the most integrally preserved landscapes and must also be cherished as a valuable good for future generations.
- The coast and the BPNS must also be an attractive destination for tourism and recreation in 2020.
- Additionally, the BPNS must also be a place for research, education and monitoring. The existing accessibility of the BPNS for these activities must also be maintained to the extent possible in 2020.

4. Spatial policy choices for users and activities in the BPNS

The 'Spatial policy decisions' are succinctly described for the sake of smooth reading of this document for cross-border consultation.

These policy options are described in greater detail in the actual marine spatial plan.

The long-term structural vision, which is decisive for the economic, social and environmental and safety objectives in the short term (6 years), is hereinafter translated into policy decisions for every activity and use and protection of the BPNS. These are the spatial decisions for the planning horizon 2020 which are binding. This is a more specific representation of the spatial accents in the policy, in words as well as images for each user. The spatial alternatives considered for every activity and user are also represented.

Good environmental status and nature conservation areas

The vision assumes maximum conservation of the most valuable ecological zones by delineating marine protected areas with actual management measures. In these marine protected areas, it is desirable to pursue an ecological situation which is significantly better than the minimum according to the Marine Strategy Framework Directive.

The option of building a network of marine protected areas (international and land-sea connections) is also pursued.

Finally, there is an on-going search for forms of multi-spatial use that provide advantages for the marine environment.

Summary of the spatial policy options

- Maintaining the contours of the marine protected areas in the BPNS and maintaining the current number of nature conservation areas;
- Concentration on the further development and implementation of effective nature conservation measures. Measures are provided for recreational fishing, sand and gravel extraction and professional fisheries.;
- When there are new functions or activities in the BPNS (energy storage, power outlet at sea, zone for renewable energy…) the possibilities for multiple use of a space in function of nature conservation or development are considered (bioremediation forms of aquaculture, breeding grounds for small gulls, tern island, artificial reefs …).

Translation of the map legend: Good environmental status and nature conservation areas

- Goede milieutoestand en natuurbeschermingsgebieden - Good environmental status and nature conservation areas

- Habitatrichtlijngebied – Vlaamse Banken (‘The Flemish Banks’)– Special Area for Conservation, SAC
- Vogelrichtlijngebied – Special Protection Area, SPA
- Deelzone “Trapegeer Stroombank” - Subzone “Trapegeer Stroombank”
- Gericht marien reservaat « Baai van Heist » - National nature reserve « Baai van Heist »
- Zone voor installaties voor de productie van elektriciteit uit water, stromen of winden – Zone for installations for electricity production generated by water, current and wind.
- Speciale zone voor bodemintegriteit – Special zone for seabed integrity
- Zone voor een installatie voor het transport van elektriciteit - Zone designated for an installation for electricity transport (a high -voltage station)
- Zone voor een installatie voor de opslag van energie– Zone designated for an installation for energy storage
- Basislijn – Baseline

Energy, cables and pipelines

These notions are considered together due to the fact that they, in a spatial sense, are related.

The vision assumes sustainable offshore energy generation with optimal use of various compatible forms of 'green' energy and a choice of location with minimal impact. Space is provided for energy storage and a concession area for a power outlet at sea.

Connections take place efficiently. Where possible, multiple use of space is promoted.

Summary of the spatial policy options

- A maximum amount of new cables and pipelines in the cable and pipeline corridors; cables and pipelines follow the shortest possible route between points of departure and arrival;
- Additional cables and high-voltage stations in function of the development of an European energy grid;
- Additional concession zone for a high-voltage station (‘power outlet at sea’);
- Zone for a concession application for a new electricity cable connection with Great Britain;
- Landing points: Ostend (Slijkens) and Zeebrugge;
- The already-indicated zone for generating renewable energy remains and will not be expanded

within the planning period; the pursuit is to make the current concession zone operational as far as possible within the planning period;

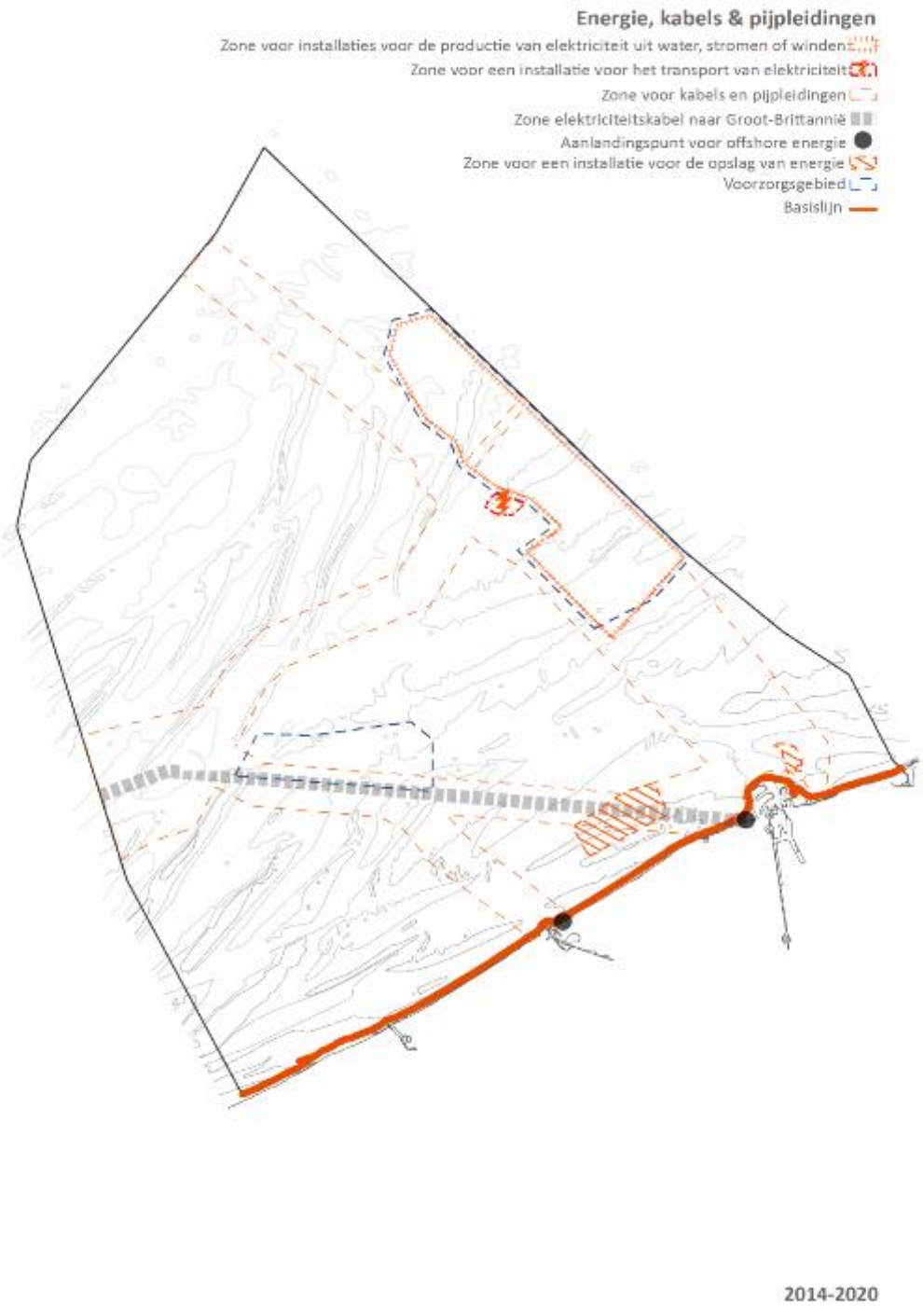
- New concession zones for energy atolls (energy storage):

  - off the coast of Blankenberge-De Haan;

  - to the east of the port of Zeebrugge.

- Maintenance of safety perimeters;

- Potential for multiple use of space;
  - High-voltage stations can obtain a supplementary nature function or serve supplementary as tug stations;
  - The energy atolls off the coast of De Haan-Blankenberge and to the east of the port of Zeebrugge: in addition to the function of energy storage, the energy atolls receive a **mandatory** function in the framework of nature development;
  - The zone for renewable energy is the priority zone for tests with alternative forms of sustainable energy generation;
  - The zone for renewable energy is also designated as a location for concessions for potentially marine aquaculture (see section on marine aquaculture);
  - The zone for renewable energy is also used for research into proactive nature conservation measures (constructing artificial reefs and seal platforms).
  - Visitor Centre can be allowed in the zone for a high-voltage stations and the zones for energy storage.



Translation of the map legend: Energy, Cables and pipelines

- Energie, kabels & pijpleidingen - Energy, Cables and pipelines

- Zone voor installaties voor de productie van elektriciteit uit water, stromen of winden – Zone for installations for electricity production generated by water, current and wind.
- Zone voor een installatie voor het transport van elektriciteit– Zone designated for an installation for electricity transport (a high -voltage station)
- Zone voor kabels en pijpleidingen –Zone for cables and pipelines (i.e. cable and pipeline corridors)
- Zone elektriciteitskabel naar Groot-Brittannië – Zone for an electricity cable connection with Great Britain
- Aanlandingspunt voor offshore energie – Landing points for offshore energy
- Zone voor een installatie voor de opslag van energie– Zone designated for an installation for energy storage
- Voorzorgsgebied – Precautionary area
- Basislijn – Baseline

Shipping, port development and dredging

Summary of the spatial policy options

• Not mortgaging the further expansion of the ports Zeebrugge, Ostend, Nieuwpoort and Blankenberge;

• Maintaining dredging locations in function of safe nautical access and in relation to the developments of ships;

• Maintaining and expanding dredging deposit locations with a reservation area, based on all current deposit locations, in function of the efficiency of dumping, taking into account the operational requirements;

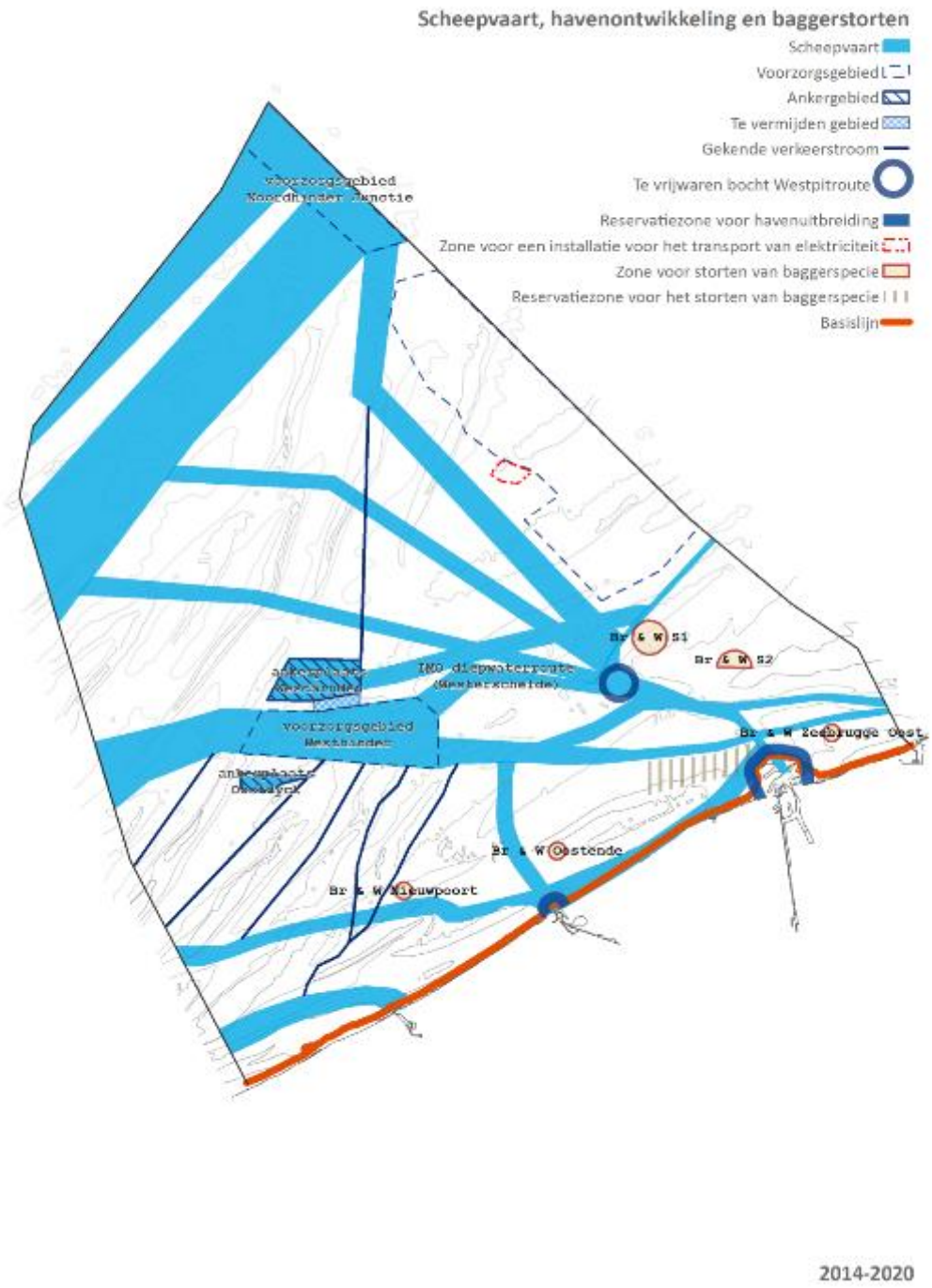
• Researching the possibility of additional shipping lane systems and when considered appropriate initiating the procedure for announcing this to IMO;

• No objections to the important (shipping) traffic streams;

• Maintaining sufficient safe shipping connections between the Belgian coast and Great Britain;

• Not mortgaging possibilities for temporary emergency lookout stations in the reservation area deep at sea;

- Permanent tug station in function of serving the Westpit, Ferry and the rest of the BPNS;
- Potential for multiple use of space;
    - A new tug station is possible to combine with a high-voltage station provided that this is located outside the zone for renewable energy.



Translation of the map legend: Shipping, port development and dredging

- Scheepvaart, havenontwikkeling en baggerstorten – Shipping, port development and dredging
- Scheepvaart - Shipping
- Voorzorgsgebied – Precautionary area

- Ankergebied – Anchor area
- Te vermijden gebied – Area to be avoided
- Gekende verkeersstroom – Known maritime traffic flow
- Te vrijwaren bocht Westpitroute – Safeguarding the bend of the Westpit route
- Reservatiezone voor havenuitbreiding – Reservation area for port expansion
- Zone voor een installatie voor het transport van elektriciteit– Zone designated for an installation for electricity transport (a high -voltage station)
- Zone voor storten van baggerspecie – Zone for the disposal of dredged material
- Reservatiezone voor storten van baggerspecie – Reservation area for the deposit of dredged material
- Basislijn – Baseline

Fisheries and marine aquaculture

This vision assumes the maximum preservation of rich fishing grounds as a function of the sustainability of the Belgian fisheries sector. Complementary, sustainable forms of fisheries and marine integrated aquaculture are stimulated.

Summary of the spatial policy options

- Preservation of current fishing grounds, except for infrastructural constructions for coastal defence, energy storage and energy transport;
- Preservation of the access to the Belgian fishery harbours;
- Stimulate alternative, sustainable fisheries in parts of the special area for conservation "Vlaamse Banken" ('The Flemish Banks');
- Only sustainable forms of marine aquaculture are possible and they are limited, within this planning period, to the renewable energy zone, namely Belwind I and C-Power;
- Potential for multiple use of space;
    - In the zone for renewable energy, beside activities in the framework of production and storage of renewable energy, only activities of marine aquaculture are allowed.

Translation of the map legend: fisheries and marine aquaculture

- Limiet visserijzone 3M – 3NM limit of the fisheries zone
- Limiet visserijzone 4,5 NM - 4,5 NM limit of the fisheriesing zone
- Limiet visserijzone 12M –12NM limit of the fisheries zone
- Vaarverbod munitiestortplaats “Paardenmarkt” – Closure of area for shipping munition disposal site “Paardenmarkt”
- Speciale zone voor bodemintegriteit – Special zone for seabed integrity
- Zone voor aquacultuur – Zone for aquaculture
- Basislijn – Baseline

Sand and gravel extraction

The vision assumes an optimal and sustainable extraction of sand and gravel, both for the construction sector and for the use as a function of the coastal defence against flood risks and for other applications.

Summary of the spatial policy options

- Preservation of the 4 existing extraction zones;
- New definition of the sectors of zone 2 as a function of the shipping safety and nature conservation;
- Introduction of an appropriate assessment as an additional part of the environmental impact reports for concession demands within the special area for conservation ‘Vlaamse Banken’ (‘The Flemish Banks’);
- Preservation of the maximum allowed extraction volumes, with a gradual reduction of the extraction within the special area for conservation ‘Vlaamse Banken’ (‘The Flemish Banks’);
- Potential for multiple use of space
    - Combination with other activities in the extraction zones is possible since sand- and gravel extraction are temporary activities

Translation of the map legend: Sand and gravel extraction

- Zand- en grindontginning - Sand and gravel extraction
- Controle en exploitatiezones – Zone for control and exploitation
- Monitoringgebied – Zone for monitoring
- Basislijn – Baseline

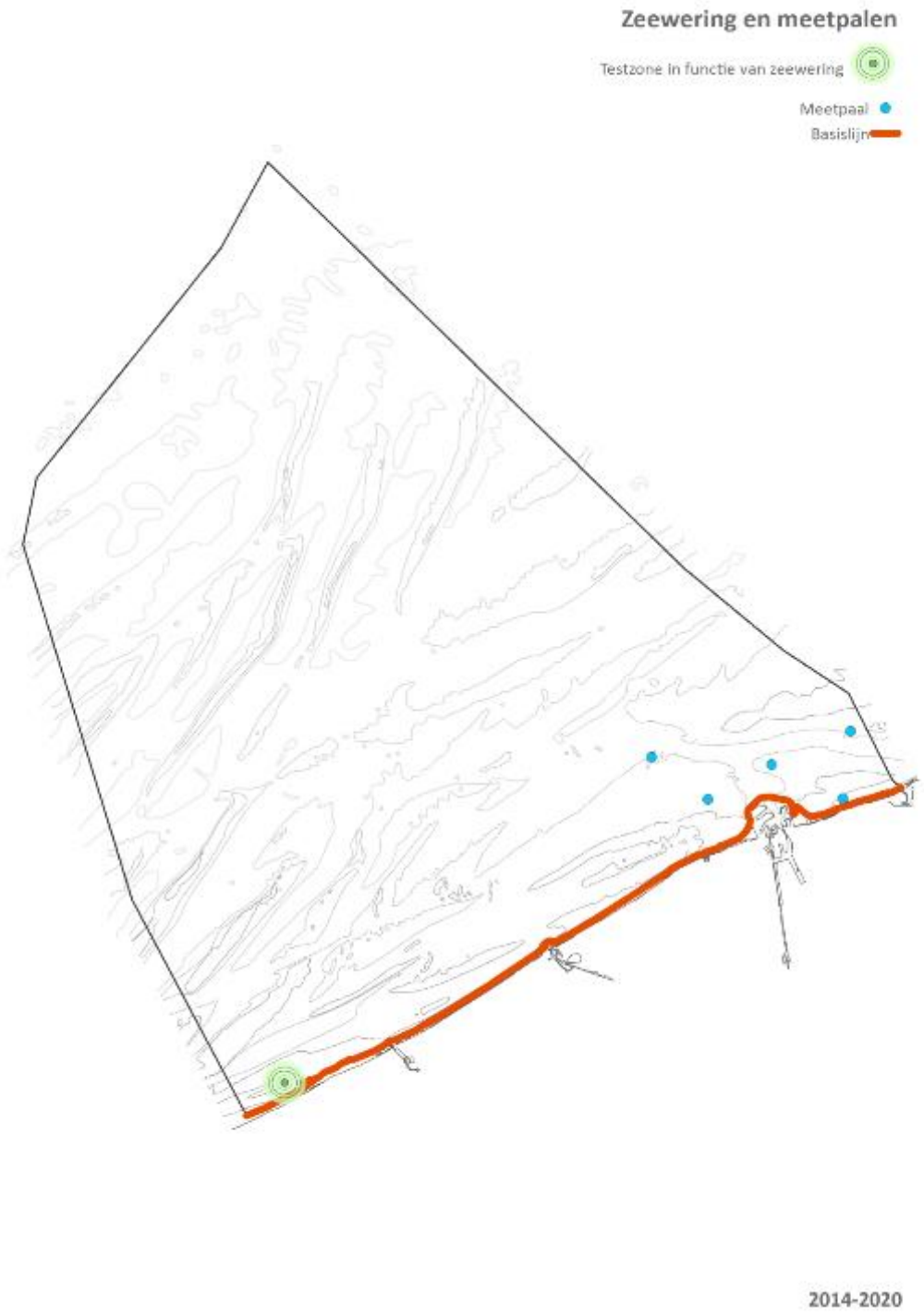
Coastal defence

The vision assumes a safe coast. The framework for this has already been established by the Masterplan Coastal Safety. The emphasis is on a combination of hard and soft coastal defences, attuned to the specific spatial characteristics of the surroundings and anticipating the natural dynamic at sea. Coastal defence not only has to respond to a small line that forms the border between sea and land, but must constitute a part of integrated coastal zone management which combines measures on land with those at sea.

Particular attention is given to the effect of the potential expansion of the ports of Ostend and Zeebrugge for coastal defence and development in the zones east and west of these ports. The potential construction of an energy atoll in the proposed zone will also influence coastal defence.

Summary of the spatial policy options

- Maintenance of sufficient sand and gravel reclamation areas in function of soft coastal defence, in the framework of implementing and supporting the Masterplan Coastal Safety;
- Exploring new possibilities for coastal defence;
- Specific location for experiments within this coastal zone at the Broers Bank;
- Potential for multiple use of space: no execution within this planning period.



Translation of the map legend: Coastal Defence and measuring poles

- Zeewering en meetpalen – Coastal Defence and measuring poles
- Testzone in functie van zeewering – Zone for experiments in function of coastal defence

- Meetpaal - measuring pole
- Basislijn – Baseline

Scientific research, buoys, radars and measuring poles

The vision assumes additional knowledge required about the BPNS, in function of innovation, of monitoring requirements, sustainable management of natural resources and the protection and repair of the marine environment and shipping safety.

The requisite buoys, radars and measuring poles are provided in the BPNS.

Summary of the spatial policy options

- Potential for multiple use of space:
  - Buoys, radars, measuring poles, and so forth, can best be combined with other functions.

Military use

The vision assumes support of Belgian military (international) engagements. To this belongs, inter alia, providing sufficient space for military exercises and mine removal operations at sea.

Summary of the spatial policy options

- The BPNS provides sufficient space for military exercises and other military uses;
- Sufficient consultation is conducted about the contours and uses of the various legally-established zones, in function of proper alignment with the other activities and uses in the BPNS;
- In this framework, an investigation is taking place as to whether zone NBH-10 is compatible with the zone for the energy atoll (see 6.2). The same is applicable for the compatibility between the Nieuwpoort-Lombardsijde firing exercises and the natural functions.


Militair gebruik
Zone voor militaire activiteiten
Basislijn
Munition destruction area
Bulten Ratel
Nieuwpoort (medium sector)

Translation of the map legend: Military use

- Zone voor militaire activiteiten– Zone for military activities
- Basislijn – Baseline

Tourism and recreation

This vision assumes the retention of the BPNS as a space for sustainable recreation.

Summary of the spatial policy options

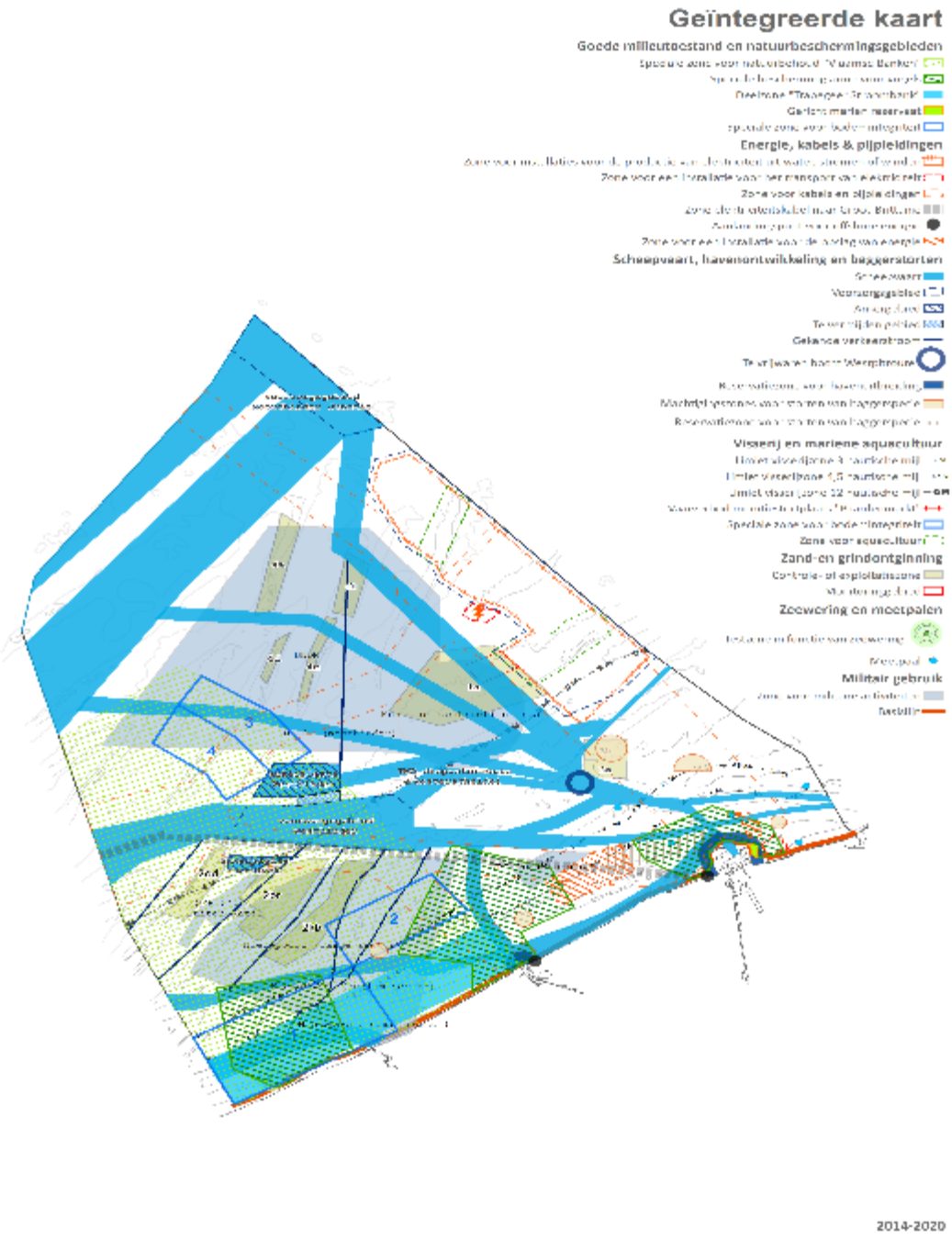
- Maintaining as much as possible the tourist-recreational possibilities in the BPNS;
- Ban on the use of seabed-disturbing techniques in the entire special area for conservation 'Vlaamse Banken' (‘The Flemish Banks’), with the exception of recreational fishing on foot and on horseback and recreational shrimp fishing can obtain a permit awarded by the minister (hobby shrimp fishers who have been active for at least three years, are allowed to go fishing ten times a year and the permit is valid for a maximum of six years.

Cultural heritage and seascape

Summary of the spatial policy options

- Allowing cultural heritage to take advantage of protective measures already in place.
- Ensuring that appropriate mitigating measures are taken when cultural heritage is threatened by certain activities.
- Making optimal use of shipwrecks in the framework of nature conservation.

4. Integrated graphic plan



Translation of the map legend: Integrated graphic plan

Goede milieutoestand en natuurbeschermingsgebieden - Good environmental status and nature conservation areas

- Habitatrichtlijngebied – Vlaamse Banken ('The Flemish Banks') – Special Area for Conservation
- Vogelrichtlijngebied – Special Protection Area
- Deelzone "Trapegeer Stroombank" - Subzone "Trapegeer Stroombank"
- Gericht marien reservaat « Baai van Heist » - National nature reserve « Baai van Heist »
- Zone voor installaties voor de productie van elektriciteit uit water, stromen of winden – Zone for installations for electricity production generated by water, current and wind.
- Speciale zone voor bodemintegriteit – Special zone for seabed integrity

Energie, kabels & pijpleidingen - Energy, Cables and pipelines

- Zone voor installaties voor de productie van elektriciteit uit water, stromen of winden – Zone for installations for electricity production generated by water, current and wind.
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- Aanlandingspunt voor offshore energie – Landing points for offshore energy
- Zone voor een installatie voor de opslag van energie– Zone designated for an installation for energy storage

Scheepvaart, havenontwikkeling en baggerstorten – Shipping, port development and dredging

- Scheepvaart - Shipping
- Voorzorgsgebied – Precautionary area
- Ankergebied – Anchor area
- Te vermijden gebied – Area to be avoided
- Gekende verkeersstroom – Known maritime traffic flow
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- Zone voor storten van baggerspecie – Zone for the disposal of dredged material
- Reservatiezone voor storten van baggerspecie – Reservation area for the deposit of dredged material

Visserij en mariene aquacultuur -Fisheries and marine aquaculture

- Limiet visserijzone 3M – 3NM limit of the fisheries zone
- Limiet visserijzone 4,5 NM - 4,5 NM limit of the fisheries zone
- Limiet visserijzone 12M –12NM limit of the fisheries zone
- Vaarverbod munitiestortplaats "Paardenmarkt" – Closure of area for shipping munition disposal site "Paardenmarkt"
- Speciale zone voor bodemintegriteit – Special zone for seabed integrity
- Zone voor aquacultuur – Zone for aquaculture

Zand- en grindontginning - Sand and gravel extraction

- Controle en exploitatiezones – Zone for control and exploitation
- Monitoringgebied – Zone for monitoring

Zeewering en meetpalen – Coastal Defence and measuring poles

- Testzone in functie van zeewering – Zone for experiments in function of coastal defence
- Meetpaal - measuring pole

Militair gebruike - Military use

- Zone voor militaire activiteiten– Zone for military activities
- Basislijn – Baseline

ANNEX 2 – LIST OF "POINTS TO DISCUSS"

This list points the aspects of the where further negotiation between Member States with management interest will be needed to come to a final Joint Recommendation.

ANNEX 3 HABITATS DESCRIPTION

Two types of habitats as laid down in Annex 1 of the Habitats Directive can be found in the BPNS: sandbanks slightly covered by seawater all the time (habitat type 1110) and reefs, including biogenic reefs and geogenic gravel beds (habitat type 1170). In this section, we will further describe the habitat types (i) sandbanks, (ii) geogenic gravel beds and (iii) biogenic reefs formed by *Lanice conchilega* aggregates.

Sandbanks (code 1110)

Habitat type 1110 is described as the structurally and functionally indivisible aggregate of sandbank top and flanking channels such as they can be distinguished morphologically on bathymetric maps. Since from a morphological point of view, practically the entire BPNS can be considered as a system of sandbanks and channels, this habitat type stretches a distance of 3148 km². Only in the northern part do the sandbanks gradually roll into a sand wave field, which is the reason why this area is not classified as Habitat type 1110. We distinguish 24 different sandbank systems (see Fig. a).

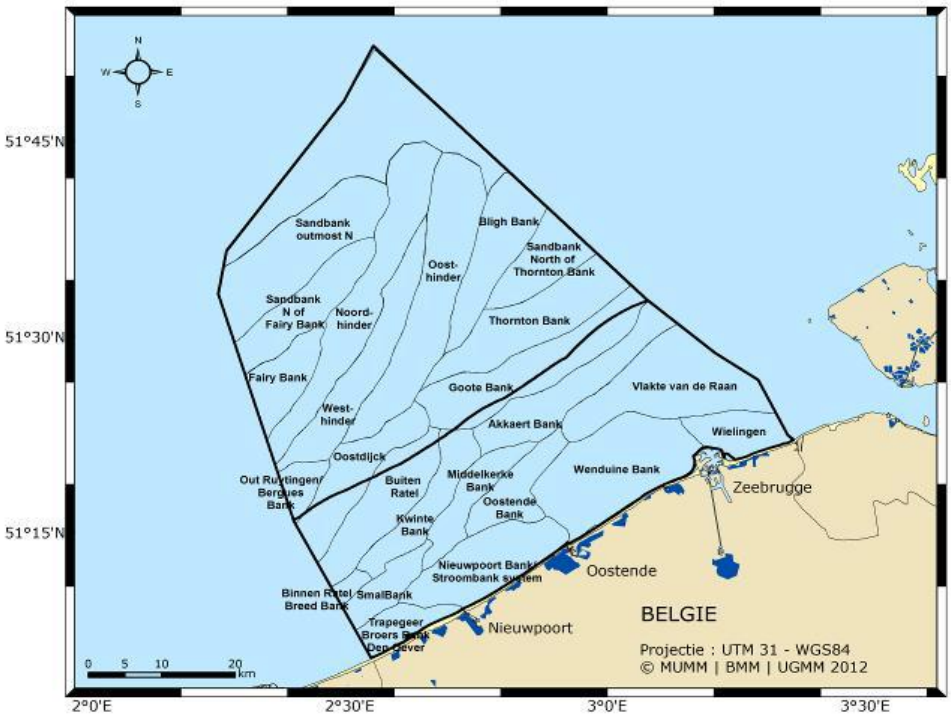


Fig a. Spatial distribution of habitat type 1110 indicating the 24 sandbank systems (Degraer et al. 2009).

The Belgian sandbanks are of importance for this habitat type at the European level. The diversity of the soil and water composition results in a great diversity of the seabed in the benthic communities. These communities play an important role in the functioning of the BPNS and make an important contribution to the development of fish stocks (thanks to the incubator functions of sandbanks).

Four subtidal communities are distinguished in the sandbank habitat, each connected to a specific substrate: the *Macoma balthica* community, the *Abra alba* community, the *Nephtys cirrosa* community and the

Ophelia borealis community (Degraer et al. 2003; 2008; Van Hoey et al. 2004). These communities do not occur as isolated entities: there are gradual transitions between them. Fig. b shows the characteristic species of these benthic communities. Fig. c shows the distribution of these communities in the BPNS.

Fig b. Characteristic species of the 4 benthic communities of soft substrates. From left to right: *Macoma balthica*, *Abra alba*, *Nephtys cirrosa* and *Ophelia borealis*.

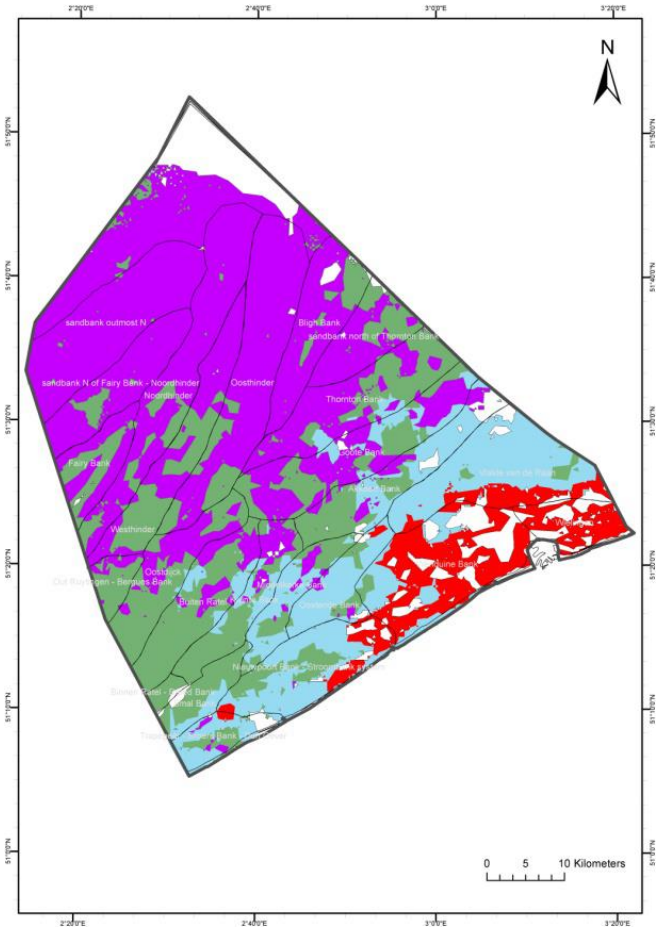


Fig c. Distribution of benthic communities in the 24 sandbanks of the BPNS: red: *Macoma balthica* community; blue: *Abra alba* community; green: *Nephtys cirrosa* community; purple: *Ophelia borealis* community.

The *Macoma balthica* community (Baltic tellin) is characterised by low species richness (on average 7 spp/0.1 m²), but relatively high density (on average 967 ind/m²); its typical finding place is in silty sediments. The *M. balthica* community is closely related to the *A. alba* community: three of the most

common species are also present in the *A. alba* community. Characteristic species are: the bristle worms *Cirratulidae* and *Heteromastus filiformis*. A likely explanation for the lower species richness in the eastern coastal waters is the high concentration of suspended matter.

The *Abra alba* community is characterised by a high density (6,432 ind/m² on average), high species richness (30 spp/0.1 m² on average) and it is typically found in fine sand rich in silt. Characteristic species include the white furrow shell *Abra alba*, the cut through shell *Spisula subtruncata*, the bivalve mollusc *Mysella (Kurtiella) bidentata*, the caprellid *Pariambus typicus*, and bristle worms, such as *Stenelais boa* and the reef-building sand mason worm *Lanice conchilega*. The *A. alba* community also comprises an abundance of the invasive American jackknife *Ensis directus* (Houziaux et al. 2012). First found in this area in 1987, this species now displays average densities of 9 ind/m² in coastal waters.

The *Nephtys cirrosa* bristle worm community has a low density (402 ind/m² on average) and a low species richness (7 spp/0.1 m² on average) and typically lives in fine to medium sandy sediments that are very low in silt. Other characteristic species are: the bulldozer amphipod *Urothoe poseidonis* and the sand digger shrimp *Bathyporeia spp*.

A very low density (190 ind/m² on average) and species richness (5 spp/0.1 m² on average) are typical for the *Ophelia borealis* bristle worm community, which can be found in medium- to coarse-grained seabeds. Another characteristic species is the interstitial bristle worm *Hesionura elongata*.

The distribution of these benthic communities in the BPNS has been extensively described (Van Hoey et al., 2004). Species richness and density are highest in the coastal zone and decrease in the direction of the open sea (see Fig.d). Hence, the ecological value of the coastal zone cannot be denied.

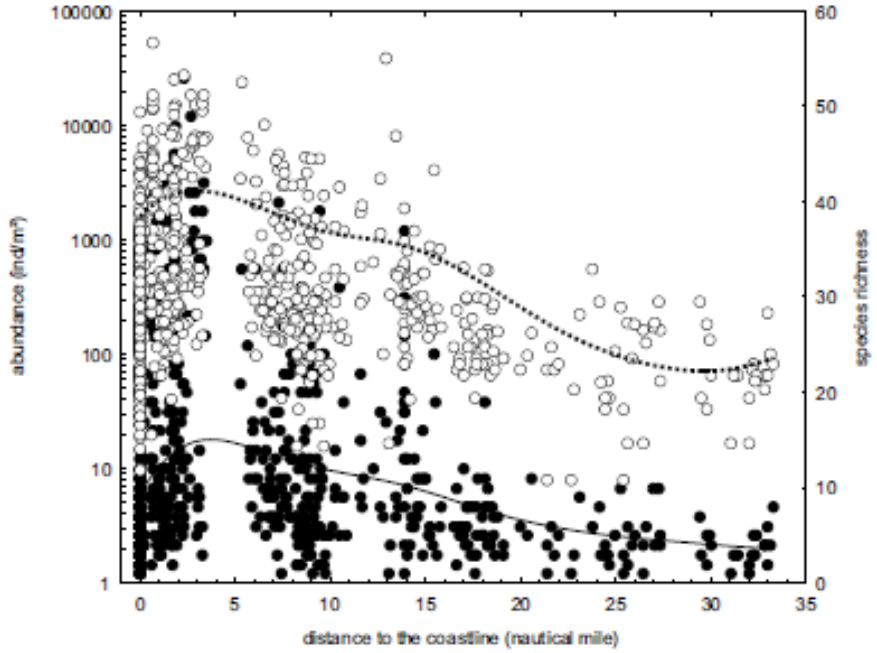


Fig d. Van Hoey et al. (2004). Species richness (species/sample) and abundance (ind/m²) distribution of the benthic communities across the onshore-offshore gradient in BPNS. Black dots and solid trend line represent species richness; white dots and dotted trend line represent species abundance.

Geogenic gravel beds (code 1170)

The BPNS also contains two habitat types 1170 associated with habitat type 1110: geogenic gravel beds and biogenic *Lanice conchilega* aggregates.

Gravel beds are generally recognised as areas of special ecological value: several studies have found that gravel banks are home to a rich flora and fauna with a high species richness of both infauna and epifauna on the rocks (e.g. Kühne and Rachor 1969; Davoult and Richard 1988; de Kluijver 1991; Dahl and Dahl 2002; Van Moorsel 2003). These rich communities can only develop if the habitat is not strongly subject to natural and/or anthropogenic disturbance. Fig. e shows some examples of fauna associated with gravel beds.

The ecological value of the gravel beds can for instance be illustrated by the example of the European oyster Ostrea edulis. This reef forming species from the southern North Sea appears to be highly dependent on gravel beds, but it is now threatened with extinction. Gravel beds also have a key function as breeding and growing area for various fish species.

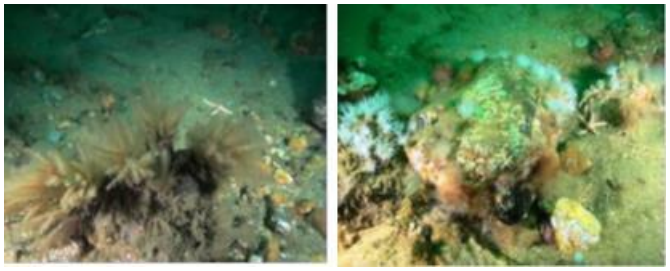


Fig e. Examples of fauna associated with gravel beds

In relation to the BPNS in particular, Houziaux et al. (2008) and Van Lancker et al. (2007) studied the gravel beds in the Hinderbanken and Flemish Banks. These studies show that gravel is found mainly in the channels between the banks. Especially the gravel beds in the Hinderbanken area are important: historical data from the Gilson collection of the Royal Belgian Institute of Natural Sciences indicates that at the end of the 19th century, gravel beds were the most dominant type of habitat in the channel between the Oosthinder and Westhinder and that they contained a very high biodiversity (Van Beneden 1883, Houziaux et al. 2008). This data further shows a clear correlation between the distribution of the gravel beds and that of the European oyster *Ostrea edulis* (Houziaux et al. 2008). As mentioned above, this species is now practically extinct in the southern North Sea. It is assumed that these oyster beds acted as source population for the intertidal oyster populations (Houziaux et al. 2008). The oysters, together with the rocks, were colonised by a very diverse epifauna (e.g. *Pomatoceros triqueter*, *Sabellaria spinulosa*, *Haliclona occulata*, *Flustra foliacea*, *Alcyonidium spp*., *Alcyonium digitatum*, *Sertularia cupressina*, *Nemertesia spp*.) and numerous other smaller and more mobile species lived there as well. As such, they constituted the ultimate hotspot of benthic biodiversity (Houziaux et al. 2008). Fig f shows the (potential) presence of gravel beds in BPNS.

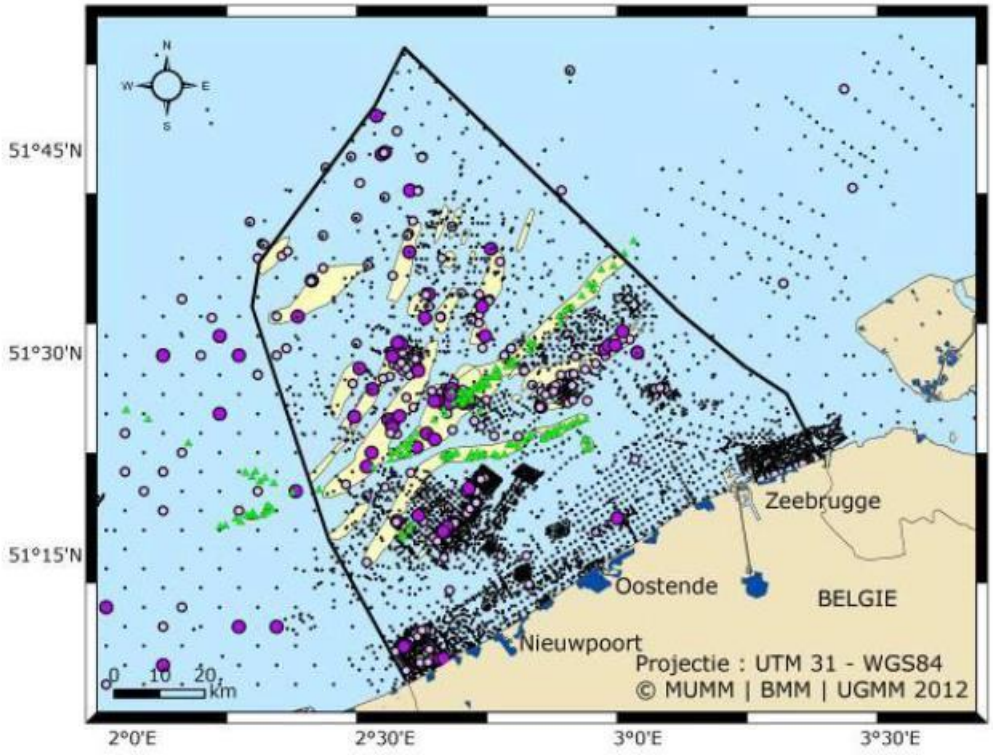


Fig f. Mapping of potential gravel areas (yellow zones), sample areas (purple dots), observed gravel areas (green dots) (Degraer et al. 2009).

Another indication of the ecological importance of gravel beds in BPNS is the recent discovery of two two small zones near the Hinderbanken. These zones are characterised by a remarkably well-developed fauna of gravel beds, with a well-developed layer of three-dimensional epifauna species, such as sponges, moss animals and hydropolyps, which, in turn, are home to a more mobile fauna of, among others, sea sludges, small crustaceans and worms (Houziaux et al. 2008). It is highly likely that the location of these places provides a natural shield against seabed-disturbing human activities (such as beam trawling). This refuge offers an insight into the possible ecological potential of the Belgian gravel banks if the pressure from operations on the seabed were to be reduced. The refuges are situated in zone 4 of the Flemish Banks (see below in the document).

Biogenic reefs (code 1170)

The aggregates of the sand mason worm (*Lanice conchilega*) can be considered a biogenic reef (Rabaut et al. 2009). Biogenic reefs are also protected under the Habitat Directive as a habitat type 1170 associated with habitat type 1110. These *Lanice conchilega* aggregates cause local sediment accumulations, creating clearly marked structures with specific physical characteristics. The areas where these biogenic reefs occur are generally large and have a non-continuous pattern ('*patchiness*') with a 5-18% coverage. Biogenic reefs form a stable habitat, in the sense that these aggregations continue to exist for several years. Where the distribution of *Lanice conchilega* aggregations is concerned, it is found that this largely corresponds to the distribution of the *Abra alba* community of the sandbanks. In the Belgian part of the North Sea a 732 km²

area can be marked out where *L. conchilega* aggregations of more than 500 ind/m² can be expected (i.e. 20% of the BPNS). Along the west coast the aggregations are located very near the coastline, whereas on the east coast they lie further from the coast, in the Vlakte van de Raan area. Fig. g shows the habitat suitability for L. conchilega aggregates. It can be concluded that the coastal area, especially in the western section of the BPNS, is of special importance for the expansion of the *Laniche conchilega* aggregations.

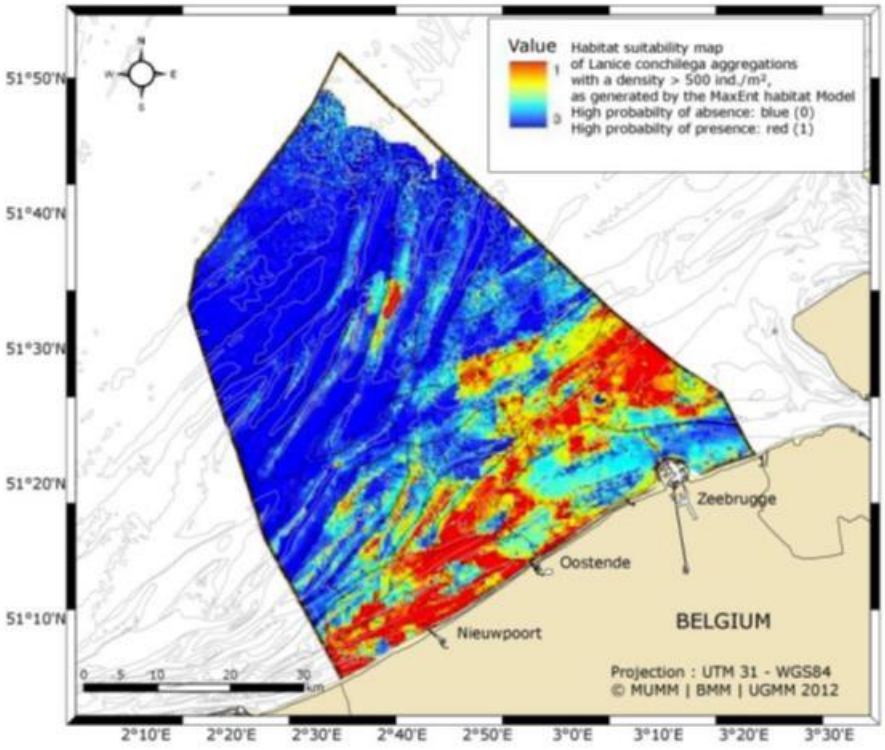


Fig g. Habitat suitability map for *Lanice conchilega* aggregates with a density of > 500 ind/m² as generated using the MaxEnt programme for habitat suitability modelling. Most likely absent: blue (0); most likely present: red (1) (Degraer et al. 2009). The *Lanice conchilega* aggregates can be clearly linked to the *Abra alba* community (see fig. above)

Together with the gravel beds, these *Lanice* aggregations are hotspots of benthic biodiversity in the BPNS. Thanks to their structuring effect (changing the micro-topography of the seabed), macrobenthic biodiversity is four to six times higher than the surrounding sediment, while the macrobenthic density exceeds it by 34 times. Furthermore, the aggregates are an important foraging and shelter area for, among others, juvenile flat fish.[25]

Lanice conchilega aggregations currently only cover 10-15% of the suitable habitat. If no bottom trawling were performed, there could be an increase in this degree of coverage. This is because a possible expansion

[25] The report on the initital assessment of the BPNS: Belgische Staat, 2012. Initiële Beoordeling voor de Belgische mariene wateren. Kaderrichtlijn Mariene Strategie – Art 8 lid 1a & 1b. BMM, Federale Overheidsdienst Volksgezondheid, Veiligheid van de Voedselketen en Leefmilieu, Brussel, België, , p. 21-24

of an existing aggregation depends on a successful larval recruitment to the benthos, which is estimated to be vulnerable to bottom trawling.

ANNEX 4 – BIOLOGICAL VALUATION: METHODOLOGY

For the development of the BVM of the BPNS scientists took a step-by-step approach. First, the most suitable **biological valuation criteria** were selected. For the purpose of the BWZee project, "marine biological value" was defined as "the intrinsic value of marine biodiversity, without reference to anthropogenic use", i.e. socio-economic value of biodiversity was not taken into account. The purpose of the BVM is to provide subzones within BPNS with a label of their intrinsic biological value (low, medium or high).

Based on existing literature, the following five valuation criteria were selected:

- Rarity: distinguishes subzones which are characterized by unique, rare or distinct features for which no alternatives exist
- Aggregation: distinguishes subzones where most individuals of a species are aggregated
- Fitness consequences: distinguishes subzones where natural activities take place which contribute significantly to the survival or reproduction of a population or species.
- Naturalness: distinguishes subzones which are pristine and characterised by native species; and
- Proportional importance: measures the proportion of the national, regional and/or global resource of a species or feature which occurs within a subzone of BPNS.

The first three criteria were considered the first-order (main) criteria, while the remaining two were used as modifying criteria to upgrade the value of certain areas when they scored high for these criteria. Additionally, the concept of biodiversity was also included in the valuation framework.

Second, the **marine ecosystem components** were selected for which detailed spatial distribution data were available. A data gathering process revealed that for BPNS, such data was primarily available for macrobenthos and seabirds for which full-coverage maps could be constructed. Data on spatial distribution was also available of the demersal fish and the epi- and hyperbenthos, but to a lesser extent. Therefore, data on these last components was solely used as point data, no spatial extrapolation of the data was performed to obtain a full coverage distribution map. For other ecosystem components (e.g. sea mammals, pelagic fish,…) the available data were too sparse or too fragmentary dispersed. The BVM ultimately takes into account different ecosystem components: seabirds, macrobenthos, hyperbenthos, epibenthos and demersal fish. The BVM is a synthesis map of valuation maps of the five ecosystem components.

Third, a set of **assessment questions** for each biological valuation criterion were chosen and applied to the data of the five ecosystem components, leading to BVM for seabirds, macrobenthos, epibenthos and demersal fish. Combining these maps allowed producing a marine BVM for the BPNS which integrates all available biological information for different ecosystem components and clearly shows which areas are biologically most valuable.

ANNEX 5 – METHODOLOGY SAND BANK SCORING AND POTENTIAL SCI DELINEATION

Degraer mentions that only the biological value of macrobenthos was taken into account, as organisms directly linked to the Habitat type 1110. No distinction in value was made between the four macrobenthic communities (*Macoma balthica*, *Abra alba*, *Nephtys cirrosa* and *Ophelia borealis*), although the *Albra alba* community is generally considered as most valuable because of the presence of the sand mason worm *Laniche conchilega*. Degraer et al. (2009) compared the biological value of the different sandbanks while providing a degree of protection to all four macrobenthic communities present in the BPNS. On this basis, four protection scenarios were put forward (see Fig. h):

- Scenario 1: At least 5% of each preferential biotope would be protected. In this scenario, around 20% of the Habitat type 1110 would be covered.
- Scenario 2: At least 10% of each preferential biotope would be protected. In this scenario, around 30% of the Habitat type 1110 would be covered.
- Scenario 3: At least 15% of each preferential biotope would be protected. In this scenario, around 40% of the Habitat type 1110 would be covered.
- Scenario 4: At least 40% of each preferential biotope would be protected. In this scenario, around 60% of the Habitat type 1110 would be covered.

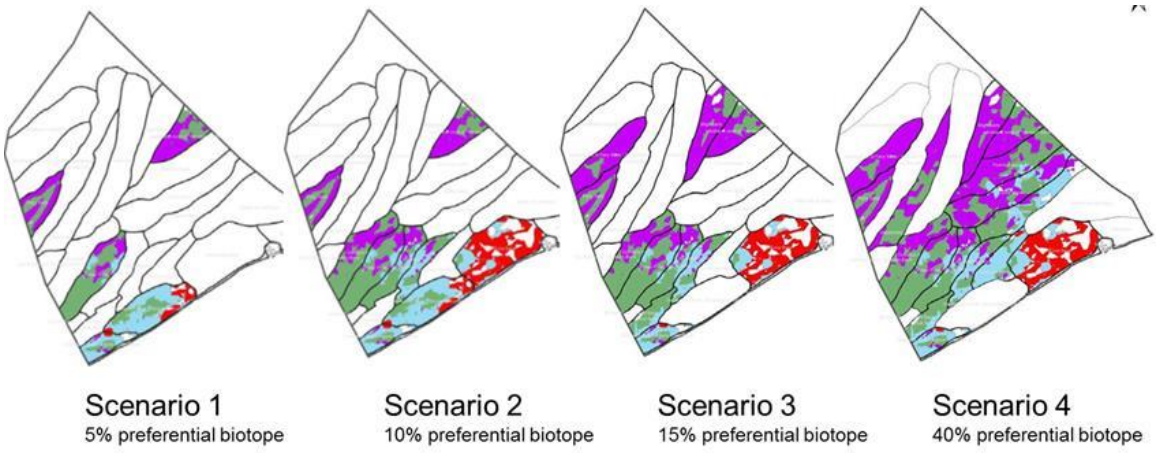


Fig h. The four "protection scenarios" of the BPNS as proposed by the report of Degraer et al (2009) for delineating the Flemish Banks as a Habitat Directive. The four colours represent the four benthic communities of the BPNS: red: *Macoma balthica* community; blue: *Abra alba community*; green: *Nephtys cirrosa* community; purple: *Ophelia borealis* community.

Based on:

(1) the four scenarios, as guiding for the indication of the potential Habitat Directive areas with respect to Habitat type 1110,

(2) the spatial distribution of the *L. conchilega* aggregations and gravel beds (including refuge areas),

it was decided to delineate the Natura 2000 site the Flemish Banks as indicated in Figure i.

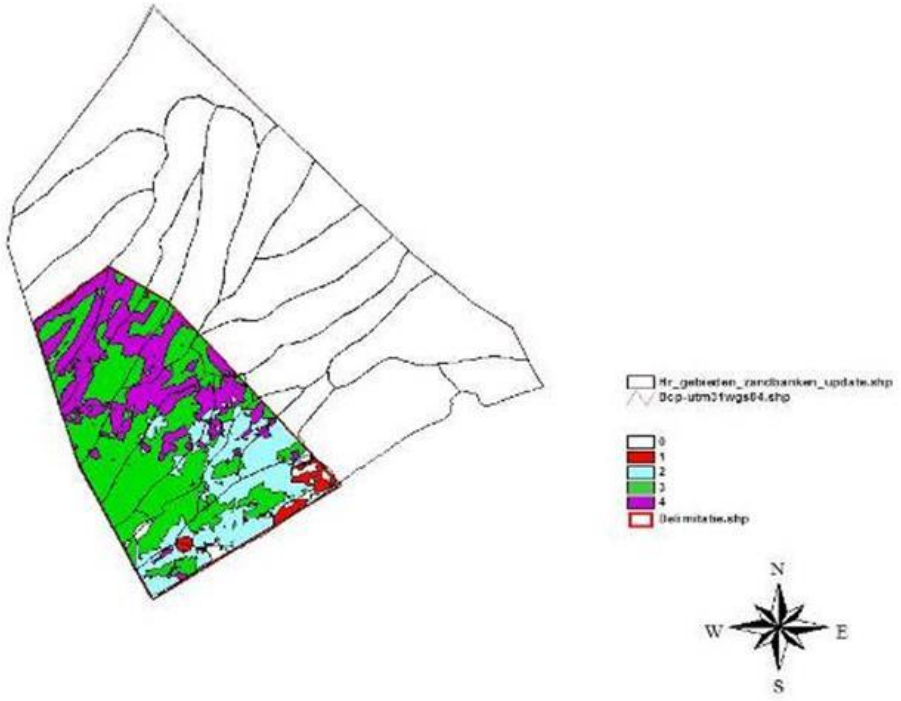


Fig i. Delineation of the Flemish Banks on the basis of the spatial distribution of Habitat type 1110, Lanice conchilega aggregations and gravel beds (red polygon); 0, undefined biotope; 1, *Macoma balthica* biotope; 2, *Abra alba* biotope; 3, *Nephtys cirrosa* biotope; 4, *Ophelia borealis* biotope.

As you can see, the delineation Flemish Banks are the closest to the above "Scenario 2", *i.e.* around 30% coverage of the Habitat type 1110. However, two sandbanks were not included within the Flemish Banks despite having been defined as biologically important for management and control reasons: (i) the Wenduine Bank (*Macoma balthica* biotope) on the Eastern coastline of BPNS and (ii) the sandbank north of the Thornton Bank (*Nephtys cirrosa* and *Ophelia borealis* biotopes) offshore.

When the 'Flemish Banks' Habitats Directive area was registered, this area was subdivided into 4 areas for simplification purposes in order to demonstrate where the most valuable and vulnerable parts lie of habitat types 1110 and 1170 (see Fig. j). The areas A and C were described as the most vulnerable to seabed-disturbing fishing activities, as these areas contain biogenic reefs and gravel beds (habitat type 1170). Logically, the areas A and C are hence also the areas where the fisheries measures were proposed.

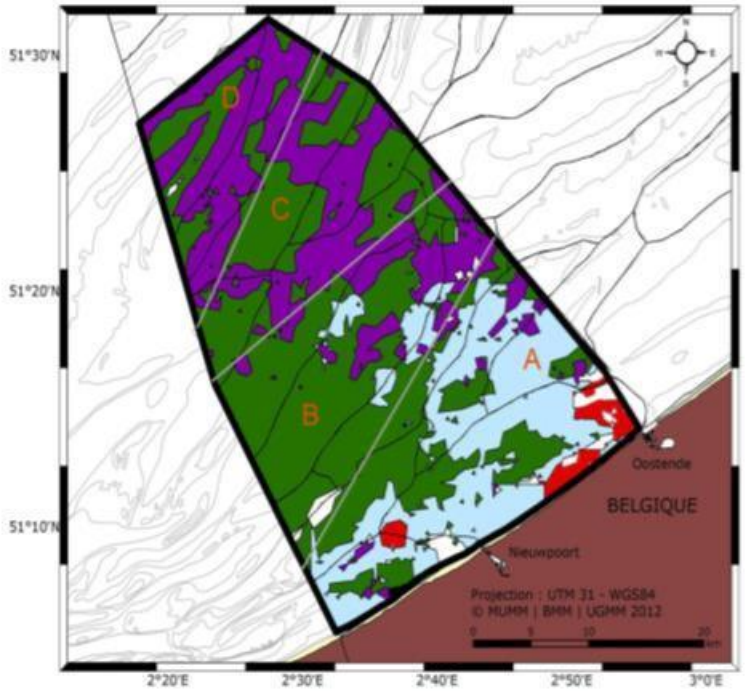


Fig j. **The registered 'Flemish Banks' Habitats Directive area. For simplification purposes during the registration, the 'Flemish Banks' were subdivided into four areas A-B-C-D. Area A: sandbank complex (1110) and biogenic reefs (1170). Area B: sandbanks (1110); Area C: sandbank complex (1110) and gravel beds (1170); Area D: sandbanks (1110). Red: *Macoma balthica* biotope; blue: *Abra alba* biotope; green: *Nephtys cirrosa* biotope; purple: *Ophelia borealis* biotope. Areas A and C were described as the most valuable areas and at the same time the most vulnerable areas to seabed-disturbing fishing activities.**

The importance of biogenic reefs and gravel beds and the influence of seabed-disturbing fishing activities are extensively described in the scientific study for the selection of potential Habitats Directive areas in the Belgian part of the North Sea (Degraer et al. 2009). The *Lanice* reefs and the gravel beds are the hotspots of benthic biodiversity within the BPNS and occur effectively within zone A and C.

ANNEX 6 – BELGIAN AND DUTCH FLEET ACTIVITY IN BPNS

At the request of the Marine Environment Service, the Institute for Agricultural and Fisheries Research (ILVO) gathered information about the Belgian, Dutch and British vessels that were active in the BPNS during the period 2010-2012 (ILVO study)[26].

The Belgian fleet is rather limited (89 vessels in 2011) and is mainly active in non-Belgian waters. During the period 2010-2012 only 9.4% of the total number of 'active' VMS signals from the Belgian fishing fleet came from the BPNS. The Dutch fleet is much larger (831 vessels in 2008). In the period 2010-2012 VMS pings of 125 Dutch fishing vessels were recorded. The ILVO study showed that both the Belgian and the Dutch fishing fleet, both in the BPNS and within the Flemish Banks, are mainly active in (i) shrimp fishing and (ii) beam trawling for demersal fish using nets with a mesh size between 80 and 99 mm. Other métiers present within the Flemish Banks were beam trawling with a different mesh size than 80 to 99 mm, otter trawling and gill netting, pelagic fishing and pot fishing.

A summary of the results is provided in the table below (Table a). This shows the interactions between the fishing activities and the proposed fisheries measures within the Flemish Banks. Most interaction takes place in zone 1 in Belgian shrimp fishing and beam trawling, in zone 2 in Belgian shrimp fishing and Dutch beam trawling, and in zones 3 and 4 in Dutch beam trawling. Fisheries measures in these zones may have an influence on the catches of shrimp, sole, plaice and flounder.

		Flemish Banks	Zone 1	Zone 2	Zone 3	Zone 4
BE	Shrimp fishing	within 12NM / shrimp	shrimp	shrimp		
	Beam trawling (70-99)	within 3NM / sole, plaice, flounder	sole, plaice, flounder			
	Beam trawling (70-99)>221kW*	beyond 12NM				
	Beam trawling (70-99)<=221kW*	within 3NM				
	Beam trawling (100-119)*	within 12NM				
	Beam trawling (>=120)*	within 3NM				
	Otter trawling*	within 3NM				
	Standing rigging*	beyond 12NM				
	Fly shooting*	3-12NM				
NL	Shrimp fishing	within 3NM				
	Beam trawling (70-99)	beyond 3NM / sole, plaice, flounder, dab, cod		sole, plaice, flounder	sole, plaice	sole, plaice
	Otter trawling*					
	Seine fishing*	beyond 3NM				
	Other métiers (no code)*					
UK	All métiers*	beyond 3NM				

Table a Summary table for the Flemish Banks and for sectors 1-2-3-4 per flag state and per métier. Red: high effort; orange: medium effort; yellow: low effort; white: not fished. Fish species were mentioned when the catch data for at least one quadrant within the area exceeded 10 tonnes in the period 2010-2012. * indicates métiers for which no detailed catch analysis was performed.

Shrimp beam trawl

General

[26] Pecceu E, Vanelslander B, Vandendriessche S, Van Hoey G, Hostens K, Torreele E, Polet H (2014). Beschrijving van de visserijactiviteiten in het Belgisch deel van de Noordzee in functie van de aanvraag bij de Europese Commissie voor visserijmaatregelen in de Vlaamse Banken (Habitatrichtlijngebied). ILVO-mededeling nr. 156, 92 p.

Within shrimp fishing the activity of Belgian vessels was the highest (2.5 times higher than the Dutch activity). Generally speaking, the Dutch shrimp fleet is not very active in the BPNS, but considerable activity has been detected in the eastern part of the BPNS (Fig. k). Shrimp fishing was concentrated within the 12 NM zone. The main Belgian activity lasted a little longer (summer and autumn) than the Dutch activity (especially autumn).

Flemish Banks

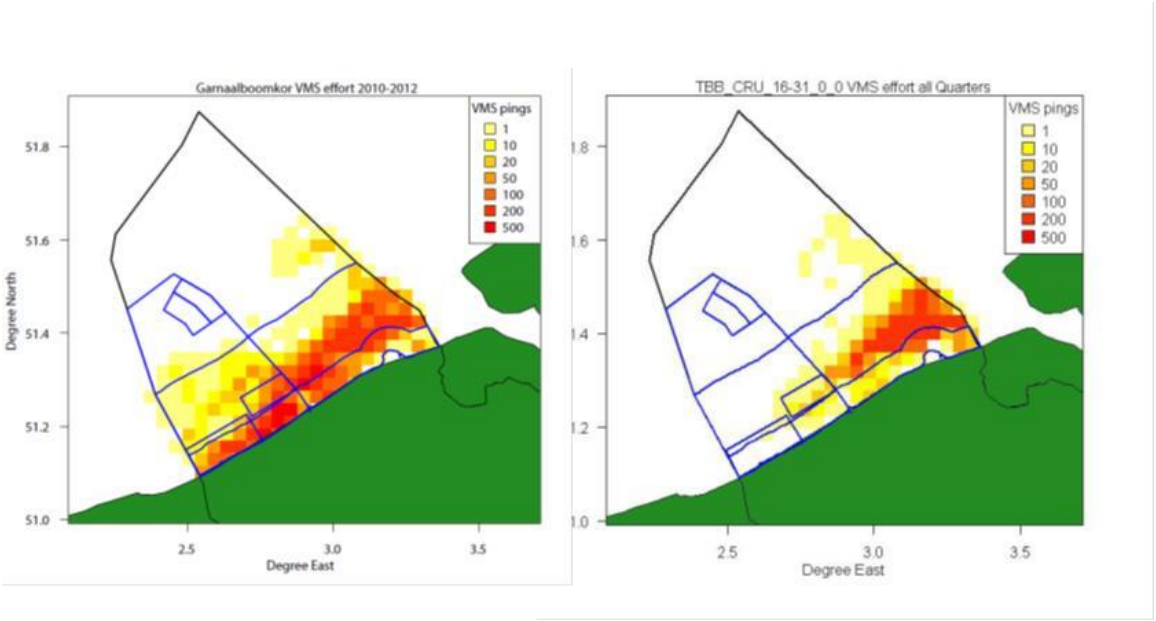


Fig k. Spatial distribution of VMS effort for shrimp beam trawls (80-99) of the Belgian (left) and Dutch (right) fleet in 2010-2012

In the period 2010-2012 the Flemish Banks area was fished mainly by Belgian shrimp fishermen, and high intensities were observed in zones 1 and 2. In these zones Belgian shrimp fishermen fished all year round, zone 1 being the most important (an average of 27% of active VMS pings of Belgian shrimp trawlers in the Flemish Banks were recorded in this zone).

For the Dutch shrimp fleet the number of active VMS pings in the BPNS during the period 2010-2012 was only 2% of the total number of active VMS pings of the entire Dutch shrimp feet. Of those 2% in the BPNS only 2% of pings were recorded in the Flemish Banks, mainly in zone 2. In zone 1 only very limited activity was recorded, and only in autumn. Zones 3 and 4 were neither fished by Belgian nor by Dutch shrimp fishermen.

Catch

Based on the catch data of the Belgian shrimp fishermen, common shrimp, dab and flounder could be identified as the most important species, both for the BPNS as a whole and within the Flemish Banks. These species were caught mainly within the 12 NM zone, with high numbers within the 3 NM zone. Both zone 1 and, to a slightly lesser extent, zone 2 were important for these species. Shrimp was caught all year round, the greatest amounts within 3 NM.

For Dutch shrimp fishermen, the Flemish Banks area was of little importance, as most activity was recorded along the east coast. Limited amounts of common shrimp, and very limited amounts of dab, flounder and cod were caught in zone 2 in summer and autumn. In zone 1 only negligible amounts of fish were caught, and only in autumn.

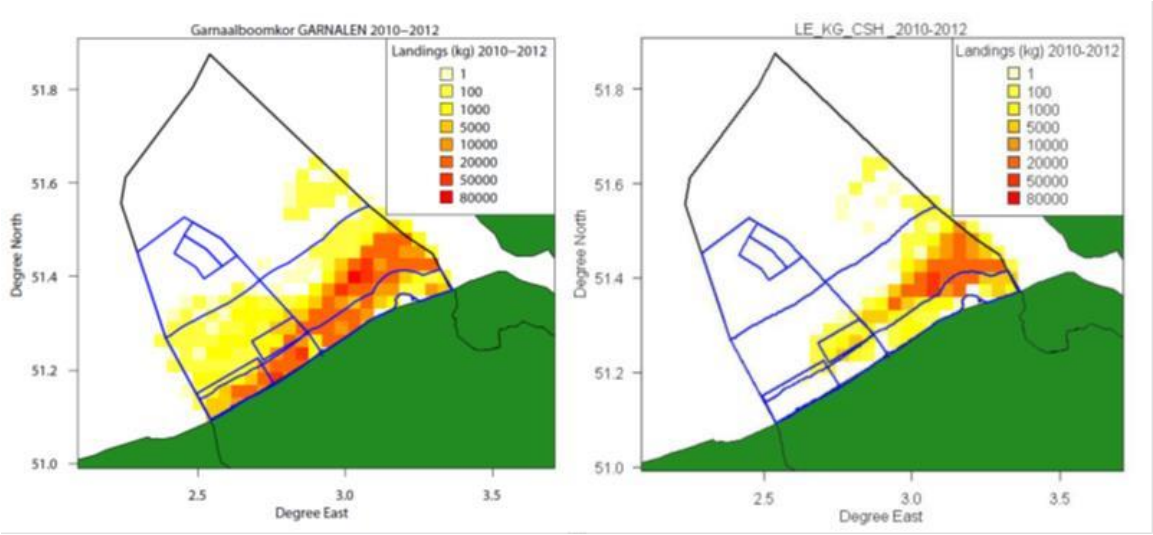


Fig l. Spatial distribution of shrimp (kg) landed by shrimp beam trawl by the Belgian (left) and Dutch (right) fleet in 2010-2012

Demersal beam trawl

General

Unlike for shrimp fishing, a substantially higher intensity was recorded for Dutch beam trawling with a net mesh size between 80 and 99 mm than for the Belgian fleet in the BPNS (4 times higher than the Belgian one). Belgian beam trawlers fish mainly outside the BPNS. Where spatial and temporal distribution are concerned, there were important differences between the Belgian and the Dutch fleet.

Flemish Banks

Belgian trawling activities took place all over the BPNS, but the highest concentration occurred within the 3 NM zone. Within the Flemish Banks, zone 1 was the most important of the four defined sectors for the Belgian beam trawler fleet. In this zone fishing took place mainly in spring and summer. In autumn and winter there was less activity in this zone and more fishing in the offshore zones (zones 3 and 4). In zone 2 activity was recorded all year round, but at a much lower level than in zone 1. In the offshore zones (zones 3 and 4) fishing took place as well, but the share of VMS pings is never more than 3% of the number of signals in the Flemish Banks.

For Belgian vessels a distinction was also made between the large and the small fleet segment. The large fleet segment was found mainly offshore, including in zones 3 and 4 of the Flemish Banks. Limited fishing

activity was observed in zone 2. The small fleet segment was mainly found in the territorial sea, with peaks within the 3 NM zone.

Dutch beam trawling was also observed all over the BPNS. Fishing activities took place all year round in all 4 of the proposed sectors of the Flemish Banks. However, the highest intensities were measured beyond the 3 NM limit. Thus, generally speaking, beam trawling activity was less intense in zone 1. The spatial distribution of Dutch beam trawling activities varies depending on the season. In autumn and winter there was more offshore fishing (in zones 3 and 4), whereas in spring and summer fishing took place closer to the coast, especially in the area between 3 and 12NM (in zone 2). Fig. m below illustrates that the Dutch beam trawl fleet is also very active in the coastal zone beyond 3 NM (as the Dutch fleet is highly present in the entire BPNS). The proposed coastal measure is likely to have effects on large Dutch beam trawls (above 70 GT), while smaller beam trawls will remain allowed. As a result of the proposed coastal measure, large vessels will in practice have to give up only 6%[27] of their fishing grounds in the BPNS. In return however, the protection of the biologically valuable coastal area (which is most valuable until 6 NM – see section above 4.2) will increase by 50%[28].

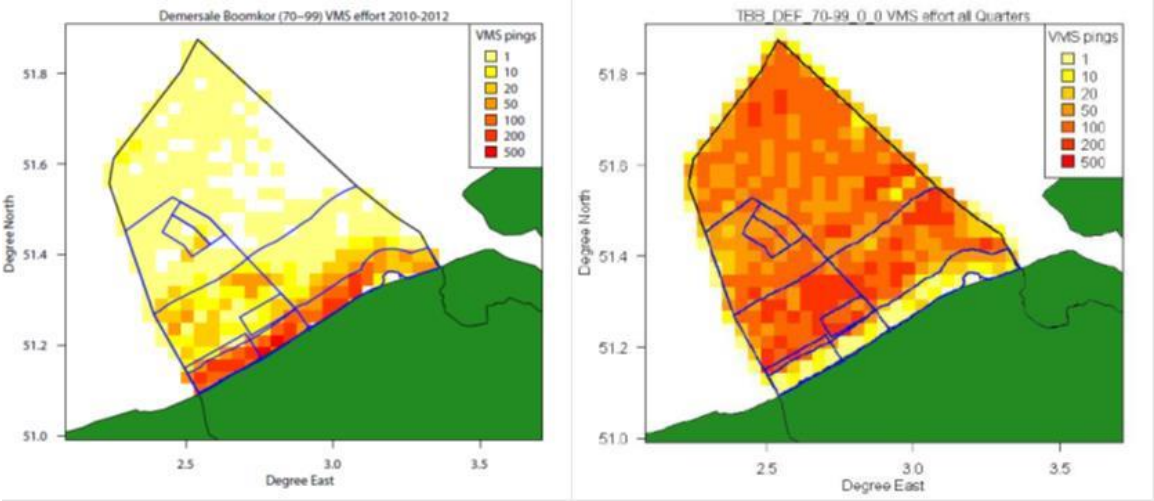


Fig m. Spatial distribution of VMS effort for demersal beam trawls (80-99) of the Belgian (left) and Dutch (right) fleet in 2010-2012

Catch

Where species caught with a demersal beam trawl (80-99) are concerned, there are considerable differences between the Belgian and the Dutch fleet. Belgian vessels with a demersal beam trawl (80-99) mainly caught plaice, sole and flounder in the BPNS and in the Flemish Banks. Generally speaking, especially the western part (as well as the Flemish Banks) was an important fishing area for Belgian vessels. The largest amounts of flounder, sole and plaice were caught in zone 1. In this zone, plaice was caught mainly in spring, flounder in summer and autumn, and sole mainly in spring and summer. Zone 2 was important especially for the catch of plaice. Fishing also took place in zones 3 and 4, but to a lesser extent.

Where the Dutch beam trawler fleet (80-99) is concerned, mainly plaice, sole and dab were landed. Unlike for the Belgian beam trawler fleet, most of these amounts were caught in zones 2, 3 and 4. Plaice was

[27] 6% is the surface area of the extension of the coastal measure from 3 to 4.5 NM.
[28] 50% protection increase, the increase being from 3 NM to 4.5 NM.

mainly caught in zone 2 in spring and summer, while fishing activities took place mainly in zones 3 and 4 in autumn and winter. Sole was caught primarily in zones 3 and 4 in autumn and winter, whereas in spring and summer it was caught more in coastal zones. As for dab, the highest catch figures from BPNS were measured in summer and autumn. Dab was mainly fished in zone 2 in spring, whereas in winter, zones 3 and 4 were the most used zones. The ILVO study also showed the fish species that were caught to a lesser extent in the Flemish Banks by Dutch beam trawls (70-99): flounder was mainly caught in zone 2. Zones 3 and 4, on the other hand, were relatively important for Dutch beam trawlers for the catch of lemon dab, turbot, brill and cod.

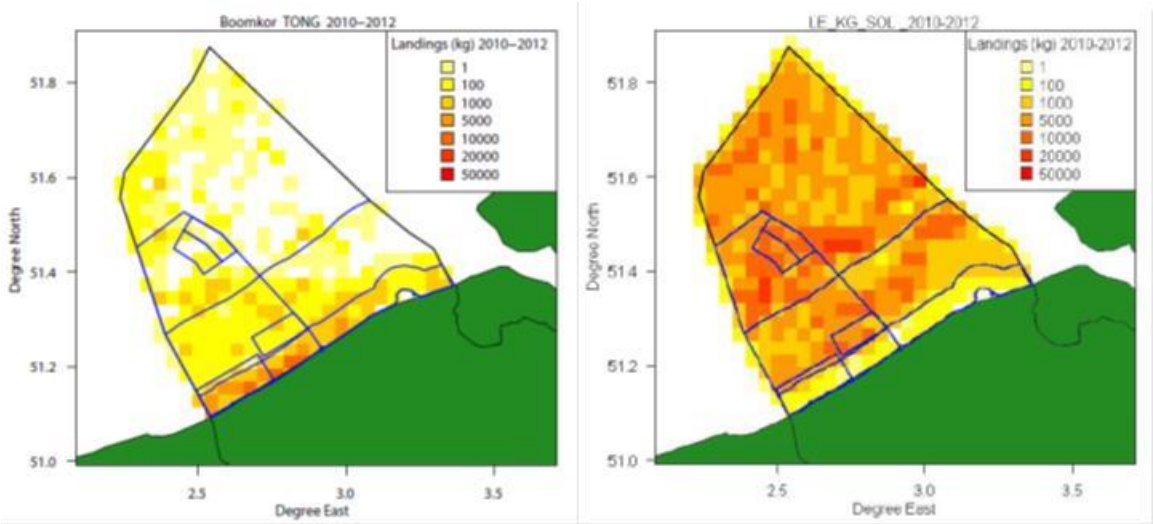


Fig n. Spatial distribution of plaice (kg) landed by demersal beam trawl (80-99) by the Belgian (left) and Dutch (right) fleet in 2010-2012

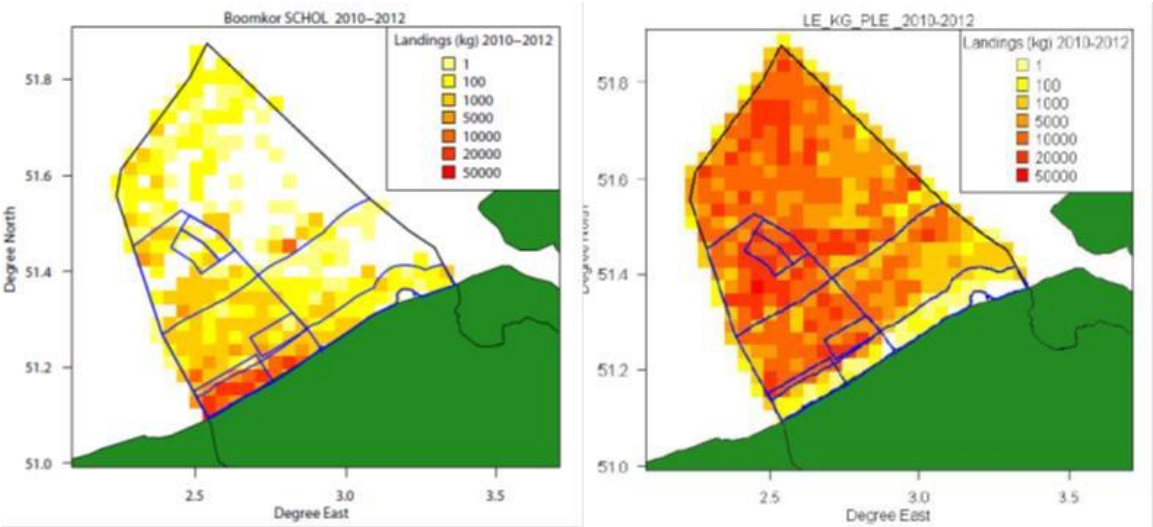


Fig o. Spatial distribution of sole (kg) landed by demersal beam trawl (80-99) by the Belgian (left) and Dutch (right) fleet in 2010-2012

ANNEX 7 – FRENCH FLEET ACTIVITY IN BPNS

Maps of the landings for the OTB gear were made for species that had a catch higher than 10 tonnes spread over 2010:2012. These species were European seabass (BSS), Dab (DAB), European plaice (PLE), Atlantic Cod (COD), Atlantic horse mackerel (HOM), Atlantic mackerel (MAC) and Whiting (WHG).

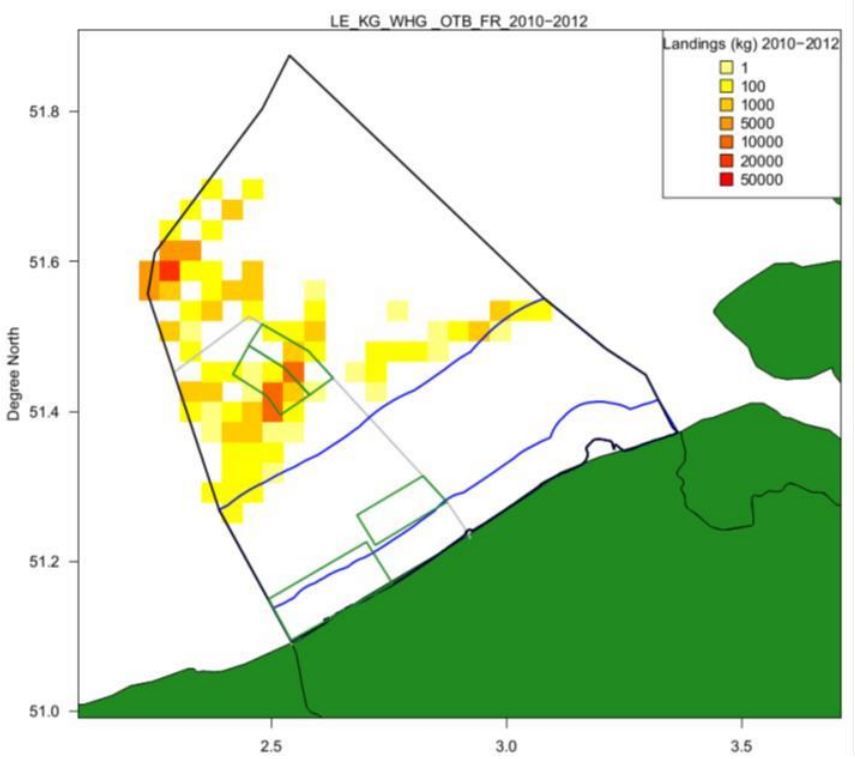


Fig p. Landings of Whiting allocated to VMS fishing pings inside the Belgian part of the North Sea for 2010-2012.

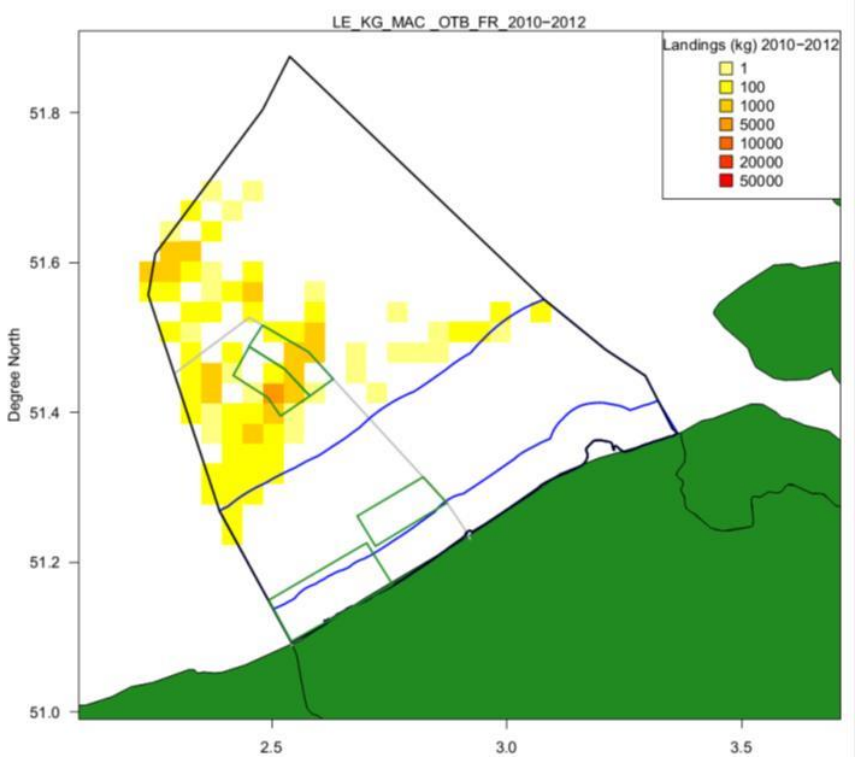


Fig q. Landings of Atlantic mackerel (MAC) allocated to VMS fishing pings inside the Belgian part of the North Sea for 2010-2012.

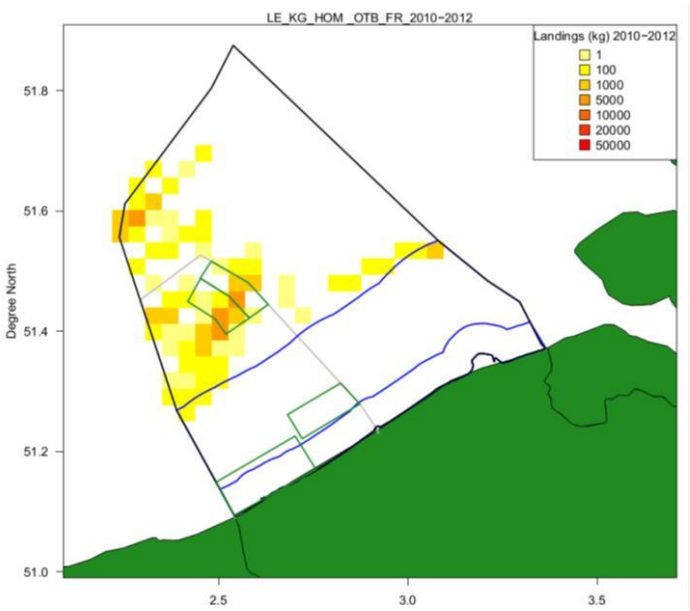


Fig r. Landings of Atlantic horse mackerel (HOM) allocated to VMS fishing pings inside the Belgian part of the North Sea for 2010-2012.

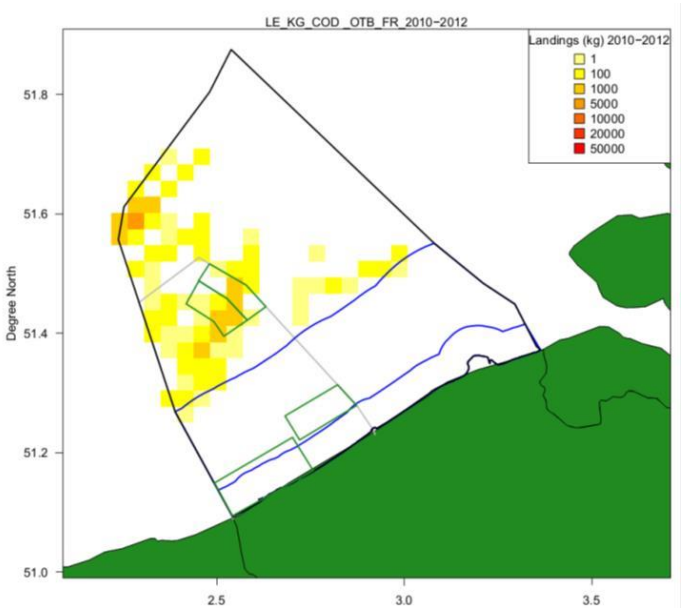


Fig s. Landings of Atlantic Cod (COD), allocated to VMS fishing pings inside the Belgian part of the North Sea for 2010-2012.

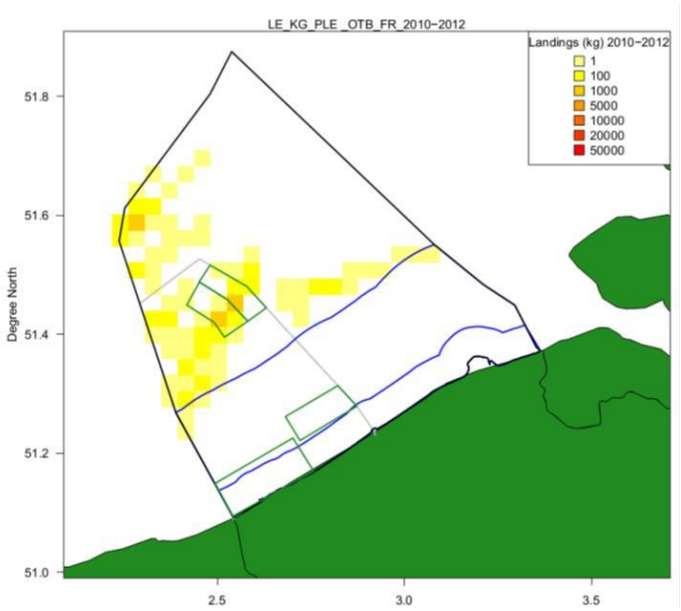


Fig t. Landings of European plaice (PLE) allocated to VMS fishing pings inside the Belgian part of the North Sea for 2010-2012.

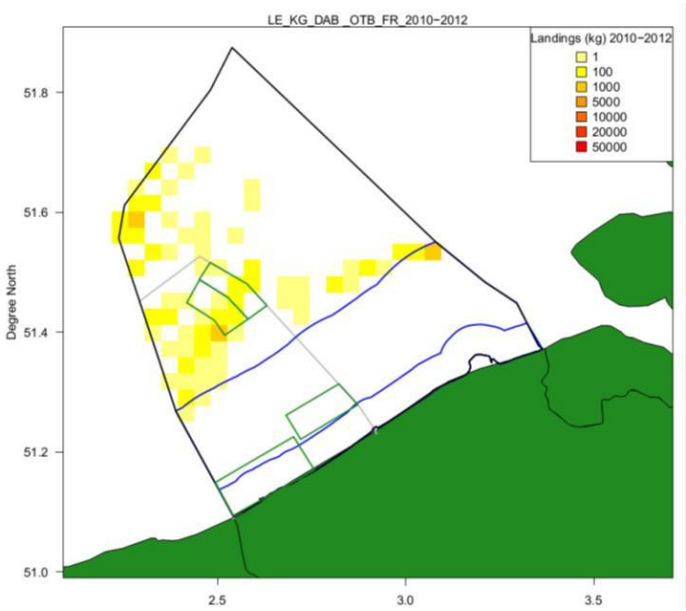


Fig u. Landings of Dab (DAB) allocated to VMS fishing pings inside the Belgian part of the North Sea for 2010-2012.

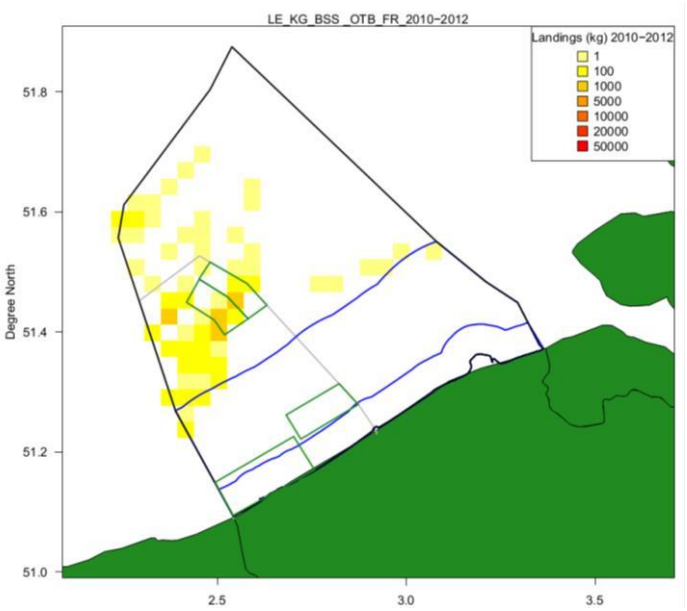


Fig v. Landings of European seabass (BSS) allocated to VMS fishing pings inside the Belgian part of the North Sea for 2010-2012.

ANNEX 8 –BRITISH FLEET ACTIVITY IN BPNS

Summary of the UK VMS data:

- 1605 VMS pings over a 16 month period from UK registered vessels in all of the Belgian sea area. This is represented in *figure w.*
- 37 individual UK registered vessels
- 1440 of these 1605 pings equate to just 3 vessels.
- 34 vessels have very low (less than 50 pings each) levels of activity in the Belgian sea area and are likely to be occasional visitors
- Out of the 3 "active" vessels; 1 vessel has 1153 VMS pings and is very active. The other 2 vessels both have less than 200 VMS pings over a 16 month period. This information is represented in *figure x.*
- The active vessel is UK registered but has not held a valid UK fishing licence since January 2014 and is now owned by a Dutch operator. This (Dutch owned) vessel is very active across the coast and has a significant number of pings from within the MPA boundaries. This information is represented in red in *figure x*.
- Apart from the Dutch owned UK registered vessel, there is very low activity directly in any of the Belgian MPAs (approx. less than 20pings over a 16 month period).

The Belgian marine spatial plan (MSP) has proposed 4 fishing zones be defined within the boundaries of the Flemish Banks special area of conversation (SAC) which also overlaps 2 special protection areas for birds (SPAs). Only specific gears and techniques are to be permitted in each to the 4 defined fishing zones.

Fig w.

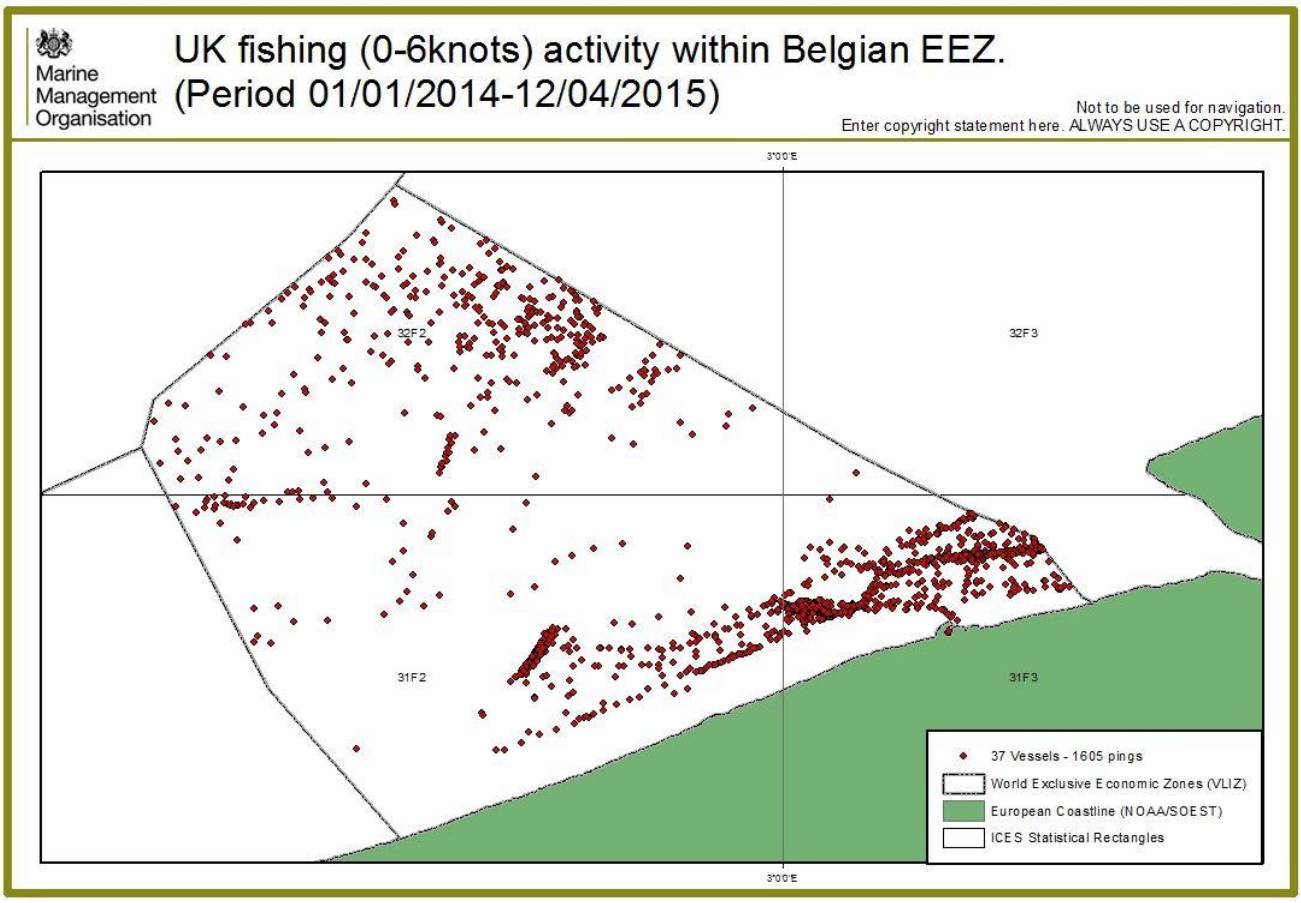
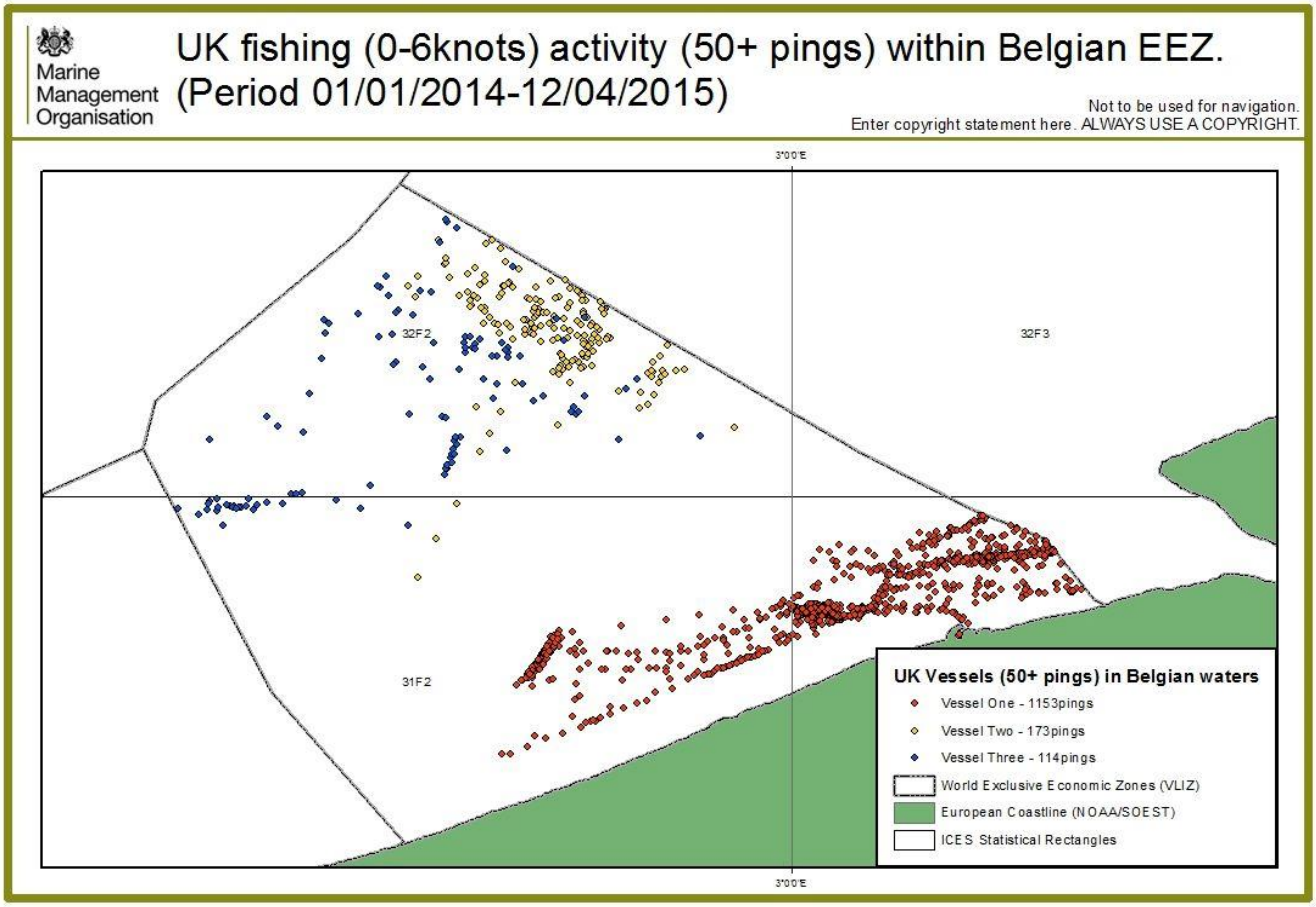

Marine Management Organisation
UK fishing (0-6knots) activity within Belgian EEZ.
(Period 01/01/2014-12/04/2015)
Not to be used for navigation.
Enter copyright statement here. ALWAYS USE A COPYRIGHT.
3°00'E
32F2
32F3
31F2
31F3
37 Vessels - 1605 pings
World Exclusive Economic Zones (VLIZ)
European Coastline (NOAA/SOEST)
ICES Statistical Rectangles
3°00'E

Fig x.


Marine Management Organisation
UK fishing (0-6knots) activity (50+ pings) within Belgian EEZ.
(Period 01/01/2014-12/04/2015)
Not to be used for navigation.
Enter copyright statement here. ALWAYS USE A COPYRIGHT.
3°00'E
32F2
32F3
31F2
UK Vessels (50+ pings) in Belgian waters
Vessel One - 1153pings
Vessel Two - 173pings
Vessel Three - 114pings
World Exclusive Economic Zones (VLIZ)
European Coastline (NOAA/SOEST)
ICES Statistical Rectangles
3°00'E

ANNEX 9 – DANISH FLEET ACTIVITY IN BPNS

Danish fishery in Belgian zone

Belgium has started a process for regulation of the fisheries necessary to fulfil requirements for the Habitat directive and the Marine Strategy Framework Directive.

A description of the Danish fishery in Belgian zone of the North Sea is requested for the period 2012-2015 for mobile bottom contacting gears, pelagic gears and other gears. The target species are to be included.

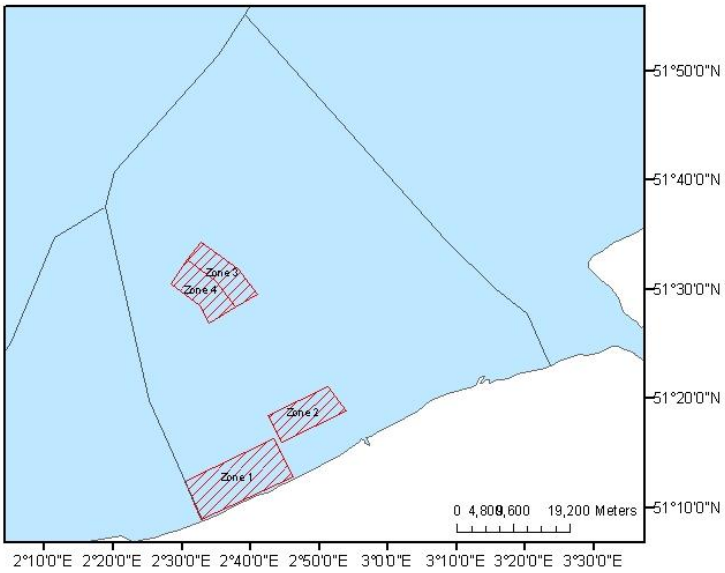
Maps with VMS pings and a table with landings in kg, DKK and Euro are requested.

The coordinates for the area including sub-areas can be seen in the attached document. So far, no other information has been received from Belgium. The underlying proposals have been requested, but haven't yet been received.

Method

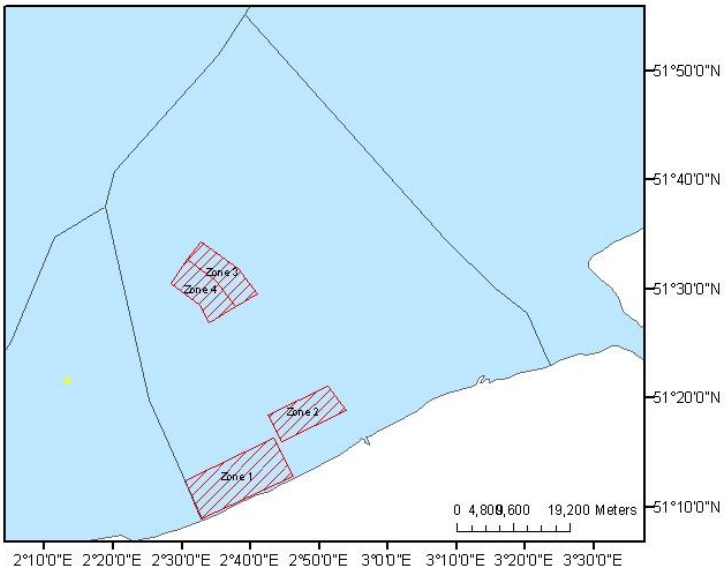
Landings and the value of the landings within Natura 2000 areas are not registered directly. To give an estimate the Danish logbook register has been merged with the sales notes register to estimate the weight and value of the landings by vessel, catch date, gear and species. This information is merged with VMS data which gives the vessel positions, with a ping-rate of one hour, time and speed. When the gear is known, the VMS data are filtered by the speeds where fishery is assumed for each gear. To give an example, landings for one day are distributed on 4 VMS points, where one is within a Natura 2000 area and the rest are outside the area. ¼ of the landings by species will be assigned to the Natura 2000 area, and ¾ will be assigned to the area outside. The resulting tables are found below.

The Danish fishery within the Belgian Natura 2000 areas is a gillnet fishery. In the maps and tables, this has been classified as "gillnet" instead of "other gears".



Danish fishery with mobile bottom contact gears

- VMS Danish fishery with mobile bottom contact gears 2015
- VMS Danish fishery with mobile bottom contact gears 2014
- VMS Danish fishery with mobile bottom contact gears 2013
- VMS Danish fishery with mobile bottom contact gears 2012
- EEZ
- Belgian zones



Danish pelagic trawl fishery

- VMS Danish pelagic trawl fishery 2015
- VMS Danish pelagic trawl fishery 2014
- VMS Danish pelagic trawl fishery 2013
- VMS Danish pelagic trawl fishery 2012
- EEZ
- Belgian zones

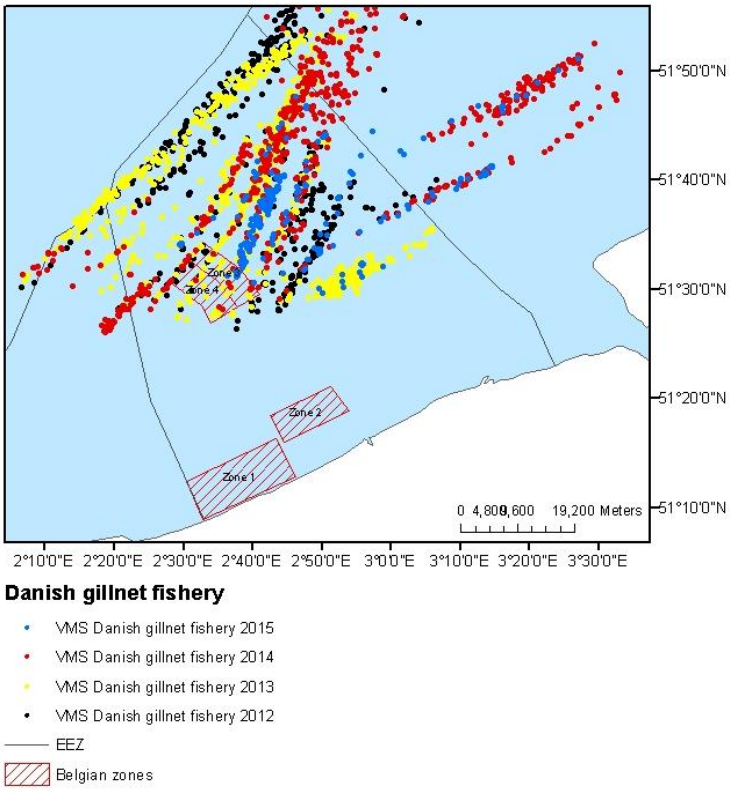


Fig y. Danish fishing fleet activity

Fig z. Weight (kg) of landings from Danish vessels by year

Zone	Gear	Species	KG 2012	KG 2013	KG 2014	KG 2015
Zone 3	**Gillnet**	Bass	5	6	0	0
		Blue Shark	5	0	0	0
		Brill	3	8	1	3
		Common Dab	0	27	0	1
		Common Sole	151	664	305	199
		Edible Crab	1	8	4	1
		European Plaice	28	26	29	18
		Thornback ray	0	8	2	0
		Tub Gurnard	47	77	47	54
		Turbot	3	12	7	2
Zone 3 Total			**242**	**835**	**395**	**277**
Zone 4	**Gillnet**	Bass	1	6	0	0
		Blue Shark	5	0	0	0
		Brill	2	5	1	0
		Common Dab	0	5	0	0
		Common Sole	57	588	346	0
		Edible Crab	0	8	4	0
		European Plaice	13	20	6	0
		Thornback ray	0	5	2	0
		Tub Gurnard	13	82	45	0
		Turbot	0	10	0	0
Zone 4 Total			**91**	**728**	**405**	**0**
Total			**334**	**1,564**	**800**	**277**

Table 2: Value of landings (DKK) from Danish vessels by year

Zone	Gear	EART	DKK 2012	DKK 2013	DKK 2014	DKK 2015

Zone 3	**Gillnet**	Bass	337	418	35	17
		Blue Shark	9	0	0	0
		Brill	119	331	38	53
		Common Dab	0	73	0	8
		Common Sole	10,621	32,976	22,536	16,248
		Edible Crab	14	190	104	24
		European Plaice	230	187	282	222
		Thornback ray	0	80	16	0
		Tub Gurnard	398	633	601	623
		Turbot	167	569	397	129
Zone 3 Total			**11,896**	**35,459**	**24,009**	**17,325**
Zone 4	**Gillnet**	Bass	82	398	22	0
		Blue Shark	9	0	0	0
		Brill	69	221	55	0
		Common Dab	0	20	0	0
		Common Sole	3,862	29,215	25,372	0
		Edible Crab	3	181	102	0
		European Plaice	107	178	56	0
		Thornback ray	0	74	15	0
		Tub Gurnard	182	653	613	0
		Turbot	0	480	18	0
Zone 4 Total			**4,314**	**31,420**	**26,252**	**0**
Total			**16,210**	**66,879**	**50,261**	**17,325**

Table 3: Value of landings (EUR) from Danish vessels by year

Zone	Gear	Species	EUR 2012	EUR 2013	EUR 2014	EUR 2015
Zone 3	**Gillnet**	Bass	45	56	5	2
		Blue Shark	1	0	0	0

		Brill	16	44	5	7
		Common Dab	0	10	0	1
		Common Sole	1,426	4,426	3,025	2,181
		Edible Crab	2	26	14	3
		European Plaice	31	25	38	30
		Thornback ray	0	11	2	0
		Tub Gurnard	53	85	81	84
		Turbot	22	76	53	17
Zone 3 Total			**1,597**	**4,760**	**3,223**	**2,326**
Zone 4	**Gillnet**	Bass	11	53	3	0
		Blue Shark	1	0	0	0
		Brill	9	30	7	0
		Common Dab	0	3	0	0
		Common Sole	518	3,921	3,406	0
		Edible Crab	0	24	14	0
		European Plaice	14	24	7	0
		Thornback ray	0	10	2	0
		Tub Gurnard	24	88	82	0
		Turbot	0	64	2	0
Zone 4 Total			**579**	**4,217**	**3,524**	**0**
Total			**2,176**	**8,977**	**6,746**	**2,326**