Annex 3 - Background document Cleaver Bank

Background document to the proposed Joint Recommendation for Conservation measures under the Common Fisheries Policy

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These institutes provided the scientific information on natural features, activities in the areas, economic value of the areas and the expected effects of the conservation measures. This information has been incorporated in chapters 2 and 4 of the area specific Background Documents and chapters 3, 6 and 7 of the General Background Document.

Contents

Summary

This document contains the area-specific background information to the proposed Joint Recommendation under Art. 11 and 18 of Regulation (EU) 1380/2013) on the Common Fisheries Policy to implement conservation measures on the Cleaver Bank necessary to comply with Union Environmental legislation, such as the Habitat Directive, Birds Directive or Marine Strategy Framework Directive. The Cleaver Bank is designated as a Special Area of Conservation (SAC) as part of the Natura 2000 Network. It lies in the central western part of the Dutch Exclusive Economic Zone (EEZ), bordering the UK. The Cleaver Bank is an example of habitat type 1170 'reefs' (H1170) which is characterised by geomorphological features that are considered to be reef structures. The SAC is an area of 1539 km^2. As a conservation measure, circa 1241 km^2 will be closed to all bottom contacting towed gear (beam trawls, demersal trawls and seines, and dredges). See also the Joint Recommendation for conservation measures. In the period 2014-2019 an average of 112 fishing days was realised on the Cleaver Bank mainly by Dutch flagged vessels. The predominant gear used by the Dutch vessels was Scottish seines (SSC) and the main target species were Atlantic mackerel (*Scomber scombrus*) and European plaice (*Pleuronectes platessa*). The Gross Value Added was 892,000 EUR (NL: 644,000 EUR). Other humans activities that affect the seabed besides fisheries take place on the Cleaver Bank, such as: oil and gas exploration, pipelines and cables and shipping. The conservations measures that are taken under the Habitats Directive focus on demersal fishing activities, considering these pose the main threat to conservation of this area and its species. Other human activities that have (potential) impacts are assessed and measures taken in the Cleaver Bank management plan (Rijkswaterstaat, 2023). The conservation objectives for the habitat type 1170 on the Cleaver Bank are to maintain its distribution, to maintain surface area and to improve the quality of the habitat type. An improvement in quality is needed because the quality of the habitat is currently assessed to be unfavourable–inadequate, due to repeated disturbance of the bottom as compared to an undisturbed situation. The key factor to improve quality is to ensure that habitat type 1170 is left undisturbed, by preventing human induced bottom disturbance (elevated dynamics). If undisturbed, cementing of the different fractions (gravel, stones) can occur, allowing for the establishment of typical sessile epibenthic species, while other infauna (those which are able to withstand movement and increased dynamics, e.g. from bottom fisheries) disappear. By the exclusion of fishery types that make use of towed gear types that contact the seafloor, it is foreseen that seabed stability is maintained and that this will allow the development of the typical characteristics of the seabed community of habitat type 1170. A natural development and succession of a complex sessile biotic community will be enabled as the position and orientation of the hard substrate on which it grows do not change.

1 Introduction

This document contains the area-specific background information to the proposed Joint Recommendation[1] under Art. 11 and 18 of Regulation (EU) 1380/2013) on the Common Fisheries Policy to implement conservation measures on the Cleaver Bank necessary to comply with Union Environmental legislation, such as the Habitat Directive, Birds Directive or Marine Strategy Framework Directive. The Joint Recommendation contains a request to the European Commission to implement conservation measures necessary in parts of this area to ensure a key contribution to achieving Natura 2000 conservation objectives for reefs (habitat type 1170) (Articles 6.2 and 6.3 of the Habitats Directive 92/43 EEC).

This document is submitted as an Annex to the Joint Recommendation on the Cleaver Bank by the Netherlands as initiating Member State. Final approval of the Joint Recommendation was agreed by those Member States with a direct fisheries management interest in the "High Level Group" of the Scheveningen Group and submitted to the European Commission by its Chair.

This chapter provides the introduction of this area-specific Background Document. Chapter two elaborates on the area description including its natural features, fishing activities, and other human activities. Chapter three describes the rationale for conservation. The conservation objectives are explained, the policy considerations are described and the translation into conservation measures is discussed. Chapter four describes the expected effects of the conservation measures on natural features, fishing and other human activities. Finally, chapter five elaborates on the discussions in the Scheveningen Group and NSAC regarding the proposed conservation measures for the Cleaver Bank. In chapter six, the conclusion leading to the Joint Recommendation is summarized.

The content of this Background Document is established in accordance with the requirements as requested by the European Commission (2013, 2018).

This area-specific Background Document needs to be read in conjunction with the Joint Recommendation and General Background Document.

[1] This document refers to the (current) Joint Recommendation. With this reference the proposed Joint Recommendation for conservation measures is meant.

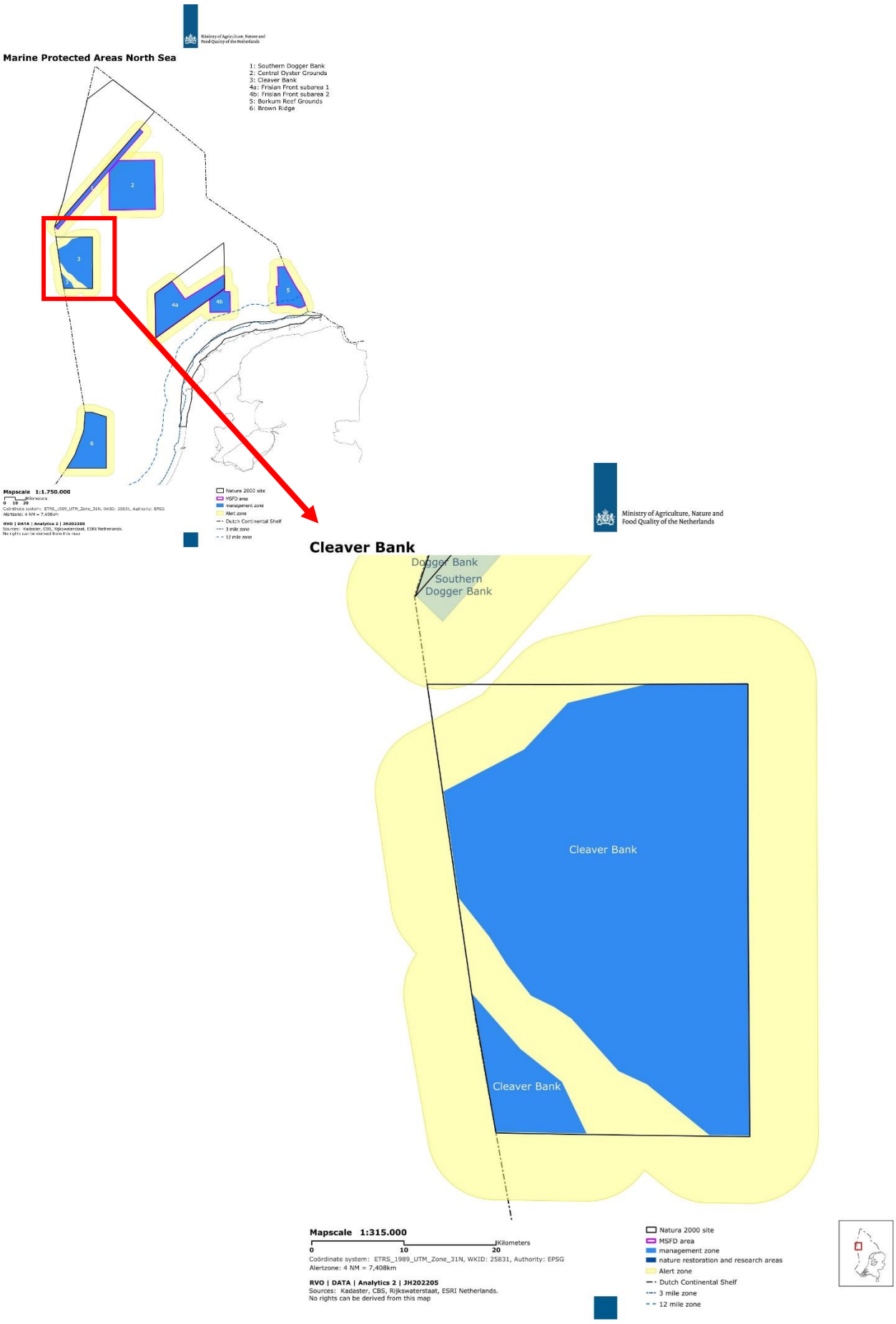

Figure 1. North Sea protected areas with a detailed map of the site Cleaver Bank.

2 Area description

2.1 Legal status

The Dutch area "Cleaver Bank" was included in the list of Sites of Community Importance (SCI), pursuant to Art. 4(2) of the Habitats Directive, by Commission Decision 2010/43/EU of 22 December 2009. It was designated in a national designation decree on 27 May 2016, and therefore the current status is a Special Area of Conservation (SAC). The Natura 2000 site (SAC) Cleaver Bank area (153900 ha) was assessed to consist for about 50% of H1170 (Table 1).
Table 1 and Table 2 present information from the Standard Data Form submitted by The Netherlands. The Standard Data Form contains all relevant information, accompanying a submission of a candidate site of community importance (pSCI). The full Standard Data Form, including all underlying source information, are available at the website of the European Commission[2].

Table 1: Qualifying habitat type present on the site and assessment for it.

Habitat Type	Cover (ha)	Representativity	Relative surface	Conservation status	Global assessment
H1170	76934	B	A	C	A

Representativity: A: excellent, B: good, C: significant, D: non-significant presence

Relative surface: A: between 100 to 15%, B: 15 to 2%, C: 2 to 0%

Conservation status: A: excellent , B: good, C: average or reduced conservation

Global assessment: A: excellent, B: good, C: significant value

Table 2: Animal species of community interest according to Annex II of 92/43/EEG.

Code	Name	POPULATION				SITE ASSESSMENT			
		Resident	Migratory			Population	Conser-vation	Iso-lation	Glo-bal
			Breed	Winter	Stage				
1364	*Halichoerus grypus*	C				C	B	C	C
1365	*Phoca vitulina*	R				C	B	C	C
1351	*Phocoena phocoena*	C				B	B	C	B

Population:

- Resident: C: common, R: rare resident

Area assessment:

- Population: A: between 100 to 15%, B: 15 to 2%, C: 2 to 0%
- Conservation status: A: excellent , B: good, C: average or reduced conservation
- Isolation degree: A: population (almost) isolated, B: population not-isolated, but on margins of area of distribution, C: population not-isolated within extended distribution range
- Global assessments: A: excellent, B: good, C: significant value

The scientific information for the entries in the tables can be found in: Bos et al. (2008); Jak et al. (2009) and Lindeboom et al. (2005).

In the Management plan for the Cleaver Bank (Rijkswaterstaat, 2023) a summary is provided of the current national conservation status, the trend and objectives for the Cleaver Bank for each conservation objective (Table 3). The conservation objectives are described more explicit in Chapter 3.

[2] http://natura2000.eea.europa.eu/natura2000/

Table 3: Overview of the conservation objectives for the Cleaver Bank (Rijkswaterstaat, 2023, in Dutch).

		National conservation status	Trend	Objective (area)	Objective (quality)	Objective population/number
H1170	Reefs	-	?	=	>	n.r.
H1351	Harbour porpoise	+	?	=	=	=
H1364	Grey seal	+	?	=	=	=
H1365	Harbour seal	+	?	=	=	=

2.2 Natural features

The Cleaver Bank lies in the north-western region of the Dutch Exclusive Economic Zone (EEZ) and is an example of habitat type 1170 'reefs' which is characterised by geo-morphological features that are considered to be reef structures (Jak et al., 2009). Gravel and cobbles on the Cleaver Bank originate from the last Ice Age (Schwarzer and Diesing, 2003, from Jak et al., 2009). The Cleaver Bank area is cut in two sections by the deep and silt-rich Botney Cut (Figure 2). The total area of the SAC is 1539 km^2, and the areas proposed for closure have a total surface area of circa 1241 km^2, about 81% of the total SAC.

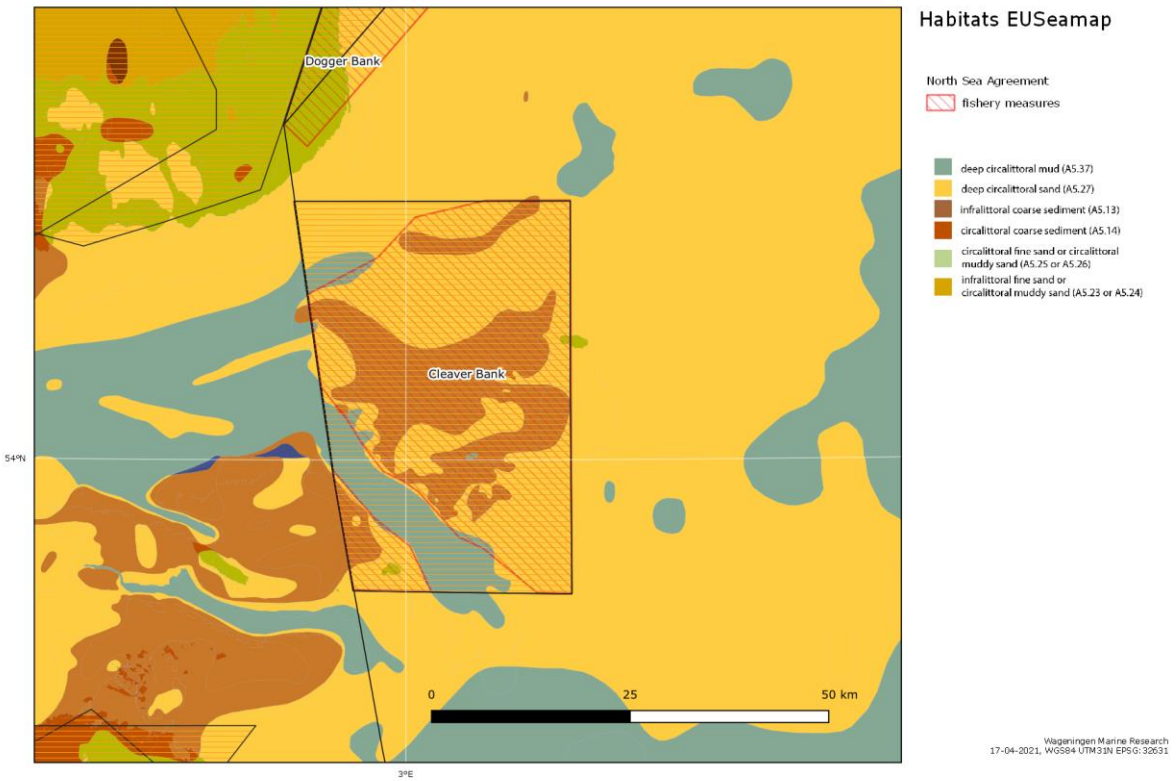

Figure 2. Habitat distribution at the Cleaver Bank (source: EMODnet).

Different monitoring campaigns and subsequent studies have been performed on the Cleaver Bank, on the basis of which earlier mapping exercises and description of features have been done (van Moorsel, 2003; Laban, 2004 and Jak, 2009). From 2013 until 2015 additional side scan sonar surveys were performed by Rijkswaterstaat and analysed by Periplus Consultancy, gathering geological data covering 19% of the whole Cleaver Bank area (Figure 3).

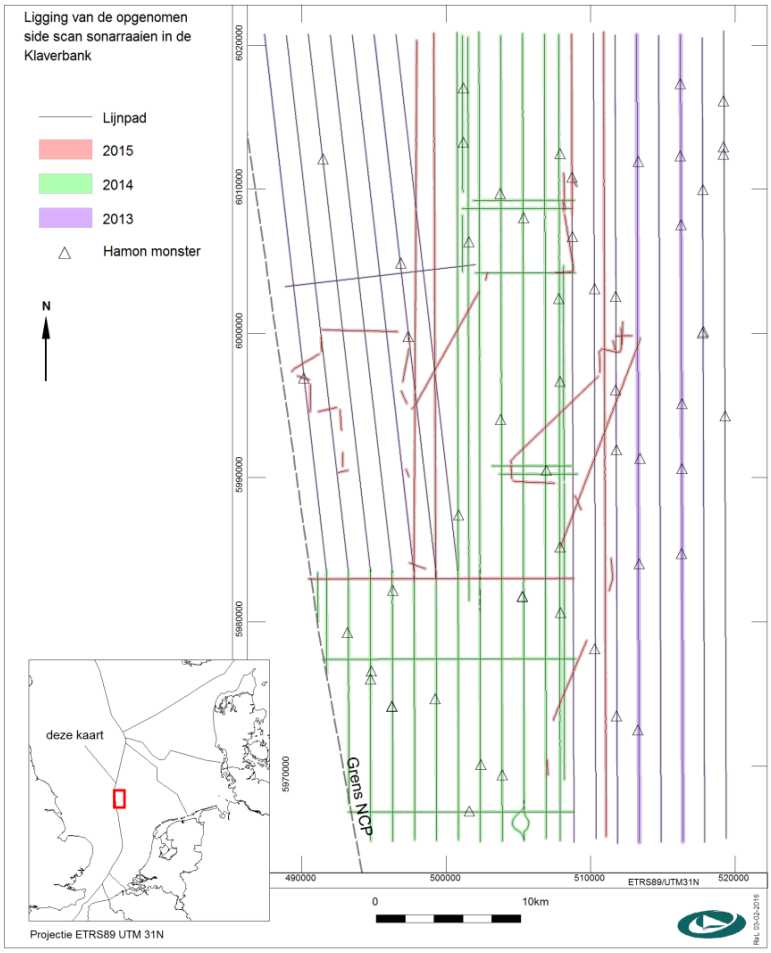

Figure 3. Side scan sonar surveys on the Cleaver Bank in the years 2013 , 2014 and 2015.

As part of the MSFD monitoring programme, Eurofins Aquasense performed an ecological monitoring campaign using ROV video imaging and Hamon grab, gathering information on the typical species composition and faunal communities present. In total 42 Hamon grab samples were collected and 39 km of ROV video, comprising of approximately 70 hours of video material of the seafloor. After analysis, all geological and biological information was combined in an interactive pdf map document with different layers which can be turned on and off (Periplus Consultancy and Eurofins AquaSense, 2016). This map is accompanied by a short description of each layer, describing which method was used, what was monitored and a short summary of the results (Leewis et al, 2016). In 2018, a second video campaign was carried out, on different locations as compared to 2015 (Driessen et al., 2019), and also making use of different registration methods hampering a comparison of the results from both campaigns. In 2019, 37 samples were taken with Hamon grab of which 18 stations were identical to those of 2015 (Verduin et al., 2020).

The presence of large cobbles and/or coarse gravel is a characteristic feature of habitat type 1170. An additional characteristic is the presence of a mosaic of coarse sediment types that, in addition to cobbles and gravel, consists of various gravel and sand fractions (Laban, 2004). Places with gravel and boulders alternate with coarse sand and places with old shell material. Here and there, boulder clay rises to the surface.

Gravel and boulders offer a habitat for sessile epifauna to settle. Gravel with a grain size larger than 30 mm can already be covered with sessile fauna. This suggests that the mobility of these sediments is minimal. Sessile organisms are important because these organisms can aggregate loose elements on the seafloor together, as can be learned from Georges Bank (Collie et al., 1997). Sessile organisms also make the seafloor less sensitive to the effects of water movement. The accretion of these sessile organisms is responsible for a radical development of the three-dimensional structure of the habitat type, giving it complexity. This complex, three-dimensional structure creates new niches that become occupied by specialised organisms thereby increasing biodiversity (Jak et al., 2009).

Over large areas a thin layer of marine sands and silt has been deposited. Occasionally, under the influence of the dominant water current, these form 'sand ripples' that run parallel to the current direction and can be kilometres long (Laban, 2004 and Leewis et al, 2016). Maximum measured water current speeds vary between 0.25 and 0.40 m/s. Because of the significant depth of the Cleaver Bank, the sand and finest gravel fractions on the bottom are disturbed by wave action only in very heavy weather. As a consequence of this dynamic, the gravel is relatively poor in silt. The visibility is so high that sunlight penetrates even to a depth of 40 m to enable the growth of crustose calcareous red algae (van Moorsel, 2003). The mosaic pattern and the low mobility of a large part of the sediment in combination with the clarity of the water make the Cleaver Bank unique in the Dutch EEZ, although this combination of features is less rare in other parts of the North Sea (Jak et al, 2009).

2.2.1 Depth contours

The Cleaver bank is located in quite deep water, average depths lie within -30 to -50 meters (Jak et al., 2009), with a maximum depth of -71 m in the Botney Cut, a minimal depth of -30 m and an average depth of -43 m (Bos et al., 2008). Depth contours are shown in Figure 4 and Figure 5.

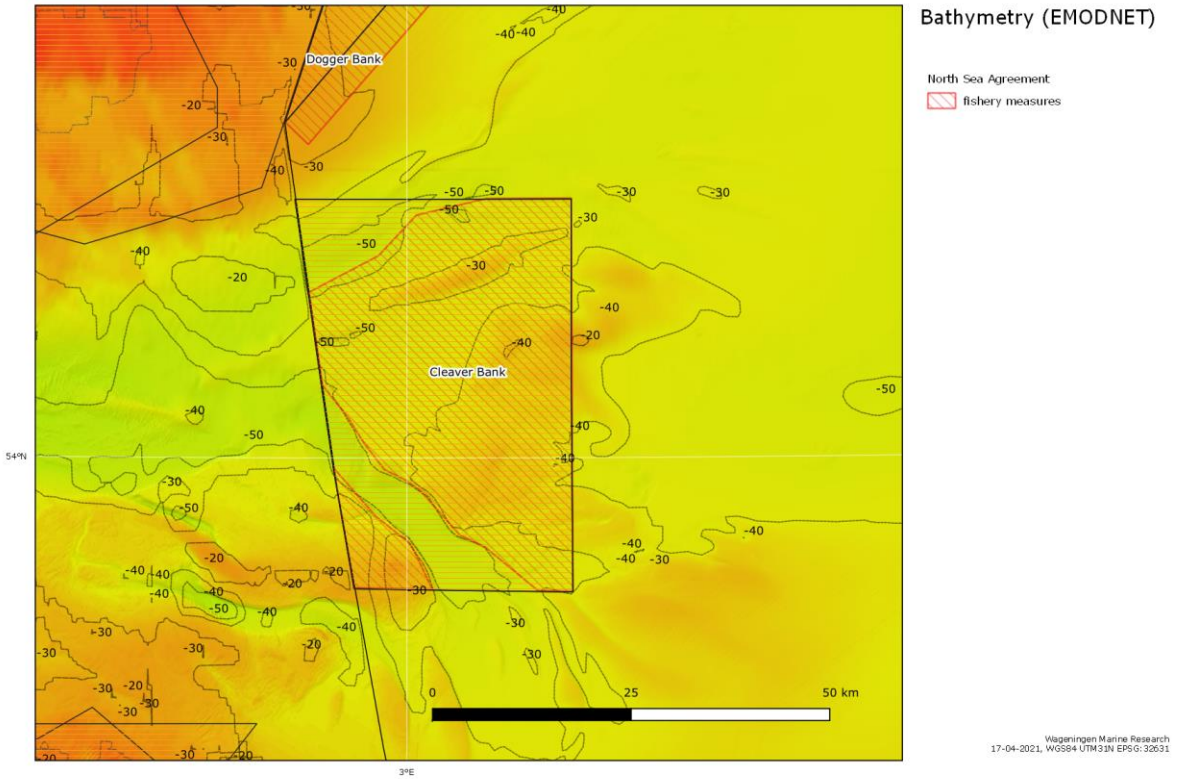

Figure 4. Cleaver Bank SCI, proposed management zones and depth contours (source EMODNET)

2.2.2 Sediment type

A sediment map from Leewis et al. (2016, layers 3.2 and 3.3) provides insight in the gravel content on the Cleaver Bank area and the identified rocks >30cm based on side scan sonar data.

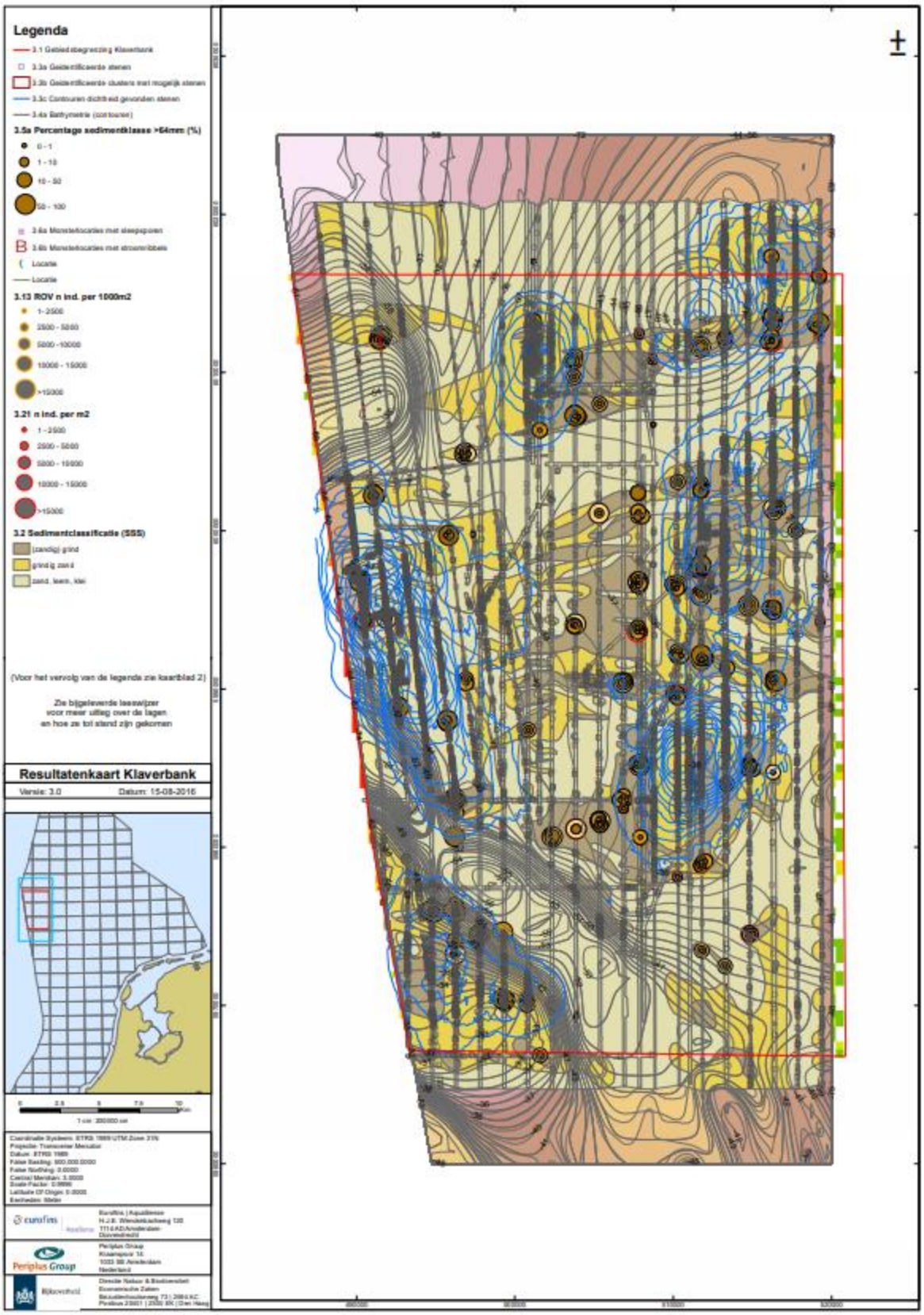

Figure 5. Cleaver Bank gravel content (dark brown = (sandy) gravel; dark yellow = gravelly sand and beige = sand or clay) and identified rocks >30cm (blue lines = contours based on actual reflection and interpolation) and SAC boundary (red line).

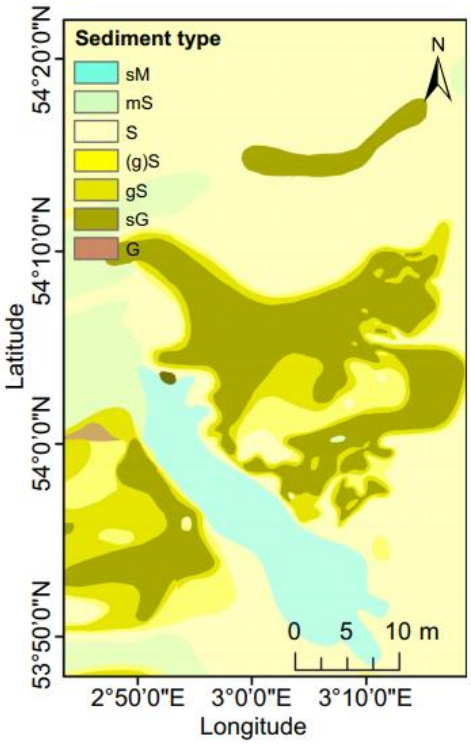

Figure 6. Seabed sediment map of the Cleaver Bank area from Gaida et al., 2019, based mainly on ground-truth data (EMODnet, 2016). The sediment classes are defined after Folk (1954): sM = sandy Mud, mS = muddy Sand, S = Sand, (g)S = (slightly gravelly) Sand, gS = gravelly Sand, sG = sandy Gravel, G = Gravel.

Figure 6 (produced in 2016) covers the entire Cleaver Bank area, but does not show the intervals in high detail. Information brought forward by the fishing industry in the FIMPAS project (Fishing industry, 2011a and 2011b) provides additional information on presence of stony ridges, stones, pebbles and areas known on fishermen's maps as "messy" (implying the presence of such features; see Figure 7).

This information was reviewed by two independent experts (Dr. C. Laban at Marine Geological Advice and dr. M.S.S. Lavalaye at NIOZ / Royal Netherlands Institute for Sea Research). It was found that the information provided in Figure 7 was largely in accordance with data from sampling observations. An important exception to this is the stony area ('*stenen*') located in the North outside the old SCI boundary, which is different from the sampling observations (which provide no such indication). A probable explanation for this lies in the fact that this area was less densely sampled. The new research from 2016 does comply with the stony area in the Northeastern part. More recently, a seabed map was constructed also showing a (sandy) gravel area in the north of the area.

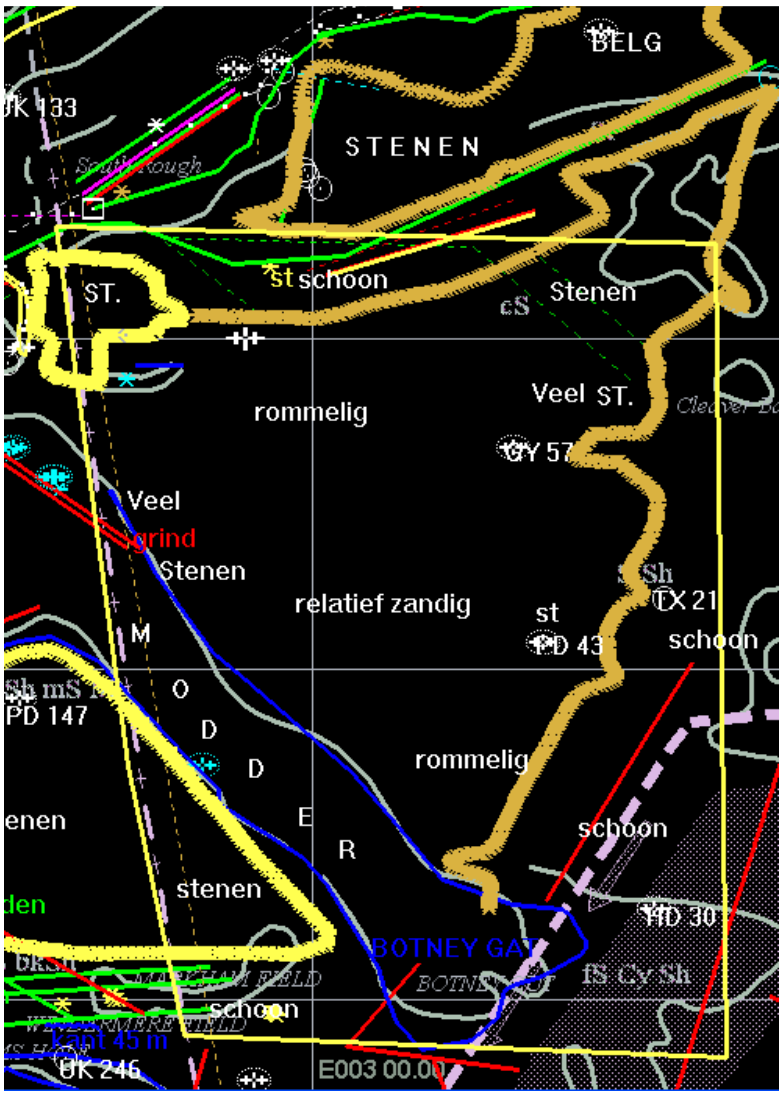

Figure 7. Industry map (Fishing industry, 2011a) depicting stony ridges (amber/yellow); stones ('stenen' and "st."); messy areas ('rommelig'), containing different sediments: sand, gravel and stones; relatively sandy areas ('relatief zandig'); clean areas (sandy without stones, 'schoon'), the muddy Botney Cut (blue, 'modder') and the old SCI boundary (yellow line).

2.2.3 Benthic communities

Owing to the variety of sediment types, such as the occurrence of coarse sediments and cobbles, the area hosts a great diversity of species. Of all the macrobenthic species present in the EEZ, 44% occur exclusively on the Cleaver Bank (van Moorsel, 2003). The biodiversity of the macrobenthos on the Cleaver Bank is among the highest in the Dutch EEZ (Lindeboom et al., 2008, Jak et al., 2009; Bos et al., 2011, Leewis et al, 2016). In the 2015 monitoring campaign, 246 unique species were found in 42 Hamon grab samples and 24 new species for the Netherlands were discovered. To compare, in the Dutch standard monitoring campaign in 2015 a total of 164 Boxcore samples were taken in the entire Dutch EEZ, and a total of 262 unique species were identified. In the subsequent monitoring campaign with Hamon Grab performed in 2019 a total of 296 taxa were recorded, of which 169 taxa were not encountered in 2015 (Verduin et al., 2020). Within the newly found taxa, 16 species were not recorded before in the Netherlands. This shows that the biodiversity in the Cleaver Bank area is high and probably related to the variety in abiotic conditions, such as sediment types and water currents, creating a variety of habitats (Verduin et al., 2020). A cluster analysis of the benthos communities of all samples identified four different clusters. Unfortunately, the type of sediment was not characterised, and therefore these benthos clusters cannot be related to differences in substrate.

Based on the report on the ecology of the Cleaver Bank by Van Moorsel (2003) and the additional research from Leewis et al. (2016) and Verduin et al. (2020), a good picture of the fauna of the Cleaver Bank has emerged. It is evident that the characteristic species of the Cleaver Bank are precisely those restricted to the coarse, highly permeable sands and/or species that cling to stable hard subsurface (gravel, cobbles, pebbles, stones). Van Moorsel (2003) indicated that the sediment composition is often very variable even within a transect of 1 kilometer. It is exactly this variation in the habitat which is important for the high biodiversity of the area (Figure 8) (Lavaleye, (2011), Leewis et al. (2016), Verduin et al., (2020)).

Leewis et al. (2016) also did a statistical analysis on the relationship between faunal communities and abiotic factors. This analysis showed two clear 'clusters' of typical H1170 species, divided over the Eastern and Western parts of the Cleaver Bank. The first cluster (West) exhibits predominantly soft-bodied typical species that live on rocks and coarse sediment and the second cluster (East) exists mainly of hard-bodied typical species usually present on coarse sand and gravel. A third cluster of species was recognised which did not clearly fall into one or the other. Another analysis was performed on data from the 2018 Hamon Grab campaign (Verduin et al., 2020) where four benthos clusters were distinguished, which however resemble the before mentioned clusters to a large extend. The division in clusters cannot yet be statistically linked to the abiotic factors that were taken into account, however they do seem to be linked to different abiotic aspects (Leewis and Verduin, 2016), and may include the presence of silt related to current regimes or water depth (Verduin et al., 2020).

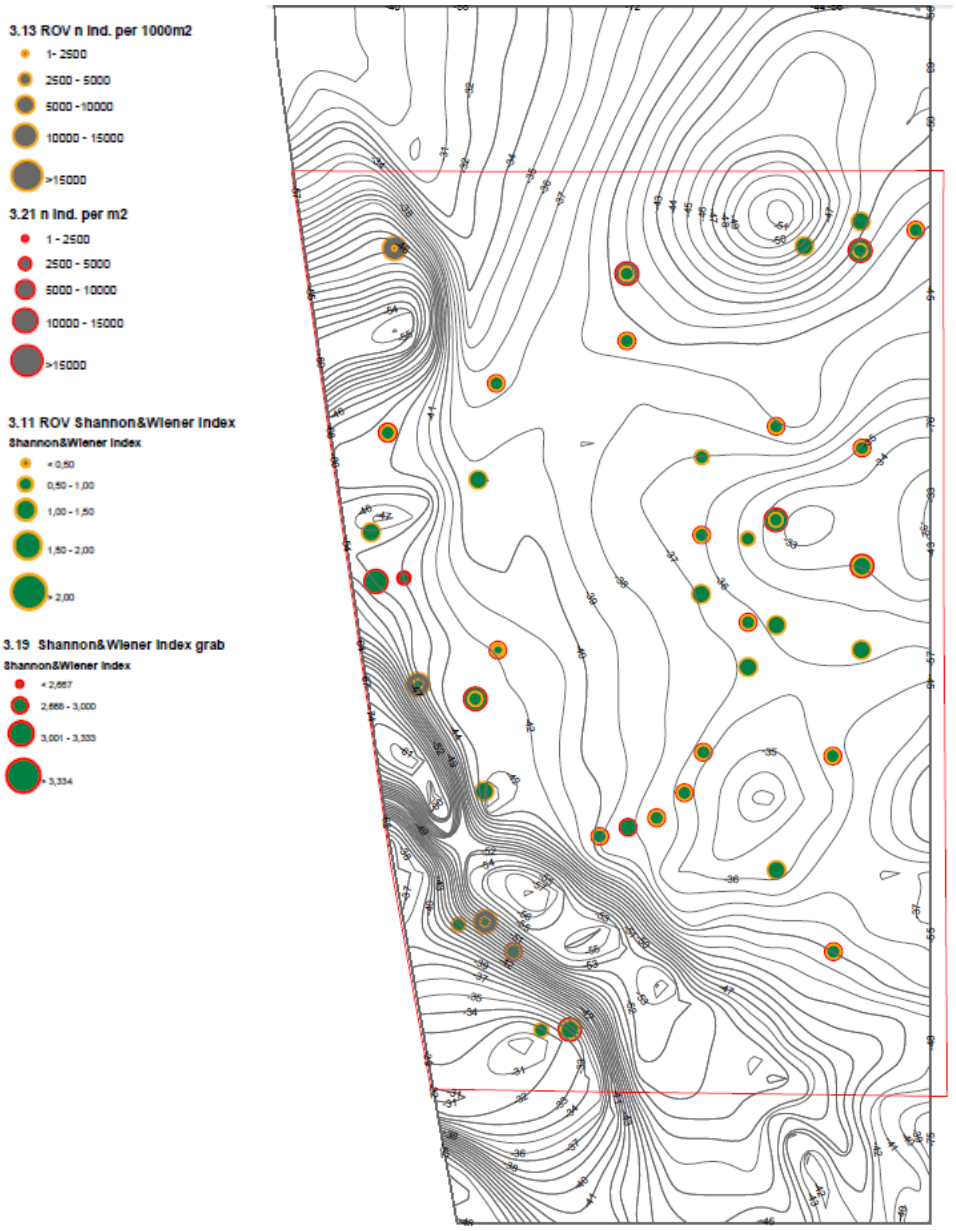

Figure 8. Map of depth contours and biodiversity aspects Shannon&Wiener index and number of species per m2 sampled by Hamon grabs and ROV images.

These results concur with van Moorsel (2003), who only covered a section of the Cleaver Bank area: For the coarse permeable sands within the area, these characteristic species include the European lancelet (*Branchiostoma lanceolatum*) and the sea urchin (*Echinocyamus pusillus*, pea urchin). These species do not always occur in the greatest abundance but are nevertheless characteristic by virtue of their association with this specific coarse sediment. Other species named are the polychaeta *Aonides paucibranchiata, Typosyllis cornuta* and *Goniadella bobretzkii*. The amphipod *Urothoe marina* is named as a crustacean typical of coarse sand (Van Moorsel, 2003).

For the hard substrate (gravel, cobbles, pebbles, stones), characteristic sessile organisms are dead men's fingers (*Alcyonium digitatum*), crustose calcareous red algae (*Lithothamnion sonderi* and *Phymatolithon sp.*) and, for example, the keel worm (*Pomatoceros triqueter*), the ross worm (*Sabellaria spinulosa*) and the ribbed saddle oyster (*Pododesmus patelliformis*) (Van Moorsel, 2003). These last three species cement the substrate and give its structure and texture an extra dimension so that many other species can grow on it, such as the rock-boring mollusc (*Hiatella arctica*) and moss animalcules (Bryozoa).

Species that occur specifically in coarse sediment are the rayed artemis (*Dosinia exoleta*) and the blunt tellin (*Arcopagia (=Tellina) crassa*). These species have a thick shell, which makes them well suited to the incidental movements of the gravel. Precisely these species occur in the well-sorted lean (slit-poor) finer gravel and coarse sand fractions. Ocean quahog (*Arctica islandica*), too, are regularly encountered. In view of the type of substrate, the area is potentially suitable for the occurrence of the horse mussel (*Modiolus modiolus*) (Kenny and Rees, 1996). This long-lived species can form mussel beds. The common whelk (*Buccinum undatum*) can sustain itself well here because there is sufficient fixed substrate for the deposit of egg cases, and moreover the TBT (tributyltin) concentrations, which along the coast have caused imposex among common whelks, will presumably be too low here to cause effects (OSPAR, 2008).

Also found on the Cleaver Bank are various species that are otherwise only common in the deep more northern North Sea. Examples are the red whelk (*Neptunea antiqua*), the slender colus or common spindle (*Colus gracilis*), the hermit crab *Anapagurus laevis* and the purple heart urchin (*Spatangus purpureus*). A number of species new for The Netherlands has been found in the area, for example, the Norway bullhead (*Taurulus lilljeborgi*) and the spiny squat lobster *Galathea strigosa*. Northern species that occur on gravel-rich locations are the worms *Glycera lapidum*, *Dialychone dunerificta (*as opposed to *Chone Duneri*, which was determined initially, but later determined as only appearing in the Arctic*)* and *Laonice bahusiensis* (Van Moorsel, 2003). Also in 2015 many new species for the Netherlands were discovered, such as *Drilonereis filum*, the gastropod *Graphis albida*, *Nothria conchilega*, *Sphaerodoridium gracilis* and polychaetes *Ophelia celtica*, *Chaetozone zetlandica*. The Cleaver Bank is also probably the last aea where the oval venus *Timoclea ovata* can still be found in the Netherlands. The marine gastropod mollusc *Caecum glabrum* has not been found alive often anymore, but is fairly common on the Cleaver Bank.
Less specific to the area are the burrowing crustaceans such as *Callianassa subterranea* and *Upogebia deltaura*. In this area, these species are primarily restricted to the sediments in the deep silt-rich Botney Cut that cuts through the gravel area. These species are not characteristic of habitat type 1170.

2.2.4 Fish communities

Located on the Cleaver Bank are two sampling points for the monitoring of commercial fish stocks (Beam Trawl Survey and the International Bottom Beam Trawl Survey, see Lindeboom et al., 2008). The standard methodology used in this respect is inadequate for monitoring the fish species characteristic of the Cleaver Bank, many of which are small. The species concerned are those such as gobies (*Pomatoschistus spp.*), small flatfishes like the scaldfish (*Arnoglossus laterna*) and solenette (*Buglossidium luteum*) and the common dragonet (*Callionymus lyra*). These species are common throughout the North Sea and also often occur in other areas in the EEZ in large numbers (Van Moorsel, 2003). Two species prefer to live on and between cobbles and as such can be called characteristic. These are the Norway bullhead (*Taurulus liljeborgi*) and the two-spotted clingfish (*Diplecogaster bimaculata*).

In the area of the Cleaver Bank various fish species spawn, such as the whiting. In addition, the area is potentially suitable as a spawning ground for herring (summarised in Ter Hofstede et al., 2005).

An expansion of the herring population could give rise to the need for new spawning grounds (Van Moorsel, 2003). Finally, lancelets have not been found more commonly than on the Cleaver Bank (Leewis and Verduin, 2016).

2.2.5 Birds

The common guillemot and razorbill are present on the Cleaver Bank primarily in April/May (Arts and Berrevoets, 2005). With the North Sea Agreement (2020) an agreement was reached on research of six potential Special Protection Area's (SPA) under the Bird Directive (BD). The Cleaver Bank is one of these areas. A desk study is carried out to verify if the area qualifies under the BD. In case insufficient data is available to do a verification, additional field research will be carried out in 2024-2025. If the area qualifies it will be a designated area under the BD in 2025 at the latest. See for more information the General Background Document.

2.2.6 Marine Mammals

In summer, concentrations of the harbour porpoise can be found, particularly around the Botney Cut, and the minke whale, white-beaked dolphin and seals are also observed here (Camphuysen and Peet, 2006; Brasseur et al., 2008). A more recent review by Camphuyzen and Siemensma (2011) found no consistent patterns in space and time for harbour porpoises in the area.

2.3 Fishing activities

2.3.1 Impact of fisheries on natural values

Fishing activities can have an impact on integrity of the seafloor and natural values. This is described in chapter 3 of the General Background Document.

2.3.2 Fleet activity in effort

Information on data sources and processing, fishing effort calculations and fishing gear and groups can be found in chapter 3 of the General Background Document (GBD). Data on the fishing activity of fleets, gear types and gear groups for each year in the period 2014 to 2021 is shown in Table 44, Table 5, Table 6, and Figure 9. The extent and trends in the fishing activity are described in Jongbloed et al. (2023). The tables 4 and 7 plus figure 9 and 10 (country) show the fishery effort of EU member states only. This is because the article 11 procedure only applies to member states and does not apply to third countries. For instance, UK interests are being evaluated after consensus has been reached between member states.

Table 4: Overview of fishery effort (fishing days) per year of fleet nationality in the proposed management zones of the Cleaver Bank.

Country	2014	2015	2016	2017	2018	2019	2020	2021	Average
Belgium	24	12	15	5	8	1	3	5	9
Denmark	1	2	0	1	1	0	1	0	1
France	1	3	13	8	17	7	22	7	10
Germany	3	8	8	8	11	9	4	1	7
Netherlands	131	121	94	51	65	44	86	47	80
Total	160	146	130	72	103	62	116	59	106

Table 5: Overview of fishery effort (fishing days) per year of gear types in the proposed management zones of the Cleaver Bank.

Gear type	2014	2015	2016	2017	2018	2019	2020	2021	Average
TBB+	119.9	95.7	62.7	17.3	53.8	25.6	16.2	14.8	50.7
TBS*								0.2	0.0
OTB	4.4	9.6	8.8	6.4	6.3	8.5	22.0	17.8	10.5
OTT	3.6	2.0	0.9	0.9	0.7	1.1	1.1	0.9	1.4
SSC	31.4	34.8	45.7	40.7	25.1	22.0	67.5	21.2	36.0
SDN	0.3	2.4	9.0	5.8	9.7	3.7	7.4	3.8	5.3
**GNS	0.0								0.0
**OTM	0.3	1.4	3.2	1.4	7.0	0.8	1.9	0.6	2.1
**PTM			0.0						0.0
Total	160.0	145.9	130.4	72.5	102.6	61.7	116.0	59.3	106.0

**not part of the proposed fishery measures

Table 6: Overview of fishery effort (fishing days) per year of gear groups in the proposed management zones of the Cleaver Bank.

Gear group	2014	2015	2016	2017	2018	2019	2020	2021	Average
Beam trawl	119.9	95.7	62.7	17.3	53.8	25.6	16.2	15.0	50.8
Bottom trawl	8.0	11.6	9.7	7.3	7.0	9.6	23.1	18.7	11.9
Flyshooting seine	31.4	34.8	45.7	40.7	25.1	22.0	67.5	21.2	36.0
Anchored seine	0.3	2.4	9.0	5.8	9.7	3.7	7.4	3.8	5.3
*Nets	0.0								0.0
*Pelagic trawl	0.3	1.4	3.3	1.4	7.0	0.8	1.9	0.6	2.1
Total	*160.0*	*145.9*	*130.4*	*72.5*	*102.6*	*61.7*	*116.0*	*59.3*	*106.0*

**not part of the proposed fishery measures

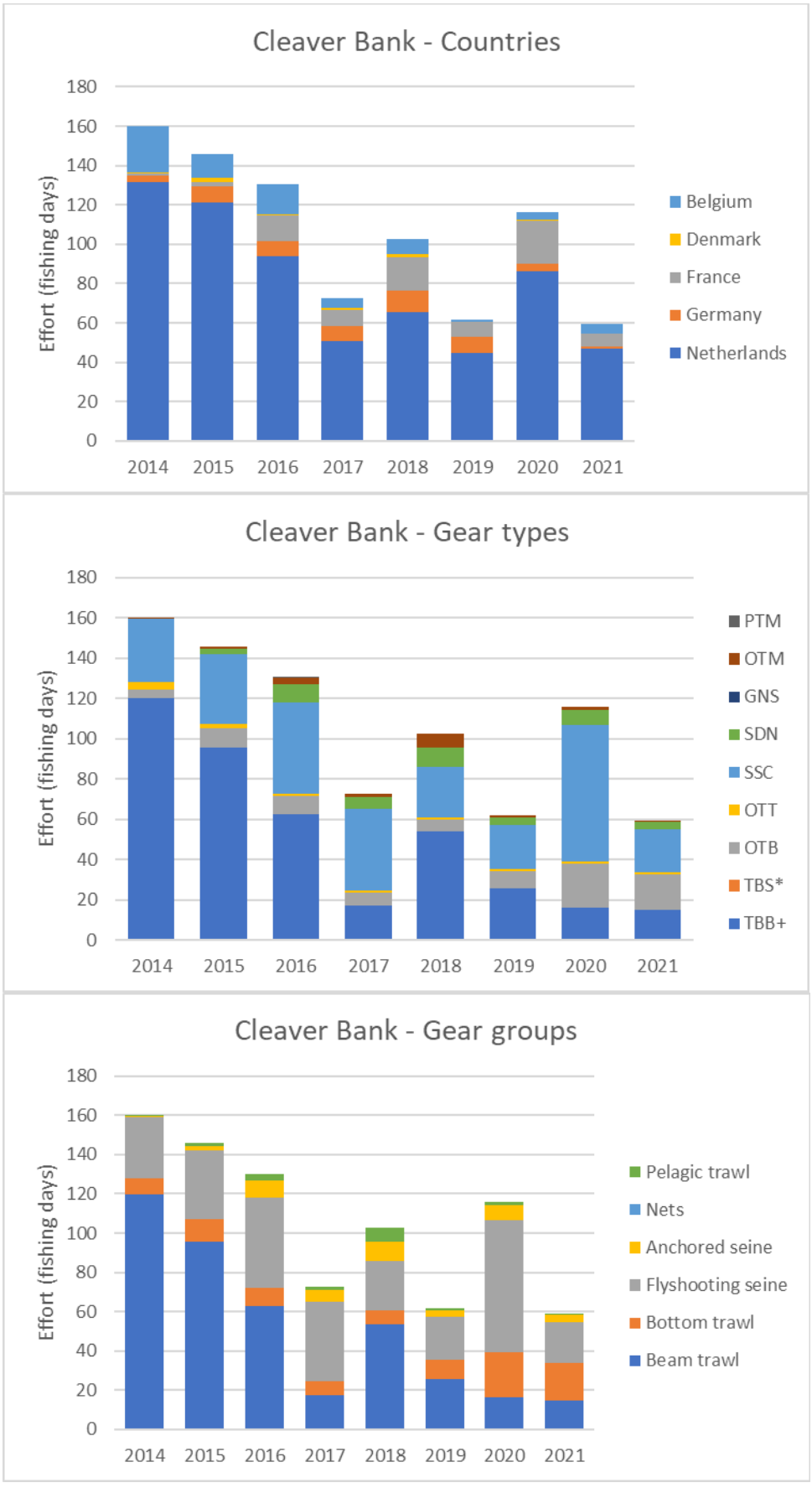

Figure 9. Fishery effort (fishing days) per year in the proposed management zones of the Cleaver Bank for fleets (countries), gear types and gear groups. Gear types 'PTM', 'OTM' and 'GNS' and gear groups 'Pelagic trawl' and 'Nets' are not part of the proposed fishery measures.

2.3.3 Fleet activity by member state

Most of the fishing activities on the Cleaver Bank are carried out by the Dutch fleet, with 80 days per year on average and a share of 75% of total effort of the average 106 fishing days per year. The Belgian, French and German fleet activities are around 7-10 days per year on average and a share of each 6-9% of total effort. The Danish fleet activity was minor on the Cleaver Bank with an effort of 1 days per year at maximum which is approximately 1% of the total effort in the area.

During the 2014-2021 period there was a clear decline in effort of all fleet nationalities combined. This can be attributed to the decline in effort of the Dutch and Belgian fleets on the Cleaver Bank. The annual effort of the French fleet seems to increase but the pattern was very irregular. For the Danish and German fleets no regular trend of increase or decrease was observed.

2.3.4 Gear and gear groups

During the studied period, fishing took place with six different gear types in the Cleaver Bank. The effort in the Cleaver Bank among the gear types was the highest for beam trawls (TBB+) with 51 fishing days which means a share of 48% of total effort, followed by Scottish seine (SSC) (34%), otter-board trawls (OTB) (10%), anchored seine (SDN) (5%) and otter trawl midwater (OTM) (2%) (Figure 9). Grouping the gear types revealed that 98% of all fishery activity on the Cleaver Bank was carried out using bottom-contacting gears.

Over the 8 year period (2014-2021), a major decrease in TBB+ activity occurred. The trend for the SDN was very irregular with some pronounced peaks in effort from year to year which could largely be attributed to the effort by the French SDN-fleet.

2.3.5 Seasonal variation in fishing activity

Data on the fishing activity per month of fleets, gear types and gear groups in the Cleaver Bank in the period 2014-2021 is shown in Tabel 7, Table 88, Table 99 and Figure 10.

Table 7: Overview of fishery effort (fishing days) per month of fleets nationality in the proposed management zones of the Cleaver Bank. Months are numbered as follows: 1 January; 2 February; 3 March; 4 April; 5 May; 6 June; 7 July; 8 August; 9 September; 10 October; 11 November; 12 December.

Country	1	2	3	4	5	6	7	8	9	10	11	12	Average
Belgium	0.17	0.07	0.07	0.08	1.01	1.41	1.28	0.84	2.24	1.08	0.26	0.54	0.76
Denmark	0.04				0.01	0.15	0.05	0.14	0.10	0.19	0.05	0.13	0.07
France				0.01	2.46	6.11	1.07						0.80
Germany	0.59	0.07	0.10	0.02	0.28	0.16	0.44	0.48	0.54	0.65	2.00	1.19	0.54
Netherlands	3.83	5.66	5.74	2.41	7.06	20.13	5.98	3.10	4.61	8.15	8.30	5.00	6.66
Total	*4.62*	*5.80*	*5.92*	*2.52*	*10.81*	*27.95*	*8.83*	*4.56*	*7.49*	*10.08*	*10.61*	*6.85*	*8.84*

Table 8: Overview of fishery effort (fishing days) per month of gear types in the proposed management zones of the Cleaver Bank

Gear type	1	2	3	4	5	6	7	8	9	10	11	12	Average
TBB+	4.08	5.46	5.09	1.50	0.21	0.72	2.13	3.47	5.64	7.30	8.87	6.28	4.23
TBS*							0.02						0.00
OTB	0.39	0.20	0.51	0.34	2.60	3.28	1.02	0.38	0.37	0.31	0.65	0.43	0.87
OTT	0.10	0.10	0.29	0.19	0.06	0.03	0.06	0.18	0.16	0.11	0.08	0.03	0.12
SSC		0.04	0.04	0.49	6.15	19.37	5.21	0.41	1.20	2.24	0.84	0.06	3.00
SDN				0.01	0.96	3.95	0.36						0.44
**GNS						0.01							0.00
**OTM	0.04				0.82	0.59	0.02	0.13	0.13	0.13	0.18	0.05	0.17
**PTM						0.01							0.00
Total	*4.6*	*5.8*	*5.9*	*2.5*	*10.8*	*27.9*	*8.8*	*4.6*	*7.5*	*10.1*	*10.6*	*6.9*	*8.84*

**not part of the proposed fishery measures

Table 9: Overview of fishery effort (fishing days) per month of gear groups in the proposed management zones of the Cleaver Bank.

Gear group	1	2	3	4	5	6	7	8	9	10	11	12	Average
Beam trawl	4.08	5.46	5.09	1.50	0.21	0.72	2.15	3.47	5.64	7.30	8.87	6.28	4.23
Bottom trawl	0.50	0.30	0.79	0.53	2.66	3.31	1.08	0.55	0.53	0.42	0.73	0.46	0.99
Flyshooting seine		0.04	0.04	0.49	6.15	19.37	5.21	0.41	1.20	2.24	0.84	0.06	3.00
Anchored seine				0.01	0.96	3.95	0.36						0.44
**Nets						0.01							0.00
**Pelagic trawl	0.04				0.82	0.59	0.02	0.13	0.13	0.13	0.18	0.05	0.17
Total	*4.62*	*5.80*	*5.92*	*2.52*	*10.81*	*27.95*	*8.83*	*4.56*	*7.49*	*10.08*	*10.61*	*6.85*	*8.84*

**not part of the proposed fishery measures

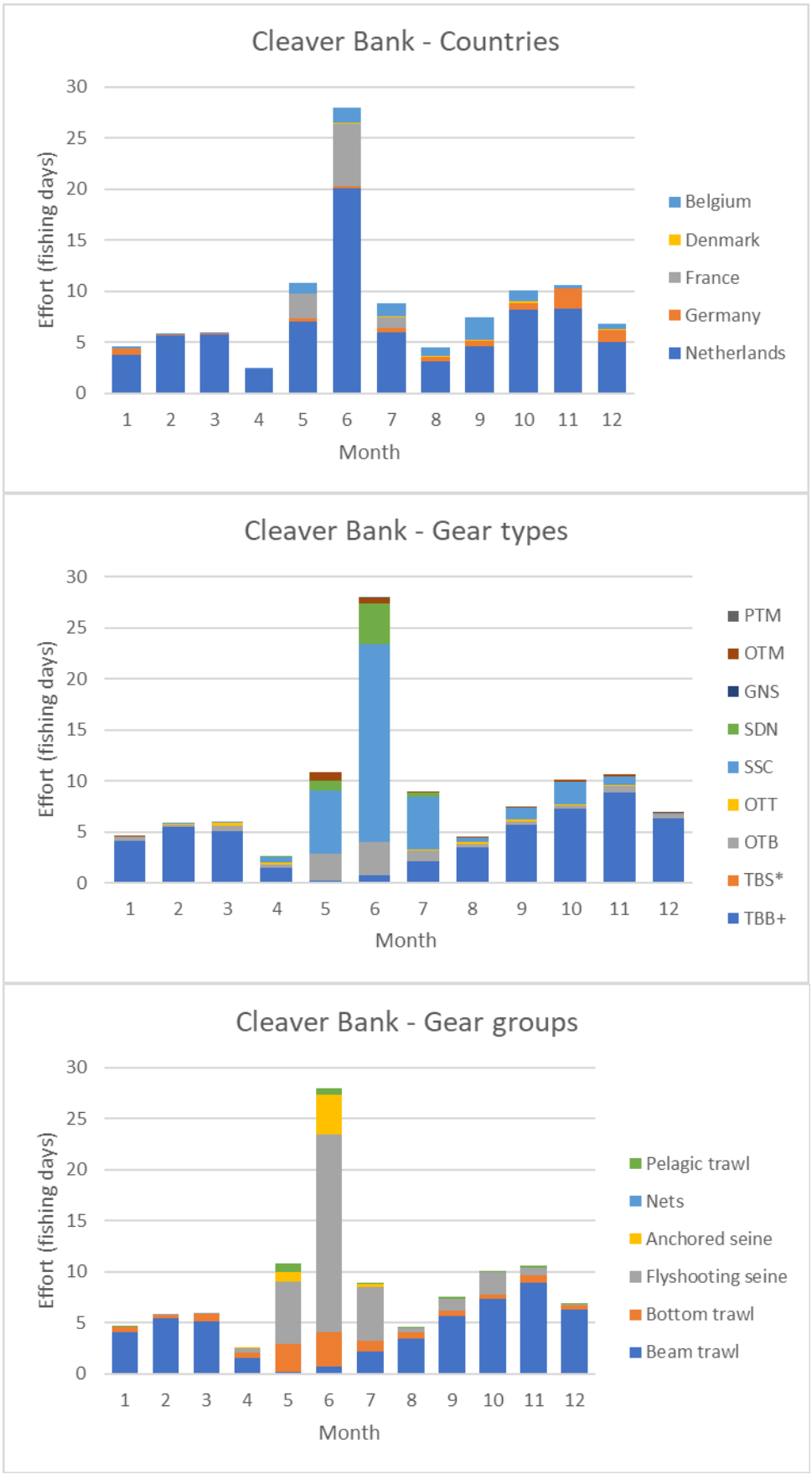

Figure 10. Fishery effort (fishing days) per month in the proposed management zones of the Cleaver Bank for fleets (countries), gear types and gear groups. Months are numbered as follows: 1: January; 2: February; 3: March; 4: April; 5: May; 6: June; 7: July; 8: August; 9: September; 10: October; 11: November; 12: December. Gear types 'PTM', 'OTM' and 'GNS' and gear groups 'Pelagic trawl' and 'Nets' are not part of the proposed fishery measures.

There was a high seasonal variation in fishing activity on the Cleaver Bank (Figure 10). During the month of June the fishing activity peaked with 28 fishing days per month as compared to the other period of the year with 3-11 fishing days per month. The peak in June can be mainly attributed to the higher effort of SSC fishery.

2.3.6 Spatial distribution of fishing activity

Maps for the spatial distribution of the fishing activity of all gear groups combined and of the fishing activity of seven distinguished gear groups in a part of the North Sea with all protected areas are shown in Figure 11 and Figure 12. For the Cleaver Bank this is shown in Figure 13 and Figure 14. The

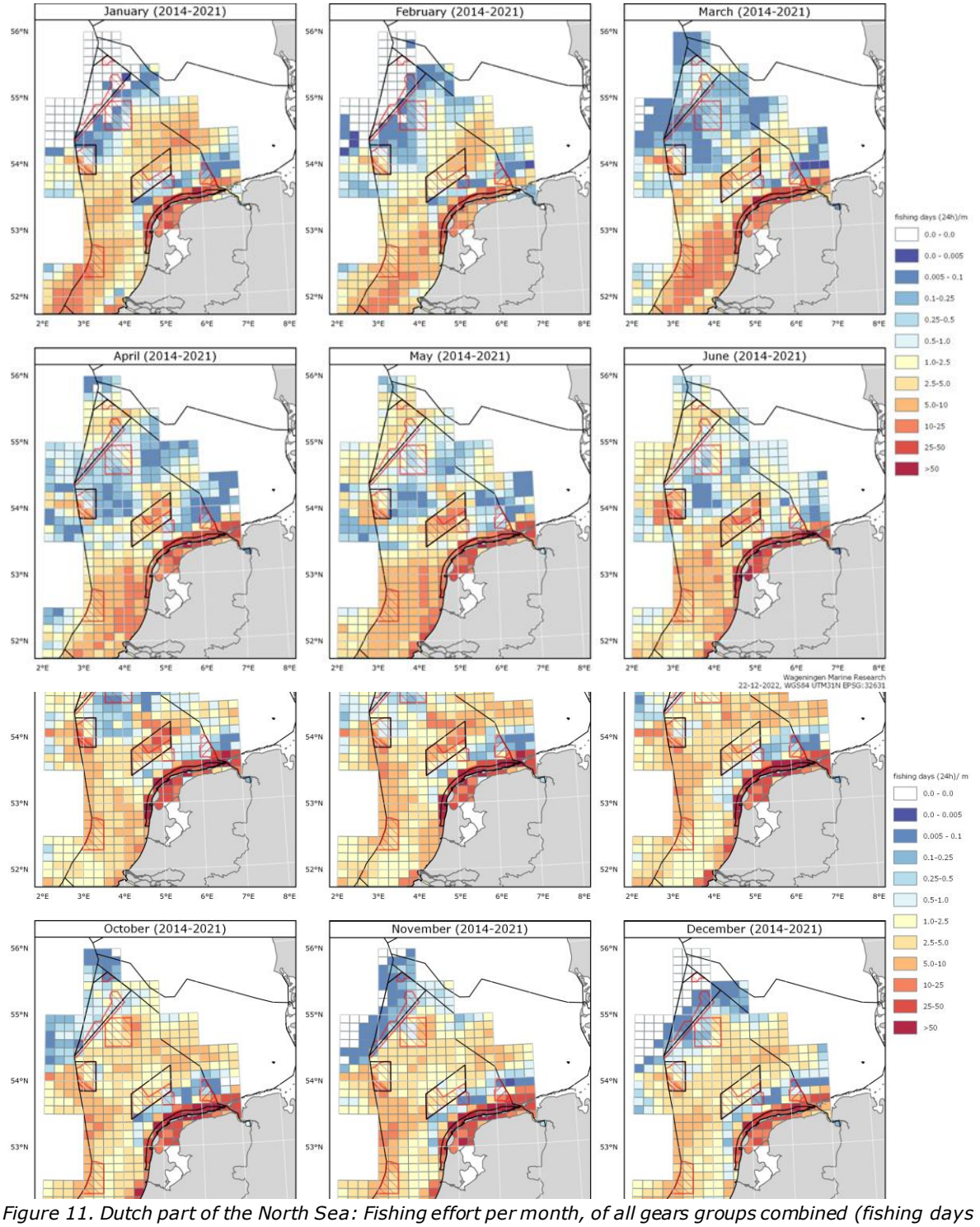

Figure 11. Dutch part of the North Sea: Fishing effort per month, of all gears groups combined (fishing days (24 h)/month).

composition of the gear groups is the same as the one applied in the other sections of the Jongbloed et al. (2023) report.

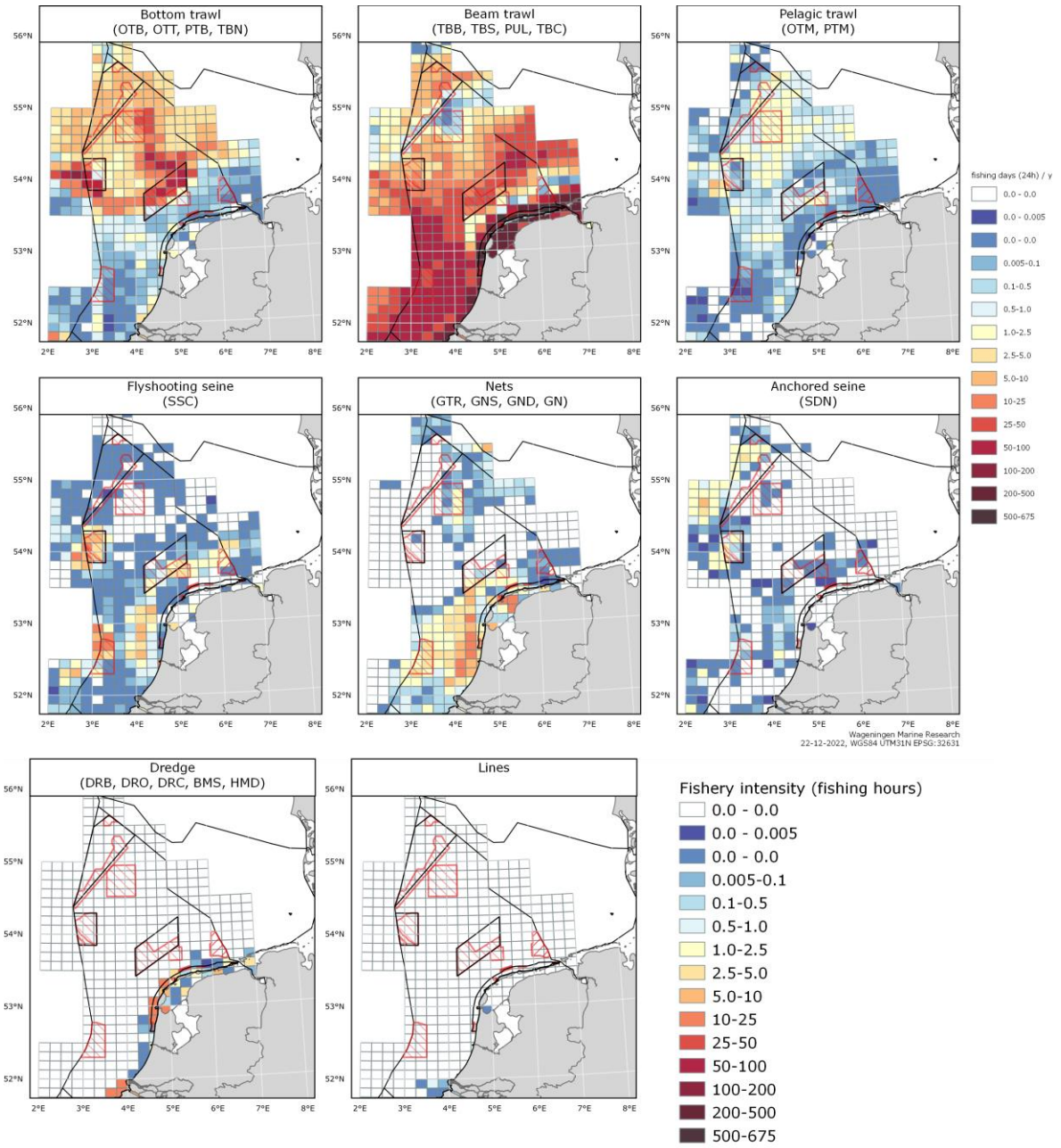

Figure 12. Dutch part of the North Sea: Fishing effort (fishing days (24 hours)/year) per gear group.

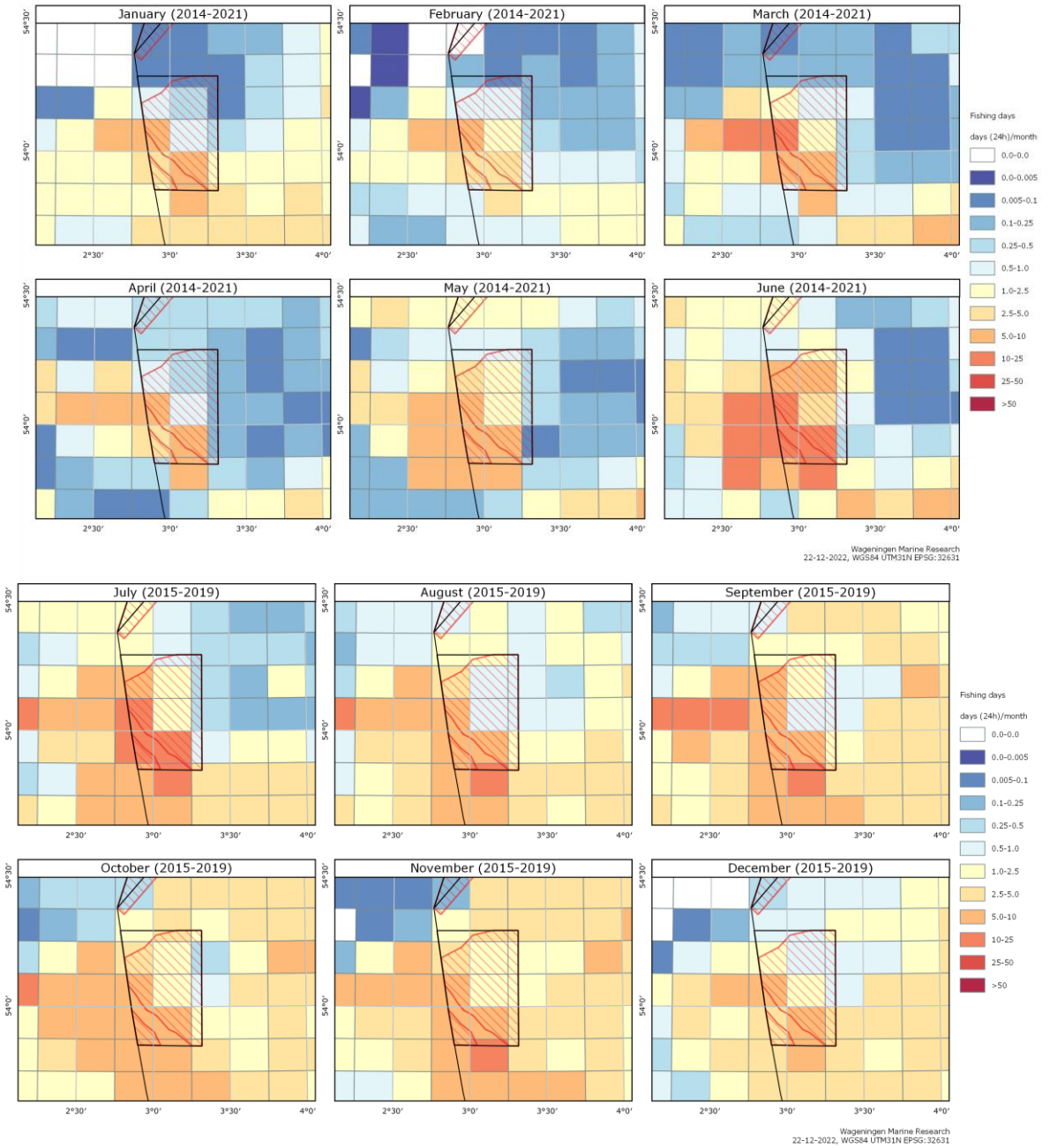

Figure 13. Cleaver Bank: fishing effort per month, of all gears groups combined (fishing days (24 h)/month).

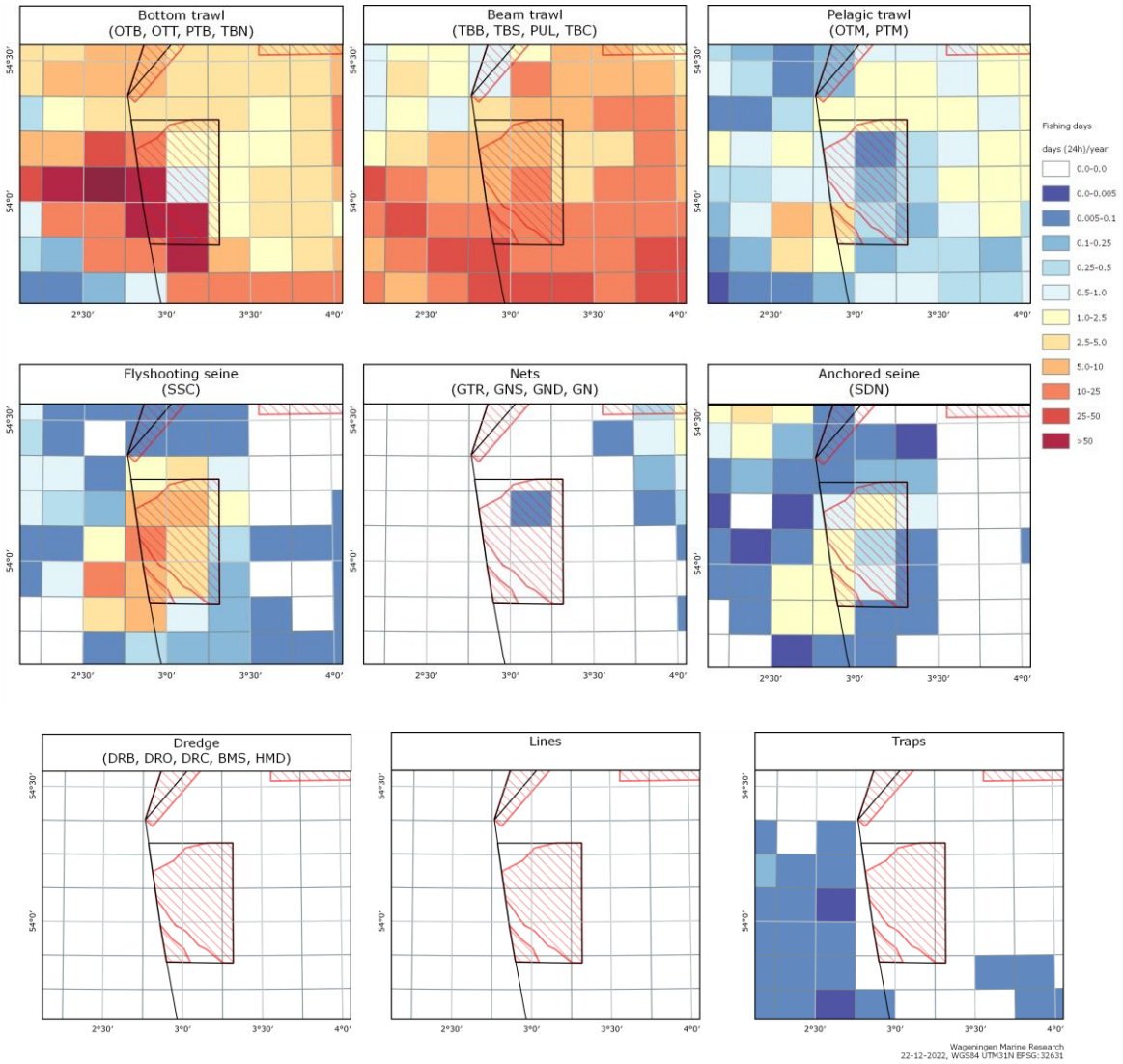

Figure 14. Cleaver Bank: Fishing effort (fishing days/year) per gear group. Gear groups 'Pelagic trawl', 'Nets', 'Lines' and 'Traps' are not part of the proposed fishery measures.

2.3.7 Main target species

The main species caught in this area are the European sprat (*Sprattus sprattus*; SPR), Atlantic mackerel (*Scomber scombrus*; MAC), and the European plaice (*Pleuronectes platessa*; PLE) (Hamon & Klok, 2023). Figure 15 shows the species that are caught in the Cleaver Bank by the Belgian, German, Danish, French, Dutch and Swedish fleets. The Dutch beam trawlers mostly caught plaice, while the demersal trawls and seines caught mainly mackerel and the Danish pelagic trawlers caught sprat. Other species are also caught by the other fleets, but to a lesser extent (Hamon & Klok, 2023).

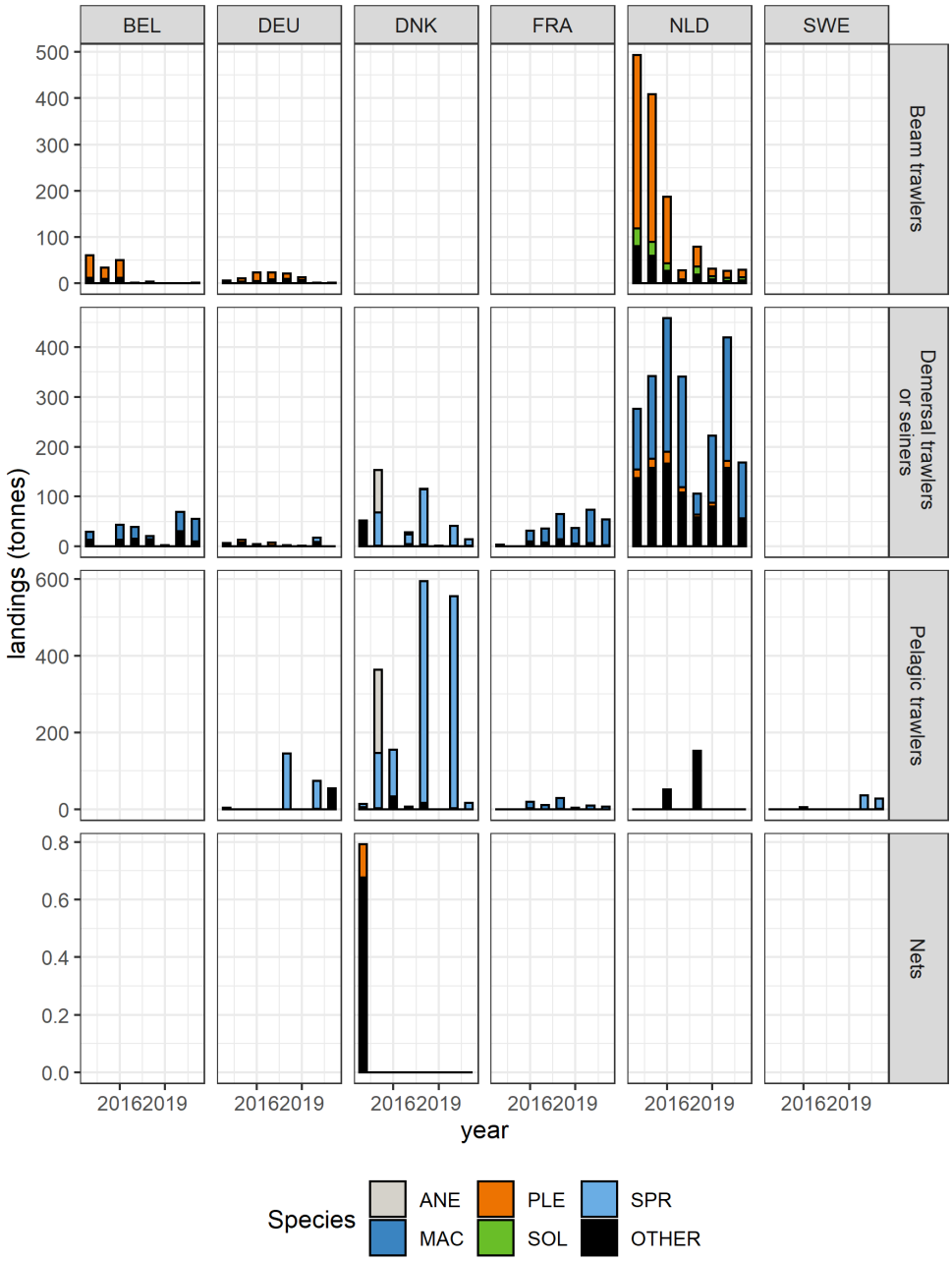

Figure 15. Historical trend by gear type of the main species caught in the Cleaver Bank by the Belgian, German, Danish, French, Dutch and Swedish fleets (ANE: European anchovy; MAC: Atlantic mackerel; PLE: European plaice; SOL: common sole; SPR: European sprat; Other: other species). Note the scale difference for the landings by gear type. *Source: Logbook data and VMS data, processed by WUR, DTUAQUA, TI, ILVO, SLU and IFREMER.*

2.3.8 Economic value of the historic landings

Over the 2014-2021 period the amount of fishing activities has varied significantly from year to year in the Cleaver Bank and all countries were represented in this area (Table 10) (Hamon & Klok, 2023). Total effort in the Cleaver Bank decreased from 160 fishing days in 2014 down to 53 fishing days in 2021 (average of 112 days) and the added value varied between 0.3 and 1.1m euros (average of 0.7m euros). Danish and Swedish fleets are virtually absent in this area in terms of effort but the Danish fleet caught about 30% of the landings in weight. The area was dominated by the Dutch fleet, contributing to about 70% of the total GVA for this area. However, the level of fishing activities by the Dutch fishing fleet decreased considerably over the time period, from a GVA of more than 0.7m euros in 2014 down to about 0.3m euros in 2021. The French, Belgian and German fleets were less active, each representing less than 10% of the effort and about 5% of the landings in the area.

Table 10: Effort, landings and values and gross value added of the fishing sector in the Cleaver Bank by country.

	Country	2014	2015	2016	2017	2018	2019	2020	2021	Average
Effort (fishing days)	BEL	24	12	15	5	8	1	3	5	9
	DEU	3	8	8	8	11	9	4	1	7
	DNK	1	3	-	2	2	-	1	-	1
	FRA	1	3	13	8	17	7	22	7	10
	NLD	131	121	94	51	65	44	86	47	80
	SWE	-		-			-	-	-	-
	Total	161	146	130	73	103	62	116	59	106
Landings (tonnes)	BEL	90	36	94	41	27	5	73	57	53
	DEU	17	24	27	30	168	14	94	56	54
	DNK	105	546	156	35	822	1	595	44	288
	FRA	3	0	51	47	94	41	84	60	47
	NLD	775	761	709	399	340	256	447	197	485
	SWE	1		7			4	164	28	26
	Total	991	1,367	1,044	552	1,450	320	1,456	444	953
Value (1,000 euros)	BEL	187	97	196	80	79	19	152	108	115
	DEU	38	67	76	109	146	70	55	27	74
	DNK	24	139	43	12	220	1	166	14	77
	FRA	3	1	170	207	347	85	129	99	130
	NLD	1,627	1,751	1,429	710	703	501	1,034	394	1,019
	SWE	-		1			1	43	10	7
	Total	1,879	2,055	1,914	1,119	1,495	678	1,579	653	1,421
Gross Value Added (1,000 euros)	BEL	84	53	115	45	39	9	85	60	61
	DEU	19	39	51	56	86	37	30	15	42
	DNK	17	116	36	9	181	-	139	12	64
	FRA	1	1	85	102	153	29	54	39	58
	NLD	737	812	802	374	341	223	470	193	494
	SWE	-		1			1	24	5	4
	Total	858	1,021	1,089	587	800	299	801	324	722

Source: Logbook data and VMS data and data from the Annual Economic report (STECF 2022), processed by WUR, DTUAQUA, TI, ILVO, SLU and IFREMER.

The Dutch fleet mainly operated beam trawls (TBB) and Scottish seines (SSC) in the Cleaver Bank (Figure 16). The share of the beam trawl has decreased between 2014 and 2017 and remained stable afterwards. The Belgian fleet shows a similar development in the gear composition over time but at lower overall effort levels. The Danish fleet was irregularly active with midwater otter trawls (OTM) and bottom otter trawls (OTB). The German and French fleets showed low levels of activity using beam trawls (TBB) and midwater otter trawls (OTM) (German fleet) and Danish seines (SDN) (French fleet).

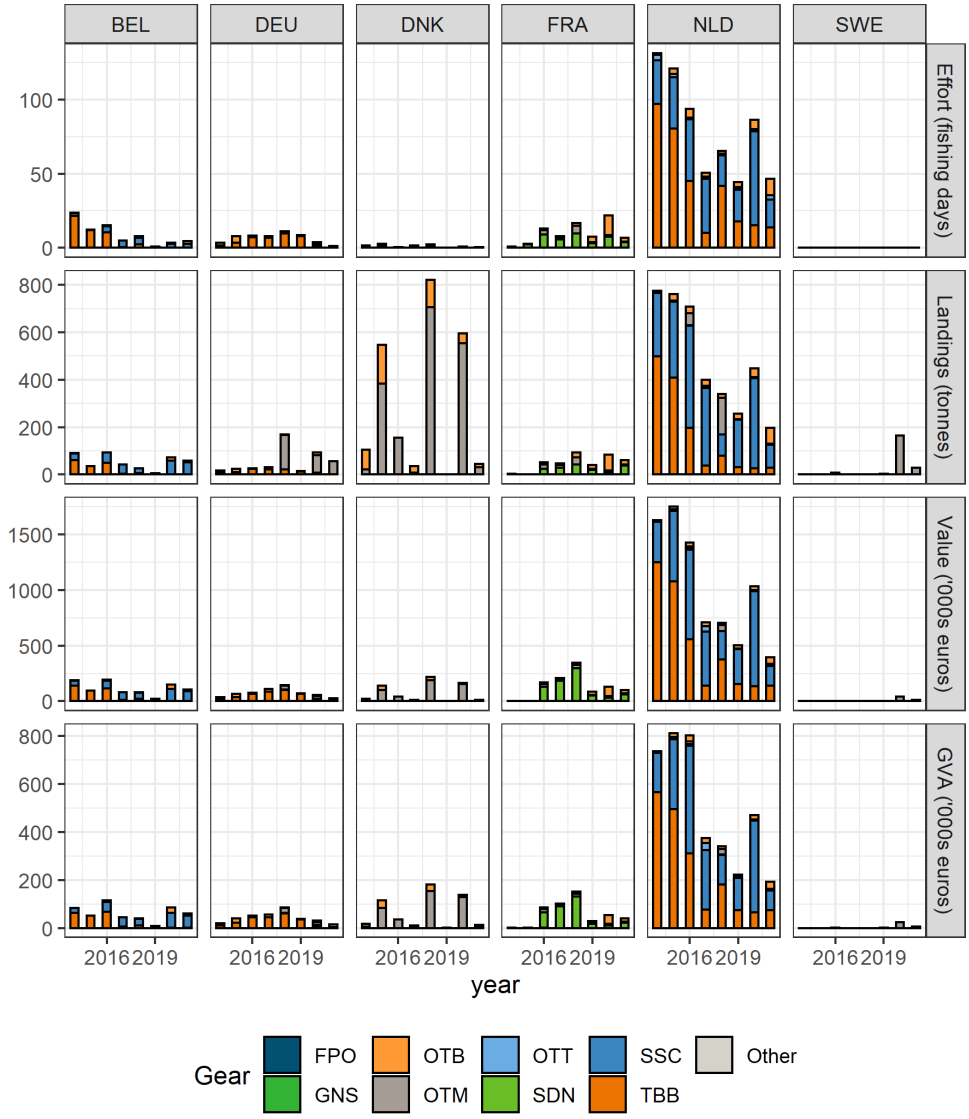

Figure 16. Historical trend of the fishing activities in the Cleaver Bank with different gears (FPO: fishing pots; GNS: set gillnets (anchored); OTB: bottom otter trawls; OTM: otter trawls midwater; OTT: otter twin trawls; SDN: Danish seines; SSC: Scottish seines; TBB: beam trawls; Other: other gears) in the proposed closure of the Cleaver Bank for the different countries. Effort, landings, value of landings and GVA are given by country
Source: Logbook data and VMS data and data from the Annual Economic report (STECF 2022), processed by WUR, DTUAQUA, TI, ILVO, SLU and IFREMER.

2.3.9 Individual dependency of Dutch fishermen

Figure 17 shows that the number of Dutch vessels with fishing activities in the Cleaver Bank was relatively stable after a decrease in 2016 compared to 2015 (Roskam et al., 2021). The revenue dependency of the vessels was moderate since for most of the vessels less than 10% of their total revenue originates from the Cleaver Bank.

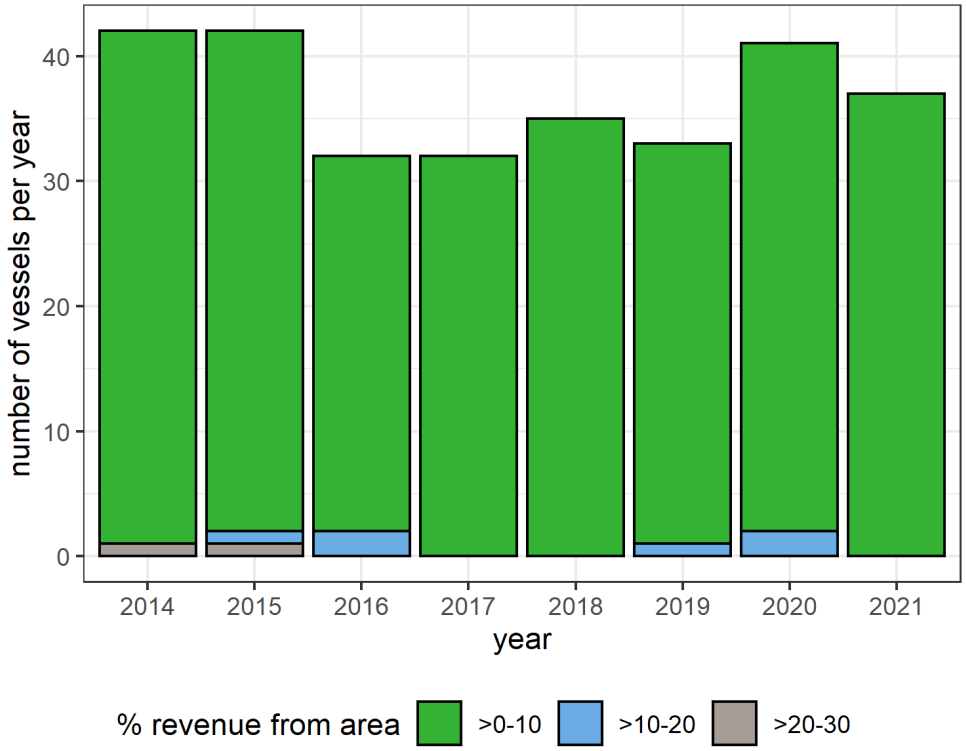

Figure 17. The number of Dutch vessels per year and the revenue dependency.

Over the 2014-2021 period, the majority of the vessels with fishing activities on the Cleaver Bank had a low dependency on the area (less than 10% of their revenue) and they came mainly from Holland or Urk (about 15 vessels from each region, see Figure 18). Only one vessel came from Zeeland and about four from the North of the Netherlands. Of the four vessels that ever had a higher revenue dependency than 10%, three came from Urk, the last one from Holland.

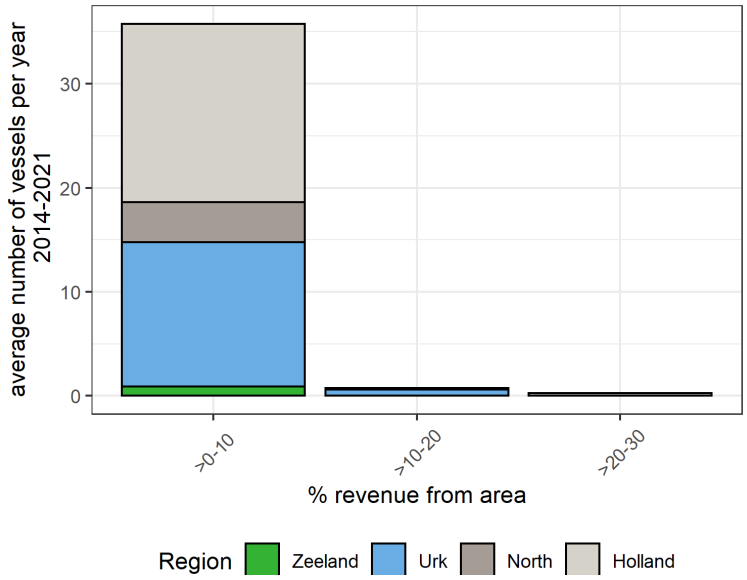

Figure 18. The average number of vessels per region and the revenue dependency.

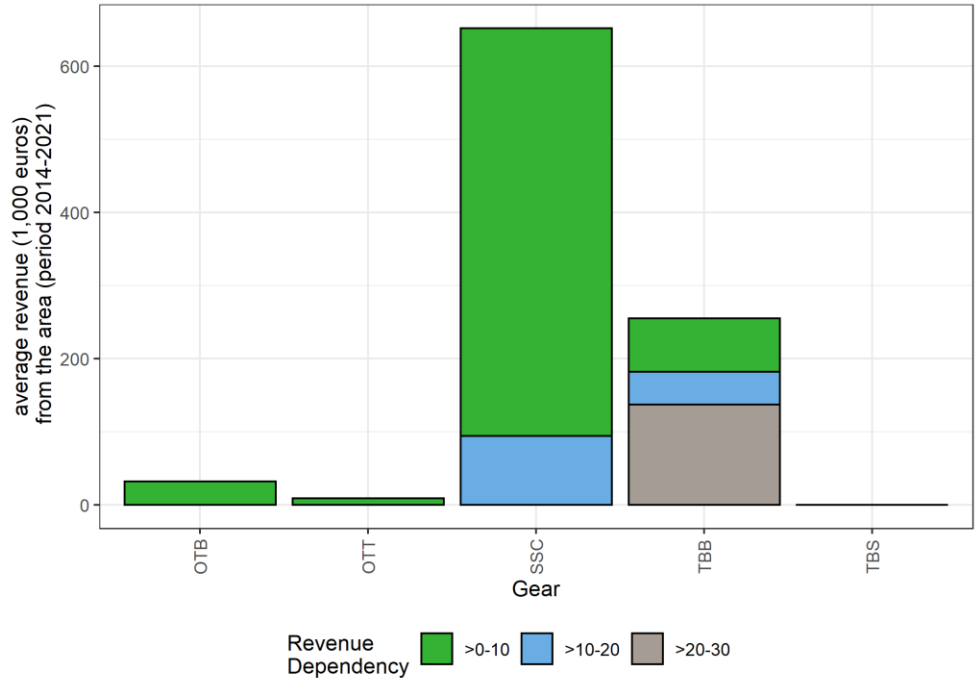

Figure 19. Total of the average revenues (x 1,000 euros) of the vessels with different dependencies on the area per gear type.

The majority of the fishing revenue from the Cleaver Bank, about 650 thousand euros per year was obtained with Scottish seines (SSC) (Figure 19). The second most important gear was the beam trawl fishing for flatfish (TBB) with a revenue of about 260 thousand euros. Only about 15% of the Scottish seine revenue came from vessels with an annual dependency higher than 10%, while about 75% of the beam trawl revenue on the Cleaver Bank came from vessels with an annual dependency between 10% and 30%.

2.4 Other human activities

This section gives a preliminary assessment of impacts of other human activities on the area. It does not preclude any further impact assessment.

Besides fishing, there are other human activities present in the Natura 2000 area Cleaver Bank, mainly shipping, activities related to clearence of explosives, and cables including the Viking Link-interconnector. Information about this, including its effects on the Natura 2000 objectives for the Cleaver Bank, are described and assessed by Royal Haskoning DHV (2019) and summarized in the Natura 2000 management plan 2023-2029 (Rijkswaterstaat, 2023). The Cleaver Bank Natura 2000 management plan aims to achieve the conservation objectives for the Natura 2000 area Cleaver Bank. It describes, among other things, the current situation and the measures that are necessary to achieve the objectives. Also the effects on the ability to achieve the conservation objectives of current activities in and adjacent to the Natura 2000 area are discussed. In addition to the activities described below, other activities on a small scale can be mentioned, including research and monitoring and recreational activities (wreck diving, sea sailing and recreational fishing). These are not considered to impact the habitat type 1170.

2.4.1 Oil/gas platforms (or exploration)

There is one fixed platform (for oil/gas production) situated within the Cleaver Bank SCI, in the West, near the UK border (Figure 20). In 2010 and 2011, three operators were active with a total of 6 movable platforms (van der Burg et al., 2012, see also their Annex 3, figure 1).

Mining platforms for the extraction of oil and gas form hard substrates where specific organisms (epibenthos) can settle. Tamis et al. (2011) determined the footprint per platform ('legs') to be 0,025 ha. The potential loss of habitat type 1170 due to the presence of 2 fixed platforms is thus 0,050 ha (500 m^2). In comparison: the total area of habitat type 1170 on the Cleaver Bank SCI is approximately 770 km^2. Hence 0,025 ha = 0,000032% of the habitat type 1170 area. The loss of H1170 due to the placement of a movable platform is assumed to be similar to that of a fixed platform (0,025 ha). Its removal after 1-3 months provides opportunities for recolonisation of benthic communities. The presence of mining platforms involves the discharge of chemical substances in produced water, and several other activities that may impact the marine environment, including shipping and helicopter flights.

Each platform has a no-fishing zone with a radius of 500 meters (Lindeboom et al., 2008). These factors can influence the conservation objectives positively, whilst reducing the potential fishing activity in this small area.

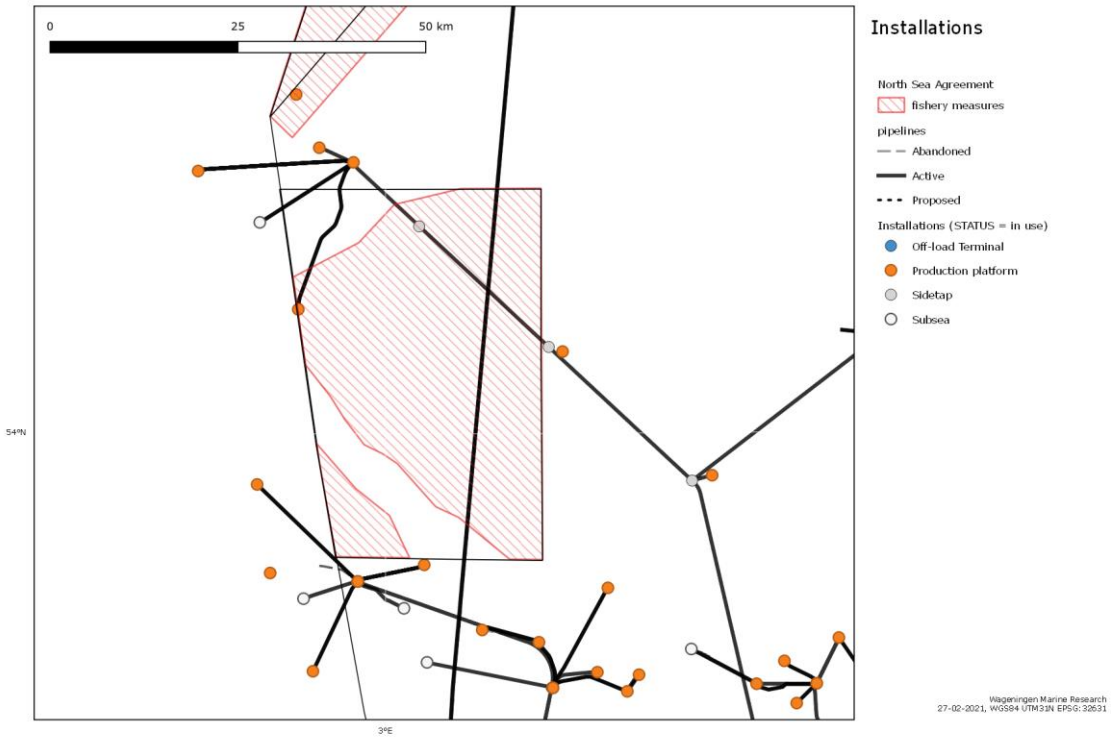

Figure 20. Offshore installations for oil/gas production in the Cleaver bank area.

2.4.2 Cables and pipelines

Currently two pipelines transect the SCI (Figure 21): North-South from Norway towards Belgium and Norway to France and the NGT-pipeline, which transports gas to the Dutch coast. Furthermore, from 2014 there is a pipeline transporting gas from the platform in the Northwest of the SCI and one from 2006 that crosses the SCI from a UK platform in the West to a platform North of the SCI.

Whilst placing pipelines, the sediment is disturbed approximately 10m on each side of the pipeline (Tamis et al., 2011). Roughly estimated, the total length of pipelines that currently transect the Cleaver Bank H1170 area is 85 km. This amounts to 170 ha (0,2% of the Cleaver Bank H1170 area) of sediment

that was disturbed during placement. As (1) the total footprint of these pipelines is very small, and (2) they are buried in the substrate, their impact on the conservation objectives and the fishing activities can be considered very low.

A high voltage cable (Viking Link interconnector) is being constructed between Denmark and the United Kingdom. The cable will be buried and is expected to cross 19 kilometers through the northern part of the Cleaver Bank (Rijkswaterstaat, 2023). In the future one telecom cable will cross the Cleaver Bank in the north-western part of the area (Figure 21), outside of the proposed areas for closure. As with pipelines, the footprint with regard to sediment disturbance will be very small.

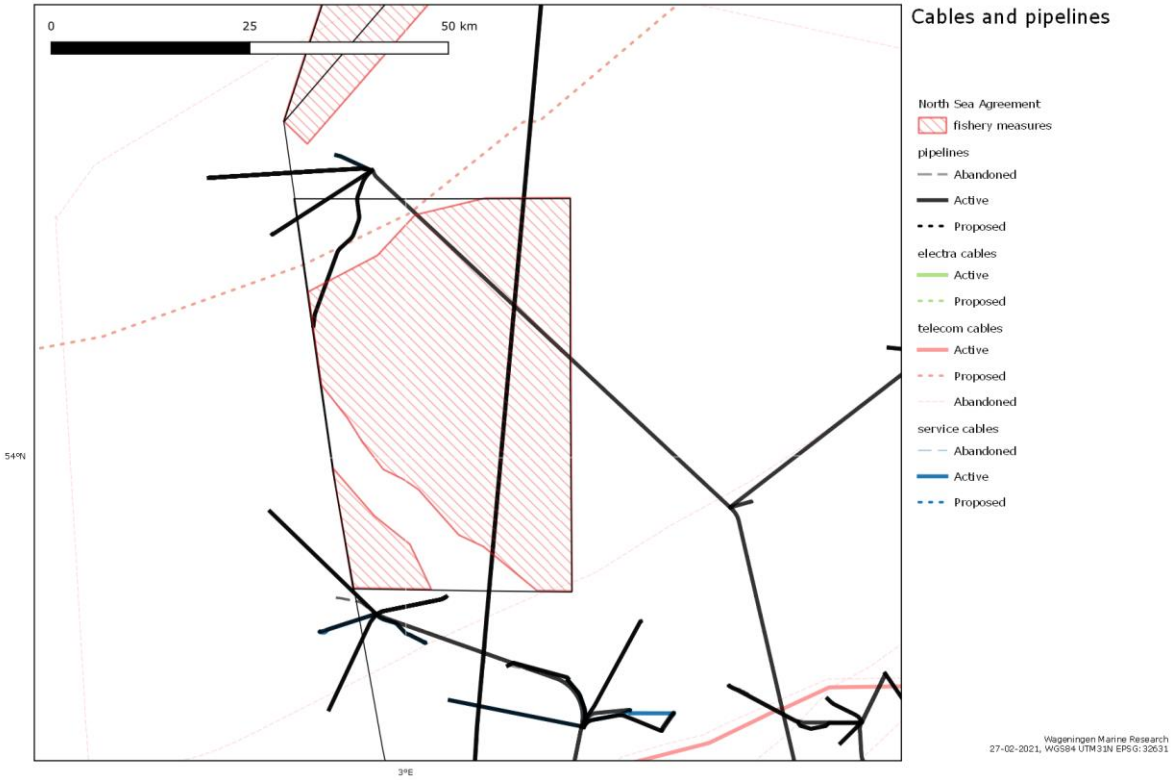

Figure 21. Pipelines and cables in the Cleaver Bank area.

2.4.3 Shipping

Shipping intensity in the Cleaver Bank area is relatively low, especially in the areas proposed for closure (Figure 22). The relative high shipping intensity in the Botney Cut, not being part of the proposed area for closure, is related to fisheries. There is one defined shipping route that crosses the Cleaver Bank SCI in the South-East corner (van der Burg et al., 2012). Shipping does not cause specific disturbance to habitat type 1170. The frequency with which this route is used is relatively low. However because of the fact that the ships that use this route usually transport harmful substances, effects can be substantial when calamities occur. The number of reported discharges is relatively low. The effects of shipping are considered to be low to marginal because of the low intensity (Lindeboom et al., 2005).

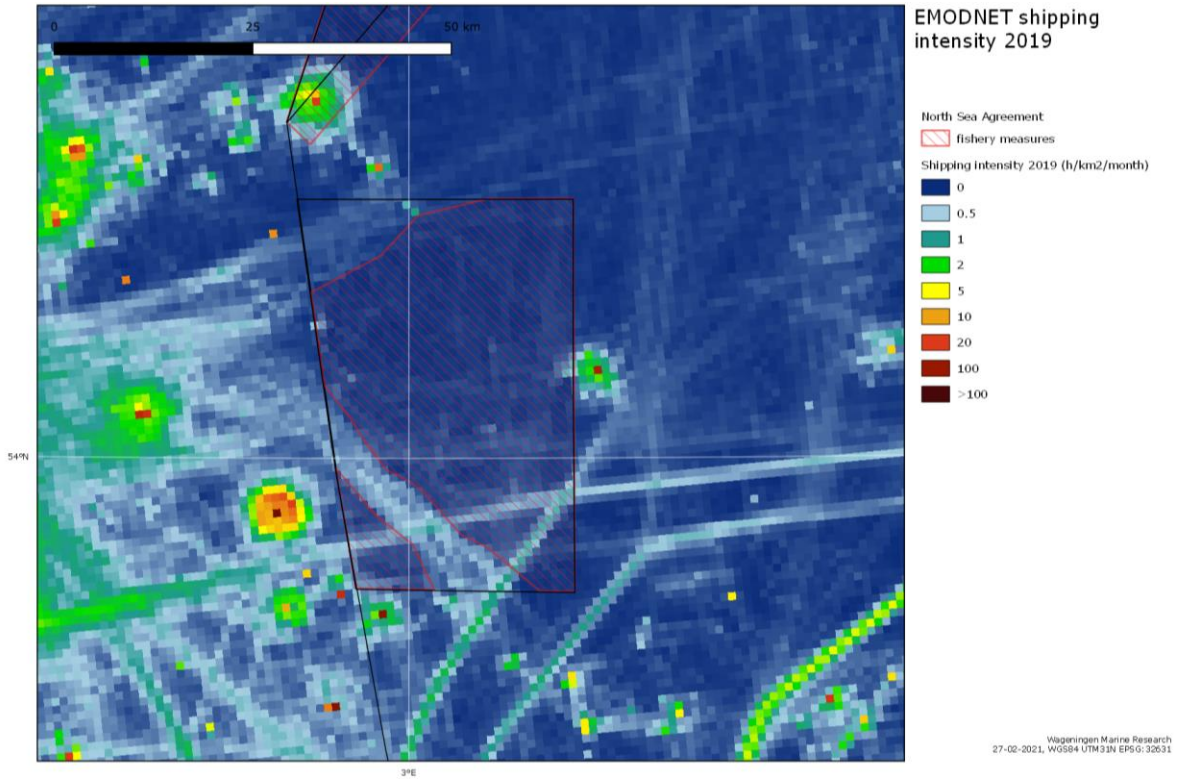

Figure 22. Shipping intensity in the Cleaver Bank area based on data from Emodnet, 2019.

2.4.4 Military use

There are no military activities in the Cleaver Bank apart from incidental mine and explosive clearance.

2.4.5 Wind energy

Adjacent to the Cleaver bank, a wind farm, divided into two areas, is being developed in the English part of the North Sea (Hornsea). The western part is partly under construction and partly in the pre-construction phase. For the eastern part, which is closest to the Cleaver bank, a permit application has been submitted (consent application submitted) (source: https://www.4coffshore.com/offshorewind). Effects on the Dutch Natura 2000 areas have been investigated in the preparation and permitting process.

2.4.6 Air traffic

Air traffic passes (high) over the Cleaver Bank. There is no specific information on this activity but effects on H1170 are expected non-existent.

2.4.7 Shell/sand/gravel extraction

The extraction of surface minerals in the Netherlands focuses on sand extraction. Gravel extraction does not currently take place on the NCP. More information can be found in the Further Effects Analysis Cleaver bank.

2.4.8 Dredging

There are no dredging activities in the Cleaver Bank.

2.4.9 Coastal protection

There are no coastal protection activities in the Cleaver Bank.

2.4.10 Recreation

There are no recreational activities in the Cleaver Bank.

2.4.11 Cumulation

In the 'Nadere Effectenalayase Klaverbank' (RoyalHaskoning, 2019), a cumulation test was executed for the conservation objectives of the Cleaver bank. The report concludes that the cumulation of the (residual)effects of all relevant activities might be significant for habittattype H1170. The main reason is because it is not clear what the extent of the different effects are, or in what way these effects cumulate. Therefore significant effects cannot be excluded. There are activities taking place that because of pollution can negatively influence the quality of the habitttype. Since there is a worldwide increase in waste and microplastics these effects could play a bigger role in the future. It is however unclear how many microplastics are present in the area and to what extent this influences the habittattype 1170 quality. The effects of underwater noise from different activities on the specific species of the habittattype are unclear and therefore the extent of the effect is unclear. The effects of mining and maintenance of cables and pipelines might have a cumulative effect because of the change in the dynamic of the substrate when these activities take place in the same period or take place one after the other in areas where habitattype 1170 is located.

Also effects on the conservation goals for species were examined, however these will not be elaborated here since the conservation measures proposed in this context are only regarding the conservation objective for habitattype 1170.

2.5 Monitoring

In 2015, a baseline measurement campaign was executed for benthos at the Cleaver Bank. In 2018, a second measurement campaign was executed. Detailed description of the monitoring campaign can be found in the GBD. Monitoring locations can be found in Figure 23.

Once every three years samples are taken with a grab sampler and video tracks. All species found in the samples (grab and video) are recorded. The analysis needed for the detection of an increase in hit rate will be performed only for the indicator species. For more general information about monitoring, see the General Background Document.

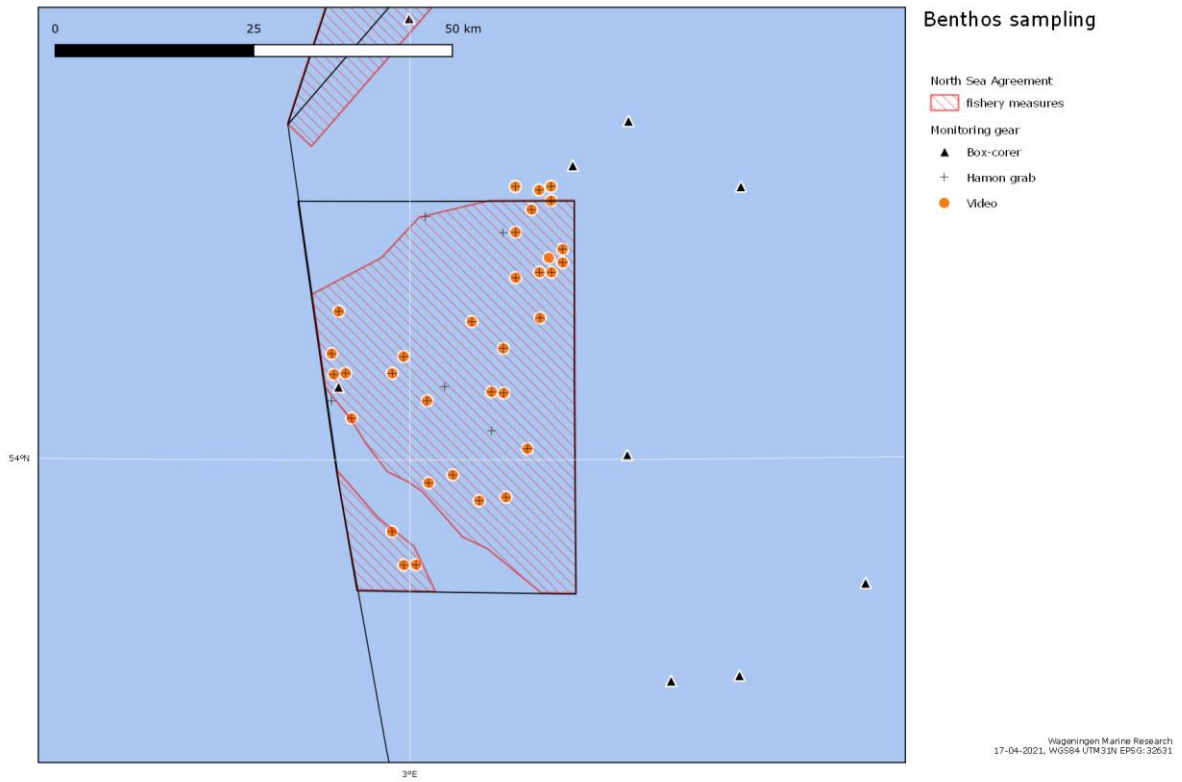

Figure 23. Overview sampling stations of the monitoring campaign at the Cleaver Bank. Source: Marine Information and Data Centre. Selected sampling points: offshore MWTL survey 2021 and nearshore WOT shellfish survey 2018.

3 Rationale for conservation measures

3.1 Conservation objectives for H1170

The Cleaver Bank area is identified as the main area within the Dutch part of the North Sea where habitat type 1170 'reefs' (of open sea) is present (Lindeboom et al., 2005). To protect the abiotic reefs, the area was included as a SCI in 2009 and designated as a SAC in 2016. The general ecological characteristics of the Cleaver Bank have been described in section 2.2.

At the submission of the area, habitat type 1170 was assessed to have a good representativity, excellent for its relative surface (see also section 2) and the conservation status was considered average or reduced[3]. Therefore, the conservation objectives for H1170 are to maintain distribution, maintain surface area and to improve quality. The quality is favoured by undisturbed conditions of the substrate, thus being stable and allowing a characteristic sessile hard-substrate community being present. An improvement in quality is necessary, because the quality of the habitat is currently assessed to be unfavourable–bad[4].

The objective for quality is improvement in order to reach a favourable status. The quality is determined on the basis of characteristic species, the structure and functioning of the habitat type, and human pressures being present. For H1170 improvement means the presence of a more natural composition of the benthic community, reflected by an increase in the number older or larger individuals within the community. This applies for example for long-lived species of shellfish. It also means that characteristic species remain present, although changes in abundance or biomass of these species may be conceivable within the improvement objective for quality. The aim of the conservation measures is to contribute to this conservation objective.

3.2 Conservation objectives for species

There are conservation objectives for harbour porpoise, grey seal and harbour seal, because these natural features listed in Annex II of the Habitats Directive are present in the area, although the area has not been selected for these features. Objectives for harbour porpoise and grey seal are: maintain the extent and quality of habitat in order to maintain the population. Objectives for harbour seal are: maintain the distribution, extent and quality of habitat in order to maintain the population.

For harbour porpoise, FIMPAS (ICES, 2011b) and the ICES advice (ICES, 2012) suggest not to develop area-specific measures, but rather to develop and implement generic protection through a species protection plan and the possibility of capping effort on a regional scale. For seal species, FIMPAS and the ICES advice concluded that no area-specific measures for fisheries would be needed. Therefore, this proposal only concerns H1170 and does not concern harbour porpoise and seal species.

See the General Background Document for more information on the national measures regarding species.

[3] https://www.natura2000.nl/sites/default/files/profielen/Habitattypen_profielen/Profiel_habitattype_1170_2014.pdf
[4] https://cdr.eionet.europa.eu/Converters/run_conversion?file=nl/eu/art17/envxuhrwa/NL_habitats_reports-20190819-.xml&conv=589&source=remote#1170

3.3 Policy considerations

The aim of the conservation measures is to contribute towards fulfilling the conservation objective as stated in paragraph 3.1. Part of the Cleaver Bank area is covered by gravel and cobbles, part consists of sandy areas and a deeper muddy channel is present (Botney Cut) that crosses the southern part of the area. Especially the coarser substrates inhabited by characteristic sessile organisms are considered reef habitat 1170 and should be protected.

Jak et al. (2009) conclude that the structure and function of the habitat have been fundamentally deteriorated due to repeated disturbance of the bottom by fisheries compared to an undisturbed situation. The main impact on H1170 is likely to come from fisheries (beam and otter trawling gear, gillnets), of which trawling has the biggest impact (ICES 2012). The metal shoes, tickler chains, ground rope, and net of the beam trawl dig into or slide along the seafloor, causing physical damage along its way by breaking or dislodging sessile plants and animals. The boards of the bottom otter trawl may also dig into the surface of the seafloor in the case of soft sediments and sand or grind hard surfaces like rocks and stones. The floats and the weighted bobbins attached to the rope running along the lower mouth of the trawl may also slide along the seafloor and abrade the species growing on top of the reef. Bottom fishery (see GBD) can remove, homogenize and flatten the substrate of H1170 and cause changes (mainly reduction) in abundance of its typical species (Deerenberg et al., 2010). The impact of bottom fisheries was also observed by divers who recorded death and broken animals in the tracks of which likely resulted from bottom contacting towed gear, and also stones with sessile fauna that were turned around (Lengkeek et al., 2017).

The quality assessment, being unfavourable-bad, is based on the level of sediment disturbance, which is considered too high to allow for the development and maintenance of the sessile biota of the reef habitat type.

Owing to the three-dimensional structure and the stable subsurface, H1170 can offer living space to a well-developed sessile hard-substrate community. For such a community to develop well, seabed stability is required (Watling and Norse, 1998; Rijnsdorp et al, 2018). The natural development and succession of a complex sessile biotic community is possible only if the position and orientation of the hard substrate on which it grows do not change (Watling and Norse, 1998; Rijnsdorp et al., 2018). The key factor to improve quality is to ensure that H1170 is left undisturbed, by preventing human induced bottom disturbance (elevated dynamics). If undisturbed, cementing of the different fractions (gravel, stones) occurs, allowing for the establishment of typical sessile epibenthic species, while other in fauna (those which are able to withstand movement and increased dynamics, e.g. from bottom fisheries) disappear. In undisturbed situations, a well-developed sessile hard-substrate community develops, enabled by the three-dimensional structure of the habitat.

In addition to the rocks, boulders and cobbles, the mosaic of sediments present inbetween them should also be protected (Jager et al., 2018), since species may be attached to underlying hard substrate. Red algae are typical for the area and very vulnerable to bottom disturbance, especially the reversal (overturning) of stones (which they need as substrate) (Jager et al., 2018). Resuspension caused by seabed disturbance in the deeper part of the area (Botney Cut) may have negative effects on fauna and flora (less light available for the red algae) not adapted to chronic high levels of turbidity.

ICES (2012) advised that reef habitat needed protection from seafloor disturbance, but assessed that beam trawling in the Botney Cut was not likely to be impeding progress in achieving the conservation objectives. Jager et al. (2018) however states that fisheries in the Botney Cut could result in smothering the adjacent reef habitat, by resuspension of sediments. ICES (2012) suggested to conduct further studies to establish if fishing with mobile bottom contacting towed gear in the Botney Cut affects the adjacent reef habitat.

It is relevant to elaborate on the process of choosing the management zones in the Cleaver Bank prior to the North Sea Agreement (OFL, 2020). The boundaries of the pSCI Cleaver Bank were located slightly

more southward at the time of submitting the area to the European Commission in 2009. Scientific rationale for these boundaries, as submitted in the Standard Data Form (SDF) can be found in: Lindeboom et al. (2005) and Bos et al. (2008). At the time of submitting the area, it was estimated that the qualifying habitat type 1170 reefs were present in approximately half of the submitted pSCI, and that the location thereof was interdispersed throughout the Cleaver Bank.
The FIMPAS project delivered two outcomes in this respect. Firstly, the interdispersed presence of H1170 was confirmed both by the data delivered by the fishing industry as well as by the independent reviewers and available data on the sediment (ICES, 2012). Secondly, on the basis of new data by the industry on presence of stones, pebbles, cobbles and gravel, it was suggested to (1) move the Southern boundary to the North (thus excluding an area where H1170 is not present) and (2) move the Northern boundary to the North (thus including an area where H1170 is present).

On the basis of the areas which provide the most certainty of presence of the habitat feature reefs (H 1170) within the final boundaries of the SAC (designated in 2016), four management zones were drawn as proposed in the 2021 Joint Recommendations (see GBD). This selection of areas was made to include areas that were known to comply with the definition of H1170. These include a combination of identified rocks larger than 30 cm (blue contours), (sandy) gravel, gravelly sand and identified areas with high biodiversity aspects, Shannon&Wiener index and average number of species per m^2 (based on side scan sonar), Hamon grabs, and ROV images (pink areas in Figure 24). These four areas consist of a total area of 789 km^2, which is about 45 % of the area of the SAC. The northwestern part was left open for fishing since this area contains a minimum amount of stones and gravel, and on the other hand it is a relevant fishing area because of lobster fishery.

In 2020, as a result of a national consultation process for the North Sea Agreement (see GBD) the size of the areas was enlarged to the shaded parts in Figure 24. This includes the four areas, but is extended in order to form only two areas where the reef features are present, thus excluding the Botney Cut with a muddy sediment. In the current proposal the two areas proposed for closure take up circa 1241 km^2, which is about 81% of the area of the Cleaver Bank SAC (Figure 24). The two areas include all types of structures considered as habitat type reefs as present in the SAC Cleaver Bank. Areas excluded from closure have different features as compared to reefs. In addition, the two larger management zones are also favourable from a control and enforcement perspective.

The current Joint Recommendation is designed taking the different elements described above into consideration.

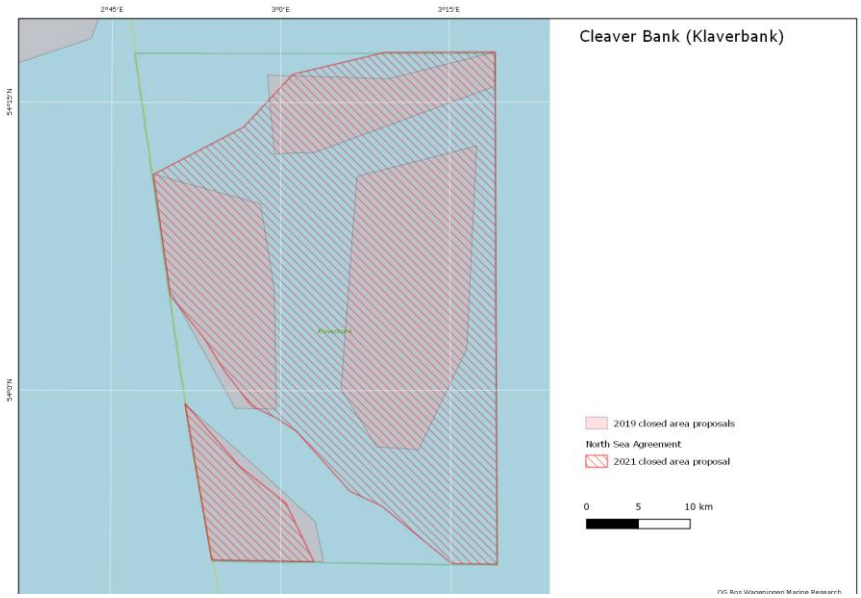

Figure 24. Cleaver Bank. Map shows the proposed North Sea Agreement closures (OFL, 2020, dashed;) and the 2019 proposal for closures (pink) (European Commission (2023)).

4 Expected effects of the conservation measures

4.1 Expected effects on the natural feature

The conservation objectives for habitat type H1170 are described in detail in section 3.1. Objectives are to maintain its distribution, to maintain surface area and to improve the quality of the habitat type. An improvement in quality is needed because the quality of the habitat is currently assessed to be unfavourable–inadequate (Jak et al., 2009), due to repeated disturbance of the bottom as compared to an undisturbed situation.

In the Joint Recommendation, a description of the proposed conservation management measures can be found. The overall aim is to reduce the impact of mobile bottom contacting towed gear by prohibiting fishing with the following gear: Beam trawl (including pulse trawl and pulse wing), Bottom trawl / Otter trawl, Dredges, and Seines (including Danish and Scottish Seines).

The key factor to improve quality is to ensure that habitat type H1170 is left undisturbed, by preventing human induced bottom disturbance (elevated dynamics). If undisturbed, cementing of the different fractions (gravel, stones) occurs, allowing for the establishment of typical sessile epibenthic species, while other infauna (those which are able to withstand movement and increased dynamics, e.g. from bottom fisheries) disappear.

By the exclusion of fishery types that make use of bottom contacting towed gear, it is foreseen that seabed stability is maintained and will allow the development of the typical characteristics of the seabed community of H1170. A natural development and succession of a complex sessile biotic community will be enabled as the position and orientation of the hard substrate on which it grows do not change (Watling and Norse, 1998; Rijnsdorp et al., 2018).

A study by Sheehan et al. (2013) in South West England shows the importance of closure of a reef area which includes both rocky reef (boulders and cobbels) areas and pebbly sand and soft muddy sediment areas in between. After three years of closure of the mosaic reef area from bottom contacting fisheries, sessile reef associated species had colonised the pebbly sand soft muddy sediment areas, indicating that reef habitat was also present in these areas in between the rocky reef. This underpins the need for closure of also the sandy patches within a reef habitat type.

4.2 Expected effects on fisheries

According to the ICES advice on Cleaver Bank, displacement of (otter board, beam) trawl fisheries is not an issue of concern: "Except for otter board trawling in the Botney Cut, fishing activity using moving bottom-contacting gear appears to be limited on the Cleaver Bank. Therefore, based on the current level of fishing effort, effort displacement will not be an issue of concern". Most fishing activities are expected to be centered around the 'Botney Cut'. This areas is not part of the proposed managementzones and therefore no limitations are proposed in this zone. The expected effects on the fisheries due to the proposed measures is expected to be proportionate to the purpose of achieving a favourable condition for the reefs on the Cleaver Bank.

4.3 Expected effects on other human activities

At this point no insight can be given in the expected effects on other human activities.

5 Discussion

See Chapter 8 of the General Background Document.

6 Conclusion

See Chapter 9 of the General Background Document.

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