The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 1

Part 4 Offshore Scheme

Chapter 9 Commercial Fisheries

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4.9 Commercial Fisheries

4.9.1 Introduction

4.9.1.1 This chapter of the Preliminary Environmental Information Report (PEIR) presents information about the preliminary environmental assessment of the likely significant effects identified to date on commercial fisheries, that could result from the Proposed Project (as described in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**).

4.9.1.2 This chapter describes the methodology used, the datasets that have informed the preliminary assessment, baseline conditions, mitigation measures and the preliminary commercial fisheries residual significant effects that could result from the Proposed Project.

4.9.1.3 The draft Order Limits, which illustrate the boundary of the Proposed Project, are illustrated on **Figure 1.1.1 Draft Order Limits** and the Offshore Scheme Boundary is illustrated on **Figure 1.1.4 Offshore Scheme Boundary**.

4.9.1.4 This chapter should be read in conjunction with:

- **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**;
- **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**;
- **Volume 1, Part 1, Chapter 6, Scoping Opinion and EIA Consultation**;
- **Volume 1, Part 4, Chapter 1, Evolution of the Offshore Scheme**;
- **Volume 1, Part 4, Chapter 4, Fish and Shellfish;** and
- **Volume 1, Part 4, Chapter 8, Shipping and Navigation.**

4.9.1.5 This chapter is supported by the following figures:

- **Volume 3, Figure 4.9.1. Fisheries restriction areas;**
- **Volume 3, Figure 4.9.2. Cockle management areas;**
- **Volume 3, Figure 4.9.3. Commercial fisheries study area;**
- **Volume 3, Figure 4.9.4. Surveillance sightings data;** and
- **Volume 3, Figure 4.9.4, Landings by method and species.**

4.9.1.6 This chapter is supported by the following appendices:

- **Volume 2, Appendix 1.4.A, Outline Code of Construction Practice;**
- **Volume 2, Appendix 1.4.F, Outline Schedule of Environmental Commitments and Mitigation Measures;** and
- **Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report.**

4.9.2 Regulatory and Planning Context

4.9.2.1 This section sets out the legislation and planning policy that is relevant to the preliminary commercial fisheries assessment. A full review of compliance with relevant national and local planning policy will be provided within the Planning Statement that will be submitted as part of the application for Development Consent.

4.9.2.2 Policy generally seeks to minimise effects from development on commercial fisheries and to avoid significant adverse effects. This applies particularly to access to fishing grounds and the ability for fishers to undertake fishing activity, while attempting to maintain a thriving and sustainable fishing industry.

Legislation

Marine and Coastal Access Act 2009

4.9.2.3 Marine and Coastal Access Act 2009 (Ref 9.1) establishes fisheries management in the UK (i.e., legal duties of Inshore Fisheries Conservation Authorities (IFCAs) and the Marine Management Organisation (MMO) and identifies the UK marine area including 6 nautical mile (NM) and 12 NM limits, and the Exclusive Economic Zone (EEZ).

Fisheries Act (2020)

4.9.2.4 Fisheries Act (2020) (Ref 9.2) creates a legal requirement for the UK's national fisheries policy authorities (e.g., the MMO) to produce a Joint Fisheries Statement (JFS) (Ref 9.3) relating to identified fisheries objectives (e.g., sustainability, ecosystem, and access rights).

National Policy

National Policy Statements

4.9.2.5 National Policy Statements[1] (NPSs) set out the primary policy tests against which the application for a Development Consent Order (DCO) for the Proposed Project will be considered. A review of the NPS was announced in the 2020 Energy white paper: Powering our net zero future. This review was to ensure the NPSs were brought up to date to reflect the policies set out in the white paper. The below information reflects these updates currently under consultation. Table 4.9.1 and Table 4.9.2 below provides details of the elements of NPS Overarching National Policy Statement for Energy (EN-1) (Ref 9.4), NPS for Renewable Energy Infrastructure (EN-3) (Ref 9.5) and NPS for Electricity Networks Infrastructure (EN-5) (Ref 9.6) that are relevant to this chapter, and how and where they are covered in the PEIR or will be covered within the Environmental Statement (ES).

[1] At the time of writing the UK Government were in the process of holding consultations (until 23rd June 2023), seeking views on the revised energy National Policy Statements. Updates to each NPS are in the drafting stage with final versions due to published in the near future.

Table 4.9.1: NPS EN-1 requirements relevant to commercial fisheries (Updated for consultation 2023).

NPS EN-1 section	Where this is covered in the PEIR
4.4.8…"*Applicants for a development consent order must take account of any relevant Marine Plans and are expected to complete a Marine Plan assessment as part of their project development, using this information to support an application for development consent*"	Marine Plans are identified in Table 4.9.3 and considered in section 4.9.9 Preliminary Assessment of Effects.

Table 4.9.2: NPS EN-3 requirements relevant to commercial fisheries (Updated for consultation 2023).

NPS EN-3 section	Where this is covered in the PEIR
3.8.171 "Applicants should undertake early consultation with a cross-section of the fishing industry, as well as MMO, SNCBs, Defra and Welsh Government, to identify impacts, and actively encourage input from active fishermen to provide evidence of their use of the area to support the impact assessments".	Consultation was initially carried out with local and international fishers in order to inform the baseline. The responses are presented in **Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**. Consultation with government bodies and regulators was also conducted at the scoping stage. These consultations will continue following the completion of this PEIR chapter and, during the completion of the ES, and the subsequent DCO process.
3.8.172 "Where any part of a proposal involves a grid connection to shore, appropriate inshore fisheries groups should also be consulted".	Consultation was initially carried out with local and international fishers. The responses are presented in **Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**. These consultations will continue following the completion of this PEIR chapter and the during the completion of the ES. These consultations will continue following the completion of this PEIR chapter

NPS EN-3 section	Where this is covered in the PEIR
	and the during the completion of the ES.
3.8.174 "Applicant assessments should include robust baseline data and detailed surveys of the effects on fish stocks of commercial interest and any potential reduction in such stocks, as well as any likely constraints on fishing activity within the project's boundaries".	The baseline data are collated in **Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**. This was then incorporated into section 4.9.7 of this chapter of the PEIR. These consultations will continue following the completion of this PEIR chapter and the during the completion of the ES. The potential impacts of the cable on commercial fisheries receptors are considered in section 4.9.9 of this PEIR.

4.9.2.6 No elements of NPS EN-5 are relevant to commercial fisheries and this policy document is therefore not considered further.

Marine Planning Policy

4.9.2.7 The following marine plans have been considered relevant to a study of commercial fisheries and has informed the assessment of preliminary effects in this chapter are as follows:

- The UK Marine Policy Statement (MPS) (2011) (Ref 9.7) was adopted in 2011 and provides the policy framework for the preparation of marine plans and establishes how decisions affecting the marine area should be made;
- The East Inshore and East Offshore Marine Plans (2014) (Ref 9.8) detail the approach to managing the East Inshore and East Offshore areas, their resources, and the activities and interactions that take place within them. They aim to help ensure the sustainable development of the marine area; and
- South East Inshore Marine Plan (2021) (Ref 9.9) details a strategic approach to planning within the English inshore waters between Felixstowe in Suffolk, and west of Dover in Kent. It provides an evidence-based approach to inform decision-making by marine users and regulators within the south east inshore marine plan area, aiming to achieve sustainable development and optimal use of the marine area's natural capital.

Table 4.9.3: Marine Planning Policies relevant to commercial fisheries

Marine Plan	Where this is covered in the PEIR
The UK MPS	In line with policy objectives relevant to displacement of commercial fisheries in the MPS, this PEIR chapter recognises

Marine Plan	Where this is covered in the PEIR
	that fishing activity may be sensitive to changes in relation to the Proposed Project activities. Mitigation, embedded, and control and management measures of relevance to commercial fisheries are described in section 4.9.8.
East Inshore and East Offshore Marine Plan	The policies within the East Inshore and East Offshore Marine Plans state that proposals must minimise and mitigate any adverse impacts on the ability to undertake fishing activities or to access fishing grounds. Mitigation, embedded, and control and management measures of relevance to commercial fisheries are described in section 4.9.8. A preliminary assessment of effects to commercial fisheries are discussed in section 4.9.9.
South East Inshore Marine Plan	The policies within the South East Inshore Marine Plan support sustainable fishing and diversification of the fishing industry. They also state that proposals that may have significant adverse impacts on access for fishing activities must demonstrate that they will avoid, minimise, and/or mitigate these impacts. Mitigation, embedded, and control and management measures of relevance to commercial fisheries are described in section 4.9.8. A preliminary assessment of effects to commercial fisheries are discussed in section 4.9.9.

Local Planning Policy

4.9.2.8 The local plan policies for Suffolk and Kent do not currently have any policies relevant to commercial fisheries that would inform the assessment in the ES.

Fisheries Management

4.9.2.9 In English waters, out to the 6 NM limit, fisheries are managed by Inshore Fisheries and Conservation Authorities (IFCAs) whilst waters between 6 NM and 12 NM, and out to the UK's 200 NM Exclusive Economic Zone (EEZ) fisheries management is the responsibility of the Marine Management Organisation (MMO).

English Inshore Waters

4.9.2.10 UK Inshore waters are defined as those within 12 NM of the coast. International vessels of Belgium, France, Germany and the Netherlands maintain historic fishing rights in UK Inshore waters.

4.9.2.11 The majority of the Offshore Scheme falls within the 6 NM limits of English inshore waters, across two management areas. Most of the Offshore Scheme is within the Kent and Essex IFCA (KEIFCA), which spans from the east end of Rye Bay in Kent to the

northern boundary of Essex on the River Stour; the portion of the Offshore Scheme north of Felixstowe is within the Eastern IFCA (EIFCA).

4.9.2.12 IFCAs are either committees or collaborative (joint) committees of the local authorities that fall within a given Inshore Fisheries Conservation district. IFCAs are primarily tasked with the sustainable management of inshore fisheries resources in their district. IFCAs have a number of different specific roles including fisheries management inside of 6 NM, marine conservation and management of protected areas, sustainable management of fisheries and 'good regulation' implemented through a range of measures, including local bylaws.

Local and Regional Restrictions

4.9.2.13 The EIFCA and KEIFCA enforce a number of fishing restrictions within their districts (Ref 9.10), as presented in Table 4.9.4 and **Figure 4.9.1 Fisheries Restriction Areas**.

Table 4.9.4: Local IFCA Byelaws relevant to commercial fisheries

Restriction Name	Summary
Area A (KEIFCA)	No fishing by net or any other instrument, except from the beach, or from a vessel smaller than 17 m in length using trawl nets, dredges or other towed gear.
Area C (0-3 NM (KEIFCA))	Only vessels less than 15.24 m in length may trawl for fish.
Bottom Towed Fishing Gear Bylaw (KEIFCA)	Bottom trawl fishing gear must not be used within the prohibited areas.
Byelaw 12 (EIFCA)	Fishing vessels larger than 15.24 m in length may not use towed nets within 3 NM of the coast.
Byelaw 15 (EIFCA)	Fishing vessels larger than 14 meters in length may not fish for molluscs using any type of towed gear.
Byelaw 3 (EIFCA)	No fishing for oysters, mussels, cockles, clams, scallops or queens except by hand or with a hand rake unless a certificate of approval is obtained for the instrument or fishing gear.
Essex Estuary Bottom Trawling Byelaw (KEIFCA)	Bottom trawl fishing gear must not be used within the prohibited areas.
Whelk Fishery Flexible Permit Byelaw (KEIFCA)	No fishing, or taking of sea fisheries resources, within the restricted area.
Whelk Permit Byelaw 2016 (KEIFCA)	Only whelk pots marked with valid permit tags to be used in fishing for whelk.

4.9.2.14 The Kent and Essex IFCA also manages the local cockle fishery under two separate orders (**Figure 4.9.1 Fisheries restriction areas** and **Figure 4.9.2 Cockle management areas**):

- ***The Thames Estuary Cockle Fishery Order (TECFO), 1994***
  - Under the TECFO a Total Allowable Catch (TAC) is determined by the KEIFCA, based on the previous year's stock assessment. The fishery then opens in June and shuts once the TAC has been reached, commonly in September or October. Fishers must hold a licence to access cockle, they are also subject to annual and per-trip landings weight restrictions.
- ***The Cockle Fishery Flexible Permit Byelaws (CFFPB)***
  - This fishery does not open every year. It is dependent on annual surveys of cockle stocks in the CFFPB area in spring. In order to be fished, stocks must exceed levels agreed in the byelaw management plan.

UK Offshore Waters

4.9.2.15 UK offshore waters extend from the 12 NM limit out to 200 NM, encompassing the UK's EEZ. In English offshore waters the MMO is responsible for fisheries management.

UK Fisheries Management Following UK Exit from EU

4.9.2.16 Whilst part of the European Union (EU), fisheries within UK waters were managed as part of the EU Common Fisheries Policy (CFP) (Ref 9.11). Following the UK's exit from the EU and the end of the associated transitional arrangement period on 21 January 2021, the UK Single Issuing Authority (UKSIA) (as part of the MMO) now manages fishing vessel licensing for foreign vessel access to UK waters.

4.9.2.17 The UKSIA is responsible for foreign vessels within the British Fishery Limits on behalf of the UK sea fish licensing authorities. However, the UK fisheries authorities (Marine Scotland, the Department of Agriculture, Environment and Rural Affairs in Northern Ireland, Welsh Government, and the Marine Management Organisation) remain responsible for the administration and management of UK vessel licensing within the UK EEZ (Ref 9.12).

4.9.3 Scoping Opinion and Consultation

Scoping

4.9.3.1 A Scoping Report for the Proposed Project was issued to the Planning Inspectorate (PINS) on 24 October 2022 and a Scoping Opinion was received from PINS, on behalf of the Secretary of State (SoS) on 1 December 2022. Table 4.9.5 sets out the comments raised in the Scoping Opinion, relevant to commercial fisheries (**Volume 1, Part 1, Chapter 6, Scoping Opinion and Consultation**) and how these have been addressed in this PEIR chapter or else will be addressed within the ES. The Scoping Opinion takes account of responses from prescribed consultees as appropriate.

Table 4.9.5: Comments raised in the Scoping Opinion

ID	Inspectorate's comments	Response
5.8.1	"The Scoping Report seeks to scope out this matter [accidental leaks and spills] on the grounds that the measures contained in the CoCP [Code of Construction Practice] would make the risk of accidental spills/leaks negligible. The Inspectorate agrees that, provided the measures to mitigate the risks of leaks and spills are clearly described in the ES and secured in the dDCO, this matter can be scoped out of further assessment."	Agreed. Mitigation measures and management plans regarding accidental leaks and spills are detailed in **Volume 2, Appendix 1.4.A, Outline Code of Construction Practice**. Effects from leaks and spills from vessels during all phases have not been considered further in this PEIR chapter. A full list of mitigation measures used to avoid likely significant effects has been detailed in section 4.9.8 and will also be included in the ES and in the dDCO.
5.8.2	"The Scoping Report identifies the data sources that would be used to inform the baseline and describes the criteria that would be used to determine the sensitivity of receptors and the magnitude of impacts. However, it is not clear from the Scoping Report what methods would be used to carry out the assessment and whether the assessments would be qualitative or quantitative. The methodologies used must be described and their use justified with reference to appropriate guidance and/or agreement with relevant stakeholders. The Applicant is strongly encouraged to ensure that they seek advice from all relevant stakeholders with expertise on this aspect, including the appropriate Inshore Fisheries and Conservation Authorities (IFCAs)."	This comment was raised in relation to Commercial Fisheries chapter of the scoping report. The assessment methodology implemented by this chapter of the PEIR, is detailed in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**. The guidance considered specifically for commercial fisheries EIA is listed in section 4.9.4 of this PEIR chapter. With regards to Commercial fisheries quantitative data will be used to assess the baseline conditions of the Study Area. Qualitative assessment will then be used to determine the significance of any potential impacts from the Project. Consultation with fisheries stakeholders (including the Eastern, and Kent and Essex IFCAs (see section 4.9.3.2))

ID	Inspectorate's comments	Response
		will continue throughout the ES process and the intended life of the marine activities associated with the project.

Consultation and Project Engagement

4.9.3.2 In order to further inform the commercial fisheries chapter of the PEIR, beyond publicly available information, local fisheries stakeholders of relevance to the Study Area (see section 4.9.6) were consulted between February and March 2023 (see **Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**).

4.9.3.3 Fishers from the majority of ports adjacent to the Cable Route were represented, with consultees from the regional IFCAs providing representation encompassing those unable or unwilling to engage at the time; non-UK stakeholders from the EU were also included in consultations. Topics discussed included, but were not limited to, vessel details, fishing effort (including location of grounds relative to the cable route), gear specifications, seasonality, and target species.

4.9.3.4 This consultation is on-going and will continue after submission of the PEIR. Organisations that have participated in engagement thus far include:

UK Organisations

Local

- Aldeburgh Fishing Association;
- Eastern Inshore Fishery and Conservation Authority;
- Felixstowe Ferry Fishermen's Association;
- Harwich Haven Fishermen's Association;
- Independent fishers, Aldeburgh;
- Independent fishers, Sizewell;
- Kent & Essex Inshore Fishery and Conservation Authority;
- Lowestoft Fishermen's Association;
- Orford and District Fishermen's Association;
- Southwold Fishermen's Association;
- Thanet Fishermen's Association;
- West Mersea Fishermen's Association; and
- Whitstable Fishing Association.

National

- National Federation of Fishermen's Associations (NFFO).

Non-UK Organisations

- Comité Régional des Pêches Maritimes et des Élevages Marins (CRPMEM);
- Rederscentrale (Belgian Producer Organisation); and
- Visned (Dutch Producer Organisation).

4.9.3.5 During the next round of consultation, it is the intention to also seek opinion from fishers from Folkstone and Sheerness and for further consultation with the IFCAs if direct engagement is not possible. For further detail on consultation responses see **Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**

4.9.4 Approach and Methodology

4.9.4.1 **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology** sets out the overarching approach that has been used in developing the preliminary environmental information. This section describes the technical methods used to determine the baseline conditions, sensitivity of the receptors and magnitude of effects, and sets out the significance criteria that have been used for the preliminary commercial fisheries assessment.

Guidance specific to the commercial fisheries assessment

4.9.4.2 The preliminary commercial fisheries assessment has been carried out in accordance with the following good practice guidance documents:

- Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (Ref 9.13);
- Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewable Developments: Recommendations for Fisheries Liaison (Ref 9.14);
- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (Ref 9.15);
- Options and Opportunities for Marine Fisheries Mitigation associated with windfarms (Ref 9.16); and
- The Mariner's Handbook (NP100) (Ref 9.17) – Section 9.45 Submarine Cables.

Baseline Data Gathering and Forecasting Methods

4.9.4.3 The commercial fisheries baseline has been informed primarily through the review of publicly available information and consultation with local fishers active in the Study Area (**Volume 2, Appendix 4.9.A: Commercial Fisheries Technical Report**).

Data Sources

4.9.4.4 The key data sources used to inform this PEIR chapter are outlined in Table 4.9.6

Table 4.9.6: Key data sources used to inform the PEIR

Source	Year	Coverage	Description/limitations
UK Landings Data by International Council for Exploration of the Seas (ICES rectangle[2] (Ref 9.18)	2017 - 2021	Landings statistics data for UK-registered vessels including landing year; landing month; vessel length category; ICES rectangle; vessel/gear type; species; live weight (tonnes) and live weight (value (£)).	Landings data have been analysed by value (£) and presented as an annual average for the period 2017 – 2021. It should be noted that fishing is normally not equally distributed across the whole area of an ICES rectangle and therefore overall activities identified for a given rectangle may not be necessarily representative of the activity that the specific area where the Offshore Scheme is located sustains. In addition, fishing methods are grouped into gear categories which in some cases may include different fisheries. For instance, data is collected under a single category (demersal trawls/seines) for demersal trawling and demersal seine netting. This gear category does not allow for differentiation between activities vessels engaged which have differences in the range of target catches. Where appropriate, landings statistics have been analysed by species to address this. It should also be noted that small catches in some instances do not require reporting. Under the Registration of Fish Buyers and Sellers and Designation of Fish Auction Sites Regulations (2005), for catches of less than 30 kg that are sold directly to the public for personal consumption, the buyer does not need to submit a sales note. Notably, there were significant impacts on commercial fishing during 2020, from March onwards, due to the Covid-19 pandemic (Ref 9.19). Effects to the fishing industry varied depending on sector, but the shellfish industry (which largely supplies the hospitality industry with freshly landed catches) was most severely impacted as demand in the UK and abroad dropped substantially through government lockdowns. Thus, while data from 2020 have been included in this PEIR, data from that period may

[2] ICES standardise the division of sea areas into ‘rectangles’ for statistical analysis. Each ICES statistical rectangle is '30 min latitude by 1 degree longitude' in size which is approximately 30 nautical miles by 30 nautical miles.

Source	Year	Coverage	Description/limitations
			not be fully representative of 'normal' fishing activity.
UK Fisheries Surveillance Sightings (Ref 9.20)	2012 - 2021	Surveillance sightings of vessels by gear type (all nationalities) recorded in UK waters by surveillance patrols.	Only sightings of vessels recorded as "fishing" have been included in the analysis. While the data provides a good indication of key methods and nationalities potentially active in a given area, it should be noted that surveillance patrols are not carried out at constant time intervals and that the level of surveillance effort has been reduced in recent years. Therefore, surveillance data do not give a reliable quantification of overall fishing activity. In some instances, gear categories have been combined to aid visualisation of trends in the data.
Fishing Activity for UK Vessels 15m and over Data layers (Ref 9.21)	2016 - 2020	Satellite tracking data (Vessel Monitoring System (VMS) recorded in 0.05° by 0.05° grids from UK vessels in UK and European waters. VMS data is combined with log book data with values assigned to each cell in the grid in terms of effort and value (£).	This dataset is only available for vessels over 15 m in length and therefore is not representative of fishing activity undertaken by smaller local vessels which normally operate in inshore waters. Data have been analysed by value (£) and presented as an annual average for the period 2016 – 2020. Surveillance sightings (Ref 9.2020) go some way to plugging this knowledge gap but are not as robust as 'always-on' vessel tracking systems. Fishing gear categories used in the dataset do not allow to distinguish activity between some fisheries. As for landings data, VMS data is provided by broad gear category regardless of target species.
KEIFCA Cockle Management Areas (Ref 9.10)	2015 – 2020	Kent and Essex IFCA District	Details the fishing gear that can be used, the areas and times which can be fished, and daily catch limit of cockles within the Cockle Fishery Flexible Permit Byelaw and Thames Estuary Cockle Fishery Order. Limited to areas within the district and therefore within 6 NM.

Source	Year	Coverage	Description/limitations
Belgian Landings data by ICES rectangles (Ref 9.22)	2010 – 2014[3]	Landings statistics data for Belgian-registered vessels including landing year; landing month; vessel length category; ICES rectangle; vessel/gear type and live weight (value (€)).	Belgian landings by ICES rectangle, based on data submitted by Belgium to Flanders Research Institute for Agricultural, Fisheries and Food Research (ILVO). Data to 2021 have been requested but not received (**Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report)**. Available updated data to be included in the ES. The same limitations noted above in relation to UK landings data by ICES rectangle also apply here.
Belgian Fishing Activity for vessels over 15 m in length (Ref 9.23)	2010 - 2014[3]	Belgian VMS data combined with logbook data presented at 1/16th of an ICES rectangle scale.	Includes information for Belgian registered vessels of 15 m in length. The data included in this report are presented as an annual average of fishing value (€) for the period 2010 - 2014. Recent VMS data for Belgian vessels are not publicly available. The data presented in this PEIR chapter are part of BMM's historic fisheries data sets for Belgian vessels, obtained via data request to ILVO. A data request for recent data was made in February 2022 but has not yet been received (**Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**). More recent data, if available, will be included in the ES. It must be noted that these data do not distinguish between vessels steaming and those with gear in the water.
French Landings by ICES rectangle (Ref 9.24)	2012 - 2016	Landings statistics data French-registered vessels including landing year; landing quarter; vessel length category; ICES rectangle; vessel/gear type; species; and landings (tonnes).	French landings (tonnes) by ICES rectangle based on data submitted by Belgium and France to the European Commission's (EC) Scientific, Economic and Technical Committee on Fishing (STECF) (These data were included in **Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**. The same limitations noted above, in relation to UK landings data by ICES rectangle, also apply here.

[3] These are the most recent available data. Multiple requests have been made to the IVLO for more recent data, with no response (see **Appendix 4.9.A: Commercial Fisheries Technical Report**).

Source	Year	Coverage	Description/limitations
			In some instances, gear categories have been combined to aid visualisation of trends in the data.
Dutch Landings by ICES Rectangle (**Appendix 4.9.A: Commercial Fisheries Technical Report**)	2017 - 2021	Landings statistics data for Dutch-registered vessels including landing year; vessel length category; ICES rectangle; vessel/gear type; species; and landings (€).	Landings data provided by Wageningen University and Research (WUR) provides the top ten species by ICES rectangle for each year. The top ten species are not necessarily consistent across each year. The data were analysed by selecting the species in the top ten for each year between 2017 and 2021, with all other species included in the “other” category.
Dutch Fishing Activity for vessels over 12m in length (**Appendix 4.9.A: Commercial Fisheries Technical Report**)	2017 - 2021	Dutch VMS data combined with logbook data presented at 1/16th of an ICES rectangle scale.	Includes information for Dutch registered vessels over 12 m in length. The data included in this report are presented as an annual average of fishing value (€) for the period 2017 to 2021.
European Fishing Vessels automatic identification system (AIS) data (Ref 9.25)	2021	Spatial distribution of average annual fishing effort (mW fishing hours) for all European Fishing Vessels.	EMODnet Human Activities deals with a diverse set of marine and maritime human activities. Thus, the data come from a multitude of public and private data sources at EU, international, national, and local level. The datasets on fishing intensity in the EU waters were created in 2021 by the International Council for the Exploration of the Sea (ICES). The available data includes tracks of vessels at all speeds, meaning both steaming and fishing activity will be combined within the same data.

Forecasting methods

4.9.4.5 To forecast the future commercial fisheries value and activities, and any potential impacts upon them, first the likely baseline in the absence of the development is considered. This was based on assumptions of distribution and seasonality of landed target species and fishing methods in the absence of the development, using trends recorded in previous years. This information was supplemented with the results from engagement with local stakeholders with either knowledge of the Study Area, and/or fishers active within the Study Area.

4.9.4.6 Impact likelihood and significance were assessed using the latest available data and literature with consideration of published guidance, and the application of professional judgement.

Assessment Criteria

4.9.4.7 **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology** sets out the overarching approach that has been used in developing the preliminary environmental information. The identification and appraisal of effects and mitigation are based on expert judgment and follow relevant available guidance.

4.9.4.8 The potential magnitude of environmental feature sensitivity and potential effects have been appraised using similar terminology outlined in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**, tailored with specific reference to aspects of relevance to commercial fishing as outlined below.

Sensitivity

4.9.4.9 The assessment of sensitivity will be made with consideration of:

- operational range: extent of the area over which vessels normally operate;
- operational versatility: ability to deploy different fishing methods/target different species;
- adaptability: ability of vessels to adapt to the potential impact. Degree to which fishing vessels are able to avoid or adapt to changing circumstances, including their capacity to accommodate change; and
- importance: the economic value of the fishery in the area around the Project.

Magnitude

4.9.4.10 The assessment of magnitude will be made with consideration of:

- area affected: extent of area affected in the context of available grounds and level of fishing activity that the area affected sustains;
- duration and frequency: time and frequency of the effect; and
- liaison and management: range of fisheries liaison and management measures that are implemented as part of the Offshore Scheme.

Significance of effects

4.9.4.11 As set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology** the general approach taken to determining the significance of effect in this preliminary

assessment is only to state whether effects are likely or unlikely to be significant, rather than assigning significance levels.

Assumptions and Limitations

4.9.4.12 In addition to the assumptions and limitations regarding data sources listed in Table 4.9.6, the following should be noted:

- It is assumed that exclusion zones communicated to fishers and maintained by guard vessels around the construction, maintenance, and any decommissioning works will consist of a ~500 m area around the portion of the cable route being laid/maintained/decommissioned. This will be maintained 24 hours a day 7 days a week (as detailed for construction works in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**) and exist on a 'rolling' basis as works progress along the cable route.
- It is also assumed that where anchoring in shallow water is required, exclusion zones may be up to 1000 m – 1500 m when accounting for the area around the installation vessel and anchor lines.

4.9.5 Basis of Assessment

4.9.5.1 This section sets out the assumptions that have been made in respect of design flexibility maintained within the Proposed Project and the consideration that has been given to alternative scenarios and the sensitivity of the preliminary assessment to changes in the construction commencement year.

4.9.5.2 Details of the available flexibility and assessment scenarios are presented in **Volume 1, Part 1, Chapter 4 Proposed Project Description** and **Part 1, Chapter 5 PEIR Approach and Methodology**.

Flexibility Assumptions

4.9.5.3 The main preliminary assessments have been undertaken based on the description of the Proposed Project provided in **Volume 1, Part 1, Chapter 4 Description of the Proposed Project**. To account for the flexibility allowed in the Proposed Project, consideration has been given to the potential for preliminary effects to be of greater or different significance should any of the permanent or temporary infrastructure elements be moved within the Limits of Deviation (LoD) or draft Order limits.

4.9.5.4 The assumptions made regarding the use of flexibility for the main assessment, and any alternatives assumptions, are set out in Table 4.9.7 below.

Table 4.9.7: Flexibility assumptions

Element of flexibility	Proposed Project assumption for initial preliminary assessment	Flexibility assumption considered
Lateral LoD marine HVDC cable	The extent of the draft Order Limits for the Proposed Project (Offshore Scheme Boundary).	The worst-case scenario assessed for the Offshore Scheme is one bundled

Element of flexibility	Proposed Project assumption for initial preliminary assessment	Flexibility assumption considered
		HVDC (x2) and one fibre optic cable in one trench. This bundled scenario maybe placed anywhere within the Offshore Scheme Boundary.

Coordination Including Co-Location

4.9.5.5 The Proposed Project includes an option for co-location with National Grid Venture's proposed Nautilus and LionLink interconnector projects, as explained in **Volume 1, Part 1, Chapter 5 PEIR Approach and Methodology.**

4.9.5.6 Table 4.9.8 details where the option of co-location is relevant to Commercial Fisheries and how this option has been assessed and reported in section 4.9.9, preliminary assessment of effects.

Table 4.9.8: Consideration of co-location

Element of coordination	How it has been considered within the preliminary assessment
Suffolk landfall	**Sea Link Only** Four trenchless solution ducts (one per cable and one spare). **Sea Link (with co-location)** Up to ten trenchless solution ducts.

Sensitivity Test

4.9.5.7 It is likely that under the terms of the draft DCO, construction could commence in any year up to five years from the granting of the DCO which is assumed to be 2026. Consideration has been given to whether the preliminary effects reported would be any different if the works were to commence in any year up to year five. Where there is a difference, this is reported in section 4.9.9, preliminary assessment of effects.

4.9.6 Study Area

4.9.6.1 The fisheries data used in this PEIR chapter are primarily collected by national fisheries agencies. These data are organised spatially using the International Council for the Exploration of the Sea's (ICES) series of statistical rectangles. Therefore, the Study Area for commercial fisheries has been determined by the ICES rectangles which overlap with the Project.

4.9.6.2 The Offshore Scheme is located within the southern North Sea in ICES division IVc, within the 12 NM UK territorial limit, comprising the following rectangles (**Figure 4.9.3 Commercial Fisheries Study Area**):

- ICES rectangle 33F3 – encompasses the northern section of the Offshore Scheme including the northern landfall between Thorpeness and Aldeburgh.
- ICES rectangle 33F2 – encompasses the middle portion of the Offshore Scheme; and
- ICES rectangle 33F1 – encompasses the southern section of the Offshore Scheme, including the southern landfall at Pegwell Bay.

The Study Area has been used to identify fisheries activity relevant to the Offshore Scheme. To consider the context of these areas in relation to regional fishing practices, data for a wider area may also be considered as part of the PEIR, where necessary; for example, the neighbouring ICES rectangles directly adjacent to the Study Area or relevant bodies of water such as the Southern North Sea, or the English Channel.

4.9.7 Baseline Conditions

4.9.7.1 This section covers the commercial fisheries baseline for the Offshore Scheme. For the purposed of this PEIR chapter, some baseline information is included to provide context and may not be directly addressed in the preliminary assessment of impacts.

Overview of Principal Fishing Activity

4.9.7.2 Surveillance sightings data recorded between 2011 and 2021 (Ref. 9.20) provide an indication of the principal national fleets and fishing methods active in the Study Area. A detailed breakdown of these data is provided in Table 4.9.9. These data suggest the most southern ICES rectangle, 31F1, has relatively high fishing activity within the Study Area (**Figure 4.9.4 Surveillance sightings data**), with 33F1 having the least sightings.

4.9.7.3 Vessel tracking AIS data for fishing vessels of all nationalities in 2021 (Ref. 9.25) (**Figure 4.9.4 Surveillance sightings data**) reflects the surveillance sightings data to some extent, with the majority of tracks occurring within ICES rectangle 31F1, and track density reducing northwards through ICES rectangles 32F1 and 33F1. However, AIS data capture both steaming and fishing activity and may not accurately indicate fishing effort.

4.9.7.4 The surveillance sightings data suggest varying levels of activity by UK and non-UK vessels in the study area (Table 4.9.9). The vast majority of observations were of UK vessels (80.07 %). These were concentrated in ICES rectangles 31F1 and 32F1, within the 6 NM limit.

4.9.7.5 Non-UK vessels primarily comprised Belgian vessels (8.42 % of total observations) concentrated in ICES rectangle 32F1 and predominantly within the 12 NM limit, and French vessels (5.71 %) concentrated in the eastern part of ICES rectangle 31F1. Their presence is associated with their historic fishing rights in UK waters between 6NM and 12 NM limits. Dutch vessels (5.35 %) were concentrated in the eastern part of ICES rectangle 32F1. Again, associated with their historic fishing rights to access UK waters beyond the 12 NM limits. As such, their activity does not overlap with the cable route and therefore Dutch vessels will not be considered further.

4.9.7.6 German, Danish, Irish and Norwegian vessels have been recorded in the waters surrounding the Project, but they do not have rights to fish in UK territorial waters (i.e. within 12 NM), which makes up the majority of the Study Area. Therefore, these vessels will also not be considered further.

4.9.7.7 Surveillance sightings for all vessels show that throughout the Study Area the majority of vessels were trawlers (40.44 %, comprising demersal stern, beam, and all other trawlers), and potters/whelkers (20.98 %). The remaining gear types comprised gill and drift nets (14.59 %), dredgers (9.48 %), rod and line (8.83 %), and seiners (2.04 %).

Table 4.9.9: Surveillance sightings by nationality (2011 – 2021) (Ref.9.20)

Nationality	Vessel type	Total number of sightings within the Study Area across 2011-2021 period	% of total sightings within the Study Area
UK	Potter/whelker	360	20.92 %
	Demersal stern trawler	204	11.85 %
	Gill netter	197	11.45 %
	Rod and line	152	8.83 %
	Trawler (all)	146	8.48 %
	Other dredges (including mussel)	92	5.35 %
	Suction dredger	70	4.07 %
	Unknown	56	3.25 %
	Drift netter	54	3.14 %
	Beam trawler	30	1.74 %
	Bottom seiner (anchor/Danish/fly/Scots)	17	0.99 %
	Total UK	**1378**	**80.07 %**
Belgium	Beam trawler	94	5.46 **%**
	Trawler (all)	38	2.21 **%**
	Stern trawler (pelagic/demersal)	9	0.52 **%**
	Bottom seiner (anchor/Danish/fly/Scots)	3	0.17 **%**
	Potter/whelker	1	0.06 **%**
	Total Belgium	**145**	**8.42 %**
France	Trawler (all)	74	4.30 **%**
	Stern trawler (pelagic/demersal)	13	0.76 **%**

Nationality	Vessel type	Total number of sightings within the Study Area across 2011-2021 period	% of total sightings within the Study Area
	Unknown	7	0.41 %
	Beam trawler	2	0.12 %
	Suction dredger	1	0.06 %
	Purse seiner	1	0.06 %
	Total France	**98**	**5.71 %**
Other Nationalities (Dutch, German, Danish, Irish, Norwegian)	Beam trawler	73	4.25 %
	Bottom seiner (anchor/Danish/fly/Scots)	12	0.82 %
	Trawler (all)	8	0.47 %
	Stern trawler (pelagic/demersal)	5	0.29 %
	Total Other	**100**	**5.83 %**
Total		**1721**	

UK Fisheries

4.9.7.8 UK vessels account for the largest share of fishers utilising the Study Area, and are therefore, the most likely to be impacted by the Project. They are also the focus of the government's joint fisheries statement (JFS)[4] (Ref. 9.3). As such, they are considered the primary indicator of commercial fishing activities undertaken within the Study Area (**Figure 4.9.3 Commercial fisheries study area**). The following data are presented as an annual average for the period 2017 to 2021.

Fisher responses to engagement

4.9.7.9 Engagement with local fishers indicated that their fishing grounds are located within the 12 NM limit, and their effort is mainly focused within the 6 NM limit (details of engagement and responses can be found in **Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**). Vessel tracking AIS (Ref 9.25) data and estimated average travel distances per trip (Ref 9.26) suggest that UK vessels operational within the Study Area are expected to be based predominantly in the coastal areas adjacent to the Study Area.

4.9.7.10 Fishers also highlighted that many vessels are now multi-purpose; particularly trawlers are switching gear types seasonally; some to static methods. Additionally, in response to rising fuel costs many vessels are reducing their numbers of fishing trips or fishing more locally.

[4] The JFS sets out the policies for achieving the eight fisheries objectives in the Fisheries Act 2020. It aims to deliver a thriving, sustainable fishing industry, and healthy marine environment.

4.9.7.11 In terms of spatial distribution, consultees from trawling, potting, and netting vessels identified fishing grounds in the southern two thirds of ICES rectangle 33F1 and northern half of 32F1, which overlap with the cable route. Fishing grounds for static nets were also identified in 31F1, partially overlapping with the southern portion of the cable route, near the landfall (**Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**).

Landings data

4.9.7.12 The pattern of landings values for the ICES rectangles comprising the Study Area generally complement the surveillance data, with the highest landings by UK vessels recorded in ICES rectangle 31F1.

4.9.7.13 Landings data analysis (Image 4.9.1, Image 4.9.2, and **Figure 4.9.5 Landings (£) by fishing method and species (annual average 2017 - 2021**) (shows annual average value of landings by method and species for each ICES rectangle in the Study Area)) indicates that dredging for cockles accounts for the majority of the overall value of landings across the Study Area, representing an average landing value of ~£3,649,000 per year (Ref 9.18). This is followed by pots and traps targeting whelk (~£1,697,000) and edible crab and lobster (~£375,000 combined); and drift and fixed (gill) nets mainly targeting sole and bass (~£1,104,000 combined). Demersal seines and trawls were also prevalent, though these gears predominantly target horse mackerel in offshore areas not overlapping the cable route and land their catch primarily at EU ports.

4.9.7.14 Considering UK landings (Ref 9.18) by individual ICES rectangle, method and species indicates the following:

- The average yearly landings value for ICES rectangle 31F1 are approximately £5,570,000, making 31F1 the most valuable rectangle in the Study Area. Close to half of this value comes from dredges targeting cockles (Image 4.9.1, Image 4.9.2, and **Figure 4.9.5 Landings (£) by fishing method and species (annual average 2017 - 2021**). Pots and traps mainly targeting whelks are also substantial contributors to the landings from this rectangle. Around half of the landings in this rectangle come from vessels between 10 and 15 m in length. The remaining landings are split approximately fifty-fifty between vessels under 10 m and vessels over 15 m.
- The average yearly landings value of ICES rectangle 32F1 was approximately £2,739,000. More than half this value comes from dredges targeting cockles. Pots and traps targeting whelks, demersal trawls mainly targeting sole, and drift nets targeting bass and mackerel are also key contributors to the overall landings value. Notably, most landings were made from vessels between 10 m and 15 m in length, with vessels 10 m and under accounting for the remaining value. Landings from vessels over 15 m were insignificant in comparison.
- ICES rectangle 33F1 has an average yearly landings value of approximately £715,430. Pots and traps targeting whelk dominate the overall landings value for 33F1, with drift and fixed nets, mainly targeting bass and sole, representing the other key fishery. The vast majority of landings from this rectangle are from vessels under 10 m in length, with the remaining small proportion of landings made by vessels between 10 m and 15 m.

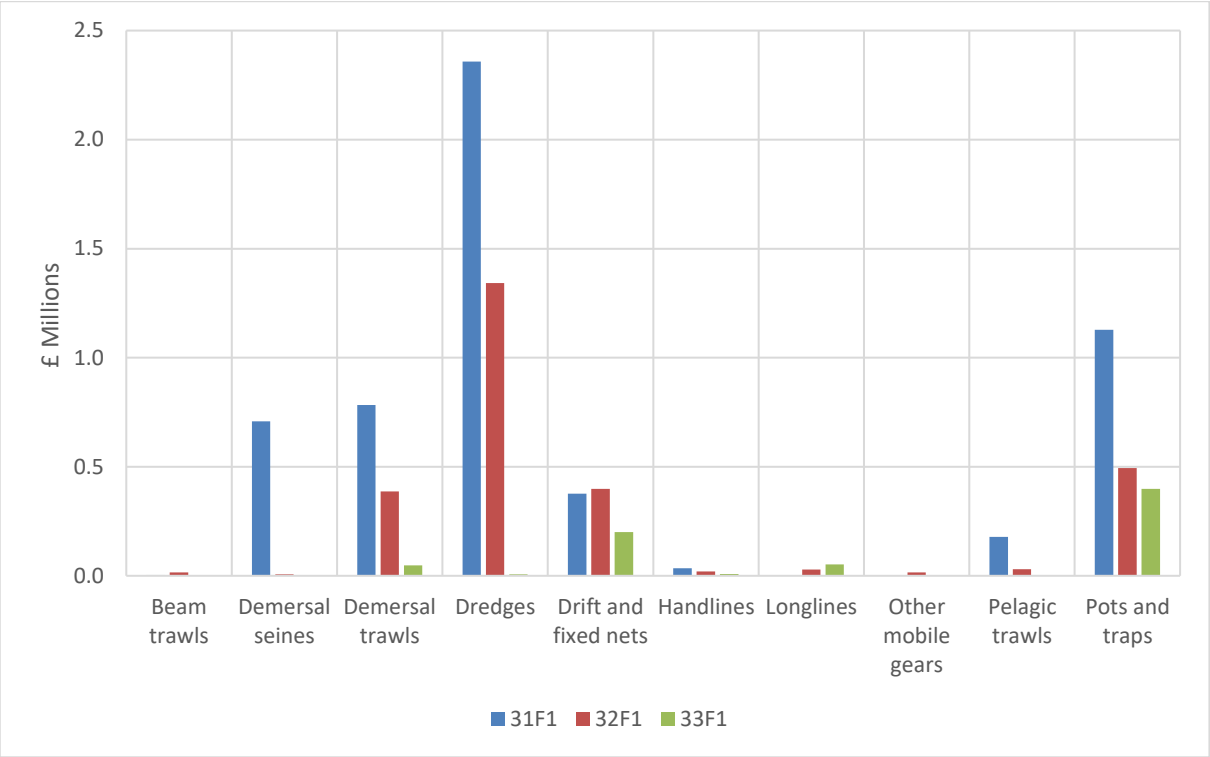

Image 4.9.1 Average Value of Gear Type by ICES Rectangle - UK Vessels (2017 – 2021)

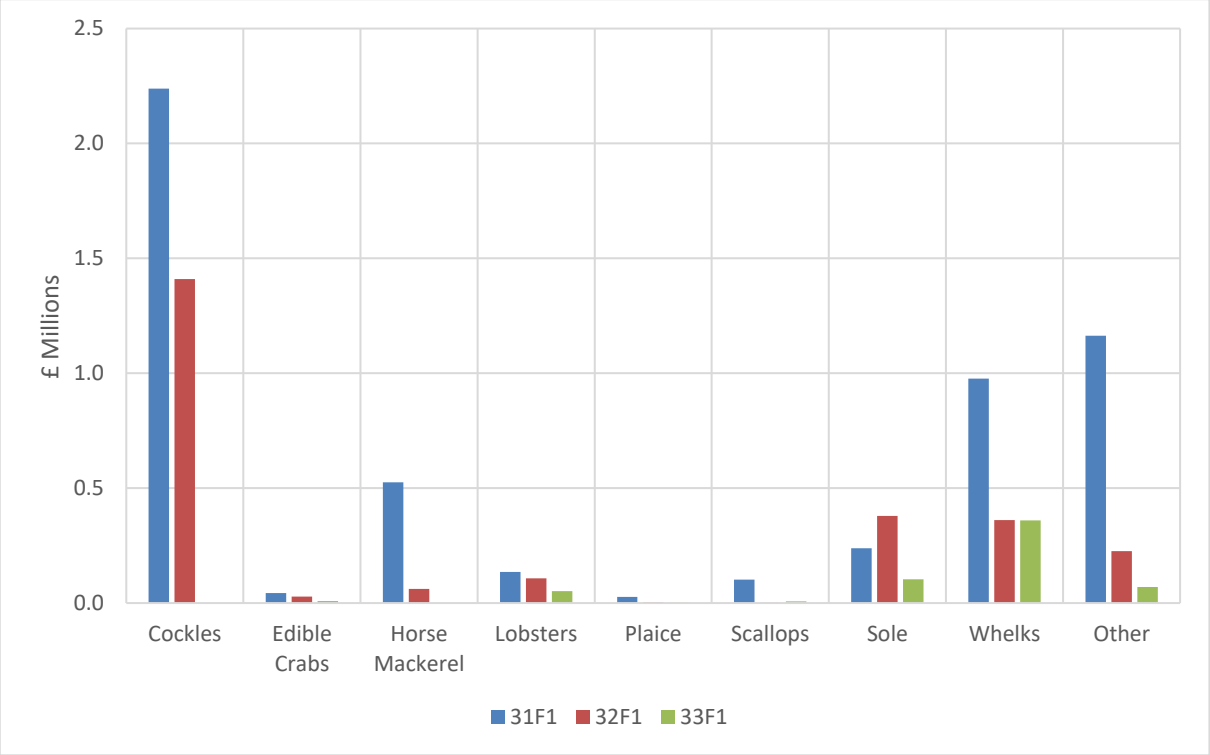

Image 4.9.2 Average Value of Species Type by ICES Rectangle (2017 – 2021)

4.9.7.15 Landings data for the UK (Ref 9.18) shows that the Study Area represents a valuable source of landings for local ports. As detailed in Table 4.9.10 at the top five UK ports for average annual landings from ICES rectangles 31F1, 32F1, and 33F1, these rectangles account for between 45 % and 98 % of those ports total annual value.

Table 4.9.10: Top five ports by average annual landings from the Study Area (2011 – 2021) (Ref.9.18)

Ports with landed catches from the Study Area	Average Annual Landings from the Study Area	% of Annual Value from the Study Area	Total Average Annual Port Value	% Total Annual Port Value that the Study Area Represents
Whitstable	£2,755,910.21	30.53 %	£2,944,138.15	93.61%
Ramsgate	£758,529.03	8.40 %	£836,499.87	90.68%
Queenborough	£732,132.42	8.11%	£1,156,900.78	63.28%
Folkestone	£573,499.95	6.35%	£586,742.63	97.74%
Lowestoft	£548,423.83	6.08%	£1,218,990.63	44.99%

Key Fishing Gears and Operating Patterns

4.9.7.16 It is expected that most UK fishing vessels active in the study area are locally based (Ref 9.25). Consultations were held with local fishers from coastal communities active within the Study Area. Fishers stated that they mainly accessed fishing grounds within the 12 NM limit, predominantly within the 6 NM limit. It was also communicated that with fuel prices increasing many vessels now switch between multiple gear types. Commonly, trawlers are switching to static gears, such as pots or nets, and are active more locally than before, reducing travel times and numbers of trips. Descriptions of the key gear types active within the Study Area are presented below.

Dredging

4.9.7.17 Dredging for cockles accounts for approximately 40 % (~£3,649,000) of the overall average yearly landings value for the Study Area. Landings are almost exclusively from within ICES rectangles 31F1 and 32F1; within the KEIFCA. Cockle dredgers in this region mostly comprise vessels between 10-15 m in length. These vessels predominantly access the Thames Estuary Cockle Fishery using hydraulic suction dredgers. This gear is towed at 2 – 6 knots; penetrating the seabed by ~5 cm and using a water jet to disturb the sediment (Ref 9.27). The catch is then pumped from the dredge basket underwater while under tow, and up through a sorting riddle on the deck of the vessel.

4.9.7.18 There is clear seasonality in cockle landings (Ref 9.18), linked with the opening and closing of the cockle fisheries, under TECFO. As such, landings peak between June and September, before decreasing in winter, and not being landed between February and April (Image 4.9.3).

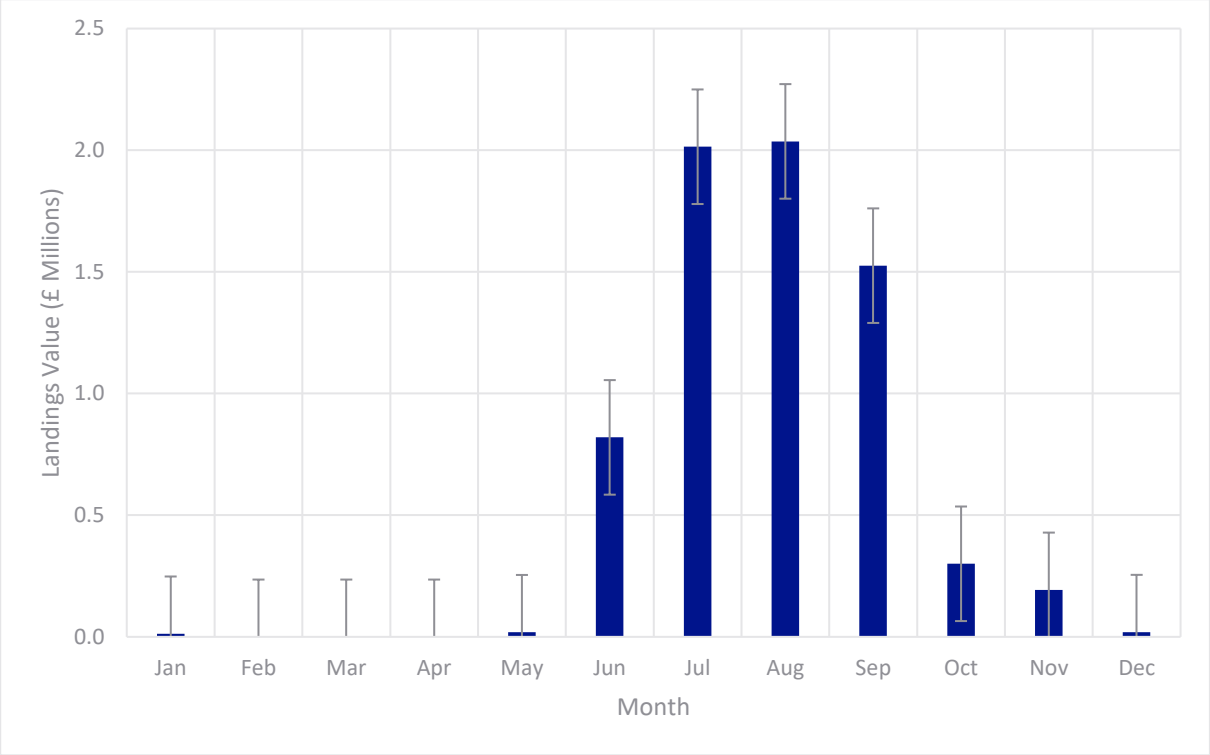

Image 4.9.3 Average (with standard error) monthly cockle landings from the Study Area (2017 - 2021)

4.9.7.19 With regard to the Offshore Scheme, surveillance sightings (**Figure 4.9.4 Surveillance sightings data**) suggest that dredgers focus their efforts within the Thames Estuary, with little to no overlap with the proposed cable route. This aligns with the proposed cable route being located outside of the TECFO areas.

Pots and Traps

4.9.7.20 Pots and traps account for approximately 22 % (~£2,020,900) of the average yearly landings value for the Study Area. By far the main species targeted by pots and traps in the Study Area are whelk, which represent approximately 18 % (~£1,697,100) of the average yearly landings value in the Study Area, across gear types. Lobster and edible crab are also targeted with pots and traps in the Study Area but account for approximately 4 % of overall average yearly landings value for the Study Area.

4.9.7.21 Whelks are commonly targeted using vessels that are under 15m in length, with landings value split between vessels under 10m and 10-15m. Distinctively, whelk pots are modified plastic drums, a custom pot compared to traditional pots used to target lobster and crab. These pots are rigged in strings of up to 80 pots, between 100 m and 500 m in length, and left to soak for 12 to 48 hours. Whelks are also landed via drift nets and fixed nets, albeit relatively insubstantial amounts, compared to pots (<2 % of the average annual value of whelk landings from the Study Area).

4.9.7.22 Whelks are caught year-round (Ref 9.18), peaking between March and July (Image 4.9.4). Edible crab and lobster are also targeted year-round, with peaks during the summer months.

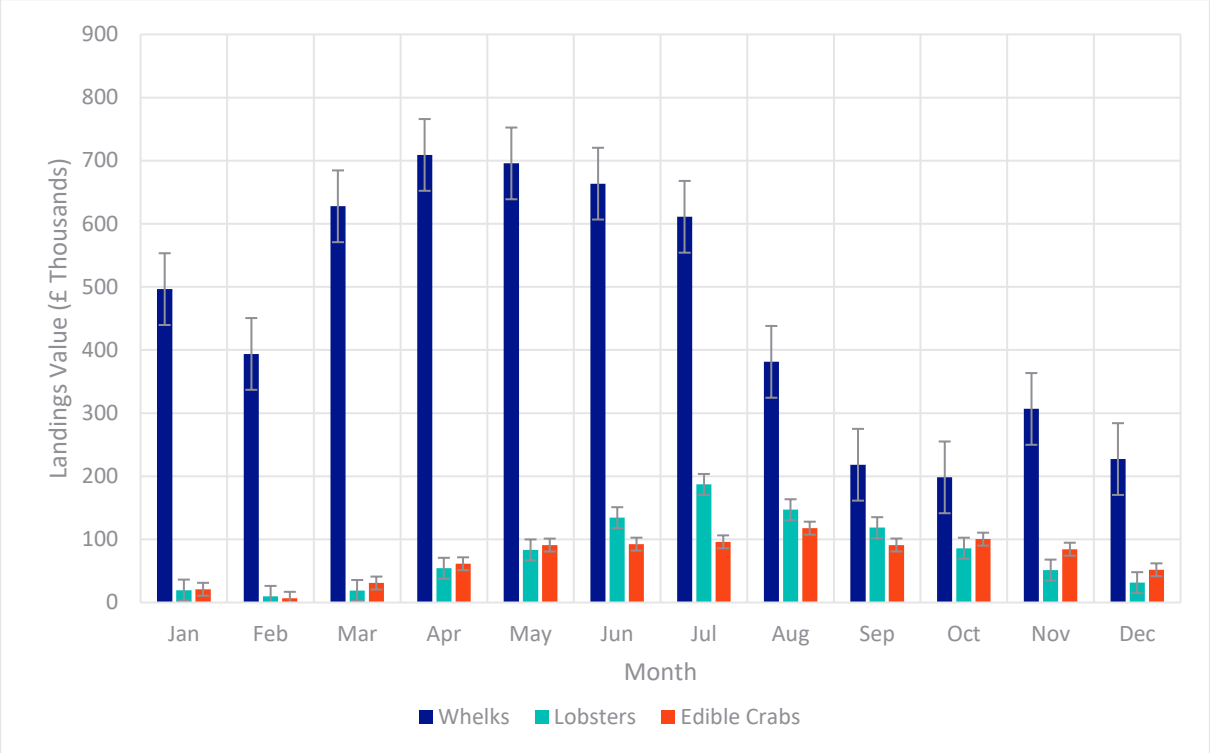

Image 4.9.4 Average (with standard error) monthly landings of species targeted by pots and traps from the Study Area (2017 - 2021)

4.9.7.23 With regard to the Offshore Scheme, surveillance sightings (**Figure 4.9.4 Surveillance sightings data**) suggest that potting is focussed along the coastline, predominantly in ICES rectangle 31F1. Key areas appear to be along the north Kent coastline (southern Thames Estuary), and eastward of St Margaret's at Cliffe on the south Kent coastline. There is some overlap of potting activity in the southern portion of the Offshore Scheme, eastward of Margate, and to a lesser extent around the landfall in Pegwell Bay.

Demersal Trawls and Seines

4.9.7.24 Combined, demersal trawls and seines account for approximately 21 % of the overall average yearly landings value for the Study Area between 2017 and 2021 (Ref 9.18). The primary demersal target species landed from the Study Area was horse mackerel.

4.9.7.25 Landings from demersal trawls and seine nets were predominantly made in foreign ports (Ref 9.18) by vessels over 15 m in length. Between 2017 and 2021 the top four ports in the Study Area (measured by total landed value) for these gears were: Scheveningen in the Netherlands (~43 %); Boulogne, France (~31 %); Oostende, Belgium (~16 %); and Vlissengen, The Netherlands (~7 %). All UK ports with landings records for demersal trawls and seines accounted for <1 %.

4.9.7.26 For horse mackerel, the highest value of landings were between October and December, with the lowest between March and August (Image 4.9.5). However, the vast majority of landings value for these fisheries at UK ports were recorded prior to Brexit and the early data trends suggest the importance of these fisheries may have substantially diminished after 2020 (Ref 9.18).

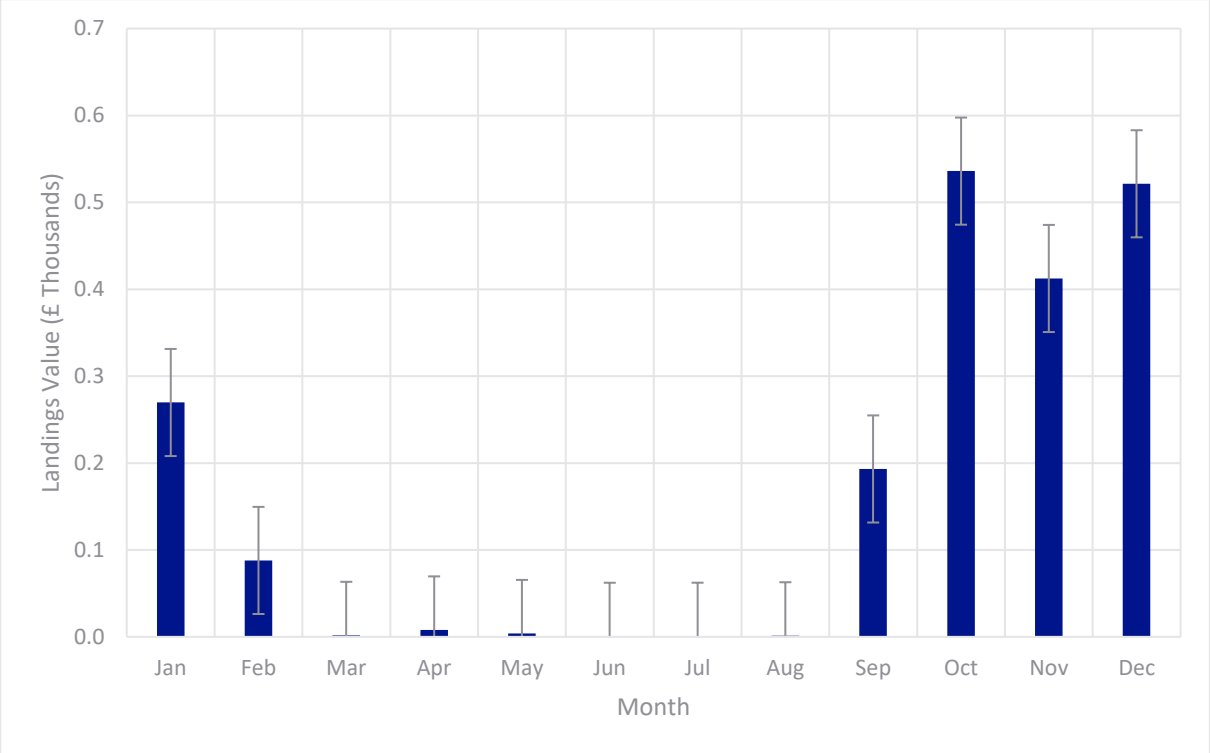

Image 4.9.5 Average Monthly Landings (with standard error bars) of horse mackerel from the Study Area (2017 - 2021)

4.9.7.27 With regard to the Offshore Scheme, surveillance sightings (**Figure 4.9.4 Surveillance sightings data**) suggest there is overlap between trawlers (all) and the proposed cable route. Consultation with local fishers also indicates that trawler activity overlaps with the northern half of the cable route.

Netting

4.9.7.28 Landings from netting account for approximately 11 % (~£975,700) of the overall average yearly landings value for the Study Area. Both fixed and drift nets are deployed predominantly in coastal areas around the cable route. Sole, bass, and plaice are the most valuable species landed via nets.

4.9.7.29 Landings data do not differentiate between fixed and drift net types, but surveillance sightings data suggest gillnets are likely the most commonly used net within the Study Area (Ref 9.20). Strings of gillnets are usually joined together in a series of four to six 500m monofilament nets; these can either be fixed or drifting. Other drift nets are also in use but appear to be much less popular (Ref 9.18). Fixed nets are usually set during neap tides, whereas drift nets are deployed throughout the tidal cycle and left for three to six hours to drift with the tidal current; both methods are commonly deployed from vessels less than 10 m in length.

4.9.7.30 All three target species are landed year-round, with sole the most valuable in the Study Area, followed by bass (Image 4.9.6). The highest value of sole landings is recorded between August and November. Bass seasonality corresponds with the bass season opening on the 1st of April, resulting in landings of bass at negligible levels in February and March, then peaking in April and May. The value of plaice landed is reasonably consistent throughout the year.

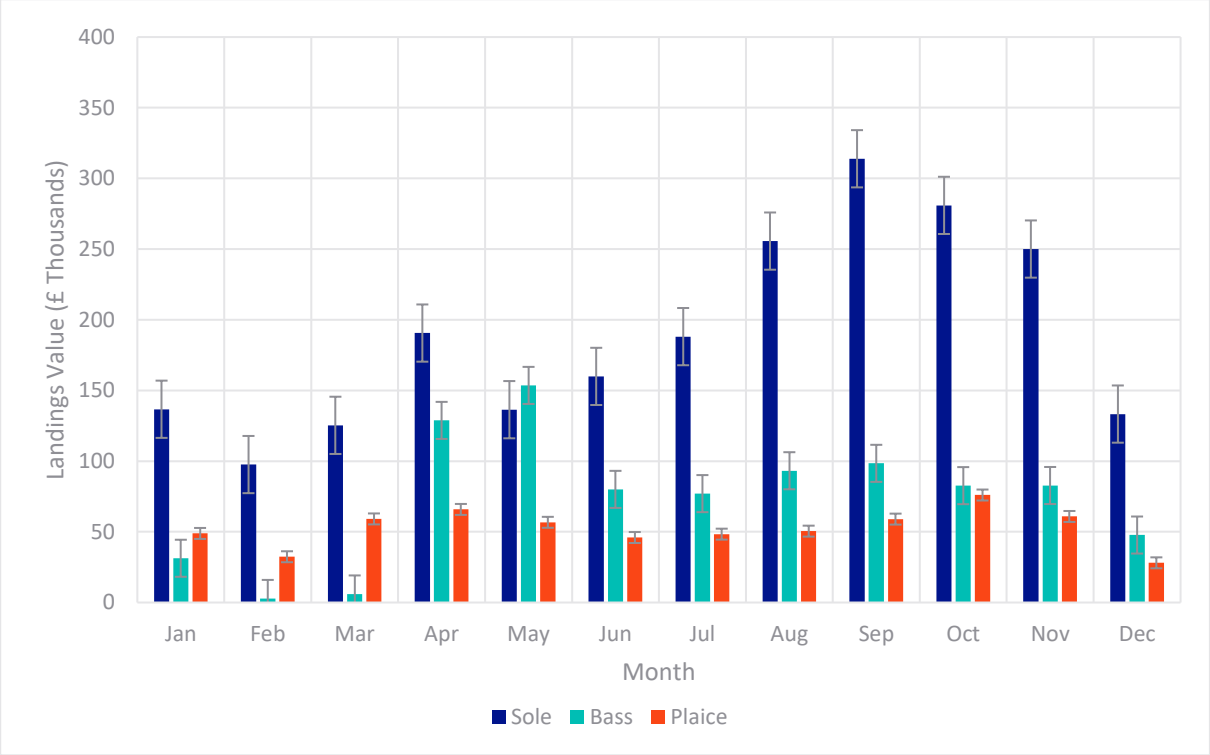

Image 4.9.6 Average (with standard error) monthly landings of species targeted by fixed and drift nets from the Study Area

With regard to the Offshore Scheme, surveillance sightings (**Figure 4.9.4 Surveillance sightings data**) suggest that the majority of fixed and drift nets are deployed in ICES rectangle 31F1, with efforts evenly but relatively sparsely spread throughout 32F1 and 33F1. Deployment falls within close proximity of the proposed cable route in the north of 32F1, but the greatest overlap is in the southern portion of the Offshore Scheme, eastward of Margate.

Non-UK Fisheries

4.9.7.31 Though sightings data (Ref 9.19) show UK vessels to represent the vast majority of fishing vessels in the Study Area, surveillance (**Figure 4.9.4 Surveillance sightings sata**) and landings data (Ref 9.22; Ref 9.23; and Ref 9.24) also suggest that offshore areas are of importance to Belgian vessels, and to a lesser extent French vessels. These comprise predominantly of demersal and beam trawlers, mostly of Belgian origin (Table 4.9.9).

Key Fishing Gears and Operating Patterns

4.9.7.32 In addition to surveillance data (Ref 9.20) VMS data available for Belgian vessels (Ref 9.23); **Volume 2, Appendix 4.9.A: Commercial Fisheries Technical Report**) provide further insight into the distribution of fishing vessels using demersal and beam trawls. However, it must be noted that only vessels over 12 - 15 m in length (dependant on source) are included and this does not distinguish between vessels steaming and those with gear in the water. VMS data were not available for French vessels at the time of writing.

Beam Trawlers

4.9.7.33 Annual average landings data indicate that beam trawling is a valuable fishing method for Belgian trawlers throughout the North Sea and English Channel. VMS data for Belgian beam trawlers show widespread distribution of vessels including some relatively high activity to the east of the Study Area, overlapping with the Offshore Scheme; mainly ICES rectangle 31F1 and 32F1 (**Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**). Fisher responses to engagement suggest that ~10 Belgian vessels are highly active within the Study Area, between 6 NM and 12 NM for the first six months of the year. However, the areas overlapping the Offshore Scheme are not the most valuable portions of beam trawler distribution (ILVO. 2015 (9.23). Surveillance sightings data for trawlers (all) (MMO 2022 (Ref. 9.20)), indicate that the highest densities of sightings are outside of the Study Area in the English Channel, with some moderate activity in the north eastern corner of ICES rectangle 31F1 and south eastern corner of 32F1 (**Figure 4.9.4 Surveillance sightings data**).

Demersal trawls and seines

4.9.7.34 VMS and landings data for Belgian vessels (Ref 9.22; Ref 9.23) indicate that otter trawls are active within the Study Area, predominantly in ICES rectangle 32F1, overlapping with the Offshore Scheme (**Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**)**.** While targeting similar species to beam trawling, the average value of demersal trawls is overshadowed by that of beam trawling, making up less than half of the average landings value for ICES 32F1, and an insignificant amount of the average landings value for ICES 31F1. On the other hand, negligible effort and landings appear to be made by seines within the Study Area.

4.9.7.35 Landings data for French vessels (Ref 9.24) indicate bottom trawl and seine activity in ICES rectangle 31F1. However, the value, of these activities is highest outside of the Study Area, in the English Channel (**Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**). Surveillance sightings suggest that are mainly to the east of ICES 31F1, and do not overlap with the Offshore Scheme.

Key Receptors

4.9.7.36 In light of the above baseline data, potential impacts to commercial fisheries will be assessed for the following receptor groups which have been identified as important for the project Study Area:

- **Mobile gear fisheries** – comprising dredgers, beam trawlers, and demersal trawls and seines; and
- **Static gear fisheries** – comprising pots and traps, and netting.

Future Baseline

4.9.7.37 The baseline set out above details the principal fishing fleet and activity at the time of writing. To determine the future baseline in the absence of the development, distribution and seasonality of landed target species and fishing method would ordinarily be used, along with assessment of general market demand and value; ultimately with the assumption that trends recorded in previous years would remain consistent.

4.9.7.38 However, with less than two full years of data for post-Brexit landings, and uncertainty surrounding the exact details and nuances of the future UK-EU relationship, it is difficult to make robust predictions regarding the long-term value of these fisheries. Also, as the transitional Trade and Cooperation Agreement between the UK and EU expires in

2026 (Ref 9.28) the future fishing quota split between the UK and EU, despite historic fishing rights for Belgian and French vessels, is unknown. Additional information available at the time of writing of the ES will be reviewed, together with previous fisheries trends considered, using a precautionary approach.

4.9.7.39 In terms of national fishing legislation and policy relevant to the Study Area, the Thames Estuary Cockle Fishery Order 1994 (TECFO) will end in September 2024. This presents the opportunity for the current management of the fishery and its legislation to be reviewed (Ref 9.29) with, at the time of writing, the fourth round of consultation with stakeholders currently underway. As a result, cockle fisheries are likely to become increasingly important under the TECFO 2024 regulation order, as fishing grounds are likely to become increasingly available to smaller fishing vessels (KEIFCA 2023, personal communication, 28 March (**Volume 2, Appendix 4.9.A: Commercial Fisheries Technical Report**)). This is due to the current TECFO ending and cockle stocks management across the whole KEIFCA district will be reassessed (Ref 9.30).

4.9.8 Mitigation

4.9.8.1 As set out in **Volume 1, Part 1, Chapter 5, PEIR Approach and Methodology**, mitigation measures typically fall into one of the three categories: embedded measures; control and management measures; and mitigation measures.

Embedded Measures

4.9.8.2 Embedded measures are integral to reducing the effects of the Proposed Project to commercial fisheries. Measures that that have been incorporated are:

- Sensitive routeing and siting of infrastructure and temporary works;
- Commitments made within **Volume 2, Appendix 1.4.F Outline Schedule of Environmental Commitments**.

Control and Management Measures

4.9.8.3 The following measures have been included within **Volume 2, Appendix 1.4.A Outline Code of Construction Practice** relevant to the control and management of impacts that could affect commercial fisheries receptors:

- GM02 - As-built locations of cable and external protection will be supplied to UKHO (Admiralty) and Kingfisher (KIS-ORCA), for inclusion on maritime charts;
- GM03 - An offshore Construction Environmental Management Plan (CEMP) including an Emergency Spill Response Plan and Waste Management Plan, Marine Pollution Contingency Plan (MPCP), Shipboard Oil Pollution Emergency Plan (SOPEP) and a dropped objects procedure will be produced prior to installation;
- LVS02 - All project vessels must comply with the International Regulations for Preventing Collisions at Sea (1972) (Ref 9.31), regulations relating to International Convention for the Prevention of Pollution from Ships (the MARPOL Convention 73/78) (Ref 9.32) with the aim of preventing and minimising pollution from ships and the International Convention for the Safety of Life at Sea (Ref 9.33);

- MPE02 - The minimum depth of lowering (DOL) to the top of the cable is 0.5 m (in areas of bedrock), with a target DOL for the Proposed Project approximately 1.5 m to 2.5 m, to be achieved where possible dependant on the seabed geology.
- MPE03 - Cable protection features (e.g. rock placement, mattresses and grout bags) will be installed only where considered necessary for the safe operation of the Project;
- SN01 - A risk based burial approach will be used where cables will be buried to a minimum DOL to the top of the cable of 0.5 m (in areas of bedrock), with a target DOL for the Proposed Project of approximately 1.5 m to 2.5 m, assessing cable protection risk factors such as sediment type, shallow geology, sediment mobility, fishing activity, shipping movements and anchor deployment along the route;
- SN02 - Relevant information will be communicated to other sea users via Notices to Mariners (NtM), Radio Navigation Warnings Navigational Telex (NAVTEX) and/or broadcast warnings;
- SN04 - Temporary aids to navigation will be used as required to guide vessels around areas of installation activity;
- SN06 - Guard vessel(s), using RADAR with Automatic RADAR Plotting Aid (ARPA) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during cable installation works;
- CF01 - A Fisheries Liaison Officer (FLO) and fisheries working group(s) will be maintained throughout installation to ensure project information is effectively disseminated to ensure a dialogue is maintained with the commercial fishing industry and access to home ports remains during the main fishing season;
- CF02 - Timings of any temporary areas of exclusion from fishing grounds will be clearly communicated via a notice to mariners; and
- CF03 - Berms will be installed where cable protection is necessary. These will be designed with a 1:3 profile and flat crests, intended to prevent the risk of fishing gears snagging;
- CF04 - A procedure for the claim of loss of/or damage to fishing gear will be developed; and
- OSU02 - Timely and efficient communication will be given to sea users in the area via Notices to Mariners, Kingfisher Bulletins, Navigational Telex (NAVTEX) and Navigational Areas (NAVAREA) warnings.

Mitigation Measures

4.9.8.4 Mitigation measures are additional topic and site-specific measures that have been applied to mitigate or offset any likely significant effects. After the application of the aforementioned embedded and control measures, no additional mitigation measures or monitoring have been recommended as a result of the impact appraisal.

4.9.9 Preliminary Assessment of Effects

4.9.9.1 The preliminary assessment of the effects of the Offshore Scheme reported in this section considers the embedded, control and management measures described in section 4.9.8.

4.9.9.2 For the sensitivity test outlined in section 4.9.5, preliminary effects reported would not be any different if the works were to commence in any year up to year five.

4.9.9.3 The preliminary effects reported below are the same for the Proposed Project on its own, and the Proposed Project with co-location.

Construction Phase

4.9.9.4 Details of project construction methods are provided in **Volume 1**, **Part 1, Chapter 4, Description of the Proposed Project**.

4.9.9.5 Table 4.9.11 presents the preliminary assessment of commercial fisheries effects.

Table 4.9.11: Preliminary assessment of commercial fisheries effects during the construction phase

	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries
Potential Impact	**Obstruction of navigation routes to commercial fishing grounds** The presence of cable installation vessels, repair and decommissioning vessels could result in the temporary disruption to fisheries navigation routes (see: **Volume 1, Part 4 Chapter 8: Shipping and Navigation**).
Proposed Project phase	Construction phase
Duration	Predominantly during cable installation, which is anticipated to take around 15 months, though all vessels will be moving along the Offshore Scheme so local presence is very short.
Mitigation	SN01, SN02, SN04, CF02, CF03, and OSU02.
Preliminary sensitivity	The baseline evidence suggests that a large proportion of fishing activity in the Study Area takes place landward (west) of the Offshore Scheme Boundary; within the 6 NM limit (**Figure 4.9.4 Surveillance Sightings Data**). Additionally, there is relatively limited overlap between the Offshore Scheme and key active fishing grounds, with the majority of vessel sightings away from the proposed cable route. Consultations with local fishers indicate that the northern half of the cable route is considered fishing grounds important for pots, nets, and trawling (**Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**). Whereas the mo st southern quarter of the Offshore Scheme, located in ICES rectangle 31F1, has the greatest density of overlap between fishing activity and the proposed cable route. In both cases the Offshore Scheme comprise a small part of what appear to be widespread fishing grounds. It is unlikely that vessels based at local ports landing catches from the Study Area (Table 4.9.10) will need to cross over

	the Offshore Scheme, as they would be able to reasonably access alternative grounds nearby without doing so. Furthermore, timely communication regarding the installation activities and exclusion zones will be provided via Kingfisher Bulletins, Navigational Telex (NAVTEX) and Navigational Areas (NAVAREA) warnings. A Fisheries Liaison Officer (FLO) will also disseminate information and maintain dialogue with fishers during the construction phase. As such, fishers will be afforded ample time to plan their routes to minimise any potential impact to their fuel costs that the temporary works could cause. Thus, in light of the range, versatility, and adaptability of fishers in the Study Area the sensitivity of commercial fisheries to obstruction to navigational routes and fishing grounds is considered to be low for all commercial fishery receptors.
Preliminary magnitude	It is likely that the vast majority of vessels landing catches from the Study Area will not need to cross over the Offshore Scheme as there is good availability of alternative fishing grounds landward of the proposed cable route. Despite this, a small proportion of the total number of vessels could be obstructed by installation activities, most likely vessels based in Ramsgate during installation at the southern landfall at Pegwell Bay. However, since the installation activities will be temporary and short term in any one location, any areas of exclusion will also be localised. There will also be clear and timely communication between the FLO and fishers (as detailed above). Thus, in light of the area of effect and duration of installation activities, and planned liaison with fishers, the magnitude of impact to commercial fisheries resulting from obstruction to navigational routes and fishing grounds is considered to be **small** for all commercial fisheries receptors.
Preliminary likely significance of effect	The effects of obstruction to navigational routes and fishing grounds are considered **not significant** for both mobile and static gear fisheries.
Confidence in prediction	High based on measures adopted and knowledge of fishing activity in the Study Area
	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries
Potential impact	**Direct loss and alteration of fishing grounds** The direct loss of fishing grounds is primarily associated with loss of access to fishing grounds during installation activities. During construction all fishing activity will be temporarily excluded from discrete areas by guard vessels around cable laying vessels, support vessels, and sections of temporarily exposed cables (**Volume 1, Part 1, Chapter 4, Description**

	of the Proposed Project). Moreover, the extent of the Offshore Scheme Boundary will need to be clear of static fishing gear during the construction phase. Restricted access to fishing grounds has the potential to affect fisheries that may be unable to access their preferred/most valuable grounds for specific periods of time.
Proposed Project phase	Construction phase
Duration	During cable installation and protection activities
Mitigation	MPE02, MPE03, SN01, SN02, SN04, SN06, CF02, CF03, and OSU02
Preliminary sensitivity	For the majority of the cable route, the baseline evidence suggests that there is limited overlap between the Offshore Scheme Boundary and active fishing grounds through ICES rectangles 32F1 and 33F1 (**Figure 4.9.4 Surveillance sightings data**). Consultations with local fishers indicate that the northern half of the cable route is considered to be fishing grounds important for pots, nets, and trawling (**Volume 2, Appendix 4.9.A, Commercial Fisheries Technical Report**). Whereas the most southern quarter of th e Offshore Scheme, located in ICES rectangle 31F1, has the greatest density of overlap between fishing activity and the proposed cable route. Additionally, In both cases the Offshore Scheme comprise a small part of what appear to be widespread fishing grounds. It is currently planned for approximately 13.2 km of berms, designed with a 1:3 profile and flat crests, intended to prevent the risk of fishing gears snagging (**Volume 1, Part 1, Chapter 4, Description of the Proposed Project**). Receptor sensitivity to temporary loss of fishing grounds are discussed below. *Mobile gear fisheries* Cockle dredgers account for the greatest value fishery in the Study Area. The majority of dredging effort in the region takes place outside the western boundary of the Study Area, with surveillance sightings data suggesting dredgers (and trawlers which may include dredges under tow at the time of sighting) concentrate their efforts to the west of ICES rectangle 31F1. This activity has minimal overlap with the Offshore Scheme (**Figure 4.9.4 Surveillance sightings data**). These operating patterns reflect the cockle fishing grounds in ICES rectangle 31F1, that are part of the CFFP bylaw, and overlap with the Offshore Scheme (**Figure 4.9.2 Cockle management areas**). As such, these grounds do not open every year, and when open they are only accessible to permit holders (often only for one trip per year). Additionally, there are other cockle fishing grounds available within ICES rectangle 31F1 (both CFFP and TECFO) areas, none of

which are in the vicinity of the Offshore Scheme. No CFFP or TECFO cockle fishing grounds overlap with the Offshore Scheme outside of ICES rectangle 31F1.

With consideration of the localised operational range of cockle fishing vessels, and cockle fishing grounds being mostly limited in extent to the Thames Estuary and surrounding coasts, there are still ample fishing grounds available to any vessels affected by localised exclusion zones around the installation works.

Additionally, with the restricted access to CFFP grounds around the Offshore Scheme; and the planned communication through notices to mariners and the FLO, the sensitivity of dredgers to the temporary loss of fishing grounds during construction is considered low.

As discussed in section 4.9.7 trawlers active in the Study Area are predominantly Belgian and French vessels landing catches at EU ports.

Notably, demersal and beam trawlers have a large operational range, covering much of the southern North Sea and the English Channel (**Appendix 4.9.A: Commercial Fisheries Technical Report**). The data show that the Offshor e Scheme overlaps with a small portion of their overall ranges , but higher or equally valuable areas are located away from the cable route. The current data also suggest that demersal trawl and seine landings from the Study Area may have diminished post-Brexit.

As such, trawlers are considered to be highly adaptable to the temporary loss of fishing grounds, due to the exclusion zone around the installation works, with little impact to landings. Moreover, with the implementation of a FLO and notices to mariners as mitigation, any potential effect to fishers will be minimised.

As such, the sensitivity of trawlers to the temporary loss of fishing grounds access during installation is considered to be negligible.

Static gear fisheries

Pots and traps are the second most valuable fishery in the Study Area. Surveillance sightings data suggest that pots and traps are mainly focused within the western and southern areas of ICES rectangle 31F1, within the 6 NM limit; predominantly in coastal waters (**Figure 4.9.4 Surveillance sightings data**)**.**

Surveillance sightings and consultation with local fishers indicate that there is likely some overlap between fishing activity and the Offshore Scheme, particularly in the northern half of the Study Area, and approaching landfall at Pegwell Bay (**Figure 4.9.4 Surveillance sightings data**).

It is considered that the majority of potting vessels will not need to adapt their fishing practices substantially due to their widespread operational range. However, considering the

	potential for individual vessels based in ports close to landfall to be affected more than others, the sensitivity of potting vessels to the temporary loss of fishing grounds during is considered medium. Fixed and drift nets are also able to adapt to temporary exclusions zones placed around the installation. The baseline data indicate gill netting efforts are concentrated within the 6 NM limit with some overlap with the Offshore Scheme in ICES rectangle 31F1 though there is relatively little activity with these gear types around the southern landfall (**Figure 4.9.4 Surveillance Sightings Data**). There are regionally spread fishing grounds in 31F1 and 32F1, away from the proposed cable route in both cases. With the short-term, localised and transitory nature of the installation works (and therefore the exclusion zones), and with effective communication measures planned to mitigate any potential effect to fishers, spatially and temporally, it is considered that the majority of netting vessels will be resilient and able to adapt their fishing practices temporarily. Thus, the sensitivity of netting vessels to the temporary loss of fishing grounds during installation is considered low.
Preliminary magnitude	All fishing activity will be temporarily excluded from discrete areas around the installation activities. In deeper waters guard vessels will maintain a localised exclusion zone around the vicinity of the installation vessels, support vessels, and areas of exposed cable. In shallower waters (<10 m depth) larger installation vessels will not be able to operate freely and may rely on a series on anchors for positioning. This may result in guard vessels maintaining extended exclusion zones for fishing around both landfall locations. Additionally, the offshore cable route will need to be clear of any static gears during the construction phase. This may result in non-placement or removal of pots and nets at some locations during specific periods of time. To minimise the magnitude of impact, timely communication will be upheld via the FLO and notices to mariners throughout the duration of installation activities. This will provide clear information to fishers and a point of contact, thus enabling them to understand exactly where and when per days will be introduced, and when restrictions will be lifted allowing fishing to resume. The installation works will be completed in sections with installations completed over 0.5 to 5 km a day, operating on a 24 hour, 7-day schedule. As such, exclusions zones will move with the installation vessels. This will minimise the duration of restricted access to fishing grounds as much as practicable. With the localised and transient nature of the exclusion zones the magnitude of impact from direct loss of fishing

	grounds is considered small for all commercial fisheries receptors.
Preliminary likely significance of effect	The effects of direct loss of fishing grounds on commercial fisheries differ by gear type, and are therefore, summarised below.

Receptor	Sensitivity	Magnitude of Impact	Likely Significance
Dredgers	Low	Small	Not Significant
Demersal and Beam Trawlers	Negligible	Small	Not Significant
Pots and Traps	Medium	Small	Not Significant
Drift and Fixed Nets	Low	Small	Not Significant

Confidence in prediction	Medium – This assessment is based on the currently published data, which do not capture post-Brexit or post-lockdown trends.
	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries
Potential impact	**Displacement of commercial fishing activities** Any loss or restricted access to commercial fishing grounds during installation of the HVDC cable could result in increased competition if vessels are displaced to alternative grounds and fisheries resources.
Proposed Project phase	Construction phase
Duration	Predominantly during cable installation and protection activities
Mitigation	SN01, SN02, SN04, CF02, CF03, and OSU02.
Preliminary sensitivity	The temporary lack of access to any fishing grounds that overlap the Offshore Scheme and the associated exclusion zones could result in displacement of fishing activity into other areas. For the majority of the cable route through ICES rectangles 32F1 and 33F1 (**Figure 4.9.4 Surveillance Sightings Data**), the baseline data suggest there is reasonably limited overlap between the Offshore Scheme Boundary and fishing grounds

	for pots, nets, and trawling (**Appendix 4.9.A: Commercial Fisheries Technical Report**). The greatest overlap appears to occur in the southern quarter of the Offshore Scheme, located in ICES rectangle 31F1. In all cases fishers appear to have a widespread operational range. Thus, individual vessels are considered adaptable, with a high likelihood of high availability of alternate fishing grounds for all overlapping gear types. Overall, vessels that deploy mobile gear appear to focus efforts away from the Offshore Scheme (**Figure 4.9.4 Surveillance Sightings Data**). Additionally due to their transient nature they are deemed to have high resilience to temporary displacement, in the context of this Project, particularly as fishers have communicated their ability to switch between gear types. Therefore, mobile gear fisheries are considered to have low sensitivity. For vessels that deploy static gear, there is greater potential for conflicts associated with displacement effects to arise. Gear may have to be temporarily relocated away from the Offshore Scheme into areas where other static gear are present, resulting in increased competition and conflict. Similarly, vessels deploying static gear may be displaced to areas where mobile gears are active, or conversely vessels deploying mobile gear may be displaced to areas where static gear are set, further increasing competition and conflict. Alternatively, fishers may have to set their gear in less productive areas, resulting in decreased yields. With this in mind, static gear fisheries are considered to have medium sensitivity.
Preliminary magnitude	It is difficult to predict exactly where fishing activity may be displaced to as a result of the installation activities, and how this may affect individual vessels. However, in all cases the level of displacement will vary based on the extent and duration of any loss or restricted access to fishing grounds. The baseline data suggest that all fishers have widespread fishing grounds, and that there is reasonably limited overlap with the majority of fishing activity (**Figure 4.9.4 Surveillance Sightings Data**). Notably, the installation works will be completed in sections with installations completed over 0.5 to 5 km a day, operating on a 24 hour, 7-day schedule (**Volume 1, Part 1, Chapter 4, Description of the Proposed Project**). This will minimise the duration of restricted access to fishing grounds as much as practicable. Furthermore, the potential increase in competition and conflict as a result of any displacement may have a regional effect. However, due to the localised nature of the installation works, and the associated exclusion zone, this is expected to impact comparatively few vessels. Thus, the magnitude of

	impact is considered to be small for all commercial fisheries receptors.
Preliminary likely significance of effect	It is considered likely that the effects of displacement on both mobile gear and static gear fisheries will be **not significant**.
Confidence in prediction	Medium – It is difficult to fully predict where fishing activity may be displaced to and how this may affect individual vessels but based on known and likely installation methods the effects would be temporary.
	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries
Potential impact	**Loss or damage to fishing gear** Seabed obstacles that may arise from the Project, including accidentally dropped objects, and the temporary presence of vulnerable sections of cable awaiting trenching or protection during installation, may pose a snagging risk to fishing gear. The safety implications associated with snagging risk are assessed in **Part 4, Chapter 8, Shipping and Navigation**.
Proposed Project phase	Construction phase
Duration	During cable installation and protection activities
Mitigation	GM02, LVS02, MPE02, MPE03, SN01, SN02, SN04, SN06, CF01, CF02, CF03, CF04 and OSU02
Preliminary sensitivity	In the event that fishing gear snags on a seabed obstacle or section of cable it is likely that the gear will be damaged or irretrievable. As such, fisheries are limited in their ability to adapt to the risk of incidental snagging. In light of this a procedure for the claim of loss of/or damage to fishing gear will be developed. With the implementation of guard vessels, navigational aids, and the FLO communicating the location and timings of the installation works, fishers whose range overlaps the Offshore Scheme are considered adaptable. Therefore, it is unlikely that mobile fishing gears will be deployed within the areas where snagging risks are present, or for static gear to interact with the section of the proposed cable route that installation activities are taking place. Furthermore, a procedure for the claim of loss of/or damage to fishing gear will be developed. With this in mind, the sensitivity of all commercial fisheries receptors to loss or damage to fishing gear during the construction phase is considered Low.
Preliminary magnitude	The exact method for cable burial has not been confirmed at the time of writing. It is possible that simultaneous cable lay and trenching (SLB) may be used (**Volume 1, Part 1,**

	Chapter 4, Description of the Proposed Project), which would significantly reduce the duration of cable exposure throughout the construction phase. However, it is also possible that surface cable lay followed by post lay trenching of cables (PLB) will be used. For both methods installation activities will take place on a 24-hour 7-day schedule. As such, the duration between cable laying and associated trenching and/or protection works will be reduced as far as reasonably practicable, in order to minimise the period that cables are exposed. In areas where the cable will be exposed between installation and physical protection, it will be protected by the deployment of Guard Vessels and NTMs to inform other users of the cable status. Despite this, some activities, such as the joining of two lengths of cable can take up to 5-7 days to complete. In terms of other obstacles resulting from the installation activities, all contractors undertaking works will comply with international offshore policies and legislation. This includes the prohibition of discarding of objects or material overboard and the requirement to recover accidentally dropped objects, where possible. The extent of areas where exposed cable or dropped objects may create a risk of snagging will be localised around the immediate footprint of cables and protection. The installation activities will also be transient and therefore of short duration. Furthermore, during installation an ROV will be used to monitor the cable as assurance of adequate burial/protection. Communication of the timings and locations of installation activities and exclusion zones will also be provided; the FLO will also disseminate information and maintain dialogue with fishers throughout the life of the project. With this in mind, the magnitude of the impact of loss or damage to fishing gear is considered small for all commercial fisheries receptors.
Preliminary likely significance of effect	It is likely that the effects of loss or damage to fishing gear during the construction phase will be **not significant**.
Confidence in prediction	High – The control and management measures regarding communication and information sharing with fishers, implementation of guard vessels, and adherence of contractors to international offshore policies and legislation substantially reduces the potential for this impact pathway to occur.
	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries

Potential impact	**Indirect effects on commercial fisheries as a result of impacts on the ecology of commercial species** There is potential for the installation phase of the Project to result in impacts to commercially sensitive fish and shellfish species. This could subsequently affect the productivity of the fisheries that rely on them. The preliminary assessment of impacts on fish and shellfish species is included in **Volume 1, Part 4, Chapter 4, Fish and Shellfish**, and should be read in conjunction with this commercial fisheries chapter. The species targeted by the commercial fisheries active in the Study Area are grouped within shellfish, which are targeted by dredges and pots and traps, and demersal fish species which are mainly targeted by drift and fixed nets and trawlers. The following impact pathways for the installation phase are included in the fish and shellfish chapter: • Permanent loss of fish and shellfish due to placement of hard substrates on the seabed; • Temporary physical disturbance to fish and shellfish habitat; • Temporary increase in SSC and subsequent sediment deposition leading to contaminant mobilisation, turbidity and smothering effects on fish and shellfish; • Underwater sound; and • Potential effects on fish and shellfish due to subsea cable electromagnetic field (EMF) emissions.
Proposed Project phase	Construction phase
Duration	During cable installation and protection activities
Mitigation	See **Volume 1, Part 4, Chapter 4, Fish and Shellfish.**
Preliminary sensitivity	The preliminary appraisal of the sensitivity of fish and shellfish identified shellfish as having a low to medium sensitivity to all impact pathways, except for temporary physical disturbance to fish and shellfish habitat, which is considered to have a medium to high sensitivity. Demersal species were assessed as having an overall low to medium sensitivity across all impact pathways.
Preliminary magnitude	The preliminary appraisal considers the magnitude of impact to fish and shellfish to be negligible to small.
Preliminary likely significance of effect	The potential impact of the installation phase activities on fish and shellfish species of commercial importance is considered likely to be **not significant**. Subsequently, the

	indirect impact to commercial fisheries is also considered likely to be **not significant**.
Confidence in prediction	High

Operation Phase

4.9.9.6 As detailed in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**, cables will be buried to a minimum Depth of Lowering (DOL) of approximately 0.5 m and a target DOL of approximately 1.5 m to 2.5 m

4.9.9.7 Where minimum DOL cannot be achieved, external cable protection such as rock berms, concrete mattresses, rock bags, and/or protection sleeves will be used. For example, protection will be required at crossings with other infrastructure, where bedrock is present or other areas where target burial is not possible. The current Offshore Scheme Boundary is expected to require ~13.2 km of berms, which includes the protection required at identified asset crossings.

Table 4.9.12: Preliminary assessment of commercial fisheries effects during the operation phase

	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries
Potential impact	**Direct loss and alteration of fishing grounds** The direct loss of fishing grounds is primarily associated with loss of access to fishing grounds. In the operational phase this predominantly relates to the burial depth of the cable, and the presence of cable protection. Additionally, National Grid cannot condone demersal fishing taking place over the proposed submarine cables and current guidance advises the avoidance of demersal trawling (and anchoring) in the vicinity of subsea cables (Ref 9.17; 9.34; and all Admiralty charts).
Proposed Project phase	Operation Phase
Duration	Throughout the lifetime of the cable
Mitigation	MPE02, MPE03, SN02, CF01
Preliminary sensitivity	For the majority of the cable route through ICES rectangles 32F1 and 33F1 (**Figure 4.9.4 Surveillance Sightings Data**), the baseline data suggest there is reasonably limited overlap between the Offshore Scheme and fishing grounds for pots, nets, and trawling (**Appendix 4.9.A: Commercial Fisheries Technical** Report). The greatest overlap appears to occur in the southern quarter of the Offshore Scheme, located in ICES rectangle 31F1. In all cases fishers appear to have widespread fishing grounds. Thus, it is highly likely that

	there is a high availability of alternate fishing grounds for all overlapping gear types. All fishing gears deployed within the Study Area operate above the surface of the sediment, with the exception of dredges, which penetrate the surface of the sediment by ~20 mm (scallop dredges (Ref 9.35)) to ~50 mm (cockle dredges (Ref 9.2727)). Thus, the presence of the cable will not pose a snagging risk to any gear types. In areas where only shallow burial can be achieved, or the cable is likely to be exposed cable protection will be present. It is currently planned for approximately 13.2 km of berms. These berms will be designed with 1:3 slopes and flat crests in line with industry guidance, intended to prevent the risk of fishing gears snagging. Over time it is possible that the movement of the substrate will cause the cable to become exposed. To mitigate against this occurrence depth of burial surveys will be conducted at 12 and 24 months to monitor the integrity of cable and subsequently schedule future surveys, maintenance works, and inform mitigation planning moving forward. Furthermore, vessels are expected to follow Mariner's Handbook, MCA, and admiralty chart guidance, avoiding the immediate location of the cable. This will result in permanent loss of localised fishing grounds to trawlers. With this in mind, mobile gear fisheries are considered to have a medium sensitivity to the loss of fishing grounds, and static gear fisheries are considered to have a low sensitivity to the loss of fishing grounds.
Preliminary magnitude	The location of the cable itself and areas of cable protection will be a very small portion of available fishing grounds in the Study Area. Their location will be clearly communicated to other sea users and their presence is unlikely to cause fishers to voluntarily avoid the area after installation is completed. Thus, the magnitude of impact for the loss of fishing grounds in this manner is considered negligible for all commercial fisheries receptors.
Preliminary likely significance of effect	The potential impact of the loss of fishing grounds during the operational phase are considered likely to be **not significant** for all commercial fisheries in the Study Area.
Confidence in prediction	Medium – the design and methods of the Proposed Project have the potential to change before the finalisation of the Environmental Statement.
	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries

Potential impact	**Displacement of commercial fishing activities** Any loss or restricted access to commercial fishing grounds during operation phase of the HVDC cable could result in vessels being permanently displaced to alternative grounds and fisheries resources, resulting in increased competition.
Proposed Project phase	Operation phase
Duration	Throughout the lifetime of the cable
Mitigation	SN02, and OSU02
Preliminary sensitivity	National Grid cannot condone demersal fishing taking place over the proposed submarine cables and current guidance advises to avoid demersal trawling (and anchoring) in the vicinity of subsea cables (Ref 9.17; 9.34; and all Admiralty charts). This will result in permanent loss of localised fishing grounds to trawlers. However, for the majority of the cable route through ICES rectangles 32F1 and 33F1 (**Figure 4.9.4 Surveillance Sightings Data**), the baseline data suggest there is reasonably limited overlap between the Offshore Scheme Boundary and fishing grounds for pots, nets, and trawling (**Appendix 4.9.A: Commercial Fisheries Technical Report**). The greatest overlap appears to occur in the southern quarter of the Offshore Scheme, located in ICES rectangle 31F1. In all cases the Offshore Scheme comprise a small part of what appear to be widespread fishing grounds. Thus, it is highly likely that there is a high availability of alternate fishing grounds for all overlapping gear types. With this in mind, the sensitivity to displacement during the operational phase is considered medium for mobile gears, and low for static gears.
Preliminary magnitude	If there is any displacement of fishing activity it is difficult to predict exactly where fishing activity may be displaced to as a result of the presence of the cable, and how this may affect individual vessels. However, in all cases the level of displacement will vary based on the extent and duration of any loss or restricted access to fishing grounds. For the majority of the cable route, the baseline evidence suggests that there is reasonably limited overlap between the Offshore Scheme and active fishing grounds (**Figure 4.9.4 Surveillance Sightings Data; Appendix 4.9.A: Commercial Fisheries Technical Report**), and that the cable route comprises a small part of what the baseline data indicates are widespread fishing grounds. Furthermore, the potential increase in competition and conflict as a result of any displacement may have a

	regional effect. However, due to the localised nature of the cable and its associated protection, and the design of the installed protection to not pose a risk to fishing activities, this is expected to impact comparatively few vessels. Thus, the magnitude of impact is considered to be small for all commercial fisheries receptors.
Preliminary likely significance of effect	It is considered likely that the effects of displacement on both mobile gear and static gear fisheries will be **not significant**.
Confidence in prediction	Medium – It is difficult to fully predict where fishing activity may be displaced to and how this may affect individual vessels but based on the current Project design the effects are likely to be minimal.
	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries
Potential impact	**Loss or damage to fishing gear** Seabed obstacles which occur as a result of the Project, including the operational presence of cable protection and of vulnerable sections of cable (should sections of buried cable become exposed over time) may pose a snagging risk to fishing gear. The safety implications associated with snagging risk are assessed in **Volume 1, Part 4, Chapter 8, Shipping and Navigation**.
Proposed Project phase	Operation phase
Duration	Lifetime of the cable
Mitigation	GM02, MPE02, MPE03, SN02, SN04, CF01, CF04 and OSU02
Preliminary sensitivity	The target depth of cable installation is 1.5 to 2.5 m, which is expected to be achievable throughout the majority of the cable route. All fishing gear deployed within the Study Area operates above the surface of the sediment, with the exception of dredges, which will penetrate the surface of the sediment by ~20 mm (scallop dredges (Ref 9.36)) to ~50 mm (cockle dredges (Ref 9.27)). Thus, the presence of the cable will not pose a snagging risk to any gear types. The current Offshore Scheme are expected to have eight cable crossings where protection will be required to protect the HVDC cable. Protection will be designed in line with industry guidance, reducing the potential for snagging. Where cable protection is used berms will be installed to reduce the potential for snagging further. The current Offshore Scheme is expected to require ~13.2 km of berms, which with a 1:3 profile and flat crests.

	Other locations where cable protection is required will be identified during the installation phase. Despite this, should fishing gear snag on a seabed obstacle or section of cable it is likely that the gear will be damaged or irretrievable. However, a procedure for the claim of loss of/or damage to fishing gear will be developed. As such, fisheries are limited in their ability to adapt to the risk of incidental snagging. Thus, the sensitivity of commercial fisheries to loss or damage to fishing gear is considered to be low.
Preliminary magnitude	An ROV will be used during installation to monitor the cable as assurance of adequate burial/protection. Post installation surveys and reporting will then be completed to provide a record of safe installation and/or identify any areas along the cable route that require further work to meet the target burial depth of 1.5 – 2.5 m, and/or require additional protection. Further surveys are programmed at 12 and 24 months to monitor the integrity of cable and subsequently schedule future surveys, maintenance works, and inform mitigation planning moving forward. The potential for this impact pathway to occur is long-term in duration, essentially the life of the cable, but it is highly likely to be localised around the immediate footprint of cable protection and discrete areas where cables may become exposed, and therefore small in extent. Thus the magnitude of impact from loss or damage to fishing gear is considered to be small for all commercial fisheries receptors.
Preliminary likely significance of effect	It is likely that the effects of loss or damage to fishing gear during the operation phase will be **not significant**.
Confidence in prediction	Medium to high – dependant on the final design/state of the cable post-installation, monitoring programme, and long-term environmental conditions along the cable route.
	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries
Potential impact	**Indirect effects on commercial fisheries as a result of impacts on the ecology of commercial species** There is potential for the operation phase of the Project to result in impacts to commercially sensitive fish and shellfish species. This could subsequently affect the productivity of the fisheries that rely on them. The preliminary assessment of impacts on fish and shellfish species, including those of commercial

	importance, is included in **Volume 1, Part 4, Chapter 4, Fish and Shellfish**, and should be read in conjunction with this commercial fisheries chapter. The species most valuable to the commercial fisheries active in the Study Area are grouped within shellfish, which are targeted by dredges and pots and traps, and demersal fish species which are mainly targeted by drift and fixed nets and trawlers. The following impact pathways for the operation phase are included in the fish and shellfish chapter: • Potential effects on fish and shellfish due to subsea cable electromagnetic field (EMF) emissions; and • Potential effects on fish and shellfish due to subsea cable thermal emissions.
Proposed Project phase	Operation phase
Duration	Lifetime of the active cable
Mitigation	See **section 4.4.8 of Volume 1, Part 4, Chapter 4, Fish and Shellfish.**
Preliminary sensitivity	The preliminary appraisal of fish and shellfish sensitivity identified shellfish as having a medium sensitivity to both impact pathways. Demersal species were assessed as having an overall low to medium sensitivity across all impact pathways
Preliminary magnitude	The preliminary appraisal considers the magnitude of impact to fish and shellfish to be negligible to small.
Preliminary likely significance of effect	The potential impact of the operation phase activities on fish and shellfish species of commercial importance is considered likely to be **not significant**. Subsequently, the indirect impact to commercial fisheries is also considered likely to be **not significant**.
Confidence in prediction	High

Maintenance Phase

4.9.9.8 As detailed in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**, maintenance activity along the marine cable route is expected to be limited to non-intrusive inspections and cable repairs.

Table 4.9.13: Preliminary assessment of commercial fisheries effects during the maintenance phase

	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries

Potential Impact	**Obstruction of navigation routes to commercial fishing grounds** **Direct loss or alteration to fishing grounds** **Displacement of commercial fishing activities** **Loss or damage to fishing gear** **Indirect effects on commercial fisheries as a result of impacts on the ecology of commercial species**
Proposed Project phase	Maintenance phase
Duration	Unknown
Mitigation	GM02, LVS02, MPE02, SN02, CF01, and OSU02.
Preliminary sensitivity	The sensitivity of commercial fisheries receptors are likely to be similar to those during the installation phase.
Preliminary magnitude	The magnitude of potential impacts to commercial fisheries receptors are likely to be less than those during the installation phase, due to the localised nature of any maintenance works required.
Preliminary likely significance of effect	It is expected that maintenance activity along the marine cable route would be limited to non-intrusive inspections and cable repairs. The activities required for cable repair (most commonly jetting and rock placement) would be comparable to those used in cable installation, requiring similar implementation of vessels, clearance of obstacles (i.e. static gears), and maintaining a safe working area. As such, the potential impact pathways to commercial fisheries mirror those identified for the marine portion of the installation phase. Regularly scheduled surveys will be undertaken at areas of mobile substrate along the cable route to monitor the continuing levels of protection to the cable provided by burial in the seabed. In turn, this will be used to inform the need for any remedial works to maintain depth of cover to the cables. Cable repairs may be required at any time, however good design and installation will mitigate this. Any repair works are likely to be highly localised to the area of concern. Therefore, the spatial extent of any impacts would be small. Furthermore, any maintenance or repairs works would be of a significantly shorter duration in comparison to installation activities. Routine maintenance and unforeseen cable repair (although unlikely) have well defined procedures and processes which are commonplace within the industry. Ultimately, the impacts of maintenance and cable repair works would be of smaller magnitude than cable installation, as such, the effect is likely to be **not significant** for all commercial fisheries receptors.
Confidence in prediction	High

Decommissioning Phase

4.9.9.9 An initial decommissioning plan will be written once the final route and installation methodology is chosen; and will follow all applicable legislation and best practice guidance at the time of writing. Notably, the decommissioning of the cable will likely be many decades into the future, by which time regulatory requirements and industry best practice will likely change. Therefore, the decommissioning plan will be updated throughout the life of the project in line with changes in regulatory requirements and industry best practice, in preparation for the commencement of decommissioning.

Table 4.9.14: Preliminary assessment of commercial fisheries effects during the decommissioning phase

	Preliminary assessment
Receptor	Mobile gear fisheries Static gear fisheries
Potential Impact	**Obstruction of navigation routes to commercial fishing grounds** **Loss and alteration of fishing grounds** **Displacement of commercial fishing activities** **Loss or damage to fishing gear** **Indirect effects on commercial fisheries as a result of impacts on the ecology of commercial species**
Proposed Project phase	Decommissioning phase
Duration	Unknown
Mitigation	Not known but assumed to be similar to the installation phase.
Preliminary sensitivity	The sensitivity of commercial fisheries receptors may be similar to those during the installation phase.
Preliminary magnitude	In the worst-case-scenario, which is the removal of a buried cable, the magnitude of potential impacts to commercial fisheries receptors would likely be similar to those during the installation phase.
Preliminary likely significance of effect	If Sea Link is required to be decommissioned, the proposed marine HVDC cable could be decommissioned as part of this process. In this event, the redundant cables could either be left in-situ, or all or parts of the cable could be removed for recycling. This is often dependent on the burial depth of the cable and the mobility of the seabed, which may change substantially between installation and the end of the cable's life. The principal options for decommissioning are described in **Volume 1, Part 1, Chapter 4, Description of the Proposed Project**. Due consideration of the effects of removal of the cables to commercial fisheries should be incorporated into the

	Preliminary assessment
	assessment for the best method of cable removal, or the value of the decommissioned cables remaining in situ. The techniques for decommissioning are often simpler than for installation, prioritising minimising seabed disturbance over cable integrity. However, should full removal from the seabed be required, this could potentially cause similar impacts to those during the installation phase of the Offshore Scheme, depending upon the decommissioning option chosen. As such, the impacts identified in the appraisal undertaken in respect of the installation phase are considered to also apply to decommissioning activities. Thus, as a worst case, the significance of the effects to fish and shellfish are likely to be **not significant** for all commercial fisheries receptors.
Confidence in prediction	High

4.9.10 Transboundary Effects

4.9.10.1 A transboundary effect is any significant adverse effect on the environment resulting from human activity, the physical origin of which is situated wholly or in part within an area under the jurisdiction of another State.

4.9.10.2 All works associated with the Proposed Project fall within the UK jurisdiction (12 NM). Given the distance of the Proposed Project from French waters (approximately 25 km), no significant transboundary effects have been identified. Predicted disturbance from the Proposed Project is short term and local and are therefore not anticipated to be sufficient to influence commercial fishereis receptors outside UK waters, and subsequently cause transboundary effects.

4.9.10.3 Furthermore, the PEIR has concluded no significant effects for commercial fisheries receptors in UK waters.

4.9.11 Summary

4.9.11.1 In conclusion:

- UK vessels account for the vast majority of fishers utilising the Study Area (80.07 %) and are the focus of the governments joint fisheries statement (JFS). Non-UK vessels comprising Belgian vessels (8.43 %) and French vessels (5.69 %).
- fisheries of key importance within the Study Area comprise:
  - Mobile gear fisheries consisting of dredges targeting cockle, demersal trawls targeting mackerel, and beam trawls targeting sole and plaice; and
  - Static gear fisheries consisting of pots targeting whelk, and fixed and drift nets targeting sole and bass.

- UK fisheries of importance mainly deploy cockle dredges, pots, and fixed and drift nets; demersal trawls are also deployed but to a lesser extent. Consultation responses suggest that many vessels show adaptability to seasonality and economic climate, deploying multiple gear types.
- non-UK fisheries of relative importance primarily deploy beam trawls and demersal trawls and seines. However, post Brexit landings data suggest its possible these fisheries may have since reduced.
- the top five ports by average landings value from the Study Area comprise Whitstable, Ramsgate, Queensborough, Folkestone, and Lowestoft, with 44.99 % to 97.74 % of their annual value reliant on catches within the Study Area.
- sighting data show fisheries effort to be mainly concentrated around the coast of Kent and within ICES rectangle 31F1. This includes some overlap with the Offshore Scheme for pots and gill nets. There is also some overlap between trawlers (likely demersal and beam) in ICES rectangle 32F1.
- consultation with local fishers suggest that the northern half of the Offshore Scheme through ICES rectangles 32F1 and 33F1 are fishing grounds for potting netting and trawling.
- with the implementation of the mitigation measures in section 4.9.8, the preliminary assessment of effects for all commercial fisheries considered within this preliminary assessment concludes that effects during all phases of the Project are **not significant** for all impact pathways.

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