



TotalEnergies E&P North Sea UK Ltd

# Culzean Floating Offshore Wind Turbine Pilot Project Environmental Impact Assessment Report – Chapter 12 - Commercial Fisheries

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## GLOSSARY

TERM	DEFINITION
<b>Automatic Identification System (AIS)</b>	A vessel tracking system which enables vessels to transmit and receive vessel position data via an AIS transponder.
<b>Construction vessel</b>	All Project vessels required for the construction of the Project.
<b>Creels</b>	Pots and traps, generally used to catch crab and lobster.
<b>Construction Environment Management Plan (CEMP)</b>	The purpose of the CEMP is to outline the mitigation measures adopted during the construction phase of the Project to avoid or minimise any potential impacts to the environment.
<b>Culzean Floating Offshore Wind Turbine Pilot Project (the 'Project')</b>	The entire Development including all offshore components and all project phases from development to decommissioning.
<b>Demersal fish</b>	Fish that live on or near the seabed.
<b>Demersal trawl</b>	Cone shaped net towed along the seabed.
<b>Displacement</b>	The relocation of fishing activity (i.e. pressure or effort) into another area as a result of restricted access to or closure of an area.
<b>Environmental Assessment</b>	<b>Impact</b> Assessment of the consequences of a plan, project or activity on the receiving environment
<b>EIA Regulations</b>	The Marine Works (Environmental Impact Assessment) (Scotland) Regulations 2007 (as amended)
<b>Export Cable</b>	Cable connecting the Floating Wind Turbine to the Culzean Platform
<b>Fisheries Liaison Officer (FLO)</b>	An appointed individual nominated by a developer who is the main point of contact for the fishing industry when direct communication with the developer is needed. The FLO will liaise with and between the fishermen and the developer.
<b>Floating Wind Turbine Generator (WTG)</b>	Device that converts the kinetic energy of wind into electrical energy. Can be functionally divided into four parts: wind turbine, tower and transition piece, floating foundation, and mooring system.
<b>ICES rectangle</b>	ICES rectangles are a spatial unit used for the collection and analysis of fisheries statistics by the European Commission (EC) Member States, and the UK.
<b>Innovation and Targeted Oil and Gas (INTOG)</b>	<p>The Initial Plan Framework Sectoral Marine Plan for Offshore Wind for INTOG encompasses spatial opportunities and a strategic framework for future offshore wind developments within sustainable and suitable locations that will help deliver the wider United Kingdom (UK) and Scottish Government Net Zero targets.</p> <p>The 'IN' component of INTOG consists of small-scale innovative projects of 100 Megawatts (MW) or less. The aim of the 'TOG' component is to supplying renewable electricity directly to oil and gas infrastructure. The Culzean project falls under the TOG component of INTOG.</p>

TERM	DEFINITION
<b>Marine Licence Application ("the Application")</b>	A Marine Licence is granted under the Marine and Coastal Access Act 2009 for projects between 12-200 Nautical Miles (nm) from shore, or the Marine (Scotland) Act 2010 for projects between Mean High-Water Springs (MHWS) out to 12 nm from shore. The Application includes Habitats Regulations Appraisal (HRA) supporting documentation (where required), an application letter, Marine Licence application form and this Environmental Impact Assessment Report (EIAR).
<b>Maximum Design Parameters</b>	The maximum range of design parameters of all infrastructure.
<b>Natura 2000</b>	Natura 2000 is a network of core breeding and resting sites for rare and threatened species, and some rare natural habitat types which are protected in their own right. Following Britain's exit from the European Union, these are now referred to as the national site network (please see below) under the Conservation of Habitats and Species Regulations 2017 (as amended).
<b>National Site Network</b>	Formerly referred to as 'EU Sites' or 'European Designated Sites', this refers to the creation of a national site network within the UK territory comprising the protected sites already designated under the Nature Directives, and any further sites designated under these Regulations.
<b>Net Zero</b>	Refers to a government commitment to ensure the UK reduces its greenhouse gas emissions by 100% from 1990 levels by 2050 and in Scotland, the same target is set for 2045. If met, this would mean the amount of greenhouse gas emissions produced by the UK would be equal to or less than the emissions removed by the UK from the environment.
<b>Pelagic fish</b>	Fish that live in the water column.
<b>Project Area</b>	The extent of the immediate area surrounding the floating Wind Turbine Generator (WTG) and cable route as characterised by the extent of the seabed environmental and habitat surveys. Also referred to as the Survey Area where specifically relating to survey activities.
<b>Scallop dredge</b>	Rigid triangle-frame structure with 'teeth' which rake the seabed to collect scallops into a chain mail bag.
<b>Seine net</b>	A triangle shaped net with long weighted ropes attached on each side. The net is shot in a circular motion from a vessel and then towed to close the net and herd fish.
<b>Study Area</b>	Receptor specific area used to characterise the baseline.
<b>Survey Area</b>	The area surveyed during site-specific surveys.
<b>Vessel Monitoring System (VMS)</b>	Vessel satellite tracking system, operated on vessels > 12 m in EU waters.

## ACRONYMS AND ABBEVIATIONS

ACRONYM/ ABBREVIATION	DEFINITION
<b>AIS</b>	Automatic Identification System
<b>ALARP</b>	As Low As Reasonably Practicable
<b>CBRA</b>	Cable Burial Risk Assessment
<b>COLREGs</b>	Convention on the International Regulations for Preventing Collisions at Sea 1972
<b>CEMP</b>	Construction Environment Management Plan
<b>EC</b>	European Commission
<b>EEA</b>	European Economic Area
<b>EEZ</b>	Exclusive Economic Zone
<b>EIA</b>	Environmental Impact Assessment
<b>EIAR</b>	Environmental Impact Assessment Report
<b>ERCoP</b>	Emergency Response Cooperation Plan
<b>ERRV</b>	Emergency Response and Rescue Vessel
<b>EU</b>	European Union
<b>FIR</b>	Fisheries Industry Representative
<b>FLO</b>	Fisheries Liaison Officer
<b>FLOWW</b>	Fishing Liaison with Offshore Wind and Wet Renewables Group
<b>FOIA</b>	Freedom of Information Act 2000
<b>HSE</b>	Health and Safety Executive
<b>ICES</b>	International Council of the Exploration of the Sea
<b>ICPC</b>	International Cable Protection Committee
<b>MMO</b>	Marine Management Organisation
<b>MD-LOT</b>	Marine Directorate Licensing Operations Team
<b>MDS</b>	Maximum Design Scenario
<b>MSS</b>	Marine Scotland Science
<b>NCP</b>	National Contingency Plan
<b>NECRIFG</b>	North and East Coast Regional Inshore Fisheries Group
<b>NM</b>	Nautical mile
<b>NMPI</b>	National Marine Plan Interactive
<b>NSP</b>	Navigational safety Plan

ACRONYM/ ABBREVIATION	DEFINITION
<b>NtMs</b>	Notices to Mariners
<b>OFLO</b>	Offshore Fisheries Liaison Officer
<b>OSP</b>	Offshore Substation Platform
<b>SFF</b>	Scottish Fishermen’s Federation
<b>SOLAS</b>	Safety of Life at Sea
<b>STECF</b>	Scientific, Technical and Economic Committee for Fisheries
<b>SWFPA</b>	Scottish White Fish Producers Association
<b>TAC</b>	Total Allowable Catch
<b>UK</b>	United Kingdom
<b>UKCS</b>	United Kingdom Continental Shelf
<b>UKFEN</b>	United Kingdom Fisheries Economics Network
<b>UKHO</b>	UK Hydrographic Office
<b>VMP</b>	Vessel Management Plan
<b>VMS</b>	Vessel Monitoring System
<b>WTG</b>	Wind Turbine Generator

## 13 COMMERCIAL FISHERIES

### 13.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) identifies the Commercial Fisheries receptors of relevance to Culzean Floating Offshore Wind Turbine Pilot Project (the 'Project') and assesses the potential impacts from the construction, operation and maintenance and decommissioning of the Project on these receptors. Where required, mitigation is proposed, and the residual impacts and their significance are assessed. Potential cumulative impacts are also considered while transboundary impacts have been scoped out with the agreement of Scottish Ministers.

Commercial Fisheries are defined, for the purpose of this report, as activities by licensed fishing vessels undertaken for legitimate capture and sale of finfish and shellfish in the marine environment. Aquaculture, recreational fishing and fishing activities in rivers are not considered within this section.

The impact assessment presented herein draws upon information presented within other impact assessments within this EIAR, including:

- Chapter 8: Benthic Ecology;
- Chapter 9: Fish and Shellfish Ecology;
- Chapter 10: Marine Mammals and Other Megafauna;
- Chapter 13: Shipping and Navigation; and
- Chapter 16: Other Sea Users.

Impacts relating to the safe navigation of Commercial Fisheries receptors, Chapter 13: Shipping and Navigation – which assesses other impacts including those relating safety and navigation of commercial fishing vessels.

Where information is used to inform the impact assessment, reference to the relevant EIAR chapter is given.

Xodus Group Limited (Xodus) is the sole contributor to the Commercial Fisheries baseline description and impact assessment and has prepared this chapter. Xodus have drafted and carried out the impact assessment. Further competency details of the Project Team including lead authors for each chapter are provided in Chapter 1: Introduction.



## 13.2 Legislation, policy and guidance

Over and above the legislation presented in Chapter 2: Legislation and Policy, the following legislation, policy and guidance are relevant to the assessment of impacts from the Project on Commercial Fisheries:

- Legislation:
  - Fisheries Act 2020: As a result of Brexit, the United Kingdom (UK) is now a sovereign independent coastal state with the right to manage the resources in its waters, which was established through the Fisheries Act 2020 (as amended). The UK Government is responsible for managing the UK's territorial waters (out to 12 NM) and the Exclusive Economic Zone (EEZ) (out to 200 Nautical Mile (NM) or the median line with other states). Non-UK vessels now require licences to fish in UK waters, as per Section 16 of the Fisheries Act 2020 and the Trade and Cooperation Agreement, which came into force on 1<sup>st</sup> January 2021. During a transition period up to 2026, licenced European Union (EU) vessels have access to fish specific Total Allowable Catch (TAC) and non-quota stocks in UK waters between the 12 NM and 200 NM limit, and in areas where vessels have historic fishing rights between the 6 NM and 12 NM limit. Gradual changes to quota shares and TACs will occur between 2021 and 2026, including a gradual reduction of EU quota shares within UK waters and the transfer of 25% of EU's fishing rights in UK waters to UK fleets (European Commission, 2020; European Council, 2021). Following the transition period, annual consultations will take place to determine access for EU vessels in UK waters and quota shares.
  - Health and Safety Executive (HSE) Offshore Installation and Pipeline Works (Management and Administration Regulation 1995. Applies to offshore installations including production and non-production installations, including activities connected to offshore installations and wells. Compliance with this regulation includes the establishment of suitable safety exclusion zones around all connected infrastructure.
- Policy:
  - Scotland's National Marine Plan (Scottish Government, 2015): Sets out policies and objectives requiring marine planners and decision-makers to consider the potential impacts of development on fisheries interests and is useful to identify some of the key concerns and issues that should be addressed in any impact assessment. Policies under Section 6 Sea Fisheries (FISHERIES 1 – 5) and General Policies GEN 1 General Planning Principle, GEN 2 Economic Benefit, GEN 3 Social Benefit, GEN 4 Co-existence, and GEN 17 fairness are considered relevant to Commercial Fisheries.
- Guidance:
  - Best practice guidance for fishing industry financial and economic impact assessments (United Kingdom Fisheries Economics Network (UKFEN), 2012): The guidance provides information on the impacts to the fishing industry as a result of areas that are closed or restricted to normal fishing operations;
  - Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010): The guidance provides useful measures to reduce the impacts for offshore floating wind and included fisheries representatives in the process;
  - Fishing and Submarine Cables – Working Together (International Cable Protection Committee (ICPC), 2009) provides information that promotes high standards of reliability and safety in the submarine cable environment;
  - Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (FLOWW, 2014): This guidance was developed to inform developers within the offshore renewable energy sector and the

- Commercial Fisheries community on the need for effective communication at all stages in the development and operation of offshore renewable energy installation;
- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendation for Fisheries Disruption Settlements and Community Funds (FLOWW, 2015): This guidance complements the above FLOWW document and is to be used to inform discussions in conjunction with this document;
  - Good Practice Guidance for Assessing Fisheries Displacement by Other Licensed Marine Activities (and associated Literature Review) (Scottish Government and Xodus Group Limited (2022)): These documents provide good practice guidance for assessing fisheries displacement by other licenced marine activities;
  - MGN 661 (M=F) Navigation – safe and responsible anchoring and fishing practices (Maritime & Coastguard Agency, 2021): Guidance regarding anchor operations and fishing activities in the vicinity of submarine features; and
  - The Mariner’s Handbook (NP100) (United Kingdom Hydrographic Office (UKHO), 2020) – Section 9.45 Submarine Cables: Guidance to help mariners improve their understanding of maritime navigation, sea and ice conditions, meteorology and regulation.

### 13.3 Scoping and consultation

The Commercial Fisheries baseline of the Project was characterised through a baseline desktop study, supplemented with data received during consultation.

Stakeholder consultation has been ongoing throughout the EIA and has played an important part in ensuring the scope of the baseline characterisation and impact assessment are appropriate with respect to the Project and the requirements of the regulators and their advisors.

The Scoping Report was submitted to Scottish Ministers, on 14<sup>th</sup> April 2023, who then circulated the report to relevant consultees. The Scoping Opinion was received on 20<sup>th</sup> July 2023. Relevant comments from the Scoping Opinion and other consultation specific to Commercial Fisheries are provided in Table 13-1, which provides a high-level response on how these comments have been addressed within the EIAR.

Further consultation has been undertaken throughout the pre-application stage. The list below summarises the consultation activities carried out relevant to Commercial Fisheries:

The Project Team met with representatives of the Scottish Fishermen’s Federation (SFF) and Scottish White Fish Producers Association (SWFPA) on the 11<sup>th</sup> of September 2023. The proposed Project was presented, as well as the local fisheries baseline. The fishing industry representatives were happy with the presented baseline and accepted the absence of important fishing grounds near the proposed Project Area.



Table 13-1 Summary of consultation responses specific to Commercial Fisheries.

CONSULTEE	COMMENT	RESPONSE
<b>Scoping Opinion</b>		
<p><b>Scottish Ministers (via Marine Directorate Licensing Operation Team (MD-LOT) and Marine Scotland Science (MSS))</b></p>	<p>In regards to data sources, the Scottish Ministers advise in line with MSS advice, that AIS data from the European Marine Observation and Data Network, found in the Good Practice Guidance, should be used. Additionally, the Scottish Ministers further advise using vessel track data from the previous five years, rather than only the 2019 data.</p>	<p>The baseline in this EIA has been updated with the requested data accordingly. Figure 13-6 shows the AIS vessel tracks from 2015 to 2019, and Figure 12-7 shows the AIS data within a 10 NM buffer of the WTG location over a 12-month period (Jul 2022 to Jun 2023).</p>
	<p>The Scottish Ministers highlight the broken link to the data source referenced in Table 8-1, “Fishing - tonnage, effort and value change - Shellfish, Pelagic and Demersal (also with vessels of 10 m length) from 2017 – 2021”. The Scottish Ministers request that in EIAR, the data source is clarified.</p>	<p>The links in Table 13-2 have been updated and are now functioning.</p>
	<p>In addition to using the Vessel Monitoring System (“VMS”) dataset to produce the average VMS value, the Scottish Ministers advise that VMS data should be used to calculate figures presenting the fishing effort (kilowatt per hour) for vessels. The outputs, providing additional information on the Commercial Fisheries baseline, as well as fisheries displacement, must be presented in the EIAR.</p>	<p>The baseline in this EIA has been updated with the requested data accordingly. Figure 13-5 shows the fishing effort in kilowatt per hour for vessels.</p>
	<p>With regards to impact pathways, in addition to those identified in the Scoping Report, the Scottish Ministers advise that impacts on the safety of fishing vessels during the operation and maintenance and fisheries displacement during construction and decommissioning must be scoped into the EIAR.</p>	<p>Displacement during construction and decommissioning are assessed under 12.9.2, and the safety of fishing vessels during the operation and maintenance phases are discussed in Chapter 13: Shipping and Navigation</p>
	<p>Additionally, the Developer should consider the MSS advice regarding impacts from obstruction of regular fishing vessel transit routes and in line with this advice, should the baseline change and indicate higher fishing activity then this impact pathway must also be scoped in the EIAR for further assessment.</p>	<p>Figure 13-6 and Figure 13-7 show no higher fishing activity than indicated has been found and therefore this impact has not been assessed.</p>
	<p>The Scottish Ministers advise that the Developer considers the SFF representation in regard to safety of fishing vessels, cable protection and boulder clearance.</p>	<p>This is discussed in Chapter 13: Shipping and Navigation</p>



CONSULTEE	COMMENT	RESPONSE
<p><b>Scottish Fishermen’s Federation</b></p>	<p>This response to the scoping request is presented by the Scottish Fishermen’s Federation on behalf of the 450 plus fishing vessels in membership of its constituent associations, the Anglo Scottish Fishermen’s Association, Fife Fishermen’s Association. Fishing Vessel Agents and Owners Association, Mallaig &amp; North West Fishermen’s Association, Orkney Fisheries Association, Scottish Pelagic Fishermen’s Association, the Scottish White Fish Producer’s Association and Shetland Fishermen’s Association. The chair of NECrIFG has also been consulted and agrees.</p> <hr/> <p>As a general comment, finalisation of many features of the project design such as moorings system and export cable, seem to be pending further assessments; therefore, the current comments are based on the existence version of the EIA scoping report and may vary once the final application is ready. In addition, SFF appreciate the small size of the development and we limit our comments on some specific points of this EIA Scoping Report (report).</p> <hr/> <p>Export cable: the final decision on selection of export cable routes and its construction is missing and according to this report, the export cable would be trenched and where possible be buried, if not mechanical protections would be used. SFF would want the export cable to be totally trenched and buried since use of mechanical protection create snagging hazard to fishing vessels. If cable burial is technically not possible, minimal small size rock protections (based on the industry best practices) should be used rather than concrete mattresses.</p> <hr/> <p>Moorings: since the length of the moorings are going to be ~600 m, SFF want to see proper safety measures are taken to protect the safety of fishing vessels in the area.</p> <hr/> <p>Boulders relocation: the report acknowledges existence of boulders within the development area. As relocation of boulders create snagging hazards for fishing vessels, SFF suggest that as far as technically possible the boulders should not be relocated during the construction works especially export cable construction. In case relocation of boulders is inevitable, maximum efforts should be made to relocate as little number of boulders as possible. In addition, we recommend that boulder relocation should be scoped in to the EIAR and if boulders relocated, their new locations to be recorded and shared with SFF via USB sticks for the fishing vessels records.</p>	<p>Noted, no response required.</p> <hr/> <p>Noted, no response required.</p> <hr/> <p>The project does not have an export cable to shore, only an export cable between the turbine and associated platform. The cable will be buried where possible, and where that is not possible, the cable will be rock protected, which is expected to be a maximum of 50% of the length of the cable on the seabed (1,000 m).</p> <hr/> <p>Information on the final location of the mooring lines will be shared with the fishing industry, and added to Admiralty Chart and Kingfisher information. The location during wet storage will also be shared with the fishing industry, through the relevant channels, including Notice to Mariners.</p> <hr/> <p>2023 surveys confirmed that that boulder movement will not be required prior to anchor installation. Should any boulder relocation still have to happen following installation, the SFF will be informed of the location of the relocated boulders.</p>

In line with the Scoping Opinion, no aspects relevant to Commercial Fisheries were scoped out of further assessment in this EIAR.

### 13.4 Study Area

The Commercial Fisheries Study Area is defined by the single International Council of the Exploration of the Sea (ICES) rectangle within which the offshore Project Area (Figure 4-1) resides: 43F1. Each ICES rectangle boundary extends over 1 degree longitude by 30 minutes latitude.

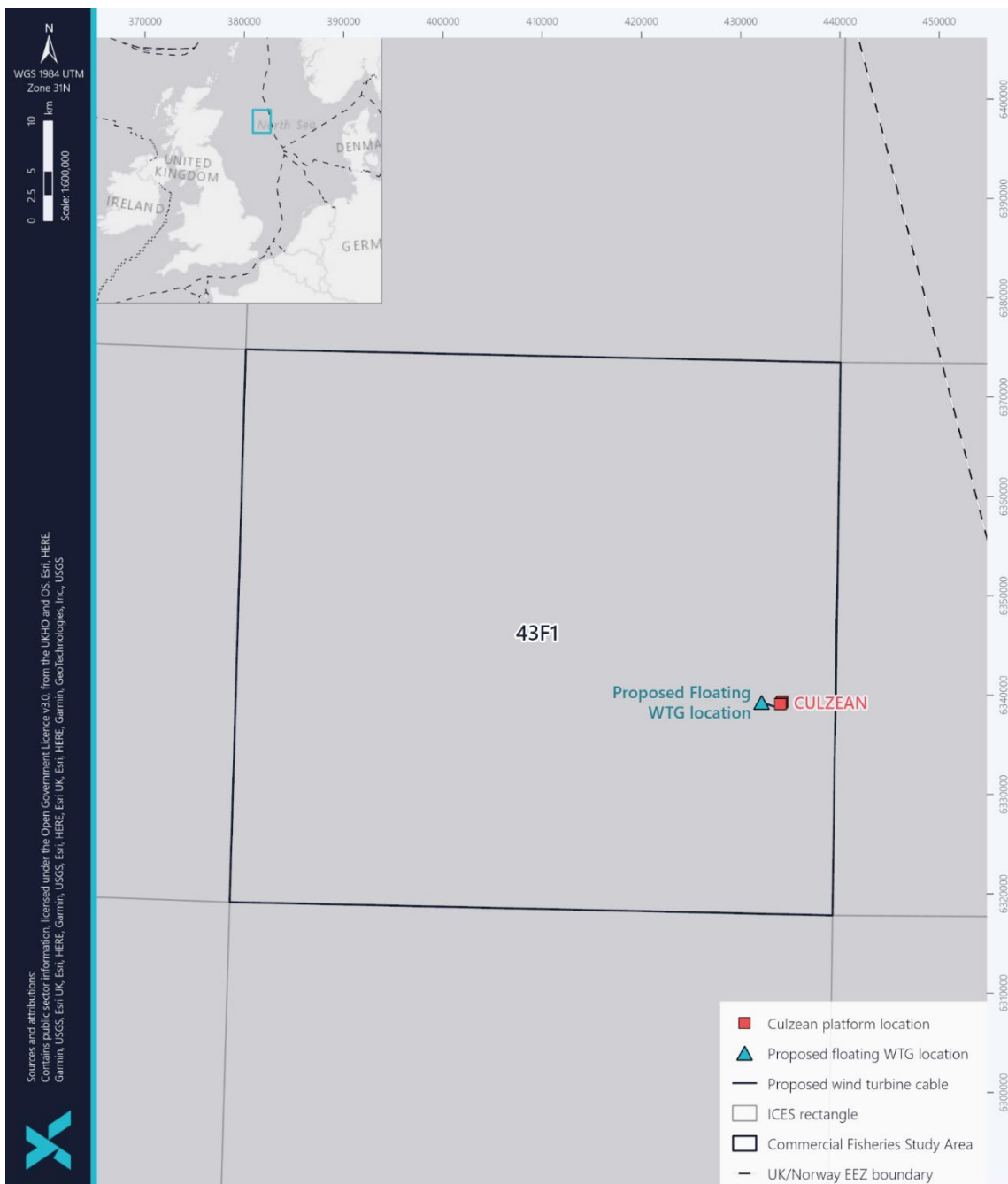


Figure 13-1 Commercial Fisheries Study Area

## 13.5 Baseline Environment

### 13.5.1 Data sources

The existing data sets and literature with relevant coverage to the Study Area, which have been used to inform the baseline characterisation for Commercial Fisheries are outlined in Table 13-2.

Table 13-2 Summary of key datasets and reports

TITLE	SOURCE	YEAR	AUTHOR
Automatic Identification System (AIS) data (2022 – 2023)	Figure received per email from Anatec, data not freely available	2023	Anatec
Automatic Identification System (AIS) data (2015-2019)	<a href="https://data.gov.uk/search?q=MMO+1066+AIS">https://data.gov.uk/search?q=MMO+1066+AIS</a>	2020a	MMO
UK Sea Fisheries Statistics 2020	<a href="https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020">https://www.gov.uk/government/statistics/uk-sea-fisheries-annual-statistics-report-2020</a>	2021a	MMO
Fishing Activity for over 15 m UK Vessels (2016 – 2019).	<a href="https://environment.data.gov.uk/dataset/bf55694c-3330-4c1d-a48e-db6bbe82ad77">https://environment.data.gov.uk/dataset/bf55694c-3330-4c1d-a48e-db6bbe82ad77</a>	2021b	MMO
Marine Scotland VMS (2010 – 2020)	<a href="https://marine.gov.scot/maps/1680">https://marine.gov.scot/maps/1680</a> <a href="https://marine.gov.scot/maps/1832">https://marine.gov.scot/maps/1832</a> <a href="https://marine.gov.scot/maps/1679">https://marine.gov.scot/maps/1679</a>	2021a, b,c	Marine Scotland
Fisheries Surveillance Sightings (2011 – 2019)	Access via request under the Freedom of Information Act (FOIA) via the Marine Management Organisation (MMO) master data register: <a href="mailto:accesstoinformation@marinemanagement.org.uk">accesstoinformation@marinemanagement.org.uk</a> . The most recent data will be used to inform the EIAR.	2022	Marine Scotland and MMO
Spatial data on fisheries (e.g., areas where fishing is restricted or prohibited)	<a href="https://marinescotland.atkinsgeospatial.com/nmpi/">https://marinescotland.atkinsgeospatial.com/nmpi/</a> and <a href="https://kingfisherrestrictions.org/fishing-restriction-map">https://kingfisherrestrictions.org/fishing-restriction-map</a>	2023	National Marine Plan Interactive (NMPi) and Kingfisher Information Service
EU Data Collection Framework Database landings statistics	<a href="https://stecf.jrc.ec.europa.eu/">https://stecf.jrc.ec.europa.eu/</a>	2014 – 2020	Scientific, Technical and Economic Committee for Fisheries (STECF)

## 13.5.2 Project site-specific surveys

No site-specific surveys are planned for Commercial Fisheries. Benthic surveys (e.g. geophysical surveys, drop down video and grab sampling) will be used to inform the potential suitability of the seabed for the spawning of commercially important fish species, which will be discussed in Chapter 9: Fish and Shellfish Ecology.

## 13.5.3 Existing baseline

The Project Area lies within ICES Rectangle 43F1, located approximately 222 km east off the coast of Peterhead, approximately 20 km from the United Kingdom Continental Shelf (UKCS) median line with Norway. The water depths in the Study Area range between approximately 87 m – 91 m.

A review of literature and available data sources has been undertaken to identify and describe the current baseline environment for Commercial Fisheries.

### 13.5.3.1 Surveillance Sightings

Surveillance sightings data by vessel nationality provide a general overview of the fishing vessel positions across the Commercial Fisheries Study Area. It should be noted, however, that due to the limitations relating to potentially uneven survey effort, these data cannot be used to provide a quantitative assessment of fishing effort and can only be interpreted to provide an indication of the general distribution of vessels by nationality.

Surveillance sightings data by vessel nationality between 2011 and 2019 are displayed in Figure 13-2. There are only a limited number of sightings within ICES rectangle 43F1, where the Project is located. The sightings within 43F1 are from UK, Norwegian, German and Dutch vessels. Sightings in the wider surroundings of the ICES rectangle 43F1 are mainly vessels from the UK, alongside sightings of German, Danish, French, Faroese, Dutch, Norwegian and Swedish vessels.

### 13.5.3.2 Landings Data

Figure 13-3 shows the landings data within rectangle 43F1, as a 5-year average between 2016 and 2020. Norway Lobster (*Nephrops norvegicus*) contributed the largest average landing values within ICES Rectangle 43F1. Other species which contributed a high proportion of the average landing values included haddock (*Melanogrammus aeglefinus*) and herring (*Clupea harengus*). The gear types recorded within ICES rectangle 43F1 are otter trawl and demersal seines, and the vessel size recorded was exclusively greater than 10 m, which is expected given the offshore location. The total average landings value within ICES 43F1 between 2016-2020 was £1,561,925.

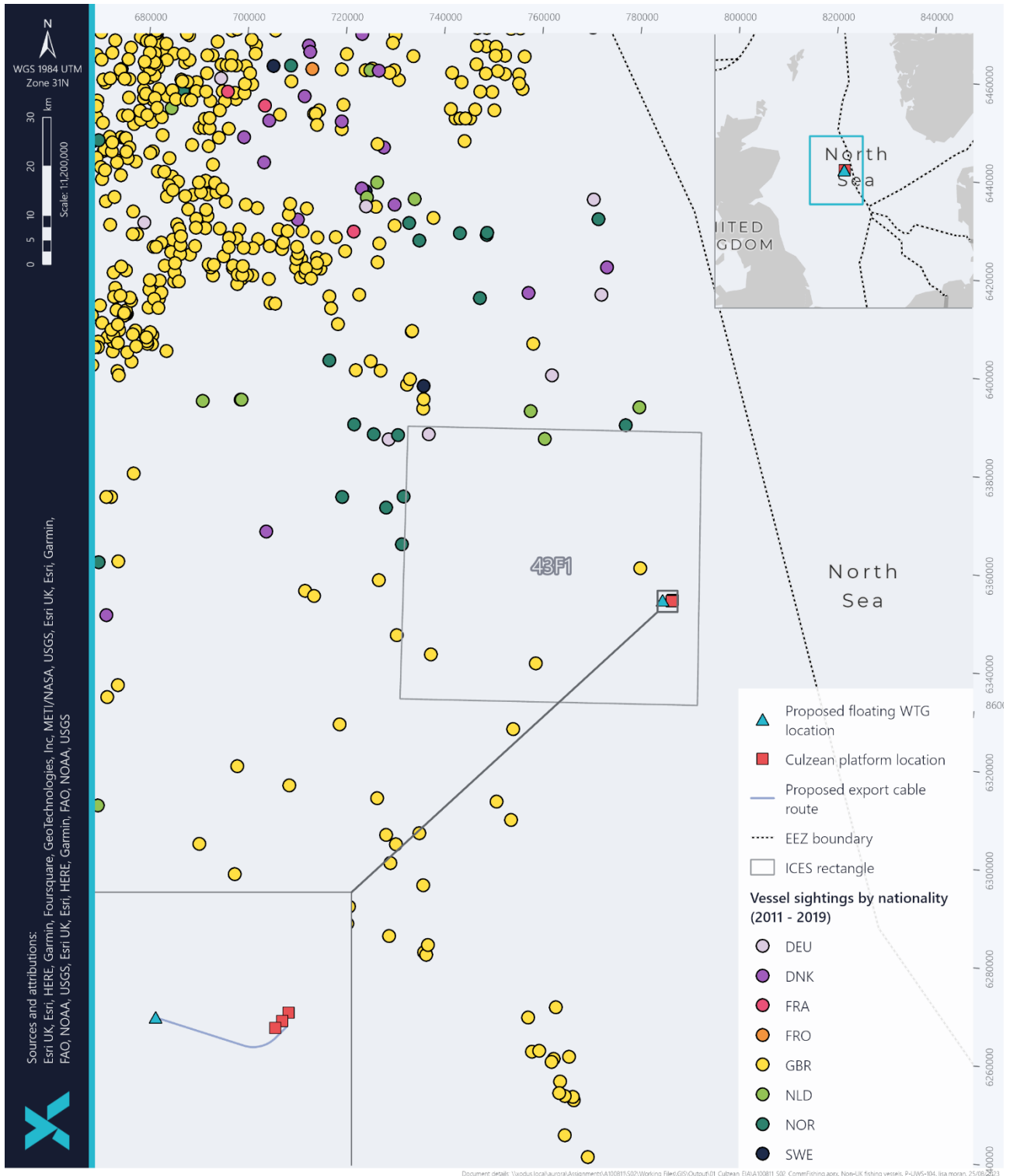


Figure 13-2 Fishing vessel sightings by nationality (2011 – 2019) (MMO, 2020)





### 13.5.3.3 Vessel Monitoring System (VMS)

The average VMS value, in ICES Rectangle 43F1, from 2017 to 2020 for pelagic trawls, demersal trawls, dredges and passive fishing methods are presented in Figure 13-4. The low VMS values indicate that there were (almost) no passive gear or dredgers active, of which values ranged between £0 - £100, and very limited pelagic trawls in ICES rectangle 43F1, of which values ranged between £0 - £5,000. Demersal trawling was the highest valued method in ICES Rectangle 43F1, of which values ranged between £0 - £50,000. However, areas of higher value lie in adjacent ICES rectangles. There is no average VMS data for the location of the Study Area, the closest recordings approximately 5 km to the south, where the average VMS value was between £1,000 - £5,000 (Marine Management Organisation (MMO), 2020).

Figure 13-5 supports Figure 13-4 by showing the average VMS value in kWh, in ICES Rectangle 43F1, from 2017 to 2020 for pelagic trawls, demersal trawls, dredges and passive fishing methods. Figure 13-5 also shows very low VMS values, indicating there was (almost) no passive gear or dredgers active, with effort <10 kWh, and very limited pelagic trawls in ICES rectangle 43F1, of which values ranged between 0 - 5000 kWh. Demersal trawling was the highest valued method in ICES Rectangle 43F1, of which values ranged between 0 - >10,000 kWh. There is no average VMS data for the location of the Study Area, the closest recordings approximately 5 km to the south, where the average VMS value was between 1,000 - 5,000 kWh (MMO, 2020).

### 13.5.3.4 Automatic Information System (AIS)

AIS data from 2015 – 2019 is shown in Figure 13-6. The data indicates that there is a fluctuating amount of fishing vessel activity within the Study Area, where in 2015 ICES rectangle 43F1 was intersected regularly, in 2016 and 2017, 43F1 was barely passed through. In 2018, 43F1 was intersected more often than the two years before that, whilst in 2019 the rectangle was only crossed 5 times.

In 2017 and 2018, some lines crossing through ICES rectangle 43F1 are not straight, which indicates that a vessel may have been fishing near the proposed Wind Turbine Generator (WTG) and cable location.

Figure 13-7 shows the fishing vessels recorded on AIS within a 10 NM buffer of the WTG location over a 12-month period (Jul 2022 to Jun 2023). On average there was one unique fishing vessel recorded every five days, with tracks primarily indicative of vessels in transit. There was one instance of a behaviour indicative of active fishing, that being for a demersal trawler at the southwestern extent of the Study Area. This dataset does not include any fishing vessels not broadcasting on AIS, although noting the distance offshore it is expected that commercial fishing vessels in the Study Area would be of a size that are required to broadcast their AIS positions.

### 13.5.3.5 Fisheries Management Restrictions

Fisheries management restrictions in the Study Area (ICES rectangle 43F1), can be found in Figure 13-8. This area is for the conservation of spawning seabass aggregations. The area is prohibited for EU fishing vessels and commercial fisheries from shore to fish for European seabass in ICES divisions 4b and 4c, and in ICES subarea 7. It is also prohibited for vessels to retain, tranship, relocate or land European seabass.

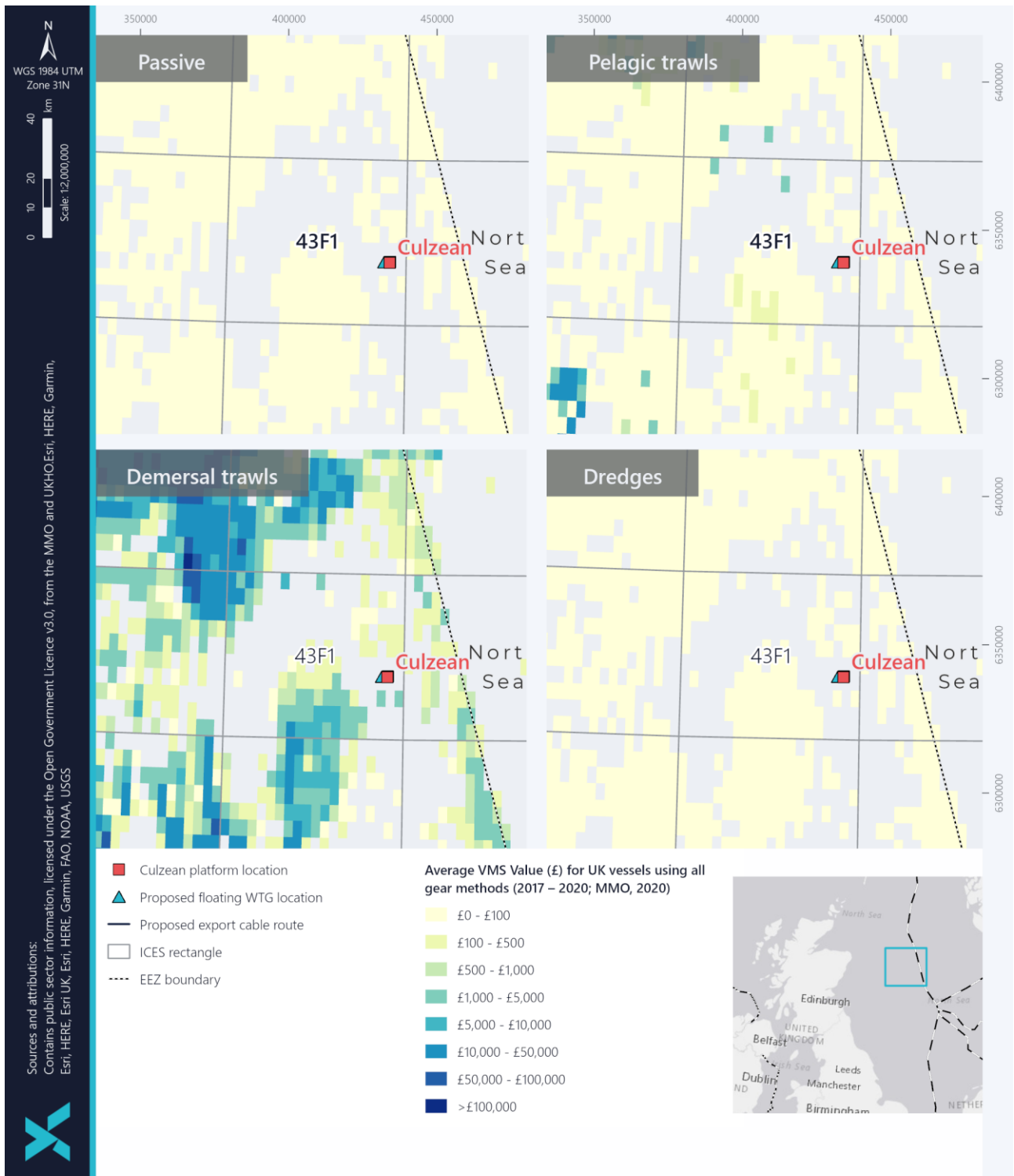


Figure 13-4 Average VMS value per ICES rectangle for passive gear, pelagic trawling, demersal trawling and dredging (2017 – 2020) (MMO, 2020)

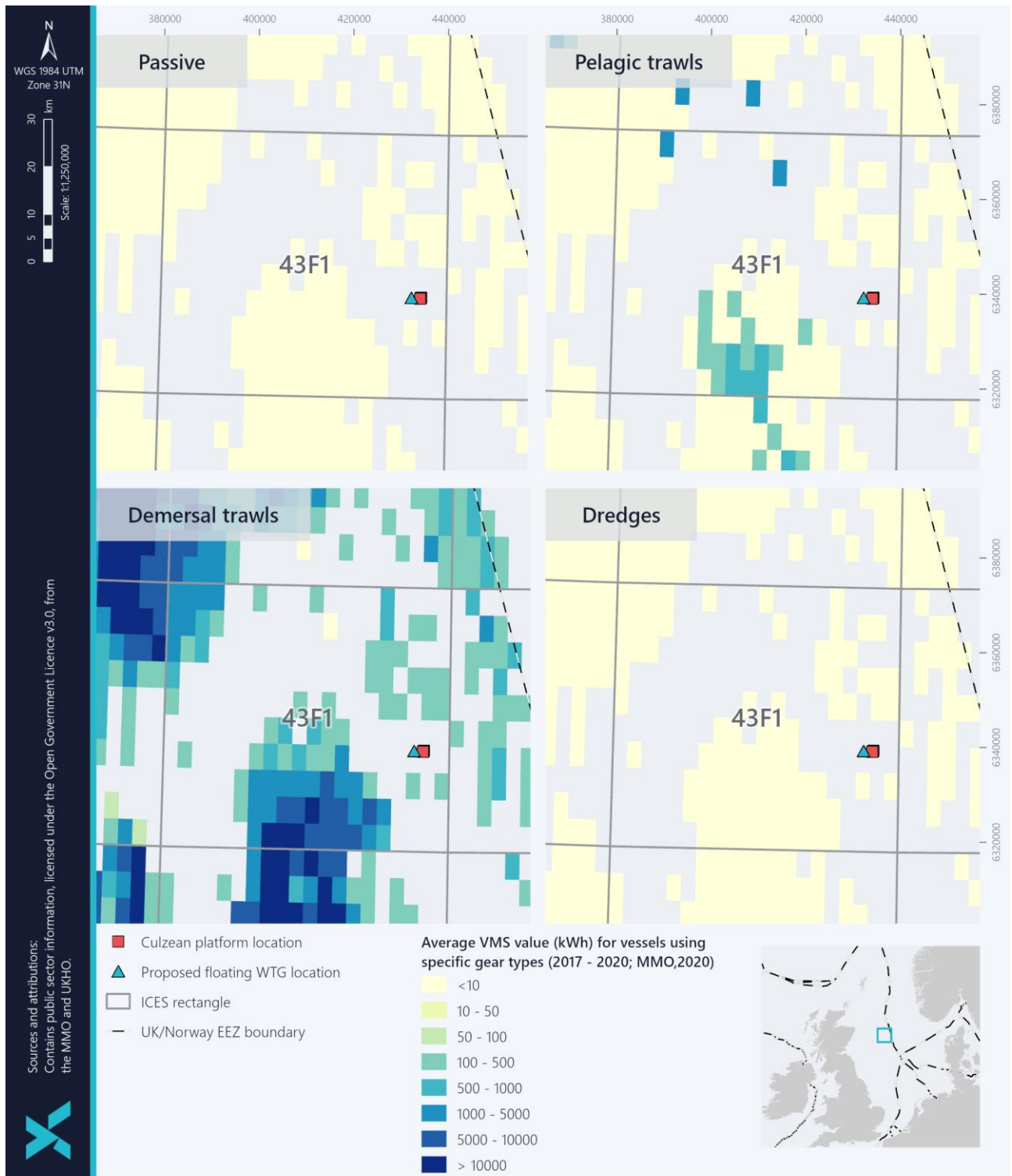


Figure 13-5 Average VMS value (kWh) per ICES rectangle for passive gear, pelagic trawling, demersal trawling and dredging (2017 – 2020) (MMO, 2020)

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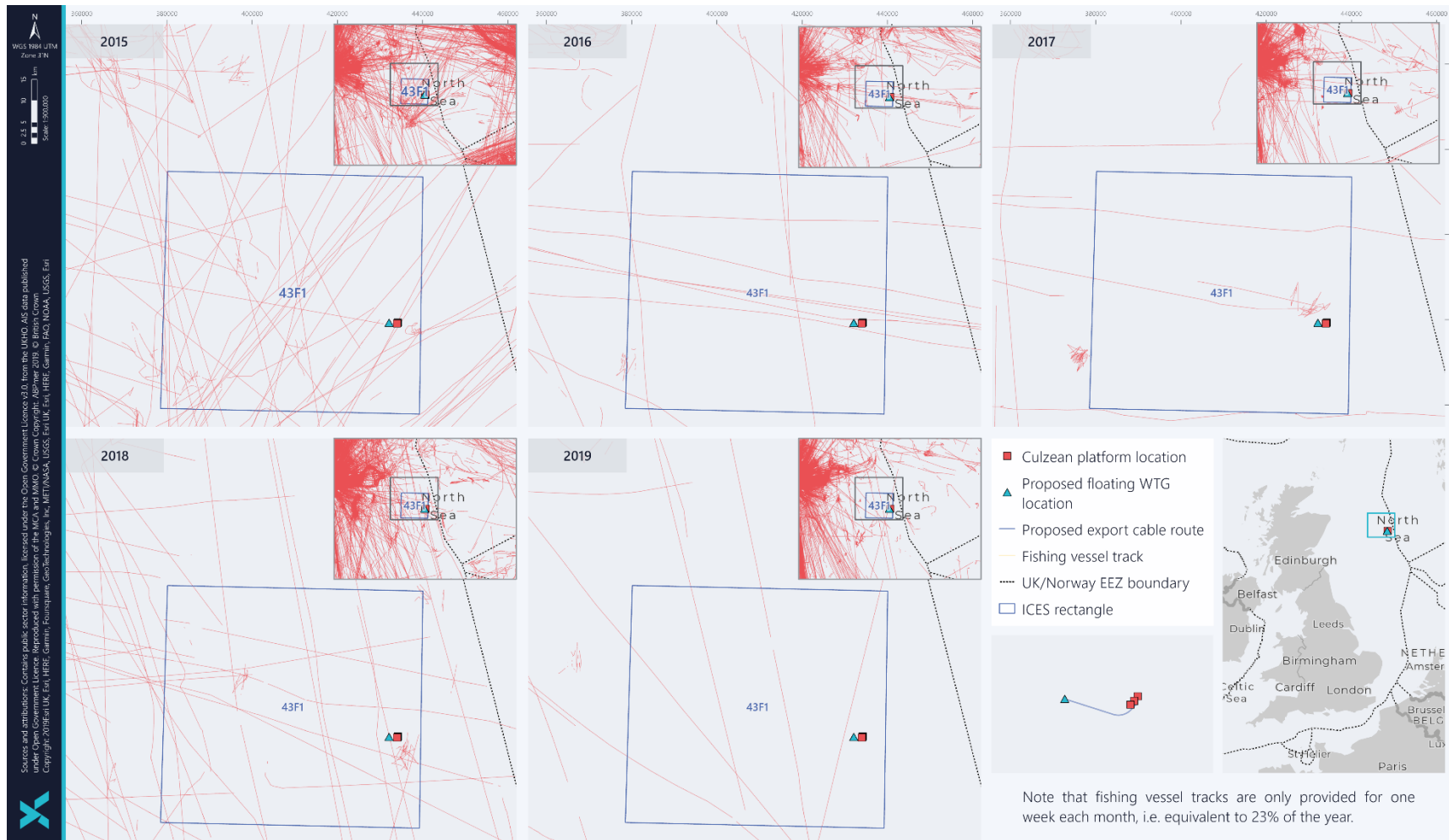


Figure 13-6 AIS fishing tracks in the Commercial Fisheries Study Area from 2015 – 2019 (MMO, 2021)

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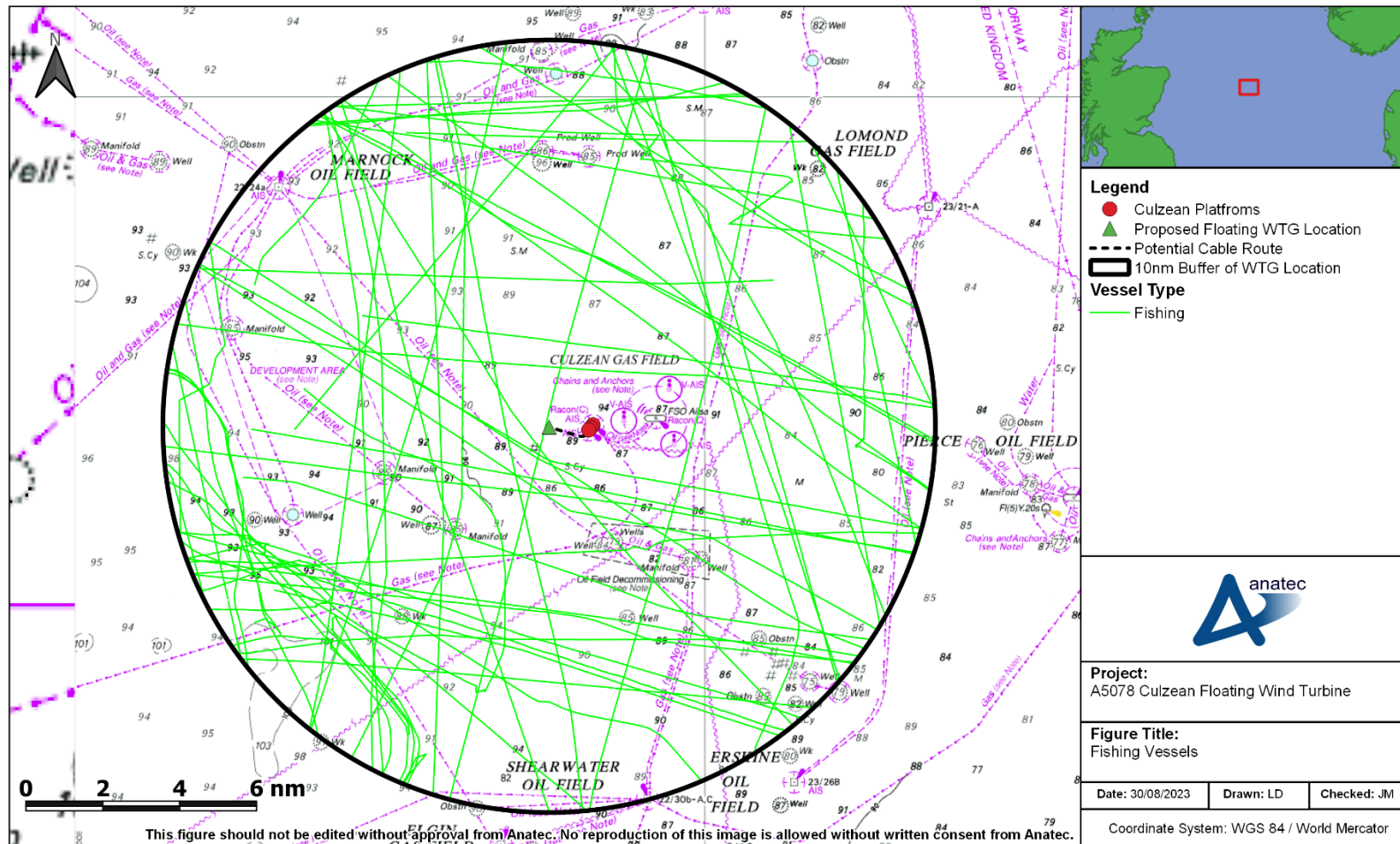


Figure 13-7 AIS data within a 10 NM buffer of the WTG location over a 12-month period (Jul 2022 to Jun 2023) (Anatec, 2023)

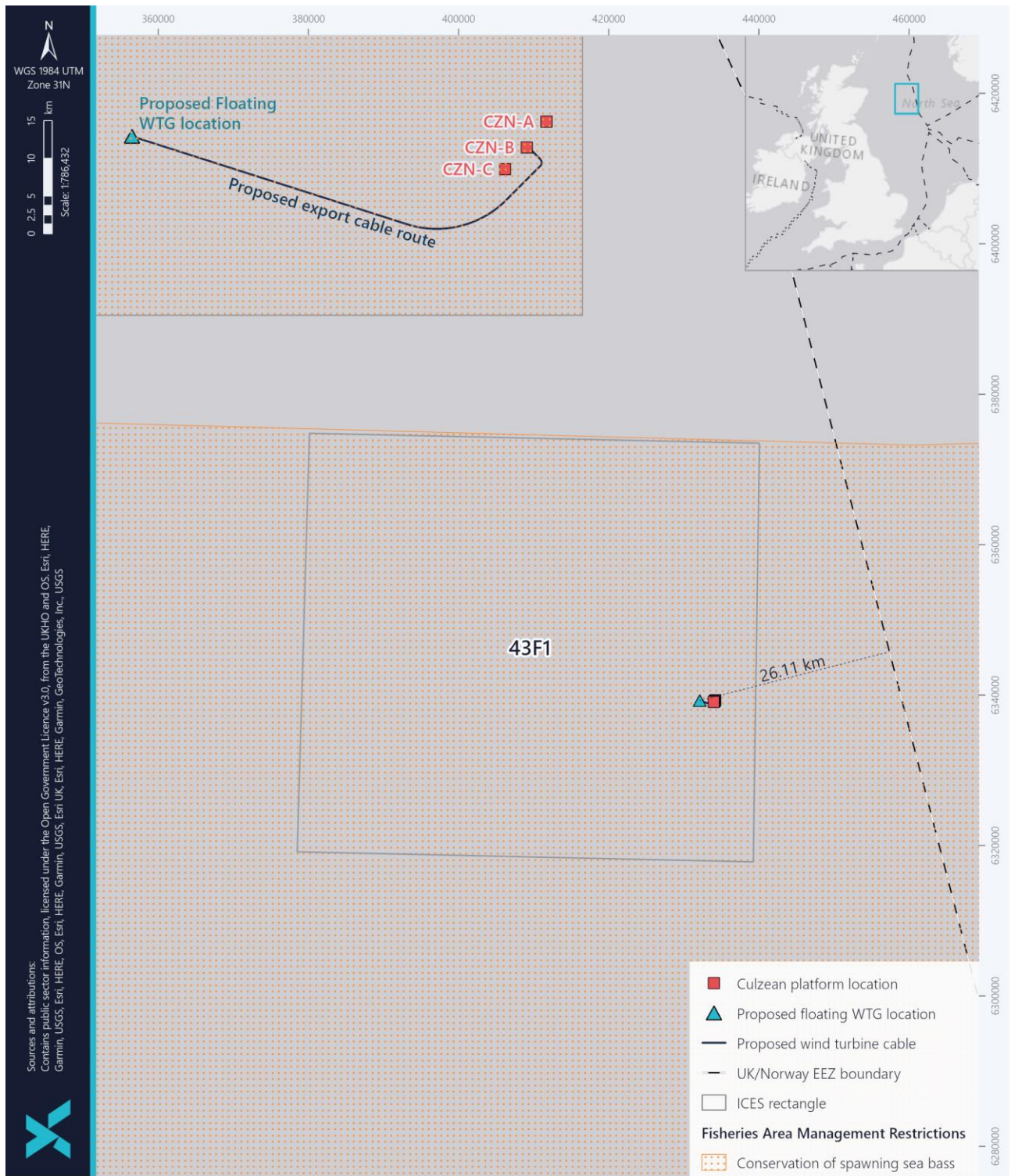


Figure 13-8 Fisheries restricted areas within the Commercial Fisheries offshore Study Area (Kingfisher Information Service, 2023)



### 13.5.4 Future baseline

Given the absence of fishing grounds within the Study Area, and the presence of established fishing grounds near the Project, it can be expected that Commercial Fisheries would continue to operate at a similar capacity throughout the region in the future. The distribution and / or level of fishing activity is expected to adapt around future restrictions, including but not limited to:

- Changes to quota shares and TACs after the UK’s withdrawal from the EU, with an expected decrease in the EU quota share in UK waters;
- Stock abundance (e.g. resulting from range shifts of commercial species driven by climate change) (Barage *et al.*, 2018; SFF, 2020);
- Fisheries management measures and licencing;
- Gear technology / efficiency;
- Fuel costs and/or maintenance costs; and
- Market prices (which could drive changes in target species).

At this stage, it is not possible however to predict what these changes may entail and how they may affect activities within the Commercial Fisheries Study Area. Overall, the current baseline described in Section 13.5.3, which spans five years in most cases, is considered to be generally consistent with the future baseline, whilst recognising the multitude of factors that can alter commercial fishing activity.

### 13.5.5 Summary and key receptors

Table 13-3 Summary and key issues for Commercial Fisheries.

SUMMARY AND KEY RECEPTORS	
Key species	<ul style="list-style-type: none"> <li>• Nephrops;</li> <li>• Haddock; and</li> <li>• Herring.</li> </ul>
Key fleet	<ul style="list-style-type: none"> <li>• Demersal trawling.</li> </ul>

### 13.5.6 Data gaps and uncertainties

Landings statistics are only available at an ICES rectangle scale. Data may misrepresent fishing activity, depending on the size of the Project, given the large spatial scale of the landings data. Data from 2020 and 2021 may be impacted by the COVID-19 pandemic.

The VMS dataset excludes ICES rectangles with less than five transmissions and the data do not differentiate between vessels that are fishing or stationary / steaming (although it is filtered to include vessels travelling between 1 knot and 6 knots to limit the effect this has on the data).



AIS data does not typically provide information on fishing method, and some errors in fishing vessel categorisation may be present.

All data sources have been carefully reviewed with a consideration of the key limitations and uncertainties of each source. In addition, data sources have been considered in the context of other sources to further corroborate each source, and this has been supplemented by consultation.

## **13.6 Key Parameters for Assessment**

As detailed in Chapter 4: Project Description, this assessment considers a Project Design Envelope (PDE), which encompasses a Maximum Design Scenario (MDS) or a worst-case scenario. The MDS represents, for any given receptor and potential impact on that receptor that would result in the greatest potential for change.

Given that the MDS is based on the design option (or combination of options) that represents the greatest potential for change, confidence can be held that development of any alternative options within the design parameters will give rise to no worse effects than identified in this impact assessment. Table 13-4 presents the worst-case scenario for potential impacts on Commercial Fisheries during construction, operation and maintenance and decommissioning.

Table 13-4 Worst case scenario specific to Commercial Fisheries receptor impact assessment

POTENTIAL IMPACT	WORST CASE SCENARIO	JUSTIFICATION
Construction		
<p><b>Temporary loss of access to fishing grounds due to presence of vessels and safety zones</b></p>	<ul style="list-style-type: none"> <li>• Pre-construction activities, including:                             <ul style="list-style-type: none"> <li>– Pre-lay grapnel run along the entire length of the cable; and</li> <li>– Pre-installation surveys, of maximum one day.</li> </ul> </li> <li>• WTG:                             <ul style="list-style-type: none"> <li>– One 3MW WTG;</li> <li>– One Floating substructure covering an area of approx. 2,500 m<sup>2</sup>;</li> <li>– Up to six mooring lines with a length of 610 m with a seabed length of up to 110 m; and</li> <li>– Up to six anchors of 11.2 m long by 11.2 m wide by 6 m high.</li> </ul> </li> <li>• Export Cable:                             <ul style="list-style-type: none"> <li>– One approximately 2.5 km long export cable.</li> </ul> </li> <li>• Wet storage of the mooring system;</li> <li>• 500 m radius safety zone around the WTG location for construction, 500 m advisory safety zones around construction vessels and areas of cable awaiting burial or protection;</li> <li>• A maximum of one month of construction; and</li> <li>• A maximum of 4 construction and support vessels.</li> </ul>	<p>This would result in the maximum extent and duration of potential exclusion from fishing during the construction stage.</p>
<p><b>Temporary displacement of fishing activity into other areas</b></p>	<ul style="list-style-type: none"> <li>• As per temporary loss of access as this will result in the greatest potential for temporary displacement of fishing activity into other areas.</li> </ul>	<p>The aforementioned would result in the maximum extent and duration of potential temporary loss of access, resulting in temporary displacement.</p>
<p><b>Interference with fishing activity as a result of increased vessel traffic</b></p>	<ul style="list-style-type: none"> <li>• A maximum of 4 construction and support vessels;</li> <li>• A maximum of one month of construction.</li> </ul>	<p>Maximum number of vessels and vessel transits would result in the maximum potential for interference / conflict between construction vessels and fishing activity.</p>
<p><b>Snagging risk during construction</b></p>	<ul style="list-style-type: none"> <li>• As per temporary loss of access as this will result in the greatest potential for snagging risks for fishing vessels, as well as:                             <ul style="list-style-type: none"> <li>– Potential for dropped objects.</li> </ul> </li> </ul>	<p>Installation of greatest number and extent of infrastructure would result in the greatest potential for snagging risk for fishing vessels.</p>

POTENTIAL IMPACT	WORST CASE SCENARIO	JUSTIFICATION
Operation and maintenance		
<b>Long term loss of access to fishing grounds due to the presence of vessels and safety zones</b>	<ul style="list-style-type: none"> <li>Operational life up to 10 years;</li> <li>WTG:                             <ul style="list-style-type: none"> <li>One 3 MW WTG;</li> <li>One Floating substructure covering an area of approx. 2,500 m<sup>2</sup>;</li> <li>Up to six mooring lines with a length of 610 m with a seabed length of up to 110 m; and</li> <li>Up to six anchors of 11.2 m long by 11.2 m wide by 6 m high.</li> </ul> </li> <li>Export Cable:                             <ul style="list-style-type: none"> <li>One approximately 2.5 km long export cable; and</li> <li>Up to 50% of the cable protected (1,000 m), with rock berms, with a maximum width of cable protection of 7 m, remainder of the cable protected by trenching.</li> </ul> </li> <li>Presence of an operational 500 m statutory safety zone around the WTG; and</li> <li>Presence of an 500 m safety zone during maintenance of the WTG, and an 500 m safety zone around maintenance vessels.</li> </ul>	This would result in the maximum extent of potential loss of access, resulting in displacement.
<b>Long term displacement of fishing activity into other areas</b>	<ul style="list-style-type: none"> <li>As per long term loss of access as this will result in the greatest potential for displacement of fishing activity into other areas.</li> </ul>	The maximum physical presence of infrastructure and cables would result in the greatest potential loss of access during the operation and maintenance stage.
<b>Interference with fishing activity as a result of increased vessel traffic</b>	<ul style="list-style-type: none"> <li>Presence of 500 m safety zones around vessels during maintenance activities.</li> </ul>	Maximum number of vessels and vessel transits would result in the maximum potential for interference / conflict between operation and maintenance vessels and fishing activity.
<b>Snagging risk during Operation and Maintenance</b>	<ul style="list-style-type: none"> <li>As per long term loss of access as this will result in the greatest potential for snagging risks for fishing vessels.</li> </ul>	Installation of greatest number and extent of infrastructure would result in the greatest potential for snagging risks for fishing vessels.
Decommissioning		
<b>The MDS for decommissioning will be the same or less than during construction.</b>		

## 13.7 Methodology for Assessment of Effects

An assessment of potential impacts is provided separately for the construction, operation and maintenance and decommissioning stages.

The assessment for Commercial Fisheries is undertaken following the principles set out in Chapter 6: EIA methodology. The sensitivity of the receptor is combined with the magnitude to determine the impact significance. Topic-specific sensitivity and magnitude criteria are assigned based on professional judgement, as described in Table 13-5 and Table 13-6.

Table 13-5 Sensitivity criteria

SENSITIVITY RECEPTOR	OF DEFINITION
High	Limited operational range and/or limited gear / target species versatility. High dependence upon a single fishing ground.
Medium	Moderate extent of operational range and/or limited gear / target species versatility. Dependence upon a limited number of fishing grounds.
Low	Extensive operational range and/or some gear / target species versatility. Ability to fish a number of fishing grounds.
Negligible	Extensive operational range and high gear / target species versatility. Vessels are able to exploit a large number of fishing grounds.

Table 13-6 Magnitude criteria

MAGNITUDE CRITERIA	DEFINITION
High	The area affected by the impact sustains high levels of activity by the fleet and covers a moderate extent of its grounds; and/or The impact is permanent or long-term (temporary but occurs over a long period (i.e. years)).
Medium	The area affected by the impact sustains medium / high levels of activity by the fleet and covers a small extent of its grounds; and/or The impact is temporary but occurs over a relatively long period (i.e. months).
Low	The area affected by the impact sustains medium / low levels of activity by the fleet and covers a small extent of its grounds; and/or The impact is temporary and occurs over a relatively short timescale (i.e. weeks).
Negligible	The fleet has very little or no history of fishing in the area affected; and/or The impact is short term (i.e. days).

The consequence and significance of effect is then determined using the matrix provided in Chapter 6: EIA methodology.

Assessment of safety issues

The criteria for the assessment of safety aspects are different from the assessment criteria outlined in Table 13-5 and Table 13-6. This is in line with Marine Guidance Note 654 the International Maritime Organisation Formal Safety Assessment process, as outlined in Chapter 13: Shipping and Navigation. Table 13-7, Table 13-8 and Table 13-9 below show the criteria for the assessment for the safety aspects.

Table 13-7 The severity of consequences

SEVERITY OF CONSEQUENCE	DEFINITION <sup>1</sup>
Major	More than one fatality, total loss of property, tier 3 national assistance required and international reputational effects.
Serious	Multiple serious injuries or single fatality, damage resulting in critical impact on operations, tier 2 regional assistance required, and national reputational effects.

<sup>1</sup> Pollution incident tiers are based on those established in the National Contingency Plan (NCP) (MCA, 2014).

SEVERITY OF CONSEQUENCE OF DEFINITION <sup>1</sup>	
Moderate	Multiple minor or single serious injury, damage not critical to operations, tier 2 limited external assistance required, and local reputational effects.
Minor	Slight injury to people, minor damage to property, tier 1 local assistance required, and minor reputational effects limited to receptors.
Negligible	No perceptible effect.

Table 13-8 The frequency of occurrence

FREQUENCY OF OCCURRENCE OF DEFINITION	
Frequent	Yearly.
Reasonably Probable	One occurrence per 1 to 10 years.
Remote	One occurrence per 10 to 100 years.
Extremely Unlikely	One occurrence per 100 to 10,000 years.
Negligible	Less than one occurrence per 10,000 years.

The risk ranking matrix used to determine the significance of effects from the severity of consequences and the frequency of occurrence is presented in Table 13-9.

Table 13-9 Significance of effects

		FREQUENCY OF OCCURRENCE									
		<i>Frequent</i>		<i>Reasonably Probable</i>		<i>Remote</i>		<i>Extremely Unlikely</i>		<i>Negligible</i>	
SEVERITY OF CONSEQUENCE	<i>Major</i>	Unacceptable		Unacceptable		Unacceptable		Tolerable with Mitigation		Tolerable with Mitigation	
	<i>Serious</i>	Unacceptable		Unacceptable		Tolerable with Mitigation		Tolerable with Mitigation		Broadly Acceptable	
	<i>Moderate</i>	Unacceptable		Tolerable with Mitigation		Tolerable with Mitigation		Broadly Acceptable		Broadly Acceptable	
	<i>Minor</i>	Tolerable with Mitigation		Tolerable with Mitigation		Broadly Acceptable		Broadly Acceptable		Broadly Acceptable	
	<i>Negligible</i>	Tolerable with Mitigation		Broadly Acceptable		Broadly Acceptable		Broadly Acceptable		Broadly Acceptable	

In EIA terms, impacts which are assessed as being Tolerable with Mitigation or Broadly Acceptable are considered 'not significant', while Unacceptable impacts are considered 'significant'.

### 13.8 Embedded Mitigation

As described in Chapter 6: EIA Methodology, certain measures have been adopted as part of the Project development process to reduce the potential for impacts to the environment, as presented in Table 13-10. These have been accounted for in the assessment presented below. The requirement for additional mitigation measures (secondary mitigation) will be dependent on the significance of the effects on Commercial Fisheries receptors.

Table 13-10 Embedded mitigation measures relevant to Commercial Fisheries.

MITIGATION MEASURE	DESCRIPTION	FORM (PRIMARY OR TERTIARY)	HOW MITIGATION WILL BE SECURED
Application safety zones	<p>for The floating WTG is being treated as a supplementary unit under the HSE Offshore Installations and Pipeline Works (Management and Administration) Regulations 1995 and as such, Total are applying for a 500 m safety exclusion zone centred around the WTG. In addition, a 500-m advisory safety zone will also be requested around project vessels (e.g. During cable-laying).</p>	Primary	Application submitted as required under the HSE Offshore Installation and Pipeline Works (Management and Administration Regulation 1995.
Cable Plan (CaP) and Cable Burial Risk Assessment (CBRA)	<p>The cable will be routed to avoid sensitive features wherever practicable and buried as the primary cable protection method. Additional cable protection may be used where adequate burial cannot be achieved and this will be minimised as far as is practicable. This will be informed by a cable burial risk assessment (CBRA), completed to determine the suitable cable protection measures, and implemented through relevant project plans.</p> <p>It is currently assumed that the minimum target depth of lowering will be 0.6 m. Cable protection will be suitably installed and monitored throughout the design life, with any damage, destruction or decay of the protection/cables which may pose a hazard to other sea users notified to MCA, NLB, Kingfisher and UKHO no later than 24 hours after discovery. Repairs will be conducted as necessary, and as soon as is practicable. Details will be provided within the CaP and CBRA.</p>	Primary	Secured through condition attached to the Marine Licence.





MITIGATION MEASURE	DESCRIPTION	FORM (PRIMARY OR TERTIARY)	HOW MITIGATION WILL BE SECURED
<i>External protection will be designed to minimise snagging risk as far as practicable.</i>			
<b>Charting infrastructure</b>	<b>of</b> Notification to UKHO Admiralty Charts / Kingfisher of the proposed works, as-built anchor locations, mooring lines, cable routes, and associated locations of external protection to facilitate sharing of maritime safety information.	Primary	Secured through condition attached to the Marine Licence.
<b>Promulgation information</b>	<b>of</b> Details of the Project will be promulgated in advance of, and during, construction via the appropriate channels, such as Notifications to Mariners (NtM) and Kingfisher Bulletins to ensure other sea users are informed about ongoing and upcoming works.	Primary	Secured through condition attached to the Marine Licence.
<b>Emergency Response and Rescue Vessel (ERRV)</b>	The ERRV serving the Culzean Gas Field will support the Project including undertaking guard duties.	Primary	Required under MGN 654.
<b>Lighting marking</b>	<b>and</b> Lighting and marking of the Project will be deployed in agreement with NLB and in accordance with IALA Recommendation O-139 (IALA, 2021a) and Guideline G1162 (IALA, 2021b).	Primary	Secured through condition attached to the Marine Licence.
<b>Marine coordination for Project vessels</b>	Marine coordination will be implemented to manage project vessels during construction, maintenance and decommissioning activities, in accordance with the Vessel Management Plan (VMP) and Navigational Safety Plan (NSP). The VMP will detail the number, type and specification of vessels utilised during construction and operation. This will also detail the ports and transit corridors proposed. The NSP will be developed for the Project and will detail all navigational safety measures, construction exclusion zones if required, NtM and radio navigation warnings, anchoring areas, lighting and marking requirements and emergency response procedures during all phases of the project.	Primary	Secured through condition attached to the Marine Licence.



MITIGATION MEASURE	DESCRIPTION	FORM (PRIMARY OR TERTIARY)	HOW MITIGATION WILL BE SECURED
Project vessel compliance with international marine regulations	All project vessels will ensure compliance with Flag State regulations including the Convention on the COLREGs and Safety at Life at Sea (SOLAS), including the display of appropriate lights and shapes such as when vessels are restricted in their ability to manoeuvre, as per the VMP and NSP.	Tertiary	Secured through condition attached to the Marine Licence.
Decommissioning Programme	A Decommissioning Programme will be developed prior to decommissioning to address the principal decommissioning measures for the Project, this will be written in accordance with applicable guidance and detail the management, environmental management, and schedule for decommissioning.	Tertiary	Secured through condition attached to the Marine Licence.
Boulder locations	The Project will ensure that it shares the pre- and post-lay locations of boulders with the fishing industry.	Tertiary	Secured within conditions attached to the Marine Licence.
Procedures for dropped objects and claim processes for loss/damage to fishing gear/vessels.	Protocols and procedures for dropped objects will be adhered to, to minimise the risk of equipment snagging from large, dropped objects associated with the Project.	Tertiary	Secured within conditions attached to the Marine Licence.

## 13.9 Assessment of Impacts

### 13.9.1 Potential effects during construction

#### 13.9.1.1 Temporary loss of access to fishing grounds due to the presence of vessels and safety zones

There will be a 500 m statutory safety zones around the WTG during construction, and access to fishing grounds within this safety zone will be temporarily lost during the Project's construction stage. In addition, 500 m advisory safety zones will be implemented around construction vessels and in areas of cable awaiting burial or protection. Therefore, the area occupied by statutory and advisory safety zones may increase as construction progresses.

The total duration of the installation phase is expected to be one month.

This temporary loss of access to fishing grounds impact will be reduced through the embedded mitigation measures outlined in Table 13-10, including communications from the Fisheries Liaison Officer (FLO) and promulgation of information through Notices to Mariners (NtMs) and Kingfisher notifications to ensure that fishers are aware of the construction works and provided with updated information. An Emergency Response and Rescue Vessel (ERRV) (where required) will also be onsite, where appropriate, during construction works to aid offshore communications between the Project vessels and fishing vessels active in the area.

#### Demersal trawlers

The landings value data indicate that demersal trawling, targeting mainly *Nephrops*, accounts for most of the landings within the Commercial Fisheries Study Area. *Nephrops* are dependent on certain seabed habitats, and vessels may be dependent on the quotas allocated to the vessel.

All landings values in the Study Area are associated with demersal trawlers over 10 m in length, therefore in combination with the offshore location of the Project, the operational range of these vessels is expected to be high. For these reasons, demersal trawlers are considered to have a wide availability of alternative grounds (dependent on quota limits) and are considered to be of **low** sensitivity to loss of access to fishing grounds.

Based on the VMS data, demersal trawling within the Project is of low value and effort. The Project is considered to represent a minimal extent of the available fishing grounds in the area. Temporary loss or restricted access to fishing grounds within the Project are anticipated to apply only to the 500 m statutory safety zones around the turbine and the 500 m advisory safety zones around construction vessels and in areas of cable awaiting burial or protection.

As described in Section 12.8, any temporary loss of access to fishing grounds will be reduced through the implementation of embedded mitigation measures, including effective fisheries liaison, to ensure all fishers are aware of construction works and can plan accordingly.

Considering the information described above, the impact is defined as being of **negligible** magnitude.

### Evaluation of significance

Taking the **low** sensitivity of demersal trawlers and the **negligible** magnitude of impact, the overall effect to demersal trawlers is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Low	Negligible	Negligible

Impact significance - NOT SIGNIFICANT

### Non-UK fishing vessels

EU vessels operating in the Commercial Fisheries Study Area have large operational ranges. Therefore, non-UK fishing vessels are considered to be of **negligible** sensitivity to loss of access to fishing grounds.

Vessel sightings by non-UK vessels is low within the ICES area 43F1 and there are no vessel sightings within the immediate Project Area. Alongside the temporary and localised nature of any loss of access to fishing grounds during construction, the impact is defined as being of **negligible** magnitude.

### Evaluation of significance

Taking the **negligible** sensitivity of non-UK fishing vessels and the **negligible** magnitude of impact, the overall effect to demersal trawlers is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Negligible (not significant)	Negligible (not significant)	Negligible (not significant)

Impact significance - NOT SIGNIFICANT

### 13.9.1.2 Temporary displacement of fishing activity into other areas

As a result of the temporary loss of access to fishing grounds during construction, fishing activity may be temporarily displaced to alternative areas. Displacement of fishing activity can cause competition between fishing vessels. This could potentially directly impact vessels being displaced from the Study Area (i.e. primary displacement impacts) and indirectly impact vessels in established fishing grounds that vessels from the Study Area are displaced to (i.e. secondary displacement impacts). Displacement within the Study Area may occur from the 500 m statutory safety zones around the turbine and the 500 m advisory safety zones associated with construction vessels and areas of wet storage.



The displacement of fishing activity is assessed with direct reference to the assessment of loss or restricted access to fishing grounds, as the latter leads to the former. However, predicting where fishing is likely to be displaced to is complex and depends on a number of different assumptions which make these predictions unreliable. It is expected that vessels will focus displaced effort in established fishing grounds for the same fishing method and target species. However, it is acknowledged that this will not always be the case as this will depend on the fishing patterns of individual skippers. For the assessment, it is assumed that fishing vessels with a greater operational range and a wider availability of alternative grounds will be less sensitive to displacement impacts.

**Demersal trawlers**

As described in Section 12.9.1.1, effort by demersal trawlers active in the Commercial Fisheries Study Area are exclusively over 10 m in length, and therefore have a wide availability of alternative grounds. Therefore, demersal trawlers are considered to be of **low** sensitivity to temporary displacement into other areas.

Displacement of demersal trawlers during construction will be spatially limited to the 500 m statutory safety zone around the turbine, and 500 m advisory safety zones around construction vessels and areas of cable awaiting cable burial or protection, over a total period of one month. Secondary displacement impacts on demersal trawlers are expected to be very limited due to the small size of the Project and the limited fishing activity in the Study Area.

Considering the very small area that vessels will be displaced from and the wide operational range of demersal trawlers within the Commercial Fisheries Study Area, there is considered to be a limited potential of displacement during construction. Considering this, the impact is defined as being of **negligible** magnitude.

**Evaluation of significance**

Taking the **low** sensitivity of demersal trawlers and the **negligible** magnitude of impact, the overall effect to demersal trawlers is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Low	Negligible	Negligible

Impact significance - NOT SIGNIFICANT

**Non-UK fishing vessels**

EU vessels operating in the Commercial Fisheries Study Area have large operational ranges. Therefore, non-UK fishing vessels are considered to be of **negligible** sensitivity to displacement.

Vessel sightings by non-UK vessels is low within the ICES area 43F1 and there are no vessel sightings within the Project Area itself. Due to the limited sightings, impacts relating to non-UK vessels being displaced from the Study Area

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expected to be minimal. Due to the expected minimal displacement from UK vessels, secondary displacement is also expected to be minimal.

Taking the above into account, the impact is defined as being of **negligible** magnitude.



Evaluation of significance

Taking the **negligible** sensitivity of non-UK fishing vessels and the **negligible** magnitude of impact, the overall effect to demersal trawlers is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Negligible	Negligible	Negligible

Impact significance - NOT SIGNIFICANT

**13.9.1.3 Interference with fishing activity as a result of increased vessel traffic**

Increased vessel traffic associated with construction works may lead to interference with fishing activity causing transiting vessels to alter course to/from their home port and/or to/from their fishing grounds, hence increasing steaming times and fuel costs. Any increased risk of navigational safety hazards for fishing vessels associated with increased vessel traffic as a result of the Project are discussed in Chapter 15: Shipping and Navigation.

There will be ongoing communication with Commercial Fisheries stakeholders via the communication channels listed within the embedded mitigation in Section 12.8, such as the circulation of information through NtMs. An FLO will be in place to coordinate communications with the fishing industry. Furthermore, all construction vessels will adhere to the Convention on the International Regulations for Preventing Collisions at Sea (COLREGs).

An ERRV (where required) will also be onsite, where appropriate, during construction works to aid offshore communications and warnings of any hazards associated with the Project Area.

All fleets are considered to have a **low** sensitivity, considering all embedded mitigation and the small Project Area.

Based on the fishing data considered, the Project is of low value and effort. The Project is considered to represent a minimal extent of the available fishing grounds in the area, and the nature of the impact will be temporary.

Taking the above into account, the impact is defined as being of **negligible** magnitude.

Evaluation of significance

Taking the **low** sensitivity of all Commercial Fisheries receptors and the **negligible** magnitude of impact, the overall effect is considered to be **minor** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Low	Negligible	Negligible



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Impact significance - NOT SIGNIFICANT

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#### 13.9.1.4 Fishing gear interactions

Entanglement or snagging of fishing gear engaged in active fishing may result in damage or loss of gear and pose potential risks to the vessel and crew. Safety risks associated with the potential collision of fishing vessels with construction vessels as well as the Project associated infrastructure itself, are addressed in Chapter 13: Shipping and Navigation.

The criteria for the assessment of safety issues differ from other environmental impacts. Impacts relating to health and safety are assessed in terms of potential risk, in line with the criteria used in Chapter 13: Shipping and Navigation, as described in Section 12.7.

The floating structure, portions of the export cable and mooring lines located within the water column, and areas of unprotected cable on the seabed during construction may present a potential entanglement risk for fishing gear. The worst-case scenario also considers a wet storage of mooring equipment on the seabed for up to one month. Project infrastructure could be placed on the seabed until connected and may present a potential entanglement risk for fishing gear. Vessels operating mobile gear, including demersal trawlers, are potentially vulnerable to gear entanglement, due to these gear types being towed along the seabed behind the vessel. Entanglement of fishing gear could result from a vessel engaging in fishing near areas of exposed cables, temporary infrastructure, or wet stored mooring equipment. Although fishers are advised to follow the current maritime industry guidance (MGN 661, the Mariner's and all Admiralty charts) and avoid demersal trawling (and anchoring) in the immediate vicinity of the cables and subsea infrastructure, it is acknowledged that some fishing activity near the Project Area may occur during the construction phase, at the discretion of the skipper and their perception of risk.

In the event of gear interacting with subsea infrastructure, the response from the fishing vessel skipper would include reducing / reversing the propulsive force, attempting to unfasten the equipment, or releasing the gear. Therefore, in the majority of snagging incidents, it should be possible to recover the situation without any serious consequences (e.g. vessel damage or injury to crew members). However, accident data from the MAIB indicates that safe recovery from a snagging incident is not always the outcome. Consequences of snagging therefore range from damage to gear, loss of stability due to lines being put under strain and in the worst case, capsize of the vessel, persons overboard and risk of injury or fatality. The severity of consequence is therefore considered to be **serious**.

The baseline data shows a low utilisation of the Project Area by trawl fisheries, and as such any potential interaction between fishing gear and the subsea infrastructure is expected to be very infrequent. In addition, Commercial Fisheries stakeholders will be informed of the locations of subsea infrastructure, wet stored, and unburied cable via the communication channels listed within the embedded mitigation in Section 12.8, such as the circulation of information through NtMs and the Kingfisher Information Service. A company FLO will be in place to coordinate communications with the fishing industry. An ERRV will be onsite, if required, during construction works to aid offshore communications and warnings of any hazards associated with the development. As such the frequency of occurrence is assessed to be **extremely unlikely**.

An Emergency Response Cooperation Plan (ERCoP) will detail the emergency response procedures in place during the construction phase and this will be developed in consultation with fisheries stakeholders. This is expected to minimise the risk to commercial fishing vessels and their crew.



Evaluation of significance

Taking the **extremely unlikely** frequency and the **serious** severity, the overall risk is considered to be **tolerable** and therefore **not significant** in EIA terms.

Frequency	Severity	Overall risk
Extremely Unlikely	Serious	Tolerable with Mitigation

Impact significance - NOT SIGNIFICANT

### 13.9.2 Potential effects during operation and maintenance

#### 13.9.2.1 Long term loss of access to fishing grounds due to the presence of vessels and safety zones

The worst-case scenario for loss of access during the operation and maintenance period assumes that the turbine restricts access to a local fishing ground. There is no legislative requirement for the prevention of fishing around single turbines. Therefore, the loss of access during operation and maintenance will be localised around the turbine.

A 500 m operational safety zone, and 500 m statutory safety zones around the turbine during major maintenance activities will result in loss of access during the operation and maintenance stage. 500 m advisory zones may also be established around vessels during maintenance works. No loss of access over interconnector cable would be expected in the exception of any 500 m advisory safety zones implemented during maintenance activities.

It is acknowledged that the decision to fish near the turbine will be at the discretion of each skipper, however, due to the highly localised impact of a single turbine, it is assumed that fishing near the turbine is possible in the operation and maintenance stage for all different types of vessels.

As a worst case, it is assumed that one offshore export cable will be installed. The offshore export cable will be buried to a target depth of 0.6 m where possible, and this will be informed by a Cable Burial Risk Assessment (CBRA). It is expected that up to a maximum of 50% of the offshore export cables will be buried with the potential for 1 km requiring additional protection.

Total advises skippers to follow the current maritime industry guidance (MGN 661, the Mariner’s Handbook and all Admiralty charts) and avoid demersal trawling (and anchoring) in the immediate vicinity of the cable. It is however acknowledged that fishing may still occur over the cable either inadvertently, or at the discretion of fishing vessel operators. As such the cable will be protected to minimise the risk of damage through interactions with fishing equipment as far as is practicable. In areas where external protection is required, it will be designed to reduce potential snagging risk with fishing gear as far as is practicable, in line with industry best practice guidance (i.e. use of graded



rock and berms designed with 1:3 side slopes). Furthermore, post-lay and burial inspections surveys will be undertaken, and assessments carried out to determine cable burial status (including cable protection) and to identify potential changes to seabed conditions. The post lay survey results, including the location, extent and nature of any external cable protection measures used, will be provided to the UKHO and Kingfisher for inclusion in Admiralty and KIS-ORCA charts. This information will also be provided to relevant fishing industry stakeholders.

**Demersal trawlers**

As described for construction in Section 12.9.1.1, based on VMS data, demersal trawling within the Study Area is of low value and effort. In addition, this gear type has high versatility. Therefore, demersal trawlers are considered to be of **low** sensitivity to loss of access to fishing grounds.

Demersal trawl nets are held open by trawl doors (otter boards) and the net is towed several tens or hundreds of metres behind the vessel, with the width between the trawl doors also being up to tens or hundreds of metres. It is assumed based on the operational spread of demersal trawling gear and the limited amount of turbines (one), that fishing by demersal trawlers may resume around the turbine during the operation and maintenance stage.

As mentioned above, the cable will be protected to minimise the risk of damage through interactions with fishing equipment as far as is practicable. In areas where rock protection is required, it will be designed to reduce potential snagging risk with fishing gear as far as is practicable. Post lay surveys will be conducted, and as built positions of cables and associated external protection will be provided to the UKHO, KIS-ORCA, and relevant fisheries stakeholders.

The value of the Study Area for demersal trawlers is considered to be low, representing a very small extent of the available grounds in the area. Considering the minimal area lost to demersal trawlers when compared to the available fishing grounds alongside the long-term nature of the impact, the impact is defined as being of **negligible** magnitude.

**Evaluation of significance**

Taking the **low** sensitivity of demersal trawlers and the **negligible** magnitude of impact, the overall effect to demersal trawlers is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Low	Negligible	Negligible

Impact significance - NOT SIGNIFICANT

**Non-UK fishing vessels**



EU vessels operating in the Commercial Fisheries Study Area have large operational ranges. Therefore, non-UK fishing vessels are considered to be of **negligible** sensitivity to displacement.

Vessel sightings by non-UK vessels is low within the ICES area 43F1 and there are no vessel sightings within the Project Area itself. Alongside the very localised nature of any loss of access to fishing grounds during operation and maintenance, the impact is defined as being of **negligible** magnitude.



Evaluation of significance

Taking the **negligible** sensitivity of non-UK fishing vessels and the **negligible** magnitude of impact, the overall effect to demersal trawlers is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Negligible	Negligible	Negligible

Impact significance - NOT SIGNIFICANT

**13.9.2.2 Long term displacement of fishing activity into other areas**

As described in Section 12.9.1.2, loss or restricted access to fishing grounds may result in the relocation of fishing effort to alternative grounds, potentially increasing competition and gear conflict. The impact assessment considers both primary and secondary displacement impacts.

Demersal trawlers

As described for construction, demersal trawlers are considered to have a **low** sensitivity to displacement as those present in the Study Area are exclusively over 10 m and this fleet has a wide availability of alternative grounds.

Larger demersal trawlers are likely to resume fishing around the single turbine when constructed. Therefore, displacement is unlikely to occur for the operational life of the Project.

For the same reasons described for construction in Section 12.9.1.2, secondary displacement impacts are also expected to be minimal.

Despite this impact being long-term, considering the unlikelihood of displacement to occur, the wide availability of alternative grounds for demersal trawlers and the small proportion of these grounds that the Study Area represents, the impact is defined as having a **negligible** magnitude.

Evaluation of significance

Taking the **low** sensitivity of demersal trawlers and the **negligible** magnitude of impact, the overall effect to demersal trawlers is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Low	Negligible	Negligible

Impact significance - NOT SIGNIFICANT

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### Non-UK fishing vessels

For the same reasons described for construction, non-UK fishing vessels are considered to have a **negligible** sensitivity to displacement.

Vessel sightings by non-UK vessels is low within the ICES area 43F1 and there are no vessel sightings within the Project Area itself. The Study Area represents a very small proportion of the available grounds and there is a wide availability of alternative grounds for these vessels. Considering this, the impact is defined as being of **negligible** magnitude.

#### Evaluation of significance

Taking the **negligible** sensitivity of non-UK fishing vessels and the **negligible** magnitude of impact, the overall effect to demersal trawlers is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Negligible	Negligible	Negligible

Impact significance - NOT SIGNIFICANT

#### 13.9.2.3 Interference with fishing activity as a result of increased vessel traffic

Increased vessel traffic associated with maintenance works may lead to interference with fishing activity. Any increased risk of navigational safety hazards for fishing vessels associated with increased vessel traffic as a result of the Project are discussed in Chapter 15: Shipping and Navigation.

There will be ongoing communication with Commercial Fisheries stakeholders via the communication channels listed within the embedded mitigation in Section 12.8, such as the circulation of information through NtMs. Defined vessel routes and anchor areas will be in place for construction vessels, reducing the potential risks associated with the increased vessel traffic, and these will be detailed in the Vessel Management Plan (VMP), and communicated to the fishing industry. All construction vessels will adhere to the COLREGs.

All fleets are considered to have a **low** sensitivity, taking into account all embedded mitigation.

Based on the fishing data considered, the Project is of low value and effort. The Project is considered to represent a minimal extent of the available fishing grounds in the area, even though the nature of the impact will be long-term. Maintenance will only occur very occasionally, which decreases the chance of interference.

Taking the above into account, the impact is defined as being of **negligible** magnitude.

### Evaluation of significance

Taking the **low** sensitivity of all Commercial Fisheries receptors and the **negligible** magnitude of impact, the overall effect is considered to be **negligible** and **not significant** in EIA terms.

Sensitivity	Magnitude of impact	Consequence
Low	Negligible	Negligible

Impact significance - NOT SIGNIFICANT

#### 13.9.2.4 Fishing gear interactions

Entanglement or snagging of fishing gear engaged in active fishing may result in damage or loss of gear, as well as risks to the vessel and crew. Safety risks associated with the potential collision of fishing vessels with construction vessels as well as the Project associated infrastructure itself, are addressed in Chapter 13: Shipping and Navigation.

The criteria for the assessment of safety issues differ from other environmental impacts. Impacts relating to health and safety are assessed in terms of potential risk, in line with the criteria used in Chapter 13: Shipping and Navigation, as described in Section 12.7.

The worst-case scenario considers one turbine, six mooring lines with a length of up to 610 m, six anchors, and an export cable up to 2.5 km long, half of which may be protected by rock berm (with the remainder trenched). In addition, if boulder clearance is required, additional risks of fishing gear entanglement may occur, as fishers would avoid locations they know to include large boulders. As such, when boulders are moved, it may introduce an entanglement risk in an area which was previously thought to be safe.

Vessels operating mobile gear, including demersal trawlers, are potentially vulnerable to gear entanglement, due to these gear types being towed along the seabed behind the vessel. Entanglement of fishing gear could result from a vessel engaging in fishing near subsea cables, mooring lines, anchors and associated rock berms. Although fishers are advised to follow the current maritime industry guidance (MGN 661, the Mariner’s and all Admiralty charts) and avoid demersal trawling (and anchoring) in the immediate vicinity of the cables and subsea infrastructure, it is acknowledged that some fishing activity near the Project Area may occur during the construction phase, at the discretion of the skipper and their perception of risk.

In the event of gear interacting with subsea infrastructure, the response from the fishing vessel skipper would include reducing / reversing the propulsive force, attempting to unfasten the equipment, or releasing the gear. Therefore, in the majority of snagging incidents, it should be possible to recover the situation without any serious consequences (e.g. vessel damage or injury to crew members). However, accident data from the MAIB indicates that safe recovery from a snagging incident is not always the outcome. Consequences of snagging therefore range from damage to gear, loss of stability due to lines being put under strain and in the worst case, capsize of the vessel, persons overboard and risk of injury or fatality. The severity of consequence is therefore considered to be **serious**.





The baseline data shows a low utilisation of the Study Area by trawl fisheries, and as such any potential interaction between fishing gear and the subsea infrastructure is expected to be very infrequent. The locations of the mooring lines, cables and other subsea infrastructures will be provided to the UKHO and the Kingfisher Information Service for inclusion on Admiralty and KIS-ORCA charts, respectively. As built information (including pre rock berm extents) will also be provided directly to relevant fisheries organisations, as detailed in Section 12.8. The surface structures will also be adequately lit to make fishers aware of their presence and the associated risks, in line with industry best practices.

A CBRA will be undertaken post-consent to determine the protection levels (depths of lowering) required along the export cable corridor, which will be informed by an assessment of fishing activity in the area and fishing gear penetration depths for the various soil conditions present. This will ensure that the export cable will be suitably protected from interactions with fishing gear along its length. Trenching is the preferred method cable protection, and it is currently anticipated that 50 % (1,000 m) of the export cable will be trenched, with external protection (e.g. rock berms) for the remaining 50 % where successful trenching is not achieved. In areas where external protection is required, they will be designed to reduce potential snagging risk with fishing gear as far as is practicable, in line with industry best practice guidance (i.e. use of graded rocks and berms designed with 1:3 side slopes).

The subsea infrastructure, including mooring lines, cables and anchors will be regularly monitored to confirm their integrity. Maintenance activities are expected to be required infrequently, and post-installation surveys will provide detailed information on the condition and location of the subsea structures and identify areas where additional cable protection is required. In the event that snagging risks, (e.g. areas of exposed cable) are identified, the information will be promulgated to the fishing industry through NtMs and the Kingfisher Information Service, prior to remedial work being conducted. Given the low levels of fishing in the Project Area, and the mitigation measures outlined above the frequency of occurrence of fishing gear interactions during the operation phase is considered to be **extremely unlikely**.

**Evaluation of significance**

Taking the **extremely unlikely** frequency and the **serious** severity, the overall risk is considered to be **tolerable** and therefore **not significant** in EIA terms.

Frequency	Severity	Overall risk
Extremely Unlikely	Serious	Tolerable with Mitigation

Impact significance - NOT SIGNIFICANT

**13.9.3 Potential effects during decommissioning**

The targeted scenario for decommissioning is a clear seabed. Given the nature of the decommissioning activities, which will largely be a reversal of the installation process, the impacts during decommissioning are expected to be

similar to or less than those assessed for the construction stage. It should be noted that the decommissioning options for the export cable removal will be subject to comparative assessment of options at the end of the installation life. This will involve assessing the potential removal of artificial hard structures associated with the Project.

Therefore, the magnitude of impacts assigned to Commercial Fisheries receptors during the construction stage is also applicable to the decommissioning stage. It is also assumed that the receptor sensitivities will not materially change over the lifetime of the Project. Therefore, the decommissioning effects are not expected to exceed those assessed for construction.

As all abovementioned assessments are not expected to exceed the affects during construction, the same sensitivity and magnitude of impact as construction apply to decommissioning.

### **13.9.4 Summary of potential effects**

A summary of the outcomes of the assessment of potential effects from the construction, operation and maintenance and decommissioning of the Project is provided in Table 13-11.

No significant effects on Commercial Fisheries receptors were identified. Therefore, mitigation measures in addition to the embedded mitigation measures listed in Section 12.8 are not considered necessary.

Table 13-11 Summary of potential effects

POTENTIAL EFFECT	RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF IMPACT	CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANCE OF EFFECT)
<b>Construction and decommissioning</b>						
<b>Temporary loss of access to fishing grounds due to presence of vessels and safety zones</b>	Demersal trawlers	Low	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible (not significant)
	Non-EU vessels	Negligible	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible (not significant)
<b>Temporary displacement of fishing activity into other areas</b>	Demersal Trawlers	Low	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible (not significant)
	Non-EU vessels	Negligible	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible (not significant)
<b>Interference with fishing as result of increased vessel traffic</b>	All fleets	Low	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible (not significant)

POTENTIAL EFFECT	RECEPTOR	SENSITIVITY OF RECEPTOR	MAGNITUDE OF IMPACT	CONSEQUENCE (SIGNIFICANCE OF EFFECT)	SECONDARY MITIGATION REQUIREMENTS	RESIDUAL CONSEQUENCE (SIGNIFICANCE OF EFFECT)
Fishing Gear Interactions	All fleets	Extremely unlikely	Serious	Tolerable with Mitigation (not significant)	None above embedded mitigation	Negligible significant) (not significant)
<b>Operation and maintenance</b>						
Long term loss of access to fishing grounds due to the presence of vessels and safety zones	Demersal trawlers	Low	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible significant) (not significant)
	Non-EU vessels	Negligible	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible significant) (not significant)
Long term displacement of fishing activity into other areas	Demersal Trawlers	Low	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible significant) (not significant)
	Non-EU vessels	Negligible	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible significant) (not significant)
Interference with fishing as result of increased vessel traffic	All fleets	Low	Negligible	Negligible (not significant)	None above embedded mitigation	Negligible significant) (not significant)
Fishing Gear Interactions	All fleets	Extremely unlikely	Serious	Tolerable with Mitigation (not significant)	None above embedded mitigation	Negligible significant) (not significant)

## 13.10 Proposed Monitoring

No topic specific monitoring is proposed for Commercial Fisheries.

## 13.11 Cumulative Effects Assessment

Any potential impacts from the offshore Project could interact with impacts from other developments, plans and activities, resulting in a cumulative effect on Commercial Fisheries receptors. The general approach to the cumulative effects' assessment is described in Chapter 6: EIA Methodology and further detail is provided below. The Commercial Fisheries Zone of Influence (Zoi) has been defined by a 50 km buffer around the Project.

Demersal trawlers typically have larger operational ranges, therefore it is assumed that other developments within 50 km of the offshore Project could have the potential to result in cumulative impacts for this fleet. This includes the Central North Sea Electrification (CNSE) Project, approximately 11 km from the proposed WTG, and the Cenos Floating Offshore Windfarm, approximately 17.5 km from the proposed WTG. It is assumed that fishing will be minimally affected by the CNSE infrastructure. It is expected that fishing within floating wind farms developments may not be able to resume, though fishing over export cables is expected to be possible, where the target burial is met. Therefore, it is recognised that the area lost to demersal trawlers may increase when the cumulative developments are considered alongside the Project, and that this could be a long-term impact. However, considering the lower value of the fishing grounds for demersal trawls within the area covered by the cumulative developments alongside the offshore Project, the wide operational range of demersal trawlers, the wide availability of demersal trawling fishing grounds near the proposed Project Area and the highly localised impact of the project, there are no expected cumulative effects expected to occur.

## 13.12 Inter-Related Effects

Inter-relationships are defined as the interaction between the impacts assessed within different topic assessment chapters on a receptor. The other chapters and impacts related to the assessment of potential effects on Commercial Fisheries are provided in Table 13-12. For Commercial Fisheries, it is not anticipated that any inter-related effects will be produced that are of greater significance than the assessments presented for each individual phase noting that all impacts are at most Tolerable with Mitigation and As Low as Reasonably Practicable (ALARP).

Table 13-12 Commercial Fishing inter-relationships

CHAPTER	IMPACT	DESCRIPTION
<b>Chapter 8: Benthic Ecology</b>	Impacts on commercially important fish and shellfish species.	The impacts considered in this chapter includes consideration of potential effects on species of commercial importance. Impacts on fish and shellfish receptors could indirectly impact commercial fisheries.
<b>Chapter 9: Fish and Shellfish Ecology</b>	Impacts on commercially important fish and shellfish species.	Disturbance of commercially important species, e.g. through noise or long-term habitat loss, could lead to impacts to fishing for these species and thus indirectly impact the Commercial Fisheries.
	Impacts on commercially important fish and shellfish species from loss of spawning/ nursery grounds.	Direct habitat loss due to disturbance of spawning and nursery grounds during construction may result in impacts to fishing for these commercially important species.
<b>Chapter 13: Shipping and Navigation</b>	Further exclusion of sea space through vessel presence. Direct impacts from safety issues through vessel-to-vessel collision, vessel to structure collision, interference with navigation equipment and loss of station.	Impacts on Commercial Fisheries resulting from vessel presence, further excluding available sea space. Safety issues may arise from vessel-to-vessel collision, vessel to structure collision, interference with navigation equipment and loss of station. are also relevant to fishing vessels. These safety issues are discussed in Chapter 13: Shipping and Navigation.
<b>Chapter 16: Other Sea Users</b>	Further exclusion of sea space through vessel presence. Direct impacts from safety issues through vessel-to-vessel collision, vessel to structure collision, interference with navigation equipment and loss of station.	Impacts on Commercial Fisheries resulting from presence of Other Sea Users, further excluding available sea space. Safety issues may arise from vessel-to-vessel collision, vessel to structure collision, interference with navigation equipment and loss of station.

### 13.13 Transboundary Effects

Transboundary effects arise when impacts from a development within one European Economic Area (EEA) state’s territory affects the environment of another EEA state(s). There have been sightings of non-UK vessels in ICES rectangle 43F1, where the Project is located, as shown in Figure 13-2. However, due to the limited amount of fishing in the area, the small scale of the Project, and no significant effects on non-UK fishing fleets have been identified, and therefore, the potential impacts of the Project on Commercial Fisheries receptors are not expected to affect other EEA states.



## 13.14 Summary of Impacts and Mitigation Measures

No secondary mitigation, over and above the embedded mitigation measures proposed in Section 12.8 is either required or proposed in relation to the potential effects of the Project on Commercial Fisheries as no significant impacts are predicted.

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