Proposal for Fisheries Management Measures for the protection of reef structures (H1170 & H1180) in Natura 2000 sites located in Danish territorial waters in Kattegat (North Sea)

Draft submission to the European Commission [FIFTH DRAFT 21 September 2016]

Draft proposal for Fisheries Management Measures under article 11 and 18 of Regulation (EU) No 1380/2013 of The European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy, amending Council Regulations (EC) No 1954/2003 and (EC) No 1224/2009 and repealing Council Regulations (EC) No 2371/2002 and (EC) No 639/2004 and Council Decision 2004/585/EC

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Summary

For the implementation of the EU Nature directives (Habitat- and Birds Directives), Denmark has designated 97 marine Natura 2000 sites in Danish territorial waters of the western Baltic, Kattegat, Skagerrak and the North Sea. A total of 65 sites have been designated for the protection of reef structures with the following habitat codes: H1170 (reefs) and H1180 (submarine structures made by leaking gasses). In general, the conservation status of reef structures in the Danish Natura 2000 sites are classified as unfavorable due to physical disturbances and high nutrient content in the water column.

The overall aim of the present proposal is to ensure adequate protection of reef structures from fishery, and thereby contribute to the obligation of achieving favorable conservation status for these habitat types in accordance with Article 6 (2) of the Habitats Directive.

The present proposal entails fishery management measures for a total of four sites:

Two Natura 2000 sites located in the Danish Exclusive Economic zone in the Kattegat (outside 12 nautical miles):

1. Store Middelgrund (EU site code: DK00VA250)
2. Schultz og Hastens Grund samt Briseis Flak (EU site code: DK00VA303)

Two Natura 2000 sites located in the Danish part of the Kattegat between the baseline and 12 nautical miles:

3. Strandenge på Læsø og havet syd herfor (EU site code: DK00FX010)
4. Havet omkring Nordre Rønner (EU site code: DK00FX257)

Sweden and Germany have fishing rights in the Danish part of Kattegat both in the EEZ and within 12 nautical miles from the coast line. The concerned sites are located in ICES division IIIaS (Kattegat), where other North Sea Member States potentially have fishing opportunities in the two sites located in the Danish EEZ of the Kattegat. However, besides Sweden and Germany, no other Member State have stated that they have direct management interests in the Danish EEZ of the Kattegat. According to "TAC's and Fishing opportunities 2016" only Sweden and Germany (besides Denmark) have fishing quotas for a number of species in ICES division IIIaS (Kattegat).

Fishing activity with mobile bottom contacting gear is proposed to be prohibited in areas mapped as reefs (H1170). In areas mapped as bubbling reefs (H1180), fishing activity with passive gears such as gillnets, lines, traps and pots is also proposed prohibited in addition to the above mentioned mobile bottom contacting fishing gears. The reef structures mapped in the Natura 2000 sites will be protected from impact from fishing activity by placement of buffer zones.

Scientific advice from Aarhus University (Danish Centre for Environment and Energy) and the Danish Technical University (Institute for Aquatic Resources) and ICES alongside the site specific Natura 2000 management plans and mapping of marine habitats, serve as the basis for the proposed fishery management measures. The proposed measures supplement the fisheries management measures submitted to the EU Commission in March 2015 for protection of reef structures in 10 Danish Natura 2000 sites located in the Danish part of the Kattegat/North Sea and western Baltic Sea within the 12 nautical mile zone. The proposals were submitted as joint recommendations by Denmark, Sweden and Germany and adopted as a delegated act in summer of 2015. The Delegated Act came into force 1 January 2016.

Kattegat is an important fishing area for both Denmark and Sweden. However, analysis of fishery data show, that the proposed management measures will have no or limited impact on Danish and Swedish fishing activity when looking at the period 2011-2014. Germany has no fishing activity in the areas concerned (2011-2012). [*German fisheries data for the years 2013-2014 are still to be prepared*].

However, it is important to ensure full protection of reef structures, also in the future, for the sites concerned in accordance with the Habitats Directive.

It is the intention of the Danish government (initiating Member State) to take measures ~~i.a.~~i.e. with respect to fishing activities exercised by *all* vessels including fishing vessels carrying the flag of other Member States of the EU. In order to apply these measures to *all* vessels, Denmark, as the initiating Member State, has in accordance with EP/Council Regulation (EU) No 1380/2013 of the Common Fisheries Policy (Basic Regulation), consulted Sweden, Germany, the North Sea Advisory Council (NSAC), ICES, the Commission, national fishermen associations/organizations and NGOs.

The proposed fisheries management measures supplement regulation of extraction of sand and gravel (regulated through art. 6.3) as well as on-going initiatives to reduce nutrient flow from terrestrial sources, as these are estimated to be the main pressures to the conservation status for reef structures in Danish waters.

[*The present proposal is submitted to the European Commission jointly by Denmark, Sweden and Germany*] in accordance with the Basic Regulation, Article 11 and 18. A similar proposal for fisheries management measures for protection of reef structures has been formulated for 3 Natura 2000 sites in the Danish part of the western Baltic Sea.

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Sammenfatning

Danmark har som led i implementeringen af EU's naturdirektiver (habitat- og fuglebeskyttelsesdirektivet) udpeget 97 marine Natura 2000 områder i den danske del af den vestlige Østersø, Kattegat og Skagerrak. Der er i alt udpeget 65 Natura 2000 områder for rev med habitatkoderne H1170 (rev) og H1180 (boblerev med udsivende methangas fra undergrunden). Revs bevaringsstatus er ifølge områdernes naturplaner generelt angivet som ugunstig som følge af fysisk påvirkning og højt næringsstofindhold i vandsøjlen.

Den overordnede målsætning med nærværende forslag er, i overensstemmelse med habitatdirektivets artikel 6, stk. 2, at sikre tilstrækkelig beskyttelse af revstrukturer i forhold til fiskeri som led i opnåelsen af en gunstig bevaringsstatus for disse habitattyper.

Nærværende forslag omfatter fiskeriregulering i fire Natura 2000 områder.

To områder lokaliseret udenfor 12 sømilegrænsen i den dansk eksklusive økonomiske zone (EEZ´en):

1. Store Middelgrund (EU site code: DK00VA250)
2. Schultz og Hastens Grund samt Briseis Flak (EU site code: DK00VA303)

To områder er lokaliseret mellem basislinjen og 12 sømilegrænsen:

3. Strandenge på Læsø og havet syd herfor (EU site code: DK00FX010)
4. Havet omkring Nordre Rønner (EU site code: DK00FX257)

Forslag til fiskeriregulering omfatter forbud mod anvendelse af bundgående redskaber i områder kortlagt som rev (H1170) og boblerev (H1180). I områder kortlagt som boblerev (H1180) er fiskeri med passive redskaber som garn, liner, tejner og ruser udover bundgående trawlredskaber tillige omfattet af fiskeriforbuddet. De kortlagte revstrukturer sikres beskyttelse mod fiskeriaktiviteter ved placering af en bufferzone omkring revene.

Videnskabelig rådgivning fra Danmarks Tekniske Universitet (Institut for Akvatiske Ressourcer), Aarhus Universitet (Nationalt Center for Miljø og Energi) samt ICES danner sammen med områdernes naturplaner og kortlægning, grundlaget for de fremlagte forslag til fiskeriforanstaltninger. De foreslåede fiskeriforanstaltninger supplerer de forslag, som blev fremsendt til EU Kommission i marts 2015 for beskyttelse af rev i 10 Natura 2000 områder i forhold til fysisk påvirkning som følge af fiskeri med bundslæbende redskaber. De 10 områder er placeret i den danske del af Kattegat/Nordsøen og vestlige Østersø indenfor 12 sømilegrænsen. De danske forslag blev fremsendt til EU Kommissionen i form af en fælles henstilling fra Danmark, Sverige og Tyskland i marts 2015, og blev vedtaget som en delegeret retsakt i sommeren 2015. Den delegerede retsakt trådte i kraft den 1. januar 2016.

Områderne er beliggende i ICES område lll aS (Kattegat), hvor andre Nordsølande har fiskerimuligheder i udenfor 12 sømilegrænsen. Sverige og Tyskland har fiskerirettigheder i den danske del af Kattegat – også indenfor 12 sømil fra kysten. Ingen andre medlemslande har imidlertid tilkendegivet, at de har fiskeriinteresse i den danske del af Kattegat udenfor 12 sømil. Ifølge "TAC's og fiskerimuligheder for 2016" er det kun Sverige og Tyskland, som (udover Danmark) har kvote til fiskeri i den danske del af Kattegat udenfor 12 sømil. Kattegat er et vigtigt område for især dansk og svensk fiskeri. Analyser af fiskeriaktiviteter i Kattegat for perioden 2011-2015 viser dog, at de foreslåede fiskeriforanstaltninger ikke vil have betydende effekt på den måde fiskeriet udøves i Kattegat for danske og svenske fiskere. Der er i perioden 2011-2015 ikke registreret tysk fiskeri i de fire områder. Generelt set fiskes der ikke i områder kortlagt som rev. I henhold til habitatdirektivet er det midlertidigt vigtigt, at kortlagte revstrukturer sikres fuld beskyttelse mod fysisk påvirkning, også i forhold til fremtidigt fiskeri.

Den danske regering ønsker (som initiativtagende medlemsstat), at gennemføre fiskeriforanstaltninger, som gælder *samtlige* fartøjer, herunder fartøjer fra andre flagstater, som udøver fiskeri i de pågældende Natura 2000 områder. For at de foreslåede foranstaltninger kan omfatte *samtlige* fartøjer, har Danmark i

overensstemmelse med EP/Rådsforordning nr. 1380/2013 om den fælles fiskeripolitik (Grundforordningen), konsulteret Sverige, Tyskland, det Rådgivende Råd for Nordsøen (NSAC), ICES, EU Kommissionen, nationale fiskeriforeninger/organisationer og NGO'ere.

Den foreslåede fiskeriregulering supplerer andre tiltag i relation til råstofindvinding og klapning samt reduktion ad udledning af næringsstoffer fra terrestriske kilder.

[*Nærværende forslag er fremsendt til EU Kommissionen i form af fælles henstilling af de danske, svenske, og tyske fiskerimyndigheder i overensstemmelse med artikel 11 og 18 i Grundforordningen*]. Et tilsvarende forslag til fiskeriforanstaltninger for beskyttelse af rev i 3 Natura 2000 områder i den danske del af vestlige Østersø er ligeledes udarbejdet.

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1. Introduction

1.1 General remarks

This document contains a proposal for regulation of fishing activities in the Danish part of the Kattegat for the protection of reef structures designated under the Habitats Directive.

For the implementation of the EU Nature directives (Habitat[1] and Birds Directives[2]), Denmark has designated 97 marine Natura 2000 sites in Danish territorial waters in the western Baltic, Kattegat, Skagerrak and the North Sea, see Annex A for map of the Danish marine Natura 2000 network. A total of 65 Natura 2000 sites have been designated for reef structures (habitat code: H1170 - reefs and H1180 – submarine structures made of leaking gasses, also known as bubbling reefs).

The present proposal entails fisheries management measures in four Natura 2000 sites located in the Kattegat:

Two Natura 2000 sites located in the Danish Exclusive Economic zone in the Kattegat (outside 12 nautical miles):

1. Store Middelgrund (EU site code: DK00VA250)
2. Schultz og Hastens Grund samt Briseis Flak (EU site code: DK00VA303)

And two Natura 2000 sites located in the Danish part of the Kattegat within 12 nautical miles:

3. Strandenge på Læsø og havet syd herfor (EU site code: DK00FX010)
4. Havet omkring Nordre Rønner (EU site code: DK00FX257)

A similar proposal for fisheries management measures have been formulated for protection of reef structures in three Danish Natura 2000 sites located in the Danish part of the western Baltic Sea.

According to EP/Council Regulation (EU) No 1380/2013 Annex I, Sweden and Germany have fishing rights within the 12 nautical miles zone in the Danish part of the Kattegat. Bilateral fishing rights in the Kattegat area is further given in the Convention dated 31 December 1932 between Denmark and Sweden on fishing conditions in adjacent waters of Kattegat, ratified in a Royal Decree 11 May 1933. According to the Convention of 1932 and the Royal Decree of 1933, Sweden has fishing rights in Denmark's territorial waters within 12 nautical miles in Kattegat and adjacent waters.

Two of the concerned sites are located in the Danish EEZ of the Kattegat (ICES division IIIas (Kattegat)), where other North Sea Member States potentially have fishing opportunities. However, besides Sweden and Germany, no other Member State have stated they have direct management interests in the Danish EEZ of the Kattegat. According to "TAC's and Fishing opportunities for 2016[3]" only Sweden and Germany (besides Denmark) have fishing opportunities for a number of species, see Annex C.

It is the intention of the Danish government (initiating Member State) to take measures i.e. with respect to fishing activities exercised by *all* vessels including fishing vessels carrying the flag of other Member States of the EU.

[1] Council Directive 92/43/EEC, of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1992L0043:20070101:EN:PDF
[2] Directive 2009/147/EC of the European Parliament and of the Council, of 30 November 2009 on the conservation of wild birds: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2010:020:0007:0025:en:PDF
[3] Council Regulation (EU) No. 72/2016, fixing for 2016 the fishing opportunites fish stocks and groups of fish stocks, applicable in union waters and, to Union vessels: http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1459236619889&uri=CELEX:32016R0072

This document covers the 11 information items of the Commission's guidelines from 2008 concerning development of proposals for fisheries management measures in marine Natura 2000 areas within the scope of the Common Fisheries Policy (see Annex D for an overview of how the present proposal has covered the information 11 items).

In order to apply these measures to *all* vessels, Denmark, as the initiating Member State, has in accordance with EP/Council Regulation (EU) No 1380/2013 of the Common Fisheries Policy (Basic Regulation), consulted Sweden, Germany, the North Sea Advisory Council, ICES and the Commission, as described in section 3.2. [*The present proposal is submitted to the European Commission jointly by Denmark, Sweden and Germany in accordance with the Basic Regulation, Articles 11 and 18*].

1.2 Overall aim of the present proposal

The overall aim of the present proposal is to ensure adequate protection of designated reef structures from fishing activities and thereby to contribute to the obligation of achieving favorable conservation status for the habitat types with code H1170 and/or H1180 in accordance with art. 6 (2) of the Habitats Directive, stating that Member States shall take appropriate steps to avoid the deterioration of natural habitats and the habitats of species as well as disturbance of the species for which the areas have been designated.

According to the Natura 2000 plans for the four sites concerned, fishing activity with mobile bottom contacting gear is specified as a threat to reef structures[4]. Gillnet fishery is also specified as a threat to the unique bubbling reef structures, due to the risk of entanglement of fishing gear. The conservation status of the reef structures in the four sites are given as 'unfavorable' due to physical disturbances and a relatively high level of nutrients in the water column. It is generally agreed that fishing activity with mobile bottom contacting gear has an impact on reef structures – both in terms of physical disturbance to the reef structure itself as well as to the biodiversity found at the reef (Freese et al. 1999; Kaiser et al. 2002; ICES 2009, Howarth et al. 2015 and physical disturbance likely caused by trawling are also reported from a reef in Danish water; Dahl 2005)[5]. A detailed description of the four Natura 2000 sites is given in section 5.1.

Denmark (The Danish AgriFish Agency) is therefore proposing to restrict fishing activities with mobile bottom contacting gear in areas mapped as reefs (H1170 and H1180), and further fishing activity with passive gear (e.g. gillnet fishery, hook- and line fishing, pots and traps) in areas mapped as bubbling reefs (H1180). The content of the proposed fisheries management measures is explained in more detail in section 5.2. The proposed restrictions are identical and supplementary to fisheries management measures in four coastal Natura 2000 sites under Danish sovereignty, which came into force on 1 September 2013 and the delegated act, (EU) 2015/1778, concerning fisheries management measures in ten Natura 2000 sites. The proposal for fisheries management measures was sent to the EU Commission on 15 of March

[4] Link Management Plans:
http://www.naturstyrelsen.dk/Naturbeskyttelse/Natura2000/Natura_2000_planer/Se_Planerne/

[5] Freese L et al. (1999) Effects of trawling on seafloor habitat and associated invertebrate taxa in the Gulf of Alaska. Marine Ecology-Progress series 182: 119-126; Howarth L. et al. (2015) Sessile and mobile components of a benthic ecosystem display mixed trends within a temperate marine reserve. Marine Environmental Research 107: 8-23; Dahl, K. 2005: Effekter af fiskeri på stenrevs algevegetation. Danmarks Miljøundersøgelser. 16 s. – Faglig rapport fra DMU nr. 526; Kaiser, M. J., Collie, J. S., Hall, S. J., Jennings, S. and Poiner, I. R. (2002), Modification of marine habitats by trawling activities: prognosis and solutions. Fish and Fisheries, 3: 114–136; ICES. 2009. Report of the EMPAS project (Environmentally Sound Fisheries Management in Protected Areas), 2006-2008, an ICES-BfN project. 123 pp.; ICES. 2006. Report of the Working Group on Ecosystem Effects of Fishing Activities (WGECO), 5 12 April 2006 , ICES Headquarters, Copenhagen. ACE:05. 174 pp.

2015 in the form of joint recommendations by Denmark, Sweden and Germany. The Delegated Act came into force on 1 January 2016.

The present proposal has been peer reviewed by The Danish Technical University and Aarhus University (see section 3.1.4).

1.3 Recommendations to be implemented

The present proposal applies to:

- A ban for fishing activity with mobile bottom contacting gear in areas mapped as reefs (H1170 and H1180).
- A ban for fishing activity with the following gear types; gillnets, lines, pots and traps in areas mapped as bubbling reefs (H1180).

Protection of reefs (habitat code H1170)

The outlined zones with mapped reefs (H1170) and the surrounding buffer zones will be closed for the following mobile bottom contacting gear types (see table 1 for gear codes):

- Beam trawls
- Bottom trawl / Otter trawl
- Seine nets (Danish and Scottish seines)
- Dredges

Protection of submarine structures made by leaking gases (bubbling reefs) (habitat code H1180)

The outlined zones with mapped bubbling reefs (H1180) will be closed for the above mentioned mobile bottom contacting gear types along with the following gear types (see table 1 for gear codes):

- All types of net gear (gillnets/entangling nets)
- All types of line fishing
- All types of pots and traps
- All types of pelagic trawls

Table 1: Gear codes for the banned gear types.

Gear types that are banned in the closed zones	**Habitat code**	**Gear code Annex XI in EU Regulation No. 404/2011**	**International standard Classification of Fishing Gears (ISSCFG)**
Beam trawl	1170/ 1180	TBB	TBB
Bottom trawl / otter trawl	1170/ 1180	OTB, OTT, PTB, TBN, TBS, TB	OTB, OTT, OT, PTB, TB
Seine nets	1170/1180	SDN, SSC, SX, SV	SB, SV, SDN, SSC, SPR, SX
Dredges	1170/1180	DRB	DRB, DRH
Gillnets and entangling nets	1180	GN, GNC, GND, GNS, GTN, GTR	GEN, GN, GNC, GND, GNS, GTN, GTR
Surrounding nets*	1180	LA, PS, PS1, PS2	PS, PS1, PS2, LA
Hooks and lines	1180	LHM, LHP, LL, LLD, LLS, LTL, LX	LHM, LHP, LLS, LLD, LL, LTL, LX

Pots and traps	1180	FIX, FPO	FIX, FPO, FYK
Mid-water trawls	1180	OTM, PTM	OTM, PTM, TMS, TM

* According to the Danish legislation fishery with purse fishing are banned in the Kattegat, the Belt Sea and the Baltic Sea.

The outline of the areas, in which these fishing activities are proposed to be banned, are given in section 5.1.1-5.1.4 and 6.2. Annex I gives the coordinates for the proposed buffer zones for the four Natura 2000 sites concerned.

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2. Legal framework

This chapter describes the legal framework of the present proposal; the Common Fisheries Policy, the Convention between Denmark and Sweden regarding adjacent waters ratified in a Royal Decree, which entitles German and Swedish fishermen access to the Danish part of the Kattegat within 12 nautical miles to the Danish coastline, "TAC's and Fishing opportunities for 2016" and the implementation of Natura 2000 in Danish waters by the Danish government.

2.1 Common Fisheries Policy

According to the Common Fisheries Policy (Regulation No 1380/2013 (The Basic Regulation)) Article 11, 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 to comply with their obligations under Article 6 of Directive 92/43/EEC, Article 4 of Directive 2009/147/EC and Article 13(4) of Directive 2008/56/EC.

Where a Member State ("initiating Member State") considers that measures need to be adopted for the purpose of complying with the obligations referred to above, and other Member States have a direct management interest in the fishery to be affected by such measures, the European Commission shall be empowered to adopt such measures, upon request, by means of delegated acts. For this purpose cooperation between Member States having a direct management interest[6] is foreseen with a view to formulating a joint recommendation in agreement on draft fisheries management measures to be forwarded to the Commission.

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. Member States shall consult the relevant Advisory Council.

The initiating Member State and the other Member States having a direct management interest may submit a joint recommendation 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 (Reg. 1380/2013, Articles 11 and 18).

Since other Member States have fishing rights/opportunities in the Danish part of the Kattegat, Denmark as the initiating Member State has taken steps to jointly propose a set of management measures, which will apply to all fishing vessels carrying out fishing activity in the concerned sites. For the two sites located within the 12 nautical mile zone, only Sweden and Germany have fishing rights, see section 2.2. For the two sites located in the Danish part of the EEZ of the Kattegat (outside 12 nautical miles) only Sweden and Germany have direct management interests according to the "TAC's and Fishing opportunities for 2016", see Annex C.

The proposed fisheries management measures for protection of reef structures from fishery with certain gear types is based on the Commission's guidance document "*Fisheries measures for marine Natura 2000 sites – A consistent approach to request for fisheries management measures under the Common Fisheries Policy (2008)"*[7]. This document provides guidance on how Member States should prepare a proposal for

[6] Basic Regulation 1380/2013, art. 4, § 1, no. 22; *"Member State having a direct management interest means a Member State which has an interest consisting of either fishing opportunities or a fishery taking place in the exclusive economic zone og the Member State concerned".*

[7] Link Guidance document: http://ec.europa.eu/environment/nature/natura2000/marine/docs/fish_measures.pdf

fisheries management measures within the CFP framework, for delivering Natura 2000 conservation objectives.

The guidance document provides the basis for the present proposal. The 11 information items given in the guidance document, provides the structure of the present proposal. Annex D gives an overview of how the present proposal deals with the 11 information items.

The following chapters describe how Denmark, as the initiating Member State, has taken the Commission's criteria for decision making into account – as well as the requirements for regional coordination in line with the new Basic Regulation.

2.2 Access to the Danish Natura sites

Access to the concerned Natura 2000 sites depends on the location of the site. For sites located between the baseline and the 12 nautical mile zone – only Sweden and Germany have direct management interests.

Access to the concerned sites located in the Danish Exclusive Zone of the Kattegat is outlined in Council Regulation (EU) No. 72/2016[8], which states that a number of Member States have access (fishing opportunities) to the Danish Exclusive Economic Zone in the ICES area IIIaS (Kattegat). However, not all these Member States with fishing opportunities have direct management interests (see Annex C) - this is only Sweden, Germany and Denmark.

According to EP/Council Regulation (EU) No 72/2016 Annex I, Germany and Sweden have fishing rights within 12 nautical miles in the Danish part of the Kattegat area. Bilateral fishing rights in the Kattegat area was already given to Sweden in the Convention, dated 31 December 1932 between Denmark and Sweden on fishing conditions in Danish and Swedish adjacent waters of Kattegat, ratified in a Royal Decree 11 May 1933.

Denmark has therefore requested for Swedish and German fishery data for fishing activities carried out in the Danish part of the Kattegat area as well as within the Natura 2000 sites for the period of 2011-2015, as required in the Commissions guidance document from 2008 (information item 5 and 6).

Fishery data has been requested for from all North Sea Member States for the period 2011-2015

A detailed description of the fishing activities in and around the four Natura 2000 sites concerned is given in section 6.1 and 6.2 and Annex K-L.

2.3 Implementation of Natura 2000 in Denmark

The Act on Environmental Goals[9] contains the legal basis for the designation of Natura 2000 sites according to the Habitats Directive (92/43/EEC) and the Birds Directive (2009/147) in Denmark. The overall objective of the Habitats Directive of maintaining and restoring favorable conservation status is nationally implemented in the Administrative Order No. 408/2007 together with the legal designation of the sites. Until management plans have been adopted and site specific conservation objectives formulated, the overall objective of favorable conservation status is to be followed.

According to the Environmental objective (§ 36 (6)), the Ministry of Environment and Food of Denmark is the responsible authority for the designation of Natura 2000 sites and for ensuring a representative

[8] Link to Council Regulation: http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1459236619889&uri=CELEX:32016R0072
[9] Link Act on Environmental Goals: https://www.retsinformation.dk/Forms/R0710.aspx?id=127102

network of protected sites for the protection of unique, threatened and characteristic marine habitats and species in Danish waters. Thus, the bilateral communication between Denmark and the European Commission, is handled by the Ministry of Environment and Food. The Ministry of Environment and Food is also the responsible authority for the national monitoring program (NOVANA) and for mapping marine habitats. The national monitoring program in relation to the present proposal is described in more detail in section 6.4.2.

In Denmark, the main provisions of the Habitats Directive article 6 for protection and managing the Natura 2000 sites are sector implemented, i.e. the competent authority is responsible for implementing the necessary measures identified through the Natura 2000 management plans. When it comes to the regulation of fisheries, the Danish Ministry of Environment and Food is the responsible authority for the supplementary fishery regulation. In June 2008, the Fisheries Act was amended to include the Habitats Directives provisions[10]. Thus, in Denmark, the Ministry of Environment and Food is also the responsible authority for ensuring adequate protection of marine habitats and species in relation to fisheries.

This proposal seeks to fulfill the provision of article 6 (1) and 6 (2) of the Habitats Directive, through protection of reef structures from physical impact due to fishing activity.

2.3.1 Designation of Natura 2000 sites in Denmark

Denmark has in the period between 1998 and 2010 designated 97 Natura 2000 sites for the protection of marine habitats and species. The designation has been done in accordance with the Administrative Order No. 408, 1 May 2007[11] and subsequent amendments thereof, which designates and sets up the overall conservation objectives as basis for the administration of Natura 2000 sites.

Annex B gives an overview of the designation of the concerned 4 Natura 2000 sites from appointment as PSCI site until designation as SAC's.

In December 2011, nature management plans were adopted for the sites designated before 2010[12]. With the adoption of the plans, the sites were also designated as Special Areas of Conservation (SAC's). A second generation of nature management plans were adopted for all sites on the 20th of April 2016.

For sites designated before 2010, necessary fishery management measures must be formulated and implemented before 2016, whereas the timeframe is 2021 for sites designated later. The present proposal for fisheries management measures only contains fishery management measures for sites designated before 2010.

The European Commission has announced that Denmark has designated sufficient area to ensure a representative network of marine habitats and species, however, there is a scientific reserve regarding harbour porpoise in the western Baltic Sea. Once the results from the SAMABH project have been evaluated and assessed, a formal decision will be taken as to whether additional areas need to be designated for harbour porpoise in the Danish part of the Baltic Sea. The Danish marine Natura 2000 network covers approximately 18 % of Denmark's marine waters. A map showing the 97 marine Natura 2000 sites is given in Annex A. There is a scientific reserve regarding harbor porpoise in the western Baltic Sea. The present proposal deals with the following four Natura 2000 sites: 'Store Middelgrund', 'Schultz og Hastens samt Briseis Flak', 'Strandenge på Læsø og havet syd herfor' and 'Havet omkring Nordre Rønner'.

[10] Link Fisheries Act: https://www.retsinformation.dk/Forms/r0710.aspx?id=121218
[11] Link Administrative order no. 408, 1 May 2007: https://www.retsinformation.dk/Forms/R0710.aspx?id=13043
[12] Link Administrative order no. 1114, 25 November 2011: https://www.retsinformation.dk/Forms/R0710.aspx?id=139270

The table below lists the marine habitats for which the four sites have been designated, as well as the legal framework for designation.

Table 2. Description of the four Natura 2000 sites (SACs) that the present proposal deals with

Site name	Marine habitats and species	Year of designation	National Administrative Order
Store Middelgrund	Reefs 1170, 1180 Sandbanks 1110 Harbor porpoises 1351	1995 Expanded in 2010	Administrative order no. 408 of 1 May 2007 and subsequent amendments: Sets out the framework for designation, formulation of overall objectives and administration of Natura 2000 sites in Danish waters
Schultz, Hastens og Briseis Flak	Reefs 1170 Sandbanks 1110	1995 Expanded in 2010	
Strandenge på Læsø og havet syd herfor	Reefs 1170, 1180* Sandbanks 1110 Mud- and sandflads 1140 Coast lagunes 1150 Grey seal 1364 Spotted seal 1365	1998 Expanded in 2010	
Havet omkring Nordre Rønner	Reefs 1170, 1180 Sandbanks 1110 Mud- and sandflads 1140 Coast lagunes 1150 Grey seal 1364 Spotted seal 1365	1998	

* Parts of the site are designated as SPA for birds, designated species can be found in annex A.

2.3.2 Mapping of marine Natura 2000 sites

Mapping of marine habitats forms the basis for protection of marine habitats in relation to fishing activities. In 2006, the Danish Nature Agency began the process of mapping marine habitat types within the Danish Natura 2000 network, starting with locating bubbling reefs (H1180) in Kattegat. In 2011-2012, the Danish Nature Agency published maps of reefs and sandbanks for 18 Natura 2000 sites in Kattegat and the Baltic Sea near the island of Bornholm[13]. Two of the four Natura 2000 sites in the present proposal are based upon this first mapping exercise. The remaining two sites were mapped in 2012 and 2014 in a similar exercise.

The method of mapping marine Natura 2000 sites occurs in three steps. In 2011, each of the 18 Natura 2000 site were examined using sidescan sonars producing a complete picture of the rugosity of the substrate of the sea floor. On the basis of this data, an initial map was produced – the so-called 'first generation habitat map. The collected data was then thoroughly studied and any abnormality or structures in the sea bottom not easily classified as the various habitat types (reef, sandbanks etc.) was then examined further, using either a scuba diver or remote operated vehicle (ROV) equipped with video cameras. Through this process bubbling reefs were verified. In addition, a number of areas classified as

[13] Link: Report - Mapping of Natura 2000 sites in 2011 & 2012: http://www2.naturstyrelsen.dk/habitatkortlaegning/, http://naturstyrelsen.dk/publikationer/2013/dec/marin-habitatnaturtype-kortlaegning/, http://naturstyrelsen.dk/media/136155/habitatkortl%C3%A6gning-2014_geus_dce.pdf

reefs, sandbanks, etc. were visited to ensure accurate classifications and to study the biological content of the areas. On the basis of the complete dataset, habitat maps were then created showing where within the Natura 2000 sites, reef structures (H1170 and H1180) and sandbanks (H1110) are located.

Mapping of marine habitats in Danish Natura 2000 sites builds on the Danish definition of the habitat types designated under the Habitats Directive. According to the Danish definition of stone reefs, an area is classified as reef, if the coverage of hard substrate is above 25 pct. Areas with a cover of hard substrate of 10-25 pct. are also classified as reef, if the areas are directly connected to areas with a coverage of hard substrate of 25 pct. or more.

3. Process

This chapter describes the process from when the Danish initiative to protect reef structures (H1170 and H1180) from fishing activities in marine Natura 2000 sites was launched in spring 2011 by the Ministry of Food, Agriculture and Fisheries/Danish AgriFish Agency and until submission of fisheries management measures in the form of *'A Joint Recommendation' by Denmark, Sweden, Germany to the European Commission in [XX 2016].*

The following two sections (3.1 and 3.2) describe the national and international coordination processes, which have taken place in the course of the last six years (2011-2016) in relation to the formulation of fisheries management measures for protection of reef structures in Danish Natura 2000 sites.

3.1 National coordination and consultation

National coordination and consultation with stakeholders in relation to Natura 2000 and fisheries take place within the so-called *'Natura 2000 Dialogue Forum'* as well as in the ministry's committees. In addition to formal consultations, informal consultations have also been held with stakeholders with the aim of discussing protection of reefs in relation to fisheries at a more technical level. Annex F gives an overview of the formal and informal consultations held since the initiative of protection of reefs from fisheries was launched in spring 2011.

3.1.1 Natura 2000 Dialogue Forum

The Natura 2000 Dialogue Forum was launched in May 2010 by the former Minister for Food, Agriculture and Fisheries in order to actively involve relevant stakeholders with an interest in fishery and Natura 2000 in the ministry's work with the implementation of the Natura 2000 directives. *The Natura 2000 Dialogue Forum* is chaired by the Danish AgriFish Agency and consists of representatives from NGO's, fishermen's organizations, research organizations and national authorities[14]. *The Natura 2000 Dialogue Forum* meets 2-3 times a year and is the forum where the Danish AgriFish Agency presents upcoming proposals for fisheries management measures and in general informs stakeholders of current state of play through open discussions and dialogue.

The rationale and principles on which the present proposals builds were initially presented to *the Natura 2000 Dialogue Forum* in November 2012, and have been discussed in a range of meetings since then. Latest on 23 May 2016. The Danish Fishermen Association PO are members of this forum, and therefore

[14] The following organizations participate in meetings in the Natura 2000 Dialogue Forum: The Nature Agency, WWF, Greenpeace, Oceana, Bird Life Denmark, The Danish Society for Nature Conservation, Danish Fishermen´s Association and other local fishermen associations. Plus other NGOs with interests in the discussed topics are invited, e.g. The Danish Hunters Association and ASCOBANS. The Terms of References for the Natura 2000 Dialogue Forum can be found here:
http://naturerhverv.dk/fileadmin/user_upload/NaturErhverv/Filer/Fiskeri/Natura_2000_hav/Natura_2000_dialogforum/Revideret_kommissorium_for_N2000_Dialogforum_020513.pdf

have been consulted on serval occasions on the present proposal and methods applied, see also section 3.1.2 and 3.2.3 for dialogue with the Advisory Councils.

Consultations in relation to the present proposal

In November 2012, the Danish Ministry of Environment/Danish Nature Agency published detailed maps of habitat types for two of the four sites concerned, as described in section 2.3.2. In spring 2015, the Danish Ministry of Environment/Danish Nature Agency published detailed maps of habitat types for a range of sites, including the remaining two sites of the present proposal. Thus, all maps have been updated in order to take the new information into account. Updated maps have been presented to the *Natura 2000 Dialogue Forum* on November 16th 2012, May 8th 2015 and January 28th 2016.

In relation to the present proposal, the *Natura 2000 Dialogue Forum* has been consulted in a parallel session with concerned Member States (Sweden and Germany) as well as the Advisory Council for the North Sea, respectively. Besides the pre-consultation meeting held on 9 May 2016, the Danish AgriFish Agency presented the proposed fisheries management measures to the *Natura 2000 Dialogue Forum* on 23 May 2016, where also a summary of the pre-consultation meeting with Member States was given. The outcome of this consultation is given in section 3.2.3.

[The Natura 2000 Dialogue Forum will be briefed on state of play regarding the Danish proposals on 27 October 2016 in relation to finalization of the two proposals with concerned Member States (Sweden and Germany) as well as the drafting of the joint recommendation].

3.1.2 Meetings with stakeholders

Bilateral meetings have been held with the Danish Fishermen's Association during spring and autum of 2015. The purpose of these meetings were to discuss the proposed ban for trawling with mobile bottom contacting gear in 7 Natura 2000 sites located between the baseline and 12 nautical miles as well as in the Exclusive Economic Zone in the Kattegat (four sites) and western Baltic (three sites). Proposed ban for usage of gillnet (and other passive gears) in fishing activities in areas mapped as bubbling reefs was also discussed. Furthermore, the consultations also aimed at obtaining a better understanding of the fishing pattern from smaller vessels in the 7 Natura 2000 sites concerned. The outcome of these meetings center around an in depth understanding of the fishing pattern in the discussed Natura 2000 sites – also for the smaller vessels not obliged to carry VMS[15]. These discussions support the analyses of fishing activity based on VMS, which the Danish AgriFish Agency in collaboration with DTU Aqua have carried out, assuring that the proposed fisheries measures will have no or low impact on current fishing activities for vessels above and below 12 meters.

3.1.3 Involvement of Parliament and Committees within the Ministry of Environment and Food

The Danish Government has laid down national procedures for coordination of initiatives in relation to the implementation of EU's Natura 2000 directives and the reformed fisheries policy.

For initiatives, where Denmark act as the initiating Member State, The Danish Parliament must be informed of the intended draft proposals for fisheries management measures prior to regional consultation. All initiatives both launched by Denmark and by other Member States, where Denmark has direct management interest, will be coordinated nationally with stakeholders through the Ministry's national committees and Natura 2000 Dialogue Forum. The Danish Parliament is informed of these initiatives before

[15] VMS (Vessel monitoring systems) is a satellite-based monitoring system, which is used in commercial fisheries – positions, times, course and speed of the fishing vessels are monitored and stored.

joint recommendations are finalized for submission to the European Commission. In relation to the present proposal, Parliament was informed in March 2016.

3.1.4 Peer review of the proposal

The present proposal has been peer reviewed by The Danish Technical University, Institute for Aquatic Resources, DTU Aqua and the University of Aarhus, Danish Centre for Environment and Energy. A peer review of the proposal ensures that, the proposed fisheries management measures, along side the rationale and principles on which the proposal builds, are scientifically sound. The peer review has also increased the scientific evidence in terms of references and ensured that relevant scientific studies have been included.

The outcome of the peer review can, besides minor editorial changes, be summarized to:

i) scientific assessment of the documentation of conservation status in the concerned Natura 2000 sites
ii) scientific assessment of the rationale for a ban for fishing activity with mobile bottom contacting gear in areas mapped as reefs code H1170 and H1180 and other type of fishery activity in areas mapped of bubbling reefs code H1180 in relation to the documented conservation status.

3.2 International coordination – regionalization

The sections below describe the process that the Danish AgriFish Agency has pursued with respect to the present proposal in terms of international coordination and consultation with other Member States, the European Commission and relevant Advisory Councils, see Annex F-G.

3.2.1. Consultation with Member States and the European Commission

The present proposal has been coordinated regionally in accordance with Article 11 and 18 of the reformed fisheries policy (Basic Regulation) through the established ad hoc working group in accordance with the Terms of Reference for the Scheveningen FISH-ENVI technical expert group.

Terms of reference for the Scheveningen FISH-ENVI group was agreed upon in 2014 by the Fisheries Directors. In accordance with the ToR's, Denmark, as the initiating Member State, has taken the lead in the ad hoc working group with Sweden and Germany. These Member States have finalized the proposal for fisheries management measures for protection of reef structures in collaboration.

International coordination and consultations of the present proposal were launched in March 2012, when Denmark in accordance with article 9 in Regulation no. 2371/2002 invited German and Swedish fishery- and environmental authorities, the Advisory Council for the North Sea, ICES and the Commission to a pre-consultation meeting in Copenhagen. A booklet containing all the relevant information was sent out in February 2012 containing information about the proposed fishery regulation.

The recent mapping of marine habitats in the Kattegat area in 2011, 2012 and 2015, has enabled the Danish AgriFish Agency to include protection of more reef structures in terms of area and number of sites in the present proposal and that of the Baltic Sea.

A draft of the present proposal was sent in a new pre-consultation to the relevant authorities in Sweden and Germany as well as other North Sea Member States, alongside ICES, the Baltic Sea Advisory Council and the European Commission (DG MARE and DG ENVI) on 7 April 2016 prior to the scheduled pre-

consultation meeting on 9 May 2016 – a process in line with the provisions of regionalization in the reformed fisheries policy.

The proposed management measures were simultaneously sent to the members of the Danish *Natura 2000 Dialogue Forum*. A summary of the pre-consultation meeting on 9 May 2016 is given in Annex G. At the pre-consultation meeting in May, an ad hoc working group, to be chaired by the Danish AgriFish Agency as the initiating Member State, was established with Sweden and Germany. Poland also participated since this proposal is coordinated regionally along side that of the Baltic Sea. Meetings in the ad hoc working group were held in June, August and September [October] 2016. The outcome of these meetings is given in Annex G

Denmark, Sweden and Germany have consulted their national fishermen associations/organizations. The Advisory Councils and NGOs have been consulted by Denmark as the initiating Member State, see section 3.2.3 and G.

3.2.2 Informal consultations with other Member States

During the formulation of the present proposal, a range of informal meetings have been held with Sweden. The focus of the informal meetings with the Swedish authorities has been to discuss the Danish approach of buffer zones and to explore the possibility of a joint proposal for the Natura 2000 sites in the Kattegat area. The informal consultations have taken place on:

- 1 June 2011: meeting in Copenhagen, Denmark
- 17 January 2013: meeting in Göteborg, Sweden
- 10 October 2013: meeting in Göteborg, Sweden

In addition to the informal meetings with Sweden, on 18 November 2015 an informal meeting was held in Copenhagen with representatives from Poland.

The informal discussions between Sweden and Denmark have resulted in Denmark solitarily proposing fisheries management measures for Natura 2000 sites located between the baseline and 12 nautical miles as well as for sites located in the Exclusive Economic Zone of the western Baltic Sea. As already mentioned, this proposal and that of sites located in the Kattegat, are supplementary to the measures already forwarded to the EU Commission jointly by Denmark, Sweden and Germany early 2015. The same methods and rationale have been applied.

3.2.3 Consultations with Advisory Councils

The Advisory Councils for the Baltic Sea and North Sea, respectively, have also been consulted. The Advisory Councils received the proposals parallel to Sweden, Germany, the Commission and the *Danish Natura 2000 Dialogue Forum*.

A summary of the consultation with the Advisory Councils and the *Natura 2000 Dialogue Forum* held 23 May 2016 is given in Annex H.

4. Principles and rationale

Member States are responsible for ensuring favorable conservation status of designated marine habitats and species in their respective Natura 2000 network and to take appropriate steps to avoid the deterioration of natural habitats and the habitats of species as well as the disturbance of the species for which the Natura 2000 site has been designated. In Denmark, this responsibility falls under the Ministry of

Environment and Food in relation to fisheries. At the Ministry of Environment and Food of Denmark, the Danish AgriFish Agency is responsible for formulation of fishery regulation as well as fishery control and enforcement of implemented management measures.

In spring 2011, the Danish AgriFish Agency launched the initiative to ensure adequate protection of reef structures designated under the Habitats Directive. Of the 97 marine Natura 2000 sites located in Danish waters, 65 sites have been designated for reefs (H1170 and H1180). A total of 30 of the 65 sites are located within the baseline and/or in waters under Danish sovereignty.

Based on scientific advice from DTU Aqua (the Danish Technical University, Institute for Aquatic Resources, Denmark has decided to protect reef structures (habitat types H1170 and H1180) from physical disturbances due to fishing activities with mobile bottom contacting gears (see section 5.2 and Annex E). The habitat type H1180 should also be protected from fishing activity with passive gears like gillnets, longlines, pots and traps, since this habitat type is fragile in terms of physical impact.

Several studies have focused on habitat sensitivity in relation to fishery and different gear types. There is scientific evidence in support of the negative impact mobile bottom contacting gears have on reef structures (H1170), hence the usage on any mobile towed gear would result in an unacceptable risk to the conservation status of this feature (Dahl 2005; Kaiser et al. 2002; Cook et al. 2013; Kailas et al. 2016). In order to reduce this risk, it was decided to prohibit the usage of mobile bottom contacting gears in areas mapped as reefs. Majority of studies have found low sensitivity between gillnet fishery and stone reef structures (BALTFIMPA project, Shester and Micheki (2011), however, majority of studies focus on impact from mobile bottom contacting gears, which are dragged along the sea floor. It is unlikely that static gears at moderate levels of fishing effort will have a significant effect on the stone reefs (H1170). In the sites concerned, fishing effort is low, see section 6 for more information on fishing patterns. Thus, no additional management in relation to fishery is considered needed for this habitat type to achieve favorable conservation status.

DTU Aqua has advised, that a buffer zone equivalent to 6 times the average water depth (meters) will ensure adequate protection of these reef structures from direct impact from fishing activities, see Annex E. The same method has been applied in the National Administrative Order of 28 August 2013[16], which applies to protection of reef structures in four Danish coastal Natura 2000 sites. In June 2013, ICES published a general advice on evaluation of the appropriateness of buffer zones, see Annex E. The ICES advice is in line with scientific advice from DTU Aqua.

The rationale behind the buffer zone method is that the reef structures in their full extent need protection from mobile bottom contacting fishing gears – from current fishing activities as well as potential future fishing activities. Modern fishing vessels are equipped with advanced technology that allow them to fish with high precision. In addition, other technologies allow integration of buffer zones in the GPS systems of fishing vessels. As a result, buffer zones eliminate any potential threat from trawls to the reef structure during fishing – even when vessels turn. The overall aim of the present proposal is protection of reef structures from physical disturbances from fisheries with mobile bottom contacting gears, which according to the Danish Natura 2000 management plans is adversely affecting the conservation status of these habitat types. In three of the Natura 2000 sites, bubbling reef structures have also been mapped and need to be protected from unintended impact from gear types such as trawls, nets, hooks, lines, pots and traps. Several scientific studies worldwide state that fishery with mobile bottom contacting gears have a negative impact on reef structures (Dahl 2005; Kaiser et al. 2002; ICES 2009)[17]. The buffer zone is also expected to

[16] Link Administrative order no. 1048 of 28 August 2013: https://www.retsinformation.dk/Forms/R0710.aspx?id=158209

[17] Dahl, K. (2005): Effekter af fiskeri på stenrevs algevegetation. Danmarks Miljøundersøgelser. 16 s. – Faglig rapport fra DMU nr. 526; Kaiser, M. J., Collie, J. S., Hall, S. J., Jennings, S. and Poiner, I. R. (2002), Modification of marine habitats by trawling activities: prognosis and solutions. Fish and Fisheries, 3: 114–136; ICES. 2009. Report of the

limit the risk of resuspension of sediment due to fishing with mobile bottom contacting gears. Taking habitat type, depth and location of reef structures into account, resuspension of sediment is assessed to relatively low.

Over time, the proposed fisheries management measures are believed to significantly contribute to the improvement of the conservation status of these habitat types (e.g. Dahl 2005; Fenberg et al. 2012; Collie et al. 2000)[18] and, ultimately, to the achievement of favorable conservation status, see section 6.4.3 for more information on expected effects and management of other pressures.. Full protection of reef structures from fisheries is indicated as a priority in all the Danish Natura 2000 management plans for sites designated for reefs.

When formulating the present proposal, the following principles have been the focal points:

1. *Sound scientific basis*
   Any proposal for fisheries management measures must be based on scientific evidence and advice and take all relevant information into account. DTU Aqua has provided scientific advice in relation to the principles and methods pursued in the present proposal, which is supported by ICES in terms of buffer zones (see Annex E).
   Spatial distribution of the habitat types is central when designing fisheries management measures. The Danish Nature Agency is the responsible authority in Denmark for mapping the marine Natura 2000 sites. In April 2015, the Danish Nature Agency published detailed maps of Natura 2000 sites in inner Danish waters – 39 sites in total (37 designated for reefs). The present proposal builds upon these detailed maps.

2. *Stakeholder involvement*
   An important element of the process of formulating fisheries management measures is stakeholder involvement – nationally as well as internationally.
   In Denmark, national coordination with stakeholders takes place in the '*Natura 2000 Dialogue Forum*', which was established in spring 2010 to ensure coordination with all stakeholders from green NGOs to fishermen's associations/organizations, research bodies, authorities etc. The proposed fisheries management measures have been discussed in the forum at all meetings since spring 2011.
   Internationally, any proposal for fisheries management measures, which might affect other Member States must at an early stage be presented to ensure regional coordination. The present proposal and buffer zone approach was initially presented to German and Swedish authorities in March 2012 at a meeting in Copenhagen, where also the North Sea Advisory Council, ICES and the European Commission participated. [*The present proposal has been discussed with Sweden and Germany in the established ad hoc working group comprising of representatives from fisheries and environmental departments*].

EMPAS project (Environmentally Sound Fisheries Management in Protected Areas), 2006-2008, an ICES-BfN project. 123 pp.

[18] Dahl, K. (2005): Effekter af fiskeri på stenrevs algevegetation. Danmarks Miljøundersøgelser. 16 s. – Faglig rapport fra DMU nr. 526; Fenberg P.B.*, Caselle J., Claudet J., Clemence M., Gaines S., García-Charton J.A., Gonçalves E., Grorud-Colvert K., Guidetti P., Jenkins S., Jones P.J.S., Lester S., McAllen R., Moland E., Planes S. and Sørensen T.K. (2012) The science of European marine reserves: status, efficacy and needs. Marine Policy 36(5), 1012-1021; Collie, J. S., Hall, S. J., Kaiser, M. J. and Poiner, I. R. (2000), A quantitative analysis of fishing impacts on shelf-sea benthos. Journal of Animal Ecology, 69: 785–798 and Howarth L. et al. (2015) Sessile and mobile components of a benthic ecosystem display mixed trends within a temperate marine reserve. Marine Environmental Research 107: 8-23.

Since Denmark and Sweden have designated Natura 2000 sites in Kattegat adjacent to each other – bilateral meetings have also taken place in Copenhagen and Gothenburg in 2011 and 2013, see section 3.2.
Stakeholders have been involved in the current process since 2011 and actively taken part in the previous regional coordination process with Sweden and Germany concerning fisheries management measures in 10 Danish Natura 2000 sites (delegated act came into force 1 January 2016).

3. *Regional coordination*
According to the Basic Regulation Articles 11 and 18, Member States may submit joint recommendations on conservation measures that are necessary for the purpose of complying with their obligations under the Common Fisheries Policy (Reg. No 1380/2013 (The Basic Regulation)). The present proposal is jointly presented to the European Commission after regional coordination with Member States having a direct management interest within the framework of the Terms of Reference for the Scheveningen FISH-ENVI technical expert group/ad hoc working group. A process, which was launched in March 2012 with a pre-consultation meeting in Copenhagen followed by an additional pre-consultation meeting in Copenhagen in May 2016 and meetings in the established ad hoc working group with Sweden and Germany.

4. *Transparency*
Transparency of data and the methodology which is used is important, and can only be achieved through stakeholder involvement, regional coordination and use of scientific advice. The data used to describe fishing patterns and effort is based on log book and VMS data from the three countries. In addition to VMS and log book data, information of fishing patterns for smaller Danish vessels (<12 meters) has also been used. In order to collect information of fishing patterns for smaller Danish vessels, consultations have been held with the Danish Fishermen´s Association PO during 2015/2016.

5. *Proportionality*
The proposed management measures must balance sustainable exploitation of resources and the need to conserve important habitats and species. This means that the proposed measures must comply with the proportionality principle so they do not go further than necessary to ensure the needed protection of the mapped reefs within the framework of the Habitats Directive. Furthermore, no other and less burdening measures must be able to provide the same level of necessary protection seen from a scientific and practical point of view. Consequently, this means that fishery is not prohibited in these areas, unless it is carried out with gears that potentially can damage the mapped reefs. At the same time, the proposed management measures should be possible to control and enforce. The present proposal concerns protection of reef structures. For sites where the reef structures cover the majority of the site – the entire site is closed for fishing activities, whereas for other sites, the area closed for fishing contains the reef itself and the surrounding 240 meter buffer zone – given as 6 times water depth set at an average depth of 40 meters for the area.

6. *Non discrimination*
The proposal must ensure that measures are applied in a non-discriminatory manner. A coordinated approach between Member States having direct management interests is key to ensuring non-discrimination of fleets affected by the proposed fisheries management measures. This coordination must follow the steps laid down in the Basic Regulation of the Common Fisheries Policy, thus ensuring a level playing field for the fishing sector potentially affected. The present proposal contains fisheries management measures for two sites located within 12 nautical miles in the Danish part of the Kattegat and two sites located in the Exclusive Economic Zone. Germany

and Sweden have fishing rights in all 4 sites. Thus, the proposed fisheries management measures must be coordinated in accordance with the Common Fisheries Policy (articles 11 and 18).

5. Scope of the present proposal

In the first plan period (2010-2015), special focus should be given to the protection of reef structures from any form of physical disturbances. The Danish AgriFish Agency launched the initiative to protect reef structures from impact from fishing activity back in spring 2011. alongside regulation of other activities e.g. sand and gravel extraction. In the second plan period (2016-2021), the on-going work with protection of reef structures is to be continued.

The present proposal aims at ensuring adequate protection of reef structures in four Natura 2000 sites located in the Danish part of the Kattegat: Store Middelgrund, Schultz og Hastens Grund samt Briseis Flak, Strandenge på Læsø og havet syd herfor and Havet omkring Nordre Rønner. The present proposal is part of a larger plan to implement the Habitats Directive in relation to the protection of reef structures in the 65 Natura 2000 sites designated for reefs in Danish waters. Denmark has designated 97 marine Natura 2000 sites, of which 65 have been designated for reefs – H1170 and/or H1180.

The present proposal is identical to a similar proposal for the protection of reef structures in Natura 2000 sites located in the western Baltic Sea. These two proposals are further identical to two other proposals concerning fisheries management measures (3 sites in the Kattegat and 7 sites in the western Baltic Sea), which have already been forwarded to the EU Commission as a joint recommendation by Denmark, Sweden and Germany. The Delegated Act came into force 1 January 2016.

The principles and methods used in the present proposal and that of the western Baltic Sea, are furthermore identical to those used in the first national administrative order for protection of reefs in coastal Natura 2000 sites, which came into force on 1 September 2013[19], where the first fisheries management measures for protection of reefs were launched. The national administrative order prohibits the usage of mobile bottom contacting gear in four coastal Natura 2000 sites. These measures further supplement the delegated act, (EU) 2015/1778.

The following two sections describes the Natura 2000 sites in question and the proposed fisheries management measures to be adopted in order to secure adequate protection of reef structures from fishing activities in accordance with the Habitats Directive, article 6 (1) and 6 (2). The expected outcome and benefit in relation to conservation status is given in section 6.4.3.

5.1 Description of the Natura 2000 sites concerned

The present proposal concerns the following Natura 2000 sites located in the Kattegat area:

- Store Middelgrund (EU site code: DK00VA250)
- Schultz, Hastens Grund and Briseis Flak (EU site code: DK00VA303)
- Strandenge på Læsø and havet syd herfor (EU site code: DK00FX010)
- Havet omkring Nordre Rønner (EU site code: DK00FX257)

The four Natura 2000 sites and the habitat types found in the areas are described in 5.1.1-5.1.4. The four sites are designated for not only the protection of reef structures (H1170 and/or H1180) – all of them are also designated for the protection of sandbanks (H1110). Store Middelgrund is also designated for the

[19] Link Administrative Order no. 1048 of 28 August 2013: https://www.retsinformation.dk/Forms/R0710.aspx?id=158209

protection of harbor porpoises (H1351) and the two areas Schultz og Hastens Grund samt Briseis Flak and Havet omkring Nordre Rønner are also designated for the protection of seals (H1364 and H1365).

The conservation status for the reef structures (H1170 and/or H1180) is given as unfavorable for all four Natura 2000 sites. The annual assessment reports on environmental status do not contain information in relation to physical disturbances of reefs, however, it is generally accepted and documented, that fishing activities with mobile bottom contacting gear can have an irreversible impact on reef structure and function (Dahl 2005; Kaiser et al. 2002; ICES 2009)[20].

The aim of the present proposal is to achieve the overall conservation objective of favorable conservation status, since site specific conservation objectives have not yet been formulated for Danish marine habitats (see section 2.3). In December 2012, the Danish Ministry of Environment made the Natura 2000 management plans public. The management plans contain a description of the habitats and species for which the site has been designated, the current conservation status of these habitats and species, possible threats and actions to be taken. In all management plans for marine Natura 2000 sites designated for reefs – actions should be taken in relation to fishing activities with mobile bottom contacting gear.

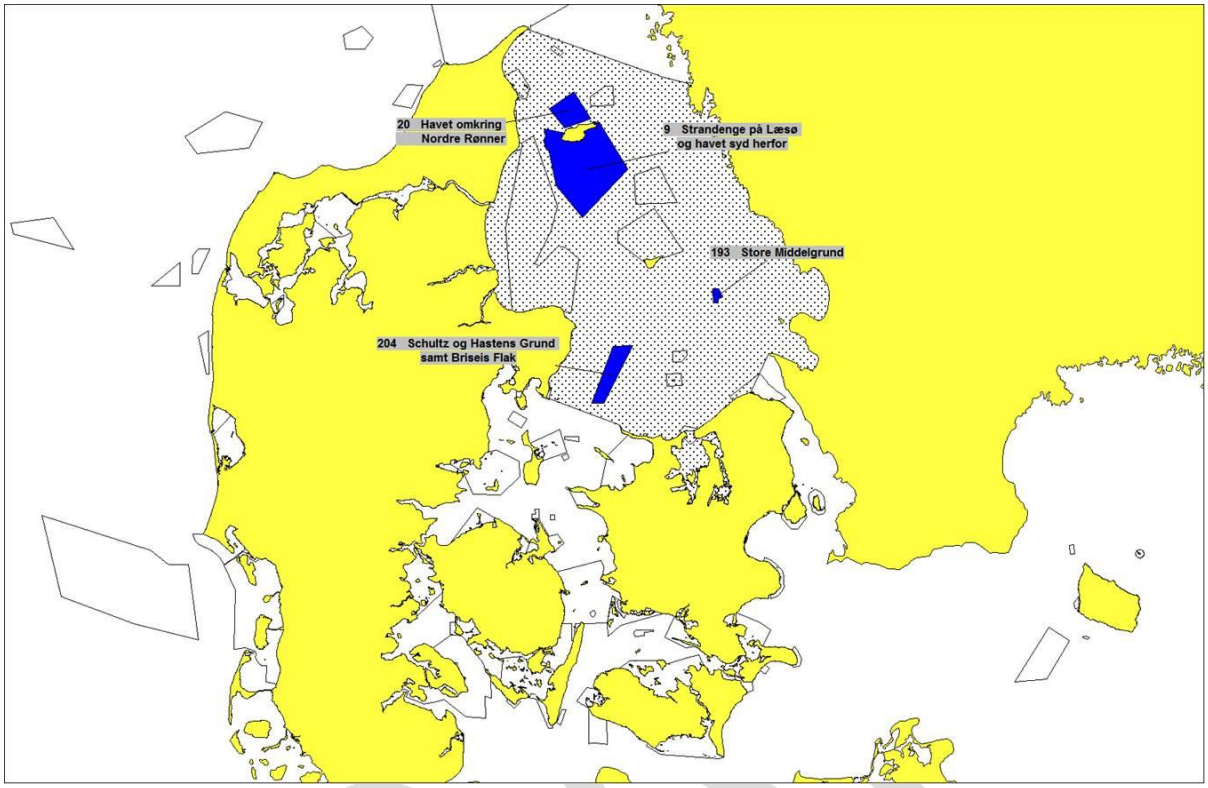
Other activities such as extraction of sand and gravel, which also negatively affect the physical structure and function of reef structures in general, is also being regulated in Natura 2000 sites. Furthermore, on-going initiatives seek to reduce the flow of nutrients from terrestrial sources. Thus, regulation of fishery is one of several initiatives which together is expected over time to improve the conservation status of reef structures in Danish waters.

The present proposal solely concerns protection of reef structures. Assessment of the need for fisheries management measures for the protection of harbour porpoise and sandbanks is yet to be made. On-going work on harbour porpoise by-catch and estimation of rate and amount in Danish waters, as well as identification of hotspot areas are important information needed for the assessment, as are more information on impact of fishing gears on sandbanks and their functions. Thus, Denmark pursues an adaptive management strategy whereby necessary fisheries management measures are formulated as the required knowledge and assessments are made available. The marine habitats and species which need urgent attention are protected first, e.g. reef structures.

State of play of the implementation of Natura 2000 in relation to fishery in Danish waters is given in annex A.

[20] Dahl, K. (2005): Effekter af fiskeri på stenrevs algevegetation. Danmarks Miljøundersøgelser. 16 s. – Faglig rapport fra DMU nr. 526; Kaiser, M. J., Collie, J. S., Hall, S. J., Jennings, S. and Poiner, I. R. (2002), Modification of marine habitats by trawling activities: prognosis and solutions. Fish and Fisheries, 3: 114–136; ICES. 2009. Report of the EMPAS project (Environmentally Sound Fisheries Management in Protected Areas), 2006-2008, an ICES-BfN project. 123 pp.

Figure 1. Map of marine Danish Natura 2000 sites (white areas). Blue areas indicate the location of the four Natura 2000 sites, which the present proposal covers. Shaded area indicates the boundaries of the Kattegat



Kattegat is the sea located between Denmark and Sweden bordered by Skagerrak in the north and by the Baltic Sea in the south, as shown in figure 1. In the present proposal, Kattegat is defined in accordance with Council Regulation (EC) No. 2187/2005[21] and No. 850/1998[22].

In the Kattegat, average water depth is approximately 23 meters increasing to greater depths eastwards towards the border to Sweden. The central part of Kattegat is characterized by a canyon system with relatively steep slopes. Reef structures are greatly present in the Danish part of Kattegat. The reef structures are comprised of boulders, stones and gravel (H1170), mussels (biogenic reefs) and the unique bubbling reefs (H1180), which in Danish waters are only found here as well as in one location in the Danish part of the Skagerrak.

The bubbling reefs are formed from a chemical reaction between the leakage of methane gas and the sediment pore water, which leads to a precipitation of lime, which glues together the sediment. The process is supposed to be extremely lengthy. Subsequent erosion of the surrounding sea bottom has some places left the mortared limestone as structures above the bottom level. Bubbling reefs are relatively fragile and can be damaged by physical impact- a damage which is irreversible.

Reef structures (H1170 and H1180) provide hard substrate for algae and animals to grow on, as well as hiding places and niches for a wide range of fish species, such as pollock, cod and black lobsters.

The Kattegat area is an important fishing area for Denmark and Sweden, with these countries taking about 60-70 pct. and 30-40 pct. of the annual landings, respectively. For Danish fishermen the target species are

[21] Link Council Regulation (EC) No 2187/2005: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:349:0001:0023:EN:PDF
[22] Link Council Regulation (EC) No 850/1998: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1998R0850:20060117:EN:PDF

nephrops and sole. Target species have changed over time. In 2007, cod was an important target species alongside plaice, whereas today cod is a bycatch species due to a low stock size. In the period 2000-2008, the nominal effort (kW days) of the Danish fleet in the Kattegat has decreased by 50 pct., after which it has been stable. VMS effort in Kattegat for Danish, Swedish and German vessels is given in Annex K-L.

The four Natura 2000 sites, which the present proposal covers, are part of the Danish Natura 2000 network. A total of 11 Natura 2000 sites have been designated for reefs in the Kattegat area. With this proposal all sites (but one) designated for reefs in the Kattegat area will be fully protected from physical impact from fishery. The remaining site, will be fully protected in the course of 2016/2017 in an additional process also concerning sites designated under the Marine Strategy Framework Directive (MFSD).

5.1.1 Natura 2000 site: Store Middelgrund

The Natura 2000 site "Store Middelgrund[23]" is located in the southeastern part of the Kattegat between Gilleleje on the mainland and the island of Anholt, see figure 1. The Natura 2000 site covers an area of 21 km^2 and is designated for the protection of the following habitat types; sandbanks (H1110), reefs (H1170) and bubbling reefs (H1180), see figure 2. In total, stone reef structures cover approximately 17 km^2 of the area, corresponding to 79 % of the Natura 2000 site. Sweden has designated a site 'Stora Middelgrund' adjacent to the Danish site. Sweden is currently in the process of drafting necessary fisheries management measures for this site, see Annex A.

The site is characterized as being a relatively shallow area studded with medium to larger rocks. The average water depth in the area ranges from 8-25 meters. The seabed in some parts of the area consists of smaller rock banks with medium to large stones in a mosaic on the sandy bottom.

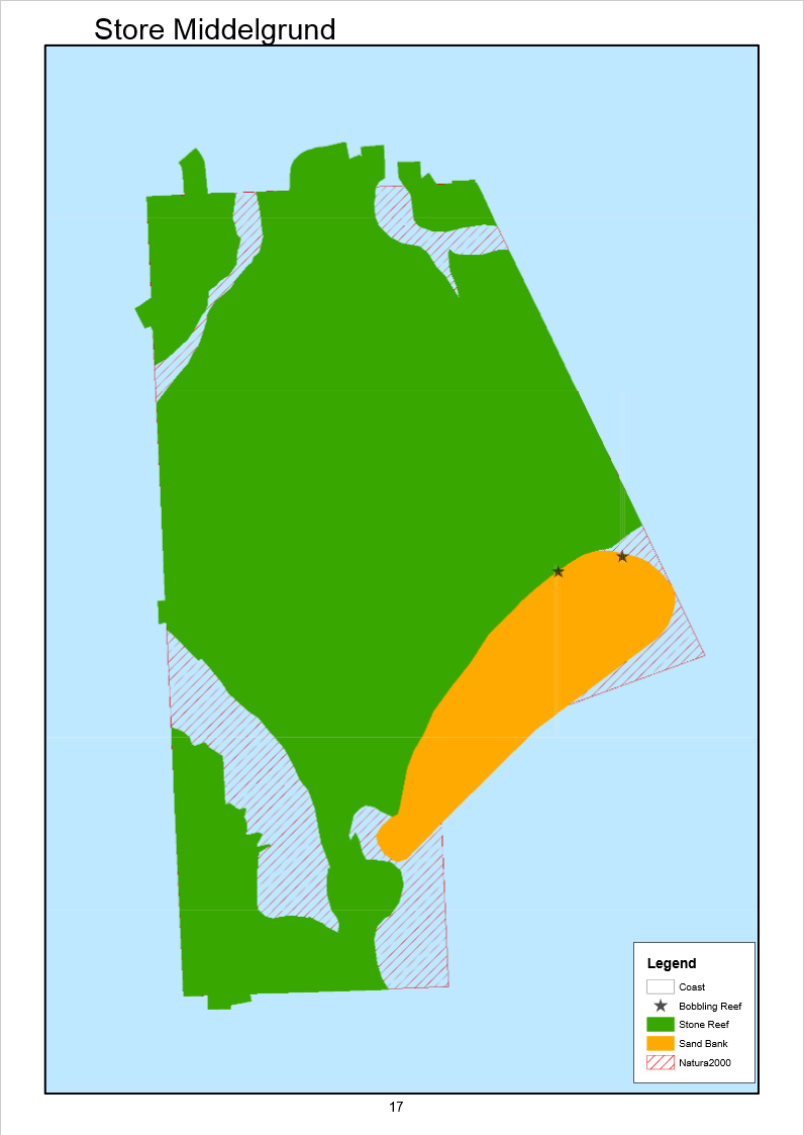
The area was enlarged in 2010 due to the discovery of bubbling reefs just east of the initial designation.

According to the Natura 2000 management plan for the area[24], fishing activity with mobile bottom contacting gear is described as a threat to stone reefs and bubbling reefs, and as a possible threat to sandbanks. Fishing activity with static gears is furthermore described as a threat to the bubbling reefs in the area.

[23] Habitat No. H169, Natura 2000 site No. 193, EU site code: DK00VA250

[24] Link to Natura 2000 management plan for Store Middelgrund: http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/plan-126-246/193-middelgrund/

Figure 2. Map of Natura 2000 site "Store Middelgrund" showing the location and spatial distribution of reef structures and sandbank



5.1.2 Natura 2000 site: Schultz, Hastens Grund and Briseis Flak

The Natura 2000 site "Schultz og Hastens Grund samt Briseis Flak[25]" is located in the southwestern part of the Kattegat between Sealands Point and Jutland, see figure 1. The site covers an area of 208 km^2 and is designated for the protection of reefs (H1170) and sandbanks (H1110), see figure 3. In total, stone reef structures cover approximately 33 km^2 of the area, corresponding to 16 % of the Natura 2000 site.

The site is comprised of three reefs; Schultz Grund, Hastens Grund and Briseis Flak and form a large reef area which stretches for about 30 km. The reef structures are based on an underwater formation at the transition between the Kattegat and Samsø Belt surrounded by relatively deep trenches. The stone reefs have a depth related distribution ranging from 4 meters to over 18 meters depth. The reef structures in the shallow parts of the area are hollow forming. Sandbanks stretches along the base of the reef structures in the west.

According to the Natura 2000 management plan for the area[26], fishing activity with mobile bottom contacting gear is described as a threat to stone reefs, and as a possible threat to sandbanks.

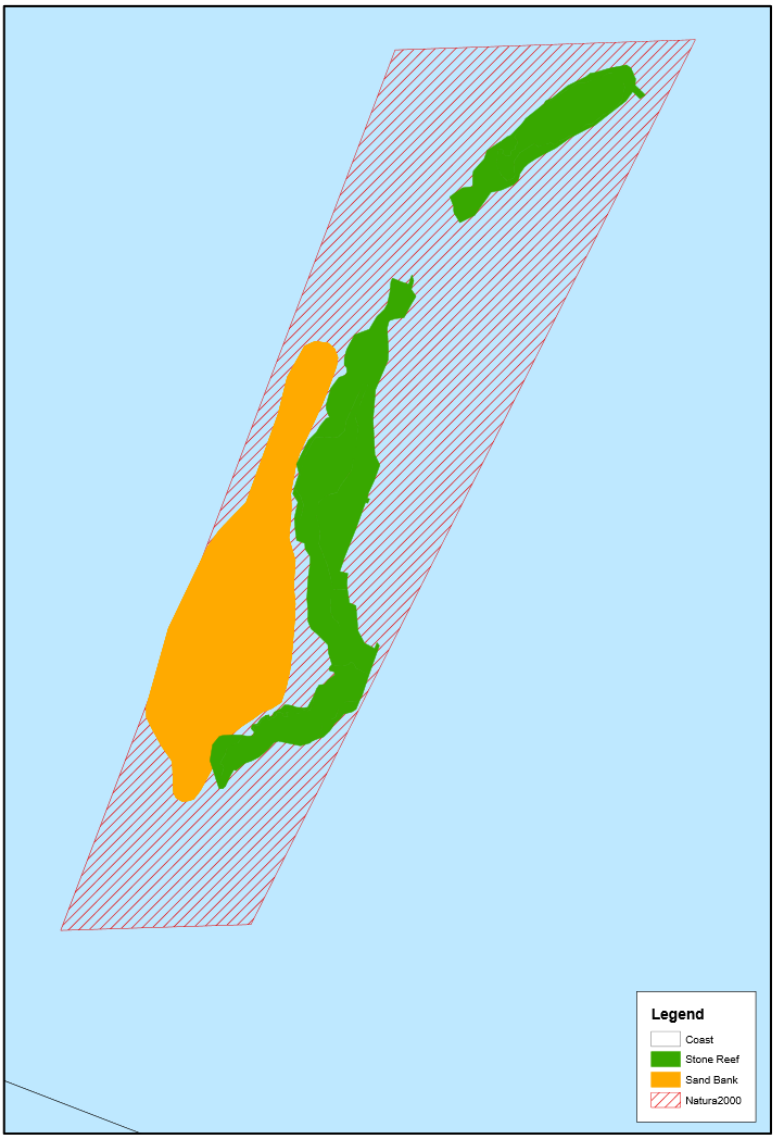


Figure 3. Map of Natura 2000 site "Schultz og Hastens Grund samt Briseis Flak" showing the location and spatial distribution of reef structures and sandbank

[25] Habitat No. H204, Natura 2000 site No. 204, EU site code: DK00VA303

[26] Link to Natura 2000 management plan for Schultz og Hastens Grund samt Briseis Flak: http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/plan-126-246/204-schultz-og-hastens-grund-samt-briseis-flak/

5.1.3 Natura 2000 site: Strandenge på Læsø og havet syd herfor

The Natura 2000 site "Strandenge på Læsø og havet syd herfor[27]" is located south of the island of Læsø in the northern part of the Kattegat, see figure 1. The site covers an area of 673 km^2 where 633 km^2 is marine. The site is designated for the protection of reefs (H1170), bubbling reefs (H1180), sandbanks (H1110), mudflats (H1140), seals (H1364 and H1365) and a wide range of bird species.

The site is comprised of both land, shallow mudflats and sea area. The sea part consists of sandy bottom with depths of only 6 to 8 meters. In the early 1900s, the area was described as extensive eelgrass meadows. Today the presence of eelgrass is very limited and do not form coherent stands.

At larger depth, underwater formations of bubbling reefs are located. These irregular structures contains a very rich coral-like fauna with colorful organisms.

In total, stone reef structures cover approximately 158 km^2 of the area, corresponding to 23 % of the total Natura 2000 site, see figure 4.

According to the Natura 2000 management plan for the area[28], fishing activity with mobile bottom contacting gear is described as a threat to stone reefs and bubbling reefs, and as a possible threat to sandbanks. Fishing activity with static gears is furthermore described as a threat to the bubbling reefs in the area.

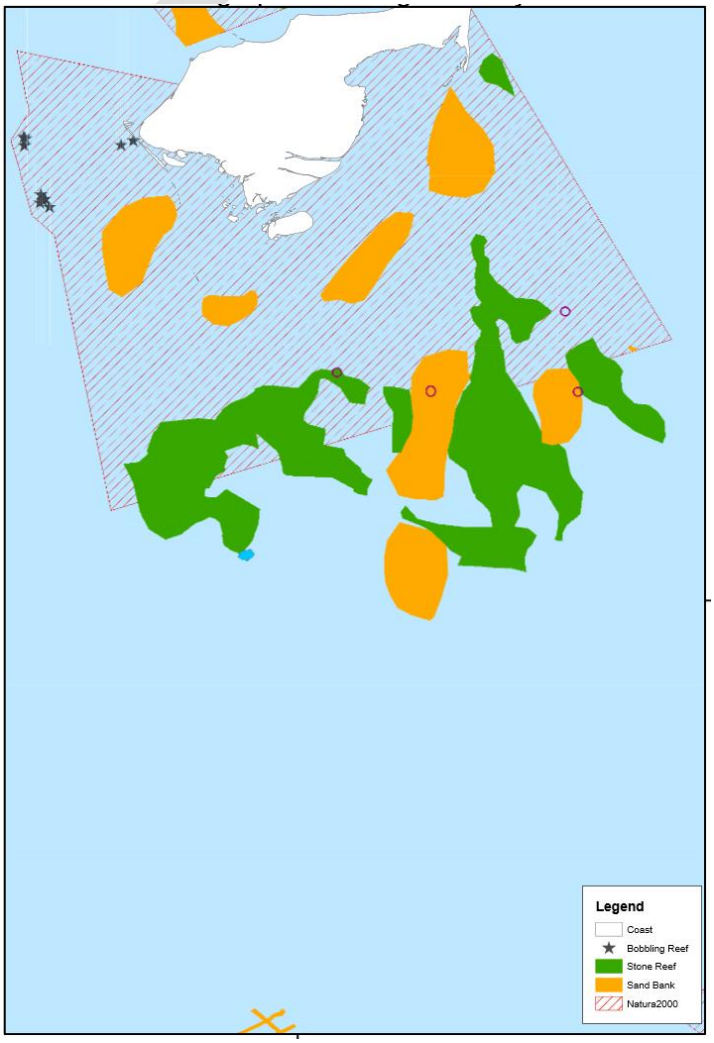


Figure 4. Map of Natura 2000 site "Strandenge på Læsø og havet syd herfor" showing the location and spatial distribution of reef structures and sandbanks

[27] Habitat No. H9, Natura 2000 site No. 9, EU site code: DK00FX010

[28] Link to Natura 2000 management plan for Strandenge på Læsø og havet syd herfor: http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/plan-1-125/9-strandenge-paa-laesoe/

5.1.4 Natura 2000 site: Havet omkring Nordre Rønner

The Natura 2000 site "Havets omkring Nordre Rønner[29]" is located north of the island of Læsø in the northern part of the Kattegat, see figure 1. The Natura 2000 site covers an area of approximately 185 km^2 and is designated for the protection of the following habitat types; sandbanks (H1110), reefs (H1170), bubbling reefs (H1180) and mudflats (H1140), see figure 5. In total, the stone reefs and bubbling reef structures cover approximately 26 km^2 of the area, corresponding to 14 % of the whole Natura 2000 site.

The area is designated both as a bird protection area as well as habitat area. Characteristic for the site is the high incidence of bubbling reefs and reefs and also hovels (which is habitat for the seals and bird species in the area – these are located at depths between 6-11 meters). The water depth in the area ranges from 0-15 meters. The part "Nordre Rønner" are small rocky islets which pertrude above sea level. These islets are surrounded by sandy bottom. The many bubbling reefs occur in the northern part of the area where they are located in a large contiguous area.

According to the Natura 2000 management plan for the area[30], fishing activity with mobile bottom contacting gear is described as a threat to the stone reefs and bubbling reefs, and as a possible threat to sandbanks. Fishing activity with static gears is furthermore described as a threat to the bubbling reefs in the area.

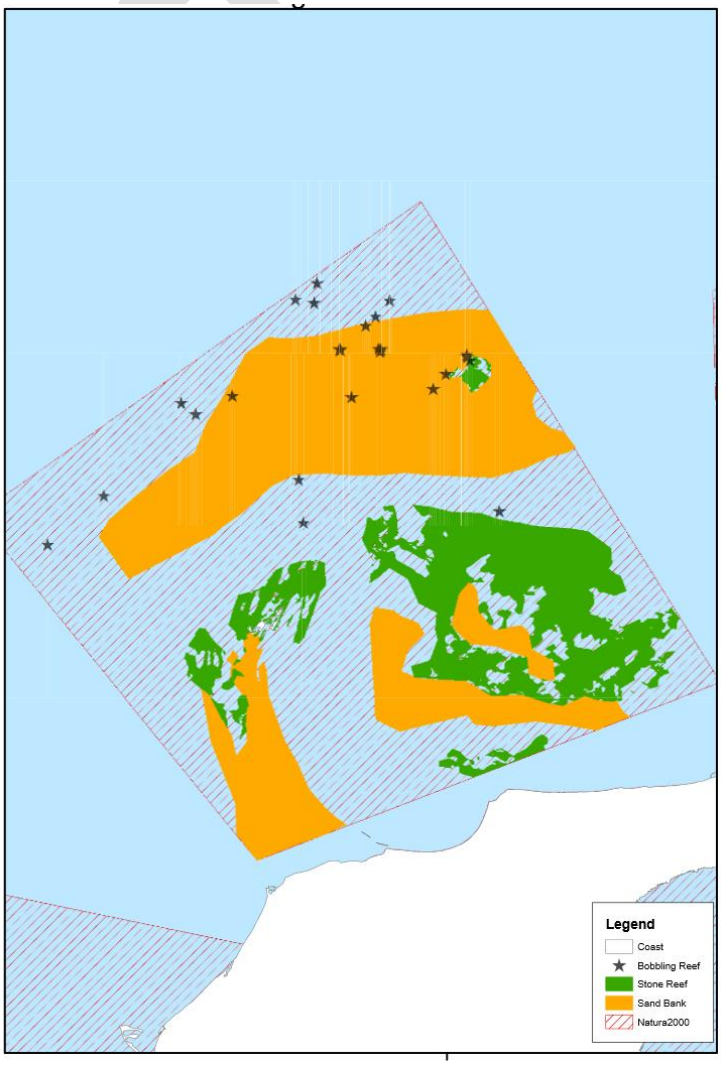


Figure 5. Map of Natura 2000 site "Havet omkring Nordre Rønner" showing the location and spatial distribution of reef structures and sandbanks

[29] Habitat No. H176, Natura 2000 site No. 20, EU site code: DK00FX257
[30] Link to Natura 2000 management plan for Havet omkring Nordre Rønner: http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/plan-1-125/20-nordre-roenner/

5.2 Description of proposed fisheries management measures

5.2.1 Purpose of the present proposal

The purpose of the present proposal is to ensure full protection of reef structures (habitat code H1170 and H1180) from physical disturbance due to fishing activities and thereby contribute to the achievement of favorable conservation status for reef structures (H1170 and H1180).

The protection of reef structures will be ensured through a buffer zone approach, where a 240 meter buffer zone is placed around the mapped reef structures. The Danish AgriFish Agency has received scientific advice from DTU Aqua, on the appropriate method to be used. The size of the buffer zone is calculated as 6 times the water depth in meters. Water depth around the reef structures in the four Natura 2000 sites, that the present proposal deals with, ranges between 30-40 meters. For the present proposal, a water depth of 40 meter is used – giving a buffer zone of 240 meters, see Annex E.

Once the reefs are mapped and their size and spatial distribution is known, the Danish AgriFish Agency, on the basis of scientific advice, formulates the necessary fisheries management measures. The final determination of boundaries within which fishing activities are proposed to be prohibited, follows the principles and rationale described in section 4. The outline of the area to be closed for fishing activities is therefore decided upon separately for each Natura 2000 site taking into account the site specific mapping of marine habitats, fisheries control and enforcement as well as proportionality in relation to impact on fishing patterns. Thus, the outline of the proposed areas to be closed for fishing activities is done per site in order to on one side ensure adequate protection of the mapped reef structures as well as to ensure proportionality in the proposed management measures in relation to fisheries control and enforcement.

The outline of reef structures and associated buffer zones are given above in section 5.1.1-5.1.4 for the four Natura 2000 sites (annex I lists the coordinates. For one of the Natura 2000 sites, the reef complexes are cohesive and cover large parts of the site ("Store Middelgrund"). For the remaining three sites, the reef structures are more fragmented into smaller areas within the sites. The areas in which fishing activity is proposed to be regulated solely covers reef structures and the buffer zone area. Table 3 gives an overview of the size of the four Natura 2000 sites, the reef structures and the area proposed closed for fishing activities with mobile bottom contacting gear.

Table 3. Total area of reef structures and buffer zones

Natura 2000 site	Total area (km²)	Area of reef structures (km²)	Area of reefs and buffer zones	
			km²	% of N2000 area
Store Middelgrund	21.47	16.96	24.31	100
Schultz og Hastens Grund samt Briseis Flak	208.33	32.65	46.81	22
Strandenge på Læsø og havet syd herfor	672.93	157.67	206.42	31
Havet omkring Nordre Rønner	186.23	25.55	53.40	29

For the site Store Middelgrund, a small part of the Natura 2000 site will be available for fisheries with bottom contacting gear, all though table 3 states a 100 % coverage of the reef structures in the area will be regulated – this is due to the fact that some of the protected area are located outside the Natura 2000 sites original boundaries, see rationale for this below in section 5.2.2. The proposed fisheries management

measures will close approximately 22 % of Schultz og Hastens Grund samt Briseis Flak, 31 % of Strandenge på Læsø og Havet syd herfor and 29 % of Havet omkring Nordre Rønner.

5.2.2 Assessment of adequacy, proportionality and the precautionary principle

In the present proposal, assessment of adequacy and proportionality as well as the precautionary principle has been given much focus. DTU Aqua has given scientific advice in terms of adequacy in relation to protection of reef structures from impact from unintended fishing activities. Proportionality has been discussed in relation to reef structures, that cross the outline of the Natura 2000 site and/or are located adjacent to Natura 2000 sites as well as in relation to control and enforcement.

In the same context the precautionary principle has been assessed. The Waddenzee judgment C127-02 has explicitly stated the precautionary principle as part of the required assessments of the Habitats directive's requirements. This assessment is specifically stated in the paragraph 59 in the Waddenzee judgment, saying that activities only are allowed, if it is made certain that it will not adversely affect the integrity of that site. This leads to the conclusion that since Natura 2000 sites in Danish waters are designated prior to the mapping of the reefs, fisheries management measures might be laid down transboundary to the designated areas if it is asserted that it is needed to protect the integrity of the site.

All reef structures located within a Natura 2000 site will be protected from physical disturbance from fishing activity. Consequently reef structures located outside a Natura 2000 site, which are in direct contact with reef structures located inside the site, will also be protected from physical disturbance, since certain fisheries at these reef structures may have a negative impact on the reef structures located inside the site. Reef structures located outside a Natura 2000 site, which are not in direct contact with reef structures inside the designated Natura 2000 site, are not included in the provisions of the Habitats Directive, and will therefore in the present proposal not be protected from fishing activity[31].

In relation to protection of stone reef structures (habitat code H 1170), scientific evidence support a total fishery ban with mobile bottom contacting gears, whereas fishery with static gears is not assessed as having a significant negative impact. Thus, these activities will be able to continue in areas mapped as reefs (Dahl 2005; Kaiser et al. 2002; Kaiser et al. 2016; Eigaard et al. 2016).

The rationale behind these principles is to enable the achievement of favorable conservation status for designated habitats by implementing the necessary restrictions on human activities - in this case by formulating fisheries management measures, which supplement regulation of other activities such as gravel and sand extraction among other activities.

In relation to the present proposal, reef structures located outside the Natura 2000 sites are, therefore, included in the protection measures, if they are in direct contact to reef structures located inside the site.

Proportionality is also assessed in relation to control and enforcement of the proposed fisheries management measures. The proposed measures must be controllable

[31] Further reference to this principle in Danish case law: Decision by the Supreme Court (Højesterets Kendelse 356/2011): http://www.domstol.dk/hojesteret/nyheder/Afgorelser/Documents/356-2011.pdf

6. Restriction of fisheries within the Danish Natura 2000 sites

The present proposal intends to prohibit fishing activities with mobile bottom contacting gear in areas mapped as reefs (H1170) in four marine Natura 2000 sites: Store Middelgrund, Schultz og Hastens Grund samt Briseis Flak, Strandenge på Læsø og havet syd herfor and Havet omkring Nordre Rønner. For areas mapped as bubbling reef (H1180), fishing activities with passive gears like gillnets, lines, pots and traps are also proposed prohibited as well as pelagic fishing activity, see section 1.3.

In accordance with the Commission guidelines of 2008 in relation to the formulation of fisheries management measures in Natura 2000, the Danish AgriFish Agency has requested for fishery data from all Member States with fishing opportunities in the area of Kattegat. Only Germany and Sweden have communicated that they have direct management interest in the Kattegat and forwarded fishery data. From Sweden and Germany, the Danish AgriFish Agency has received fishery data for the period 2011-2015.

DTU Aqua has carried out the analysis regarding landings, catch value and effort in order to assess the impact, which the proposed measures will have on current fishing activities. The analyses of fishing activities have been carried out based on VMS and log book data for vessels of 12 meters or larger, since smaller vessels are not obliged to carry VMS. The fishing pattern for smaller vessels below 12 meters have only been assessed for Danish and Swedish vessels, however, smaller German vessels are expected to have a similar fishing pattern as other vessels in the area. Analyses of fishing patterns for smaller and larger vessels show that the vessels use the same fishing grounds. Annex J describes in more detail how fishery data from the three countries have been analyzed and the methods used. The following sections (6.1-6.3) describe in more detail information regarding fleet activity, type of fisheries, target species and annual trends for the period 2011-2015 (average values). Seasonal trends have not been analyzed due to the relatively low fishing activities in all four sites. Annual landings and catch values are given in Annex K, where fishery effort is given in Annex L.

6.1 Fleet activity and type of fisheries

German and Swedish registered fishing vessel have access to the Danish part of Kattegat within 12 nautical miles as well as in the EEZ, see section 2.2. No other Member States have direct management interest/rights within 12 nautical miles until 3 nautical miles of the Danish part of Kattegat. In the Danish EEZ only Sweden and Germany have quota and thereby direct management interests. Kattegat has historically been an important fishing area for Danish, Swedish and to some extend also German vessels.

Danish, Swedish and German fishing activities within the four Natura 2000 sites constitutes less than 0.2% of the total VMS effort in Kattegat – both in relation to fishing with mobile bottom contacting gears and other gear types combined, see table 1 and 2 in Annex L. According to VMS effort, the four Natura 2000 sites are not important fishing grounds for Danish, German nor Swedish fishermen (see Annex L). German vessels do not use the four Natura 2000 sites for fishing except from gillnet fishery from 1-3 vessels in 2011 and again in 2013 in the site 'Store Middelgrund'. Some Danish and Swedish trawlers conduct fishing activity in and around the four Natura 2000 sites, the activity however, is fairly low and not in areas mapped as reefs.

The type of fishing activities which are conducted in and around the four Natura 2000 sites "Strandenge på Læsø og havet syd herfor", "Havet omkring Nordre Rønner", "Shultz og Hastens Grund" and "Store Middelgrund" are somewhat similar between Danish and Swedish fishermen. Fishing activities are carried out with trawls (bottom contacting as well as pelagic trawls), gillnet and traps for a range of target species.

Of the three countries, Denmark have the highest effort values for the Kattegat area in general, yet in and around the Natura 2000 sites, the effort is low. VMS effort is very low for German vessels for the Kattegat area in general. Swedish vessels have a relatively high VMS effort in the Swedish part of the Kattegat,

compared to the Danish part, where the highest intensity is found in the area closest to the Danish-Swedish Kattegat border, see Annex L for effort maps.

Table 4. Number of vessels fishing in Natura 2000 sites with mobile bottom contacting gears and other gear types, respectively

Natura 2000 site	Danish vessels					German vessels					Swedish vessels				
	Mobile bottom contacting gears (other gears)					Mobile bottom contacting gears (other gears)					Mobile bottom contacting gears (other gears)				
	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015	2011	2012	2013	2014	2015
Store Middelgrund	0 (0)	2 (0)	0 (1)	0 (1)	0 (1)	0 (2)	0 (0)	0 (1)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (0)	0 (0)
Schultz og Hastens Grund samt Briseis Flak	6 (4)	6 (8)	4 (6)	4 (2)	4 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	2 (0)	0 (0)	1 (0)	0 (1)	0 (1)
Strandenge på Læsø og havet syd herfor	2 (5)	1 (2)	0 (1)	2 (4)	3 (8)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	5 (0)	2 (3)	1 (1)	0 (3)	4 (3)
Havet omkring Nordre Rønner	6 (2)	10 (8)	28 (2)	19 (5)	30 (18)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	0 (0)	1 (0)	0 (1)	1 (1)	0 (0)

*) "No records" indicates that no information regarding the number of vessels conducting fishery in the sites are available.

Since smaller fishing vessels (below 12 meters) do not carry VMS, it has not been possible to include the activity from smaller vessels in the analysis carried out in and around the four Natura 2000 sites with regards to effort, fishing pattern, target species etc. However, based on dialogue with the Danish Fishermen Association PO and general knowledge of fishing patterns also from Swedish vessels, the fishing effort from ~~these~~ smaller vessels is assessed~~seems~~ to be very low in two of Natura 2000 sites concerned, Store Middelgrund and Schultz og Hastens Grund respectively. Experiences from fisheries control at sea as well as from the FMC (the Danish Fishery Monitoring Centre) confirms this assumption.

It can be added that, when looking at the threats from fishing activities on reef structures, the Danish Agrifish Agency has also been analyzing the potential impact from recreational fishing activities. It is assessed by DTU Aqua, that commercial fishing activities with gears like mobile bottom contacting trawls, nets, lines, hooks, pots and traps can have a negative impact on bubbling reefs. Since the risk of damage to the reef structures depends on the gear type used and not on fishing vessel status, recreational fishing activities can also pose a risk when using the above mentioned gear types. Recreational fishery is not part of the Common Fisheries Policy. The Danish Agrifish Agency therefore considers taking steps to introduce management measures for recreational fishing activities through national regulation (administrative orders) for the Natura 2000 sites with bubbling reefs in question.

6.2 Target species and annual trends

Analyses of target species and annual trends for fishing activity within the Natura 2000 sites have been made possible through a coupling of VMS-data and log book data, see Annex K-L (only for vessels of 12 meters or above, since VMS data is not available for smaller vessels due to lack of legal obligations). Focus has been given to the period 2011-2015. Information on gear types and landings have also been analyzed for Danish, Swedish and German.

The following section describes in more detail fishing activity per site separately for Denmark, Sweden and Germany for the main target species (given as an average for a four year period (2011-2015). Annex K lists fishery data at species level per year per country.

Natura 2000 site "Store Middelgrund"

Danish and Swedish fishermen conduct fishing activities in and around the Natura 2000 site Store Middelgrund, see table 6, figures 6a and 6b, however the activities are limited.

According to log books and VMS data, Danish fishermen have some activities in the area. Target species are mainly plaice and common sole and other mixed species using gillnets. The average annual landings amount to 1.929 kg at an estimated mean catch value of € 7.582 (2011-2015). If looking at Danish annual values, the majority of registered landings took place in 2014 (3.746 kg at a catch value of € 13.402 see Annex K, table 2 and 6). Activities with net gears take place in the site, however not in the area where two bubbling reefs are located. There are only one registration of landings from Danish fishery using mobile bottom contacting gear in the whole Natura 2000 site.

According to log book and VMS data (2011-2015), Swedish fishermen primarily conduct a small scale fishery for mixed species with mobile bottom contacting gear in the area. The registered landings from this fishery amounts to approximately 78 kg at an estimated catch value of approximately € 154. This small scale fishery have been located to the sandbank in the area – a part of the Natura 2000 site which not will be subjected to fisheries restrictions.

Germany have registered landings from this area in 2011 (2 gillnetters) and again in 2013, where one gillnet boat have registered landings from the area, see table 6 and figure 6b and Annex K, table 4 and 8. German fishery use the area for small-scale fishery for common sole (1,271 kg in 2011 and 410 kg in 2013). Other landings sum to 166 kg in 2011 and 183 kg in 2013. Average landings amount to € 3,114.

Figure 6a and 6b show VMS positions for Danish, German and Swedish vessels, respectively, for the period 2011-2015 for Store Middelgrund. From figure 6a and 6b it can be seen, that the proposed fisheries management measures will have no or low effect on fishing activities in and around the Natura 2000 site.

Fishery data for smaller vessels are not available for the area for DK and DE vessels. Swedish data contains information from smaller vessels <12 meters. Fishing activity with smaller vessels are for DK and DE estimated to be similar to those of larger vessels. This assumption is supported by information of fishing patterns for smaller vessels provided by the Danish Fishermen Association. However, some smaller vessels do use part of the area for fishing activity with mobile bottom contacting gear and are therefore likely to be affected by the proposed fisheries management measures in the areas where the reef is comprised of smaller stones.

Table 6. Average landings per country and value of landings per gear type and target species for Store Middelgrund. The values are estimated from log book and VMS data (2011-2015)

		Country / Landings (in kg)			Estimated value of catch (in €)		
Type of gear	Target species	DK	DE	SE	DK	DE	SE
Mobile bottom trawl	Others*	16	0	78	126	0	154
Net	Brill	433	14	0	2,067	0	0
	Common sole	356	336	0	2,782	0	0
	European plaice	417	20	0	366	0	0
	Others*	707	0	0	2,240	0	0
Total		1,929	370	78	7,582	3,114	154

*) Others; catches below 200 kg are summarized in this category.

Figure 6a. Maps of Store Middelgrund showing reef structures, proposed buffer zones and VMS positions for Danish vessels above 12 meters – left map showing fishing activities with bottom contacting gears and right map showing fishing activities with other gear types.

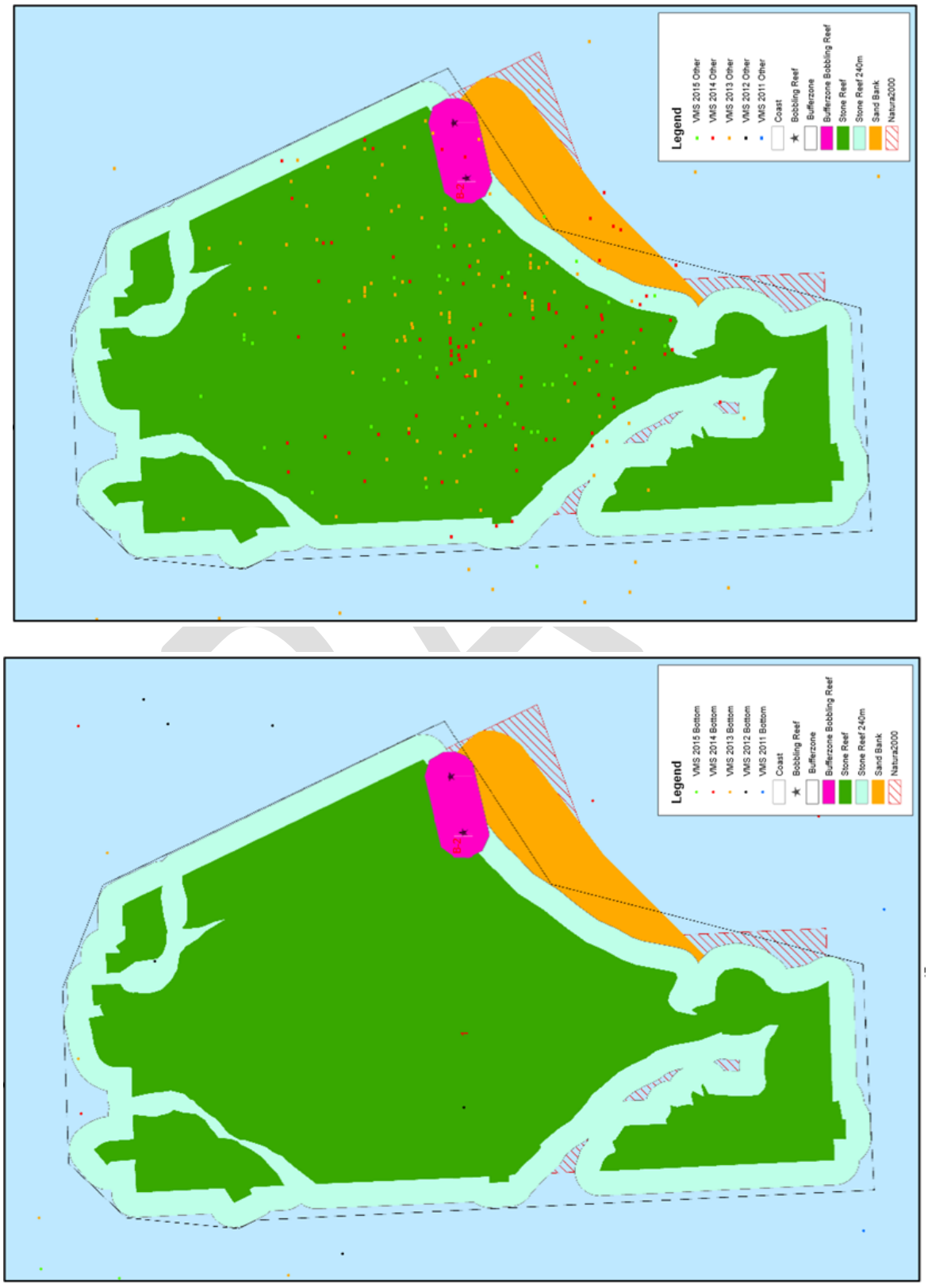
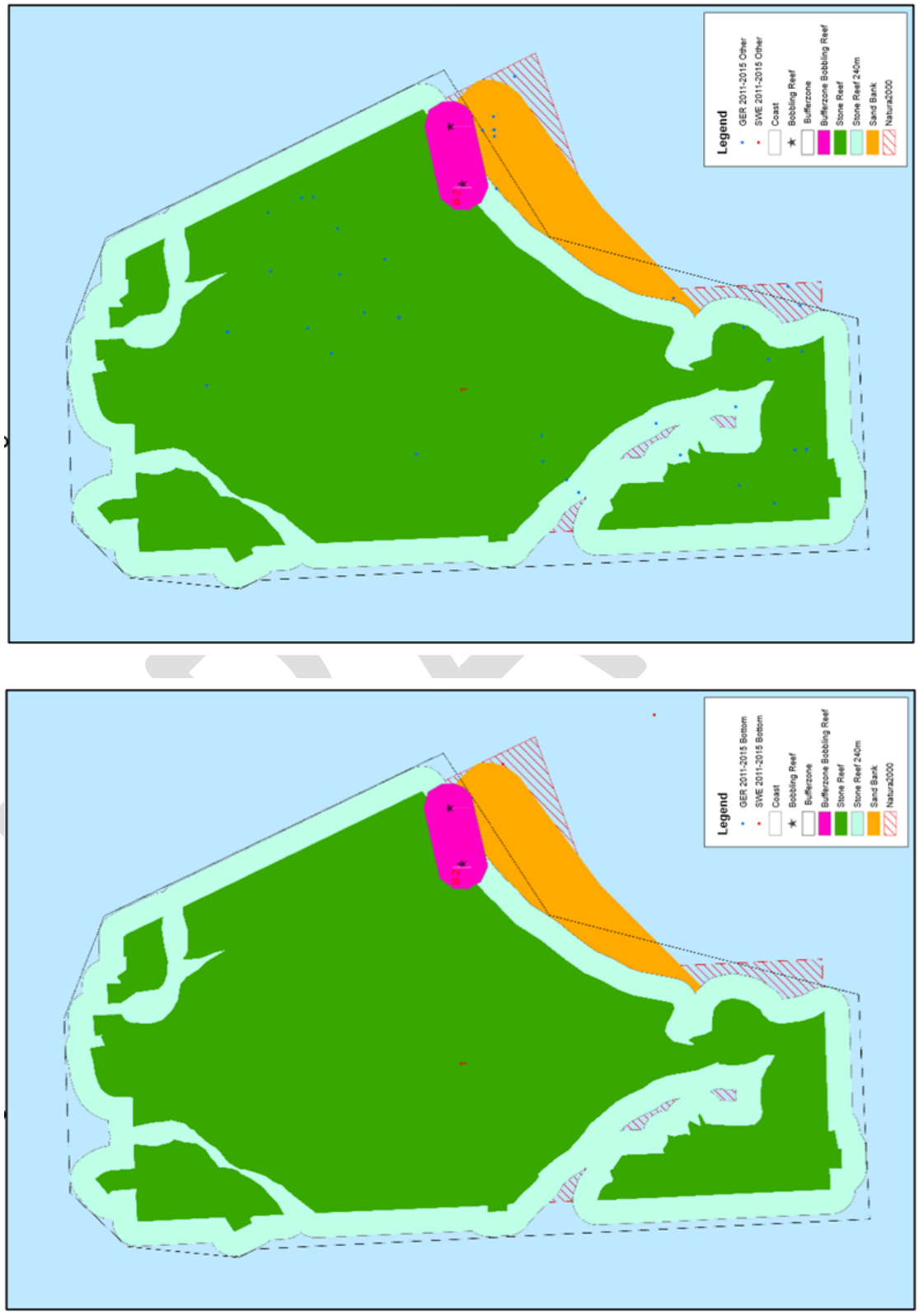


Figure 6b. Maps of Store Middelgrund showing reef structures, proposed buffer zones and VMS positions for Swedish and German vessels above 12 meters – left map showing fishing activities with bottom contacting gears and right map showing fishing activities with other gear types.



Natura 2000 site "Schultz og Hastens Grund samt Briseis Flak"

Danish and Swedish fishermen conduct fishing activities in and around the Natura 2000 site Schultz og Hastens Grund samt Briseis Flak, see table 7, figure 7a and 7b, however the activities are limited. According to log book and VMS data, Danish fishermen have some activities in the area. Danish fishermen use pelagic gears for catching atlantic herring and sprat on the large sandbank in the area. Target species in the fishery with mobile contacting gear are a mix of herring, sole, plaice and others. These activities are not taking place in the areas mapped as reefs.

Average annual Danish landings from catches with mobile bottom contacting gears amount to approximately 1.200 kg at an estimated catch value of approximately € 3.800 (2011-2015). If looking at Danish annual values, the majority of registered landings (all gear groups) took place in 2012 (4.213 kg at a mean value of € 3.778, see Annex K).

According to log book and VMS data (2011-2015), Swedish fishermen conduct a small scale fishery with mobile bottom contacting gear in the area. Average annual landings amount to around 28 kg estimated at a catch value of € 249.

Germany have no registered landings from the area in the period 2010-2015, see table 7 and figure 7b.

Figure 7a and 7b shows VMS positions for Danish and Swedish vessels, respectively, for the period 2011-2015 for Schultz og Hastens Grund samt Briseis Flak. From figure 7a and 7b it can be seen, that the proposed fisheries management measures will have no effect on the fishing activities in and around the Natura 2000 site.

Fishery data for smaller vessels are not available for the area for DK and DE vessels. Swedish data contains information from smaller vessels <12 meters Fishing activity with smaller vessels are for DK and DE estimated to be similar to those of larger vessels. This assumption is supported by information of fishing patterns for smaller vessels provided by the Danish Fishermen Association. However, some smaller vessels do use part of the area for fishing activity with mobile bottom contacting gear and are therefore likely to be affected by the proposed fisheries management measures in the areas where the reef is comprised of smaller stones.

Table 7. Average landings per country and value of landings per gear type and target species for Schultz og Hastens Grund samt Briseis Flak. The values are estimated from log book and VMS data

		Country / Landings (in kg)			Estimated value of catch (in €)		
Type of gear	Target species	DK	DE	SE	DK	DE	SE
Mobile bottom trawl	Atlantic herring	243	0	0	65	0	0
	Common sole	255	0	0	2,323	0	0
	European plaice	155	0	0	127	0	0
	Others*	608	0	28	1,303	0	249
Net	Others*	122	0	0	825	0	0
Pelagic trawl	Atlantic Herring	4,329	0	0	1,289	0	0
	Sprat	4,111	0	0	1,001	0	0
	Others*	293	0	0	80	0	0
Pots and traps	Norway Lobster	0	0	126		0	1,122
Total		10,117	0	154	7,013	0	1,372

*) Others; catches below 200 kg are summarized in this category.

Figure 7a. Maps of Schultz og Hastens Grund samt Briseis Flak showing reef structures, proposed buffer zones and VMS positions for Danish vessels above 12 meters – left map showing fishing activities with bottom contacting gears and right map showing fishing activities with other gear types.

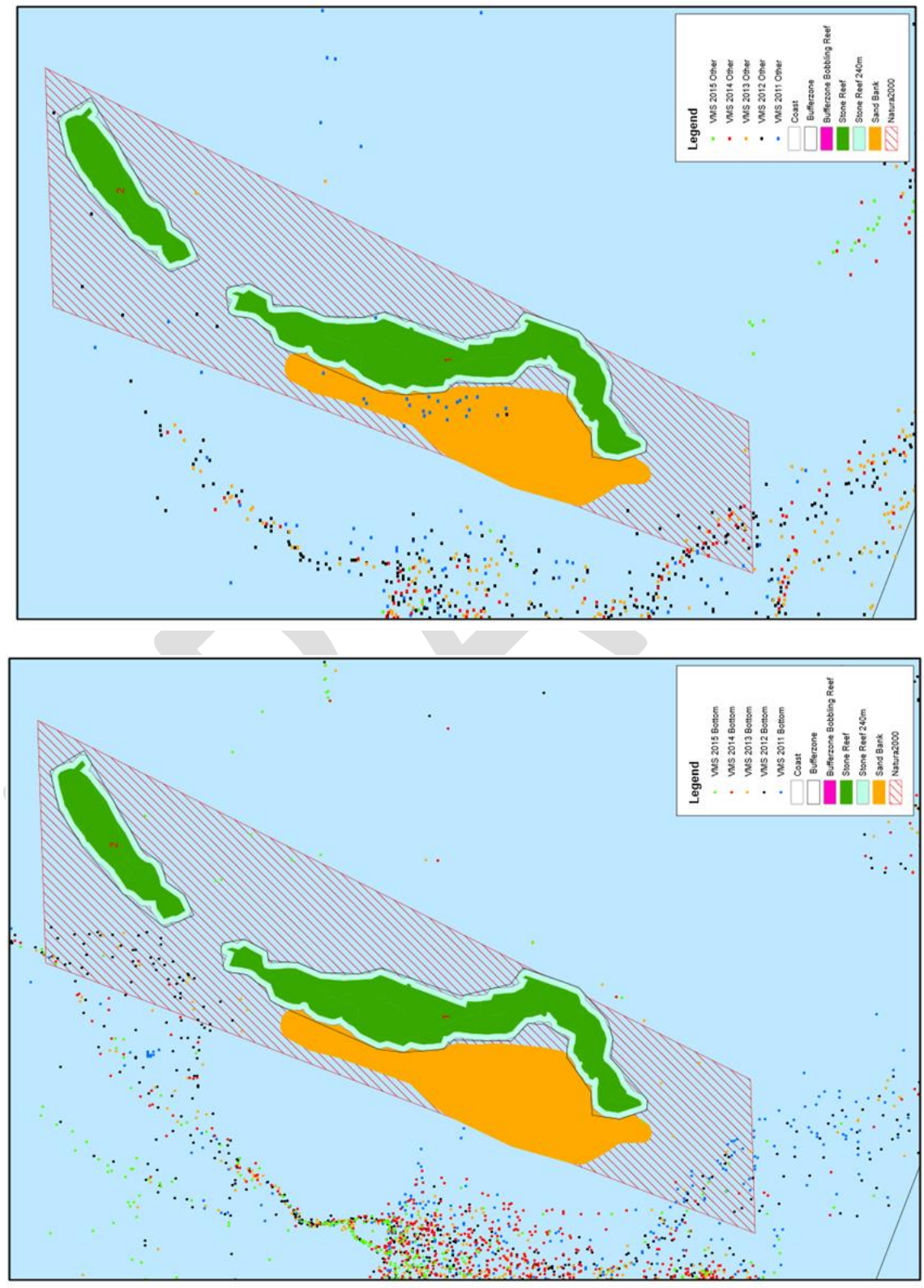
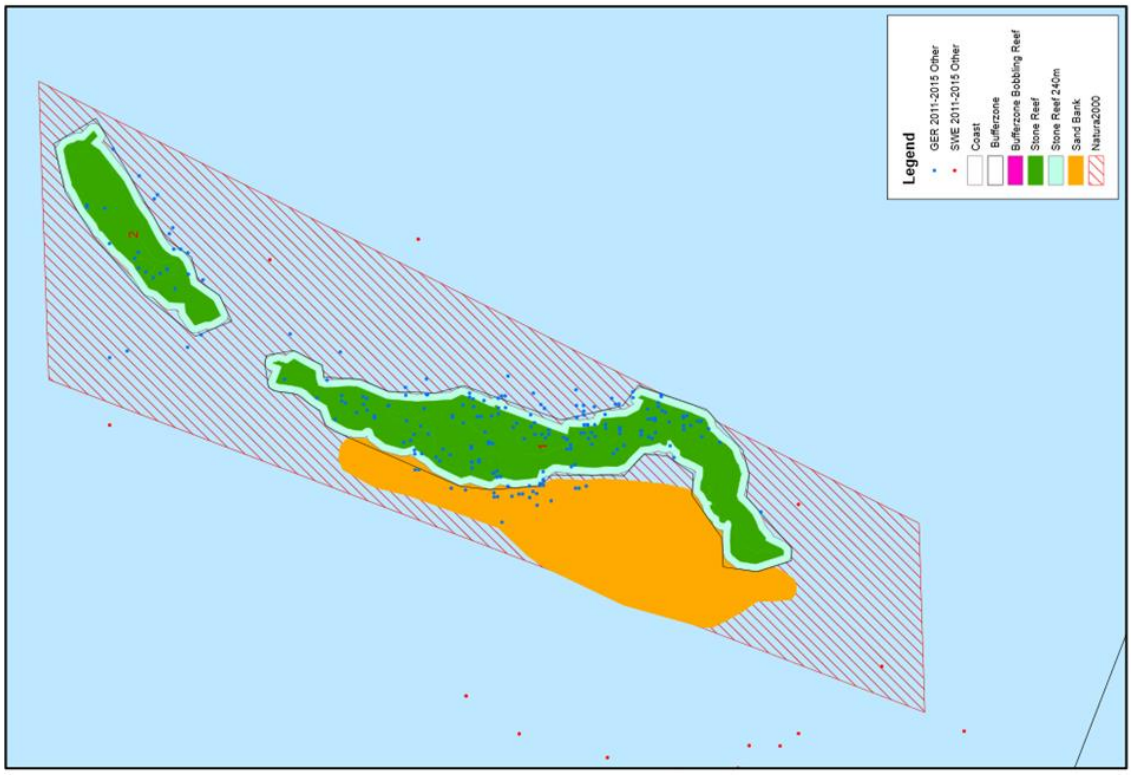


Figure 7b. Maps of Schultz og Hastens Grund samt Briseis Flak showing reef structures, proposed buffer zones and VMS positions for Swedish and German vessels above 12 meters – left map showing fishing activities with bottom contacting gears and right map showing fishing activities with other gear types.



Natura 2000 site "Strandenge på Læsø og havet syd herfor"

Danish and Swedish fishermen conduct fishing activities in and around the Natura 2000 site Strandenge på Læsø og havet syd herfor, see table 8, figure 8a and 8b, however the activities are limited.

According to log book and VMS data, Danish fishermen have some activities in the area. Danish fishermen use pelagic gear for catching Atlantic herring and sprat in the northwestern part of the area. Target species in the fishery with mobile contacting gear are also Atlantic herring and sprat. These activities are not taking place in the areas mapped as reefs. Average annual Danish landings for catches from bottom contacting gear types amounts to approximately 18.000 kg at an estimated catch value of approximately € 1.528 (2011-2015). If looking at Danish annual values, the majority of registered landings (all gear groups) took place in 2014 (1.242 kg at a mean value of € 1.411, see Annex K). Danish fishermen also conduct fishery for herring, anchovies and sprat with pelagic gears – the landings however, only amounts to approximately € 12.000.

According to log book and VMS data (2011-2015), Swedish fishermen conduct a small scale fishery with both mobile bottom contacting gear, pelagic gear, nets, lines and traps in the area. In 2014 there has been a significant fishery with pots and traps in the area, amounting to 8.190 kg of edible crab. Average annual Swedish landings (all gears) amounts to approximately 24.903 kg estimated at a catch value of approximately € 15,812. Swedish fishermen conduct a limited fishery with pelagic gears, for herring and sprat. These landings amounts to approximately € 1.475, where fishery with line and traps amount to 2.031 kg and € 6.501.

Germany have no registered landings from the area in the period 2011-2015, see table 8 and figure 8b.

Figure 8a and 8b shows VMS positions for Danish and Swedish vessels, respectively, for the period 2011-2015 for Strandengene på Læsø og havet syd herfor. From figure 8a and 8b it can be seen, that the proposed fisheries management measures will have a very limited effect on the fishing activities in and around the Natura 2000 site.

Fishery data for smaller vessels are not available for the area for DK and DE vessels. Swedish data contains information from smaller vessels <12 meters. Fishing activity with smaller vessels are for DK and DE estimated to be similar to those of larger vessels. This assumption is supported by information of fishing patterns for smaller vessels provided by the Danish Fishermen Association. However, some smaller vessels do use part of the area for fishing activity with mobile bottom contacting gear and are therefore likely to be affected by the proposed fisheries management measures.

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Table 8. Average landings per country and value of landings per gear type and target species for Strandenge på Læsø og havet syd herfor. The values are estimated from log book and VMS data

		Country / Landings (in kg)			Estimated value of catch (in €)		
Type of gear	Target species	DK	DE	SE	DK	DE	SE
Mobile bottom trawl	Atlantic herring	2,415	0	3	633	0	1
	Sprat	13,188	0	0	3,143	0	0
	Norway lobster	17	0	135	184	0	1,271
	Others*	394	0	135	262	0	257
Net	Others*	0	0	206	0	0	498
Lines and traps	Others*	0	0	1,825	0	0	6,003
Pelagic trawl	Atlantic Herring	22,113	0	16,200	7,191	0	6,305
	Sprat	21,934	0	4,000	4,559	0	969
	Others*	1,006	0	0	224	0	0
Purse seine	Sprat	0	0	2,400	0	0	506
Total		61,067	0	24,903	16,197	0	15,812

*) Others; catches below 200 kg are summarized in this category.

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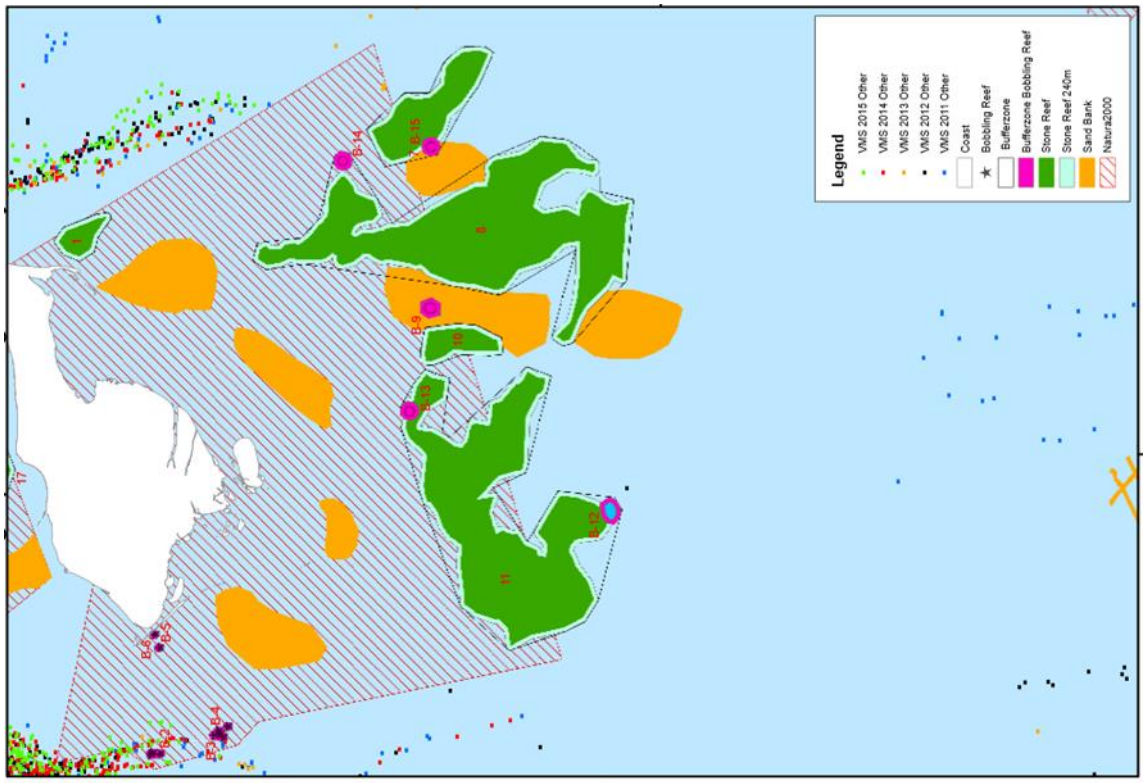
Figure 8a. Maps of Strandenge på Læsø og havet syd herfor showing reef structures, proposed buffer zones and VMS positions for Danish vessels above 12 meters – left map showing fishing activities with bottom contacting gears and right map showing fishing activities with other gear types.



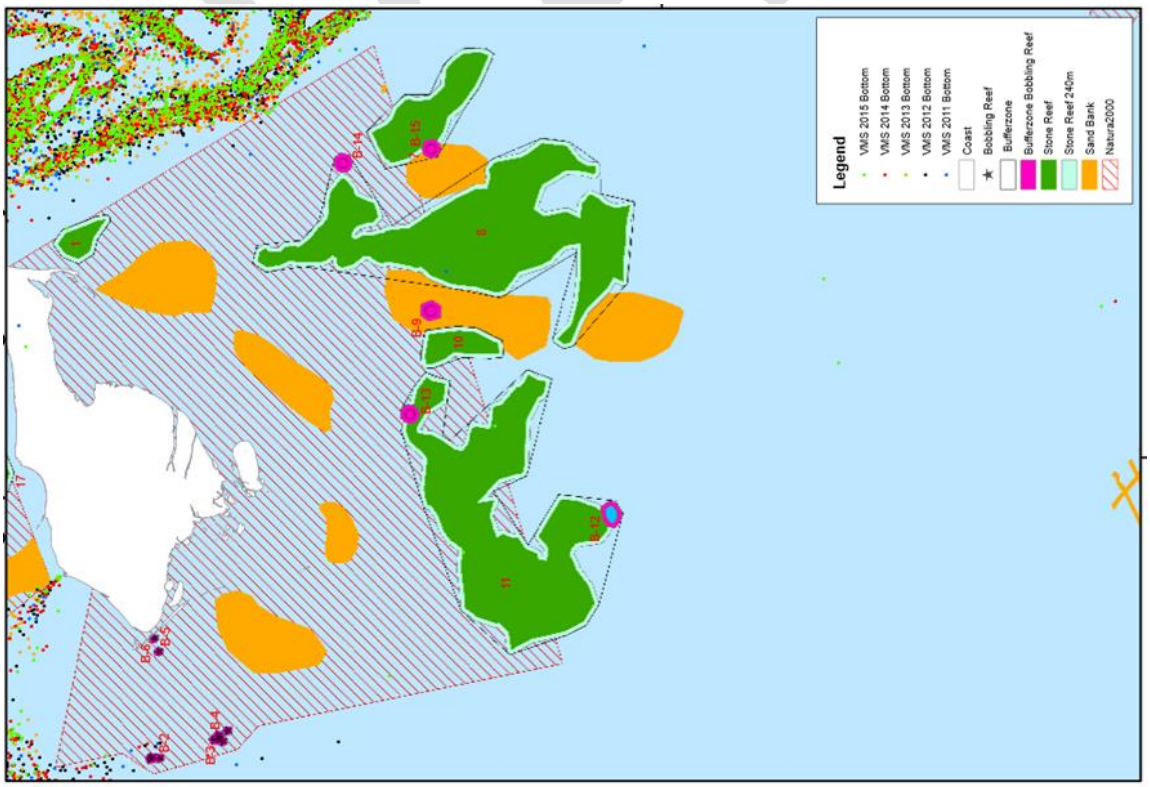
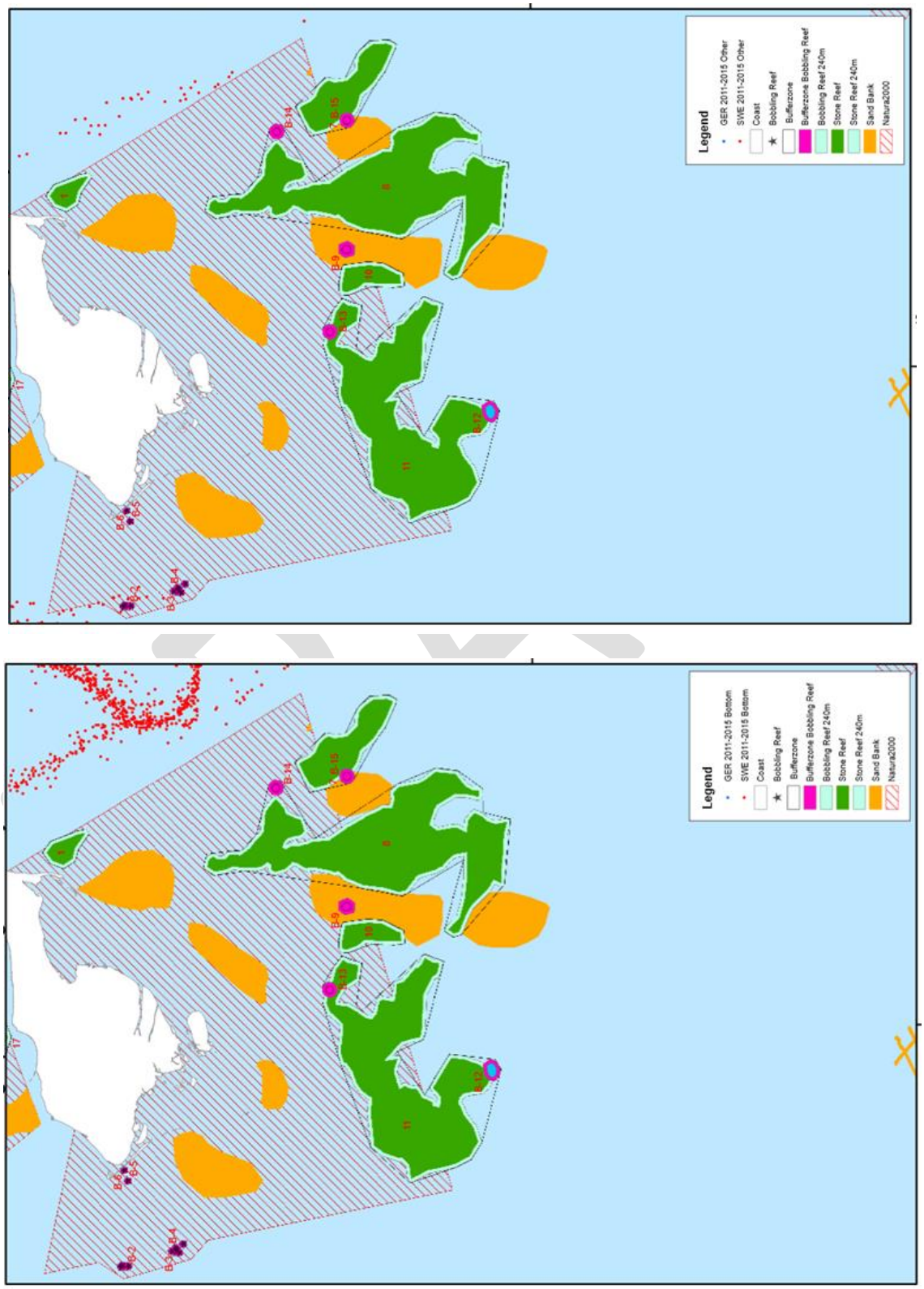


Figure 8b. Maps of Strandenge på Læsø og havet syd herfor showing reef structures, proposed buffer zones and VMS positions for Swedish and German vessels above 12 meters – left map showing fishing activities with bottom contacting gears and right map showing fishing activities with other gear types.



Natura 2000 site "Havet omkring Nordre Rønner"

Danish and Swedish fishermen conduct fishing activities in and around the Natura 2000 site Havet omkring Nordre Rønner, see table 9, figure 9a and 9b, however the activities are limited.

According to log book and VMS data, Danish fishermen have some activities in the area. Danish fishermen use pelagic and mobile bottom contacting gear for catching Atlantic herring, sprat and Norway lobster in the northern and western part of the area. Average annual Danish landings amounts to 141.511 kg at an estimated catch value of € 60.775 (2011-2015) in the area, including catches from the pelagic fishery. If looking at Danish annual values, the majority of registered landings (all gear groups) took place in 2012 (2.270 kg at a mean value of € 857, see Annex K). Fishery with mobile bottom contacting gears amount to 22.953 kg which amount to a catch value of € 30.406.

According to log book and VMS data (2011-2015), Swedish fishermen conduct a small scale fishery with both mobile bottom contacting gear, lines and traps in the area for catch of Norway lobster and edible crab. The Swedish pelagic fishery only occurred in 2014. Average annual Swedish landings amount to approximately 704 kg estimated at a catch value of nearly € 1.277, including the pelagic catches.

Germany have no registered landings from the area in the period 2011-2015, see table 9 and figure 9b.

Figure 9a and 9b shows VMS positions for Danish and Swedish vessels, respectively, for the period 2011-2014 for Havet omkring Nordre Rønner. From figure 9a and 9b it can be seen, that the proposed fisheries management measures will have a very limited effect on the fishing activities in and around the Natura 2000 site.

Fishery data for smaller vessels are not available for the area for DK and DE vessels. Swedish data contains information from smaller vessels <12 meters. Fishing activity with smaller vessels are for DK and DE estimated to be similar to those of larger vessels. This assumption is supported by information of fishing patterns for smaller vessels provided by the Danish Fishermen Association PO. However, some smaller vessels do use part of the area for fishing activity with mobile bottom contacting gear and are therefore likely to be effected by the proposed fisheries management measures.

Table 9. Average landings per country and value of landings per gear type and target species for Havet omkring Nordre Rønner. The values are estimated from log book and VMS data

		Country / Landings (in kg)			Estimated value of catch (in €)		
Type of gear	Target species	DK	DE	SE	DK	DE	SE
Mobile bottom trawl	Atlantic herring	6,224	0	0	1,505	0	0
	European anchovy	645	0	0	126	0	0
	Norway lobster	2,809	0	80	24,507	0	656
	Sprat	12,290	0	0	2,684	0	0
	Others*	985	0	0	1,584	0	0
Pelagic trawl	Atlantic herring	62,784	0	100	17,479	0	36
	European anchovy	763	0	0	159	0	0
	Sprat	50,327	0	200	11,621	0	42
	Whiting	1,936	0	0	457	0	0
	Others*	2,747	0	0	653	0	0
Lines and traps	Edible crab	0	0	324	0	0	543
Total		141,511	0	704	60,775	0	1,277

*) Others; catches below 200 kg are summarized in this category.

Figure 9a. Maps of Havet omkring Nordre Rønner showing reef structures, proposed buffer zones and VMS positions for Danish vessels above 12 meters – left map showing fishing activities with bottom contacting gears and right map showing fishing activities with other gear types.

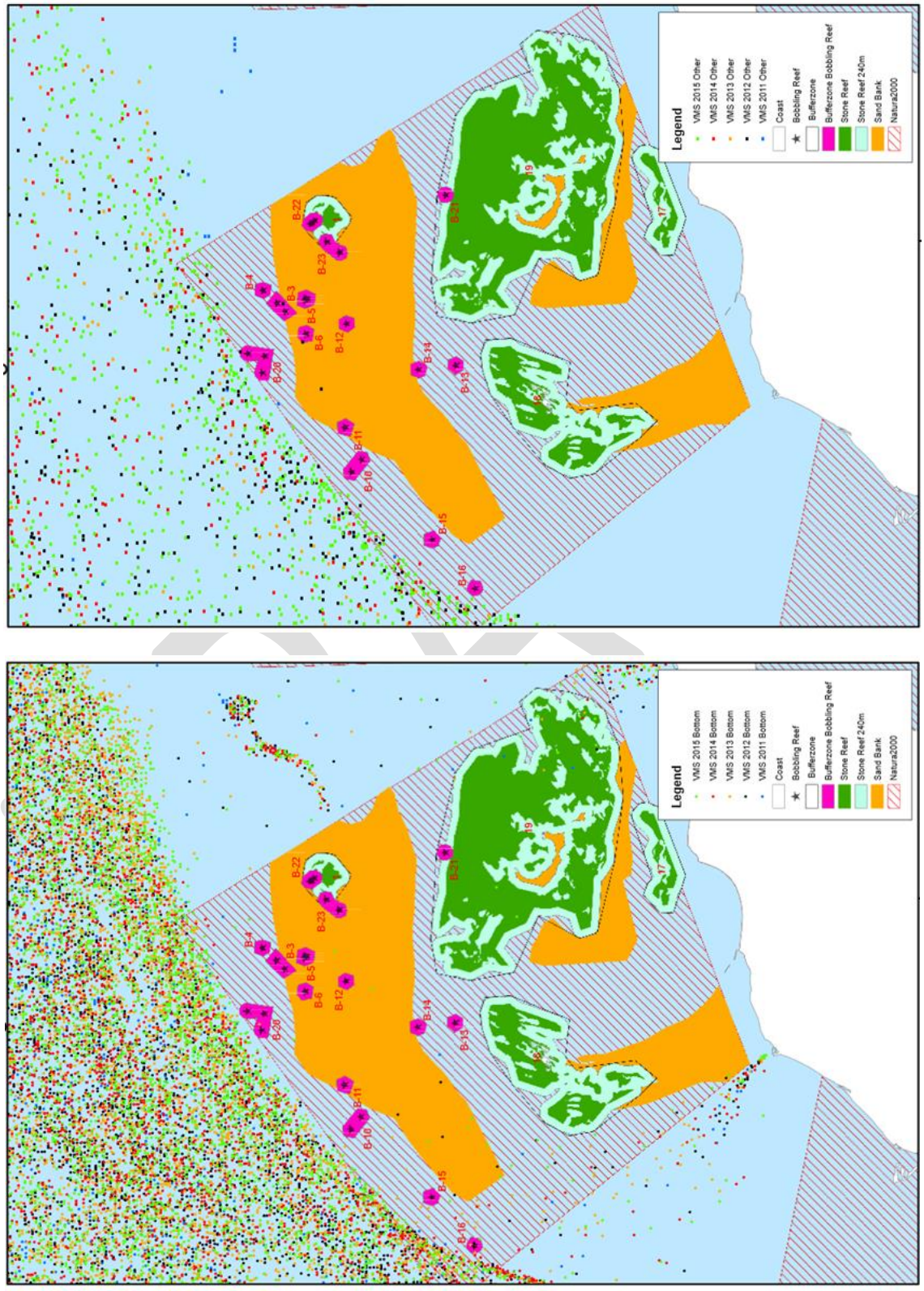
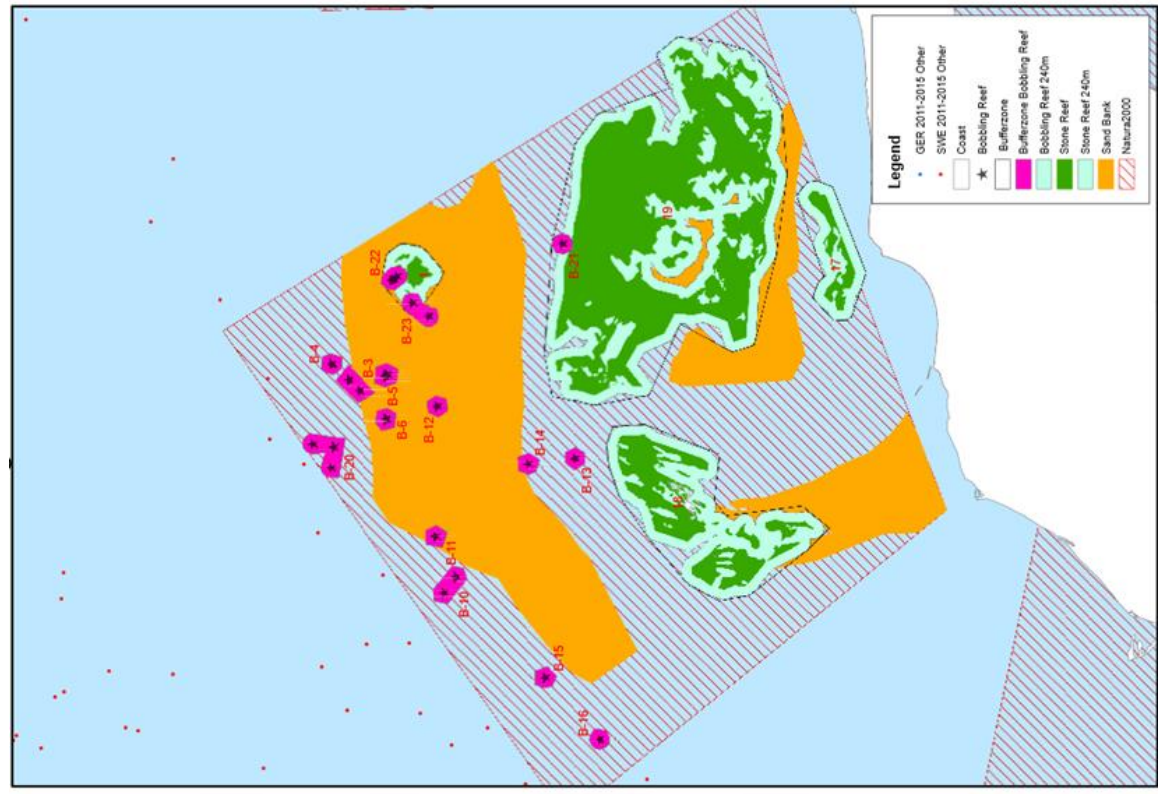
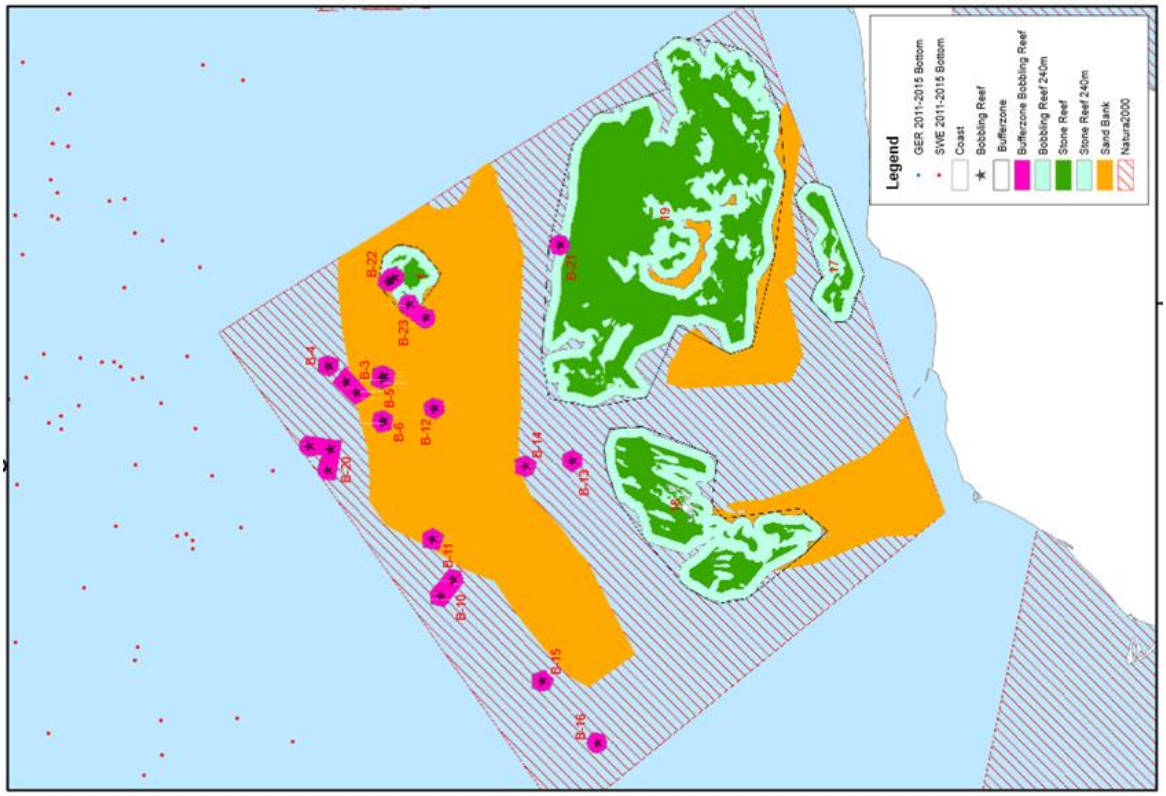


Figure 9b. Maps of Havet omkring Nordre Rønner showing reef structures, proposed buffer zones and VMS positions for Swedish and German vessels above 12 meters – left map showing fishing activities with bottom contacting gears and right map showing fishing activities with other gear types.





6.3 Displacement

Analysis of fishing patterns based on VMS positions and log book data indicate, that the proposed fisheries management measures are not likely to have any significant impact in relation to the current fishing activities in the Kattegat for Danish, Swedish and German vessels. For Danish, Swedish and German vessels, the Kattegat area is an important fishing ground, however, the areas addressed in the present proposal are characterized by reef structures and are, therefore, not preferred fishing grounds primarily due to the risk of damage to the fishing gear used from contact with the reef structures.

Danish fishermen carry out fishing activities with mobile bottom contacting gear in all the four Natura 2000 sites in question, however, the activities are not taking place in areas mapped as reefs, and will therefore not be displaced due to the proposed fisheries management measures. There are, however, indications that smaller vessels are conducting fishing activity with mobile bottom contacting gear in the area of "Havet omkring Nordre Rønner" and " Strandenge på Læsø og havet syd herfor" in areas characterized by less dense stone occurrences. These fishermen will be displaced from the area if this activity is taking place in the outlined buffer zone unless they change gear and fish with pelagic trawls instead of mobile bottom contacting trawls.

Swedish vessels have some fishing activities according to VMS and log book data in all four sites. However, the degree of mobile bottom contacting fishery is very limited.

Of the four sites in question, Germany only have fishing activity in 2013 in one site – the site Store Middelgrund, where small scale gillnet fishery took place.

The overall conclusion in relation to displacement is therefore, that the proposed fisheries management measures for protection of reef structures will not have any significant impact on the fishing activities in the Kattegat area in general for the Member States with fishing rights within 12 nautical miles, e.g. Swedish, German and Danish vessels. The majority of the areas within the four Natura 2000 sites will still be open for fishing activities with nets, traps/pots and pelagic trawls. VMS effort data confirms that the four Natura 2000 sites are not important fishing areas for either Danish, Swedish and German fishermen. However, it cannot be excluded that the proposed fisheries management measures might have an effect on some fishermen, carrying out fishing activities in the outlined buffer zones. This activity is estimated to be in a quantity, which can be fished elsewhere. However, this potential impact is, according to the available fishery data, minimal.

Assessment of displacement is important not only in terms of potential effects to ongoing fishing activities but also in relation to the marine environment. Displacement of fishing activities to less productive areas can potentially cause great damage to the marine environment, thus resulting in an overall negative impact. The proposed fisheries measures in the present proposal will in general not result in displacement of fishing activities, since the areas proposed closed to fishing activity are not important fishing grounds for Danish, Swedish nor German fishermen.

6.4 Control, enforcement and monitoring

The following two sections describe how the proposed management measures will be controlled, enforced and monitored. Changes in conservation status as well as monitoring of effects of implemented management measures are assessed in the Danish Monitoring Program (NOVANA).

6.4.1 Control and enforcement

Control and enforcement of fishery management measures in marine Natura 2000 sites in Denmark is coordinated by the Fishery Monitoring Center (FMC) under the Danish Agrifish Agency located in Kolding, Jutland. The Danish FMC has developed specific guidelines for fisheries control and enforcement, which were launched parallel to the implementation of the first national order for the protection of reef structures in four coastal Natura 2000 sites located in the western Baltic Sea.

All marine Natura 2000 sites are visible in the Danish V-track system[32]. The Danish FMC has developed a model whereby the center is alerted if and when a vessel enters the outlined area (control area) placed around the Natura 2000 sites for which fisheries management measures have been implemented. The control area has a minimum size of 4 nautical miles whereby any activity in the area will be detected. Every day FMC receives a list of the vessels which have been detected in the control areas the previous day. In case a vessel has been detected within a Natura 2000 site, an analysis of the vessels fishing pattern is carried out and the vessel is contacted with the purpose of informing the vessel owner of current fisheries management measures. The model allows for real time control as well as administrative control.

Since September 2013 when the first national administrative order was implemented for protection of reef structures in 4 coastal Natura 2000 sites, the FMC has detected both gillnet vessels and trawlers in the areas closed for fishing activities with mobile bottom contacting gear. An open dialogue with the fishermen so far seems to have had an effect.

Control and enforcement of fisheries management measures in marine Natura 2000 sites in Danish waters are centered around the VMS system, the risk based system used in regular fisheries control and enforcement as well as open dialogue with fishermen and their organizations. The Danish AgriFish Agency is fully aware of the challenges of control and enforcement of fisheries management measures for relatively small Natura 2000 sites, which can be passed in the time between two VMS pings.

Analysis of the fishing patterns in and around the four Natura 2000 sites, which the present proposal covers, shows that fishing activity with mobile bottom contacting gear in all four sites is relatively limited. Fishing activity do not take place in areas mapped as reefs (habitat code H1170 and/or H1180), but some fishing activity is seen in the buffer zones placed around the reefs. The analyses is based on VMS positions for Danish, Swedish and German vessels as well as information from smaller Danish vessels – see section 6.1 and 6.2 for more information on fishing pattern, target species etc. With the current fishing activity in mind, control and enforcement does not seem to be a major issue under a new regime with prohibition of certain fishing activities in the four Natura 2000 sites.

Denmark will reassess whether there is a need for additional technical equipment in relation to control and enforcement of the proposed fisheries management measures. An evaluation of the Danish control and enforcement model will take place in summer 2018 when the measures adopted for 10 Natura 2000 sites (Delegated Act (EU) 2015/1778) has been in place for 18 months. Thus, the Danish AgriFish Agency will, if the need arises, require usage of technical equipment (GPS and sensors as a minimum), in line with the current CCTV and technical specifications for some types of fishing activities in Danish waters both within and outside 12 nautical miles.

If the need arises for technical equipment in relation to fisheries control and enforcement – Denmark will coordinate such a requirement in accordance with Article 11 and 18 of the Basic Regulation and with the Member States having a direct management interest in the area, e.g. Sweden and Germany.

6.4.2 The national monitoring program – NOVANA

In Denmark, reef structures in Natura 2000 sites are monitored through NOVANA, the Danish national monitoring program. Within this program, reefs in open waters are monitored by the Danish Centre for Environment and Energy (DCE) University of Aarhus. DCE monitor reefs in 34 Natura 2000 sites following specific national guidelines. Of the 34 areas, boulder reefs in 12 areas are monitored yearly, whereas boulder reefs and "bubbling reefs" in the remaining 22 areas are monitored every six years. In addition to this program, the Danish Agency of Water and Nature monitors macro algae coverage and fauna on

[32] The V-track system displays VMS positions for vessels. For all vessels above 12 meters VMS is mandatory.

transects on reefs in the coastal zone[33]. Thus, the main aim is an assessment of biodiversity on and around the reef structures.

Thus, the effect of the proposed management measures will be monitored through the Danish national monitoring program NOVANA. Data from the marine monitoring stations located within and/or close to the Natura 2000 sites concerned provides the basis for the description of the current conservation status both in relation to basic analyses plans and management plans with macro algae being the main indicator.

The site 'Store Middelgrund' is monitored yearly at six depths. For the site 'Schultz, Hastens Grund og Briseis Flak', the area called 'Schultz Grund' is monitored yearly at six depths, where the areas called 'Briseis Flak' is monitored yearly at four depths. In the site 'Nordre Rønner', the bubbling reef is monitored once every six years, and reef habitat is monitored every six years as part of the coastal program.

'Store Middelgrund' is monitored yearly at six depths. For the site 'Schultz , Hastens Grund og Briseis Flak', is monitored yearly at six depths, and Briseis Flak is monitored yearly at four depths. In Nordre Rønner the bubbling reef is monitored once every six years, and reef habitat is monitored near every six years as part of the coastal program.

6.4.3 Expected outcome of the proposed fisheries management measures

The proposed fisheries management measures are expected to contribute to the obligation of ensuring a favorable conservation status for reef structures in Danish waters, e.g. reef structures with habitat codes H 1170 and H 1180.

Several studies have shown that fishing with mobile bottom contacting gears has a negative effect on the physical distribution of reef structures as well as their function in the ecosystem. When a trawl passes, stones and vegetation is damaged. These areas were once fishing grounds. Reduced effort and change of fishing gears to lighter trawls has resulted in low fishing effort in these areas when looking at the period 2011-2015. However, despite low fishing intensity in recent years, there is a need to ensure that the activity cannot be reinstated in future. Furthermore, until 2010, fishing for stones was allowed in Danish waters, also in areas now designated as Natura 2000 sites. Until 2008, extraction of building material was also taking place in areas now designated as Natura 2000 sites.

Thus, reef structures in Danish waters have been impacted from a range of activities over time and is now classified as being in an unfavorable conservation status, see Annex A. A total ban for fishing with mobile bottom contacting gears in areas mapped as reefs and in the surrounding buffer zone is expecting to contribute to an improved conservation status over time. A process which takes time and which should been seen a one of several initiatives from the Danish Government to improve the conservation status of these and other reef structures. Other initiatives cover regulation of extraction of sand and gravel, reduction of nutrient content in the water column, both by less flow from agricultural land but also through removal of nutrients from the water column by mussel production, outgrow of eel-grass among other initiatives.

Any change in conservation status and growth of characteristic species is monitored through the national monitoring program as described in section 6.4.2.

[33] Dahl, K. & Carstensen, J. (2008): Tools to assess conservation status on open water reefs in Natura 2000 areas. Nat Env R Inst, University of Aarhus, 25 pp. NERI Technical Report No. 663: http:// www.dmu.dk/Pub/FR663.pdf

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7. Link Guidance document: http://ec.europa.eu/environment/nature/natura2000/marine/docs/fish_measures.pdf
8. Link to Council Regulation (EU) No. 72/2016, fixing for 2016 the fishing opportunities fish stocks and groups of fish stocks, applicable in union waters and, to Union vessels: http://eur-lex.europa.eu/legal-content/EN/TXT/?qid=1459236619889&uri=CELEX:32016R0072
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10. Link Fisheries Act: https://www.retsinformation.dk/Forms/r0710.aspx?id=121218
11. Link Administrative order no. 408, 1 May 2007: https://www.retsinformation.dk/Forms/R0710.aspx?id=13043
12. Link Administrative order no. 1114, 25 November 2011: https://www.retsinformation.dk/Forms/R0710.aspx?id=139270
13. Link: Report – Mapping of Natura 2000 sites in 2011: http://naturstyrelsen.dk/publikationer/alle-publikationer/2013/dec/kortlaegning-af-natura-2000-habitaterne-boblerev-(1180)-rev-(1170)-sandbanker-(1110)/
14. The Natura 2000 Dialogue Forum: http://naturerhverv.dk/fileadmin/user_upload/NaturErhverv/Filer/Fiskeri/Natura_2000_hav/Natura_2000_dialogforum/Revideret_kommissorium_for_N2000_Dialogforum_020513.pdf
15. VMS = Vessel monitoring systems: satellite based monitoring system used in commercial fisheries.
16. Link Administrative order no. 1048 of 28 August 2013: https://www.retsinformation.dk/Forms/R0710.aspx?id=158209
17. Dahl, K. (2005): Effekter af fiskeri på stenrevs algevegetation. Danmarks Miljøundersøgelser. 16 s. – Faglig rapport fra DMU nr. 526; Kaiser, M. J., Collie, J. S., Hall, S. J., Jennings, S. and Poiner, I. R. (2002), Modification of marine habitats by trawling activities: prognosis and solutions. Fish and Fisheries, 3: 114–136; ICES. 2009. Report of the EMPAS project (Environmentally Sound Fisheries Management in Protected Areas), 2006-2008, an ICES-BfN project. 123 pp.
18. Dahl, K. (2005): Effekter af fiskeri på stenrevs algevegetation. Danmarks Miljøundersøgelser. 16 s. – Faglig rapport fra DMU nr. 526; Fenberg P.B.*, Caselle J., Claudet J., Clemence M., Gaines S., García-Charton J.A., Gonçalves E., Grorud-Colvert K., Guidetti P., Jenkins S., Jones P.J.S., Lester S., McAllen R., Moland E., Planes S. and Sørensen T.K. (2012) The science of European marine reserves: status, efficacy and needs. Marine Policy 36(5), 1012-1021; Collie, J. S., Hall, S. J., Kaiser, M. J. and Poiner, I. R. (2000), A quantitative analysis of fishing impacts on shelf-sea benthos. Journal of Animal Ecology, 69: 785–798 and Howarth L. et al. (2015) Sessile and mobile components of a benthic ecosystem display mixed trends within a temperate marine reserve. Marine Environmental Research 107: 8-23.

19. Link Administrative order no. 1048 of 28 August 2013: https://www.retsinformation.dk/Forms/R0710.aspx?id=158209
20. Dahl, K. (2005): Effekter af fiskeri på stenrevs algevegetation. Danmarks Miljøundersøgelser. 16 s. – Faglig rapport fra DMU nr. 526; Kaiser, M. J., Collie, J. S., Hall, S. J., Jennings, S. and Poiner, I. R. (2002), Modification of marine habitats by trawling activities: prognosis and solutions. Fish and Fisheries, 3: 114–136; ICES. 2009. Report of the EMPAS project (Environmentally Sound Fisheries Management in Protected Areas), 2006-2008, an ICES-BfN project. 123 pp.
21. Link Council Regulation (EC) No 2187/2005: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2005:349:0001:0023:EN:PDF
22. Link Council Regulation (EC) No 850/1998: http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=CONSLEG:1998R0850:20060117:EN:PDF
23. Natura 2000 site Store Middelgrund: Habitat No. 169, Natura 2000 site No. 193, EU site code: DK00VA250
24. Link to Natura 2000 management plan for Store Middelgrund: http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/plan-126-246/193-middelgrund/
25. Natura 2000 site Schultz og Hastens Grund samt Briseis Flak: Habitat No. 204, Natura 2000 site No. 204, EU site code: DK00VA303
26. Link to Natura 2000 management plan for Schultz og Hastens Grund samt Briseis Flak: http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/plan-126-246/204-schultz-og-hastens-grund-samt-briseis-flak/
27. Natura 2000 site Strandenge på Læsø og havet syd herfor: Habitat No. 9, Natura 2000 site No. 9, EU site code: DK00FX010
28. Link to Natura 2000 management plan for Strandenge på Læsø og havet syd herfor: http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/plan-1-125/9-strandenge-paa-laesoe/
29. Natura 2000 site Havet omkring Nordre Rønner: Habitat No. 176, Natura 2000 site No. 20, EU site code: DK00FX257
30. Link to Natura 2000 management plan for Havet omkring Nordre Rønner: http://naturstyrelsen.dk/naturbeskyttelse/natura-2000/natura-2000-planer/natura-2000-planer-2009-15/plan-1-125/20-nordre-roenner/
31. Further reference to principle in Danish case law: Decision by the Supreme Court (Højesterets Kendelse 356/2011): http://www.domstol.dk/hojesteret/nyheder/Afgorelser/Documents/356-2011.pdf
32. The V-track system displays VMS positions for vessels. For all vessels above 12 meters VMS is mandatory
33. Dahl, K. and Carstensen, J. (2008): Tools to assess conservation status on open water reefs in Natura 2000 areas. Nat Env R Inst, University of Aarhus, 25 pp. NERI Technical Report No. 663: http:// www.dmu.dk/Pub/FR663.pdf
34. Link to the EU Commissions Interpretation Manual of European Union Habitats: http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf
35. Link to the Codelist for species on the Reference Portal for Natura 2000: http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal
36. Link to Fisheries measures for marine Natura 2000 sites – a consistent approach to requests for fisheries management measures under the Common Fisheries Policy: http://ec.europa.eu/environment/nature/natura2000/marine/docs/fish_measures.pdf

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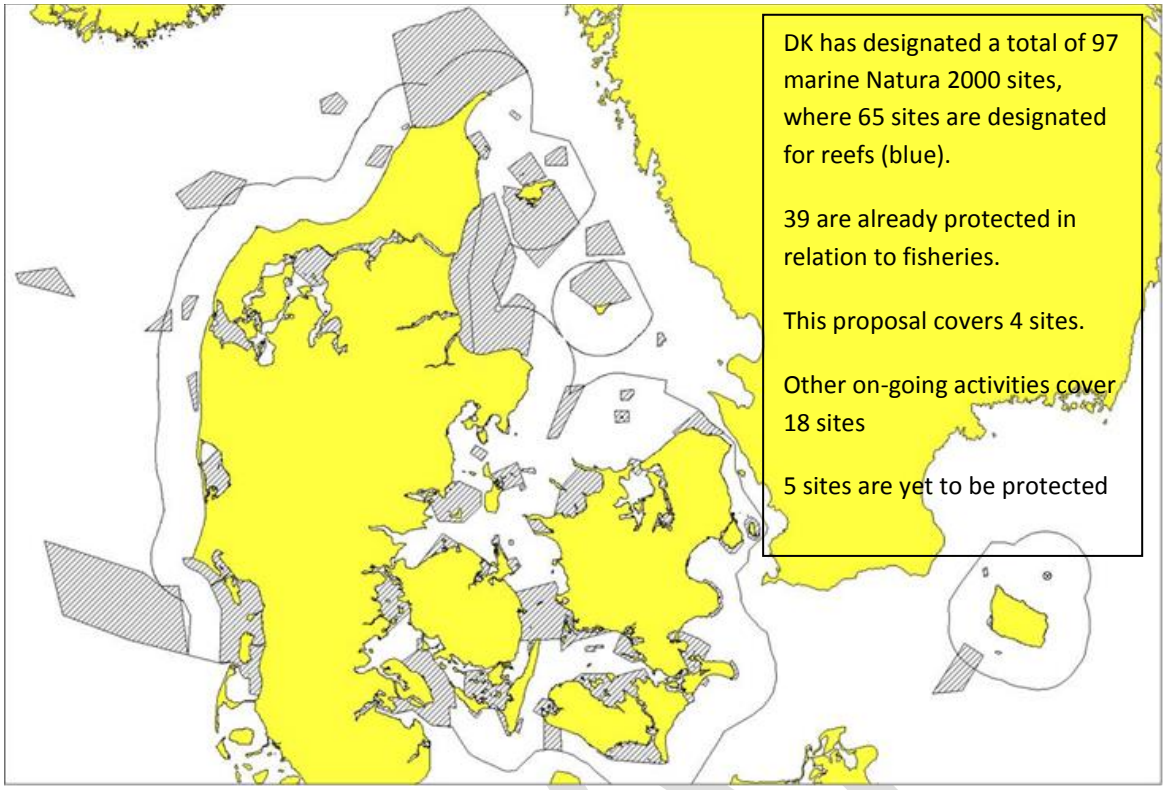
Annex A – Map of Danish marine Natura 2000 network



Designation codes are used (marine only) – definitions and further information regarding the designation types appears in the EU Commission´s "Interpretation Manual of European Union Habitats"[34] and "Code list for species" on the Reference Portal for Natura 2000[35].

1095 Sea lamprey
1099 River lamprey
1103 Twait shad
1110 Sandbank which are slightly covered by sea water all the time
1140 Mudflats and sandflats not covered by sea water at low tide
1150 Coastal lagoons
1160 Large shallow inlets and bays
1170 Reefs
1180 Submarine structures made by leaking gases
1351 Harbour porpoise
1364 Grey seal
1365 Harbour seal

A range of birds species

Table of designated habitat types and species for the 97 Danish Natura 2000 sites is given in the following pages.

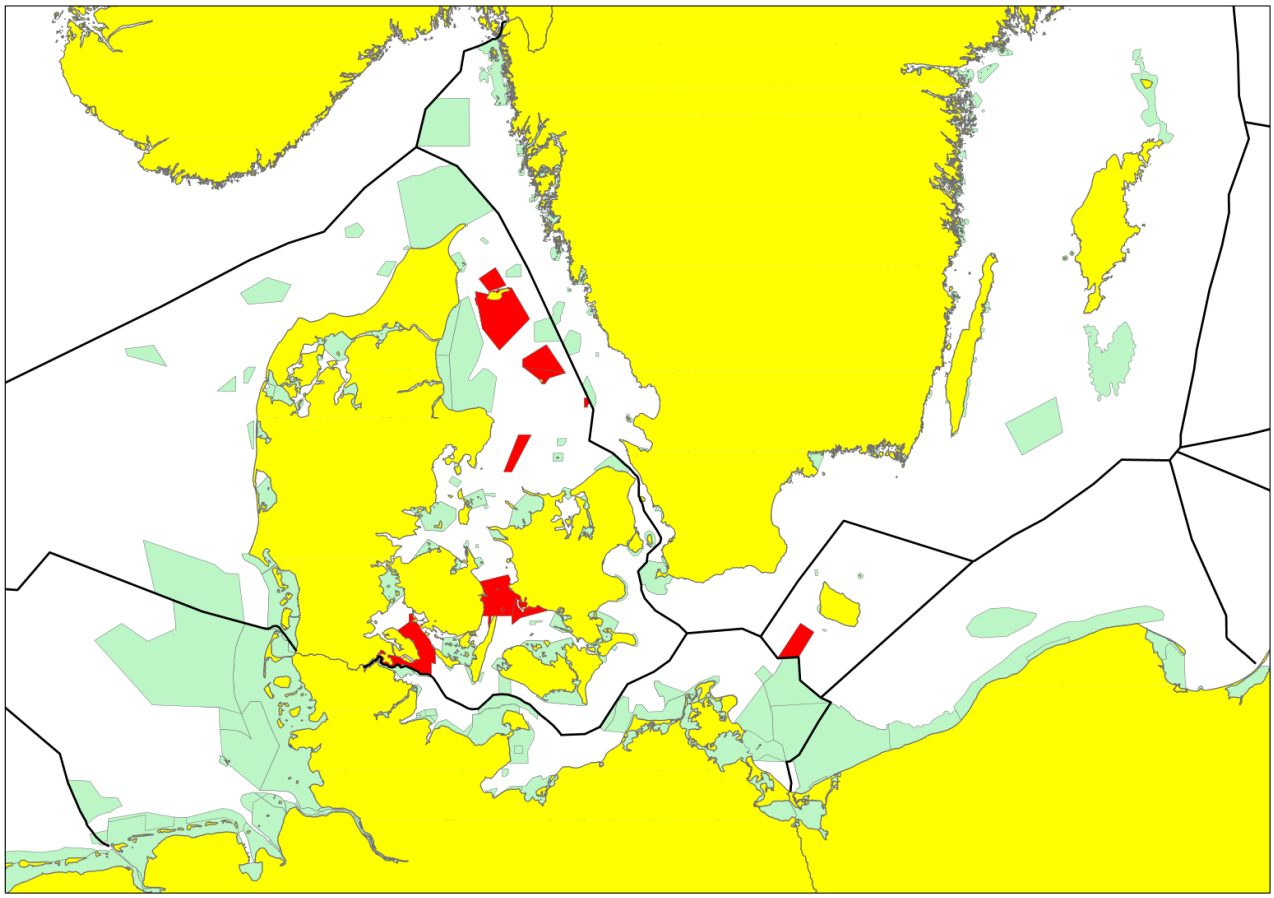
[34] http://ec.europa.eu/environment/nature/legislation/habitatsdirective/docs/Int_Manual_EU28.pdf
[35] http://bd.eionet.europa.eu/activities/Natura_2000/reference_portal

EU site code	N2000 site name (in Danish)	Size (ha)	Designated for: (only marine habitats and species mentioned)
DK00FX112	Skagens Gren og Skagerrak	270.295	1351, 1150
DK00FX113	Hirsholmene, havet vest herfor og Ellinge Å's udløb	9.533	1095,1364,1365,1110,1150,1170,1180, birds
DK00FX010	Strandenge på Læsø og havet syd herfor	102.714	1364,1365,1110,1140,1150,1170,1180, birds
DK00FX118	Holtemmen, Højsande og Nordmarken	713	1150
DK00FX122	Ålborg Bugt, Randers Fjord og Mariager Fjord	72.197	1095,1099,1103,1365,1355,1110,1130,1140,1150, 1160, birds
DK00FX123	Nibe Bredning, Halkær Ådal og Sønderup Ådal	20.341	1095,1099,1355,1365,1110,1150,1160,1170,1140, Birds
DK00EY124	Løgstør Bredning, Vejlerne og Bulbjerg	44.768	1095,1355,1365,1110,1140,1150,1160,1170, birds
DK00FX257	Havet omkring Nordre Rønner	18.535	1364,1365,1110,1140,1170,1180, birds
DK00FX128	Kielstrup Sø	40	1110, 1150
DK00EY133	Agger Tange, Nissum Bredning, Skibsted Fjord og Agerø	33.165	1103,1355,1365,1110,1140,1150,1160,1170, birds
DK00EX026	Dråby Vig	1.678	1103,1355,1365,1140,1150,1160,1170, birds
DK00EY134	Lovns Bredning, Hjarbæk Fjord og Skals, Simested mv.	23.520	1103,1355,1365,1140,1150,1160,1170, birds
DK00EX135	Kås Hoved	396	1355, 1150
DK00EY136	Sønder Lem Vig og Geddal Strandenge	1.115	1355, 1150
DK00EX258	Mågerodde og Karby Odde	497	1355,1150,1160, birds
DK00DX146	Anholt og havet nord for	47.878	1364,1365,1110,1150, birds
DK00DX151	Begtrup Vig og kystområder ved Helgenæs	1.771	1110,1150,1160,1170
DK00DX155	Stavns Fjord, Samsø Østerflak og Nordby Hede	15.663	1364,1365,1110,1150,1160,1170, birds
DK00DY156	Horsens Fjord, havet øst for og Endelave	45.823	1355,1364,1365,1110,1140,1150,1160,1170, birds
DK00CY040	Venø, Venø Sund	2.926	1103,1365,1150,1160,1170, birds
DK00CX160	Nissum Fjord	6.430	1095,1099,1103,1106,1355,1150, birds
DK00CX161	Stadil Fjord og Vest Stadil Fjord	6.903	1095,1355,1150, birds
DK00CY163	Ringkøbing Fjord og Nymindestrømmen	21.810	1095,1099,1102,1103,1106,1355,1130,1150, birds
DK00AY176	Vadehavet med Ribe Å, Tved Å og Varde Å vest for Varde	151.158	1095,1099,1103,1106,1113,1351,1355,1364,1365, 1110,1130,1140,1150,1160,1170,birds
DK008X182	Fyns Hoved, Lillegrund og Lillestrand	1.960	1351,1110,1140,1150,1160,1170
DK008X184	Æbelø, havet syd for og Nærå	13.161	1351,1365,1110,1140,1150,1160,1170, birds
DK008X185	Havet mellem Romsø og Hindsholm samt Romsø	4.328	1351,1110,1150,1160,1170
DK008X075	Odense Fjord	4.136	1110,1140,1150,1160,1170, birds
DK008X047	Lillebælt	35.043	1351,1110,1140,1150,1160,1170, birds
DK008X189	Østerø Sø	57	1150
DK008X190	Centrale Storebælt og Vresen	8.572	1351, 1170, birds
DK008X197	Bøjden Nor	114	1150
DK008X198	Maden på Helnæs og havet vest for	1.696	1351,1110,1160,1170
DK008X199	Vestlige del af Avernakø	124	1150
DK00VA200	Stenrev sydøst for Langeland	1.484	1110, 1170
DK008X201	Sydfynske Øhav	37.000	1110,1140,1150,1160,1170, birds
DK003X202	Hesselø med omliggende stenrev	4.193	1364,1365,1110,1150,1170
DK003X209	Roskilde Fjord	14.810	1110,1140,1150,1160, birds
DK002X110	Saltholm og omliggende hav	5.405	1364,1365,1110,1150,1160,1170, birds
DK002X111	Vestamager og havet syd for	6.179	1110,1150,1160, birds
DK004X217	Ølsemagle Strand og Staunings Ø	348	1140,1150,1160

DK005Y220	Havet og kysten mellem Hundested og Rørvig	3.900	1110,1150,1160, birds
DK005X221	Sejerø Bugt og Saltbæk Vig	40.000	1355,1110,1140,1150,1160,1170,birds
DK005X222	Udby Vig	384	1140, 1160
DK005X223	Åmose, Tissø, Halleby Å og Flasken	2.000	1130, 1150, birds
DK005Y229	Skælskør Fjord og havet og kysten mellem Agersø og Glænø	14.000	1110,1140,1150,1160,1170, birds
DK005X097	Hov Vig	45	birds
DK005X276	Røsnæs, Røsnæs Rev og Kalundborg Fjord	5.540	1351,1365,1160,1170
DK006X233	Havet og kysten mellem Præstø Fjord og Grønsund	28.600	1110,1140,1150,1160,1170, birds
DK006X234	Havet og kysten mellem Karrebæk Fjord og Knudshoved Odde	16.458	1365,1110,1140,1150,1160,1170, birds
DK00VA235	Kirkegrund	1.761	1110, 1170
DK006X090	Klinteskoven og Klinteskov kalkgrund	2.000	birds
DK006X238	Smålandsfarvandet nord for Lolland, Guldborg Sund mv.	79.069	1364,1365,1110,1140,1150,1160,1170, birds
DK006X242	Nakskov Fjord og inderfjord	7.574	1110,1140,1150,1160,1170, birds
DK006X260	Stege Nor	572	1150
DK006X279	Busemarke Mose og Råby Sø	242	1150
DK007X079	Ertholmene	1.256	1364, 1170, birds
DK00VA247	Kims Top og den Kinesiske Mur	26.092	1170, 1180
DK00VA248	Herthas Flak	1.380	1110,1170,1180
DK00VA249	Læsø Trindel og Tønneberg Banke	8.123	1110,1170,1180
DK00VA250	Store Middelgrund	2.094	1351,1110,1170,1180
DK00VA170	Mejl Flak	3.907	1110, 1170
DK00VA171	Gilleleje Flak og Tragten	15.034	1351,1110,1170
DK00VA253	Ryggen	437	1110, 1170
DK00VA254	Flensborg Fjord, Bredgrund og farvandet omkring Als	64.922	1351,1110,1170, birds
DK00VA255	Hatterbarn	633	1170
DK00VA256	Broen	588	1110, 1170
DK00VA301	Lønstrup Rødgrund	9.283	1170
DK00VA302	Knudegrund	748	1170
DK00VA303	Schultz og Hastens Grund samt Briseis Flak	20.710	1110, 1170
DK00VA304	Munkegrund	1.329	1110, 1170
DK00VA305	Stevns Rev	4.640	1110, 1170
DK00VA299	Lysegrund	3.158	1110, 1170
DK00VA307	Bøchers Grund	1.098	1170
DK00VA308	Davids Banke	838	1170
DK00VA309	Hvideodde Rev	789	1170
DK00VA310	Bakkebrædt og Bakkegrund	299	1110, 1170
DK00VA340	Sandbanker ud for Thyborøn	6.325	1110
DK00VA341	Sandbanker ud for Thorsminde	6.354	1110
DK00EX284	Risum Enge og Selde Vig	322	1110,1140,1150,1160
DK00DX319	Kastbjerg Ådal	38	1355,1110,1150,1160
DK00DX300	Mols Bjerge med kystvande	2.915	1110,1160,1170
DK00DX321	Kaløskovene og Kaløvig	280	1110,1140,1160,1170
DK00DX322	Kobberhage kystarealer	792	1110, 1170
DK003X297	Jægerspris Skydeterræn	569	1140, 1160
DK004Y335	Ryegård Dyrehave, Bramsnæs mv.	197	1160

DK008X329	Thurø Rev	163	1110,1150,1160,1170
DK00VA330	Ebbeløkke Rev	140	1170
DK003X333	Kyndby Kyst	360	1110,1140,1150,1160,1170
DK00FX122	Ålborg Bugt, østlige del	177.360	birds
DK00VA347	Sydlige Nordsø	246.296	1351,1364,1365,1110
DK00VA348	Thyborøn Stenvolde	7.804	1170
DK00VA257	Jyske Rev, Lillefiskerbanke	24.083	1170
DK00VA258	Store Rev	10.892	1351,1170,1180
DK00VA259	Gule Rev	47.059	1351, 1170
DK00VA260	Fehmern Bælt	11.456	1351
DK00VA261	Adler Grund og Rønne Banke	31.910	1110, 1170

Map Natura 2000 network (Danish Natura 2000 sites concerned are given in red color)



State of Play – implementation of Natura 2000 in Denmark

In the first plan period (2010-2015), Denmark has focus on protection of reef structures from irreversible damages due to impact from fishing activity.

The sites concerned in the present proposal, have also been designated for other marine habitats and species, e.g. sandbanks, harbor porpoises, seabirds etc. Formulation of necessary fisheries management measures in relation to the remaining habitats and species will be dealt with at a later stage. Several projects have been launched to increase the knowledge base regarding by-catch of harbor porpoise and seabirds.

Marine habitats and species to be given special focus will also be addressed in the management plans for the second plan period, which commences in 2016.

In relation to protection of reef structures in the Danish part of the Kattegat, state of play is that once the four sites the present proposal covers, have been fully protected, only one site remains. This site is expected to be protected in the course of 2016/ 2017 in a similar regional process.

At a national level – protection of reef structures is progressing. Of the 65 sites designated for reef, by end 2016 Denmark expects to have fully protected reef structures in 57 sites.

Natura 2000 site:	**Designated for:**	**Present conservation status/ trend:**
Store Middelgrund	1351 Harbor porpoises	Unfavourable conservation status
	1110 Sandbanks	Unfavourable conservation status
	1170 Reefs	Unfavourable conservation status
	1180 Bubbling reefs	Unfavoruable conservation status
Schultz, Hastens Grund samt Briseis Flak	1110 Sandbanks	Unfavoruable conservation status
	1170 Reefs	Unfavoruable conservation status
Strandenge på Læsø	1364 Grey seal	Unfavourable conservation status
	1365 Harbour seal	Unfavoruable conservation status
	1110 Sandbanks	Unfavoruable conservation status
	1140 Mud- and sandflats	Unfavoruable conservation status
	1150 Coastal lagunes	Unfavoruable conservation status
	1170 Reefs	Unfavourable conservation status
	1180 Bubbling reefs	Unfavoruable conservation status
	Birds:	*Trend:*
	Sandwich tern	Increasing
	Common tern	Decreasing
	Little tern	Stable
	Common eider (winthering)	Decreasing
	Common Scoter (winthering)	Increasing
	Velvet scoter (winthering)	Decreasing
Havet omkring Nordre Rønner	1365 Harbour seals	Unfavoruable conservation status
	1110 Sandbanks	Unfavoruable conservation status
	1140 Mud- and sandflats	Unfavoruable conservation status
	1170 Reefs	Unfavoruable conservation status
	1180 Bubbling reefs	Unfavoruable conservation status
	Birds:	*Trend:*

State of play – Sweden:

In the Kattegat, Sweden has designated a Natura 2000 site, "Store Middelgrund", which is located adjacent to the Danish site also called "Store Middelgrund". The Swedish site is designated for the protection of reef structures (H1170) and harbor porpoise. Sweden is in the process of formulating necessary fisheries management measures for the site.

Map above and in annex L shows the location of the Danish and Swedish sites.

In Sweden, there is an ongoing process concerning fisheries conservation measures in marine protected areas. A questionnaire was sent out to the County Administrative Boards responsible for the implementation and management of the protected areas in 2014. The results from the questionnaire show that fisheries conservation measures need to be adopted in around 30 marine protected areas in Sweden for the purpose of complying with obligations under environmental legislation. Of these, there are about ten areas located outside 12 nautical miles and therefore will be treated within articles 11 and 18 of the Common Fisheries Policy. Additionally, a number of marine protected areas are soon to be implemented in order to reach the Swedish environmental milestone target of 10% protection in an ecologically representative, connected and functional network of marine protected areas.

Swedish marine protected areas adjacent to areas in the Danish proposal (Kattegat), in need of fisheries conservation measures

Stora Middelgrund and Röde Bank

Natura 2000	Ospar (MFSD)
1110, Sandbanks	Modiolus modiolus beds
1170, Reefs	Sea-pen and burrowing megafauna communities
Phocoena phocoena, Harbor porpoise	

Fladen

1110, Sandbanks	Modiolus modiolus beds
1170, Reefs	Sea-pen and burrowing megafauna communities
1180, Submarine structures made by leaking gasses	
Harbor porpoise	

Lilla Middelgrund

1110, Sandbanks	Modiolus modiolus beds
1170, Reefs	Sea-pen and burrowing megafauna communities
Rissa tridactyla, Kittiwake	Maerl beds
Uria aalge, Guillemot	
Alca torda, Razorbill	
Phocoena phocoena, Harbor porpoise	

For HELCOM biotopes and biotope complexes se HELCOM MPA database
According to the latest Article 17 reporting, which is done at biogeographical level (MATL), the status of the Natura 2000 habitats and species were in 2013:

- Sandbanks – unfavorable with a negative trend
- Reefs – unfavorable with stable or unknown trend
- Submarine structures made by leaking gasses - unfavorable with stable or unknown trend
- Harbor porpoise - unfavorable with stable or unknown trend.

State of play – Germany

Germany do not have any Natura 2000 sites bordering the Danish Natura 2000 sites in the Kattegat.

Annex B – Overview of designation of Natura 2000 sites

Natura 2000 site name	EU-code site number	Designated as PSCI (year)	Revised PSCI (year)	SCI appointed (year)	SAC appointed (year)	Total area (km^2)	Reef area (H1170) mapped inside N2000 site (km^2)
Store Middelgrund	DK00VA250	1995	1998	2005	2011	21.37	16.51
Schultz og Hastens Grund samt Briseis Flak	DK00VA303	1995	1998	2005	2011	207.40	31.92
Strandenge på Læsø og havet syd herfor	DK00FX010	1998	1998	2005	2011	669.90	69.15
Havet omkring Nordre Rønner	DK00FX257	1998	1998	2005	2011	185.35	25.40

All the above mentioned Natura 2000 sites are also designated as HELCOM and/ or OSPAR marine protected areas.

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Annex C – TAC's and Fishing opportunities for 2016

The Natura 2000 sites "Store Middelgrund" and "Schultz and Hastens Grund" are located in the Danish EEZ of the Kattegat, ICES division IIIas.

In the Danish EEZ, the Member States given in the table below have fishing opportunities, according to Council Regulation (EU) No. 72/2016, fixing for 2016 the fishing opportunities fish stocks and groups of fish stocks, applicable in Union waters and, to Union vessels, in certain non-Union waters, TACs applicable to union vessels in areas where TACs exist by species and by area are listed.

The table below gives an overview of the total allowable catches (in 2016) in areas where IIIaS (Kattegat) is part of the quota – see further in footnotes below the table.

	TAC´s (2016)							
	Denmark	Belgium	Germany	France	Ireland	The Netherlands	Sweden	United Kingdom
ARU[1)]	911		9	7	7	43	35	16
USK[2)]	15		7				7	
HER[3)]	26.870		390				23.070	
COD[4)]	228		5				137	
HAD[2)]	3.163	19	201			4	374	
WHG[3)]	929					3	99	
HKE[2)]	2.762						235	
BLI[5)]	3		2				3	
LIN[5)]	50	6	6				19	6
NEP[2)]	8.085		23				2.893	
PRA3)	4.237						2.282	
PLE4)	2.089		23				235	
POK6)	2.703	23	6.825	16.062		68	371	5.232
SRX3)	37						10	
MAC6)	19.461	566	590	1.781		1.793	5.389	1.661
SOL2)	328		19			32	12	
SPR3)	22.300		47				8.437	
NOP7)	128.880		25			95		

1) Union waters and III and IV
2) IIIa, Union waters of subdivision 22-32
3) IIIa
4) Kattegat, IIIaS
5) Union and international waters of III
6) IIIa and IV; Union waters of IIa, IIIb, IIIc and subdivisions 22-32
7) IIIa; Union waters of IIa and IV

ARU:	Greater silver smelt, *Argentina silus*
USK:	Tusk, *Brosme brosme*
HER:	Herring, *Clupea harengus*
COD:	Cod, *Gadus morhua*
HAD:	Haddock, *Melanogrammus aeglefinus*
WHG:	Whiting, *Merlangius merlangus*
HKE:	Hake, *Merluccius merluccius*
BLI:	Blue ling, *Molva dypterygia*
LIN:	Ling, *Molva molva*
NEP:	Norway lobster, *Nephrops norvegicus*
PRA:	Northern Prawn, *Pandalus borealis*
PLE:	Plaice, *Pleuronectes platessa*
POK:	Saithe, *Pollachius virens*
SRX:	Skates and Rays, *Rajiformes*
MAC:	Mackerel, *Scomber scombrus*
SOL:	Common Sole, *Solea solea*
SPR:	Sprat, *Sprattus sprattus*
NOP:	Norway Pout, *Trisopterus*

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Annex D – Overview of the 11 information items in the Commission guidelines from 2008

The table below gives an overview of how the present proposal has covered the 11 information items of the Commission's guidelines from 2008[36] concerning development of proposals for fisheries management measures in marine Natura 2000 within the scope of the CFP.

	Section
1. Comprehensive description of the natural features including distribution within the site	2.3.2, 5.1
2. Scientific rationale for the site´s selection in accordance with the information provided in the Natura 2000 data form. Intrinsic value of its features. Specific conservation objectives.	2.3
3. Basis for the spatial extent of the site boundary clearly justified in terms of conservation objectives.	2.3
4. Threats to habitats and species from different types of fishing gear. List of other human activities in the area that could damage the habitats.	2.3, 4.1
5. Fleet activity in the area and in the region, distribution of fleets (by nation, gear and species), and information on target and by-catch species, all over the last 3 years.	6.1
6. Annual trends in fisheries over the last 3 years.	6.2
7. Proposed fisheries management measures to maintain the habitats features in favourable condition. Are they proportionate and enforceable? Other conservation measures that apply to the area.	1.3, 3.1, 4, 5.2
8. Control measures envisaged by the Member State, possible ecological and control buffer zones to ensure site protection and/or effective control and monitoring measures.	6.4
9. Measures to monitor and assess the maintenance and/or recovery of the features within the site.	6.4
10. Coordination with neighbouring Member States as appropriate.	3.2
11. Evaluation of possible displacement of fishing effort and impact on new areas.	6.3

[36] Fisheries measures for marine Natura 2000 sites – a consistent approach to requests for fisheries management measures under the Common Fisheries Policy: http://ec.europa.eu/environment/nature/natura2000/marine/docs/fish_measures.pdf

Annex E – Scientific advice regarding protection of reef structures through buffer zones

Protection of stone reefs (habitat code H1170) and bubbling reefs (habitat code H1180)

For protection of stone reefs and bubbling reefs (habitat code H1170 and H1180) different protection measures can be implemented. DTU Aqua has in relation to the present proposal provided scientific advice to the Danish AgriFish Agency with regard to protection of reef structures.

DTU Aqua has analyzed fishing activity in and around the concerned Natura 2000 sites using VMS data from Danish fishing vessels (vessels => 12m in length in 2012, vessels>=15 m in length in 2008-2011) for the period 2008-2012. Based on these analyses, DTU Aqua has advised upon the need for the protection of habitat code H1170 and H1180 against any unintended impact from mobile bottom contacting fishing gear, and that a safety zone (buffer zone) should be implemented around the mapped reef structures.

The safety zone is calculated by taking water depth, warp length and the length of the fishing gear into account. The standard warp length used by trawlers in the concerned Natura 2000 sites is three times the water depth, when water depth is less than 200 meter.

Water depth around the marine habitats (H1170 and H 1180) varies from 30 – 40 meters depth in the Kattegat area where the concerned Natura 2000 sites are located. DTU Aqua has advised the Danish AgriFish Agency to use the proportion 4:1 + length of the gear + 1 times the water depth for safety. This method has resulted in a buffer zone of 240 meters around the mapped reef structures – code H1170.

DTU Aqua has furthermore advised that for habitat code H1180 usage of any other gear type ought to be prohibited if full protection of this reef type is wanted.

The method of safety zones (buffer zones) is in line with the advice by ICES to a NEAFC request of the appropriateness of buffer zones (ICES Advice 2013, Book, 1.5.5.2. Special request, Advice June 2013). ICES Advice June 2013 is attached below.

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1.5.5.2 **Special request, Advice June 2013**

ECOREGION **General advice**
SUBJECT **Evaluation of the appropriateness of buffer zones**

Advice summary

Both the VME location accuracy and a buffer zone are considered when delineating the closure boundary around VMEs. ICES is confident that the buffer zone considerations used to define the boundaries around the area closures are appropriate and therefore adequate for the protection of VMEs. A schematic diagram of the approach to generate buffer zones is presented. The buffer zones will always be included in ICES advice and will be illustrated where appropriate to the scale of the closure.

Request

ICES is requested to evaluate whether buffer zones applied in the current bottom fishing closures are appropriate. Additionally, ICES is requested to include, specify and illustrate buffer zones in its future advice on closures in the Regulatory Area as appropriate.

Advice

Two different considerations are used to delineate buffer zones around VMEs; one is linked to the VME location accuracy, the other to setting a buffer zone around the VME location (Figure 1.5.5.2.1).

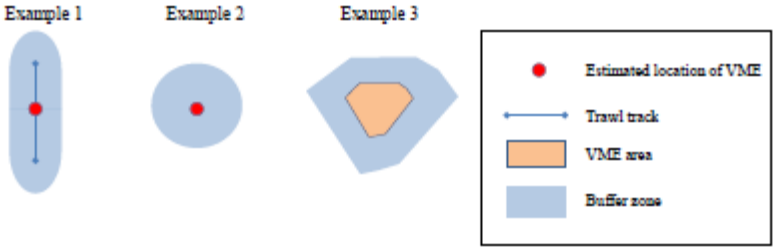

Figure 1.5.5.2.1 Three conceptual examples of the two considerations for delineating buffer zones around VMEs, applied to three theoretical examples of VME closures. Example 1: isolated VME detection with low geospatial certainty (e.g. trawl track); Example 2: isolated VME detection with high geospatial certainty (e.g. ROV observation); and Example 3: area identified as hosting a VME.

Consideration 1. VME location accuracy

The data used by ICES to assess the likelihood of VME presence consists of mainly point records of species (Figure 1.5.5.2.1). While recognising this is the best available data, there are varying levels of spatial uncertainty associated with the records, ranging from trawl bycatch with low spatial accuracy (Example 1) to dynamically positioned ROV observations with high spatial accuracy (Example 2) and areas identified as hosting VMEs (Example 3). This uncertainty in VME location is dealt with by outlining the minimum boundary that encompasses the records. In the case of records derived from trawling, the deviation perpendicular to the track is considered negligible relative to the length of the track and is not taken into account in the VME location.

While spatial accuracy of the position of VMEs has improved over time, there are still a high number of records where the location accuracy is unknown. In such cases a simple buffer is applied (see Consideration 2).

Consideration 2. Buffer zone around VME location

ICES considers a buffer zone to be a spatial margin of assurance around the VME to avoid adverse impact (Figure 1.5.5.2.1). The spatial extension of the buffer zone may vary and is based on the following:

- The potential for fishing gear to stray into the VME is related to the uncertainty of the location of the fishing gear relative to the known location of the vessel. This will be a function of water depth and the trawl warp length deployed. In deep-water trawling, the typical warp length deployed decreases with water depth, from around 3:1 at 200 m to 2:1 at 500 m and more. For VMEs that occur on flat or undulating seabed a buffer zone of approximately two (>500 m depth) or three times (< 500 m depth) the local depth is advised.

- In the case of VMEs on very steep slopes, the risk of straying of bottom trawls is mitigated by the fishers' own incentive to avoid the steep slopes and cliff edges, in which case the buffer zone may be reduced.
- In some cases the presence of geomorphological features are used to define boundaries for closures on the basis that they are considered to be VME elements, in which case the VME reflects the topographic relief of the VME element without a buffer zone.

As both the VME location accuracy and a buffer zone are considered when advising on a closure boundary around VMEs, ICES is confident that the buffer zone considerations used to extend closures beyond the immediate estimated position of a VME are appropriate and therefore adequate for the protection of VMEs.

The buffer zone approach described here does not take into account any issues specifically related to enforcement.

Source

ICES 2013. Report of the ICES/NAFO Joint Working Group on Deep-water Ecology (WGDEC). ICES CM 2013/ACOM: 28.

Annex F - Overview of formal consultations

Since the initiative for protection reef structures in Natura 2000 sites was launched in spring 2011, formal and informal consultations have been held with various stakeholders. The table below lists the meetings held in relation to the present proposal

Date	**Meeting**	**Participants**
9 May 2016	Pre-consultation meeting	DK (chair), DE, SE, PL
23 May 2016	Consultation with Natura 2000 Dialogue Forum and Advisory Councils	National stakeholders (fishery and green NGO's), BSAC and NSAC
22 June 0216	1. Meeting ad hoc working group	DK (chair), DE, SE, PL
5 July 2016	Consultation with DG MARE and DG ENVI	Marta Janakakisz, Fotios Papulinas, Marita Arvela
25 August 2016	2. Meeting ad hoc working group	DK (chair), DE, SE, PL
14 September 2016	3. Meeting ad hoc working group	DK (chair), DE, SE, PL, BE
Xx October	4. Meeting ad hoc working group	

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Annex G Summary of regional coordination process

Outcome of meetings in the established ad hoc working group

Meetings were held on the following dates:

- 22 June 2016
- 25 August 2016
- 14 September 2016

Minutes of these meetings are given below [will be inserted once the JR has been developed]

Outcome of consultations with the European Commission

Minutes of these meetings are given below [will be inserted once the JR has been developed]

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Annex H Summary of outcome of consultation with the *Natura 2000 Dialogue Forum* and Advisory Councils for the Baltic and North Sea, respectively

Minutes from meeting with national stakeholders (*Natura 2000 Dialogue Forum*) and Advisory Councils for the Baltic and North Sea - 23 May 2016

The Danish AgriFish Agency had invited stakeholders to a consultation of the two Danish proposals for fisheries management measures in 7 Natura 2000 sites currently being discussed with Member States with direct management interests. The two proposals were forwarded prior to the meeting (8 April 2016) for commenting. Deadline for forwarding comments was 31 May 2016.

List of attendees is given in annex 1. Prior to the consultation meeting, OCEANA had forwarded written comments -given in annex 2. The Danish Fishermen Association PO, has given their comments in the process of designing the buffer zones and coordinates.

The Danish AgriFish presented the proposed fisheries management measures for the 4 N2000 sites in the Kattegat; "Store Middelgrund", "Schultz, Hastens Grund samt Briseis Flak", "Strandenge på Læsø og havet syd herfor" and "Havet omkring Nordre Rønner" – and for the 3 N2000 sites in the Danish part of the western Baltic Sea; "Centrale Storebælt og Vresen", "Flensborg Fjord, Bredgrund og farvandet omkring Als" and "Adler Grund og Rønne Banke".

The proposed management measures were presented and the rationale explained; a ban for mobile bottom contacting gears in areas mapped as reef structures (H1170) and in 240 meters surrounding buffer zone – and a total ban for all commercial fisheries near bubbling reefs (H1180). Analysis of fishing activity based on the forwarded fishery data from Member States shows that fisheries – Danish vessels or other Member States' vessels, does not take place in the areas mapped as reef structures, which will be restricted for fisheries. The extent of displacement is therefore minimal.

The Danish Nature Agency supplemented with a presentation of the designation of the sites, the formulation of management plans and actions to be taken in the sites, the mapping exercise and finally the national monitoring programme (NOVANA).

A summary of the comments received in relation to the two proposals is given below.

The BSAC representative reported that none of the 25 BSAC members had specific comments to the Danish proposals, but all welcomed the Danish initiative.

The NSAC representative took notice of the fact that if fisheries does not occur in the sites, then how will Denmark secure environmental favourable conditions in the areas by imposing fishing restrictions. The scientific rationale for this is not clear. Neither is the legal framework for this.

Further the proposed prohibited gear types should be categorized in light and heavy gear types – e.g. Scottish seines should be considered as a light gear type and not necessarily be prohibited.

The Danish Fisheries Association PO: agreed to the obligation of protection of reef structures and the method used with site specific regulation, although there should be given special attention to fisheries from smaller vessels, e.g. Flensborg Fjord. Further fisheries data should be given for a longer period of time instead of only 4 years, which is not sufficient. The Danish AgriFish Agency should take notice of any potentially future fisheries opportunities, e.g. fishery for sandeel in new areas.

DFPO pointed out, that although there´s a lack of species/macro algae, it is not necessarily a problem caused by fishery. The high content of nutrients in the water column could also be the reason.

The NGO´s (OCEANA and WWF): OCEANA had prior the meeting forwarded comments to the two proposals (annex 2). Both OCEANA and WWF welcomes the Danish initiative and stress the importance of adequate protection of areas the reef structures. However, the Danish approach is unambitious and instead of a site specific management which only leads to fragmented protection from fisheries. More coherent protection zones and a holistic and ecosystem based approach would provide more protection (and restoring) of the habitat and species located near it.

Further when sandbanks have been mapped in the sites, this habitat type should also be protected from fisheries and not wait on processes in other countries (e.g. Dogger Bank), Annex A lists OCEANAs comments.

After the meeting, the Danish Agrifish Agency has received comments from WWF. The forwarded comments support the written comments given by OCEANA and the comments presented at the meeting. WWF requests for the zone protecting bubbling reefs in the site 'Nordre Rønner' to be combined and for a more holitic approach to MPA management to be followed.

Comments from the Danish AgriFish Agency and the Danish Nature Agency: The two agencies welcomed the comments. The NSAC has several comments, which were not solely directed to the Danish proposals. Thus, it was agreed that a separate answer would be given to the more principal questions raised. Regarding rationale and scientific evidence, scientific evidence is clear in relation to reef structures and gear types. Same is not given for sandbanks. The Danish proposals should also been seen in relation to future fishing activities, whereby the proposed measures will guarantee protection. Other threats are also being addressed by other agencies, e.g. extraction of gravel and sand, construction work etc.

The proposed measures should been seen together with other initiatives as Denmark's contribution to achieving good environmental status in our waters. The Danish approach focuses on reef protection, since this habitat type is the most vulnerable habitat type in relation to fishery. Once more studies have been done on sandbanks, it will be assessed whether there is a need for further protection. Impact from fishery on sandbank is less clear, and before fisheries management measures can be proposed, more information is needed.

The agencies took notice of the request from the green NGO's to combine some of the buffer zones in the site "Strandenge på Læsø og havet syd herfor".

Further process in relation to comments received regarding the Danish proposals for fisheries management measures for protection of reef structures designated under the habitats directives

The Danish AgriFish Agency and the Danish Nature Agency has discussed the comments received and finds no need for substantial editorial changes. The proposed fisheries management measures aim at ensuring adequate protection of reef structures designated under the Habitats Directive. This initiative will contribute to a better environmental status in the Danish waters. The designated reef structures will be protected in their full extent, also if the reef structures go beyond the boundaries of the Natura 2000 site. The rationale behind this is given in section 4. There is no rationale for protecting the entire site/full closure, if reef structures are not present. Proposed measures must comply with the proportionality principle so that they do not go any further than necessary to ensure the needed protection of the mapped reef within the framework of the habitats directive. The aim of Article 6 (2,3) is to find the balance between protection of marine habitats and species and management of fishing activities. Also assessing the precautionary principles.

The Danish AgriFish Agency has been focusing on protection of reef structures since 2011, due to a urgent need for actions to be taken. With 65 Natura 2000 sites designated for reef structures, this a large task to finalize. Sandbanks will be protected when there is scientific advice on the protection needs of the habitat

type. There is an ambition of launching the work of formulating necessary fisheries management measures in 2017. The outcome of the EU funded 'Benthis project' is expected to be an important input in this work.

Annex 1

List of participants:

BSAC:	Sally Clink
NSAC:	Peter Breckling
OCEANA:	Hanna Paulomaki
WWF Denmark:	Mette Blæsbjerg
Danish Fishermen Association PO: Bælternes Fiskeriforening:	Henrik Lund Allan Buch
DTU Aqua:	Thomas Kirk Sørensen
The Danish Nature Agency:	Marie-Louise Krawack
Fishery Control Unit, AgriFish Agency:	Jacob Handrup
Center for Fishery, AgriFish Agency:	Bjørn Wirlander, Anja Gadgård Boye, Elsbeth Teichert & Pernille B. Jensen

The following organizations/ representatives could not participate

NSAC:	Henrike Semmeler
Danish Nature Conservation Association:	Bo Håkonsson

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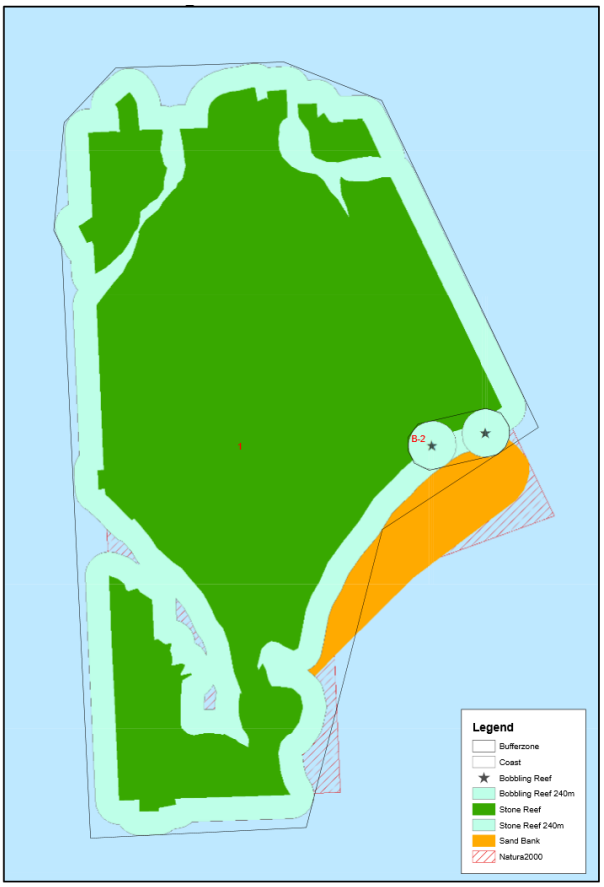
Annex I – Buffer zones and coordinates

"Store Middelgrund"

Habitat No. H169, Natura 2000 site No. 193 (EU Code: DK00VA250)

Map showing positions of buffer zones around stone reefs (H1170) and bubbling reefs (H1180)



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Coordinates of the buffer zone which form the protection of **stone reefs**:

Reef no.	Latitude	Longitude
1	56 34.52' N	12 2.208' E
1	56 34.612' N	12 2.136' E
1	56 35.19' N	12 2.285' E
1	56 35.474' N	12 2.817' E
1	56 35.465' N	12 4.468' E
1	56 35.233' N	12 5.415' E
1	56 33.428' N	12 6.808' E
1	56 32.915' N	12 5.233' E
1	56 31.324' N	12 4.355' E
1	56 31.318' N	12 2.235' E
1	56 31.318' N	12 2.235' E

Coordinates of the buffer zone which form the protection of **the bubbling reefs:**

Reef no.	Latitude	Longitude
B-2	56 33.544' N	12 6.298' E
B-2	56 33.409' N	12 5.528' E
B-2	56 33.335' N	12 5.519' E
B-2	56 33.265' N	12 5.575' E
B-2	56 33.383' N	12 6.519' E
B-2	56 33.476' N	12 5.629' E
B-2	56 33.544' N	12 6.298' E
B-2	56 33.517' N	12 6.446' E
B-2	56 33.443' N	12 6.52' E
B-2	56 33.331' N	12 6.476' E
B-2	56 33.292' N	12 6.396' E
B-2	56 33.224' N	12 5.717' E

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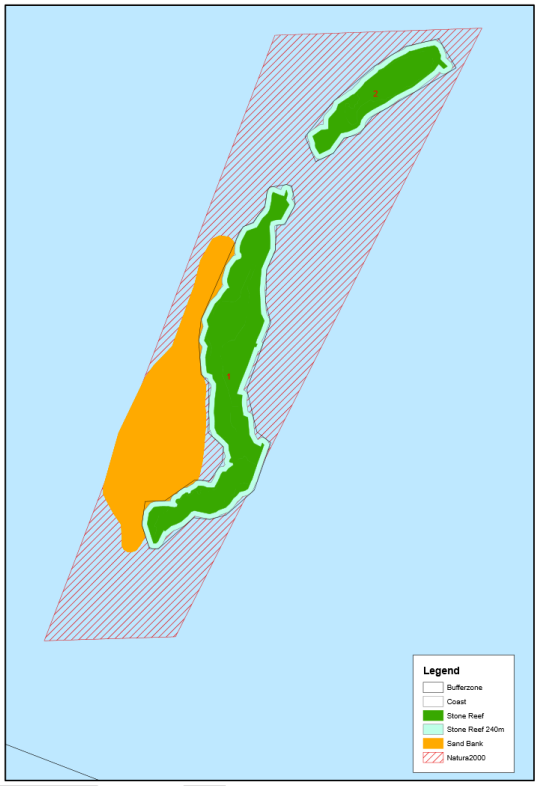
"Schultz og Hastens Grund samt Briseis Flak"

Habitat No. H204, Natura 2000 site No. 204 (EU Code: DK00VA303)

Map on right showing positions of buffer zones around stone reefs (H1170)

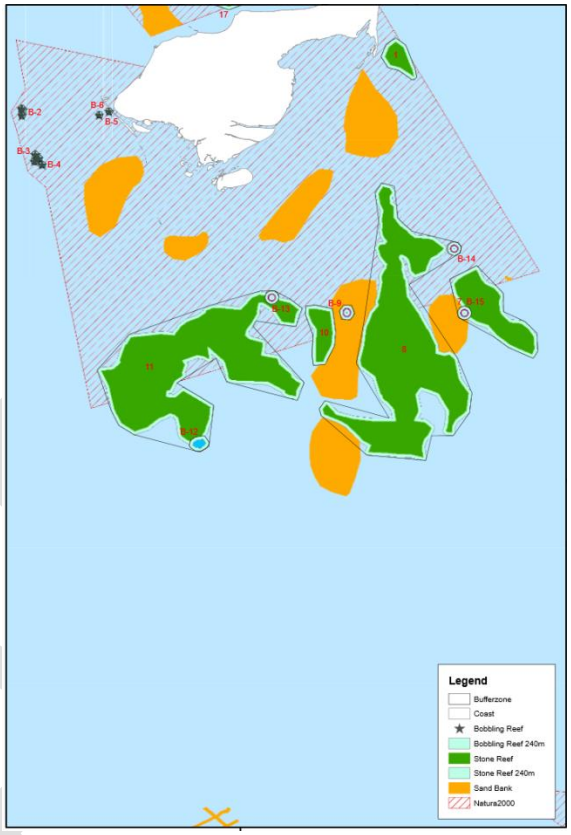


Coordinates of the buffer zone which form the protection of **the stone reefs**:

Reef no.	Latitude	Longitude
1	56 11.54' N	11 11.308' E
1	56 12.748' N	11 11.412' E
1	56 12.977' N	11 11.076' E
1	56 13.812' N	11 11.019' E
1	56 14.318' N	11 11.153' E
1	56 16.409' N	11 12.95' E
1	56 16.553' N	11 13.137' E
1	56 16.645' N	11 13.574' E
1	56 17.029' N	11 14.117' E
1	56 17.401' N	11 14.234' E
1	56 17.495' N	11 14.355' E
1	56 17.543' N	11 15.095' E
1	56 17.543' N	11 15.095' E
1	56 17.511' N	11 15.328' E
1	56 17.047' N	11 15.456' E
1	56 16.571' N	11 14.971' E
1	56 16.555' N	11 14.611' E
1	56 15.931' N	11 14.504' E
1	56 15.479' N	11 14.11' E
1	56 14.679' N	11 14.013' E
1	56 14.193' N	11 14.207' E
1	56 12.565' N	11 13.067' E
1	56 11.523' N	11 13.443' E
1	56 11.247' N	11 14.042' E
1	56 10.105' N	11 13.247' E
1	56 9.516' N	11 11.983' E
1	56 9.417' N	11 11.258' E
1	56 9.476' N	11 10.556' E
1	56 8.737' N	11 8.954' E
1	56 8.756' N	11 8.568' E
1	56 9.334' N	11 8.269' E
1	56 9.907' N	11 8.446' E
1	56 9.914' N	11 9.319' E
1	56 10.4' N	11 10.654' E
1	56 10.362' N	11 11.298' E
1	56 10.805' N	11 11.88' E
1	56 11.184' N	11 11.956' E
2	56 20.985' N	11 22.005' E
2	56 20.367' N	11 19.136' E
2	56 19.547' N	11 17.294' E
2	56 18.7' N	11 15.982' E
2	56 18.724' N	11 18.399' E
2	56 20.817' N	11 20.511' E
2	56 18.27' N	11 17.204' E
2	56 18.629' N	11 17.695' E
2	56 18.078' N	11 16.411' E
2	56 18.7' N	11 15.982' E
2	56 20.257' N	11 22.733' E
2	56 20.13' N	11 22.319' E
2	56 19.134' N	11 18.983' E

"Strandenge på Læsø og havet syd herfor"

Habitat No. H9, Natura 2000 site No. 9 (EU Code: DK00FX010)



Map showing positions of buffer zones around stone reefs (H1170) and bubbling reefs (H1180)

Coordinates of the buffer zone which form the protection of **the stone reefs**:

Reef no.	Latitude	Longitude
1	57 16.590' N	11 14.495' E
1	57 16.256' N	11 14.59' E
1	57 16.169' N	11 14.409' E
1	57 16.169' N	11 14.209' E
1	57 16.677' N	11 12.483' E
1	57 17.116' N	11 12.001' E
1	57 16.556' N	11 13.269' E
1	57 17.591' N	11 12.392' E
1	57 17.591' N	11 12.392' E
1	57 17.86' N	11 13.122' E
1	57 17.55' N	11 13.861' E
7	57 5.371' N	11 20.659' E
7	57 6.381' N	11 21.944' E
7	57 5.91' N	11 22.787' E
7	57 5.18' N	11 22.809' E
7	57 8.174' N	11 16.527' E
7	57 8.68' N	11 18.549' E
7	57 7.534' N	11 20.441' E
7	57 6.804' N	11 20.398' E
7	57 5.816' N	11 19.63' E
7	57 6.634' N	11 17.078' E
7	57 8.174' N	11 16.527' E
7	57 4.903' N	11 22.463' E
8	57 9.615' N	11 17.231' E
8	57 10.129' N	11 13.882' E
8	57 2.822' N	11 17.65' E
8	57 11.948' N	11 12.687' E
8	57 12.088' N	11 11.741' E
8	57 10.658' N	11 12.883' E
8	57 3.599' N	11 17.885' E
8	57 5.012' N	11 16.909' E
8	57 8.004' N	11 13.522' E
8	57 9.202' N	11 17.358' E
8	57 1.939' N	11 16.417' E
8	57 1.962' N	11 14.827' E
8	57 0.983' N	11 14.342' E
8	57 1.274' N	11 10.035' E
8	57 2.903' N	11 6.783' E
8	57 9.434' N	11 17.472' E
8	57 3.496' N	11 7.083' E
8	57 2.717' N	11 11.757' E
8	57 4.945' N	11 9.468' E
8	57 6.501' N	11 10.111' E
8	57 10.612' N	11 11.461' E
8	57 11.716' N	11 11.244' E
8	57 12.088' N	11 11.741' E
8	57 3.177' N	11 6.659' E

10	57 6.231' N	11 8.031' E
10	57 5.661' N	11 7.912' E
10	57 6.118' N	11 6.363' E
10	57 5.32' N	11 6.254' E
10	57 4.912' N	11 6.315' E
10	57 4.942' N	11 7.2' E
10	57 7.305' N	11 6.688' E
10	57 7.293' N	11 5.893' E
10	57 7.147' N	11 7.866' E
10	57 7.293' N	11 5.893' E
10	57 6.946' N	11 5.845' E
11	57 5.31' N	10 59.197' E
11	57 4.371' N	10 56.279' E
11	57 3.443' N	10 58.93' E
11	57 6.547' N	11 1.968' E
11	57 1.808' N	10 58.496' E
11	57 1.597' N	10 57.823' E
11	57 2.366' N	10 53.025' E
11	57 4.236' N	11 5.614' E
11	57 2.764' N	10 51.91' E
11	57 7.571' N	11 4.806' E
11	57 7.936' N	11 3.651' E
11	57 7.953' N	11 2.667' E
11	57 7.198' N	11 5.634' E
11	57 6.366' N	10 52.893' E
11	57 4.98' N	10 50.473' E
11	57 3.356' N	10 51.401' E
11	57 7.443' N	10 58.998' E
11	57 7.198' N	11 5.634' E
11	57 6.471' N	11 5.125' E
11	57 6.751' N	11 2.224' E
11	57 3.535' N	11 5.08' E
11	57 4.354' N	10 59.94' E

Coordinates of the buffer zone which form the protection of **the bubbling reefs**:

Reef no.	Latitude	Longitude
B-2	57 15.542' N	10 45.194' E
B-2	57 15.604' N	10 45.344' E
B-2	57 15.614' N	10 45.557' E
B-2	57 15.446' N	10 45.761' E
B-2	57 15.124' N	10 45.67' E
B-2	57 15.04' N	10 45.438' E
B-2	57 15.139' N	10 45.208' E
B-2	57 15.542' N	10 45.194' E
B-3	57 13.714' N	10 46.124' E
B-3	57 13.788' N	10 46.399' E
B-3	57 13.53' N	10 46.837' E
B-3	57 13.421' N	10 46.821' E
B-3	57 13.233' N	10 46.369' E
B-3	57 13.225' N	10 46.199' E
B-3	57 13.305' N	10 46.023' E
B-3	57 13.714' N	10 46.124' E
B-4	57 13.175' N	10 46.559' E
B-4	57 13.298' N	10 46.613' E
B-4	57 13.37' N	10 46.818' E
B-4	57 13.37' N	10 46.818' E
B-4	57 13.286' N	10 47.075' E
B-4	57 13.115' N	10 47.045' E
B-4	57 13.069' N	10 46.751' E
B-5	57 15.382' N	10 51.675' E
B-5	57 15.132' N	10 52.02' E
B-5	57 15.382' N	10 51.675' E
B-5	57 15.401' N	10 51.986' E
B-5	57 15.271' N	10 52.139' E
B-5	57 15.13' N	10 51.715' E
B-5	57 15.246' N	10 51.612' E
B-6	57 15.146' N	10 51.413' E
B-6	57 15.265' N	10 51.276' E
B-6	57 15.276' N	10 50.991' E
B-6	57 15.007' N	10 51.29' E
B-6	57 15.276' N	10 50.991' E
B-6	57 15.123' N	10 50.862' E
B-6	57 15.011' N	10 51.016' E
B-9	57 7.285' N	11 8.669' E
B-9	57 7.256' N	11 9.263' E
B-9	57 6.929' N	11 9.478' E
B-9	57 6.675' N	11 9.137' E
B-9	57 6.707' N	11 8.498' E
B-9	57 7.285' N	11 8.669' E
B-9	57 7.046' N	11 8.343' E
B-12	57 2.207' N	10 57.537' E
B-12	57 2.081' N	10 57.168' E
B-12	57 1.881' N	10 57.05' E
B-12	57 1.799' N	10 57.111' E
B-12	57 1.656' N	10 57.457' E
B-12	57 1.649' N	10 57.5' E
B-12	57 1.889' N	10 58.494' E
B-12	57 1.752' N	10 58.311' E
B-12	57 1.633' N	10 57.929' E
B-12	57 2.207' N	10 57.537' E
B-12	57 2.244' N	10 58.141' E
B-12	57 2.201' N	10 58.248' E
B-12	57 1.972' N	10 58.528' E
B-13	57 7.65' N	11 2.894' E
B-13	57 7.501' N	11 3.03' E
B-13	57 7.409' N	11 3.539' E
B-13	57 7.453' N	11 3.718' E
B-13	57 7.707' N	11 3.935' E
B-13	57 7.838' N	11 3.837' E
B-13	57 7.93' N	11 3.614' E
B-13	57 7.941' N	11 3.373' E
B-13	57 7.942' N	11 3.31' E
B-13	57 7.877' N	11 3.093' E
B-13	57 7.872' N	11 3.077' E
B-13	57 7.409' N	11 3.258' E
B-13	57 7.549' N	11 3.894' E

B-13	57 7.872' N	11 3.077' E
B-13	57 7.783' N	11 2.965' E
B-14	57 9.651' N	11 16.75' E
B-14	57 9.202' N	11 17.358' E
B-14	57 9.528' N	11 16.459' E
B-14	57 9.348' N	11 16.415' E
B-14	57 9.528' N	11 16.459' E
B-14	57 9.649' N	11 17.006' E
B-14	57 9.434' N	11 17.472' E
B-14	57 9.615' N	11 17.231' E
B-14	57 9.182' N	11 16.531' E
B-14	57 9.094' N	11 16.95' E
B-15	57 7.089' N	11 17.532' E
B-15	57 7.014' N	11 17.903' E
B-15	57 6.837' N	11 18.035' E
B-15	57 6.683' N	11 17.999' E
B-15	57 6.522' N	11 17.479' E
B-15	57 6.605' N	11 17.172' E
B-15	57 6.698' N	11 17.063' E
B-15	57 6.778' N	11 17.027' E
B-15	57 6.793' N	11 17.021' E
B-15	57 6.905' N	11 17.047' E
B-15	57 7.033' N	11 17.211' E
B-15	57 7.033' N	11 17.211' E
B-15	57 6.57' N	11 17.784' E

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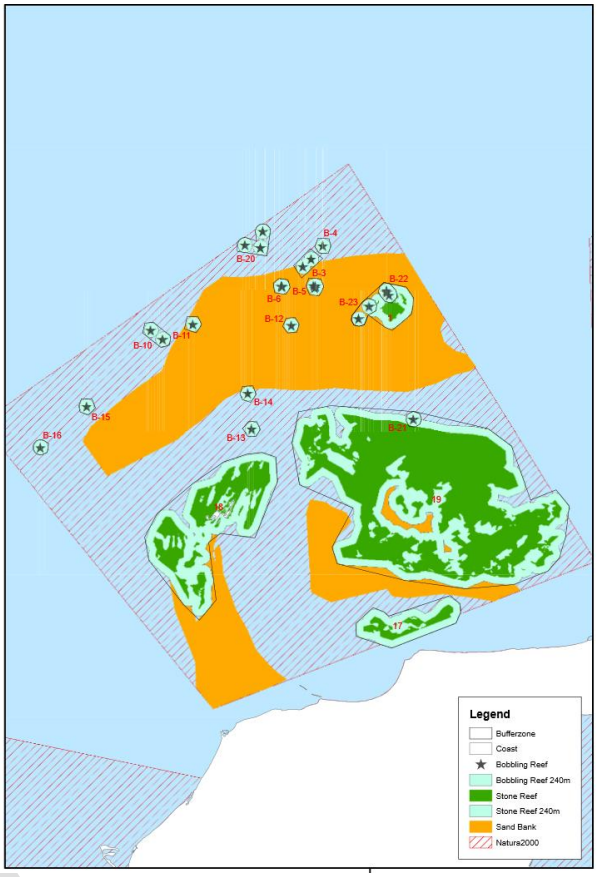
"Havet omkring Nordre Rønner"

Habitat No. H20, Natura 2000 site No. 20 (EU Code: DK00FX257)

Map showing positions of buffer zones around stone reefs (H1170) and bubbling reefs (H1180)



Coordinates of the buffer zone which form the protection of **the stone reefs**:

Reef no.	Latitude	Longitude
1	57 25.564' N	11 1.008' E
1	57 25.474' N	11 1.727' E
1	57 25.29' N	11 1.947' E
1	57 24.992' N	11 1.863' E
1	57 24.724' N	11 1.233' E
1	57 24.785' N	11 0.981' E
1	57 25.008' N	11 0.467' E
1	57 24.837' N	11 0.331' E
1	57 24.813' N	11 0.153' E
1	57 24.837' N	10 59.992' E
1	57 24.927' N	10 59.909' E
1	57 25.004' N	10 59.935' E
1	57 25.223' N	11 0.27' E
1	57 25.564' N	11 1.008' E
1	57 25.12' N	11 1.924' E
17	57 20.061' N	11 2.851' E
17	57 19.734' N	11 0.84' E
17	57 19.812' N	11 0.697' E
17	57 19.891' N	11 0.335' E
17	57 19.621' N	10 59.763' E
17	57 19.398' N	10 59.772' E
17	57 19.174' N	11 0.903' E
17	57 19.579' N	11 3.014' E
17	57 19.776' N	11 3.182' E
17	57 19.912' N	11 3.156' E
17	57 20.061' N	11 2.851' E
18	57 22.145' N	10 57.371' E
18	57 20.103' N	10 55.273' E
18	57 22.57' N	10 57.338' E
18	57 22.66' N	10 56.892' E
18	57 22.66' N	10 56.892' E
18	57 21.115' N	10 55.086' E
18	57 22.634' N	10 56.392' E
18	57 19.757' N	10 54.713' E
18	57 20.042' N	10 54.207' E
18	57 22.512' N	10 55.648' E
18	57 21.238' N	10 53.014' E
18	57 21.634' N	10 53.434' E
18	57 22.151' N	10 54.627' E
18	57 21.263' N	10 55.473' E
18	57 21.169' N	10 56.585' E
18	57 20.831' N	10 53.127' E
19	57 22.957' N	11 4.239' E
19	57 22.64' N	11 4.987' E
19	57 21.687' N	11 5.546' E
19	57 21.85' N	11 6.385' E
19	57 21.559' N	11 6.792' E
19	57 21.026' N	11 6.641' E
19	57 20.663' N	11 6.423' E
19	57 20.435' N	11 6.035' E
19	57 20.219' N	11 4.913' E
19	57 20.173' N	11 3.355' E
19	57 20.351' N	11 1.386' E
19	57 20.676' N	10 59.222' E
19	57 20.968' N	10 59.072' E
19	57 21.64' N	10 59.792' E
19	57 22.075' N	10 58.079' E
19	57 22.814' N	10 57.873' E
19	57 23.349' N	10 58.116' E
19	57 23.44' N	10 59.169' E
19	57 23.291' N	11 1.892' E
19	57 23.44' N	10 59.169' E

Coordinates of the buffer zone which form the protection of **the bubbling reefs**:

Reef no.	Latitude	Longitude
B-3	57 26.016' N	10 59.043' E
B-3	57 25.683' N	10 58.337' E
B-3	57 25.906' N	10 58.09' E
B-3	57 26.191' N	10 58.652' E
B-3	57 26.191' N	10 58.652' E
B-4	57 26.23' N	10 59.318' E
B-4	57 26.357' N	10 59.266' E
B-4	57 26.375' N	10 58.909' E
B-4	57 26.097' N	10 59.228' E
B-4	57 26.375' N	10 58.909' E
B-4	57 26.225' N	10 58.796' E
B-4	57 26.113' N	10 58.93' E
B-5	57 25.681' N	10 58.575' E
B-5	57 25.545' N	10 58.468' E
B-5	57 25.39' N	10 58.583' E
B-5	57 25.364' N	10 58.894' E
B-5	57 25.515' N	10 59.05' E
B-5	57 25.659' N	10 58.968' E
B-5	57 25.681' N	10 58.575' E
B-6	57 25.441' N	10 57.453' E
B-6	57 25.608' N	10 57.415' E
B-6	57 25.688' N	10 57.605' E
B-6	57 25.523' N	10 57.957' E
B-6	57 25.408' N	10 57.813' E
B-6	57 25.608' N	10 57.415' E
B-6	57 25.663' N	10 57.895' E
B-10	57 24.973' N	10 53.21' E
B-10	57 24.54' N	10 53.719' E
B-10	57 24.973' N	10 53.21' E
B-10	57 24.988' N	10 53.482' E
B-10	57 24.733' N	10 54.043' E
B-10	57 24.581' N	10 53.99' E
B-10	57 24.804' N	10 53.132' E
B-11	57 25.064' N	10 54.588' E
B-11	57 24.852' N	10 54.493' E
B-11	57 24.781' N	10 54.874' E
B-11	57 24.924' N	10 55.053' E
B-11	57 25.068' N	10 54.936' E
B-11	57 25.064' N	10 54.588' E
B-12	57 24.739' N	10 58.133' E
B-12	57 24.878' N	10 58.216' E
B-12	57 24.992' N	10 57.798' E
B-12	57 24.992' N	10 57.798' E
B-12	57 24.996' N	10 58.095' E
B-12	57 24.85' N	10 57.68' E
B-12	57 24.732' N	10 57.833' E
B-13	57 23.058' N	10 56.857' E
B-13	57 23.205' N	10 56.485' E
B-13	57 22.944' N	10 56.445' E
B-13	57 23.205' N	10 56.485' E
B-13	57 23.089' N	10 56.289' E
B-13	57 22.94' N	10 56.712' E
B-13	57 23.197' N	10 56.754' E
B-14	57 23.821' N	10 56.317' E
B-14	57 23.538' N	10 56.582' E
B-14	57 23.821' N	10 56.317' E
B-14	57 23.59' N	10 56.302' E
B-14	57 23.694' N	10 56.23' E
B-14	57 23.675' N	10 56.756' E
B-14	57 23.828' N	10 56.661' E
B-15	57 23.393' N	10 51.3' E
B-15	57 23.455' N	10 51.039' E
B-15	57 23.561' N	10 50.998' E
B-15	57 23.684' N	10 51.09' E
B-15	57 23.684' N	10 51.09' E
B-15	57 23.514' N	10 51.538' E
B-15	57 23.677' N	10 51.428' E
B-16	57 22.969' N	10 49.591' E
B-16	57 22.921' N	10 49.501' E
B-16	57 22.816' N	10 49.487' E
B-16	57 22.735' N	10 49.619' E
B-16	57 22.722' N	10 49.734' E
B-16	57 22.761' N	10 49.938' E
B-16	57 22.919' N	10 49.988' E
B-16	57 22.971' N	10 49.841' E
B-16	57 22.993' N	10 49.718' E
B-16	57 22.866' N	10 49.475' E
B-16	57 22.768' N	10 49.538' E
B-16	57 22.993' N	10 49.718' E
B-20	57 26.397' N	10 56.392' E
B-20	57 26.404' N	10 56.415' E
B-20	57 26.413' N	10 56.446' E
B-20	57 26.618' N	10 57.292' E
B-20	57 26.555' N	10 57.383' E
B-20	57 26.344' N	10 56.29' E
B-20	57 26.379' N	10 56.352' E
B-20	57 26.184' N	10 56.277' E
B-20	57 26.582' N	10 56.907' E
B-20	57 26.085' N	10 57.231' E
B-20	57 26.413' N	10 56.446' E
B-20	57 26.645' N	10 57.215' E
B-20	57 26.652' N	10 57.129' E
B-20	57 26.648' N	10 57.08' E
B-20	57 26.64' N	10 57.025' E
B-20	57 26.621' N	10 56.973' E
B-20	57 26.422' N	10 56.555' E
B-20	57 26.355' N	10 56.912' E
B-20	57 26.527' N	10 56.881' E
B-20	57 26.418' N	10 56.49' E
B-20	57 26.388' N	10 56.369' E
B-21	57 23.075' N	11 2.044' E
B-21	57 23.243' N	11 1.61' E
B-21	57 23.295' N	11 1.816' E
B-21	57 23.298' N	11 1.827' E
B-21	57 23.293' N	11 1.849' E
B-21	57 23.256' N	11 2.034' E

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B-21	57 23.163' N	11 2.085' E
B-21	57 23.023' N	11 1.885' E
B-21	57 23.037' N	11 1.684' E
B-21	57 23.132' N	11 1.592' E
B-21	57 23.243' N	11 1.61' E
B-22	57 25.491' N	11 0.852' E
B-22	57 25.562' N	11 1.005' E
B-22	57 25.564' N	11 1.008' E
B-22	57 25.541' N	11 1.188' E
B-22	57 25.298' N	11 1.417' E
B-22	57 25.54' N	11 1.198' E
B-22	57 25.232' N	11 1.019' E
B-22	57 25.383' N	11 0.818' E
B-22	57 25.424' N	11 1.389' E
B-22	57 25.424' N	11 1.389' E
B-22	57 25.202' N	11 1.239' E
B-23	57 25.302' N	11 0.479' E
B-23	57 25.254' N	11 0.698' E
B-23	57 25.165' N	11 0.746' E
B-23	57 24.837' N	10 59.992' E
B-23	57 25.302' N	11 0.479' E
B-23	57 25.241' N	11 0.31' E
B-23	57 25.223' N	11 0.27' E
B-23	57 25.004' N	10 59.935' E
B-23	57 24.927' N	10 59.909' E
B-23	57 24.813' N	11 0.153' E
B-23	57 24.837' N	11 0.331' E
B-23	57 25.008' N	11 0.467' E
B-23	57 25.075' N	11 0.729' E

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Annex J - Fishery data: Description of methods

This Annex describes the methods used in the analyses of fishing activity in and around the Natura 2000 sites covered in the present proposal. Fishery data in terms of logbook and VMS data have been forwarded by Swedish fishery authorities for the period 2011-2015 and by German fishery authorities for the period 2011-2015 upon special request.

The Danish Technical University, Institute of Aquatic Resources (DTU Aqua) has carried out the analyses for the Danish AgriFish Agency in accordance with the Commissions guidelines from 2008 *"Fisheries measures for marine Natura 2000 sites – A consistent approach to request for fisheries management measures under the Common Fisheries Policy".* Special focus has been given to the impact the proposed fishery management measures might have on current fishing activities in and around the concerned Natura 2000 sites.

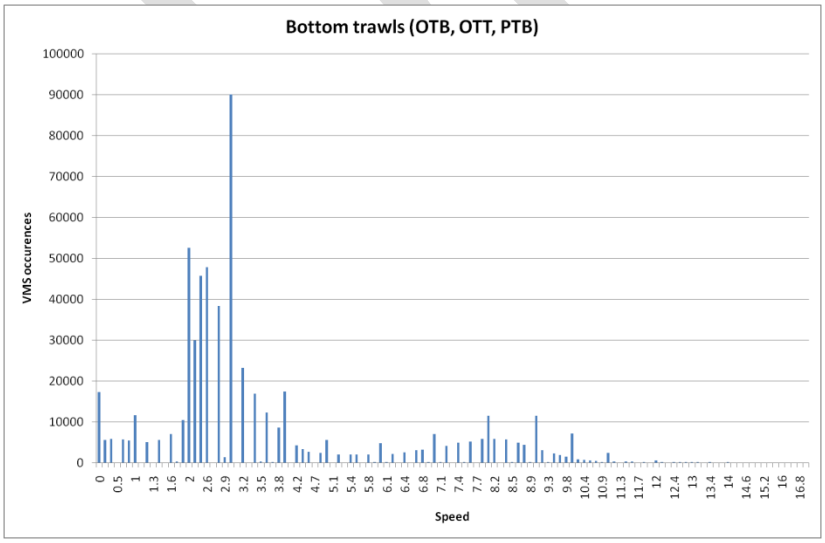
The Natura 2000 sites in which fishery management measures are proposed are located in several ICES squares. By combining logbook data and VMS pings, fishing intensity for a smaller area, such as a Natura 2000 site, can be estimated. Methods for working with the combined logbook/VMS data have been developed during the EU project "Development of tools for logbook and VMS data analysis" (No Mare/2008/10 Lot2), resulting in the R-package VMStools. This method has also been recommended by the ICES groups SGVMS/WGSFD. DTU Aqua's analysis of fishery data in relation to present proposal follows these recommendations.

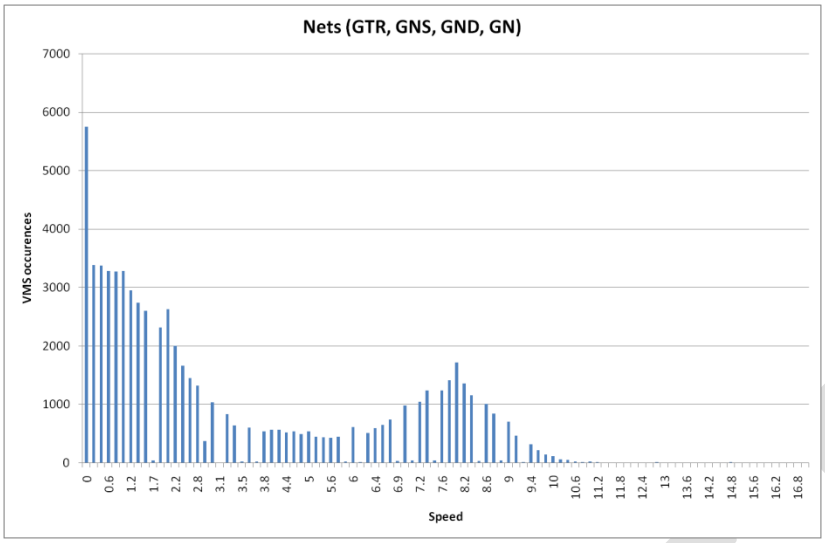
Description of methods

VMS data have been merged with logbook data using vessel-id and date as a unique key. The combined data give information on gear types used in each trip and information about vessel-id, position, time and speed.

When the gear type is known, a speed filter can be applied to the VMS data, whereby only the active fishing operations are analyzed. The speed filters used in this analysis are based on speed histograms given by gear groups. Two examples of speed histograms for bottom trawls and nets are displayed below in figure 1 and 2.

Figure 1 and 2. Speed histograms for bottom trawls and net types





The table below shows the speed filters used in analyses carried out in relation to the present proposal.

Gear group	**Gear codes**	**Min speed**	**Max speed**
Dredge	DRB, DRO, DRC, BMS	2	4.5
Bottom trawls	OTB, OTT, PTB, TBN, TBS	2	4
Beam trawl	TBB	2	4
Pelagic trawls	OTM, PTM	2	4
Lines	LH, LHP, LL, LLD, LLS, LX	0	0.1
Traps	FPO, FYK, FPN	0	4
Nets	GTR, GNS, GND, GN	0	4
Anchored seine	SDN	0	4
Fly shooting seine	SSC	0	4
Purse seine	PS	0	4

An uncertainty in this method is that the speed filters applied, are very general. However, it is the experience of DTU Aqua that the above given speed filters give a good overall picture of the fishing activity in the Kattegat area. Another challenge with the data set is that VMS was only mandatory for vessels >=15 m overall length (oal) in 2010 and 2011, however in 2012 VMS became mandatory for vessels >=12 m oal. In 2011, 41% of the landing weight from Kattegat was from vessels without VMS, in 2012 the percentage was 8,7, in 2013 11.5 and in 2014 7.1. In 2015 the number was 7.0.

Description of data: VMS and logbook data for DK, SE and DE vessels

German data includes landing data for the Natura 2000 sites and VMS positions within the Natura 2000 sites for the years 2011-2015 and fishing effort data per 0.05 degrees squares in the Danish EEZ. The **Swedish data** included summarized weight and values for the Natura 2000 areas concerned (given for the entire fleet). Swedish VMS positions has also been provided for the years 2011-2015.
In the **Danish data**, mobile bottom contacting gears are defined as Bottom trawls, Beam trawls, Anchored Seines, Fly shooting seines and Dredges. Other gears include Nets, Lines, Pelagic trawls, Traps and Purse seines. In the **German data** mobile bottom contacting gears are defined as OTB, PTB, SSC, TBB, DRB and SDN. Other gears include GNS, GTR, OTM and PTM.

Description of data: Landing weight and values for DK, SE and DE

In order to assess the impact of the proposed fisheries management measures, landings weight and value need to be assessed per Natura 2000 site for different gear groups.

Logbooks contain information about landed weight by species while sales notes data includes weight and value by species per fishing trip.

For the **Danish data**, DTU Aqua has merged these estimates to distribute the value on the trip proportionally to the landings weight. The dataset including species, weight and value is then merged with the VMS positions by vessel-id and date. This means that the weight and value by species is distributed evenly out on VMS positions where fishing activity is assumed, by vessel-id and date.

The landings and values by species within a Natura 2000 area can then be summarized (see section 6.2). An average exchange rate of 7.45 DKK/EUR has been used in the analyses.

The **Swedish data** on landings in the Natura 2000 areas were received as landed kg per year per Natura 2000 area, DCF level 6 metier and species. The data used is based on Swedish logbooks, which include fishing event positions. The dataset covers the whole Swedish fleet, thus also landings from smaller vessels <12 meters. To estimate the value of the Swedish landings, the species prices per kg from the Danish landings have been used.

The **German data** was sent to Denmark with number of vessels, fishing hours, total value, total weight and landings by species by year, Natura 2000 area, gear and vessel length for the years 2011-2015.

Annex J (table 1-10) show that the landings from the four Natura 2000 areas are small compared to the total fishery in Kattegat. In total for Danish vessels, they contribute to 1.19 % of the landings from Kattegat from vessels with VMS when looking at the average of 2011-2014 landings. The value of the landings for the 3 Natura 2000 areas contribute to 0.52 % of the value of landings from Kattegat from vessels with VMS when looking at the average of the value of landings in 2011-2014. In Annex H, landings and value of landings for the three Natura 2000 areas is shown by year, gear group and species.

The Swedish vessels have landings with a value larger than 1000 euro on average for 2011-2015 from Havet omkring Nordre Rønner and Strandenge på Læsø.

Annex K - Total landings and catch value per country per Natura 2000 site

This annex contains information of total landings and catch value per country per site per year (table 1-6) and at species level per country per site per year (table 7-9).

Data in the following tables are not specified with thousands-seperator. All the values are in total kilograms.

Table 1: Total landings (kg) from Danish vessels in Kattegat 2011-2015

Vessel type/Year	2011	2012	2013	2014	2015	Mean (2011-2015)
Vessels with VMS	7,475,458	15,748,300	7,343,216	16,249,091	17,437,969	12,850,807
Other vessels	5,279,716	1,501,923	955,669	1,236,237	1,303,655	2,055,440
Sum	12,755,174	17,250,223	8,298,885	17,485,328	18,741,624	14,906,247

Table 2: Total landings (kg) from Danish vessels in the three Natura 2000 sites in Kattegat 2011-2015

Natura 2000 site/Year	2011	2012	2013	2014	2015	Mean (2011-2015)
Store Middelgrund	0	80	3,440	3,746	2,376	1,929
Schultz og Hastens Grund samt Briseis Flak	10,209	22,234	10,112	7,892	142	10,117
Havet omkring Nordre Rønner	62,236	34,052	14,253	119,487	478,833	141,511
Strandenge på Læsø	107,393	19,854	0	141,367	36,725	61,067

Table 3: Total landings (kg) from Swedish vessels in the three Natura 2000 sites in Kattegat 2011-2015

Natura 2000 sites/Year	2011	2012	2013	2014	2015	Mean (2011-2015)
Store Middelgrund	0	0	388	0	0	78
Schultz og Hastens Grund	115	0	25	576	56	154
Strandenge på Læsø	712	8,235	216	20,200	95,152	24,903
Havet omkring Nordre Rønner	0	348	1,620	1,550	0	704

Table XX: Total landings (kg) from German vessels in the three Natura 2000 sites in Kattegat 2011-2015

Natura 2000 sites/Year	2011	2012	2013	2014	2015	Mean (2011-2015)
Store Middelgrund	1438	0	594	0	0	406
Schultz og Hastens Grund	0	0	0	0	0	0
Strandenge på Læsø	0	0	0	0	0	0
Havet omkring Nordre Rønner	0	0	0	0	0	0

Table 4: Value of the total landings (EUR) from Danish vessels in Kattegat 2011-2015

Vessel type/Year	2011	2012	2013	2014	2015	Mean (2011-2015)
Vessels with VMS	10,375,560	16,755,400	13,722,963	12,356,229	14,642,381	13,570,507
Other vessels	9,230,944	2,778,462	2,996,397	3,290,465	3,408,113	4,340,876
Sum	19,606,504	19,533,862	16,719,360	15,646,694	18,050,494	17,911,383

Table 5: Value of the landings (EUR) from Danish vessels in the four Natura 2000 sites in Kattegat 2011-2015

Natura 2000 site/Year	2011	2012	2013	2014	2015	Mean (2011-2015)
Store Middelgrund	0	632	13,872	13,402	10,001	7,582
Schultz og Hastens Grund samt Briseis Flak	10,936	15,664	5,430	2,384	651	7,013
Havet omkring Nordre Rønner	31,376	28,099	35,074	51,806	157,921	60,775
Strandenge på Læsø	31,070	5,260	0	34,278	10,377	16,197

Table 6: Value of the landings (EUR) from Swedish vessels in the three Natura 2000 sites in Kattegat 2011-2015

Natura 2000 site/Year	2011	2012	2013	2014	2015	Mean (2011-2015)
Store Middelgrund	0	0	772	0	0	154
Schultz og Hastens Grund	1,173	0	73	5,067	545	1,372
Strandenge på Læsø	3,276	6,318	1,400	29,356	38,810	15,832
Havet omkring Nordre Rønner	0	2,839	2,717	831	0	1,277

Table XX: Value of the landings (EUR) from German vessels in the three Natura 2000 sites in Kattegat 2011-2015

Natura 2000 sites/Year	2011	2012	2013	2014	2015	Mean (2011-2015)
Store Middelgrund	12768	0	2800	0	0	3114
Schultz og Hastens Grund	0	0	0	0	0	0

Strandenge på Læsø	0	0	0	0	0	0
Havet omkring Nordre Rønner	0	0	0	0	0	0

Table 7: Weight (kg) of landings from Danish vessels by year (2010-2015)

Natura 2000 site	KG 2011	KG 2012	KG 2013	KG 2014	KG 2015	Mean (2011-2015)
Havet omkring Nordre Rønner						
Bundtrawl						
Atlantic Cod	1	11	48	2	24	17
Atlantic Herring	0	5,810	0	9,063	16,249	6,224
Atlantic Horsemackerel	0	4	0	16	1	4
Atlantic Mackerel	1	17	2	2	53	15
Brill	13	13	20	6	37	18
CEPHALOPODS	1	2	17	27	8	11
Common Dab	11	255	89	69	141	113
Common Sole	49	126	54	89	132	90
Edible Crab	4	2	0	39	39	17
European Anchovy	0	1	0	3,148	76	645
European Flounder	10	49	60	52	40	42
European Hake	6	4	12	8	25	11
European Plaice	10	18	64	46	141	56
Greater Weever	11	69	26	41	25	35
Grey Gurnard	0	11	3	2	11	6
Haddock	0	23	0	4	1	6
Lemon Sole	0	2	5	3	5	3
Lumpfish	0	0	1	1	6	1
Marine Crabs	4	44	63	2	0	23
Norway Lobster	409	2,179	3,595	2,733	5,129	2,809
Norway Pout	0	12	0	0	2	3
Sandeels	0	0	0	0	642	128
Sprat	0	5,425	0	38,237	17,788	12,290
Turbot	2	5	8	5	10	6
Whiting	0	269	3	545	1,069	377
Witch Flounder	0	1	7	2	8	4
Pelagisk trawl						
Atlantic Cod	0	10	0	3	142	31
Atlantic Herring	42,802	8,613	8,188	27,589	226,729	62,784
Atlantic Horsemackerel	0	15	0	18	4	7
Atlantic Mackerel	0	37	0	2	274	63
CEPHALOPODS	0	3	0	26	4	6
Common Dab	0	526	0	16	1,050	318
European Anchovy	0	1	0	3,141	672	763
European Hake	0	3	0	0	15	4
European Plaice	0	2	0	13	110	25
Greater Weever	0	118	19	3	11,190	2,266
Grey Gurnard	0	1	0	0	12	2
Haddock	0	27	0	1	0	6
Lumpfish	0	0	0	0	16	3
Norway Pout	0	47	0	0	20	13

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Sandeels	0	0	0	1	8	2
Sprat	18,900	8,529	1,872	34,059	188,276	50,327
Whiting	0	458	95	478	8,648	1,936
Schultz og Hastens Grund samt Briseis Flak						
Bundtrawl						
Atlantic Cod	55	47	0	0	0	20
Atlantic Herring	0	1,213	0	0	0	243
Atlantic Horsemackerel	0	7	0	0	0	1
Brill	63	185	63	17	23	70
Common Dab	25	258	11	2	6	61
Common Sole	366	705	164	40	2	255
European Flounder	161	774	46	12	13	201
European Plaice	309	328	33	58	48	155
Greater Weever	2	46	2	0	1	10
Haddock	27	2	0	0	0	6
Lemon Sole	6	17	2	1	4	6
Norway Lobster	29	76	77	29	37	50
Sprat	0	737	0	0	0	147
Turbot	37	57	31	12	8	29
Whiting	0	16	0	0	0	3
Witch Flounder	2	7	4	2	1	3
Garn						
Brill	5	0	0	0	0	1
Common Dab	33	0	0	0	0	7
Common Sole	380	0	0	0	0	76
European Flounder	6	0	0	0	0	1
European Plaice	179	0	0	0	0	36
Turbot	6	0	0	0	0	1
Pelagisk trawl						
Atlantic Herring	2,315	11,621	5,792	1,919	0	4,329
Atlantic Horsemackerel	0	28	4	1	0	7
Atlantic Mackerel	0	8	1	0	0	2
Common Dab	0	614	54	7	0	135
European Anchovy	0	0	0	121	0	24
Greater Weever	4	205	22	0	0	46
Haddock	0	9	0	0	0	2
Sprat	6,148	5,206	3,651	5,550	0	4,111
Whiting	50	67	152	120	0	78
Store Middelgrund						
Bundtrawl						
Norway Lobster	0	80	0	0	0	16
Garn						
Atlantic Cod	0	0	0	20	0	4
Brill	0	0	389	874	901	433
Common Dab	0	0	33	25	9	13
Common Sole	0	0	872	824	86	356
European Flounder	0	0	2	46	11	12
European Plaice	0	0	1,158	454	470	417
Lemon Sole	0	0	280	133	44	91
Ling	0	0	13	6	1	4
Lumpfish	0	0	75	671	209	191

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Marine Crabs	0	0	88	125	70	57
Pollack	0	0	0	1	26	5
Thornback ray	0	0	0	0	9	2
Turbot	0	0	159	273	330	152
Unknown Species	0	0	26	0	0	5
Witch Flounder	0	0	53	3	47	21
Wolffishes (Catfishes)	0	0	290	295	163	150
Strandenge på Læsø og havet syd herfor						
Bundtrawl						
Atlantic Cod	2	5	0	1	0	2
Atlantic Herring	0	6,158	0	2,070	3,848	2,415
Atlantic Horsemackerel	0	8	0	4	1	3
Atlantic Mackerel	0	39	0	1	9	10
Brill	0	0	0	0	18	4
CEPHALOPODS	0	1	0	5	0	1
Common Dab	1	343	0	4	21	74
Common Sole	15	0	0	0	38	11
European Anchovy	0	1	0	590	15	121
European Plaice	2	2	0	3	54	12
Greater Weever	0	79	0	0	0	16
Haddock	1	25	0	0	8	7
Norway Lobster	11	0	0	0	72	17
Norway Pout	0	24	0	0	0	5
Rays + Skates	7	0	0	0	4	2
Sprat	48,733	6,295	0	7,331	3,581	13,188
Whiting	0	319	0	132	189	128
Pelagisk trawl						
Atlantic Cod	4	3	0	6	6	4
Atlantic Herring	32,859	3,391	0	65,910	8,406	22,113
Atlantic Horsemackerel	0	0	0	11	1	2
Atlantic Mackerel	0	0	0	31	46	15
CEPHALOPODS	1	0	0	18	1	4
Common Dab	8	1	0	160	117	57
European Anchovy	1	0	0	2,144	92	448
European Plaice	3	0	0	33	20	11
Greater Weever	0	0	0	58	15	15
Haddock	1	0	0	8	0	2
Sandeels	0	0	0	36	1	7
Sprat	25,706	3,085	0	61,753	19,125	21,934
Whiting	35	74	0	1,057	1,038	441

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Table 8: Weight (kg) of landings from <u>Swedish vessels</u> by year (2010-2015) and value of landings

Natura 2000 site	2011		2012		2013		2014		2015	
	KG	EUR	KG	EUR	KG	EUR	KG	EUR	KG	EUR
Havet omkring Nordre Rønner										
Bottom trawl										
Norway Lobster	0	0	348	2839	0	0	50	440	0	0
Pelagic trawl										
Atlantic Herring	0	0	0	0	0	0	500	180	0	0
Sprat	0	0	0	0	0	0	1,000	211	0	0
Pots and Traps										
Edible Crab	0	0	0	0	1620	2717	0	0	0	0
Schultz og Hastens Grund samt Briseis Flak										
Bottom trawl										
Brill	0	0	0	0	15	64	0	0	0	0
Norway Lobster	110	1173	0	0	0	0	0	0	0	0
Unknown Species	0	0	0	0	10	9	0	0	0	0
Pots and Traps										
Norway Lobster	0	0	0	0	0	0	576	5067	56	545
Purse seine										
Atlantic Herring	0	0	0	0	0	0	0	0	0	0
Sprat	0	0	0	0	0	0	0	0	0	0
Store Middelgrund										
Bottom trawl										
Atlantic Cod	0	0	0	0	60	139	0	0	0	0
Brill	0	0	0	0	40	171	0	0	0	0
Common Dab	0	0	0	0	25	12	0	0	0	0
Common Sole	0	0	0	0	0	0	0	0	0	0
European Flounder	0	0	0	0	55	21	0	0	0	0
European Plaice	0	0	0	0	137	126	0	0	0	0
Greater Weever	0	0	0	0	10	3	0	0	0	0
Grey Gurnard	0	0	0	0	17	12	0	0	0	0
Haddock	0	0	0	0	4	3	0	0	0	0
Lemon Sole	0	0	0	0	0	0	0	0	0	0
Norway Lobster	0	0	0	0	31	272	0	0	0	0
Whiting	0	0	0	0	0	0	0	0	0	0
Witch Flounder	0	0	0	0	7	6	0	0	0	0
Wolffishes (Catfishes)	0	0	0	0	2	7	0	0	0	0
Strandenge på Læsø og havet syd herfor+Læsø, sydlige del										
Bottom trawl										
Anglerfish (Monk)	38	149	0	0	0	0	0	0	0	0
Atlantic Cod	210	400	30	74	0	0	0	0	34	92
Atlantic Herring	14	7	0	0	0	0	0	0	0	0
Brill	0	0	0	0	0	0	0	0	12	45

Common Sole	0	0	0	0	0	0	0	0	2	22
European Hake	0	0	0	0	0	0	0	0	2	3
European Plaice	16	18	0	0	0	0	0	0	7	9
Haddock	15	11	0	0	0	0	0	0	52	60
Inshore squids nei	0	0	0	0	0	0	0	0	0	0
Ling	24	37	0	0	0	0	0	0	0	0
North Deepwater Praw	0	0	55	100	0	0	0	0	0	0
Norway Lobster	241	2,459	120	979	146	1,283	0	0	168	1,635
Saithe	60	80	0	0	0	0	0	0	0	0
Turbot	0	0	0	0	0	0	0	0	9	60
Unknown Species	12	4	0	0	0	0	0	0	0	0
Whiting	0	0	0	0	0	0	0	0	11	5
Witch Flounder	76	92	0	0	0	0	0	0	3	5
Wolffishes (Catfishe	6	19	0	0	0	0	0	0	0	0
Gillnet										
Atlantic Cod	0	0	597	1,474	0	0	0	0	0	0
Atlantic Mackerel	0	0	75	81	0	0	0	0	0	0
European Hake	0	0	6	10	0	0	0	0	0	0
Pollack	0	0	339	908	0	0	0	0	0	0
Saithe	0	0	13	19	0	0	0	0	0	0
Longlines										
Atlantic Mackerel	0	0	0	0	0	0	10	15	0	0
Pelagic trawl										
Atlantic Herring	0	0	3,000	1,629	0	0	0	0	78,000	29,898
Sprat	0	0	4,000	1,044	0	0	0	0	16,000	3,801
Pots and Traps										
Edible Crab	0	0	0	0	70	117	8,190	26,709	805	2,708
Norway Lobster	0	0	0	0	0	0	0	0	48	467
Purse seine										
Sprat	0	0	0	0	0	0	12,000	2,532	0	0

Table X: Weight (kg) of landings from German vessels by year (2010-2015)

Natura 2000 site	KG 2011	KG 2012	KG 2013	KG 2014	KG 2015	Mean (2011-2015)
Store Middelgrund						
Gillnet						
Atlantic Cod	0	0	22	0	0	6
European Plaice	45	0	53	0	0	25
Turbot	15	0	5	0	0	5
Common Sole	1,271	0	410	0	0	420
Brill	64	0	5	0	0	17
Edible Crab	0	0	64	0	0	16
Lemon Sole	10	0	17	0	0	7
Rays	0	0	10	0	0	3

Other species	32	0	7	0	0	10

Table 9: Value of landings (EUR) from Danish vessels by year

Natura 2000 area	EUR 2011	EUR 2012	EUR 2013	EUR 2014	EUR 2015	Mean (2011-2015)
Havet omkring Nordre Rønner						
Bundtrawl						
Atlantic Cod	2	19	136	1	66	45
Atlantic Herring	0	1,638	0	1,754	4,134	1,505
Atlantic Horsemackerel	0	1	0	3	0	1
Atlantic Mackerel	1	6	1	1	15	5
Brill	60	51	75	24	147	72
CEPHALOPODS	2	8	99	22	23	31
Common Dab	4	81	41	19	57	41
Common Sole	550	1,438	559	922	1,623	1,018
Edible Crab	4	3	0	76	87	34
European Anchovy	0	0	0	608	19	126
European Flounder	2	12	18	14	12	12
European Hake	7	4	12	11	31	13
European Plaice	11	18	57	27	177	58
Greater Weever	24	47	40	67	56	47
Grey Gurnard	0	5	3	1	4	3
Haddock	0	7	0	2	2	2
Lemon Sole	1	5	11	8	18	9
Lumpfish	0	0	1	0	1	0
Marine Crabs	4	75	114	0	0	39
Norway Lobster	3,978	17,406	31,600	24,975	44,574	24,507
Norway Pout	0	3	0	0	0	1
Sandeels	0	0	0	0	129	26
Sprat	0	1,529	0	7,390	4,503	2,684
Turbot	10	27	43	27	49	31
Whiting	0	77	2	106	273	91
Witch Flounder	0	1	9	3	18	6
Pelagisk trawl						
Atlantic Cod	0	3	0	1	32	7
Atlantic Herring	22,406	2,444	1,813	8,133	52,597	17,479
Atlantic Horsemackerel	0	4	0	4	1	2
Atlantic Mackerel	0	11	0	0	66	15
CEPHALOPODS	0	1	0	5	1	1
Common Dab	0	152	0	3	245	80
European Anchovy	0	0	0	638	157	159
European Hake	0	1	0	0	4	1
European Plaice	0	1	0	3	27	6
Greater Weever	0	34	4	0	2,628	533
Grey Gurnard	0	0	0	0	3	1
Haddock	0	8	0	0	0	2
Lumpfish	0	0	0	0	4	1
Norway Pout	0	14	0	0	5	4
Sandeels	0	0	0	0	2	0

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Sprat	4,309	2,429	415	6,861	44,092	11,621
Whiting	0	132	21	97	2,038	457
Schultz og Hastens Grund samt Briseis Flak						
Bundtrawl						
Atlantic Cod	87	130	0	0	0	43
Atlantic Herring	0	326	0	0	0	65
Atlantic Horsemackerel	0	2	0	0	0	0
Brill	314	894	269	91	113	336
Common Dab	11	96	5	1	3	23
Common Sole	3,455	6,520	1,336	291	16	2,323
European Flounder	39	325	81	4	7	91
European Plaice	218	264	34	76	41	127
Greater Weever	3	12	4	0	2	4
Haddock	19	1	0	0	0	4
Lemon Sole	20	71	5	2	12	22
Norway Lobster	356	770	776	278	409	518
Sprat	0	198	0	0	0	40
Turbot	336	406	207	93	47	218
Whiting	0	4	0	0	1	1
Witch Flounder	2	5	3	2	1	3
Garn						
Brill	18	0	0	0	0	4
Common Dab	16	0	0	0	0	3
Common Sole	3,893	0	0	0	0	779
European Flounder	3	0	0	0	0	1
European Plaice	150	0	0	0	0	30
Turbot	44	0	0	0	0	9
Pelagisk trawl						
Atlantic Herring	497	4,013	1,550	382	0	1,289
Atlantic Horsemackerel	0	8	1	0	0	2
Atlantic Mackerel	0	2	0	0	0	0
Common Dab	0	171	17	1	0	38
European Anchovy	0	0	0	30	0	6
Greater Weever	1	59	6	0	0	13
Haddock	0	2	0	0	0	0
Sprat	1,442	1,364	1,088	1,109	0	1,001
Whiting	11	19	45	23	0	20
Store Middelgrund						
Bundtrawl						
Norway Lobster	0	632	0	0	0	126
Garn						
Atlantic Cod	0	0	0	28	0	6
Brill	0	0	1,949	3,772	4,613	2,067
Common Dab	0	0	11	9	2	4
Common Sole	0	0	7,378	5,596	935	2,782
European Flounder	0	0	1	17	2	4
European Plaice	0	0	937	363	532	366
Lemon Sole	0	0	763	357	180	260
Ling	0	0	17	8	1	5
Lumpfish	0	0	331	365	239	187
Marine Crabs	0	0	522	477	353	270

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Pollack	0	0	0	2	33	7
Thornback ray	0	0	0	0	8	2
Turbot	0	0	913	1,473	2,483	974
Unknown Species	0	0	23	0	0	5
Witch Flounder	0	0	43	4	42	18
Wolffishes (Catfishes)	0	0	983	934	578	499
Strandenge på Læsø og havet syd herfor						
Bundtrawl						
Atlantic Cod	3	1	0	0	0	1
Atlantic Herring	0	1,736	0	450	981	633
Atlantic Horsemackerel	0	2	0	1	0	1
Atlantic Mackerel	0	15	0	0	3	4
Brill	0	0	0	0	59	12
CEPHALOPODS	0	1	0	1	0	0
Common Dab	0	97	0	1	9	21
Common Sole	187	0	0	0	454	128
European Anchovy	0	0	0	131	4	27
European Plaice	3	0	0	1	84	18
Greater Weever	0	33	0	0	1	7
Haddock	0	7	0	0	11	4
Norway Lobster	127	0	0	0	794	184
Norway Pout	0	7	0	0	0	1
Rays + Skates	26	0	0	0	2	6
Sprat	11,447	1,774	0	1,580	913	3,143
Whiting	0	90	0	28	48	33
Pelagisk trawl						
Atlantic Cod	1	1	0	1	1	1
Atlantic Herring	14,024	774	0	19,080	2,077	7,191
Atlantic Horsemackerel	0	0	0	2	0	0
Atlantic Mackerel	0	0	0	76	11	17
CEPHALOPODS	0	0	0	3	0	1
Common Dab	2	0	0	33	28	13
European Anchovy	0	0	0	412	22	87
European Plaice	1	0	0	7	5	2
Greater Weever	0	0	0	12	4	3
Haddock	0	0	0	2	0	0
Sandeels	0	0	0	8	0	2
Sprat	5,238	704	0	12,239	4,614	4,559
Whiting	8	17	0	209	251	97

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Annex L - Fishery effort

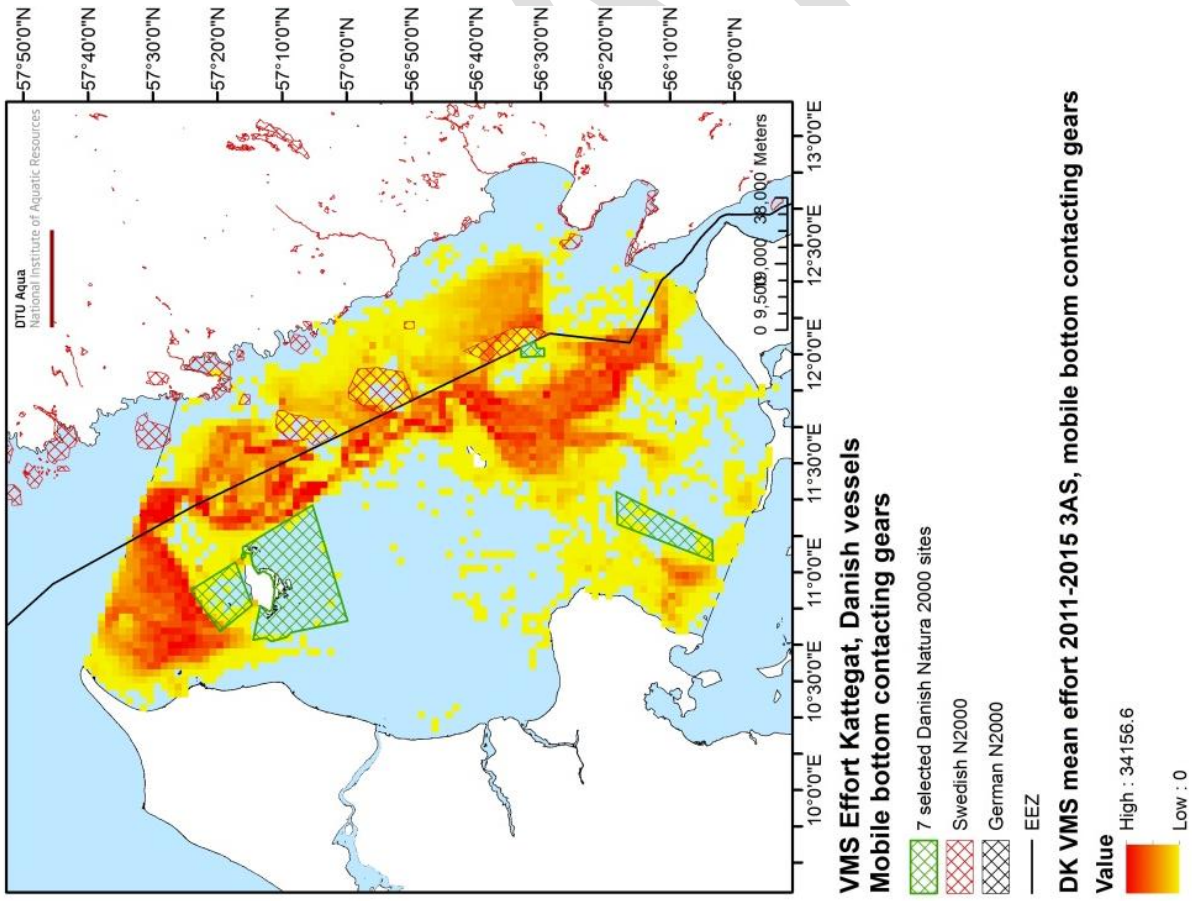
Fishery effort can be expressed as VMS effort to give an indication of where in a given area, fishery takes place and at what intensity. DTU Aqua has analyzed fishery effort in relation to the present proposal for Danish, Swedish and German vessels.

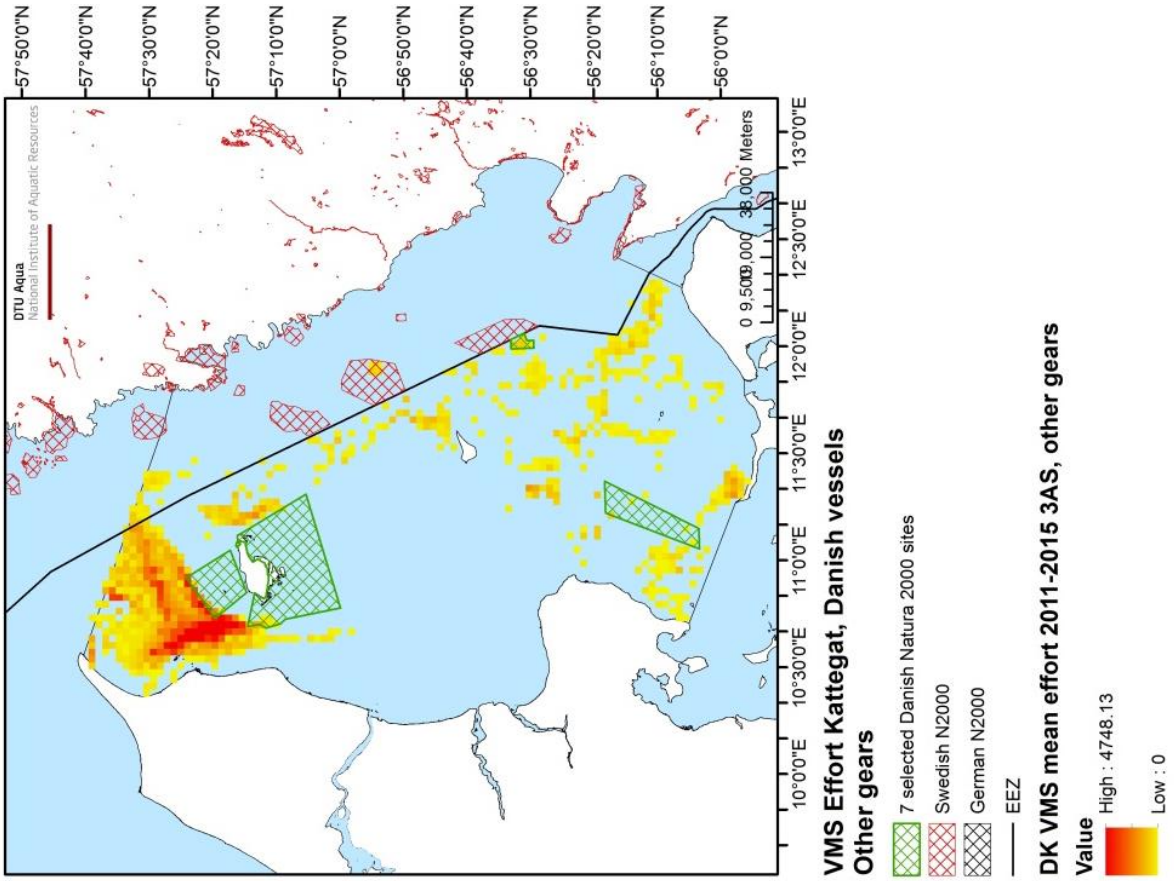
Danish vessels

VMS effort is expressed as VMS point*VMS interval*kW of the vessel for each VMS ping classified as fishing activity. As the VMS interval for Danish vessels is one hour, it will be expressed as VMS point*kW. In 2011, the VMS data are available for vessels >=15 m, whereas in the following years the VMS data are available for vessels >=12 m. To make a VMS effort estimate that is comparable between years, the amount of extra effort that the vessels of length 12-15 meters are adding to the data set, can be expressed as (VMS*kW 12-15m)/(VMS*kW >=15m). This gives the factor 0.494 for bottom contacting mobile gear groups, and the factor 0.086 for other gear groups. The 2011-2015 data have been raised by these factors accordingly.

The average VMS effort within cell sizes of 2000 m for the years 2011-2015 is shown in the maps below (figure 1) for bottom contacting mobile gear groups and other gear groups for Danish vessels for the Kattegat area.

Figure 1 . Distribution of <u>Danish fishing VMS effort</u> (Number of VMS recordings * vessel kW) by gear group given as an average for the period 2011-2014





The tables below (table 1 and 2) show fishing activity in the period 2011-2015 for Danish vessels in the four Natura 2000 sites in relation to fishery in Kattegat in general based on VMS effort.

Table 1. VMS effort inside the Natura 2000 sites, the stone reef buffer zones and the bubbling reef buffer zones, relatively to the total VMS effort in Kattegat for <u>Danish vessels</u> with mobile bottom contacting gears

Natura 200 site	Natura 2000 area	Stone reef buffer	Bubbling reef buffer
Havet omkring Nordre Rønner	0.195	0.009	0.000
Schultz og Hastens Grund samt Briseis Flak	0.041	0.000	0.000
Store Middelgrund	0.007	0.008	0.000
Strandenge på Læsø og havet syd herfor	0.012	0.004	0.000
Total	0.255	0.020	0.000

Table 2. VMS effort inside the Natura 2000 sites, the stone reef buffer zones and the bubbling reef buffer zones, relatively to the total VMS effort in Kattegat for Danish vessels with other gear groups

Natura 2000 site	Natura 2000 area	Stone reef buffer	Bubbling reef buffer
Havet omkring Nordre Rønner	0.711	0.050	0.000
Schultz og Hastens Grund samt Briseis Flak	0.363	0.024	0.000
Store Middelgrund	1.631	1.623	0.050
Strandenge på Læsø og havet syd herfor	0.464	0.028	0.000
Total	3.169	1.724	0.050

The maps in figure 1 and data in table 1 and 2 clearly show the very low fishing effort within the Natura 2000 areas when looking at Danish vessels above 12 meters.

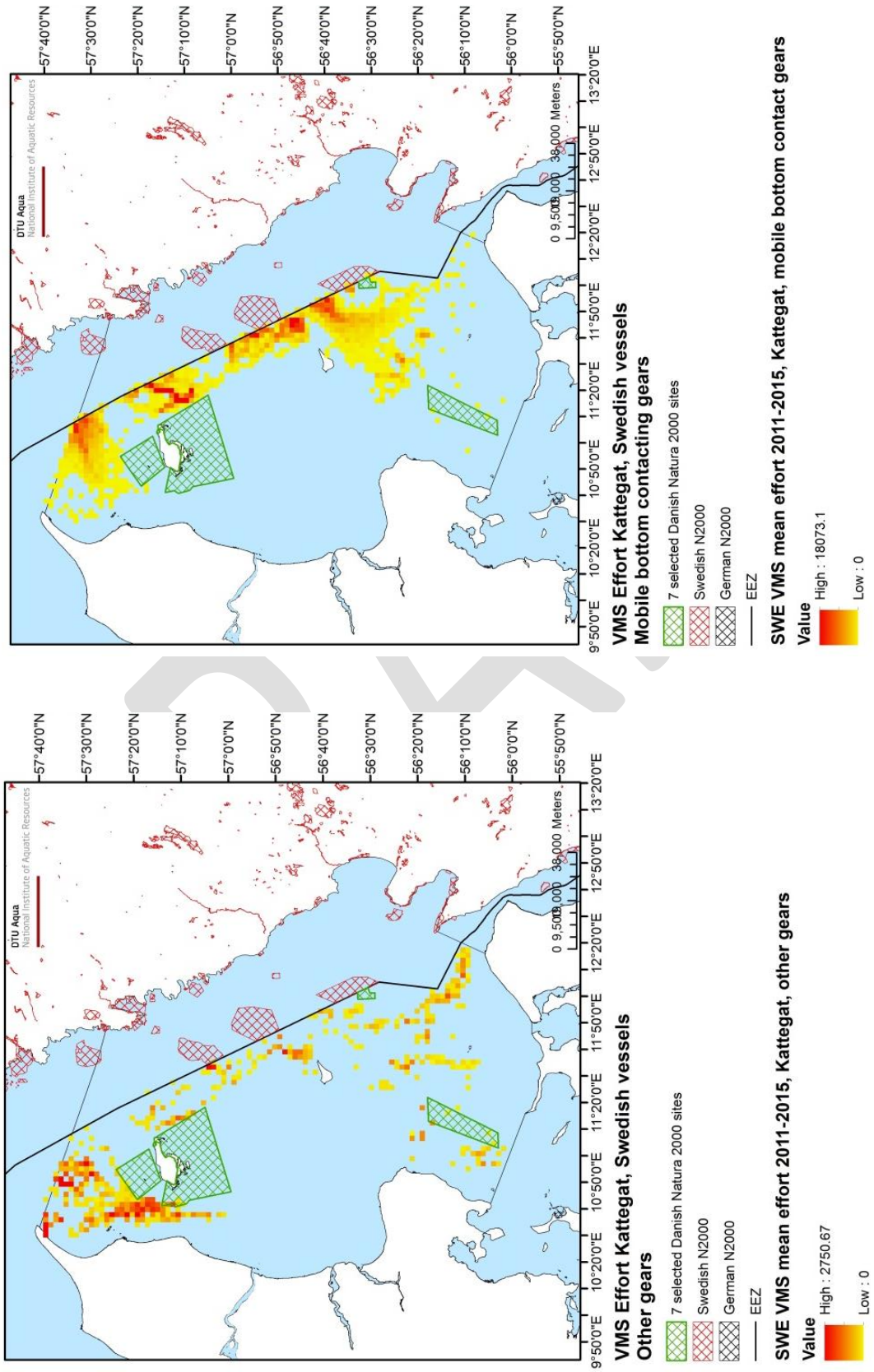
Swedish vessels

The forwarded Swedish VMS data contains on position, date, speed, VMS interval, vessel kW, kW hours, gear and DCF level 6 metier for the years 2011-2015, and could be processed the same way as the Danish data.

The Swedish VMS data has variable ping-period with values between 0.25 or 1. The VMS effort for the Swedish data is calculated as VMS ping*kW*ping period. An average VMS effort map for the years 2011-2015 is calculated in the same way as for the Danish vessels, see figure 2.

DRAFT

Figure 2. Distribution of <u>Swedish fishing VMS effort</u> (Number of VMS recordings * vessel kW * ping-period) by gear group in the Kattegat area given as an average for the period 2011-2014

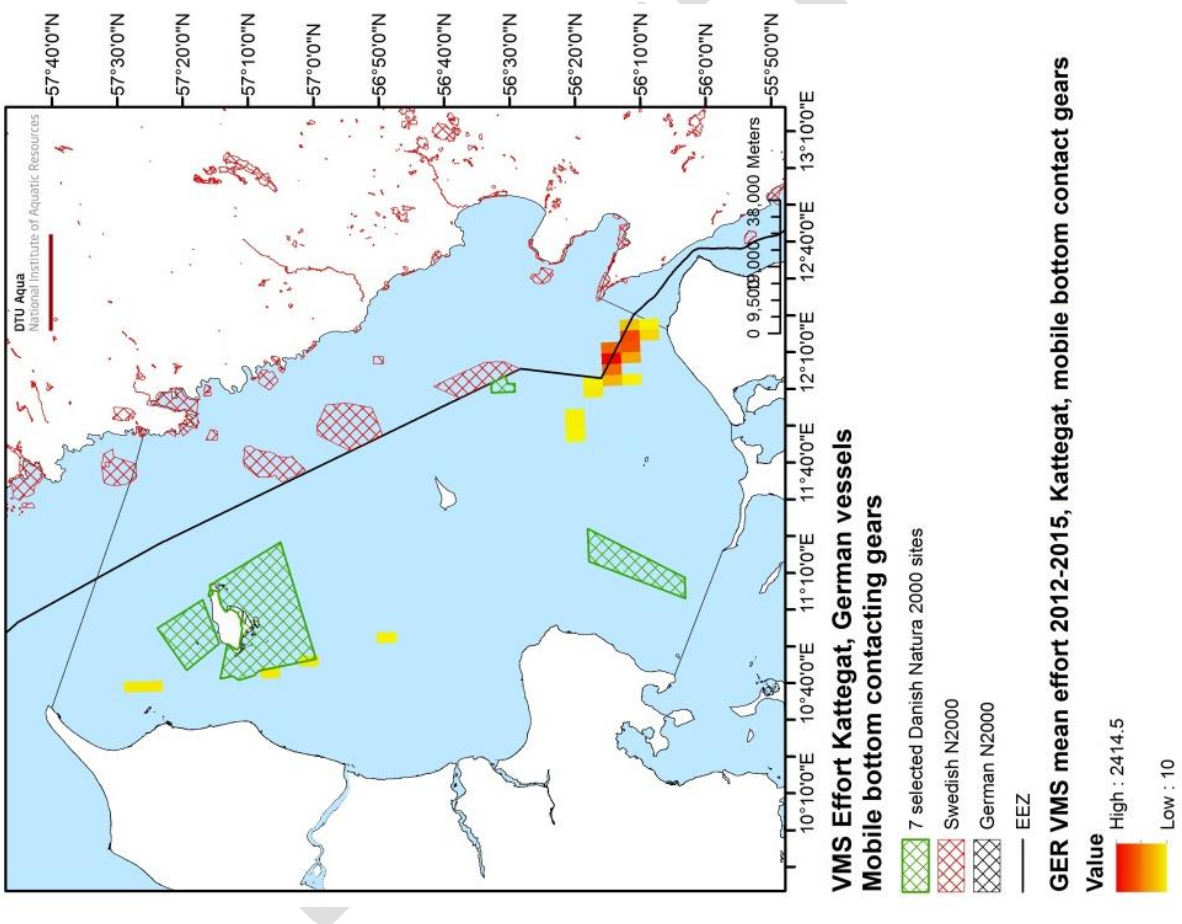


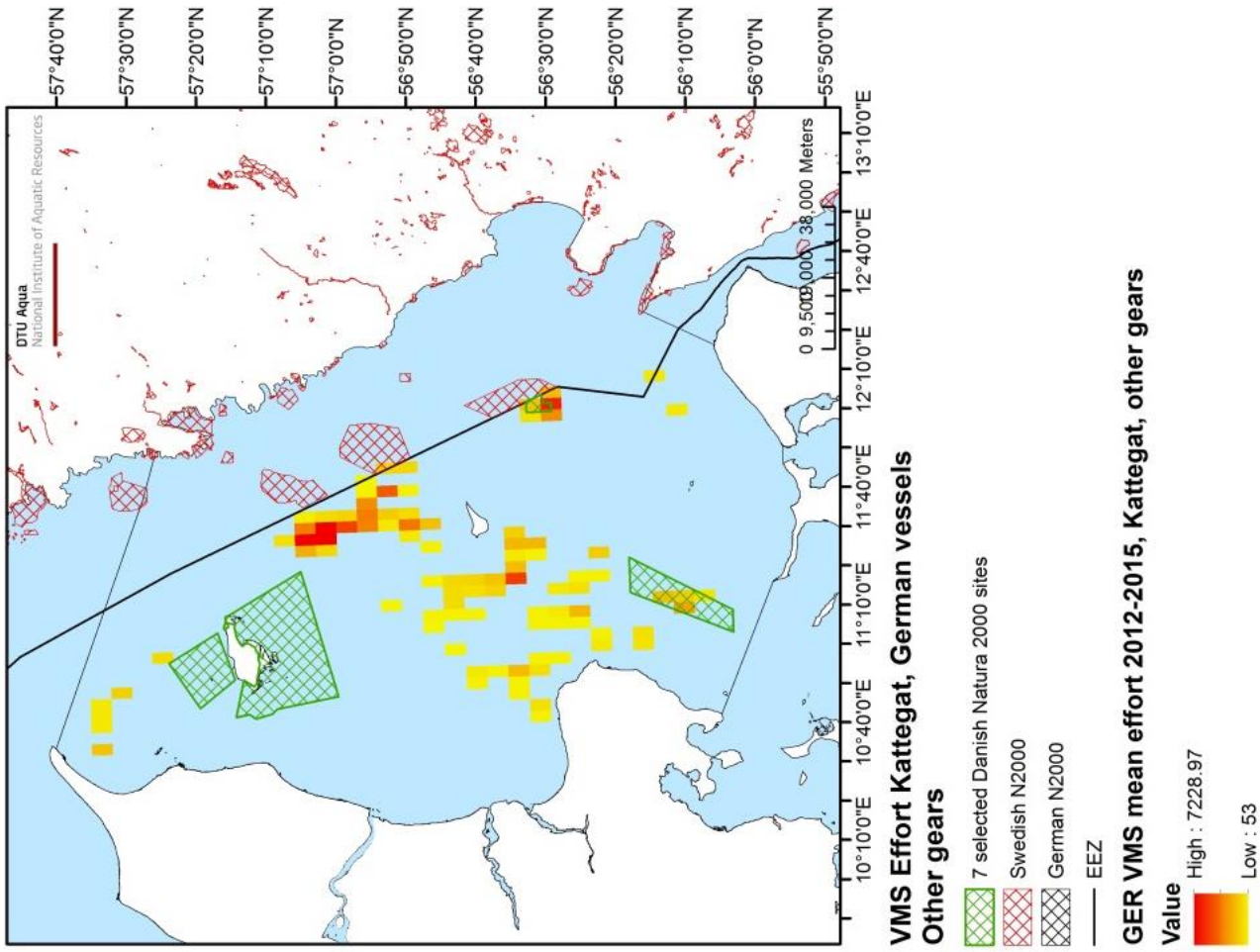
There is no VMS effort from Swedish vessels with bottom contacting mobile gears inside the four Natura 2000 sites "Strandenge på Læsø", "Havet omkring Nordre Rønner", "Store Middelgrund" and "Schultz og Hastens Grund samt Briseis Flak".

German vessels

The German effort data is given for the years 2011-2015 and contain information on effort hours and kW fishing hours for the gear groups DTS (Demersal Trawlers and Seiners), PTS (Pelagic trawlers and Seiners) and PG (Passive Gears). The spatial information is given as C-squares, which is a reference system, at a resolution of 0.05 degrees. The data is split into Mobile Bottom Contacting Gears and Other Gears, and the kW fishing hours is averaged for the years 2011-2015.

Figure 4 . Distribution of German fishing VMS effort by gear group in the Kattegat area given as an average for the period 2010-2012




57°40'0"N
57°30'0"N
57°20'0"N
57°10'0"N
57°0'0"N
56°50'0"N
56°40'0"N
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11°10'0"E
11°40'0"E
12°10'0"E
12°40'0"E
13°10'0"E
0 9,500 19,000 38,000 Meters
DTU Aqua
National Institute of Aquatic Resources
VMS Effort Kattegat, German vessels
Other gears
7 selected Danish Natura 2000 sites
Swedish N2000
German N2000
EEZ
GER VMS mean effort 2012-2015, Kattegat, other gears
Value
High : 7228.97
Low : 53