

# Chapter 12

## Commercial Fisheries





# ORIEL WIND FARM PROJECT

## Environmental Impact Assessment Report Chapter 12: Commercial Fisheries

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EIAR – Chapter 12  
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## 12 CHAPTER 12– COMMERCIAL FISHERIES

### 12.1 Introduction

This chapter of the Environmental Impact Assessment Report (EIAR) provides an assessment of the potential impacts of the Oriel Wind Farm Project (hereafter referred to as “the Project”) on commercial fisheries. Specifically, this chapter considers the potential impact of the offshore infrastructure (the offshore wind farm and offshore cables) of the Project below the High-Water Mark (HWM) during the construction, operational and maintenance, and decommissioning phases.

For the purposes of this chapter, commercial fishing is defined as any form of fishing activity legally undertaken for taxable profit. Recreational fishing is addressed in chapter 16: Infrastructure, Marine Recreation and Other Users. Navigational aspects related to fishing vessels are assessed in chapter 13: Shipping and Navigation and in appendix 13-1: Navigation Risk Assessment.

The assessment presented is informed by the following technical chapters and reports:

- Chapter 9: Fish and Shellfish Ecology; and
- Appendix 13-1: Navigation Risk Assessment.

This chapter summarises information contained within appendix 12-1: Commercial Fisheries Technical Report.

The details and competencies of the specialist who prepared this chapter can be found in volume 2A, chapter 1: Introduction.

### 12.2 Purpose of this chapter

The primary purpose of the EIAR chapter is to provide an assessment of the likely direct and indirect effects of the Project on commercial fisheries. In particular, this EIAR chapter:

- Presents the existing environmental baseline established from desk studies and consultation (section 12.7);
- Identifies any assumptions and limitations encountered in compiling the environmental information (section 12.7.6);
- Presents an assessment of the potential likely significant effects on commercial fisheries arising from the Project (section 12.10) based on the information gathered and the analysis and assessments undertaken. An assessment of potential cumulative impacts is provided in section 12.11 and an assessment of transboundary effects is outlined in section 12.12; and
- Highlights any necessary monitoring (section 12.10.6) and/or measures (section 12.8.2 and 12.10.5) to prevent, minimise, reduce or offset the likely significant environmental effects identified in the assessment (section 12.10).

### 12.3 Study area

The Project is located within the 12 nm territorial waters limit within the Republic of Ireland (RoI) Exclusive Economic Zone (EEZ). The offshore wind farm area and offshore cable corridor are located within the northwest portion of the International Council for the Exploration of the Sea (ICES) Division VIIa (Irish Sea). For the purpose of recording fisheries landings, ICES Division VIIa is divided into statistical rectangles. The ICES statistical rectangles are used for the gridding of data to make simplified analysis and visualization.

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The study areas for this assessment are presented in Figure 12-1 and have been defined as follows:

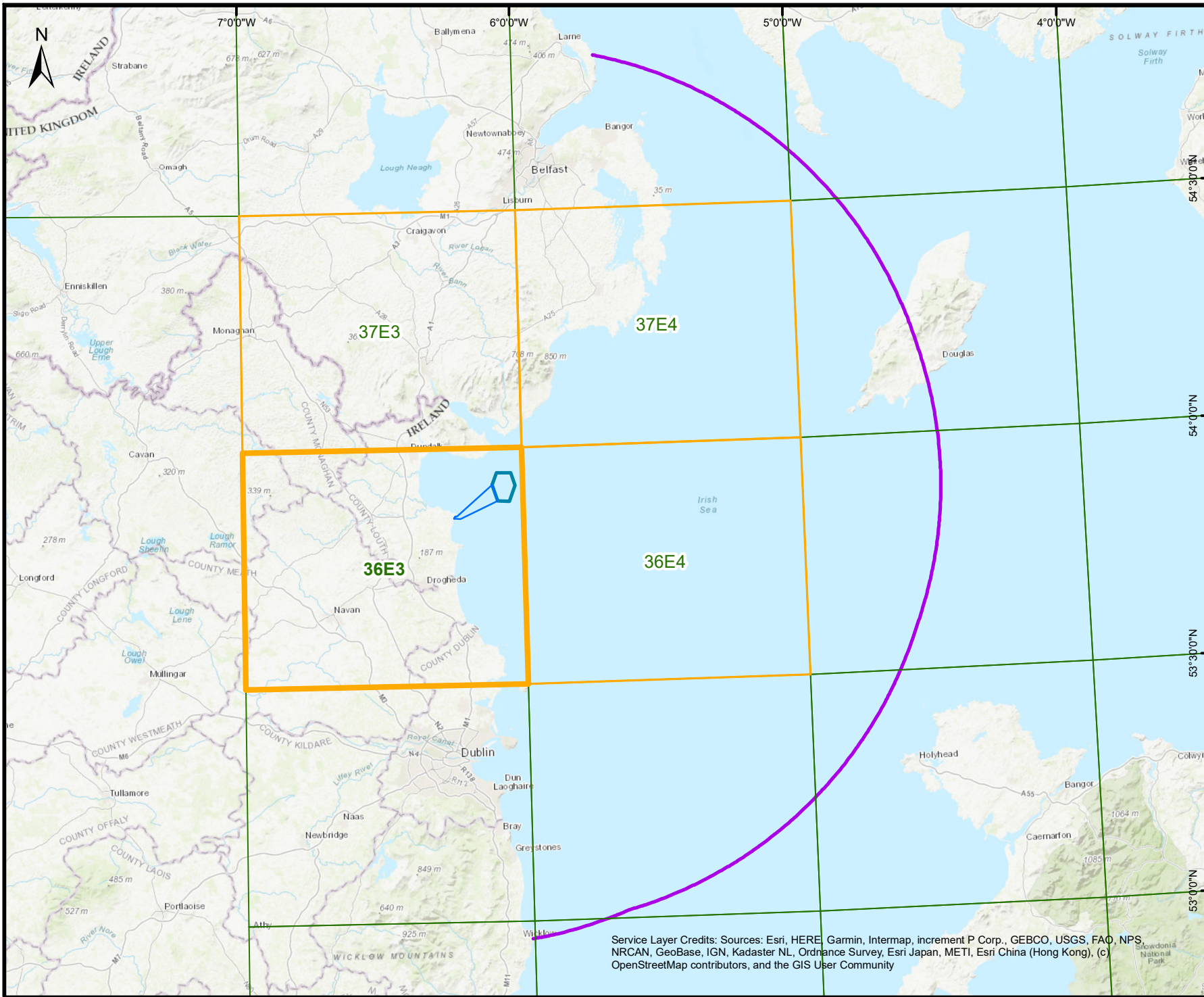
- The Commercial Fisheries Study Area – this is defined as ICES rectangle 36E3 which includes the offshore wind farm area and offshore cable corridor (Figure 12-1);
- The Regional Commercial Fisheries Study Area – this is defined as ICES rectangles 36E3, 37E3, 36E4 and 37E4 (Figure 12-1); and
- The Cumulative Commercial Fisheries Study Area – this is defined as an area 100 km from the offshore wind farm area and offshore cable corridor.







The Commercial Fisheries Study Area was identified in order to establish the baseline fishing activity within close proximity to the offshore wind farm area and offshore cable corridor that is likely to be directly affected by the Project. Linking the Commercial Fisheries Study Area to the ICES statistical rectangles supports analysis of landings data that is collated for each statistical rectangle.

The Regional Commercial Fisheries Study Area was utilised in order to understand wider fishing trends and to put the fisheries operating within the Commercial Fisheries Study Area and the Project into the context of wider fishing trends in adjacent areas of the Irish Sea. This allows an understanding of how the Project might affect fishing activity as a whole. It also allows an understanding of how potential displacement of fishing activity due to the construction and operation of the Project might potentially affect other fisheries operating outside of the offshore wind farm area and offshore cable corridor into which displaced vessels may re-locate to (such as into the Regional Commercial Fisheries Study Area).

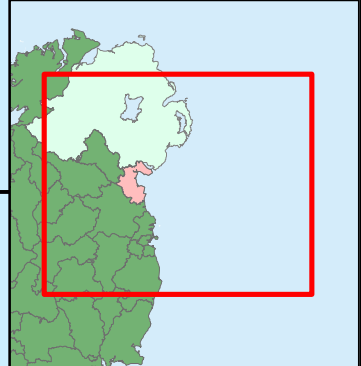
The Cumulative Commercial Fisheries Study Area is defined as an area of 100 km radius from the offshore wind farm area and offshore cable corridor, in order to sufficiently cover other projects which may also affect fisheries affected by the Project.

The data gathered within these study areas is further detailed in appendix 12-1: Commercial Fisheries Technical Report which should be read in conjunction with this chapter. Throughout this chapter and depending on the context of the data being discussed, the relevant study area (Commercial Fisheries Study Area, Regional Commercial Fisheries Study Area or Cumulative Commercial Fisheries Study Area) will be referenced. In some instances, the discussion will focus directly on the boundary of the Project, and this will be identified where relevant.



- Legend**
-  Offshore Wind Farm
  -  Offshore Cable Corridor
  -  Commercial Fisheries Study Area
  -  Regional Commercial Fisheries Study Area
  -  ICES Statistical Rectangle
  -  Cumulative Commercial Fisheries Study Area

Data Sources: ICES, www.housing.gov.ie



Client



**ORIEL WINDFARM**  
OFFSHORE RENEWABLE ENERGY

Project

**Oriel Wind Farm Project**

Title

**Figure 12-1  
Commercial Fisheries  
Study Area**



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Issue Details	
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### 12.4 Policy context

Planning policy on renewable energy infrastructure is presented in volume 2A, chapter 2: Policy and Legislation. This section presents planning policy that specifically relates to commercial fisheries, which is contained in the Offshore Renewable Energy Development Plan I and the National Marine Planning Framework (NMPF) (DHLGH)(2021). The OREDP and NMPF include guidance on what matters are to be considered in the assessment. These are summarised in Table 12-1 and Table 12-2.

In February 2023, the ‘OREDP II - National Spatial Strategy for the transition to the Enduring Regime’ was published in draft and subject to consultation (DECC), 2022). The draft OREDP II does not define specific provisions similar to OREDP I. The key objectives of OREDP II are:

- “Assess the resource potential for ORE in Ireland’s maritime area;
- Provide an evidence base to facilitate the future identification of Broad Areas of Interest most suitable for the sustainable deployment of ORE in Ireland’s maritime area; and
- Identify critical gaps in marine data or knowledge and recommend prioritised actions to close these gaps”

The OREDP II will provide an evidence base to facilitate the future identification of Broad Areas of Interest most suitable for the sustainable deployment of offshore renewable energy (ORE) in Ireland’s maritime area, to be assessed in greater detail at regional scale. This assessment will subsequently inform the identification of more refined areas as part of the designation process for Designated Maritime Area Plans (DMAP).

When published, the OREDP II will update the original OREDP published in 2014.

**Table 12-1: Summary of OREDP provisions relevant to commercial fisheries.**

Summary of OREDP project-level mitigation measures	How and where considered in the EIAR
<b>Commercial fisheries</b>	
<b>Direct Disturbance:</b> Avoid device placement in sensitive areas; avoid key and peak fishing seasons for installation; clear area of debris post installation; early liaison with the fishing industry to identify key fishing areas; and minimise effects by using procedures and structures that reduce the area of seabed disturbed for turbine foundations.	Consideration of commercial fisheries was given during the evaluation of alternative Project locations and options and is summarised in volume 2A, chapter 4: Consideration of Alternatives.
<b>Temporary displacement from traditional fishing grounds:</b> Avoid device placement in sensitive areas; avoid key and peak fishing seasons and liaison with the fishing community to keep them informed of installation operations.	A summary of consultation with the fishing industry carried out in relation to the Project is presented in section 12.5 (and also chapter 6: Consultation (volume 2)).
<b>Long term displacement from traditional fishing grounds:</b> Avoid device placement in sensitive areas; consider spacing of turbines at wide enough intervals to permit use of mobile fishing gear; workshops with expert representatives from the Marine Institute, Bord Iascaigh Mhara (BIM), National Parks and Wildlife Service (NPWS), industry and other appropriate bodies; and liaison with industry and BIM.	Commercial fisheries receptors have been identified and discussed in section 12.7. Potential impacts arising from the construction, operational and maintenance, and decommissioning phases of the Project have been assessed in section 12.10 with measures included in the Project provided in section 12.8.2. A Fisheries Management and Mitigation Strategy (FMMS) has been prepared and is provided in volume 2A, appendix 5-6: Fisheries Management and Mitigation Strategy.



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Table 12-2: Summary of NMPF provisions relevant to commercial fisheries.

Summary of NMPF provision	How and where considered in the EIAR
<b>Commercial fisheries</b>	
<p><b>Fisheries Policy 1:</b> Proposals that may have significant adverse impacts on access for existing fishing activities, must demonstrate that they will, in order of preference:</p> <ol style="list-style-type: none"> <li>avoid,</li> <li>minimise, or</li> <li>mitigate such impacts; and</li> <li>If it is not possible to mitigate significant adverse impacts on fishing activity, the public benefits for proceeding with the proposal that outweigh the significant adverse impacts on existing fishing activity must be demonstrated.</li> </ol>	<p>Consideration of commercial fisheries was given during the evaluation of alternative Project locations and options and is summarised in volume 2A, chapter 4: Consideration of Alternatives.</p> <p>Potential impacts arising from the construction, operational and maintenance, and decommissioning phases of the Project have been assessed in section 12.10 with measures to avoid, minimise and mitigate impacts provided in sections 12.8.2 and 12.10.5.</p>
<p><b>Fisheries Policy 2:</b> Where significant impact upon fishing activity is identified, a FMMS should be prepared by the proposer of development or other maritime area use, in consultation with local fishing interests and other interests as appropriate. All efforts should be made to agree the FMMS with those interests. Those interests should also undertake to engage with the proposer and provide best available, transparent and accurate information and data in a timely manner to help complete the FMMS. The FMMS should be drawn up as part of readying a proposal prior to submission, with measures identified to be considered in finalising conditions of any authorisations granted. Development of the strategy should be coordinated with other relevant assessments such as environmental impact assessment (EIA) where possible.</p>	<p>A FMMS has been prepared and is provided in volume 2A, appendix 5-6: Fisheries Management and Mitigation Strategy.</p> <p>Potential impacts of the Project on spawning, nursery and feeding grounds, and migratory routes are considered in chapter 9: Fish and Shellfish Ecology. Consideration was also given to nursery and spawning grounds during evaluation of Project alternatives (see volume 2A, chapter 4: Consideration of Alternatives).</p>
<p>The content of the FMMS should be relevant to the particular circumstances and could include:</p> <ul style="list-style-type: none"> <li>An assessment of the potential impact of all stages of the development or other suggested use on the affected fishery or fisheries, both in socio-economic terms and in relation to environmental sustainability. This assessment should include consideration of any impact upon cultural identity within fishing communities, as well as identifying indirect / in-combination matters;</li> <li>A recognition that the disruption to existing fishing opportunities / activity should be minimised as far as possible;</li> <li>Demonstration of the public benefit(s) that outweigh the significant impacts identified;</li> <li>Reasonable measures to mitigate any constraints which the proposed development or use may place on existing or proposed fishing activity; and</li> <li>Reasonable measures to mitigate any potential impacts on sustainability of fish stocks (e.g. impacts on spawning grounds or areas of fish or shellfish abundance) and any socio-economic impacts.</li> </ul>	
<p>Where it does not prove possible to agree the FMMS with all interests:</p> <ul style="list-style-type: none"> <li>Divergent views and the reasons for any divergence of views between the parties should be fully explained in the FMMS and dissenting views should be given a platform within the said FMMS to make their case; and</li> <li>Where divergent views are identified, relevant public authorities should be engaged to identify informal and formal steps designed to enable proposal(s) to progress.</li> </ul>	

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### Summary of NMPF provision

### How and where considered in the EIAR

**Fisheries Policy 5:** Proposals, regardless of the type of activity they relate to, enhancing essential fish habitat, including spawning, nursery and feeding grounds, and migratory routes should be supported. If proposals cannot enhance essential fish habitat, they must demonstrate that they will, in order of preference:

- a) avoid,
- b) minimise or
- c) mitigate significant adverse impact on essential fish habitat, including spawning, nursery and feeding grounds, and migration routes; and
- d) If it is not possible to mitigate significant adverse impact on essential fish habitat, proposals must set out the reason for proceeding.

## 12.5 Consultation

Consultation with identified commercial fisheries stakeholders was undertaken in three phases; in late 2019, early 2021 and late 2022. The purpose of consultation in 2019 was to provide an opportunity for stakeholders to comment on the EIA scoping report. In 2021 and 2022 consultation was undertaken to update stakeholders on proposed changes to the project design and to seek responses from stakeholders that did not respond as part of the scoping phase. Stakeholders were consulted individually through direct contact from the Project team following a request for engagement. In addition, regular phone calls, emails and meetings with fisheries organisations and individual fishers on the Project have occurred throughout the period from 2019 to 2024.

Table 12-3 summarises the issues raised relevant to commercial fisheries, which have been identified during consultation activities undertaken to date, together with how these issues have been considered in the production of this EIAR chapter. Volume 2A, chapter 6: Consultation provides details on the types of consultation activities undertaken for the Project between 2019 and 2024 and the consultees that were contacted.

**Table 12-3: Summary of key consultation issues raised during consultation activities undertaken for the Project relevant to commercial fisheries.**

Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
September 2019	Inland Fisheries Ireland (IFI) – Scoping Response	Identified coastal and transitional waterbodies in the vicinity of the Project including Outer Bay Dundalk and Inner Dundalk Bay which have a status of good and moderate respectively. Provided details of survey carried out by IFI within Inner Dundalk Bay in 2009 which identified 16 species, including sprat, cod, plaice and flounder. Identified that Dundalk Bay is promoted as an angling venue for dogfish, tope, bull huss, mackerel, codling, spurdog, flounder, whiting, coalfish, ling, gurnard, wrasse and pollack. Also identified important fishing rivers (e.g. the rivers Dee, Glyde, Fane, Castletown and Flurry).	This information is used to inform the baseline environment presented in section 12.7 (recreational fishing is, however, addressed in chapter 16: Infrastructure, Marine Recreation and Other Users).
September 2019	Dundalk Pilot – meeting	Advised that fishing is primarily cockle day boats operating inside port limits. There are three lobster boats operating out towards Imogene navigation buoy. Considered that the Automatic Identification System (AIS) vessel traffic plots (presented in appendix 13-1: Navigation Risk Assessment) were a	This information is used to inform the baseline environment presented in section 12.7.

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Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
		fair representation of vessel traffic in Dundalk Bay.	
September 2019	Clogher Head Royal National Lifeboat Institution (RNLI) – meeting	Considered that the AIS fishing boat plots (presented in appendix 13-1: Navigation Risk Assessment) are a fair representation for commercial fisheries vessels. Advised that fishing activities included: Dublin prawns; razors; lobsters; and crab.	
October 2019	Department of Environment, Agriculture and Rural Affairs (Northern Ireland) (DAERA-NI) – email	Landings data from ICES rectangle 36E3 was provided.	
September 2019	Anglo Northern Ireland Fish Producers Organisation (ANIFO) – meetings	Several meetings and telephone calls which highlighted the fishing activity types and number of vessels represented by ANIFO from Kilkeel fishing in the Outer Dundalk Bay Area.	
September 2019	Northern Ireland Fish Producers Organisation (NIFPO) - meetings	Several meetings and telephone calls which highlighted the fishing activity types and number of vessels represented by NIFPO from Kilkeel fishing in the Outer Dundalk Bay Area.	
February 2021		Concerns regarding Electromagnetic Field (EMF) and vibration impacts on shellfish species and potential reductions in catches during and after construction.	Impacts from EMF are considered but scoped out of the commercial fisheries assessment for the reasons outlined in Table 12-8.
September 2019	Dunany Lobster and Crab - meetings	Meetings with representatives to understand the pot fishing being undertaken within the area.	Considered within section 12.7.
March 2021		<p>Data provided on key fishing grounds, target species and gear.</p> <p>Concerns raised in relation to EMF and vibration impacts on shellfish species and potential reductions in catches during and after construction.</p> <p>Additional concerns raised regarding potential restrictions to fishing vessels during construction and operation.</p> <p>Concerns were also raised in relation to increases in shipping densities over fishing grounds as a result of deviations.</p>	<p>This information is used to inform the baseline environment presented in section 12.7.</p> <p>Impacts from EMF are considered but scoped out of the commercial fisheries assessment for the reasons outlined in Table 12-8.</p> <p>Noise and vibration impacts on fish and shellfish species were considered in chapter 9: Fish and Shellfish Ecology and the assessment concluded no significant effects on fish and shellfish species from noise and vibration.</p> <p>Displacement of fishing activity is considered in section 12.10.1. Displacement was considered in chapter 13: Shipping and Navigation from a navigational safety perspective. The avoidance of shipping lanes and higher density shipping routes was also considered at options</p>

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Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
October 2019	Sea Fisheries Protection Authority (SFPA) – engagement	Requirement for fisheries survey was discussed. It was identified that a pot fishing survey should be undertaken to determine potential catch rates within the offshore array area. Guidance on contracting a Fisheries Liaison Officer (FLO) and engagement with local fishing groups also discussed.	selection stage (see volume 2A, chapter 4: Consideration of Alternatives), in order to minimise displacement and collision risk.  A study will be undertaken in collaboration with local fishers to monitor the static (pot)fisheries before and after construction of the Project - see section 12.10.6. A FLO will be appointed following consenting of the Project and prior to construction.
September 2019	Clogherhead Fishing Co-operative - meeting	Meetings with representatives to understand the extent of fishing being undertaken from Port Oriel.	This information is used to inform the baseline environment in section 12.7.
September to November 2022	Anglo Northern Ireland Fish Producers Organisation (ANIFPO) – meetings	Several meetings and telephone calls to provide an update on Oriel activities and gain a current understanding of the fishing activity types and number of vessels represented by ANIFPO from Kilkeel fishing in the Outer Dundalk Bay Area.	
November 2022	Northern Ireland Fish Producers Organisation (NIFPO) - telephone	Telephone discussion which identified key target species, fishing areas, number and type of vessels and gear types	
September to December 2022	Dunany Lobster and Crab – meetings	Meetings with representatives to provide an update on Oriel site investigation activities and understand the active boats and pot fishing being undertaken within the area.	
September to November 2022	Anglo Northern Ireland Fish Producers Organisation (ANIFO) – meetings	Several meetings and telephone calls to provide an update on Oriel activities and gain a current understanding of the fishing activity types and number of vessels represented by ANIFPO from Kilkeel fishing in the Outer Dundalk Bay Area.	
January/February 2023	Members of the public during public consultation	Queries regarding potential impacts on the fishing industry and the duration of the impact; whether fishing can continue during construction and operation; potential displacement of fishing boats during operation and maintenance; potential impacts on static gear fisheries; impacts on fish stocks; impacts on inshore fisheries; and compensation for fishers.	Displacement of fishing effort as a result of the Project, and the potential changes to fishing activity to the presence of Project infrastructure are assessed in section 12.10.1 and 12.10.2 respectively. The Project will promote co-existence with fisheries and will consider compensation measures as/if appropriate in line with best practice guidance (see volume 2A, appendix 5-6: Fisheries Management and Mitigation Strategy).
Department of Agriculture, Environment and Rural Affairs	Transboundary scoping consultation	Potential for impacts on the Northern Ireland fishing industry to be examined.	The Regional Commercial Fisheries Study Area extends into Northern Ireland and therefore the assessment presented in section 12.10 examines the impacts on the

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Date	Consultee and type of response	Issues raised	Response to issue raised and/or where considered in this chapter
(September 2023)			Northern Ireland Fishing Industry.
February 2024	Fisheries Organisations	The Applicant is participating in the National Seafood- Offshore Renewable Energy Forum (DHLGH, 2023) as part of its membership in Industry Association. The Applicant is committed to adhering to the principals of engagement agreed by this forum.	Engagement is ongoing and will continue in 2024 (see chapter 6: Consultation in volume 2A).

## 12.6 Methodology to inform the baseline

### 12.6.1 Desktop study

Information on commercial fisheries within the Commercial Fisheries Study Area and Regional Commercial Fisheries Study Area was collected through a detailed desktop review of existing studies and datasets. These are summarised in Table 12-4 below. The data used are the most up-to-date publicly available information which can be obtained from the applicable data sources as cited.

The key sources (i.e. data and reports) used to inform the baseline characterisation of the Commercial Fisheries Study Area are summarised in Table 12-4 below. These sources provide the most up to date data for this assessment.

**Table 12-4: Summary of data sources.**

Title	Source	Year	Author
Future Options for UK Fish Quota Management	Department for the Environment, Food and Rural Affairs	2002	Hatcher <i>et al.</i>
A report on fishing in the waters between Carlingford and Clogher Head based on published data, Appendix VIII within Oriel Windfarm Ltd, Offshore Wind Farm, Environmental Impact Statement, Appendices, Volume 3 of 3	Oriel Windfarm Ltd	2003	Roden and Ludgate
Northern Ireland Fleet Futures Analysis (2004 – 2013) – Methodology and Results	University of Portsmouth	2006	Tingley
Offshore Wind Farm, Environmental Impact Statement, Main EIS, Volume 2 of 3, Section 8: Commercial Fisheries	Oriel Windfarm Ltd	2007	AquaFact International Services Limited
Atlas of Commercial Fisheries Around Ireland	Marine Institute	2019	Gerritsen and Kelly
Data by quarter-rectangle: Tables and maps of effort and landings by ICES statistical rectangles	<a href="https://stecf.jrc.ec.europa.eu/dd/effort">https://stecf.jrc.ec.europa.eu/dd/effort</a>	2017	EU DCF
All Landings into Ireland 2017 - 2020	<a href="https://www.sfpa.ie/Statistics/Annual-statistics/Annual-Statistics">https://www.sfpa.ie/Statistics/Annual-statistics/Annual-Statistics</a>	2017 - 2020	SFPA
The business of seafood 2017. A snapshot of Ireland's Seafood Sector	<a href="http://www.bim.ie/media/bim/content/7097-BIM-Business-of-Seafood-2017.pdf">http://www.bim.ie/media/bim/content/7097-BIM-Business-of-Seafood-2017.pdf</a>	2017	BIM
UK Sea Fisheries Statistics	MMO	2018	MMO
Data by ICES rectangles; landing statistics data for UK registered vessels for 2015 to 2020.	MMO	2021	MMO
AIS (January and July 2019; January and July 2022)	Appendix 13-1: Navigation Risk Assessment	2019; 2022	N/A
Ireland's Marine Atlas – Webmap Service: • Periwinkle Harvesting Grounds;	Marine Institute	2014-2018	N/A

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Title	Source	Year	Author
<ul style="list-style-type: none"> <li>Bivalve Mollusc Production Area;</li> <li>Nets Fishing;</li> <li>Dredge Fishing;</li> <li>Pot Fishing;</li> <li>Mobile Bottom Gear Types;</li> <li>Mobile Seine Gear Types;</li> <li>Mobile Other Gear Types;</li> <li>Passive Gear Type;</li> <li>Irish and International Beam Trawls Effort 2014 – 2018;</li> <li>Irish and International Bottom Otter Trawls Effort 2014-18;</li> <li>Irish and International Dredges Effort 2014-18;</li> <li>Irish and International Gill Nets Effort 2014-18;</li> <li>Irish and International Long Lines Effort 2014-18;</li> <li>Irish and International Pelagic Trawls Effort 2014-18;</li> <li>Irish and International Pots Effort 2014-18; and</li> <li>Irish and International Seines Effort 2014-18.</li> </ul>		where shown	

### 12.6.2 Site-specific surveys

No site-specific surveys have been undertaken to inform the assessment of potential impacts on commercial fisheries. The baseline data identified in Table 12-4 provides a full characterisation of the fisheries activity that occurs within the Commercial Fisheries Study Area and Regional Commercial Fisheries Study Area which is unlikely to be added to through further data collection. The baseline characterisation developed through existing data sources, supplemented by consultation with local fisheries stakeholders, is considered sufficient to inform the Commercial Fisheries chapter as it provides an overview of the species targeted and caught, the value of landings, effort and spatial and temporal trends in fishing activity. Any commercial fisheries baseline survey is likely to collect similar data but will only provide the data over a short time frame. Given fishing activity is temporally and spatially variable, such short baseline surveys are unlikely to change the overall picture provided by the data sources in Table 12-4 and therefore are considered unnecessary for developing an understanding of the baseline environment for commercial fisheries impact assessments.

## 12.7 Baseline environment

This section provides a summary of the type of equipment (gear) used by commercial fisheries, traditional fishing grounds, commercially important species targeted, and fisheries activity at a national scale and within the Regional Commercial Fisheries Study Area and Commercial Fisheries Study Area. A full description of the commercial fisheries baseline environment is presented in appendix 12-1: Commercial Fisheries Technical Report.

### 12.7.1 Gear types

The predominant gear types recorded in the vicinity of the Project are bottom trawls (demersal otter trawl), dredging and pots. Based on review of the data presented in the Atlas of Commercial Fisheries in Ireland in the vicinity of the Project (Gerritsen and Kelly, 2019), in 2012, bottom trawls accounted for >18 h/km<sup>2</sup> of international fishing effort, predominantly fishing for *Nephrops*. Other gear types recorded in the vicinity of the Project include pelagic trawls, seines and nets, although these were recorded less frequently than the demersal gear identified above. Consultation also identified pots as the main gear type across the boundary of the Project and hook and line fishing as an additional gear used in the vicinity of the offshore wind farm area.

### 12.7.2 Traditional fishing grounds

Inshore fishing grounds overlapping with the offshore wind farm area and offshore cable corridor include a bivalve mollusc production area for cockles and razor clams (the “Dundalk Bay production area”), trammel

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and gill net fishing for mixed demersal species, dredge fishing for razor clam, scallops and mussels, and potting for shrimp, lobster, crab and whelk. No periwinkle grounds overlap with either the offshore wind farm area or offshore cable corridor, however four periwinkle harvesting sites can be found within the Commercial Fisheries Study Area. Due to the high density of shellfish found within Dundalk Bay, the area is subject to a fisheries management plan.

Offshore fishing grounds in the vicinity of the Project include the Irish Sea prawn grounds and areas fished by mobile bottom, mobile seine, mobile other and passive gear types. Automatic Identification System (AIS) data for 2019 (presented in appendix 13-1: Navigation Risk Assessment), suggest that vessels are steaming to and from offshore grounds, across the offshore wind farm area. AIS data for 2022 shows that the fishing activity in the immediate vicinity of the offshore wind farm area is significantly less than for the same period in 2019. As for the 2019 date, most fishing activity is located to the south of the offshore wind farm area with the transits through the offshore wind farm area likely to be between ports or between a port and fishing grounds (see appendix 13-1: Navigation Risk Assessment).

The Irish Sea Prawn Grounds cover most of the northwest Irish Sea and are largely located within the Regional Commercial Fisheries Study area but are outside the Commercial Fisheries Study Area and beyond the boundary of the Project. Data for all gear types combined indicate that fishing effort within Dundalk Bay, to the west of the offshore wind farm area, is limited compared with that for the wider Irish Sea, east of the offshore wind farm area.

Fishing effort recorded within and along the southern boundaries of the offshore wind farm area and offshore cable corridor is up to 50-200 hours per year. Adjacent ICES rectangles (i.e. 36E4 and to the south of 36E3 and 36E4) show a greater density of fishing effort with examples of higher fishing effort (i.e. up to 200-1,000 and 1,000-4,000 hours per year) (appendix 12-1: Commercial Fisheries Technical Report).

### 12.7.3 Commercially important species

Commercially important species within the vicinity of the offshore wind farm area include the Dublin Bay prawn *Nephrops norvegicus* (also known as *Nephrops* or Norway lobster; hereafter referred to as “*Nephrops*”), brown crab *Cancer pagurus* and velvet crab *Necora puber*, sole *Solea solea*, witch *Glyptocephalus cynoglossus* and dogfish *Squalus acanthias*, often associated with muddy sediments. Communities found further offshore within sandier sediments include a variety of flatfish *Pleuronectiformes* spp., gurnard *Chelidonichthys cuculus*, whiting *Merlangius merlangus* and dogfish. Coarser sediments are dominated by lemon sole *Microstomus kitt*, angler fish *Lophius budegassa*, poor cod *Trisopterus minutus* and dogfish (Roden and Ludgate, 2003). The commercially fished species identified within the 2007 Oriel Windfarm Environmental Statement (Aquafact International Services Limited, 2007) included whiting, mackerel *Scombridae* spp., herring *Clupea harengus*, edible cockles *Cardiidae* spp., *Nephrops* and queen scallops *Aequipecten opercularis*, with more recent catch data suggesting that razor clams *Siliqua patul*, brown crab and *Nephrops* are also caught (EU DCF, 2017; MMO, 2018).

Shellfish likely to be targeted within the Project boundary include *Nephrops*, cockles, razor clams, brown crab and European lobsters *Homarus Gammarus* (Gerritsen and Kelly, 2019). Crabs, lobsters and *Nephrops* are predominately caught using pots, with scallops targeted through dredging. Lobster and crabs are usually caught between March to September, with *Nephrops* pots set between September and December. Dredging for scallops occurs all year round.

Demersal species (e.g. plaice, cod, codling (juvenile cod), ling, European flounder, pollack *Pollachius* spp., whiting and gurnard) are predominantly caught using nets from March to September. Plaice, cod, ling and whiting are known to have spawning and nursery grounds that overlap with the Commercial Fisheries Study Area, with plaice known to spawn in the region between January and March, cod in January through to April, ling from February through to May and whiting spawning between February and June.

Pelagic species, such as sprat, mackerel and herring, are caught using a wide range of gear types (see appendix 12-1: Commercial Fisheries Technical Report). Mackerel is known to have spawning and nursery areas that overlap with the Project, spawning from March to July. Herring have a potential spawning ground, based on habitat sediment type, spawning from September to November and anecdotally extending through to March (chapter 9: Fish and Shellfish Ecology).

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Elasmobranchs (cartilaginous species), such as dogfish, tope and spurdog, are caught using a wide range of gear types (see appendix 12-1: Commercial Fisheries Technical Report). Tope and spurdog are known to have nursery grounds that overlap with the Project and reproduce all year round.

Migratory species, such as Atlantic salmon, sea trout, European eel and sea lamprey, are known to transit the western Irish Sea and are caught using a wide range of gear types (appendix 12-1: Commercial Fisheries Technical Report).

### 12.7.4 Fisheries activity

This section firstly provides a broad overview of the national fishing activity around Ireland, followed by a description of landing statistics for the Regional Commercial Fisheries Study Area and the Commercial Fisheries Study Area.

#### National fishing activity

##### Republic of Ireland

Most of the fishing effort by RoI vessels  $\geq 12$  m takes place within the Irish EEZ (77%; Gerritsen and Kelly, 2019). However, most of the fishing effort inside the Irish EEZ is carried out by foreign vessels (55%); RoI is responsible for only 45% of effort from vessels  $\geq 12$  m inside the EEZ (note that the proportion of RoI effort would likely be higher if smaller vessels were included). The RoI effort consists mainly of demersal otter trawlers. Spain accounts for 14% of the effort (mainly demersal otter trawlers and longliners), fishing to the south and the west of Ireland. France, fishing to the south and west of Ireland, and the United Kingdom (UK), fishing in the northeast, south and west of Ireland, account for 18% and 21% of the effort, respectively (dominated by demersal otter trawlers for both countries). Belgium and Germany account for  $<1\%$  of the effort (nearly all beam trawlers). The remaining effort is carried out mainly by the Netherlands and Denmark vessels and is dominated by pelagic trawlers.

In 2021, the RoI fishing fleet registered 1,993 vessels, with a total of 8,705 people directly employed in the Irish seafood sector (BIM, 2021).

##### Northern Ireland

The Northern Ireland fishing fleet mostly target shellfish using static gears (i.e. pots and fixed nets), with an increasing number using single-rig *Nephrops* bottom trawls in traditional *Nephrops* grounds in the Irish Sea.

The total number of registered fishing vessels (including those under 10 m in length) increased from 349 in 2015 to 351 in 2016, however, following 2016 a decrease in vessel numbers was observed, to 338 in 2017 and 332 in 2018, a reduction of 5.5% from 2016 to 2018 (MMO, 2018). The reduction in total fleet size was mostly represented by vessels 10 m and under. Only 10 vessels have been registered to Northern Ireland since 2011. Based on consultation with the fishing industry the number of vessels operating in the Commercial Fisheries Study Area is more than 30, operating from a variety of ports including Clogherhead, Dundalk, Greenore, Annagassan, Giles Quay and Donegal. Most fishing vessels are operated by one or two crew and are potters and creel vessels. Vessels operating in the area target prawn shrimp, lobster, crab, and mackerel and pollack using hand lines.

There are an estimated 854 fishermen working 332 vessels in Northern Ireland, operating out of Belfast, Kilkeel, Ardglass and Portavogie (MMO, 2018). The number of fishermen has increased by 37% between 2008 and 2018.

#### Regional Commercial Fisheries Study Area

The RoI and Northern Ireland fishing fleet dominate the landings within the Regional Commercial Fisheries Study Area, using predominately pelagic trawl gears, dredges, nets and pots, catching a mixture of *Nephrops*, herring, edible cockles and blue mussels among other species (see appendix 12-1: Commercial Fisheries Technical Report).

The highest quantity of catch (tonnes) is taken by pelagic trawls, followed by dredgers and then in smaller quantities by nets, pots and bottom trawls. Beam trawls, trammel nets and longlines make up a negligible proportion of the landings within the Regional Commercial Fisheries Study Area.



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Annual average landings from the Regional Commercial Fisheries Study Area are 261.95 tonnes for all EU member states (appendix 12-1: Commercial Fisheries Technical Report). Sword razor shell, edible cockle and razor clams dominate the landings in 36E3, accounting for 60% of the average annual landings. Rectangle 37E3 is dominated by herring, accounting for 44% of landings, followed by blue mussels (22%). *Nephrops* and herring dominate the landings within 36E4, accounting for 65% of the species landed. Together herring, *Nephrops*, blue mussel and brown crab account for 80% of the landings from 37E4.

### Commercial Fisheries Study Area

The offshore wind farm area and offshore cable corridor are located within ICES rectangle 36E3. The offshore wind farm area has an area of 27.7 km<sup>2</sup>, representing approximately 3% of the Commercial Fisheries Study Area (858 km<sup>2</sup>). Landings by weight from 36E3 are dominated by RoI registered vessels, followed by landings from Northern Ireland. Scotland and Belgium account for a negligible proportion of landings within 36E3. Landings by weight from 36E3 are split between dredgers and gill nets, followed by pelagic trawlers, pots, bottom trawls and a negligible amount by beam trawl.

The closest RoI fishing port to the offshore wind farm area and offshore cable corridor, within the Commercial Fisheries Study Area, is Clogherhead. Consultation with the Dundalk Pilot advised that cockle day boats operate inside port limits, likely to be within Dundalk Bay, with up to three lobster boats operating out of Clogherhead. Furthermore, consultation with Clogherhead RLNI indicated that fishing activities within the Commercial Fisheries Study Area are likely to target *Nephrops*, razor clams, lobsters and crabs (see Table 12-3).

The closest Northern Ireland fishing ports to the Commercial Fisheries Study Area include Kilkeel, Ardglass and Portavogie. Kilkeel is the closest port to the offshore wind farm area and offshore cable corridor. No Northern Ireland ports are located within the Commercial Fisheries Study Area although consultation has confirmed that Northern Ireland vessels will fish within the Commercial Fisheries Study Area targeting prawn, lobster and crab and occasionally mackerel and pollack using handlines.

The key fleets operating across the Commercial Fisheries Study Area taken forward for assessment are presented in appendix 12-1: Commercial Fisheries Technical Report and summarised in Table 12-5.

**Table 12-5: Summary of commercial fisheries within the Commercial Fisheries Study Area (in order of landings value for each nation).**

Fishery	Justification
<b>Republic of Ireland Fishing Fleet (2012 – 2016)</b>	
Dredgers	Vessels targeting shellfish species, such as sword razor shell, edible cockle, razor clam and brown crab likely operating in both inshore and offshore fishing grounds, with a combined species annual average landings value of €211,171 and annual average landed weight of 42.6 tonnes (excluding the other category).
Bottom Trawl	Vessels targeting <i>Nephrops</i> likely operating within offshore fishing grounds, with an annual average value of €7,024 and annual average landed weight of 5.9 tonnes.
Pots	Vessels targeting lobsters, brown crabs and velvet crabs, likely operating in offshore fishing grounds with a combined species annual average value of €4,630 and annual average landed weight of 2.9 tonnes.
Pelagic Trawls	Vessels targeting herring likely operating within offshore fishing grounds, with an annual average value of €3,304 and annual average landed weight of 14 tonnes.
<b>Northern Ireland Fishing Fleet (2015 – 2020)</b>	
Bottom Trawl	Vessels targeting <i>Nephrops</i> and queen scallops, likely operating in offshore fishing grounds, with a combined species annual average value of €2,265 (£1,936) and annual average landed weight of 0.46 tonnes.
Dredgers	Vessels targeting mussels, cockles, razor clams and scallops, likely operating in inshore or offshore fishing grounds, with a combined species annual average landings value of €8,099 (£6,923) and annual average landed weight of 3.39 tonnes.
Pots	Vessels targeting lobsters, brown crabs and velvet crabs, likely operating in offshore fishing grounds, with a combined species annual average landings value of €5,518 (£4,717) and annual average landed weight of 2.92 tonnes.

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Fishery	Justification
Nets	Vessels targeting herring; however it is important to note that the catch presented in appendix 12-1: Commercial Fisheries Technical Report (total catch: 29.6 tonnes = €6,926/£5,920) was only recorded in 2015 and can likely be excluded from assessment.

### 12.7.5 Future baseline scenario

The European Union (Planning and Development) (EIA) Regulations 2018 (hereafter the EIA Regulations 2018) require that “a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without development as far as natural changes from the baseline scenario can be assessed with reasonable effort on the basis of the availability of environmental information and scientific knowledge” is included within the EIAR.

In the event that the Project is not constructed, an assessment of the future baseline conditions has been carried out and is described within this section.

Commercial fisheries patterns change and fluctuate based on a range of natural and management-controlled factors. This includes the following:

- Stock abundance: fluctuation in the biomass of individual species stocks in response to status of the stock, recruitment, natural disturbances (e.g. due to storms, sea temperature etc.), changes in fishing pressure etc.;
- Fisheries management: including changes in Total Allowable Catch (TACs) leading to the relocation of effort, and/or an overall increase/decrease in effort;
- Environmental management: including the potential restriction of certain fisheries within protected areas;
- Improved efficiency and gear technology: with fishing fleets constantly evolving to reduce operational costs (e.g. by moving from beam trawl to pulse trawl);
- Sustainability: with seafood buyers increasingly requesting certification of the sustainability of fish and shellfish products, such as the Marine Stewardship Council (MSC) certification, the industry is adapting to improve fisheries management and reduce wider environmental impacts; and
- Markets: commercial fishing fleets respond to market prices by focusing effort on higher value target species when prices are high and markets in demand.

### 12.7.6 Data validity and limitations

The data sources used in this chapter are detailed in Table 12-4 and in appendix 12-1: Commercial Fisheries Technical Report. The data used are the most up to date publicly available information which can be obtained from the applicable data sources as cited. However, it should be noted that due to the onset of the COVID-19 pandemic and associated restrictions in 2020 and 2021, the most recent data available may not be representative. As such, data has been reviewed and presented across multiple years to ensure an accurate characterisation for the region. Data has also been provided through consultation as detailed in section 12.5. The data are therefore limited by what is available and by what has been made available, at the time of writing the EIAR.

Limitations of landings data include the potential under-reporting of landings associated with vessels <10 m, which may occur as a result of estimating catches (as opposed to accurate weighing) and not reporting catches that fall below the acceptable limit (i.e. when purchases of first sale fish direct from a fishing vessel are wholly for private consumption, and less than 30 kg is bought per day). This limitation has been managed by supplementing the available data with consultation with fisheries stakeholders and other publicly available sources of evidence.

Limitations of vessel monitoring system (VMS) data are primarily focused on the coverage being limited to vessels ≥12 m. It is important to be aware that where mapped VMS data may appear to show inshore areas as having lower (or no) fishing activity compared with offshore areas, VMS data do not include vessels

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typically operating in inshore areas (i.e. which typically comprise vessels <12 m in length). This is particularly important when identifying the activity across the offshore cable corridor. This limitation has been managed by supplementing the available data with consultation with fisheries stakeholders to determine extent and distribution of activity by the <12 m fleet. As noted above this is in the context of the information being provided verbally during consultation rather than as specific data or indications of key fishing grounds. However, the format of the information provided through consultation is not considered to have implications for the conclusions of the assessments presented in section 12.10.

## 12.8 Key parameters for assessment

### 12.8.1 Project design parameters

The project description is provided in volume 2A, chapter 5: Project Description. Table 12-6 outlines the project design parameters that have been used to inform the assessment of potential impacts on the construction, operation and maintenance and decommissioning phases of the Project on commercial fisheries.

Due to the potential for unexpected ground conditions and obstructions, the final route and length of the offshore export cable and offshore inter array cables will be confirmed during construction (see design flexibility details in chapter 5: Project Description (volume 2A)). For the purposes of the assessment presented in section 12.10, the maximum length of cables has been considered to ensure the potential for maximum impact is assessed. Therefore, should the lengths of cables be less than those specified (e.g. 15 km of offshore cable in constructed), then the potential for effects will be the same (or slightly less) than those outlined in assessment in section 12.10. An alternative route within the offshore wind farm area or offshore cable corridor will also not change the assessment presented in section 12.10.

**Table 12-6: Project design parameters used for the assessment of potential impacts on commercial fisheries.**

Potential impact	Phase <sup>1</sup>			Project design parameters	Justification
	C	O	D		
Displacement of fishing activity	✓	✓	✓	<p><b>Construction Phase</b></p> <ul style="list-style-type: none"> <li>Installation of 25 wind turbine generators (WTGs) and one offshore substation (OSS) within offshore wind farm area of 27.7 km<sup>2</sup>;</li> <li>Minimum wind turbine spacing of 944 m;</li> <li>Installation of 41 km inter-array cables and 16 km offshore cable;</li> <li>475 vessel round trips comprised of jack-up barge/dynamic positioning (DP) vessels, commissioning vessels, tug/anchor handlers, cable installation vessels, guard vessels, survey vessels, crew transfer vessels, and scour/cable protection installation vessels; and</li> <li>Presence of Marine Safety Zones of 500 m in radius around structures undergoing installation; and advisory clearance distances of 500 m in radius around cable installation vessels.</li> </ul> <p>Offshore construction will take place over a period of 15 months.</p> <p><b>Operational and Maintenance Phase</b></p> <ul style="list-style-type: none"> <li>Presence of 25 WTGs and one OSS with monopile foundations (base diameter 9.6 m) and associated scour protection plus pile (radius 24 m);</li> <li>Minimum spacing of 944 m;</li> <li>Presence of cable protection associated with 20.5 km inter-array cables of 205,000 m<sup>2</sup> (410,000 m<sup>3</sup>). Assumes 50% of inter-array cable route may require cable protection;</li> </ul>	<p><b>Construction Phase</b></p> <p>Displacement due to construction of infrastructure and associated minimum spacing, the required number of vessels and the greatest extent of safety zones and advisory clearance distances, over the construction period.</p> <p><b>Operational and Maintenance Phase</b></p> <p>Displacement due to the presence of the infrastructure and associated minimum spacing, the required number of vessels and the greatest extent of safety zones and advisory clearance distances, over the lifetime of the Project.</p> <p><b>Decommissioning Phase</b></p> <p>Parameters are assumed to be similar to the construction phase.</p>

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Potential impact	Phase <sup>1</sup>			Project design parameters	Justification
	C	O	D		
				<ul style="list-style-type: none"> <li>Presence of cable protection associated with 8 km offshore cable totalling 80,000 m<sup>2</sup> (160,000 m<sup>3</sup>). Assumes 50% of offshore cable corridor may require cable protection;</li> <li>352 vessel round trips per year during the operational and maintenance phase comprised of one jack-up vessel campaign, 300 crew transfer vessel movements, 50 service operation vessel movements per year and one cable repair vessel movement every five years; and</li> <li>Presence of safety zones of 500 m in radius around structures undergoing maintenance (twice per year); and advisory clearance distances of 500 m in radius around cable repair/reburial vessels (14 inter-array cable repair and reburial events and 6 offshore cable repair and reburial events over lifetime).</li> </ul> <p>Operational phase of 40 years.</p> <p><b>Decommissioning Phase</b></p> <ul style="list-style-type: none"> <li>Decommissioning activities will involve similar types and numbers of vessels and equipment to that for the construction phase. WTGs and the OSS will be removed, foundations removed/cut below seabed, removal of cables, scour/cable protection to be left in situ; and</li> <li>Presence of safety zones of 500 m in radius around structures undergoing decommissioning; and advisory clearance distances of 500 m in radius around cable vessels.</li> </ul>	
Potential changes to fishing activity due to presence of infrastructure	x	✓	x	<p><b>Operational and Maintenance Phase</b></p> <p>See 'Displacement of fishing activity' impact.</p>	<p><b>Operational Phase</b></p> <p>The presence of infrastructure and associated minimum spacing, the required number of vessels and the greatest extent of safety zones and advisory clearance distances, over the lifetime of the project</p>
Potential for snagging of gear	x	✓	x	<p><b>Operational and Maintenance Phase</b></p> <ul style="list-style-type: none"> <li>Presence of 25 WTGs and one OSS with monopile foundations (base diameter 9.6 m) and associated scour protection plus pile (radius 24 m), within offshore wind farm area of 27.7 km<sup>2</sup>;</li> <li>Minimum spacing of 944 m;</li> <li>Presence of cable protection associated with 20.5 km inter-array cables totalling 205,000 m<sup>2</sup> (410,000 m<sup>3</sup>). Assumes 50% of inter-array cable route requires cable protection; and</li> <li>Presence of cable protection associated with 8 km offshore cable totalling 80,000 m<sup>2</sup> (160,000 m<sup>3</sup>). Assumes 50% of offshore cable corridor requires cable protection;</li> </ul> <p>Operational phase of 40 years.</p>	<p><b>Operational Phase</b></p> <p>The presence of the infrastructure and associated minimum spacing, over the lifetime of the Project</p>
Reduction in available seabed due to the presence of infrastructure	x	✓	x	<p><b>Operational and Maintenance Phase</b></p> <p>See 'Potential for snagging of gear' impact.</p>	<p><b>Operational Phase</b></p> <p>The presence of the infrastructure and associated minimum spacing, over the lifetime of the Project</p>

1. C = Construction, O = Operation, D = Decommissioning

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### 12.8.2 Measures included in the Project

As part of the project design process, a number of measures have been proposed to reduce the potential for impacts on commercial fisheries (see Table 12-7). As there is a commitment to implementing these measures, they are considered inherently part of the design of the Project and have therefore been considered in the assessment presented in section 12.10 below (i.e. the determination of magnitude assumes implementation of these measures). These measures are considered standard industry practice for this type of development.

**Table 12-7: Measures included in the Project.**

Measures included in the Project	Justification
Notification of construction, maintenance and decommissioning activities, including the nature, timing and location of activities, with details of any associated safety zones and advisory clearance distances, via Notices to Mariners.	To ensure sufficient notice is provided for gear removal and avoidance of Project activities and to ensure navigational safety.
Ongoing liaison with all fishing fleets (including regular Notice to Mariners).	To ensure appropriate and proactive communication.
Appropriate marine coordination to ensure risks associated with construction, maintenance and decommissioning vessels are minimised.	To ensure navigational safety.
Use of guard vessels, where appropriate.	To monitor third party vessel traffic and intervene with warnings as necessary. To patrol the offshore wind farm area and offshore cable corridor, monitor the effectiveness of control measures and advise any passing vessels of the works being conducted.
Implementation of Aids to Navigation (marking and lighting) (including temporary Aids to Navigation on any partially constructed turbines) see volume 2A, appendix 5-8: Lighting and Marking Plan.	To ensure navigational safety.
The Applicant will seek to maintain Marine Safety Zones of 500 m in radius around individual structures undergoing installation or decommissioning. Advisory Marine Safety Zones of 500 m will be implemented for incomplete structures at which construction activity may be temporarily paused. During the operational and maintenance phase, the Applicant will also seek to maintain Marine Safety Zones of 500 m in radius around infrastructure undergoing major maintenance (for example a blade replacement). The Applicant will implement an advisory clearance distance of 500 m in radius around cable installation vessels and cable repair vessels.	In the interests of safety to commercial fisheries receptors and in accordance with international best practice (Step Change in Safety (2017) and the obligation for the prevention of collisions at sea.
Volume 2A, appendix 5-6: Fisheries Management and Mitigation Strategy will be implemented in consultation with local fishing interests (and other interests as appropriate). The FMMS is prepared in accordance with available good practice guidance and with relevant policy set out in the NMPF (DHLGH, 2021). Current best practice guidance with regard to fisheries liaison management and mitigation in respect of offshore wind farm projects is represented by the Seafood/ORE Engagement in Ireland (DHLGH, 2023) and the UK Fishing Liaison with Offshore Wind and Wet Renewables (FLOWW) Group (FLOWW, 2014; 2015). The FMMS includes:	The FMMS stems from industry best practice and sets out the Project's approach to fisheries liaison and mitigation, including an outline of the measures proposed to be implemented to facilitate co-existence with commercial fishing and to minimise potential impacts. The FMMS also sets out: <ul style="list-style-type: none"> <li>• Relevant commitments made within the EIAR in relation to fisheries liaison;</li> <li>• The roles and responsibilities and lines of communication to ensure early and ongoing liaison between the Applicant and the fishing industry in an effective manner;</li> <li>• The process for effective information exchange, including timeframes for distribution of project information; and</li> </ul>

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Measures included in the Project	Justification
<ul style="list-style-type: none"> <li>Details of roles and responsibilities, including Applicant responsibilities and details of the roles of the Fisheries Liaison Officer, and Fisheries Industry Representative;</li> <li>Details of protocols for communication and information transfer; and</li> <li>Measures to encourage co-existence and management measures, including those outlined above.</li> </ul>	<ul style="list-style-type: none"> <li>Co-existence and management measures. The Project will also seek to utilise local fishing vessels where possible on the Project (such as for Guard Boat provision), and this will be undertaken through the development of the FMMS.</li> <li>The Applicant will implement recommendations set out in best practice guidance and future guidance that may be published.</li> </ul>

### 12.8.3 Impacts scoped out of the assessment

On the basis of the baseline environment and the project description outlined in volume 2A, chapter 5: Project Description, a number of impacts have been scoped out of this assessment. These impacts are outlined, together with a justification for scoping them out, in Table 12-8.

**Table 12-8: Impacts scoped out of the assessment for commercial fisheries.**

Potential impact	Justification
Potential for snagging of gear	Construction and decommissioning phase effects have been scoped out due to the presence of safety zones and advisory clearance distances around all infrastructure undergoing construction/ decommissioning and/or associated vessels/equipment. Notices to Mariners will be issued to advise commercial fisheries receptors of the nature, location and timing of construction and decommissioning activities.
Additional steaming time to alternative fishing grounds	The impact of the presence of infrastructure within the offshore wind farm area on steaming times for vessels in the vicinity of the Project has been scoped out of the assessment. Vessels transiting on an approximately north/south course (i.e. to and from Drogheda and Greenore Port) will be required to adjust their passage plan to pass either to the west or east of the offshore wind farm area during the construction and decommissioning phases (i.e. when safety zones and advisory clearance distances are in place). This represents a maximum deviation of 1.1 nm eastwards and 0.4 nm westwards, equating to a 6% (five minutes at 12 knots) and 2% (under two minutes at 12 knots) increase respectively (see appendix 13-1: Navigation Risk Assessment). This is considered unlikely to have a significant effect on commercial fisheries receptors. During the operational phase of the Project no long-term restrictions on navigation will be in place.
Displacement or disruption of commercially important fish species	Chapter 9: Fish and Shellfish Ecology has determined that there will be no significant effects from displacement on fish and shellfish receptors as a result of construction, operation and decommissioning of the Project and as such no significant displacement or disruption to commercially important fish species is anticipated.
EMF from subsea electrical cabling	Chapter 9: Fish and Shellfish Ecology has determined that there will be no significant effects of EMF on fish and shellfish receptors as a result of construction, operation and decommissioning of the Project and as such no significant displacement or disruption to commercially important fish species is anticipated.

## 12.9 Impact assessment methodology

### 12.9.1 Overview

The assessment on commercial fisheries has followed the methodology set out in volume 2A, chapter 3: Environmental Impact Assessment Methodology. In Ireland specific guidance related to commercial fisheries impact assessments is not currently available in relation to offshore wind and other marine developments. Therefore, a number of documents from the UK have been utilised in the absence of specific Irish guidance. Specific to the commercial fisheries assessment, the following guidance documents have been considered:

- Good Practice Guidance for assessing fisheries displacement by other licensed marine activities: Literature Review (Xodus Group, 2022);

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- Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022);
- Advice notes for preparing Environmental Impact Statements (draft) (EPA, 2015);
- Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects Parts 1 and 2 (DCCAE, 2018);
- Guidance on EIS and NIS Preparation for Offshore Renewable Energy Projects (Barnes, 2017);
- Seafood/ORE Engagement in Ireland (DHLGH, 2023);
- The Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (FLOWW, 2014);
- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (FLOWW, 2015);
- Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010); and
- Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (UKFEN, 2013).

In addition, this chapter of the EIAR has considered the legislative framework as defined by:

- EU Common Fisheries Policy (Regulation (EU) No 1380/2013); and
- The UK Blue Book (MMO, 2019).

### 12.9.2 Impact assessment criteria

Determining the significance of effects involves defining the magnitude of the impacts and the sensitivity of the receptors. This section describes the criteria applied in this chapter to assign values to the magnitude of potential impacts and the sensitivity of the receptors. The terms used to define magnitude and sensitivity are based on those which are described in further detail in volume 2A, chapter 3: Environmental Impact Assessment Methodology and based upon the EPA: Guidelines on the information to be contained in Environmental Impact Assessment Reports (EPA, 2022).

The criteria for defining impact magnitude in this chapter are outlined in Table 12-9 below.

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**Table 12-9: Definition of terms relating to the magnitude of an impact.**

Magnitude of impact	Definition
High	Impact is of long-term duration (e.g. greater than 10 years duration) and/or is of extended physical extent; and: substantial loss of target fish or shellfish biological resource (e.g. loss of substantial proportion of resource within project area); and/or substantial loss of ability to carry on fishing activities (e.g. substantial proportion of effort within project area) (Adverse)  Large scale or major improvement of resource quality, measurable against biomass reference points; and/or extensive restoration or enhancement of habitats supporting commercial fisheries resources (Beneficial)
Medium	Impact is of medium-term duration (e.g. less than 10 years) and/or is of moderate physical extent; and: partial loss of target fish or shellfish biological resource (e.g. moderate loss of resource within project area); and/or partial loss of ability to carry on fishing activities (e.g. moderate reduction of fishing effort within project area) (Adverse)  Moderate improvement of resource quality; and/or Moderate restoration or enhancement of habitats supporting commercial fisheries resources (Beneficial)
Low	Impact is of short-term duration (e.g. less than five years) and/or is of limited physical extent; and: minor loss of target fish or shellfish biological resource (e.g. minor loss of resource within Project area); and/or minor loss of ability to carry on fishing activities (e.g. minor reduction of fishing effort within project area) (Adverse)  Minor benefit to or minor improvement of resource quality; and/or minor restoration or enhancement of habitats supporting commercial fisheries resources (Beneficial)
Negligible	Impact is of very short-term duration (e.g., less than two years) and/or physical extent of impact is negligible; and: slight loss of target fish or shellfish biological resource (e.g., slight loss of resource within project area); and/or slight loss of ability to carry on fishing activities (e.g., slight loss of fishing effort within project area) (Adverse)  Very minor benefit to or very minor improvement of resource quality; and/or very minor restoration or enhancement of habitats supporting commercial fisheries resources. (Beneficial)

The criteria for defining receptor sensitivity in this chapter are outlined in Table 12-10 below.

**Table 12-10: Definition of terms relating to the sensitivity of the receptor.**

Sensitivity	Definition
High	Receptor is generally vulnerable to impacts that may arise from the project and recoverability is slow and/or costly and/or: Low levels of alternative fishing grounds are available and/or fishing fleet has a limited operational range.
Medium	Receptor is somewhat vulnerable to impacts that may arise from the project and has moderate levels of recoverability and/or: Moderate levels of alternative fishing grounds are available and/or fishing fleet has moderate operational range.
Low	Receptor is not generally vulnerable to impacts that may arise from the project and/or has high recoverability and/or: High levels of alternative fishing grounds are available and/or fishing fleet has large to extensive operational range; fishing fleet is adaptive and resilient to change.
Negligible	Receptor is not vulnerable to impacts that may arise from the project and/or has high recoverability and/or: Extensive alternative fishing grounds available and/or fishing fleet is highly adaptive and resilient to change.

The significance of the effect upon commercial fisheries is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The particular method employed for this assessment is presented in Table 12-11. Where a range of significance of effect is presented in Table 12-11, the final assessment for each effect is based on calculated assessment and professional judgement.

For the purposes of this assessment, any effects with a significance level of slight or less have been concluded to be not significant in terms of the EIA Regulations.



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**Table 12-11: Matrix used for the assessment of the significance of the effect.**

		Magnitude of impact			
		Negligible	Low	Medium	High
Sensitivity of receptor	Negligible	Imperceptible	Imperceptible or slight	Imperceptible or slight	Slight
	Low	Imperceptible or slight	Imperceptible or slight	Slight	Slight or moderate
	Medium	Imperceptible or slight	Slight	Moderate	Moderate or major
	High	Slight	Slight or moderate	Moderate or major	Major or Profound

### 12.10 Assessment of significance

The potential impacts arising from the construction, operational and maintenance and decommissioning phases of the Project are listed in Table 12-6, along with the project design parameters against which each impact has been assessed. A description of the potential effect on commercial fisheries receptors caused by each identified impact is given below.

A description of the potential effect on Commercial Fisheries caused by each identified impact is given below.

#### 12.10.1 Displacement of fishing activity

##### Construction phase

##### Magnitude of impact

The installation of Project infrastructure within the offshore wind farm area and offshore cable corridor may displace commercial fishing vessels from the footprint of the development and from any areas subject to temporary safety zones and advisory clearance distances.

The project design is for 25 wind turbines and one OSS on monopile foundations, with a minimum spacing of 944 m, 41 km of inter-array cables and 16 km of offshore cable, with associated safety zones and/or advisory clearance distances, over a period of 15 months. There will be a maximum of 475 vessel round trips comprised of jack-up barge/DP vessels, tug/anchor handlers, cable installation vessels, guard vessels, survey vessels, crew transfer vessels, and scour/cable protection vessels, during the installation phase (Table 12-6).

The spatial extent of the Project is small in the context of the available commercial fishing areas in the western Irish Sea. Subsequently, the spatial extent of the impact will be relatively small, with the potential for localised displacement of commercial fishing vessels from the individual 500 m Marine Safety Zones around structures and/or advisory clearance distances around vessels. For context, the offshore wind farm area (27.7 km<sup>2</sup>) equates to approximately 3.2% of the Commercial Fisheries Study Area (858 km<sup>2</sup>). The offshore cable corridor (25.3 km<sup>2</sup>) equates to approximately 2.9% of the Commercial Fisheries Study Area. Displacement from other vessels using static gear may occur, however, this will only be short term whilst the Marine Safety Zones are in place.

Within the offshore wind farm area, safety zones and advisory clearance distances will be in place for the duration of the 15-month construction period, although these will be transient as each structure or section of inter-array cable completes the installation process. The offshore cable is expected to be installed over a period of approximately three months within the overall 15-month construction period (Table 12-6). Once a section of the offshore cable has been installed, no further temporary advisory clearance distances will be in place.

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The impact is predicted to be of limited spatial extent, short term duration, intermittent and low (offshore wind farm area)/high (offshore cable corridor) reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be low.

### Sensitivity of the receptor

Inshore and offshore traditional fishing grounds in the vicinity of the offshore wind farm area and offshore cable corridor are targeted by the same gear types (see section 12.7). The inshore traditional fishing grounds that the offshore wind farm area and offshore cable corridor overlap with include the Dundalk Bay bivalve production area, trammel net, scallop dredging and shrimp potting grounds. The Irish Sea Prawn Grounds are largely located beyond the Commercial Fisheries Study Area, covering most of the northwest Irish Sea. Fishing effort by mobile seine, mobile other (pelagic trawls and nets), passive (traps, pots, creel and nets) and bottom gear types (bottom trawls and dredgers) predominantly takes place to the south and east of the offshore wind farm area boundary. These traditional fishing grounds are indicative - and as such vessels may fish outside of these areas - but do provide an indication of areas traditionally targeted by fishermen and where fishing effort is likely to be highest.

Rol fishing vessels operating in the vicinity of the Project use gears such as dredgers, bottom trawlers, pots and pelagic trawls. Northern Ireland vessels operating in the vicinity of the Project use gears such as pots and bottom trawls. These gear types are likely to be displaced from areas within the offshore wind farm area and offshore cable corridor into alternative inshore and offshore traditional fishing grounds during the construction phase. These alternative fishing grounds may include areas currently targeted by other Rol and NI vessels. However, displacement during the construction phase is only expected to occur within the temporary Marine Safety Zones and therefore is expected to be temporary in nature. ROI and Northern Ireland mobile fishing vessels are considered to be of low vulnerability and able to recover once the Marine Safety Zones have ceased.

Fishing fleets using static gear (i.e. pots) are considered to be of high vulnerability to the displacement of other fishing vessel gear types, when compared to more mobile forms of fishing, since gear is left unattended on the seabed, leading to the potential for damage from other gear types. Pots are however often laid within rocky outcrops in areas avoided by more mobile demersal gear types, such as dredgers and bottom trawls, thereby avoiding conflict between gear types, although they may still target areas that consist mostly of sediment if a vessel with bottom gears does not regularly target them. Displacement from other vessels using static gear may occur, however, this will only be short term whilst the Marine Safety Zones are in place. Furthermore, Figure 1-3 in appendix 12-1: Commercial Fisheries Technical Report demonstrates that there are suitable alternative fishing grounds available within ICES 36E3 and in the wider area.

Costs associated with increased steaming distances due to displacement have been scoped out on the basis that this impact is unlikely to have a significant effect on commercial fisheries receptors (Table 12-8). Once construction is complete, vessels will be able to return to their fishing grounds.

Overall, the Rol fishing fleet constitutes 90.6% of the average landed weight within ICES 36E3, with the Northern Ireland fleet constituting 9.4%. Rol pot vessels constitute a very small proportion of the annual average landing value within ICES 36E3 (2.0%) when compared to the mobile vessels annual average landing value (98.0%) (Table 12-5). Northern Ireland pot vessels constitute a small proportion of the annual average landing value within ICES 36E3 (24.2%) when compared to mobile vessels annual average landing value (75.8%) (Table 12-5).

Notices to Mariners will be promulgated regularly during the construction phase, advising of the location, nature and timing of activities ensuring that commercial fisheries activities can be planned accordingly. A Fisheries Management and Mitigation Strategy (FMMS) will be implemented in consultation with both the Rol and Northern Ireland fishing fleets, in advance of the construction phase, to maximise the opportunity for co-existence. Additionally, appropriate marine coordination and liaison with commercial fisheries stakeholders will be carried out to ensure potential impacts associated with the construction phase are minimised.

Rol pot fishing vessels are deemed to be of high vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

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Rol mobile fishing vessels, such as dredgers, bottom trawls and pelagic trawls, are deemed to be of low vulnerability, high recoverability, and high value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland pot fishing vessels are deemed to be of high vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland mobile fishing vessels, such as dredgers and bottom trawls, are deemed to be of low vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be low.

### Significance of the effect

Rol pot fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Rol mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland pot fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **imperceptible adverse significance**, which is not significant in EIA terms.

Northern Ireland mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **imperceptible adverse significance**, which is not significant in EIA terms. It should be noted that for each of the above vessel fleets there is the potential for impacts to occur to individual vessels within the wider fleet. As a result, the effect is considered to be **slight** rather than imperceptible. However, it should be noted that the significance of the effect remains not significant in EIA terms.

## Operational and maintenance phase

### Magnitude of impact

The presence of infrastructure and/or operational and maintenance activities being undertaken within the offshore wind farm area and offshore cable corridor may displace commercial fishing vessels from the footprint of the development (e.g. physical structures), resulting in a small loss of fishing area, and from any areas subject to temporary safety zones and advisory clearance distances (e.g. 500 m Marine Safety Zones), resulting in a temporary loss of access to a fishing area. The project design parameters are represented by the presence of 25 wind turbines and one OSS installed on monopile foundations, with a minimum spacing of 944 m, and presence of associated scour and cable protection. There will be a maximum of 352 vessel round trips per year during the operational and maintenance phase, associated with routine inspections and seabed surveys, and any repairs or replacements required. The Project includes for two major component replacement activities per year (plus one additional major component replacement activity over the lifetime of the Project), 14 inter-array cable repair and reburial events and six offshore cable repair or reburial events over the lifetime of the Project, with associated safety zones and/or advisory clearance distances.

As described above for the construction phase, inshore and offshore traditional fishing grounds in the vicinity of the offshore wind farm area and offshore cable corridor are targeted by the same gear types (see section 12.7). Inshore fishing grounds overlapping with the offshore wind farm area and offshore cable corridor include the Dundalk Bay bivalve production area and trammel net, scallop dredging and shrimp potting grounds. Offshore fishing grounds include fishing effort by mobile seine, mobile other (pelagic trawls and nets), passive (traps, pots, creel and nets) and bottom gear types (bottom trawls and dredgers), predominantly to the south and east of the offshore wind farm area boundary.

The spatial extent of the Project is small in the context of the available commercial fishing areas in the western Irish Sea. Subsequently, the spatial extent of the impact is limited in the context of the available

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inshore and offshore traditional fishing grounds in the western Irish Sea, with the potential for localised displacement of commercial fishing vessels around installed structures or around any individual 500 m Marine Safety Zones and/or advisory clearance distances temporarily established around operational and maintenance activities. For context, the offshore wind farm area (27.7 km<sup>2</sup>) equates to approximately 3.2% of the Commercial Fisheries Study Area (i.e. 858 km<sup>2</sup>) and the offshore cable corridor (25.3 km<sup>2</sup>) equates to approximately 2.9% of the Commercial Fisheries Study Area. Furthermore, the implementation of the FMMS will encourage coexistence between the Project and commercial fisheries. The Project is expected to be operational for 40 years.

The impact is predicted to be of local spatial extent, long term duration, continuous (offshore wind farm area)/intermittent (offshore cable corridor) and low (offshore wind farm area)/high (offshore cable corridor) reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore considered to be low.

### Sensitivity of the receptor

As described above for the construction phase, RoI and Northern Ireland fishing vessels using both pots and mobile gear types are likely to be directly displaced into alternative available inshore and/or offshore fishing grounds, which may include areas currently targeted by other vessels, with static fishing gear (i.e. pots) considered to be of high vulnerability to the displacement of other fishing vessel gear types.

Overall, the RoI fishing fleet constitutes 90.6% of the average landed weight within ICES 36E3, with the Northern Ireland fleet constituting 9.4%. RoI pot vessels constitute a very small proportion of the annual average landing value within ICES 36E3 (2.0%) when compared to the mobile vessels annual average landing value (98.0%) (Table 12-5). Northern Ireland pot vessels also constitute a small proportion of the annual average landing value within ICES 36E3 (24.2%) when compared to mobile vessels annual average landing value (75.8%) (Table 12-5).

Notices to Mariners will be promulgated regularly during the operational phase, advising of the location, nature and timing of activities ensuring that commercial fisheries activities can be planned accordingly. A FMMS will be implemented in consultation with both the RoI and Northern Ireland fishing fleets and implemented to maximise the opportunity for co-existence throughout all phases of the Project, including the operational and maintenance phase. Additionally, appropriate marine coordination and liaison with commercial fisheries stakeholders will be carried out to ensure potential impacts associated with the operational phase are minimised.

RoI pot fishing vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

RoI mobile fishing vessels, such as dredgers, bottom trawls and pelagic trawls, are deemed to be of low vulnerability, high recoverability, and high value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland pot fishing vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland mobile fishing vessels, such as dredgers and bottom trawls, are deemed to be of low vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be low.

### Significance of the effect

RoI pot fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **imperceptible adverse significance**, which is not significant in EIA terms.

RoI mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

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Northern Ireland pot fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

It should be noted that for each of the above vessel fleets there is the potential for impacts to occur to individual vessels within the wider fleet. As a result, the effect is considered to be **slight** rather than imperceptible. However, it should be noted that the significance of the effect remains **not significant** in EIA terms.

### Decommissioning phase

The effects of decommissioning activities are expected to be the same or similar to the effects from construction. The significance of effect is therefore considered to be of **imperceptible adverse significance** (RoI pot fishing vessels), **slight adverse significance** (RoI mobile fishing vessels) and **imperceptible adverse significance** (Northern Ireland pot and mobile vessels), which is not significant in EIA terms.

## 12.10.2 Potential changes to fishing activity due to presence of infrastructure

### Operational and maintenance phase

#### Magnitude of impact

The presence of Project infrastructure and/or operational and maintenance activities within the offshore wind farm area and offshore cable corridor may result in a change to commercial fisheries activity (i.e. a change in the way fishing activity is undertaken or gear types used). The project design parameters are as described for the previous impact, namely: the presence of 25 wind turbines and one OSS installed on monopile foundations, minimum spacing of 944 m, presence of associated scour and cable protection; and a maximum of 352 vessel round trips per year associated with activities such as major component replacement and cable repair or reburial events, with associated safety zones and/or advisory clearance distances.

As described above, the Project overlaps with inshore and offshore traditional fishing grounds. The spatial extent of the impact is small in the context of the available inshore and offshore traditional fishing grounds in the western Irish Sea, and unlikely to result in a change to the fishing activity/gear type used around installed structures or around any individual 500 m Marine Safety Zones and/or advisory clearance distances temporarily established around operational and maintenance activities. For context, the offshore wind farm area (27.7 km<sup>2</sup>) equates to approximately 3.2% of the Commercial Fisheries Study Area (i.e. 858 km<sup>2</sup>). The Project is expected to be operational for 40 years.

The impact is predicted to be of local spatial extent, long term duration, continuous (offshore wind farm area)/intermittent (offshore cable corridor) and low (offshore wind farm area)/high (offshore cable corridor) reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be low.

#### Sensitivity of the receptor

Due to the nature and operation of RoI and Northern Ireland mobile gear types, it is likely that vessels will continue fishing where possible within the offshore wind farm area and offshore cable corridor however it is likely that they will avoid fishing within close proximity to infrastructure to prevent gear snagging. The distance between wind turbines is a minimum of 944 m, providing sufficient room for mobile vessels to continue fishing in between the wind turbines. Therefore, there is unlikely to be a change to fishing activity from the baseline activity. The operation and maintenance of the Project is unlikely to result in a change to the fishing grounds, due to the physical presence of structures, and therefore unlikely to result in changes to fishing activity. RoI and Northern Ireland pot vessels are likely to continue fishing within the offshore wind farm area and offshore cable corridor. This is based on evidence from Scotland, which has experienced successful examples of co-locating specific types of inshore fisheries (especially static gears) and offshore wind farms (Kafas *et al.*, 2017).

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Notices to Mariners will be promulgated regularly during the operational phase, advising of the location, nature and timing of activities ensuring that commercial fisheries activities can be planned accordingly. As part of the development of the FMMS, detailed fisheries liaison and co-existence measures will be prepared and implemented prior to construction to maximise the opportunity for co-existence. Additionally, appropriate marine coordination and liaison with commercial fisheries stakeholders will be carried out to ensure potential impacts associated with the operational phase are minimised.

Rol pot vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Rol mobile fishing vessels are deemed to be of low vulnerability, high recoverability, and high value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland pot vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland mobile fishing vessels are deemed to be of low vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be low.

### Significance of the effect

Rol pot fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Rol mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland pot fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

It should be noted that for each of the above vessel fleets there is the potential for impacts to occur to individual vessels within the wider fleet. As a result, the effect is considered to be **slight** rather than imperceptible. However, it should be noted that the significance of the effect remains not significant in EIA terms.

### 12.10.3 Potential for snagging of gear

The inter-array cables, offshore cable and associated cable protection, together with the wind turbine foundations and associated scour protection, represent potential snagging points for fishing gear and could lead to damage to, or loss of, fishing gear. The safety aspects of snagging risk are assessed within appendix 13-1: Navigation Risk Assessment.

## Operational and maintenance phase

### Magnitude of impact

The presence of infrastructure within the offshore wind farm area and offshore cable corridor may lead to the potential for snagging of commercial fisheries gear. The project design parameters are represented by the presence of 25 wind turbines and one OSS installed on monopile foundations, with associated scour protection, and 41 km of inter-array cables and 16 km of offshore cable with associated cable protection along 50% of the routes. Cables and cable protection represent the greatest potential for snagging of gear.

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As described above for the previous impacts, the Project overlaps with inshore and offshore traditional fishing grounds which are fished using a variety of gear types, including those vulnerable to snagging, such as pelagic and bottom trawlers and dredgers. Research has shown that the probability of snagging occurring is low. This is due to design considerations in the trawl equipment to pass clear of underwater obstructions. More than 90% of crossings of fishing gear over cables result in no cable damage (cited in International Cable Protection Committee, 2009, see appendix 13-1: Navigation Risk Assessment).

Project infrastructure (including cables) will be marked on navigation charts, through promulgation of information to UK Hydrographic Office (UKHO) and the Kingfisher Information Services - Cable Awareness (KIS-ORCA). Additionally, appropriate marine coordination and liaison with commercial fisheries stakeholders will be carried out to ensure risks associated with the operational phase are minimised. Cables will be buried in the seabed where possible to a minimum burial depth of 0.5 m, with cable protection deployed where burial in the seabed is not possible.

The spatial extent of the impact is small in the context of the available inshore and offshore traditional fishing grounds in the western Irish Sea. The offshore wind farm area (27.7 km<sup>2</sup>) equates to approximately 3.2% of the Commercial Fisheries Study Area (i.e. 858 km<sup>2</sup>) and the offshore cable corridor (25.3 km<sup>2</sup>) equates to approximately 2.9% of the Commercial Fisheries Study Area. The Project is expected to be operational for 40 years.

The impact is predicted to be of local spatial extent, long term duration, low probability, continuous, and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be low.

### Sensitivity of the receptor

Three phases of interaction between gear and Project infrastructure are possible: initial impact of gear and subsea infrastructure; pullover of gear across subsea infrastructure; and snagging or hooking of gear on subsea infrastructure. The snagging or hooking of fishing gear with infrastructure/cables on the seabed is the most hazardous to the vessel and crew due to the possibility of capsizing.

Rol and Northern Ireland bottom trawl gear types and Rol dredges either directly penetrate the seabed with near continuous contact or float in close proximity to the seabed. These gear types constitute the highest landed value for both the Rol and Northern Ireland fishing fleets within ICES 36E3 (Table 12-5).

Further damage may occur if recovery of the gear is attempted. Rol pelagic trawls are likely to be able to control where the trawl is placed within the water column and therefore can avoid infrastructure close to the seabed. However, gear may be swept into nearby infrastructure by tidal currents, and recovery will likely result in the loss of fishing gear or further damage to the fishing vessel. Pelagic trawl gear types only constitute a small proportion of landed value within ICES 36E3 and are more likely to operate in offshore fishing grounds where herring shoals are present. Rol and Northern Ireland pot vessels are likely to have low vulnerability to snagging as the gear is placed, not towed and is less likely to penetrate the seabed. Pots are relatively low cost and easy to replace when compared to other gear types in ICES 36E3.

In the instance that snagging does occur, the protocols laid out in the FMMS would be utilised to address any potential snagging issues. Fisheries liaison and coexistence measures will be based upon the protocols laid out within the guidance Seafood/ORE Engagement in Ireland (DHLGH, 2023) and guidance prepared by the FLOWW group and 'Recommendations for Fisheries Liaison: Best Practice' guidance for offshore renewable developers, in particular section 9: Dealing with claims for loss or damage of gear (BERR, 2008; FLOWW, 2014; FLOWW, 2015) or any future equivalent guidance developed in Ireland.

Rol potting vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Rol mobile trawling vessels are deemed to be of high vulnerability, low recoverability, and high value. The sensitivity of the receptor is therefore, considered to be high.

Rol pelagic trawls are deemed to be of medium vulnerability, low recoverability and low value. The sensitivity of the receptor is therefore, considered to be low.

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Northern Ireland potting vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland mobile fishing vessels are deemed to be of high vulnerability, low recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be high.

### Significance of the effect

RoI potting vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

RoI mobile (dredger and bottom trawl) fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be high. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

RoI pelagic trawl fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland potting vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be medium. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

It should be noted that for each of the above vessel fleets there is the potential for impacts to occur to individual vessels within the wider fleet. As a result, the effect is considered to be **slight** rather than imperceptible. However, it should be noted that the significance of the effect remains not significant in EIA terms.

## 12.10.4 Reduction in available seabed due to the presence of infrastructure

### Operational and maintenance phase

#### Magnitude of impact

The presence of infrastructure within the offshore wind farm area may lead to the reduction of available seabed for commercial fishing. The project design parameters are represented by the presence of 25 wind turbines and one OSS installed on monopile foundations with associated scour protection, and 41 km of inter-array cables and 16 km of offshore cable with associated cable protection along 50% of the routes.

The spatial extent of the impact is small in the context of the available traditional fishing grounds in the western Irish Sea. For context, it equates to 0.33 km<sup>2</sup> of reduction in available seabed due to the installation of monopile foundations and associated scour protection and cable protection associated with inter-array cables and offshore cable. This equates to approximately 0.04% of the Commercial Fisheries Study Area and the offshore cable corridor (883.3 km<sup>2</sup>). The Project is expected to be operational for 40 years. It should be noted that the actual reduction in available seabed is likely to be less than 0.33 km<sup>2</sup> as forms of scour protection (e.g. concrete cable protection mattresses) do permit fishing activities to continue over them. Furthermore, these structures are likely to be colonised by flora and fauna, thus supporting the commercial fisheries market (see chapter 8: Benthic Subtidal and Intertidal Ecology).

The impact is predicted to be of local spatial extent, long term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be low.



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### Sensitivity of the receptor

RoI mobile fishing vessels, such as dredgers and bottom trawl gear types, will be unable to use areas of seabed due to the presence of infrastructure and will likely use alternative fishing grounds. RoI pot fishing vessels have lower vulnerability to reduction in available seabed as the gear is placed on the seabed rather than actively towed. Potting vessels have a preference for rocky outcrops and may target areas with cable or scour protection (see appendix 12-1: Commercial Fisheries Technical Report). RoI fishing vessels using both pot and mobile gear types are anticipated to be able to use the extensive alternative available inshore and offshore fishing grounds.

Notices to Mariners will be promulgated regularly during the operational phase, advising of the location, nature and timing of activities ensuring that commercial fisheries activities can be planned accordingly. A FMMS will be implemented to maximise the opportunity for co-existence. Additionally, appropriate marine coordination and liaison with commercial fisheries stakeholders will be carried out to ensure potential impacts associated with the operational phase are minimised.

RoI potting vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

RoI mobile trawling vessels are deemed to be of low vulnerability, high recoverability, and high value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland potting vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland mobile fishing vessels are deemed to be of low vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be low.

### Significance of the effect

RoI potting vessels: overall, the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

RoI mobile fishing vessels: overall, the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland potting vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

It should be noted that for each of the above vessel fleets there is the potential for impacts to occur to individual vessels within the wider fleet. As a result, the effect is considered to be **slight** rather than imperceptible. However, it should be noted that the significance of the effect remains not significant in EIA terms.

### 12.10.5 Mitigation and residual effects

The assessment of impacts has concluded that there are no significant effects and therefore it is considered that no measures over those included in the Project (as outlined in section 12.8.2) are required.

### Residual effects

With the implementation of the measures included in the Project (section 12.8.2), the residual effects are as outlined in the assessment provided in section 12.10.

## ORIEL WIND FARM PROJECT – COMMERCIAL FISHERIES

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### 12.10.6 Future monitoring

No commercial fisheries monitoring to test the predictions made within the impact assessment is considered necessary. However, it is recognised that static gear fisheries can be particularly affected by offshore wind development, due to their strong fidelity to specific sites (Roach *et al.*, 2022). Therefore, on a precautionary basis, a study will be undertaken in collaboration with local fishers to monitor the static (pot) fisheries before and after construction of the Project.

## 12.11 Cumulative impact assessment

### 12.11.1 Methodology

The Cumulative Impact Assessment (CIA) takes into account the impact associated with the Project together with other projects. The projects selected as relevant to the CIA presented within this chapter are based upon the results of a screening exercise (see volume 2A, appendix 3-1: CIA Screening Annex). Each project has been considered on a case-by-case basis for screening in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

The approach to CIA examines the effects of the Project alongside the following projects if they fall within the Cumulative Commercial Fisheries Study Area:

- Other projects with consent but not yet constructed/construction not completed;
- Other projects in a consent application process but not yet determined (including planning applications, foreshore lease/licence applications, Dumping at Sea Permit applications;
- Other projects currently operational that were not operational when baseline data were collected, and/or those that are operational but have an ongoing impact; and
- Projects, which satisfy the definition of 'relevant maritime usage' under the Maritime Area Planning Act (2021) (i.e. wind farm projects designated as 'Relevant Projects' or 'Phase 1 Projects') including Bray Bank and Kish Bank; North Irish Sea Array, Codling Wind Park (I and II).

The specific projects scoped into this CIA are outlined in Table 12-12. Given the range of commercial fisheries stakeholders considered in this chapter, the scale of geographic coverage of their activities and the likely steaming distance, other offshore wind developments within 100 km of the offshore wind farm area and offshore cable corridor (Figure 12-1) were considered in order to ensure sufficient coverage of other offshore wind projects which may also affect fisheries affected by the Project.

## ORIEL WIND FARM PROJECT – COMMERCIAL FISHERIES

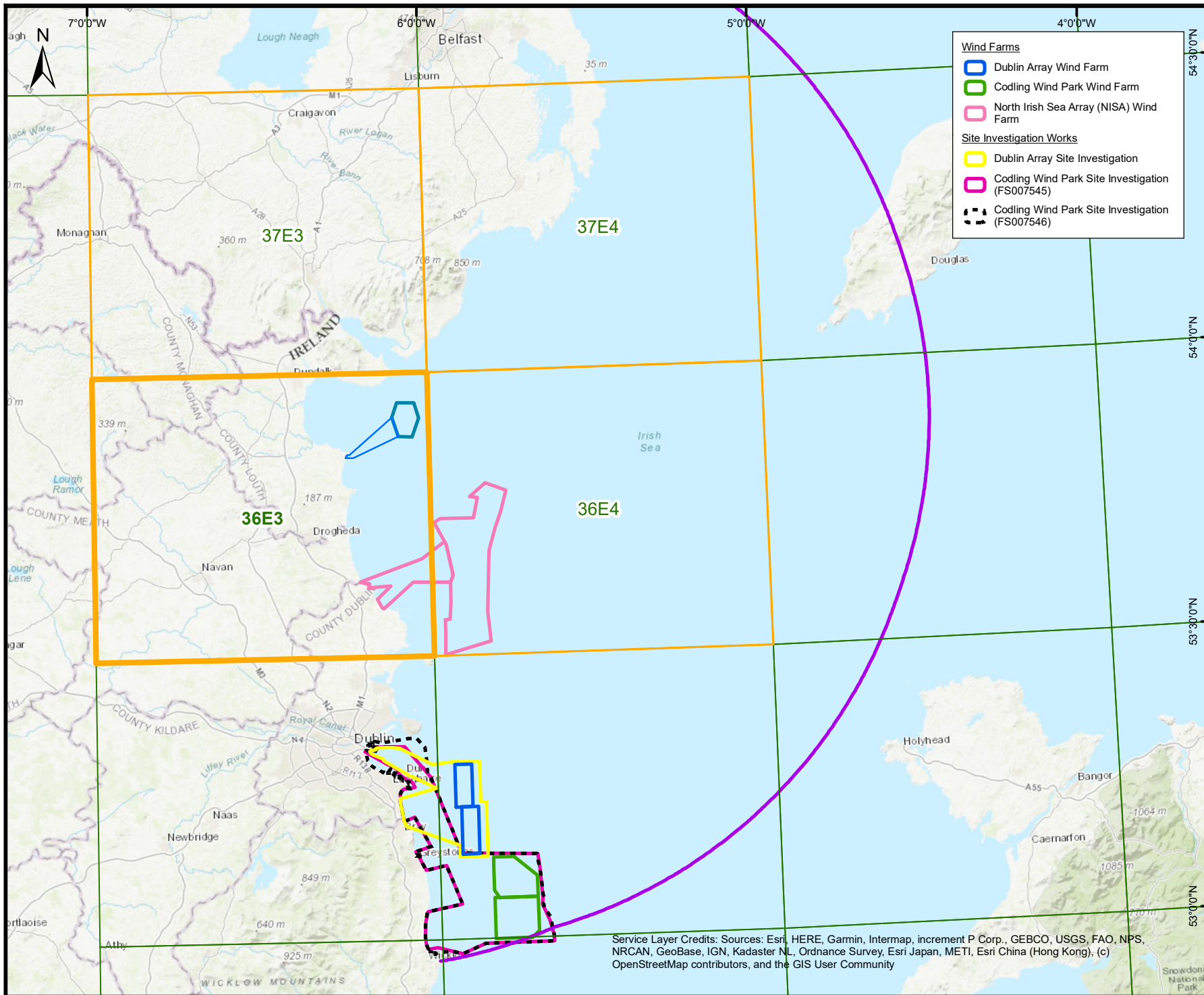
**Table 12-12: List of other projects considered within the CIA.**

Project/Plan	Status	Distance from offshore wind farm area (km)	Distance from offshore cable corridor (km)	Description of Project/Plan	Dates of construction (if applicable)	Dates of operation (if applicable)	Overlap with the Project
<b>Offshore Wind Farms</b>							
North Irish Sea Array (NISA)	Maritime Area Consent	16.2	18.1	EIA Scoping Report (2021) refers to the construction of an offshore wind farm of up to 500 MW, consisting of 36 turbines with a maximum height of 320 m and rotor diameter of up to 290 m. Offshore substation platforms may be required <sup>1</sup> .	Unknown	Unknown (Design life minimum 35 years)	Potential for construction and operation phases to overlap with the Project.
Dublin Array	Maritime Area Consent	61.2	57	EIA Scoping report (2020) refers to the construction of Bray and Kish offshore wind farm of up to 900 MW, consisting of up to 61 turbines with a max. height of 308 m and rotor diameter of up to 285 m and up to three offshore substation platforms <sup>2</sup> .	Unknown	Unknown (Design life minimum 35 years)	Potential for construction and operation phases to overlap with Project.
Codling Wind Park	Maritime Area Consent	61.4	57.2	EIA Scoping report (2020) refers to the construction of an offshore wind farm of up to 1500 MW, consisting of up to 140 turbines with a maximum height of 320 m and rotor diameter of up to 288 m. The project will also contain up to five offshore substation platforms <sup>3</sup> .	Unknown	Unknown (Design life minimum 35 years)	Potential for construction and operation phases to overlap with the Project.

<sup>1</sup> Project website <https://northirishseaarray.ie/>: states that wind farm will consist of 35 to 46 turbines.

<sup>2</sup> Project website: <https://dublinarray.com/project-information/key-facts/>: states between 39 and 50 turbines (total project capacity 824 MW) individual tip heights between approx. 270 m and 310 m.

<sup>3</sup> Project website: <https://codlingwindpark.ie/the-project/>: states max energy output 1300 MW, 100 turbines, turbine tip height max 320 m.



**Wind Farms**

- Dublin Array Wind Farm
- Codling Wind Park Wind Farm
- North Irish Sea Array (NISA) Wind Farm

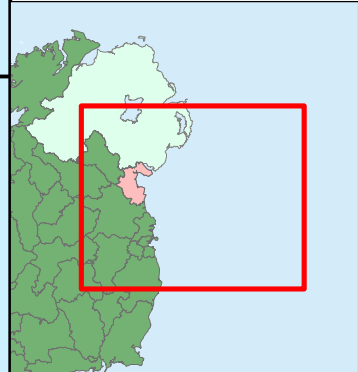
**Site Investigation Works**

- Dublin Array Site Investigation
- Codling Wind Park Site Investigation (FS007545)
- Codling Wind Park Site Investigation (FS007546)

**Legend**

- Offshore Wind Farm
- Offshore Cable Corridor
- Commercial Fisheries Study Area
- Regional Commercial Fisheries Study Area
- ICES Statistical Rectangle
- Cumulative Commercial Fisheries Study Area

Data Sources: ICES, www.housing.gov.ie



Client

ORIEL WINDFARM  
OFFSHORE RENEWABLE ENERGY

Project

**Oriel Wind Farm Project**

Title **Figure 12-2**  
**Other projects screened into the cumulative impact assessment**

**rps**  
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Issue Details	
Drawn By: NG	Project No. EOR0822 (MDR1520B)
Checked By: NG	File Ref:
Approved By: AOS	EO0822_COF_E_1701_FINAL
Scale: 1:1,000,000@A4	Projection: ITM (IRENET95)
Date: 12/03/2024	Geographic Co-ordinates: ETRS89

**NOTE:**

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## ORIEL WIND FARM PROJECT – COMMERCIAL FISHERIES

Table 12-13 presents the relevant project design parameters from Table 12-6 which are used to assess the potential cumulative impact of the Project with the other projects identified in Table 12-12 (where information is available).

A description of the significance of cumulative effects upon commercial fisheries receptors arising from each identified impact is given below. The CIA for commercial fisheries assesses cumulative effects for all fishing fleets considered within the impact assessment undertaken above. Only displacement of fishing activity has been taken forward for assessment at a cumulative level. Gear snagging, reductions in available seabed due to the presence of infrastructure and changes to fishing activity due to presence of infrastructure are not considered to be cumulative effects but are specific to the individual project.

**Table 12-13: Project design parameters considered for the assessment of potential cumulative impacts on commercial fisheries.**

Potential impact	Phase			Project design parameters	Justification
	C	O	D		
Displacement of fishing activity	✓	✓	✗	<p><b>Construction phase</b></p> <p>Project design parameters as described for the Project (see Table 12-6) assessed cumulatively with the following other projects:</p> <ul style="list-style-type: none"> <li>• Offshore Wind Farms: <ul style="list-style-type: none"> <li>– NISA Offshore Wind Farm;</li> <li>– Dublin Array; and</li> <li>– Codling Wind Park.</li> </ul> </li> </ul> <p><b>Operational and maintenance phase</b></p> <p>Project design parameter as described for the Project (see Table 12-6) assessed cumulatively with the following other projects:</p> <ul style="list-style-type: none"> <li>• Offshore Wind Farms: <ul style="list-style-type: none"> <li>– NISA Offshore Wind Farm;</li> <li>– Dublin Array; and</li> <li>– Codling Wind Park.</li> </ul> </li> </ul>	<p>Outcome of the CIA will be greatest when the activities of other projects occur within the same area creating the greatest area that will be restricted at any one time for any single receptor.</p> <p>For the purposes of this CIA, advisory clearance distances (500 m) have been assumed around the other projects' vessels.</p>

### 12.11.2 Assessment of Significance

A description of the significance of cumulative effects upon commercial fisheries receptors arising from each identified impact is given below.

#### Displacement of fishing activity

##### Construction phase

##### Magnitude of impact

The installation of infrastructure within the offshore wind farm area and offshore cable corridor, together with the projects and plans identified in Table 12-13, may displace commercial fisheries. Projects screened into the assessment within the Cumulative Commercial Fisheries Study Area include construction of the offshore wind farms NISA, Dublin Array and Codling Wind Park located to the south of the Project. Commercial fisheries displaced by the Project's installation activities within the offshore wind farm area and offshore cable corridor may also be displaced by construction activities.

The Project overlaps with inshore and offshore traditional fishing grounds. Inshore fishing grounds overlapping with the offshore wind farm area and offshore cable corridor include the Dundalk Bay production area, and trammel net, scallop dredging and shrimp potting grounds. Offshore fishing grounds include the extensive *Nephrops* fishing grounds (Irish Sea Prawn Grounds), and fishing effort by mobile seine, mobile other (pelagic trawls and nets), passive and bottom gear types, occurring to the south and east of the

## ORIEL WIND FARM PROJECT – COMMERCIAL FISHERIES

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offshore wind farm area boundary. The construction of other offshore wind farms overlap with the identified inshore and offshore traditional fishing grounds.

The NISA, Dublin Array and Codling Wind Park wind farms are in receipt of Maritime Area Consents. The dates of construction and operation are unknown, however the potential that construction activities for these projects may overlap with the construction of the Project cannot be excluded.

The NISA project is assumed to contribute to the cumulative displacement of fishing activity due to the number of vessels required to install 36 wind turbines, with Dublin Array expected to install 61 turbines and Codling Wind Park to install 140 turbines. Currently these projects have only published a scoping report (North Irish Sea Array Windfarm Ltd., 2021; Dublin Array Offshore Wind Farm Ltd., 2020; Codling Wind Park Ltd., 2020) which has limited information on the impact of displacement of fishing activity. Given the importance of this impact, these projects will undertake a comprehensive desk top study of all information available relating to their project's potential impacts on commercial fisheries as part of their EIARs. The scoping information, however, is not sufficient to undertake a detailed assessment. However, the contribution of NISA, Dublin Array and Codling Wind Park to displacement of fishing activity is likely to be similar to the Project or greater due to the increased number of wind turbines to be installed, representing a greater number of vessel movements, likely over a longer construction period.

Construction of the offshore wind farms is likely to represent the greatest cumulative displacement of fishing activity. Construction is expected to take up to three years for NISA and Codling Wind Farm, and two years for Dublin Array. The spatial extent of the impact will be relatively small in the context of the available commercial fishing areas in the western Irish sea, with the potential for localised displacement of commercial fisheries around Project installation activities and around the individual survey vessels. Within the offshore wind farm area, safety zones and advisory clearance distances will likely be in place, 500 m, for the duration of the offshore construction period of these wind farms, although these will be transient as each structure or section of inter-array/offshore cable completes the installation process.

The cumulative impact is predicted to be of local spatial extent, short term duration (less than five years), intermittent and of high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be low.

### Sensitivity of receptor

It is anticipated that RoI fishing vessels and Northern Ireland fishing vessels operating within ICES rectangle 36E3 (as described in section 12.7), will be displaced into other traditional fishing grounds by Project installation activities taking place in adjacent areas. As described in section 12.10, RoI and Northern Ireland fishing vessels using both pots and mobile gear types are anticipated to use the extensive alternative available inshore and/or offshore fishing grounds during the Project installation phase.

Overall, the RoI fishing fleet constitutes 83% of the average landed weight within ICES 36E3, with the Northern Ireland fleet constituting 13.8%. RoI pot vessels constitute a small proportion of the annual average landing value within ICES 36E3 (1.5%) when compared to the mobile vessels annual average landing value (98.5%). Northern Ireland pot vessels also constitute a small proportion of the annual average landing value within ICES 36E3 (4.5%) when compared to mobile vessels annual average landing value (95.5%).

Notices to Mariners will be promulgated regularly during the construction phase of the Project, advising of the location, nature and timing of activities ensuring that commercial fisheries activities can be planned accordingly. A FMMS will be implemented (see volume 2A, appendix 5-6: Fisheries Management and Mitigation Strategy) and appropriate marine coordination and liaison with commercial fisheries stakeholders will be carried out to ensure potential impacts associated with the construction phase of the Project are minimised.

RoI pot fishing vessels are deemed to be of high vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be medium.

RoI mobile fishing vessels, such as dredgers, bottom trawls and pelagic trawls, are deemed to be of low vulnerability, high recoverability, and high value. The sensitivity of the receptor is therefore, considered to be low.

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Northern Ireland pot fishing vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland mobile fishing vessels, such as dredgers and bottom trawls, are deemed to be of low vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be low.

### Significance of the effect

RoI pot fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be medium. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

RoI mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **imperceptible adverse significance**, which is not significant in EIA terms.

The Northern Ireland pot fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **imperceptible adverse significance**, which is not significant in EIA terms.

Northern Ireland mobile fishing vessels: the magnitude of the impact is deemed to be low and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **imperceptible adverse significance**, which is not significant in EIA terms.

## Operational and maintenance phase

### Magnitude of impact

The presence of infrastructure within the offshore wind farm area and offshore cable corridor, together with the projects identified in Table 12-13, may displace commercial fisheries.

The Project overlaps with inshore and offshore traditional fishing grounds. Inshore fishing grounds overlapping with the offshore wind farm area and offshore cable corridor include the Dundalk Bay production area, and trammel net, scallop dredging and shrimp potting grounds. Offshore fishing grounds include the extensive *Nephrops* fishing grounds (Irish Sea Prawn Grounds), and fishing effort by mobile seine, mobile other (pelagic trawls and nets), passive and bottom gear types, occurring to the south and east of the offshore wind farm area boundary. The construction of other offshore wind farms overlap with the identified inshore and offshore traditional fishing grounds.

The offshore operations of these projects are likely to overlap with the Project's operational phase and therefore there is potential for displacement of commercial fisheries.

The NISA project is assumed to contribute to the cumulative displacement of fishing activity due to the presence of 36 turbines and the number of vessels required to maintain these, with Dublin Array expected to comprise 61 turbines and associated vessel traffic and Codling Wind Park to comprise 140 turbines with associated vessel traffic. Currently these projects have only published a scoping report (North Irish Sea Array Windfarm Ltd., 2021; Dublin Array Offshore Wind Farm Ltd., 2020; Codling Wind Park Ltd., 2020) which has limited information on the impact of displacement of fishing activity. Given the importance of this impact, these projects will undertake a comprehensive desk top study of all information available relating to their project's potential impacts on commercial fisheries as part of its EIA. The scoping information, however, is not sufficient to undertake a detailed assessment. However, the contribution of NISA, Dublin Array and Codling Wind Park to displacement of fishing activity is likely to be similar to the Project or greater due to the increased number of wind turbines to be maintained, representing a greater number of vessel movements.

The lifetime of an offshore wind farm can be greater than or equal to 30 years, from the initial design work to the final decommissioning of a wind farm. The spatial extent of the impact will be relatively small in the context of the available commercial fishing areas in the western Irish Sea, with the potential for localised displacement of commercial fisheries around Project installation activities and around the individual survey vessels. Within the offshore wind farm area, safety zones and advisory clearance distances will likely be in

## ORIEL WIND FARM PROJECT – COMMERCIAL FISHERIES

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place for maintenance works, 500 m, for the duration of the offshore operational period of these wind farms, although these will be transient as each structure or section of inter-array/export cable completes the installation/maintenance process.

The impact is predicted to be of local spatial extent, long term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is therefore, considered to be medium.

### Sensitivity of receptor

It is anticipated that there may be some displacement of Rol and Northern Ireland fishing vessels into other traditional fishing grounds in the vicinity of both the Project and the Dublin Array project, once operational. As described in section 12.10, Rol and Northern Ireland fishing vessels using both pots and mobile gear types are anticipated to use the extensive alternative available inshore and/or offshore fishing grounds once the Project is operational and in some instances may continue to fish within the operational wind farm footprint.

Prior to the Project being fully operational, information regarding the location of all Project infrastructure will be provided to UKHO to enable navigation charts to be updated with the location of Project infrastructure. Further, the locations of cables will be disseminated via KIS-ORCA. Charts and notification of location of any scour and cable protection will be also provided via Notice to Mariners and KIS-ORCA. Notices to Mariners will also be provided prior to any maintenance or other marine activities during the operation of the Project, advising of the location, nature and timing of activities ensuring that commercial fisheries activities can be planned accordingly. A FMMS will be implemented (see volume 2A, appendix 5-6: Fisheries Management and Mitigation Strategy) and appropriate marine coordination and liaison with commercial fisheries stakeholders will be carried out to ensure potential impacts associated with the construction phase of the Project are minimised. These measures are also likely to be undertaken for other offshore wind projects.

Rol pot fishing vessels are deemed to be of high vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Rol mobile fishing vessels, such as dredgers, bottom trawls and pelagic trawls, are deemed to be of low vulnerability, high recoverability, and high value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland pot fishing vessels are deemed to be of low vulnerability, high recoverability, and low value. The sensitivity of the receptor is therefore, considered to be low.

Northern Ireland mobile fishing vessels, such as dredgers and bottom trawls, are deemed to be of low vulnerability, high recoverability, and medium value. The sensitivity of the receptor is therefore, considered to be low.

### Significance of the effect

Rol pot fishing vessels: the magnitude of the impact is deemed to be medium and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Rol mobile fishing vessels: the magnitude of the impact is deemed to be medium and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

The Northern Ireland pot fishing vessels: the magnitude of the impact is deemed to be medium and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.

Northern Ireland mobile fishing vessels: the magnitude of the impact is deemed to be medium and the sensitivity of the receptor is considered to be low. The effect will, therefore, be of **slight adverse significance**, which is not significant in EIA terms.



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It should be noted that for each of the above vessel fleets there is the potential for impacts to occur to individual vessels within the wider fleet. As a result, the effect is considered to be slight rather than imperceptible. However, it should be noted that the significance of the effect remains not significant in EIA terms.

### 12.12 Transboundary effects

This commercial fisheries assessment has considered the potential impacts on non-RoI registered vessels operating within RoI waters. This includes the potential effects on Northern Ireland commercial fishing vessels. The potential transboundary impacts are summarised below:

- Displacement of fishing activity.

These impacts were assessed in section 12.10. The significance of effect is considered to be imperceptible adverse significance, which is not significant in EIA terms.

Transboundary impacts are limited to potential displacement of fishing effort from the Project into the UK Exclusive Economic Zone (EEZ), namely the Northern Ireland EEZ. Based on the established fishing grounds targeted by the fleets under assessment, it is not anticipated that displacement effects into the Northern Ireland EEZ would be significant in EIA terms (see impact 'Displacement of fishing activity').

### 12.13 Interactions

A description of the likely interactions arising from the Project on commercial fisheries is provided in volume 2C, chapter 32: Interactions.

### 12.14 Conclusion and summary of impacts, mitigation measures and residual effects

Information on commercial fisheries within the Commercial Fisheries Study Area was collected through a detailed desktop review of existing datasets (Table 12-4) and through consultation as detailed in Table 12-3. No site-specific surveys were undertaken to inform the assessments.

Table 12-14 presents a summary of the potential impacts, mitigation measures and residual effects in respect to commercial fisheries. Table 12-15 provides a summary of the potential cumulative impacts, mitigation measures and residual effects.

Impacts assessed include:

- Displacement of fishing activity;
- Potential changes to fishing activity due to presence of infrastructure;
- Potential for snagging of gear; and
- Reduction in available seabed due to the presence of infrastructure.

Overall, it is concluded that there will be no significant effects arising from the Project during the construction, operational and maintenance or decommissioning phases.

The cumulative impacts assessed include displacement of fishing activity. Overall, it is concluded that there will be no significant cumulative effects from the Project alongside other projects/plans.

Potential transboundary impacts have been identified in relation to the potential for displacement of Northern Ireland fishing vessels and displacement of fishing effort into the UK EEZ. Overall, it is concluded that there will be no significant transboundary effects arising from the Project.

**ORIEL WIND FARM PROJECT – COMMERCIAL FISHERIES**

**Table 12-14: Summary of potential environment effects, mitigation and monitoring.**

Description of impact	Phase			Measures included in the Project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D							
Displacement of fishing activity	✓	✓	✓	Notices to Mariners, FMMS, marine coordination and liaison with commercial fisheries stakeholders	C: Low O: Low D: Low	C: Low O: Low D: Low	C: Imperceptible to slight adverse O: Imperceptible to slight adverse D: Imperceptible to slight adverse	N/A	C: Imperceptible to slight adverse O: Imperceptible to slight adverse D: Imperceptible to slight adverse	None
Potential changes to fishing activity due to presence of infrastructure	✗	✓	✗	Notices to Mariners, FMMS, marine coordination and liaison with commercial fisheries stakeholders	O: Low	O: Low	O: Slight adverse significance	N/A	O: Slight adverse	None
Potential for snagging of gear	✗	✓	✗	Marking of infrastructure on navigation charts, appropriate marine coordination and liaison with commercial fisheries stakeholders, burial of cables in the seabed where possible, cable protection deployed where burial in the seabed is not possible.	O: Low	O: Low to High	O: Slight adverse	N/A	O: Slight adverse	None
Reduction in available seabed due to the presence of infrastructure	✗	✓	✗	Notices to Mariners, FMMS, marine coordination and liaison with commercial fisheries stakeholders	O: Low	O: Low	O: Slight adverse	N/A	O: Slight adverse	None

1. C = Construction, O = Operation, D = Decommissioning

**Table 12-15: Summary of potential cumulative environment effects, mitigation and monitoring.**

Description of impact	Phase			Measures included in the Project	Magnitude of impact	Sensitivity of receptor	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D							
Displacement of fishing activity	✓	✓	✗	Notices to Mariners, FMMS, marine coordination and liaison with commercial fisheries stakeholders	C: Low O: Medium	C: Low to medium O: Low	C: Imperceptible to slight adverse significance O: Slight adverse significance	N/A	C: Imperceptible to slight adverse O: Slight adverse	None

## ORIEL WIND FARM PROJECT – COMMERCIAL FISHERIES

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