# Report to inform appropriate assessment of fishing operations on the Dogger Bank SACs

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Photo credit: Dutch Maritime Productions

# Executive Summary

The UK, the Netherlands and Germany have designated 18,765 km2 of the Dogger Bank as a marine protected area under the Habitats Directive to safeguard its subtidal sandbanks. Denmark has yet to designate its portion. The Dogger Bank was an important fishery in the 17th and 18th centuries: the probable cause of the decline of fish stocks is bottom-trawling which has reduced the number of long-lived or fragile organisms. It is home to the common skate and angelshark (both listed as critically endangered by IUCN) and the Atlantic halibut (IUCN listed as endangered). The Dogger Bank also had a large population of native oysters. Common skate is still caught in small numbers as by-catch; it is thought the other rare species may be present in small numbers too. Trawling activity has resulted in a community dominated by robust short-lived invertebrates, rather than the species for which the Bank was once famous. The impact of bottom trawling is the principal reason for the Dogger Bank's conservation status being listed as unfavourable.

Under the powerful EU Habitats Directive, legal protection for the Bank should have begun in 2007 (Germany), 2009 (the Netherlands) and 2012 (UK). Even after nearly 10 years there are no management measures for fishing activities –the Dogger Bank is a "paper park." Article 11 of the Basic Regulation of the Common Fisheries Policy provides an avenue for Member States and the UK to make recommendations for management measures, which can then be enacted through the Common Fisheries Policy. To date, no legally compliant proposals have been presented to the Commission by the Member States or the UK. The Article 11 process does not remove the obligation for the UK and all Member States fishing the Dogger Bank to introduce management measures relating to their own vessels.

Under Article 6 of the Habitats Directive, it is clear that Member States and the UK need to halt the deterioration of the Dogger Bank and that fishing activities can only be permitted if they will not adversely affect its integrity. To date, despite the time that has elapsed, no proper impact assessment has been undertaken to investigate the impact of fishing activities in the Dogger Bank. This report carries out a scientific assessment and concludes that bottom impacting fishing gears cause harm and should be halted as soon as possible. For pelagic fisheries and traps and pots it may be possible to permit fishing if these can be confidently monitored and the impacts of the fishery known. Proper measures need to be brought in by the Member States and the European Commission and the UK as a matter of urgency.

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## INTRODUCTION

The Dogger Bank has protected status as three Special Areas of Conservation (SAC) under the EU Habitats Directive. However, the site is intensively fished by fleets from the UK and EU Member States. Despite designation as Sites of Community Importance back in 2007 (Germany), 2009 (The Netherlands) and 2012 (UK), no active management measures are in place to restrict the use of ecologically damaging fishing gears.

The purpose of this report is to set out the legal requirements for protection of the site, identify the fishing activities taking place and provide a scientific analysis of the environmental impacts of those fishing activities in the Dogger Bank SACs. It then concludes whether those activities should continue to be permitted in the light of the Dogger Bank's protected status. This report does not purport to present all the information required under Article 6 of the Habitats Directive for actions by the Member States' and the UK's competent authorities but it is intended to highlight key information those bodies should take into consideration in their management of commercial fisheries in the three Dogger Bank SACs. Its aim is to inform the Commission on the lack of appropriate assessment, and to support Member States and the UK and their advisers by setting out appropriate scientific benchmarks.

Section 1 sets out background to the report, and overview of the legal regime and methodology. Section 2 details the conservation objectives of the sites and discusses the Member States' and the UK's interpretation of those objectives as they relate to fishing activities. Section 3 describes the fishing activities known to take place in the Dogger Bank and carries out a "screening" of those activities to assess whether they are likely to have a significant effect on the site. Section 4 undertakes to scientifically assess those fishing activities, in view of the sites' conservation objectives, to determine whether it can be concluded that those activities do not adversely effect the integrity of the sites. Section 4 also identifies the impacts of other human, non-fishing activities that would need to be considered in a screening and analysed in a formal appropriate assessment and considers any fishing mitigation measures that could be introduced to protect site integrity. Annex 1 sets out the key tests for appropriate assessment, Annex 2 provides a list of key species and Annex 3 identifies cumulative and in-combination activities.

## 1. BACKGROUND

### 1.1 Description of the Dogger Bank

The Dogger Bank is an extensive sublittoral sandbank in the North Sea formed by glacial processes and submergence through sea-level rise. It has a surface area of approximately 25,000 km$^2$, with a large part of the southern area of the bank covered by water seldom deeper than 20 metres below chart datum.

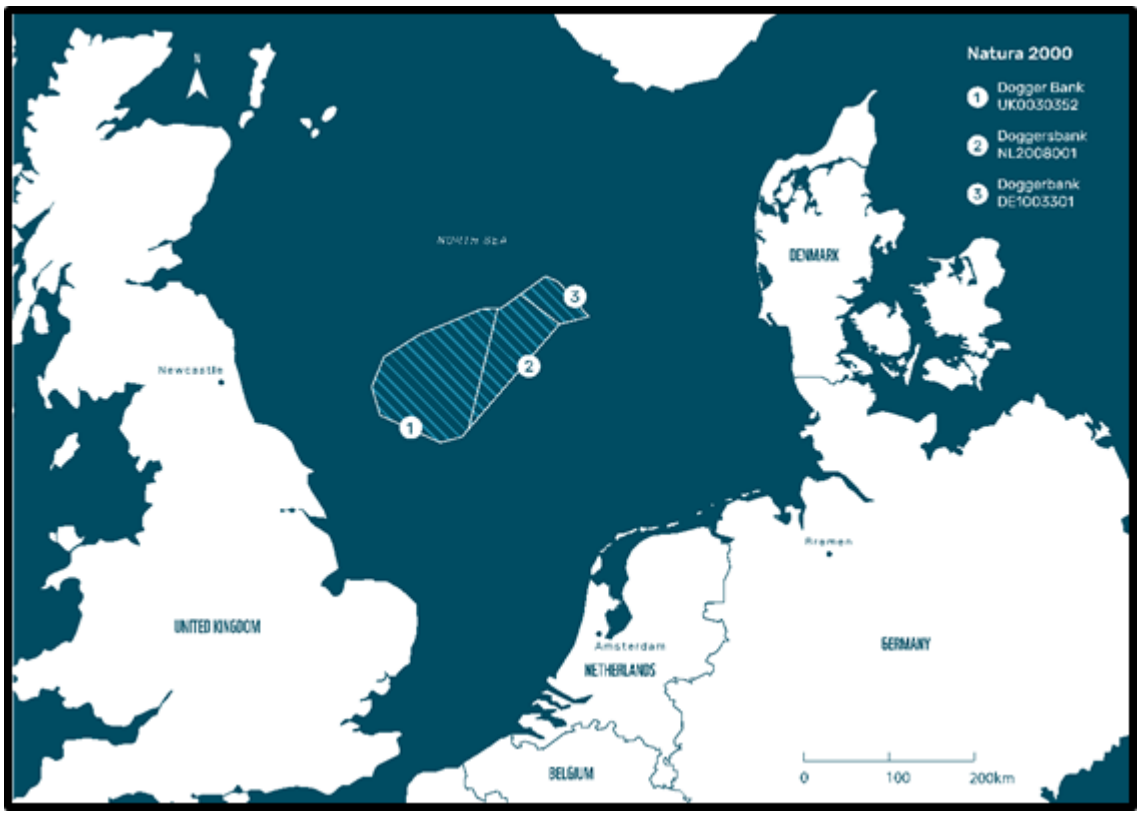


***Figure 1.1, Dogger Bank UK, Dutch and German Sites.***
*Source: WWF, 2018*

The UK, the Netherlands and Germany have designated 18,765 km$^2$ (see figure 1.1) of the Dogger Bank as Special Areas of Conservation (SAC) under the Habitats Directive (see table 1.1) for the protection of habitat type H1110 (sandbanks which are slightly covered by sea water all the time).[9] Further, the Netherlands and Germany have designated their Dogger Bank SAC for the Annex II species harbour porpoise (*Phocoena phocoena*) and common seal and the Netherlands has designated its SAC for the grey seal (*Halichoerus grypus*). In the UK waters, the Southern North Sea SAC, designated for the protection of the harbour porpoise, overlaps with the UK Dogger Bank SAC. The Dogger Bank also extends into Danish waters, but Denmark has not designated any of its area as a Natura 2000 marine protected area.

The governments of the UK, the Netherlands and Germany agree that the Dogger Bank habitat H1110 and its biological communities are in unfavourable condition after more than

[9] Videos identifying key features of the site are available at: https://jncc.gov.uk/our-work/dogger-bank-mpa/ and https://www.bfn.de/en/activities/marine-nature-conservation/national-marine-protected-areas/north-sea-eez/dogger-bank-sac.html

a century of degradation, and their assessments of the sites point out that mobile bottom-contacting fishing gear causes a significant disturbance to the habitats and distorts the species composition towards smaller and short-lived species.[10] The Joint Nature Conservation Council (JNCC) has stated that for the UK SAC "*it is likely that the fauna of the bank has been impacted by bottom-trawling which may have reduced the number of long-lived or fragile organisms*."[11] This activity has resulted in a community dominated by robust short-lived invertebrates including polychaetes such as *Nephtys cirrosa.*

***Table 1.1 Dogger Bank designations***

| **Member State** | **United Kingdom - 'Dogger Bank' UK0030352** | **The Netherlands - 'Doggersbank' NL2008001** | **Germany - 'Doggerbank' DE1003301** |
|---|---|---|---|
| Natura 2000 Standard Data Form: last update | November 2017 | December 2018 | June 2015 |
| Year listed as SCI | Proposed: 2011<br>Confirmed: 2012 | Proposed: 2008<br>Confirmed: 2009 | Proposed: 2004<br>Confirmed: 2007 |
| Year designated as SAC | 2017 | 2016 | 2017 |
| Natura 2000 site area | 1,233,115 ha | 473,500 ha[12] | 169,895 ha[13] |
| Principal Habitats Directive Annex I habitat types directly affected | H1110 - Sandbanks which are slightly covered by sea water all the time | H1110 - Sandbanks which are slightly covered by sea water all the time | H1110 - Sandbanks which are slightly covered by sea water all the time |
| H1110 area in SAC | 1,233,115 ha | 440,333 ha | 162,370 ha |
| Site coverage by H1110 | 100% | 100% | 96% |

[10] e.g. JNCC (2018) *Dogger Bank MPA – Conservation Advice 2018.* https://hub.jncc.gov.uk/assets/26659f8d-271e-403d-8a6b-300defcabcb1#DoggerBank-4-Statements-v1.0.pdf concluded that Dogger Bank SAC is in unfavourable condition, and that 'demersal fishing' is one of the pressures that needs to be 'reduced or removed.'

[11] JNCC (online), *Dogger Bank.* Available at: https://sac.jncc.gov.uk/site/UK0030352.

[12] This is the surface area as included in the Standard Data Form which mentions a last update of November 2016. Surface area of the site area and H1110 area differ substantially in the Dutch Standard Data Form. Further, the Dutch designation decree for the Dogger Bank Natura 2000 site of 27 May 2016 provides data for site and H1110 surface area that are different from those in the Standard Data Form. However, the Dutch designation decree mentions a similar surface area for both site and H1110 area.

[13] This is the surface area as included in the Standard Data Form which mentions a last update of June 2015. However, the German designation decree of 29 September 2017 mentions a site surface area of 1,692 km2.

| | | | |
|---|---|---|---|
| Conservation condition | B: unfavourable - inadequate condition | B: unfavourable - inadequate condition | C: unfavourable - bad status |

### 1.2 Protective actions by Member States

Since being approved as Sites of Community Importance, no fisheries management measures have been established to protect the Dogger Bank SACs,[14] even though bottom-towed fishing gears (in particular) have been identified as harmful for the sites. Regional Member States (known as the Scheveningen Group) have been engaged in a process under Article 11 of the Basic Regulation of the Common Fisheries Policy (the "CFP")[15] to jointly recommend management measures relating to fisheries activities (hereinafter "the Joint Recommendation"). Under this procedure, any Joint Recommendation must be submitted to the European Commission, which can adopt the proposed management measures by way of a delegated act. To date no delegated act has been adopted and fishing continues unabated on the Dogger Bank, with no proper assessment of its impact.

On 19 June 2019, the Netherlands, the UK, and Germany submitted a Joint Recommendation for the Dogger Bank to the European Commission.[16] The measures set out in this Joint Recommendation proposed to keep 66.2% of the total area of the sites open to fishing on an industrial scale with all types of bottom-towed fishing gear, including trawling and a specific type of mobile bottom-towed fishing gear called seine fishing. The remaining 33.8% of the total area of the sites, indicated as 'management zones', were alleged to be protected from damaging bottom-towed fishing gears. However, since the Joint Recommendation also proposed to keep 95.3% of the total area of the sites open to seine fishing, the measures would have protected only 4.7% of the Dogger Bank SACs from mobile bottom-towed gear and only for 3 years. A 'Background Document' was also submitted as an annex to the Joint Recommendation. While this document does contain certain information regarding fishing activity in the Dogger Bank and the measures proposed by the Member States, it does not provide an assessment of these fishing activities such as is required under the Habitats Directive (discussed below).

On 24 June 2019, WWF and ClientEarth, supported by 8 other NGOs, submitted a legal complaint to the European Commission,[17]calling for infringement action to be taken against

[14] Art. 6(2)(3) and (4) of Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (the Habitats Directive) apply from the moment a site has been placed on the list of sites of community importance. See Art. 4(5) Habitats Directive. Consequently, these requirements apply as early as 2009. (In fact, certain measures may be expected from the moment of nomination, which is 2008).
[15]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.
[16] Joint Recommendation by Germany, the Netherlands and the United Kingdom regarding 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 (the Basic Regulation) for protection of sandbanks in three Natura 2000 sites designated under the Habitats Directive 92/43 EEC of 21 May 1992, submitted 19 June 2019.
[17] WWF and Client Earth (24 June 2019) *Dogger Bank Complaint to the Commission concerning alleged breach of Union legislation* CHAP(2019)01779.

the relevant Member States for breaches of the Habitats Directive on the basis that they had not proposed adequate conservation measures for the Dogger Bank to restore its habitat, to prevent the habitat's further deterioration, or undertaken an appropriate assessment of the fishing activities to be allowed in the sites. As part of that complaint, the NGOs provided an extensive and up-to-date body of scientific evidence proving the adverse effects of demersal seining and other mobile bottom-towed fishing on the Dogger Bank sites.[18] The NGOs explicitly asked the Commission and the Scientific, Technical and Economic Committee for Fisheries (STECF) to take this evidence into account when reviewing the Joint Recommendation proposal.

A separate complaint was lodged by the Blue Marine Foundation on 29 September 2018, initially complaining about the unknown impact of experimental electric pulse trawling in three North Sea SACs (including the UK's part of the Dogger Bank), but expanded on 20 August 2019 to capture all bottom-towed fishing gears. On 18 December 2019, the Commission combined the two complaints.

The Commission consulted STECF in relation to the proposed management measures set out under the Joint Recommendation, and a STECF ad hoc working group published a review on 23 August 2019.[19] STECF was given a very limited number of days to complete its review of the Joint Recommendation; this is reflected in the fact that only around six pages of the review exclusively addresses the Dogger Bank. As STECF pointed out, the trade-off between the protection of the sandbanks in the Dogger Bank Natura 2000 sites and socio-economic interests

> "*may have negative impacts on the ecological requirements of the natural habitat types in Annex I and the species in Annex II present on the Dogger Bank since fishing with bottom contacting gears will continue in >60% of the Natura 2000 site, and fishing with purse seines [sic]*[20] *will continue in >90% of the site.*"[21]

Despite those potential adverse impacts, STECF did not evaluate all the relevant scientific evidence as part of its review. In particular, STECF advice did not consider the body of scientific evidence provided by the NGOs on the impacts of seining and other mobile bottom-towed fishing gears. In November 2019, STECF's Chair, Ms. Clara Ulrich, confirmed in correspondence to WWF that DG Mare never made available to the STECF the NGO's evidence or any other evidence other than the documents provided by the Scheveningen Group in its Background Document to the Join Recommendation.

As a result of the limited scientific evidence relied on by the STECF in its advice, the STECF concluded that:

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[18] This evidence was made available to the Commission by a URL link to a dedicated Google folder.

[19] STECF (2019) *Review of Joint Recommendations for Natura 2000 sites at Dogger Bank, Cleaver Bank, Frisian Front and Central Oyster grounds* (STECF-19-04).

[20] STECF incorrectly referred to pelagic purse seines instead of demersal seining, the latter one being the one described by the Member States in their proposal (and by the NGOs in their evidence).

[21] STECF (2019) *Review of Joint Recommendations for Natura 2000 sites at Dogger Bank, Cleaver Bank, Frisian Front and Central Oyster grounds* (STECF-19-04)., p.34.

> "*there is currently not enough information to determine the impact of seines on the Dogger Bank sandbank habitat and typical species associated with this habitat. Consequently, it is not possible to conclusively determine whether the continued operation of seines will impede the achievement of the conservation objectives in the managed zones.*"

Although STECF briefly discussed the impacts of demersal seining, it did not assess the impacts of the other bottom-towed fishing gears such as beam trawls, bottom otter trawls, dredges and semi-pelagic trawls, to which it is proposed that 66.2% of the Dogger Bank sites be left open.

In a letter of 16 October 2019, DG Mare asked the Member States for clarification on the effectiveness and enforcement of the proposed conservation measures, following the concerns raised in the STECF review. The Commission also called on the Member States to amend the proposed measures. As matters stand, the Member States are yet to submit a new Joint Recommendation setting out new proposed measures.

### 1.3 Legal regime

This section sets out the relevant legal requirements relating to the introduction of conservation measures for the Dogger Bank and the need to fully assess the impacts of any fishing activities proposed for the sites. It focusses in particular on Article 6 of the Habitats Directive[22] and Article 11 of the CFP.[23]

The Habitats Directive imposes legal duties on Member States and the UK to take measures designed to maintain or restore, at favourable conservation status, natural habitats and species of wild fauna and flora of Community interest. For offshore marine designated sites such as the Dogger Bank SACs where several Member States and the UK have fishing interests, Article 11 of the Basic Regulation of the CFP provides a mechanism by which Member States and the UK can propose a Joint Recommendation to be adopted by the European Commission as a means of implementing measures under Article 6 of the Habitats Directive. This process is designed to enable coordination of Member States' and the UK's actions and to ensure consistency of regulation.

*Article 6 Habitats Directive – Legal Requirements*

Under Article 6(1), *"Member States shall establish the necessary conservation measures involving, if need be, appropriate management plans […] which correspond to the ecological requirements of the natural habitat types in Annex 1 and the species in Annex 2 present on the sites.*"

Under Article 6(2), *"Member States shall take appropriate steps to avoid deterioration of natural habitats and the habitats of species as well as the disturbance of the species for which*

[22]Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora (

[23] 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.

*the areas have been designated, insofar as such disturbance could be significant in relation to the objectives of this Directive."*

Article 6(3) lays down the permit procedure to be followed in cases where a plan or project is likely to have a significant effect on the site, either individually or in combination with other plans or projects. Such plans or projects shall be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives. In light of the conclusions of the assessment, the competent authorities shall agree to the plan or project only after having ascertained that it will not adversely affect the integrity of the site concerned.[24] Such an assessment must include "*an explicit and detailed statement of reasons, capable of dispelling all reasonable scientific doubt concerning the effects of the work envisaged on the site concerned*".[25]

*Article 11 Common Fisheries Policy – Legal Requirements*

While for most activities competence sits with member states for enforcing the Habitats Directive, the European Union has exclusive competence over the conservation of marine biological resources under the CFP. Article 11(3) of the Basic Regulation[26] of the CFP established the framework for the Member States to comply with their obligations for certain environmental legislation.[27] It empowers them to adopt measures under certain conditions and to submit Joint Recommendations for the adoption of the necessary conservation measures through Commission delegated acts. In its Staff Working Document of 2018 the Commission further described good practices on the elements to be considered by the Member States when preparing Joint Recommendations.[28] Art 11(3) sets out the terms of the Joint Recommendation process.

> "*The initiating Member State must provide the Commission and the other Member States having a direct management interest with relevant information on the measures required, including their rationale, scientific evidence in support and details on their practical implementation and enforcement. The initiating Member State and the other Member States having a direct management interest may submit a Joint Recommendation [...] within six months[...]. The Commission shall adopt the measures, taking into account any available scientific advice, within three months from receipt of a complete request. If not all Member States succeed in agreeing on a Joint Recommendation to be submitted to the Commission in accordance with the first subparagraph within the deadline set therein, or if the Joint Recommendation is*

[24] European Commission (2000) *Managing Natura 2000 Sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*. European Commission.
[25] Case C-461/17, *Brian Holohan et al. v An Bord Pleanála*, para. 48-52.
[26]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.
[27] Article 6 of the Habitats Directive, Article 4 of the Birds Directive and Article 13(4) of Directive 2008/56/EC of the European Parliament and of the Council of 17 June 2008 establishing a framework for community action in the field of marine environmental policy (Marine Strategy Framework Directive).
[28] Commission Staff Working Document on the establishment of conservation measures under the Common Fisheries Policy for Natura 2000 sites and for Marine Strategy Framework Directive purposes, SWD(2018) 2888 final.
https://ec.europa.eu/environment/nature/natura2000/marine/docs/Marine%20SWD%20288%20final.pdf

> *deemed not to be compatible with the requirements referred to in paragraph 1, the Commission may submit a proposal in accordance with the Treaty.*"

Article 11(1) confirms that the measures to be proposed by the Member States under the Joint Recommendation are those measures which are *"necessary for the purpose of complying with their obligations under Article 13(4) of Directive 2008/56/EC, Article 4 of Directive 2009/147/EC or Article 6 of Directive 92/43/EEC* [Habitats Directive]…" Notably, Article 11(1) does not specify a particular sub-provision of Article 6 of the Habitats Directive, as it does for Article 13(4) of Directive 2008/56/EC. As such, the Joint Recommendation is available to Member States in order to comply with *all* their legal obligations under Articles 6(1), 6(2) and 6(3) of the Habitats Directive. But it does not absolve Member States of their obligations to comply with those Directives by engaging through the Article 11 process; it is a means not an end.

Article 11(3) requires the Commission to take into account "*any available scientific advice*" before adopting any conservation measures proposed by the Member States. This is a broad but unambiguous obligation, which requires the Commission to take account of the scientific advice that is being provided in this report and also the scientific advice provided in the NGO complaint dated 24 June 2019 (discussed in further detail below). Furthermore, Article 26 provides that the Commission shall consult appropriate scientific bodies and that the STECF "*shall be consulted, where appropriate, on matters pertaining to the conservation and management of living marine resources, including biological, economic, environmental, social and technical considerations.*" While there is an obligation to consult the STECF where it is appropriate to do so, in other circumstances there is still an obligation to consult other more obviously qualified scientific bodies instead

*Current position of Article 6 Habitats Directive*

The clear obligations under the Directive - *inter alia* Articles 6(2) and (3) have not been enforced for the German, Dutch and UK Dogger Bank sites since they have been listed as sites of community importance, respectively 13, 11 and 8 years ago, and further, while Art 6(1) has not been enforced since these sites have been designated as Special Areas of Conservation, respectively 3, 4 and 3 years ago:

> Article 6(1): fisheries management measures are not in place which correspond to the ecological requirements of the habitat H1110 and the species in Annex II of the Directive present on the sites.
>
> Article 6(2): appropriate steps should be taken by Member States to avoid the deterioration of the SAC, including through the regulation of fishing activities, but this has been interpeted broadly to manage these activities so as to ensure that site integrity is maintained or restored (see below). This obligation must be interpreted in light of the precautionary principle, which, for instance, means that there is no need to prove a cause and effect relationship between the activity and significant disturbance to the site. In order to establish a failure to fulfil the obligation under Article 6(2), it is sufficient "*to establish the existence of a probability or risk that that*

*operation might cause significant disturbances*" for the habitat types or species.[29] No measures are in place to stop the continued deterioration of the Dogger Bank SACs from the impacts of fishing.

In relation to Article 6(3), rulings of the Court of Justice of the European Union are clear that fishing activities can be considered a plan or project for the purpose of the appropriate assessment requirement.[30] Fishing vessels are licensed by Member States and even where those licences are perpetual, there is a constant stream of changes to regulation, licence condition amendments and the distribution to the fleet of fishing opportunities, which would also meet the criteria of plan or project.[31] The Commission underlines the support for a broad definition of 'project' by referring by analogy to the meaning of 'project in Art 1(2) of the EIA Directive, whereby this broad 'project' definition, for example, encompasses "*a significant intensification of agriculture which threatens to damage or destroy the semi-natural character of a site may be covered*".[32] Agriculture resembles fishing operations in its environmental effects and significant changes in fishing operations can also be considered projects. (This view gained support by the further broad explanation of the definition of 'projects' in the cases C-293-17 and C-294-17, where the ECJ indicated that an essential consideration in whether to classify an activity as an 'project' is whether the activity is likely to have a significant effect on a protected site.[33]) This is especially relevant because, in January 2020, WWF Netherlands carried out a rough analysis based on Global Fishing Watch data, because of the lack of comprehensive, recent analyses on the fishing methods and effort on the Dogger Bank SACs. The Global Fishing Watch data shows no stabilisation nor decrease in fishing hours across the Dogger Bank SACs, rather an increase in fishing effort from the time of SCI listing.

The purpose of the appropriate assessment is to ascertain, in view of the conservation objectives of the SAC concerned, whether it can be concluded that the proposed plan or project will not adversely affect the integrity of the site, either alone or in combination with other relevant plans or projects. For the integrity of a site not to be adversely affected, the site needs to be preserved at a favourable conservation status; this entails the lasting preservation of the constitutive characteristics of the site concerned that are connected to the presence of a natural habitat type whose preservation was the objective justifying the designation of that site.[34] Furthermore, such a conclusion can only be reached where "*no reasonable scientific doubt remains*" as to the absence of such adverse effects.[35]

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[29] Case C-404/09, *Commission v Spain*, para. 140-142. See also AG N. Wahl, case C-461/14, *Commission v Spain*, 23 Feb 36 2016, para. 84. See more recently, C-141/14, *Comission v Bulgaria*, paras 57-58.

[30] Case C-127/02, *Landelijke Vereniging tot Behod van de Waddenzee en Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij (*the *Waddenzee* Case) para 24.

[31] See for instance: Case C-6/04, *Commission v UK*, paras 47, 50, 56).

[32] European Commission (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC*, p. 36.

[33] See C-293/17, *Coöperatie Mobilisation for the Environment and Vereniging Leefmilieu*, C-294/17, *Stichting Werkgroep Behoud de Peel*, paras 59-73, where the CJEU confirmed the broad scope of the term 'project', applying to all activities that may cause significant effects.

[34] Case C-258/11, *Peter Sweetman et al. v An Bord Pleanála*, para. 39.

[35] Ibid, para 59.

If the appropriate assessment cannot conclude that the project or plan will not adversely impact on the integrity of the SAC, then that activity can only be permitted, in the absence of alternative solutions, if there are imperative reasons of overriding public interest (IROPI) and compensatory environmental measures are undertaken (Art. 6(4) of the Habitats Directive). It is highly unlikely that fishing activities would meet the IROPI requirement and there are feasible alternative grounds and fishing gears which can be considered by fishing businesses.

No appropriate assessment has been conducted for any of the fishing activities on the Dogger Bank.

*Relationship between Articles 6(2) and 6(3):*

European case law has made clear that:

> "*[w]here […] authorisation for a plan or project has been granted without complying with Article 6(3) of Directive 92/43, a breach of Article 6(2) in relation to a special area of conservation may be found where deterioration of a habitat or disturbance of the species for which the area in question was designated has been established*."[36]

In essence, this means the test of whether fisheries should be permitted to continue in the Dogger Bank SACs, is equivalent when viewed through the lens of Article 6(2) or 6(3). This principle should inform the decision-making process.

*Current use of Article 11 the CFP*

Failure to make meaningful progress on the Article 11 Joint Recommendations does not absolve competent authorities' liability to comply with Articles 6(1), 6(2) and 6(3) through the Member States' and the UK's vessel licensing regimes.[37] Article 11(1) of the CFP acknowledges flag states' empowerment for licensing their own vessels in accordance with the requirements of Article 6 of the Habitats Directive. In addition to the management requirements of Articles 6(1) and 6(2), vessel licenses permitting an activity which is likely to have a significant effect on an SAC (in this case the Dogger Bank) should be subject to the appropriate assessment process before they are issued and in the event of substantive changes to licence conditions.

Any Member States which does not engage in good faith with the Joint Recommendation procedure would be in breach the Habitats Directive, regardless of whether the SAC in question is located within their territory. A DG Environment discussion paper[38] notes that compliance with the Habitats Directive during the Joint Recommendation procedure is "*a shared responsibility among the Member States that have fishing rights in the concerned sites*." This paper elaborates that "*this shared responsibility means that, even though the*

[36] Case C-304/05, *Commission v Italy*, para 94. See also C-418/04, *Commission v Ireland*, para 263.

[37] Appleby, T., & Harrison, J. (2019). Taking the pulse of environmental and fisheries law: The common fisheries policy, the habitats directive, and Brexit. *Journal of Environmental Law*, 31(3), 443-464. https://doi.org/10.1093/jel/eqy027

[38] DG Environment (Undated) *Discussion paper on the shared responsibility of Member States in implementing measures under Article 6(1) and (2) of the Habitats Directive in the context of the procedure under Article 11 of Regulation (EU) 1380/2013* Document No. 19-11-06-2

*primary responsibility to protect a site falls on the Member State hosting it, other Member States must cooperate if such cooperation or agreement to measures is necessary to comply with legal requirements of the Habitats (or Birds) Directives and to reach their objectives*." As a result, a refusal by a Member State to engage with the procedure and to agree to a Joint Recommendation "*could constitute an infringement of the aforementioned shared responsibility and of the principle of sincere cooperation based on the breach of the obligations laid down in Article 6(1) and (2) of Habitats Directive*."

When Member States have failed to submit to the Commission the relevant information on the measures required, including their rationale, scientific evidence in support (e.g. by not providing an adequate appropriate assessment), following Art 11(3) the Joint Recommendation cannot be deemed a 'complete request', and in that case, it should be rejected by the Commission. The Commission has responsibilities to ensure that management measures adopted for the Dogger Bank under Article 11 CFP meet the requirements of the Habitats Directive. As the 'Guardian of the Treaties', the Commission is required under Article 17 Art 17(1) TFEU to "*promote the general interest of the Union"* and to "*oversee the application of Union law*". As such, the Commission cannot adopt proposed management measures that violate Article 6 of the Habitats Directive without significantly undermining its duties to ensure Member State compliance with Union law. It would also set a dangerous precedent, incentivising other Member States to flout Union laws during any Joint Recommendation procedures.

Where the Commission is asked to the adopt measures that would contravene the requirements of the Habitats Directive Article 11(3) CFP anticipates Member State non-compliance during the Joint Recommendation procedure and therefore empowers the Commission to submit its own proposal for conservation measures "*in accordance with the Treaty.*" Furthermore, the Commission can initiate infringement action against the relevant Member States in accordance with Article 258 TFEU.

As matters stand, the requirement to scientifically assess the Joint Recommendation in accordance with Articles 11(3) and 26 CPF is yet to be fully complied with. As described above, the STECF review did not meet the legal standard required dispelling all reasonable scientific doubt.[39] This casts into doubt STECF's understanding of the mechanics of the Habitats Directive. For instance, the STECF review concluded "*the impacts of seines… on sandy bottoms are likely to be low*" but then contradicted that conclusion by conceding "*seines might nevertheless have an impact on benthic epifauna*". As the Blue Marine Foundation pointed out to the Commission in a letter dated 28 May 2020, it is highly doubtful that the STECF is the appropriate body to consult for the purpose of assessing the Joint Recommendation proposals. In particular, the STECF's legal mandate is limited to advising in "*the field of conservation and management of living marine resources*."[40] Marine nature conservation involves a far broader field of consideration than the expertise of a panel whose sole purpose is to advise on the narrow field of commercially exploitable fisheries.

[39]Case C-461/17, *Brian Holohan et al v An Bord ,* para. 48-52.

[40] Commission Decision of 25 February 2016 setting up a Scientific, Technical and Economic Committee for Fisheries (2016/C 74/05)

The Dogger Bank sites continue to be damaged by fishing gears on a daily basis in clear breach of Article 6(1) and 6(2). The scale and nature of that damage would be understood by undertaking an appropriate assessment in accordance with Article 6(3). Indeed, such an assessment should have taken place *before* issuing permission to Member States and UK's fishing vessels operating in the sites. For instance UK vessels were relicensed every two years until 2015[41] and are still subject to ongoing to consistent significant licence variations on a weekly basis.[42] This compares to a similar position in the *Waddenzee* case which concerned a licensed mechanical cockle fishery, and that EU guidance favours a broad interpretation of the term plan or project.[43]

In order for there to be a degree of parity between the flag states, the Joint Recommendation process would provide the right forum to settle any issues. It does not, however, provide a mechanism to delay the application of the Habitats Directive, which seems to be the current state of affairs. Member States and the UK still have a legal duty for compliance. In the absence of appropriate measures by Member States and the UK under Article 11, the Commission has the ability (and therefore should use it) to bring in measures to satisfy the obligations under the Habitats Directive. Such measures need to be informed by sound science and in accordance with EU law and process.

### 1.4 Methodology for assessing fishing impacts

This report seeks to inform the Article 6 compliance process. It uses methodological guidance prepared by the European Commission (see figure 1.2).[44][45] The Commission recommends a three-stage process: screening, appropriate assessment, and IROPI mitigation measures. IROPI is not applicable to this report so we have undertaken screening (section 3) and appropriate assessment (section 4). However, before that we set out the conservation objectives of the sites to assist the screening process (section 2). The screening process has been undertaken by reviewing the types of fishing gear used on the Dogger Bank and whether they are likely to have a significant effect on the sites.

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[41] Department for Food, the Environment and Rural Affairs (2015) *The review of the fishing licensing scheme in England Summary of responses.* https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/417306/licensing-review-consult-sum-resp.pdf

[42] Department for Food, the Environment and Rural Affairs (online) *Fishing vessel licence variations*. https://www.gov.uk/government/publications/fishing-vessel-licence-variations

[43] European Communities (2000) *Managing Natura 2000 Sites.* https://ec.europa.eu/environment/nature/natura2000/management/docs/art6/provision_of_art6_en.pdf

[44] European Commission (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.* p. 78.

[45] But also see for another flow chart: European Commission (2001) *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites. Methodological Guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* and also see the *Draft revised methodological guidance on assessment of plans and projects*.

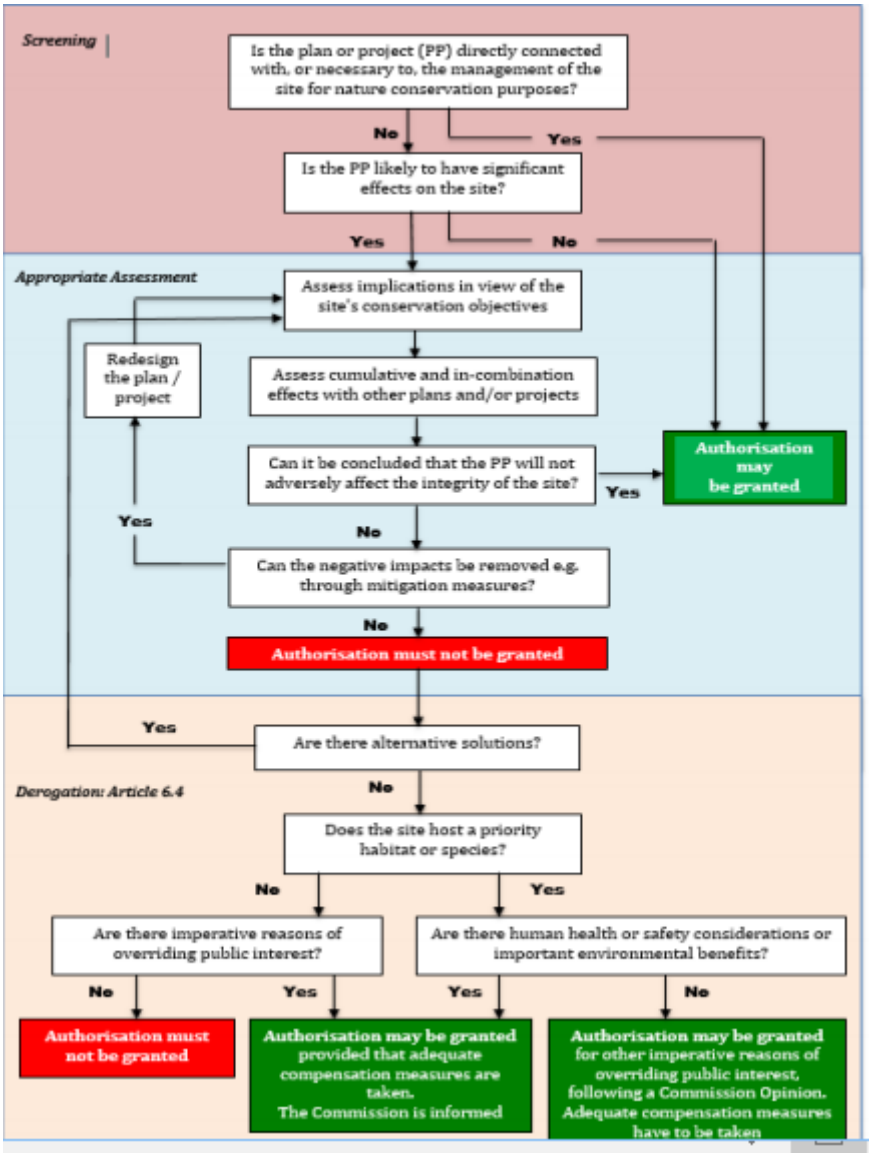


***Figure 1.2 Assessment process***
*Source: European Commission*

Our assessment has been conducted by using a desktop study of the latest information available regarding the impacts of those fishing methods identified in the screening study. No primary research was undertaken to inform this process. However, the significant consequences of some of the fishing gear reviewed did not require further scientific investigation to inform robust conclusions. Relevant parameters for the assessment are set in out in Annex 2. Cumulative and in-combination effects are then identified in section 4.6, followed by an assessment on the impact of the fishing activities on site integrity and discussion over potential monitoring and mitigation measures (section 4.7)

## 1.5 Summary

The Netherlands, Germany and the UK have not put in place any conservation management measures for fishing activities on any of the Dogger Bank SACs, contrary to Article 6(1), 6(2) and 6(3) of the Habitats Directive. They are in serious and persistent breach of the Directive.

A Joint Recommendation for management measures was submitted to the European Commission in June 2019 by the UK, the Netherlands and Germany. They proposed to protect 4.7% of the area of the Dogger Banks SACs and to keep 95.3% of the total area of the sites open to demersal seine fishing and to keep 66.2% of the total area of the sites open to fishing on an industrial scale with all types of bottom-towed fishing gear.

Later that month, a coalition of NGOs submitted a complaint to the Commission providing an extensive and updated body of recent available scientific evidence proving the adverse effects of demersal seining and other mobile bottom-towed fishing on the Dogger Bank sites.

The STECF review of the Joint Recommendation did not meet the legal criteria for a scientific assessment to show that the propose measures wold comply with Article 6 of the Habitats Directive.

The Commission, having considered the Joint Recommendation, has expressed concerns about the impacts of the proposed measures, particularly in relation to permitting such extensive fishing with mobile bottom-contacting gear, and invited the relevant governments to amend the proposed measures. Furthermore, it is clear that the Commission should reject a proposal for fisheries measures that are not based and supported by the information required by Article 11(3). If the Commission adopted fisheries measures which violate Art 6 of the Habitats Directive, it would significantly undermine its duties to ensure Member State compliance with Union law. However, the Commission has yet to take other available steps to secure compliance with the Habitats Directive, such as initiating an infringement procedure or proposing its own conservation measures in accordance with Article 11(3) CFP.

This report is prepared using guidance and methodology, provided by the European Commission to inform the proper application of the provisions of Article 6 of the Habitats Directive.

## 2. CONSERVATION OBJECTIVES

### 2.1 Introduction

This section sets out the stated conservation objectives of the Dogger Bank SACs and addresses the Member States' Joint Recommendation for the conservation objectives and those put forward by the JNCC. Subsequently, this section compares the conservation objectives with the standards the Commission has set for conservation objectives. It then discusses discrepancies between the differing approaches with regard to the area protected and the purpose of that protection and attempts to reconcile those differences.

### 2.2 Stated conservation objectives

What follows are the stated conservation objectives of the Member States for each of the Dogger Bank SACs. It should be noted at the outset that these conservation objectives are weak when read in the context of the Commission Guidance and that it is likely that Member States and the UK should be setting further detailed and site specific objectives. The Commission Guidance States:

> *"When adopting conservation objectives for a particular Natura 2000 site, Member States should establish priorities in the light of the importance of the respective site for the maintenance of or the restoration at a favourable conservation status of the habitat types and species of Community interest present on the site and for the coherence of Natura 2000, and in the light of the threats of degradation or destruction to which the site is exposed."*[46]

None of the sites are at favourable conservation status.

*United Kingdom - 'Dogger Bank' UK0030352*

*For the feature to be in favourable condition thus ensuring site integrity in the long term and contribution to Favourable Conservation Status of Annex I Sandbanks which are lightly covered by seawater all the time.*

This contribution would be achieved by maintaining or restoring, subject to natural change:

- the extent and distribution of the qualifying habitat in the site;
- the structure and function of the qualifying habitat in the site; and
- the supporting processes on which the qualifying habitat relies.

Furthermore, around half of the UK part of the Dogger Bank is also part of the Southern North Sea SAC.

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[46] European Commission (2012) *Commission Note on Setting Conservation Objectives for Natura 2000 sites,* p.3. https://ec.europa.eu/environment/nature/natura2000/management/docs/commission_note/commission_note2_EN.pdf

*United Kingdom - 'Southern North Sea' UK0030395*

*To ensure that the integrity of the site is maintained and that it makes an appropriate contribution to maintaining Favourable Conservation Status (FCS) for harbour porpoise in UK waters.*

The Conservation objectives would be achieved by addressing pressures that affect site integrity and would include:

- Killing or injuring harbour porpoise (directly or indirectly);
- Preventing their use of significant parts of the site (disturbance/displacement);
- Significantly damaging relevant habitats; or
- Significantly reducing the availability of prey.

*The Netherlands - 'Doggersbank' NL2008001*

- Maintenance of the surface and improvement of the quality of habitat H1110 permanent submerged sandbanks Dogger Bank.
- In order to maintain the population of the Habitats Directive species harbour porpoise, common seal and grey seal: maintenance of surface and quality of their natural habitat.

*Germany - 'Doggerbank' DE1003301*

- Maintenance and restoration of the site's specific ecological functions, biological diversity and natural hydrodynamics and morphodynamics.
- Maintenance and restoration at favourable conservation status of habitat type code: H1110 (sandbanks which are slightly covered by sea water all the time) together with its characteristic and endangered ecological communities and species.
- Maintenance and restoration at favourable conservation status of the following Habitats Directive species and their natural habitats: harbour porpoise and common seal.

The Commission Guidance states:

> *"Conservation objectives for Natura 2000 sites need to be as clear and straightforward as possible and allow to put in place operational conservation measures in practice. They need to be specified in concrete terms and wherever possible quantifiable in numbers and/or size. In other words, the definition of site level conservation objectives must not be ambiguous, vaguely formulated, unverifiable or involve unclear responsibilities with regard to the corresponding establishment of conservation objectives."* [47]

The Member States' conservation objectives only mention broad and general "*maintenance and restoration*" (Germany), "*improvement of the quality*" of habitat H1110 (The Netherlands) and or "*maintaining or restoring, subject to natural change* (UK) are ambiguous

[47] Ibid, p.6-7.

and create confusion as it is not clear whether the current situation should be maintained or that it should be restored to a better status. These objectives themselves are also not quantified in any way, and thus it is impossible to measure the effects of conservation measures against these general objectives of improvement or maintenance. The Member States have also not made any attempt to quantify or further qualify indicators with which the maintenance or restoration of the Dogger Bank habitat should be assessed. Indicators like extent and distribution, structure and function, quality of the habitat, ecological functions, characteristic and endangered ecological communities and species miss further explanation and lack quantifiable descriptors in terms of surface of habitat or numbers of species, and thus, are not verifiable. Further, indicators like 'biodiversity', 'extent and distribution' or 'structure and function of the habitat', or 'the quality' of the habitat all lack descriptors which are specific to the Dogger bank site. And a concrete relation between objectives and species specific for the site and e.g. their abundance in numbers or the species composition, is missing. As a result, progress towards achieving the conservation objectives for the Dogger Bank sites is difficult to monitor and cannot be verified in other than general terms.

The Conservation Objectives as they relate to fisheries measures for the Dogger Bank SACs are interpreted in the Background Document to the Join Recommendation as follows:

> *˝The purpose of fisheries measures is to reduce the pressure on the benthic habitat from bottom contacting fishing gear with a view to ensuring a key contribution to achieving the conservation objectives and to ascertain that the integrity of the site will not be adversely affected, in keeping with Article 6.3 of the Habitats Directive. The approach for the three Member States entails the following elements:*
>
> ● *The conservation status of habitat type 1110 is currently assessed as unfavourable, due mainly to the quality of the habitat and disturbance of the biological community which result from impacts to sediments;*
>
> ● *These assessments mention* ***significant habitat disturbance as a result of (mobile bottom-contacting) fishing,*** *and that fishing has distorted the species composition – towards smaller and short-lived species;*
>
> ● *Therefore the Member States* ***want to decrease human pressure on the habitat as a result of mobile bottom-contacting fishing gear****, with the aim to improve the quality of the habitat (NL); restore the habitat to favourable condition (UK); conservation and restoration of a favourable conservation status of the habitat type (1110) including its typical and threatened communities and species (GER).*" (Emphasis added)[48]

It is difficult for the Background Document to make such a bold claim as no appropriate assessment has yet been conducted on fishing activities: an essential requirement for compliance with Article 6 of the Habitats Directive.

The assessment for the Dutch (national) management plan for the Dutch Dogger Bank site (*'Nadere Effectenanalyse'*) mentions:

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[48] Anon. (2019) *Background Document Annex 1 to the Joint Recommendation for Offshore Fisheries Management on the International Dogger Bank under the Common Fisheries Policy*, p. 26.

> *"the combination of a national unfavourable conservation status, a declining trend due to shifts in presence of typical species and a low BIS value (Benthic Habitat Quality) according to Van Wijnhoven and Bos (2017), insufficient ecological conditions in the area in combination with constant anthropogenic disturbance, results in that the conservation objective […] shall* ***not*** *be achieved with the continuation of present policy and management (van der Have et al). […] The most important stress factor for H1110C is disturbance by mechanical effects (seafloor disturbance). This is mainly caused by fisheries and to a very small extent by pipes and cables.'* [49] This is confirmed by the report to the Dutch national draft-management plan for the Dogger Bank which further concludes: *'The most important bottleneck for H1110C is seafloor disturbance by bottom contacting fishing gear. […] The shift in typical species (declining trends of long-lived shell-fish, increase of sediment feeders like worms point at an unnatural disturbance of the sediment at a regular basis."*[50]

The UK and member states accept that management measures, particularly for bottom-contacting fishing methods are required to meet their duties under the Habitats Directive.

The Background Document also posits what this might mean in practice:

> "*In doing so, they want to establish a more natural situation in which conditions will allow the: physical structure (the shape, form and composition of the habitat and its substrata); diversity (the number of different biological communities or number of species within a given community); community structure (e.g. age classes, sex ratios, distribution of species, abundance, biomass, reproductive capacity, recruitment, range and mobility); and typical species to be restored.*" [51]

There is no qualifier in this statement. It does not set out partial restoration as an objective, but a clear restoration of the H1110 feature and its dependent ecosystem. This intention is confirmed again:

> "*UK, GER and NL want to maintain the surface area and the extent of the habitat, improve the abiotic preconditions and the physical structure, reduce the disturbance of the benthic communities including infauna and epibenthic species, and improve the habitat quality by natural processes so that the benthic communities will be characterized by long-lived species in natural proportions of size and age. It is agreed that the requirements of a good structure and function can be applied to both benthic communities and typical fish species. If possible, individuals of all typical occurring species (fish, benthos) should be present in natural proportions of sizes and ages. Typical species include: Lanice conchilega, Acrocnida brachiata, Arctica islandica, Buccinum undatum (common whelk), Mactra corralina, Ammodytes marinus (sandeel), Echiichthys vipera (lesser weever), Raja clavata (thornback ray), Pleuronectes platessa (plaice)*."[52]

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[49] Royal Haskoning (2019) *Rapport Nadere Effectenanalyse Doggersbank*, Royal Haskoning DHV, p. 63.
[50] Anon. (2020) *Report Natura 2000 draft management plan Doggersbank/Klaverbank/Friese Front*, p. 31.
[51] Ibid, p. 26.
[52] Ibid, p. 26.

It is important to note that the Background Document includes recolonisation by long-lived species in natural proportion of sizes and ages. Though it fails to mention the scale of that restoration. The words can be interpreted to mean maintenance of a representative sample or protection of the entire site. This confusion is continued to cover the restoration objectives:

> "*1) For abiotic and biotic factors in the area to achieve a state which enables benthic communities to reach and maintain a good state of preservation;*
> *2) Benthic communities should be characterised by, in particular, long-lived species. Of all typical occurring species, individuals should be present in natural proportions of sizes and ages;*
> *3) Characteristic fish species should be present in characteristic population structures and of all typical species in natural proportion of sizes and ages.*" [53]

There seems to be a clear goal for a return of long-lived species with "*characteristic population structures*" of fish species as well as a natural proportion of sizes and ages.

The issue of scale of the restoration of the Dogger Bank remains outside the Background Document and is not reflected in precise and site specific conservation objectives which make concrete to what level, e.g. what percentage of the surface, the site must be restored. However, the Background Document does give a good indication that substantial intervention is needed to restore the site to its former ecology.

This qualitative approach is also followed in the Dutch report to the Dutch national draft-management plan for the Dogger Bank which lists the ecological requirements for the Dogger Bank habitat to be in *'good quality'*, e.g.:

- "*presence of structures caused by high density shell-fish (shellfish reefs) and/or sand mason worms/Lanice conchilega (sand mason fields);*
- *presence of benthic fauna (worms, shellfish and other mollusks) in a well-balanced state between short- and long-lived species;*
- *presence of a fish community in a natural proportion of ages."*[54]

However, the report to the Dutch national draft management plan concludes that the *'most important bottle neck'* for realising H1110 in good quality is bottom contacting fishing gear. This makes it valid to conclude *at a minimum* that the continuing operation of mobile bottom-contacting fishing gear in the Dogger Bank H1110 is not compatible with the Dogger Bank habitat H1110 in 'good quality', as described in the report.

The JNCC, the statutory nature conservation body for the UK's part of the Dogger Bank, advise a different approach:[55]

> "*As such, JNCC advises a restore objective which is based on expert judgment; specifically, our understanding of the feature's sensitivity to pressures which can be exerted by ongoing activities i.e. demersal fishing, aggregate dredging, cabling and oil*

[53] Ibid, p. 26.
[54] Ibid, p. 31.
[55] JNCC (2018) *Supplementary Advice on Conservation Objectives for Dogger Bank Special Area of Conservation,* p 4. https://hub.jncc.gov.uk/assets/26659f8d-271e-403d-8a6b-300defcabcb1

*and gas industry activities. Our confidence in this objective would be improved with longer term monitoring and access to better information on the activities taking place within the site. Activities must look to minimize, as far as is practicable, disturbance and changes to the finer scale topography, sediment composition and biological communities within the site*."

Rather than the site having to demonstrate a return to a "*characteristic population structure*" it is for those carrying out activities to look to "*minimize, as far as is practicable, disturbance*". Indeed the JNCC's Conservation Advice Statement states that associated pressures of demersal fisheries should be "*reduced or removed*".[56] In the Member States' report under Article 17 of the Habitats Directive to the EU in 2019, the UK Government further advised that both the pressure and threat to H1110 offshore sites from fishing were high and that measures were needed.[57]

### 2.3 Discussion

There needs to be an improvement in the conservation status of the UK, the Netherlands and the German Dogger Bank SACs to comply with the Habitats Directive; the habitats are in unfavourable conservation status and the deterioration of the Dogger Bank habitat is ongoing. It is clear that restoration should be a key conservation objective, there are no transitional provisions which permit a part of an SAC to be protected instead of the whole, particularly in the case of habitats which are noted as in unfavourable state. In 2018, the Dutch Marine Strategy Framework Benthic Monitoring Programme, measuring the status and development of the quality of the benthic habitats in the Dutch part of the North Sea, concluded that the quality of the benthic habitat of the Dogger Bank is decreasing and that this decrease represents a consistent deviation of the reference since 2006 (when it had already been degraded by overexploitation and habitat destruction). The research further concludes that, although ecological disturbance (e.g. influence of nutrients and pollution) affects the benthic quality, the downward trend *is being determined* by the increase of bottom disturbance by bottom-impacting fisheries.[58]

All the SACs have objectives which include maintenance of the site, the UK and German SACs have restoration as an objective while the Netherlands aims at improvement. The UK part aims at structure and function of the qualifying habitat (while dealing with the harbour porpoise under the Southern North Sea SAC); the German part seeks to restore both characteristic and endangered species, with a further objective of restoring harbour porpoise and common seal; and the Netherlands part is an improvement of general quality, with a further mention of maintaining the population of harbour porpoise, grey seal and common

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[56] JNCC (2018) *Conservation Advice Statement,* p 4. https://hub.jncc.gov.uk/assets/26659f8d-271e-403d-8a6b-300defcabcb1#DoggerBank-4-Statements-v1.0.pdf

[57] UK Government (2019) *European Community Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora (92/43/EEC)* Fourth Report by the United Kingdom. https://jncc.gov.uk/jncc-assets/Art17/H1110-OFF-Habitats-Directive-Art17-2019.pdf

[58] Van Wijnhoven, S., Rapportage (2018) *TO beoordeling kwaliteitstoestand NCP op basis van BISI* powerpoint http://ecoauthor.net/wp-content/uploads/2018/06/6-Benthos-NZ-SWijnhoven-22-05-2018.pdf . The full report in Dutch, however, an English translation is foreseen, is available at: http://ecoauthor.net/ and alshttp://ecoauthor.net/wp-content/uploads/2018/09/Eindrapport-T0-kwaliteit-benthische-habitats-KRM-Noordzee.pdf

seal. The Germans and the Dutch have the additional requirement of harbour porpoise and common seal. The Germans and UK call for restoration and the Netherlands' call for improvement of the H1110 habitat.

The Netherlands specifically distinguish within the H1110 habitat three sub-types (A, B and C) which are identified by their location, depth and abiotic conditions and their biological communities. Hereby sub type H1110C *"in fact is a shallow area located far from the coast" and in the Netherlands is only found on the Dogger Bank."*[59] The Dutch designation decree for the Dogger Bank area notes that *"the value of the area for the sub-type is related to the relative surface and, if needed, the representativity of the sub-type. Further, sufficient geographical range, protection status, and the transboundary Dogger Bank areas in the UK and Germany are taken into account*." [60] The status of the Dogger Bank habitat continues to deteriorate, a report in 2020 by the Wageningen University shows that if current policy continues the conservation status of habitat H1110 will decrease from unfavourable to unfavourable bad by 2027.[61]

Given that the feature crosses different national boundaries, it makes sense to read these objectives collectively since the difference between restoring and improving a site is very little. Although the UK did not specifically mention harbour porpoise and common seal their protection would be implicit in achieving favourable structure and function of the qualifying habitat. Moreover, the Southern North Sea SAC overlaps with the UK's Dogger Bank SAC, where harbour porpoise is the main protected feature. Any Joint Recommendation should of course include the harbour porpoise in the proposed conservation measures because of the overlapping designations.

It may well be that the conservation objectives are incomplete, particularly if no objectives have been set for the three mammal species in the UK part. The European Commission and AG Kokott have made clear that for each Natura site, conservation objectives must be formulated not only for the habitat types and species that constituted the reason for nominating the site and for placing the site on the list of sites of community importance, but also for all other Annex I HD-habitat types, Annex II HD-species and Annex I BD-bird species, except if this presence is 'non-significant.[62]

For the Netherlands and UK, SACs H1110 (and therefore the protections under the Directive) cover the entire site, while the German site has 96% coverage. The Joint Recommendation can be interpreted to recommend a protection of the proportion of the site if sufficient is protected to ensure "*characteristic population structures*". However, this does not seem to meet the requirements of the JNCC's advice, which seeks to "*minimise, so far as practicable,*

[59] Royal Haskoning (2019) *Rapport Nadere Effectenanalyse Doggersbank*, Royal Haskoning DHV, p. 8.
[60] See Dutch designation decree for the Dogger Bank Natura 2000 site of 27 May 2016, p. 10.
[61] Pouwels, R., Henkens, R.H.J.G., (2020) *Naar een hogewr doelbereik van de Vogel- en Habitatrichtlijn in Nederland; Een analyse van de resterende opgave na 2027 voor het bereiken van een gunstige staat van instandhouding van alle habitattypen en VHR soorten. Wageningen.* Wageningen Environmental Research, Rapport 2989, p. 33.
[62] European Commission (2012) *Commission Note on the Designation of Special Areas of Conservation*, p.4. https://ec.europa.eu/environment/nature/natura2000/management/docs/commission_note/commission_note2_EN.pdf

*disturbance and changes to the finer scale topographical, sediment composition and biological communities within the site".* The JNCC advice and the Joint Recommendation can only be reconciled if protection is given to the entire H1110 feature, and the characteristic population structure is based on protection of the whole feature, rather than some smaller proportion.

### 2.4 Summary

The conservation objectives across the three sites are ambiguous, are vague, have not been quantified, lack descriptors, are not site specific, and therefore are not measurable and reportable. This means that they are not in line with the Commission Guidance. However, they are broadly the same and aim principally at restoring and improving the structure and function of the Dogger Bank.

H1110 covers the entirety of the UK and the Netherlands Dogger Bank SAC and 96% of the German part. There would not appear to be any reason for management measures to only protect a proportion of the H1110 feature.

The Joint Recommendation seeks to protect the site by restoring characteristic population structures, while the JNCC advice seeks to minimise disturbance to the benthos, as far as practicable.

The Joint Recommendation and JNCC advice can be read together if the entirety of the H1110 features within the SACs are protected and with the inclusion of measures to protect harbour porpoises and common seals.

# 3. SCREENING DOGGER BANK FISHING ACTIVITIES

## 3.1 Introduction

This section will screen the fishing methods carried out on the Dogger Bank SACs to identify which methods are unlikely to have a significant effect and those which should be subject to appropriate assessment.

Under Article 6(3) of the Habitats Directive, an appropriate assessment is required where a project or plan is "*likely to have a significant effect*" on the site concerned. The CJEU has interpreted this as meaning that an appropriate assessment is required where there is a "*risk*" that a project will have significant effects and that such a risk exists if it *"cannot be excluded on the basis of objective information*" that the plan or project will have significant effects on the site concerned. Furthermore, where there is any doubt as to the absence of significant effects an appropriate assessment must be carried out.[63]

Our screening will follow the methodology provided in the EC guidance[64] on Article 6 of the Habitats Directive[65] where, for screening effects, there is one question that needs to be answered: "*is the plan or project likely to have a significant effect on the site*", also taking into account cumulative and in-combination effects? If the answer is yes, or if significant effects cannot be excluded with certainty, an appropriate assessment is necessary for this plan or project.

## 3.2 Types of fishing methods on the Dogger Bank SACs

The Dogger Bank is subject to fishing pressure from different fishing methods, which are listed in Table 3.1.[66] This list was based on a 2007-2009 dataset. An analysis based on more recent years, focussed on a limited number of fishing methods within subparts of the Dogger Bank.[67] The types of fishing methods and their summed effort employed on the Dogger Bank SACs include both mobile gear (beam, otterboard and midwater trawling, demersal seining) as well as static gear (gillnets, pots).

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[63] Case C-127/02, *Landelijke Vereniging tot Behod van de Waddenzee en Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij*

[64] European Commission (2001) *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites. Methodological Guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* p. 13; and European Commission (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* .. Further, notice is taken of the new revised guidance in preparation on the provision of Art 6(3) and (4) of the Habitats Directive.

[65] Christina Pantazi (2020) *Assessment of plans and projects in relation with Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC*. Nature Protection Unit, DG ENV, European Commission 29 May 2020.

[66] Anon. (2019) *Background Document Annex 1 to the Joint Recommendation for Offshore Fisheries Management on the International Dogger Bank under the Common Fisheries Policy*.

[67] Hamon, K. G., N. T. Hintzen & J. A. E. van Oostenbrugge, (2017). *Overview of the international fishing activities on the Dogger Bank; Update with Dutch, British, Danish, German, Belgian, Swedish and French data for 2010-2015. Wageningen, Wageningen Economic Research,* Memorandum 2017-050. 36 pp.; 10 fig.; 7 tab.; 7 ref.

***Table 3.1 Fishing Effort (kwhrs (mill)) by flag state and gear group for the SACs on the Dogger Bank and for the Southern North Sea (Div IVb) 2007-2009 summed***

*The percentages are for the fishing effort in the SAC compared to the total fishing effort for that country in the Central North Sea (Div IVb)*

| | Denmark | | | Germany | | | Netherlands | | | UK | | | Total | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Gear Group | SAC | IVb | % | SAC | IVb | % | SAC | IVb | % | SAC | IVb | % | SAC | IVb | % |
| Beam trawl (demersal fish) | | 12.2 | | | 1.9 | | 523.6 | 29,517.2 | 1.77 | 31.4 | 117.6 | 26.67 | 555.0 | 29,648.9 | 1.87 |
| Beam trawl (nephrops) | | | | | 0.1 | | | | | 0.1 | 0.1 | 58.16 | 0.1 | 0.2 | 27.70 |
| Beam trawl (shrimp) | 0.0 | 19.3 | 0.11 | | 102.8 | | | 75.9 | | | 0.3 | | 0.0 | 198.4 | 0.01 |
| Bottom otter boardtrawl (demersal fish) | 0.1 | 47.8 | 0.21 | 0.3 | 16.5 | 2.09 | 286.1 | 1,597.3 | 17.91 | 16.2 | 84.3 | 19.29 | 302.8 | 1,745.8 | 17.34 |
| Bottom otter board trawl (nephrops) | | 18.2 | | 0.0 | 15.5 | 0.11 | 0.1 | 776.0 | 0.01 | 0.0 | 91.0 | 0.03 | 0.1 | 900.8 | 0.02 |
| Bottom otter board trawl (shrimp) | | | | | | | | | | 0.1 | 1.1 | 12.85 | 0.1 | 1.1 | 12.85 |
| Bottom otter board Trawl (herring) | 0.0 | 3.0 | 0.04 | 0.2 | 1.1 | 22.19 | 10.2 | 170.3 | 5.96 | | 3.3 | | 10.4 | 177.6 | 5.85 |
| Bottom otter board Trawl (sand eel) | 13.5 | 51.4 | 26.21 | 0.2 | 0.7 | 22.84 | | 3.4 | | | | | 13.6 | 55.6 | 24.54 |
| Bottomotter board Trawl (sprat) | 0.6 | 14.0 | 4.52 | 0.1 | 0.4 | 17.69 | 0.2 | 43.1 | 0.57 | 0.0 | 1.1 | 1.45 | 1.0 | 58.6 | 1.65 |
| Dregde | | 0.2 | | | 0.7 | | | | | | 34.1 | | | 35.1 | |
| Gillnet | 0.2 | 10.7 | 1.87 | | 1.0 | | | 15.2 | | 0.0 | 0.5 | 3.76 | 0.2 | 27.3 | 0.79 |
| Long_line | | 0.0 | | | | | | | | | 0.0 | | | 0.0 | |
| Midwater trawl | | 0.3 | | 0.0 | 2.4 | 0.21 | 0.0 | 336.2 | 0.01 | 1.5 | 33.8 | 4.36 | 1.5 | 372.6 | 0.40 |
| Miscellaneous | | 0.1 | | | | | 4.2 | 4.2 | 100.00 | | | | 4.2 | 4.3 | 97.34 |
| Pots | | | | | | | | 2.6 | | | 7.9 | | | 10.5 | |
| Seine (incl. Flyshooters) | 1.3 | 5.1 | 25.56 | 0.1 | 1.3 | 3.92 | 0.5 | 174.3 | 0.31 | 1.3 | 5.2 | 24.30 | 3.2 | 185.9 | 1.70 |
| Traps | | | | | | | | | | | 0.1 | | | 0.1 | |
| Unspecified | | 2.7 | | | | | | | | | | | | 2.7 | |
| Grand Total | 15.7 | 185.0 | 8.5 | 0.9 | 144.5 | 0.62 | 825.0 | 32,716.6 | 2.52 | 50.6 | 380.3 | 13.31 | 892.2 | 33,426.3 | 2.67 |
| Beam and Bottom Trawl+Dregde+Seine | 15.5 | 171.2 | 9.1 | 0.9 | 144.5 | 0.62 | 825.0 | 32,716.6 | 2.52 | 50.6 | 380.3 | 13.31 | 886.3 | 33,008.0 | 2.68 |
| Beam and Bottom Trawl+Dregde | 14.2 | 166.1 | 8.6 | 0.9 | 141.1 | 0.63 | 820.7 | 32,357.6 | 2.54 | 49.1 | 338.1 | 14.53 | 883.1 | 32,822.1 | 2.69 |

*Source: Draft Background Document to Joint Recommendation (not in final submission)*

Based on the 2007-2009 overview of fishing methods in table 3.1, the types of gear operating in the Dogger Bank fishery are set out below in table 3.2, but other methods might appear if more recent data had been analysed and during more consecutive years since the Dogger Bank was listed as SCI.

***Table 3. 2 Description of types of fishing gear[68]***

| **Gear Type** |
|---|
| Beam Trawl (demersal trawling)<br><br>This is a beam trawl that is rigged to target flat fish on soft sand and muddy sea beds. The open beam gear has a series of tickler chains towed ahead of the mouth of the net designed to stimulate the fish out of the mud and over the footrope of the trawl. |

[68] For a fuller description see Seafish (online) *Fishing Gear* https://www.seafish.org/responsible-sourcing/fishing-gear/

| |
|---|
| Danish Seine (demersal seining)<br><br>A net shot in the open sea using very long ropes to lay out the net and ropes on the seabed prior to hauling from a boat at anchor. |
| Electric Pulse Trawl (demersal trawling)<br><br>This is used with beam trawls and produces a limited electric field above the seabed to catch fish. The pulse trawl gear consists of a number of electrodes, attached to the gear in the tow direction, that emit short electric pulses. The electrodes replace the tickler chains that are used in traditional beam trawl fishery. |
| Otter Trawl (demersal trawl)<br><br>A demersal trawl is a cone shaped net that is towed on the seabed to target demersal fish species. The mouth of the trawl is held open by a pair of trawl doors (Otter Boards). |
| Pelagic or midwater trawl (midwater trawling)<br><br>In this fishing method one trawl, designed to catch pelagic fish is towed in mid-water by one vessel. The trawl is spread horizontally by a set of pelagic trawl doors. The horizontal opening is dictated by a clump weight on the lower wing ends of the net and the rigging of the bridles between the net and trawl doors. |
| Scottish Seine or flyshoot (demersal seining)<br><br>In the Scottish seine the gear is shot on the seabed in a rounded triangle shape with very long weighted ropes attached to each end of the net. The net is gradually hauled in with the vessel maintaining station using its engine power rather than an anchor (as in anchor seining). |
| Anchored netlines (including gill nets, trammel nets)<br><br>A gill net is a single wall of netting anchored on the seabed to catch fish that swim into it.<br><br>Gill net is also a collective name for many different styles of nets as well as being a style of net in itself. Many of these nets will be referred to differently in different fisheries, i.e. gill nets, tangle nets, wreck nets, drift nets and trammel nets. |

Pots or traps

Pots and traps are generally rigid structures into which fish or shellfish are guided or enticed through funnels that make entry easy but from which escape is difficult. There are many different styles and designs, each one has been designed to suit the behaviour of its target species. Many designs have evolved over many years to suit the coastline and seabed where it is used only changing to make use of modern materials.

### 3.3 Fishing effort on the Dogger Bank SACs

Bartelings *et al.* (2015) analysed fishing effort on the (entire) Dogger Bank SAC for the period 2006-2011. They conclude:

> "*There is no clear trend from year to year with different patterns for the different countries. [...] The majority of the fishing activities on the Dogger Bank by Dutch and British vessels is carried out by beam trawls and otter-board trawls. For the German and Danish fleets, demersal trawlers and seines (mainly otter-board trawls for the German vessels and otter trawls and Danish seines for the Danish fleet) are most important in the area. The Belgian fleet operates with Scottish seines and the Swedish fleet with otter-board trawls. […] The two main species targeted on the Dogger Bank are sandeel for the German, Danish and Swedish demersal trawls and seines, and plaice for the Dutch and British beam trawl and otter-board fleet and Belgian Scottish seiners. When we extend the period of analysis with the early reports from Oostenbrugge and Hamon on the activity of the Dutch fleet in the Dutch and German parts of the Dogger Bank, two periods can be identified: 2006-2010 when the activity was low and stable, 2011-2013 when the activity of the Dutch fleet in the Dutch and German Dogger Bank increased. For the Netherlands, the lowest level of activity of the current time series is also 2010, about 1.6 to 4 times lower than the rest of the time series, meaning that the activity in the past 5 years is higher than 5-10 years ago.*"

The Background Document to the Joint Recommendation provides a number of maps with the spatial distribution of effort in kWh (page 44 onwards). Figure 3.1 demonstrates the quarterly distribution of beam trawl fishing effort (kWh) for 2007-2009.

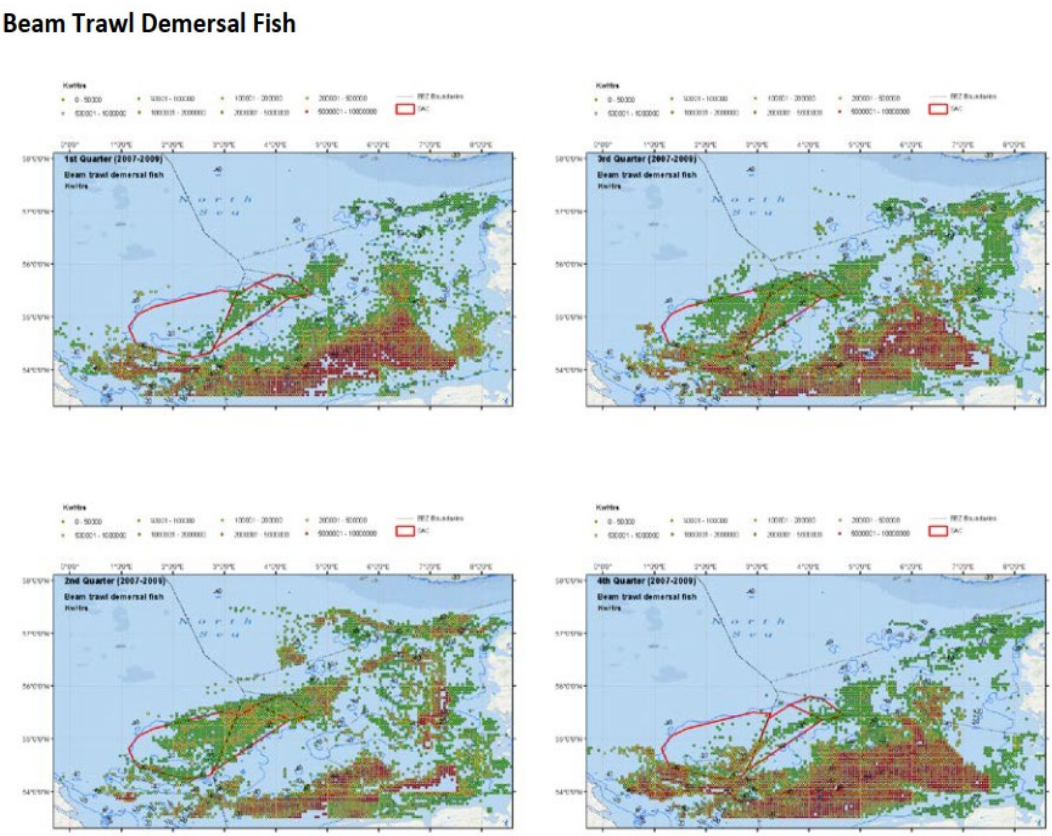


***Figure 3.1 Tracks of demersal fishing over the Dogger Bank years 2007-2009***
*Source: Background Document to Joint Recommendation*

In the same way, fishing effort is shown for bottom trawl demersal fish, sandeel fisheries, seine (incl. flyshoot) fisheries.

Information is also available in the Dutch FIMPAS and German EMPAS projects. For example, FIMPAS (figure 3.2)[69] shows the total fishing effort (kWh) for beam and otter trawls combined for all countries (B, D, DK, F, NL, UK) by year for the Dutch part of the Dogger Bank.

[69] FIMPAS Steering Group (2011) *Fisheries Measures in Protected Areas (FIMPAS) within the Exclusive Economic Zone (EEZ) of the Dutch part of the North Sea: areas outside the 12 nautical miles zone: Proposals,* fig. 4a. http://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2012/FIMPAS-Doggerbank/5.%20Report%20on%20Fisheries%20Measures%20in%20Protected%20Areas%5B1%5D.pdf

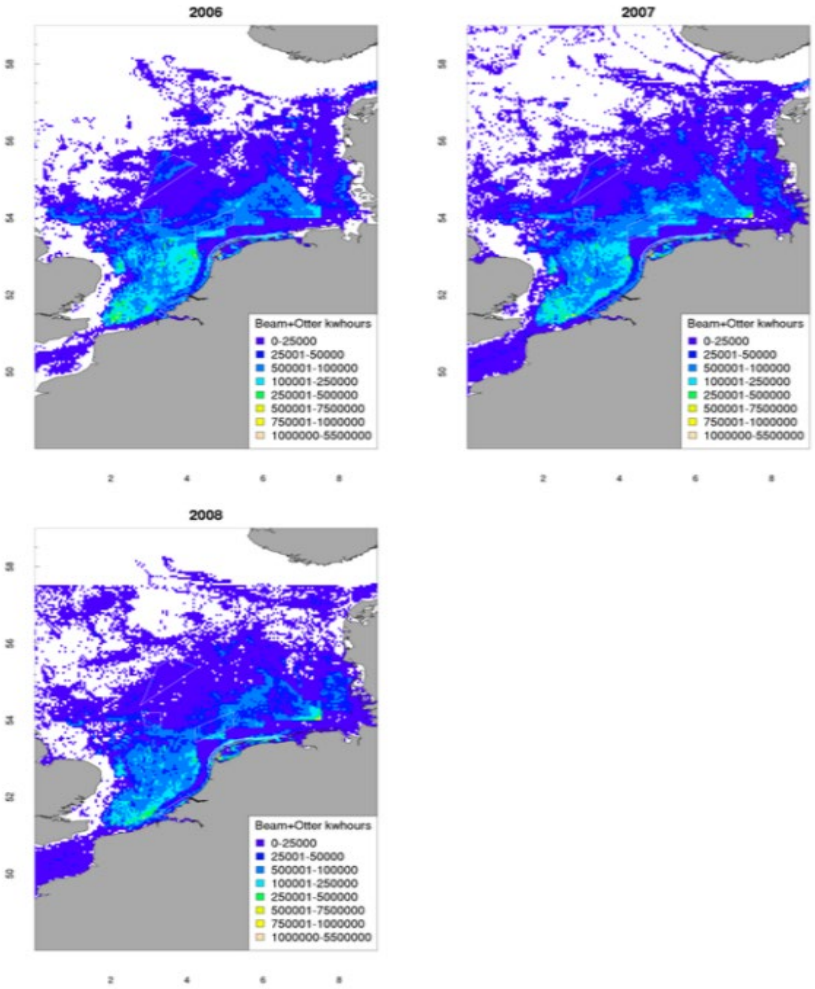


***Figure 3.2 Fishing effort (kWh) for beam and otter trawls combined for all countries (B, D, DK, F, NL, UK) by year for the Dutch part***

*Source: FIMPAS Steering Group*

For other methods, some information is available through the FIMPAS and EMPAS projects. For example FIMPAS shows the fishing effort (soak time hours) for gillnets and trammel nets combined for all countries (B, D, DK, F, NL, UK) by year.[70]

[70] Ibid, fig. 4b.

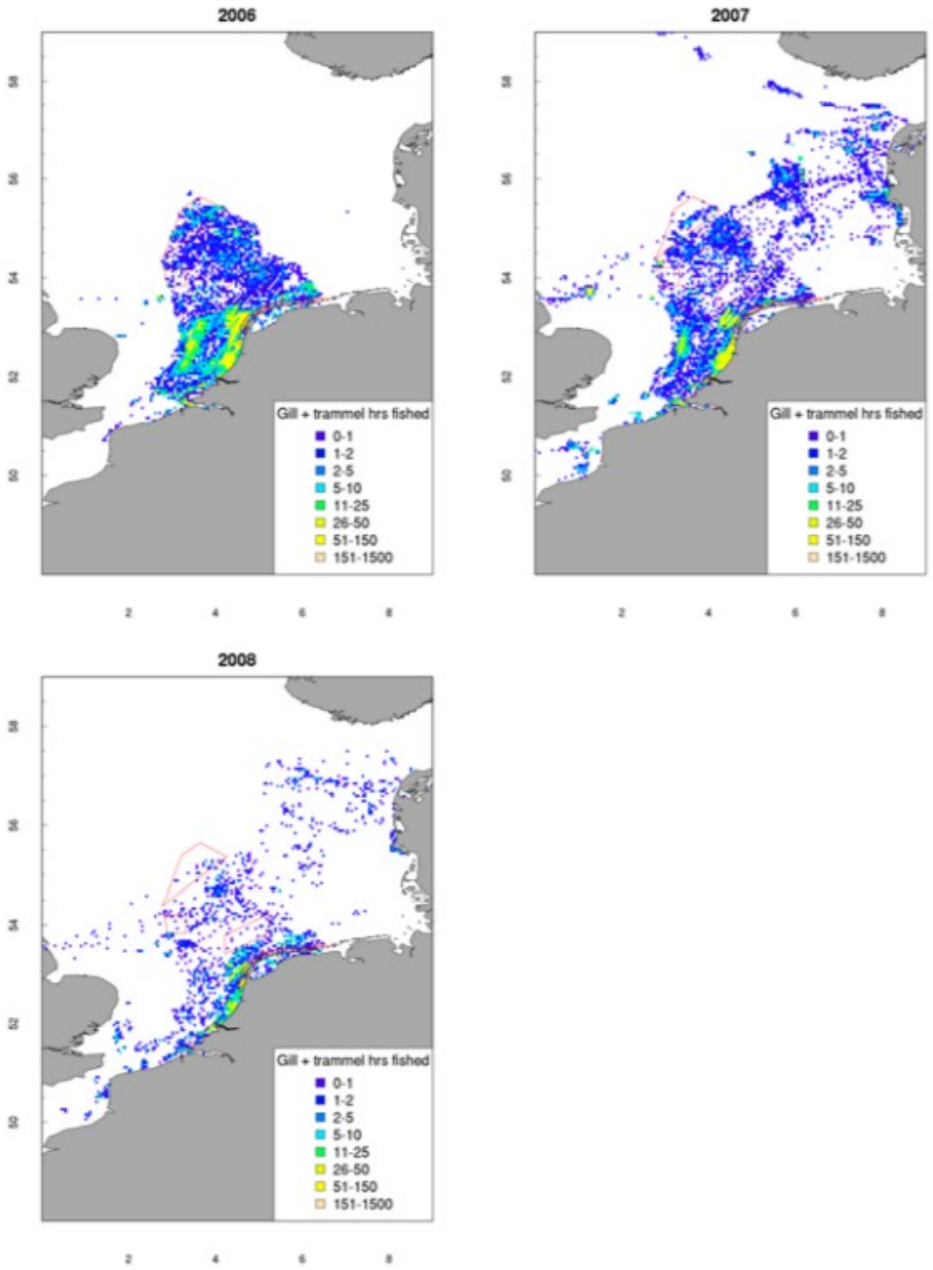


***Figure 3.3 Fishing effort (soak time hours) for gillnets and trammel nets combined for all countries (B, D, DK, F, NL, UK) by year.***

Source: FIMPAS Steering Group

***Table 3.4 Summary of fishing effort (kWh) of fisheries using pots on the Dutch part of the Dogger Bank***

| Dogger Bank | | | | |
|---|---|---|---|---|
| Gear | 2006 | 2007 | 2008 | Average |
| Beam trawl | 11,669,562 | 7,592,169 | 2,608,955 | 7,290,229 |
| Demersal seine | 388,214 | 167,040 | 127,454 | 227,569 |
| Gillnets | 471,048 | 208,544 | 9,145 | 229,579 |
| Otter trawl | 3,536,054 | 2,645,765 | 2,076,931 | 2,752,917 |
| Pelagic seine | | 257,521 | | 85,840 |
| Midwater trawl | 825,571 | 244,634 | 8,111 | 359,439 |
| Pots | 3,308 | 1,414 | | 1,574 |
| Grand Total | 16,893,757 | 11117,087 | 4,830,596 | 10,947,147 |

*Source: FIMPAS Steering Group*

Measuring effort of gill nets and trammel nets in soak time and effort of pots or traps in kWhrs is problematic in that it does not paint a picture of actual effort.[71]

A recent report for electric trawling or pulse fishing shows effort of pulse fishing in 2016-2017[72] and where pulse fishing is taking place on the Dogger Bank (figure 3.4). In 2019, the EU approved a ban on pulse fishing and the activity should be phased out by mid 2021.[73] However, the method should still be screened, as it is currently permitted and the ban could be overturned.

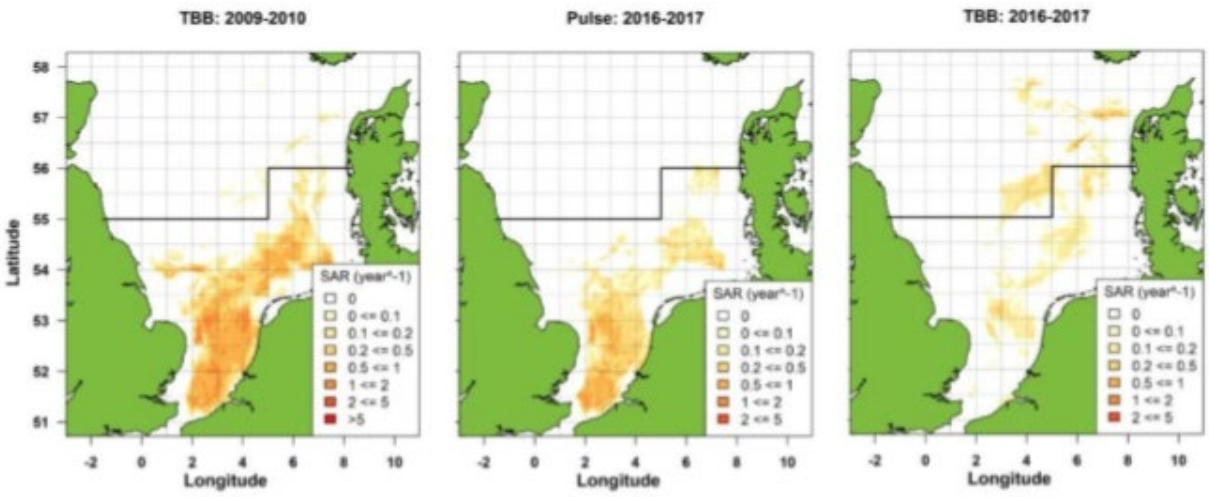


***Figure 3.4 Area swept tickler chain beam trawl (TBB) and pulse beam trawl***

[71] ICES (2018) *Report of the Working Group on Spatial Fisheries Data (WGSFD)*, 11–15 June 2018, Aberdeen, Scotland, UK. ICES CM 2018/HAPISG:16, p.79.

[72] ICES (2020) Request of the Netherlands on the ecosystem and environmental impacts of pulse trawling for the sole (Solea solea) fishery in the North Sea. In ICES (2020) *Report of the ICES Advisory Committee* ICES Advice 2020, sr.2020.03. https://doi.org/10.17895/ices.advice.6020 .

[73] Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures.

*Source: ICES*

More recently published reports specifically pertaining to the fishing effort of the methods used on the Dogger Bank SACs were not found.

A modelled impact assessment of trawling on benthic communities on the German part of the Dogger Bank by Schröder *et al.*[74] reports that the highest fishing intensity was then observed in the southern part; trawled up to five times a year.

The Background Document[75] quantified fishing effort, but only for a subset of these fishing methods for the period 2010 - 2015 and was limited to fishing activities falling within the proposed 'closed areas' or management areas (not closed to demersal seining), which represent 6.712 km$^2$ or approximately 33,8% of the total Dogger Bank SAC areas:

***Table 3.5 Overview of effort, landings and values and gross value added of the fishing sector in the proposed closed areas of the Dogger Bank and the different fleets (VMS and logbook merged data only)***

| Country | 2010 | 2011 | 2012 | 2013 | 2014 | 2015* | Average |
|---|---|---|---|---|---|---|---|
| Effort (days at sea) | | | | | | | |
| Netherlands | 69 | 161 | 285 | 224 | 110 | 281 | 188 |
| Great Britain | 189 | 285 | 219 | 262 | 209 | 247 | 235 |
| Denmark | 107 | 127 | 92 | 167 | 212 | 100 | 134 |
| Germany | 49 | 53 | 11 | 22 | 26 | 28 | 31 |
| Belgium | 6 | 2 | 1 | 29 | 3 | 6 | 8 |
| Sweden | 5 | 6 | 0 | 6 | 12 | 7 | 6 |
| France | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

The Background Document[76] shows effort (kWh) distribution for the three major gear groups in Division IVb (Central North Sea) in 2007-2009: beam trawl (demersal fish), bottom otter board trawl (demersal fish), sandeel trawl and seines (including flyshooting). These maps show that the entire Dogger Bank is subject to trawling, but these numbers likely underestimate effort considering the relatively smaller proportion of fishing activity taking place in these 'closed' areas, which is also in part why these areas were initially selected. The Background Document investigates the proposed closed areas of the Dogger Bank, constituting 33.8% of the Dogger Bank SACs, or 6712 km,$^2$ and concludes, based on the report of Hamon *et al.*[77] and its own annexures,[78] that the effort in the proposed closed areas of the Dogger Bank constitutes a relatively smaller proportion, 8 to 24% of the fishing activity on the

[74] A. Schröder, L. Gutow & M. Gusky (2008) *Auswirkungen von Grundschleppnetzfischereien sowie von Sand- und Kiesabbauvorhaben auf die Meeresbodenstruktur und das Benthos in den Schutzgebieten der deutschen AWZ der Nordsee* (MAR 36032/15): Abschlussbericht für das Bundesamt für Naturschutz (BfN), Bremerhaven: Alfred-Wegener-Institut für Polar- und Meeresforschung; p. 121

[75] Anon. (2019) *Background Document Annex 1 to the Joint Recommendation for Offshore Fisheries Management on the International Dogger Bank under the Common Fisheries Policy*, p. 53-54.

[76] Ibid, fig. 8.2.

[77] H amon, K. G., N. T. Hintzen & J. A. E. van Oostenbrugge, (2017). *Overview of the international fishing activities on the Dogger Bank; Update with Dutch, British, Danish, German, Belgian, Swedish and French data for 2010-2015. Wageningen, Wageningen Economic Research,* Memorandum 2017-050, fig. 3 & tab. 1.

[78] Anon. (2020) *Report Natura 2000 draft management plan Doggersbank/Klaverbank/Friese Front*, annex 4

Dogger Bank depending on the fleet considered, compared to the surface area. So, the reported fishing activities are proportionately higher outside the 'closed areas'.

There is no recent analysis of the fishing effort per fishing method for the entire SACs. Nor is there an analysis of the impacts of fishing effort in terms of spatial coverage, depth of penetration across spatial coverage, bycatch numbers estimated, interactions with species and habitats and other ways to assess the impact of the fisheries on the conservation objectives. The lack of comprehensive, recent analyses on the Dogger Bank SACs makes it difficult to verify the Background Document conclusions.

In January 2020, WWF Netherlands carried out a rough analysis based on Global Fishing Watch data. The Global Fishing Watch data shows no stabilisation nor decrease in fishing hours across the Dogger Bank SACs, rather an increase in fishing effort from the time of SCI listing. This data was sent to the Dutch government, Ministry of Agriculture, Nature and Food Quality (who hold chairmanship of Dogger Bank Steering Group) on February 18, 2020 with the request for a response whether this picture was in line with official fisheries data. No formal response has been received so far to confirm or rebut an increase in fishing effort on the Dogger Bank SACs.

What can be concluded from the research reports and government documents is that fishing effort appears to be neither stable nor decreasing since the Dogger Bank was listed as a Site of Community Importance (SCI). Rather, the Background Document reports an increase (*2006-2010 when the activity was low and stable, 2011-2013 when the activity of the Dutch fleet in the Dutch and German Dogger Bank increased)*, and we found no information to suggest that effort (for whichever fishing method) has decreased or stabilized since SCI listing.

### 3.4 Screening fisheries on the Dogger Bank SACs as proposed plan or project

In this section, we screen each of the fishing methods based on the information in section 3.3. We answer the following question: "Is the plan or project (i.e. fishing practice) likely to have a significant effect on the site" also taking into account cumulative and in-combination effects? If the answer is yes and if significant effects cannot be excluded with certainty, an appropriate assessment is necessary, and we will analyse the respective fishing impacts further in section 4. This screening process needs to be applied to both the licensing of Member States' vessels and any Joint Recommendation Member States collectively present to the Commission under Article 11.

The JNCC compiled a list of the fishing operations conducted on the UK part of the Dogger Bank and the associated pressures set out at table 3.6.[79]

***Table 3.6 Associated pressures of fishing operations on the UK Dogger Bank***

| **Activity** | **Pressure** |
|---|---|

[79] JNCC (2018) *Dogger Bank MPA: Advice on Operations.* https://hub.jncc.gov.uk/assets/26659f8d-271e-403d-8a6b-300defcabcb1#DoggerBank-5-AoOWorkbook-v1.0.xlsx

| | |
|---|---|
| All fishing activities | · Removal of target & non-target species<br>· Barrier to species movement<br>· Deoxygenation and organic enrichment<br>· Collision risk<br>· Pollution<br>· Introduction of light<br>· Biofouling<br>· Above water noise<br>· Underwater noise<br>· Visual disturbance<br>· Litter |
| Anchored netlines (including gillnets, trammelnets) | · Abrasion of seabed |
| Demersal seines (including scottish seine/flyshoot, Danish seine) | · Abrasion of seabed<br>· Changes in suspended solids<br>· Penetration below the seabed<br>· Siltation changes<br>· Physical changes<br>· Nutrient enrichment |
| Demersal Trawl (including otter trawl, beam trawl) | · Abrasion of seabed<br>· Changes in suspended solids<br>· Penetration below the seabed<br>· Siltation changes<br>· Physical changes<br>· Nutrient enrichment |
| Electrofishing | · Abrasion of seabed<br>· Changes in suspended solids<br>· Electromagnetic changes<br>· Penetration below the seabed<br>· Siltation changes<br>· Physical changes<br>· Nutrient enrichment |
| Pelagic fishing | · None specific |
| Traps and pots | · Abrasion/disturbance of substrate on surface of seabed<br>· Introduction or spread of non-indigenous species |

| | |
|---|---|
| | · Penetration below surface of seabed, including abrasion |

*Source: JNCC*

The JNCC report does not, however, set out further distinctions which operate between fishing methods.

The JNCC states the activity-pressure-feature combination should be taken to further assessment when the Dogger Bank SAC is marked as 'sensitive' (S) to this activity-pressure combination or when there is insufficient evidence (IE) to assess, or when a sensitivity assessment to the pressure has not been (NA) made for the Dogger Bank SAC. When the Dogger Bank SAC is considered not sensitive (NS) to the pressure, the activity-pressure-feature combination should not be precluded from consideration. For example, thought needs to be given to activity-specific variations in pressure intensity and exposure, in-combination and indirect effects. A final option, 'not relevant' (NR), is when there is no interaction of concern between the pressure and the feature OR the activity and the feature could not interact. This approach contrasts with Commission Guidance which tends to focus at first on the most damaging activity rather than the most sensitive feature.[80]

For the fishing methods listed in table 3.6, the JNCC's 2018 Advice on Operations marks all of these fishing methods as sensitive (S) due to one or more of the fishing activities' pressures on the Dogger Bank SAC features. The only fishing method not marked as such is pelagic trawling, for which all of the pressure-feature combinations are marked non sensitive (NS).

However, the marking of pelagic trawling as non-sensitive should only be considered after providing evidence. For example, for the pressure 'removal of target species' evidence that there is no or very limited bentho-pelagic coupling in the system that is affected by (1) a (large) removal of the species in the water column, and (2) introduction of 'food' for free in the form of discards. To denote pelagic trawling pressures as non-sensitive, henceforth excluding this technique from an appropriate assessment, is inappropriate considering no information is provided about, inter alia, targeted and non-targeted species, the fishing gear and effort used to extract them, the quantities fished, the role and function of these species and position in the food web and their interaction with the seabed and benthos.

The Dogger Bank is also designated to protect habitat for cetaceans, including harbour porpoise.

Netherlands: In order to maintain the population of the Habitats Directive species harbour porpoise, common seal and grey seal: maintenance of surface and quality of their natural habitat.

Germany: Maintenance and restoration at favourable conservation status of the following Habitats Directive species and their natural habitats: harbour porpoise and common seal.

[80] The N2K Group (2012) *Common methodology for assessing the impact of fisheries on marine Natura 2000.* https://ec.europa.eu/environment/nature/natura2000/marine/docs/Fisheries%20methodology.pdf

UK: The Dogger Bank MPA overlaps with a Special Area of Conservation/Site of Community Importance that has been identified for the protection of harbour porpoise.

But, the current Joint Recommendation does not include these conservation objectives, pressures and measures; it omits an explanation. In addition, the current objectives may be incomplete due to the obligation to adopt conservation objectives for all relevant Annex species and habitats that have significant presence in this site.

A Joint Recommendation for fisheries measures for any particular SAC, whether transboundary or not, should include the relevant fisheries measures required to meet all the conservation objectives of that particular area. As we have noted previously Articles 6(1) and 6(2) of the Habitats Directive places strict duties on member states to establish conservation measures and avoid deterioration of the Dogger Bank SACs, and this should result in regulation of fishing activities, after listing of the Dogger Bank as a Site of Community Importance. Similarly, Article 6(3) requires that a plan or project should only be permitted after the conduct of the screening process.

Given the sheer scale of fishing activity (particularly in the context of cumulative impacts from other industrial activities) in the Dogger Bank SACs, the answer to both questions for all fishing methods on the Dogger Bank is yes. It is clear that all the fishing methods studied could have a significant effect on the site. The fishing methods undertaken, and the broad extent of the licenses given to fishing operations, means the type of activity changes year on year. Even a pelagic fishery, which causes such issues as noise, pollution and removal of target and non-target species could significantly affect the SACs, particularly when carried out with sufficient intensity or in-combination with other activities. For example, harbour porpoise can be directly affected by pelagic fishing and its associated activities. Those demersal activities which cause more direct harm to the H1110 protected feature are even more likely to have a significant effect. At this stage it is necessary to include all deployed fishing methods in the appropriate assessment. The clear and probable impacts those operations have on the site, and the rapid changes of fishing method in the past means that no fishery can safely be granted an open-ended, unlimited license to operate. If fisheries are to be permitted, an appropriate assessment where it may be possible to mitigate damage by imposing appropriate restrictions must come first.

### 3.5 Summary

This section sets out the screening process for fishing activity on the Dogger Bank SACs. There is one question that needs to be answered: "*Is the plan or project likely to have a significant effect on the site*" also taking into account cumulative and in-combination effects? If the answer is yes, and if significant effects cannot be excluded with certainty, an appropriate assessment is necessary for this plan or project.

It then describes in turn each fishing method deployed in the SACs, before investigating the historic pattern of fishing effort using different gears.

This screening process needs to be applied to both the licensing of Member States' vessels and any Joint Recommendation Member States collectively present to the Commission under Article 11.

# 4. GUIDANCE FOR DOGGER BANK APPROPRIATE ASSESSMENT

## 4.1 Introduction

This section reviews the legal position for conducting appropriate assessments on fishing activities and sets out the applicable legal tests. It then assesses the fishing methods deployed on the Dogger Bank using those legal tests, before turning to cumulative and in combination effects, and finally identifying a pathway for mitigation measures.

## 4.2 The legal requirements for appropriate assessment

Under Article 6(3) of the Habitats Directive, a plan or project likely to have a significant effect on a site must be subject to an appropriate assessment of its implications for the site in view of the site's conservation objectives. As discussed in section 1 above, the purpose of the appropriate assessment is to enable the competent authority to determine whether it can be concluded beyond a reasonable scientific doubt that a project will not adversely affect the integrity of the site also taking into account cumulative and in-combination effects.[81] Accordingly, it is necessary to conclude beyond reasonable scientific doubt that the proposed fishing activity will not adversely affect the integrity of the Dogger Bank SACs.

For the integrity of a site not to be adversely affected the site needs to be preserved at a favourable conservation status.[82] This entails ”the lasting preservation of the constitutive characteristics of the site concerned that are connected to the presence of a natural habitat type [and species] whose preservation was the objective justifying the designation of that site”.[83]

An appropriate assessment of a plan or project must therefore evaluate its **effects on all the essential elements of the protected habitats, including the typical species and those that play a role in the food chain of the site’s target features.** As the Commission notes,

> “*whilst the focus should be on the species and habitats of Community interest [...] that have justified the site designation, it should not be forgotten that these target features also interact with other species and habitats, as well as the physical environment in complex ways. It is therefore important to consider all the elements that are essential to the functions and the structure of the site and to the habitat types and species present. Furthermore, other species can also be relevant in determining the potential effects on protected habitats if they constitute typical species of the habitat in question or play a role in the food chain on which the site’s target features depend*”.[84]

There are several other key legal requirements that must be addressed as part of the appropriate assessment:

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[81] See, e.g., Case C-304/05 *Commission v Italy*, paras 58-59.
[82] Case C-258/11, *Peter Sweetman and Others v An Bord Pleanála*, para. 39.
[83] Ibid.
[84] Ibid, para 50.

- In the appropriate assessment "all aspects of the plan or project in question which may, either individually or in combination with other plans or projects, affect the conservation objectives of that site must be identified, in the light of the best scientific knowledge in the field".[85]

- Typical habitats or species must be included in the appropriate assessment if they are necessary to the conservation of the habitat types and species listed for the protected area, so the appropriate assessment must:

    - catalogue the entirety of habitat types and species for which a site is protected; and

    - identify and examine both the implications of the proposed project for the species present on that site, and for which that site has not been listed, and the implications for habitats and/or species to be found outside the boundaries of that site, provided that those implications are liable to affect the conservation objectives of the site.[86]

- The appropriate assessment "may not have lacunae and must contain complete, precise, and definitive findings and conclusions capable of dispelling all reasonable scientific doubt as to the effect of the proposed works on the protected site concerns".[87]

- "Article 6(3) […] must be interpreted as meaning that, where the competent authority rejects the findings in a scientific expert opinion recommending that additional information be obtained, the 'appropriate assessment' must include an explicit and detailed statement of reasons capable of dispelling all reasonable scientific doubt concerning the effects of the work envisaged on the site concerned".[88]

The obligation to carry out an appropriate assessment cannot be avoided by competent authorities seeking instead to enact management measures under Article 6(2) of the Habitats Directive, on the basis that such an activity is not a 'project' or 'plan' and thus avoiding the scientific rigour which might uncover potential harm. In the *Waddenzee* case[89] the Court found that the directive establishes an obligation of general protection consisting in avoiding deterioration and disturbances which could have significant effects in the light of the Directive's objectives. As a result, Articles 6(2) and 6(3) must be read together. Regardless of whether there is a trigger event from a plan or project, the duty remains on the competent authority to undertake effective management measures: those measures would require similar scientific basis to the appropriate assessment conducted under Article 6(3).[90]

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[85] Ibid, para 43.
[86] Case C-461/17, *Brian Holohan et al. v An Bord Pleanála* para 39-40.
[87] Ibid, para 33.
[88] Ibdi, para 70.
[89] Case C-127/02, *Landelijke Vereniging tot Behod van de Waddenzee en Nederlandse Vereniging tot Bescherming van Vogels v Staatssecretaris van Landbouw, Natuurbeheer en Visserij (*the *Waddenzee* Case), para 38.
[90] European Commission (2008) *Managing Natura 2000 sites The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC* C(2018) 7621 final

### 4.3 Assessment of fishing methods

The definition of a North Atlantic sandbank habitat according to advice from the European Commission[91] lists a number of phyla and indicative species including, but not limited to (quote): '*Invertebrate and demersal fish communities of sandy sublittoral* (e.g. polychaete worms, crustacea, mollusca, anthozoans, burrowing bivalves and echinoderms, *Ammodytes* spp., *Callionymus* spp., *Pomatoschistus* spp., *Echiichtys vipera*, *Pleuronectes platessa*, *Limanda limanda*)'. This list is not exhaustive. It is effectively expanded by the individual member states' conservation objectives and lists of typical species (see Annex 2).

#### 4.3.1 Eight tests

The European Commission's methodological guidance on Article 6(3)[92] sets out assessment criteria, descriptors, quantitative and qualitative indicators to assess the implications of the plan or project in view of the site's conservation objectives. Guidance has also been provided through conservation objectives[93] and advice on operations[94] for the UK section of The Dogger Bank site, including reference to 'typical species', 'sediment disturbance', 'ecosystem structure and function', (commercial) fish populations, deoxygenation, predator prey interactions, and food webs. Based on the legal requirements of Article 6 of the Habitats Directive, the Commission's guidance, and the key functional requirements of the marine ecosystem we have identified eight tests for assessing site integrity.

Member States have set weak conservation objectives for the sites, albeit they have been clarified somewhat by the Background Document. Protection of the SACs should not have to be delayed yet further because Member States have failed to provide adequate conservation objectives. The following tests have been designed in light of the ecology of exposed offshore sandbank (H1110) ecosystems,[95] and in ensuring that the ecological structure and/or function of the site is not compromised and to meet with the objectives set out in the Background Document as well as the broader conservation objectives:

1. **Typical species at favourable conservation status :** to be met the typical species of the site including fish, epibenthic and infaunal assemblages are present and can shelter, breed and feed, and function at favourable conservation status. To pass this test and to gauge the effect of the respective fishing method/practice on FCS, the following, inter alia, need to be understood: What is the natural balance of species without all forms of fishing? What is the natural balance of species without fishing

[91] Anon. (2013) *Interpretation manual of EU habitats.* DG Environment.

[92] The N2K Group (2012) Common methodology for assessing the impact of fisheries on marine Natura 2000. https://ec.europa.eu/environment/nature/natura2000/marine/docs/Fisheries%20methodology.pdf and Assessment of plans and projects in relation with Natura 2000 sites. Methodological guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC. Christina Pantazi, Nature Protection Unit, DG ENV, European Commission 29 May 2020

[93] JNCC (2018) Statements on conservation benefits, condition & conservation measures for Dogger Bank Special Area of Conservation http://data.jncc.gov.uk/data/26659f8d-271e-403d-8a6b-300defcabcb1/DoggerBank-4-Statements-v1.0.pdf

[94] JNCC (2018) *Dogger Bank Workbook.* http://data.jncc.gov.uk/data/26659f8d-271e-403d-8a6b-300defcabcb1/DoggerBank-5-AoOWorkbook-v1.0.xlsx

[95] We do not exclude that these eight tests may also uphold for other human activities in this or other SACs.

using individual types of fishing gears? And, how are the natural population dynamics in the site changed as a result of (continued) fishing?

*The test-question: Has the respective fishing methods no adverse effect on species structure?*

2. **Biomass and diversity at natural conditions:** Biomass and species diversity of typical assemblages at 'natural conditions'; relative density of these species in natural habitats without human impacts. What is the natural balance of typical species (at favourable conservation status) without any fishing? What is the natural balance of species without fishing using individual types of fishing gears?

   *The test-question: Does the fishing method not inhibit, prevent or delay biomass and species diversity from achieving natural conditions?*

3. **Recruitment and population dynamics:** What are predicted recruitment rates? Will species resettle through lecithotrophic (more localised) or wide-scale dispersal (planktotrophic) recruitment? What is the recruitment rate within and outside the site based on natural populations of species within the site?

   *The test-question: Does the fishing method not impair, reduce or alter recruitment and population dynamics of typical species and local populations?*

4. **Abiotic features:** The physical structure and morphology of the sand, gravel and muddy areas of the site, affecting the biological state of typical species, natural communities etc.: Have the abiotic features of the habitat been physically altered (sediment grain size, sediment binding species presence/absence) by decades of e.g. trawling? Has this affected benthos, has it affected the ability of species to recruit and grow in areas where towed gear fishing is restricted? What is the natural sediment grade, benthic distribution and range of biogenic reef-forming species and chemical exchange from surface waters into the upper sediment layers with and without fishing using different gears? What is the type and degree of habitat quality deterioration and what percentage of the habitat has been lost?

   *The test-question: Does the fishing method/practice not deteriorate, reduce, alter abiotic features pertaining to the flora and fauna of the site?*

5. **Trophic interactions:** What is the interaction between keystone species and higher order predators? Has the removal of keystone species (e.g. small fish, crustaceans, sandeels) had an impact on predator species abundance and biomass? What are or were the trophic interactions when the site's dynamics were dominated by natural processes? What is known about the complexity of interactions and which are key to the site? What are the effects of the fishing method on the foodweb?

   *The test-question is: Will the fishing method/practice not interfere with natural interactions and trophic dynamics between species in the site?*

6. **Mobility of species around the site** What are natural movements of typical (mobile) species between different parts of the site? By allowing/permitting access to fish certain areas, is there a likelihood of (greater) impact on natural communities? Does it cause habitat fragmentation?

   *The test-question: Does the fishing method/practice not affect the natural movement of typical and/or key species in the site?*

7. **Missing Species:** What are the missing and locally extinct species that should be there? Will exclusion of fishing recover and retain these species that then become characteristic elements of the site? The missing and locally extinct species need to have an opportunity to recover in the site; allowing these species to recruit, grow, mature and breed. This applies particularly for typical species of the site. Catch records, historical research and other research into missing and locally extinct species can shed light on whether changes have occurred and to what extent populations have been lost, reduced, displaced.

   *The test-question: Does the fishing method/practice not affect the return of formerly abundant and/or key species to the site?*

8. **Ecological processes:** What are the ecological processes needed to allow favourable conservation status of the habitat and its associated species? To what extent have these processes been affected by fisheries?

   *Test-question: Will the fishing method/practice not impair the ecological processes that are needed to allow FCS of the site's species and habitats?*

All fishing gears differ in their relative impact on seabed's physical and biological attributes, but all have some impact on the eight tests above. From the literature and previous 'risk matrix' approaches[96] to ranking impact of fishing,[97] impact can be generally ranked. However, on a day-to-day basis, depending on location, intensity of fishing, depth, how recently the ground was fished, all gears will have divergent and cumulative impacts. They will also (particularly for beam and otter trawling) have had a large historical impact on many of the eight tests above for the site before MPAs came into being:

**Table 4.1 Type of fishing gear and its effects**

| Gear type | Effect | Ranking (1 most damaging - 5 - least damaging/negligible) |
|---|---|---|
| Beam trawl | Abrades sediment, kills and damages | 1 |

[96] Robert Clark, John Humphreys, Jean-Luc Solandt & Catherine Weller (2017) Dialectics of nature: The emergence of policy on the management of commercial fisheries in English European Marine Sites, *Marine Policy*, vol.78, 11-17, https://doi.org/10.1016/j.marpol.2016.12.021.

[97] Marine Life Information Network (online) *MarLIN (1999-2010) sensitivity assessment methodology* https://www.marlin.ac.uk/sensitivity/MarLIN-sensitivity-methods

| | | |
|---|---|---|
| | seabed biota, modifies some infauna, disrupts natural food webs | (Historical and current impacts) |
| Otter trawl | Abrades sediment, kills and damages seabed biota, modifies some infauna, disrupts natural food webs | 2(Heavy); 3(Light) (Historical and current impacts) |
| Demersal seine | Abrades sediment, kills and extracts seabed fauna, disrupts natural food webs | 3 (Current impacts) |
| Pelagic trawls | Disrupts natural food webs | 4 (Historical and current impacts) |
| Set nets | Disrupts natural food webs | 4 (Historical and current) |
| Pots and traps | Disrupts natural food webs | 5 (Historical and current) |

These eight tests will be applied to the Dogger Bank fishing methods identified by the screening process. The fishing methods covered include some of the major fisheries deployed on the Dogger Bank, and in Annex 1 we provide guidance on what should be expected for an appropriate assessment to pass the following fishing methods:

- Anchored netlines;
- Demersal seines;
- Demersal trawl;
- Electro fishing;
- Pelagic trawling; and
- Traps and pots.

### 4.3.2 Test scores

Based on the information provided in Annex 1, we summarize our conclusions in table 4.2. There are four possible scores, i.e. conclusions, to draw per test:

1 Sufficient information exists to prove adverse impact
2 Sufficient information exists to conclude adverse impact cannot be excluded
3 Insufficient information exists to exclude adverse impact
4 Sufficient information exists to exclude adverse impact

**Table 4.2 Summary of test results**

Annex 1 provides underlying information[98]

| | Test | Anchored netlines | Demersal Seines | Demersal trawl | Electro fishing | Pelagic trawling | Traps and pots |
|---|---|---|---|---|---|---|---|
| 1 | **Typical species at favourable conservation status** | 3 | 1 | 1 | 2 | 3 | 3 |
| **2** | **Biomass and diversity at natural conditions** | 3 | 1 | 1 | 3 | 3 | 3 |
| **3** | **Recruitment and population dynamics** | 3 | 3 | 3 | 3 | 3 | 3 |
| **4** | **Abiotic features** | 4 | 2 | 2 | 3 | 4 | 4 |
| **5** | **Trophic interactions** | 3 | 2 | 2 | 3 | 3 | 3 |
| **6** | **Mobility of species around the site** | 2 | 2 | 2 | 3 | 3 | 4 |
| **7** | **Missing species** | 3 | 2 | 2 | 3 | 3 | 3 |
| **8** | **Ecological processes** | 3 | 2 | 1 | 2 | 3 | 4 |

[98] See Seede Groot S.J. (1984) *Ocean Management* 9 - function(8), abiotic conditions(4), typical species (1), biomass(2),
Braekman *et al* (2014) *Aquatic Conservation: Marine and freshwater ecosystems* - function(8), missing species(7), recruitment(3) Jennings *et al* (2001) *Marine Ecology Progress Series* 213 - 1, 5, 7, 8, 4

### 4.3.3 Determination on site integrity

Fisheries measures will need to be both proactive, seeking to avoid damage and disturbance, and reactive, as a response to such effects, in order to put an end to negative impacts.[99] Based on the information reviewed in this document we answer the question: Is there an adverse effect on site integrity? These questions are based on Commission Guidance and presented in table 4.4 below.[100]

**Table 4.4 Determination of site integrity**

| Does the plan or project have the potential to: | Anchored netlines | Demersal Seines | Demersal trawl | Electro fishing | Pelagic trawling | Traps and pots |
|---|---|---|---|---|---|---|
| Reduce the area of habitat types, or habitats of species, for which the site has been designated? | | | | | | |
| Reduce the population of species for which the site has been designated? | | | | | | |
| Result in disturbance that could affect the population size or density or the balance between species? | | | | | | |

[99] Meeting of the Marine Expert Group (MEG) 14 February 2019: Application of Article 6(2) and 6(3) of the Habitats Directive (92/43/EEC) to fishing activities in marine Natura 2000 sites

[100] Hamon, K. G., N. T. Hintzen & J. A. E. van Oostenbrugge, (2017). *Overview of the international fishing activities on the Dogger Bank; Update with Dutch, British, Danish, German, Belgian, Swedish and French data for 2010-2015. Wageningen, Wageningen Economic Research,* Memorandum 2017-050. 36 pp.; 10 fig.; 7 tab.; 7 ref.

| | | | | | | |
|---|---|---|---|---|---|---|
| **Cause the displacement of species for which the site is designated and thus reduce the distribution area of those species in the site?** | | | | | | |
| **Result in fragmentation of Annex 1 habitats or habitats of species?** | | | | | | |
| **Result in loss or reduction of key features, natural processes or resources that are essential for the maintenance of relevant habitats and species in the site** | | | | | | |
| **Hamper or cause delays in progress towards achieving the site's conservation objectives?** | | | | | | |
| **Disrupt those factors that help to maintain the favourable conditions of the site?** | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| **Interfere with the balance, distribution and density of species that are the indicators of the favourable conditions of the site?** | | | | | | |

*Key:* *Red: adverse impact*
*Green: No adverse impact*
*Blue: Insufficient evidence to answer determine no adverse impact*

The results of this assessment are clear. All fishing methods, except traps and pots, have an adverse impact on the integrity of the site. It may be possible to mitigate that impact, and we will comment on mitigation in section 4.6.

### 4.4 In-combination and cumulative effects

In-combination and cumulative effects should also be part of a screening and subsequently of an appropriate assessment for the Dogger Bank sites, since the screening and appropriate assessment should identify all the aspects of the activities that were previously permitted, and that are currently proposed, and which could, either individually or in combination with other plans and projects, affect the conservation objectives of the sites. Activities taking place outside the borders of the Natura 2000 sites on the Dogger Bank are also part of the cumulative effects-test; external activities should be taken into account for the assessment of their effects inside the sites.

> "*The phrase 'in combination with other plans or projects' in Article 6(3), refers to cumulative effects caused by the plans or projects that are currently under consideration together with the effects of any existing or proposed projects or plans*[101] *even where those projects or plans precede the date of transposition of that directive."*[102]

The Commission emphasises in its Staff Working Document of May 2018 that the provision of *"information on known and likely impacts of other, non-fishing, human activities in the area*

[101] European Commission (2001) *Assessment of Plans and Projects Significantly Affecting Natura 2000 sites. Methodological Guidance on the provisions of Article 6(3) and (4) of the Habitats Directive 92/43/EEC* and also see the *Draft revised methodological guidance on assessment of plans and projects*, p. 13; and European Commission (2018) *Managing Natura 2000 sites: The provisions of Article 6 of the 'Habitats' Directive 92/43/EEC.* p. 34-35.

[102] See case C-142/16, *Commission v Germany (Moorburg)*, para 61; and for further conditions regarding recurring activities authorised before the entry into force of the Habitats Directive, see the combined cases C-293/17 and C-294/17, *Coöperative Mobilisation for the Environment and others,* para 81.

*and the cumulative effects on the protected habitats and/or species"* is fundamental to the submission of Joint Recommendations.[103]

The assessment extends to those cumulative effects of other plans and projects taking place before the Member State licences its activities and as it develops its Joint Recommendation with other Member States: *"[…] it is at the date of adoption of the decision authorising implementation of the project that there must be no reasonable scientific doubt remaining as to the absence of adverse effects on the site in question."*[104]

In this report we do not attempt to fully review the in-combination and cumulative effects of the fishing operations, including in the latter the external activities which, alone or in combination with other plans or projects, will have an impact on the site. Instead, we attempt where possible to identify the activities causing in-combination and cumulative effects so that a full appropriate assessment will take them into consideration as and when it is undertaken.

So far, the Member States and the UK have not conducted an appropriate assessment for the Dogger Bank sites which meets the requirements of Article 6(3) Habitats Directive, neither in the Background Document nor the other documents guiding the Joint Recommendation, nor for fisheries activities previously permitted in the sites. Consequently, in-combination and cumulative effects, including those of external activities taking place outside the Dogger Bank sites, are yet to be assessed following the requirements of Article 6(3). Other industries and human activities also need to pass the tests-states in Section 4.4 (or their equally rigorous equivalent).

Set out in Annex 3 is a summary of the cumulative impacts on the three Dogger Bank SACs.

Even this incomplete assessment of the other activities on the Dogger Bank SACs clearly shows it is untenable for fisheries appropriate assessment, and thus any Joint Recommendation, to be undertaken in isolation from other activities in the Dogger Bank SAC. Even a cursory examination demonstrates that the North Sea is ever more crowded, potentially increasing the fragility of the ecosystem. This ought to make those assessing the impact even more cautious about authorising activities likely to impact on the integrity of the site.

### 4.5 Mitigation measures

Our scientific assessment concludes that the demersal fishing activities currently taking place in the Dogger Bank directly impact on the H1110 sandbank habitat type and are fundamentally incompatible with the requirement to maintain site integrity. There are very few measures available to mitigate the impacts of these fishing activities. In such circumstances, total closure of the site to the relevant fishing activity is likely to be the only appropriate recourse.

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[103] Commission Staff Working Document on the establishment of conservation measures under the Common Fisheries Policy for Natura 2000 sites and for Marine Strategy Framework Directive purposes, SWD(2018) 2888 final, p. 5.

[104] See case C-142/16, *Commission v Germany (Moorburg)*, para 42; and see in this respect also the opinion of A-G Kokott of 25 July 2018 in the combined cases C-293/17 and C-294/17, para 94.

It may be theoretically possible for administrators of pelagic fisheries and traps and pots to monitor impact and enact real-time fisheries management measures, but this approach faces significant institutional hurdles. Waiting for damage and then bringing in management is in violation of the precautionary principle, which is embedded in Article 6 of the Habitats Directive and has been emphasised by ECJ.[105] Moreover, even with regionalisation, the Common Fisheries Policy still tends to be slow at bringing in active management measures, so that may not be possible without systemic change.[106] The Joint Recommendation process itself is a case in point. The Dogger Bank has not been protected for around a decade but bureaucratic inertia has continued to permit known harm to the sites. New legislative instruments, with strict controls embedded within them, would need to be enacted before such activities could be considered.

### 4.6 Summary

The Dogger Bank SACs have been legally protected under Article 6 of the Habitats Directive since 2007 (Germany), 2009 (the Netherlands) and 2012 (UK), but no effective fishery management measures have yet been put in place. Fishing is the most damaging activity to the H1110 sandbank feature and the ecosystem which relies on it. The complexity around assessing all the impacts of fishing operations does not excuse the failure to propose conservation measures for the sites. Such an approach does not comply with Articles 6(1), 6(2) and 6(3) of the Habitats Directive or the precautionary principle laid down in Article 2 of the CFP Basic Regulation. Our assessment shows that nearly all fishing activities adversely affect site integrity and are causing a deterioration to the H1110 sandbank type for which the Dogger Bank SACs have been designated. The Dogger Bank is far from preserving its constitutive characteristics connected to the presence of a natural habitat type whose preservation was the objective justifying the designation of that site. The noted unfavourable status of the sites supports this.

From the appropriate assessment section, it is clear that:

- Anchored netlines,
- Demersal seining,
- Demersal trawling, and
- Electronic pulse fishing

all have adverse effects on the integrity of the site. The SACs protect the H1110 which covers the entirety of the UK's and the Netherlands' portions of the Dogger Bank, and 96% of the German section of the SAC.

For pelagic fisheries and traps and pots, the assessment is more equivocal. It may be possible to permit fishing in or around the SACs if these can be confidently monitored and the impacts of the fishery properly known. The critical point here is that Article 6(3) of the Habitats Directive obliges Member States to determine satisfactorily no adverse effects on the integrity of the site before such an activity can be licensed. Similarly, Article 6(2) places an

[105] See, e.g., C-521/12, *T.C. Briels and Others v Minister van Infrastructuur en Milieu,* para 19.
[106] See J. Wakefield (2016) *Reforming the Common Fisheries Policy.* Edward Elgar, p. 137 *et seq.*

obligation to avoid deterioration of the site and the CJEU has consistently recognised that Articles 6(2) and 6(3) of the Habitats Directive are designed to ensure the same level of protection. Both must be interpreted in light of the precautionary principle.. Therefore, current practice appears to be in contradiction of the Habitats Directive, where fishing seems to be permitted until a Joint Recommendation eventually restricts the activity. Instead of this permitted-until-restricted approach, compliance with the Habitats Directive and the precautionary principle should be achieved by putting a moratorium on these activities until an appropriate assessment can be conducted to understand their impacts. Only after that could the site be reopened in accordance with strict scientific advice. It would then be up to those seeking to exploit commercial fisheries to demonstrate no adverse effect. The Dogger Bank SACs have been systematically over-exploited for so long that it is difficult to dispel scientific doubt for any fishing activity without protecting the entire site, and then waiting for the ecosystem to recover to a new dynamic equilibrium. The historic evidence[107][108][109] set out in Annex 2 of this report amply shows that such a dynamic equilibrium would result in biomass and biodiversity several orders of magnitude greater than Dogger Bank currently hosts.

There is a further difficulty with this assessment of fisheries impacts. Because of an unwarranted tendency to treat fisheries differently to other appropriate assessments, there seems to be a dislocation in the way these assessments are treated. Cumulative and in-combination effects of other plans and projects, including plans and projects outside of the Natura 2000-site and in areas under the jurisdiction of other States, need to be taken into consideration in fisheries appropriate assessments and *vice versa.*

This leads to a reflection on the status of the current Joint Recommendation and the STECF conclusions. When submitting the Joint Recommendation on the conservation measures for the Dogger Bank sites on 19 June 2019,[110] the Member States failed to provide the Commission with the relevant information on the measures required, including their rationale, scientific evidence in support and details on their practical implementation and enforcement. The assessment in the Background Document, and additional information in other supporting documents, which were the basis of the Joint Recommendation, were inadequate. The STECF's report did not dispel reasonable scientific doubt as to the adverse effects on the site. As a result, the Joint Recommendation should be rejected and proper measures brought in by either the Member States or the Commission.

[107] G.W.N.M. Van Moorsel (2011). *Species and habitats of the international Dogger Bank.* Ecosub, Doorn. 74 pp.
[108] A. Plumeridge & C. Roberts (2017). Conservation targets in marine protected area management suffer from shifting baseline syndrome: A case study on the Dogger Bank, *Marine Pollution Bulletin*, vol. 116 (1-2) 395-404.
[109] R. Thurstan *et al.*, (2013) in n 105, 395-404.
[110] Joint Recommendation by Germany, the Netherlands and the United Kingdom regarding 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 (the Basic Regulation) for protection of sandbanks in three Natura 2000 sites designated under the Habitats Directive 92/43 EEC of 21 May 1992, submitted 19 June 2019.

# 5 CONCLUSION AND RECOMMENDATIONS

## 5.1 Conclusion

This report clearly shows that Article 6 of the Habitats Directive has not been complied with. Despite having legal obligations since 2007 (Germany), 2009 (the Netherlands) and 2012 (UK), Member States have failed to work together to bring in the measures needed to secure the Dogger Bank's protected habitats and species. The Dogger Bank is at unfavourable conservation status, and there is abundant evidence of serious degradation of the ecosystem and ongoing deterioration. Destructive commercial fishing is a direct cause of this depleted marine environment.

Protection of the Dogger Bank under the Habitats Directive brings with it legal obligations to restrict harmful activities that cause deterioration of the site, and restore that site to favourable status. Member States operate licensed commercial fishery in European waters, and the granting or renewal of each of these licences is a plan or project capable of triggering an appropriate assessment under Article 6(3), as it any Joint Recommendation presented to the Commission by a collection of Members States. Furthermore, there is a requirement to avoid deterioration of the site under Article 6(2) and enact necessary conservation measures under Article 6(1).

None of the available scientific evidence excludes adverse effects regarding the effects of commercial fishing activity on the Dogger Bank habitat and species. Action must be taken to protect the entire H1110 sandbank features from harmful commercial fishing activity. There are no transitional provisions in the Habitats Directive, or mechanisms to scale down the area of protection. This report concludes that:

- the entire area should be closed to demersal fishing, and

- pelagic fishing gears, traps and pots, could be permitted but only if it were subject to tight restrictions, sufficient monitoring were in place, and the European institutions were able develop regulatory tools flexible enough to put in these measures.

## 5.2 Recommendations

At the time of writing, an updated Joint Recommendation has not been submitted by the Scheveningen Group to the Commission. In the light of this report, the conservation measures proposed in any Joint Recommendation will need to be comprehensively assessed by the European Commission to ensure that they meet the ecological requirements of the Dogger Bank SACs.

The prime responsibility sits with Member States to undertake appropriate assessments of their fishing activities and only permit that activity to continue if they can demonstrate no adverse effect on the integrity of the SACs. These actions should have been undertaken in 2007 (Germany), 2009 (The Netherlands) and 2012 (UK), so there is no real excuse for further delay. Following the advice contained in this report on the appropriate assessment, it can be

concluded that the Commission cannot adopt Article 11 CFP measures which do not comply with Article 6 Habitats Directive.

The STECF review of the June 2019 Joint Recommendation was not within the requisite legal parameters of the Habitats Directive. In scrutinising any revised Joint Recommendation, the European Commission should look beyond STECF and obtain proper independent advice from conservations scientists and legal advisers, using the information provided in this report.

As the Member States and the UK have not complied with Article 6 Habitats Directive, the European Commission must take enforcement action to ensure that Union law is being applied. Furthermore, should the Member States neglect to propose adequate management measures under Article 11(3) CFP, the Commission must exercise its powers under that same provision to propose its own measures for the Dogger Bank.

## ANNEX 1 – EIGHT TESTS

### 1.1 Application of eight tests to Dogger Bank fishing methods

This annex applies the eight tests identified in section 4.4 of the main document for the known Dogger Bank fishing methods. A number of examples are given to provide guidance on how to apply the eight tests on fishing practices, guidance on what type of questions would need to be answered, what research needs to be done, what evidence needs to be provided in order to score each test and be conclusive on the impacts of fisheries on conservation objectives.

**Test 1: Typical species at favourable conservation status**

For favourable conservation status (FCS) to be met, the typical species of the site including fish, epibenthic and infaunal assemblages are present and can shelter, breed and feed, and function at favourable conservation status. The conservation status of a species is the sum of the influences acting on the species concerned that may affect its long-term distribution and abundance within the European territory covered by the Habitats Directive. The conservation status will be taken as 'favourable' when:

- population dynamics data on the species concerned indicate that it is maintaining itself on a long-term basis as a viable component of its natural habitat;
- the natural range of the species is neither being reduced nor is likely to be reduced for the foreseeable future;
- there is, and will probably continue to be, a sufficiently large habitat to maintain its populations on a long-term basis.[111]

The typical species of the Dogger Bank are listed in Annex 2 below.

*Anchored lines*

JNCC reports that anchored netlines are used to target pelagic, benthic and demersal fish as well as crustacean species. They report that anchored netlines can result in targeted removal of features of conservation importance and species which form part of the community composition of features or sub-features e.g. species such as crab and lobster.[112]

Gillnets, entangling nets and trammel nets are deployed on the Dogger Bank. The recorded effort for a limited number of years has been measured in soak-time (see Section 3 above on fishing effort). Unfortunately, soak-time gives no indication of the types, dimensions and amount of netting used. Based on one year of recorded gillnet fisheries catches, it appears gillnet fishing catches mostly cod and plaice. In the German EMPAS ICES project, the

[111] The Habitats Directive.

[112] T. Mercer, T., C, Howson, C. & F. Bunker (2004) *Berwickshire and North Northumberland Coast cSAC sublittoral monitoring 2002/3;* J. Sewell & K. Hiscock, (2005) *Effects of fishing within UK European Marine Sites: Guidance for nature conservation agencies*; JNCC & Natural England (2011) *Advice from the Joint Nature Conservation Committee and Natural England regarding fisheries impacts on Marine Conservation Zone habitat features.*

distribution of estimated gillnet catches in tonnes by species cod and plaice in the German EEZ of the North Sea was recorded for the year 2006 (see figure A1.1).[113]

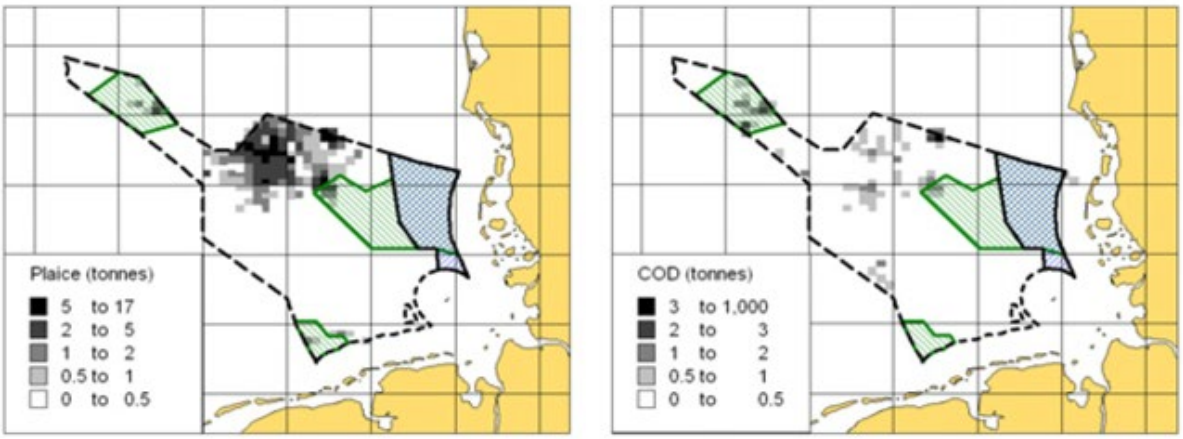


**Figure A1.1 Gillnets: Distribution of estimated gillnet catches in tonnes by species in the German EEZ of the North Sea 2006**[114]

Species caught in gillnets on the Dogger Bank in 2006 include;

- Typical species: cod, dab, plaice;
- Vulnerable species: dogfish (Vulnerable Status IUCN Red List), turbot (typically occurring on the Dogger Bank, but not listed as typical species) and
- Other species: hake and brill.

Recorded catch in 2006 using gillnet in the wider German North Sea shows catches on the Dogger Bank might also include other typical species, such as crab and lemon sole.[115]

There are various unknown elements in the data:

- The representivity of the 2006 soak-time and recorded catches as to overall effort;
- Any increase in anchored netlines since 2006;
- The effect of this method on the population dynamics, natural range, natural trophic structure or habitats; and
- Reference points, so what constitutes favourable conservation status is unknown.

Therefore, we cannot assess the breadth or depth of the impact of anchored netline fishing methods as both the pressure and the typical species reference has not been qualified nor quantified. An appropriate assessment would have to provide such information to conclude no adverse effect in order for the fishery to be allowed.

Based on the above, we score anchored netlines against the typical species at favourable conservation test: 3: Insufficient information exists to exclude adverse effects.

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[113] ICES (2008) *WKFMMPA Report* Marine Habitat Committee ICES cm 2008/mhc:11, workshop 2-4 June 2008 ICES Headquarters, Copenhagen, Denmark. ref. ICES review group, Figure 3.5.6

[114] Ibid.

[115] Ibid tab. 3.1.2.

*Demersal seining and demersal trawling*

The impacts of bottom-towed fishing gears which include scallop dredge, beam trawl, otter trawl, Scottish seining or flyshoot, and Danish seining are relatively well researched compared to other fishing methods. The NGO complaint submitted to the European Commission on 24 June 2019 included an extensive and updated body of recent available scientific evidence relating to the adverse effects of demersal seining and other mobile bottom-towed fishing on the Dogger Bank sites. The literature review showed that in sum, all types of trawling, including demersal seines such as flyshoot and Danish seining, adversely affect the integrity of the Dogger Bank sites.

The review found that 24 out of 50 of the Dogger Bank Habitat listed 1110 typical specie are caught by demersal seine fishing and an additional 27 Dogger Bank species (of which 8 are Habitat H1110 listed typical species) have either been observed as catch or are considered sensitive to demersal seining.[116]

Below we list a number of relevant conclusions from the peer-reviewed literature:

- Present condition of the Dogger Bank is considered one of ecological degradation and impoverishment as a consequence of over nearly two centuries of intensifying and increasingly destructive fisheries.[117]
- Commercial trawling is the strongest predictor of biodiversity loss inside European MPAs, and the abundance of indicator species like skates, rays and sharks decreases by up to 69% with increased trawling intensity.[118]
- Centuries of trawling have reduced benthic habitat complexity and resulted in macro-faunal communities with low diversity and increased dominance of opportunistic, fast-growing species that can recover from frequent disturbances.[119]
- Sciberras *et al.*[120] conducted meta-analyses of 122 experiments on the effects of bottom fishing bottom-gear impacts -with analyses of depletion and recovery for entire benthic communities as well as taxonomic groups- to quantify the removal of benthos in the path of the fishing gear and to estimate rates of recovery following disturbance. A gear pass reduced benthic invertebrate abundance by 26% and species richness by 19%. Benthic community abundance and species richness (particularly sessile and low mobility biota with longer life-spans such as sponges, soft corals and bivalves) were predicted to take more than 3 years to recover following bottom fishing, compared to mobile biota with shorter life-spans such as polychaetes and malacostracans (<1 year).[121]

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[116] WWF & Client Earth (24 June 2019) *Dogger Bank Complaint to the Commission concerning alleged breach of Union legislation* CHAP (2019)01779.
[117] A. Plumeridge & C. Roberts (2017). Conservation targets in marine protected area management suffer from shifting baseline syndrome: A case study on the Dogger Bank, *Marine Pollution Bulletin*, vol. 116 (1-2) 395-404.
[118] Dureuil, M., Boerder, K., Burnett, K.A., Froese, R., Worm, B. (2018) Elevated trawling inside protected areas undermines conservation outcomes in global fishing hot spot. *Science* 21: 1403-1407.
[119] Kröncke, Ingrid. (2011). Changes in Dogger Bank macrofauna communities in the 20th century caused by fishing and climate. *Estuarine Coastal and Shelf Science* 94 234-245..
[120] Sciberras M, Hiddink JG, Jennings S, *et al.* (2018) Response of benthic fauna to experimental bottom fishing: A global meta-analysis*. Fish & Fisheries* 2018 19:698–715. https://doi.org/10.1111/faf.12283
[121] Ibid.

- Tiano *et al.*[122] report a 94% reduction in epibenthos between trawled sediments and an untrawled transect 500 m away: a 74% decrease in epibenthos found between trawled and untrawled areas of the same transect. Box core samples taken 5.5 h, 29 h and 75 h after trawling detected a downward trend in infaunal densities and species richness that continued after the initial impact with small-bodied and juvenile taxa being especially prone to depletion.

A number of studies are available as a meta-analysis of the relevant scientific peer reviewed literature by Natural England in 2012 and this evidence is set out in Table A1.1. It highlights varying responses of respective sandy and muddy benthic communities to different types of seabed trawl. Here we cite the major findings of two papers[123] [124] of impacts of trawls on sandbank habitat.

[122] Tiano, J.C. van der Reijden, K.J., O'Flynn, S., *et al*. (2020) Experimental bottom trawling finds resilience in large-bodied infauna but vulnerability for epifauna and juveniles in the Frisian Front, *Marine Environmental Research*, vol. 159 104964.

[123] Kaiser, M.J., Clarke, K.R., Hinz, H., Austen, *et al.* (2006) Global analysis of response and recovery of benthic biota to fishing. *Marine Ecology Progress Series*, vol. 311, 1-14.

[124] Foden, J., Rogers, S.I. & Jones, A.P. (2010) Recovery of UK seabed habitats from benthic fishing and aggregate. extraction- towards a cumulative impact assessment. *Marine Ecology Progress Series*, vol.411, 259-270.

**Table A1.1 Impact of Trawls on Sandbank Habitat**

| Gear type/ habitat | Fastest 'recovery' rate | Appropriate Assessment issues |
|---|---|---|
| Otter trawl/sand | 0 days | Inadequate baselines (are trawled already). Removal of functionally important typical fish species. |
| Otter trawl/ biogenic habitat | 'Severe effect' | Damage to biogenic habitat (e.g. Sabellaria worm reef, mussel and oyster beds) that are typical species of such ecosystems. |
| Beam trawl/ sand | 182 days | Compromised benthic and fish communities. |
| Scallop dredge/ sand | 365 days | NA (not scalloping ground) – but if it were to occur, compromised benthic communities. |
| Otter trawl/ gravel | 365 days | Compromised benthic and fish communities. |
| Demersal trawl/ sands and gravel | >700 days | 50 m waters in UK seas.[125] Denuded historical natural fish populations (commercial species and otherwise). Compromised benthic species communities. |

Benthic community abundance and species richness were predicted to take more than 3 years to recover following bottom fishing.[126] This casts doubt over the experimental closure for the purpose of scientific research in the German part of the Dogger Bank for a length of 3 years, both from a scientific and nature conservation perspective, when wanting to recover sessile and low mobility biota with longer life-spans.

Many species have limited distributions, and very limited ranges and dispersion in the Dogger Bank compared to historical levels. They are typical species of such habitats – but before the advent of industrial scale bottom fishing. For example, 'mid-nineteenth century fishermen spoke of an invertebrate crust that covered the seabed and that was scraped away by the first trawlers and dredgers'.[127] The MarLIN website[128] cites the sensitivity of sessile species to

[125] Blyth, R.E., Kaiser, M.J., Edwards-Jones, G. and Hart, P.J.B.( 2004) Implications of a zoned fishery management system for marine benthic communities, *Journal of Applied Ecology,* vol. 41, 951-961.
[126] Sciberras M, Hiddink JG, Jennings S, *et al.* (2018) Response of benthic fauna to experimental bottom fishing: A global meta-analysis. *Fish & Fisheries* 2018 19:698–715. https://doi.org/10.1111/faf.12283
[127] R. Thurstan *et al.*, (2013) in A. Plumeridge & C. Roberts (2017). Conservation targets in marine protected area management suffer from shifting baseline syndrome: A case study on the Dogger Bank, *Marine Pollution Bulletin*, vol. 116 (1-2) 395-404.
[128] Marine Life Information Network (online) *MarLIN (1999-2010) sensitivity assessment methodology* https://www.marlin.ac.uk/sensitivity/MarLIN-sensitivity-methods.

abrasion. Table A1.2 shows the indicative declines in biomass of the fishes reported by Thurstan *et al*.[129]

**Table A1.2: Example typical species of Dogger Bank SAC, and North Sea sandy ecosystems, and sensitivity to abrasion and removal**.

| Family | Species | Common name | Vulnerable to 4. Bottom - towed fishing gears[130] | Functional role |
|---|---|---|---|---|
| Echinoid | *Echinocyamys pusillus* | Pea urchin | | O2 exchange, grazing |
| Coral | *Alcyonium digitatum* | Dead man's fingers | | Water filtration, sediment binding |
| Ophiuroid | *Acrocnida brachiata* | Sand burrowing brittlestar | NA | O2 sediment penetration, carbon sequestration |
| Ophiuroid | *Amphiura filiformis* | Brittlestar | | O2 sediment penetration, carbon sequestration |
| Polychaete | *Lanice conchilega* | Sand mason (worms) | | O2 sediment penetration, sediment binding, carbon sequestration |
| Anenomes | *Cerianthus lloydii* | Tube anemone | | Water filtration, O2 transfer, carbon sequestration |
| Fish | *Ammodytes marinus* | Lesser sandeel | NA | Food source for range of predators meso and mega-predators |

[129]Thurstan, R.H. *et al.* The effects of 118 years of industrial fishing on UK bottom trawl fisheries. *Nature. Communication* vol. 1, 15 doi: 10.1038 / ncomms1013 (2010).

[130] Marine Life Information Network (online) *MarLIN (1999-2010) sensitivity assessment methodology* https://www.marlin.ac.uk/sensitivity/MarLIN-sensitivity-methods

| | | | | |
|---|---|---|---|---|
| Fish | *Pleuronectes platessa* | Plaice | 97.2 | Predator of range of species, (crustaceans, worms), food source for apex predators (sharks, cetaceans, seals) |
| Fish | **Skates and rays** | | 83.4 | Apex predator |
| Fish | ***H.hippoglossus*** | Atlantic halibut | 99.8 | Apex predator |
| Fish | ***Gadus morhua*** | Cod | 86.6 | Apex predator |
| Bivalve | ***Mytilus edulis*** | Blue mussel | | Filter feeder, nutrient recycling, food source for meso-predators (e.g. starfish), sediment binding, carbon sequestration, habitat for other biodiversity |
| Bivalve | ***Pinna fragilis*** | Fan mussel | | Filter feeder, nutrient recycling, carbon capture, habitat for other biodiversity, carbon sequestration |
| Bivalve | ***Ostrea edulis*** | Native oyster | | Filter feeder, nutrient recycling, carbon capture, habitat for other biodiversity |
| Bivalve | ***M. modiolus*** | Horse mussel | | Filter feeder, nutrient recycling, carbon capture, habitat for other biodiversity |

*Key: Red = 'High' sensitivity to bottom-towed fishing gears. Yellow = moderate. Species in* ***Bold*** *are not listed in the typical species columns of the site by one or other of Netherlands, UK and German Conservation Objectives (apart from Raja clavata or thornback ray), probably because they were largely absent from surveys. Nevertheless, there is strong evidence that these were functionally important species of the site before wide-scale industrial bottom trawling occurred from the mid to late 19th century.*[131] *Numbers are indicative % declines in fish species that are and were typical of the North Sea before the advent of commercial seabed trawling from the 1880s.*

The current indicators used to assess the Dogger Bank status of benthos (for example, the BISI-Index used by the Netherlands) together with limited monitoring and data-collection are unlikely to be enough to understand the full breadth of impacts of fishing (particularly trawling and other bottom-towed fishing gear)[132] on the:

1. Assessment of the status and quality of the Dogger Bank;
2. Typical species and protected features; and
3. Impact on reaching conservation objectives.

Sköld *et al.,*[133] among others, emphasise the need to consider food web effects when assessing the impact of bottom trawling. They also highlight the lack of scientific reference areas which prevents us from understanding fully the breadth of damage. Scientists looking at small-scale experiments (relative to the size of the Dogger Bank) and within well-managed coastal MPAs are not able to find/use or refer to controls with near pristine conditions. Also, there are confounding impacting activities (e.g. eutrophication) and the timescale of impact studies is not pertinent to recovery potential, which is decadal for some of the species and habitat complexes listed in the table above. Hence scientists undertaking trawl impact studies relative to the requirements of the Habitats Directive are unable to estimate the full breadth of impacts. Considering we cannot compare trawling impacts to pristine areas due to high anthropogenic fishing pressure, findings of studies are likely to be conservative;[134] it is possible that the effects of bottom trawling would be more stark in fully restored habitats.

In addition to the evidence previously provided in the legal complaints, further scientific studies have been published. Research using new techniques to assess the impact of trawling on the seabed and its fauna supports the ever-growing body of evidence of damage and degradation: bottom-towed fisheries, including trawling, seining and other fishing methods are detrimental to the habitats, species and ecological processes of the Dogger Bank SACs. Even though ecosystem effects have not been fully researched and despite the lack of adequate reference areas preventing that research, Dogger Bank degradation has been

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[131] A. Plumeridge & C. Roberts (2017). Conservation targets in marine protected area management suffer from shifting baseline syndrome: A case study on the Dogger Bank, *Marine Pollution Bulletin*, vol. 116 (1-2) 395-404.
[132] Hiddink JG, Kaiser MJ, Sciberras M, *et al.* (2020) Selection of indicators for assessing and managing the impacts of bottom trawling on seabed habitats*. Journal of Applied Ecology* 00:1–11. https://doi.org/10.1111/1365-2664.13617
[133] Sköld, M., Göransson, P., Jonsson, P., et al. (2018). Effects of chronic bottom trawling on soft-seafloor macrofauna in the Kattegat. *Marine Ecology - Progress Series*, 586, 41-55. https://doi.org/10.3354/meps12434
[134] Tiano, J.C., van der Reijden, K.J., O'Flynn, S. *et al.* (2020) Experimental bottom trawling finds resilience in large-bodied infauna but vulnerability for epifauna and juveniles in the Frisian Front, *Marine Environmental Research*, 159 (2020) 104964.

reported; fishing impacts have been directly linked to that degradation. But it is unlikely we yet grasp the full extent of that degradation.

Evidence exists from diversity indices (e.g. Margalef) that the first trawl in North Sea sediment habitats is more damaging to seabed integrity than subsequent tows/sweeps of fishing gear.[135] Therefore, to achieve seafloor integrity it is important to remove all bottom towed fishing gear effort from the site. There is evidence from inshore sites where there is an element of 'reference condition' or longer-term removal of all towed gears, that seafloor sedimentary habitats can accrue upright sessile species that, in turn, retain a succession of higher trophic levels of fauna. This can continue for decades. For example, increased sponge, coral and bryozoan density retains greater fish biomass and shellfish recruits. Unfortunately, no significant-scale offshore site closures are available to help us in similar offshore habitats as the North Sea. However, these responses are noted at different coastal MPAs in Scotland (Arran); Isle of Man (Port Erin), and England (Lyme Bay, Start Point) in the years since bottom trawling bans came into place. Recovery of these assemblages could potentially be played out in all sections of the Dogger Bank (beyond the 33.6% currently proposed for management in the Joint Recommendation). But, allowing 66.4% of the site to be continuously trawled compromises the potential for recovery of the entire site. Evidence has not been forthcoming from proponents of the position to continue fishing that this would not have a significant impact on site integrity for the entire Dogger Bank SAC. This is a key requirement that any appropriate assessment for and on behalf of the fishing industry must answer and that has, thus far, not been addressed. Therefore, in order to improve site integrity for the entire area of the Dogger Bank, it must be completely closed.

The Habitats Directive requires a return to natural biodiversity and function of large-scale offshore sandbank sites. Previous published literature by some review groups has not taken into account the historical information on benthic communities and typical species before the advent of industrial trawl fishing on the continental shelves.[136] Rather, many studies from the last 50-100 years are relevant to understanding the nature of the recoverability of seabeds *in an already markedly affected seafloor environment*. Accordingly, many of these reviews of fishing impacts have limited use in interpreting how to achieve the aims of the Habitats Directive. This is especially relevant as some species (such as large sharks, rays, fishes, cetaceans, sponges, bryozoans, bivalves reefs) can live for decades, and their establishment on the seabed can encourage other lifeforms to emerge under natural conditions for succession (e.g. oyster and mussel reefs encourage bryozoans to recruit and grow in UK MPAs protected from bottom towed fishing).

There is an inclination towards assuming shallow sand habitat as being somewhat resistant to otter trawling and that communities on exposed sandbanks can fully recover within 1.9

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[135] OSPAR Commission (2017) *Intermediate Assessment. Condition of Benthic Habitat Communities: Subtidal Habitats of the Southern North Sea, MSFD Descriptors: 1 - Biological diversity, 6 - Seafloor integrity MSFD Criteria: 1.6 - Habitat condition, 6.2 - Condition of benthic community.* https://oap.ospar.org/en/ospar-assessments/intermediate-assessment-2017/biodiversity-status/habitats/condition-of-benthic-habitat-defining-communities/subtidal-habitats-southern-north-sea/

[136] See for instance: Jan Geert Hiddink, Simon Jennings, Marija Sciberras, *et al.* (2017) Global analysis of depletion and recovery of seabed biota after bottom trawling disturbance *Proceedings of the National Academy of Sciences* Aug 2017, 114 (31) 8301-8306 https://doi.org/10.1073/pnas.1618858114

years.[137] Recovering a habitat to a compromised state, where there is the opportunity for recovery to a richer state, is not the intention of the Habitats Directive. So-called 'control' areas used in such studies will be small and likely have been trawled over within the last 20-50 years (before the studies were conducted), significantly distorting the 'pristine' or 'good' baseline condition. Of greatest concern is data relating 'state' to the relative 'effort' of fishing in areas considered 'lightly fished' only record vessel position in EU waters once every 2 hours; and, that data only comes from 15m vessels, leaving 12m vessel data out of the picture. These partial data are inadequate to assume biological community composition in relation to accurately monitored disturbance thresholds.

These studies do not systematically address the eight tests identified here. Given the requirements of the law, available science that does not discount an adverse effect is a problem for all H1110 sandbank sites.

However, based on scientific information reviewed in the complaint and additional information listed in this section, the body of evidence on fishing effort, scale and negative impacts of demersal seining and trawling, and needs to be considered. Population dynamics data show many typical species of the Southern North Sea cannot currently maintain themselves on a long-term basis as a viable component of its natural habitat. This is evidence that the natural range of typical species is reduced and that there is not enough habitat to maintain populations over time.

We score demersal seining and trawling as: 1. Sufficient information exists to prove adverse impact for the typical species test.

*Electric trawling*

Electric trawling mainly targets flatfish and shrimp.[138] If sensitive seafloor habitats are trawled, then the impact from pulse trawling is expected to be lower compared to conventional beam trawling. However, the European Court has ruled that minimising damage within the constraints of current technology is not enough to consider there will not be an adverse impact, and 'lower expected impact' does not pass an appropriate assessment. In Case C-98/0341 the Court found that "*a duty to verify whether serious damage, which cannot be prevented by current technology, is reduced to the minimum, does not ensure that such a project will not give rise to such damage*". Minimising the impact of particular fishing gears, for example, is not necessarily the same as no adverse effect."[139]

Because no specific experiments have explored the absolute impact of electric trawling on the Dogger Bank SACs, research on (absolute) effects needs review. The ICES Working Group on Electrical Trawling (WGELECTRA) looked at the observational and experimental research

[137] Ibid.
[138] ICES (2020) ICES Working Group on Electrical Trawling (WGELECTRA). *ICES Scientific Reports*, 2:37 108 pp http://doi.org/10.17895/ices.pub.6006
[139] Case C-98/03 *Commission of the European Communities v Federal Republic of Germany (Failure of a Member State to fulfil obligations*

pertaining to ecosystem effects of electrical trawling.[140] A selection of effects on typical species include:

- Electric trawling catches same species as other types of trawling, including sole, plaice, whiting, rays, other flatfish and gadoid species;
- Effects on cod: For most fish species, the probability of injury is low (≤ 1%), except for cod (in size range 15–90 cm), where approximately 35% of the animals sampled show spinal injuries;
- The penetration depth of the electric field into the sediment exceeds that of the tickler chains, and may increase the proportion of fish in the trawl path that will be available to the gear;
- The change in the catch per unit effort (CPUE) of benthos per area swept by the total pulse trawl fleet is estimated at -33%. N.b. CPUE of benthos of the conventional beam trawl is underestimated due to the damage caused by the tickler chains on fragile organisms such as sea urchins;
- Discard survival is significantly higher in electric trawling for brill, plaice and turbot, but not statistically significant different for sole and thornback ray. [...] For rays, the partial fishing mortality rate on discard size classes increased by 44% after the transition to pulse trawling;
- With electric trawling: a significantly larger proportion of brill, plaice, turbot in good condition in pulse beam trawling compared to tickler chain beam trawling; no significant difference was observed for sole, spotted ray or thornback ray.
- Changes in behaviour:
    - In small-spotted catshark, an electric field strength of at least 5.7 V m-1 is 76% likely to induce a change;
    - In thornback ray, an electric field strength of at least 3.1 V m-1 is 57% likely to induce a change;
    - In turbot, an electric field strength of at least 3.75 V m-1 is 75% likely to induce a change;
- Apart from behavioural response thresholds, fish may also experience involuntary muscle contractions in response to the electrical pulse stimulus of the fishing gear. When exposed to higher electric field strengths, the stimulus will result in whole-body muscle cramps (i.e. electrical-pulse induced tetanus) or even lead to an epileptic seizure. The muscle cramp may result in spinal injuries and rupture of blood vessels;
- The effects of electric current on sandeel appears very low (spinal injury was recorded in 2 of the 230 sandeel exposed to a pulse stimulus against 0 in the 211 sandeel that were handled but not exposed). Haemorrhages, sometimes seen in cod with spinal injuries due to electrical stimulation, were not observed in sandeel. However, lesser sandeel and greater sandeel have an elevated probability of injury in both the pulses and tickler chain catches;
- The electro-sensitive catshark's ability to detect food was not affected by pulse exposure; and

[140] ICES (2020) ICES Working Group on Electrical Trawling (WGELECTRA). *ICES Scientific Reports*, 2:37 108, tab. 5.7. http://doi.org/10.17895/ices.pub.6006 , See also ICES (2020) *Request of the Netherlands on the ecosystem and environmental impacts of pulse trawling for the sole (Solea solea) fishery in the North Sea.* In Report of the ICES Advisory Committee (2020) *ICES Advice 2020*, sr.2020.03. https://doi.org/10.17895/ices.advice.6020.

- Following exposure to pulse-trawl stimuli, no adverse effects (mortality or lesions) were found in the ten benthic invertebrate species studied. These animals exhibited normal behaviour within an hour of exposure. The low probability of exposure and the short duration (1.5 seconds) implies that there is no chronic exposure to pulse trawl stimuli.

Electric trawling is only licensed in the southern part of the Dogger Bank, and is due to be phased out by mid 2021.[141] It is reported to have a reduced impact on the benthic ecosystem compared to conventional beam trawling, but this, is of itself, not useful in the context of appropriate assessment, where the technology needs to demonstrate no adverse effect, not less adverse effect on:

1. Direct mortality of Dogger Bank typical species;
2. Injuries for typical species;
3. Changes in behaviour of typical species;
4. Potential changes in seabed chemistry;

We conclude: 2. Sufficient information exists to conclude adverse effects cannot be excluded.

*Pelagic or midwater trawl*

Pelagic or midwater trawl occurs on the Dogger Bank. However, similar to the other fishing methods, there are no recent records of the amount of effort, the specific gear types, and the catches and bycatches for the entire pelagic fleet fishing on the Dogger Bank.

Pelagic trawl appears to target mainly sandeel and herring. JNCC and DEFRA recorded the value of the landings of pelagic trawl on the UK side of the Dogger Bank in the period 2007-2009 (Table A1.2) in UK impact assessment).[142]

**Table A1.3 Norwegian Landings from the ICES rectangle that contains the Dogger Bank (for those vessels which recorded the most important rectangle on the trip**

| Year | Important gear | Dominant target species | Value of landings (of those recorded)[40] |
|---|---|---|---|
| 2005 | Bottom trawl | Sand eel | £236k |
| 2007 | Bottom trawl<br>Pelagic trawl | Sand eel<br>Atlantic herring | £490k |
| 2008 | Bottom trawl<br>Pelagic trawl<br>Double trawl | Sand eel<br>Sand eel<br>European plaice | £2,497k |
| 2009 | Bottom trawl<br>Pelagic trawl | Sand eel<br>Sand eel | £2,905k |

*Source: DEFRA*

[141] Regulation (EU) 2019/1241 of the European Parliament and of the Council of 20 June 2019 on the conservation of fisheries resources and the protection of marine ecosystems through technical measures.
[142] JNCC and Defra Marine Biodiversity Policy (2011) *Dogger Bank Special Area of Conservation. Impact Assessment (*IA) IA No: Defra1344, Date: 04/07/2011

The EMPAS project mentions that 'pelagic trawls are of minor importance'. In the entire German EEZ in 2006, 206 tonnes of herring and 12 tonnes of blue whiting were caught by the (national and international) pelagic fleet.

The FIMPAS project reports that in the Dutch part of the Dogger Bank, midwater trawls are reported to present a risk to marine mammals and seabirds. However, for the conservation objective Dogger Bank H1110 Sandbanks, midwater trawl is considered 'Not Relevant' which represents the conclusion based on the majority of opinions of NGOs, Industry and Science. The midwater trawlers target pelagic species such as herring and mackerel and reportedly have a discard rates of less than 5%,[143] the Dutch pelagic freezer trawls have discard rates of about 10%.[144] Given the high catches, this still amounts to large volumes of discarded fish. Regular discards favour the scavengers that dominate heavily fished areas.[145] On the effect of pelagic or midwater trawl fishing on the structure of substrate, 'no information' is reported, as well as 'not relevant due to lack of contact between gear and sea bottom'. For turbidity – no information is reported, as well as 'not relevant due to lack of contact between gear and sea bottom.' Noise and visual disturbance were considered 'not relevant for this benthic habitat.' Overall, the rating of effects: "*There is no knowledge available on the effects of midwater trawls on habitat H1110 and if the trawl does not hit the bottom no effects are expected*". The overall effect of mid water trawling on H1110 is therefore concluded to be 'Not Relevant'.[146]

In the summary of fishing effort (kWh) by gear in the Dutch part of the Dogger Bank from 2006-2008, midwater trawl fishing by Belgium, Germany, Denmark, France, Netherlands, United Kingdom, totalled an effort of 825,571 kWh in 2006, 244,634 kWh in 2007 and 8,111 kWh in 2008. Pelagic seine in 2007 recorded 257,521 kWh.

Bartelings *et al.*[147] report pelagic trawling effort, landings and value per member state (Belgium UK, Germany, Netherlands) for the years 2006-2011. For example, for landings of each fleet segment PTM (pair trawls midwater), landings amounted to 9 tonnes in 2006, 4 tonnes in 2007, 28 tonnes in 2008, 0 tonnes in 2009, 11 tonnes in 2010, 0 tonnes in 2011. This information could be assessed against reference values for typical species on the Dogger Bank, if these were available.

Besides the targeted sandeel and cod, other typical species that are at risk of being caught by pelagic trawling include whiting and elasmobranchs.[148] Currently several North Sea stocks have fishing mortality rates above $F_{MSY}$ (e.g. cod, whiting, haddock, mackerel, and blue

[143] Kelleher K (2005) Discards in the world's marine fisheries. An update. *FAO Fisheries Technical Paper* no. 470. FAO, Rome.
[144] Helmond, A.T.M. & H.M.J. van Overzee (2010) Discard sampling of the Dutch pelagic freezer fishery in 2008 and 2009. *CVO Report* 10.008, p. 63.
[145] e.g. Kaiser MJ, Collie JS, Hall SJ, Jennings S & Poiner IR (2002) Modification of marine habitats by trawling activities: prognosis and solutions. *Fish & Fisheries* 3, 114-136.
[146] Deerenberg, C., Teal, L., Beare, D., van der Wal, J.T. (2010) *FIMPAS project – Pre-assessment of the impact of fisheries on the conservation objectives of Dutch marine protected areas.* Report no. C071/10. IMARES.
[147] Bartelings, H., K.G. Hamon and J.A.E. van Oostenbrugge (2013) *Fishing activities on the Dogger Bank 2006-2011.* The Hague, LEI, part of Wageningen UR.
[148] Walker, P., Kingma, I (2013) Onderzoek naar haaien en roggen in Nederland in het kader van de Kaderrichtlijn Mariene Strategie. Nederlandse Elasmobranchen Vereniging. Amsterdam.

whiting).[149] Cod is widely distributed throughout the North Sea, but there are indications of subpopulations inhabiting different regions of the North Sea (e.g. from genetic studies). The inferred limited degree of mixing suggests subpopulations are slow to recolonise in areas where they are depleted. ICES assesses that fishing pressure on the North Sea cod stock is above $F_{MSY}$, Fpa, and Flim; the spawning-stock size is below MSY Btrigger, Bpa, and Blim. This means cod in the North Sea is fished unsustainably: fishing mortality is above MSY level, stock size reproductive capacity is reduced and spawning-stock size is below the value where it should trigger management action.[150] To ensure cod, as a typical species, can recover across the subpopulation that covers the Dogger Bank, the content of past and recent pelagic trawl specific catches and bycatches, as well as how these relate to typical subpopulation abundance, range, population structure etc. need to be understood. We have not seen this information published.

There are concerns about pelagic trawling and bycatch of elasmobranch species, which are (apart from *Raja clavata* or thornback ray) not considered to be typical species by the Member States and the UK. That these species are not listed as typical could be because they are no longer abundant nor fulfilling their former ecological roles; shifting the baselines of Dogger Bank conservation objectives.[151] However, the Dogger Bank was once known for its abundance of sharks and rays and if elasmobranchs are to return, then pelagic trawling limits may be needed.

For the typical species test, we score pelagic trawling: 3. Insufficient information exists to exclude adverse effects.

*Traps and pots*

Traps and pots are generally seen as relatively low-impact gear and used as alternative fishing method to e.g. gillnet fisheries.[152] Pots on the Dogger Bank target crabs, which are listed as typical species of the Dogger Bank SACs, e.g. *Liocarcinus holsatus* or swimming crab and *Pagarus bernhardus* or common hermit crab. Whether the average catch on the UK side of the Dogger Bank of 55,269 kg per year for the period 2006-2009 is still the average[153] and representative for this method in more recent years is unknown. And, whether any of the potential concerns in the screening section, such as removal of target and non-target species, abrasion/disturbance, contamination etc., pose a real risk to favourable status cannot be determined as real effort is not known, individual species caught are not known, bycatch

[149] ICES (2019) *Greater North Sea Ecoregion – Fisheries overview, including mixed-fisheries considerations*, Published 29 November 2019. Version 2: 15 January 2020 http://www.ices.dk/sites/pub/Publication%20Reports/Advice/2019/2019/FisheriesOverview_GreaterNorthSea_2019.pdf

[150] ICES (2019) *Cod (Gadus morhua) in Subarea 4, Division 7.d, and Subdivision 20* (North Sea, eastern English Channel, Skagerrak). In Report of the ICES Advisory Committee (2019) *ICES Advice 2019*, cod.27.47d20, https://doi.org/10.17895/ices.advice.5640.

[151] A. Plumeridge & C. Roberts (2017). Conservation targets in marine protected area management suffer from shifting baseline syndrome: A case study on the Dogger Bank, *Marine Pollution Bulletin*, vol. 116 (1-2) 395-404.

[152] ICES (2019) Working Group on Bycatch of Protected Species (WGBYC), *ICES Scientific Reports*. 1:51. 163 pp. http://doi.org/10.17895/ices.pub.5563

[153] JNCC and Defra Marine Biodiversity Policy. 2011. *Dogger Bank Special Area of Conservation. Impact Assessment (IA)* IA No: Defra1344, Date: 04/07/2011

species and abundance is not known and reference levels for typical species' favourable status are not known.

We therefore score 3: Insufficient information exists to exclude adverse effects.

**Test 2: Biomass and diversity at natural conditions**

What are the biomass and species diversity of these assemblages given 'natural conditions'?

There is currently no baseline (or adequate large, long-term control area) by which to understand the relative density of epibenthic species in their natural habitats away from the impact of beam trawling, otter trawling, demersal seines, and other forms of bottom towed fishing gears.

We do not know the influence of a 'natural' assemblage of predators on the species that are currently considered typical of the seafloor. There is evidence from the historical literature of much greater abundance of large sharks, rays, porpoise that would feed on the fish and benthic invertebrates of this system.[154] To claim that the current system hosts typical range and biomass of species is somehow consistent with persistent ongoing abrasion and mortality from bottom towed fishing gears is not proven by relevant experiments. Logic would counter this assumption. There are no functioning or adequate controls that are large enough or permanent enough (over 20 years old) to make this claim. Thus, there is reasonable doubt that there is no adverse effect on the site integrity from bottom towed fishing. Both on the numbers, the types, life stages and relative densities of these species; and, therefore, on the impact of their removal on the function of the ecosystem. It is probable that assemblages have significantly changed with the advent of mechanical bottom towed fishing gears leading to a reduction/removal of long-lived benthic sediment engineers (e.g. Braekman *et al.*), from large apex predators and benthic filter and diverse deposit feeders,[155] to a community of short-lived infauna in terms of biodiversity and biomass across the site.

Conclusion: 3. Insufficient information exists to exclude adverse effects.

**Test 3: Recruitment and population dynamics**

What are the predicted recruitment rates? Will resettlement of species be through lecithotrophic (more localised) or from widescale dispersal (planktotrophic) recruitment?

Recruitment rates will be affected by the standing stocks of biomass and numbers and conditions of breeding age adults. Over 100 years of industrial fishing will have skewed these, thus affecting natural assemblages and proportions of constituent phyla and the ability of populations outside the site to recruit larvae and juveniles into the site (whereby they may receive some form of protection). As such, there will be longer recovery times of longer-lived, slow-growing, low-fecundity species within the sites than if bottom trawling were not to have occurred in the entirety of the Southern North Sea.

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[154] Roberts C.R.M. (2008) *Unnatural History of the Sea.* Island Press.

[155] Braeckman, U.; Rabaut, M.; Vanaverbeke, J.; Degraer, S.; Vincx, M. (2014). Protecting the Commons: the use of subtidal ecosystem engineers in marine management, *Aquatic Conservation* 24(2), 275-286.

Conclusion: 3. Insufficient information exists to exclude adverse effects

**Test 4: Abiotic features**

Have the abiotic structure and function been physically altered? For example, has sediment grain size and the presence or absence of sediment binding species declined through decades of trawling? Does this affect the ability of species to recruit and grow in areas where towed gear fishing is restricted? Is the chemistry of the upper seabed affected by trawling?

The North Sea is among the most heavily exploited marine ecosystems in the world. Bottom trawling is by far the largest source of human physical disturbance in the marine environment[156] and this type of fishing has exerted pressure on the North Sea for centuries and still does. Using VMS and logbook data that presented a 86% coverage of total bottom trawling effort of the North Sea, it was estimated that between 42% to 89% of the North Sea area was trawled in just 2 years (2010-2012), with more than 50% of the seabed area trawled at between 1-10 times per year. Industrial fishing more heavily affects much of the EU's MPA than non-protected areas (Dureuil et al 2018).

Tiano *et al.*[157] analysed the benthic effects of two in-situ fisheries disturbance experiments using a combination of side-scan sonar, high definition underwater video, sediment profile imagery, and box core sampling techniques after (a) conventional beam trawling and (b) electric pulse trawling in a southern North Sea habitat. They report flattening and homogenisation of the seafloor, as a result of trawling. And, for example, given the specificity of sandeel preferred habitat, any form of disturbance that is likely to disrupt the physical structure of the sediment poses an indirect threat to sandeel populations.[158]

Mechanical mixing of seabed sediments will smother some benthic species (particularly those not adapted to such conditions in deeper more stable waters of the ecosystem). The furrows from otter trawl doors and beam trawl skids can last for years in calmer, deeper water conditions, particularly in fine sandy and muddy habitats. This impact seabed sediments and kills benthic invertebrates. 'Recovery times' in the literature are irrelevant without controls. Bottom towed fishing – in the historical past – will have killed or removed longer lived more vulnerable species.

The observed quality of benthic habitat in Dutch part of Dogger Bank has significantly declined as a result of seabed disturbance, caused inter alia by fishing. Based on an analysis of Benthic Indicator Species Index, the increase in seabed disturbance is causing the observed significant decrease of benthic habitat quality on the Dutch part of the Dogger Bank.[159] This is a result of

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[156] Amoroso, Ricardo, Pitcher, C., Rijnsdorp, Adriaan *et al.* (2018). Bottom trawl fishing footprints on the world's continental shelves. *Proceedings of the National Academy of Sciences.* 115. 201802379. 10.1073/pnas.1802379115

[157] Tiano, J.C., van der Reijden, K.J., O'Flynn, S.; *et al.* (2020) Experimental bottom trawling finds resilience in large-bodied infauna but vulnerability for epifauna and juveniles in the Frisian Front, *Marine Environmental Research*, 159 (2020) 104964.

[158] Mazik, K., Strong, J., Little, S., *et al.*(2015) *A review of the recovery potential and influencing factors of relevance to the management of habitats and species within Marine Protected Areas around Scotland.* Scottish Natural Heritage Commissioned Report no. 771.

[159] Van Wijnhoven, S. (2018) *Rapportage TO beoordeling kwaliteitstoestand NCP op basis van BISI,* See for the power point presentation of the research report: http://ecoauthor.net/wp-content/uploads/2018/06/6-

different types of fishing compounding the already present ecological disturbance (caused by nutrient loading, pollution and temperature changes).

The analysis of the distribution of fishing effort (swept-area) over the EUNIS habitats showed that both tickler chain and pulse beam trawls were positively associated with sandy habitats in the North Sea. More than 80% of their fishing effort was deployed on sand which only accounted for 61% of the surface area. Coarse, mixed and other habitats are trawled less than their proportional surface areas by both gears. Pulse trawling occurs slightly more in coarse habitats and less in mud than tickler chain beam trawls. A meta-analysis of published literature concluded that the mortality rates differed between fishing gears and was related to the depth of penetration of the gear into the sediment.[160]

Burrowing and natural bioturbation by a healthy range and density of epibenthic species (refer to Table A1.2 for some typical fauna) that operate at the water-column/seabed interface enables a natural oxygen exchange. Removal of epibenthic bivalve beds of horse mussel (*Modiolus modiolus*) and flat oyster (*Ostrea edulis*) also meant that, besides removing ecosystem-engineers,[161] the reefs they once formed and the sediments they stabilised have gone. Removal of *Lanice*, *Acrocnida*, *Cerianthus* prevents exchange of oxygen and other gases between the water column and seabed significantly altering the chemistry of surface sediment layers. Removal – often by mechanical suction dredging – of large biomass of the sandeel population may lead to less oxygen penetration of the seabed by these animals moving into and out of the coarser sands of the habitat. This will have an effect on the physical grade of the sediments, leading to more sorting by gravity, current and wave action, rather than by the animals themselves.

That the Dogger Bank is not a uniform submerged sandbank has been recorded throughout time.[162] [163] The Dogger Bank has patches with gravel and stones, known as sorted bedforms, and '*patterns of large wave-ripples on coarse-grained substrates have been suggested to generate enhanced turbulence compared to sandy seabeds, preventing fine sediments to cover areas with stones and gravel. Indeed long-term maintenance of shape and location of sorted bedforms has been demonstrated*'.[164] Hard substrate such as stones are used for the deposition of eggs by gastropods, sharks and rays[165] and for a variety of functions for a multitude of other species.

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Benthos-NZ-SWijnhoven-22-05-2018.pdf . The full report is in Dutch, however, an English translation is available at: *http://ecoauthor.net/* and also: *http://ecoauthor.net/wp-content/uploads/2018/09/Eindrapport-T0-kwaliteit-benthische-habitats-KRM-Noordzee.pd*f

[160] Hiddink *et al.* (2017); Sciberras *et al.* (2018) in ICES. 2020. ICES Working Group on Electrical Trawling (WGELECTRA). *ICES Scientific Reports.* 2:37. 108 pp. http://doi.org/10.17895/ices.pub.6006,

[161] Van Moorsel, G.W.N.M. 2011. *Species and habitats of the international Dogger Bank*. ecosub, Doorn. p.74.

[162] Ibid.

[163] Laban, C. (1999) *Zwerfstenen in de kwartaire formaties van het Nederlands deel van de Noordzee.* Grondboor & Hamer nr. 6.

[164] Murray & Thieler 2004; Diesing *et al.* 2006 in Diesing *et al.* 2009; in n 158.

[165] Ibid, p. 74.

Conclusion: From the research of Tiano *et al.*[166] and others it is clear that for trawling sufficient information exists to conclude adverse effects cannot be excluded (score of 2). To what extent the abiotic features of the Dogger Bank have been altered and affected by fishing practices requires (historical) research. To what extent restoration is needed to restore the structure and function is unclear.

**Test 5: Trophic interactions**

Has the removal of keystone species (e.g. small fish, sandeels) had an impact on predator species abundance and biomass? Has overharvesting of predators affected the stability of the food web?

The EMPAS project states that in practice "favourable conservation status" means that protected habitats and species are prospering or moving in the direction of improvement and stability in the long run. However, neither the Dogger Bank Joint Recommendation, its Background Document, the EMPAS nor FIMPAS projects investigated the broader effects of fishing on the Dogger Bank ecosystem. For example, there is no research on the effects of fishing on trophic structures and the food web, nor the cascading effects of predator removal, etc.. Description of the shift of balance within biotic communities towards short-living and opportunistic deposit feeders at the expense of vulnerable, long-lived species, like the thornback ray, and removal of benthic filter feeding biodiversity over decades has been described.[167]

It is important to note that the removal of keystone species has a bearing on those species that would prey on them. Thus, the removal of a significant biomass of meso-predators and omnivores (such as sandeels) has a significant impact on apex predators that rely on these food sources. Sandeels are commercially fished for fish oil and fishmeal, and in the Dogger Bank area there is evidence of fishing-induced depletion with subsequent impacts on their predators.[168] Harbour porpoises, cod, seabirds and seals all frequent the site for feeding - to a greater or lesser extent - on these species. Their biomass, survival rates, and health rely on plentiful foods. These cannot necessarily be adequately provided by constant and significant harvesting. As such, we do not know that the baseline condition of the standing stock of these food supply organisms is indeed suitable for supporting a natural range of dependent species. The Member State documents, such as the Dutch *Nadere Effectenanalyse,* do not test the impact of fishing and other activities on the food abundance for harbour porpoise, a protected species for which the Dogger Bank is an important foraging area.

[166] Tiano, J.C.; van der Reijden, K.J.; O'Flynn, S. et al. (2020) Experimental bottom trawling finds resilience in large-bodied infauna but vulnerability for epifauna and juveniles in the Frisian Front, *Marine Environmental Research*, 159 (2020) 104964

[167] Anon. (2019) *Background Document Annex 1 to the Joint Recommendation for Offshore Fisheries Management on the International Dogger Bank under the Common Fisheries Policy*, p. 21-22.

[168] Mazik, K., Strong, J., Little, S., Bhatia, N., Mander, L., Barnard, S. & Elliott, M (2015) *A review of the recovery potential and influencing factors of relevance to the management of habitats and species within Marine Protected Areas around Scotland.* Scottish Natural Heritage Commissioned Report no. 771.

The removal of predators has been documented: sharks and rays were once abundant on the Dogger Bank:[169]

> "*Dogfish were caught in abundance and regularly filled an entire trawl (Royal Commission, 1884). Skates of enormous size were also present, often reaching 6 ft long (Royal Commission, 1879). These predator species have been reduced so significantly that they can no longer exert their former ecological roles (Friedlander and DeMartini, 2002). Removal of higher trophic levels can cause ecosystems to undergo a phase shift where they become dominated by lower trophic guilds as top-down effects are relaxed (Frank et al., 2005).*"[170]

Research has shown that in the North Sea, elasmobranch abundance decreased with increasing trawling intensity both inside and outside MPAs. Dureuil *et al.*[171] found that commercial trawling was the strongest predictor of elasmobranch relative abundance across the study area with an average decrease of 69% across the observed gradient of trawling intensity.

Preciado *et al.*[172] demonstrate the ability of *mean Trophic level* (mTL) as an indicator to monitor changes in food web structure and conclude there are significant and decreasing trends in mTL with increasing fishing pressure. Preciado *et al* conclude that bottom fishing has a negative effect on trophic richness, affecting not only communities but also the trophic spectrum of predators' diet and indicating a decline in prey availability with increasing bottom trawling. Furthermore, the impact of bottom trawling spreads through benthic-demersal food webs, the intensity of its effects being directly related to the intensity of fishing in a specific area, even at small-scale spatial resolution.

> "*Results seemed to indicate that small to moderate bottom trawling suffices to strongly modify the structure of bentho-demersal communities." […] "The decrease in community biomass, species richness, trophic richness and trophic diversity with increasing levels of fishing effort, leave little doubt on the negative impact of bottom trawling on benthic-demersal communities.*"[173]

It is clear that bottom trawling will negatively impact trophic interactions. Whether that is the case for the other methods can be measured based on objectives for improvement, stability, natural dynamics for the Dogger Bank (e.g. using mTL) and research measuring the impacts of human activities on the trophic interactions of the Dogger Bank ecosystem. That would enable an appropriate assessment of (specific levels of) pelagic trawling, anchored netlines, traps and pots on the Dogger Bank and clarity whether these methods pass[174] this test with confidence or not.

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[169] G.W.N.M. Van Moorsel (2011). *Species and habitats of the international Dogger Bank.* Ecosub, Doorn, p. 74.
[170] Ibid.
[171] Dureuil, M., Boerder, K., Burnett, K.A., Froese, R., Worm, B (2018) Elevated trawling inside protected areas undermines conservation outcomes in global fishing hot spot. *Science* 21: 1403-1407.
[172] Preciado, A.S.I.; Arroyo, N.L.; González-Irusta, J.M.; López-López, L.; Punzón,A.; Muñoz, I. (2019) Small-scale spatial variations of trawling impact on food web structure. *Ecological Indicators* 98, 442-452
[173] Ibid.
[174] 'Passing the test' would mean a score of 4. sufficient information exists to exclude significant effects.

**Test 6: Mobility of species around the site**

What are the movements of typical (mobile) species between different parts of the site? Does allowing fishing in certain areas, increase the likelihood of wider impact to the natural communities?

A lack of control over access to different parts of sandbank systems (with fully transparent, monitored behaviour of fishing activity, use, gear, catch) does not mean we can discount the impact of fishing, fishing mortality, and benthic ecosystem impacts on the movements of apex and higher-level predators around the site. Indeed, by targeting many of these species within the fishery, the natural range of movements of these species at the site level is well understood (e.g. cod, haddock, skates and rays, flatfish). The only potentially comparable area that is a small, but long-term closed area, is the Oresund between Denmark and Sweden. Here a surrogate for cod biomass (and size) was represented by a CPUE of around 1500 kg cod/hr compared to a CPUE of around 70 kg cod/hr over 20 years of data. Such remarkable differences in CPUE indicate a similar recovery of such important species[175] could accrue in the Dogger Bank in the absence of trawl fishing. Such apparent large differences in biomass reveal that even though cod are a mobile species, they can grow much bigger in size and numbers in adequately protected areas - even in sites that are small relative to the Dogger Bank.

For gillnets, demersal seines and trawls, there is sufficient information to conclude significant effects cannot be excluded. To what extent the other fishing methods have an effect cannot be determined by us with the information we have at present. We suspect that at low levels of pot/trap fishing, they could score 4. Sufficient information exists to exclude adverse effects.

**Test 7: Missing species**

What are the missing and locally extinct species that should be there? Will exclusion of fishing recover and retain these species that then become characteristic elements of the site? What are the dynamics of the species and associated habitats that are representative of a time when natural dynamics were dominant?

Research is available that reviews the literature and historical accounts, such as catch records, to understand what species were present (in abundance) on the Dogger Bank before the onset of industrial fishing. Van Moorsel reports horse mussel (*Modiolus modiolus)* and native oyster *(Ostrea edulis)* beds,[176] including Plumeridge and Roberts:

> "*Throughout the late 18th to early 19th century, a variety of species were caught in abundance there (Knox, 1789). Demersal flat fish such as sole (Solea solea), turbot (Scophthalmus maximus), plaice (Pleuronectes platessa) and halibut (Hippoglossus hippoglossus) were commonly caught by nets, and static lines (Commission, 1866), and elasmobranchs such as the common skate (Dipturus batis) and thornback ray (Raja clavata) were targeted by line fishermen (Knox, 1789). [...] In 1840, a single vessel could take one ton of halibut in a day's fishing on the Dogger Bank (Royal*

[175] Svedang, H., Stal, J., Sterner, T., and Cardinale, M. (2010) Subpopulation structure in cod (Gadus morhua) puts strain on the management toolbox. *Reviews in Fisheries Science*, 18, 139–150.
[176] Van Moorsel, G.W.N.M. 2011. Species and habitats of the international Dogger Bank. ecosub, Doorn,p. 74.

*Commission,1866). [...] The introduction of the sail trawl in 1840 marked the onset of major ecological changes to the area. Fishermen whose methods had until that time remained consistent for many centuries had appealed for the implementation of legislative restrictions on trawling activity*. [...] *When steam trawling was introduced in the 1880s, many fishermen already considered the Dogger Bank exhausted of fish*."

Now predatory species like angel shark (*Squatina squatina*), common skate (*Dipturus batis*) dogfish (*Squalus acanthias)*, are classified as 'critically endangered' in European waters.[177] These predator species have been reduced so significantly that they can no longer exert their former ecological roles.[178] Of all elasmobranch species formerly abundant on the Dogger Bank, only thornback ray (*Raja clavata*) is listed as a typical species.

In the conservation objectives of the three Member States that fish the waters, there is a lack of reference condition information of fish/organisms that have been locally eradicated from the site (see Table A1.2 for example species). These include large species such as those listed above. These animals may be caught at the site but are no longer present at sufficient numbers to have a structuring influence on the communities of the sandbanks of the site (they may once have been as significant at removing some prey species such as sandeels, now captured by Danish fleets)[179]. We cannot currently judge whether they would be at higher abundance (numbers) and size (body size) were the demersal bottom towed gears not to have been fishing the site for over 140 odd years. The only statement that can be made is that we remain uncertain whether these animals would recover within the site if the continuous fishing pressure were removed.

It is known that pelagic trawling catches sharks such as dogfish.[180] Scientific evidence shows bottom-towed fishing, including seine fishing, catches species which are key to the restoration and biotic equilibrium of the sites including Habitat 1110 typical species, threatened and endangered species and species known to have typically occurred on the Dogger Bank in the past.[181] Anchored lines also catch elasmobranchs and cetaceans. Not even traps and pots can be excluded as they pose risks of entanglement with e.g. cetaceans. 'The risk category for large whales in "Pots and Traps" has been upgraded from 1 (low risk) to 2 (medium risk) based on recent publications on entanglements of minke whales (*Balaenoptera acutorostrata*) and humpback whales (*Megaptera novaeangliae*) in traps and pots (Northridge et al, 2010; Ryan et al, 2016).'[182] For traps and pots, if no significant impacts are expected because effort appears low, then evidence needs to be provided.

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[177] Nieto, A., Ralph, G.M., Comeros-Raynal, *et al.* (2015) *European Red List of marine fishes*. Luxembourg: Publications Office of the European Union.

[178] Friedlander AM, DeMartini EE (2002) Contrasts in density, size, and biomass of reef fishes between the northwestern and the main Hawaiian Islands: the effects of fishing down apex predators *Marine Ecology-Progress Series* 230: 253–26

[179]Plumeridge, A., Roberts, C. (2017). Conservation targets in marine protected area management suffer from shifting baseline syndrome: A case study on the Dogger Bank. *Marine Pollution Bulletin*, 116(1-2), 395-404.

[180] ICES (2019) Working Group on Bycatch of Protected Species (WGBYC). *ICES Scientific Reports*. 1:51. 163 pp. http://doi.org/10.17895/ices.pub.5563

[181] WWF and Client Earth (24 June 2019) Dogger Bank Complaint to the Commission concerning alleged breach of Union legislation CHAP(2019)01779

[182] ICES. 2019. Working Group on Bycatch of Protected Species (WGBYC). *ICES Scientific Reports*. 1:51. 163 pp. http://doi.org/10.17895/ices.pub.5563

All fishing methods that are deployed on the Dogger Bank either could (by)catch or impact missing species or are reported to do so.[183] [184]

We have not come across an overview of how any of these fishing methods affect heavily degraded species, how they affect missing species' potential return; nor across the evidence or sufficient information to exclude significant effects (or a score of 4). Recent fishing effort and (by)catch in the Dogger Bank is simply not known, and Member States have not proposed upper limits to effort or catches. Therefore, allowing all fishing methods to enter the SACs with unrestricted access can significantly impact conservation objectives.

We conclude that for demersal trawling and seining, we know enough to conclude a score of: 2. Sufficient information exists to conclude adverse effect cannot be excluded.

**Test 8: Ecological processes**

Functioning ecological processes provide enabling conditions for the presence and abundance of typical species and habitats. Setting conservation objectives for habitats and species without assessing the impacts of plans or projects on ecological processes' underlying presence and abundance could lead to ignoring drivers of ecosystem change. It can also lead to ignoring the potential of an area to provide other ecosystem goods and services.

Dogger Bank underlying ecological processes and functions include:

- High primary production: presence of thermocline in summer leading to relatively low primary production mixing in winter, leads to primary productivity being one of highest in the North Sea; high primary production at summer hydrographic fronts in northern and southern border of the Dogger Bank;
- Light penetration: shallow seabed, clear water, low concentrations of suspended matter, limited re-suspension due to the coarse nature of the sediment, light penetrates relatively deep: during most of the year the 1% light level reaches a depth of 30 m or more, enabling benthic algal growth;
- Provision of substrate and variation thereof: glacial stones, gravel, sand, moorlog/peat (mostly dredged up), clay, shell material, mud, silt;
- Variation in depth/relief: steep slopes, mud holes, and streaks and ripples, waves of coarse sand and gravel, deep channels, troughs, sand ridges. A pattern of large wave-ripples on coarse-grained substrates has been suggested to generate enhanced turbulence compared to sandy seabeds, preventing fine sediments to cover areas with stones and gravel leading to long-term maintenance of shape and location of sorted bedforms. The main distinction separating infaunal groups in these habitats was between the coarse-sediment stations (A5.13 and A5.14) and the other stations. Fish, shellfish, echinoderms, and other species are dependent on various kinds of substrate.
- Spawning ground, nursery area, feeding ground: The Dogger Bank area is important for spawning of numerous fish species. Cod spawns along the southern and eastern

[183] Ibid.

[184] WWF and Client Earth (24 June 2019) Dogger Bank Complaint to the Commission concerning alleged breach of Union legislation CHAP(2019)01779

edges of the Bank in winter.[185] Mackerel, herring, whiting, common sole, sandeels and sprat also have spawning grounds around the Dogger Bank.[186] Sharks, rays and large gastropods such as whelks deposit their eggs to hard substrate.[187] The Dogger Bank is also known for its nursery ground, providing suitable habitat for foraging and maturing fish species like plaice.[188] Furthermore, the Dogger Bank is a feeding ground for protected species such as harbour porpoises, grey seals and many seabirds;

- Other ecological processes and functions include carbon storage, sediment processing, secondary production, habitat modification, supply of recruits, bioengineering and biodeposition; and
- Hattam *et al.* [189] describe which ecological functions contribute to the delivery of ecosystem services including primary production, maintenance of food web dynamics, nutrient cycling to maintain food web dynamics for target species, supply of larvae and gametes of target species, support breeding population of suitable size and quantity and provision of suitable habitats.

To give an example of how an ecological function might be pertinent to achieving the conservation objectives: A main factor causing differences among Dogger Bank communities is the availability, quantity and quality of food in the benthic boundary layer. This, in turn, is partly dependent on frontal systems.[190] This means that in order to improve quality of the seabed, you need to both reduce or eliminate detrimental impacts to the seabed, as well as safeguard the ecological process that allows that same seabed to recover and thrive. An appropriate assessment would need to understand which ecological processes are there in the first place and whether these are key enabling features for typical species allowing favourable conservation status.

Fishing methods that might be detrimental to the function of spawning and nursery ground include, for example, electric trawling, given exposure showed increased mortality in 2 out of 8 early life stages in cod.[191] And, for example, ''bottom trawling disturbs the seabed and affects biogeochemical processes. As changes to biogeochemical dynamics on the seafloor may affect benthic pelagic coupling and primary production in the water column, these effects may extend well beyond the benthic region".[192] These results also imply that

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[185] Fox *et al.* 2008 in Diesing, M., S. Ware, R. Foster-Smith, H, Stewart, D. Long, K. Vanstaen, R. Forster & A. Morando (2009) *Understanding the marine environment – seabed habitat investigations of the Dogger Bank offshore draft SAC*. Joint Nature Conservation Committee, Peterborough, JNCC Report No. 429, 88.

[186] Gubbay, S., C.M. Baker & B.J. Bett (2002). *The Darwin Mounds and the Dogger Bank. Case studies of the management of two potential Special Areas of Conservation in the offshore environment.* Southampton Oceanography Centre & WWF UK.

[187] G.W.N.M. Van Moorsel (2011). *Species and habitats of the international Dogger Bank.* Ecosub, Doorn, p. 74.

[188] Diesing, M., S. Ware, R. Foster-Smith, H, Stewart, D. Long, K. Vanstaen, R. Forster & A. Morando (2009) *Understanding the marine environment – seabed habitat investigations of the Dogger Bank offshore draft SAC.* Joint Nature Conservation Committee, Peterborough, JNCC Report No. 429, 88 88. 5 App.; and Hufnagl, M., Peck, M.A., Nash, R.D.M., Pohlmann, T., Rijnsdorp, A.D. (2013) Changes in potential North Sea spawning grounds of plaice (*Pleuronectes platessa L.*) based on early life stage connectivity to nursery habitats*.Journal of Sea Research,*. 84, 26–39.

[189]Ibid.

[190] G.W.N.M. Van Moorsel (2011). *Species and habitats of the international Dogger Bank.* Ecosub, Doorn, p. 74.

[191] ICES (2020) ICES Working Group on Electrical Trawling (WGELECTRA). *ICES Scientific Reports*, 2:37 108 http://doi.org/10.17895/ices.pub.6006

[192] Nedwell, D., Parkes, R. J., Upton, A., and Assinder, D. (1993) Seasonal fluxes across the sediment-water interface, and processes within sediments, *Philosophical Transactions of the Royal Society of*

mechanical impact from pulse trawling (and traditional beam trawling) has a much greater influence on biogeochemical dynamics than effects from electricity.[193]

Pulse trawling like other fisheries using bottom-trawls, dredges or seines[194] and other forms of anthropogenic activities that cause the mechanical disturbance to the seabed, have the potential to disrupt the natural cycling of nutrients. By removing and re-suspending the organic material from the seabed, the benthic metabolism and denitrification is reduced.[195] This lessens the nutrient cycling capacity of the sediments and can leave an ecosystem more vulnerable to eutrophication.

Besides impacting habitats and species, trawling can affect ecological processes, including the reduction of denitrification, organic carbon storage. The UK Government recognises the role the Dogger Bank plays in climate regulation by providing a long-term sink for carbon.[196]

> "*Trawl disturbance destroys the complex three-dimensional redox structures in surface sediments that maximize denitrification potential, resulting in up to a 50% reduction in net denitrification. The decrease in net denitrification also increased after each trawling event suggesting a declining resilience to trawling and eutrophication. […] As such, chronic impacts on benthic denitrification may still occur under higher trawl intensities or from trawling over a longer period.*[197] *This will particularly be the case if, under higher trawl intensities, there is a long-term negative effect on benthic infauna abundance, biomass and/or diversity, as has previously been reported.*[198] *Loss of infauna and associated bioturbation and bioirrigation would add to the loss in denitrification efficiency.*[199] *The retention of more bioavailable [nitrogen] in coastal*

*London. Series A: Physical and Engineering Sciences,* 343, 519-529.

[193] ICES (2020) ICES Working Group on Electrical Trawling (WGELECTRA). *ICES Scientific Reports*, 2:37 108 http://doi.org/10.17895/ices.pub.6006

[194] Eigaard, O. R., Bastardie, F., Breen, M., Dinesen, G. E., Hintzen, N. T., Laffargue, P., Mortensen, L. O., *et al.* (2016) Estimating seabed pressure from demersal trawls, seines, and dredges based on gear design and dimensions. *ICES Journal of Marine Science: Journal du Conseil*, 73, i27-i43.

[195] Ferguson, A.J.P.; Oakes, J.; Eyre, B.D. (2020) Bottom trawling reduces benthic denitrification and has the potential to influence the global nitrogen cycle. *Limnology and Oceanography Letters* 5, 237–245; Tiano, J.C.; van der Reijden, K.J.; O'Flynn, S.; Beauchard, O.;van der Ree, S.; van der Wees, J.; Ysebaert T.; Soetaert, K. (2020) Experimental bottom trawling finds resilience in large-bodied infauna but vulnerability for epifauna and juveniles in the Frisian Front, *Marine Environmental Research*, 159 104964.

[196] JNCC (2018) *Statements on conservation benefits, condition & conservation measures for Dogger Bank Special Area of Conservation.*

[197] Hinz, H., V. Prieto, and M. J. Kaiser (2009) Trawl disturbance on benthic communities: Chronic effects and experimental predictions*, Ecological Applications,* 19, 761–773 doi:10.1890/08-0351.1 in Ferguson, A.J.P.; Oakes, J.; Eyre, B.D. (2020) Bottom trawling reduces benthic denitrification and has the potential to influence the global nitrogen cycle, *Limnology and Oceanography Letters* 5, 2020, 237–245.

[198] Collie, J. S., S. J. Hall, M. J. Kaiser, and I. R. Poiner. 2000. A quantitative analysis of fishing impacts on shelf-sea benthos*, Journal of Animal Ecology*, 69, 785–798. doi:10.1046/j.1365-2656.2000.00434, Kaiser, M., K. Clarke, H. Hinz, M. C. V. Austen, P. Somerfield, and I. Karakassis (2006) Global analysis of response and recovery of benthic biota to fishing, *Marine Ecology Progress Series* 311, 1–14. doi:10.3354/meps311001; Sköld, M., P. Göransson, P. Jonsson, F. Bastardie, M. Blomqvist, S. Agrenius, J. Geert Hiddink, H. C. Nilsson, and V. Bartolino (2018) Effects of chronic bottom trawling on soft-seafloor macrofauna in the Kattegat, *Marine Ecology Progress Series* 586, 41–55. doi:10.3354/meps12434 in Ferguson *et al.* (2020) Bottom trawling reduces benthic denitrification and has the potential to influence the global nitrogen cycle. *Limnology and Oceanography Letters* 5, 237–245

[199] Pelegri, S. P., L. P. Nielsen, and T. H. Blackburn (1994) Denitrification in estuarine sediments stimulated by the irrigation of the amphipod *Corophium volutator*, *Marine Ecology Progress Series* 105, 285–29

> *ecosystems due to reduced denitrification associated with bottom trawling has implications for the global ocean nitrogen cycle and associated eutrophication. Impacts on the global ocean nitrogen cycle and associated eutrophication should be counted among the many negative consequences of extensive seafloor trawling."*[200]

Another study concludes trawling affects sediments to a depth of 10 cm with a 52% reduction in organic carbon storage, slower carbon turnover and reduced meiofauna abundance and biodiversity.[201] Through a scenario analysis, Luisetti *et al.*[202] explore the economic value of the damage of human activities and climate change can inflict on UK marine habitats, including shelf sea sediments. They write:

> "*In a scenario of increased human and climate pressures over a 25-year period, we estimate damage costs up to US$12.5 billion from carbon release linked to disturbance of coastal and shelf sea sediment carbon stores. […] the most frequently trawled sediments tend to be the most carbon rich (as they are associated with greater numbers of fish). These two considerations act in opposing directions: carbon rich sediments being trawled in preference increasing the likely carbon loss, while diminished effects of secondary trawls would lead to a decrease, potentially somewhat mitigating the uncertainty due to this assumption*."[203]

We have a broad understanding of detrimental effects of trawling and, for example, biogeochemical, nutrient cycling capacity, bentho-pelagic coupling, and other ecological processes.

Hence, we have given demersal seining, trawling and electric trawling a score of 2. Sufficient information exists to conclude adverse effects cannot be excluded. In order to pass this test for all other fishing methods, evidence would need to show fishing methods are not (significantly) detrimental to the underlying ecological processes, for example, the abundance and distribution of typical species.

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doi:10.3354/meps105285; Webb, A. P., and B. D. Eyre (2004) Effect of natural populations of burrowing thalassinidean shrimp on sedi-ment irrigation, benthic metabolism, nutrient fluxes and denitrification, *Marine Ecology Progress Series* 268: 205–220. doi:10.3354/meps268205 ; Ferguson, A. J. P., and B. D. Eyre (2013) Interaction of benthic microalgae and macrofauna in the control of benthic metabolism, nutrient fluxes and denitrification in a shallow sub-tropical coastal embayment (western Moreton Bay, Australia), *Biogeochemistry* 112, 423–440. doi:10.1007/s10533-012-9736-x in Ferguson, A.J.P.; Oakes, J.; Eyre, B.D. (2020) Bottom trawling reduces benthic denitrification and has the potential to influence the global nitrogen cycle. *Limnology and Oceanography Letters* 5, 2020, 237–245

[200] Ferguson, A.J.P.; Oakes, J.; Eyre, B.D. (2020) Bottom trawling reduces benthic denitrification and has the potential to influence the global nitrogen cycle, *Limnology and Oceanography Letters* 5, 2020, 237–245

[201] Pusceddu A, Bianchelli S, Martín J, *et al.*(2014) Chronic and intensive bottom trawling impairs deep-sea biodiversity and ecosystem functioning. *Proceedings the Natural Academy of Sciences of the United States of America* 2014;111(24):8861-8866. doi:10.1073/pnas.1405454111

[202] Luisetti, T.; Turner, R.K.; Andrews, J.E.; Jickells, T.D.; Kröger,S.; Diesing,M.; Paltriguera, L.; Johnson,M.T.; Parker,E.R.; Bakker, D.C.E.; Weston,K. (2019) Quantifying and valuing carbon flows and stores in coastal and shelf ecosystems in the UK, *Ecosystem Services* 35, 67–76

[203] Ibid.

# ANNEX 2 – TYPICAL SPECIES

**Table A2.1**

**Typical species of Dogger Bank habitat type H1110 with scientific name and common names in English and Dutch, species group and indication of inclusion in Dutch (NL), German (D) and British (UK) parts of the N2000 area and Background Document (BD). This selection of 50 species is characteristic for sandy substrates with low sediment dynamics and represents the complete biotic structure of the habitat type. Analysed by Wijnhoven *et al.* (2015) and indicated as 'S', sensitive to bottom disturbance. IUCN conservation status vulnerable is indicated in red.**

Dutch section: In the Dutch 'Profile H1110 Permanently submerged sandbanks (version 2014)' https://www.natura2000.nl/sites/default/files/profielen/Habitattypen_profielen/Profiel_habitattype_1110_2014.pdf a list of 38 typical species for subtype H1110C (Dogger Bank) is included. This list was also the reference for the 'Dutch Dogger Bank typical species' in the integrated Dutch, UK and German Dogger Bank typical species list in: Bureau Waardenburg. *Impact of demersal seine fisheries in the Natura 2000 area Dogger Bank, A review of literature and available data*. Report nr 16-224, Bureau Waardenburg, March 2017, p.14 https://www.buwa.nl/demersal-seining-doggersbank.html :

| H1110 typical species | English name | Dutch name | species group | NL | D | UK | BD |
|---|---|---|---|---|---|---|---|
| *Aphrodita aculeata* | Sea mouse | Zeemuis | annelid worm | 1 | | | |
| *Goniada maculata* | | | annelid worm | 1 | | | |
| *Lanice conchilega* | Sand mason worm | Schelpkokerworm | annelid worm | 1 | | 1 | 1 |
| *Magelona papillicornis* | | | annelid worm | 1 | | | |
| *Nephtys cirrosa* | White catworm | zandzager | annelid worm | 1 | | 1 | 1 |
| *Nephtys hombergii* | Catworm | zandzager | annelid worm | 1 | | | |
| *Sigalion mathildae* | | | annelid worm | 1 | 1 | | |
| *Spiophanes bombyx* | Bee spionid | Zandkokerworm | annelid worm | 1 | 1 | | 1 |
| *Pennatula phosphorea* | Luminescent sea pen | Zeepen | anthozoa | | | 1 | 1 |
| *Alcyonium digitatum*[*S] | Dead man's fingers | Dodemansduim | anthozoan | 1 | 1 | 1 | |
| *Alcyonidium diaphanum*[*S] | Sea chervil | Bruine zeevinger | bryozoa | | | 1 | 1 |
| *Bathyporeia elegans* | Sand digger shrimp | Kniksprietkreeftje | crustacean | 1 | 1 | | 1 |
| *Bathyporeia guilliamsoniana** | | Kniksprietkreeftje | crustacean | 1 | 1 | | 1 |
| *Corystes cassivelaunus*[*S] | Helmet crab | Helmkrab | crustacean | 1 | | 1 | |
| *Liocarcinus holsatus* | Swimming crab | Gewone zwemkrab | crustacean | 1 | | 1 | |
| *Pagurus bernhardus* | Common hermit crab | Gewone heremietkreeft | crustacean | 1 | | 1 | |
| *Pagurus pubescens* | hermit crab | Harige heremietkreeft | crustacean | | 1 | | |
| *Urothoe poseidonis* | | | crustacean | 1 | | | |
| *Acrocnida brachiata* | Buried serpent star | Ingegraven slangster | echinoderm | 1 | | | 1 |
| *Amphiura filiformis* | Serpent star | Draadarmige slangster | echinoderm | | 1 | 1 | 1 |
| *Asterias rubens* | Common sea star | Gewone zeester | echinoderm | | | 1 | |
| *Astropecten irregularis*[*S] | Sand star | Kamster | echinoderm | 1 | 1 | 1 | |
| *Echinocyamus pusillus** | Green urchin | Zeeboontje | echinoderm | 1 | 1 | | |
| *Luidia sarsii* | | | echinoderm | 1 | | | |
| *Ophiothrix fragilis* | Common brittle star | Brokkelster | echinoderm | 1 | 1 | 1 | 1 |
| *Ophiura ophiura* | serpent star | gewone slangster | echinoderm | 1 | | 1 | |
| *Psammechinus miliaris* | Green sea urchin | Kleine zeeappel | echinoderm | | 1 | 1 | 1 |
| *Ammodytes marinus* | Lesser sandeel | Noorse zandspiering | fish | | | 1 | 1 |
| *Arnoglossus laterna* | Scaldfish | Schurftvis | fish | 1 | | | 1 |
| *Buglossidium luteum* | Solenette | Dwergtong | fish | 1 | | | 1 |
| *Callionymus lyra* | Common dragonet | Gewone pitvis | fish | 1 | | 1 | 1 |
| *Echiichthys vipera* | Lesser weever | Kleine pieterman | fish | | 1 | | 1 |
| *Eutrigla gurnardus* | Grey gurnard | Grauwe poon | fish | 1 | | 1 | 1 |
| *Gadus morhua* | Atlantic cod | Kabeljauw | fish | 1 | | 1 | 1 |
| *Limanda limanda* | Dab | Schar | fish | 1 | | 1 | 1 |
| *Merlangius merlangus* | Whiting | Wijting | fish | 1 | | 1 | 1 |
| *Microstomus kitt* | Lemon sole | Tongschar | fish | 1 | | | 1 |
| *Pleuronectes platessa* | Plaice | Schol | fish | 1 | | 1 | 1 |
| *Raja clavata* | Thornback ray | Stekelrog | fish | | 1 | | 1 |
| *Acanthocardia echinata*[*S] | Prickly cockle | Gedoornde hartschelp | mollusc | | 1 | | 1 |
| *Angulus fabula*[*S] | Beanlike tellin | Rechtsgestreepte platschelp | mollusc | 1 | | 1 | 1 |
| *Aporrhais pespelecani*[*S] | Pelican foot | Pelikaansvoet | mollusc | | 1 | 1 | |
| *Arctica islandica*[*S] | Ocean quahog | Noorkromp | mollusc | 1 | 1 | | 1 |
| *Buccinum undatum*[*S] | Common whelk | Wulk | mollusc | 1 | 1 | | 1 |
| *Ensis ensis*[*S] | Sword razor shell | Kleine zwaardschede | mollusc | 1 | 1 | 1 | |
| *Euspira pulchella*[*S] | Common neglace shell | Glanzende tepelhoorn | mollusc | 1 | | | 1 |
| *Gari fervensis*[*S] | Faroe sunset shell | Geplooide zonneschelp | mollusc | 1 | 1 | | |
| *Kurtiella bidentata* | | Tweetandschelp | mollusc | 1 | 1 | 1 | 1 |
| *Mactra stultorum*[*S] | Rayed trough shell | Grote strandschelp | mollusc | | | | 1 |
| *Neptunea antiqua*[S] | Red whelk | Gewone noordhoren | mollusc | 1 | 1 | 1 | |

**Table A2.2 UK typical and listed species in JNCC Conservation Objectives:**[204]

| | | |
|---|---|---|
| Fish | *P platessa* | |
| Fish | *Ammodytes* spp. *(sandeels)* | |
| Fish | L. limanda (dab) | |
| Fish | S. solea | |
| Fish | *Microstomus kit* (lemon sole) | |
| Fish | Sprattus sprattus (sprat) | |
| Cetacean | *P phocoena* (harbour porpoise) | |
| Cnidarian | *Alcyonium digitatum* | |
| Bryozoa | *Flustra* spp. | |
| Asteroidea | *Asterias rubens* | |
| Asteroidea | *Astropecten irregularis* | |
| Paguridae | *Cancer pagarus* (edible crab) | |
| Brachyura | *Corystes cassivelaunus* | |
| Echinoid | *Echinocardium cordatum* | |
| Bivalves | *Mactra stultorum, Donax vittatus, Arctica islandica*, *Ensis, Abra prismatica* | |
| Ophiura | *Amphiura filiformis* | Superabundant in deeper waters of muddy sands |
| Polychaete | *Scoloplos armiger, Spiophanes bombyx* | |
| Gastropods | *Buccinidae* spp.*, Arctica islandica* | |

[204] JNCC (2018) *Supplementary Advice on Conservation Objectives for Dogger Bank Special Area of Conservation*. http://data.jncc.gov.uk/data/26659f8d-271e-403d-8a6b-300defcabcb1/DoggerBank-3-SACO-v1.0.pdf

## ANNEX 3 – CUMULATIVE IMPACTS ON THE DOGGER BANK

### UK - Dogger Bank site

The JNCC website mentions a number of activities which are taking place or are licensed to take place in the Dogger Bank site (last updated October 2017).[205]

The 'Dogger Bank Advice on Operations Guidance' of January 2018 (hereafter "Operations Guidance")[206] gives an overview of operations, activities (multiple activities per operation), and pressures (multiple pressures per activity) and their interactions with the UK Dogger Bank habitat. The Operations Guidance determines which activity-pressure-feature combinations should be taken for further assessment.

In the 'Statements on conservation benefits, condition & conservation measures for Dogger Bank Special Area of Conservation' document of January 2018 ("Conservation Advice Statements"),[207] the JNCC concludes the following operations and activities to each individually be capable of significantly affecting the qualifying features of the site:

- Demersal fishing;
- Oil and gas industry;
- Aggregates extraction
- Shipping;
- Cabling; and
- Renewable energy.

In-combination effects of specific activities are not screened in the Operations Guidance. Activities are considered independently from each other, and the combined pressures on the Dogger Bank habitat and its features of activities (like fishing with traps) are not qualified in view of its conservation objectives. The Operations Guidance does not provide information on interacting sources/activities, interacting impacts or interacting impacted areas. Impacts of multiple pressures may be greater than the sum of their parts. There may also be synergistic effects which act as multipliers. The Marine Ecosystem Research Programme has already carried out significant risk mapping combining population and activity mapping and taking account of both spatial and temporal patterns.[208]

Cumulative effects have been left out of the scope of the Operations Guidance, out of the Background Document and out of any other assessment of the Joint Recommendation; these must still be assessed for the UK Dogger Bank site. However, the Operations Guidance does consider activities and associated pressures in interaction with the Dogger Bank habitat,

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[205] JNCC (online) *Dogger Bank.* https://jncc.gov.uk/our-work/dogger-bank-mpa/

[206] JNCC (2018) *Dogger Bank Workbook.* http://data.jncc.gov.uk/data/26659f8d-271e-403d-8a6b-300defcabcb1/DoggerBank-5-AoOWorkbook-v1.0.xlsx

[207] JNCC (2018) JNCC (2018) *Supplementary Advice on Conservation Objectives for Dogger Bank Special Area of Conservation*, p 3-4. http://data.jncc.gov.uk/data/26659f8d-271e-403d-8a6b-300defcabcb1/DoggerBank-3-SACO-v1.0.pdf

[208] Marine Ecosystems Research Programme (online) *Cumulative Effects* https://marine-ecosystems.org.uk/Research_outcomes/Cumulative_effects

which, according to the Operations Guidance, are not individually capable of adverse impacts on site integrity. The Operations Guidance screens activities and associated pressures separately from each other and qualifies them as:

- Sensitive (S): "*The evidence base suggests the feature is sensitive to the pressure at the benchmark. This activity-pressure-feature combination should therefore be taken to further assessment*".
- Insufficient Evidence to Assess (IE): "*The evidence base is not considered to be developed enough for assessments to be made at the pressure benchmark. This activity-pressure-feature combination should therefore be taken to further assessment*".
- Not Assessed (NA): "*A sensitivity assessment has not been made for this feature to this pressure. However, this activity-pressure-feature combination should not be precluded from consideration*".
- Not Sensitive at the Benchmark (NS): "*The evidence base suggests the feature is not sensitive to the pressure at the benchmark. However, this activity-pressure-feature combination should not be precluded from consideration (e.g. thoughts needs to be given to activity specific variations in pressure, intensity, exposure, in-combination and indirect effects)*".
- Not Relevant (NR): "*The evidence base suggests that there is no interaction of concern between the pressure and the feature OR the activity and the feature could not interact*".

Activities and their pressures which the Operations Guidance qualifies under S, IE, NA, NS or NR e.g. are:

- Commercial shipping operation: several activities and pressures qualified as S, IE, NS and NR;
- Fishing with anchored nets/lines: several pressures qualified as S, IE, NA, NS and NR;
- Fishing with dredges: several activities and pressures qualified as S, IE, NA, NS and NR;
- Electrofishing: several activities and pressures qualified as S, IE, NS and NR;
- Fishing with hydraulic dredges: several activities and pressures qualified as S, IE, NA, NS and NR;
- Fishing with traps: several activities and pressures qualified as S, IE, NA, NS and NR;
- Pelagic fishing is found to be not relevant (NR).

The activities causing the pressures qualified in the Operations Guidance as S, IE, NA, NS and/or NR might cause adverse impacts on site integrity when assessed in combination with each other and with the fisheries activities in the Dogger Bank site that are currently allowed and are proposed to be allowed in the Joint Recommendation.

Where the Conservation Advice Statements identifies operations and activities capable of, separately from each other, significantly affecting the qualifying features of the site, and these are successive, incremental and/or combined these fisheries activities may also have cumulative effects. For example, the Operations Guidance qualifies pelagic fishing as NR, that is having no interaction (of concern) between the activity or pressure (by itself) and the

Dogger Bank habitat, but it still might lead to cumulative effects in combination with other activities and pressures.

The full review of cumulative effects should include all plans or projects currently under consideration together with any existing or proposed projects or plans up to the moment of adoption of the Joint Recommendation by the Commission. Cumulative effects of plans or projects *inter alia* related to the development of the Dogger Bank wind farms A, B and C and Sofia Offshore Wind Farm[209] and related to the development of oil and gas fields, and those which applied for consent after the Operations on Guidance was published January 2018, should also be fully reviewed. In Annex 3 we have attached presentations of key impacts of various sectors prepared by WWF.

It is also worth noting that Article 6(3) also applies to possible significant effects on Natura 2000-sites under the jurisdiction of another Member State. In the case of the Dogger Bank sites, this underlines the importance and requirement of an integrated assessment of all sites (which could, in theory, connect well with the instrument of a Joint Recommendation).

**The Netherlands - '*Doggersbank*' site**

The Dutch (national) management plan for the Dutch Dogger Bank site (*'Nadere Effectenanalyse'*)[210] assesses the effects of operations and activities on the Dogger Bank site, including those outside the site with possible external effects on the site, but does not apply to fisheries.[211] Activities subject to the Common Fisheries Policy do not require a permit under the Dutch national regulation for nature protection because the fishing activities are taking place in the exclusive economic zone.

The *Nadere Effectenanalyse* includes a screening and an appropriate assessment, also with respect to cumulative effects. It further states that fishing activities are not part of the screening and appropriate assessment of the *Nadere Effectenanalyse* because they have already been assessed in the FIMPAS project in a pre-assessment and FIMPAS workshop, resulting in a number of reports.[212] This is an error since assessment of in-combination and cumulative effects cannot be conducted in isolation.

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[209] Previously known as Creyke Beck A and B and Teesside A and B, which were granted consent by the Secretary of State in 2015 and pre-construction activities started in 2015. See JNCC (online) *Dogger Bank MPA* http://jncc.defra.gov.uk/page-6508.

[210] Royal Haskoning (2019) *Rapport Nadere Effectenanalyse Doggersbank*, Royal Haskoning DHV.

[211] The 'Wet natuurbescherming' (Nature Protection Act), which is the Dutch national act for nature protection, does not apply to activities subject to the Common Fisheries Policy, insofar they are taking place in the EEZ, Article 1.2(2) Wet van 16 december 2015, houdende regels ter bescherming van de natuur – Wet natuurbescherming – Staatsblad 2016, 34.

[212] ICES Advisory Committee (2010) *Report of the FIMPAS Workshop 2, 'Fishery Impact and Conflicts with Conservation Objectives', 30 June – 2 July 2010, Neufchatel-Hardelot, France.* ICES CM 2010/ACOM:53. https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2010/FIMPAS2/FIMPAS2%20Report%20Fishery%20Impact%20and%20Conflicts%20with%20Conservation%20Objectives.pdf and; FIMPAS Steering Group (2011) *Fisheries Measures in Protected Areas (FIMPAS) within the Exclusive Economic Zone (EEZ) of the Dutch part of the North Sea: areas out-side the 12 nautical miles zone: Proposals*, ICES 2011. https://www.ices.dk/sites/pub/Publication%20Reports/Expert%20Group%20Report/acom/2012/FIMPAS-Doggerbank/5.%20Report%20on%20Fisheries%20Measures%20in%20Protected%20Areas%5B1%5D.pdf

Following the *Nadere Effectenanalyse* activities (other than fishing activities) for which significant effects cannot be excluded due to insufficient information (which, therefore, may have significant negative effects) are:

- Use of sonar by the navy (H1110, harbour porpoise, common and grey seal);
- Sonar echo surveying (H1110);
- Marine litter (H1110, harbour porpoise, common and grey seal);
- Fishing activities outside the Dutch Dogger Bank site due to a change of species composition (H1110) and a decrease in food for harbour porpoise, common and grey seal.[213]

Activities in the *Nadere Effectenanalyse* considered to have 'low' effects are:

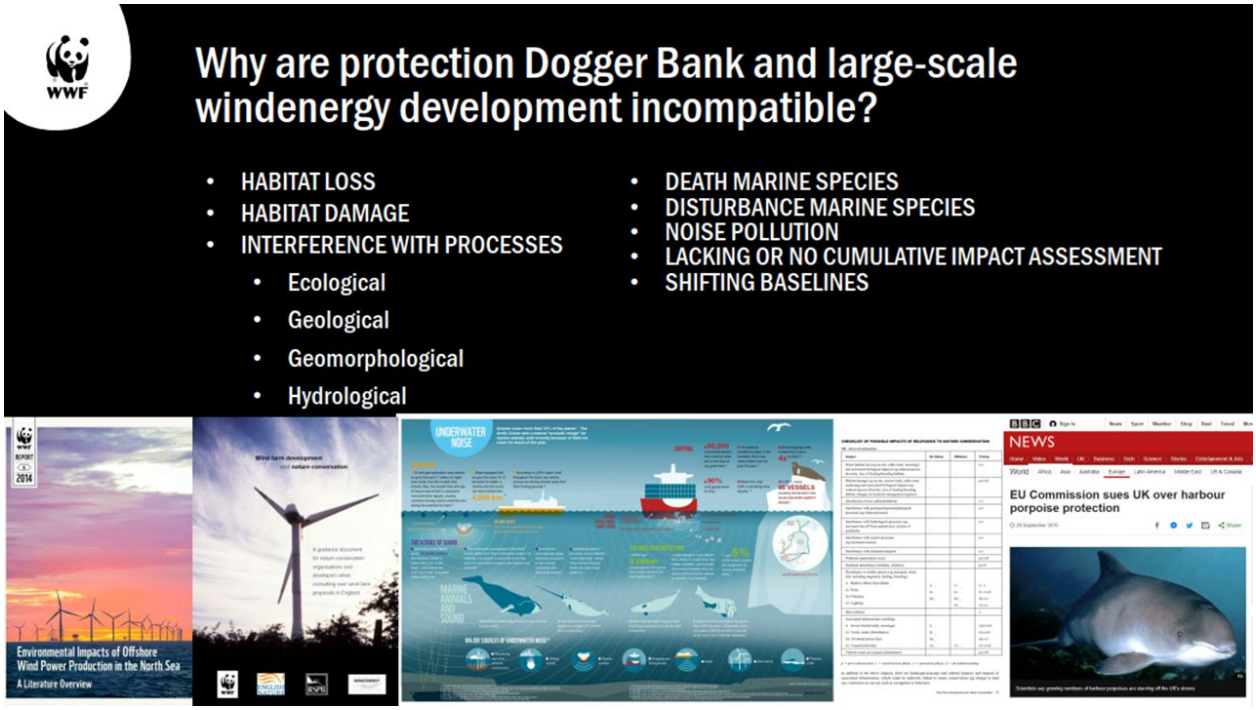
- Mining (oil and gas industry) (H1110, harbour porpoise, common and grey seal);
- Maintenance of cables (H1110);
- Bottom trawl survey and beam trawl survey (H1110, harbour porpoise, common and grey seal);
- Echo survey harbour porpoise, common and grey seal);
- Pollution (H1110, harbour porpoise, common and grey seal).[214]

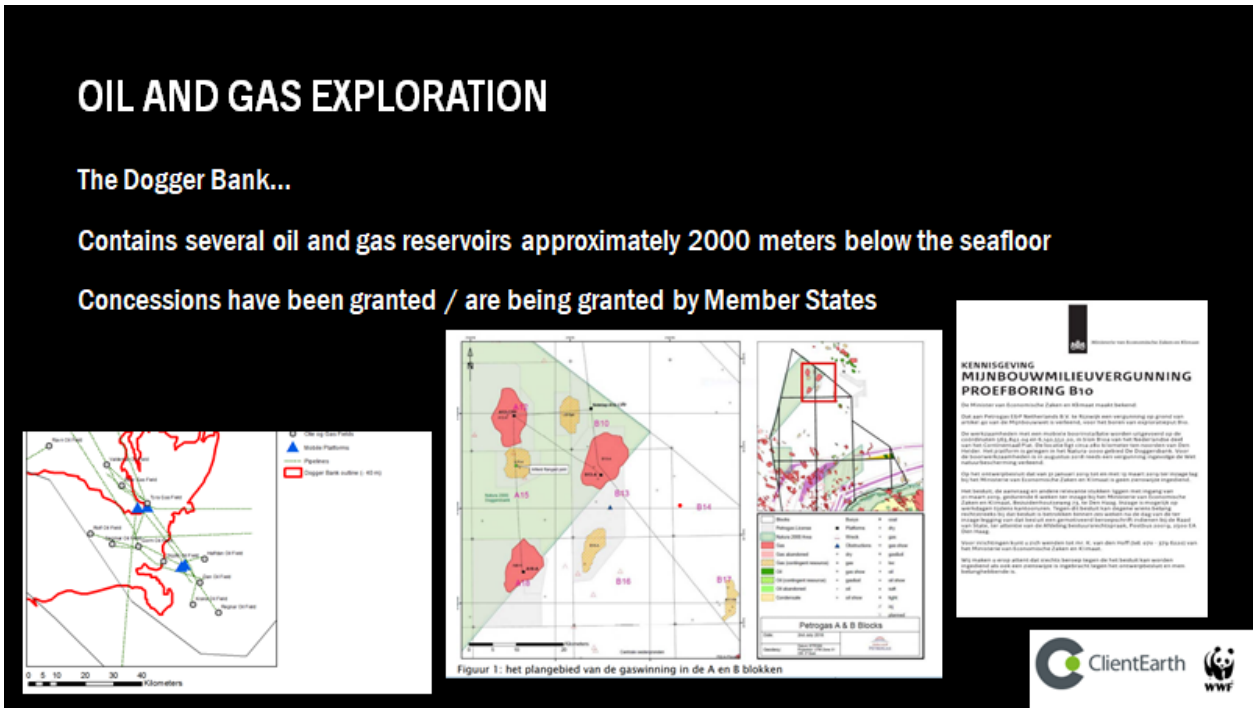
Wind parks outside the Dutch but inside the UK Dogger Bank site have permits and, according to the *Nadere Effectenanalyse*, are therefore considered to have negligible effects on H1110, harbour porpoise, common and grey seal.[215] However, plans and projects which have been approved in the past and which have not been implemented or completed should be included in the combination provision.[216]

This overview and further information in the *Nadere Effectenanalyse* can be used as a starting point for the appropriate assessment of fisheries activities, including of cumulative effects, likely to have adverse effects on the integrity of the Dogger Bank sites.

Although the Operations Guidance and Conservation Statements by JNCC (2018) concerns the UK Dogger Bank site, most conclusions on activity-pressure-feature combinations also apply to the Dutch site as they relate to the same habitat H1110. As the information provided in the Operations Guidance on activity-pressure-feature combinations is considerably more in-depth than provided in the appropriate assessment for the (general) management plan of the Dutch Dogger Bank site, the Operation Guidance should be used for the Dutch site as well.

[213] Royal Haskoning (2019) *Rapport Nadere Effectenanalyse Doggersbank*, Royal Haskoning DHV, p.72.
[214] Ibid, p.72-73.
[215] Ibid, p.62.
[216] European Commission (2018) *Managing Natura 2000 Sites: The provisions of Article 6 of the Habitats Directive 92/43/EEC,* p. 34.




**Germany – '*Doggerbank*' site**

In the German Dogger Bank, site a number of human non-fishing activities are taking place:

- Natural gas has been extracted since 2000;
- A wind park is in approval process;[217]

[217] BfN (online) *Offshore Wind Power.* https://www.bfn.de/en/activities/marine-nature-conservation/pressures-on-the-marine-environment/offshore-wind-power.html/ However, the status quo of wind parks in the German EEZ as described on this BfN website is that of March 2015.

- A petrochemical pipeline crosses the site;[218]
- Marine pollutants;
- Marine energy;
- Rising water temperatures;
- Ocean acidification;
- Excessive nutrient load.[219]

The effects of these activities on habitat H1110 in combination with the effects of the fishing activities have not been considered. The effects of activities in the Dutch and UK part of the Dogger Bank and in other places near the German site were also not assessed.

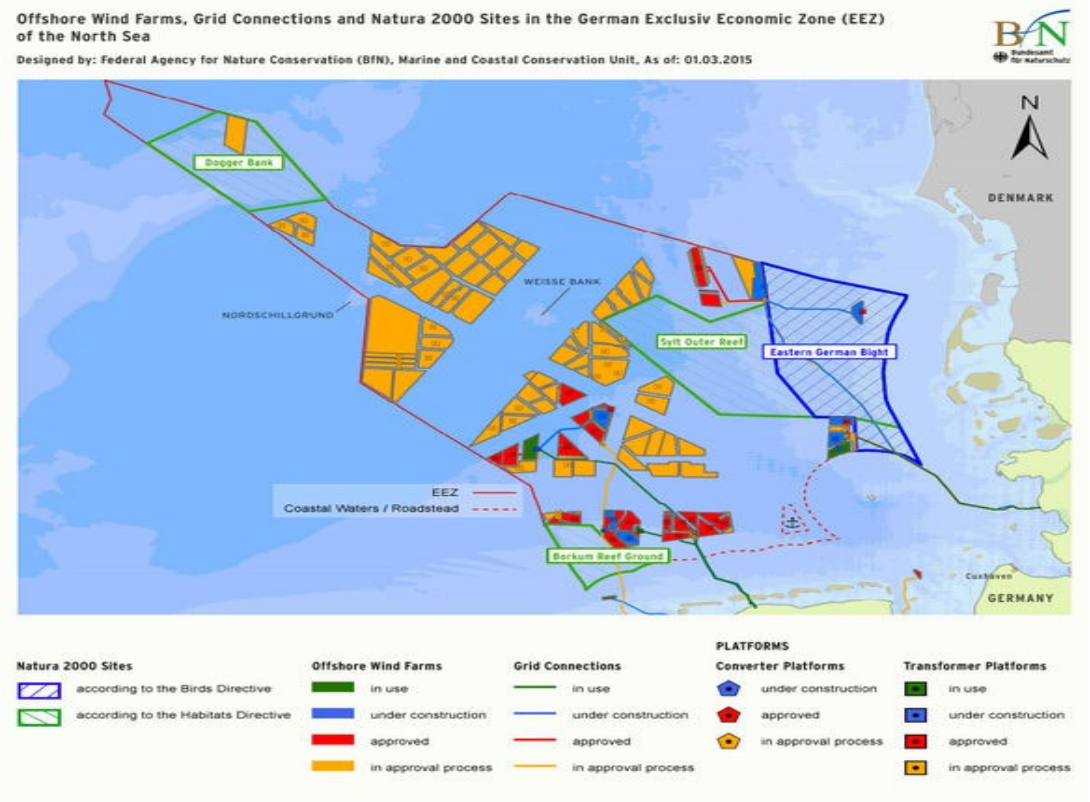
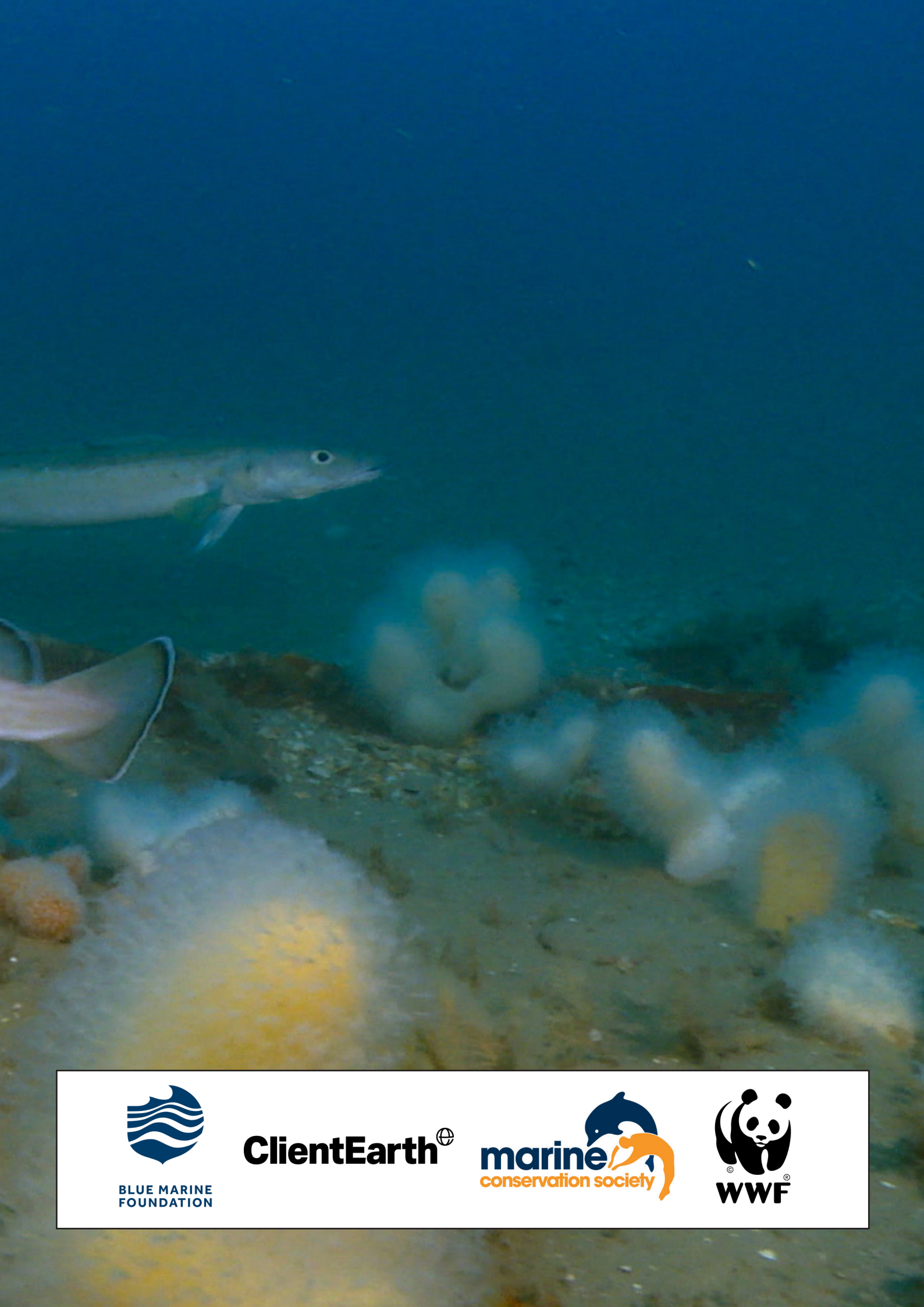



**Figure 4.1 Offshore wind energy in the German Exclusive Economic Zone**

[218]BfN (online) *Pipelines.* https://www.bfn.de/en/activities/marine-nature-conservation/pressures-on-the-marine-environment/pipelines.html
[219]BfN (online) *Other Impacts*. https://www.bfn.de/en/activities/marine-nature-conservation/pressures-on-the-marine-environment/other-impacts.html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