# 13. COMMERCIAL FISHERIES

## 13.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) presents the assessment of the potential effects of the Offshore Array Area (OAA), Offshore Substation, as well as the Offshore Export Cable (OEC), the Offshore Export Cable Corridor (OECC) and the Offshore Landfall (together referred to as the 'Offshore Site') on commercial fisheries, during the construction, operation, maintenance and decommissioning phases of the Project. The full Project Description is detailed in Chapter 5 of this EIAR.

### 13.1.1 Statement of Authority

This Chapter of the Environmental Impact Assessment (EIA) Report (EIAR) has been prepared and reviewed by Ashley Hecklinger (author) and Femke de Boer (reviewer) of Xodus Group Limited (Xodus).

Ashley Hecklinger holds a MSc in Marine Conservation and a Bachelor of Science in Biology. Ashley is an Environmental Consultant at Xodus with 2 years' experience in authoring offshore EIAR chapters and has been involved in fisheries engagement stakeholder meetings. Prior to joining Xodus, Ashley undertook modules on marine and fisheries ecology and fisheries science as part of her MSc where she became familiar with the North Sea fishing industry. Ashley received the Scottish Fishermen's Federation (SFF) Scottish Fishermen's Bursary Award for her MSc thesis research on the interaction between pelagic fish and offshore renewables. Furthermore, during her undergraduate studies Ashley specialised in ichthyological research.

Femke de Boer hold an MSc in Marine and Applied Fisheries Ecology and a BSc in Biology. Femke is a Commercial Fisheries Specialist at Xodus with 7 years' experience. Femke started her career at the Scottish Whitefish Producers Association (SWFPA), where, as part of the commercial fishing industry, she represented almost 250 active vessels. Femke gained detailed knowledge of the fishing industry, its operating practices, the dynamics, the potential sensitivities, and has gained a network of positive working relationships with many fisheries stakeholders. Since joining Xodus in 2021, Femke has worked on the production and review of various commercial fisheries and fish ecology chapters of scoping reports, EIAs and appraisals for many offshore renewable projects. Femke also worked on the production of strategies for potential fisheries related issues (including site selection and cable routing), gear relocation methodologies, managed fisheries stakeholder consultation, supported projects as Fishery Liaison Officer (FLO), assisted with responses to fisheries consultations, delivered presentations about the fishing industry and assisted with setting up the "Xodus and Fishing Industry Knowledge Sharing Group."

## 13.2 Legislation, Policy and Guidelines

In addition to the legislation, policy and guidelines listed in Section 1.2 of Chapter 1: Introduction, the legislation, policy and guidelines relevant to the assessment of potential effects from the Project on commercial fisheries receptors are outlined in Table 13-1.

*Table 13-1 Legislation, policy and guidelines relevant to commercial fisheries*

| Policy/Guidance | Reference |
|---|---|
| Policy | |
| Offshore Renewable Energy Development Plan (OREDP): A Framework for the Sustainable Development of Ireland's Offshore Renewable Energy Resource | Department of Communications, Energy and Natural Resources (now Department of the Environment, Climate and Communications (DECC)), 2014 |
| Marine Planning Policy Statement (Ireland) | Department of Housing, Local Government and Heritage (DHLGH), 2019 |
| National Marine Planning Framework (Ireland) | DHLGH, 2021a |
| Guidance | |
| Guidance on Environmental Impact Statement (EIS) and Natura Impact Statement (NIS) Preparation for Offshore Renewable Energy Projects | Barnes, 2017 |
| Seafood/Offshore Renewable Energy (ORE) Engagement in Ireland – A Summary Guide | DHLGH, 2023 |
| United Kingdom (UK) Guidance Note for Environmental Impact Assessment in respect of FEPA (FEPA) and Coastal Protect Act (CPA) requirements, version 2 | Centre For Environment Fisheries and Aquaculture Science (Cefas), 2004 |
| UK Guidelines for Data Acquisition to Support Marine Environmental Assessments of Offshore Renewable Energy Projects | Cefas, 2011 |
| UK Options and Opportunities for Marine Fisheries Mitigation associated with Windfarms commissioned by Collaborative Offshore Wind Research into the Environment (COWRIE) | Blyth-Skyrme, 2010a |
| UK Developing guidance on fisheries Cumulative Impact Assessment for wind farm developers | Blyth-Skyrme, 2010b |
| Guidelines on the information to be contained in Environmental Impact Assessment Reports | Environmental Protection Agency (EPA), 2022 |
| UK Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison | Fishing Liaison with the Offshore Wind and Wet Renewables Group (FLOWW), 2014 |
| UK Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds | FLOWW, 2015 |
| Assessment of Impact of Offshore Wind Energy Structures on the Marine Environment | Marine Institute, 2000 |
| UK Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments – Guidelines Based on Outputs from a Technical Workshop organised by the UK Fisheries Economic Network | Poseidon, 2012 |
| Scottish Good Practice Guidance for assessing fisheries displacement by other licensed marine activities | Scottish Government, 2022 (Prepared by Xodus) |
| UK Economic Impact Assessments of Spatial Interventions on Commercial Fishing: Guidance for Practitioners. Second Edition | Seafish and UKFEN, 2013 |

## 13.3 Consultation

Stakeholder consultation has been ongoing throughout the Project by the Fisheries Liaison Officer (FLO) and the Project team. The input from the FLO has played an important part in confirming the baseline characterisation and thus ensuring the scope of the effects assessment are appropriate with respect to the Project and the requirements of the regulators and their advisors.

The Scoping Report was distributed to key stakeholders in August 2023. Further consultation has been undertaken throughout the pre-application stage. Table 13-2 below summarises the consultation activities carried out relevant to commercial fisheries. There were many more discussions in phone calls and one to one meetings but Table 13-2 outlines the general meetings held.

*Table 13-2 Consultation relevant to commercial fisheries*

| Year | Date(s) | Consultation / Meeting |
|---|---|---|
| 2022 | 9th March, 27th April, 5th May, 25th May, 2nd June, 16th June, 22-24th June. | Meeting at Carna – Emigration Centre (9th March). Meetings at piers and various locations at Lettermullan, Kilkieran, Carna, Ard West, Roundstone, Bunowen, including calling to houses, etc. Discussed survey works and the wider project. |
| 2023 | 7th February, 3rd May, 13/14th June, 4/5th July, and 1/2nd August. | Meetings held at Roundstone, Ard West, Carna, Lettermullen, two at Rosamhíl to discuss survey works and the wider Project. |
| | 29th August | Meeting with FLO; confirmation of available data and fishing activity within the commercial fisheries study area |
| | 6th November | Meeting with FLO; confirmation of scouting and additional survey data. |
| 2024 | 20/21st February, 6/7th March, 28th March | Meetings held at Roundstone, Carna, Lettermullan, 28th March (Rosamhíl only) to discuss survey works and the wider Project. |

## 13.4 Assessment Methodology

### 13.4.1 Data and Information Sources

#### 13.4.1.1 Desktop Study

The existing data sets and literature with relevant coverage to the Project, which have been used to inform the commercial fisheries baseline are outlined in Table 13-3. The limitations and uncertainties associated with the datasets are discussed in Section 13.4.2 below.

*Table 13-3 Publicly available data and literature used to inform the commercial fisheries baseline*

| Title | Description/Source | Author | Publication Year |
|---|---|---|---|
| Ireland's Marine Atlas: Fishing Activity<br><br>Inshore Fishing | This dataset provides the location of inshore fishing activity for dredge, line, nets, bottom trawl, and pot fishing for the years 2011 – 2013.<br><br>The methodology for this dataset is not detailed; however, it is noted that the dataset was created in support of the Natura 2000 Risk Assessment for 2013. Information for the Risk Assessment was obtained through Vessel Monitoring Systems (VMS), landings by port, buyers, and sellers data as well as through regional workshops to gain local knowledge (i.e., An Bord Iascaigh Mhara (BIM), Sea-Fisheries Protection Authority (SFPA), and the Marine Institute) (Marine Institute, 2013).<br><br>The data represents the fishing activity of vessels under 15 m length. | Marine Institute | 2014 |
| Ireland's Marine Atlas: Fishing Activity<br><br>Offshore – Fishing Effort (2014 – 2018) (Irish and International) | This dataset provides the distribution of fishing effort by fishing vessels by gear type for the years 2014 – 2018. Fishing effort has been measured as average hours spent actively fishing per $km^2$ per year.<br><br>The data has been sourced from VMS information on vessel speed and position in 2-hour intervals for vessels over 12 m length. This data has then been filtered based on gear-specific speed criteria to identify only those vessels actively fishing (excluding steaming and inactivity).<br><br>The data on gear and landings for Irish vessels has been sourced from SFPA logbooks, and the European Union (EU) Fleet Register for non-Irish vessels and Irish vessels with unknown gear type. | Marine Institute | 2019a |
| Ireland's Marine Atlas: Fishing Activity<br><br>Offshore – Landing Values (2014 – 2018) (Irish) | This dataset provides the distribution of landings by Irish vessels for the years 2014 – 2018. Landings have been measured as average weight (kg) or value (€) of landing per $km^2$ per year. The data has been sourced from the VMS and Sea-Fisheries Protection Authority logbook as described for the offshore fishing effort data above. | Marine Institute | 2019b |
| Average Annual Landings by Vessel | This MMO dataset has been used to supplement the Irish data sources above for fullness of the commercial fisheries assessment, given the lack of publicly | Marine Management Organisation (MMO) | 2023 |

| Title | Description/Source | Author | Publication Year |
|---|---|---|---|
| Length, Species & Gear Type | available fishing data in the commercial fisheries study area. The MMO dataset provides data for all vessels which landed into United Kingdom (UK) ports between 2018 to 2022, including records of vessel nationality as well as the ICES rectangle the fishing activity took place in. Therefore, this dataset has been filtered to only reflect fishing activity by vessels which occurred within the ICES rectangles which comprise the commercial fisheries study area.<br><br>This dataset provides landings data by ICES rectangle for the five-year average from 2018 to 2022. The annual average landings data has been categorized by vessel length (m), gear type, and species. It should be noted that for non-UK vessels, only landings at UK ports are counted, represented in pound sterling (£). | | |
| Atlas of commercial fisheries around Ireland, third edition | https://oar.marine.ie/handle/10793/1432 | Gerritsen, H.D. and Kelly, E. | 2019 |
| Annual Fisheries Report: Findings of the National Seafood Survey 2023 | https://bim.ie/publications/fisheries/ | BIM | 2023a |
| The Business of Seafood 2022 | https://bim.ie/publications/corporate-and-other-reports/ | BIM | 2023b |
| West Regional Inshore Fisheries Forum (RIFF) | https://inshoreforums.ie/west-overview/ | Fóraim Iascaigh Cois Cladaigh (Inshore Fisheries Forums) | 2023 |
| Automatic Identification System (AIS) | The unique vessels over 12m from 2018 to 2023 within the OAA; and the total hours of fishing by over 12m trawlers within the OAA between 2018 and 2023. | Fisheries Liaison Officer (FLO) | 2023 |
| VMS | Number of VMS pings per 0.5 $km^2$ grid cell from 2019 – 2022. | Irish Defence Forces | 2023 |

#### 13.4.1.2 Site Surveys

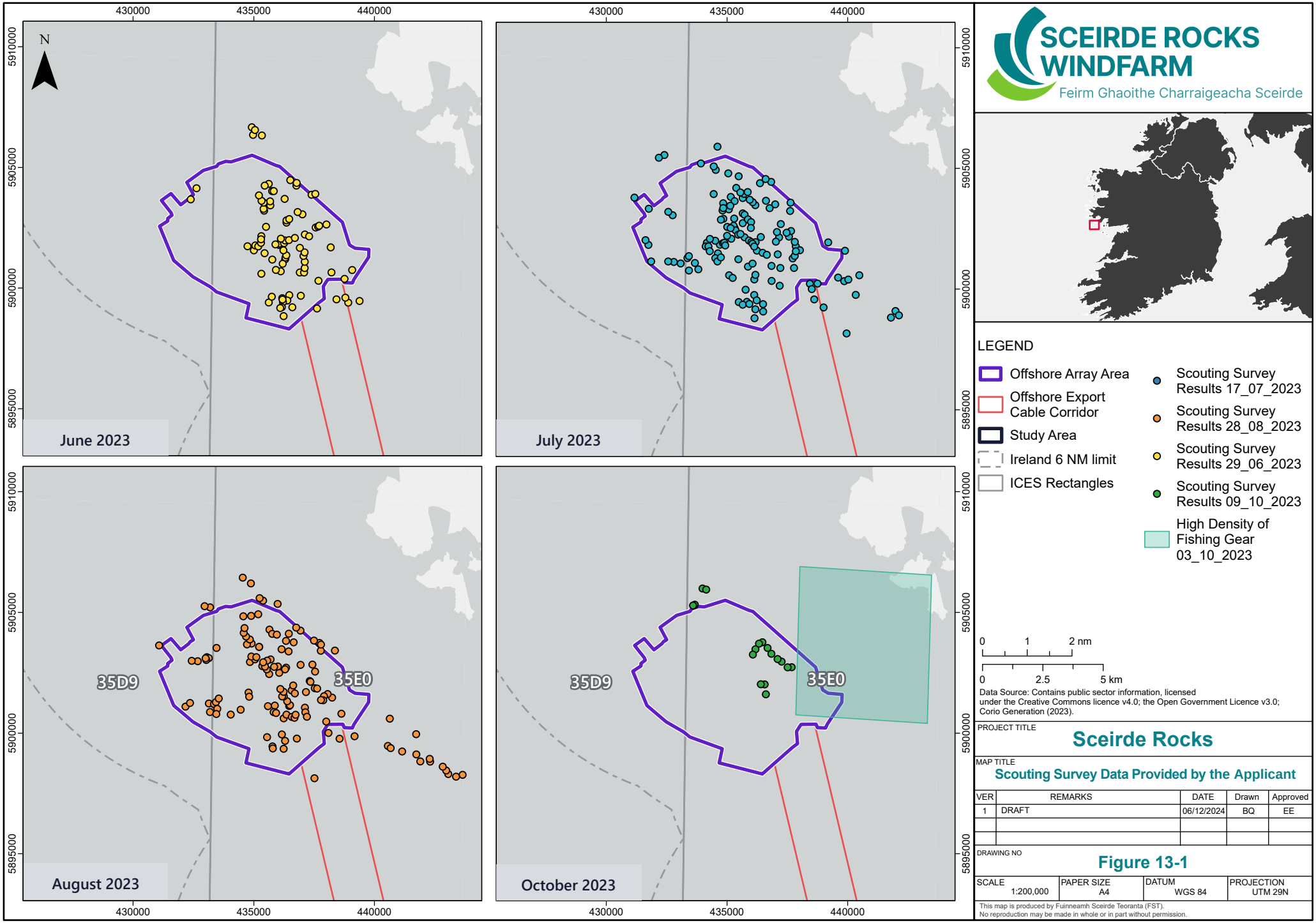
#### 13.4.1.3 Vessel Traffic Survey

A summer and winter vessel traffic survey has been undertaken around the Sceirde Rocks Offshore Wind Farm OAA by Anatec Ltd for Xodus on behalf of the Applicant and are attached in Appendix 14-2 and Appendix 14-3. Data were acquired via radio detection and ranging (radar), AIS and visual observations within a 10 nautical mile (NM) buffer around the OAA. The surveys spanned across 14-days, between 25th August – 8th September 2022 for the summer survey and 16th November – 30th November 2022 for the winter survey. While the purpose of the vessel traffic surveys was to inform the Navigational Risk Assessment (NRA) for Chapter 14: Shipping and Navigation, the survey results for fishing vessels is applicable to the commercial fisheries baseline. It should be noted that fishing activity in the OAA was largely absent during the summer radar survey, due to the area being cleared of static fishing gear for the surveys, as agreed through consultation. Therefore, the following results are likely to be an underestimation of the number of fishing vessels utilising the OAA as fishing grounds.

The results of the vessel traffic surveys indicate that fishing vessels were the most common vessel type observed within the survey area, accounting for 35% of the distribution of vessels during the summer survey, and 64% during the winter survey (Anatec, 2022; 2023). An average of two to three unique fishing vessels per day were observed during the summer and winter surveys. During the winter survey, vessels were recorded to the south of the OAA passing between the Aran Islands and Irish mainland. AIS data is further described in Section 13.5.3.3.

#### 13.4.1.4 Fishing Gear Visual Survey

A series of four visual surveys of static fishing gear locations have been undertaken around the Sceirde Rocks Offshore Wind Farm OAA by the Applicant between June 2023 and October 2023. Locations of buoys were recorded, noting that each gear deployment utilises two buoys (Figure 13-1), typically at each end of a string of creels (traps). Fishermen were notified prior to the surveys (see Section 13.4.2). As illustrated in Figure 13-1, buoys were observed throughout the entirety of the OAA and partially into the OECC. Buoy presence peaked in July and August, with less observed in October.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Offshore Array Area
Offshore Export Cable Corridor
Study Area
Ireland 6 NM limit
ICES Rectangles
Scouting Survey Results 17_07_2023
Scouting Survey Results 28_08_2023
Scouting Survey Results 29_06_2023
Scouting Survey Results 09_10_2023
High Density of Fishing Gear 03_10_2023
0 1 2 nm
0 2.5 5 km
Data Source: Contains public sector information, licensed under the Creative Commons licence v4.0; the Open Government Licence v3.0; Corio Generation (2023).
PROJECT TITLE
Sceirde Rocks
MAP TITLE
Scouting Survey Data Provided by the Applicant
VER | REMARKS | DATE | Drawn | Approved
1 | DRAFT | 06/12/2024 | BQ | EE
DRAWING NO
Figure 13-1
SCALE 1:200,000 | PAPER SIZE A4 | DATUM WGS 84 | PROJECTION UTM 29N
This map is produced by Fuinneamh Sceirde Teoranta (FST).
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## 13.4.2 Data gaps and limitations

The data gaps and limitations associated with the data used to inform the commercial fisheries baseline have been summarised in Table 13-4 below.

*Table 13-4 Data gaps and limitations*

| Data source | Data limitation / area of uncertainty |
|---|---|
| Ireland's Marine Atlas– Inshore fisheries data | › The data were collected between 2011 – 2013 and published in 2014 and is therefore outdated; and<br>› Inshore fisheries data that is available may not wholly represent the true extent of inshore fisheries in a region given a lack of automatic tracking systems on smaller vessels (see "AIS" and "VMS" below). |
| Ireland's Marine Atlas Data | › The most recent data is available from ranges from 2014 – 2018;<br>› The Marine Atlas data has not removed transiting vessels, and therefore fishing density may be less than illustrated; and<br>› VMS data only includes vessels > 12 m in length, therefore smaller vessels are not represented. |
| Fisheries Statistics – Landings | › Data may misrepresent fishing activity given the large spatial resolution of landings data. |
| AIS | › This data provides information only on vessels > 15 m length (thus excluding smaller vessel activity) and can be turned off by vessels. |
| VMS | › This data provides information only on vessels > 12 m length, with pings every 2 hours. |
| Fishing Gear Visual Surveys | › The visual surveys of the static gear location are a snapshot in time and focused on the OAA, survey data on the OECC is not available. However, it should be noted that local sources confirmed a much lower level of fishing activity along the OECC due to the nature of the seabed;<br>› Fishing buoys aren't marked with the vessel ID, therefore an estimation of number of vessels utilising the area may be incorrect; and<br>› As fishermen were notified prior to the survey, there is potential for the number of buoys present to be an under- or overestimation depending on individuals' responses to the notifications. |
| Consultation | › Information gained through consultation is limited to what has been reported, which is subject to inaccuracies associated with human error, etc. |

## 13.4.3 Likely Significant Effects Assessment Methodology

### 13.4.3.1 Effects Requiring Assessment

All potential effects that have been scoped in for the commercial fisheries likely significant effects assessment are detailed in

Table 13-5 below.

*Table 13-5 Potential effects scoped in to the commercial fisheries likely significant effects assessment*

| Potential Impact | Description | Nature of Impact |
|---|---|---|
| **Construction / Decommissioning** | | |
| Temporary loss of access to fishing grounds due to the presence of vessels and advisory safe clearance ranges during construction | Temporary loss of access to fishing grounds as a result of the implementation of advisory 50 m safe clearance ranges around Wind Turbine Generators (WTGs) and the Offshore Substation (OSS) prior to commissioning and 500 m advisory safe clearance ranges around construction vessels and where cable is awaiting burial or protection. | Direct |
| Temporary displacement of fishing activity into other areas | Temporary displacement during construction as a result of the temporary loss or restriction of access to fishing grounds, including the potential for secondary displacement. | Direct / indirect |
| Interference with fishing activity as a result of increased vessel traffic | Increased vessel traffic resulting from the transit of construction or decommissioning vessels. | Direct |
| Increased steaming times | Increase in steaming times resulting from the alteration of transit routes for fishers around advisory safe clearance ranges and as a result of displacement. | Direct |
| Safety issues for fishing vessels | Safety issues, such as snagging of gear or gear entanglement within dropped objects and/or partially installed infrastructure during active fishing. | Direct |
| **Operation and Maintenance** | | |
| Loss of access to fishing grounds due to the presence of WTGs, foundations, and advisory safe clearance ranges | Loss of access due to the presence of infrastructure or resulting from advisory safe clearance ranges during major maintenance activity. | Direct |
| Displacement of fishing grounds due to the presence of WTGs, foundations, and advisory safe clearance ranges | Displacement throughout the lifetime of the Project as a result of the loss or restriction of access to fishing grounds, including the potential for secondary displacement. | Direct / Indirect |
| Interference with fishing activity as a result of increased vessel traffic | Increased vessel traffic resulting from the transit of operation and maintenance vessels. | Direct |
| Increased steaming times | Increase in steaming times resulting from the alteration of transit routes for | Direct |

| | | |
|---|---|---|
| | fishers around advisory safe clearance ranges and as a result of displacement. | |
| Safety issues for fishing vessels (Potential for fishing gear to become entangled with subsea structures) | Safety issues including snagging, entanglement and / or resulting from dropped objects, which may result from partially installed infrastructure and where cables have not been buried (i.e., crossings where additional protection is in place).<br><br>Fishing gear that becomes entangled with subsea structures may affect fish and shellfish species (e.g., ghost fishing) indirectly. The effect to fish and shellfish as a result of ghost fishing is covered in Chapter 10: Fish and Shellfish Ecology. | Direct |

## 13.4.3.2 Assessment Methodology

### 13.4.3.2.1 *Characterisation of Effects*

An assessment of potential effects is provided for the construction (including pre-construction), operational, maintenance and decommissioning phases of the Project. The assessment for commercial fisheries is undertaken following the principles set out in Chapter 4: EIA Methodology, in line with the Environmental Protection Agency (EPA) EIAR Guidelines (EPA, 2022) and the European Commission (2017) guidance on the preparation of the EIAR (Directive 2011/92/EU as amended by 2014/52/EU). Potential effects are characterised based on the following:

- **Quality of effects**: Whether an effect results in a change that improves (positive) or reduces (negative) the quality of the environment;
- **Extent**: Describes the size of the area, the number of sites and the proportion of a population affected by an effect;
- **Context**: Describes whether the extent, duration or frequency will conform or contrast with established (baseline) conditions;
- **Probability**: If effects are likely or unlikely;
- **Duration**: Describes the length of time an effect is expected to occur based on the set definitions within the guidelines;
- **Frequency**: Describes how often the effect will occur (once, rarely, occasionally, frequently, constantly – or hourly, daily, weekly, annually, etc.); and
- **Reversibility**: Whether an effect can be undone, through remediation or restoration.

The criteria for the sensitivity of commercial fisheries receptors are presented in Table 13-6, and the magnitude of effect in Table 13-7.

*Table 13-6 Receptor sensitivity criteria*

| Sensitivity of Receptor | Definition |
|---|---|
| High | - Limited operational range and / or limited gear / target species versatility; or<br>- High dependence upon a single fishing ground. |

| Sensitivity of Receptor | Definition |
|---|---|
| Medium | › Moderate extent of operational range and / or limited gear / target species versatility; or<br>› Dependence upon a limited number of fishing grounds. |
| Low | › Extensive operational range and/or some gear / target species versatility; or<br>› Ability to fish a number of fishing grounds. |
| Negligible | › Extensive operational range and high gear / target species versatility; or<br>› Vessels are able to exploit a large number of fishing grounds. |

*Table 13-7 Receptor magnitude criteria*

| Magnitude criteria | Definition |
|---|---|
| High | › The area affected by the effect sustains high levels of activity by the fleet and covers a moderate extent of its grounds; and/or<br>› The effect duration is permanent (i.e. effects lasting over sixty years) or long-term (i.e. effects lasting fifteen to sixty years). |
| Medium | › The area affected by the effect sustains medium / high levels of activity by the fleet and covers a small extent of its grounds; and/or<br>› The effect duration is medium-term (i.e. effects lasting seven to fifteen years) or short-term (i.e. effects lasting one to seven years). |
| Low | › The area affected by the effect sustains medium / low levels of activity by the fleet and covers a small extent of its grounds; and/or<br>› The effect duration is temporary (i.e. effects lasting less than a year). |
| Negligible | › The fleet has very little or no history of fishing in the area affected; and/or<br>› The effect duration is brief (i.e. effects lasting less than a day) or momentary (i.e. lasting from seconds to minutes). |

### 13.4.3.2.2 Determining Significance of Effect

The EPA guidelines definitions for describing significance of effect have been used for the commercial fisheries likely significant effects assessment (

Table 13-8).

*Table 13-8 Describing significance of effect (EPA, 2022)*

| Magnitude criteria | Definition | Significance |
|---|---|---|
| Imperceptible | An effect capable of measurement but without significant consequences. | **Not Significant.** |
| Not significant | An effect which causes noticeable changes in the character of the environment but without significant consequences. | |
| Slight Effects | An effect which causes noticeable changes in the character of the environment without affecting its sensitivities. | |

| Magnitude criteria | Definition | Significance |
|---|---|---|
| Moderate Effects | An effect that alters the character of the environment in a manner that is consistent with existing and emerging baseline trends. | |
| Significant Effects | An effect which, by its character, magnitude, duration, or intensity, alters a sensitive aspect of the environment. | **Significant**. Mitigation measures must be in place to prevent, reduce, or avoid the effect, and if not possible then compensatory measures are proposed. |
| Very Significant | An effect which, by its character, magnitude, duration, or intensity, significantly alters most of a sensitive aspect of the environment. | |
| Profound Effects | An effect which obliterates sensitive characteristics. | |

### 13.4.3.2.3 Assessment of Safety

The criteria for the assessment of safety issues differ from other effects. The assessment criteria outlined in Table 13-6 and Table 13-7 are not considered adequate for the assessment of potential health and safety risks to fishing vessels and their crews. In these instances, effects are assessed in terms of potential risk (severity of consequence and frequency of occurrence). This is in line with Marine Guidance Note (MGN) 654 the International Maritime Organisation Formal Safety Assessment process, as outlined in Chapter 14: Shipping and Navigation and is presented in *Table 13-9 below. The risk ranking matrix used to determine the significance of effects from the frequency of occurrence and the severity of consequences is presented in*

Table 13-10**Error! Reference source not found.**. In EIA terms, effects which are assessed as being Tolerable with Mitigation or Broadly Acceptable are considered '**Not Significant**', while Unacceptable effects are considered '**Significant**'.

*Table 13-9 Assessment criteria for safety*

| Rank | Description | Definition | | | |
|---|---|---|---|---|---|
| | | People | Property | Environment | Business |
| 1 | Negligible | No perceptible effect | No perceptible effect | No perceptible effect | No perceptible effect |
| 2 | Minor | Slight injury(ies) | Minor damage to property (i.e., superficial damage) | Tier 1 local assistance required | Minor reputation effect – limited to users |
| 3 | Moderate | Multiple minor or single serious injury | Damage not critical to operations | Tier 2 limited external assistance required | Local reputation effects |
| 4 | Serious | Multiple serious injury or single fatality | Damage resulting in critical effect on operations | Tier 2 regional assistance required | National reputation effects |
| 5 | Major | More than one fatality | Total loss of property | Tier 3 national assistance required | International reputation effects |
| Rank | Description | Definition | | | |
| 1 | Negligible | <1 occurrence per 10,000 years | | | |
| 2 | Minor | 1 per 100 to 10,000 years | | | |

| Rank | Description | Definition | | | |
|---|---|---|---|---|---|
| | | People | Property | Environment | Business |
| 3 | Moderate | 1 per 10 to 100 years | | | |
| 4 | Serious | 1 per 1 to 10 years | | | |
| 5 | Major | Yearly | | | |

*Table 13-10 Safety matrix*

| Consequences | | | | | | |
|---|---|---|---|---|---|---|
| | **Major** | Tolerable with Mitigation (intermediate risk) | Tolerable with Mitigation (intermediate risk) | Unacceptable (high risk) | Unacceptable (high risk) | Unacceptable (high risk) |
| | **Serious** | Broadly Acceptable (low risk) | Tolerable with Mitigation (intermediate risk) | Tolerable with Mitigation (intermediate risk) | Unacceptable (high risk) | Unacceptable (high risk) |
| | **Moderate** | Broadly Acceptable (low risk) | Broadly Acceptable (low risk) | Tolerable with Mitigation (intermediate risk) | Tolerable with Mitigation (intermediate risk) | Unacceptable (high risk) |
| | **Minor** | Broadly Acceptable (low risk) | Broadly Acceptable (low risk) | Broadly Acceptable (low risk) | Tolerable with Mitigation (intermediate risk) | Tolerable with Mitigation (intermediate risk) |
| | **Negligible** | Broadly Acceptable (low risk) | Broadly Acceptable (low risk) | Broadly Acceptable (low risk) | Broadly Acceptable (low risk) | Tolerable with Mitigation (intermediate risk) |
| | | **Negligible** | **Extremely Unlikely** | **Remote** | **Reasonably Foreseeable** | **Frequent** |
| | | **Frequency** | | | | |

### 13.4.3.3 Design Parameters

The commercial fisheries likely significant effects assessment has considered the project design parameters, which represent the greatest potential effect to commercial fisheries during the construction (including pre-construction activity), operational (including maintenance) and decommissioning phases, as detailed in Table 13-11.

*Table 13-11 Project design parameters relevant to commercial fisheries*

| Potential Effect | Design Scenario | Justification |
|---|---|---|
| **Construction and decommissioning** | | |
| Temporary loss or restricted access to fishing grounds | Pre-construction activities including:<br>› Geophysical and geotechnical surveys;<br>› Possible Unexploded Ordnance (pUXO) investigation. UXO is considered highly unlikely based on the UXO Risk Assessment; however, the EIAR considers one high-order detonation of an 800 kg (net explosive quantity; NEQ) UXO with a 0.5 kg donor charge; and<br>› Seabed preparation including seabed dredging and rock placement for the WTG installation and ground preparation within a 20 m wide corridor including boulder clearance, pre-lay grapnel run and controlled flow excavation along the cable routes.<br><br>WTGs and OSS:<br>› Construction of up to 30 WTGs with a minimum spacing of 1,017 m;<br>› Construction of up to one OSS;<br>› Construction of up to 31 gravity-based foundations (GBFs) for the WTGs and OSS;<br>› Stonebeds required for 31 GBFs, and 11 additional stonebeds required for jack-ups positioning at 10 WTGs and 1 OSS; and<br>› WTGs and OSS layout across the area of the OAA (37.2 $km^2$).<br><br>Cables:<br>› Installation of cables (Inter-Array Cables (IAC) and OECs) via surface lay (cable protection including cast iron shell, rock placement, concrete mattresses, grout or rock bags, or a combination of these measures) or burial (jet trencher, mechanical cutting trencher or/or controlled flow excavator to a target depth of 1.0 m);<br>› Total length of the IAC of 73.0 km within the OAA. For the assessment, have assumed 100% surface lay with cable protection (e.g. rock berm) covering the full length of the IAC; | The largest extent and duration of potential exclusion as a result of temporary loss and / or restricted access to fishing grounds. |

| | | |
|---|---|---|
| | › Total length of the OEC of 63.5 km along the OECC. For the assessment, have assumed the majority of the cable will be buried (78.5% or 49.9 km) with a maximum length of cable surface-laid with cable protection (e.g. rock placement, concrete mattresses, rock bags or grout bags) of 13.6 km (21.5%); and<br>› Area of the OECC of 73 km$^2$.<br><br>Overall:<br><br>› 50 m advisory safe clearance ranges around WTGs and OSS during construction and 500 m advisory safe clearance ranges around construction vessels and areas of cable awaiting burial or protection;<br>› A construction phase of four years including pre-construction activities and the fabrication / manufacturing period. Construction activities relevant to the assessment will span three years encompassing four-months for site-preparation activities (2026) and 18 months for construction activities (2028 to 2029); and<br>› A total of 23 construction support vessels. | |
| Displacement of fishing activity | As for temporary loss or restricted access to fishing grounds above. | The largest extent and duration of temporary loss and / or restricted access which could result in temporary displacement. |
| Interference with fishing activity as a result of increased vessel traffic | › A maximum of 23 construction support vessels; and<br>› A total of three years of construction activities (including pre-construction). | The greatest number of vessels and vessel transits would result in the maximum potential for interference / conflict between construction vessels and fishing activity. |
| Increased steaming times | As for temporary loss or restricted access to fishing grounds above. | The largest duration of construction, number of advisory safety clearance ranges and spatial extent of construction works would result in the greatest potential increase in steaming times. |
| Safety issues for fishing vessels | As for temporary loss or restricted access to fishing grounds above, as well as:<br><br>› Potential for dropped objects. | Installation of greatest number and extent of infrastructure would result in the |

| | | |
|---|---|---|
| | | greatest potential for safety issues for fishing vessels. |
| Operation and Maintenance | | |
| Temporary loss or restricted access to fishing grounds | › Operational life of up to 38 years.<br><br>WTGs and OSS:<br><br>› Presence of up to 30 WTGs and one OSS with Gravity based structure fixed-bottom foundations (GBS) (55 m base diameter) with a minimum spacing between WTGs of 1,017 m; and<br>› WTGs and OSS layout across the area of the OAA (37.2 $km^2$).<br><br>Cables:<br><br>› Maximum total length of 73.0 km for IACs, with a maximum cable protection footprint of 1,282,082 $m^2$ (assuming 100% surface lay);<br>› Maximum total length of 63.5 km for OEC, with a maximum cable protection footprint of 165,818 $m^2$ associated with 13.6 km (21.5%) of surface laid cable;<br>› Target burial depth of 1.0 m; and<br>› All quantities of cable protection required at one cable crossing are included within the total area of cable protection measures above. Cable crossing material may include concrete mattresses, rock placement, grout bags and/or cast-iron shells.<br><br>Overall:<br><br>› Presence of 50 m advisory safety clearance ranges around infrastructure during major maintenance which will occur rarely and 500 m advisory safety clearance ranges around vessels during maintenance activities;<br>› Up to three maintenance vessels utilised, with four daily return vessel movements for the two crew-transfer vessels; and | The largest extent and duration of potential exclusion as a result of temporary loss and / or restricted access to fishing grounds. |

| | | |
|---|---|---|
| | › It is anticipated there will be up to five (unscheduled) interventions for cable repair over the Project life. Furthermore, a cable survey will be conducted annually for the first five years and once every five years after that. | |
| Displacement of fishing activity | As for temporary loss or restricted access to fishing grounds above. | The largest extent and duration of temporary loss and / or restricted access which could result in temporary displacement. |
| Interference with fishing activity as a result of increased vessel traffic | › Presence of 50 m advisory safety clearance ranges around infrastructure during major maintenance which will occur rarely and 500 m advisory safety clearance ranges around vessels during maintenance activities; Up to three maintenance vessels utilised, with four daily return vessel movements for the two crew-transfer vessels; and<br>› It is anticipated there will be up to five (unscheduled) interventions for cable repair over the Project life. Furthermore, a cable survey will be conducted annually for the first five years and once every five years after that. | Greatest number of vessels and vessel transits would result in the maximum potential for interference / conflict between operation and maintenance vessels and fishing activity. |
| Increased steaming times | As for temporary loss or restricted access to fishing grounds above. | The greatest physical presence of infrastructure and cables would result in the greatest increase in steaming times during the operational phase. |
| Safety issues for fishing vessels | As for temporary loss or restricted access to fishing grounds above. | Installation of greatest number and extent of infrastructure would result in the greatest potential for safety issues for fishing vessels. |

### 13.4.3.4 Mitigation by Design

Certain measures have been adopted as part of the Project design in order to reduce the potential for effects to the environment and specifically commercial fisheries. These measures will follow best practice for protecting fishers' interests and are outlined within

Table 13-12.

*Table 13-12 Mitigation by design measures relevant to commercial fisheries receptors*

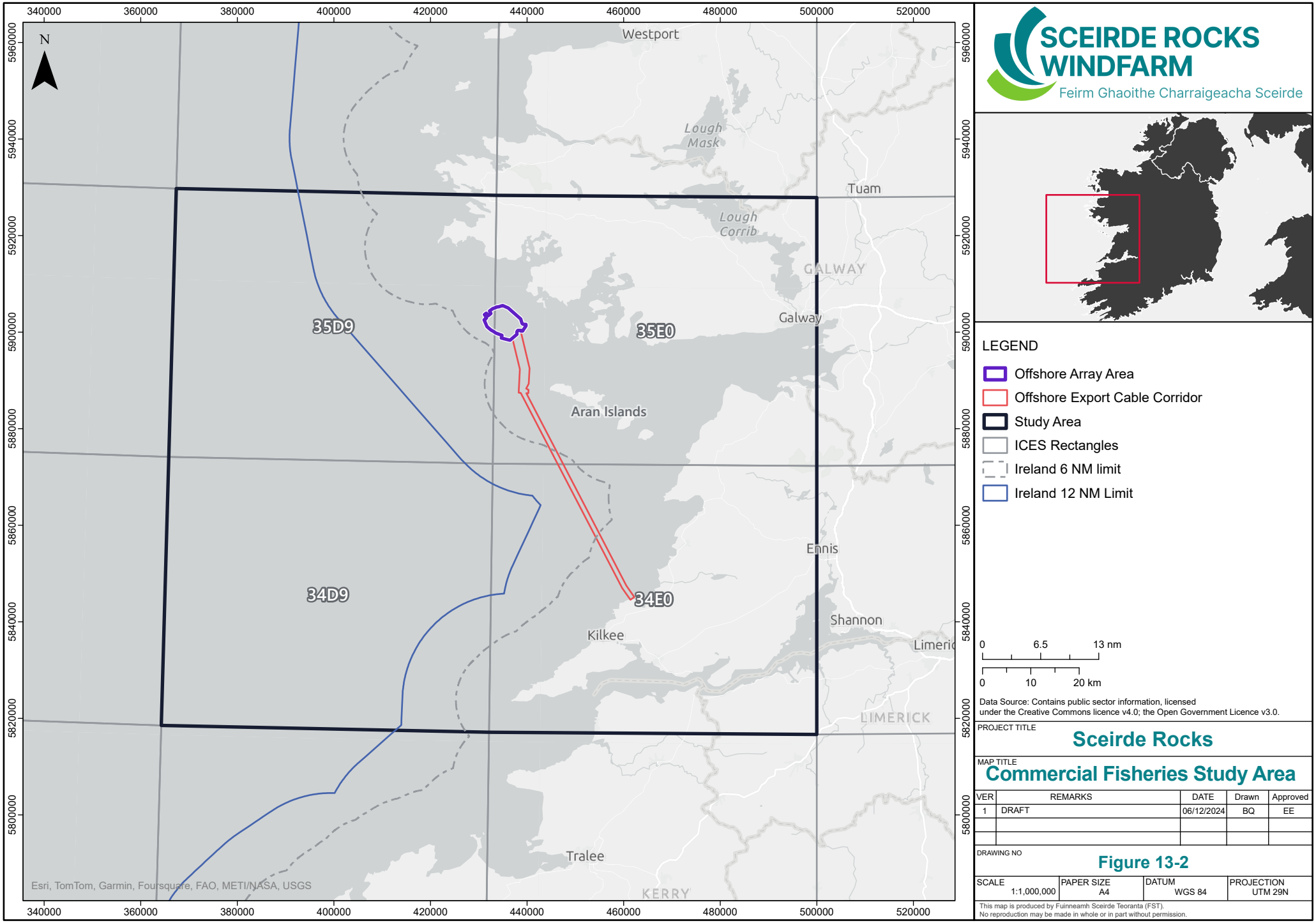
| Mitigation Measures |
|---|
| Development and adherence to a Vessel Management Plan (VMP) and Navigational Safety Plan (NSP). |
| All vessels associated with the Project will comply with the provisions of the International Regulations for the Prevention of Collision at Sea (COLREGs) and the International Regulations for the Safety of Life at Sea (SOLAS). |
| Proactive consultation with key stakeholders within the fishing industry will adhere to best practice guidance. |
| Development and adherence to a Fisheries Management and Mitigation Strategy (FMMS). |
| Appointment of a Fisheries Liaison Officer (FLO) and the use of guard vessels and Offshore Fisheries Liaison Officers (OFLOs) where required. |
| Notifications (prior to construction) will be given in a Notice to Fishermen (Notice to Mariners (NtMs)) which will be published in the relevant fishing journals and online portals (e.g., The Marine Times, The Irish Skipper, Kingfisher Fortnightly Bulletin). |
| Procedures for dropped objects and claim processes for loss/damage of fishing gear/vessels – mitigation by prevention. |
| Development of cooperation agreements through discussions with affected fishers in line with the findings of the Seafood ORE Working Group and best practice guidance (e.g., FLOWW, 2015). |

# 13.5 Baseline Conditions

## 13.5.1 Study Area

The Commercial Fisheries study area is defined as the International Council for the Exploration of the Sea (ICES) statistical rectangles[1] in which the Offshore Site overlap with: 34E0, 35E0 and 35D9. ICES rectangle 34D9 is also considered as part of the Commercial Fisheries study area due to its close proximity to the OAA and OECC, and this also provides a regional context for certain fisheries**Error! Reference source not found.**. It should be noted the Shannon Foynes temporary anchorage is captured within the assessment for ICES Rectangle 34E0.

[1] *Each ICES rectangle covers an area of 30' latitude by 1° longitude. Further information on ICES rectangles is available online at: https://www.ices.dk/data/maps/Pages/ICES-statistical-rectangles.aspx.*




# SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde



LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- Study Area
- ICES Rectangles
- Ireland 6 NM limit
- Ireland 12 NM Limit

0 6.5 13 nm

0 10 20 km



PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**Commercial Fisheries Study Area**

| VER | REMARKS | DATE | Drawn | Approved |
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| 1 | DRAFT | 06/12/2024 | BQ | EE |
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**Figure 13-2**

| SCALE | PAPER SIZE | DATUM | PROJECTION |
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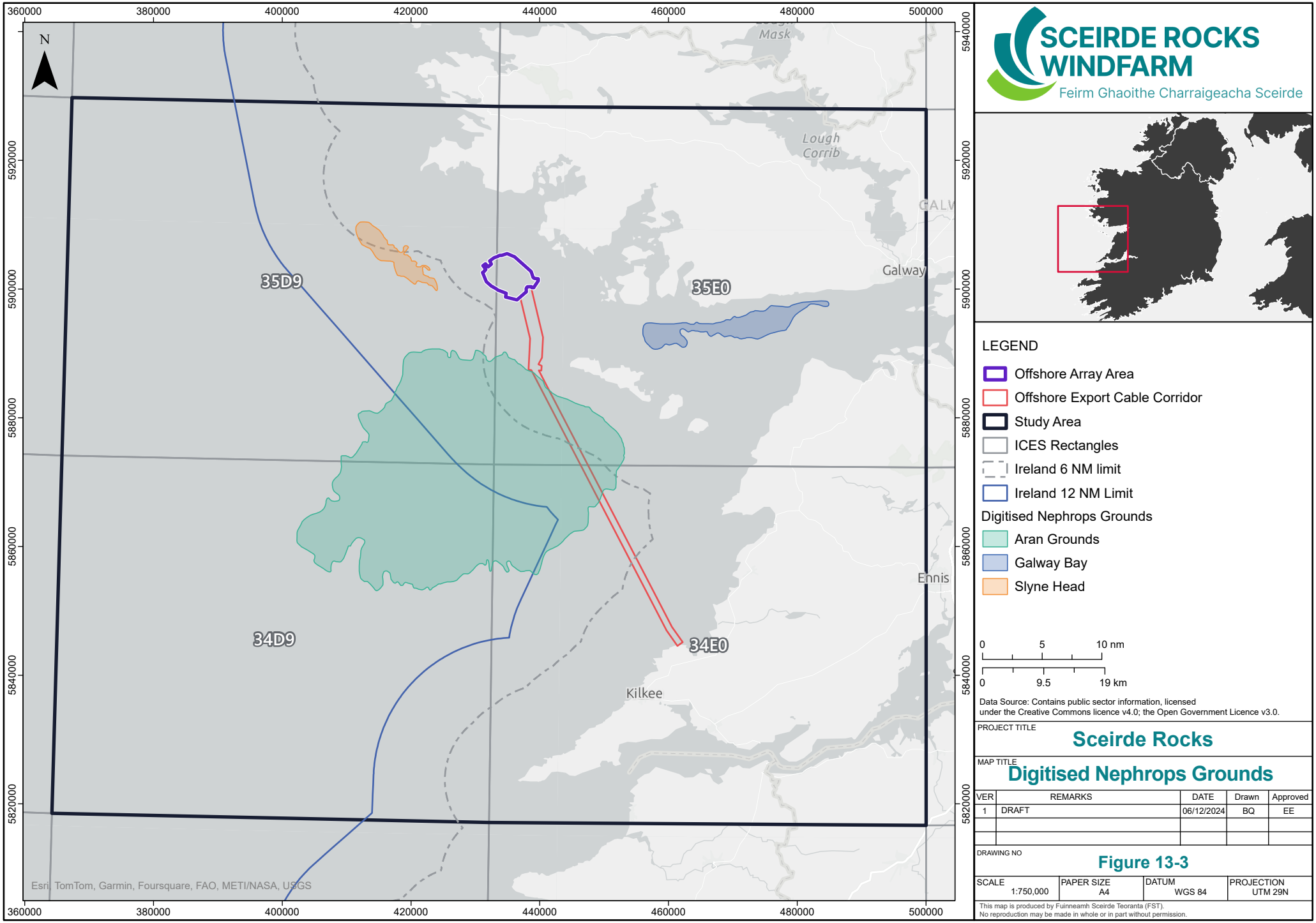
| 1:1,000,000 | A4 | WGS 84 | UTM 29N |

## 13.5.2 Functional Units

The commercial fisheries study area overlaps with the Aran, Galway Bay and Slyne Head *Nephrops* (*Nephrops norvegicus*) Grounds, Functional Unit (FU) 17 (Figure 13-3). There is no overlap with the OAA; however, there is a partial overlap with the OECC. According to the 2023 survey report for these *Nephrops* Grounds, the area of overlap with the OECC is within a region of low density for *Nephrops* burrows (Aristegui *et al.*, 2023). It is acknowledged that these *Nephrops* grounds are a core component on the commercial fisheries within the region, as described in the following Sections.

ICES landings shows that the *Nephrops* catches in FU17 are mainly by Irish vessels. Irish vessels caught 641 tonnes in 2016, followed by 295 in 2017, 494 in 2018, 162 in 2019, 188 in 2020 and 490 in 2021. UK vessels caught < 1 tonne in 2016 and 2017, 42 in 2018, 4 in 2019, 34 in 2020 and 8 in 2021. The stock size has been declining and fishing has been at the Maximum Sustainable Yield (MSY) (ICES, 2022), therefore fishing pressure on *Nephrops* is not likely to increase in the near future.




# SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde



LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- Study Area
- ICES Rectangles
- Ireland 6 NM limit
- Ireland 12 NM Limit

Digitised Nephrops Grounds

- Aran Grounds
- Galway Bay
- Slyne Head

0 5 10 nm

0 9.5 19 km



PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**Digitised Nephrops Grounds**

| VER | REMARKS | DATE | Drawn | Approved |
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| 1 | DRAFT | 06/12/2024 | BQ | EE |
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**Figure 13-3**

| SCALE | PAPER SIZE | DATUM | PROJECTION |
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| 1:750,000 | A4 | WGS 84 | UTM 29N |

# 13.5.3 Baseline Environment

## 13.5.3.1 Fisheries Statistics

### 13.5.3.1.1 *Landings by Port*

The main port in the west of Ireland is the Ros an Mhíl Harbour located in County Galway (Gerritsen and Kelly, 2019). Landings at Ros an Mhíl are a mix of pelagic, demersal and shellfish species (*Nephrops*) (An Bord Iascaigh Mhara (BIM), 2023b). The value (€M) and volume (tonnes) of landings at Ros an Mhíl for 2022 are presented in Table 13-13 (BIM, 2023b).

BIM (2023b) does not provide landings data for smaller piers and harbours; however, it should be noted that there are a number of smaller piers and harbours utilised by the inshore fishing fleet in the wider area. The West Regional Inshore Fisheries Forum (RIFF), which incorporates the coastal zone of County Clare and County Galway, details piers and harbours with three or more vessels fishing on a seasonal basis. Along the coastline in County Galway from Inishbofin to Ballinacourty in South Galway, these piers and harbours include:

- Inishbofin Harbour, Rossroe, Derryinver, Cleggan, Aughris and Clifden in North Connemara;
- Bunowen, Roundstone, Mace, Ard West, Crumpán, Ard Mor and Kilkieran in West Connemara; and
- Lettermullan, Trá Bán, Caladh Thaidhg and Sruthán in South Connemara.

In North Galway Bay the small harbours/piers of Inverin, Spiddal, Barna and the Galway Docks are of importance and out to the west Kilronan and Killeaney on Inis Mór, Caladh Mór on Inis Meáin and Inis Oirr pier on the Aran Islands (Fóraim Iascaigh Cois Cladaigh, 2023). The small piers at Rinville and Ballinacourty are of importance to the inshore fleet in South Galway Bay area (Fóraim Iascaigh Cois Cladaigh, 2023).

In County Clare, these piers and harbours include New Quay in the north of the county followed by Ballyvaughan, Doolin, Liscannor, Quilty, Doonbeg and Carrigaholt in the south of the County (Fóraim Iascaigh Cois Cladaigh, 2023).

*Table 13-13 The value (€M) and volume (tonnes) of landings at Ros an Mhíl for 2022 (BIM, 2023b)*

| | Value of Landings (€M) | | | | Volume of Landings (Tonnes) | | | |
|---|---|---|---|---|---|---|---|---|
| Port | Irish | Non-Irish | Total | Share of Non-Irish | Irish | Non-Irish | Total | Share of Non-Irish |
| Ros an Mhíl | 22 | 1 | 22 | 5% | 2,000 | 100 | 2,100 | 5% |

### 13.5.3.1.2 *Overview of Irish Fleet Landings*

The top ten species landed by the Irish fleet as a whole are outlined in Table 13-14 to provide context for the top species landed in the commercial fisheries study area as described in Section 13.5.1.

*Table 13-14 Top ten species landed by the Irish fleet by value (€M) and volume (tonnes) of landings for 2022 (BIM, 2023b)*

| Rank | Species | | Value of Landings (€M) | Volume of Landings (Tonnes) |
|---|---|---|---|---|
| | Common Name | Scientific name | | |
| 1 | Dublin Bay prawn (*Nephrops*) | *Nephrops norvegicus* | 82 | 6,200 |
| 2 | Mackerel | *Scomber scombrus* | 80 | 52,300 |

| Rank | Species | | Value of Landings (€M) | Volume of Landings (Tonnes) |
|---|---|---|---|---|
| | Common Name | Scientific name | | |
| 3 | Crab | *Cancer pagurus; Necora puber; Maja branchydactyla* | 25 | 7,200 |
| 4 | Monkfish | *Lophius piscatorious / L. budegassa* | 18 | 3,800 |
| 5 | Horse mackerel | *Trachurus trachurus* | 15 | 15,500 |
| 6 | Haddock | *Melanogrammus aeglefinus* | 13 | 5,500 |
| 7 | Lobster | *Homarus gammarus* | 11 | 600 |
| 8 | Hake | *Merluccius merluccius* | 11 | 3,300 |
| 9 | Tuna | *Thunnus thynnus* | 9 | 3,400 |
| 10 | Blue Whiting | *Micromesistius poutassou* | 8 | 28,500 |

#### 13.5.3.1.3 *Landings by ICES rectangle*

##### Irish Offshore Landings (2014 – 2018)

The distribution of landings by Irish vessels, measured as average weight (kg) or value (€) of landing per km$^2$ per year, spanning 2014 to 2018 has been used to inform the baseline landings within the commercial fisheries study area (Marine Institute, 2019b; Figure 13-4).

The greatest landings value within the commercial fisheries study area is observed for Irish bottom otter trawls with landings with a value of approximately €600,000 overlapping with the *Nephrops* grounds (see Figure 13-3) (Marine Institute, 2019b; Figure 13-4). The next highest landings value is attributed to Irish pots with landings of approximately €500,000 distributed around the Aran Islands and at the southeast coastline approaching landfall (Figure 13-4). Landings from Irish pelagic trawls value at more than €700,000 outwith the commercial fisheries study area, with approximately €200,000 - €300,000 in landings throughout the study area (Figure 13-4). For Irish seines, the greatest landings were distributed further offshore and reported at €169,000 (Figure 13-4). The distribution of landings by Irish gill nets is less prevalent throughout the commercial fisheries study area, concentrated in small patches along the northern coastline of ICES rectangle 35E0 resulting in a value of €121,000 (Figure 13-4). Finally, there was €2,000in landings associated with Irish long lines, also distributed around the Aran Islands and along the northern coastline.

##### Average Annual Landings (2018 – 2022) (MMO)

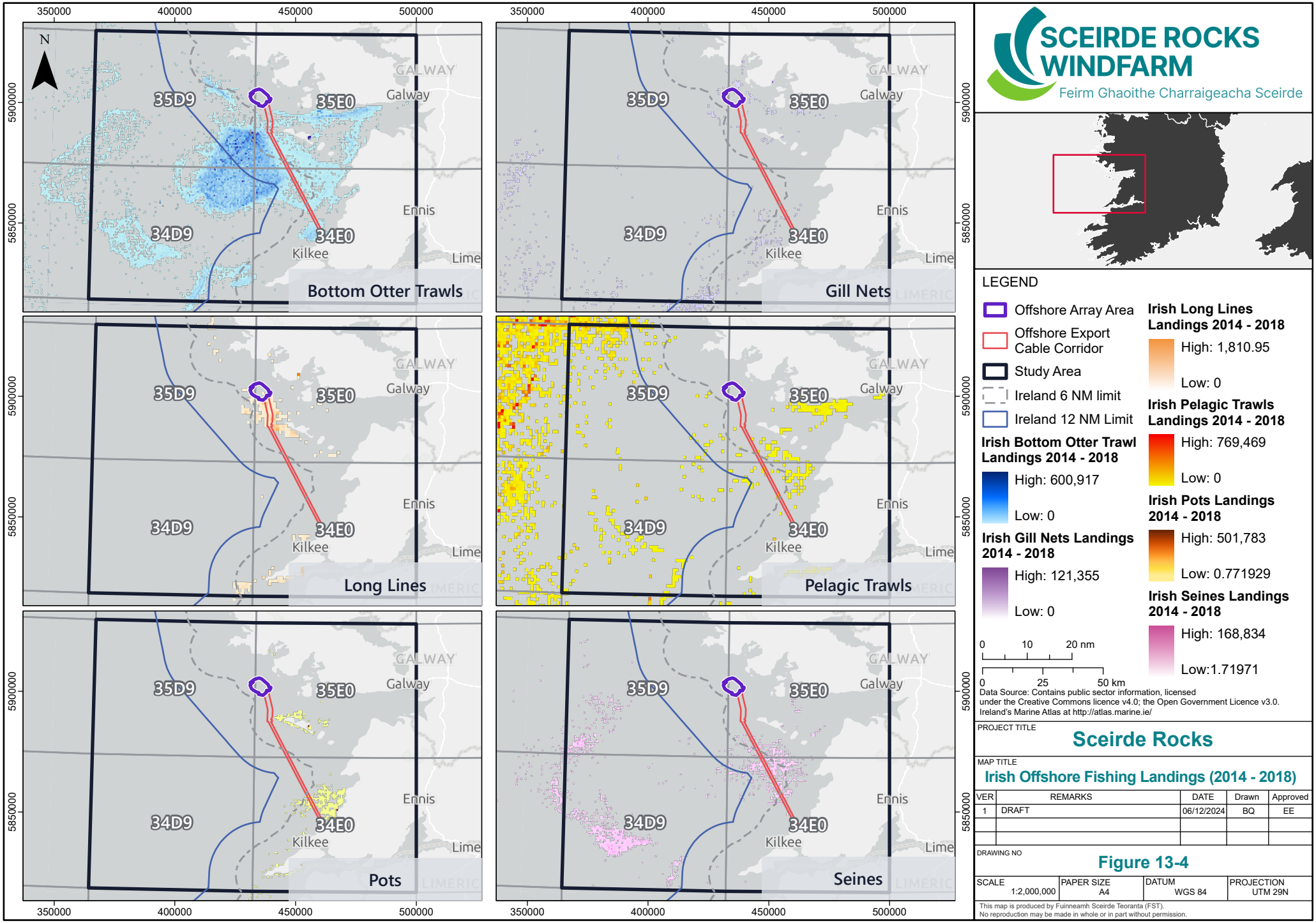
The Marine Institute (2019b) data has been supplemented with the MMO (2023) landings data set which provides the average annual landings by ICES rectangle, categorised by vessel length (m), gear type, and species, for a five-year average (2018 to 2022) (Figure 13-5). As described in

Table 13-3, the MMO (2023) is applicable given that the data records all vessels which landed into UK ports (including Irish and foreign vessels), with a record of nationality and which ICES rectangle the fishing activity took place in. Therefore the dataset has been filtered to capture landings which were the result of fishing activity within the ICES rectangles which comprise commercial fisheries study area. Furthermore, it should be noted that the MMO dataset captured non-UK (i.e. Irish) vessel landings at UK ports only, with the data reported in pound sterling (£).

The highest average annual landings are recorded in ICES rectangle 34D9 £114,000, outwith the Offshore Site. The annual average landings in ICES rectangle 35D9 are £57,000 where there is partial overlap with the OAA, and £5,000 in ICES rectangle 34E0 which overlaps with the OECC. The average annual landings in ICES rectangle 35E0 are reported at £0; however, this is because the smaller vessels fishing in this ICES rectangle are most likely Irish vessels landing in local ports, and therefore they are not captured in this UK dataset.

The vessel lengths recorded in landings at UK ports range from 18 to 24 m throughout the commercial fisheries study area to over 40 m in ICES rectangle 35D9 which partially overlaps with the OAA (Figure 13-5). The vessels greater than 24 m are associated with the pelagic trawlers targeting pelagic species (e.g. mackerel (*Scomber scombrus*), horse mackerel (*Trachurus trachurus*)), while vessels between 18 to 24 m are associated with the medium to large offshore demersal trawlers and gillnetters targeting whitefish (e.g. monkfish (*Lophius piscatorious* and *L. budegassa*), haddock (*Melanogrammus aeglefinus*)) (BIM, 2023). In ICES rectangles 35E0 and 34E0, overlapping with the Offshore Site, the greatest landings by gear type are solely attributed to demersal trawlers (Figure 13-5). Similarly in ICES rectangle 34D9 outwith the Offshore Site the greatest landings are attributed to demersal trawlers. In ICES rectangle 35D9 partially overlapping with the OAA the greatest landings are attributed to pelagic trawlers, with a smaller proportion attributed to demersal trawlers (Figure 13-5).

The greatest landings for ICES rectangle 35D9 are mackerel, followed by *Nephrops*, horse mackerel, monkfish and megrim (*Lepidorhombus whiffiagonis*) (Figure 13-5). In ICES rectangle 34D9, outwith the Offshore Site, vessel lengths are recorded as 18 to 24 m and 24 m to 40 m. The greatest landings by species in ICES rectangle 34D9 are attributed to *Nephrops*, in addition to monkfish and megrim (Figure 13-5). Finally, in ICES rectangle 34E0 overlapping with the OECC, vessel lengths were between 18 to 24 m and the greatest landings are attributed with *Nephrops* and monkfish (Figure 13-5).




# SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde



LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- Study Area
- Ireland 6 NM limit
- Ireland 12 NM Limit

**Irish Bottom Otter Trawl Landings 2014 - 2018**

High: 600,917

Low: 0

**Irish Gill Nets Landings 2014 - 2018**

High: 121,355

Low: 0

**Irish Long Lines Landings 2014 - 2018**

High: 1,810.95

Low: 0

**Irish Pelagic Trawls Landings 2014 - 2018**

High: 769,469

Low: 0

**Irish Pots Landings 2014 - 2018**

High: 501,783

Low: 0.771929

**Irish Seines Landings 2014 - 2018**

High: 168,834

Low:1.71971

0 10 20 nm

0 25 50 km



PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**Irish Offshore Fishing Landings (2014 - 2018)**

| VER | REMARKS | DATE | Drawn | Approved |
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| 1 | DRAFT | 06/12/2024 | BQ | EE |
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**Figure 13-4**

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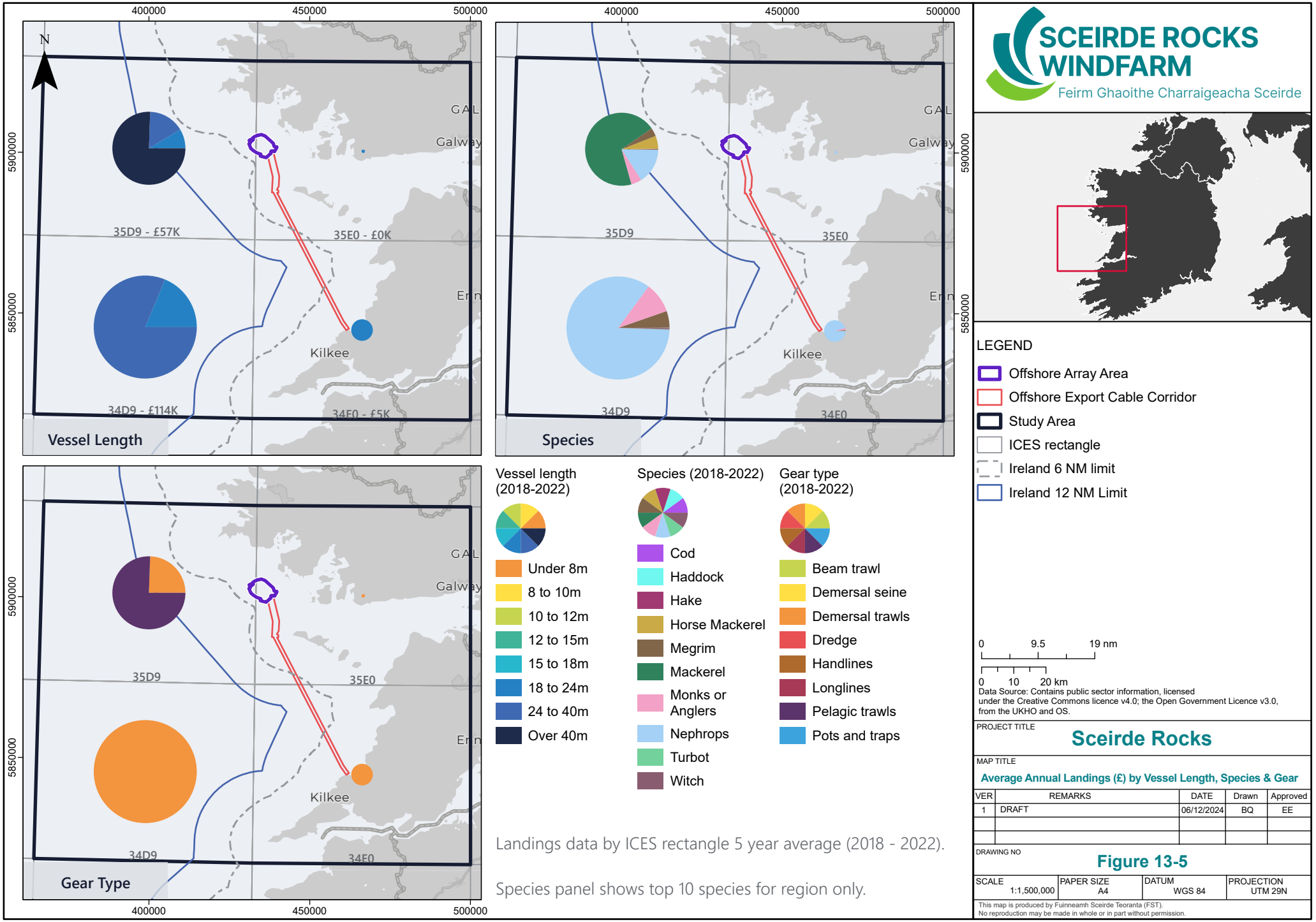


SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde



LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- Study Area
- ICES rectangle
- Ireland 6 NM limit
- Ireland 12 NM Limit

0 9.5 19 nm

0 10 20 km



PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**Average Annual Landings (£) by Vessel Length, Species & Gear**

| VER | REMARKS | DATE | Drawn | Approved |
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| 1 | DRAFT | 06/12/2024 | BQ | EE |
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**Figure 13-5**

| SCALE | PAPER SIZE | DATUM | PROJECTION |
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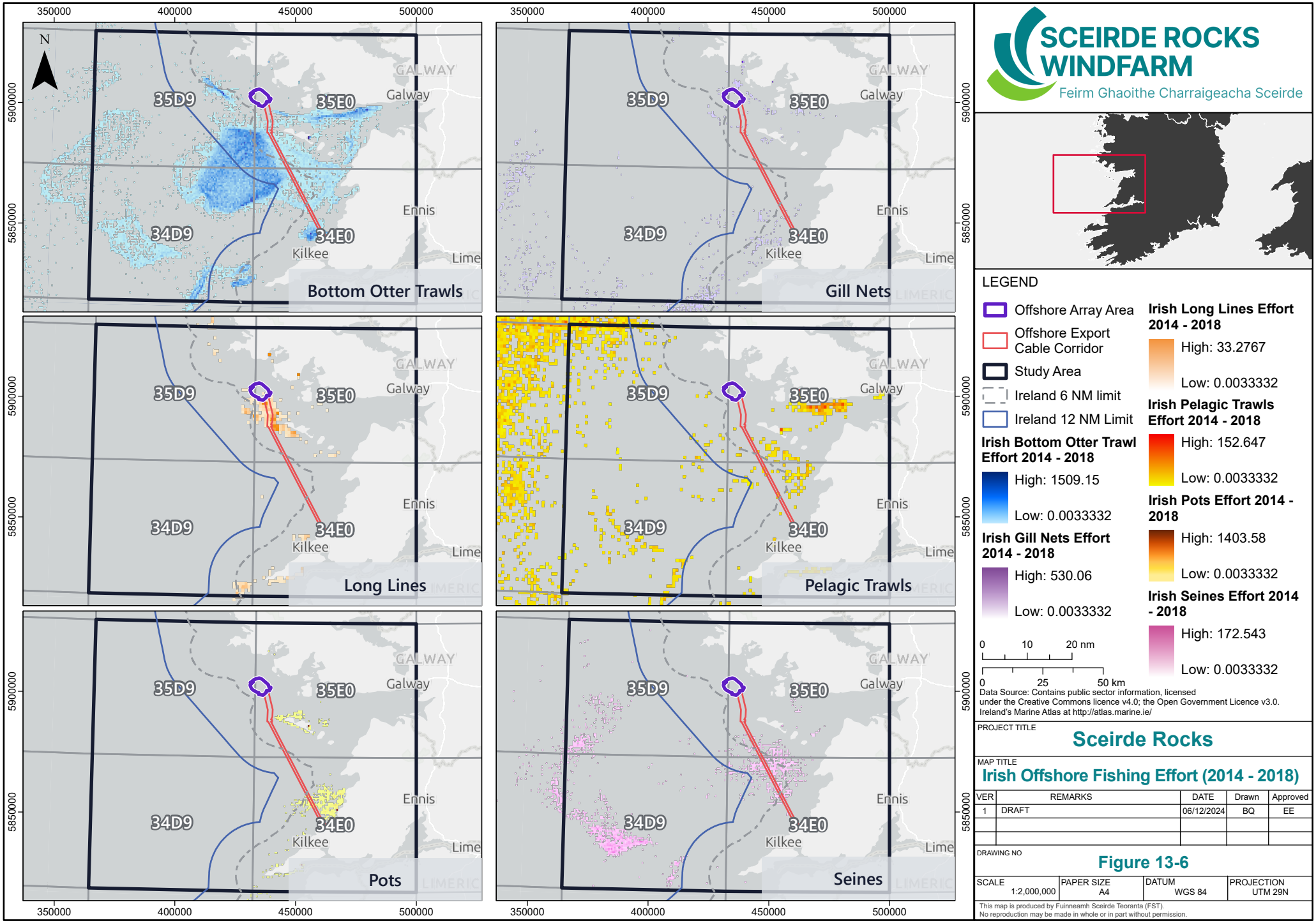
## 13.5.3.2 Fishing Effort

### 13.5.3.2.1 *Irish Vessels Fishing Effort*

The distribution of fishing effort, as average hours spent actively fishing per $km^2$ per year ($h/km^2/yr$) (2014 – 2018), for Irish vessels by gear type is illustrated in Figure 13-6 (Marine Institute, 2019a). This data set only captures vessels > 12 m in length.

Within the commercial fisheries study area, the greatest effort is observed for bottom otter trawlers at an average of greater than 1500 $h/km^2/yr$. The greatest effort for bottom otter trawlers is concentrated around the *Nephrops* grounds (Figure 13-3), outwith the Offshore Site (Figure 13-6). There is negligible effort within the Offshore Array Area and low levels of effort throughout the OECC. Pots have the next highest effort at greater than 1400 $h/km^2/yr$ (Figure 13-6). The greatest effort for pots is concentrated at the Aran Islands and the inshore coastline of ICES rectangle 34E0, outwith the Offshore Site. There is negligible effort recorded for the OAA and low levels of effort for the OECC. It is acknowledged that potting effort within the OAA is greater than illustrated in Figure 13-6 based on data from consultation (Sections 13.4.1.4 and 13.1.1.1).

Gill net effort is recorded at approximately 530 $h/km^2/yr$, with negligible effort recorded within the Offshore Site (Figure 13-6). Seine effort is recorded at approximately 172 $h/km^2/yr$, with negligible effort within the OAA and low levels of effort throughout the OECC (Figure 13-6). Pelagic trawl effort is recorded at approximately 152 $h/km^2/yr$, with the greatest concentration of effort outwith the commercial fisheries study area. Within the commercial fisheries study area, pelagic trawl effort is greatest in ICES rectangle 35E0, outwith the Offshore Site (Figure 13-6). There is negligible pelagic trawl effort within the OAA and along the OECC. The least effort was recorded for long lines at approximately 33 $h/km^2/yr$, with the Offshore Site overlapping with the greatest long line effort in ICES rectangle 35E0, outwith the Offshore Site (Figure 13-6). Long line effort is low within the OAA and along the OECC in ICES rectangle 34E0.




# SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde



LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- Study Area
- Ireland 6 NM limit
- Ireland 12 NM Limit

**Irish Bottom Otter Trawl Effort 2014 - 2018**

High: 1509.15

Low: 0.0033332

**Irish Gill Nets Effort 2014 - 2018**

High: 530.06

Low: 0.0033332

**Irish Long Lines Effort 2014 - 2018**

High: 33.2767

Low: 0.0033332

**Irish Pelagic Trawls Effort 2014 - 2018**

High: 152.647

Low: 0.0033332

**Irish Pots Effort 2014 - 2018**

High: 1403.58

Low: 0.0033332

**Irish Seines Effort 2014 - 2018**

High: 172.543

Low: 0.0033332

0 10 20 nm

0 25 50 km



PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**Irish Offshore Fishing Effort (2014 - 2018)**

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| 1 | DRAFT | 06/12/2024 | BQ | EE |
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**Figure 13-6**

| SCALE | PAPER SIZE | DATUM | PROJECTION |
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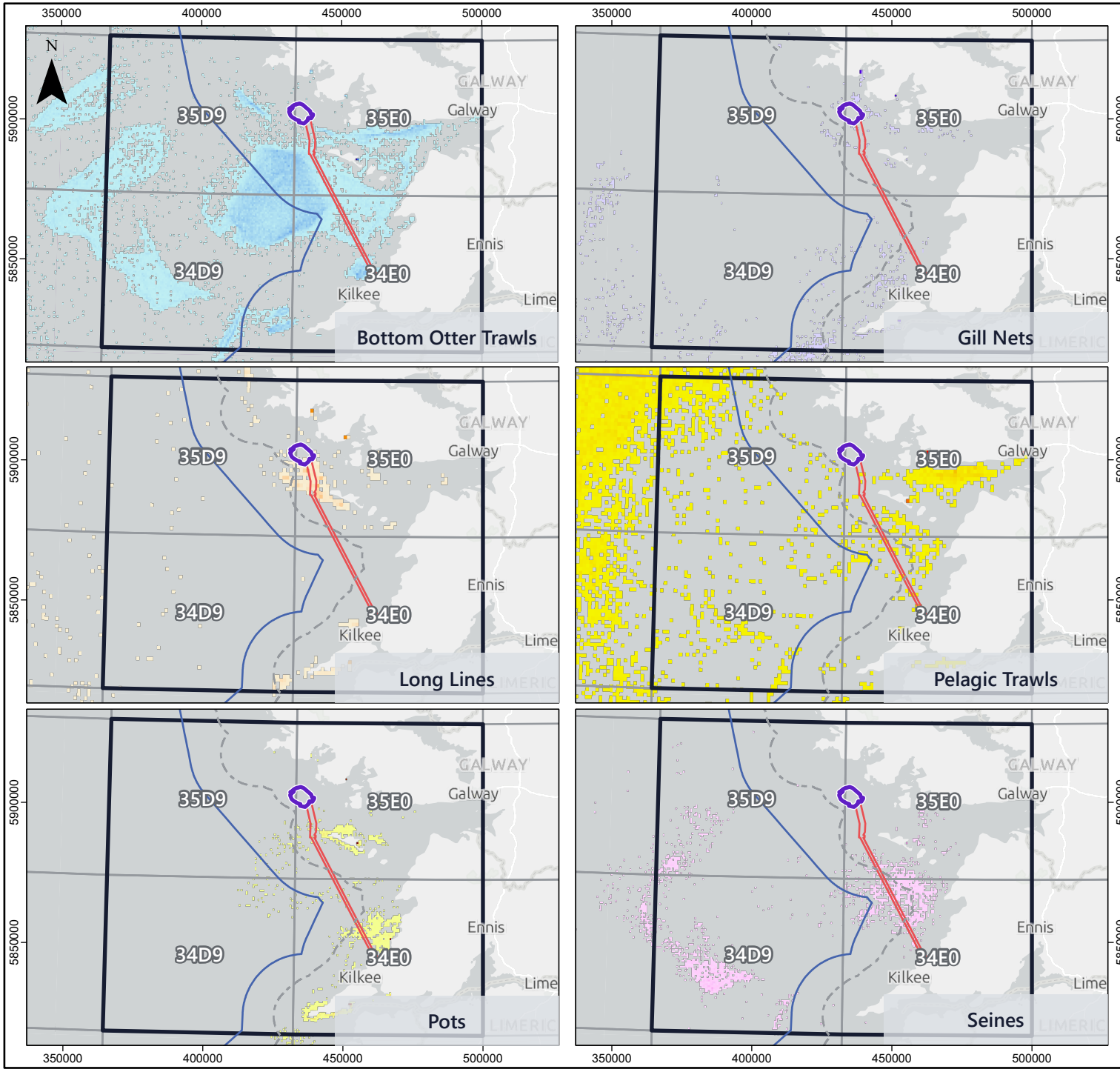
#### 13.5.3.2.2 *International Vessels Fishing Effort*

The distribution of fishing effort, as average hours spent actively fishing per $km^2$ per year (2014 – 2018), by international vessels within the Irish Exclusive Economic Zone (EEZ) by gear type is illustrated in Figure 13-7 (Marine Institute, 2019a). It should be noted that this data only captures vessels > 12 m in length. The greatest effort is observed for international bottom otter trawlers at over 5500 $h/km^2/yr$. The greatest effort for bottom otter trawlers is concentrated around the *Nephrops* grounds, outwith the Offshore Site (Figure 13-7). There is negligible effort within the OAA and low levels of effort throughout the OECC. International pot effort is next highest at greater than 4500 $h/km^2/yr$ (Figure 13-7). The greatest effort for international pots is concentrated at the Aran Islands (see **Error! Reference source not found.**) and the inshore coastline of ICES rectangles 35E0 and 34E0, outwith the Offshore Site. There is negligible effort recorded for the OAA and low levels of effort for the OECC. Gill net effort is recorded at approximately 2800 $h/km^2/yr$, with negligible effort recorded within the Offshore Site (Figure 13-7). The greatest effort for international gill nets is observed along the coastline in ICES rectangle 35E0, outwith the Offshore Site. Pelagic trawl effort is recorded at approximately 2200 $h/km^2/yr$, with negligible effort within the OAA and low levels of effort throughout the OECC (Figure 13-7). International pelagic trawl effort is heavily concentrated outwith the commercial fisheries study area, but the greatest effort is observed in ICES rectangle 35E0 around the Aran Islands (see **Error! Reference source not found.**). International seine effort is approximately 1000 $h/km^2/yr$ with negligible effort within the OAA and low levels of effort throughout the OECC (Figure 13-7). The least effort was recorded for international long lines at approximately 600 $h/km^2/yr$ (Figure 13-7). International long line effort was low along the OECC in ICES rectangle 35E0, and negligible within the OAA and along the OECC in ICES rectangle 34E0. The greatest international long line effort is observed along the coastline in ICES rectangle 35E0, outwith the Offshore Site.




# SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- Study Area
- Ireland 6 NM limit
- Ireland 12 NM Limit

**Int. Bottom Otter Trawl Effort 2014 - 2018**

High: 5530.35

Low: 0.0033332

**Int. Gill Nets Effort 2014 - 2018**

High: 2811.98

Low: 0.0033332

**Int. Long Lines Effort 2014 - 2018**

High: 625.857

Low: 0.0033332

**Int. Pelagic Trawls Effort 2014 - 2018**

High: 2208.24

Low: 0.0033332

**Int. Pots Effort 2014 - 2018**

High: 4571.27

Low: 0.0033332

**Int. Seines Effort 2014 - 2018**

High: 1077.55

Low: 0.0033332

0 10 20 nm

0 25 50 km



PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**International Offshore Fishing Effort (2014 - 2018)**

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**Figure 13-7**

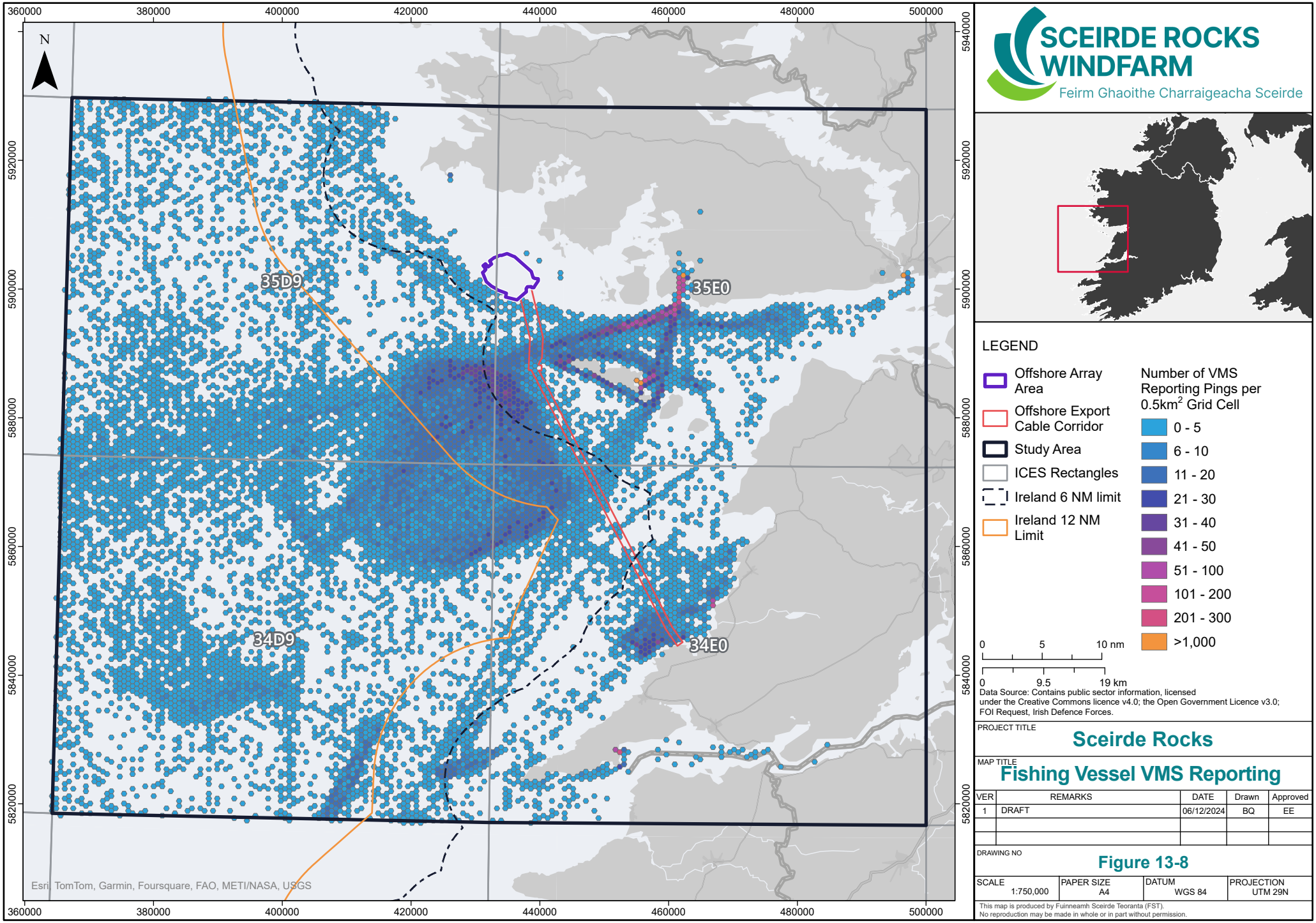
| SCALE | PAPER SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:2,000,000 | A4 | WGS 84 | UTM 29N |

### 13.5.3.3 Vessel Monitoring System (VMS)

Figure 13-8 illustrates the number of VMS pings per 0.5 km$^2$ grid cell from 2019 – 2022 (Irish Defence Forces, 2023). There are no pings within the OAA, and the ping density within the OECC was 20 pings between 2019 and 2022. It should be noted that smaller vessels < 12 m length are not represented by the VMS data (see Section 13.5.3.5 for further detail on smaller fishing activity).

High ping densities can be seen around a landfall on the mainland, as well as a landfall on the Aran Islands, both located in 35E0, which could indicate important fishing ports. The highest ping density not located near ports can be found at the intersection between the four ICES rectangles 35D9, 35E0, 34D9 and 34E0, southwest of the Offshore Site. This area has fewer pings than around the anticipated ports, but up to 100 pings per 0.5 km$^2$. This area corresponds with the *Nephrops* grounds indicated in Figure 13-3 and the demersal trawling area as seen in Figure 13-6 and Figure 13-7. Around cable landfall in 34E0 there is another area with higher ping densities, indicating another fishing ground. This area corresponds with the longlines and potting area as seen in in Figure 13-6 and Figure 13-7.

The FST OEC Trawling Activity Report 2024 shows similar findings with very low demersal trawling activity within the OECC and OEC in 2023 and 2024 (Appendix 13-1: FLO Technical Note).




# SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- Study Area
- ICES Rectangles
- Ireland 6 NM limit
- Ireland 12 NM Limit

Number of VMS Reporting Pings per 0.5km$^2$ Grid Cell

- 0 - 5
- 6 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 100
- 101 - 200
- 201 - 300
- >1,000

0 5 10 nm

0 9.5 19 km

Data Source: Contains public sector information, licensed under the Creative Commons licence v4.0; the Open Government Licence v3.0; FOI Request, Irish Defence Forces.

PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**Fishing Vessel VMS Reporting**

| VER | REMARKS | DATE | Drawn | Approved |
|---|---|---|---|---|
| 1 | DRAFT | 06/12/2024 | BQ | EE |
| | | | | |
| | | | | |

DRAWING NO

**Figure 13-8**

| SCALE | PAPER SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:750,000 | A4 | WGS 84 | UTM 29N |

### 13.5.3.4 Automatic Information System (AIS)

AIS data were collected within the OAA and shows unique vessels over 12m from 2018 to 2023. It should be noted that the data from 2020 could be skewed due to the effects of the COVID-19[2] pandemic, and that the 2023 data has yet to be processed.

Figure 13-9 shows the apparent fishing hours[3] by over 12m trawlers within the OAA between 2018 and 2023. It shows that the apparent fishing hours within the OAA has decreased from 305.36 hours in 2018, to 111.25 hours in 2022, the last complete year of the data.

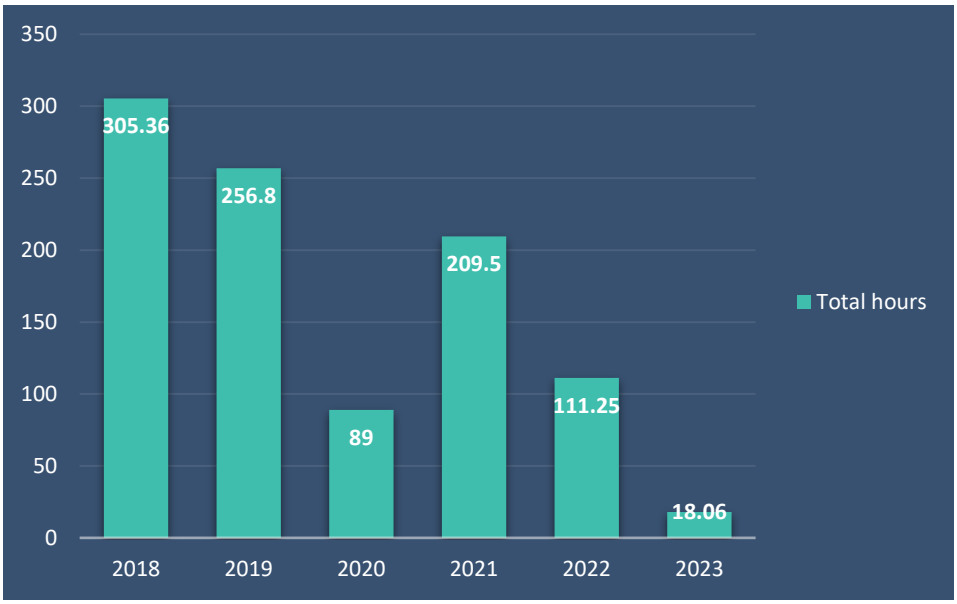



*Figure 13-9 The apparent fishing hours by over 12m trawlers from 2018-2023 within the OAA (FLO, 2023)*

Table 13-15 shows the total number of vessels that fished within the OAA, the apparent fishing hours and the number of unique vessels between 2018 and 2023. It shows that most vessels fished less than 10 hours per year in the OAA, with a limited number of vessels spending from 10 – 20 hours in the OAA, and even fewer at greater than 30 hours per year. Most of the vessels fishing in the OAA have fished there in multiple years.

*Table 13-15 The number of vessels within the OAA, the apparent fishing hours and number of unique vessels between 2018 and 2023 (FLO, 2023 – via consultation, Marine Institute)*

| Year | Number of Vessels Fishing in the OAA | Apparent Fishing Hours | | | Number of Unique Vessels This Year | Number of Vessels also found in other year(s) |
|---|---|---|---|---|---|---|
| | | 0 to 10 | 10 to 20 | 30+ | | |
| 2018 | 26 | 15 | 6 | 5 | 13 | 13 |
| 2019 | 16 | 9 | 3 | 4 | 4 | 12 |
| 2020 | 11 | 7 | 4 | | 1 | 10 |

[2] *Coronavirus Disease 2019 (COVID-19).*
[3] *This could include vessels actively fishing and vessels in transit*

| Year | Number of Vessels Fishing in the OAA | Apparent Fishing Hours | | | Number of Unique Vessels This Year | Number of Vessels also found in other year(s) |
|---|---|---|---|---|---|---|
| | | 0 to 10 | 10 to 20 | 30+ | | |
| 2021 | 17 | 13 | 1 | 3 | 2 | 15 |
| 2022 | 22 | 19 | 1 | 2 | 9 | 13 |
| 2023 | 4 | 4 | N/A | N/A | 2 | 2 |

## 13.5.3.5 Inshore Fishing

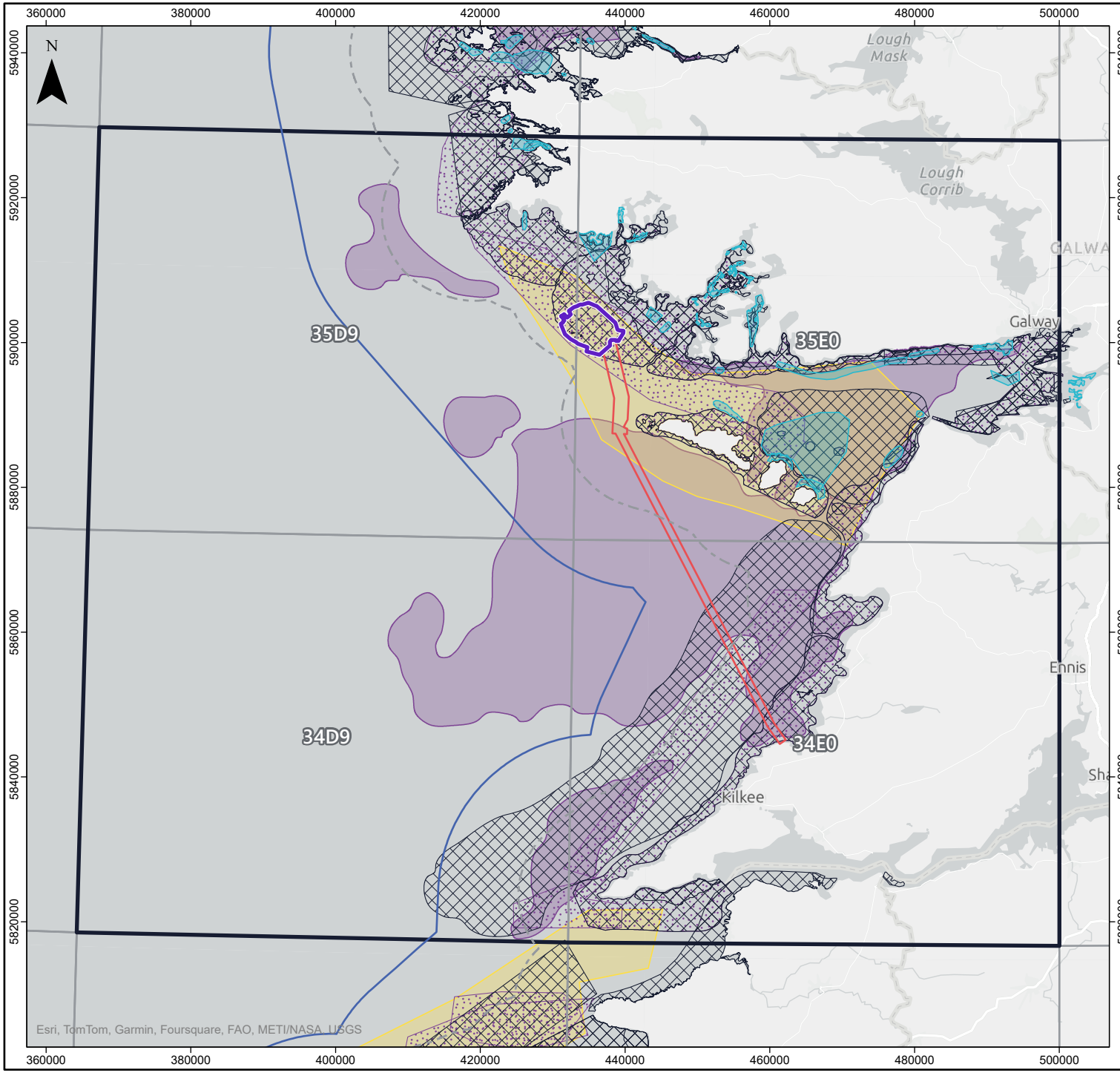
### 13.5.3.5.1 *Inshore Fisheries*

The West RIFF comprises the coastal zone of County Clare and County Galway and represents 18% of the national fleet (approximately 426 vessels, of which over 90% are under 12m) (Fóraim Iascaigh Cois Cladaigh, 2023). The main fished species in the West RIFF include:

- Lobster (*Homarus gammarus*);
- Brown crab (*Cancer pagurus*);
- Spider crab (Maja branchydactyla);
- Crayfish (*Palinurus elephas*);
- Velvet crab (*Necora puber*); and
- Shrimp (*Penaeus spp.*).
- Fisheries in the West RIFF include:
- Inshore trawling; and
- Trawling and jigging for whitefish along the coast.

### 13.5.3.5.2 *Inshore Fishing Activity*

The location of inshore pot, net, line, dredge and bottom trawl fishing activity within the commercial fisheries study area is illustrated in Figure 13-10 (Marine Institute, 2014). Inshore potting and netting are prevalent throughout the entire commercial fisheries study area within 6 NM, overlapping with the OAA in ICES rectangles 35E0 and 35D9 and the OECC in ICES rectangles 35E0 and 34E0 (Figure 13-10). Inshore line fishing activity is present within 6 NM of ICES rectangle 35E0 and 35D9, overlapping with the OAA and OECC. There is also line fishing within the southernmost region of the commercial fisheries study area in ICES rectangles 34E0 and 34D9, outwith the Offshore Site (Figure 13-10). Inshore dredge fishing activity is recorded outwith the Offshore Site, along the northern coastline of ICES rectangles 35D9 and 35E0 and around the Aran Islands (see **Error! Reference source not found.**; Figure 13-10). Inshore bottom trawl fishing is most prevalent throughout the commercial fisheries study area, with a spatial overlap with the *Nephrops* grounds (Figure 13-3; Figure 13-10). The OECC overlaps with the inshore bottom trawl fishing activity through ICES rectangles 35E0 and 34E0 (Figure 13-10).




# SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- Study Area
- ICES Rectangles
- Ireland 6 NM limit
- Ireland 12 NM Limit
- Inshore Dredge Fishing
- Inshore Pot Fishing
- Inshore Net Fishing
- Inshore Line Fishing
- Inshore Bottom Trawl Fishing

0 5 10 nm

0 10 20 km

Data Source: Contains public sector information, licensed under the Creative Commons licence v4.0; the Open Government Licence v3.0. Ireland's Marine Atlas at http://atlas.marine.ie/

PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**Inshore Fishing Activity**

| VER | REMARKS | DATE | Drawn | Approved |
|---|---|---|---|---|
| 1 | DRAFT | 06/12/2024 | BQ | EE |
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DRAWING NO

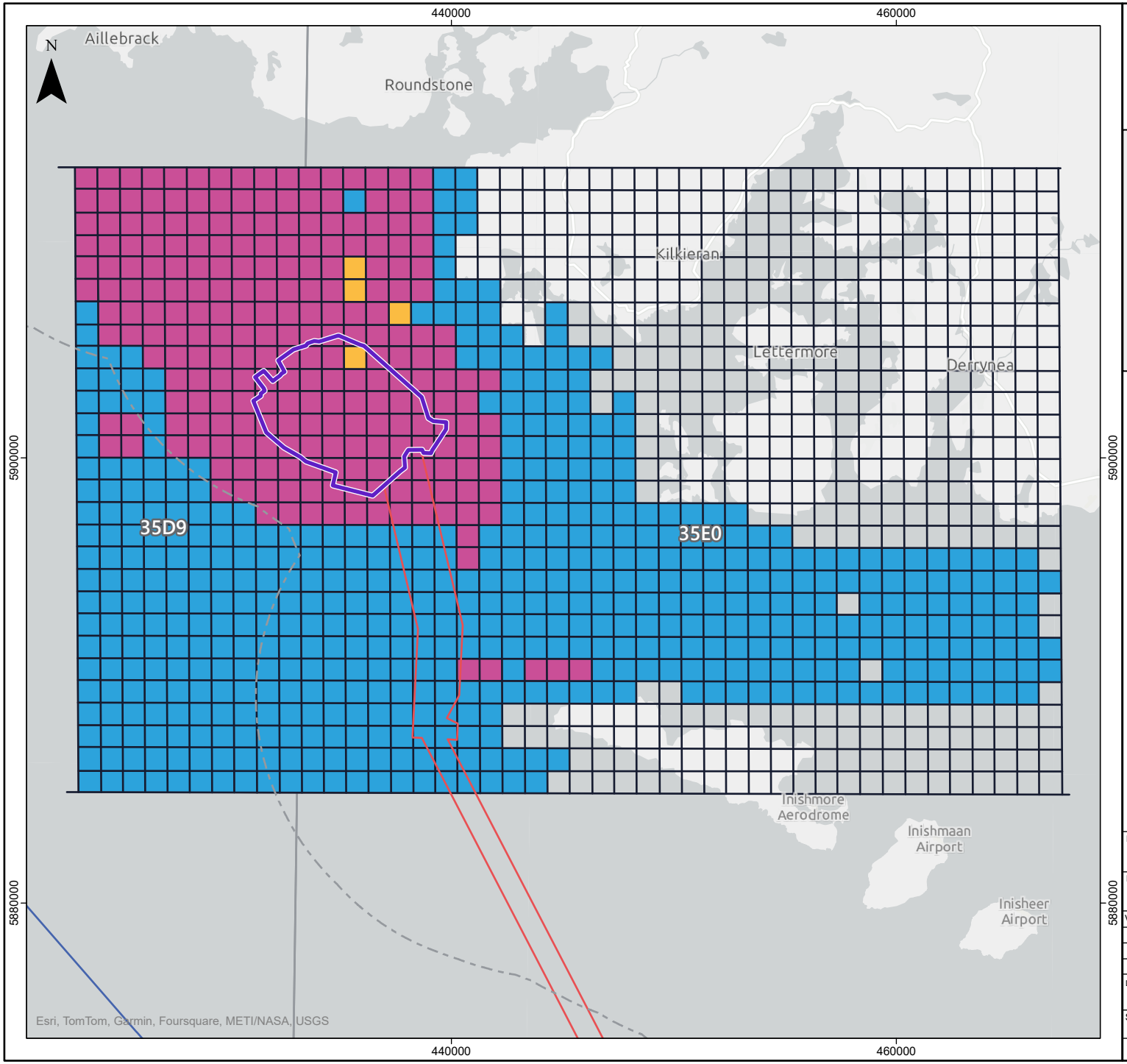
**Figure 13-10**

| SCALE | PAPER SIZE | DATUM | PROJECTION |
|---|---|---|---|
| 1:775,000 | A4 | WGS 84 | UTM 29N |

#### 13.5.3.5.3 Consultation

Consultation data is important for providing context into the operations of the inshore fisheries which are not well-represented in the publicly available data. As part of the ongoing consultation with the local fishing industry, fishers were requested to indicate their fishing locations by colouring 1x1 km grid boxes. To protect the privacy of fishers, the maps supplied by those respondents that supplied maps have been compiled together to ensure individual vessels cannot be identified. Given the context, it should be noted that although the information is subjective it represents the industry's response to this element of the consultation process. It should also be noted that there were only limited responses, and a number of fishers that are known to be active within the wider area did not provide details.

Figure 13-11 presents the 1x1 km consultation grid and the representation of fishing activity across the Offshore Site. The highest activity was recorded within the northern extent of the OAA (Figure 13-11); however, there was a medium level of activity throughout most of the OAA (i.e. between six to 10 vessels). Within the OECC there was medium activity observed close to the OAA, and then low activity throughout (Figure 13-11).




# SCEIRDE ROCKS WINDFARM

Feirm Ghaoithe Charraigeacha Sceirde

LEGEND

- Offshore Array Area
- Offshore Export Cable Corridor
- ICES Rectangles
- Ireland 6 NM limit
- Ireland 12 NM Limit
- Fishing Stakeholders Grid

Number of Fishers Active in Grid Cell

- 1 - 5
- 6 - 10
- 10+

0 1.5 3 nm

0 3 6 km



PROJECT TITLE

**Sceirde Rocks**

MAP TITLE

**Fishing Stakeholder Engagement**

| VER | REMARKS | DATE | Drawn | Approved |
|---|---|---|---|---|
| 1 | DRAFT | 06/12/2024 | BQ | EE |
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DRAWING NO

**Figure 13-11**

| SCALE | PAPER SIZE | DATUM | PROJECTION |
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| 1:250,000 | A4 | WGS 84 | UTM 29N |

## 13.5.4 Summary

*Table 13-16 Baseline Environment Summary*

| | | | | |
|---|---|---|---|---|
| | **Offshore Site** | | | |
| | › The main port is Ros an Mhíl (Rossaveel); and<br>› There are a number of smaller piers and harbours utilised by the inshore fishing fleet. | | | |
| | **Key Species and Key Fleets:** | | | |
| | **Key Fleets** | **Species Caught** | **Project Overlap** | **Occurrence** |
| | Demersal trawlers and seines | › Nephrops;<br>› Monkfish; and<br>› Megrim. | OAA and OECC | Frequent and widespread, notably along OECC with limited presence in the OAA. |
| | Static gear (pots, nets, and traps) | › Lobster;<br>› Crab (brown, velvet, spider);<br>› Crayfish; and<br>› Shrimp. | OAA and OECC | Predominant within OAA, but lesser extent throughout OECC. |
| | Pelagic trawlers | › Mackerel;<br>› Horse mackerel. | OECC | Lesser extent, operate further offshore but potential for slight overlap with OECC. |

# 13.6 Likely Significant Effects and Associated Mitigation Measures

## 13.6.1 Do Nothing Scenario

Overall, the current baseline as described in Section 13.1.1 above, 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. It is acknowledged that the future baseline may evolve as a result of changes in:

- Stock abundance (e.g. resulting from range shifts of commercial species driven by climate change (Barange et al., 2018; Scottish Fishermen's Federation (SFF), 2020);
- Changes in access to non-Irish vessels, due to post-Brexit quota reallocation and outcomes of the associated fleet restructuring (e.g. Voluntary Permanent Cessation ("Decommissioning") Scheme);
- Inflation and rising operating costs (e.g. increased fuel costs), including associated reductions in wage and labour shortages;
- Market prices (which could drive changes in target species);
- Gear technology and efficiency; and
- Fisheries management measures and licensing, including restrictions resulting from the designation and management of Marine Protected Areas (MPAs) by the General Scheme of Marine Protected Areas Bill 2022 (legislation currently being developed) and the expansion of protected areas as part of the EU Biodiversity Strategy for 2030.

## 13.6.2 Construction Phase

### 13.6.2.1 Loss of access to fishing grounds

Within the OAA, there will be 50 m advisory safety clearance ranges in place around infrastructure prior to commissioning (30 WTGs and one OSS) and 500 m advisory safety clearance ranges around construction vessels. Along the OECC, 500 m advisory safety clearance ranges will be applied around construction vessels and within areas of cable awaiting burial or protection. Overall, there will be a up to 23 vessels associated with construction present intermittently. There will be up to five OEC construction vessels present intermittently at various times over the short-term duration of construction. The advisory safety clearance ranges will not be in a single static location for the duration but will change as the construction vessels progress along the OECC. The construction activities will occur over a short-term duration (i.e. three-years) encompassing pre-construction activities spanning approximately four months (2026) and construction activities spanning approximately 18 months.

During the pre-commissioning period, there will be temporary loss of access to fishing grounds within these advisory safety clearance ranges; however, this will cease as infrastructure is commissioned. It should also be noted that as works will be undertaken simultaneously, the area occupied by advisory safety clearance ranges will increase then decrease as construction progresses. Nevertheless, there will be a number of mitigation by design measures in place to reduce any potential effect resulting from this temporary loss of access (see Section 13.4.3.4), including communication prior to works through the distribution of NtMs and Kingfisher, and the presence of up to two guard vessels and an OFLO (where required) onsite during construction to aid in offshore communications between Project vessels and fishing vessels.

#### 13.6.2.1.1 *Demersal trawlers and seines*

##### Description of Effect

The greatest landings value within the commercial fisheries study area (2014 – 2018) was attributed to Irish bottom otter trawls, with the highest value of landings distributed around the *Nephrops* ground (Marine Institute, 2019b); however, lower landings values were observed throughout the rest of the study area for both demersal trawls and seines with negligible landings in the OAA. This is comparable with the fishing effort by Irish bottom otter trawls and seines which is recorded as low throughout the OECC and negligible within the OAA (Marine Institute, 2019a). It should be noted that the Marine Institute (2019a, b) datasets are sourced from VMS, which only captures vessels over 12 m in length. Furthermore, the AIS data indicates low apparent fishing hours within the OAA by vessels over 12 m.

The MMO (2023) landings data provides record of vessel length tied to landings, indicating that vessels between 18 m to 24 m are active throughout the commercial fisheries study area. The vessels between 18 m to 24 m in length are associated with medium to large demersal trawlers (BIM, 2023). Fishing by trawlers over 12 m has decreased in recent years (Figure 13-9), with most vessels having less than 10 apparent fishing hours (which could potentially also include transiting time) per year within the OAA (

Table 13-15). In 2022, the last complete year of the dataset, there were 22 vessels recorded fishing within the OAA with nine unique vessels (

Table 13-15).

No trawling was found within the OAA. This is likely due to the bathymetry, which has steep rocky protrusions and exposed rocks throughout (see Chapter 7: Marine Physical and Coastal Processes for more information). Therefore, potential loss of access to fishing grounds will only occur along the OECC where demersal trawl and seine activity is low.

##### Characterisation of Unmitigated Effect

Loss of access to fishing grounds will have a likely, temporary, adverse effect on demersal trawlers and seines along the OECC. As described above, loss of access will result from the implementation of advisory 500 m advisory safety clearance ranges around up to five OEC construction vessels and within areas of cable awaiting burial or protection which is spatially limited to the area of installation within the OECC at any one-time. Cable installation will be temporary (i.e. 22 days) as the vessels progress along the OECC. The effect will cease following the completion of construction activities, with a likely return to baseline fishing activity. The magnitude of effect is therefore **low**.

The sensitivity of demersal trawlers and seines has been assessed based on operational ranges, gear / target species versatility and availability of fishing grounds. Demersal trawlers and seines over 15 m length are considered to be less sensitive given that these larger vessels have moderate to extensive operational ranges whereas those under 15 m have more limited operational ranges. The target species for these vessels in this region is primarily *Nephrops*, as evidenced by the fishing effort and landings distribution overlapping with the *Nephrops* grounds (Marine Institute, 2019a, b). Given that the presence of *Nephrops* is constrained by the availability of suitable seabed habitat, vessels landing *Nephrops* are considered to have limited target species versatility. The 2023 survey report for the Aran, Galway Bay and Slyne Head *Nephrops* Grounds (FU17) provides the density of *Nephrops* burrows and the OECC passes through an area of low density, which is reflected in the very low levels of fishing activity in that area (Aristegui *et al.*, 2023). Therefore it is assessed that demersal trawlers and seines have the ability to fish in a number of fishing grounds in the wider *Nephrops* FU area. Thus, given a limited to moderate operational range (encompassing both smaller and larger vessels), with consideration of the low density of burrows overlapping the OECC and wider availability of fishing grounds, the sensitivity is considered to be **low.**

### Assessment of Significance Prior to Mitigation

Overall, given the very short nature of the construction activities (i.e. approximately 22 days) along the OECC associated with a relatively small footprint works at any one time, with consideration that the effect will cease following the completion of works as fishing will resume, loss of access to fishing grounds during construction will have a temporary, **slight, negative effect** on demersal trawlers and seines with fishing grounds along the OECC, and an **imperceptible negative** effect within OAA. These effects are Not Significant.

### Mitigation

- Mitigation by design has been incorporated as the cable was routed through an area with low density of burrows and very low level of fishing activity to lessen potential effects on commercial fisheries receptors;
- The works will be completed in a very short period of time; and
- There will be mitigation by reduction through appointment of an FLO. Communication with local vessels will be maintained prior to works via NtMs, the FLO, and the use of guard vessels and OFLO where required (i.e. potential hazards).

### Residual Effect Following Mitigation

Given the mitigation by design measures and consideration of the medium sensitivity of demersal trawlers and seines, with the temporary and transient nature of the work, the residual effect will be likely, temporary, **imperceptible negative** effect which is **Not Significant**.

## 13.6.2.1.2 *Static gear (pots, traps and nets)*

### Description of Effect

As described in the baseline in Section 13.5.3.5.1, over 90% of vessels in the West RIFF are under 12 m length. While the majority of vessels deploying static gear will be under 12 m length, VMS data also shows vessels over 12 m length deploying static gear along the OECC (Figure 13-6; Figure 13-7) with fishing effort recorded as low throughout the OECC and negligible within the OAA. In contrast, primary information obtained through discussions with local fishers in 2022, 2023 and 2024 reveals the presence of inshore static gear fishing activity throughout the OAA and partially within the OECC, as evidenced by the fishing gear scouting surveys in which buoys were observed throughout the OAA and into the OECC (Figure 13-1). Thus, consultation was undertaken with fishers to understand fishing activity across the Offshore Site. The response is illustrated in Figure 13-11, which indicates that the level of fishing activity (i.e. number of active fishers) throughout most of the OAA is medium (six to ten vessels) with the highest level (over 10) only being observed in the north of the OAA; however, it should be noted this data only represents a small percentage of the fishers in the area. It is known from other consultation activities that there is a much higher presence of vessels operating static gear in the broader area than what is illustrated in Figure 13-11; however, it cannot be certain whether these vessels in the broader area are operating in the OAA. For the avoidance of doubt, a high level of static gear fishing activity within the OAA will be assessed.

### Characterisation of Unmitigated Effect

Loss or restricted access to fishing grounds will have a likely, temporary adverse effect on vessels deploying static gear. The effect will result from the construction within the OAA and along the OECC, as static gear will need to be relocated during works. The effect will be temporary, as works will occur over different locations at different times within the OAA during the late Spring, Summer and/or early Autumn over 3 years. within the OAA and 22 days at any location along the OECC. The effect will

cease following the completion of construction activities, as vessels will be able to deploy static gear with a return to baseline fishing activity. Given the temporary nature of the effect, which could be recurring over periods within the 3 years of construction, along with the high level of static gear fishing within the OAA and low level along the OECC, the magnitude is considered to be **medium**.

The sensitivity of vessels deploying static gear has been assessed based on operational ranges, gear / target species versatility and availability of fishing grounds. Smaller vessels deploying static gear are considered to have limited gear versatility and limited operational ranges, with wider availability of fishing grounds. Given the limited operational range and limited gear versatility in conjunction with the potential availability to move to the wider available fishing grounds, the sensitivity is assessed as **medium**.

#### Assessment of Significance Prior to Mitigation

Temporary loss of access to fishing grounds during construction is likely to have a **short term, significant, negative effect** on vessels deploying static gear, which is Not Significant.

#### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4;
- Communication with local vessels will be maintained prior to works via NtMs and the FLO. During periods where no construction works are underway, if required, the Offshore Site will be marked or guard vessels will be present around potential hazards (e.g. unprotected infrastructure), which may further restrict access; and
- There will be development of cooperation measures through discussions with affected fishers to ensure co-existence during the construction phase. This will be in line with the outcome of the discussions currently underway for the ORE Seafood Working Group.

#### Residual Effect Following Mitigation

Given the mitigation by design and development of co-operation measures, and consideration of the **medium** sensitivity of vessels deploying static gear, with the temporary and transient nature of the work over different locations at different times within the OAA during the late Spring, Summer and/or early Autumn over 3 years. within the OAA and 22 days at any location along the OECC over three years for various parts of the area, the residual effect will be likely, **short-term** and once, **slight negative** effect, which is **Not Significant**

### 13.6.2.1.3 *Pelagic trawlers*

#### Description of Effect

The landings value within the commercial fisheries study area (2014 to 2018) for pelagic trawlers accounted for approximately €200,000 - €300,000, with the highest landing values observed outwith the study area (i.e. landings > €700,000) (Marine Institute, 2019b). Fishing effort by Irish pelagic trawlers has been observed as highest outwith the Offshore Site between the Aran Islands and Galway Bay, with a greater density of fishing effort observed outwith the study area. Overall Irish pelagic trawl fishing effort was negligible throughout the OAA and very low along the OECC (Marine Institute, 2019a). It should be noted that the Marine Institute (2019a, b) datasets are sourced from VMS, which only captures vessels over 12 m in length; however, as described for demersal trawlers above the bathymetry and seabed conditions within the OAA are not favourable for trawling. Therefore, potential loss of access to fishing grounds for pelagic trawlers will be associated with activities along the OECC.

### Characterisation of Unmitigated Effect

Loss of access to fishing grounds will have a likely, temporary adverse effect on pelagic trawlers. As described above, the temporary loss of access will result from the implementation of advisory 500 m advisory safety clearance ranges around up to five OEC construction vessels and within areas of cable awaiting burial or protection which will be spatially limited to the area of installation within the OECC at any one-time. Cable installation will be temporary (i.e. 22 days at any location) as the vessels progress along the OECC. The effect will cease following the completion of construction activities, with a likely return to baseline fishing activity. The magnitude of effect is therefore **low**.

The sensitivity of pelagic trawlers has been assessed based on operational ranges, gear / target species versatility and availability of fishing grounds. The MMO (2023) data on vessel length indicates that vessels over 24 m are active throughout the study area, in addition to a high density of vessels over 40 m present in ICES rectangle 35D9. These vessels over 24 m are associated with pelagic trawlers (BIM, 2023). Vessels over 15 m length are considered to have larger operational ranges and thus the ability to exploit a larger number of fishing grounds. As evidenced by the baseline, there is widespread availability of fishing grounds outwith the Offshore Site, with the highest areas of landings value outwith the study area entirely. Given that pelagic trawlers have large operational ranges with the ability to exploit a large number of fishing grounds the sensitivity is assessed as **negligible**.

### Assessment of Significance Prior to Mitigation

Loss of access to fishing grounds during construction is therefore likely to have a temporary, **not significant, negative effect** on pelagic trawlers, which is Not Significant.

### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4; and
- Mitigation by reduction through appointment of an FLO. Communication with local vessels will be maintained prior to works via NtMs, the FLO, and the use of guard vessels and OFLO where required (i.e. potential hazards).

### Residual Effect Following Mitigation

Given the mitigation by design and consideration of the **imperceptible** sensitivity of pelagic trawlers, with the temporary and transient nature of the work, the residual effect will be likely, temporary, **not significant negative** effect, which is **Not Significant**

## 13.6.2.2 Displacement of fishing activity into other areas

Displacement of fishing activity into other areas during construction will result from the presence of 50 m advisory safety clearance ranges around infrastructure prior to commissioning and 500 m advisory safety clearance ranges around the construction vessels as detailed in Section 13.6.2.1 above. Additionally, the displacement of fishing activity resulting from construction activities may lead to secondary displacement as vessels are driven into areas where other fishing fleets are present. Secondary displacement may lead to increased competition for fishing grounds and conflict as well as changes to target species.

### 13.6.2.2.1 *Demersal trawlers and seines*

#### Description of Effect

As described above, the Marine Institute (2019a, b) data on landings and fishing effort indicate that demersal trawls and seines (> 12 m length) are concentrated around the *Nephrops* ground, with lower values throughout the study area (including along the OECC) and negligible landings value and effort within the OAA. While consultation data indicates that there are smaller trawling vessels operating in this region, the trawling is entirely outwith the OAA due to the bathymetry which has steep rocky protrusions and exposed rocks throughout. Thus, displacement of fishing activity into other areas will only affect vessels operating along the OECC where activity is very low and amore space to choose from. The displacement of fishing activity along the OECC may result in secondary displacement where demersal trawls and seines relocate to areas with other fleets are present (e.g. vessels deploying static gear and/or pelagic trawlers), although this is likely to be a rare occurrence considering the absence of fishing activity in this area.

#### Characterisation of Unmitigated Effect

Displacement of fishing activity into other areas will have a likely, temporary adverse effect on demersal trawlers and seines. Temporary displacement will result from the presence of advisory 500 m advisory safety clearance ranges around up to five export cable construction vessels and within areas of cable awaiting burial or protection which is spatially limited to the area of installation within the OECC at any one-time. Cable installation will be temporary (i.e. 22 days at any particular location) as the vessels progress along the OECC. The effect will cease following the completion of construction activities, with displaced vessels returning to fishing grounds. The magnitude of effect is therefore considered to be **low**.

As described in Section 13.6.2.1.1 above, demersal trawlers and seines are considered to have a moderate extent of operational range with the ability to fish a number of fishing grounds. The 2023 survey report for the Aran, Galway Bay and Slyne Head *Nephrops* Grounds (FU17) indicates that the OECC passes through an area of low density of *Nephrops* burrows, which is reflected in the low levels of fishing activity in that area (Aristegui *et al.*, 2023). With regards to secondary displacement, vessels deploying static gear and pelagic trawlers also have very low fishing effort along the OECC. Displaced potters are anticipated to avoid established trawling grounds to avoid potential damage to the static gear; however, it is noted that these vessels have more limited operational ranges when compared with mobile gear. Displaced pelagic trawlers have a wide availability of alternative fishing grounds, and therefore less potential for conflict and / or competition resulting from displaced demersal trawlers. Thus, the sensitivity to displacement is assessed to be **low**.

#### Assessment of Significance Prior to Mitigation

Displacement of fishing activity into other areas during construction is likely to have a temporary, **slight, negative effect** on demersal trawlers and seines, which is Not Significant.

#### Mitigation

- Development of cooperation agreements through discussions with affected fishers in line with the findings of the Seafood ORE Working Group and best practice guidance (e.g. FLOWW, 2015); and
- Communication with local vessels will be maintained prior to works via NtMs, the FLO, and the use of guard vessels and OFLO where required (i.e. potential hazards).

### Residual Effect Following Mitigation

Given the mitigation by design and consideration of the **low** sensitivity of demersal trawlers and seines, with the temporary and transient nature of the work, the residual effect will be **likely, temporary**, **not significant negative** effect, which is Not Significant.

## 13.6.2.2.2 *Static gear (pots, traps and nets)*

### Description of Effect

According to the VMS data for vessels over 12 m length, static gear effort is low throughout the OECC and negligible within the OAA (Figure 13-6; Figure 13-7); however, information gained through the inshore fisheries map (Figure 13-10), consultation map (Figure 13-11), and fishing gear visual survey (Figure 13-1) indicates that vessels operating static gear are prevalent throughout the OAA with medium to high levels of fishing activity (see Section 13.6.2.1.2). Displacement of vessels operating static gear may occur as a result of the requirement for static gear to be relocated during construction which will over different locations at different times within the OAA during the late Spring, Summer and/or early Autumn over 3 years. within the OAA and 22 days at any location along the OECC. Displaced static gear will likely shift into the surrounding fishing grounds, which may result in increased competition and / or conflict; however, there may be limited availability to move to the wider available fishing grounds and the effect would be short-term. It is unlikely that displaced fishers utilising static gear will move into regions of established trawling grounds because of potential damage to their gear; however, it is noted that these vessels have limited operational ranges when compared with mobile gear.

### Characterisation of Unmitigated Effect

Displacement of fishing activity into other areas can have a likely, short term adverse effect on vessels deploying static gear. Displacement may result from the required relocation of static gear during construction which will primarily affect static gear deployed in the OAA; however, there is some static gear deployed along the OECC. The effect will be temporary, as works will occur over different locations at different times within the OAA during the late Spring, Summer and/or early Autumn over 3 years. within the OAA and 22 days at any location along the OECC. The effect will cease following the completion of construction activities, as vessels will be able to deploy static gear again, with a likely return to baseline fishing activity. Given the short-term nature of the effect occurring once, along with the medium to high level of static gear fishing within the OAA and low level along the OECC, the potential for competition and/or conflict resulting from static gear shifting into the surrounding fishing grounds, the magnitude is **medium**. As described in Section 13.6.2.1.2 above, vessels operating static gear have limited operational ranges and limited gear versatility and therefore the sensitivity to displacement is **medium**.

### Assessment of Significance Prior to Mitigation

Displacement of fishing activity into other areas during construction is likely to have a **significant, negative effect** on those vessels deploying static gear, which is Significant.

### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4;
- Communication with local vessels will be maintained prior to works via NtMs and the FLO. During periods where no construction works are underway, if required, the Offshore Site will be marked, or guard vessels will be present around potential hazards (e.g. unprotected infrastructure); and

- There will be development of cooperation measures through discussions with affected fishers to ensure co-existence during the construction phase. This will be in line with the outcome of the discussions currently underway for the ORE Seafood Working Group.

#### Residual Effect Following Mitigation

Given the mitigation by design and additional co-operation measures, and consideration of the **medium** sensitivity of vessels deploying static gear, with the temporary and transient nature of the work, the residual effect will be likely, short-term, **slight negative** effect, which is Not Significant.

### 13.6.2.2.3 *Pelagic trawlers*

#### Description of Effect

According to the VMS data for vessels over 12 m length, pelagic trawl effort is low throughout the OECC and negligible within the OAA (Figure 13-6; Figure 13-7). Temporary displacement of pelagic trawlers may result from the presence of 500 m advisory safety clearance ranges around construction vessels and within areas of cable awaiting burial or protection Given that pelagic trawlers have the ability to exploit a large number of fishing grounds, the potential for conflict and / or competition with other pelagic trawlers is low.

Secondary displacement may result from the displacement of vessels from the OAA/OECC during construction. Displaced potters are anticipated to avoid established trawling grounds to avoid potential damage to the static gear; it is noted that these vessels have limited operational ranges when compared with mobile gear. Displaced demersal trawlers are constrained to the *Nephrops* grounds; however, the OECC only overlaps with a small extent of these grounds and therefore displaced demersal trawlers are expected to be able to utilise alternative grounds. Therefore the potential for conflict and / or competition resulting from the displaced pelagic trawlers is reduced.

#### Characterisation of Unmitigated Effect

Displacement of fishing activity into other areas can have a likely, temporary adverse effect on pelagic trawlers. Temporary displacement may result from the 500 m advisory safety clearance ranges around construction vessels and within areas of cable awaiting burial or protection which is spatially limited to the one area of installation within the OECC at any one-time (i.e. occurring once). Cable installation will be temporary (i.e. 22 days for the entire cable) as the vessels progress along the OECC. The effect will cease following the completion of construction activities, with a likely return to baseline fishing activity. The magnitude of effect is therefore **low**. As described in Section 0 above, pelagic trawlers have extensive operational ranges with the ability to exploit a large number of fishing grounds therefore the sensitivity to displacement is **negligible**.

#### Assessment of Significance Prior to Mitigation

Displacement of fishing activity into other areas during construction is therefore likely to have a temporary, **not significant negative effect** on pelagic trawlers, which is Not Significant.

#### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4; and
- Mitigation by reduction through appointment of an FLO. Communication with local vessels will be maintained prior to works via NtMs, the FLO, and the use of guard vessels and OFLO where required (i.e. potential hazards).

### Residual Effect Following Mitigation

Overall, there are low levels of pelagic trawl activity along the OECC which represents a small area of the available fishing grounds for displaced vessels. Given that pelagic trawlers have the ability to exploit a large number of fishing grounds over a wide area, in addition to the small area affected at any one time, the potential for conflict and / or competition with other pelagic trawlers is low. With regard to secondary displacement, the potential for conflict and / or competition resulting from the displaced pelagic trawlers is also reduced. Given the mitigation by design and consideration of the **negligible** sensitivity of pelagic trawlers, with the temporary and transient nature of the work, the residual effect will be likely, **temporary**, **not significant negative** effect, which is Not Significant.

## 13.6.2.3 Interference to fishing activity due to increased vessel traffic

### 13.6.2.3.1 *All vessels*

### Description of Effect

Increased vessel traffic associated with construction works may lead to interference with fishing activity (e.g. fouling of static gear markers), or damage and / or loss of gear, which in turn may lead to economic effects on fishers. Increased vessel traffic includes the presence of construction vessels on site during works as well as vessels transiting to and from the Offshore Site. It should be noted that the navigational safety associated with increased vessel traffic is assessed in Chapter 14: Shipping and Navigation.

### Characterisation of Unmitigated Effect

Interference to fishing activity due to increased vessel traffic will have a likely, temporary adverse effect on all fleets. The interference to fishing activity will result from the potential damage and/or loss of gear and potentially fouling of static gear markers. Increased vessel traffic will occur throughout the Project area (OAA and OECC) including vessels present on site and the wider area for those transiting to and from the Offshore Site. The effect will be temporary, as works will occur over different locations at different times within the OAA during the late Spring, Summer and/or early Autumn over 3 years. within the OAA and 22 days at any location along the OECC. The effect will cease following the completion of construction activities, as the vessel traffic will resume to background levels. Considering that this effect could lead to significant damage and / or loss of gear, all fleets are assessed as having **high** magnitude; however, given that all vessels will adhere to COLREGs and the SOLAS, the sensitivity of all fleets is **low**.

### Assessment of Significance Prior to Mitigation

Interference to fishing activity due to increased vessel traffic during construction is likely to have a temporary, **moderate, negative effect** on all fleets, which is Not Significant.

### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4;
- Mitigation by prevention as a VMP, NSP and FMMS will be developed to further reduce any potential effects from the increased vessel traffic during construction and decommissioning;
- Additionally, guard vessels and an OFLO will be on site where appropriate to aid in communications and warn of any hazards within the Offshore Site. There will be ongoing liaison with the fishing industry through the FLO. Prior to any construction works there will be promulgation of information through NtMs and all relevant channels; and

- There will be development of cooperation measures through discussions with affected fishers to ensure co-existence during the construction phase. This will be in line with the outcome of the discussions currently underway for the ORE Seafood Working Group.

#### Residual Effect Following Mitigation

Given the mitigation by design, with the temporary and transient nature of the work, the residual effect will be **likely**, **temporary**, **slight, negative** effect, which is Not Significant. Increased steaming times

The potential effects detailed above, including temporary loss or restricted access to fishing grounds, displacement of fishing activity into other areas and increased vessel traffic may result in vessels needing to alter transit routes to fishing grounds and therefore increase steaming times.

### 13.6.2.3.2 *Small, local vessels*

#### Description of Effect

As described above, smaller vessels such as those under 15 m length will have limited operational ranges and therefore are anticipated to be more affected by increased steaming times. The fishing activity of vessels under 15 m length is associated with smaller demersal trawlers and seines operating along the OECC (Section 13.6.2.1.1) and vessels deploying static gear within the OAA and OECC (Section 13.6.2.1.2).

#### Characterisation of Unmitigated Effect

Increased steaming times can have a likely, temporary adverse effect on small vessels. Increased steaming times will result from the 500 m advisory safety clearance ranges around construction vessels throughout the OAA and within areas of cable awaiting burial or protection along the OECC. It is noted that there are a number of rock outcrops which limit transit through the OAA. The effect will be temporary, as works will occur over different locations at different times within the OAA during the late Spring, Summer and/or early Autumn over 3 years. within the OAA and 22 days at any location along the OECC and will occur once-off. Therefore the requirement for changes in steaming routes to avoid advisory safety clearance ranges will be limited. The effect will cease following the completion of construction activities, as steaming times will resume to normal. The magnitude of effect is therefore **low**. Given that smaller vessels have limited operational ranges and are more likely to be affected by increased steaming times, given that there are limited requirements for changes in steaming routes for limited periods to avoid advisory safety clearance ranges, the sensitivity is **low**.

#### Assessment of Significance Prior to Mitigation

Increased steaming times during construction is likely to have a **slight, negative effect** on small vessels, which is Not Significant.

#### Mitigation

- Mitigation by design measures as described above and detailed in Section 13.4.3.4; and
- There will be mitigation by reduction as there will be ongoing liaison with the fishing industry through the FLO. Prior to any construction works there will be promulgation of information through NtMs and all relevant channels, including the presence of safe routes will be marked out for vessels to navigate around the OAA during construction dependent on vessel size (e.g. routes for smaller and larger vessels).

### Residual Effect Following Mitigation

Given that small vessels will be aware of the nature, location and timing of construction activities through the mitigation by design, it is anticipated that small vessels will be able to plan and re-route around construction works and the potential for effect is reduced. Taking this into consideration, along with the temporary and transient nature of the work, the residual effect will be likely, temporary, **not significant negative** effect, which is **Not Significant**

## 13.6.2.3.3 *All other vessels*

### Description of Effect

Larger vessels (over 15 m length) have larger operational ranges, compared to vessels under 15 m in length. Given the larger operational ranges, these vessels are expected to be less affected by increased steaming times.

### Characterisation of Unmitigated Effect

Increased steaming times can have a likely, temporary adverse effect on all other vessels. Increased steaming times may result from the 500 m advisory safety clearance ranges around construction vessels throughout the OAA and within areas of cable awaiting burial or protection along the OECC. The effect will be temporary, as works will occur over different locations at different times within the OAA during the late Spring, Summer and/or early Autumn over 3 years. within the OAA and 22 days at any location along the OECC and will occur once. Therefore the requirement for changes in steaming routes to avoid advisory safety clearance ranges will be limited. The effect will cease following the completion of construction activities, as steaming times will resume to normal. The magnitude of effect is therefore **negligible**. Given that all other vessels will have larger operational ranges and are less likely to be affected by increased steaming times, with consideration of the limited requirement for changes in steaming routes to avoid advisory safety clearance ranges, the sensitivity is **negligible**.

### Assessment of Significance Prior to Mitigation

Increased steaming times during construction is likely to have a short-term, **not significant, negative effect** on all other vessels, which is Not Significant.

### Mitigation

- Designed-in and mitigation by design measures as described above and detailed in Section 13.4.3.4.
- There will be mitigation by reduction as there will be ongoing liaison with the fishing industry through the FLO. Prior to any construction works there will be promulgation of information through NtMs and all relevant channels.

### Residual Effect Following Mitigation

Given that all other vessels will be aware of the nature, location and timing of construction activities through the mitigation by design, it is anticipated that all other vessels will be able to plan and re-route around construction works and the potential for effect is reduced. Taking this into consideration, along with the temporary and transient nature of the work, and negligible sensitivity, the residual effect will be **likely**, **short-term, not significant negative** effect, which is Not Significant.

## 13.6.2.4 Safety issues for fishing vessels

The following sections assess the potential risk to fishing vessels actively fishing during construction, including risks associated with snagging, entanglement and / or dropped objects. This section only assesses the risk during active fishing, all other aspects with regards to navigational safety are assessed in Chapter 14: Shipping and Navigation.

The assessment of health and safety risks to fishing vessels follows a separate assessment methodology than that of the EPA EIAR guidelines assessment methodology as used throughout the commercial fisheries likely significant effects assessment. The health and safety risk assessment methodology, as detailed in Section 13.4.3.2, is in line with MGN 654: International Maritime Organisation Formal Safety Assessment process (see

Table 13-9 and **Error! Reference source not found.**).

### 13.6.2.4.1 *Vessels operating static gear*

#### Description of Effect

When being deposited on the seabed, static gear may be dragged behind the vessel for a short period of time. During this time, the presence of partially installed infrastructure, as well as where cable is awaiting burial or protection, presents a potential snagging risk to static gear.

#### Characterisation of Unmitigated Effect

In order to prevent gear from being located in the vicinity of construction works, 50 m advisory safety clearance ranges are implemented around WTGs and OSS and 500 m advisory safety clearance ranges will be present along the OECC where cable is awaiting burial or protection. During construction, static gear will be relocated outwith the construction areas. Given that vessels operating static gear have a lower potential to interact with the seabed, and therefore the potential for damaged or lost gear is low, the sensitivity is **negligible**.

#### Assessment of Significance Prior to Mitigation

The severity of consequence is **serious** in terms of safety risk, as there is potential for significant damage to vessels and potential injury to crew. Thus, safety issues for vessels operating static gear are considered to be of **high** magnitude; however, the frequency of occurrence is considered to be **extremely unlikely**. Overall, the safety risk to vessels operating static gear is likely to have a short-term, **not significant, negative effect**, which is Not Significant.

#### Mitigation

- There will be ongoing consultation with the fishing industry via the FLO, and communication will be maintained offshore through use of OFLO and guard vessels as necessary to inform of hazards; and
- Additionally, as part of the mitigation by design in Section13.4.3.4, there will be procedures for dropped objects and claim processes for loss or damage of fishing gear / vessels.

#### Residual Effect Following Mitigation

As per the assessment of significance prior to mitigation, the overall safety risk to vessels operating static gear is likely to have a temporary, **not significant, negative effect**, which is **Not Significant.**

#### 13.6.2.4.2 *Vessels operating mobile gear*

#### Description of Effect

Vessels operating mobile gear are present along the OECC, in which potential safety risks arise from areas of cable that is awaiting burial or protection, and as a result of dropped objects. Vessels that tow along the seabed, such as demersal trawlers, are most at-risk of snagging due to the direct interaction with the seabed.

#### Characterisation of Unmitigated Effect

There will be 500 m advisory safety clearance ranges in place around cable awaiting burial or protection. As described above, vessels operating mobile gear have direct interaction with the seabed (e.g. towing gear along the seabed) in which gear could become lost or damaged. Therefore the sensitivity is **low**.

#### Assessment of Significance Prior to Mitigation

The severity of consequence is **serious** in terms of safety risk, as there is potential for significant damage to vessels and potential injury to crew. Thus, safety issues for vessels operating mobile gear are considered to be of **high** magnitude; however, the frequency of occurrence is considered to be **unlikely**. Overall, the safety risk to vessels operating mobile gear is **Not Significant**.

#### Mitigation

- There will be ongoing consultation with the fishing industry via the FLO, and communication will be maintained offshore through use of OFLO and guard vessels as necessary to inform of hazards;
- Temporary advisory safety clearance ranges will be implemented around objects under construction; and
- Additionally, as part of the mitigation by design in Section 13.4.3.4, there will be procedures for dropped objects and claim processes for loss or damage of fishing gear / vessels.

#### Residual Effect Following Mitigation

As per the assessment of significance prior to mitigation, the overall safety risk to vessels operating mobile gear is **Not Significant**.

## 13.6.3 Operational Phase

### 13.6.3.1 Loss of access to fishing grounds

During the operational phase of the Project, spanning up to 38 years, loss of access to fishing grounds will incur from the presence of infrastructure. There will be up to 31 GBS foundations (30 WTGs and 1 OSS) at a max base diameter of 55 m per foundation, with a minimum spacing of 1,017 m for WTGs. It is anticipated that the total length of the IACs (73.0 km) will be surface laid requiring cable protection

(e.g. rock berm), with an associated cable protection footprint of 1,282,082 $m^2$. The total length of the OEC will be 63.5 km with the majority of the cable buried (78.5% or 49.9 km) to a target depth of 1.0 m. For the OEC, the remaining 13.6 km (21.5%) is anticipated to be surface laid with cable protection (e.g. rock placement, concrete mattresses, rock bags or grout bags) with an associated footprint of 165,818 $m^2$. There will be a total of one cable crossing, with the quantities of cable protection required at the cable crossing included within the footprint of cable protection measures above.

Additionally, loss of access to fishing grounds may result from the implementation of 50 m advisory safety clearance ranges in place around the WTGs and OSS during major maintenance activity. An advisory safety clearance ranges of 500 m will be implemented around operation and maintenance vessels. There will be up to three maintenance vessels (two crew-transfer vessels, one service operations vessel) with up to four daily return vessel movements for the crew-transfer vessels. There is expected to be five (or fewer) unscheduled interventions by cable repair vessels throughout the operational life. Furthermore, a cable survey will typically be conducted annually for the first five years and once every five years after that.

#### 13.6.3.1.1 *Demersal trawlers and seines*

##### Description of Effect

The potential for loss of access to fishing grounds during operation may result from the presence of installed infrastructure throughout the OAA and OECC. The OEC will be buried to a target depth of 1.0 m. Where burial is not achieved, additional protection will be utilised as described above. Therefore fishing activity over the OECC will be able to return during the operational phase and no loss of access is anticipated. Loss of access will result from the implementation of 50 m advisory safety clearance ranges around areas of major maintenance activity and 500 m advisory safety clearance ranges around maintenance vessels.

As described for construction above, the rocky outcrops are unfavourable for trawling activity in the OAA and therefore loss of access for demersal trawls and seines will primarily affect those along the OECC. Nevertheless, there will be no impediment for fishing activity along the OECC, and it is anticipated that fishing activity can resume during operation; however, it is acknowledged that the decision to fish within the OAA will be at the discretion of each skipper, based on their perception of risk which will be influenced by factors such as vessel size as well as weather and tidal conditions. Gray *et al.* (2016) analysed fishing activity data in areas within and relevant to six operational windfarms in the Irish Sea. The findings of this study showed an overall reduction of fishing effort by demersal trawling vessels, which was explained in part by changes in TAC allocations. Based on the beforementioned, it is assumed that some fishing by demersal trawlers will be able to resume in the OAA and over the OECC during the operational phase.

##### Characterisation of Unmitigated Effect

Loss of access to fishing grounds as a result of the presence of installed infrastructure and maintenance activities may have a likely, long-term adverse effect on demersal trawlers and seines, dependent on the discretion of each skipper as described above. The presence of the WTGs and OSS could have a constant, long-term effect; however, demersal trawlers and seines will still be capable of continuing to fish within the OAA and over the OECC. Where skippers individually decide to not fish around infrastructure, the OAA represents a small area of the local, wider available fishing grounds. At present fishing activity by demersal trawlers is negligible within the OAA given the unfavourable rocky outcrops and is expected to continue to be negligible during the operational phase. Loss of access associated with maintenance activity will be highly localised to the area of works, will occur rarely and will be temporary in nature. The magnitude of effect is therefore considered to be **low**.

As described in Section 13.6.2.1.1 above, demersal trawlers and seines are considered to have a moderate extent of operational range with limited target species versatility and ability to fish a number of fishing grounds given that the cable passes through an area of low *Nephrops* burrow density (Aristegui *et al.*, 2023) and therefore sensitivity is considered to be **low**.

#### Assessment of Significance Prior to Mitigation

Loss of access to fishing grounds during operation will have a **slight, negative** effect for demersal trawlers and seines, which is Not Significant.

#### Mitigation

- Mitigation by design measures as described above and detailed in Section 13.4.3.4;
- Mitigation by reduction as there will be ongoing communication with fishers prior to works (e.g. NtMs, Kingfisher Bulletin) so that vessels can plan around the localised, temporary maintenance activities; and
- Additionally, there will be mitigation by prevention as there will be cable monitoring throughout the operational life of the project to monitor for damage, destruction or decay of cables, and the appropriate regulatory bodies will be notified within 24 hours of discovery any issues.

#### Residual Effect Following Mitigation

During the operational phase fishing activity will be permitted within the OAA and over the OECC. Given the mitigation by design, during maintenance activities vessels will be able to plan and re-route around the advisory safety clearance ranges. Taking these factors into account, along with the negligible activity within the OAA and low activity along the OECC, and the wider, local availability of fishing grounds, the **low** sensitivity, the residual effect will be a likely, **temporary**, **imperceptible, negative effect**, which is **Not Significant**.

### 13.6.3.1.2 *Static gear (pots, traps and nets)*

#### Description of Effect

During the operational phase static gear fishing activity will be able to resume fishing around installed infrastructure, as evidenced by Roach *et al.,* (2018, 2022). Roach *et al.,* (2018, 2022) investigated the effects of construction and operation of the Westernmost Rough Offshore Windfarm on a lobster fishery. The authors collected baseline, pre-construction data which was compared to the findings post-construction (Roach *et al.,* 2018) and later during operation (Roach *et al.,* 2022). While there was a short-term exclusion of the fishery during the construction of the Westernmost Rough Offshore Windfarm, the site reopened following the completion of construction and the static gear fishery was able to successfully resume fishing (Roach *et al.,* 2018, 2022). Notably, Roach *et al.,* (2018) found that the temporary exclusion of the fishery during the construction of the wind farm had acted as a stock management tool resulting in larger, good quality lobsters when the site reopened compared to both baseline and control data. Roach *et al.,* (2018) report:

> *"It has been demonstrated that periodic (Murawski et al., 2000) or permanent (Bergman et al., 2014) closure of areas to exploitation can enhance commercial fisheries. Closure of areas can allow the larger, more fecund lobsters to contribute to the spawning stock without fishing pressure (Moland et al., 2010; Leal et al., 2012). Periodically closing and reopening of the site has the potential to offset the possible detrimental effects of a permanent NTZ [No Take Zone] as observed by Wootton et al. (2012) and Davies et al. (2015). Economic loss to the fishery of a closed area may be offset by the increased earning potential once the site has been opened"*

The study further concluded that while the abundance of larger lobsters was a short-term result, the overall landings within the windfarm returned to the baseline levels reflected in the surrounding area (Roach *et al.,* 2018). As such the wind farm did not result in a negative effect on landings for the static gear fishery. In the follow-up study during the operation of the windfarm, Roach *et al.,* (2022) report that subsequent post-construction surveys highlighted a return to trends observed in the pre-construction survey, further emphasising the co-existence between the static gear fishery and the windfarm.

During the operational phase, there will be 50 m advisory safety clearance ranges around each turbine and the OSS, resulting in less than 1% of the OAA being excluded. Thus, loss of access to fishing grounds will only result from the requirement to relocate static gear during maintenance works, such as resulting from the implementation of 500 m advisory safety clearance ranges around vessels.

#### Characterisation of Unmitigated Effect

Loss of access to fishing grounds as a result of relocation during major maintenance activity will have a likely, temporary adverse effect on vessels deploying static gear. There will be implementation of 500 m advisory safety clearance ranges around areas of major maintenance works and around maintenance vessels. The effect will cease following the completion of works and static gear fishing activity will resume to baseline levels. Loss of access associated with maintenance activity will be highly localised to the area of works, will occur rarely and will be temporary in nature. Therefore the magnitude is considered to be **low**. As described in Section 13.6.2.1.2 above, vessels operating static gear have limited operational ranges and limited gear versatility and therefore the sensitivity is **medium**.

#### Assessment of Significance Prior to Mitigation

Loss of access to fishing grounds during operation will have a **slight, negative, not significant** effect for vessels deploying static gear, which is Not Significant.

#### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4, including that the turbine layout has focussed on areas of sediment where there is less fishing activity;
- Mitigation by reduction as there will be ongoing communication with fishers prior to works so that vessels can plan around the localised, temporary maintenance activities;
- There will be development of cooperation measures through discussions with affected fishers to ensure co-existence during the operational phase during major maintenance works. This will be in line with the outcome of the discussions currently underway for the ORE Seafood Working Group.

#### Residual Effect Following Mitigation

During the operational phase static gear fishing activity can resume around installed infrastructure. During major maintenance works, temporary relocation of static gear deployed around the advisory safety clearance ranges will be necessary. Given the mitigation by design, vessels deploying static gear will be able to plan ahead of any works to minimise disruption. Furthermore the maintenance activities will be highly localised, representing a limited area of the wider, local availability of fishing grounds. Overall, given the medium sensitivity of static gear with maintenance occurring rarely and temporary in nature, the residual effect is an **imperceptible negative effect,** which is **Not Significant**

### 13.6.3.1.3 *Pelagic trawlers*

### Description of Effect

Loss of access to fishing grounds during operation will result from the implementation of 500 m advisory safety clearance ranges around maintenance activity and maintenance vessels, which will occur very occasionally. As described for construction above, loss of access for pelagic trawls will primarily occur along the OECC.

### Characterisation of Unmitigated Effect

Loss of access to fishing grounds as a result of the presence of installed infrastructure and maintenance activities may have a likely, long-term adverse effect on pelagic trawlers, dependent on the discretion of each skipper as described above. For pelagic trawlers, loss of access during operation will primarily be associated with the advisory safety clearance ranges during major maintenance activity; however, this will be highly localised to the area of works, will occur rarely and will be temporary nature. The magnitude of effect is therefore considered to be **negligible**. As described in Section 0 above, pelagic trawlers have extensive operational ranges with the ability to exploit a large number of fishing grounds, therefore the sensitivity is assessed as **negligible.**

### Assessment of Significance Prior to Mitigation

Loss of access to fishing grounds during operation will have an **imperceptible, negative** effect for pelagic trawlers, which is Not Significant.

### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4;
- Mitigation by reduction as there will be ongoing communication with fishers prior to works so that vessels can plan around the localised, temporary maintenance activities; and
- Additionally, there will be mitigation by prevention as there will be cable monitoring throughout the operational life of the project to monitor for damage, destruction or decay of cables, and the appropriate regulatory bodies will be notified within 24 hours of discovery any issues.

### Residual Effect Following Mitigation

During the operational phase fishing activity will be permitted within the OAA and over the OECC. Given the mitigation by design, during maintenance activities vessels will be able to plan and re-route around the advisory safety clearance ranges. Taking these factors into account, along with the negligible sensitivity, and the maintenance activity being temporary and occurring rarely, the residual effect is an **imperceptible, negative effect**, which is **Not Significant**

## 13.6.3.2 Displacement of fishing activity into other areas

Displacement of fishing activity into other areas during operation may result from the temporary advisory safety clearance ranges and presence of vessels during maintenance works, as well as the presence of installed infrastructure. Additionally, displacement of fishing activity may lead to secondary displacement as vessels could move into areas where other fishing fleets are established. Secondary displacement may lead to increased competition for fishing grounds and conflict.

### 13.6.3.2.1 *Demersal trawlers and seines*

## Description of Effect

As described in Section 13.6.3.1.1 above, there is limited fishing activity by demersal trawlers in seines in the OAA given the nature of the seabed. Nevertheless, it is acknowledged that the decision to fish within the OAA will be at the discretion of each skipper, based on their perception of risk which will be influenced by factors such as vessel size as well as weather and tidal conditions. Given that the OEC will be buried and adequately protected, fishing will be able to resume over the OECC.

The potential for displacement during operation may result from the implementation of 500 m advisory safety clearance ranges during maintenance works. The effects of secondary displacement are anticipated to be reduced from that of construction. There will be fewer vessels displaced given the smaller spatial extent of maintenance activity and the wider availability of other fishing grounds, and fishing will be able to resume around installed infrastructure.

## Characterisation of Unmitigated Effect

Displacement of fishing activity into other areas will have a likely, temporary adverse effect on demersal trawlers and seines. There will be implementation of 500 m advisory safety clearance ranges around maintenance activity and maintenance vessels. The effect will cease following the completion of works. Displacement associated with maintenance activity will be highly localised to the area of works, will occur rarely and will be temporary in nature. Given the negligible level of effort within the OAA and low effort throughout the OECC, the magnitude is considered to be **negligible**. Demersal trawlers and seines are considered to have a moderate extent of operational range with limited target species versatility and ability to fish a number of fishing grounds and therefore the sensitivity to displacement is assessed as **low**.

## Assessment of Significance Prior to Mitigation

Displacement of fishing activity into other areas will have an **imperceptible**, **negative** effect for demersal trawlers and seines, which is Not Significant.

## Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4;
- Mitigation by reduction as there will be ongoing communication with fishers prior to works so that vessels can plan around the localised, temporary maintenance activities; and
- Additionally, there will be mitigation by prevention as there will be cable monitoring throughout the operational life of the project to monitor for damage, destruction or decay of cables, and the appropriate regulatory bodies will be notified within 24 hours of discovery any issues.

## Residual Effect Following Mitigation

During the operational phase fishing activity will be permitted within the OAA and over the OECC. Given the mitigation by design, during maintenance activities vessels will be able to plan and re-route around the advisory safety clearance ranges. Taking these factors into account, along with the **low** sensitivity, and the maintenance activity being temporary and occurring rarely, the residual effect is **imperceptible, negative effect**, which is **Not Significant**.

### 13.6.3.2.2 *Static gear (pots, traps and nets)*

#### Description of Effect

During the operational phase static gear fishing activity will resume around installed infrastructure. Thus, displacement will only result from the need to relocate static gear during major maintenance works, such as resulting from the implementation of 500 m advisory safety clearance ranges. The effects of secondary displacement are anticipated to be lesser from that of construction. There will be fewer vessels displaced given the smaller spatial extent of maintenance activity and the wider availability of fishing grounds, and fishing will be able to resume around installed infrastructure.

#### Characterisation of Unmitigated Effect

Displacement of fishing activity into other areas as a result of relocation during major maintenance activity can have a likely, temporary adverse effect on vessels deploying static gear. There will be implementation of 500 m advisory safety clearance ranges around maintenance activity and maintenance vessels. The effect will cease following the completion of works and static gear fishing activity will resume to baseline levels. Displacement associated with maintenance activity will be highly localised to the area of works, will occur rarely and will be temporary in nature. Therefore the magnitude is considered to be **low**. As described in Section 13.6.2.1.2 above, vessels operating static gear have limited operational ranges and limited gear versatility and therefore the sensitivity is assessed as **medium**.

#### Assessment of Significance Prior to Mitigation

Displacement of fishing activity into other areas will have **a slight, not significant** effect for vessels deploying static gear, which is Not Significant.

#### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4, including that the turbine layout has focussed on areas of sediment where there is less fishing activity;
- Mitigation by reduction as there will be ongoing communication with fishers prior to works so that vessels can plan around the localised, temporary maintenance activities; and
- There will be development of cooperation measures through discussions with affected fishers to ensure co-existence during the operational phase during major maintenance works. This will be in line with the outcome of the discussions currently underway for the ORE Seafood Working Group.

#### Residual Effect Following Mitigation

During the operational phase fishing activity will be permitted within the OAA and over the OECC. Given the mitigation by design, during maintenance activities vessels will be able to plan and re-route around the advisory safety clearance ranges. Taking these factors into account, along with the **medium** sensitivity, and the maintenance activity being temporary and occurring rarely, the residual effect is **slight, negative effect**, which is **Not Significant**.

### 13.6.3.2.3 *Pelagic trawlers*

## Description of Effect

During the operational phase pelagic trawling will be permitted to resume around installed infrastructure; however, given the size of pelagic trawlers fishing activity within the OAA is unlikely. As illustrated in the VMS and AIS data, pelagic trawl effort is negligible throughout the OAA, which is expected to remain the same during operation. It is anticipated that pelagic trawling will resume over the OECC during operation. The potential for displacement during operation is likely to result from the implementation of 500 m advisory safety clearance ranges during maintenance works. The effects of secondary displacement are anticipated to be reduced from that of construction. There will be fewer vessels displaced given the smaller spatial extent of maintenance activity and the wider availability of fishing grounds, and fishing will resume around installed infrastructure.

Secondary displacement may result from the displacement of vessels from the OAA / OECC during construction. Displaced potters are anticipated to avoid established trawling grounds to avoid potential damage to the static gear; it is noted that these vessels have limited operational ranges when compared with mobile gear. Displaced demersal trawlers are constrained to the *Nephrops* grounds; however, the OECC only overlaps with a very small area of these grounds and therefore displaced demersal trawlers are expected to be able to utilise alternative grounds. Therefore the potential for conflict and / or competition resulting from the displaced pelagic trawlers is low.

## Characterisation of Unmitigated Effect

Displacement of fishing activity into other areas can have a likely, temporary adverse effect on pelagic trawlers. There will be implementation of 500 m advisory safety clearance ranges around maintenance activity and maintenance vessels. The effect will cease following the completion of works. Displacement associated with maintenance activity will be highly localised to the area of works, will occur rarely and will be temporary in nature. Given the wider availability of fishing grounds and reduced potential for conflict and / or competition, the magnitude is considered to be **negligible**. As described in Section 13.6.2.2.3 above, pelagic trawlers have extensive operational ranges with the ability to exploit a large number and area of fishing grounds, therefore the sensitivity is **negligible.**

## Assessment of Significance Prior to Mitigation

Displacement of fishing activity into other areas will have an **imperceptible**, **not significant** effect for pelagic trawlers, which is Not Significant.

## Mitigation

- There will be mitigation by reduction as there will be ongoing communication with fishers prior to works so that vessels can plan around the localised, temporary maintenance activities.
- Additionally, there will be mitigation by prevention as there will be cable monitoring throughout the operational life of the project to monitor for damage, destruction or decay of cables, and the appropriate regulatory bodies will be notified within 24 hours of discovery any issues.

## Residual Effect Following Mitigation

During the operational phase fishing activity will be possible over the OECC. Given the mitigation by design, during maintenance activities vessels will be able to plan and re-route around the advisory safety clearance ranges. Taking these factors into account, along with the negligible sensitivity, and the maintenance activity being temporary and occurring rarely, the residual effect is an **imperceptible, negative effect**, which is **Not Significant**.

## 13.6.3.3 Interference to fishing activity due to increased vessel traffic

## 13.6.3.4 All vessels

### Description of Effect

Increased vessel traffic associated with operation and maintenance activities has the potential to result in interference with fishing activity (e.g. fouling of static gear markers), or damage and / or loss of gear. Increased vessel traffic includes the presence of maintenance vessels on site during works as well as vessels transiting to and from the Offshore Site. It should be noted that the navigational safety associated with increased vessel traffic is assessed in Chapter 14: Shipping and Navigation.

### Characterisation of Unmitigated Effect

Interference to fishing activity due to increased vessel traffic will have a likely, temporary adverse effect on all fleets. The interference to fishing activity will result from the potential damage and/or loss of gear and potentially fouling of static gear markers. Increased vessel traffic will occur throughout the Offshore Site (OAA and OECC) including vessels present on site and those transiting to and from the Offshore Site. The effect will be temporary as maintenance activities will be carried out between a scale of days to months and will occur rarely. The effect will cease following the completion of maintenance activities, as the vessel traffic will resume to background levels. Considering that this effect could lead to significant damage and / or loss of gear, all fleets are assessed as having **high** magnitude; however, given that all vessels will adhere to COLREGs and the SOLAS, the sensitivity of all fleets is **low**.

### Assessment of Significance Prior to Mitigation

Prior to mitigation, interference to fishing activity due to increased vessel traffic during operation is likely to have a **moderate, negative effect** on all fleets, which is Not Significant.

### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4;.
- Mitigation by prevention as a VMP, NSP and FMMS will be developed to further reduce any potential effects from the increased vessel traffic during operation; and
- There will be ongoing liaison with the fishing industry through the FLO during maintenance. Prior to any maintenance activities there will be promulgation of information through NtMs and all relevant channels. Additionally, guard vessels and an OFLO will be on site where appropriate to aid in communications and warn of any hazards within the Offshore Site.

### Residual Effect Following Mitigation

Given the mitigation by design, with the temporary nature of the work occurring rarely, the residual effect will be likely, temporary and rarely, **slight negative effect**, which is **Not Significant**.

## 13.6.3.5 Increased steaming times

The potential effects detailed above, including loss or restricted access to fishing grounds, displacement of fishing activity into other areas and increased vessel traffic may result in vessels needing to alter transit routes to fishing grounds and therefore increase steaming times.

### 13.6.3.5.1 *Small vessels*

### Description of Effect

As described above, smaller vessels such as those under 15 m length will have limited operational ranges and therefore are anticipated to be more affected by increased steaming times. The fishing activity of vessels under 15 m length is associated with smaller demersal trawlers and seines operating along the OECC (Section 13.6.2.1.1) and vessels deploying static gear within the OAA and OECC (Section 13.6.2.1.2).

During operation, all vessels will be able to continue to fish throughout the Offshore Site around installed infrastructure; however, during major maintenance activities static gear will have to be relocated and both mobile gear vessels and vessels deploying static gear have to adhere to the implementation of 500 m advisory safety clearance ranges around maintenance vessels and maintenance works.

### Characterisation of Unmitigated Effect

Increased steaming times can have a likely, temporary adverse effect on small vessels. Increased steaming times will result from the 500 m advisory safety clearance ranges around maintenance activity and maintenance vessels. The effect will be temporary, as works will occur over for a scale of days to months and will occur rarely. Therefore the need for changes in steaming routes to avoid advisory safety clearance ranges will be limited. The effect will cease following the completion of maintenance activities, as steaming times will resume to normal. The magnitude of effect is therefore considered to be **low**. Given that smaller vessels have limited operational ranges and are more likely to be affected by increased steaming times, with consideration of the limited frequency of need for changes in steaming routes to avoid advisory safety clearance ranges and highly localised area, the sensitivity is assessed as **low**.

### Assessment of Significance Prior to Mitigation

Increased steaming times during operation is likely to have a **slight, negative effect** on small vessels, which is Not Significant.

### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4; and
- There will be mitigation by reduction as there will be ongoing liaison with the fishing industry through the FLO. Prior to any maintenance works there will be promulgation of information through NtMs and all relevant channels.

### Residual Effect Following Mitigation

Given that fishers will be aware of the nature, location and timing of maintenance activities, it is anticipated that fishers will be able to plan and re-route around advisory safety clearance ranges. Taking this into consideration, the residual effect will be **likely, temporary**, **imperceptible, negative effect**, which is **Not Significant**.

## 13.6.3.5.2 *All other vessels*

### Description of Effect

Larger vessels (over 15 m length) have larger operational ranges, compared to vessels under 15 m in length. Given the larger operational ranges, these vessels are expected to be less affected by increased steaming times.

### Characterisation of Unmitigated Effect

Increased steaming times can have a likely, temporary adverse effect on all other vessels. Increased steaming times may result from the 500 m advisory safety clearance ranges around maintenance activity and maintenance vessels. The effect will be temporary, as works will occur over a scale of days to months and will occur rarely. Therefore the requirement for changes in steaming routes to avoid advisory safety clearance ranges will be limited. The effect will cease following the completion of maintenance activities, as steaming times will resume to normal. The magnitude of effect is therefore considered to be **negligible**. Given that all other vessels will have larger operational ranges and are less likely to be affected by increased steaming times, with consideration of the limited need for changes in steaming routes to avoid advisory safety clearance ranges, the sensitivity is **negligible**.

### Assessment of Significance Prior to Mitigation

Increased steaming times during operation is likely to have an **imperceptible, negative effect** on all other vessels, which is Not Significant.

### Mitigation

- Mitigation by design measures as detailed in Section 13.4.3.4;
- There will be mitigation by reduction as there will be ongoing liaison with the fishing industry through the FLO. Prior to any maintenance works there will be promulgation of information through NtMs and all relevant channels.

### Residual Effect Following Mitigation

Given that all other vessels will be aware of the nature, location and timing of maintenance activities, it is anticipated that fishers will be able to plan and re-route around advisory safety clearance ranges. Taking this into consideration, and the negligible sensitivity, the residual effect will be likely, temporary and **rarely, imperceptible, negative** effect, which is **Not Significant**.

## 13.6.3.6 Safety issues for fishing vessels

The following sections assess the potential risk to fishing vessels actively fishing during operation, including risks associated with snagging, entanglement and / or dropped objects. All other aspects with regards to navigational safety are assessed in Chapter 14: Shipping and Navigation. The assessment of health and safety risks to fishing vessels follows a separate assessment methodology, as detailed in Section 13.4.3.2, in line with MGN 654: International Maritime Organisation Formal Safety Assessment process (see
*Table 13-9 and*

Table 13-10**Error! Reference source not found.**).

### 13.6.3.6.1 *Vessels operating static gear*

#### Description of Effect

When actively fishing within the OAA during operation, a fishing vessel may lose control and collide with infrastructure. When being deposited on the seabed, static gear may be dragged behind the deploying fishing vessel for a short period of time. The presence of infrastructure on or near the seabed, exposed cables and / or dropped objects may result in snagging or entanglement of static gear.

### Characterisation of Unmitigated Effect

Given that vessels operating static gear have a lower potential to interact with the seabed, the potential for damaged or lost gear is low. Similarly, there is only a very small chance of vessels losing control and colliding with infrastructure. Therefore, the sensitivity is **negligible**.

### Assessment of Significance Prior to Mitigation

The severity of consequence is **serious** in terms of safety risk, as there is potential for significant damage to vessels and potential injury to crew if a vessel were to collide with infrastructure. The severity of the consequence of lost and damaged gear could have detrimental effects on the vessels. Thus, safety issues for vessels operating static gear are considered to be of **high** magnitude; however, the frequency of occurrence is considered to be **extremely unlikely**. Overall, the safety risk to vessels operating static gear is **Not Significant**.

### Mitigation

- There will ongoing communication with the fishing industry (e.g. NtMs) to provide notice of any operation and maintenance activity, and 500 m advisory safety clearance ranges will be in place;
- Additionally, there will be ongoing monitoring of cable protection so that notices will be issued within 24 hours of any damage, destruction or decay of cables that could result in exposed cable;
- There will be procedures in place for dropped objects and claim processes for loss or damage of fishing gear; and
- Guard vessels and an OFLO (where required) will also be onsite, where appropriate, during major maintenance works to aid offshore communications and warnings of any hazards.

### Residual Effect Following Mitigation

As per the assessment of significance prior to mitigation, the overall safety risk to vessels operating static gear is **Not Significant**.

## 13.6.3.6.2 *Vessels operating mobile gear*

### Description of Effect

When actively fishing within the OAA during operation, a fishing vessel may lose control and collide with infrastructure. Structures on or near the seabed present a potential snagging risk to fishing gear which is towed along the seabed. As described in Section 13.6.3.6.1, the safety risks during operation include collision with installed infrastructure, snagging and / or gear entanglement with structures on or near the seabed or exposed cables, and safety risks associated with dropped objects.

### Characterisation of Unmitigated Effect

As described above, vessels operating mobile gear have direct interaction with the seabed (e.g. towing gear along the seabed) in which gear could become lost or damaged. The chances of interaction with infrastructure is higher than that of static gear, and therefore the sensitivity is **low**.

### Assessment of Significance Prior to Mitigation

The severity of consequence is **serious** in terms of safety risk, as there is potential for significant damage to vessels and potential injury to crew; however, the frequency of occurrence is considered to be **extremely unlikely**. Overall this is assessed as Broadly Acceptable (low risk) and **Not Significant**.

### Mitigation

- There will ongoing communication with the fishing industry to provide notice of any operation and maintenance activity, and 500 m advisory safety clearance ranges will be in place.
- Additionally, there will be ongoing monitoring of cable protection so that notices will be issued within 24 hours of any damage, destruction or decay of cables that could result in exposed cable.
- There will be procedures in place for dropped objects and claim processes for loss or damage of fishing gear.
- Guard vessels and an OFLO (where required) will also be onsite, where appropriate, during major maintenance works to aid offshore communications and warnings of any hazards.

### Residual Effect Following Mitigation

As per the assessment of significance prior to mitigation, the overall safety risk to vessels operating mobile gear is considered to be Broadly Acceptable (low risk) and therefore **Not Significant**.

## 13.6.4 Decommissioning Phase

The decommissioning activity will resemble the reverse of the installation. The decommissioning base locations will likely be out of Foynes, Cork and/or Belfast. Up to three vessels will be used for WTG removal and up to four tugs for foundation removal unless otherwise required. For infrastructure removal the installation process is reversed using vessels to remove the WTGs and then to deballast the foundations. Rock dump and/or seabed preparation material will be left *in situ*. Decommissioning of the cables will involve removal of any accessible exposed or unburied cable. All rock berms will remain undisturbed. This method has the lowest environmental effect. Further information on the decommissioning process is detailed within the Rehabilitation Schedule (see Appendix 5-18, Chapter 5: Project Description).

As decommissioning activity will reverse the installation, the likely effects associated with the decommissioning phase are considered to be analogous or likely less than that of the construction phase. Mitigation by design, described in Section 13.4.3.4, will also be applicable to decommissioning.

Taking the aforementioned into consideration, the effects associated with the Decommissioning Phase are **Not Significant** for all commercial fisheries receptors.

# 13.7 Summary of Residual Effects

## 13.7.1 Construction and Decommissioning Phases

### 13.7.1.1 Loss of access to fishing grounds

*Table 13-17 Residual effect for loss of access to fishing grounds during construction and decommissioning*

| Receptor | Sensitivity | Magnitude | Significance prior to Mitigation | Mitigation | Residual Effect |
|---|---|---|---|---|---|
| Demersal trawlers and seines | Low | Low | Slight, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |
| Static gear (pots, traps, and nets) | Medium | Medium | Significant, negative; **Significant,.** | As per the mitigation by design in Section 13.4.3.4. | Slight, negative; **Not Significant.** |
| Pelagic trawlers | Negligible | Low | Not significant, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Not significant, negative; **Not Significant.** |

### 13.7.1.2 Displacement of fishing activity into other areas

*Table 13-18 Residual effect for displacement of fishing activity into other areas during construction and decommissioning*

| Receptor | Sensitivity | Magnitude | Significance prior to Mitigation | Mitigation | Residual Effect |
|---|---|---|---|---|---|
| Demersal trawlers and seines | Low | Low | Slight, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |
| Static gear (pots, traps, and nets) | Medium | Medium | Significant, negative; **Significant,.** | As per the mitigation by design in Section 13.4.3.4. | Slight, negative; **Not Significant.** |
| Pelagic trawlers | Negligible | Low | Not significant, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Not significant, negative; **Not Significant.** |

### 13.7.1.3 Interference to fishing activity due to increased vessel traffic

*Table 13-19 Residual effect for interference to fishing activity due to increased vessel traffic during construction and decommissioning*

| Receptor | Sensitivity | Magnitude | Significance prior to Mitigation | Mitigation | Residual Effect |
|---|---|---|---|---|---|
| All fleets | Low | High | Moderate, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Slight, negative; **Not Significant.** |

### 13.7.1.4 Increased steaming times

*Table 13-20 Residual effect for increased steaming times during construction and decommissioning*

| Receptor | Sensitivity | Magnitude | Significance prior to Mitigation | Mitigation | Residual Effect |
|---|---|---|---|---|---|
| Small vessels | Low | Low | Slight, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Slight, negative; **Not Significant.** |
| All other vessels | Negligible | Negligible | Not significant, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Not significant, negative; **Not Significant.** |

### 13.7.1.5 Safety issues for fishing vessels

*Table 13-21 Residual effect for safety issues for fishing vessels during construction and decommissioning*

| Receptor | Sensitivity | Magnitude | Consequence | Secondary Mitigation | Residual Effect |
|---|---|---|---|---|---|
| Vessels operating static gear | Negligible | High | Not significant, negative; **Not Significant.** | None above the mitigation by design in Section 13.4.3.4. | Not significant, negative; **Not Significant.** |
| Vessels operating mobile gear | Low | High | Not significant, negative; **Not Significant.** | None above the mitigation by design in Section 13.4.3.4. | Not significant, negative; **Not Significant.** |

## 13.7.2 Operational Phase

### 13.7.2.1 Loss of access to fishing grounds

*Table 13-22 Residual effect for loss of access to fishing grounds during operation*

| Receptor | Sensitivity | Magnitude | Significance prior to Mitigation | Mitigation | Residual Effect |
|---|---|---|---|---|---|
| Demersal trawlers and seines | Low | Low | Slight, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |
| Static gear (pots, traps, and nets) | Medium | Low | Slight, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |
| Pelagic trawlers | Negligible | Negligible | Imperceptible, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |

### 13.7.2.2 Displacement of fishing activity into other areas

*Table 13-23 Residual effect for displacement of fishing activity into other areas during operation*

| Receptor | Sensitivity | Magnitude | Significance prior to Mitigation | Mitigation | Residual Effect |
|---|---|---|---|---|---|
| Demersal trawlers and seines | Low | Negligible | Imperceptible, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |
| Static gear (pots, traps, and nets) | Medium | Low | Slight, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Slight, negative; **Not Significant.** |
| Pelagic trawlers | Negligible | Negligible | Imperceptible, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |

### 13.7.2.3 Interference to fishing activity due to increased vessel traffic

*Table 13-24 Residual effect for interference to fishing activity due to increased vessel traffic during operation*

| Receptor | Sensitivity | Magnitude | Significance prior to Mitigation | Mitigation | Residual Effect |
|---|---|---|---|---|---|
| All fleets | Low | High | Moderate, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Slight, negative; **Not Significant.** |

### 13.7.2.4 Increased steaming times

*Table 13-25 Residual effect for increased steaming times during operation*

| Receptor | Sensitivity | Magnitude | Significance prior to Mitigation | Mitigation | Residual Effect |
|---|---|---|---|---|---|
| Small vessels | Low | Low | Slight, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |
| Other vessels | Negligible | Negligible | Imperceptible, negative; **Not Significant.** | As per the mitigation by design in Section 13.4.3.4. | Imperceptible, negative; **Not Significant.** |

### 13.7.2.5 Safety issues for fishing vessels

*Table 13-26 Residual effect for safety issues for fishing vessels during operation*

| Receptor | Sensitivity | Magnitude | Consequence | Secondary Mitigation | Residual Effect |
|---|---|---|---|---|---|
| Vessels operating static gear | Negligible | High | Not significant, negative; **Not Significant.** | None above the mitigation by design in Section 13.4.3.4. | Not significant; negative; **Not Significant.** |
| Vessels operating mobile gear | Low | High | Not significant, negative; **Not Significant.** | None above the mitigation by design in Section 13.4.3.4. | Not significant; negative; **Not Significant.** |

## 13.8 Cumulative Effects

Potential effects from the Project have the potential to interact with those from other projects (developments), plans and activities, resulting in cumulative effects on commercial fisheries receptors. The general approach to the cumulative effects assessment is described in Chapter 4: EIA Methodology. An initial screening has been undertaken to produce a long-list of developments for each EIA topic, as detailed in Appendix 4-1.

The cumulative study area for commercial fisheries is defined as the commercial fisheries study area detailed in section 13.5.1 above. It is considered that this cumulative study area provides a local (i.e. within the Offshore Site) and regional context for fisheries. Additionally, the Shannon Estuary has been considered as part of the cumulative effects assessment in consideration of the potential temporary anchorage of the foundations and movement of Project vessels within the estuary. The developments within the cumulative study area for commercial fisheries are summarised in Table 13-27. Table 13-27 assesses the long-list of developments to produce a short-list of developments 'screened-in' for the cumulative effects assessment for commercial fisheries. It is important to note that there are no major infrastructure developments of an equivalent scale or type to the Project within the cumulative study area for commercial fisheries. To date, there has been little large-scale construction on the west coast of Ireland generally. Therefore, the developments listed in Table 13-27 represent short-term, localised activities which are not generally associated with any long-term infrastructure presence.

*Table 13-27 List of developments considered for the commercial fisheries cumulative effects assessment*

| Development Type | Status | Screened In / Screened Out | Justification |
|---|---|---|---|
| Foreshore Licences | Concept / Early Planning | Screened Out | All offshore renewable energy sites are currently within the early concept / planning phase with no Maritime Area Consent (MAC) seabed lease granted and no Designated Maritime Area Plan (DMAP) in place and therefore there is insufficient detail to inform the cumulative effects assessment. There are two cable applications for which the same justification applies. There is one operational cable, for which operational developments do not present a cumulative effect pathway. Finally, there is one application by the Irish Whale and Dolphin Group for a sub-surface acoustic monitoring buoy; however, buoys have been screened out as per justification below. Thus, all foreshore licences are screened out. |
| Aquaculture | Operational | Screened Out | All aquaculture sites are operational and do not present a cumulative effect pathway on commercial fisheries receptors given they are highly localised and there are no activities being undertaken at these sites which would have potential for a temporal overlap with the Project activities. There are no known plans or projects for new aquacultural sites in the cumulative study area). |
| Dumping at Sea | Active | Screened Out | The Shannon Foynes Port Company has an active permit (Permit No. S0009-03) for the Shannon Estuary and Foynes Harbour dumping at sea locations, located approximately 86 – 88 km from the OAA and 32 – 34 km from the OECC. The permit is valid through 31/12/2026 and therefore the activities at the dumping at sea locations will not have a temporal overlap with the construction phase of the Project. |
| Discharge Points | Operational | Screened Out | All discharge points are operational and do not present a cumulative effect pathway on commercial fisheries receptors given they are highly localised and there are no known activities being undertaken at these sites which would have potential for a temporal overlap with the Project activities. |
| Radiation Monitoring Station | Inactive | Screened Out | No temporal overlap as the EPA radiation monitoring station in Galway/Salthill is currently inactive and had an end of lifespan in 2016. |
| Urban Waste Water Treatment | Operational | Screened Out | All urban waste water treatment locations are operational and located onshore. The potential runoff from these sites into the marine environment is not considered within the commercial fisheries assessment, and therefore there is no cumulative effects pathway associated with commercial fisheries receptors. |

| Development Type | Status | Screened In / Screened Out | Justification |
|---|---|---|---|
| Irish National Tide Gauge Network | Inactive | Screened Out | No temporal overlap as the Irish National Tide Gauge Network monitoring node in Galway Port is currently inactive and had an end of lifespan in 2016. |
| Wave Data Buoys | Operational | Screened Out | The wave data buoys are currently in place, highly localised and do not represent a cumulative effect pathway on commercial fisheries receptors. |
| Tidbit Sea Temp Probe | Operational | Screened Out | As per wave data buoys. |
| Lighthouses | Operational | Screened Out | The presence of operational lighthouses onshore does not pose a cumulative effect to commercial fisheries. |
| Galway Bay Wave Test Site | Operational | Screened Out | As per wave data buoys. |
| Ferry Port | Operational | Screened Out | The presence of operational ports does not pose a cumulative effect to commercial fisheries. |
| Navigation Buoy | Operational | Screened Out | As per wave data buoys. |
| Integrated Pollution Control | Operational | Screened Out | As per urban waste water treatment. |
| Licensed Waste Facility | Operational | Screened Out | As per urban waste water treatment. |

### 13.8.1 Cumulative Construction Effects

There are no cumulative construction effects as no developments were screened in to the cumulative effects assessment for the construction phase.

### 13.8.2 Cumulative Operational Effects

There are no cumulative operational effects as no developments were screened in to the cumulative effects assessment for the. operational phase.

### 13.8.3 Cumulative Decommissioning Effects

There are no cumulative decommissioning effects as no developments were screened in to the cumulative effects assessment for the decommissioning phase.

## 13.9 Conclusion

In conclusion, the commercial fisheries likely significant effects assessment has assessed potential effects resulting from loss of access to fishing grounds, displacement of fishing activity into other areas, interference with fishing activity as a result of increased vessel traffic, increased steaming times and safety issues for fishing vessels during construction, operation, maintenance and decommissioning. The following commercial fisheries receptors have been assessed: demersal trawlers and seines, vessels operating static gear (pots, traps and nets) and pelagic trawlers. Mitigation by design has been factored into the assessment, including the appointment of a FLO, development and adherence to a FMMS, the use of guard vessels and OFLO where required, ensuring cables are sufficiently buried to target depth, ensuring Project vessels comply with international safety regulations (COLREGs / SOLAS), communication maintained with local fishers via notifications prior to construction (e.g. NtMs), procedures for dropped objects and finally the development of cooperation agreements through discussions with affected fishers in line with the findings of the Seafood ORE Working Group and best practice guidance (e.g. FLOWW, 2015). The likely significant effects assessment has concluded that, taking into account the mitigation by design, the residual effect for all effect pathways will be **Not Significant** for all commercial fisheries receptors.

Additionally, a cumulative effects assessment has been undertaken. The cumulative effects assessment screened out all activities on the basis of no impact pathway or no temporal overlap. There will be no cumulative effects arising from the construction, operation, maintenance or decommissioning phases of the Project as no projects were screened in for any phase.

## 13.12 Acronyms and units

# ACRONYMS

| Acronym/Abbreviation | Definition |
|---|---|
| AIS | Automatic Identification Systems |
| BIM | An Bord Iascaigh Mhara |
| CaPs | Cable Plans |
| CBRA | Cable Burial Risk Assessment |
| Cefas | Centre For Environment Fisheries and Aquaculture Science |
| COLREGs | International Regulations for the Prevention of Collision at Sea |
| COWRIE | Collaborative Offshore Wind Research into the Environment |
| CPA | Coastal Protection Act |
| DECC | Department of the Environment, Climate and Communications |
| DHLGH | Department of Housing, Local Government and Heritage |
| OECC | Offshore Export Cable Corridor |
| EEZ | Exclusive Economic Zone |
| EIA | Environmental Impact Assessment |
| EIAR | Environmental Impact Assessment Report |
| EIS | Environmental Impact Statement |
| EPA | Environmental Protection Agency |
| ERCoP | Emergency Response Co-operation Plan |
| EU | European Union |
| FEPA | Food and Environment Protection Act |
| FLO | Fisheries Liaison Officer |
| FLOWW | Fishing Liaison with the Offshore Wind and Wet Renewables Group |
| FMMS | Fisheries Management and Mitigation Strategy |
| FU | Functional Unit |
| IALA | International Association of Marine Aids to Navigation and Lighthouse Authorities |
| ICES | International Council for the Exploration of the Sea |
| MGN | Marine Guidance Note |
| MMO | Marine Management Organisation |
| MPA | Marine Protected Areas |
| MSY | Maximum Sustainable Yield |
| NIS | Natura Impact Statement |
| NRA | Navigational Risk Assessment |
| NSP | Navigational Safety Plan |
| NtM | Notice to Mariners |
| OAA | Offshore Array Area |
| OFLO | Offshore Fisheries Liaison Officer |
| ORE | Offshore Renewable Energy |
| OREDP | Offshore Renewable Energy Development Plan |
| OSS | Offshore Substation |

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|---|---|
| RIFF | Regional Inshore Fisheries Forum |
| SFF | Scottish Fishermen's Federation |
| SFPA | Sea Fisheries Protection Authority |
| SOLAS | International Regulations for the Safety of Life at Sea |
| UK | United Kingdom |
| UXO | Unexploded Ordnance |
| VMP | Vessel Management Plan |
| VMS | Vessel Monitoring System |
| WTG | Wind Turbine Generator |

# UNITS

| Unit | Definition |
|---|---|
| ° | Degrees |
| € | Euro |
| €/km$^2$/yr | Value of landings (€) per km$^2$ per year |
| h/km$^2$/yr | Average hours spent actively fishing per km$^2$ per year |
| kg | Kilogram |
| km | Kilometre |
| kw/h | Kilowatt per hour |
| m | Metre |
| NM | Nautical mile |
| £ | Pound Sterling |

## 13.13 Glossary

| Term | Definition |
|---|---|
| Automatic Information Systems (AIS) | An AIS transceiver is installed on vessels as a means of providing real-time information on the movements and current locations of a vessel to indicate the level of marine traffic in a given area. |
| Demersal | Referring to species or gear that is on or near the seabed. |
| Effort | The amount of time (e.g., hours, days) a vessel spends fishing in a given area. |
| Functional Unit | The *Nephrops* (*Nephrops norvegicus*) stock is managed based on ICES 'Functional Units' which comprise areas of suitable habitat (e.g., mud) in which *Nephrops* are known to burrow, also referred to as *Nephrops* grounds. |
| ICES Rectangle | ICES statistical rectangles are gridded cells covering the area between 36°N and 85°30'N and 44°W and 68°30'E. Each ICES rectangle covers an area of 30' latitude by 1° longitude. The purpose of these rectangles is to aid in spatial analysis. |
| Inshore Fisheries | Fishing activity in inshore waters, i.e., within 12 nautical miles. |
| Landings | The volume (tonnes) and value (euro; pound) of fish that are caught. |

| | |
|---|---|
| Mobile Gear | Gear that is moved through the water or dragged along the seabed (e.g., trawlers, nets). Mobile gear can be used close to shore and in deeper waters further offshore. |
| Offshore Fisheries | Fishing activity in offshore waters, i.e., beyond 12 nautical miles. |
| Pelagic | Referring to species or gear within the water column, also referred to as midwater. |
| Shellfish | Aquatic invertebrates that have an exoskeleton (e.g., molluscs, crustaceans). |
| Static Gear | Gear that is fixed in position, such as gear that is placed on the seabed (e.g., pots, traps). Static gear is commonly used by smaller vessels in nearshore waters. |
| Trawling | |
| Vessel Monitoring System (VMS) | A satellite surveillance system in which vessels over a certain length (i.e., over 12 m length in Ireland) are required to have a transmitter installed and transmit VMS data which indicates their location and movements. |