



**RWE Renewables UK Dogger Bank
South (West) Limited**

**RWE Renewables UK Dogger Bank
South (East) Limited**

Dogger Bank South Offshore Wind Farms

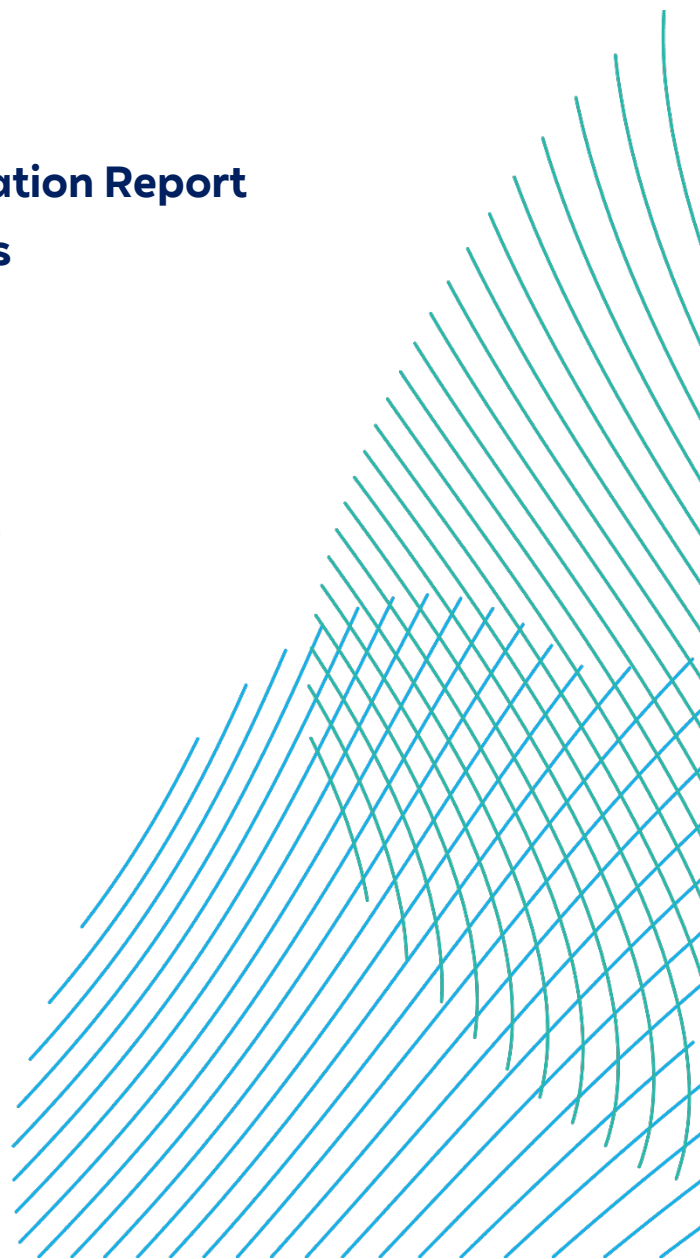
**Preliminary Environmental Information Report
Chapter 13 – Commercial Fisheries**

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Volume 3 – Appendices

Appendix 13-1 Commercial Fisheries Technical Report

Glossary

Term	Definition
Accommodation Platform	An offshore platform (situated within either the DBS East or DBS West array area) that will provide accommodation and mess facilities for staff when carrying out maintenance activities for the Projects.
Array Areas	The DBS East and DBS West offshore array areas, where the wind turbines and array cables will be located. The array areas do not include the offshore export cable corridor.
Array Cables	Cables which link the wind turbine generators to the offshore substation/converter/collector platform(s).
Allision	The act of striking or collision of a moving vessel against a stationary object.
Cumulative Effect Assessment (CEA)	Assessment of potential significant effects as a result of the incremental change caused by other past, present and reasonably foreseeable activities together with a development.
Dogger Bank South (DBS) Offshore Wind Farms	The collective name for the two Projects, DBS East and DBS West.
Electrical Switching Platform (ESP)	The electrical switching platform (if required) will provide a link to a co-ordinated east coast transmission system which is planned to run from Scotland to England, as per National Grid ESO's Holistic Design Network. This platform may be located either within one of the array areas (alongside a converter station) or mid-way along the export cable corridor (likely next to the Reactive Compensation Platform if required).
Fisheries Liaison Officer (FLO)	Primary contact point between the fishing community and the Projects developer, with responsibility for disseminating relevant Project information.

Term	Definition
International Council for the Exploration of the Sea (ICES) statistical rectangles	Defined areas of sea used for fisheries statistics (1 degree longitude by 0.5 degree latitude, equalling approximately 30 by 30 nautical miles).
Inter-platform cables	Cables linking offshore platforms.
Landings	Quantitative description of amount of fish returned to port for sale – can be defined in terms of value or weight.
Notices to Mariners (NtM)	The United Kingdom Hydrographic Office's (UKHO) service of publications that contain all of the corrections, alterations and amendments to the UKHO worldwide charts and publications. These are published weekly and are available directly from the UKHO.
Offshore Converter Platforms (OCPs)	Offshore Converter Platforms (OCPs) will be required for the HVDC option. The OCPs collect the AC power generated by the wind turbines and convert the power to DC, before transmission through the offshore export cables to the Project's onshore grid connection points.
Offshore Substation Platforms (OSPs)	Offshore Substation Platforms (OSPs) will be required for the HVAC option. These are fixed structures located within the array areas that contain electrical equipment to aggregate the power from the wind turbines, followed by conversion into a more suitable voltage for transmission through the offshore export cables to the Project's onshore grid connection points.
Offshore Development Area	The Offshore Development Area encompasses the wind farm site and the options for the offshore transmission works.
Offshore Fisheries Liaison Officer (OFLO)	Responsible for providing liaison between fishing vessels and offshore Project vessels. Role typically performed by someone with local knowledge and fisheries experience to

Term	Definition
	encourage co-operation between all parties, and to manage any areas of conflict and/or dispute.
Offshore Export Cable Corridor	This is the area which will contain the offshore export cables (and potentially the ESP and / or RCP) between the offshore substation/converter platforms and Transition Joint Bays at the landfall.
Projects	DBS East and DBS West (collectively referred to as the Dogger Bank South offshore wind farms).
Reactive Compensation Platform (RCP)	A Reactive Compensation Platform (RCP) will be required for a HVAC solution. The RCP will host the shunt reactors required to provide reactive compensation, in order to limit the electrical losses which occur with HVAC transmission over long distances.
Safety Zones	A statutory marine zone demarcated for the purposes of safety around a possibly hazardous installation or works/construction area.
Scoping Report	The report that was produced in order to request a Scoping Opinion from the Secretary of State.
Scoping Opinion	The report adopted by the Planning Inspectorate on behalf of the Secretary of State.
The Applicant	RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited as the owners of DBS West and DBS East respectively are the named undertakers that will have the benefit of the Development Consent Order. References in this document to obligations on, or commitments by, 'the Applicant' are given on behalf of RWE Renewables UK Dogger Bank South (West) Limited and RWE Renewables UK Dogger Bank South (East) Limited.
Vessel Monitoring System (VMS)	Satellite tracking system using a device on a vessel which transmits the location, speed and course of the vessel.

Acronyms

Term	Definition
AIS	Automatic Identification Systems
CEA	Cumulative Effect Assessment
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CFP	Common Fisheries Policy
CFWG	Commercial Fisheries Working Group
CNPMEM	Le Comité national des pêches maritimes et des élevages marins
DBS	Dogger Bank South
DCO	Development Consent Order
EEA	European Economic Area
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMF	Electromagnetic Fields
ES	Environmental Statement
ESCA	European Subsea Cable Association
ESP	Electrical Switching Platform
EU	European Union
FLO	Fisheries Liaison Officer
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
FMPs	Fisheries Management Plans

Term	Definition
GBS	Gravity Based Structures
HDD	Horizontal Directional Drilling
HFIG	Holderness Fishing Industry Group
HPMA	Highly Protected Marine Area
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
ICES	International Council for the Exploration of the Sea
ICPC	International Cable Protection Committee
IFCA	Inshore Fisheries and Conservation Authorities
INNS	Invasive Non-native Species
IPMP	In-Principle Monitoring Plan
MCA	Maritime and Coastguard Agency
MMO	Marine Management Organisation
MPA	Marine Protected Area
MPS	Marine Policy Statement
NFFO	National Federation of Fishermen's Organisations
NPS	National Policy Statement
NRA	Navigational Risk Assessment
NtM	Notices to Mariners
OFLO	Offshore Fisheries Liaison Officer
OCP	Offshore Converter Platform

Term	Definition
OSP	Offshore Substation Platform
PEIR	Preliminary Environmental Information Report
PLGR	Pre-Lay Grapnel Run
RCP	Reactive Compensation Platform
SAC	Special Area of Conservation
SFF	Scottish Fishermen's Federation
SFPO	Swedish Fisherman's Producers Organisation
SPFPO	Swedish Pelagic Federation Producer Organisation
STECF	EU Scientific, Technical and Economic Committee for Fisheries
SWFPA	Scottish White Fish Producers Association
SWFPO	South West Fisher Producers Organisations
VMS	Vessel Monitoring Systems

13 Commercial Fisheries

13.1 Introduction

1. This chapter of the Preliminary Environmental Information Report (PEIR) considers the likely significant effects of the Projects on Commercial Fisheries. The chapter provides an overview of the existing environment for the proposed Offshore Development Area and wider area, followed by an assessment of likely significant effects for the construction, operation, and decommissioning phases of the Projects.
2. The assessment should be read in conjunction with the following linked chapters:
 - **Chapter 5 Project Description;**
 - **Chapter 6 EIA Methodology;**
 - **Chapter 9 Benthic Habitats;**
 - **Chapter 10 Fish and Shellfish Ecology;** and
 - **Chapter 14 Shipping and Navigation.**
3. Additional information to support the Commercial Fisheries assessment includes:
 - **Appendix 13-1 Commercial Fisheries Technical Report.**
4. The primary purpose of the PEIR Chapter is to inform the Environmental Statement (ES) in support of the Development Consent Order (DCO) application for the Dogger Bank South (DBS) East and DBS West Projects under the Planning Act 2008. Preliminary environmental information and pre-application consultation provides the basis of information to date to be included and support the production of the ES.

13.2 Consultation

5. Consultation with regard to Commercial Fisheries has been undertaken in line with the general process described in **Chapter 6 EIA Methodology**. The key elements of consultation to date have included issue of the Scoping Report, port visits, fisheries specific questionnaires, and meetings of the Projects' Commercial Fisheries Working Group (CFWG). The feedback received has been considered in preparing the PEIR, and **Table 13-1** provides a summary of how the consultation responses received to date have influenced the approach that has been taken.

6. Commercial fisheries stakeholders consulted with, to date, include:
 - Andy Wheeler Consulting;
 - Anglo Dutch fishing industry;
 - Coastal Shellfish Ltd;
 - Danish Pelagic Fishermen's Association;
 - Danmarks Fiskeriforening (Danish Fishing Association);
 - Deep Wind Offshore;
 - Deutscher Fischerei-Verband (German Fisheries Association);
 - Fiskerbåt (Norwegian Fishing Vessel Owners Association);
 - Holderness Fishing Industry Group (HFIG);
 - Independent United Kingdom (UK) fishers (e.g. beach netter, potter, sandeel fisher);
 - Le Comité national des pêches maritimes et des élevages marins (CNPMEM) (Normandie and Boulogne);
 - National Federation of Fishermen's Organisations (NFFO);
 - Norwegian Fishing Industry Representative;
 - Rederscentrale;
 - Scottish Fishermen's Federation (SFF);
 - Scottish White Fish Producers Association (SWFPA);
 - Sør-Norges Trålerlag (Norwegian Fishermen's Association);
 - South West Fish Producer Organisation (SWFPO);
 - Swedish Fishermen's Producer Organisation (SFPO);
 - Swedish Pelagic Federation Producer Organisation (SPFPO); and
 - VisNed (North West Dutch Fisheries Producer Organisation).
7. In addition to fisheries stakeholder meetings focused on the PEIR process, as outlined in **Table 13-1**, fisheries stakeholders have also been engaged prior to, and during the DBS offshore surveys.
8. This chapter will be updated following consultation on the PEIR, in order to produce the final assessment that will be submitted with the DCO application. Full details of the consultation process will also be presented in the Consultation Report, which will be submitted alongside the DCO application.

Table 13-1 Consultation Responses.

Comment	Project Response
CFWG meeting – 30/03/2022	
Concerns regarding coexistence – located on the slopes of Dogger Bank, where there are important sandeel fishing grounds. Concerns regarding coexistence with the fisheries in the region, particularly the sandeel fishery. Noted that some fishing vessels would not fish within a wind farm array area.	The Projects have obtained data from fisheries stakeholders which show the location and spatial extent of sandeel fishing grounds in the North Sea. This information is considered within the Existing Environment (section 13.5) and the Assessment of Significance (section 13.6).
Andy Wheeler Consulting (Holderness Fisher Representative) – 23/11/2022	
Fishing activity – inshore static gear vessels active in the area 0 – 9nm. Targeting brown crab and lobster. Several vessels also targeting whelk. Targeting coarse gravelly seabed for lobster. Fishing activity is all year with highest activity through May – September, including within the offshore export cable corridor. Not aware of any longlining. Represents mostly 9 – 12m static gear vessels which fish 150 – 200 days per year; the majority use pots, with some using nets. Fishing is usually only over one day with typical steaming distances of 4 – 8nm.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on inshore static gear vessels are assessed within section 13.6.
Static gear data – static gear activity represented in Marine Management Organisation (MMO) Vessel Monitoring Systems (VMS) data aligns with their understanding of general fishing patterns. Confirmed that they are not aware of any additional datasets.	This dataset is presented within the Existing Environment (section 13.5); limitations and assumptions of the dataset are acknowledged throughout this document and discussed in detail within Appendix 13-1 Commercial Fisheries Technical Report .
Future changes to fishing activity – increased fishing activity as a result of ‘Brexit’; Highly Protected Marine Area (HPMA) on the Holderness coast may result in fishers moving north into the offshore export cable corridor; bp carbon capture surveys to the east of DBS may also increase fishing pressure; management measures affecting fishing activity.	This information is considered within the Existing Environment (section 13.5.6 and Appendix 13-1 Commercial Fisheries Technical Report) and the Assessment of Significance (section 13.6).

Comment	Project Response
Potential interactions with the Project – main concerns related to the offshore export cable corridor (cable burial and rock protection).	Cables will be buried where possible to an indicative target depth of 0.5-1m; in areas where this is not achievable, the offshore cables will be protected. Where cable protection is required, the location of cable protection shall be considered to ensure that the most appropriate type is used (as outlined in section 13.3.3).
Scour protection could diversify fishing within the array area, reducing pressure on stocks.	Impacts on fish and shellfish stocks are considered within Chapter 10 Fish and Shellfish Ecology ; resulting impacts on commercial fisheries receptor groups are considered in section 13.6.
Independent fisher (Bridlington static gear) – 23/11/2022	
Fishing activity – static gear activity represented in MMO Vessel Monitoring Systems (VMS) data aligns with their understanding of general fishing patterns. Increasing static gear activity within the DBS West array area since 2020. Static gear activity across the offshore export cable corridor occurs later in the year, partly to minimise interactions with the Danish and Dutch sandeel and herring fishery in the area. Static gear is generally laid in a north-east to south-west orientation inside 6nm, and an east to west orientation between 6 – 12nm; within the array areas gear is shot in all directions.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on static gear vessels are assessed within section 13.6.
Array layout – turbine spacing is not a major concern. Providing the turbines are in a line or pattern, this fisher will be able to continue fishing. Fishing within offshore wind farms is seen as an additional safety measure for their crew. Fished within Triton Knoll since construction.	This information is considered within the main assessment (section 13.6).
Dogger Bank Special Area of Conservation (SAC) Byelaw – mobile gear vessels have been displaced into other areas, with herring and sandeel now being targeted on the banks to the south of the DBS array areas. Positive for static gear due to lack of conflict with mobile gear vessels.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report) and the impact assessment (section 13.6).

Comment	Project Response
HFIG - 24/11/2022	
Conclusions drawn from limited evidence – conclusions of the PEIR should acknowledge limited datasets.	Limitations and assumptions of the dataset are acknowledged throughout this document and discussed in detail within Appendix 13-1 Commercial Fisheries Technical Report .
Cumulative impacts – should consider effect on fish stocks and long term availability.	A Preliminary Cumulative Effect Assessment has been included at the PEIR stage. A final Cumulative Effect Assessment will be conducted as part of the ES. The approach to this is outlined in section 13.4.4.
Fishing activity – represents 34 vessels (6 – 15m in length). Mostly static gear activity, with several fixed netters (beach and boat); not aware of any longlining. Targeting shellfish, e.g. crab and lobster; whelk is mainly landed as a bycatch. Fishing occurs all year around. Members are mainly based in Bridlington, but also across Hornsea, Withernsea, and Flamborough.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on static gear vessels and intertidal netters are assessed within section 13.6.
Static gear data – static gear activity represented in MMO VMS data aligns with their understanding of general fishing patterns; noted that inshore fishing is likely to be under-represented.	This dataset is presented within the Existing Environment (section 13.5); limitations and assumptions of the dataset are acknowledged throughout this document and discussed in detail within Appendix 13-1 Commercial Fisheries Technical Report .
Potential interactions with the Project – main concerns related to the offshore export cable corridor (cable burial and rock protection).	Offshore export cables will be buried where possible to a target depth of 0.5-1m; in areas where this is not achievable, the cable will be protected, and cable protection shall be designed to minimise snagging (as outlined in section 13.3.3).
Landings data – reduction in lobster landings by a third in 2018, due to a change in legislation which banned the landing of egg bearing females.	Noted. Long-term datasets (10 years) have been obtained where possible to account for changes to fishing activity (section 13.4.2).

Comment	Project Response
Dogger Bank SAC Byelaw – mobile gear vessels have been displaced into other areas, notably closer inshore which has caused increase pressure, and could result in conflict between gear types. Static gear has shifted north from Grimsby. Larger static gear vessels (with up to 250 pots) from further afield have started fishing the Dogger Bank.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report) and the main assessment (section 13.6).
Independent fisher (intertidal netter) – 24/11/2022	
Fishing activity – Skipsea Lane End and Far Grange. Nets are 150 yards, with three anchors approximately every 12 yards. Fishing activity between October and August, with no fishing in September. Catches include sea trout during March to August and sea bass, sole, mullet, skate, and thornback ray all year.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on intertidal netters are assessed within section 13.6.
Independent fisher (Bridlington static gear) – 24/11/2022	
Fishing activity – target crab and lobster on patches of stone and hard clay, whereas whelk is targeted on soft, muddy grounds; male crabs are more abundant further off-shore. Fishes all year, but September to December is most profitable.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on static gear vessels are assessed within section 13.6.
Static gear data – static gear activity represented in MMO VMS data aligns with their understanding of general fishing patterns; but noted that there is also static gear further north, to the west of the DBS array areas.	This dataset is presented within the Existing Environment (section 13.5); limitations and assumptions of the dataset are acknowledged throughout this document and discussed in detail within Appendix 13-1 Commercial Fisheries Technical Report .
Array layout – wider spacing of turbines is preferable. Fishes within operational sites (e.g. Triton Knoll), but not during inclement weather. Turbine spacing at Triton Knoll is considered the minimum safe to fish.	This information is considered within the main assessment (section 13.6).
Potential interactions with the Project – construction vessels will need to work exclusively within closed fishing areas (including area for turning circles), otherwise risks gear snagging.	Noted. Loss or damage to fishing gear due to snagging is assessed within section 13.6.

Comment	Project Response
Dogger Bank SAC Byelaw – benefit to static gear fishers, as there is no longer potential for conflicts with mobile gear.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report) and the main assessment (section 13.6).
SPFPO – 9/12/2022	
Fishing activity – targeting mainly herring, sprat, and sandeel (depending on quota). Sandeel season is generally from April to around late June. Herring are targeted following the completion of the sandeel fishery through to the end of the summer. Mackerel targeted in October, and anchovies targeted October to December. Vessels are generally between 41 – 64m in length. Sprat and herring fishery uses pelagic gear types; these fisheries follow fish movements and are unpredictable. The sandeel fishery uses bottom contacting gears and is very predictable, as follows the same tracks every year. Quota and allocations vary year to year, which affects fishing activity in the area. Pelagic (midwater trawls) target the ‘Hills’¹ for sandeel and herring. Nets are approximately 1.5km in length and can weigh over 100 tonnes when full; maximum spread of netting is 180 – 200m.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on these vessels are assessed within section 13.6.
Concerns on fish stocks – Concerns regarding impacts of Electromagnetic Fields (EMF) and underwater noise on fish stocks, particularly herring. Dogger Bank is an important area for juvenile and young herring; stakeholders highlighted concerns that the Project could cause reductions in the herring stock.	Impacts on fish and shellfish stocks are considered within Chapter 10 Fish and Shellfish Ecology ; resulting impacts on commercial fisheries receptor groups are considered in section 13.6.

¹ The Hills is an area south-west of the DBS array areas, which can be seen on Figure 13-1; the offshore export cable corridor overlaps with the northern parts of the Hills.

Comment	Project Response
Concerns regarding competition for space – as a result of loss of habitats and fishing grounds.	Effects from loss or restricted access to fishing grounds; displacement from the wind farm site and offshore export cable leading to gear conflict and increased pressure on adjacent fishing grounds is considered within the assessment (section 13.6).
Array layout – providing there is 1.5nm (2.8km) spacing of turbines and a regular pattern i.e. turbines are in straight lines, pelagic fishing may continue within windfarm arrays. However, some fishers will not fish within wind farm arrays. Layout of turbines in straight lines will increase potential for co-existence. As the sandeel fishing grounds are well established, co-existence could be achieved by avoiding placing turbines on sandeel grounds.	This information is considered within the main assessment (section 13.6).
Lack of data for pelagic fish – assessments are limited by the lack of information on pelagic fish.	The Projects have followed up with fisheries stakeholders to identify whether there are any further datasets that could be obtained. Limitations and assumptions of the data (or lack of) are acknowledged throughout this document and discussed in detail within Appendix 13-1 Commercial Fisheries Technical Report .
Dogger Bank SAC Byelaw – sandeel fishery is now prohibited from the area.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report) and the main assessment (section 13.6).

Comment	Project Response
CNPMEM – 13/12/2022	
Fishing activity – principal fishing grounds for French fishers (operating out of Boulogne-sur-Mer) are located from Flamborough Head to Hornsea and Grimsby, with Silver Pit one of the key grounds. Overlap of fishing activity with the offshore export cable corridor, but not with the array areas. Main activity for Boulogne-sur-Mer vessels is demersal otter trawling, with vessels ranging in size from 19 – 24m; vessels may also use semi-pelagic trawls to catch both mackerel and whiting. French pelagic vessels also targeting herring on the ‘Hills’. Whiting season is generally between April and June.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on these vessels are assessed within section 13.6.
Dogger Bank SAC Byelaw – vessels are no longer able to fish within this area.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report) and the main assessment (section 13.6).
Future fishing activity – considerable uncertainty regarding future access to UK waters for French fishers.	This information is considered within the Existing Environment (section 13.5 Appendix 13-1 Commercial Fisheries Technical Report) and the main assessment (section 13.6).
Rederscentrale – 14/12/2022	
Fishing activity – most members are beam trawlers, but some use otter trawls in the region. Principal species are Dover sole and plaice, with bycatch of turbot and brill. Also catch blonde ray, spotted ray and thorn-back ray. Overlap of fishing activity with the offshore export cable corridor.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on these vessels are assessed within section 13.6.

Comment	Project Response
Potential interactions with the Project – main concerns related to the offshore export cable corridor (cable burial and rock protection).	Offshore export cables will be buried where possible to a target depth of 0.5-1m; in areas where this is not achievable, the cable will be protected, and cable protection shall be designed to minimise snagging (as outlined in section 13.3.3).
Dogger Bank SAC Byelaw – vessels are no longer able to fish within this area.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report) and the main assessment (section 13.6).
CFWG meeting – 06/01/2023	
Dogger Bank SAC Byelaw – noted that this has affected fishing activity in the area.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report) and the main assessment (section 13.6).
Marine traffic surveys – comment that the time of year may affect which fishing vessels are active in the area.	Limitations and assumptions of datasets are acknowledged and outlined in Appendix 13-1 Commercial Fisheries Technical Appendix . Marine traffic surveys are undertaken predominantly to inform the Shipping and Navigation Chapter and are repeated during summer and winter months in accordance with MCA guidance; site-specific scouting (potting) surveys and guard vessels observations have also been undertaken to inform the Existing Environment (section 13.5); these have been used to supplement official datasets.
Location of potential offshore platforms along the export cable corridor – query whether an opportunity will arise for fisheries stakeholders to discuss the area identified for the location in relation to fishing grounds.	The Projects have followed up with fisheries stakeholders to discuss the potential locations and conducted a risk assessment which identified a 20km stretch of the offshore export cable corridor suitable for potential platform locations. This has been shared with the CFWG and may be refined throughout the PEIR and ES process in accordance with any comments received.

Comment	Project Response
Guard vessels – query by a German fishing industry representative asking whether there would be any opportunities for fishing vessels to provide guard vessel services.	This has been considered within the Projects design envelope and worst case scenario (section 13.3.2 and 13.3.3), and also the Assessment of Significance (section 13.6). Provision of guard vessels will be committed to in the Fisheries Liaison and Coexistence Plan where appropriate.
SWFPA – 11/01/2023	
Fishing activity – vessels using scallop dredges (Newhaven style) to target king scallop outside of the 12nm limit. These vessels only fish for king scallop all year round. Within the Commercial Fisheries Study Area, dredging for scallops is mostly focused east of Flamborough head, outside the 12nm, which overlaps with the offshore export cable corridor.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on these vessels are assessed within section 13.6.
Penetration depth of gear – approximately 6 – 8 inches, but noting that in areas which are towed repeatedly the penetration depth will become deeper.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on these vessels are assessed within section 13.6.
Width of towed gear – Eighteen Newhaven style scallop dredges per side. Each tow bar is approximately 18m in length.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report); impacts on these vessels are assessed within section 13.6.
Potential interactions with the Project – main concerns related to the offshore export cable corridor (cable burial).	Export cables will be buried where possible to a target depth of 0.5-1m; in areas where this is not achievable, the cable will be protected, and cable protection shall be designed to minimise snagging (as outlined in section 13.3.3).
Dogger Bank SAC Byelaw – vessels are not able to fish within this area. Observed that other fishing vessels have been displaced to the English Channel, north-east Scotland and east of Flamborough Head outside of the 12nm.	This information is considered within the Existing Environment (section 13.5 and Appendix 13-1 Commercial Fisheries Technical Report) and the main assessment (section 13.6).

Comment	Project Response
The Planning Inspectorate / 02 September 2022 / Scoping Opinion: Proposed Dogger Bank South Offshore Wind Farms Case Ref: EN010125 02/09/2022	
Increased steaming times to alternative fishing grounds for vessels that would otherwise fish in the Proposed Development area (operation): The Scoping Report states that the magnitude of this impact is deemed negligible as the effect will be temporary and localised. The Scoping Report does not explain why operational effects are anticipated to be temporary, however the Inspectorate agrees that due to the nature and the low sensitivity of fishing vessels taking account of their large operational range, a detailed assessment in the ES is not likely to be required. However, the ES should characterise the operational effects on commercial fisheries including increased steaming times and provide the evidence used to determine that significant effects are unlikely.	This impact is fully considered within section 13.6.
Assumptions and limitations: The Scoping Report acknowledges assumptions and limitations with the quantitative data sets used to inform the Scoping Report and expected to inform the ES. Paragraph 373 notes that smaller vessels are excluded from the analysis of Vessel Monitoring System data which only captures vessels over 12m in length, and that datasets from 2020 and 2021 will be affected by COVID-19. It is proposed that in order to support these existing data sets, consultation will be held with fisheries stakeholders to provide further insight into specific fishing grounds and activity of vessels in the area.	Consultation has been held with fisheries stakeholders, as outlined within this table, to support the existing datasets. This will be ongoing throughout the Projects.
Assumptions and limitations: Data across a time period of at least 4 years prior to 2020 will be collated to avoid the impacts of Coronavirus (COVID-19).	Long-term datasets (10 years) prior to 2020 have been obtained where possible (section 13.4.2).

Comment	Project Response
Assumptions and limitations: The ES should clearly state the limitations associated with any data used. Efforts should be taken to agree the data sources with relevant consultation bodies and outcomes should be evidenced within the ES.	Limitations and assumptions of the dataset are acknowledged throughout this document and discussed in detail within Appendix 13-1 Commercial Fisheries Technical Report . Data sources were presented to fisheries stakeholders during CFWG meetings and discussed during port visits, as outlined within this table.
Invasive non-native species (INNS): The ES should assess the potential for the introduction of hard substrate and vessel movements to facilitate the spread of INNS (e.g. via ballast water, biofouling, introduction of artificial structures and through accidents and spillages), and the potential for impacts upon commercial fisheries where significant effects are likely to occur. Where significant effects are likely to occur, the ES should also consider the potential for climate change-related effects to facilitate the spread and exacerbate the impacts of INNS.	This impact is considered in Chapter 9 Benthic Habitats ; as no significant effects were predicted as a result of INNS, there will be no significant effects on commercial fisheries receptors. As such, this is not considered further within this chapter.

13.3 Scope

13.3.1 Study Area

9. The Projects are located within the International Council for the Exploration of the Sea (ICES) Division Ixb (North Sea) statistical area, which is divided into statistical rectangles for the purpose of recording fisheries landings. The array areas (**Figure 13-1**) will be located within ICES rectangles 37F1, 37F2, 38F1 and 38F2; and the offshore export cable corridor (also illustrated on **Figure 13-1**) will be located within 36E9, 37E9, 37F0, 37F1, 38F0 and 38F1.
10. A broad Commercial Fisheries Study Area has been defined which will provide wider regional context to the various fisheries, whilst also providing coverage for any effects that may occur both within and outside of the Offshore Development Area. Therefore, the Commercial Fisheries Study Area has been defined as ICES rectangles 36E9, 36F0, 37E9, 37F0, 37F1, 37F2, 38F0, 38F1 and 38F2 (**Figure 13-1**); as was outlined within the Scoping Report.

13.3.2 Realistic Worst Case Scenario

13.3.2.1 General Approach

11. The realistic worst case design parameters for likely significant effects scoped into the EIA for the Commercial Fisheries assessment are summarised in **Table 13-2**. These are based on the project parameters described in **Chapter 5 Project Description**, which provides further details regarding specific activities and their durations.
12. In addition to the design parameters set out in **Table 13-2**, consideration is also given to the different development scenarios still under consideration and the possible phasing of the construction as set out in sections 13.3.2.2 to 13.3.2.5.

Table 13-2 Realistic Worst Case Design Parameters

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
Construction In the instance of sequential development of the two Projects, up to a 2 year lag between construction activities is possible, final overall footprint would be identical to the concurrent design scenario.				
Loss or restricted access to fishing grounds	Construction duration Up to 5 years of offshore construction Maximum 21 months for the offshore export cable installation	Construction duration Up to 5 years of offshore construction Maximum 21 months for the offshore export cable installation	Construction duration Up to 7 years of offshore construction if built sequentially Maximum 21 months for the offshore export cable installation	This represents the maximum duration and extent of fishing exclusion throughout the construction phase and hence the greatest potential for displacement. Assumed equal split in area between DBS East and DBS West.
	Safety zones of 500m radius from any construction activity (to be applied for)	Safety zones of 500m radius from any construction activity (to be applied for)	Safety zones of 500m radius from any construction activity (to be applied for)	

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
	Array areas 494.5km ²	Array areas 494.5km ²	Array areas 989km ²	
	Offshore export cables - Length: 198km per cable - Cable corridor width: 2km	Offshore export cables - Length: 158km per cable - Cable corridor width: 2km	Offshore export cables - Total offshore cable length per cable: 198km for DBS East, 158km for DBS West - Cable corridor width: 2km	
Displacement from the wind farm site and offshore export cable leading to gear conflict and increased pressure on	As per the Realistic Worst Case Scenario for Construction phase loss or restricted access to fishing grounds.			This represents the maximum duration and extent of fishing exclusion throughout the construction phase and hence the greatest potential for displacement.

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
adjacent fishing grounds				
Temporary increase in steaming times	As per the Realistic Worst Case Scenario for Construction phase loss or restricted access to fishing grounds.			This represents the maximum potential disruption to established steaming routes.
Loss or damage to fishing gear due to snagging	As per the Realistic Worst Case Scenario for Construction phase loss or restricted access to fishing grounds.			This represents the maximum scenario for project infrastructure present during the construction phase and hence the greatest potential for gear snagging.
Supply chain opportunities for local fishing vessels	- Construction phase duration: up to 5 years - Guard vessels: up to five (indicative peak number)	Construction phase duration: up to 5 years	- Construction phase duration: up to 7 years - Guard vessels: up to ten (Indicative peak number)	Likely opportunities for local fishing vessels (potential beneficial impact for commercial fishing vessels).

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
	- Potential provision of fishing vessel for scouting surveys - Potential for Offshore Fisheries Liaison Officer (OFLO) duties	- Guard vessels: up to five (indicative peak number) - Potential provision of fishing vessel for scouting surveys - Potential for OFLO duties	- Potential provision of fishing vessel for scouting surveys - Potential for OFLO duties	
Potential impacts on commercially important fish and shellfish resources	See Chapter 10 Fish and Shellfish Ecology Realistic Worst Case Scenario.			The scenarios presented in Fish and Shellfish Ecology provide for the greatest disturbance to fish and shellfish species and therefore the resulting greatest potential effect to Commercial Fisheries.
Navigational safety	See Chapter 14 Shipping and Navigation Realistic Worst Case Scenario.			The scenarios presented in Shipping and Navigation provide for the greatest

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
				disturbance to shipping and navigation and therefore the resulting greatest potential effect to commercial fisheries.
Operation				
Loss or restricted access to fishing grounds	Duration: Operational design life of 30 years Array area: Total footprint of infrastructure within the array area: 3.67km² Up to 100 wind turbines on four-legged pile jackets with sea surface dimensions of 40x40m.	Duration: Operational design life of 30 years Array area: Total footprint of infrastructure within the array area: 3.81km² Up to 100 wind turbines on four-legged pile jackets with sea surface dimensions of 40x40m.	Duration: Operational design life of 32 years Array area: Total footprint of infrastructure within the array area: 8.17km² Up to 200 wind turbines on four-legged pile jackets with sea surface dimensions of 40x40m.	This represents the maximum duration and extent of fishing exclusion throughout the operation phase and hence the greatest potential to restrict access to fishing grounds. Assumption: Assessment assumes that fishing will resume around and between infrastructure within the Projects where possible, with the exception of an

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
	Up to five platforms with topside dimensions of 125x110m. Minimum spacing of 830m between array structures. Up to 325km of array cables. Up to four inter-platform cables with combined 55km length. Target burial depth for array cables and inter-platform cables of between 0.5 and 1m. Indicative maximum proportion of array cable	Up to five platforms with topside dimensions of 125x110m. Minimum spacing of 830m between array structures. Up to 325km of array cables. Up to four inter-platform cables with combined 99km length. Target burial depth for array cables and inter-platform cables of between 0.5 and 1m. Indicative maximum proportion of array cable	Up to nine platforms with topside dimensions of 125x110m. Minimum spacing of 830m between array structures. Up to 650km of array cables. Up to four inter-platform cables with combined 385km length. Target burial depth for array cables and inter-platform cables of between 0.5 and 1m. Indicative maximum proportion of array cable protection requirement of 20%.	assumed 50m operating distance from infrastructure, areas of cable protection, and safety zones around infrastructure undergoing major maintenance or replacement. Furthermore, the individual decisions made by skippers with their own perception of risk will determine the likelihood of whether their fishing will resume within DBS East and / or DBS West. Inclement weather will be a significant contributor to this risk perception. Disturbance is shown over the Projects' lifetime.

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
	protection requirement of 20%. Indicative maximum proportion of inter-platform cable protection requirement of 20%. Up to 20 crossings per array cable. Indicative height of protection for array cables (including crossings) of 1.0m. Indicative height of protection for inter-platform cables (including crossings) of 1.4m.	protection requirement of 20%. Indicative maximum proportion of inter-platform cable protection requirement of 20%. Up to 20 crossings per array cable. Up to two cable / pipeline crossings per inter-platform cable. Indicative height of protection for array cables (including crossings) of 1.0m. Indicative height of protection for inter-platform cables	Indicative maximum proportion of inter-platform cable protection requirement of 20%. Up to 40 crossings per array cable. Up to 24 cable / pipeline crossings per inter-platform cable. Indicative height of protection for array cables (including crossings) of 1.0m. Indicative height of protection for inter-platform cables (including crossings) of 1.4m.	

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
		(including crossings) of 1.4m.		
	Offshore export cable corridor: Total footprint within the offshore export cable corridor – 1.27km² Total offshore export cable protection – 1,089,660m ² Total worst case scour protection for ESP in offshore export cable corridor – 56,410m ² Total footprint of pipeline and / or cable crossing material – 122,611m ²	Offshore export cable corridor: Total within the offshore export cable corridor: 1.99km² Total offshore export cable protection – 1,642,872m ² Total worst case scour protection for RCP in offshore export cable corridor – 56,410m ² Total footprint of pipeline / cable crossing material – 294,267m ²	Offshore export cable corridor: Total within the offshore export cable corridor: 3.26km² Total offshore export cable protection – 2,701,040m ² Total worst case scour protection for ESP & RCP in offshore export cable corridor – 112,821m ² Total footprint of pipeline and / or cable crossing material – 441,400m ² Indicative height of protection for offshore	

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
	Indicative height of protection for offshore export cables (including crossings) of 1.4m.	Indicative height of protection for offshore export cables (including crossings) of 1.4m.	export cables (including crossings) of 1.4m.	
	Safety Zones: Up to 500m when major maintenance is in progress (use of jack-up vessel or similar).	Safety Zones: Up to 500m when major maintenance is in progress (use of jack-up vessel or similar).	Safety Zones: Up to 500m when major maintenance is in progress (use of jack-up vessel or similar).	
Displacement from the wind farm site and offshore export cable leading to gear conflict and increased pressure on adjacent	As per the Realistic Worst Case Scenario for operational phase loss or restricted access to fishing grounds.			This represents the maximum duration and extent of fishing exclusion throughout the operation phase and hence the greatest potential for displacement.

	Parameter			Notes and rationale
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	
fishing grounds				
Increased steaming times	As per the Realistic Worst Case Scenario for operational phase loss or restricted access to fishing grounds.			This represents the maximum potential disruption to established steaming routes.
Loss or damage to fishing gear due to snagging	As per the Realistic Worst Case Scenario for operational phase loss or restricted access to fishing grounds.			This represents the maximum scenario for project infrastructure present during operation and maintenance phase and hence the greatest potential for gear snagging.
Supply chain opportunities for local fishing vessels	There may be opportunities for commercial fishing vessels to provide marine operation support during the operations and maintenance phase (up to 32 years under sequential scenario) of the Projects, such as OFLO duties during period of major maintenance and guard vessel requirements.			Likely opportunities for local fishing vessels (potential beneficial impact for commercial fishing vessels).

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
Potential impacts on commercially important fish and shellfish resources	See Chapter 10 Fish and Shellfish Ecology Realistic Worst Case Scenario.			The scenarios presented in Fish and Shellfish Ecology provide for the greatest disturbance to fish and shellfish species and therefore the resulting greatest potential effect to Commercial Fisheries.
Navigational safety	See Chapter 14 Shipping and Navigation Realistic Worst Case Scenario.			The scenarios presented in Shipping and Navigation provide for the greatest disturbance to shipping and navigation and therefore the resulting greatest potential effect to commercial fisheries.

	Parameter			
	DBS East in isolation (HVDC only)	DBS West in isolation (HVAC only)	DBS West and DBS East concurrently and/or in sequence (HVAC + HVDC)	Notes and rationale
Decommissioning				
No final decision regarding the final decommissioning policy for the onshore project infrastructure including landfall, onshore cable route and onshore substation has yet been made. It is also recognised that legislation and industry best practice change over time. However, it is likely that offshore project infrastructure will be removed above the seabed and reused or recycled where practicable. The detail and scope of the decommissioning works will be determined by the relevant legislation and guidance at the time of decommissioning and will be agreed with the regulator. It is anticipated that for the worst case scenario, the impacts will be no greater than those identified for the construction phase.				

13.3.2.2 Development Scenarios

13. There are currently two possible electrical solutions being considered for DBS West; HVAC or HVDC. Due to the distance of the array area offshore, DBS East will be an HVDC project. Therefore, there are two possible electrical solutions for the Projects:
- One HVDC project and one HVAC project; or
 - Two HVDC projects.
14. Offshore, the most significant difference between an HVAC solution and an HVDC solution is that if an HVAC electrical solution is used, an additional platform will be required along the offshore export cable. In addition, a HVAC solution will require two additional offshore export cables, over and above the four export cables that would be required for two HVDC projects.
15. In order to ensure that a robust assessment has been undertaken, all development scenarios and options have been considered to ensure the realistic worst case scenario for each topic has been assessed. Further details are provided in **Chapter 5 Project Description**.

13.3.2.3 Construction Scenarios

16. The following principles set out the framework for how the Projects may be constructed (relating to both onshore and offshore works):
- DBS West and DBS East may be constructed at the same time, or at different times;
 - If built concurrently, both Projects could be constructed in five years;
 - If built non-concurrently, either Project could be built first;
 - If built non-concurrently, each Project would require a five year period of construction;
 - If built non-concurrently, it is anticipated that there would be up to a two year lag between the start of construction for the first project, and the start of construction for the second project; and
 - Assuming a maximum construction period per Project of five years, and taking the above into account, the maximum construction period over which the construction of both Projects could take place is seven years.
17. In order to determine which construction scenario presents the realistic worst case for each receptor and impact, the assessment considers both maximum duration effects and maximum peak effects, in addition to each Project being developed in isolation, drawing out any differences between each of the two Projects.

18. The three construction scenarios considered by the Commercial Fisheries assessment are therefore:
 - Build DBS East or build DBS West in isolation;
 - Build DBS East and DBS West concurrently – reflecting the maximum peak effects; and
 - Build the Projects sequentially with or without a lag of up to two years – reflecting the maximum duration of effects.
19. The individual, concurrent and sequential construction scenarios all allow for flexibility to build out the Projects using a phased approach. This will allow the Projects to adapt to National Grid Electricity Transmission Operator's development plans for the onshore grid connection points. Under a phased approach the maximum timescales for individual elements of the construction have been assessed.
20. Any differences between the Projects, or differences that could result from the manner in which the first and the second Projects are built (concurrent or sequential and the length of any gap), are identified and discussed where relevant in section 13.6. For each potential impact, only the worst case construction scenario for two Projects is presented, i.e. either concurrent or sequential. The justification for what constitutes the worst case is provided, where necessary, in section 13.6.

13.3.2.4 Operation Scenarios

21. Operation scenarios are described in detail in **Chapter 5 Project Description**. The assessment considers the following scenarios:
 - Only DBS East in operation;
 - Only DBS West in operation; and
 - The two Projects operating concurrently, with a lag of two years between each Project commencing operation.
22. If the Projects are built out using a phased approach, there would also be a phased approach to starting the operational stage. The worst case scenario for the operational phases for the Projects have been assessed. See section 5.1.1 of Chapter 5 Project Description for further information on phasing scenarios for the Projects.
23. The operations lifetime of each Project is expected to be 30 years.

13.3.2.5 Decommissioning Scenarios

24. Decommissioning scenarios are described in **Chapter 5 Project Description**. Decommissioning arrangements will be agreed through the submission of a Decommissioning Programme prior to construction, however, for the purpose of this assessment it is assumed that decommissioning of the Projects could be conducted separately, or at the same time.

13.3.3 Mitigation Embedded in the Design

25. This section outlines the embedded mitigation relevant to the Commercial Fisheries assessment, which has been incorporated into the design of the Projects (**Table 13-3**). Where additional mitigation measures are proposed, these are detailed in the impact assessment (section 13.6).

Table 13-3 Embedded Mitigation Measures

Parameter	Mitigation Measures Embedded into the Project Design
Fisheries Liaison	Ongoing liaison with the fishing industry through the Fisheries Liaison Officer (FLO) will be maintained during construction, maintenance and decommissioning activities. Good practise with regards to fisheries liaison will be adhered to, in order to maintain effective communications between the Projects and the fishing industry. This will be committed to within the Fisheries Liaison and Coexistence Plan which will be secured through the DCO.
Communication	Advance warning and accurate location details will be provided to fishing fleets of construction, maintenance and decommissioning activities, associated safety zones and advisory passing distances; communication will be via timely and efficient Notices to Mariners (NtMs) and Kingfisher Bulletins. This is to ensure that the fishing industry is fully informed, in advance, of any offshore activities. This will be committed to within the Fisheries Liaison and Coexistence Plan which will be secured through the DCO.
Cable burial	Development of a cable burial plan, to outline cable burial depth and monitoring of cables. This will ensure navigational safety and minimise risk of gear snagging. This will be secured through the DCO.

Parameter	Mitigation Measures Embedded into the Project Design
Cable protection and maintenance	Where required, the location of cable protection shall be considered to ensure that the most appropriate type is used. This is to ensure safety of fishing activity and to minimise amount of fishing activity lost. This will be committed to within the project design of the Environmental Statement and secured within the DCO.
Navigation	Aids to navigation (marking and lighting) will be deployed in accordance with the latest relevant available standard industry guidance and agreed with the Maritime and Coastguard Agency and Trinity House. The United Kingdom Hydrographic Office (UKHO) will be notified of both the commencement, progress, and completion of offshore construction works, to allow marking of installed infrastructure on nautical charts. Agreement on this will be secured through the DCO.
Safety zones	Safety zones of up to 500m will be applied during construction and periods of major maintenance to ensure navigational safety and minimise risk of snagging.
Guard vessels	Where appropriate, guard vessels will also be used to ensure navigational safety to mitigate impacts which pose a risk to surface navigation during construction and maintenance. This will be committed to within the Fisheries Liaison and Coexistence Plan which will be secured through the DCO.
Fisheries Liaison and Co-existence Plan	A Fisheries Liaison and Co-existence Plan will be developed pre-construction to communicate the commitments by the Project to co-exist with the fishing industry. An outline Fisheries Liaison and Co-Existence Plan will be included with the DCO Application.

13.4 Assessment Methodology

13.4.1 Policy, Legislation and Guidance

13.4.1.1 National Policy Statements

26. The assessment of potential impacts upon Commercial Fisheries has been made with specific reference to the relevant National Policy Statements (NPS). The specific assessment requirements for Commercial Fisheries, as detailed in the NPS, are summarised in **Table 13-4** together with an indication of the section of this chapter where each is addressed.
27. It is noted that the NPS for Energy (EN-1), the NPS for Renewable Energy Infrastructure (EN-3) and NPS for Electricity Networks Infrastructure (EN-5) are in the process of being revised. Draft versions were published for consultation in September 2021 (BEIS, 2021a and BEIS 2021b, respectively). A review of these draft versions has also been undertaken in the context of this PEIR chapter. There are no significant additional considerations for commercial fisheries. No specific provisions relevant to commercial fisheries are found in NPS EN-1, NPS EN-5 or the draft versions of these NPSs. Within the draft NPS EN-3, it highlights that consultation should include the MMO and Defra, in addition to statutory advisors and representatives of the fishing industry.
28. Following the consultation in 2021 on the draft energy NPS, a new consultation opened on the 30 March 2023 on revised drafts of the energy NPSs, including EN1, EN3 and EN5. Due to the timing of this consultation, and finalisation of this PEIR we have been unable to review and take these revised draft NPS into account within these documents. However, these will be reviewed and incorporated into the final ES where relevant.

Table 13-4 Summary of NPS Provisions Relevant to Commercial Fisheries

NPS Requirement	NPS Reference	PEIR Section Reference
EN-3 NPS for Renewable Energy Infrastructure		
Consultation		
Early consultation should be undertaken with statutory advisors and with representatives of the fishing industry which could include discussions of impact assessment methodologies. Where any part of a proposal involves a grid connection to shore, appropriate inshore fisheries groups should also be consulted.	Paragraph 2.6.127 of NPS EN-3	Consultation has been undertaken with relevant commercial fisheries stakeholders (see section 13.2).

NPS Requirement	NPS Reference	PEIR Section Reference
Where a number of offshore wind farms have been proposed within an identified zone, it may be beneficial to undertake such consultation at a zonal, rather than a site specific level.	Paragraph 2.6.128 of NPS EN-3	Consultation has been undertaken with a wide range of local, regional, UK and non-UK fisheries stakeholders that are active in the wider region (see section 13.2). One of the CFWG meetings was held jointly with the Sofia Offshore Wind Project.
Baseline Data		
Robust baseline data should have been collected and studies conducted as part of the assessment.	Paragraph 2.6.129 of NPS EN-3	Robust baseline datasets analysed include official datasets (e.g. European Union (EU) and UK fisheries statistics) site-specific data (e.g. vessel traffic surveys, scouting surveys and guard vessel observations), consultation with fisheries stakeholders and published reports (see section 13.5 and Appendix 13-1 Commercial Fisheries).
Safety Zones		
Where there is a possibility that safety zones will be sought around offshore infrastructure, potential effects should be included in the assessment on commercial fishing.	Paragraph 2.6.130 of NPS EN-3	The need for safety zones has been considered by the Navigational Risk Assessment (NRA) completed

NPS Requirement	NPS Reference	PEIR Section Reference
Where the precise extents of potential safety zones are unknown, a realistic worst case scenario should be assessed. Applicants should consult the Maritime and Coastguard Agency (MCA). Exclusion of certain types of fishing may make an area more productive for other types of fishing.	Paragraph 2.6.131 of NPS EN-3	for DBS offshore wind farms. Implications from the implementation of safety zones have been presented in section 13.6. Consultation has also been undertaken with the MCA (see Chapter 14: Shipping and Navigation). Safety zones are outlined in Table 13-2 .
The Secretary of State will need to consider the extent to which disruption to the fishing industry, whether short term during construction or long term over the operational period, including that caused by the future implementation of any safety zones, has been mitigated where reasonably possible.	Paragraph 2.6.136 of NPS EN-3	Implications from the disruptions to commercial fisheries during construction and operation has been presented in section 13.6.
Fish Stocks		
The construction and operation of offshore windfarms can have both positive and negative effects on fish and shellfish stocks.	Paragraph 2.6.122 of NPS EN-3	Potential impacts to fish stocks have been assessed in Chapter 10 Fish and Shellfish Ecology . Impacts on commercial fisheries as a result of impacts to fish stocks, have been assessed in section 13.6.

NPS Requirement	NPS Reference	PEIR Section Reference
The assessment by the applicant should include detailed surveys of the effects on fish stocks of commercial interest and the potential reduction or increase in such stocks that will result from the presence of the wind farm development and of any safety zones.	Paragraph 2.6.131 of NPS EN-3	Potential impacts to fish stocks have been assessed in Chapter 10 Fish and Shellfish Ecology . Impacts on commercial fisheries as a result of impacts to fish stocks, have been assessed in section 13.6.
Case by case basis		
Whilst the footprint of the offshore windfarm and any associated infrastructure may be a hindrance to certain types of commercial fishing activity, such as trawling and longlining, other fishing activities may be able to take place within operational windfarms without unduly disrupting or compromising navigational safety. Consequently, the establishment of a windfarm can increase the potential for some activities, such as potting, where this would not compromise any safety zone in place. The Planning Inspectorate should consider adverse or beneficial impacts on different types of commercial fishing on a case-by-case basis.	Paragraph 2.6.123 of NPS EN-3	Impacts on commercial fisheries have been assessed in section 13.6.

NPS Requirement	NPS Reference	PEIR Section Reference
Transboundary In some circumstances, trans-boundary issues may be a consideration as fishermen from other countries may fish in waters within which offshore windfarms are sited.	Paragraph 2.6.124 of NPS EN-3	Impacts on fishing fleets from the UK and non-UK countries have been assessed in section 13.6. Transboundary issues are outlined in section 13.8. Engagement of non-UK commercial fisheries stakeholders has been undertaken (see section 13.2).

29. NPS EN-3 also highlights several factors relating to the determination of an application and in relation to mitigation. These are summarised in **Table 13-5** below.

Table 13-5 Summary of NPS policy on decision making relevant to Commercial Fisheries

NPS Requirement	NPS Reference	PEIR Section Reference
EN-3 NPS for Renewable Energy Infrastructure		
Commercial Fisheries		
The Secretary of State should be satisfied that the site selection process has been undertaken in a way that reasonably minimises adverse effects on fish stocks, including during peak spawning periods and the activity of fishing itself.	Paragraph 2.6.132 of NPS EN-3	The effects arising from the proposed development have been, and will be discussed with statutory bodies during pre and post application consultation. The Applicant is, and will continue to, take steps to minimise the effects upon the fishing industry in the area through appropriate mitigation where required. Commitments related to Commercial Fisheries are outlined in section 13.3.3.
The Secretary of State should consider the extent to which the proposed development occupies any recognised important fishing grounds and whether the project would prevent or significantly impede protection of sustainable Commercial Fisheries or fishing activities.	Paragraph 2.6.132 of NPS EN-3	The impacts of the Projects on recognised fishing grounds have been considered (section 13.6), and consultation with fishing stakeholders has been undertaken in order to fully understand any

NPS Requirement	NPS Reference	PEIR Section Reference
The Secretary of State should be satisfied that the applicant has sought to design the proposal, having consulted representatives of the fishing industry with the intention of minimising the loss of fishing opportunity taking into account effects on other marine interests.	Paragraph 2.6.133 of NPS EN-3	potential impacts (section 13.2).
Mitigation for Commercial Fisheries		
Any mitigation proposals should result from the applicant having detailed consultation with relevant representatives of the fishing industry.	Paragraph 2.6.134 of NPS EN-3	Proposed mitigation measures are outlined in section 13.3.3. Consultation has been undertaken with relevant commercial fisheries stakeholders (see section 13.2).
Mitigation should be designed to enhance where reasonably possible any potential medium and long-term positive benefits to the fishing industry and Commercial fish stocks.	Paragraph 2.6.135 of NPS EN-3	Embedded mitigation measures are outlined in section 13.3.3 and additional mitigation measures are outlined in section 13.6.

13.4.1.2 Other

30. In addition to the NPS, there a number of pieces of legislation and policy applicable to the assessment of Commercial Fisheries. These include:
- The UK Marine Policy Statement (MPS; HM Government, 2011) explicitly expresses support for the fishing sector, for example with regard to displacement, the MPS advocates “*seeking solutions such as co-location of activity wherever possible*”. Specifically, paragraph 3.8.10 outlines that opportunities for co-existence between fishing and other activities should be encouraged were possible (Defra, 2014);

- A summary of the East Inshore and East Offshore Marine Plans (Defra, 2014) policies relevant to commercial fisheries is provided in Table 13-6;
- A summary of the North East Inshore and North East Offshore Marine Plans (Defra, 2021) policies relevant to commercial fisheries is provided in Table 13-7; and
- The UK Joint Fisheries Statement (Defra et al., 2022) includes a policy to address fisheries displacement (section 4.2.9): “facilitating co-location of activities at sea; and when impacts are unavoidable seeking to support appropriate adaption in the fishing sector for the national benefit”.

Table 13-6 Summary of East Inshore and East Offshore Marine Plans and Policies Relevant to Commercial Fisheries

East Inshore and East Offshore Marine Plan policies	PEIR Section Reference
Commercial Fisheries	
Policy FISH1: “Within areas of fishing activity, proposals should demonstrate in order of preference: a) that they will not prevent fishing activities on, or access to, fishing grounds; b) how, if there are adverse impacts on the ability to undertake fishing activities or access to fishing grounds, they will minimise them; c) how, if the adverse impacts cannot be minimised, they will be mitigated; d) the case for proceeding with their proposal if it is not possible to minimise or mitigate the adverse impacts.”	Impacts on commercial fisheries have been assessed in section 13.6. Proposed mitigation measures are outlined in section 13.3.3.
Policy FISH2: “Proposals should demonstrate, in order of preference: a) that they will not have an adverse impact upon spawning and nursery areas and any associated habitat; b) how, if there are adverse impacts upon the spawning and nursery areas and any associated habitat, they will minimise them; c) how, if the adverse impacts cannot be minimised they will be mitigated; d) the case for proceeding with their proposals if it is not possible to minimise or mitigate the adverse impacts”	Impacts on fish stocks have been assessed in Chapter 10 Fish and Shellfish Ecology .
Coexistence and displacement	
Policy GOV2: “Opportunities for co-existence should be maximised wherever possible.”	Impacts on commercial fisheries have been assessed in section

East Inshore and East Offshore Marine Plan policies	PEIR Section Reference
Policy GOV3: <i>“Proposals should demonstrate in order of preference: a) that they will avoid displacement of other existing or authorised (but yet to be implemented) activities; b) how, if there are adverse impacts resulting in displacement by the proposal, they will minimise them; c) how, if the adverse impacts resulting in displacement by the proposal, cannot be minimised, they will be mitigated against or; d) the case for proceeding with the proposal if it is not possible to minimise or mitigate the adverse impacts of displacement.”</i>	13.6. Proposed mitigation measures are outlined in section 13.3.3.

Table 13-7 Summary of North East Inshore and North East Offshore Marine Plans and Policies Relevant to Commercial Fisheries

North East Inshore and North East Offshore Marine Plan policies	PEIR Section Reference
Commercial Fisheries	
Policy NE-FISH-1: <i>“Proposals that support a sustainable fishing industry, including the industry’s diversification, should be supported.”</i>	Impacts on commercial fisheries have been assessed in section 13.6. Proposed mitigation measures are outlined in section 13.3.3.
Policy NE-FISH-2: <i>“Proposals that enhance access for fishing activities should be supported. Proposals that may have significant adverse impacts on access for fishing activities must demonstrate that they will, in order of preference: a) avoid, b) minimise, c) mitigate – adverse impacts so they are no longer significant. If it is not possible to mitigate significant adverse impacts, proposals should state the case for proceeding.”</i>	Impacts on commercial fisheries have been assessed in section 13.6. Proposed mitigation measures are outlined in section 13.3.3.

North East Inshore and North East Offshore Marine Plan policies	PEIR Section Reference
Policy NE-FISH-3: <i>“Proposals that enhance essential fish habitat, including spawning, nursery and feeding grounds, and migratory routes, should be supported.</i> <i>Proposals that may have significant adverse impacts on essential fish habitat, including spawning, nursery and feeding grounds, and migratory routes, must demonstrate that they will, in order of preference: a) avoid, b) minimise, c) mitigate – adverse impacts so they are no longer significant.</i>	Impacts on fish stocks have been assessed in Chapter 10 Fish and Shellfish Ecology.

31. In addition to the planning policy guidance listed above, the following guidance documents have been used to inform the assessment of potential impacts on commercial fisheries:
- Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010);
 - Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessment (United Kingdom Fisheries Economic Network [UKFEN] and Seafish, 2012);
 - Fisheries Liaison with Offshore Wind and Wet Renewables group (FLOWW) Recommendations for Fisheries Liaison: Best Practice guidance for offshore renewable developers (FLOWW, 2014);
 - FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (FLOWW, 2015);
 - Fishing and Submarine Cables – Working Together (International Cable Protection Committee (ICPC), 2009)
 - Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects. Contract report: ME5403 (Cefas, 2012);
 - Cumulative impact assessment guidelines, guiding principles for cumulative impacts assessments in offshore wind farms (RenewableUK, 2013); and
 - Position statement on vessels operating in the vicinity of subsea cables (European Subsea Cable Association (ESCA), 2018).

13.4.2 Data and Information Sources

13.4.2.1 Site Specific Surveys

32. In order to provide site specific and up to date information which could be used to characterise the existing environment and inform the impact assessment, project specific marine traffic surveys were conducted covering the array areas, as well as scouting (potting effort) surveys which covered the offshore export cable corridor and array areas. These are summarised in **Table 13-8**. Limitations and assumptions of the data are discussed in more detail in **Appendix 13-1 Commercial Fisheries Technical Appendix**. Additional marine traffic surveys at the potential locations of the export cable platforms are being undertaken, and the results of these will be included within the Environmental Statement.

Table 13-8 Site Specific Surveys

Data Set	Spatial Coverage	Year	Notes
Scouting survey – Spring	Array areas + 2km buffer	April and March 2022	PMSL, 2022a
Scouting survey – Summer	Array areas + 2km buffer	August 2022	PMSL, 2022b
Scouting survey – Summer	Offshore export cable corridor + 500m (near-shore) / 850m (off-shore) buffers	May and June 2022	PMSL, 2022c
Scouting survey – Summer	Nearshore part of the offshore export cable corridor + buffer	August 2022	PMSL, 2022b
Guard vessel observations	Array areas and off-shore export cable corridor	July, August and September 2022	PMSL, 2022d
Scouting survey – Winter	Export cable corridor and Array + buffers	October, November & December 2022	PMSL, 2022e
Vessel traffic survey – Winter	Array areas + 10nm buffer	January and February 2022	Anatec, 2022a
Vessel traffic survey – Summer	Array areas + 10nm buffer	July 2022	Anatec, 2022b
Vessel traffic survey – Autumn	Array areas + 10nm buffer	October and November 2022	Anatec, 2022c

13.4.2.2 Other Available Sources

33. Other sources that have been used to inform the assessment are listed in **Table 13-9**. Limitations and assumptions of the data are discussed in more detail in **Appendix 13-1 Commercial Fisheries Technical Appendix**.
34. Additional VMS data has been requested from non-UK organisations, with the intention to obtain this information to inform the Environmental Statement. AIS data collected between May 2020 – December 2022 has been obtained and is under analysis; it is intended that this data will be included within the Environmental Statement.

Table 13-9 Other Available Data and Information Sources

Data Set	Spatial Coverage	Year	Notes
MMO fleet landings by ICES Rectangles	Commercial Fisheries Study Area	2010 -2020	MMO, 2022a
MMO UK and foreign fleet landings into the UK by port	Commercial Fisheries Study Area	2010 -2020	MMO, 2022b
EU Scientific, Technical and Economic Committee for Fisheries (STECF) non-UK landings by ICES Rectangle	Commercial Fisheries Study Area	2006 - 2016	EU STECF, 2017
MMO fishing activity data for UK vessels ($\geq 15\text{m}$) - VMS data	Commercial Fisheries Study Area	2010 -2020	MMO, 2021
MMO fish landings to UK ports – spatial data	Commercial Fisheries Study Area	2023	MMO, 2022c
MMO fishing vessel lists	Ports within the Commercial Fisheries Study Area	2010-2020	MMO, 2022d
ICES fishing activity data for mobile bottom contacting gear vessels ($>12\text{m}$) - VMS data	Commercial Fisheries Study Area	2010 -2020	ICES, 2020
Centre for Environment, Fisheries and Aquaculture Science (Cefas) inshore fishing activity	Commercial Fisheries Study Area out to 12 nm	2010 and 2012	Cefas, 2014

13.4.3 Impact Assessment Methodology

35. **Chapter 6 EIA Methodology** provides a summary of the general impact assessment methodology applied throughout the entire PEIR. The following sections describe the specific methodology used to assess the likely significant effects on commercial fisheries.

13.4.3.1 Definitions

36. For each potential impact, the assessment identifies receptors sensitive to that impact and implements a systematic approach to understanding the impact pathways and the level of impacts (i.e. magnitude) on given receptors. The definitions of sensitivity for the purpose of the commercial fisheries assessment are provided in **Table 13-10**.
37. The criteria for defining magnitude of impact in this chapter are outlined in **Table 13-11**. It should be noted that beneficial impacts as a result of the Projects are also possible. In such a case, the same definitions would apply as in **Table 13-11**, albeit in reverse (e.g. the impact would affect an area from which a minor proportion (5-20%) of a commercial fishing receptor's annual value of landings is caught and/or would lead to a minor (5-20%) increase in annual value of landings).

Table 13-10 Definition of Sensitivity for a Commercial Fisheries Receptor

Receptor Sensitivity	Definition
High	Receptor is highly vulnerable to impacts that may arise from the Projects and recoverability is long term or not possible. Receptor has very low spatial adaptability due to limited operational range and/or very low ability to deploy more than one gear type. Receptor has very limited spatial tolerance due to dependence upon a single ground. Receptor has very low recoverability due to inability to mitigate loss of fishing area by operating in alternative areas.
Medium	Receptor is vulnerable to impacts that may arise from the Projects and has limited recoverability, with some ability to mitigate loss of fishing area by operating in alternative areas. Receptor has limited spatial adaptability due to extent of operational range and/or limited ability to deploy an alternative gear type. Receptor has limited spatial tolerance due to dependence upon a limited number of fishing grounds.

Receptor Sensitivity	Definition
Low	Receptor is somewhat vulnerable to impacts that may arise from the Projects and has moderate recoverability due to the ability to mitigate loss of fishing area by operating in a range of alternative areas of the North Sea. Receptor has moderate spatial adaptability due to extensive operational range and/or moderate ability to deploy an alternative gear type. Receptor has moderate spatial tolerance due to the ability to fish numerous fishing grounds.
Negligible	Receptor is not vulnerable to impacts that may arise from the Projects and/or has high recoverability. Receptor has an extensive operational range and high method versatility. Receptor is able to exploit a large number of fisheries.

Table 13-11 Definition of Magnitude of Impact for a Commercial Fisheries Receptor

Impact Magnitude	Definition
High	The impact would be permanent/irreplaceable change and is likely to occur.
	The impact would permanently affect an area from which the majority (>50%) of a commercial fishing receptor's annual value of landings is caught and/or would lead to a majority (>50%) reduction in annual value of landings.
Medium	The impact would be long-term (i.e. less than 30 years) though reversible, and is likely to occur.
	The impact would affect an area from which a moderate proportion (20 - 50%) of a commercial fishing receptor's annual value of landings is caught and/or would lead to a moderate (20 - 50%) reduction in annual value of landings.
Low	The impact would be short to medium term (i.e. less than 7 years) though reversible and could possibly occur.
	The impact would affect an area from which a small proportion (5 - 20%) of a commercial fishing receptor's annual value of landings is caught and/or would lead to a minor (5 - 20%) reduction in annual value of landings.
Negligible	The impact would be short-term (i.e. less than 1 year), intermittent and reversible and unlikely to occur.
	The impact would affect an area from which a very small proportion (<5%) of a commercial fishing receptor's annual value of landings is caught and/or would lead to a very small (<5%) reduction in annual value of landings.
No change	No loss or alteration of characteristics, features or elements; no observable impact either adverse or beneficial.

13.4.3.2 Significance of Effect

38. The assessment of significance of an effect is informed by the sensitivity of the receptor and the magnitude of the impact. The determination of significance is guided by the use of an impact significance matrix presented in **Chapter 6 EIA Methodology** and **Table 13-12**. Definitions of each level of significance are provided in **Table 13-13**. For the purposes of this assessment, any effect that is of major or moderate significance is considered to be significant in EIA terms, whether this be adverse or beneficial. Any effect that has a significance of minor or negligible is not significant.

Table 13-12 Commercial Fisheries Significance of Effect Matrix

		Adverse Magnitude				Beneficial Magnitude			
		High	Medium	Low	Negligible	Negligible	Low	Medium	High
Sensitivity	High	Major	Major	Moderate	Minor	Minor	Moderate	Major	Major
	Medium	Major	Moderate	Minor	Minor	Minor	Minor	Moderate	Major
	Low	Moderate	Minor	Minor	Negligible	Negligible	Minor	Minor	Moderate
	Negligible	Minor	Negligible	Negligible	Negligible	Negligible	Negligible	Negligible	Minor

Table 13-13 Definition of Effect Significance

Significance	Definition
Major	Significant in EIA terms. Very large or large change in receptor condition, both adverse or beneficial, which are likely to be important considerations at a regional or district level because they contribute to achieving national, regional or local objectives, or could result in exceedance of statutory objectives and / or breaches of legislation.
Moderate	Significant in EIA terms. Intermediate change in receptor condition, which is likely to be an important consideration at a local level.
Minor	Not significant in EIA terms. Small change in receptor condition, which may be raised as local issues but are unlikely to be important in the decision making process.
Negligible	Not significant in EIA terms. No discernible change in receptor condition.
No change	No impact, therefore, no change in receptor condition.

13.4.4 Cumulative Effect Assessment Methodology

39. The cumulative effect assessment (CEA) considers other plans and projects that may result in cumulation with the Projects. **Chapter 6 EIA Methodology** provides details of the general framework and approach to the CEA that will be undertaken for the Projects.
40. The final assessment of cumulative effects will be undertaken during the later stages of the EIA, once further information is available on a number of projects such as the Outer Dowsing Offshore Wind Farm, Hornsea Project Four decision and the Sheringham Shoal and Dudgeon Extension Projects examination. However, for the purposes of the PEIR, it is possible to identify a number of projects and plans which are likely to feature in that assessment and consider the extent to which cumulative effects might arise. **Section 13.8** presents the following preliminary information regarding cumulative effects:
- Screening for cumulative effects; and
 - A preliminary short list of plans and projects considered for CEA, including a brief description as to how projects have been screened in and the initial tier level they have been assigned.

13.4.5 Transboundary Effect Assessment Methodology

41. Given the prevalence of non-UK registered fishing vessels within the Commercial Fisheries Study Area, impacts that might arise on the interests of European Economic Area (EEA) states, within UK waters, e.g. a non UK fishing vessel, have been considered within the main part of this assessment (section 13.6).
42. The transboundary assessment considers the potential for transboundary effects to occur on Commercial Fisheries receptors as a result of the Projects that might arise within the Exclusive Economic Zone (EEZ) of EEA states. **Chapter 6 EIA Methodology** provides further details of the general framework and approach to the assessment of the transboundary effects.
43. For Commercial Fisheries, the potential for transboundary effects within the EEZ of other EEA states is limited to potential displacement of fishing activity.

13.4.6 Assumptions and Limitations

44. This preliminary assessment is considered to be an interim stage in the EIA process. The results presented in the following sections are based on early design assumptions and initial assessments which will be refined and presented in the ES to be submitted as part of the DCO application.
45. It is acknowledged that there are a range of assumptions and limitations of the datasets used within this chapter, as commented throughout this chapter and discussed in detail within **Appendix 13-1 Commercial Fisheries Technical Report**. For example, landings data are limited by the data being collected from ICES rectangles, which is a relatively large area in which fishing intensity can vary. VMS data will not capture vessels <12m, so inshore fishing activity is likely to be under-represented in these datasets.
46. Consultation has been held with fisheries stakeholders (see section 13.2) to develop further understanding of fishing activity within the Commercial Fisheries Study Area, particularly where there is a lack of data availability, such as for the inshore fleets and pelagic trawl fleets. Site specific marine traffic and scouting surveys have also been used to inform the existing environment and support official data sources.
47. Efforts have been taken to agree the data sources with relevant fisheries stakeholders, particularly where there are limitations. Data sources were presented to fisheries stakeholders during the CFWG meetings, and discussed during port visits. For example, with regard to the MMO VMS data, it was concluded that official data sources generally align with fisheries stakeholders understanding of fishing patterns, but it was noted and agreed that inshore fishing is likely to be under-represented by these data.
48. The conclusions of this Commercial Fisheries assessment are constrained by these assumptions and limitations, however, they do not cause significant uncertainty or unreliability within the assessment, due to being supplemented with stakeholder feedback and site specific data.

13.5 Existing Environment

49. This section summarises the commercial fisheries existing environment in the Commercial Fisheries Study Area. Further details are included in **Appendix 13-1 Commercial Fisheries Technical Report**.
50. Publicly available datasets presented within this chapter contain data were collated prior to the implementation of the Dogger Bank SAC (Specified Area) Bottom Towed Fishing Gear Byelaw 2022². Therefore, it will not capture changes to fishing activity as a result of the byelaw, nor any potential future changes to fishing activity; this is discussed further in section 13.5.6. The byelaw was introduced by the MMO and came into force on 13th June 2022. This byelaw covers approximately 12,399km² of seabed area and overlaps with the majority of the array areas (except for approximately 0.85km² in the southwest of DBS West). It also overlaps with approximately 20km of the DBS East offshore export cable corridor. This byelaw prohibits bottom towed³ fishing across the whole of the Dogger Bank SAC and buffer zone, to protect sensitive shallow water sandbank habitats. Implications of the byelaw on fishing activity are discussed further in section 13.5.6 and the **Appendix 13-1 Commercial Fisheries Technical Report**.

²https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1068913/Dogger_Bank_SAC_Byelaw.pdf

³ For the purposes of this byelaw, bottom towed fishing gear refers to any trawls, seines, dredges or similar gear, including trawls towed on, or very close to, the sea bed, which are actively moved in the water by one or more fishing vessels, or by any other mechanised system, and in which any part of the gear is designed and rigged to operation on, and be in contact with, the seabed. This includes demersal seines and semi pelagic towed gear.

13.5.1 Overview of Landings Data in the Study Area

51. Data compiled by both the MMO (MMO, 2020a) and EU STECF⁴ (EU STECF, 2017) were reviewed for the most recently available ten year period of landings (2010 to 2020 and 2006 to 2016, respectively). MMO and EU STECF datasets were filtered to show only landings from the Commercial Fisheries Study Area (ICES rectangles 36E9, 36F0, 37E9, 37F0, 37F1, 37F2, 38F0, 38F1 and 38F2). The array areas are located within 37F1, 37F2, 38F1 and 38F2 (illustrated on **Figure 13-1**), and the offshore export cable will be located within ICES rectangles 36E9, 37E9, 37F0, 37F1, 37F2, 38F0 and 38F1 (also illustrated on **Figure 13-1**).

13.5.1.1 Landings by UK Vessels

52. As expected, for the UK fleet, >10m vessels contributed more to the overall weight and value of fish landed for each ICES rectangle within the Commercial Fisheries Study Area, with the exception of 36E9 and 37E9, which cover the inshore region (**Plate 13-1** and **Plate 13-2**). The >10m vessels were predominantly from England and Scotland, with a small proportion from Wales (**Appendix 13-1 Commercial Fisheries Technical Report**). The smaller UK vessels were from England⁵, reflecting the closer proximity of home ports to this fleet. There were also relatively small recordings of landings for ≤10m Welsh vessels, and no recorded landings for Isle of Man, Jersey and Northern Irish vessels.
53. The MMO data indicate that throughout the study period (2010 to 2020), in terms of landed weight and value for UK vessels of both the larger (>10m) and smaller (≤10m) size classes, shellfish are the most important species group, with highest landings observed from ICES rectangle 36F0, 37E9 and 37F0 (**Plate 13-1** and **Plate 13-2**). Landings of demersal fish species were relatively high for >10m vessels, particularly from ICES rectangles 37F2, 38F1 and 38F2. Overall, landings of pelagic fish species were considerably lower than that of shellfish and demersal fish species; however, notable landings by the >10m size class were still observed, particularly from ICES rectangle 37F0.

⁴ EU STECF is a group of experts, appointed by the European Commission, that undertakes scientific work, provides scientific advice on fisheries management and implements a data collection framework.

⁵ The data show that some local vessels were registered to Scottish ports due to quota entitlements, however many of these vessels have re-registered as English.

54. Of the ten types of gear identified, approximately 49% of total landings from the Commercial Fisheries Study Area by UK $\leq 10\text{m}$ and $>10\text{m}$ fleets were caught using pots and traps (90% of landings for $\leq 10\text{m}$ and 41% of landings for $>10\text{m}$) (**Appendix 13-1 Commercial Fisheries Technical Report**). This data further indicates the importance of the shellfish industry in the region, noting pots and traps predominantly target shellfish, such as crab, lobster and whelk. Landings from vessels using demersal trawls and seines, and dredges were also notably high, and were predominantly deployed by vessels $>10\text{m}$ in length.
55. Crab (*Cancer pagurus* Mixed Sexes) were landed in highest quantities by UK vessels across the Commercial Fisheries Study Area, with a landed weight of approximately 42,000 tonnes across the study period (approximately 4,200 tonnes per annum, 2010 – 2020) (**Appendix 13-1 Commercial Fisheries Technical Report**). Lobster was the highest value species landed, with over £8 million per annum (based on a ten year average from 2010-2020), and was targeted primarily by pots and traps. Species of significant landed value and weight caught by UK vessels within the Commercial Fisheries study area (2010-2020) also included scallop, plaice, Norway lobster *Nephrops norvegicus*, whelk, herring and sandeel.

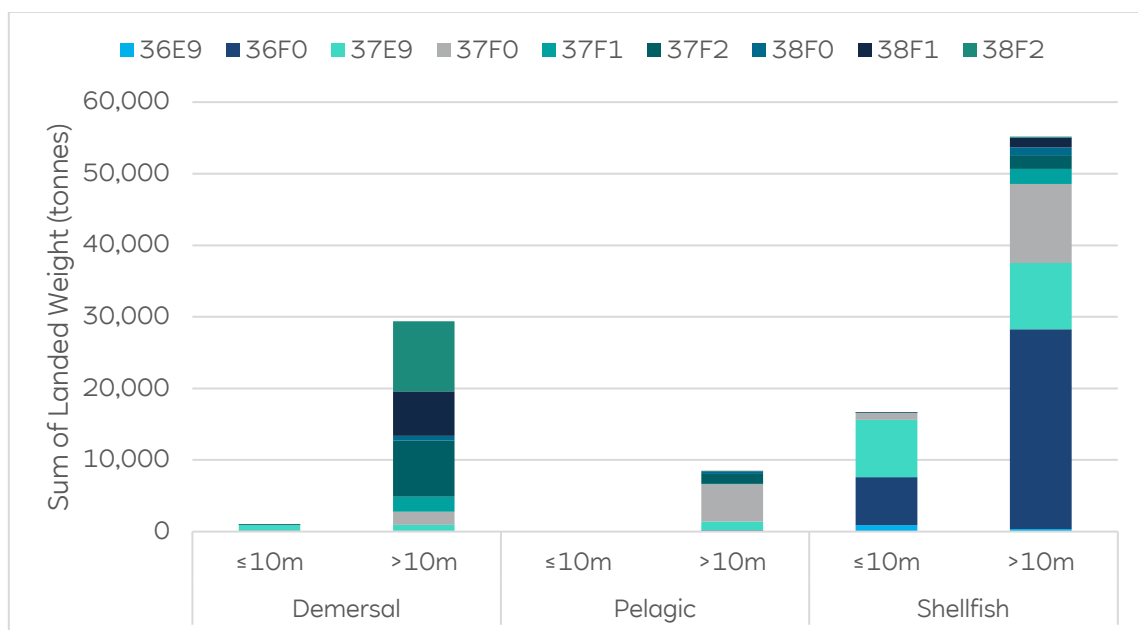


Plate 13-1: Sum of Landings Weight from ICES Rectangles 36E9, 36F0, 37E9, 37F0, 37F1, 37F2, 38F0, 38F1 and 38F2 (2010-2020), Displayed by Vessel Size Class and Species Group (UK Vessels) (Source: MMO, 2022a)

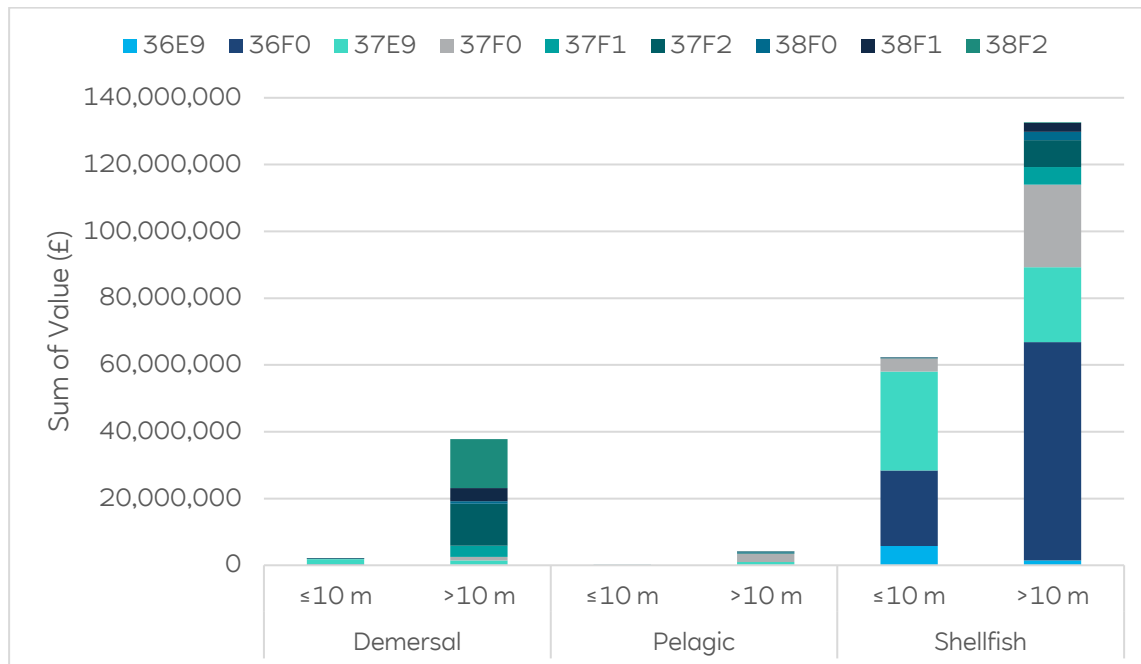


Plate 13-2: Sum of Landings Value from ICES Rectangles 36E9, 36F0, 37E9, 37F0, 37F1, 37F2, 38F0, 38F1 and 38F2 (2010-2020), Displayed by Vessel Size Class and Species Group (UK vessels) (Source: MMO, 2022a)

13.5.1.2 Landings by Non-UK Vessels

56. The EU STECF data (STECF, 2017) from 2006 to 2016, were filtered to show landings and effort data for non-UK nationalities; more recent data are not available to date. These non-UK data are not in a format that allows direct comparison with the data provided by the MMO, but they do provide an informative overview of fishing activity and trends within the Commercial Fisheries Study Area.
57. Vessels from non-UK countries were active across the Commercial Fisheries Study Area, with a total of 855,935 tonnes caught by the non-UK fleet between 2006 to 2016, with vessels from Denmark, the Netherlands, Germany, Sweden, France, and Belgium accounting for 89% of the total landed weight. There were also landings from Lithuania and Ireland, but these have not been included in the rest of this chapter, due to the landings being very low between 2006 and 2016 (430 and 23.39 tonnes, respectively) (**Appendix 13-1 Commercial Fisheries Technical Report**). Landings by non-UK vessels within the Commercial Fisheries Study Area were highest in ICES rectangle 38F1, in which DBS West is located (**Plate 13-3** and **Plate 13-4**); landings were also relatively high within 37F0, 37F1 and 37F2.

58. Data for non-UK vessels were categorised into three classes dependent on the length of the fishing vessel ($\leq 10\text{m}$, $10\text{-}15\text{m}$ and $\geq 15\text{m}$), to determine the size of vessels active within the Commercial Fisheries Study Area by each non-UK country (**Plate 13-3** and **Plate 13-4**). As expected, the largest proportion of vessels was from the $\geq 15\text{m}$ class, of which the majority of landed weights across each ICES rectangle were made by Danish vessels. Non-UK vessels $\leq 10\text{m}$ and $10\text{-}15\text{m}$ were observed as the least active across the Commercial Fisheries Study Area, as would be expected, with only very minor landings by $\leq 10\text{m}$ vessels.
59. Of the nine types of gear identified, the majority of landings from the Commercial Fisheries Study Area were recorded as having been caught by vessels utilising otter trawls and pelagic trawls (predominantly from Danish, Dutch, French, German, and Swedish vessels) (**Appendix 13-1 Commercial Fisheries Technical Report**). This is in contrast with UK vessels, which predominately used pots and traps, see section 13.5.1.1. Notably, the highest landed weight by otter trawling (2006-2016) was from ICES rectangle 38F1, whereas the highest landed weight by pelagic trawling was from ICES rectangle 37F0.
60. Sandeels were landed in highest quantities by non-UK vessels throughout the Commercial Fisheries Study Area, with a landed weight of approximately 623,000 tonnes across the study period (approximately 62,000 tonnes per annum, 2006-2016) (**Appendix 13-1 Commercial Fisheries Technical Report**). Species of notable landed weight caught by non-UK vessels within the Commercial Fisheries Study Area (2006- 2016) also included herring, sprat, and plaice.

Dogger Bank South Offshore Wind Farms

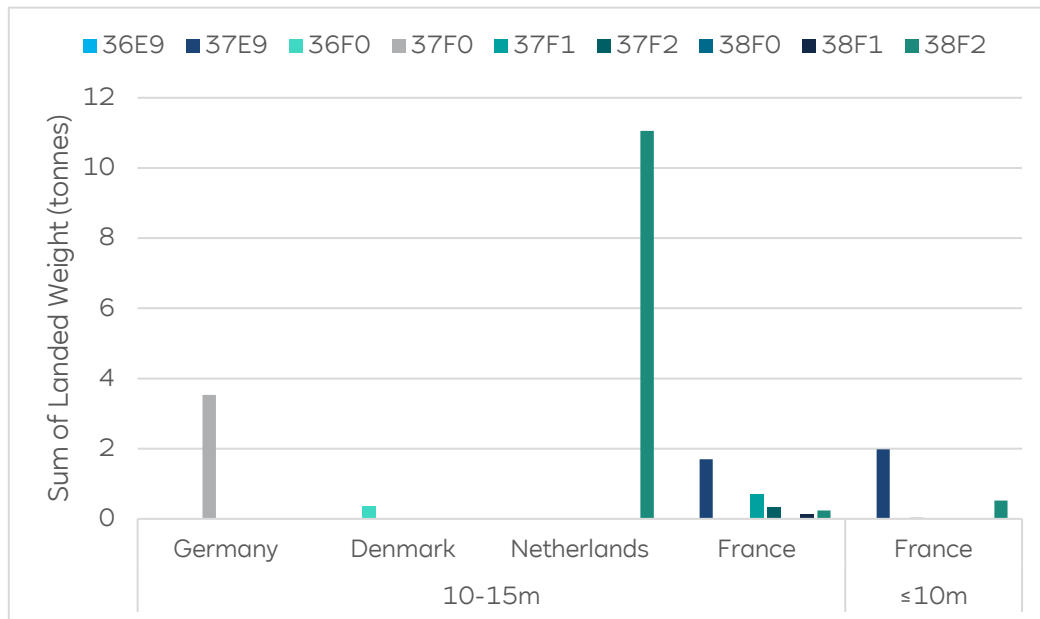


Plate 13-3: Sum of Landed Weight (Tonnes) for Non UK Vessels <15m (2006-2016) (Source: STECF, 2017)

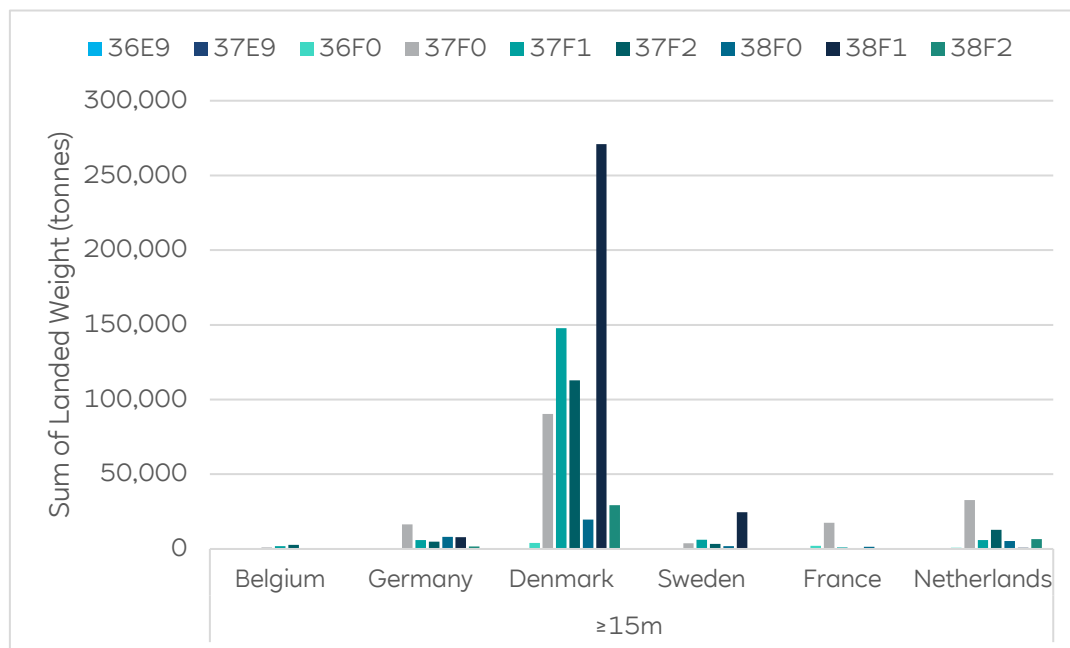


Plate 13-4: Sum of Landed Weight (Tonnes) for Non UK Vessels ≥15m (2006-2016) (Source: STECF, 2017)

13.5.2 Temporal Trends in the Study Area

61. Landings of the top five species caught by UK vessels within the Commercial Fisheries Study Area (2010-2020), were caught all year around, with the exception of sandeel (**Appendix 13-1 Commercial Fisheries Technical Report**). The following months were the key periods for landings by both weight and value:
 - Crab (*Cancer pagurus* Mixed Sexes) – September to October;
 - Plaice – June to September;
 - Scallop – March to April;
 - Lobster – July to September; and
 - Sandeel – May to June.
62. The MMO data show that between 2010 and 2020, the sum of landed weight varied annually across the Commercial Fisheries Study Area and within the separate ICES rectangles (**Plate 13-5**). The lowest overall landings were during 2010, whereas 2015 had the highest overall landings. Landings value generally increased over time, with exceptions in 2013 and 2020 (**Plate 13-5**); the lower landings in 2020 could be attributed to effects from COVID-19.
63. Across all ICES rectangles within the Commercial Fisheries Study Area, the seasonal (intra-annual) range in landed weight and value by UK vessels varied (2010-2020), with a gradual increase in landings generally from March, to a peak in May to October, and a decrease in landings towards December (**Plate 13-6**). Landed weight by UK vessels varied from a minimum of 2,740 tonnes in February, to a maximum of 10,964 tonnes in August (**Plate 13-6**). The landed value by UK vessels followed a similar trend, with a minimum value of £6,511,008 in February, and maximum value of £29,631,249 in August.
64. Landings by the non-UK fleet fluctuated annually between 2006 and 2016, which was mostly attributed to variation in landings of sandeel, herring, and sprat (**Appendix 13-1 Commercial Fisheries Technical Report**). Lowest overall landings were during 2012 and 2016 for non-UK vessels, when there were significantly reduced landings of sandeel; this fishery is highly dependent on quotas set annually, which can vary widely. Similarly, the highest overall landings were during 2006 and 2009 when there were higher landings of sandeel.

65. For the non-UK fleet, based on data presented only by quarter, the period April to June appears to be the most important in terms of landed weight; this is mostly attributed to the high landings for sandeel during this time period (**Appendix 13-1 Commercial Fisheries Technical Report**). The January to March quarter was the least productive for most species.

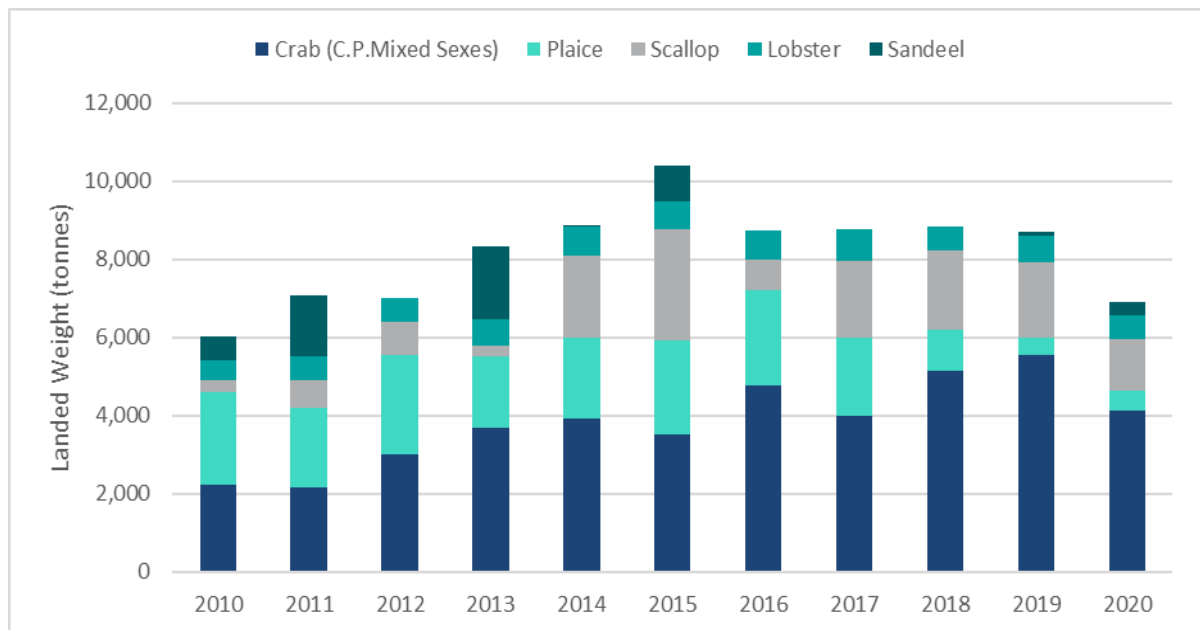


Plate 13-5: Annual trends in Top Five Species by Total Landed Weight (Tonnes) from UK Vessels Across the Commercial Fisheries Study Area (2010-2020) (Source: MMO, 2020a)

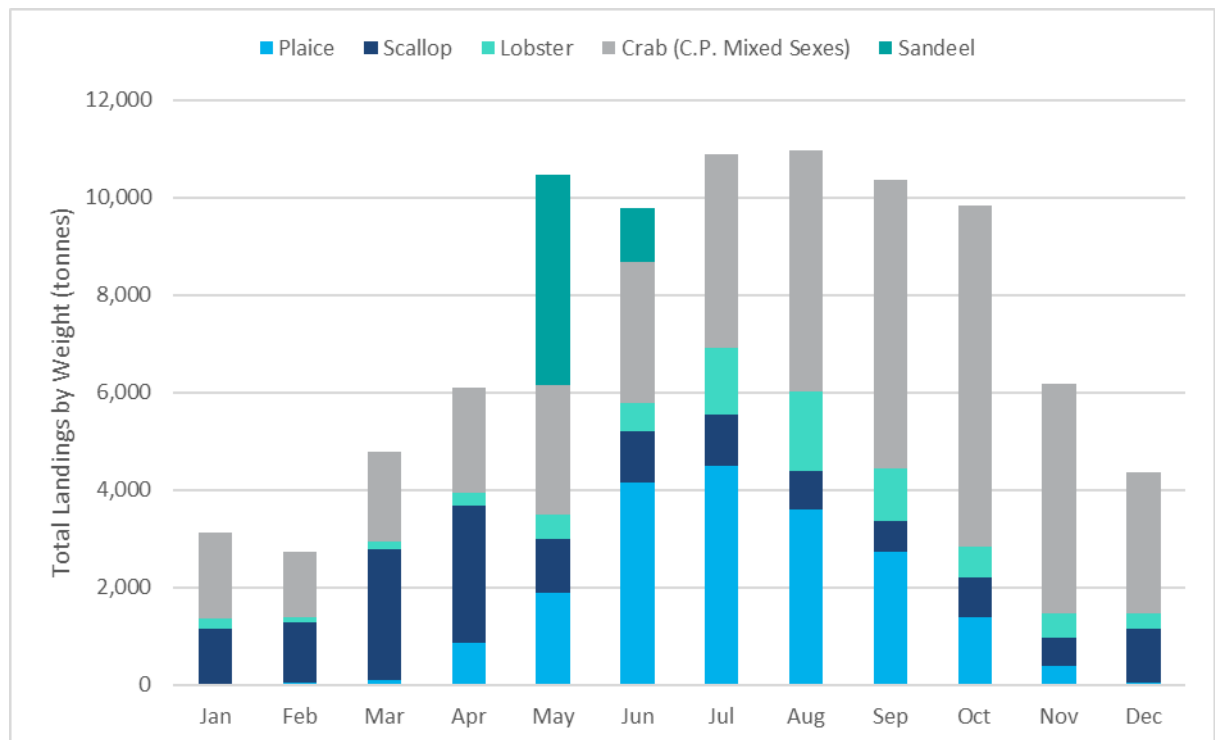


Plate 13-6: Seasonal Trends in Top Five Species by Total Landed Weight (Tonnes) from UK Vessels Across the Commercial Fisheries Study Area (2010-2020) (Source: MMO, 2020a)

13.5.3 Spatial Distribution of Fishing Activity

66. The spatial distribution of fishing activity in the Commercial Fisheries Study Area has been described within **Appendix 13-1 Commercial Fisheries Technical Report**, based on review and analysis of multiple datasets as well as more direct consultation with individuals and fisheries organisations. Fishing activity of the <12m fleet is typically under-represented by official activity datasets, as a result of VMS not being a requirement for smaller vessels. Therefore, site specific surveys and consultation feedback has been used to inform the existing environment for this group. Relevant data sources are listed in section 13.4.2, with assumptions and limitations discussed in more detail in **Appendix 13-1 Commercial Fisheries Technical Report**. The datasets show that fishing occurs along all parts of the offshore export cable corridor and DBS array areas over the study period to varying degrees.

13.5.3.1 Static Gear

67. The use of static gear by UK vessels $\geq 15\text{m}$ was generally located south-west of the DBS array areas during 2009-2020, however, $\geq 15\text{m}$ static gear activity covered a progressively greater geographical area and increased in intensity throughout 2009-2020. Static gear activity by $\geq 15\text{m}$ vessels overlapped with the offshore export cable corridor during most years, while also overlapping with DBS West during 2019 and 2020. The majority of fishing hours were spent in ICES rectangles 36F0 and 36F1, which do not overlap with the DBS array areas or offshore export cable corridor. Consultation feedback has indicated that the static gear activity observed in recent years within the DBS array areas, is solely due to potting predominantly targeting shellfish.
68. The Cefas dataset⁶, site specific data (potting surveys) and feedback from consultation has been utilised to supplement the VMS data that does not capture smaller fishing vessels. As described in in section 3 of **Appendix 13-1 Commercial Fisheries Technical Report**, the Cefas dataset has been cross-referenced with knowledge of the local fleets, based on site specific data and feedback from consultation with local fishing operators. The Cefas data indicate that highest intensities of inshore static fishing were located within the 6nm limit, and intersected with the offshore export cable corridor, generally aligning with information collated from fisheries consultation and site specific surveys.

⁶ Cefas undertook a study between 2010 to 2012 to provide an improved understanding of inshore fisheries activity (vessels $< 15\text{m}$), with input from the Inshore Fisheries and Conservation Authorities (IFCA), Welsh Government, and the MMO. The dataset is based on sightings and surveillance effort, and the various limitations of the data are outlined in section 2.2.1 of **Appendix 13-1 Commercial Fisheries Technical Report**.

13.5.3.2 Dredge Gear

69. Dredge gear vessels were active at moderate to high levels within the inshore areas of the Commercial Fisheries Study Area (generally within the 12nm limit), most notably off Flamborough Head and with an overlap of the offshore export cable corridor. No dredge activity overlapped with the DBS array areas between 2009 and 2017. As noted within **Appendix 13-1 Commercial Fisheries Technical Report**, in 2020, a new scallop stock was identified and so dredging occurred within the DBS array areas. However, a temporary closure for scallop fishing was introduced within the Dogger Bank SAC in April 2021, and this closure became permanent when the byelaw was enacted from 13th June 2022 (discussed further in 13.5.6).

13.5.3.3 Demersal Fishery – Beam Trawl

70. Beam trawl activity was relatively high in the southeast of the Commercial Fisheries Study Area and further south (**Appendix 13-1 Commercial Fisheries Technical Report**). There was limited overlap of beam trawl activity with the DBS array areas and offshore export cable corridor. Beam trawl activity generally decreased in spatial extent within the Commercial Fisheries Study Area between 2009-2017.

13.5.3.4 Demersal Fishery – Otter Trawl

71. Bottom otter trawl activity overlapped with both DBS array areas and the offshore export cable corridor in 2009-2017 (**Appendix 13-1 Commercial Fisheries Technical Report**). Observed activity was generally higher north of the DBS array areas and southeast of the DBS array areas in discrete areas; however, activity within the DBS array areas varied between low to high across the time period. Further analysis of the data indicated that within the DBS array areas, otter trawl activity mostly targeted cod or plaice; while otter trawl activity that overlapped the offshore export cable corridor predominantly targeted sprat or sandeel (located approximately 30 - 40km offshore). Otter trawl activity for sprat or sandeel was also observed east of the DBS array areas. This fishery is no longer active within the Dogger Bank SAC following the Dogger Bank SAC Byelaw, introduced in June 2022 (discussed further in section 13.5.6).

13.5.3.5 Demersal Fishery – Demersal Seine

72. Fishing activity by demersal seine vessels was relatively low in the Commercial Fisheries Study Area, with activity mostly observed within the north-eastern part, and which overlapped with the DBS array areas during most years (**Appendix 13-1 Commercial Fisheries Technical Report**). This fishery is no longer active within the Dogger Bank SAC following the Dogger Bank SAC Byelaw, introduced in June 2022 (discussed further in section 13.5.6). A discrete area of demersal seine activity around the 12nm limit was also identified, which overlapped with the offshore export cable corridor, and which appeared to increase in spatial extent between 2009-2017.

13.5.3.6 Pelagic Trawl

73. EU vessels deploying pelagic trawl gear are active across the Commercial Fisheries Study Area, including within the DBS array areas and offshore export cable corridor. Highest levels of fishing activity are generally observed outside of the DBS array areas, concentrated predominantly within ICES rectangle 37F0, in proximity to the 12nm limit, and overlapping with the offshore export cable corridor (evident via analysis of VMS data and landing statistics). This fishing activity consists of Danish, Dutch, French, German, and Swedish vessels, which are targeting highly mobile species such as herring, mackerel, sprat, sandeel and whiting.

13.5.4 Port Landings

74. Within the Commercial Fisheries Study Area, Bridlington, Grimsby, Hornsea, Scarborough and Whitby all had relatively high fishing effort (**Figure 13-2; Appendix 13-1 Commercial Fisheries Technical Report**) (MMO, 2022b). Landings data, compiled by the MMO were reviewed for the period January 2009 to December 2020 (MMO, 2022b). English vessels accounted for the majority of landed weights across the ports assessed; Scottish vessels also made notable contributions to landed weights at Grimsby, Scarborough, and Whitby. Total landings ranged from a maximum of 37,322 tonnes in Grimsby, to a minimum of 1,429 tonnes in Hornsea. Non-UK vessel landings were highest at the port of Grimsby, accounting for 16% of total landings, which included landings from Danish, Russian, Dutch, French, Spanish, Belize and Belgian vessels.

75. UK fishing vessels lists compiled by the MMO show vessels $\leq 10\text{m}$ to make up the majority of vessels registered with a home port of Scarborough, Hornsea or Whitby, whereas there is almost an equal number of $\leq 10\text{m}$ and $> 10\text{m}$ vessels which are registered to have a home port of Grimsby or Bridlington (MMO, 2022d). However, it should be noted that many of the $\leq 10\text{m}$ vessels registered with a home port of Scarborough are based and operate from Bridlington port. In general, most vessels held a shellfish licence, with the highest number of licences from vessels with a home port of Bridlington, and the lowest number from vessels with a home port of Hornsea; all vessels in Hornsea are $< 10\text{m}$ and beach launched. In total, only four scallop licences were recorded⁷, these were all held by $> 10\text{m}$ vessels, with a home port of Scarborough.

13.5.5 Summary of the Existing Environment

76. A wide range of data has been assessed to characterise commercial fishing activity in the Commercial Fisheries Study Area, as outlined in more detail within the **Appendix 13-1 Commercial Fisheries Technical Report**. The review has concluded that whilst fishing occurs in and around the DBS array areas and offshore cables corridors, by both UK and non-UK vessels, the extent and intensity of this activity is less than in other parts of the wider North Sea region.
77. Within the Commercial Fisheries Study Area, the top five species caught by UK vessels were crab (*Cancer pagurus* Mixed Sexes), lobster, scallop, plaice and sandeel. The top five species caught by non-UK vessels were sandeel, herring, sprat, plaice and whiting.

⁷ The North East Inshore Fisheries and Conservation Authority only allows four local vessels to target scallops within the 6nm.

78. The inshore region of the Commercial Fisheries Study Area (<12nm) supports moderate numbers of smaller (≤ 10 m) UK vessels deploying static gear, targeting crab, lobster and whelk. The activity of these vessels overlaps with the inshore parts of the offshore cable corridor at relatively high levels. Fishing vessels deploying dredges were active at moderate to high levels within the inshore areas of the Commercial Fisheries Study Area, with VMS data and landing statistics indicating an overlap of such activity with the offshore export cable corridor. VMS data and landing statistics also indicate an overlap of pelagic trawl activity with the offshore export cable corridor, with activity predominantly concentrated within ICES rectangle 37F0.
79. VMS data (see **Appendix 13-1 Commercial Fisheries Technical Report for figures**) and landings statistics indicated that beam trawl vessels showed minimal overlap with the offshore export cable corridor and the DBS array areas. Bottom otter trawl activity was observed to overlap with the DBS East and DBS West array areas and offshore export cable corridors, with VMS data and landing statistics indicating that such activity is predominantly observed within ICES rectangle 37F0 and 38F2, a range of species are observed to be landed, including that of herring and plaice. It is noted, however, that since the implementation of the Dogger Bank SAC Byelaw, this bottom trawl activity will no longer continue within the DBS array areas.
80. Static gear activity covered a progressively greater geographical area, and increased in intensity throughout 2009 to 2020; this increase in activity is likely to continue as a result of the Dogger Bank SAC Byelaw, as discussed further in section 13.5.6.

81. Non-UK fishing activity within the Commercial Fisheries Study Area consisted predominantly of otter trawl vessels targeting species such as herring and sandeel. To a lesser extent, pelagic trawl vessels are predominantly targeting herring, sprat, and sandeel. Non-UK otter trawl activity was observed overlapping with the DBS array areas and offshore cable corridors. However, VMS data and landing statistics indicate that activity is generally higher to the north and southeast of the DBS array areas, and in discrete patches. Non-UK pelagic trawl vessels were active across the Commercial Fisheries Study Area, with highest landings recorded within ICES rectangle 37F0 (evident via VMS data and landings statistics). Non-UK beam trawl vessels were also active; although, observed landings were significantly lower with this gear type. Non-UK beam trawl activity was relatively high in the southeast of the Commercial Fisheries Study Area; although a limited overlap with the DBS array areas and offshore export cable corridor was observed (evident via VMS data and landings statistics). It is noted that since the implementation of the Dogger Bank SAC Byelaw, beam trawl and otter trawl activity will no longer continue within the DBS array areas.

13.5.6 Future Trends

82. In the event that the Projects are not developed, an assessment of future conditions for Commercial Fisheries has been carried out and is described within this section, and in more detail within **Appendix 13-1 Commercial Fisheries Technical Report**.
83. The existing environment for commercial fisheries is constantly evolving, as the fishing industry is dynamic, with frequent and sometime unpredictable changes which affect activity, such as changes in fish abundance and distribution, climatic conditions, management regulations and fuel costs (DECC, 2016).
84. The most significant change to fisheries in the Commercial Fisheries Study Area is the Dogger Bank SAC Byelaw, which was introduced in June 2022. This byelaw prohibits bottom towed fishing (including trawls, seines, dredges or similar gear) across the whole of the Dogger Bank SAC and buffer zone. The Dogger Bank SAC overlaps the majority of the DBS array areas, apart from an area approximately 0.85km² in the most south-western part of the DBS West array area. The byelaw will be reviewed every five years, or sooner, if significant new information is received regarding the impact of fisheries on the SAC.

85. For example, during formal consultation, consultees noted that the sandeel fishery has started utilising pelagic trawl doors which have limited and / or no contact with the seabed, so the impacts on the SAC are reduced. Subsequently, the MMO has welcomed any evidence to prove that semi pelagic gears do not cause impacts that would undermine the conservation objectives of the SAC.
86. As a result of the byelaw, a large proportion of the commercial fishing gear types being operated within the DBS array areas are now prohibited in the area. Therefore, the future existing environment, particularly within the DBS array area, will be significantly different than is shown in the official datasets up to 2021, if the byelaw remains in place. With potentially reduced mobile gear fishing within the DBS array areas, more static gear vessels will be able to move into these areas as a result of reduced conflict. The official datasets have indicated that prior to 2020, there has already been an increase in static gear activity within the Commercial Fisheries Study Area, including within the DBS West array area. Site specific surveys during 2022 have confirmed sightings of potting gear within the western part of the DBS West array area, on the western edge of the Dogger Bank where there is a difference in depth of approximately 20m. This static gear activity is likely to increase in spatial extent, duration, and intensity as a result of the byelaw. However, if mobile gear vessels switch from bottom-interacting demersal trawls to semi-pelagic gears and re-engage in fishing within the area, this may act as a limit to any increase in static gear activity.
87. As mobile gear vessels that deploy gear which interacts with the seabed will be displaced from the Dogger Bank area, there is likely to be increased pressure on fishing grounds outside of the Dogger Bank SAC Byelaw area. This could include areas such as The Hills, which overlap with parts of the offshore export cable corridor. Fisheries stakeholders have indicated that, since the implementation of the byelaw in June 2022, vessels targeting herring and sandeel have shifted south of the DBS array areas, and beam trawl vessels have moved further south.

88. The impacts of Brexit on the commercial fisheries existing environment are uncertain. Fisheries within UK waters were managed through the EU Common Fisheries Policy (CFP), prior to the withdrawal of the UK in 2021. Under the new EU UK Trade and Cooperation Agreement, there is a 5 year transition period, whereby 25% of the EU quota for British waters will be transferred to the UK fishing fleet, phased across the five years until 2025. As a result, the UK will receive higher quota shares for some stocks, as outlined in **Table 13-14** for selected species within the North Sea (see **Appendix 13-1 Commercial Fisheries Technical Report** for more details). However, a large proportion of landings within the Commercial Fisheries Study Area are from non-quota shellfish species, so will not be affected by the quota changes. Quota allocations for 2026 and beyond, are likely to be the same as for 2025; and access to EU and UK waters will be subject to annual negotiations.

Table 13-14 Quota Share Changes by 2026 for the UK, for Selected Species Within the North Sea (ABPmer, 2021), See **Appendix 13-1 Commercial Fisheries Technical Report** for More Species.

Stock	2020 UK share of EU quota	2026 UK share of EU/UK quota or TAC	UK quota absolute increase
Sole	4.28%	17%	13%
Herring	24.09%	69.20%	11%
Cod	46.92%	57%	10%
Whiting	66.92%	73.53%	7%
Plaice	28.46%	28.46%	0%
Lemon sole and witch	61.09%	66.00%	5%
Turbot and brill	15.45%	20.00%	5%
Skates and rays	64.77%	69.00%	4%
Sandeel	2.06%	3.20%	1%
Mackerel	5.33%	6.60%	1%
Sprat	3.79%	3.82%	0%
Norway lobster	86.62%	86.62%	0%
Haddock	84.17%	84.17%	0%

89. Other potential changes to the commercial fisheries existing environment include the Joint Fisheries Statement (Defra *et al.*, 2022), which outlines the Fisheries Management Plans (FMPs) and further restrictions on fisheries operating within other Marine Protected Areas (MPAs) in the region; these are discussed in more detail within the **Appendix 13-1 Commercial Fisheries Technical Report**.

13.6 Assessment of Significance

90. There are a range of different fishing fleets active within the Commercial Fisheries Study Area, as described in section 13.5 and **Appendix 13-1 Commercial Fisheries Technical Report**. For the purposes of this assessment, to ensure that potential impacts which may affect certain fleets and / or fisheries in different ways are fully assessed, a number of different Commercial Fisheries receptor groups have been identified, as summarised in **Table 13-15**.
91. It is acknowledged that at present, bottom towed fishing activity is prohibited within the Dogger Bank SAC, which covers the majority of the DBS array areas (except for approximately 0.85km² in the southwest of DBS West) and the eastern section of the offshore export cable corridors. Within the assessment, the impacts are considered for different scenarios: firstly, the Dogger Bank SAC byelaw is in place which prohibits bottom towed gear within the entire SAC; secondly, a scenario where the Dogger Bank SAC byelaw is revoked and bottom fishing activity is permitted again within the boundary of the SAC; and thirdly for the offshore export cable corridor (where the only overlap with the Dogger Bank SAC byelaw is the eastern option).

Table 13-15 Key Commercial Fisheries Receptor Groups Used as Part of this Assessment

Receptor Group	Summary	Active in Offshore Export Cable Corridor	Active in Array Areas
Demersal trawl and seine	Key species: cod, herring, Norway lobster, plaice, sandeel, sole, turbot, and whiting Vessel size: >10m vessels Nationalities: UK, Dutch, German, French, Belgium	Yes	Yes
Dredge	Key species: scallop Vessel size: Mostly >10m vessels Nationalities: UK	Yes	No ⁸

⁸ With the exception of 2020, where a scallop stock was identified and so dredging occurred within the DBS array areas. This activity only occurred temporarily and the Dogger Bank SAC Byelaw now prohibits this activity within the area.

Receptor Group	Summary	Active in Offshore Export Cable Corridor	Active in Array Areas
Intertidal netters	Key species: sea trout, sea bass, sole, mullet, skate, and thornback ray Vessel size: n/a Nationalities: UK	Yes	No
Otter trawl	Key species: herring, Norway lobster, plaice, sandeel, scallop, sprat, and turbot Vessel size: Mostly >10m vessels, although the majority of otter trawlers targeting scallop were <10m Nationalities: UK, Danish, Dutch German, Swedish	Yes	Yes
Pelagic trawl	Key species: herring, mackerel, sprat, sandeel, and whiting Vessel size: >10m vessels Nationalities: Danish, Dutch, French, German and Swedish	Yes	Yes
Static gear in-shore	Key species: crab, lobster, and whelk Vessel size: <10m vessels active in-shore Nationalities: UK	Yes	No
Static gear off-shore	Key species: crab, lobster, and whelk Vessel size: >10m vessels operating further offshore, with increasing spatial extent Nationalities: UK	Yes	Yes (only DBS West)

13.6.1 Potential Effects During Construction

13.6.1.1 Impact 1: Loss or Restricted Access to Fishing Grounds

13.6.1.1.1 Magnitude of Impact – DBS East or DBS West in Isolation

92. Construction of the DBS East or DBS West array areas and offshore export cable in isolation will take place over a maximum period of five years and may lead to loss or restricted access to fishing grounds during the construction phase. A range of construction activities will take place simultaneously, with a maximum number of 100 wind turbines constructed. The minimum distance between wind turbines will be 830m.
93. The worst case scenario for loss or restricted access to fishing grounds during construction is that fishing activity is to be excluded from the entire Offshore Development Area (inclusive of both the array area and offshore cable corridor) for the duration of works. This is highly precautionary and equates to an area excluded to fishing activity of 494.5km² from the array areas and a maximum of 396km² from the DBS East offshore export cable corridor. Voluntary exclusion zones of up to 1.5nm (2.8km) may also be present around vessels conducting seabed preparatory activities (such as sandwave and boulder clearance) and during installation of project infrastructure.
94. The impact of these construction activities is predicted to lead to loss of and/or restricted access to fishing grounds. The impact will be of a regional spatial extent, reversible, occur over a short to medium term period (maximum offshore construction period for DBS East or DBS West in isolation of up to five years; and maximum 21 months for the offshore export cable installation), and will impact the receptors directly. The assessments are based on the different Commercial Fisheries receptor groups which are outlined in **Table 13-15**.
95. The effect of construction activities leading to a loss or restricted access to fishing grounds for UK and non-UK fishing fleets is described below for different scenarios: firstly, the Dogger Bank SAC byelaw is in place which prohibits bottom towed gear within the entire SAC; secondly, a scenario where the Dogger Bank SAC byelaw is revoked and bottom fishing activity is permitted again within the boundary of the SAC; and thirdly for the offshore export cable corridor (where the only overlap with the Dogger Bank SAC byelaw is the eastern option). The magnitude of impact for each scenario is summarised in **Table 13-16**, **Table 13-17** and **Table 13-18**.

13.6.1.1.1.1 Dogger Bank SAC Byelaw in Place

96. The following assessment assumes the current situation, i.e. there is no bottom fishing within the SAC due to the implementation of the Dogger Bank SAC Byelaw.
97. The spatial extent of the Dogger Bank SAC byelaw covers the majority of the DBS array areas, except for approximately 0.85km² in the southwest of DBS West and the eastern option of the offshore export cable corridor. As demersal seines, dredges and otter trawls are classified as bottom towed gear types, under this scenario, these receptor groups are not active across the entire DBS East array area and the majority of the DBS West array area and eastern section of the offshore export cable corridor. Pelagic trawling that has contact with the seabed, such as that of the sandeel fishery (established via Project-specific consultation), is also prohibited and is, therefore, not active within the Offshore Development Area covered by the Dogger Bank SAC Byelaw.
98. With regard to the southwest section of the DBS West array area not covered by the Dogger Bank SAC byelaw and permissible to bottom fishing, VMS data indicate no overlap of demersal seine or dredge fishing activity. Therefore, while assessing against the current situation, these commercial fisheries receptor groups will not be affected by construction activities within the DBS West array area. No magnitude of change is predicted for the construction phase of the DBS array areas for demersal seine and dredge receptor groups.
99. The VMS data indicate potential overlap of otter trawl and pelagic fishing activity within the southwest section of the DBS West array area. Therefore, while assessing against the current situation, these commercial fisheries receptor groups could be affected by construction activities within the DBS West array area. However, as the area is only 0.85km², the magnitude is expected to be negligible for the otter trawl and pelagic trawl receptor groups within DBS West, as the impact would lead to a very small (<5%) reduction in annual value of landings for these receptors. No magnitude of change is predicted for the construction phase within the DBS East array area for otter trawl or pelagic trawl receptor groups.

Table 13-16 Magnitude relating to Loss or Restricted Access to Fishing Grounds During Construction of DBS East or DBS West in Isolation for the scenario where the Dogger Bank SAC byelaw is in place

Receptor Group	Magnitude
Demersal seine and dredge	No change
Otter trawl and pelagic trawl	No change (DBS East) Negligible (DBS West)

13.6.1.1.1.2 Dogger Bank SAC Byelaw Revoked

100. The following assessment assumes that the Dogger Bank SAC byelaw is revoked.
101. **Demersal seine:** While UK and non-UK demersal seine vessels are active across the Commercial Fisheries Study Area, analysis of VMS and landings data indicate that fishing activity by this receptor group is undertaken at relatively low levels. While noting that highest levels of such activity is observed to overlap with the DBS East array area during most years of the study period (2009 to 2017), this overlap remains at a relatively low level, with little indication that this is an area of commercial importance for this receptor group. This activity predominantly consists of Danish vessels targeting plaice and cod, and Scottish and English vessels (Scottish and English vessels to a lesser extent) targeting cod, haddock and flatfish.
102. This receptor group will be affected by construction works at the DBS array areas. The proportion of species landed by Scottish and English vessels deploying demersal seine gear within ICES rectangle 38F1 (in which the DBS West array area is solely situated) is over 75%, while landing statistics indicate an average annual value of £308,828 for the Scottish and English demersal seine fishery within this ICES rectangle. It is noted that the DBS West array area covers approximately 15% of ICES rectangle 38F1, with UK and non-UK VMS data illustrating that the majority of activity is located outside of the DBS West array area during most years of the study period. The DBS East array area is situated predominantly within ICES rectangles 38F1 and 37F1, with a small overlap with ICES rectangles 38F2 and 37F2. Landing statistics indicate an average annual value of £3,531,629 in ICES rectangles 38F1, 37F1, and 38F2 and 37F2, combined; however, the DBS East array area covers approximately 4% of these ICES rectangles.

103. Based on the worst case scenario for loss or restricted access to fishing grounds during construction, fishing activity is to be excluded from the entire Offshore Development Areas for the duration of works. The maximum offshore construction period for the DBS East or DBS West array areas is up to five years, across an approximate area of 494.5km² or 494.5km² respectively. As discussed above, this receptor group's fishing activity is observed at relatively low levels across the DBS array areas and is present across the wider North Sea region, not just in areas that are to be excluded to fishing. Therefore, the duration of impact of <5yrs and the fact that the area affected represents only a small reduction (5-20%) in this receptor group's annual value of landings, means that the magnitude of impact is considered to be low.
104. **Dredge:** While UK vessels deploying dredges are active within the Commercial Fisheries Study Area, VMS data indicate that no dredge activity overlapped with the DBS array areas between 2009 to 2017. In 2020, a lucrative scallop stock was found within the DBS array areas and so dredging occurred. However, a temporary closure for scallop fishing was introduced within the Dogger Bank SAC in April 2021, and this closure became permanent when the byelaw was enacted from 13 June 2022 (discussed further in section 13.5.6).
105. Under the scenario where the Dogger Bank SAC byelaw is revoked and based on the worst case scenario of excluded fishing from the entire Offshore Development Areas for the duration of construction, this receptor group could be affected by construction works. The maximum offshore construction period for the DBS East or DBS West array areas is up to five years, across an approximate area of 494.5km² or 494.5km² respectively. Therefore, the duration of impact of <5yrs, and the fact that the area affected represents a small reduction in this receptor group's annual value of landings (5 - 20%), means that the magnitude of impact is considered to be low.

106. **Otter Trawl:** UK and non-UK vessels deploying the otter trawl gear type are active across the Commercial Fisheries Study Area, including within the DBS array areas. UK and non-UK VMS data indicate a varied level of otter trawl activity within both the DBS East and DBS West array areas throughout the study period (2009 to 2017), ranging between relatively low to a high level of fishing activity. Generally, higher levels of fishing activity are observed to the north and to the south east of the array areas, in discrete areas. This fishing activity observed within and around the array areas consists predominantly of non-UK Swedish, German, Danish, and Dutch vessels, and UK Scottish and English vessels (although, Scottish and English⁹ vessels to a lesser extent), predominantly targeting cod and plaice.
107. This receptor group will, therefore, be affected by construction works at the DBS array areas. The proportion of species landed by the non-UK vessels deploying otter trawl gear within ICES rectangle 38F1 (in which the DBS West array area solely situated) is approximately 90%. Landing statistics data further indicate the importance of ICES rectangle 38F1 to the non-UK otter trawl fishery, with an average annual landed weight of 27,386 tonnes across Swedish, German, Danish, and Dutch vessels within this ICES rectangle (2006 to 2016). It is noted, however, that the DBS West array area covers approximately 15% of ICES rectangle 38F1, and UK and non-UK VMS data illustrate that highest levels of activity are generally located outside of the DBS West array area during most years of the study period.
108. Whilst highest levels of otter trawl activity within the Commercial Fisheries Study Area are observed outside of the DBS East and DBS West array areas, VMS and landings data still show relatively high levels of fishing within the array areas, particularly within the DBS East array area where a degree of commercial reliance can be observed for this receptor group. Landing statistics for 2006-2016 indicate an average annual landed weight of 49,093 tonnes by non-UK vessels in ICES rectangles 38F1, 37F1, and 38F2, and 37F2 combined, (in which the DBS East array area is situated but only covers approximately 4% of these rectangles). Fisheries stakeholders provided a dataset which showed that established Danish sandeel fishing grounds overlap with the array areas (**Appendix 13-1 Commercial Fisheries Technical Report.**).

⁹ Several of these are Dutch owned vessels but registered in the UK.

109. Due to the degree of observed commercial reliance, DBS East has been assumed as the worst case scenario for the purposes of this assessment. Based on the worst case scenario, fishing activity is to be excluded from the entire Offshore Development Area for the duration of works. The maximum offshore construction period for the DBS East array area is up to five years, across an approximate area of 494.5km². Therefore, the duration of impact of <5yrs and the fact that the area affected represents a moderate reduction of 20 – 50% in this receptor group's annual value of landings, means that the magnitude of impact is considered to be medium.
110. **Pelagic Trawl:** Non-UK vessels deploying the pelagic trawl gear types are active across the Commercial Fisheries Study Area, including within the array areas. While VMS data recorded between 2017 and 2020 show pelagic trawl activity within the array areas, this is observed at relatively low levels across each of the DBS sites. Higher levels of fishing activity are generally observed outside of the array areas, with the highest of such levels concentrated predominantly within ICES rectangle 37FO, in proximity to the 12nm limit (also confirmed via Project-specific consultation). This fishing activity consists of non-UK Danish, Dutch, French, German and Swedish vessels, targeting highly mobile species such as herring, mackerel, sprat, sandeel and whiting.
111. This receptor group will be affected, to a relatively small degree, by construction works at the DBS East or DBS West array areas. Based on the worst case scenario, fishing activity is to be excluded from the entire Offshore Development Area for the duration of works. The maximum offshore construction period for the DBS East or DBS West array areas is up to five years, across an approximate area of 495km² and 495km² respectively. Therefore, the duration of impact of <5yrs and the fact that the area affected represents a small reduction (5-20%) of in this receptor group's annual value of landings, means that the magnitude of impact is considered to be low.

112. **Offshore static gear:** UK offshore static gear vessels ($\geq 10\text{m}$) are active across the Commercial Fisheries Study Area, with Project-specific consultation establishing that these are predominantly English vessels targeting lobster and brown crab. UK VMS data indicate that offshore static gear activity overlapped with a western section of DBS West during 2019 and 2020. However, throughout the study period, highest levels of fishing activity by this receptor group are generally located southwest of the array areas, within ICES rectangles 36F0 and 36F1. Scouting surveys and gear observations undertaken in 2022 confirmed the overlap of offshore static gear fishing activity with the western half of the DBS West array area. Based on the UK and non-UK VMS data and 2022 scouting surveys and gear observations, no activity by this receptor group was observed within the DBS East array area, therefore, construction works at the DBS East array area will not affect this receptor group.
113. Under this scenario, the element of construction activity that will affect this receptor group is seabed preparation and installation work at the DBS West array area. Project-specific consultation generally aligns with that of the UK VMS data, and 2022 scouting surveys and gear observations, indicating the overlap of activity predominantly during summer months. The construction phase of DBS West (assumed as worst case scenario for the purpose of this assessment), has an anticipated duration of up to five years and during this period, fishing activity is likely to be excluded from the entire array area (494.5km^2). Vessels within this receptor group would likely be required to temporarily remove their gear from areas where installation works were being undertaken, and either relocate to other areas offshore or bring to shore, depending on fishing preferences. It is noted, however, that equivalent fishing grounds exist within the vicinity of the Offshore Development Area.
114. In light of the above, the duration of impact of $< 5\text{yrs}$, and in consideration that the area affected represents a small reduction of 5 – 20% in this receptor group's annual value of landings means that the magnitude of impact is considered to be low.

Table 13-17 Magnitude relating to Loss or Restricted Access to Fishing Grounds During Construction of DBS East or DBS West in Isolation for the scenario where the Dogger Bank SAC byelaw is revoked

Receptor Group	Magnitude
Demersal seine	Low
Dredge	Low
Otter trawl	Medium
Pelagic trawl	Low
Offshore static gear	Low

13.6.1.1.1.3 Offshore Export Cable Corridor

115. **Demersal Seine:** Discrete areas of demersal seine activity were observed via VMS data around the 12nm limit of the Commercial Fisheries Study Area, overlapping with the offshore export cable corridor; this activity was predominantly by Scottish vessels. This receptor group will, therefore, be affected by construction works at the section of the offshore export cable corridor located around the 12nm limit. This activity is observed at relatively low levels, while VMS data further illustrates that the overlap is not present in all years over the study period.
116. Based on the worst case scenario for loss or restricted access to fishing grounds during construction, fishing activity is to be excluded from the entire Offshore Development Area for the duration of works. The maximum offshore construction period for the offshore export cable installation is up to 21 months, across a maximum area of 396km² for the DBS East offshore export cable corridor. As discussed, this receptor group's fishing activity is observed at relatively low levels across the offshore export cable corridor and is present across the wider North Sea Region, not just of that excluded to fishing. Therefore, the duration of impact of <2yrs and the fact that the area affected represents only a small reduction (5-20%) in this receptor group's annual value of landings, means that the magnitude of impact is considered to be low.

117. **Dredge:** UK vessels deploying dredges are active within the Commercial Fisheries Study Area, specifically within the inshore section (generally within and around the 12nm limit). VMS data indicate that such UK dredge activity is observed at moderate to high levels within the inshore section, notably off Flamborough Head, and with an overlap with the offshore export cable corridor during all years of the study period (2009 to 2017). This activity predominantly consists of Scottish and English dredge vessels targeting scallop (English dredge vessels to a lesser extent). The proportion of species landed by Scottish and English vessels deploying dredges within ICES rectangle 37FO (where there is overlap between this receptor group's fishing activity and the offshore export cable corridor) is over 25% (pots and traps >35% and demersal seine >32%). Landing statistics indicate an average annual value of £1,057,232 for the Scottish and English dredge fishery within this ICES rectangle.
118. An identified area of commercial importance to this receptor group is, therefore, observed to overlap with the offshore export cable corridor (of which comprises both DBS East and DBS West). Based on the worst case scenario, fishing activity is to be excluded from the entire Offshore Development Area for the duration of construction works. The maximum offshore construction period for the offshore export cable installation is up to 21 months, across a maximum area of 396km² for the DBS East offshore export cable corridor. Therefore, the duration of impact of <2yrs, and the fact that the area affected represents a moderate reduction in this receptor group's annual value of landings (20 - 50%) means that the magnitude of impact is considered to be medium.
119. **Intertidal netters:** This commercial fisheries receptor group comprises UK intertidal netters that operate with beach nets at low water, in two locations within the near shore region of the Commercial Fisheries Study Area. The two areas at Skipsea Lane End and Far Grange overlap with the Offshore Development Area. This fisher has a licence that only allows him to fish in a discrete area (approximately 500m parallel to the beach) and has buried anchors in set locations to secure the nets. Each net is 150 yards in length. Project-specific consultation established that fishing activity is conducted between October and August, with no activity in September. The fishery targets sea trout, sea bass, and sole.

120. Based on the onshore grid connection points at Creyke Beck, East Yorkshire, two possible landfall locations have been identified close to Skipsea and the Offshore Development Area overlaps with this receptor group. Construction of the nearshore section of the offshore export cable corridor will not affect this receptor group, given that the estimated HDD length is 1400m and the intertidal nets are less than 150 yards. There is a potential overlap with this receptor group from buffer zones around any nearshore UXO clearance.
121. In light of this, the duration of impact of <2yr and the fact that the area affected represents only a very small reduction (<5%) in this receptor group's annual value of landings, means that the magnitude of impact is considered to be negligible.
122. **Otter Trawl:** Vessels deploying the otter trawl gear type are active across the Commercial Fisheries Study Area, including within the DBS East and DBS West offshore export cable corridor. UK and non-UK VMS data indicate overlap of otter trawl activity with the offshore export cable corridor across all years of the study period (2009 to 2017), with highest levels of overlap observed approximately 30 to 40 km offshore. This activity consists predominantly of non-UK Swedish, German, Danish, and Dutch vessels, and UK Scottish and English vessels (although, Scottish and English vessels¹⁰ to a lesser extent), predominantly targeting sandeel and sprat. Despite VMS data indicating a relatively consistent overlap of otter trawl activity within the DBS offshore cable corridor (within ICES rectangles 37F0 and 36F1) across the study period, this is observed at relatively low levels, with higher levels being observed within the wider Commercial Fisheries Study Area, the North Sea and beyond.
123. Based on the worst case scenario, fishing activity is to be excluded from the entire Offshore Development Area for the duration of construction works. The maximum offshore construction period for the offshore export cable installation is up to 21 months, across a maximum area of 396km² for the DBS East offshore export cable corridor. Therefore, the duration of impact of <2yrs, and the fact that the area affected represents a small reduction in this receptor group's annual value of landings (5 - 20%) means that the magnitude of impact is considered to be low.

¹⁰ Several of these are Dutch owned vessels but registered in the UK.

124. **Pelagic Trawl:** Non-UK vessels deploying the pelagic trawl gear types are active across the Commercial Fisheries Study Area, including within the offshore export cable corridor. Highest levels of fishing activity are generally observed within ICES rectangle 37F0, in proximity to the 12nm limit and overlapping with the offshore export cable corridor (also confirmed via Project-specific consultation). This fishing activity consists of non-UK Danish, Dutch, French, German and Swedish vessels, targeting highly mobile species such as herring, mackerel, sprat, sandeel and whiting. Landings data from 2006 to 2016 further recognises the importance of ICES rectangle 37F0, indicating an average annual landed weight of 7,838 tonnes across the Danish, Dutch, French, German, and Swedish fleets.
125. This receptor group will, therefore, be affected by seabed preparation and installation work within the offshore export cable corridor (of which comprises both DBS East and DBS West). Based on the worst case scenario, fishing activity is to be excluded from the entire Offshore Development Area for the duration of works. The maximum offshore construction period for the offshore export cable installation is up to 21 months, across a maximum area of 396km² for the DBS East offshore export cable corridor. Therefore, the duration of impact of <2yrs and the fact that the area affected represents a moderate reduction of 20 – 50% in this receptor group's annual value of landings, means that the magnitude of impact is considered to be medium.
126. Inshore static gear: UK inshore static gear vessels (<10m) are active within the inshore region of the Commercial Fisheries Study Area and the offshore export cable corridor, with Project-specific feedback establishing that these are predominantly English vessels targeting lobster and brown crab (and occasionally whelk), operating out of local ports such as Bridlington and Hornsea. Limited spatial activity data is available for this receptor group, however, Cefas data and site specific surveys, combined with feedback from fisheries stakeholders, indicate that the highest intensities of inshore static gear fishing were located within the 6nm limit and intersected with the offshore export cable corridor.

127. The element of construction activity that will, therefore, affect this receptor group is seabed preparation and installation work at the offshore export cable corridor, specifically within the inshore region (0 to 12nm). Project-specific consultation generally aligns with that of the Cefas dataset, indicating areas of relative importance overlapping with the offshore export cable corridor during the summer months. Based on the worst case scenario, fishing activity is to be excluded from the entire offshore cable export corridor for the duration of works. The maximum offshore construction period for the offshore export cable is 21 months and across a maximum area of 396km² for DBS East. Vessels within this receptor group would likely be required to temporarily remove their gear from areas where installation works were being undertaken, and either relocate to other areas offshore or bring to shore, depending on fishing preferences. It is noted that equivalent fishing grounds exist within the vicinity of the Offshore Development Area, so it is likely that vessels will relocate their gear and continue to fish.
128. Due to the likely requirement that this receptor group will have to relocate their gear ahead of and for the duration of construction works (<2yrs), together with the fact that they operate within a more limited spatial range than that of offshore vessels, the area affected represents a moderate reduction of 20 - 50% in this receptor group's annual value of landings. The magnitude of impact for the receptor group is therefore, considered to be medium.
129. **Offshore static gear:** UK offshore static gear vessels ($\geq 10\text{m}$) are active across the Commercial Fisheries Study Area, with Project-specific consultation establishing that these are predominantly English vessels targeting lobster and brown crab. UK VMS data indicate that offshore static gear activity overlapped with the offshore export cable corridor during most years of the study period 2009 to 2020. However, throughout the study period, highest levels of fishing activity by this receptor group are generally located south of the export cable corridor, within ICES rectangles 36F0 and 36F1. The main element of construction activity that will affect this receptor group is seabed preparation and installation work at the sections of the offshore export cable corridor beyond 12nm. Project-specific consultation generally aligns with that of the UK VMS data, highlighting that the overlap of activity predominantly occurs during summer months.

130. Based on the worst case scenario, fishing activity is to be excluded from the entire offshore cable export corridor for the duration of works. The maximum offshore construction period for the offshore export cable is 21 months and across a maximum area 396km² for DBS East. Vessels within this receptor group would likely be required to temporarily remove their gear from areas where installation works were being undertaken, and either relocate to other areas offshore or bring to shore, depending on fishing preferences. It is noted, however, that equivalent fishing grounds exist within the vicinity of the Offshore Development Area and this this receptor group is present across the wider North Sea region, not just in areas that are to be excluded to fishing.
131. In light of the above, the duration of impact of <2yrs, and in consideration that the area affected represents a small reduction of 5 – 20% in this receptor group's annual value of landings means that the magnitude of impact is considered to be low.

Table 13-18 Magnitude relating to Loss or Restricted Access to Fishing Grounds During Construction of DBS East or DBS West in Isolation for the offshore export cable corridor

Receptor Group	Magnitude
Demersal seine	Low
Dredge	Medium
Intertidal netters	Negligible
Otter trawl	Low
Pelagic trawl	Medium
Inshore static gear	Medium
Offshore static gear	Low

13.6.1.1.2 *Magnitude of Impact – DBS East and DBS West Together*

132. The construction period for the DBS East and DBS West concurrent scenario is assumed as up to five years (identical construction period to that of the DBS East or DBS West in isolation scenario). However, in the instance of sequential development of the two Projects, the construction period increases to seven years, as up to a two year lag between the start of construction activities is possible (final overall footprint (see section 13.3.2) would be identical to the concurrent design scenario). For fisheries not included under the Dogger Bank SAC Byelaw, or if the Byelaw was revoked, it is assumed that fishing would be able to continue during the two-year lag between the construction phases for the Projects, i.e. when construction started at one Project, fishing could still take place in the other Project array area for this initial two year period, before both sites were in their construction phase.
133. The worst case scenario for loss or restricted access to fishing grounds during construction is that fishing activity is to be excluded from the entire Offshore Development Area (inclusive of both the array area and offshore cable corridor) for the duration of works. This equates to an area excluded to fishing activity of 989km² from the DBS array areas, and 712km² from the offshore export cable corridors. Voluntary exclusion zones of 1.5nm (2.8km) may also be present around vessels conducting seabed preparatory activities (such as sandwave and boulder clearance) and during installation of foundations, wind turbines, OSPs, inter-platform cables, inter-array cables and export cables.
134. Considering the scenario where the Dogger Bank SAC byelaw is in place, the magnitude of impacts would remain the same as outlined in Table 13.16, due to these receptor groups being prohibited from fishing within this area. Where the bylaw is revoked and for the offshore export cable corridor, loss or restricted access to fishing grounds would be higher than the worst case for an individual site, but the effect would still be anticipated to not exceed a short to medium term. Given this and consideration of the areas of fishing activity for each receptor group, the magnitude of impact on each receptor group remains consistent with the assessment of DBS East or DBS West in isolation for these scenarios (Table 13.17 and Table 13.18).

13.6.1.1.3 *Sensitivity of Receptor*

135. **Demersal seine:** Vessels within this receptor group exhibit a relatively high operational range and high spatial tolerance, due to their ability to fish numerous grounds within the wider North Sea and beyond. The sensitivity of the receptor is therefore considered to be negligible.

136. **Dredge:** Although vessels within this receptor group exhibit a relatively high operational range, they possess limited spatial tolerance, due to their dependence upon the area that overlaps with the offshore export cable corridor. It was also established, via Project-specific consultation, that scallop vessels within this receptor group have a limited ability to deploy alternative gear. The sensitivity of the receptor is therefore considered to be medium.
137. **Intertidal netters:** The intertidal netters operate across distinct areas and are considered to have lower levels of alternative fishing grounds and spatial adaptability. Although this receptor group may have some ability to deploy alternative gear, this is relatively limited. The sensitivity of the receptor is therefore, considered to be medium.
138. **Otter trawl:** This receptor group exhibits an extensive operational range and is able to mitigate, to a degree, reduced access to fishing grounds through its spatial tolerance. The sensitivity of the receptor is therefore, considered to be low.
139. **Pelagic trawl:** This receptor group exhibits an extensive operational range and is able to mitigate, to a degree, reduced access to fishing grounds through its spatial tolerance. The sensitivity of the receptor is therefore considered to be low.
140. **Inshore static gear:** The inshore static gear vessels operate within distinct areas and are considered to have lower levels of alternative fishing grounds and spatial adaptability. Due to this receptor group's smaller vessel size, they possess a lower operational range to that of the larger offshore vessels. Although these vessels have some ability to deploy alternative gear, this is relatively limited. The sensitivity of the receptor is therefore, considered to be medium.
141. **Offshore static gear:** This receptor group has the ability to fish a wider area than any areas they may be temporarily excluded from during construction works. The sensitivity of the receptor is therefore considered to be low.

13.6.1.1.4 Significance of Effect – DBS East or DBS West in Isolation or the Projects Together

142. A summary of the impact magnitude, sensitivity of receptors, and overall effect of significance for DBS East or DBS West in isolation or the Projects being built together is provided in **Table 13-19** for the different scenarios. Under the current situation, with the Dogger Bank SAC Byelaw in place, no significant change is predicted within the DBS array areas for demersal seine, dredge, otter trawl or pelagic trawl receptor groups. In the event the byelaw is revoked, negligible significance is predicted for demersal seine and minor adverse is predicted for all other receptor groups. Moderate adverse effects are predicted for the offshore export cable for dredge and inshore static gear receptor groups. There is no difference in the magnitude of impact between the Projects being built in isolation or together.

Table 13-19 Magnitude, Sensitivity and Impact Significance Relating to Loss or Restricted Access to Fishing Grounds During Construction of DBS East or DBS West in Isolation or Built Together, per scenario.

Receptor Group	Magnitude	Sensitivity	Significance
Dogger Bank SAC byelaw being in place			
Demersal seine	No change	Negligible	No change
Dredge	No change	Medium	No change
Otter trawl	No change (DBS East) Negligible (DBS West or Projects Together)	Low	No change (DBS East) Negligible (DBS West or Projects Together)
Pelagic trawl	No change (DBS East) Negligible (DBS West or Projects Together)	Low	No change (DBS East) Negligible (DBS West or Projects Together)
Dogger Bank SAC byelaw revoked			
Demersal seine	Low	Negligible	Negligible
Dredge	Low	Medium	Minor adverse
Otter trawl	Medium	Low	Minor adverse
Pelagic trawl	Low	Low	Minor adverse

Receptor Group	Magnitude	Sensitivity	Significance
Offshore static gear	Low	Low	Minor adverse
Offshore export cable corridor			
Demersal seine	Low	Negligible	Negligible
Dredge	Medium	Medium	Moderate adverse
Intertidal netters	Negligible	Medium	Minor adverse
Otter trawl	Low	Low	Minor adverse
Pelagic trawl	Medium	Low	Minor adverse
Inshore static gear	Medium	Medium	Moderate adverse
Offshore static gear	Low	Low	Minor adverse

13.6.1.1.5 Additional Mitigation and Residual Significance of Effect – DBS East or DBS West in Isolation or Built Together

143. A moderate adverse effect from loss of, and / or reduced access to fishing grounds is predicted on the inshore static gear and dredge vessels receptor groups under the offshore export cable corridor scenario. This is significant in EIA terms. In order to mitigate this effect on the inshore static gear and dredge vessels, and the minor adverse effect on other receptor groups, the Projects will explore options to encourage co-existence between receptor groups and construction vessels and / or activities to further mitigate the effect. Such measures may include cooperation agreements and associated disruption payments in accordance with FLOWW guidance. Additional mitigation measures may also include discussions to ascertain whether there are periods of time and /or particular locations during construction when it will be safe for fishing to occur. These additional mitigation measures will be added to the outline Fisheries Liaison and Coexistence Plan, which is included as an embedded mitigation measure and will be submitted as part of the DCO application.
144. If successfully implemented, these measures will reduce the magnitude of impact from medium to low for inshore static gear and dredge vessels, therefore the residual effect is **minor** adverse, which is deemed to be not significant in EIA terms.

13.6.1.2 Impact 2: Displacement from the Wind Farm Site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds

13.6.1.2.1 Magnitude of Impact – DBS East or DBS West in Isolation

145. Exclusion from fishing grounds during construction of DBS East or DBS West in isolation could, in theory, lead to temporary increases in fishing effort in other areas where existing fisheries are active, thereby leading to increased fishing pressure on adjacent grounds and potential gear conflicts. As intertidal netters operate from the beach, the potential displacement from them on other receptor groups has not been considered.
146. The worst case scenario for fisheries displacement during construction is that fishing activity is to be excluded from the entire Offshore Development Area (inclusive of both the array area and offshore cable corridor) for the duration of works. This equates to an area of 494.5km² from the DBS East or DBS West array areas and 396km² from the DBS East offshore export cable corridors. Additionally, voluntary exclusion zones of 1.5nm (2.8km) may also be present around vessels conducting seabed preparatory and during major installation works.
147. This effect is predicted to lead to displacement of fishing activity onto adjacent grounds and, therefore, lead to gear conflicts during the construction activities for each Project, which will directly affect fishing activity over a short to medium term duration (i.e. less than 5 years). The effect is predicted to be intermittent and is of relevance to UK fishing fleets in all areas and international fishing fleets outside the 12nm limit. The assessments are based on the different Commercial Fisheries receptor groups which are outlined in **Table 13-15**.
148. The effect of construction activities leading to displacement and increased pressure on adjacent fishing grounds for UK and non-UK fishing fleets is described below. For demersal seine, dredge, otter trawl and pelagic trawling fisheries receptors, this is firstly assessed against the current situation, i.e. the Dogger Bank SAC byelaw is in place which prohibits bottom towed gear within the entire SAC; secondly, against a scenario where the Dogger Bank SAC byelaw is revoked and bottom fishing activity is permitted again within the boundary of the SAC; and thirdly the assessment for the offshore export cable corridor. The magnitude of impact for each scenario is summarised in **Table 13-20** and **Table 13-21**.

13.6.1.2.1.1 Dogger Bank SAC Byelaw in Place

149. The following assessment assumes the current situation, i.e. there is no bottom fishing within the SAC due to the implementation of the Dogger Bank SAC Byelaw.
150. The spatial extent of the Dogger Bank SAC byelaw covers the majority of the DBS array areas (except for approximately 0.85km² in the southwest of DBS West). Therefore, vessels deploying demersal seines, dredges and otter trawls, under this scenario, are not active within the entire DBS East array area and the majority of the DBS West array area and eastern section of the offshore export cable corridor, and displacement of these into the areas beyond 12nm as a result of construction works will not occur. Pelagic trawling that has contact with the seabed, such as that of the sandeel fishery (established via Project-specific consultation), is also prohibited, with displacement of fishing activity from the described area onto adjacent grounds, therefore, also not likely to occur.
151. With regard to the southwest section of the DBS West array area not covered by the Dogger Bank SAC byelaw and permissible to bottom fishing, VMS data indicate no overlap of demersal seine or dredge fishing activity. Therefore, while assessing against the current situation, displacement of these commercial fisheries receptor groups as a result of construction activities onto adjacent grounds where other receptor groups are active is not likely to occur. No magnitude of change is predicted for the construction phase of the DBS array areas for demersal seine and dredge receptor groups.
152. The VMS data indicate potential overlap of otter trawl and pelagic fishing activity within the southwest section of the DBS West array area. Therefore, while assessing against the current situation, displacement of this fishing activity onto adjacent fishing grounds may occur as a result of construction activities. However, as the area of overlap is only 0.85km², the magnitude of impact for otter trawl and pelagic trawl displacement onto adjacent grounds where other receptor groups are active is expected to be negligible, as the impact would lead to very small (<5%) reductions in annual value of landings. No magnitude of change is predicted for the construction phase within the DBS East array area for otter trawl or pelagic trawl receptor groups.

Table 13-20 Magnitude relating to Displacement from the Wind Farm Site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds during Construction of DBS East or DBS West in Isolation, for the scenario where the Dogger Bank SAC byelaw is in place

Receptor Group	Magnitude
Demersal seine and dredge	No change
Otter trawl and pelagic trawl	No change (DBS East) Negligible (DBS West)

13.6.1.2.1.2 Dogger Bank SAC Byelaw Revoked

153. The following assessment assumes that the Dogger Bank SAC byelaw is revoked.
154. **Demersal seine:** Based on the worst case scenario, fishing activity is to be excluded from the entire Offshore Development Areas for the duration of construction works. The maximum offshore construction period for the DBS East or DBS West array areas is up to five years, across an approximate area of 494.5km² or 494.5km² respectively.
155. Potential displacement of vessels deploying dredges, otter trawls, pelagic trawls, and offshore static gear from the DBS East or DBS West array areas, into the areas where demersal seine vessels are active could cause conflict between these different receptor groups. However, data indicate that this receptor group targets a relatively large area in comparison to the area excluded to fishing as a result of construction works.
156. Therefore, the short to medium term duration (<5yrs) and the area affected during construction of DBS East or DBS West array areas represents only a small reduction of 5 – 20% in this receptor group's annual value of landings. The magnitude of impact is therefore considered to be low.
157. **Dredge:** Potential displacement of vessels deploying demersal seine, otter trawls, pelagic trawls and offshore static gear from the DBS East or DBS West array areas into the areas where dredge vessels are active, could cause conflict between these different receptor groups. However, due to the relatively small size of area that would affect this receptor group, in comparison to the wider extent of fishing grounds available within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited.

158. Therefore, the duration of impact of <5yrs, and in consideration that the area affected during construction of DBS East or DBS West represents only a small reduction of 5 – 20% in this receptor group's annual value of landings, means that the magnitude of impact is considered to be low.
159. **Otter trawl:** Displacement of vessels deploying dredges, demersal seine, pelagic trawls, and offshore static gear from the DBS East or DBS West array areas into areas where otter trawl vessels are active, could cause conflict between these different receptor groups. However, due to the relatively small size of area that would affect this receptor group, in comparison to the wider extent of fishing grounds available within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited. Therefore, the duration of impact of <5yrs, and in consideration that the area affected during construction of DBS East or DBS West represents only a small reduction of 5 – 20% in this receptor group's annual value of landings, means that the magnitude of impact is, therefore, considered to be low.
160. **Pelagic trawl:** Potential displacement of vessels deploying dredges, demersal seine, otter trawls, and offshore static gear from the DBS East or DBS West array areas, into areas where otter trawl vessels are active, could cause conflict between these different receptor groups. However, due to the relatively small size of area that would be affected compared to the wider extent of fishing grounds within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited. The magnitude of impact is therefore considered to be low.
161. **Inshore static gear:** The potential displacement of mobile dredges, demersal seine, otter trawls, and pelagic trawls from the DBS East or DBS West array areas into the inshore areas where this receptor's vessels set static gear (pots), is unlikely as the mobile vessels would likely focus on alternative established offshore grounds (i.e. beyond 12nm) throughout the North Sea. The potential displacement of offshore static vessels from the two array areas could occur due to construction works, requiring the inshore static gear vessels to temporarily relocate gear and/or experience a reduction in landings due to a greater number of vessels targeting stocks in this inshore area. However, this is also judged to be unlikely, as these offshore static vessels would likely look to remain in grounds further offshore (i.e. beyond 12nm), such as in that of the wider North Sea region. In light of this, the duration of impact of <5yrs and the fact that the area affected during construction of DBS East or DBS West represents only a small reduction (5 – 20%) of this receptor group's annual value of landings, means that the magnitude of impact is considered to be low.

162. **Offshore static gear:** The potential displacement of mobile vessels deploying dredges, demersal seine, otter trawls and pelagic trawls from the DBS East or DBS West array areas into the areas where offshore static gear vessels set static gear (pots), could cause conflict between these different receptor groups. However, due to the relatively small size of area that would be affected compared to the wider extent of fishing grounds within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited. The magnitude of impact is, therefore, considered to be low.

Table 13-21 Magnitude relating to Displacement from the Wind Farm Site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds during Construction of DBS East or DBS West in Isolation for the scenario where the Dogger Bank SAC byelaw is revoked

Receptor Group	Magnitude
Demersal seine	Low
Dredge	Low
Otter trawl	Low
Pelagic trawl	Low
Inshore static gear	Low
Offshore static gear	Low

13.6.1.2.1.3 Offshore Export Cable Corridor

163. **Demersal seine:** Based on the worst case scenario for loss or restricted access to fishing grounds during construction, fishing activity is to be excluded from the entire Offshore Development Area for the duration of works. The maximum offshore construction period for the offshore export cable installation is up to 21 months, across a maximum area of 396km² for the DBS East offshore export cable corridor.
164. Potential displacement of vessels deploying dredges, otter trawls, pelagic trawls, and offshore static gear from the part of the offshore export cable corridor beyond 12nm, into areas where demersal seine vessels are active, could cause conflict between these different receptor groups. However, data indicate that this receptor group targets a relatively large area in comparison to the area of exclusion as a result of construction works.

165. Potential displacement of inshore static gear vessels from the offshore export cable corridor, into the areas beyond 12nm where demersal seine vessels are mostly active is unlikely. The smaller size of these vessels means it is more likely that these receptor groups would focus on alternative established grounds further inshore, i.e. within 12nm.
166. Therefore, the short to medium term duration (<2yrs) and the area affected during installation of the DBS East or West offshore export cable, represents only a small reduction of 5 – 20% in this receptor group's annual value of landings. The magnitude of impact is therefore considered to be low.
167. **Dredge:** Potential displacement of vessels deploying demersal seine, otter trawls, pelagic trawls and offshore static gear from the part of the DBS East or DBS West offshore export cable corridor beyond 12nm, into the areas where dredge vessels are active, could cause conflict between these different receptor groups. However, due to the relatively small size of area that would be affected compared to the wider extent of fishing grounds within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited.
168. Potential displacement of inshore static gear vessels from the offshore export cable corridor, into areas around the 12nm limit and beyond, where these dredge vessels are mostly active is unlikely. The smaller size of these vessels means it is more likely that these receptor groups would focus on alternative established grounds further inshore.
169. Therefore, the duration of impact of <2yrs, and in consideration that the area affected during installation of the DBS East or West offshore export cable, represents only a small reduction of 5 – 20% in this receptor group's annual value of landings, means that the magnitude of impact is considered to be low.
170. **Otter trawl:** Displacement of vessels deploying dredges, demersal seine, pelagic trawls, and offshore static gear from the DBS East or DBS West offshore export cable corridor beyond 12nm, into the areas where otter trawl vessels are active, could cause conflict between these different receptor groups. However, due to the relatively small size of area that would be affected compared to the wider extent of fishing grounds within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited.
171. Potential displacement of inshore static gear vessels from the offshore export cable corridor, into the areas beyond the 12nm limit where otter trawl vessels are active is unlikely, as inshore static gear vessels would likely focus on alternative established grounds further inshore, i.e. within 12nm.

172. Therefore, the duration of impact of <2yrs, and in consideration that the area affected during installation of the DBS East or West offshore export cable represents only a small reduction of 5 – 20% in this receptor group's annual value of landings, means that the magnitude of impact is, therefore, considered to be low.
173. **Pelagic trawl:** Potential displacement of vessels deploying dredges, demersal seine, otter trawls, inshore and offshore static gear from the DBS East or DBS West offshore export cable corridor, into the areas where pelagic trawl vessels are active, could cause conflict between these different receptor groups. However, due to the relatively small size of area that would be affected compared to the wider extent of fishing grounds within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited.
174. Therefore, the duration of impact of <2yrs, and in consideration that the area affected during installation of the DBS East or West offshore export cable represents only a small reduction of 5 – 20% in this receptor group's annual value of landings, means that the magnitude of impact is, therefore, considered to be low.
175. **Inshore static gear:** Potential displacement of mobile dredges, demersal seine, otter trawls, and pelagic trawls from the part of the offshore export cable corridor beyond 12nm, into the inshore areas where this receptor's vessels set static gear (pots), is unlikely as the mobile vessels would likely focus on alternative established offshore grounds (i.e. beyond 12nm) throughout the North Sea.
176. Potential displacement of offshore static vessels from the offshore export cable corridor beyond 12nm into inshore areas could occur due to construction works, requiring the inshore static gear vessels to temporarily relocate gear and/or experience a reduction in landings due to a greater number of vessels targeting stocks in this inshore area. However, this is also judged to be unlikely, as these offshore static vessels would likely look to remain in grounds further offshore (i.e. beyond 12nm), such as in that of the wider North Sea region.
177. Potential displacement of individual vessels within this receptor group, from the offshore export cable corridor within 12nm, onto adjacent grounds that may be fished by other inshore vessels, is also possible.

178. In light of this, the duration of impact of <2yrs and the fact that the area affected during installation of the DBS East or West offshore export cable, represents only a small reduction (5 – 20%) of this receptor group’s annual value of landings, means that the magnitude of impact is considered to be low.
179. **Offshore static gear:** Potential displacement of mobile vessels deploying dredges, demersal seine, otter trawls, inshore static gear vessels, and pelagic trawls from the DBS East or DBS West offshore export cable corridor into the areas where offshore static gear vessels set static gear (pots), could cause conflict between these different receptor groups. However, due to the relatively small size of area that would be affected compared to the wider extent of fishing grounds within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited. The magnitude of impact is, therefore, considered to be low.

Table 13-22: Magnitude relating to Displacement from the Wind Farm Site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds during Construction of DBS East or DBS West in Isolation for the offshore export cable corridor.

Receptor Group	Magnitude
Demersal seine	Low
Dredge	Low
Otter trawl	Low
Pelagic trawl	Low
Inshore static gear	Low
Offshore static gear	Low

13.6.1.2.2 Magnitude of Impact – DBS East and DBS West Together

180. The construction period for the DBS East and DBS West concurrent scenario is assumed as up to five years (identical construction period to that of the DBS East or DBS West in isolation scenario). However, in the instance of sequential development of the two Projects, the construction period increases to seven years, as up to a two year lag between the start of construction activities is possible (final overall footprint would be identical to the concurrent design scenario).

181. The worst case scenario for fisheries displacement during construction is that fishing activity is to be excluded from the entire Offshore Development Area (inclusive of both the array area and offshore cable corridor) for the duration of works. This equates to an area of 989km² from the DBS array areas, and 712km² from the offshore export cable corridors. Additionally, voluntary exclusion zones of 1.5nm (2.8km) may also be present around vessels conducting seabed preparatory and during major installation works.
182. This effect is predicted to lead to displacement of fishing activity onto adjacent grounds and, therefore, lead to gear conflicts during the construction activities for each Project, which will directly affect fishing activity over a short to medium term duration (i.e. less than 5 years). The effect is predicted to be intermittent and is of relevance to UK fishing fleets in all areas and international fishing fleets outside the 12nm limit.
183. Considering the scenario where the Dogger Bank SAC byelaw is in place, the magnitude of impacts would remain the same as outlined in Table 13.20, due to these receptor groups being prohibited from fishing within this area. Where the bylaw is revoked and for the offshore export cable corridor, displacement would be higher than the worst case for an individual site, but the effect would still be anticipated to not exceed a short to medium term. Given this and consideration of the areas of fishing activity for each receptor group, the magnitude of impact on each receptor group remains consistent with the assessment of DBS East or DBS West in isolation for these scenarios (Table 13.21).

13.6.1.2.3 Sensitivity of Receptor

184. **Demersal seine:** Demersal seine vessels exhibit a relatively high operational range and spatial tolerance, due to their ability to fish numerous grounds within the wider North Sea and beyond. Vessels within this receptor group have little dependency on the array areas and offshore export cable corridor and are able to avoid construction areas provided adequate notification is given. The sensitivity of the receptor is therefore, considered to be negligible.
185. **Dredge:** Although vessels within this receptor group exhibit a relatively high operational range, they possess limited spatial tolerance due to their dependence upon a specific area for king scallop, which overlaps with the offshore export cable corridor. This receptor group also possesses a limited ability to deploy alternative gear. The sensitivity of the receptor is therefore considered to be medium.

- 186. **Otter trawl:** This receptor group exhibits an extensive operational range and is able to mitigate, to a degree, displacement as a result of loss or restricted access to fishing grounds through its spatial tolerance. The sensitivity of the receptor is therefore, considered to be low.
- 187. **Pelagic trawl:** This receptor group exhibits an extensive operational range and is able to mitigate, to a degree, displacement as a result of loss or restricted access to fishing grounds through its spatial tolerance. The sensitivity of the receptor is therefore, considered to be low.
- 188. **Inshore static gear:** This receptor is limited to a number of grounds, and although these vessels have some ability to deploy alternative gear, this is relatively limited. The sensitivity of the receptor is therefore considered to be medium.
- 189. **Offshore static gear:** This receptor group has the ability to fish a wider area than those areas they may be temporarily excluded from during construction works. The sensitivity of the receptor is therefore, considered to be low.

13.6.1.2.4 Significance of Effect – DBS East or DBS West in Isolation or Built Together

- 190. A summary of the impact magnitude, sensitivity of receptors, and overall effect of significance for DBS East or DBS West in isolation or both Projects built out together is provided in **Table 13-23**. Under the current situation, with the Dogger Bank SAC Byelaw in place, no significant change is predicted within the DBS array areas for demersal seine, dredge, otter trawl or pelagic trawl receptor groups. In the event the byelaw is revoked, negligible significance is predicted for demersal seine and minor adverse is predicted for all other receptor groups. Moderate adverse effects are predicted for the offshore export cable for dredge and inshore static gear receptor groups. There is no difference in the magnitude of impact between the Projects being built in isolation or together. No additional mitigation is proposed for this impact.

Table 13-23: Magnitude, Sensitivity and Impact Significance Relating to Displacement of Fishing Activity Leading to Gear Conflict and Increased Pressure on Adjacent Grounds During Construction of DBS East or DBS West in Isolation or Built Together, per scenario.

Receptor Group	Magnitude	Sensitivity	Significance
Dogger Bank SAC byelaw being in place			
Demersal seine	No change	Negligible	No change
Dredge	No change	Medium	No change
Otter trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)
Pelagic trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)
Dogger Bank SAC byelaw revoked and offshore export cable corridor			
Demersal seine	Low	Negligible	Negligible
Dredge	Low	Medium	Minor adverse
Otter trawl	Low	Low	Minor adverse
Pelagic trawl	Low	Low	Minor adverse
Inshore static gear	Low	Medium	Minor adverse
Offshore static gear	Low	Low	Minor adverse

13.6.1.3 Impact 3: Temporary Increased Steaming Times

13.6.1.3.1 Magnitude of Impact – DBS East or DBS West in Isolation

191. Exclusion from fishing grounds during construction of DBS East or DBS West in isolation could, in theory, lead to increases in steaming times for commercial fisheries receptors which could lead to increased operational costs. The worst case scenario for increased steaming times during construction is that commercial fishing vessels are to be excluded from steaming across the entire array, equating to an area of 494.5km² and 494.5km² for DBS East or DBS West, respectively. Sections of the offshore export cable corridor will be subject to temporary restrictions during construction, via temporary 500m safety zones during construction of the RCP and/or the electrical switching platform; the maximum offshore construction period for the offshore export cable installation is 21 months. Voluntary exclusion zones of 1.5nm (2.8km) may also be present around vessels conducting seabed preparatory activities (such as sandwave and boulder clearance) and during installation of foundations, wind turbines, OSPs, inter-platform cables, inter-array cables and export cables.
192. Embedded mitigation (section 13.3.3) will minimise the impact of temporary increased steaming times during construction. The commercial fishing industry will be informed in advance of any offshore construction activities by the FLO, through NtMs, Kingfisher Bulletins and ongoing liaison, which will ensure that fishing vessels will be in a position to plan ahead to avoid construction areas.
193. Vessel traffic surveys indicated that fishing vessels transiting through the DBS array areas were non-UK >50m trawlers; however these transits through the DBS array areas were infrequent (**Appendix 13-1 Commercial Fisheries Technical Appendix; Chapter 14 Shipping and Navigation**). Any increase in steaming times for these vessels is likely to be minimal due to the distances from their home ports. Inshore static gear vessels may have slightly increased steaming times to avoid construction works within the offshore export cable, however this is predicted to be localised and temporary. Therefore, with these considerations and the fact that the duration of the impact is <5yrs, the magnitude of impact is considered to be low.

13.6.1.3.2 Magnitude of Impact – DBS East and DBS West Together

194. While DBS East and DBS West together would encompass a larger spatial scale than that of either Projects in isolation, taking into account the embedded mitigation measures outlined in section 13.3.3 and level of transits, the magnitude of impact will remain low for all commercial fisheries receptor groups.

13.6.1.3.3 Sensitivity of Receptor

195. All Commercial Fisheries receptor groups have operational ranges that are beyond that of the areas of construction, so will have the ability to make deviation to transit routes. Providing that adequate notification is given and the embedded mitigation measures are followed (section 13.3.3), all fishing vessels will be in a position to avoid construction areas.
196. All Commercial Fisheries receptor groups are deemed to be of low vulnerability and moderate spatial tolerance to increased steaming times. The sensitivity of the receptors is therefore considered to be low.

13.6.1.3.4 Significance of Effect – DBS East or DBS West in Isolation or Built Together

197. Based on the worst case low magnitude and low sensitivity, the significance of effect would be **minor** adverse for all fisheries receptors. No additional mitigation is proposed for this impact.

13.6.1.4 Impact 4: Loss or Damage to Fishing Gear due to Snagging

13.6.1.4.1 Magnitude of Impact – DBS East or DBS West in Isolation or Built Together

198. Project infrastructure, such as array cables and offshore export cables represent potential snagging points for fishing gears. Potential risks associated with snagging include damage or loss of fishing gear, the potential for loss of life and vessel capsizes. A more focussed assessment of potential marine safety and navigation risks is included in **Chapter 14 Shipping and Navigation**.
199. Relevant embedded mitigation measures, summarised in **Table 13-3**, will be implemented to minimise the risk of snagging. These include the timely promulgation of NtMs and Kingfisher Bulletins, navigational aids, and advisory safety distances and liaison organised via the appointed FLO.
200. This specific assessment considers the potential loss or damage to fishing gear (and related vessel safety), due to snagging on Project infrastructure that is present during the construction phase. A similar assessment is presented for the operational phase, where similar infrastructure will exist *in situ* for the lifetime of the Projects.

201. The realistic worst case scenario has been used whereby all commercial fishing is excluded from the entire Offshore Development Area for the entirety of construction. Assuming this proposed exclusion is implemented successfully, with close engagement and communication with commercial fisheries stakeholders, then there will be no scope for snagging fishing gear on sub-surface obstructions or structures within the array area or offshore export cable corridor. Therefore, for all commercial fisheries receptor groups, no magnitude of change is predicted.
202. If a snagging incident does occur, best practice guidance for fisheries liaison with offshore renewable developers by FLOWW (2014) will be followed, where safe and appropriate to do so. Further guidance on safe vessel operations within the vicinity of subsea cables by the ICPC (2009) and the ESCA (2018) will also be adhered to and considered within the Fisheries Liaison and Coexistence Plan.

13.6.1.4.2 Sensitivity of Receptor

203. **Demersal trawls and seine:** this gear type is in direct, near continuous contact with the seabed where there is an increased risk of snagging on structures on the seabed and subsea cables associated with the Projects. This receptor is therefore, vulnerable to impacts that may arise from the Projects, as despite having a high spatial tolerance, this group has limited ability to deploy alternative gear types. The sensitivity of this receptor group is therefore, considered to be medium.
204. **Dredge:** this gear type is in direct, near continuous contact with the seabed where there is an increased risk of snagging on structures on the seabed and subsea cables associated with the Projects. This receptor is, therefore, vulnerable to impacts that may arise from the Projects, as despite having a high operational range, this group has a low spatial tolerance and limited ability to deploy alternative gear types. The sensitivity of this receptor group is therefore, considered to be medium.
205. **Intertidal netters:** this receptor group operates from the shore and does not involve any vessel or towing activities and will not be vulnerable to impacts as a result of snagging. The sensitivity of this receptor is therefore, considered to be negligible.

206. **Otter trawl:** this gear type is in direct, near continuous contact with the seabed where there is an increased risk of snagging on structures on the seabed and subsea cables associated with the Projects. This receptor is, therefore, vulnerable to impacts that may arise from the Projects, as despite having an extensive operational range, this group has a limited ability to deploy alternative gear types. The sensitivity of this receptor group is therefore, considered to be medium.
207. **Pelagic trawl:** pelagic gear is designed to be towed within the water column and limited contact with the seabed is expected. This receptor is therefore vulnerable to impacts that may arise from the Projects, as despite having an extensive operational range, this group has a limited ability to deploy alternative gear types. The sensitivity of this receptor is therefore considered to be low.
208. **Inshore and offshore static gear:** as static gears are not towed, they are less susceptible to loss or damage due to snagging. It is acknowledged, however, that snagging still poses a risk to static gear vessels, for example when hauling gear. The sensitivity is therefore, considered to be low..

13.6.1.4.3 Significance of Effect – DBS East or DBS West in Isolation or Built Together

209. A summary of the impact magnitude, sensitivity of receptors and overall effect of significance is provided in **Table 13-24**. No additional mitigation is proposed for this impact.

Table 13-24 Magnitude, Sensitivity and Impact Significance Relating to Loss or Damage of Gear Due to Snagging During Construction of DBS East or DBS West in Isolation or Built Together.

Receptor Group	Magnitude	Sensitivity	Significance
Demersal seine	No change	Medium	No change
Dredge	No change	Medium	No change
Intertidal netters	No change	Negligible	No change
Otter trawl	No change	Medium	No change
Pelagic trawl	No change	Low	No change
Inshore static gear	No change	Low	No change
Offshore static gear	No change	Low	No change

13.6.1.5 Impact 5: Supply Chain Opportunities for Local Fishing Vessels

13.6.1.5.1 Magnitude of Impact – DBS East or DBS West in Isolation

210. Construction of the DBS East or DBS West array areas and offshore export cable corridors in isolation, will take place over a maximum of five years and poses the potential for beneficial supply chain opportunities for local fishing vessels. Potential areas of support during the construction phase of the Projects include provision of up to five guard vessels at any one time, provision of fishing vessels for scouting surveys and OFLO duties.
211. As this impact is beneficial, it should be noted that the definition for magnitude outlined in **Table 13-11** will still apply albeit in reverse.
212. **Demersal trawl and seine, dredge, otter trawl, pelagic trawl and offshore static gear:** the impact to these receptor groups is predicted to be of limited spatial extent and short to medium term duration. It is predicted that direct impacts will occur to these receptors, which are judged to be of a minor benefit; any revenue gained as a result of supply chain opportunities is likely to be equivalent to 5 - 20% of the annual landed value of these receptor groups. Therefore, the magnitude is considered to be low.
213. **Intertidal netters:** impacts to this receptor group will be negligible as this fishing method does not require vessels; therefore, there is no pathway for supply chain opportunities to occur.
214. **Inshore static gear:** it is unlikely that any notable supply chain opportunities will be relevant to this receptor group, due to the small size and nature of vessels involved. Larger and better equipped vessels which can remain at sea for longer timeframes would be required for guard vessel duties or scouting survey opportunities, which the smaller inshore static vessels would likely not be able to fulfil.
215. An exception to the above, would be the potential for this receptor group to provide inshore scouting surveys of the offshore export cable corridor route prior to installation works. This would allow any static gear to be located and temporarily removed before cable installation works commenced. However, this impact would be spatially and temporally limited in extent, and likely not result in any significant revenue for the receptor group.
216. The impact is predicted to be of a small spatial extent and be short to medium term in duration. It is predicted that direct impacts will occur to this receptor group, but these will be of negligible benefit, and any revenue gained as a result of supply chain opportunities is likely to be equivalent to <5% of the annual landed value of this receptor group. Therefore, the magnitude is considered to be negligible.

13.6.1.5.2 *Magnitude of Impact – DBS East and DBS West Together*

217. Construction of the DBS East and DBS West array areas and the offshore export cable corridors together will take place over a maximum of five years per Project and poses the potential for beneficial supply chain opportunities for local fishing vessels. Potential areas of support during the construction phase of the Projects include provisioning of up to ten guard vessels at any one time, provisioning of fishing vessels for scouting surveys, and OFLO duties.
218. As the opportunities for vessel provisioning are comparable to the construction of DBS East or DBS West in isolation, the magnitude of impacts for each receptor group are considered the same as detailed in section 13.6.1.1.5.

13.6.1.5.3 *Sensitivity of Receptor*

219. Unlike other assessments, where receptor sensitivity has been defined largely by vulnerability to a potential impact. The sensitivity of each receptor group to this potential impact, has been defined as the opportunity each receptor group has for provisioning of supply chain opportunities during the construction of the DBS East and DBS West Projects.
220. **Demersal trawl and seine, otter trawl and pelagic trawl:** these vessels have a low suitability to support provisioning of supply chain opportunities during the construction phase of the Projects, as they may require additional vessel modifications to comply with safe working conditions for support vessel opportunities. Therefore, the sensitivity of these receptors is considered to be low.
221. **Dredge:** these vessels are assessed as moderately suitable to support supply chain opportunities associated with the Projects, due to the vessel type and size and the assumption that these vessels will hold the relevant workboat certifications. Therefore, the sensitivity of this receptor is considered to be medium.
222. **Intertidal netters:** this receptor will not be able to support any supply chain opportunities, as this fishing method does not require fishing vessels. Therefore, the sensitivity of this receptor is considered to be negligible.
223. **Inshore static gear:** due to the size and suitability of vessels within the inshore static fleet, this receptor is unlikely to support supply chain opportunities during the construction phase of the Projects. Additionally, these vessels are unlikely to have the necessary certifications to support non-commercial fishing activities. Therefore, the sensitivity of this receptor is considered to be negligible.

224. **Offshore static gear:** these vessels are larger compared to inshore static vessels and so have greater operational ranges and a greater capacity to support supply chain opportunities associated with the Projects. Additionally, it is assumed that these vessels will hold the necessary certifications and crew requirements for workboat activities. This receptor group is judged to be of moderate suitability; therefore, the sensitivity is considered to be medium.

13.6.1.5.4 Significance of Effect – DBS East or DBS West in Isolation or Built Together

225. A summary of the impact magnitude, sensitivity of receptors and overall effect of significance is provided in **Table 13-25**. No additional mitigation is proposed for this impact.

Table 13-25 Magnitude, Sensitivity and Impact Significance Relating to Supply Chain Opportunities During Construction of DBS East or DBS West in Isolation or Built Together.

Receptor Group	Magnitude	Sensitivity	Significance
Demersal seine	Low	Low	Minor beneficial
Dredge	Low	Medium	Minor beneficial
Intertidal netters	Negligible	Negligible	Negligible
Otter trawl	Low	Low	Minor beneficial
Pelagic trawl	Low	Low	Minor beneficial
Inshore static gear	Negligible	Negligible	Negligible
Offshore static gear	Low	Medium	Minor beneficial

13.6.1.6 Impact 6: Potential Impacts on Commercially Important Fish and Shellfish Resources

226. Impacts to commercially important fish and shellfish resources during construction of the Project have been assessed in **Chapter 10 Fish and Shellfish Ecology**. As a result of this, potential consequential effects to commercial fisheries will be assessed here.
227. The following impacts to commercially important fish and shellfish resources during construction have been assessed:

- Temporary habitat disturbance to fish and shellfish species and spawning and / or nursery grounds including direct damage and installation of turbine foundations, scour protection and cables;
- Increased local suspended sediment concentrations and sediment settlement;
- Release of sequestered contaminants following sediment disturbance; and
- Impacts on fish and shellfish species as a result of noise and vibration (from piling and UXO clearance, only).

228. Fish and shellfish species that have been identified for their commercial importance are summarised in **Table 13-26**.

Table 13-26 Commercially Important Fish and Shellfish Species

Species Group	Species
Elasmobranchs	• Thornback ray <i>Raja clavata</i>; and • Spotted ray <i>Raja montagui</i>.
Demersal Fish	• Plaice <i>Pleuronectes platessa</i>; • Sea Bass <i>Dicentrarchus labrax</i>; • Turbot <i>Scophthalmus maximus</i>; • Lemon sole <i>Microstomus kitt</i>; • Atlantic cod <i>Gadus morhua</i>; • Whiting <i>Merlangius merlangus</i>; • Dover sole <i>Solea solea</i>; • Red mullet <i>Mullus surmuletus</i>; • Brill <i>Scophthalmus rhombus</i>; and • Sandeel species <i>Ammodytidae</i>.
Pelagic Fish	• Herring <i>Clupea harengus</i>; • Sea trout <i>Salmo trutta</i>; • Sprat <i>Sprattus</i>; and • Atlantic mackerel <i>Scomber scombrus</i>.
Shellfish	• European lobster <i>Homarus gammarus</i>; • Brown crab <i>Cancer pagurus</i>; • Velvet crab <i>Necora puber</i>; • King scallops <i>Pecten maximus</i>; • Queen scallops <i>Aequipecten opercularis</i>; • Norway lobster <i>Nephrops norvegicus</i>; and • Common whelk <i>Buccinum undatum</i>.

13.6.1.6.1 Magnitude of Impact – DBS East or DBS West in Isolation or Built Together

229. The magnitude of impacts to Commercial Fisheries for the construction of DBS East or DBS West separately and together will be assessed based on the overall significance of effects during construction to fish and shellfish ecology, in order to incorporate both the magnitude and sensitivity of fish and shellfish receptors within the commercial fisheries assessment. **Chapter 10 Fish and Shellfish Ecology** considers the magnitude of impacts to be the same for the development of DBS East or DBS West in isolation and together. The assessment of significance considers elasmobranchs (sharks and rays), demersal and pelagic (bony) fish, and shellfish species groups which encompasses commercially important species within the Commercial Fisheries Study Area.
230. A summary of the significance of effects to fish and shellfish ecology is provided in **Table 13-27** and provides the basis for the magnitude of impacts to commercial fisheries. The potential impacts to fish and shellfish were assessed to have at worst a minor adverse effect within **Chapter 10 Fish and Shellfish Ecology**. Based on this the potential impact on commercially important fish and shellfish resources is considered to be of low magnitude across all receptor groups.

Table 13-27 Significance of Effects for the Construction of DBS East or DBS West in Isolation or Built Together to Fish and Shellfish Ecology

Potential Impact	Significance of Effect
Temporary habitat disturbance to fish and shellfish species and spawning and / or nursery grounds including direct damage and installation of turbine foundations, scour protection and cables	Minor adverse
Increased local suspended sediment concentrations and sediment settlement	Minor adverse
Release of sequestered contaminants following sediment disturbance	Negligible adverse
Impacts on fish and shellfish species as a result of noise and vibration (from piling and UXO clearance, only)	Minor adverse

13.6.1.6.2 Sensitivity of Receptor

231. **Demersal trawls and seines:** Danish vessels targeting plaice and cod, as well as Scottish and English vessels which primarily target cod, haddock, and flatfish are the main receptors of this group. Of these species, cod and plaice have been identified of key commercial importance. Vessels within this receptor group exhibit a relatively high operational range and high spatial tolerance, the sensitivity is therefore, considered to be negligible.
232. **Dredge:** Scottish and English scallopers are key receptors of this group, for which both king and queen scallops are identified as commercially important. Although this receptor group exhibits a relatively high operational range, they have a low spatial tolerance and limited availability to deploy alternative gear types. The sensitivity of this receptor is therefore, considered to be medium.
233. **Intertidal netters:** this receptor group targets sea trout, sea bass, and Dover sole within the nearshore intertidal area. It is considered that this receptor group is limited to a small spatial area and has reduced adaptability to deploy alternative gear types, therefore, the sensitivity is assessed as medium.
234. **Otter trawl:** vessels from the non-UK and UK target cod and plaice, both of which have been identified as commercially important species. This receptor group exhibits an extensive operational range and has a moderate spatial tolerance. The sensitivity of the receptor is therefore, considered to be low.
235. **Pelagic trawl:** vessels primarily from the non-UK, target herring, mackerel, sprat, sandeel, and whiting, all of which are identified as commercially important species. This receptor group exhibits an extensive operational range and has a moderate spatial tolerance. The sensitivity of the receptor is therefore considered to be low.
236. **Inshore static gear:** English vessels <10m targeting lobster and brown crab are the key receptors of this group. As this receptor group operates smaller vessel sizes, they possess a lower operational range to that of the larger offshore vessels and have a limited availability to deploy alternative gear types. The sensitivity of the receptor is therefore, considered to be medium.
237. **Offshore static gear:** English vessels targeting lobster and brown crab are the key receptors of this group. This receptor group has the ability to fish a wider area than any areas they may be temporarily excluded from during construction works. The sensitivity of the receptor is therefore, considered to be low.

13.6.1.6.3 Significance of Effect – DBS East or DBS West in Isolation or Built Together

238. A summary of the impact magnitude, sensitivity of receptors and overall effect of significance is provided in **Table 13-28**. No additional mitigation is proposed for this impact.

Table 13-28 Magnitude, Sensitivity and Impact Significance Relating to Potential Impacts to Commercially Important Fish and Shellfish Resources During the Construction of DBS East or DBS West in Isolation or Built Together.

Receptor Group	Magnitude	Sensitivity	Significance
Demersal seine	Low	Negligible	Negligible
Dredge	Low	Medium	Minor adverse
Intertidal netters	Low	Medium	Minor adverse
Otter trawl	Low	Low	Minor adverse
Pelagic trawl	Low	Low	Minor adverse
Inshore static gear	Low	Medium	Minor adverse
Offshore static gear	Low	Low	Minor adverse

13.6.1.7 Impact 7: Navigational Safety

239. Impacts regarding navigational safety have been separately assessed in **Chapter 14 Shipping and Navigation**. Of the impacts assessed within this chapter the potential effects during construction relevant to commercial fisheries receptor groups are as follows:
- Vessel displacement and increased vessel to vessel collision risk between third-party vessels; and,
 - Increased vessel to vessel collision risk between a third-party vessel and a Project vessel.

13.6.1.7.1 Magnitude of Impact – DBS East or DBS West in Isolation or Built Together

240. Marine vessel traffic surveys, undertaken using Radar, automatic identification systems (AIS) and visual observations, recorded infrequent transit of the array area by commercial fishing vessels. The realistic worst case scenario has been used whereby all commercial fishing is excluded from the entire Offshore Development Area for the entirety of construction. Assuming this proposed exclusion is implemented successfully, with close engagement and communication with commercial fisheries stakeholders, then there will be no scope for navigational safety impacts. Therefore, for all commercial fisheries receptor groups, no magnitude of change is predicted.

13.6.1.7.2 Sensitivity of Receptor

241. The sensitivity of the receptor groups is considered to be the same for this impact as described in section 13.6.1.3.1, with the exception of intertidal netters which would be negligible, as fishers operate using shore-based methods.

13.6.1.7.3 Significance of Effect – DBS East or DBS West in Isolation or Built Together

242. A summary of the impact magnitude, sensitivity of receptors and overall effect of significance is provided in **Table 13-29**. No additional mitigation is proposed for this impact.

Table 13-29 Magnitude, Sensitivity and Impact Significance Relating to Potential Impacts to Navigational Safety During the Construction of DBS East or DBS West in Isolation or Built Together

Receptor Group	Magnitude	Sensitivity	Significance
Demersal seine	No Change	Negligible	No Change
Dredge	No Change	Medium	No Change
Intertidal netters	No Change	Negligible	No Change
Otter trawl	No Change	Low	No Change
Pelagic trawl	No Change	Low	No Change
Inshore static gear	No Change	Medium	No Change
Offshore static gear	No Change	Low	No Change

13.6.2 Potential Effects During Operation

13.6.2.1 Impact 1: Loss or Restricted Access to Fishing Grounds

243. During the operation phase of the DBS East and DBS West Projects, commercial fishing activity may be affected via long-term loss, or restricted access to fishing grounds and the associated reduction in revenue. This impact is dependent on the location of the receptor's fishing grounds, and the spatial extent of potential fishing grounds lost.

13.6.2.1.1 Magnitude of Impact – DBS East or DBS West in Isolation

244. With regard to the array areas, the assessment assumes that commercial fisheries during the operation phase will be prevented from actively fishing within a total area of 3.67km² and 3.81km², due to physical presence of infrastructure within the DBS East and DBS West array areas respectively (full details of area breakdowns are provided for DBS East and DBS West in **Table 13-2**). Minimum wind turbine spacing is 830m for each Project, inclusive of between wind turbines and other infrastructure.
245. Other than within the infrastructure footprint area and that of temporary safety zones (around infrastructure undergoing major maintenance and around vessels undertaking major maintenance activities), the assessment assumes that fishing will be possible within the DBS East or DBS West array areas. However, individual decisions made by skippers with their own perception of risk will contribute to the likelihood of whether their fishing will resume within the array areas. The dimension and type of fishing gear deployed will be a significant contributor to risk perception, in addition to specific weather and tidal conditions.
246. Existing UK legislation does not prohibit commercial fishing within operational offshore wind farms, and for some sites that have fixed foundation options, commercial fishing has continued during this phase. For example:
- Towed demersal fishing has occurred within the Walney 4 Extension Wind Farm since it has been operation, which could be partly attributed to layout of the wind turbines which facilitates vessels to safely fish within the boundary of the wind farm (Dunkley and Solandt, 2022);
 - A study investigating the impact of the Westernmost Rough Offshore Wind Farm on commercial crustacean stock within its array area found that offshore static gear vessels were able to fish between wind turbines (spacing of 1,100m) and, therefore, continue their activity within the array during the operation phase (Roach and Cohen, 2015);

- Post construction fish surveys undertaken on Westernmost Rough Offshore Wind Farm highlighted that landings per unit effort were consistent with pre-construction surveys and catches per unit effort of lobsters increased post-construction (Roach *et al.*, 2022);
 - Post-construction fish surveys undertaken on the Barrow Offshore Wind Farm demonstrated that it is feasible to tow beam trawl gear between the wind turbines of the wind farm (Gray *et al.*, 2016); and
 - Two independent static gear fishers have indicated through consultation that they fish within the Triton Knoll array.
247. Mitigation embedded in the DBS East and DBS West Project design, as outlined within **Table 13-3**, will minimise the impact of the loss or restricted access to fishing grounds during the operation phase. A dedicated FLO will also be appointed to communicate timings and location of any maintenance works within the Commercial Fisheries Study Area.
248. The impact will lead to localised loss of access to fishing grounds during the operation phase, which will affect fleets directly and over a long-term duration. Evidence on the importance and value of the array areas and offshore export cable corridor to the commercial fisheries receptor groups, is the same as that presented for construction (see section 13.6.1.1.1).
249. The effect of operation activities leading to a loss or restricted access to fishing grounds for UK and non-UK fishing fleets is described below for different scenarios: firstly, the Dogger Bank SAC byelaw is in place which prohibits bottom towed gear within the entire SAC; secondly, assessed against a scenario where the Dogger Bank SAC byelaw is revoked and bottom fishing activity is permitted again within the boundary of the SAC; and thirdly for the offshore export cable corridor (where the only overlap with the Dogger Bank SAC byelaw is the eastern section). The magnitude of impact for each scenario is summarised in **Table 13-30**, **Table 13-31** and **Table 13-32**.

13.6.2.1.1.1 Dogger Bank SAC Byelaw in Place

250. The following assessment assumes the current situation, i.e. there is no bottom fishing within the SAC due to the implementation of the Dogger Bank SAC Byelaw, as outlined in Section 13.6.1.
251. While assessing against the current situation, The Dogger Bank SAC Byelaws prohibition of bottom towed gear covers the majority of the DBS East and DBS West array areas except for approximately 0.85km² in the southwest of DBS West and the eastern section of the offshore export cable corridor.

252. As per section 13.6.1.1.1, demersal seine and dredge are not recorded as being active within the 0.85km² of DBS West which is not covered by the byelaw and therefore will not be impacted by loss or restricted fishing access to fishing grounds during operation of the Projects. As such no magnitude of change is predicted.
253. However, VMS data indicate potential overlap of otter trawl and pelagic fishing activity within the southwest section of the DBS West array area. Therefore, while assessing against the current situation, these commercial fisheries receptor groups could be affected by construction activities within the DBS West array area. However, as the area is only 0.85km², the magnitude is expected to be negligible for the otter trawl and pelagic trawl receptor groups within DBS West, as the impact would lead to a very small (<5%) reduction in annual value of landings for these receptors. No magnitude of change is predicted for the operational phase within the DBS East array area for otter trawl or pelagic trawl receptor groups (**Table 13-30**).

Table 13-30 Magnitude relating to Loss or Restricted Access to Fishing Grounds During Operation of DBS East or DBS West in Isolation for the scenario where the Dogger Bank SAC byelaw is in place

Receptor Group	Magnitude
Demersal seine and dredge	No change
Otter trawl and pelagic trawl	No change (DBS East) Negligible (DBS West)

13.6.2.1.1.2 Dogger Bank SAC Byelaw Revoked

254. The following is assessed against historical fishing activity in the event the Dogger Bank Byelaw is revoked.

255. **Demersal seine:** Due to the nature of this receptor group's gear type, in terms of the width and weight of gear in seabed contact, the degree to which demersal seine gear can be safely deployed within the array areas is somewhat limited. Vessels deploying demersal seine gear are, therefore, expected to experience a degree of reduced access to fishing grounds during the operation phase of the DBS East and DBS West array areas. Analysis of VMS and landings data indicate that fishing activity by this receptor group is undertaken at relatively low levels across the Commercial Fisheries Study Area. Although, while noting that highest levels of such activity is observed to overlap with the DBS East array area, this overlap remains at a relatively low level, with little indication that this is an area of commercial importance for this receptor group.
256. Although this receptor group may experience some reduced access to fishing grounds during the operation phase (assuming DBS East in isolation as the worst case scenario), the area affected is assessed as representing only a very small reduction (<5%) in this receptor group's annual value of landings. The magnitude for this receptor group is therefore considered to be negligible.
257. **Dredge:** While UK vessels deploying dredges are active within the Commercial Fisheries Study Area, VMS data indicate that no dredge activity overlapped with the DBS array areas between 2009 to 2017. In 2020, a lucrative scallop stock was found within the DBS array areas and so dredging occurred. However, a temporary closure for scallop fishing was introduced within the Dogger Bank SAC in April 2021, and this closure became permanent when the byelaw was enacted from 13 June 2022 (discussed further in section 13.5.6).
258. Under the scenario where the Dogger Bank SAC byelaw is revoked and based on the scallop dredging within the DBS array areas during 2020, this receptor groups could be affected by the operational phase. However, given that this receptor group predominantly focuses on the area around the 12nm, the magnitude of impact, the area affected represents a small reduction in this receptor group's annual value of landings (5 - 20%), means that the magnitude of impact is considered to be low.
259. **Intertidal netters:** Due to the nature of intertidal nets being set at low water and nets only being 150 yards in length, this receptor group won't experience reduced access to fishing grounds as a result of operation within the DBS East or DBS West array areas (i.e. this receptor group does not set their nets in these areas). No magnitude of change is therefore predicted for this receptor group.

260. **Otter trawl:** The Dogger Bank is an area of relatively shallow seabed, with shallowest areas of the bank approximately 18m in depth. The desired length of otter trawl warp for optimal control is highly dependent on water depth, with shallower waters generally requiring a shorter length of warp to be paid out than when operating within deeper waters. This requirement of shorter otter trawl warp to be paid out, such as that of the relatively shallow water depths within DBS East and DBS West array areas, could reduce the overall risk of operating in between wind turbines (i.e. less warp length, resulting in increased vessel control, particularly within space limited by wind turbines). While this can contribute to an increased degree to which this receptor group can resume fishing within the array areas, it is important to note that other factors can influence an individual vessel skipper's risk perception (i.e. wind speed and direction, sea state, vessel size, power output and vessel manoeuvrability).
261. The Dogger Bank is an area of relatively shallow seabed, with shallowest areas of the bank approximately 18m in depth. The desired length of otter trawl warp for optimal control is highly dependent on water depth, with shallower waters generally requiring a shorter length of warp to be paid out than when operating within deeper waters. This requirement of shorter otter trawl warp to be paid out, such as that of the relatively shallow water depths within DBS East and DBS West array areas, could reduce the overall risk of operating in between wind turbines (i.e. less warp length, resulting in increased vessel control, particularly within space limited by wind turbines). While this can contribute to an increased degree to which this receptor group can resume fishing within the array areas, it is important to note that other factors can influence an individual vessel skipper's risk perception (i.e. wind speed and direction, sea state, vessel size, power output and vessel manoeuvrability).
262. Whilst highest levels of otter trawl activity within the Commercial Fisheries Study Area are observed outside of the DBS East and DBS West array areas, VMS and landings data still show relatively high levels of fishing within these areas, particularly within the DBS East array area, where a degree of commercial reliance can be observed for this receptor group. While considering this degree of reliance (assuming DBS East as the worst case scenario for the purpose of this assessment), in hand with the potential for resumed fishing in between turbines, the area affected is assessed as representing only a small reduction (5 – 20%) in this receptor group's annual value of landings. The magnitude for this receptor group is therefore, considered to be low.

263. **Pelagic trawl:** Pelagic trawls are designed to catch species at any point in the water column, between the surface and the seabed. Acoustic technology is often used to identify the depth and position of the target species shoal, with the depth of the net and vessel path adjusted accordingly. Based on the operational method which requires the vessel to move into the path of the target species shoal and provide enough space to safely set the pelagic trawl net, and gear width (provided via Project specific consultation: 100 to 120m), resumed fishing within the DBS array areas during the operational phase is considered unlikely. This is unlikely due to the overall risk of operating such gear in between wind turbines, with a minimum spacing of 830m. However, given the relatively low levels of observed activity within both the DBS East and DBS West array areas, together with the nature of this receptor groups highly mobile target species which provides opportunities to land target species shoals outside array areas, the reduced access to fishing grounds represents only a small reduction (5 – 20%) in this receptor group's annual value of landings. The magnitude for this receptor group is therefore, considered to be low.
264. **Inshore static gear:** This receptor group will not be affected by a loss of grounds or restricted access to the DBS East or DBS West array areas during the operational phase, due to the distance offshore (i.e. this receptor group does not set their gear in these areas). No magnitude of change is therefore predicted for this receptor group.
265. **Offshore static gear:** A study investigating the impact of the Westernmost Rough Offshore Wind Farm on commercial crustacean stock within its array area found that offshore static gear vessels were able to fish between wind turbines (spacing of 1,100m) and, therefore, continue their activity within the array area during the operational phase (Roach and Cohen, 2015). While aware of the minimum spacing between wind turbines (830m), it was established during Project-specific consultation that this receptor group would likely resume fishing within the DBS East array areas once operational, however this would depend on the array layout, with stakeholders indicating that straight lines of turbines would be preferable. One independent static fisher noted that they view fishing within an operational wind farm as an additional safety measure. Two independent static gear fishers confirmed that they fish within the Triton Knoll Wind Farm which has a minimum spacing that is less than for DBS East and DBS West.

266. Considering these points, it is therefore, expected that offshore static gear activity may continue with the DBS East and DBS West array areas during the operational phase. In light of this it is predicted that reduced access to fishing grounds will represent only a very small reduction (<5%) in this receptor group's annual value of landings. The magnitude of impact for this receptor group is therefore, considered to be negligible.
267. A summary of the magnitude of impacts is provided in **Table 13-31** under the scenario that the Dogger Bank SAC Byelaw is revoked.

Table 13-31 Magnitude relating to Loss or Restricted Access to Fishing Grounds During Operation of DBS East or DBS West in Isolation for the scenario where the Dogger Bank SAC byelaw is revoked

Receptor Group	Magnitude
Demersal seine	Negligible
Dredge	Low
Intertidal netters	No Change
Otter trawl	Low
Pelagic trawl	Low
Inshore static gear	No change
Offshore static gear	Negligible

13.6.2.1.1.3 Offshore Export Cable Corridor

268. With respect to the offshore export cable corridor, it is assumed that during the operation phase, all cables will be buried to an indicative target burial depth of 0.5-1m where possible, or where this is not possible external cable protection will be required. The total offshore export cable protection will be 1,638,560m², and the total footprint of pipeline and cables crossing material will be 294,269m² and 122,612m² for DBS West and DBS East in isolation, respectively. Where required, the location of cable protection shall be considered to ensure that the most appropriate type is used. This is to ensure safety of fishing activity and to minimise the amount of fishing activity lost.

269. Therefore, it is assumed that there will be no material loss of fishing grounds along the offshore export cable corridor. During repair and remediation events, temporary (advisory) safety zones may be implemented; this will be temporary and short-term disruption.
270. **Demersal seine:** Discrete areas of demersal seine activity were observed via VMS data around the 12nm limit of the Commercial Fisheries Study Area, overlapping with the offshore export cable corridor; this activity was predominantly by Scottish vessels. This activity is observed at relatively low levels, while VMS data further illustrates that the overlap is not present in all years over the study period. Considering the level of fishing activity and the minimal area affected, there will only be a very small reduction (<5%) in this receptor group's annual value of landings. Therefore, the magnitude of impact for this receptor group is considered negligible within the offshore export cable corridor during the operation phase.
271. **Dredge:** An area of particular importance has been identified to overlap with the offshore export cable corridor (of which comprises both DBS East and DBS west), located off Flamborough Head, within and around the 12nm limit. The assessment assumes that individual vessels within this receptor group will be well informed of the integrity and location of the offshore export cable corridor (i.e. schedule and location of any maintenance work, details of planned cable integrity surveys and location of the DBS offshore export cable), and with caution, seek to actively fish grounds within the vicinity of the offshore export cable corridor. While this receptor group is expected to experience some degree of reduced access to fishing grounds, the area affected is assessed as representing only a small reduction (5 - 20%) in this receptor group's annual value of landings. The magnitude for this receptor group is therefore considered to be low.
272. **Otter trawl:** UK and non-UK VMS data indicate overlap of otter trawl activity with the offshore export cable corridor across all years of the study period (2009 to 2017), with highest levels of overlap observed approximately 30 to 40km offshore. Despite VMS data indicating a relatively consistent overlap of otter trawl activity within the DBS offshore cable corridor (within ICES rectangles 37F0 and 36F1) across the study period, this is observed at relatively low levels, with higher levels being observed within the wider Commercial Fisheries Study Area, the North Sea and beyond. Considering the level of fishing activity and the minimal area affected, there will only be a very small reduction (<5%) in this receptor group's annual value of landings. Therefore, the magnitude of impact for this receptor group is considered negligible within the offshore export cable corridor during the operation phase.

273. **Pelagic trawl:** Highest levels of fishing activity are generally observed within ICES rectangle 37FO, in proximity to the 12nm limit and overlapping with the offshore export cable corridor (also confirmed via Project-specific consultation). The assessment assumes that individual vessels within this receptor group will be well informed of the integrity and location of the offshore export cable corridor (i.e. schedule and location of any maintenance work, details of planned cable integrity surveys and location of the DBS offshore export cable), and with caution, seek to actively fish grounds within the vicinity of the offshore export cable corridor. While this receptor group is expected to experience some degree of reduced access to fishing grounds, the area affected is assessed as representing only a small reduction (5 - 20%) in this receptor group's annual value of landings. The magnitude for this receptor group is therefore considered to be low.
274. **Intertidal netters:** The only permanent infrastructure within the nearshore region will be the offshore export cable corridor (of which comprises both DBS East and DBS West, in isolation), which will be fully buried or have external cable protection; however, this will be offshore from the HDD exits pits which will be located beyond the reach of the intertidal nets so will therefore not interact with the spatial extent of this receptor group. Therefore, for intertidal netters, no magnitude of change is predicted.
275. **Inshore static gear:** The only permanent infrastructure within the inshore region will be the offshore export cable corridor of which comprises both DBS East and DBS West, in isolation. The offshore export cable will be fully buried or have external cable protection and will, therefore, not prevent this receptor continuing to fish. The only exception to this is if any cable repair and remediation events are required in the operation phase in the inshore region. This would lead to some temporary, spatially limited impacts where vessels would be requested to avoid such areas for the duration of the works. Thereby, the receptor groups reduced access to fishing represents only a very small reduction (<5%) in this receptor group's annual value of landings. The magnitude for this receptor group is therefore, considered to be negligible.
276. **Offshore static gear:** The section of the offshore export cable corridor beyond 12nm will not affect this receptor during the operational phase, as the cables will be fully buried or have external cable protection, thus, permitting the deployment of static gear (pots). The only exception to this is if any cable repair and remediation events are required in the operation phase. This would lead to some temporary, spatially limited impacts where vessels would be requested to avoid such areas for the duration of the works.

277. Presuming that fishing by this receptor group could continue within the offshore export cable corridor, the reduced access to fishing grounds represents only a very small reduction (<5%) in this receptor group's annual value of landings. The magnitude for this receptor group is therefore, considered to be negligible.
278. A summary of the magnitude of impacts within the offshore export cable corridor during the construction phase is provided in **Table 13-32**.

Table 13-32 Magnitude relating to Loss or Restricted Access to Fishing Grounds During Operation of DBS East or DBS West in Isolation for the offshore export cable corridor

Receptor Group	Magnitude
Demersal seine	Negligible
Dredge	Low
Intertidal netters	No change
Otter trawl	Negligible
Pelagic trawl	Low
Inshore static gear	Negligible
Offshore static gear	Negligible

13.6.2.1.2 Magnitude of Impact – DBS East and DBS West Together

279. Considering the scenario where the Dogger Bank SAC byelaw is in place, the magnitude of impacts would remain the same as outlined in **Table 13-30**, due to these receptor groups being prohibited from fishing within this area. Where the bylaw is revoked and for the offshore export cable corridor, loss or restricted access to fishing grounds would be higher than the worst case for an individual site, but the effect would still be anticipated to not exceed a short to medium term. Given this and consideration of the areas of fishing activity for each receptor group, the magnitude of impact on each receptor group remains consistent with the assessment of DBS East or DBS West in isolation for these scenarios (**Table 13-31** and **Table 13-32**).

13.6.2.1.3 Sensitivity of Receptor

280. The sensitivity for each of the commercial fisheries receptor groups remains consistent with that presented for the construction phase (see section 13.6.1.3.1). The sensitivity is therefore, considered to be negligible for demersal seine, low for offshore static gear, otter trawls and pelagic trawls and medium for all other receptor groups.

13.6.2.1.4 Significance of Effect – DBS East or DBS West in Isolation or Built Together

281. A summary of the impact magnitude, sensitivity of receptors, and overall effect of significance for DBS East or DBS West in isolation or built out together is provided in **Table 13-33** for the different scenarios. Under the current situation, with the Dogger Bank SAC Byelaw in place, no significant change is predicted within the DBS array areas for demersal seine, dredge, otter trawl or pelagic trawl receptor groups. In the event the byelaw is revoked, no change is predicted for intertidal netters or inshore static gear, negligible significance is predicted for demersal seine and offshore static gear, and minor adverse is predicted for all other receptor groups. There is no difference in the magnitude of impact between the Projects being built in isolation or together. No additional mitigation is proposed for this impact.

Table 13-33: Magnitude, Sensitivity and Impact Significance Relating to Loss or Restricted Access to Fishing Grounds During Operation of DBS East or DBS West in Isolation or Together.

Receptor Group	Magnitude	Sensitivity	Significance
Dogger Bank SAC byelaw being in place			
Demersal seine	No change	Negligible	No change
Dredge	No change	Medium	No change
Otter trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)
Pelagic trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)
Dogger Bank SAC byelaw revoked			
Demersal seine	Negligible	Negligible	Negligible

Receptor Group	Magnitude	Sensitivity	Significance
Dredge	Low	Medium	Minor adverse
Intertidal netters	No change	Medium	No change
Otter trawl	Low	Low	Minor adverse
Pelagic trawl	Low	Low	Minor adverse
Inshore static gear	No change	Medium	No change
Offshore static gear	Negligible	Low	Negligible
Offshore export cable corridor			
Demersal seine	Negligible	Negligible	Negligible
Dredge	Low	Medium	Minor adverse
Intertidal netters	No change	Medium	No change
Otter trawl	Negligible	Low	Negligible
Pelagic trawl	Low	Low	Minor adverse
Inshore static gear	Negligible	Medium	Minor adverse
Offshore static gear	Negligible	Low	Negligible

13.6.2.2 Impact 2: Displacement from the Wind farm Site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds

282. Localised exclusion from fishing grounds during the operation phase of DBS East and DBS West may lead to increases in fishing effort in other areas where existing fisheries are active, thereby leading to increased fishing pressure on adjacent grounds and potential gear conflict. The magnitude of impact for each scenario is summarised in **Table 13-34**, **Table 13-35** and **Table 13-36**.
283. As intertidal netters operate from the beach, the potential displacement from them on other receptor groups has not been considered.

13.6.2.2.1 *Magnitude of Impact – DBS East or DBS West in Isolation*

13.6.2.2.1.1 Dogger Bank SAC Byelaw in Place

284. The following assessment assumes the current situation, i.e. there is no bottom fishing within the SAC due to the implementation of the Dogger Bank SAC Byelaw.
285. The spatial extent of the Dogger Bank SAC byelaw covers the majority of the DBS array areas (except for approximately 0.85km² in the southwest of DBS West). Therefore, vessels deploying demersal seines, dredges and otter trawls, under this scenario, are not active within the entire DBS East array area and the majority of the DBS West array area and eastern section of the offshore export cable corridor, and displacement of these into the areas beyond 12nm as a result of the operational phase will not occur. Pelagic trawling that has contact with the seabed, such as that of the sandeel fishery (established via Project-specific consultation), is also prohibited, with displacement of fishing activity from the described area onto adjacent grounds, therefore, also not likely to occur.
286. With regard to the southwest section of the DBS West array area not covered by the Dogger Bank SAC byelaw and permissible to bottom fishing, VMS data indicate no overlap of demersal seine or dredge fishing activity. Therefore, while assessing against the current situation, displacement of these commercial fisheries receptor groups onto adjacent grounds where other receptor groups are active is not likely to occur as a result of the operational phase. No magnitude of change is predicted for the operational phase of the DBS array areas for demersal seine and dredge receptor groups.
287. The VMS data indicate potential overlap of otter trawl and pelagic fishing activity within the southwest section of the DBS West array area. Therefore, while assessing against the current situation, displacement of this fishing activity onto adjacent fishing grounds may occur as a result of operation. However, as the area of overlap is only 0.85km², the magnitude of impact for otter trawl and pelagic trawl displacement onto adjacent grounds where other receptor groups are active is expected to be negligible, as the impact would lead to very small (<5%) reductions in annual value of landings. No magnitude of change is predicted for the operational phase within the DBS East array area for otter trawl or pelagic trawl receptor groups.

Table 13-34 Magnitude relating to Displacement from the Wind Farm Site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds during Operation of DBS East or DBS West in Isolation, for the scenario where the Dogger Bank SAC byelaw is in place

Receptor Group	Magnitude
Demersal seine and dredge	No change
Pelagic trawl and otter trawl	No change (DBS East) Negligible (DBS West)

13.6.2.2.1.2 Dogger Bank SAC Byelaw Revoked

288. The following is assessed against historical fishing activity in the event the Dogger Bank Byelaw is revoked.
289. **Demersal seine:** Vast areas across a range of established fishing grounds are targeted by demersal seine vessels within the wider North Sea region and beyond (evident via analysis of VMS data and landing statistics). Within the Commercial Fisheries Study Area, fishing activity by this receptor group is observed at relatively low levels. Therefore, displaced vessels of other gear types during the operation phase from either DBS East or DBS West, is predicted to lead only to a small reduction (5 – 20%) in this receptor group's annual value of landings. The magnitude of impact is therefore, considered to be low.
290. **Dredge:** Within the Commercial Fisheries Study Area, the dredge gear fishery targeting king scallop operate in an area of relative commercial importance, located within and around the 12nm limit. Based on the distance from the DBS West and DBS East array areas to these king scallop grounds, displacement of offshore static gear and mobile gear from either array area is predicted to affect an area from which a very small proportion of the receptor group's annual value of landings is caught. In light of this, the extent of displacement is judged to lead only to a small reduction (5 – 20%) in this receptor groups annual value of landings. The magnitude of impact is therefore considered to be low.

291. **Otter trawl:** The otter trawl vessels have a considerable presence within the Commercial Fisheries Study Area, with highest levels of fishing activity observed beyond the 12nm limit, and across a relatively vast spatial extent. Displacement of offshore static gear and other mobile gear receptor groups from either DBS array area into the areas where otter trawl vessels are active, could cause conflict between these different receptor groups. It is noted, however, that the offshore static gear vessels and other mobile gear receptor groups target a relatively large area, in comparison to either array area in isolation. The extent of this displacement is judged to lead only to a small reduction (5 – 20%) in this receptor group's annual value of landings. The magnitude of impact is therefore, considered to be low.
292. **Pelagic trawl:** Potential displacement of vessels deploying dredges, demersal seine, otter trawls, and offshore static gear from the DBS East or DBS West array areas, into areas where otter trawl vessels are active, could cause conflict between these different receptor groups. However, due to the relatively small size of area that would be affected compared to the wider extent of fishing grounds within the North Sea region and beyond, the extent of this displacement is judged to be relatively limited.
293. It is also currently understood that an active line of communication exists between the pelagic trawl and offshore static gear in operation in this area (established via Project-specific consultation), and it is assumed that this would continue during the operational phase. The magnitude of impact is therefore considered to be low.
294. **Inshore static gear:** It is unlikely that this receptor group will be affected by displacement of vessels from either the DBS East or DBS West array area, due to the offshore vessels preferring to focus on alternative established offshore grounds throughout the North Sea and beyond. Therefore, it is assumed that fishing in the inshore region by this receptor group, will be able to continue during the operation phase. In light of this, the extent of displacement is judged to lead only to a small reduction (<5%) in this receptor groups annual value of landings. The magnitude of impact is therefore considered to be negligible.

295. **Offshore static gear:** Displacement of mobile vessels during the operation phase from the array areas into the areas where offshore static gear vessels set pots, could cause conflict between these different receptor groups. However, it is noted that the mobile gear receptor groups target a relatively large area in comparison to either array area and the offshore export cable corridor. It is also currently understood that an active line of communication exists between the pelagic trawl and offshore static gear in operation in this area (established via Project-specific consultation), and it is assumed that this would continue during the operation phase. Therefore, displacement of fishing activity is judged to lead only to a small reduction (<5%) in this receptor group's annual value of landings. The magnitude of impact is therefore considered to be low.

Table 13-35 Magnitude relating to Displacement from the Wind Farm Site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds during Operation of DBS East or DBS West in Isolation for the scenario where the Dogger Bank SAC byelaw is revoked

Receptor Group	Magnitude
Demersal seine	Low
Dredge	Low
Otter trawl	Low
Pelagic trawl	Low
Inshore static gear	Negligible
Offshore static gear	Low

13.6.2.2.1.3 Offshore Export Cable Corridor

296. **Demersal seine:** Potential displacement of vessels deploying dredges, otter trawls, pelagic trawls, offshore static gear and inshore static gear from the offshore export cable corridor, into areas where demersal seine vessels are active is unlikely as there will be no material loss of fishing grounds during operation for these vessels. During repair and remediation events, temporary (advisory) safety zones may be implemented; this will be temporary and short-term disruption and could result in minor short-term displacement. In light of this, the extent of displacement is judged to lead only to a small reduction (<5%) in this receptor groups annual value of landings. The magnitude of impact is therefore, considered to be negligible.

297. **Dredge:** Within the Commercial Fisheries Study Area, the dredge gear fishery targeting king scallop operate in an area of relative commercial importance, located within and around the 12nm limit. Displacement of offshore static gear and mobile gear from the offshore export cable corridor into the king scallop grounds is unlikely as there will be no material loss of fishing grounds, except during temporary short-term repair and remediation events. In light of this, the extent of displacement is judged to lead only to a small reduction (<5%) in this receptor groups annual value of landings. The magnitude of impact is therefore, considered to be negligible.
298. **Otter trawl:** The otter trawl vessels have a considerable presence within the Commercial Fisheries Study Area, with highest levels of fishing activity observed beyond the 12nm limit, and across a relatively vast spatial extent. Displacement of offshore static gear and other mobile gear receptor groups from the offshore export cable corridor beyond 12nm, into the areas where otter trawl vessels are active is unlikely as there will be no material loss of fishing grounds, except during temporary short-term repair and remediation events. In light of this, the extent of displacement is judged to lead only to a small reduction (<5%) in this receptor groups annual value of landings. The magnitude of impact is therefore, considered to be negligible.
299. **Pelagic trawl:** Pelagic trawl vessels are active within the Commercial Fisheries Study Area, particularly within ICES rectangle 37F0, which overlaps with the offshore export cable corridor. While a degree of commercial reliance is observed to overlap within the offshore export cable corridor, pelagic trawl vessels are understood to be sporadic and their activity is based on shoaling behaviour of target species, which are able to be landed over a wide area (as previously described within paragraph 240).
300. It is also currently understood that an active line of communication exists between the pelagic trawl and offshore static gear in operation in this area (established via Project specific consultation), and it is assumed that this would continue during the operational phase. Displacement of other mobile gear receptor groups from the offshore export cable corridor is unlikely as there will be no material loss of fishing grounds, except during temporary short-term repair and remediation events. In light of this, the extent of displacement is judged to lead only to a small reduction (<5%) in this receptor groups annual value of landings. The magnitude of impact is therefore, considered to be negligible.

301. **Inshore static gear:** It is unlikely that this receptor group will be affected by displacement of vessels from the offshore export cable corridor which will be fully buried or have external cable protection. Therefore, it is assumed that fishing in the inshore region by this receptor group will be able to continue during the operation phase. No magnitude of change is therefore predicted for this receptor group.
302. **Offshore static gear:** Displacement of mobile vessels during the operation phase from the section of the offshore export cable beyond 12nm, into the areas where offshore static gear vessels set pots, is unlikely as there will be no material loss of fishing grounds, except during temporary short-term repair and remediation events. In light of this, the extent of displacement is judged to lead only to a small reduction (<5%) in this receptor groups annual value of landings. The magnitude of impact is therefore, considered to be negligible.

Table 13-36 Magnitude relating to Displacement from the Wind Farm Site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds during Operation of DBS East or DBS West in Isolation for the scenario where the Dogger Bank SAC byelaw is revoked

Receptor Group	Magnitude
Demersal seine	Negligible
Dredge	Negligible
Otter trawl	Negligible
Pelagic trawl	Negligible
Inshore static gear	No change
Offshore static gear	Low

13.6.2.2.2 Magnitude of Impact – DBS East and DBS West Together

303. Considering the scenario where the Dogger Bank SAC byelaw is in place, the magnitude of impacts would remain the same as **Table 13-34** for DBS East and West being built together. Where the bylaw is revoked and for the offshore export cable corridor, displacement would be higher than the worst case for an individual site, but the magnitude would remain the same (**Table 13-35** and **Table 13-36**) given the limited area affected during operation. Given this and consideration of the areas of fishing activity for each receptor group, the magnitude of impact on each receptor group remains consistent with the assessment of DBS East or DBS West in isolation for these scenarios.

13.6.2.2.3 Sensitivity of Receptor

304. The sensitivity for each of the commercial fisheries receptor groups remains consistent with that presented for the construction phase (see section 13.6.1.3.2). The sensitivity is therefore considered to be negligible for demersal seine, low for offshore static gear, otter trawl and pelagic trawl, and medium for all other receptor groups.

13.6.2.2.4 Significance of Effect – DBS East or DBS West in Isolation or Built Together

305. A summary of the impact magnitude, sensitivity of receptors and overall effect of significance for DBS East or DBS West in isolation and built out together is provided in **Table 13-37**. Under the current situation, with the Dogger Bank SAC Byelaw in place, impacts of negligible significance are predicted for demersal seines, dredgers, otter trawls and pelagic trawls. In the event the byelaw is revoked, negligible significance is predicted for demersal seine and minor adverse is predicted for all other receptor groups. For the offshore export cable corridor, no change is predicted for inshore static groups, minor adverse is predicted for dredges and negligible significance is predicted for all other receptor groups. There is no difference in the magnitude of impact between the Projects being built in isolation or together. No additional mitigation is proposed for this impact.

Table 13-37: Magnitude, Sensitivity and Impact Significance Relating to Displacement of Fishing Activity Leading to Gear Conflict and Increased Pressure on Adjacent Grounds During Operation of DBS East or DBS West in Isolation or Together.

Receptor Group	Magnitude	Sensitivity	Significance
Dogger Bank SAC byelaw being in place			
Demersal seine	No change	Negligible	No change
Dredge	No change	Medium	No change
Otter trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)
Pelagic trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)
Dogger Bank SAC byelaw revoked			
Demersal seine	Low	Negligible	Negligible
Dredge	Low	Medium	Minor adverse
Otter trawl	Low	Low	Minor adverse
Pelagic trawl	Low	Low	Minor adverse
Inshore static gear	Negligible	Medium	Minor adverse
Offshore static gear	Low	Low	Minor adverse
Offshore export cable corridor			
Demersal seine	Negligible	Negligible	Negligible
Dredge	Negligible	Medium	Minor adverse
Otter trawl	Negligible	Low	Negligible
Pelagic trawl	Negligible	Low	Negligible
Inshore static gear	No change	Medium	No change
Offshore static gear	Negligible	Low	Negligible

13.6.2.3 Impact 3: Increased Steaming Times

13.6.2.3.1 *Magnitude of Impact – DBS East or DBS West in Isolation*

- 306. Very localised exclusion from fishing grounds during operation of DBS East or DBS West in isolation could, in theory, lead to minor temporary increases in steaming times for Commercial Fisheries receptors which could lead to increased operational costs. Discrete sections of the array areas and offshore export cable corridor will be subject to temporary restrictions during operation via temporary 500m safety zones and/or voluntary safety zones around major maintenance and cable repair vessels.
- 307. Embedded mitigation (section 13.3.3) will minimise the impact of temporary increased steaming times during operation. The commercial fishing industry will be informed in advance of any offshore activities by the FLO, through NtMs, Kingfisher Bulletins and ongoing liaison, which will ensure that fishing vessels will be in a position to avoid work areas with no or minimal impact on steaming times.
- 308. It is anticipated that fishing vessels will only be required to take minor deviations, as impacts will be localised to the immediate area of works and maintenance vessels.
- 309. Due to the temporary, very localised nature of the impact, increased steaming times is considered to be of negligible magnitude for all commercial fisheries receptor groups.

13.6.2.3.2 *Magnitude of Impact – DBS East and DBS West Together*

- 310. While DBS East and DBS West together would encompass a larger spatial scale than that of either Projects in isolation, taking into account the embedded mitigation measures outlined in section 13.3.3, the magnitude of impact will still be negligible for all commercial fisheries receptor groups.

13.6.2.3.3 *Sensitivity of Receptor*

- 311. All commercial fisheries receptor groups have operational ranges that are beyond that of the areas of maintenance, so will have the ability to make deviation to transit routes. Providing that adequate notification is given and the embedded mitigation measures (section 13.3.3) are followed, all fishing vessels will be in a position to avoid maintenance areas with no, or minimal impact on steaming times.
- 312. All commercial fisheries receptor groups are deemed to be of low vulnerability and moderate spatial tolerance to increased steaming times. The sensitivity of the receptors is therefore, considered to be low.

13.6.2.3.4 Significance of Effect – DBS East or DBS West in Isolation or Built Together

313. Based on the worst case negligible magnitude and low sensitivity, the significance of effect would be **minor** adverse. No additional mitigation is proposed for this impact.

13.6.2.4 Impact 4: Loss or Damage to Fishing Gear Due to Snagging

314. It is assumed that fishing activities will resume within the DBS East and DBS West array areas where possible during the 32-year operational phase of the Projects. The risk due to snagging is primarily associated with structures on the seabed, array cables and offshore export cables. All offshore cables will have an indicative target burial depth of 0.5 – 1m. Where this is not possible, there will be an indicative length of 176.8km of offshore export cable route protection, 162.8km of array cable protection and 76.52km of inter-platform cable protection, thus reducing the risk of snagging on subsea cable infrastructure. Furthermore, relevant embedded mitigation measures, summarised in **Table 13-3**, will be implemented to minimise the risk of snagging, including timely promulgation of NtM and Kingfisher Bulletins, navigational aids, and advisory safety distances.
315. If a snagging incident does occur, best practice guidance for fisheries liaison with offshore renewable developers by FLOWW (2014), where safe, will be followed. Further guidance on safe vessel operations within the vicinity of subsea cables by the ICPC (2009) and the ESCA (2018) will also be adhered to, and considered in the Fisheries Liaison and Coexistence Plan.

13.6.2.4.1 Magnitude of Impact – DBS East or DBS West in Isolation

316. It is projected that up to seven array cable repair events will be scheduled during the operation and maintenance phase for each Project if DBS East or DBS West were to be developed in isolation. This would result in a potential maximum area of 42,000m² to be disturbed within either array area. Additionally, three offshore export cable repair events are expected, resulting in a total maximum disturbance of 18,000m² along the offshore export cable route for DBS East or DBS West. A 500m voluntary safety zone will be implemented during any major cable repair and remediation works, minimising the risk of gear snagging on exposed cables, alongside an advisory exclusion zone around construction vessels.

317. Associated external cable protection also poses potential impacts to loss or damage of gear due to snagging. Total array and inter-platform cable protection could cover up to a maximum of 656,512m² within DBS East and up to 1,086,800m² of offshore export cable protection. Total array and inter-platform cable protection for DBS West could cover up to a maximum of 790,515m², where four inter-platform cable crossings are predicted, as well as 1,638,560m² of export cable protection.
318. **Demersal trawl and seine:** While assessing against the current situation, The Dogger Bank SAC Byelaws prohibition of bottom towed gear covers the majority of the DBS East and DBS West array areas. Therefore, this receptor group is not present within the majority of the DBS East or DBS West array areas and will not be impacted by loss or damage to gear due to snagging as a result of the Projects.
319. The following is assessed against historical fishing activity in the event the Dogger Bank Byelaw is revoked.
320. There are generally low activity levels of these receptors group observed across the array areas and offshore cable corridors. With the addition of proposed safety measures and guidance protocols in place, loss or damage due to snagging is predicted to impact a very small proportion (<5%) of this receptor's annual landings over long timescales. Based on this, the magnitude is considered to be negligible.
321. **Dredge:** While assessing against the current situation, The Dogger Bank SAC Byelaws prohibition of bottom towed gear covers the majority of the DBS East and DBS West array areas. Therefore, this receptor group is not present within the majority of the DBS East or DBS West array areas and will not be impacted by loss or damage to gear due to snagging as a result of the Project.
322. The following is assessed against historical fishing activity in the event the Dogger Bank Byelaw is revoked.
323. Dredging was not recorded within the DBS East or DBS West array areas, and so potential loss or damage of gear due to snagging is not expected to occur on this receptor within these areas. Moderate to high levels of dredging were primarily observed within the 12nm limit inshore areas, overlapping the export cable corridor, posing the potential for direct impacts to this receptor group to occur.

324. The limited area of exclusion for fishing activity and long-term duration of construction works is assessed as affecting an area from which a very small proportion (<5%) of this receptor group's annual value of landings is caught. The magnitude for the receptor group undertaking dredging is therefore, considered to be negligible.
325. **Intertidal netters:** the magnitude of impacts to this receptor group will be negligible as fishermen operate netting activities from the shore and are not involved in any towing/trawling of gear from a vessel.
326. **Otter trawl:** While assessing against the current situation, The Dogger Bank SAC Byelaws prohibition of bottom towed gear covers the majority of the DBS East and DBS West array areas. Therefore, this receptor group is not present within the majority of the DBS East or DBS West array areas and will not be impacted by loss or damage to gear due to snagging as a result of the Projects.
327. The following is assessed against historical fishing activity in the event the Dogger Bank Byelaw is revoked.
328. High activities of otter trawling were observed within the DBS East and DBS West array areas. Otter trawling was also recorded to overlap with the offshore export cable corridors, posing the potential for direct impacts to occur over much of the Offshore Development Area.
329. With the addition of proposed safety measures and guidance protocols in place, loss or damage due to snagging is predicted to impact a very small proportion (<5%) of this receptor's annual landings over long timescales. Based on this, the magnitude is considered to be negligible.
330. **Pelagic trawl:** While assessing against the current situation, The Dogger Bank SAC Byelaws prohibition of bottom towed gear covers the majority of the DBS East and DBS West array areas. Due to the shallow depths within the DBS array areas, this receptor group will likely be prohibited from fishing within the entire DBS East or DBS West array areas due to bottom trawl prohibition implemented through the Dogger Bank SAC Byelaw, and will therefore not be impacted by loss or damage to gear as a result of the Projects.
331. The following is assessed against historical fishing activity in the event the Dogger Bank Byelaw is revoked.

332. Generally, low activity levels of this receptor group were observed across the array areas and offshore cable corridors. Highest activities were observed within the 12nm limit overlapping the offshore export cable corridor. With the addition of proposed safety measures and guidance protocols in place, loss or damage due to snagging is predicted to impact a very small proportion (<5%) of this receptor's annual landings over long timescales. Based on this, the magnitude is considered to be negligible.
333. **Inshore static gear:** installation of the offshore export cable corridor in inshore waters, will primarily affect this receptor group where highest fishing intensities were recorded within the 6nm limit. Inshore static gear vessels were not recorded within the array area, therefore, associated fixed seabed structures, array and inter-array cable works will not pose a risk to snagging of this receptor.
334. It is noted that vessels within this receptor group would likely be required to temporarily remove their gear from areas where maintenance works were being undertaken, and either relocate to other areas offshore or bring to shore, depending on available grounds and fishing preferences.
335. The limited area of exclusion for fishing activity and long-term duration of operational works is assessed as affecting an area from which a very small proportion of this receptor group's annual value of landings is caught (<5%). The magnitude for the receptor group is therefore considered to be negligible.
336. **Offshore static gear:** highest fishing activity levels of this receptor group were primarily observed outside of the array areas. Scouting surveys observed offshore static gear vessels fishing within the western portion of the DBS West array area and no vessels were recorded within the DBS East array area, therefore, there is limited potential risk to snagging of this receptor group within the array areas. Fishing activity was recorded to overlap with the offshore export cable corridor route; however, vessels would likely be required to temporarily remove their gear from areas where maintenance works, in particular cable repair events, were being undertaken, and either relocate to other areas offshore or bring to shore, depending on available grounds and fishing preferences.
337. The limited area of exclusion for fishing activity and long-term duration of operational works is assessed as affecting an area from which a very small proportion of this receptor group's annual value of landings is caught (<5%). The magnitude for the receptor group is therefore, considered to be negligible.

13.6.2.4.2 Magnitude of Impact – DBS East and DBS West Together

338. It is projected that up to 13 array cable repair events will be scheduled during the operation and maintenance phase, if both Projects were to be developed concurrently. This would result in a potential maximum area of 78,000m² to be disturbed within the array area. Additionally, six export offshore cable repair events are expected, resulting in a total maximum disturbance of 36,000m² along the offshore export cable route. A 500m voluntary safety zone will be implemented during any major cable repair and remediation works, minimising the risk of gear snagging on exposed cables.
339. Associated external cable protection also poses potential impacts to loss or damage of gear due to snagging. Total array cable and inter-platform cable protection could cover up to a maximum of 2,139,904m² across the Development Area and up to 2,701,040m² of offshore export cable protection.
340. As these works will be undertaken across both DBS East and DBS West, the maximum area of disturbance and potential risk to snagging is considered to be comparable to the assessment of impacts if DBS East or DBS West were to be developed in isolation. The magnitude of impacts for each receptor group is therefore, considered the same as detailed in section 13.6.2.1.4 above.

13.6.2.4.3 Sensitivity of Receptor

341. The sensitivity of commercial fisheries receptors is considered the same as for construction, detailed in section 13.6.1.3.4.
342. It is considered that demersal trawls and seines, dredge, and otter trawls will be of medium sensitivity and pelagic trawls will be of low sensitivity. Intertidal netters and inshore and offshore static gear will be of negligible sensitivity.

13.6.2.4.4 Significance of Effect - DBS East or DBS West in Isolation or Together

343. A summary of the impact magnitude, sensitivity of receptors and overall effect of significance is provided in **Table 13-38**. No additional mitigation is proposed for this impact.

Table 13-38 Magnitude, Sensitivity and Impact Significance Relating to Loss of Damage of Gear Due to Snagging During Operation and Maintenance of DBS East or DBS West in Isolation or Together.

Receptor Group	Magnitude	Sensitivity	Significance
Demersal seine	Negligible	Medium	Minor adverse
Dredge	Negligible	Medium	Minor adverse
Intertidal netters	Negligible	Negligible	Negligible
Otter trawl	Negligible	Medium	Minor adverse
Pelagic trawl	Negligible	Low	Negligible
Inshore static gear	Negligible	Low	Negligible
Offshore static gear	Negligible	Low	Negligible

13.6.2.5 Impact 5: Supply Chain Opportunities for Local Fishing Vessels

344. During the operation of the DBS East and DBS West array areas there is the potential for beneficial supply chain opportunities for local fishing vessels over a 30-year period. Potential areas of support during the operation and maintenance phase of the Projects include providing marine operational support such as OFLO duties, support during major maintenance works and guard vessel requirements.
345. As this impact is beneficial, it should be noted that the definition for magnitude outlined in **Table 13-11** will still apply, albeit in reverse.

13.6.2.5.1 Magnitude of Impact – DBS East or DBS West in Isolation

346. **Demersal trawls and seines, dredge, otter trawl, pelagic trawl and offshore static gear:** the impact to these receptor groups are predicted to be of limited spatial extent and long-term in duration. It is predicted that direct impacts will occur to these receptors, which are judged to be of a low benefit. Any revenue gained as a result of supply chain opportunities is likely to be equivalent to 5 – 20% of the annual landed value of these receptor groups. Therefore, the magnitude across these receptors is considered to be low.
347. **Intertidal netters:** impacts to this receptor group will be negligible as this fishing method is shore based and does not require vessels; therefore, there is no pathway for supply chain opportunities to occur.

348. **Inshore static gear:** it is unlikely that any notable supply chain opportunities will be relevant to this recent group, due to the small size and nature of vessels involved. Larger and better equipped vessels which can remain at sea for longer timeframes would be required for guard vessel duties, or maintenance works support, which the smaller inshore static vessels would likely not be able to fulfil.
349. An exception to the above would be the potential for this receptor group to provide maintenance support for inshore cable repair works. However, this impact would be spatially and temporally limited in extent, and likely not result in any significant revenue for the receptor group.
350. The impact is predicted to be of a small spatial extent and be long-term in duration. It is predicted that direct impacts will occur to this receptor group, but these will be of negligible benefit. Any revenue gained as a result of supply chain opportunities is likely to be equivalent to <5% of the annual landed value of this receptor group. Therefore, the magnitude is considered to be negligible.

13.6.2.5.2 Magnitude of Impact – DBS East and DBS West Together

351. Operation of the DBS East and DBS West array areas will take place over a maximum 30-year period and poses the potential for beneficial supply chain opportunities for local fishing vessels. Potential areas of support during the operation phase include providing marine operation support such as OFLO duties, major maintenance work support and guard vessel requirements. As the opportunities for vessel provisioning are comparable to the operation of DBS East or DBS West in isolation, the magnitude of impacts for each receptor group are considered the same as detailed above in section 13.6.2.1.5.

13.6.2.5.3 Sensitivity of Receptor

352. For this impact the sensitivity has been defined as the likely potential each receptor group has for provisioning of supply chain opportunities during the operation and maintenance of the DBS East and DBS West Projects. It is considered that the sensitivity of Commercial Fisheries receptors will be the same as for the construction phase, detailed in section 13.6.1.3.5. It is considered that the sensitivity of demersal trawls and seines, otter trawls, pelagic trawls, and offshore static gear will be low, and the sensitivity of dredges will be medium. Intertidal netters and inshore static gear have been assessed as negligible sensitivity.

13.6.2.5.4 Significance of Effect – DBS East or DBS West in Isolation or Together

353. A summary of the impact magnitude, sensitivity of receptors and overall effect of significance is provided in **Table 13-39**. No additional mitigation is proposed for this impact.

Table 13-39 Magnitude, Sensitivity and Impact Significance Relating to Supply Chain Opportunities During the Operation and Maintenance of DBS East or DBS West in Isolation or Together.

Receptor Group	Magnitude	Sensitivity	Significance
Demersal seine	Low	Low	Minor beneficial
Dredge	Low	Medium	Minor beneficial
Intertidal netters	Negligible	Negligible	Negligible
Otter trawl	Low	Low	Minor beneficial
Pelagic trawl	Low	Low	Minor beneficial
Inshore static gear	Negligible	Negligible	Negligible
Offshore static gear	Low	Low	Minor beneficial

13.6.2.6 Impact 6: Potential Impacts on Commercially Important Fish and Shellfish Resources

354. Impacts to commercially important fish and shellfish resources due to the physical presence and operation of the Projects, including long-term habitat disturbance, increased sediments and direct damage have been assessed in **Chapter 10 Fish and Shellfish Ecology**. There is also the potential for beneficial effects to arise on fish and shellfish ecology, as a result of reduced fishing pressure within the array areas. The potential consequential effects to commercial fisheries as a result of potential impacts to commercially important fish and shellfish resources will be assessed here.
355. The following impacts to commercially important fish and shellfish resources during operation have been assessed:
- Permanent loss of habitat and / or change in habitat type as a result of changes in substrate composition;
 - Temporary habitat disturbance to fish and shellfish species and spawning and / or nursery grounds, including direct damage from repair and maintenance;

- Increased local suspended sediment concentrations and sediment settlement;
- Release of sequestered contaminants following sediment disturbance;
- Impacts on fish and shellfish species as a result of underwater noise and vibration;
- EMF effects arising from cables; and,
- Reduced fishing pressure within the array areas and increased fishing pressure outside of the array area.

356. Fish and shellfish species that have been identified for their commercial importance are summarised in **Table 13-22** in section 13.6.1.1.6.

13.6.2.6.1 *Magnitude of Impact – DBS East or DBS West in Isolation or Together*

357. Potential effects arising from EMF emitted from cables will be reduced by cables being buried to a minimum depth of 0.5m, and through placement of cable protection. Elasmobranchs (sharks and rays) are most likely to be affected by potential impacts resulting from EMF effects, however this species group is not fished commercially by the receptor groups identified within the commercial fisheries assessment. Therefore, it is expected that a very small proportion of the commercial fishing receptor's annual landed value would be impacted.
358. Temporary and long-term habitat loss, as well as direct disturbance and damage to fish and shellfish species, could occur over a maximum total array area of 3,723,738m² for DBS East and 3,869,970m² for DBS West. Additionally, along the offshore export cable corridor, total habitat loss is estimated up to 1,209,412m² for DBS East and 1,932,829m² for DBS West.
359. The magnitude of impacts to commercial fisheries during the operation of DBS East and DBS West separately and together, will be assessed based on the overall significance of effects during the operation phase to fish and shellfish ecology, in order to incorporate both the magnitude and sensitivity of fish and shellfish receptors within the Commercial Fisheries assessment. **Chapter 10 Fish and Shellfish Ecology** considers the magnitude of impacts to be the same for the development of DBS East and DBS West in isolation and together. The assessment of significance considers Elasmobranchs, demersal and pelagic (bony) fish, and shellfish species groups which encompasses commercially important species within the Study Area.

360. A summary of the significance of effects to fish and shellfish ecology is included in **Table 13-40** and provides the basis for the magnitude of impacts to commercial fisheries. The potential impacts to fish and shellfish were assessed to have at worst a minor adverse effect within **Chapter 10 Fish and Shellfish Ecology**. Based on this the potential impact on commercially important fish and shellfish resources is considered to be of low magnitude across all commercial fisheries receptor groups.

Table 13-40 Significance of Effects for the Operation of DBS East or DBS West in Isolation or Together to Fish and Shellfish Ecology

Potential Impact	Significance of Effect
Permanent loss of habitat and / or change in habitat type as a result of changes in substrate composition	Minor adverse
Temporary habitat disturbance to fish and shellfish species and spawning and / or nursery grounds, including direct damage from repair and maintenance	Minor adverse
Increased local suspended sediment concentrations and sediment settlement	Minor adverse
Release of sequestered contaminants following sediment disturbance	Negligible
Impacts on fish and shellfish species as a result of underwater noise and vibration	Minor adverse
Electromagnetic Frequency (EMF) effects arising from cables	Negligible
Reduced fishing pressure within the array areas and increased fishing pressure outside of the array area	Negligible

13.6.2.6.2 Sensitivity of Receptor

361. It is considered that the sensitivity of commercial fisheries receptors will be the same as the construction phase, outlined in section 13.6.1.2.6. Dredges, intertidal netters and inshore static gear vessels have been assessed as medium sensitivity. Otter trawls, pelagic trawls and offshore static gear vessels have been assessed as low sensitivity and demersal trawls and seines are considered to be of negligible sensitivities.

13.6.2.6.3 Significance of Effect – DBS East or DBS West in Isolation or Together

362. A summary of the impact magnitude, sensitivity of receptors, and overall effect of significance is provided in **Table 13-41**. No additional mitigation is proposed for this impact.

Table 13-41 Magnitude, Sensitivity and Impact Significance Relating to Potential Impacts to Commercially Important Fish and Shellfish Resources During the Operation and Maintenance of DBS East or DBS West in Isolation or Together.

Receptor Group	Magnitude	Sensitivity	Significance
Demersal seine	Low	Negligible	Negligible
Dredge	Low	Medium	Minor adverse
Intertidal netters	Low	Medium	Minor adverse
Otter trawl	Low	Low	Negligible
Pelagic trawl	Low	Low	Negligible
Inshore static gear	Low	Medium	Minor adverse
Offshore static gear	Low	Low	Negligible

13.6.2.7 Impact 7: Navigational Safety

363. Impacts regarding navigational safety have been separately assessed in **Chapter 14 Shipping and Navigation**. Of the impacts assessed within this chapter, the potential effects during operation and maintenance relevant to commercial fisheries receptor groups are as follows:

- Vessel displacement and increased vessel to vessel collision risk between third-party vessels;
- Increased vessel to vessel collision risk between a third-party vessel and a Project vessel;
- Creation of vessel to structure allision risk; and
- Anchor interaction with subsea cables.

364. Marine vessel traffic surveys, undertaken using Radar, AIS, and visual observations, recorded infrequent transit of the array area by commercial fishing vessels. It is likely that vessels will not be prohibited from the array areas once operational, but will adhere to 500m safety zones and/or 50m voluntary safety zones around vessels undertaking major maintenance works.

365. Vessel displacement and vessel to vessel collision risk of small crafts are therefore, predicted to be remote with a moderate sensitivity. This is assessed as broadly acceptable within **Chapter 14 Shipping and Navigation**. Increased collision risk between third-party and Project vessels is considered to be of a negligible occurrence, but of serious consequence if a collision was to occur. This is assessed as broadly acceptable within the **Chapter 14 Shipping and Navigation**.
366. Anchor interaction with subsea cables poses risk of snagging to commercial fishing vessels which could cause loss or damage of gear. During the operation and maintenance phase, there will be 350nm of array cables, 208nm of inter-platform cables, and 85nm of offshore export cables per Project. All cables will be buried to an indicative target burial of 0.5-1m with approximately 20% of cables required cable protection up to a maximum height of 1m for the array cables, and 1.4m for the inter-platform cables and offshore export cables. The potential impacts of anchoring were therefore, assessed by **Chapter 14 Shipping and Navigation** as broadly acceptable.
367. Lastly, the creation of vessel to structure collision risk, although considered extremely unlikely, could pose serious consequences. Marine vessel traffic surveys observed commercial fishing vessels to use the array area particularly during summer months. Despite a minimum wind turbine spacing of 830m within the array layout deemed to be safe for navigation, the significance of effect was assessed as tolerable. Additional consultation with regular operators is suggested in **Chapter 14 Shipping and Navigation** to reduce these effects to within broadly acceptable limits.
368. Ongoing fishery liaison through the appointed FLO, as well as timely promulgation of NtMs and Kingfisher Bulletins will also be implemented to minimise navigational safety risks.

13.6.2.7.1 *Magnitude of Impact – DBS East or DBS West in Isolation*

369. Fewer Project vessels would be required on-site at any one time if DBS East or DBS West were operated in isolation. This would result in fewer vessel encounters, reducing potential collision risks and navigational safety impacts. Additionally, there would be greater manoeuvrability for vessels to navigate and maintain safe passing distances as there would be more sea room available. With the embedded mitigation measures proposed by the shipping and navigation PEIR, detailed in section 1.3.3, the worst-case impacts are considered to be within broadly acceptable limits for the impacts detailed above. The magnitude of impact across all commercial fisheries receptor groups will, therefore, be considered as low.

13.6.2.7.2 Magnitude of Impact – DBS East and DBS West Together

370. Impacts to navigational safety are predicted to be more severe under the concurrent operation and maintenance of DBS East and DBS West by **Chapter 14 Shipping and Navigation**. With the embedded mitigation measures proposed by the shipping and navigation PEIR, such impacts detailed above are assessed to be broadly acceptable therefore, the magnitude of impact across all commercial fisheries receptor groups will be considered as low.

13.6.2.7.3 Sensitivity of Receptor

371. The sensitivity of commercial fisheries receptors is considered to be the same described for construction, detailed in section 13.6.1.3.7.

13.6.2.7.4 Significance of Effect – DBS East or DBS West in Isolation or Together

372. A summary of the impact magnitude, sensitivity of receptors and overall effect of significance is provided in **Table 13-42**. No additional mitigation is proposed for this impact.

Table 13-42 Magnitude, Sensitivity and Impact Significance Relating to Potential Impacts to Navigational Safety During the Operation of DBS East or DBS West in Isolation or Together

Receptor Group	Magnitude	Sensitivity	Significance
Demersal seine	Low	Negligible	Negligible
Dredge	Low	Medium	Minor adverse
Intertidal netters	Low	Negligible	Negligible
Otter trawl	Low	Medium	Minor adverse
Pelagic trawl	Low	Medium	Minor adverse
Inshore static gear	Low	Medium	Minor adverse
Offshore static gear	Low	Low	Minor adverse

13.6.3 Potential Effects During Decommissioning

373. A decision regarding the final decommissioning policy is yet to be decided as it is recognised that rules and legislation change over time in line with industry best practice. The decommissioning methodology and programme would need to be finalised nearer to the end of the lifetime of the proposed Projects, to ensure it is in line within the most recent guidance, policy and legislation.
374. The scope of the decommissioning works would most likely involve removal of the accessible installed components. This is outlined in **Chapter 5 Project Description**, and the details would be agreed with the relevant authorities at the time of decommissioning. Offshore decommissioning is likely to include the removal of all of the wind turbine components and part of the foundations (those above sea level), removal of some or all of the array and offshore export cables. Scour and cable protection would likely be left in situ.
375. During the decommissioning phase, there is potential for wind turbine foundation and cable removal activities to cause effects that would be comparable to those identified for the construction phase and the operational phase, specifically:
- Loss or restricted access to fishing grounds;
 - Displacement from the Wind Farm site and Offshore Export Cable Leading to Gear Conflict and Increased Pressure on Adjacent Fishing Grounds;
 - Temporary Increased Steaming Times;
 - Loss or Damage to Fishing Gear Due to Snagging;
 - Supply Chain Opportunities for Local Fishing Vessels;
 - Potential Impacts to Commercially Important Fish and Shellfish Resource; and
 - Navigational Safety
376. The magnitude of decommissioning effects will be comparable to or less than the construction phase. Accordingly, given that impacts were assessed to be of no greater than minor adverse significance, following the implementation of additional mitigation measures, for the identified commercial fisheries receptors during the construction phase, it is anticipated that the same would be true for the decommissioning phase.

13.7 Potential Monitoring Requirements

377. No specific monitoring in relation to commercial fisheries is considered necessary. However, the outline Fisheries Liaison and Coexistence Plan will outline the commitments and approach to fisheries liaison and will be submitted as part of the DCO application.

13.8 Preliminary Assessment of Cumulative Effects

378. As detailed in **Section 13.4.4**, this section presents a preliminary assessment of cumulative effects in relation to Commercial Fisheries. The final CEA will be undertaken within the ES chapter.

13.8.1 Initial Screening for Cumulative Effects

379. **Table 13-43** below details the potential cumulative effects that may occur between the Projects and other plans, projects and activities. Only potential impacts assessed in **Section 13.6** where the potential for cumulative effects has been identified (minor, moderate or major) will be taken forward to the final CEA (i.e. those assessed as 'no impact' are not taken forward as there is no potential for them to contribute to a cumulative impact).

Table 13-43 Potential Cumulative Effects

Impact	Potential for Cumulative Effects	Data Confidence	Rationale
Construction			
Impact 1: Loss or restricted access to fishing grounds	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on the loss or restricted access to fishing grounds.
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on displacement of fishing vessels.
Impact 3: Temporary increased steaming times	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on steaming times for fishing vessels.

Impact	Potential for Cumulative Effects	Data Confidence	Rationale
Impact 4: Loss or damage to fishing gear due to snagging	No	Medium	No likely significant effect from the Projects is predicted.
Impact 5: Supply chain opportunities for local fishing vessels	No	Medium	Cumulative effects are not predicted for this impact.
Impact 6: Potential impacts on commercially important fish and shellfish resources	Yes	Medium	Underwater noise from other developments within the region have the potential to overlap with impacts produced during construction associated with the Projects.
Impact 7: Navigational safety	No	Medium	No likely significant effect from the Projects is predicted.
Operation & Maintenance			
Impact 1: Loss or restricted access to fishing grounds	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on the loss or restricted access to fishing grounds.
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on displacement of fishing vessels.

Impact	Potential for Cumulative Effects	Data Confidence	Rationale
Impact 3: Increased steaming times	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on steaming times for fishing vessels.
Impact 4: Loss or damage to fishing gear due to snagging	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on loss or damage to fishing gear due to snagging.
Impact 5: Supply chain opportunities for local fishing vessels	No	Medium	Cumulative effects are not predicted for this impact.
Impact 6: Potential impacts on commercially important fish and shellfish resources	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on fish and shellfish resources.
Impact 7: Navigational safety	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on navigational safety.

Impact	Potential for Cumulative Effects	Data Confidence	Rationale
Decommissioning			
Impact 1: Loss or restricted access to fishing grounds	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on the loss or restricted access to fishing grounds.
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on displacement of fishing vessels.
Impact 3: Increased steaming times	Yes	Medium	Plans and projects currently in planning have potential to have cumulative effects on steaming times for fishing vessels.
Impact 4: Loss or damage to fishing gear due to snagging	No	Medium	No likely significant effect from the Projects is predicted.
Impact 5: Supply chain opportunities for local fishing vessels	No	Medium	Cumulative effects are not predicted for this impact.

Impact	Potential for Cumulative Effects	Data Confidence	Rationale
Impact 6: Potential impacts on commercially important fish and shellfish resources	Yes	Medium	These impacts are of limited spatial and temporal extent. Management plans will be developed to further mitigate impacts as described within Chapter 10 Fish and Shellfish Ecology .
Impact 7: Navigational safety	No	Medium	No likely significant effect from the Projects is predicted.

13.8.2 Plans/Projects Considered for Cumulative Impacts

380. A high-level list of plans/projects that may result in cumulative effects with the Projects is detailed in **Table 13-44**. The Commercial Fisheries Study Area has been used to determine the initial list of projects considered for the CEA.
381. Plans / projects have been assigned a tier level between 1 and 7, based on the most recent guidance (see **Chapter 6 EIA Methodology**). For the final CEA at ES, this high-level list will be reviewed and screened to ensure all relevant plans / projects are considered in the final assessment. All listed plans / projects will be re-examined at ES to ensure each assigned tier remains accurate at the time of writing.
382. Classes of projects that could potentially be considered for the cumulative assessment of commercial fisheries includes:
- Other offshore wind farms;
 - Marine aggregate extraction;
 - Oil and gas exploration and extraction;
 - Sub-sea cables and pipelines; and
 - Commercial shipping.

383. With respect to these activities, the cumulative assessment considers them to be part of the baseline conditions for the surrounding area where they are operational and any residual effect has been captured within the baseline. As such, it is not expected that the Projects will contribute to cumulative effects with the existing activities in the above list where the activities are captured in the baseline, and therefore these have not been the subject of further assessment.

Table 13-44 High-Level List of Plans/Projects Screened For Further Assessment in the Final CEA

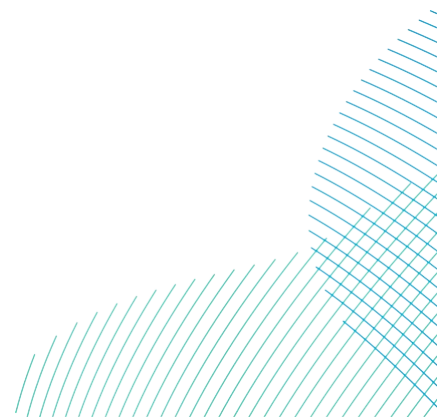
Tier	Plan / Project	Distance to Offshore Development Area (km)
Strategic Plans		
7	East Inshore, North East Inshore, East Offshore and North East Offshore Marine Plans	Within offshore development area
Offshore Wind Farms		
2	Dogger Bank A	7
2	Dogger Bank B	17
3	Dogger Bank C	56
6	Dogger Bank D	68 (estimated)
2	Sofia	34
3	Hornsea 3	20
1	Triton Knoll	73
Carbon Capture and Storage		
3	Northern Endurance CCS	2
7	CCS North Sea Leasing Round – SNS Areas 1 & 3	Within array areas

Tier	Plan / Project	Distance to Offshore Development Area (km)
7	CCS North Sea Leasing Round – SNS Area 5	25
7	CCS North Sea Leasing Round – SNS Area 6	40
7	CCS North Sea Leasing Round – SNS Area 7	6
Subsea Cables		
2	Viking Link Interconnector	29
6	Eastern Link 2	2
7*	Third Eastern Link HVDC cable (TGDC)	Crosses offshore export cable corridor
7*	Fourth Eastern Link HVDC cable (E4L5)	Crosses offshore export cable corridor
4	Scotland England Green Link 2	3.5

*Cable route not yet finalised

13.9 Transboundary Effects

- 384. Given the prevalence of non-UK registered fishing vessels within the Commercial Fisheries Study Area, impacts that might arise on the interests of EEA states within UK waters, e.g. a non UK fishing vessel, have been considered within the main part of this assessment (section 13.6).
- 385. For Commercial Fisheries, the potential for transboundary effects within the EEZ of other EEA states is limited to potential displacement of fishing activity. Displacement of fishing activity was found to be minor (section 13.6), therefore the potential transboundary effect of displacement of fishing vessels is considered to be not significant.



13.10 Interactions

386. The effects identified and assessed in this chapter have the potential to interact with each other. The areas of potential interaction between effects are presented in **Table 13-45**. This provides a screening tool for which effects have the potential to interact. **Table 13-45** provides an assessment for each receptor (or receptor group) as related to these impacts.
387. Within **Table 13-46**, the effects are assessed relative to each development phase to see if multiple effects could increase the significance of the effect upon a receptor. Following this a lifetime assessment is undertaken which considers the potential for an effect to affect receptors across all development phases.

Table 13-45 Interactions Between Impacts – Screening (Construction)

Potential Interactions between Impacts							
Construction							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Temporary increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 1: Loss or restricted access to fishing grounds		Yes	No	No	No	No	No
Impact 2: Displacement leading to gear conflict and increased pressure on	Yes		No	No	No	No	No

Unrestricted

Potential Interactions between Impacts							
Construction							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Temporary increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
adjacent fishing grounds							
Impact 3: Temporary increased steaming times	No	No		No	No	No	No
Impact 4: Loss or damage to fishing gear	No	No		No	No	No	No

Potential Interactions between Impacts							
Construction							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Temporary increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
due to snagging							
Impact 5: Supply chain opportunities for local fishing vessels	No	No	No		No	No	No
Impact 6: Potential impacts on commercially important fish and	No	No	No	No		No	No

Unrestricted

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Potential Interactions between Impacts							
Construction							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Temporary increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
shellfish resources							
Impact 7: Navigational safety	No	No	No	No	No		

Table 13-46 Interactions Between Impacts – Screening (Operation)

Potential Impacts							
Operation							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 1: Loss or restricted access to fishing grounds		Yes	No	No	No	No	No

Potential Impacts							
Operation							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Yes		No	No	No	No	No
Impact 3: Increased steaming times	No		No	No	No	No	No

Potential Impacts							
Operation							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 4: Loss or damage to fishing gear due to snagging	No	No		No	No	No	No
Impact 5: Supply chain opportunities for local fishing vessels	No	No	No		No	No	No

Potential Impacts							
Operation							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 6: Potential impacts on commercially important fish and shellfish resources	No	No	No	No		No	No
Impact 7: Navigational safety	No	No	No	No	No		No

Table 13-47 Interactions Between Impacts – Screening (Decommissioning)

Potential Impacts							
Decommissioning							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 1: Loss or restricted access to fishing grounds		Yes	No	No	No	No	No

Potential Impacts							
Decommissioning							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Yes		No	No	No	No	No
Impact 3: Increased steaming times	No		No	No	No	No	No

Potential Impacts							
Decommissioning							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 4: Loss or damage to fishing gear due to snagging	No	No		No	No	No	No
Impact 5: Supply chain opportunities for local fishing vessels	No	No	No		No	No	No

Potential Impacts							
Decommissioning							
	Impact 1: Loss or restricted access to fishing grounds	Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds	Impact 3: Increased steaming times	Impact 4: Loss or damage to fishing gear due to snagging	Impact 5: Supply chain opportunities for local fishing vessels	Impact 6: Potential impacts on commercially important fish and shellfish resources	Impact 7: Navigational safety
Impact 6: Potential impacts on commercially important fish and shellfish resources	No	No	No	No		No	No
Impact 7: Navigational safety	No	No	No	No	No		No

Table 13-48 Interaction Between Impacts – Phase and Lifetime Assessment

Receptor	Highest Significance Level				
	Construction	Operation	Decommissioning	Phase Assessment	Lifetime Assessment
Demersal trawl/seine	Minor adverse	Minor adverse	Minor adverse	No greater than individually assessed impacts: Loss or restricted access to fishing grounds increases the potential for displacement of fishing vessels. A potential significant effect has been predicted for inshore static gear during construction; however, measures outlined in section 13.6.1.5.1 will reduce the magnitude of impact	No greater than individually assessed impacts: As with the phase assessment, the residual effect for inshore static gear during construction is minor adverse, which is deemed to be not significant in EIA terms, limiting the potential for different impacts to interact across the different phases As with the phase assessment, all potential effects are non-significant and
Dredge	Minor adverse	Minor adverse	Minor adverse		
Intertidal netters	Minor adverse	Minor adverse	Minor adverse		
Otter trawl	Minor adverse	Minor adverse	Minor adverse		
Pelagic trawl	Minor adverse	Minor adverse	Minor adverse		
Static gear inshore	Moderate adverse	Minor adverse	Minor adverse		
Static gear offshore	Minor adverse	Minor adverse	Minor adverse		

Receptor	Highest Significance Level				
	Construction	Operation	Decommissioning	Phase Assessment	Lifetime Assessment
				from medium to low. Therefore, the residual effect is minor adverse, which is deemed to be not significant in EIA terms. All other potential effects are non-significant (minor adverse or less) and localised in nature. The majority of effects are also temporary in nature. Together, these factors and the embedded mitigation measures, limit the potential for different impacts to	localised in nature, limiting the potential for different impacts to interact across the different phases. Effects from decommissioning are temporary in nature, limiting their potential to result in a synergistic or greater impact with those considered in other phases.

RWE

Dogger Bank South Offshore Wind Farms

Receptor	Highest Significance Level				
	Construction	Operation	Decommissioning	Phase Assessment	Lifetime Assessment
				interact within each phase. As a result, none of the potential interactions identified with respect to commercial fisheries are expected to result in a synergistic or greater significance of effect than those already assessed	

13.11 Inter-Relationships

388. For Commercial Fisheries potential inter-relationships between other topics assessed within this PEIR including **Chapter 14 Shipping and Navigation** and **Chapter 10 Fish and Shellfish Ecology**. A summary of the potential inter-relationships between these topics is provided in **Table 13-49**.

Table 13-49 Commercial Fisheries Inter-relationships

Topic and Description	Related Chapter	Where Addressed in this Chapter	Rationale
Construction			
Potential impacts on commercially important fish and shellfish resources	Chapter 10 Fish and Shellfish Ecology	Section 13.6.1.6	Construction activities could affect fish and shellfish stocks, which could result in changes to landings of commercially important fish and shellfish species.
Potential interference with fishing activity as a result of changes to shipping routes and project vessel traffic	Chapter 14 Shipping and Navigation	Section 13.6.1.7	Construction activities could result in changes to shipping routes and increases in Project vessel traffic, which could interfere with fishing activity.
Operation			
Potential impacts on commercially important fish and shellfish resources	Chapter 10 Fish and Shellfish Ecology	Section 13.6.2.6	Operation and maintenance activities and the presence of infrastructure could affect fish and shellfish stocks, which could result in changes to landings of commercially important fish and shellfish species.

Topic and Description	Related Chapter	Where Addressed in this Chapter	Rationale
Potential interference with fishing activity as a result of changes to shipping routes and project vessel traffic	Chapter 14 Shipping and Navigation	Section 13.6.2.7	Operation and maintenance activities and the presence of infrastructure could result in changes to shipping routes and increases in Project vessel traffic, which could interfere with fishing activity.
Decommissioning			
Potential impacts on commercially important fish and shellfish resources	Chapter 10 Fish and Shellfish Ecology	Section 13.6.3.6	Decommissioning activities could affect fish and shellfish stocks, which could result in changes to landings of commercially important fish and shellfish species.
Potential interference with fishing activity as a result of changes to shipping routes and project vessel traffic	Chapter 14 Shipping and Navigation	Section 13.6.3.7	Decommissioning activities could result in changes to shipping routes and increases in Project vessel traffic, which could interfere with fishing activity.

13.12 Summary

389. This chapter has provided a characterisation of the existing environment for Commercial Fisheries based on existing and site specific survey data, in addition to feedback from fisheries stakeholders.
390. A summary of the potential likely significant effects, mitigation measures, cumulative impacts, and residual effects to commercial fisheries receptors is provided in **Table 13-50**. It is noted that conclusions made within this assessment are constrained by the limitations and assumptions within the data, which are described in section 13.4.6.
391. Key receptor groups identified within the commercial fisheries assessment are as follows:
- Demersal seines and trawls;
 - Dredge;
 - Intertidal netters;
 - Otter trawls;
 - Pelagic trawls;
 - Inshore static gear; and
 - Offshore static gear.
392. Currently the Dogger Bank SAC Byelaw prohibits the use of bottom towed fishing gear within the majority of the DBS array areas. Therefore, for loss or restricted access to fishing grounds (during both construction and operation), impacts on demersal seines, dredgers, otter trawlers and pelagic trawlers are considered to be at most of negligible significance as they can no longer fish within the majority of the DBS array area.
393. The assessment also considers the impacts on receptor groups in the event that the byelaw is revoked and the impacts on receptor groups due to the offshore export cable corridor. Prior to additional mitigation measures, a moderate adverse effect was predicted for loss or restricted access to fishing grounds during the construction and decommissioning phases for dredge and inshore static vessels. These were the only moderate adverse effect identified within the assessment of significance.

394. As well as the proposed embedded mitigation measures detailed in **Table 13-3**, additional measures are proposed during the construction and decommissioning phases in order to reduce the residual effects on dredge and inshore static vessels to be of minor adverse significance. Options to encourage co-existence of fisheries, including cooperation agreements and associated payments in accordance with FLOWW guidance, will be explored. These commitments will be outlined within an outline Fisheries Liaison and Coexistence Plan, which will be submitted as part of the DCO application.
395. In the absence of detailed methodologies, potential impacts during the decommissioning phase are largely considered to be the same or similar to the potential impacts thought to occur during the construction phase of DBS East and DBS West.
396. With the introduction of additional mitigation measures, this assessment has concluded that impacts to the commercial fisheries receptor groups will not be above a minor adverse effect during the construction and decommissioning phases of DBS East and DBS West in isolation and together. Likewise, impacts with the potential to occur during the operation and maintenance phase are not assessed to be above minor adverse significance. A complete summary of the potential likely significant effects is provided in **Table 13-50**.
397. The magnitude of impact assessed for the development of DBS East and DBS West in isolation and together, is considered to be comparable throughout the assessment of significance. The development of DBS East and DBS West concurrently and sequentially, would encompass a larger spatial area and overall footprint than that of either Projects in isolation (and the overall construction period may be longer in regard to the sequential scenario). The impacts are therefore predicted to be higher for DBS West and DBS East together, however, the overall magnitude of effect remains the same as for the projects in isolation, given the duration of the construction works and the consideration of areas of fishing activity for each receptor group.
398. Despite the prevalence of non-UK fishing vessels within the Commercial Fisheries Study Area, no significant transboundary effects have been concluded. Impacts to vessels of other EEA states are limited to displacement, increased gear conflict and pressure on adjacent fishing grounds. This has been assessed to only be of a minor adverse effect, which is not significant in EIA terms.

Table 13-50 Summary of Potential Likely Significant Effects on Commercial Fisheries

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
Construction						
Impact 1: Loss or restricted access to fishing grounds – Dogger Bank SAC byelaw in place	Demersal seine	No change	Negligible	No change	None beyond embedded mitigation	No change
	Dredge	No change	Medium	No change		No change
	Otter trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)		No change (DBS East) Negligible (DBS West)
	Pelagic trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)		No change (DBS East) Negligible (DBS West)
Impact 1: Loss or restricted access to fishing grounds – Dogger Bank SAC byelaw revoked	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Medium	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
Impact 1: Loss or restricted access to fishing grounds – offshore export cable corridor	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Medium	Medium	Moderate adverse	The Project will explore options to encourage co-existence to mitigate the effect, which could include cooperation agreements and associated payments in accordance with FLOWW guidance. These commitments will be outlined within a Fisheries Liaison and Coexistence Plan which will be submitted as part of the DCO application.	Minor adverse
	Intertidal netters	Negligible	Medium	Minor adverse	None beyond embedded mitigation	Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
	Otter trawl	Low	Low	Minor adverse	None beyond embedded mitigation	Minor adverse
	Pelagic trawl	Medium	Low	Minor adverse	None beyond embedded mitigation	Minor adverse
	Inshore static gear	Medium	Medium	Moderate adverse	The Project will explore options to encourage co-existence to mitigate the effect, which could include cooperation agreements and associated payments in accordance with FLOWW guidance. These commitments will be outlined within a Fisheries Liaison and Coexistence Plan which will be submitted as part of the DCO application.	Minor adverse
	Offshore static gear	Low	Low	Minor adverse	None beyond embedded mitigation	Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds – Dogger Bank SAC byelaw in place	Demersal seine	No change	Negligible	No change	None beyond embedded mitigation	No change
	Dredge	No change	Medium	No change		No change
	Otter trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)		No change (DBS East) Negligible (DBS West)
	Pelagic trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)		No change (DBS East) Negligible (DBS West)

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds – Dogger Bank SAC byelaw revoked	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Low	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Inshore static gear	Low	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds – offshore export cable corridor	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Low	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Inshore static gear	Low	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse
Impact 3: Temporary	All commercial	Low	Low	Minor adverse	None beyond embedded mitigation	Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
increased steaming times	fisheries receptor groups				(i.e. ongoing fisheries liaison via the FLO, NtMs, and Kingfisher Bulletins).	
Impact 4: Loss or damage to fishing gear due to snagging	Demersal seine	No change	Medium	No change	None beyond embedded mitigation (i.e. adhere to relevant guidance published by FLOWW (2014), the ICPC (2009) and the ESCA (2018); and ongoing fisheries liaison via the FLO, navigational aids, NtMs, and Kingfisher Bulletins).	No change
	Dredge	No change	Medium	No change		No change
	Intertidal netters	No change	Negligible	No change		No change
	Otter trawl	No change	Medium	No change		No change
	Pelagic trawl	No change	Low	No change		No change
	Inshore static gear	No change	Low	No change		No change
	Offshore static gear	No change	Low	No change		No change
Impact 5: Supply chain opportunities for local fishing vessels	Demersal seine	Low	Low	Minor beneficial	As this impact exhibits its beneficial opportunities for these receptor groups, no mitigation measures are proposed.	Minor beneficial
	Dredge	Low	Medium	Minor beneficial		Minor beneficial
	Intertidal netters	Negligible	Negligible	Negligible		Negligible

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
	Otter trawl	Low	Low	Minor beneficial		Minor beneficial
	Pelagic trawl	Low	Low	Minor beneficial		Minor beneficial
	Inshore static gear	Negligible	Negligible	Negligible		Negligible
	Offshore static gear	Low	Medium	Minor beneficial		Minor beneficial
Impact 6: Potential impacts on commercially important fish and shellfish resources	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Intertidal netters	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Low	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Inshore static gear	Low	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse
Impact 7: Navigational safety	Demersal seine	No Change	Negligible	No Change	None beyond embedded mitigation	No Change
	Dredge	No Change	Medium	No Change		No Change

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
	Intertidal netters	No Change	Negligible	No Change		No Change
	Otter trawl	No Change	Low	No Change		No Change
	Pelagic trawl	No Change	Low	No Change		No Change
	Inshore static gear	No Change	Medium	No Change		No Change
	Offshore static gear	No Change	Low	No Change		No Change
Operation						
Impact 1: Loss or restricted access to fishing grounds – Dogger Bank SAC byelaw in place	Demersal seine	No change	Negligible	No change	None beyond embedded mitigation	No change
	Dredge	No change	Medium	No change		No change
	Otter trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)		No change (DBS East) Negligible (DBS West)
	Pelagic trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)		No change (DBS East) Negligible (DBS West)
	Demersal seine	Negligible	Negligible	Negligible		Negligible

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
Impact 1: Loss or restricted access to fishing grounds – Dogger Bank SAC byelaw revoked	Dredge	Low	Medium	Minor adverse	The Projects will explore options to encourage co-existence to mitigate the effect, in accordance with FLOWW guidance. These commitments will be outlined within an outline Fisheries Liaison and Coexistence Plan which will be submitted as part of the DCO application.	Minor adverse
	Intertidal netters	No change	Medium	No change		No change
	Otter trawl	Low	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Inshore static gear	No change	Medium	No change		No change
	Offshore static gear	Negligible	Low	Negligible		Negligible
Impact 1: Loss or restricted access to fishing grounds – offshore export cable corridor	Demersal seine	Negligible	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Intertidal netters	No change	Medium	No change		No change
	Otter trawl	Negligible	Low	Negligible		Negligible
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
	Inshore static gear	Negligible	Medium	Minor adverse		Minor adverse
	Offshore static gear	Negligible	Low	Negligible		Negligible
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds – Dogger Bank SAC byelaw in place	Demersal seine	No change	Negligible	No change	None beyond embedded mitigation	No change
	Dredge	No change	Medium	No change		No change
	Otter trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)		No change (DBS East) Negligible (DBS West)
	Pelagic trawl	No change (DBS East) Negligible (DBS West)	Low	No change (DBS East) Negligible (DBS West)		No change (DBS East) Negligible (DBS West)
Impact 2: Displacement leading to gear	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Low	Low	Minor adverse		Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
conflict and increased pressure on adjacent fishing grounds – Dogger Bank SAC byelaw re-voked	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Inshore static gear	Negligible	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds – offshore export cable corridor	Demersal seine	Negligible	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Negligible	Medium	Minor adverse		Minor adverse
	Otter trawl	Negligible	Low	Negligible		Negligible
	Pelagic trawl	Negligible	Low	Negligible		Negligible
	Inshore static gear	No change	Medium	No change		No change
	Offshore static gear	Low	Low	Negligible		Negligible

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
Impact 3: Temporary increased steaming times	All receptor groups	Low	Low	Minor adverse	None beyond embedded mitigation	Minor adverse
Impact 4: Loss or damage to fishing gear due to snagging	Demersal seine	Negligible	Medium	Minor adverse	Adhere to relevant guidance published by FLOWW (2014), the ICPC (2009) and the ESCA (2018) Ongoing fisheries liaison via the FLO, navigational aids, NtMs, and Kingfisher Bulletins	Minor adverse
	Dredge	Negligible	Medium	Minor adverse		Minor adverse
	Intertidal netters	Negligible	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Otter trawl	Negligible	Medium	Minor adverse		Minor adverse Minor adverse
	Pelagic trawl	Negligible	Low	Minor adverse		Minor adverse
	Inshore static gear	Negligible	Low	Negligible		Negligible

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
	Offshore static gear	Negligible	Low	Negligible		Negligible
Impact 5: Supply chain opportunities for local fishing vessels	Demersal seine	Low	Low	Minor beneficial	As this impact exhibits beneficial opportunities for these receptor groups, no mitigation measures are proposed.	Minor beneficial
	Dredge	Low	Medium	Minor beneficial		Minor beneficial
	Intertidal netters	Negligible	Negligible	Negligible		Negligible
	Otter trawl	Low	Low	Minor beneficial		Minor beneficial
	Pelagic trawl	Low	Low	Minor beneficial		Minor beneficial
	Inshore static gear	Negligible	Negligible	Negligible		Negligible
	Offshore static gear	Low	Low	Minor beneficial		Minor beneficial
Impact 6: Potential impacts on commercial	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Intertidal netters	Low	Medium	Minor adverse		Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
cially im- portant fish and shellfish resources	Otter trawl	Low	Low	Negligible		Negligible
	Pelagic trawl	Low	Low	Negligible		Negligible
	Inshore static gear	Low	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Negligible		Negligible
Impact 7: Navigational safety	Demersal seine	Low	Negligible	Negligible	None beyond em- bedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Intertidal netters	Low	Negligible	Negligible		Negligible
	Otter trawl	Low	Medium	Minor adverse		Minor adverse
	Pelagic trawl	Low	Medium	Minor adverse		Minor adverse
	Inshore static gear	Low	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse
Decommissioning						
	Demersal seine	No change	Negligible	No change	None beyond em- bedded mitigation	No change

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
Impact 1: Loss or re- stricted ac- cess to fish- ing grounds – Dogger Bank SAC byelaw in place	Dredge	No change	Medium	No change		No change
	Otter trawl	Negligible	Low	Negligible		Negligible
	Pelagic trawl	Negligible	Low	Negligible		Negligible
Impact 1: Loss or re- stricted ac- cess to fish- ing grounds – Dogger Bank SAC byelaw re- voked	Demersal seine	Low	Negligible	Negligible	None beyond em- bedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Medium	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse
Impact 1: Loss or re-	Demersal seine	Low	Negligible	Negligible	None beyond em- bedded mitigation	Negligible

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
stricted access to fishing grounds – offshore export cable corridor	Dredge	Medium	Medium	Moderate adverse	The Project will explore options to encourage co-existence to mitigate the effect, which could include cooperation agreements and associated payments in accordance with FLOWW guidance. These commitments will be outlined within a Fisheries Liaison and Coexistence Plan which will be submitted as part of the DCO application.	Minor adverse
	Intertidal netters	Negligible	Medium	Minor adverse	None beyond embedded mitigation	Minor adverse
	Otter trawl	Low	Low	Minor adverse		Minor adverse
	Pelagic trawl	Medium	Low	Minor adverse		Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
	Inshore static gear	Medium	Medium	Moderate adverse	The Project will explore options to encourage co-existence to mitigate the effect, which could include cooperation agreements and associated payments in accordance with FLOWW guidance. These commitments will be outlined within a Fisheries Liaison and Coexistence Plan which will be submitted as part of the DCO application.	Minor adverse
	Offshore static gear	Low	Low	Minor adverse	None beyond embedded mitigation	Minor adverse
Impact 2: Displacement leading to gear	Demersal seine	Negligible	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Negligible	Medium	Minor adverse		Minor adverse
	Otter trawl	Negligible	Low	Negligible		Negligible

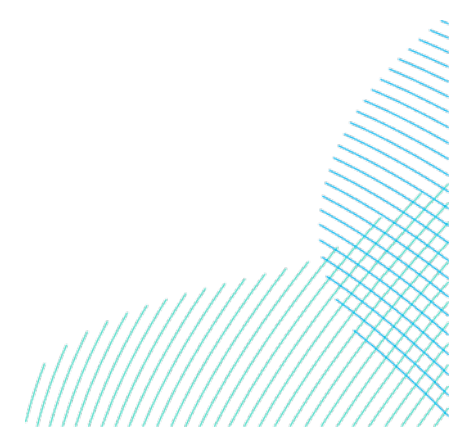
Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
conflict and increased pressure on adjacent fishing grounds – Dogger Bank SAC byelaw in place	Pelagic trawl	Negligible	Low	Negligible		Negligible
Impact 2: Dis-placement leading to gear conflict and increased pressure on adjacent fishing grounds – Dogger Bank SAC	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Low	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Inshore static gear	Low	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
byelaw re-voked						
Impact 2: Displacement leading to gear conflict and increased pressure on adjacent fishing grounds – offshore export cable corridor	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Low	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Inshore static gear	Low	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse
Impact 3: Temporary increased steaming times	All commercial fisheries receptor groups	Low	Low	Minor adverse	None beyond embedded mitigation (i.e. ongoing fisheries liaison via the FLO, NtMs, and Kingfisher Bulletins).	Minor adverse
Impact 4: Loss or	Demersal seine	No change	Medium	No change	None beyond embedded mitigation	No change

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
damage to fishing gear due to snagging	Dredge	No change	Medium	No change	(i.e. adhere to relevant guidance published by FLOWW (2014), the ICPC (2009) and the ESCA (2018); and ongoing fisheries liaison via the FLO, navigational aids, NtMs, and Kingfisher Bulletins).	No change
	Intertidal netters	No change	Negligible	No change		No change
	Otter trawl	No change	Medium	No change		No change
	Pelagic trawl	No change	Low	No change		No change
	Offshore static gear	No change	Low	No change		No change
	Inshore static gear	No change	Low	No change		No change
Impact 5: Supply chain opportunities for local fishing vessels	Demersal seine	Low	Low	Minor beneficial	As this impact poses beneficial opportunities for local fishers no mitigation measures are proposed.	Minor beneficial
	Dredge	Low	Medium	Minor beneficial		Minor beneficial
	Intertidal netters	Negligible	Negligible	Negligible		Negligible
	Otter trawl	Low	Low	Minor beneficial		Minor beneficial
	Pelagic trawl	Low	Low	Minor beneficial		Minor beneficial
	Inshore static gear	Negligible	Negligible	Negligible		Negligible

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
	Offshore static gear	Low	Medium	Minor beneficial		Negligible
Impact 6: Potential impacts on commercially important fish and shellfish resources	Demersal seine	Low	Negligible	Negligible	None beyond embedded mitigation	Negligible
	Dredge	Low	Medium	Minor adverse		Minor adverse
	Intertidal netters	Low	Medium	Minor adverse		Minor adverse
	Otter trawl	Low	Low	Minor adverse		Minor adverse
	Pelagic trawl	Low	Low	Minor adverse		Minor adverse
	Inshore static gear	Low	Medium	Minor adverse		Minor adverse
	Offshore static gear	Low	Low	Minor adverse		Minor adverse
Impact 7: Navigational safety	Demersal seine	No change	Negligible	No change	None beyond embedded mitigation	No change
	Dredge	No change	Medium	No change		No change
	Intertidal netters	No change	Negligible	No change		No change
	Otter trawl	No change	Medium	No change		No change
	Pelagic trawl	No change	Medium	No change		No change

Potential Impact	Receptor	Magnitude	Sensitivity	Pre-mitigation Effect	Additional Mitigation Measures Proposed	Residual Effect
	Inshore static gear	No change	Medium	No change		No change
	Offshore static gear	No change	Low	No change		No change



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