

A decorative graphic on the left side of the page features a vertical arrangement of white wind turbine icons. To the right of these icons is a rectangular photograph showing a worker in a yellow safety vest and white hard hat inside a wind turbine's nacelle. The background of the entire page is a teal color with abstract geometric shapes and white wavy lines representing water.

# Arklow Bank Wind Park 2

## Environmental Impact Assessment Report

Volume II, Chapter 14: Commercial Fisheries and Aquaculture

Version	Date	Status	Author	Reviewed by	Approved by
1.0	20/05/2024	Final (External)	NiMa	GoBe Consultants	Sure Partners Limited

## Statement of Authority

Name	Qualifications	Experience
Fiona Nimmo	<p>BSc (Hons) in Marine Biology (First Class Honours) from Newcastle University, 2003.</p> <p>BEng (Hons) in Chemical Engineering (2:1 Hons) from Edinburgh University, 2000.</p>	<p>Fiona has over 15 years experience in commercial fisheries EIAs, including renewable energy developments for offshore wind and tidal developments in waters off Scotland, England, Wales and Ireland. Fiona regularly develops post-consent fisheries liaison and mitigation plans, and commercial fisheries monitoring strategies as required by condition of consent.</p> <p>Fiona is currently providing consultant support to Fisheries Improvement Projects (FIP) for UK wide nephrops and scallop fisheries, including the Irish Sea. This work involves a collaborative approach working with industry associations and organisations, including regular quarterly meetings with the Steering Groups of industry, NGOs and fisheries administrators.</p>

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## Glossary

Term	Meaning
Arklow Bank Wind Park 1 (ABWP1)	Arklow Bank Wind Park 1 consists of seven wind turbines, offshore export cable and inter-array cables. Arklow Bank Wind Park 1 has a capacity of 25.2 MW. Arklow Bank Wind Park 1 was constructed in 2003/04 and is owned and operated by Arklow Energy Limited. It remains the first and only operational offshore wind farm in Ireland.
Arklow Bank Wind Park 2 – Offshore Infrastructure	“The Proposed Development”, Arklow Bank Wind Park 2 Offshore Infrastructure: This includes all elements under the existing Maritime Area Consent.
Arklow Bank Wind Park 2 (ABWP2) (the Project)	<p>Arklow Bank Wind Park 2 (ABWP2) (The Project) is the onshore and offshore infrastructure. This EIAR is being prepared for the Offshore Infrastructure. Consents for the Onshore Grid Infrastructure (Planning Reference 310090) and Operations Maintenance Facility (Planning Reference 211316) has been granted on 26<sup>th</sup> May 2022 and 20th July 2022, respectively.</p> <ul style="list-style-type: none"> <li>Arklow Bank Wind Park 2 Offshore Infrastructure: This includes all elements to be consented in accordance with the Maritime Area Consent. This is the subject of this EIAR and will be referred to as ‘the Proposed Development’ in the EIAR.</li> <li>Arklow Bank Wind Park 2 Onshore Grid Infrastructure: This relates to the onshore grid infrastructure for which planning permission has been granted.</li> <li>Arklow Bank Wind Park 2 Operations and Maintenance Facility (OMF): This includes the onshore and nearshore infrastructure at the OMF, for which planning permission has been granted.</li> <li>Arklow Bank Wind Park 2 EirGrid Upgrade Works: any non-contestable grid upgrade works, consent to be sought and works to be completed by EirGrid.</li> </ul>
Array Area	The Array Area is the area within which the Wind Turbine Generators (WTGs), the Offshore Substation Platforms (OSPs), and associated cables (export, inter- array and interconnector cabling) and foundations will be installed.
Cable Corridor and Working Area	The Cable Corridor and Working Area is the area within which export, inter-array and interconnector cabling will be installed. This area will also facilitate vessel jacking operations associated with installation of WTG structures and associated foundations within the Array Area.
Cable protection	External armouring applied to exposed cables or used at cable crossings, typically comprised of rock (berms or bags), ducting (polyurethane, steel, High Density Polyethylene (HDPE), cast iron or plastic) or concrete mattresses.
Competent Authority (CA)	The authority designated as responsible for performing the duties arising from the EIA Directive as amended. For this application, the Competent Authority is An Bord Pleanála (ABP).
Concrete mattressing	A solution for providing protection to cables from dropped objects, fishing trawl boards and scour (Subsea Protection Systems, 2020). Typically, several metres wide and long, cast

Term	Meaning
	of articulated concrete blocks which are linked by a polypropylene rope lattice which are placed on and/or around structures to stabilise the seabed and inhibit erosion.
Demersal otter trawl	A trawl net that is towed across the seabed rather than through the mid water and is held open laterally by boards or "doors".
Demersal species	Demersal fish are species that live and feed on or near the seabed. Includes species such as haddock, cod, whiting and flatfish.
Dredgers	Vessel equipped with dredges for the purpose of catching molluscs that live on or in the seabed (e.g. clams, oysters, scallops, mussels). Dredges are made of a robust steel frame, often with a toothed bar across the lower edge, and a heavily reinforced or chain link bag.
Environmental Impact Assessment (EIA)	An Environmental Impact Assessment (EIA) is a statutory process by which certain planned projects must be assessed before a formal decision to proceed can be made. It involves the collection and consideration of environmental information, which fulfils the assessment requirements of the Directive 2011/92/EU on the assessment of the effects of certain public and private projects on the environment as amended by Directive 2014/52/EU of the European Parliament and of the Council (EIA Directive).
EirGrid	State-owned electric power transmission system operator (TSO) in Ireland and Transmission Asset Owner (TAO) for the Project's transmission assets.
Foundation	<p>The load carrying support structure for the wind turbine generator tower or offshore substation platform topside. The foundation is the part of the structure from the interfacing flange with the turbine tower or topside-foundation interface, down to below seabed. This includes any secondary steel items associated with the structure.</p> <p>For the purposes of the EIAR the term 'foundation' includes the structure from the WTG tower or topside interface down to the lower end of the monopile commonly known as the 'substructure' and encompasses monopiles and transition pieces.</p>
Gill nets	Curtains of netting that hang vertically in the water, either in a fixed position or drifting that trap fish by their gill covers, when they try to swim through the net's meshes.
Landfall	The area in which the offshore export cables make landfall and is the transitional area between the offshore cabling and the onshore cabling.
Maritime Area Consent (MAC)	A consent to occupy a specific part of the maritime area on a non-exclusive basis for the purpose of carrying out a Permitted Maritime Usage strictly in accordance with the conditions attached to the MAC granted on 22nd December 2022 with reference number 2022-MAC-002.
Mitigation Measure	Measure which would avoid, reduce, or remedy an impact.

Term	Meaning
Multi-purpose fishing vessel	Vessels that are equipped or can be readily adapted to work more than one type of fishing gear as the seasons or opportunities change.
Offshore Fisheries Liaison Officer	An individual (or individuals) identified with the responsibility of liaising with the fishing industry at sea to provide live communication on board vessels associated with the Proposed Development. Liaison duties are undertaken while at sea.
Onshore Fisheries Liaison Officer	An individual (or individuals) identified with the responsibility of liaising with the fishing industry to provide all updates related to the Proposed Development. Liaison duties are normally undertaken from an onshore location.
Pelagic species	Pelagic fish are species which live and feed within the water column. Includes species such as herring, sprat and mackerel.
Pelagic trawl	An otter or pair trawl that is towed in mid water.
Permitted Maritime Usage	The construction and operation of an offshore wind farm and associated infrastructure (including decommissioning and other works required on foot of any permission for such offshore wind farm).
Pots	A general term to describe traps used to catch crabs, lobster, larger species of prawns (e.g. Nephrops) and some molluscs (e.g. whelks and octopus).
Seine	A trawl-shaped net with extended wing ends each side of the net mouth. It is set in the middle of a long rope that is shot in a wide circle. When the two ends of the rope are hauled, they gradually draw the ropes and wing ends together and herd the fish towards the net and the cod-end.
Shellfish	For the purposes of this assessment, shellfish is considered a generic term to define molluscs and crustaceans; fish with a hard outer case or shell.
Static gear	Any form of fishing gear that operates without being towed or moved through the water (i.e. crustaceans pots, long lines, set nets, traps).
The Application	The full set of documents submitted to An Bord Pleanála in support of the consent application.
The Developer	Sure Partners Ltd.
Vessel monitoring system	A vessel monitoring system is a form of satellite tracking system using transmitters on board fishing vessels.

## Acronyms

Term	Meaning
AA	Appropriate Assessment
ABP	An Bord Pleanála
ABWP1	Arklow Bank Wind Park 1
ABWP2	Arklow Bank Wind Park 2
AIS	Automatic Identification System
BAS	Burial Assessment Study
BIM	Bord Iascaigh Mhara
CBRA	Cable Burial Risk Assessment
CFP	Common Fisheries Policy
CIA	Cumulative Impact Assessment
COLREGS	International Regulations for Preventing Collisions at Sea
COWRIE	Collaborative Offshore Wind Research in the Environment
DCF	Data Collection Framework
DHPLG	Department of Housing, Planning, Local Government and Heritage
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EMF	Electromagnetic fields
EMP	Environmental Management Plan
EMSA	European Maritime Safety Agency
EPA	Environmental Protection Agency
EU	European Union
FIP	Fishery Improvement Project
FLO	Fisheries Liaison Officer
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
FMMS	Fisheries Management and Mitigation Strategy
FU	Functional Unit
GIS	Geographic Information System
HDPE	High Density Polyethylene
HWM	High Water Mark
IAA	Irish Aviation Authority

Term	Meaning
ICES	International Council for the Exploration of the Sea
IFPO	Irish Fish Producers Organisation
IMO	International Maritime Organisation
IOM	Isle of Man
ISEFPO	Irish South and East Fish Producer's Organisation
LAT	Lowest Astronomical Tide
LMP	Lighting and Marking Plan
MAC	Maritime Area Consent
MAP	Multi Annual management Plan
MCRS	Minimum Conservation Reference Size
MGN	Marine Guidance Note
MI	Marine Institute
MLS	minimum landing size
MMO	Marine Management Organisation
MSO	Marine Survey Office
NIFA	National Inshore Fishermen's Association
NIFO	National Inshore Fishermen's Organisation
NIS	Natura Impact Statement
NMPF	National Marine Planning Framework
NPWS	National Parks and Wildlife Service
NRA	Navigational Risk Assessment
NtM	Notice to Mariners
OFLO	Offshore Fisheries Liaison Officer
OMF	Operations and Maintenance Facility
ORE	Offshore Renewable Energy
OREDPA	Offshore Renewable Energy Development Plan
OSP	Offshore Substation Platforms
PEIR	Preliminary Environmental Information Report
RIFF	Regional Inshore Fisheries Forum
SAC	Special Area of Conservation
SAR	Swept Area Ratio
SEA	Strategic Environmental Assessment
SFPA	Sea Fisheries Protection Authority

Term	Meaning
SMEFF	Sustainable management of external fishing fleets
SOLAS	Safety of Life at Sea
SOPEP	Shipboard Oil Pollution Emergency Plan
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
TCA	Trade and Cooperation Agreement
UK	United Kingdom
UKFEN	UK Fisheries Economic Network
UXO	Unexploded Ordnance
VMP	Vessel Management Plan
VMS	Vessel Monitoring System
WTG	Wind Turbine Generator
ZOI	Zone of Influence

## Units

Unit	Description
€	Euros
£	Pound sterling
°C	Degrees Celsius
cm	Centimetres
hp	Horsepower
kg	Kilograms
km	Kilometres
km <sup>2</sup>	Square kilometre
knots	Nautical mile per hour
kW	Kilowatts
m	Metres
mm	Millimetres
NM	Nautical Mile (equal to 1.852 km)
t	Tonne



# 14. Commercial fisheries and aquaculture

## 14.1 Introduction

- 14.1.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) presents the assessment of the potential impacts of the Arklow Bank Wind Park 2 Offshore Infrastructure (hereafter referred to as 'the Proposed Development') on commercial fisheries and aquaculture. Specifically, this chapter considers the potential impact of the Proposed Development below the High-Water Mark (HWM) during the construction, operational and maintenance, and decommissioning phases.
- 14.1.1.2 This chapter draws upon information contained within Volume III, Appendix 14.1: Commercial Fisheries and Aquaculture Technical Report.
- 14.1.1.3 This chapter should be read in conjunction with the following linked EIAR chapters within Volume II, due to the interactions between the technical aspects:
- Chapter 10: Fish, Shellfish and Sea Turtle Ecology, where impacts on the ecology of species of commercial interest, are assessed;
  - Chapter 15: Shipping and Navigation, where impacts on the navigational safety aspects of fishing activity are assessed; and
  - Chapter 19: Infrastructure and Other Users, where impacts on charter angling businesses are assessed.
- 14.1.1.4 It is intended that the EIAR will provide stakeholders with sufficient information to determine the potential significant impacts of the Proposed Development on commercial fisheries and aquaculture receptors.
- 14.1.1.5 In particular, this EIAR chapter:
- Presents the existing commercial fisheries and aquaculture baseline established from available fisheries data, desk studies, fishing activity surveys and consultation;
  - Identifies any assumptions and limitations encountered in compiling the environmental information;
  - Presents the potential environmental effects on commercial fisheries and aquaculture arising from the Proposed Development, based on the information gathered and the analysis and assessments undertaken; and
  - Describes any necessary monitoring and/or mitigation measures which will be implemented to prevent, minimise, reduce or offset the possible environmental effects of the Proposed Development on commercial fisheries and aquaculture.

## 14.2 Experience

### 14.2.1 Nima Consultants Ltd

- 14.2.1.1 NiMa Consultants Ltd are marine environmental consultants working globally to provide advice in support of sustainable fisheries and aquaculture, marine planning and offshore renewable energy. NiMa provides high quality outputs and solutions across a range of fisheries and marine environmental projects, delivered by a core team of two experts: Fiona Nimmo and Sarah MacNab, who together combine expert knowledge in commercial fisheries, environmental impact assessments (EIAs) and the energy consenting process.
- 14.2.1.2 Fiona's qualifications include a B.Sc. Marine Biology (First Class Hons), University of Newcastle, United Kingdom (UK) and a B.Eng. Chemical Engineering (2:1 Hons), Edinburgh University, UK.

- 14.2.1.3 Sarah's qualifications include a Pg Cert Environmental Management, Chartered Institution of Water and Environmental Management, UK; MSc Tropical Coastal Management (Distinction), Newcastle University, UK; and BA Geography (First Class Honours), University of Nottingham, UK.
- 14.2.1.4 The NiMa team bring a full understanding of the methodology and best practice for undertaking commercial fisheries impact assessments globally. This includes a keen knowledge of guidance related to undertaking impact assessment for commercial fisheries, including leading the development of "Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments" for the UK Fisheries Economic Network (UKFEN) and Seafish.
- 14.2.1.5 The NiMa team have extensive experience in leading every stage for the commercial fisheries elements of consent applications for nationally significant offshore wind farm projects in the UK. This includes projects in the North Sea (Neart na Gaoithe, Hornsea One, Two, Three and Four; Dudgeon and Sheringham Shoal Extension Projects), the English Channel (Rampion 2) and the Irish Sea (Awel y Môr Offshore Wind Farm). Since 2010, NiMa staff member Fiona has been engaged on Hornsea projects on the east coast of England, where her expertise was brought to every stage of the consenting process involving scoping, fisheries liaison plan production, UK and European wide fishing industry consultation, Environmental Statement chapter and technical appendix preparation, development of Statements of Common Ground and acting as expert witness during examination process. NiMa are also engaged in providing equivalent services to a number of other newly identified and extension offshore wind farm projects in UK and Irish waters.
- 14.2.1.6 In Irish waters, the NiMa team are currently providing commercial fisheries expertise to Dublin Array Offshore Wind Farm Project (RWE and Saorgus Energy) and North Irish Sea Array (NISA Ltd), as well as Arklow Bank Wind Park 2.
- 14.2.1.7 NiMa also supports developers in meeting post-consent compliance requirements; for example, for the Neart na Gaoithe Offshore Wind Farm in Scottish territorial waters we prepared a fisheries mitigation and management plan, and are undertaking an ongoing programme of commercial fisheries monitoring. Our work requires sound understanding of fish and shellfish ecology, the status of commercial stocks and patterns of fishing activity.

## 14.3 Regulatory background

- 14.3.1.1 This section outlines guidance and policy specific to commercial fisheries, including best practice guidelines.
- 14.3.1.2 The assessment of potential impacts upon commercial fisheries has been made with specific reference to legislation, policy and guidance as outlined in Table 14.1.
- 14.3.1.3 Of particular relevance to commercial fisheries is the National Marine Planning Framework (NMPF)(Department of Housing, Local Government and Heritage, 2021) which provides specific policies for fisheries in the context of marine developments. Where significant adverse impact on access for existing fishing activities occurs, it must be demonstrated that proposals will (in order of preference) avoid, minimise or mitigate such impacts (Fisheries Policy 1). In addition, where significant impacts are identified, a Fisheries Management and Mitigation Strategy (FMMS) should be prepared (Fisheries Policy 2).
- 14.3.1.4 In addition, off relevance to commercial fisheries, is the NMPF (Department of Housing, Local Government and Heritage, 2021) Co-existence policy 1: Proposals should demonstrate that they have considered how to optimise the use of space, including through consideration of opportunities for co-existence and co-operation with other activities, enhancing other activities where appropriate. If proposals cannot avoid significant adverse impacts (including displacement)

on other activities they must, in order of preference: a) minimise significant adverse impacts, b) mitigate significant adverse impacts, or c) if it is not possible to mitigate significant adverse impacts, proposals should set out the reasons for proceeding.

- 14.3.1.5 The Proposed Development has designed the project parameters to avoid impacts with commercial fisheries to the extent practicable, as described in chapter 4: Description of Development, including details of site selection. This chapter provides a description of the factored in measures that are relevant to commercial fisheries and proposed to minimise impacts and, in addition, additional mitigation measures are proposed where significant effects were concluded. This chapter thereby meets Fisheries Policy 1 of the NMPF. A FMMS has been prepared for the Proposed Development thereby meeting Fisheries Policy 2.
- 14.3.1.6 Of particular relevance to aquaculture is the NMPF (Department of Housing, Local Government and Heritage, 2021) Aquaculture Policy 2, which states that non-aquaculture proposals in aquaculture production areas (i.e. licensed aquaculture sites) must demonstrate consideration of, and compatibility with, aquaculture production. Where compatibility is not possible, proposals must demonstrate that they will, in order of preference: avoid; minimise; mitigate significant adverse impacts on aquaculture. Furthermore, if it is not possible to mitigate significant adverse impacts upon aquaculture, proposals should set out the reasons for proceeding.
- 14.3.1.7 The Proposed Development is not located in an aquaculture production area and is 5.3 km away from the nearest licenced aquaculture production site. This chapter considers the impact on that aquaculture production site and thereby meets Aquaculture Policy 2.
- 14.3.1.8 In addition, a number of other guidance documents specific to the consideration of commercial fisheries are available from jurisdictions/countries with established offshore renewable energy sectors where comprehensive guidance has been developed. This guidance has been adhered to when assessing the potential effects as follows:
- Seafood / Offshore renewable Energy Engagement in Ireland: A summary guide (Seafood / Offshore Renewable Energy (ORE) Working Group, 2023);
  - Sea Fish Industry Authority and UK Fisheries Economic Network (UKFEN) (2012) Best practice guidance for fishing industry financial and economic impact assessments;
  - FLOWW Best Practice Guidance for Offshore Renewables Developments. Recommendations for Fisheries Liaison. FLOWW (Fishing Liaison with Offshore Wind and Wet Renewables Group) (2014);
  - FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds. FLOWW (Fishing Liaison with Offshore Wind and Wet Renewables Group) (2015);
  - Blyth-Skyrme, R.E. (2010) Options and opportunities for marine fisheries mitigation associated with wind farms. Final report for Collaborative Offshore Wind Research into the Environment contract FISHMITIG09. COWRIE Ltd, London; and
  - Blyth-Skyrme (2010) Developing guidance on fisheries Cumulative Impact Assessment for wind farm developers.
- 14.3.1.9 Of particular note, the recently published guidance on Seafood/ORE Engagement in Ireland provides key principles for engagement with the fisheries sector. These principles include:
- Finding a balance between protecting seafood interests, responding to the global climate emergency, and meeting the State's legal obligations for reductions in carbon emissions as set out in the Climate Action Plan 2024.
  - Encouraging the principle of co-existence, where the seafood and offshore renewable energy industries can work side-by-side in a manner that respectfully shares the marine space.
  - Cooperating to determine the impact, effect, and opportunities that ORE proposals may have on seafood activity and working together to avoid, minimize, or mitigate any negative impacts.

- Early and ongoing engagement between the sectors, including open sharing of information, honest and transparent communication, and cooperation to achieve sustainable outcomes that benefit both industries and Ireland's economy, society, and coastal communities.
- Mutual respect, best endeavors to reach agreement, and recognition of the importance of both sectors, which is critical to effective engagement.
- Overall encouragement for mutual respect, cooperation, and proactive engagement between the sectors.

**Table 14.1: Summary of regulatory background**

Publisher	Name of document incl. reference	Key provisions
<b>Statutory</b>		
<b>Legislation</b>		
European Commission, 2011	European Communities (Marine Strategy Framework) Regulations 2011 (S.I. No. 249 of 2011);	Transposes EU Directive 2008/56/EC (Marine Strategy Framework Directive) into Irish law.
<b>Planning Policy and Development Control</b>		
Department of Housing, Local Government and Heritage, 2021	National Marine Planning Framework (NMPF) - Project Ireland 2040 <a href="https://www.gov.ie/pdf/?file=https://assets.gov.ie/139100/f0984c45-5d63-4378-ab65-d7e8c3c34016.pdf#page=null">https://www.gov.ie/pdf/?file=https://assets.gov.ie/139100/f0984c45-5d63-4378-ab65-d7e8c3c34016.pdf#page=null</a>	Provides specific policies for fisheries in the context of marine developments. Where significant adverse impact on access for existing fishing activities occurs, it must be demonstrated that proposals will (in order of preference) avoid, minimise or mitigate such impacts (Fisheries Policy 1). In addition, where significant impacts are identified, a Fisheries Management and Mitigation Strategy (FMMS) should be prepared (Fisheries Policy 2). Provides specific policies for aquaculture, including non-aquaculture developments within aquaculture production areas and the need to consider impacts and demonstration that proposals will (in order of preference) avoid, minimise or mitigate such impacts (Aquaculture Policy 2).
DECC, 2022	Strategic Environmental Assessment (SEA) of the Offshore Renewable Energy Development Plan (OREDPII) in Ireland: Environmental Report <a href="https://www.gov.ie/en/publication/71e36-offshore-renewable-energy-development-plan-ii-oredp-ii/#environmental-assessments">https://www.gov.ie/en/publication/71e36-offshore-renewable-energy-development-plan-ii-oredp-ii/#environmental-assessments</a>	Contains the Appropriate Assessment (AA) screening process and SEA scoping report of the Maritime area associated with OREDPII. This resource has some important information on existing baseline conditions in the maritime area.
<b>Guidelines and technical standards</b>		
Department of Housing, Planning	Guidelines for Planning Authorities and An Bord Pleanála on carrying out Environmental Impact Assessment	These Guidelines stipulate the requirement for an assessment of the current state of the environment and how this is likely to evolve without the proposed project.



Publisher	Name of document incl. reference	Key provisions
and Local Government, 2018	<a href="https://www.opr.ie/wp-content/uploads/2019/08/2018-Environmental-Impact-Assessment-1.pdf">https://www.opr.ie/wp-content/uploads/2019/08/2018-Environmental-Impact-Assessment-1.pdf</a>	
Department of Communications, Climate Action and Environment, 2018)	Guidance on Marine Baseline Ecological Assessments and Monitoring Activities for Offshore Renewable Energy Projects Parts 1 and 2 April 2018	This Guidance outlines methods for conducting baseline assessments and monitoring.
<b>Non-Statutory</b>		
<b>Guidelines and technical standards</b>		
EPA, 2022	Guidelines on the Information to be Contained in Environmental Impact Assessment Reports <a href="https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf">https://www.epa.ie/publications/monitoring--assessment/assessment/EIAR_Guidelines_2022_Web.pdf</a>	These Guidelines apply to the preparation of all Environmental Impact Assessment Reports undertaken in the State (Ireland)
Environmental Working Group of the Offshore Renewable Energy Steering Group and the Department of Communications, Climate Action and Environment, 2017	Guidance on Environmental Impact Statement (EIS) and Natura Impact Statement (NIS) Preparation for Offshore Renewable Energy Projects.	This Guidance provide an indicative list of potential effects to be assessed, including for commercial fisheries: direct disturbance; temporary displacement from traditional fishing grounds; and long term displacement from traditional fishing grounds
European Commission, Directorate-General for Environment, 2017	Guidance on the preparation of the environmental impact assessment report (Directive 2011/92/EU as amended by 2014/52/EU)	This guidance provides details on the type of data to inform EIAR, use of competent experts and guidance on the preparation of the EIAR report.

## 14.4 Consultation

14.4.1.1 A summary of the key issues raised during consultation activities undertaken to date specific to Commercial Fisheries and Aquaculture is presented in Table 14.2, together with how these issues have been considered in the production of this EIAR chapter.

**Table 14.2: Summary of consultation relating to commercial fisheries**

Date	Consultation type	Consultation and key issue raised	Section where provision is addressed
April 2019	South East Regional Inshore Fisheries Forum (SERIFF) – Meeting	<p>Meeting to introduce the Proposed Development to RIFF. Queries raised with regard to the project design and the Developer's approach to engaging with the fishing industry and to mitigate potential impacts.</p> <p>Concerns raised with regards to potential impacts of the Proposed Development on fish and shellfish species.</p>	<p>Information on the Project Design Options is provided in detail in Volume II, Chapter 4: Description of Development. A Fisheries Liaison Officer (FLO) has been appointed for the Proposed Development. Consultation with the fishing industry is ongoing and will continue throughout the construction, operational and maintenance and decommissioning phases, as required.</p> <p>A FMMS has been prepared for the Proposed Development. This describes the Developer's approach to liaising and co- existing with the fishing industry. The potential impacts of the Proposed Development on fish and shellfish species, including species of commercial importance are assessed in detail in chapter 10: Fish, Shellfish and Sea Turtle Ecology. The findings of the assessment are cross- referenced in this chapter where relevant.</p>
April 2019	Fisheries information events (Wicklow, Arklow and Courtown fishermen)	<p>Meetings to introduce the Proposed Development to local fishermen. Key issues raised included:</p> <ul style="list-style-type: none"> <li>• Process for evaluating potential impacts on commercial fisheries;</li> <li>• Queries with regards to access to the Array Area during the operational phase;</li> <li>• Queries in respect of the proposed spacing between turbines and other project parameters;</li> </ul>	<p>The methodology used to describe the commercial fisheries baseline is outlined in section 14.6.1. The impact assessment methodology is described in detail in section 14.7.</p> <p>As discussed in section 14.7.1, fishing vessels will have access to the area of the Proposed Development during the operational phase.</p> <p>Parameters used for assessment of the impact of the Proposed Development on commercial fisheries are detailed in Table 14.6 and Table 14.7, including information on potential minimum spacing.</p>



Date	Consultation type	Consultation and key issue raised	Section where provision is addressed
		<ul style="list-style-type: none"> <li>Proposed approach to minimising potential interactions with cables;</li> <li>Potential impact on fish stocks as a result of noise or vibration generated during the construction and operation phases and mitigation proposed;</li> <li>Impact (short and long term) of construction on the natural habitat of the whelk, and planned mitigation;</li> <li>Establishment of environmental baselines (for flora/fauna) in advance of construction work; and</li> <li>Impact resulting from electrical cables during the construction and operation phases, and proposed mitigation.</li> </ul>	<p>As described in Table 14.6 and Table 14.7, cables will have a cable burial depth of 0 – 1.5 m for inter-array and 0-2.5 m for interconnector and export cable. External protection will also be used at cable crossings. The location of areas of cable protection (if required) will be communicated to the fishing industry and post-lay and burial cable inspection surveys carried out as appropriate.</p> <p>Baseline information on fish and shellfish species of relevance to the Proposed Development, including those of importance to commercial fisheries and aquaculture activities, is provided in chapter 10: Fish, Shellfish and Sea Turtle Ecology, together with an impact assessment. This has given consideration to a range of potential impacts on fish and shellfish receptors, including both subsea noise and electromagnetic fields.</p>
September to October 2019	Local fisheries stakeholders. Informal consultation meetings and circulation of questionnaires by post.	Consultation undertaken via the FLO with local fisheries stakeholders to gather baseline information with regards to existing fishing activity in the area around the Proposed Development.	Information provided by fisheries stakeholders has been incorporated into the baseline characterisation (section 14.6.2).
July 2020	SERIFF – Meeting	<p>Meeting to provide an update on the Proposed Development in relation to aspects of relevance to commercial fishing and aquaculture.</p> <p>Discussion with regard to the proposed approach to mitigation and the development of a Fisheries Fund.</p> <p>Various queries raised in relation to project design parameters and previous experience on decommissioning offshore wind farm projects.</p> <p>Queries also raised in relation to access to the Array Area during the operational phase</p>	<p>Detailed information on the Project design options is provided in chapter 4: Description of Development.</p> <p>The potential impacts of the Proposed Development on commercial fisheries and aquaculture, including those associated with the construction, operational and maintenance and decommissioning phase, are assessed within this chapter (sections 14.10 and 14.11).</p> <p>An assessment of navigational safety risks is provided in chapter 14: Shipping and Navigation.</p> <p>During the operational phase, fishing vessels will have access to the Array Area and fishing activity would be able to resume within the array.</p>

Date	Consultation type	Consultation and key issue raised	Section where provision is addressed
		<p>(i.e. any restrictions on use of specific fishing gear) and the approach to the monitoring of cable burial during the operational and maintenance phase.</p> <p>Concerns raised over navigational safety issues and on the application of safety zones, as well as on potential impacts on commercial species of importance in the area.</p>	<p>Cables will have a cable burial depth of 0 – 1.5 m. External protection (i.e. rocks or mattresses) will also be used at cable crossings.</p> <p>The potential impact of the Proposed Development on fish and shellfish receptors, including species of commercial importance to the local fisheries and aquaculture, is assessed in detail in chapter 10: Fish, Shellfish and Sea Turtle Ecology, with the findings of this assessment referenced in this chapter, as appropriate.</p> <p>A FLO has already been appointed for the Proposed Development. Consultation with the fishing industry is ongoing and will continue throughout the lifetime of the Proposed Development.</p> <p>As noted in Table 14.11, a FMMS has been (Appendix 25.3) produced. This describes the Developer's approach to liaising and co-existing with the fishing industry.</p>
June to July 2020	Quayside visits with fishermen	Meetings to introduce FLOWW guidelines, concept of fisheries fund and to respond to queries. Concerns raised with regards to potential impacts of the Proposed Development on whelk fishing.	<p>The potential impacts of the Proposed Development on commercial fisheries and aquaculture are assessed in detail in sections 14.10 and 14.11, including potential impacts on the whelk fishery.</p> <p>The impacts of the Proposed Development on fish and shellfish species, including whelk, are assessed in detail in chapter 10: Fish, Shellfish and Sea Turtle Ecology.</p>
October 2020	Sea Fisheries Protection Authority – Scoping Response	<ul style="list-style-type: none"> <li>Noted that the area is already licenced for the generation of wind power and its location on top of the banks has been in place for some time with no effects to the local fishing fleet;</li> <li>Requested contact details for the FLO and a list of stakeholders contacted during the public consultation phase;</li> <li>Wild Fisheries: identified minimal concern regarding the landfall routes</li> </ul>	<p>The potential impacts of the Proposed Development on commercial fisheries and aquaculture are assessed in detail in sections 14.10 and 14.11, including potential impacts on the whelk fishery.</p>

Date	Consultation type	Consultation and key issue raised	Section where provision is addressed
		<p>intersecting the whelk fishery. Noted that consultations with the SERIFF have been ongoing and public meetings took place in 2019. There is a local annual fishery for herring and sprat along the Arklow shoreline which may be temporarily disrupted due to investigations in the proposed route for landfall;</p> <ul style="list-style-type: none"> <li>• Shellfish Production Areas: there are currently no classified shellfish production areas for bivalve molluscs in or adjacent to the proposed areas for site investigations; and</li> <li>• Seafood Safety: all spillages and matters arising to the potential contamination of seafood are to be immediately reported to the Howth Sea Fisheries Protection Agency (SFPA) office.</li> </ul>	
March 2023	Public Consultation event - Arklow Bay Hotel	Confirmation sought with regard to financial loss should a fishermen get caught in cables associated with the Proposed Development.	<p>The potential impact of gear snagging is assessed in sections 14.10 and 14.11.</p> <p>The Developer confirms that if through no fault of their own, a fisher snags or damages gear in the vicinity of one of our cables and the gear has been sacrificed for safety reasons or to avoid damage to a cable, a claim for reimbursement for the gear can be made using the Gear Loss Claim Form provided in the FMMS (Appendix 25.3).</p>
March 2023	Public Webinar event - 5 April (Live Qs)	Confirmation sought in relation to a fisheries fund.	<p>The Developer confirms that a Fisheries Fund has been established and recently supported a new pontoon at Arklow's South Dock.</p> <p>Construction work on the pontoon began in early November 2023 at the South Dock, Arklow. This new infrastructure increases berthing capacity from circa 10 to 16 vessels and</p>

Date	Consultation type	Consultation and key issue raised	Section where provision is addressed
			significantly improves capacity, accessibility, safety and working conditions.
March 2023	Email queries	Concern raised regarding potential negative impact on fishing from ABWP2 development site	The potential impacts of the Proposed Development on commercial fisheries and aquaculture are assessed in detail in sections 14.10 and 14.11, including potential impacts on the whelk fishery. The impacts of the Proposed Development on fish and shellfish species, including whelk, are assessed in detail in chapter 10: Fish, Shellfish and Sea Turtle Ecology.
April 2023	Public Consultation event - Courtown Sailing Club	Concern raised in relation to the future of fishing industry with offshore development.	The potential impacts of the Proposed Development on commercial fisheries and aquaculture are assessed in detail in sections 14.10 and 14.11. Cumulative effects are assessed in section 0.
August 2023	Port of Cork Company - Scoping Response	In relation to fishing representatives: <ul style="list-style-type: none"> <li>Establish types, magnitude, seasonality of fishing activity within the Shipping and Navigation Topic-specific study area.</li> <li>Discuss the potential impacts of the project on fishing activity.</li> </ul>	The baseline environment for commercial fisheries is summarised in section 14.6.2, with an extended analysis provided in Volume III, Appendix 14.1: Commercial Fisheries and Aquaculture Technical Report. Information provided by fisheries stakeholders has been incorporated into the baseline characterisation (section 14.6.2). The potential impacts of the Proposed Development on commercial fisheries and aquaculture are assessed in detail in sections 14.10 and 14.11, including potential impacts on the whelk fishery.

## 14.5 Study area

- 14.5.1.1 The Proposed Development is located in International Council for the Exploration of the Sea (ICES) Division 7a (Irish Sea). The Array Area is located approximately 6 to 15 km from the shore and covers an area of approximately 63.4 km<sup>2</sup>.
- 14.5.1.2 The Commercial Fisheries and Aquaculture Study Area has been defined with reference to the ICES rectangles within which the Proposed Development is located. As shown in Figure 14.1, these are as follows:
- ICES Rectangle 34E3: nearshore rectangle within which the majority of the Cable Corridor and Working Area are located;
  - ICES Rectangle 34E4: rectangle within which the Array Area and a small section of the Cable Corridor and Working Area are located.
- 14.5.1.3 The Commercial Fisheries and Aquaculture Study Area defined above has been used to identify commercial fishing activity and aquaculture installations in areas relevant to the Proposed Development. A range of commercial fisheries information and data, including landing statistics, are recorded at the scale of ICES rectangles, which is consistent across all Member States. It is therefore logical for the study area to be defined at an ICES rectangle scale. Note that the Proposed Development occupies only a portion of these ICES rectangles. Where relevant, however, data and information have been analysed for wider areas to provide context.
- 14.5.1.4 For the purposes of the cumulative impact assessment, the Cumulative Commercial Fisheries and Aquaculture Study Area has been extended to cover the entirety of the Irish Sea (Division 7a) to ensure the area incorporates the extent of the operational range of commercial fisheries receptors of relevance to the Proposed Development.



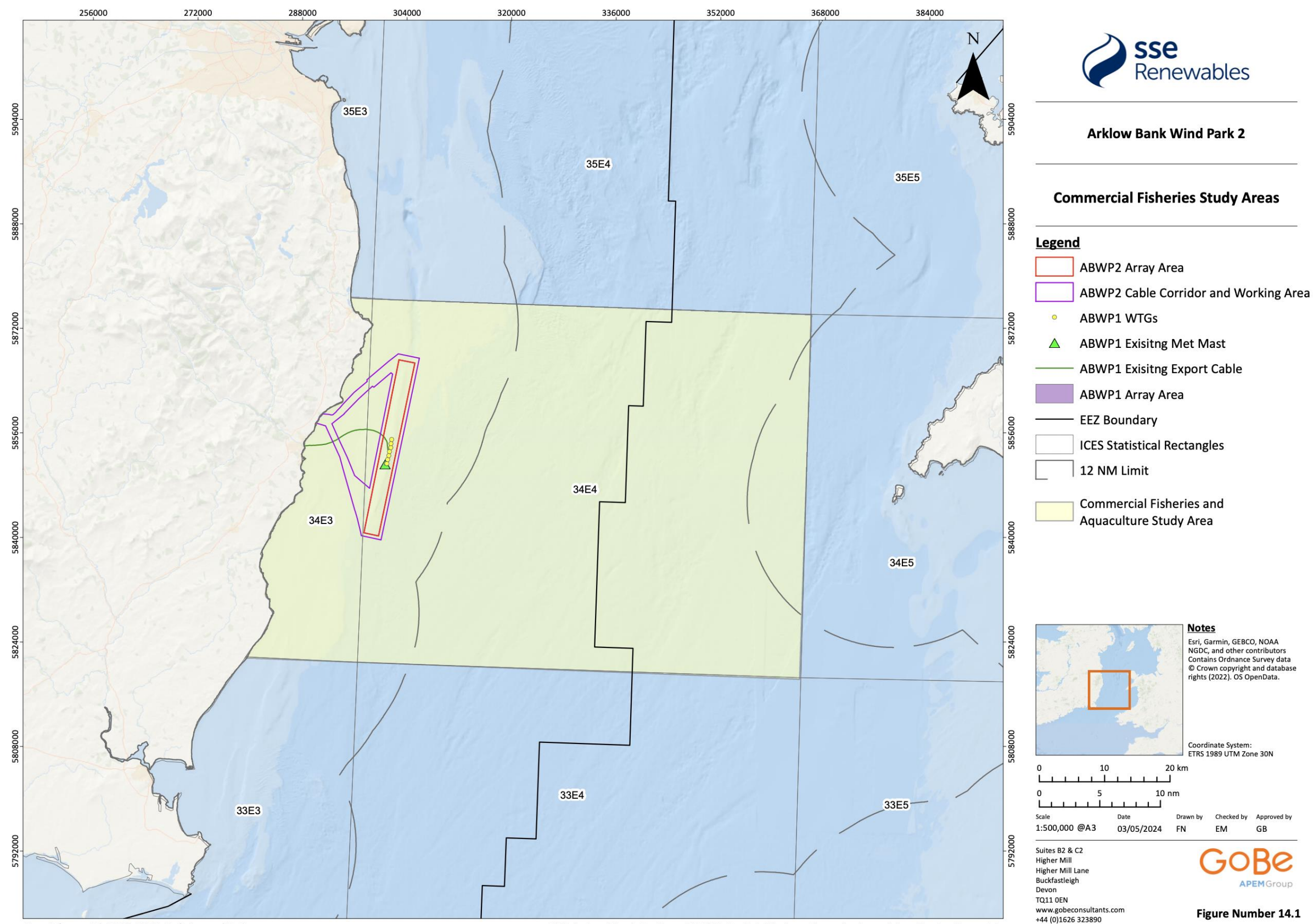


Figure 14.1: Commercial Fisheries and Aquaculture Study Area

## 14.6 Methodology

### 14.6.1 Methodology to inform the baseline

#### Desktop studies

14.6.1.1 Information on commercial fisheries and aquaculture within the Commercial Fisheries and Aquaculture Study Area was collected through a detailed desktop review of existing studies and datasets. These data sources and reports are summarised in Table 14.3.

**Table 14.3: Summary of key desktop reports and data resources**

Description of data	Country	Year	Source/Author
Landings statistics data for Irish-registered vessels, with data query attributes for: species, weight of landing (kg) and first sales value (€) at the following geographic scales: <ul style="list-style-type: none"> <li>All ICES divisions</li> <li>Irish Sea (7a) indicating port of landing</li> <li>Irish Sea (7a) indicating ICES rectangle of catches</li> </ul>	Ireland	2015 to 2021	SFPA
Landings statistics data for Irish-registered vessels, with data query attributes for: species, weight of landing (kg) and first sales value (€) at the following geographic scales: <ul style="list-style-type: none"> <li>Irish Sea (7a) indicating port of landing</li> </ul>	Ireland	2022	SFPA
Landings statistics for EU registered vessels with data query attributes for: landing year; landing quarter; ICES rectangle; vessel length; gear type; species; and, landed weight (tonnes).	All Europe	2012 to 2016	EU DCF database
Estimates of annual landings (tonnes) and value (€) of crustacean and bivalve shellfish (excl. prawns and mussels) into Ireland 2004-2019 (source: Logbook declarations and sales notes for vessels under 10 m, gatherer dockets, co-op data).	Ireland	2004 to 2019	Marine Institute and Bord lascaigh Mhara (BIM)
Landings statistics data for UK-registered vessels, with data query attributes for: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type; port of landing; species; live weight (tonnes); and value.	UK	2016 to 2022	MMO
VMS data for EU registered vessels ≥12 m length. VMS data sourced from ICES displays the surface Swept Area Ratio (SAR) of catches by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear makes contact with (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity.	All Europe	2017 to 2020	ICES
Fishing vessel route density, based on vessel AIS positional data. AIS is required to be fitted on fishing vessels ≥15 m length.	All Europe	2019 to 2022	EMSA



Description of data	Country	Year	Source/Author
Fishing vessel effort data indicating high and low fishing effort. The data are available for all EU vessels of 12m and larger, operating inside the Irish EEZ; outside this zone only Irish VMS data are routinely available within the data sets.	Ireland	2014 to 2018	Marine Institute
Polygon data indicating fishing grounds for Irish vessels operating inshore. Irish inshore fishing activity dataset created by the Marine Institute in support of the Natura 2000 risk assessment in 2013. It provides information on the distribution and level of fishing activity in inshore waters by various fishing methods, including: dredging; line fishing; nets; bottom trawlers; midwater trawlers; and potting. The information provided by this dataset only includes activity by vessels < 15 m in length in Irish waters.	Ireland	Undefined	Marine Institute
VMS data for UK registered vessels ≥15 m length. Note that UK vessels ≥12 m in length have VMS on board, however, to date, the MMO provide amalgamated VMS datasets for ≥15 m vessels only. VMS data sourced from MMO displays the first sales value (£) of catches.	UK	2016 to 2020	MMO

## Site specific surveys

14.6.1.2 In order to inform the EIAR, site-specific surveys were undertaken. A summary of the surveys used to inform the commercial fisheries impact assessment is outlined in Table 14.4 below.

**Table 14.4: Site specific surveys**

Data source	Date(s) of survey	Overview of survey	Survey contractor	Reference to further information
<b>Fisheries surveys</b>				
Fisheries activity surveys	2019-2024	Fisheries activity scouting surveys to document presence of fishing vessels actively fishing and location of static gear.	Alpha Marine Ltd	Alpha Marine (2023); Alpha Marine (2024)
<b>Desktop Reports</b>				
Benthic subtidal surveys	2000 - 2011	Post-construction monitoring of Arklow Bank Wind Park 1 (ABWP1)	GE Wind Energy	GE Wind Energy (2011; 2012)
Baseline/confirmatory surveys survey (ABWP1).	2000 and 2001	Anchor dredge and otter trawl	EcoServe	EcoServe (2001)

Subtidal benthic ecology survey	2021	Dredge and trawl samples taken on Arklow Bank and the area inshore	GE Wind Energy	GE Wind Energy (2021)
<b>Other surveys of relevance</b>				
Vessel traffic survey	2019, 2022 and 2023	AIS and non-AIS traffic survey (via radar and visual observations).	Anatec Limited	Anatec (2024)
Geophysical surveys	2019, 2022 and 2023	Geophysical surveys for ABWP2 were also undertaken across the Array Area and offshore export cable routes	Green Rebel	Green Rebel (2022)

## Identification of designated sites

14.6.1.3 All designated sites within the Commercial Fisheries Regional Study Area and qualifying interests that could be affected by the construction, operational and maintenance, and decommissioning phases of the Proposed Development were identified using the three-step process described below:

- Step 1: All designated sites of international, national and local importance within the Commercial Fisheries and Aquaculture Study Area were identified using a number of sources. These included the Environmental Protection Agency (EPA) and National Parks and Wildlife Service (NPWS) websites.
- Step 2: Information was compiled on the relevant qualifying interest for each of these sites which may make them a sensitive receptor in terms of commercial fisheries, e.g., for a commercial fishing vessel to be displaced from the areas normally fished within the Proposed Development and undertake exploratory fishing in areas that may overlap a designated site that does not have fisheries specific management measures in place.
- Step 3: Using the above information and expert judgement, sites were included for further consideration if:
  - A designated site directly overlaps with the Proposed Development; or
  - Sites and associated qualifying interests were located within the potential Zone of Influence (Zol) for impacts associated with the Proposed Development. The Zol is defined as 100 km from the closest part of the Proposed Development because this is considered a reasonable distance for displacement effects to occur within.

14.6.1.4 The designated sites and qualifying interests that could be affected are provided in Table 14.5. This relates to habitat qualifying features that fishing gear could potentially interact with if it has been displaced from the normal fishing grounds targeted within the area overlapping the Proposed Development. The qualifying features include reefs and sandbanks which are slightly covered by sea water all the time. A reef feature can include a range of habitats such as bedrock and stony reef communities.

14.6.1.5 It has been assessed that potting gear may cause risk to reef features, specifically that abrasion of gear on the substrate and movement of smaller stones could lead to damage to the feature and/ or damage or loss of epifauna (Temple, 2015).

14.6.1.6 Activities within the Special Areas of Conservation (SACs), including Wicklow Reef which is the closest SAC to the Proposed Development, require a licence or permission from the appropriate consent authority. The explanatory note for Statutory Instrument 104 of 2016 (SI, 2016) lists both aquaculture and fishing as activities requiring such permission. It is therefore considered that any displacement from the Proposed Development would not cause additional risk to qualifying features because appropriate management is in place within the SACs.

**Table 14.5: Designated sites and relevant qualifying interests for Commercial Fisheries and Aquaculture**

Designated Site	Closest Distance to the Array Area (km)	Closest Distance to the Cable Corridor and Working Area (km)	Relevant Qualifying Interest
<b>Irish SACs</b>			
Wicklow Reef SAC (002274)	4.5 km N	3.6 km N	Reefs [1170]
Blackwater Bank SAC (002953)	19.7 km S	19.1 km S	Sandbanks which are slightly covered by sea water all the time [1110]
Rockabill to Dalkey Island SAC (003000)	36.6 km N	35.7 km N	Reefs [1170]
Long Bank SAC (002161)	39.6 km S	39.1 km S	Sandbanks which are slightly covered by sea water all the time [1110]
River Barrow and River Nore SAC (002162)	54.1 km W	52.5 km W	Reefs [1170]
Lambay Island SAC (000204)	62.8 km N	61.9 km N	Reefs [1170]
Saltee Islands SAC (000707)	64.6 km S	64.1 km S	Reefs [1170]
<b>Transboundary SACs</b>			
Pen Llyn a'r Sarnau/ Lley'n Peninsula and the Sarnau SAC (UK0013117)	71.9 km E	71.4 km E	Sandbanks which are slightly covered by sea water all the time [1110] Estuaries [1130] Coastal lagoons [1150] Large shallow inlets and bays [1160] Reefs [1170] Mudflats and sandflats not covered by seawater at low tide [1140]
Cardigan Bay/ Bae Ceredigion SAC (UK0012712)	82.7 km E	82.0 km E	Sandbanks which are slightly covered by sea water all the time [1110] Reefs [1170] Submerged or partially submerged sea caves [8330]

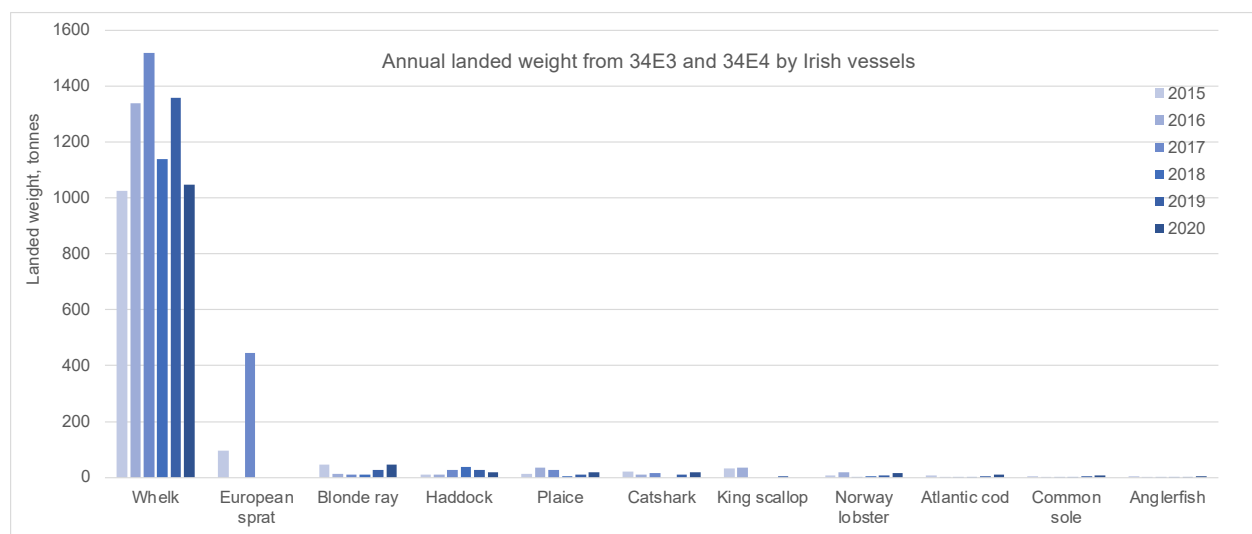
Pembrokeshire Marine/ Sir Benfro Forol SAC (UK0013116)	87.1 km SE	86.5 km SE	Estuaries [1130] Large shallow inlets and bays [1160] Reefs [1170] Sandbanks which are slightly covered by sea water all the time [1110]
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## 14.6.2 Baseline environment

14.6.2.1 A technical report has been prepared to provide a detailed characterisation of the receiving baseline (Volume III, Appendix 14.1: Commercial Fisheries and Aquaculture Technical Report). A review of the key findings from that study has been incorporated into the description of the receiving environment.

### Overview of commercial fisheries landings

14.6.2.2 An indication of the principal species targeted in the Commercial Fisheries and Aquaculture Study Area is given in Figure 14.2 based on landings data by ICES rectangle (average 2015 to 2020). As shown, whelks are the principal species targeted, accounting for the majority of the landings in rectangle 34E3 and rectangle 34E4. This species is targeted by Irish vessels deploying pots. On average approximately 1,240 tonnes of whelk are landed annually from the Commercial Fisheries and Aquaculture Study Area, worth € 1.9 million (based on a first sales value of € 1,500 per tonne).



**Figure 14.2: Weight of landings by Irish vessels from ICES rectangles 34E4 and 34E3 indicating species from 2015-2020 (Source: SFPA, 2022)**

14.6.2.3 Potting for whelks in the Commercial Fisheries and Aquaculture Study Area takes place all year round. In addition to whelks, some of the local vessels deploy a range of other gears seasonally to target other species, including potting for crabs and lobster, trawling for whitefish species, herring and sprats, and netting for whitefish species. Consultation with fisheries stakeholders indicates that the majority of local vessels engaged in the whelk fishery are under 12 m in length.

14.6.2.4 It was also noted during consultation that areas in the vicinity of the Proposed Development support a seed mussel fishery. Mussel dredgers participating in this fishery must hold a valid mussel seed authorisation. Fishing generally takes place in the autumn, subject to seed availability. Seed mussel surveys are undertaken by BIM, including the area around Wicklow Head. The latest survey estimated the available tonnage of mussel seed to be around 360 tonnes

in the Wicklow bed (BIM, 2023). This is located outside of and to the north of the Proposed Development.

- 14.6.2.5 A number of beam trawlers were also identified during consultation at local ports. These vessels are larger in size (24 m in length) and primarily target demersal fish species such as rays, plaice, sole and cod.

## Fishing Grounds

- 14.6.2.6 **Potting fishery:** An indication of the extent and location of inshore fishing grounds targeted by potting vessels (all under 15m vessels and primarily under 12 m vessels) is provided in Figure 14.1.5 of Appendix 14.1. Whelk fishing areas are identified to extend over the inshore section of the Commercial Fisheries and Aquaculture Study Area (i.e. where the Proposed Development is located) as well as wider areas to the north and south.
- 14.6.2.7 Fisheries activity surveys from 2019 to 2023 indicate that potting activity is undertaken across the Cable Corridor and Working Area, and that very low levels of potting activity has been recorded within the Array Area (Figure 14.1.2 and Figure 14.1.3 of Appendix 14.1). This corroborates the inshore potting mapping provided in Figure 14.1.5 of Appendix 14.1
- 14.6.2.8 In line with the above, marine traffic surveys undertaken around the area of the Proposed Development (see Volume III, Appendix 15.1: Navigational Risk Assessment) found limited records of fishing vessels in the Array Area, both from AIS and visual observations, with the majority of fishing vessels recorded inshore of the Array Area.
- 14.6.2.9 **Mussel seed fishery:** The location of seed mussel beds identified by BIM from 1970 to 2019 in the proximity of the Proposed Development is illustrated in Figure 14.1.10 of Appendix 14.1. As shown, mussel beds local to Arklow Bank are primarily located in inshore areas off Wicklow, to the north and west of the Array Area. There is no overlap of seed mussel dredge locations with the Array Area, and very small areas of overlap with the Cable Corridor and Working Area.
- 14.6.2.10 **Other fisheries:** Analysis of VMS data for Irish vessels over 12 m in length by fishing method indicate that either there are no records of fishing activity in the Commercial Fisheries and Aquaculture Study Area or that activity occurs at very low levels (including bottom otter trawls, beam trawls, dredgers, gill nets, pelagic trawls and seines). Similarly, activity levels by foreign fishing vessels are also very low within the Commercial Fisheries and Aquaculture Study Area (see Volume III, Appendix 14.1: Commercial Fisheries and Aquaculture Technical Report). The shallow nature of the Array Area across the Arklow Bank is considered to provide limited potential for sustaining any significant levels of mobile fishing activity. This is corroborated by VMS data presented in Volume III, Appendix 14.1: Commercial Fisheries and Aquaculture Technical Report. On occasion, VMS data does show some limited of mobile fleets, specifically inshore from the Array Area running northeast to southwest. However, consultation indicates that this is a transiting route taken by fishing vessels to and from fishing grounds, which is also evidenced by AIS data in Figure 14.1.17 and Figure 14.1.18 of Appendix 14.1.

## Aquaculture

- 14.6.2.11 An aquaculture site is located off the coast of Arklow, Co. Wicklow, approximately 5.5 km from the closest point of the Cable Corridor and Working Area. The mussel farm is made up of semi-permanent structures marked by eight navigation buoys which are fixed to the seabed via screw in anchors (Wicklow County Council, 2022). The mussel farm uses suspended structures to collect mussel seed, which is grown for approximately five to six months before being harvested and sold for further growth.
- 14.6.2.12 The location of the mussel farm is presented in Figure 14.1.34 of Appendix 14.1. The site has an approximate surface area of 0.64 km<sup>2</sup> and a perimeter of 3.3 km.



### 14.6.3 'Do nothing' scenario

- 14.6.3.1 Annex IV of the EIA Directive sets out the information required to be included in an EIAR. This includes “a description of the relevant aspects of the current state of the environment (baseline scenario) and an outline of the likely evolution thereof without implementation of the project 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”. In the event that the Proposed Development does not proceed, an assessment of the future baseline conditions has been carried out and is described within this section.
- 14.6.3.2 Potting for whelks is currently the principal fishing activity undertaken in the Commercial Fisheries and Aquaculture Study Area by the local fleet and activity is for the most part concentrated in inshore areas. Landings of this species are not restricted through annual quota, however, management measures, such as the "Whelk (Conservation of Stocks) Regulations, 2006" are currently in place.
- 14.6.3.3 Detailed information on the status of the local common whelk *Buccinum undatum* stock is not currently available. This species is however considered to be generally depleted or locally depleted in the Irish Sea due to high fishing mortality (Tully, 2017).
- 14.6.3.4 The 2022 Shellfish Stocks and Fisheries Review (Marine Institute & BIM, 2023) provided an assessment of whelks. The size at maturity for whelk is well above the minimum landing size (MLS) and it is, therefore, feasible that local depletions of stock may occur. In future it is considered not feasible to solely manage the whelk fishery using MLS; however, increasing the MLS to the average size at maturity would severely limit landings. Overall, it is considered that area based management within the Irish Sea may be necessary for the whelk fishery (Marine Institute & BIM, 2023).
- 14.6.3.5 Where local inshore whelk stocks decline or are depleted in the future, there may be potential for fishing activity to move further offshore. From information gathered during consultation with local fisheries stakeholders, it is understood that some local fishermen are already investing in larger vessels to allow them to target offshore grounds. Given the shallow nature of the Arklow Bank, fishing activity in the Array Area is not anticipated to increase as a result of this. Areas offshore of the Array Area may however become increasingly important in the future to the local fleet.
- 14.6.3.6 With regards to the mussel seed fishery, potential fishing grounds would be expected to remain relatively consistent with the locations of mapped seed mussel dredge areas (Figure 14.1.10 of Appendix 14.1). Known seed mussel beds do not overlap with the Array Area, with limited overlap with the Cable Corridor and Working Area. Furthermore, it is understood that mussel dredging does not normally take place in sandbank areas as seed mussel is not generally found in sandbank habitats and the gear is not effective in such grounds (Marine Institute, 2018). As such, it would not be expected for the Array Area to support mussel seed fisheries in the future.
- 14.6.3.7 The baseline assessment has demonstrated that commercial fisheries landings and activity varies from year-to-year, and that changing trends are normal and expected in future fisheries baseline environment. Patterns in commercial fisheries change and fluctuate based on a range of natural and management-controlled factors. This includes the following:
- Brexit: there have been two schemes to support the Irish fishing industry due to the reduction in the Total Allowable catches (TACs) and quotas as a result of Brexit;
  - Tie up scheme: for 1 month in 2021 and for 2 months in 2022;
  - Decommissioning scheme: in 2023 primarily affecting the offshore fleet;
  - Market demand: commercial fishing fleets respond to market demand, which is impacted by a range of factors, including the COVID pandemic effecting landings in 2020 and 2021;
  - Market prices: commercial fishing fleets respond to market prices by focusing effort on higher value target species when prices are high and markets in demand;

- 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.), climate change and changes in fishing pressure etc.;
- Fisheries management: including new management for specific species where overexploitation has been identified, or changes in TACs leading to the relocation of effort, and/or an overall increase/decrease of effort and catches from specific areas;
- 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 demersal seine; and
- Sustainability: with seafood buyers more frequently requesting certification of the sustainability of fish and shellfish products, such as the Marine Stewardship Council certification, industry is adapting to improve fisheries management and wider environmental impacts.

14.6.3.8 The variations and trends in commercial fisheries activity are an important aspect of the baseline assessment and forms the principal reason for considering up to five years of key baseline data. The key species targeted in the Commercial Fisheries and Aquaculture Study Area are non-quota shellfish species which therefore do not have negotiated TACs. The effect of the withdrawal of the UK from the EU and subsequent reallocation of TACs is not of relevance to these fisheries and therefore has minimal effect on these fisheries. It is therefore considered, with sufficient certainty, that the current baseline is reflective of the future scenarios over the lifetime of the Proposed Development.

#### 14.6.4 Data limitations

- 14.6.4.1 A range of different data limitations and uncertainty exist for all of the commercial fisheries datasets assessed within this Chapter and within Appendix 14.1: Commercial Fisheries and Aquaculture Technical Report. The level of uncertainty and confidence of each dataset is defined in Table 7.1 of Appendix 14.1.
- 14.6.4.2 The principal limitation is that reliable, verifiable landings statistics are not formally reported for the under 10 m vessel fleets, as formal logbooks are not required to be maintained and submitted. This leads to incomplete landing statistics datasets, where data for under 10 m vessels is either included (i.e. through sales notes), estimated or completely omitted. This limitation of data for the under 10m fleet is also noted for the AIS and VMS datasets, as discussed further below.
- 14.6.4.3 In addition, limitations of landings data include the spatial size of ICES rectangles which can misrepresent actual activity across the Proposed Development and care is therefore required when interpreting these data.
- 14.6.4.4 Lack of recent landings statistics for EU (non-Irish) fleets is also recognised as a data limitation; based on the most recent European Commission data call, more recent landings data (2017-2019) is no longer available by ICES rectangle (34E4 and 34E3). Landings data at a scale of ICES division (i.e. the whole of the Irish Sea) is less useful to understand fishing activity specific to the area overlapping the Proposed Development. This is because the Proposed Development overlaps with a very small percentage (0.13%) of the Irish Sea, and data at that resolution does not allow determination of fishing grounds specific to the Proposed Development.
- 14.6.4.5 Limitations of VMS data are primarily focused on the coverage being limited to vessels 12 m and over. 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, this is not necessarily the case because VMS data do not include vessels typically operating in inshore area (i.e. which typically comprises of vessels <12 m in length). This is particularly important when assessing the activity across the Cable Corridor and Working Area infrastructure boundary for the potting fleet.



14.6.4.6 Despite the data limitations and uncertainties, a good range of fisheries data has been available from a range of sources including:

- Fisheries dependant data from SFPa, EU DCF, ICES and MMO;
- Scientific stock assessments from Marine Institute and BIM and ICES;
- Officially amalgamated datasets covering logbook declarations, sales notes for vessels under 10 m, gatherer docketts and co-op data as assessed by Marine Institute and BIM.

14.6.4.7 Overall, the range of data sources available, coupled with industry consultation and expert judgement provide sufficient knowledge to characterise the baseline environment for the purpose of undertaking the EIAR for commercial fisheries.

## **14.7 Impact assessment methodology**

### **14.7.1 Key parameters for assessment**

14.7.1.1 The assessment of significance of effects has been carried out on both of the two discrete Project Design Options detailed in Volume II, Chapter 4, Description of Development. This approach has allowed for a robust and full assessment of the Proposed Development.

14.7.1.2 The two Project Design Options and parameters relevant to each potential impact are detailed in Table 14.6: and Table 14.7.

**Table 14.6: Project design parameters and impacts assessed – Project Design Option 1**

Potential impact	Phase			Project Design Option 1
	C	O	D	
Loss of grounds or restricted access to fishing grounds within the Array Area	✓	✓	✓	<p><b>Construction phase</b></p> <p>Restriction in access due to confirmatory survey activities including:</p> <p><u>Confirmatory surveys:</u> x131 Boreholes, x431 cone penetration tests, x300 vibrocores, x240 grab samples and geophysical surveys along cabling and Wind Turbine Generator (WTG) locations.</p> <ul style="list-style-type: none"> <li>Site preparation activities prior to inter-array and interconnector cable installation to include sandwave clearance, with following footprint: <ul style="list-style-type: none"> <li>For inter-array cables, sandwaves may be cleared along a width of 70m, to a depth of 10m, along 30% of the inter-array cables length, total seabed area of 2,562,000 m<sup>2</sup>.</li> <li>For Offshore Substation Platforms (OSP) interconnector, sandwaves may be cleared along a width of 70m, to a depth of 10m, along 30% of the OSP interconnector length, total seabed area of 588,000 m<sup>2</sup>.</li> <li>For scour protection, sandwaves may be cleared along a diameter of 99m, to a depth of 10m, along 50%, total seabed area of 215,540 m<sup>2</sup>.</li> <li>For OSP/ WTG installation, sandwaves may be cleared along a diameter of 100m, to a depth of 5m, at 20% of locations, total seabed area of 13,920 m<sup>2</sup>.</li> </ul> </li> <li>Site preparation activities related to boulder clearance (via picking or plough), with following footprint: <ul style="list-style-type: none"> <li>100% of cable routes = total footprint of 2,850,000m<sup>2</sup></li> </ul> </li> <li>Site preparation activities to also include Unexploded Ordnance (UXO) clearance.</li> <li>Presence of advisory clearance distances of 500 m in radius around vessels undertaking confirmatory surveys activities.</li> </ul> <p>Restriction in access due to construction:</p> <ul style="list-style-type: none"> <li>Installation of 56 WTGs with monopile foundations within the Array Area with total seabed footprint of 2,128m<sup>2</sup> - 5,380 m<sup>2</sup> plus 34,440 m<sup>2</sup> – 267,624m<sup>2</sup> of scour protection (including concrete mattresses, rock, artificial fronds, rockbags and geotextile sand containers);</li> <li>Installation of two Offshore Substation Platforms (OSPs) with monopile foundations within the Array Area with total seabed footprint of 38 - 154 m<sup>2</sup> plus 1,230 – 15,086m<sup>2</sup> of rock scour protection;</li> <li>Installation of 110-122 km inter-array cables within the Array Area with burial depth of 0-1.5 m, with 1,830,000 m<sup>2</sup> total area of seabed disturbance from installation throughout the entire five year</li> </ul>

Potential impact	Phase	Project Design Option 1
	C O D	<p>construction period (i.e., not in totality at any given one time) plus 146,400 m<sup>2</sup> of cable protection across 18,300 m of inter-array cables;</p> <p>Installation of a interconnector cable with total length of 25-28 km within the Array Area with burial depth of 0-2.5 m, with 420,000 m<sup>2</sup> total area of seabed disturbance from installation throughout the entire five year construction period (i.e., not in totality at any given one time) plus 140,000 m<sup>2</sup> of cable protection across 14,000 m of interconnector cables;</p> <ul style="list-style-type: none"> <li>• Presence of advisory safety zones of 500 m in radius around structures undergoing installation and 50 m advisory safety zones around all structures until the point of commissioning; and advisory clearance distances of 500 m in radius around installation vessels;</li> <li>• Advisory clearance distances of 500 m in radius along vulnerable sections of cables (i.e. cables awaiting burial or protection); and</li> <li>• Offshore construction period of five years.</li> </ul> <p><b>Operational and maintenance phase</b></p> <p>Restriction in access due to:</p> <ul style="list-style-type: none"> <li>• Presence of 56 WTGs with monopile foundations within the Array Area with total seabed footprint of 2,128m<sup>2</sup> - 5,380 m<sup>2</sup> plus 34,440 m<sup>2</sup> – 267,624m<sup>2</sup> of scour protection (including concrete mattresses, rock, artificial fronds, rockbags and geotextile sand containers);</li> <li>• Presence of two Offshore Substation Platforms (OSPs) with monopile foundations within the Array Area with total seabed footprint of 38 - 154 m<sup>2</sup> plus 1,230 – 15,086m<sup>2</sup> of rock scour protection;</li> </ul> <p>944 m minimum spacing between proposed WTGs and/or OSPs structures (limit of deviation of up to 100m per structure).;</p> <ul style="list-style-type: none"> <li>• Presence of 146,400 m<sup>2</sup> of cable protection across 18,300 m of inter-array cables;</li> <li>• Presence of 140,000 m<sup>2</sup> of cable protection across 14,000 m of interconnector cables;</li> <li>• Advisory safety zones of 500 m in radius around structures undergoing major maintenance; and advisory clearance distances of 500 m in radius around major maintenance vessels; and</li> <li>• Operational period of 36.5 years.</li> </ul> <p><b>Decommissioning phase</b></p> <p>All structures above the seabed would be removed via cutting monopiles 2m below seabed, scour protection, cables and cable protection would be left in situ. Decommissioning would be undertaken in the reverse of construction using similar plant and techniques.</p>

Potential impact	Phase			Project Design Option 1
	C	O	D	
Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area	✓	✓	✓	<p><b>Construction phase</b></p> <p>Restriction in access due to confirmatory surveys activities including:</p> <p><u>Confirmatory surveys:</u> x131 Boreholes, x431 cone penetration tests, x300 vibrocores, x240 grab samples and geophysical surveys along cabling and WTG locations.</p> <ul style="list-style-type: none"> <li>Site preparation activities prior to inter-array and interconnector cable installation to include sandwave clearance, with following footprint: <ul style="list-style-type: none"> <li>For export cables, sandwaves may be cleared along a width of 70m, to a depth of 10m, along 30% of the export cables length, total seabed area of 840,000 m<sup>2</sup>.</li> </ul> </li> <li>Site preparation activities related to boulder clearance (via picking or plough), with following footprint: <ul style="list-style-type: none"> <li>100% of cable routes = total footprint of 2,850,000m<sup>2</sup></li> </ul> </li> <li>Site preparation activities to also include UXO clearance.</li> <li>Presence of advisory clearance distances of 500 m in radius around vessels undertaking confirmatory surveys activities.</li> </ul> <p>Restriction in access due to construction:</p> <ul style="list-style-type: none"> <li>Installation of two offshore export cables of 35-40 km length in total routed within the Cable Corridor and Working Area, with burial depth of 0-2.5 m, with 600,000 m<sup>2</sup> total area of seabed disturbance from installation throughout the entire 12 month construction period (i.e., not in totality at any given one time) plus 64,000 m<sup>2</sup> of cable protection across 8,000 m of export cables;</li> <li>Cable crossings with a total footprint of 750 - 24,000 m<sup>2</sup>;</li> <li>Advisory clearance distances of 500 m in radius around installation vessels;</li> <li>Advisory clearance distances of 500 m in radius along vulnerable sections of cables (i.e. cables awaiting burial or protection);</li> <li>Offshore construction period of 12 months.</li> </ul> <p><b>Operational and maintenance phase</b></p> <p>Restriction in access due to:</p> <ul style="list-style-type: none"> <li>Presence of 64,000 m<sup>2</sup> of cable protection across 8,000 m of export cables;</li> <li>Advisory clearance distances of 500 m in radius around major maintenance vessels;</li> <li>Operational period of 36.5 years.</li> </ul>

Potential impact	Phase			Project Design Option 1
	C	O	D	
				<b>Decommissioning phase</b> All structures above the seabed would be removed via cutting monopiles 2m below seabed, scour protection, cables and cable protection would be left in situ. Decommissioning would be undertaken in the reverse of construction using similar plant and techniques.
Displacement of fishing activity into other areas	✓	✓	✓	As above for loss of grounds or restricted access to fishing grounds.
Interference with fishing activities	✓	✓	✓	<b>Construction phase</b> <ul style="list-style-type: none"> <li>Maximum of 4,150 vessel round trips to the Array Area over the 5-year construction phase, including 20 vessel round trips for installation of the offshore export cables (including activities at the landfall), comprised of jack-up barge/dynamic positioning vessels, tug/anchor handlers, cable installation vessels, guard vessels, survey vessels, crew transfer vessels, and scour/cable protection installation vessels.</li> <li>Assumes up to 50 vessels on site in the Array Area and up to 12 vessels on site for offshore export cable installation activities (including at the landfall) at any given time; and</li> <li>Offshore construction works may take place over a period of up to five years.</li> </ul> <b>Operational and maintenance phase</b> <ul style="list-style-type: none"> <li>Maximum of 1,359 vessel round trips per year comprised of crew transfer vessels, jack-up vessels, cable repair vessels and other vessels, from local ports or transiting from a previously operational location.</li> <li>Maximum of 30 vessels on site at any given time; and</li> <li>Operational phase up to 36.5 years.</li> </ul> <b>Decommissioning phase</b> As per the construction phase.
Increased steaming times to fishing grounds	✓	✓	✓	As above for loss of grounds or restricted access to fishing grounds.
Effects on commercially exploited species	✓	✓	✓	As described in Chapter 10: Fish, Shellfish and Sea Turtle Ecology.

Potential impact	Phase			Project Design Option 1
	C	O	D	
Potential for snagging of gear	✓	✓	✓	As above for loss of grounds or restricted access to fishing grounds.



**Table 14.7: Project design parameters and impacts assessed - Project Design Option 2**

Potential impact	Phase			Project Design Option 2
	C	O	D	
Loss of grounds or restricted access to fishing grounds within the Array Area	✓	✓	✓	<p><b>Construction phase</b></p> <p>Restriction in access due to confirmatory surveys activities including:</p> <ul style="list-style-type: none"> <li>• <u>Confirmatory surveys</u>: x131 Boreholes, x431 cone penetration tests, x300 vibrocores, x240 grab samples and geophysical surveys along cabling and WTG locations.</li> <li>• Site preparation activities prior to inter-array and interconnector cable installation to include sandwave clearance, with following footprint: <ul style="list-style-type: none"> <li>– For inter-array cables, sandwaves may be cleared along a width of 70m, to a depth of 10m, along 30% of the inter-array cables length, total seabed area of 2,562,000 m<sup>2</sup>.</li> <li>– For Offshore Substation Platforms (OSP) interconnector, sandwaves may be cleared along a width of 70m, to a depth of 10m, along 30% of the OSP interconnector length, total seabed area of 588,000 m<sup>2</sup>.</li> <li>– For scour protection, sandwaves may be cleared along a diameter of 99m, to a depth of 10m, along 50%, total seabed area of 180,900 m<sup>2</sup>.</li> <li>– For OSP/ WTG installation, sandwaves may be cleared along a diameter of 100m, to a depth of 5m, at 20% of locations, total seabed area of 11,760 m<sup>2</sup>.</li> </ul> </li> <li>• Site preparation activities related to boulder clearance (via picking or plough), with following footprint: 100% of cable routes = total footprint of 2,850,000m<sup>2</sup></li> <li>• Site preparation activities to also include UXO clearance.</li> <li>• Presence of advisory clearance distances of 500 m in radius around vessels undertaking confirmatory surveys activities.</li> </ul> <p>Restriction in access due to construction:</p> <ul style="list-style-type: none"> <li>• Installation of 47 WTGs with monopile foundations within the Array Area with total seabed footprint of 1,786 - 4,520 m<sup>2</sup> plus 28,905 – 224,613 m<sup>2</sup> of scour protection (including concrete mattresses, rock, artificial fronds, rockbags and geotextile sand containers);</li> <li>• Installation of two Offshore Substation Platforms (OSPs) with monopile foundations within the Array Area with total seabed footprint of 38 - 154 m<sup>2</sup> plus 1,230 – 15,086m<sup>2</sup> of rock scour protection;</li> <li>• Installation of 110-122 km inter-array cables within the Array Area with burial depth of 0-1.5 m, with 1,830,000 m<sup>2</sup> total area of seabed disturbance from installation throughout the entire five year</li> </ul>

Potential impact	Phase			Project Design Option 2
	C	O	D	
				<p>construction period (i.e., not in totality at any given one time) plus 146,400 m<sup>2</sup> of cable protection across 18,300 m of inter-array cables;</p> <ul style="list-style-type: none"> <li>• Installation of two interconnector cables with total length of 25-28 km within the Array Area with burial depth of 0-2.5 m, with 420,000 m<sup>2</sup> total area of seabed disturbance from installation throughout the entire five year construction period (i.e., not in totality at any given one time) plus 140,000 m<sup>2</sup> of cable protection across 14,000 m of interconnector cables;</li> <li>• Presence of advisory safety zones of 500 m in radius around structures undergoing installation and 50 m advisory safety zones around all structures until the point of commissioning; and advisory clearance distances of 500 m in radius around installation vessels;</li> <li>• Advisory clearance distances of 500 m in radius along vulnerable sections of cables (i.e. cables awaiting burial or protection); and</li> <li>• Offshore construction period of five years.</li> </ul> <p><b>Operational and maintenance phase</b></p> <p>Restriction in access due to:</p> <ul style="list-style-type: none"> <li>• Presence of 47 WTG with monopile foundations within the Array Area with total seabed footprint of 1,786 - 4,520 m<sup>2</sup> plus 28,905 – 224,613 m<sup>2</sup> of scour protection (including concrete mattresses, rock, artificial fronds, rockbags and geotextile sand containers);</li> <li>• Presence of two Offshore Substation Platforms (OSPs) with monopile foundations within the Array Area with total seabed footprint of 38 - 154 m<sup>2</sup> plus 1,230 – 15,086m<sup>2</sup> of rock scour protection;</li> </ul> <p>944 m minimum spacing between WTGs and/or OSPs structures; (limit of deviation of up to 100m per structure).;</p> <ul style="list-style-type: none"> <li>• Presence of 146,400 m<sup>2</sup> of cable protection across 18,300 m of inter-array cables;</li> <li>• Presence of 140,000 m<sup>2</sup> of cable protection across 14,000 m of interconnector cables;</li> <li>• Advisory safety zones of 500 m in radius around structures undergoing major maintenance; and advisory clearance distances of 500 m in radius around major maintenance vessels; and</li> <li>• Operational period of 36.5 years.</li> </ul> <p><b>Decommissioning phase</b></p> <p>All structures above the seabed would be removed via cutting monopiles 2m below seabed, scour protection, cables and cable protection would be left in situ. Decommissioning would be undertaken in the reverse of construction using similar plant and techniques.</p>

Potential impact	Phase			Project Design Option 2
	C	O	D	
Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area	✓	✓	✓	<p><b>Construction phase</b></p> <p>Restriction in access due to confirmatory surveys activities including:</p> <ul style="list-style-type: none"> <li>• <u>Confirmatory surveys</u>: x131 Boreholes, x431 cone penetration tests, x300 vibrocores, x240 grab samples and geophysical surveys along cabling and WTG locations.</li> <li>• Site preparation activities prior to inter-array and interconnector cable installation to include sandwave clearance, with following footprint: <ul style="list-style-type: none"> <li>– For export cables, sandwaves may be cleared along a width of 70m, to a depth of 10m, along 30% of the export cables length, total seabed area of 840,000 m<sup>2</sup>.</li> </ul> </li> <li>• Site preparation activities related to boulder clearance (via picking or plough), with following footprint: 100% of cable routes = total footprint of 2,850,000m<sup>2</sup></li> <li>• Site preparation activities to also include UXO clearance.</li> <li>• Presence of advisory clearance distances of 500 m in radius around vessels undertaking confirmatory surveys activities.</li> </ul> <p>Restriction in access due to construction:</p> <ul style="list-style-type: none"> <li>• Installation of two offshore export cables of 35-40 km length in total routed within the Cable Corridor and Working Area, with burial depth of 0-2.5 m, with 600,000 m<sup>2</sup> total area of seabed disturbance from installation throughout the entire 12 month construction period (i.e., not in totality at any given one time) plus 64,000 m<sup>2</sup> of cable protection across 8,000 m of export cables;</li> <li>• Cable crossings with a total footprint of 750 - 24,000 m<sup>2</sup>;</li> <li>• Advisory clearance distances of 500 m in radius around installation vessels;</li> <li>• Advisory clearance distances of 500 m in radius along vulnerable sections of cables (i.e. cables awaiting burial or protection);</li> <li>• Offshore construction period of 12 months.</li> </ul> <p><b>Operational and maintenance phase</b></p> <p>Restriction in access due to:</p> <ul style="list-style-type: none"> <li>• Presence of 64,000 m<sup>2</sup> of cable protection across 8,000 m of export cables;</li> <li>• Advisory clearance distances of 500 m in radius around major maintenance vessels;</li> <li>• Operational period of 36.5 years.</li> </ul>

Potential impact	Phase			Project Design Option 2
	C	O	D	
				<b>Decommissioning phase</b> All structures above the seabed would be removed via cutting monopiles 2m below seabed, scour protection, cables and cable protection would be left in situ. Decommissioning would be undertaken in the reverse of construction using similar plant and techniques.
Displacement of fishing activity into other areas	✓	✓	✓	As above for loss of grounds or restricted access to fishing grounds.
Interference with fishing activities	✓	✓	✓	<b>Construction phase</b> <ul style="list-style-type: none"> <li>Maximum of 4,150 vessel round trips to the Array Area over the 5-year construction phase, including 20 vessel round trips for installation of the offshore export cables (including activities at the landfall), comprised of jack-up barge/dynamic positioning vessels, tug/anchor handlers, cable installation vessels, guard vessels, survey vessels, crew transfer vessels, and scour/cable protection installation vessels.</li> <li>Assumes up to 50 vessels on site in the Array Area and up to 12 vessels on site for offshore export cable installation activities (including at the landfall) at any given time; and</li> <li>Offshore construction works may take place over a period of up to five years.</li> </ul> <b>Operational and maintenance phase</b> <ul style="list-style-type: none"> <li>Maximum of 1,359 vessel round trips per year comprised of crew transfer vessels, jack-up vessels, cable repair vessels and other vessels, from local ports or transiting from a previously operational location.</li> <li>Maximum of 30 vessels on site at any given time; and</li> <li>Operational phase up to 36.5 years.</li> </ul> <b>Decommissioning phase</b> <ul style="list-style-type: none"> <li>As per the construction phase.</li> </ul>
Increased steaming times to fishing grounds	✓	✓	✓	As above for loss of grounds or restricted access to fishing grounds.
Effects on commercially exploited species	✓	✓	✓	As described in Chapter 10: Fish, Shellfish and Sea Turtle Ecology.
Potential for snagging of gear	✓	✓	✓	As above for loss of grounds or restricted access to fishing grounds.

## 14.7.2 Impacts scoped out of the assessment

- 14.7.2.1 No potential impacts are scoped out of the EIAR with regards to commercial fisheries.
- 14.7.2.2 Potential impacts related to exclusion and impacts on the commercial resource are assessed for aquaculture; all other impacts are scoped out as there is not an impact pathway for the aquaculture receptor.
- 14.7.2.3 The NMPF (Department of Housing, Local Government and Heritage, 2021) Aquaculture Policy 2 states that non-aquaculture proposals in aquaculture production areas must demonstrate consideration of, and compatibility with, aquaculture production. Aquaculture production areas are defined by the NMPF as licensed aquaculture sites. The identified mussel seed farm is located 5.5 km at its closest point to the Cable Corridor and Working Area and Working Area and 10 km at its closest point to the Array Area. The Proposed Development does not overlap with this or any other licensed aquaculture site. Impacts on aquaculture developments are therefore scoped out of the assessment.

## 14.8 Methodology for assessing the significance of effects

### 14.8.1 Overview

- 14.8.1.1 The commercial fisheries impact assessment has followed the methodology set out in Volume II, Chapter 5: EIA Methodology. Specific to the commercial fisheries impact assessment, the guidance documents set out in Section 14.3 have also been adhered to.

### 14.8.2 Impact assessment criteria

#### SENSITIVITY

- 14.8.2.1 The definitions employed in assigning receptor sensitivity are provided in Table 14.8 and consider the following:
- Context - The degree to which the receptor will conform or contrast with the established (baseline) conditions. To define the context the following sub-factors will be considered:
  - Adaptability - The degree to which a receptor can avoid or adapt to an impact;
  - Tolerance - The ability of a receptor to accommodate temporary or permanent change without a significant adverse impact; and
  - Recoverability - The temporal scale over and extent to which a receptor will recover following an impact.
  - Value - A measure of the receptor's importance, rarity and worth.

**Table 14.8: Definitions of sensitivity of the commercial fisheries receptor**

Receptor sensitivity	Definition
High	<p>Adaptability: No alternative fishing grounds are available and/or the fishing fleet has very low operational range outside the project area.</p> <p>Tolerance: Receptor is highly vulnerable to impacts that may arise from the project.</p> <p>Recoverability: Recoverability is long term or not possible.</p> <p>Value: The receptor is of very high socio-economic value.</p>

Receptor sensitivity	Definition
Medium	<p>Adaptability: Low levels of alternative fishing grounds are available and/or the fishing fleet has low operational range.</p> <p>Tolerance: Receptor is generally vulnerable to impacts that may arise from the project.</p> <p>Recoverability: Recoverability is slow and/or costly.</p> <p>Value: The receptor is of high socio-economic value.</p>
Low	<p>Adaptability: Moderate levels of alternative fishing grounds are available and/or fishing fleet has moderate operational range.</p> <p>Tolerance: Receptor is somewhat vulnerable to impacts that may arise from the project.</p> <p>Recoverability: Moderate to high levels of recoverability.</p> <p>Value: The receptor is of medium socio-economic value.</p>
Negligible	<p>Adaptability: High levels of alternative fishing grounds are available and/or fishing fleet has large to extensive operational range.</p> <p>Tolerance: Receptor is not generally vulnerable to impacts that may arise from the project and the fishing fleet is resilient to change.</p> <p>Recoverability: High or very high levels of recoverability.</p> <p>Value: The receptor is of low socio-economic value.</p>

## MAGNITUDE

14.8.2.2 The definitions for magnitude consider the following:

- Extent - The area, the number of sites and/ or the proportion of a population affected over which an impact occurs;
- Duration - The time for which the impact occurs;
- Frequency - How often the impact occurs;
- Probability - How likely the impact is to occur; and
- Consequences - The degree of change relative to the baseline level and the change in character.

14.8.2.3 Due to the range in scale, value (in terms of both landings and income/profit) and operational practises, within the commercial fishing fleets assessed, specific economic criteria were not set for defining the level of consequence within the categories of high, medium or low. Instead, these classifications were based on judgement informed by the baseline environment characterisation and consultation with the industry. The definitions for each category of magnitude are defined in Table 14.9.

**Table 14.9: Definitions of the magnitude of an impact**

Magnitude	Definition
High	<p>Extent: Impact is of extended physical extent.</p> <p>Duration: Impact is of long-term duration (i.e., greater than 12 years).</p> <p>Frequency: The impact will occur continuously and constantly throughout the relevant project phase.</p> <p>Probability: The impact is highly likely to occur.</p> <p>Consequences: Impact is expected to result in one or more of the following:</p>



Magnitude	Definition
	Substantial loss of target fish or shellfish biological resource (e.g., loss of substantial proportion of resource within project area); and Substantial loss of ability to carry on fishing activities (e.g., substantial proportion of effort within project area).
Medium	Extent: Impact is of moderate physical extent. Duration: Impact is of medium-term duration (i.e., less than 12 years). Frequency: The impact will occur regularly throughout the relevant project phase. Probability: The impact is likely to occur. Consequences: Impact is expected to result in one or more of the following: Partial loss of target fish or shellfish biological resource (e.g., moderate loss of resource within project area); and Partial loss of ability to carry on fishing activities (e.g., moderate reduction of fishing effort within project area).
Low	Extent: Impact is of limited physical extent. Duration: Impact is of short-term duration (e.g., less than 5 years) Frequency: The impact will occur intermittently throughout the relevant project phase. Probability: The impact may occur. Consequences: Impact is expected to result in one or more of the following: Minor loss of target fish or shellfish biological resource (e.g., minor loss of resource within project area); and Minor loss of ability to carry on fishing activities (e.g., minor reduction of fishing effort within project area).
Negligible	Extent: Impact is of negligible physical extent. Duration: Impact is very short-term duration (i.e., less than 2 years). Frequency: The impact will occur infrequently throughout the relevant project phase. Probability: The impact is unlikely to occur. Consequences: Impact is expected to result in one or more of the following: Slight loss of target fish or shellfish biological resource (e.g., slight loss of resource within project area); and Slight loss of ability to carry on fishing activities (e.g., slight loss of fishing effort within project area).

## SIGNIFICANCE OF EFFECT

14.8.2.4 The significance of the effect upon commercial fisheries and aquaculture 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 14.10. Where a range of significance of effect is presented in Table 14.10, the final assessment for each effect is based upon expert judgement.

14.8.2.5 Although EPA 2022 leans heavily towards an effect of Moderate being concluded as non-significant in EIA terms, flexibility to allow for expert judgement is required.

**Table 14.10: Significance of effect matrix**

			Baseline Environment - Sensitivity			
			High	Medium	Low	Negligible
Description of Impact - Magnitude	Adverse Impact	High	Profound or Very Significant (significant)	Significant	Moderate*	Imperceptible
		Medium	Significant	Moderate (Significant)	Slight	Imperceptible
		Low	Moderate*	Slight	Slight	Imperceptible
	Neutral Impact	Negligible	Not Significant	Not Significant	Not Significant	Imperceptible
	Positive Impact	Low	Moderate*	Slight	Slight	Imperceptible
		Medium	Significant	Moderate*	Slight	Imperceptible
		High	Profound or Very Significant (significant)	Significant	Moderate*	Imperceptible

*\*Moderate levels of effect have the potential, subject to the assessor's professional judgement to be significant or not significant. Moderate will be considered as significant or not significant in EIA terms, depending on the sensitivity and magnitude of change factors evaluated. These evaluations are explained as part of the assessment, where they occur.*

### 14.8.3 Factored in measures

- 14.8.3.1 The Project Design Options set out in Volume II, Chapter 4: Description of Development includes a number of designed-in measures and management measures (or controls) which have been factored into the Proposed Development and are committed to be delivered by the Developer as part of the Proposed Development.
- 14.8.3.2 These factored-in measures are standard measures applied to offshore wind development, including lighting and marking of the Proposed Development, use of 'soft-starts' for piling operations etc, to reduce the potential for impacts. Factored-in measures relevant to the assessment on commercial fisheries and aquaculture are presented in Table 14.11. These measures are integrated into the description of development and have therefore been considered in the impact assessment (i.e. the determination of magnitude and therefore significance assumes implementation of these measures). These measures are considered standard industry practice for this type of development. This approach is in line with EPA guidance which states that 'in an EIAR it may be useful to describe avoidance measures that have been integrated into the proposed proposal' (EPA, 2022).

**Table 14.11: Factored in measures**

Factored in measures	Justification
Fisheries liaison (as set out in Volume III, Appendix 25.1: Environmental Management Plan (EMP) and Volume III, Appendix 25.3 Fisheries Management and Mitigation Strategy (FMMS)).	<p>Appointment of a FLO and use of Offshore FLOs (OFLOs) as required to enable ongoing liaison with fishing fleets to be maintained.</p> <p>Timely and efficient posting of Notice to Mariners (NtM) and navigational warnings. This includes the creation of database to use as a mailing list for promulgation of information advising on the nature, timing and location of activities, and the circulation of information.</p> <p>Adherence to appropriate guidance with regards to fisheries liaison and mitigation procedures in the event of interactions between the Proposed Development and fishing activities, (i.e. Seafood/ORE Working Group, 2023; FLOWW, 2014 guidance).</p>
Cable Burial Risk Assessment (CBRA) (to be produced pre construction)	<p>The aim of the CBRA is to undertake a risk assessment in order to determine suitable burial depths for a cable along the entire route to protect the cable from third party and natural hazards. This includes identifying all hazards to the cable and carrying out a risk assessment to make recommendations on the burial depth required along the length of the cable to ensure that the risk to the cable is within acceptable limits. The CBRA includes an assessment of seabed conditions (based on available survey data) and an assessment of shipping, fishing, dredging, military activities etc. Burial requirements are normally driven by the risk from fishing gear and vessel anchors, as well as the seabed conditions along the cable route (which affects the anchor and fishing gear penetration depths).</p> <p>This process will be informed by a Burial Assessment Study (BAS) which looks at the different installation methodologies available (Volume II, Chapter 4: Description of Development) and provides recommendations as to the suitability of each option based on the seabed conditions. The BAS also identifies areas where burial may not be feasible and additional protection (e.g. rock placement) may be required. This will feed into the CBRA to provide cable protection requirements (burial and external protection).</p>
Scour protection (Volume II, Chapter 4: Description of Development).	Scour protection will be employed around seabed infrastructure where there is the potential risk for significant scour to develop.
Additional mitigation where identified necessary (Volume III, Appendix 25.3 Fisheries Management and Mitigation Strategy (FMMS)).	Implementation of cooperation payments where the relocation of static gear is required, as appropriate, and following an evidence-based approach.
Advisory safety zones and clearance distances (Volume III, Appendix 25.7: Vessel Management Plan (VMP)).	<p>Advisory Safety Zones (500 m) will be put in place for construction and maintenance works, and for pre commissioning works (50 m).</p> <p>Advisory clearance distances. Use of 'rolling'/temporary 500 m advisory clearance distances around installation/maintenance vessels.</p>

Factored in measures	Justification
Environmental Management Plan (Volume III, Appendix 25.1)	Development of and implementation of an EMP. This includes mitigation/monitoring measures and commitments made within the EIAR, including but not limited to chemical usage, invasive and non-native species, pollution prevention and waste management.
Construction Programme and Construction Methodology (Volume II, Chapter 4)	<p>Outlines the proposed construction programme for the Proposed Development. Provides details on the timing and sequencing of construction works.</p> <p>The construction methodology provides information on the construction procedures and good working practices proposed for the construction phase of the Proposed Development</p>
Operational and Maintenance Activities Methodology (Volume II, Chapter 4)	<p>Provides information on the maintenance procedure, including timing of maintenance activities.</p> <p>Charting of all structures associated with the Proposed Development on relevant nautical and electronic charts.</p>
Pre and Post-Construction surveys	<p>Volume II, Chapter 25: Summary of Factored in Measures, Mitigation and Monitoring), sets out commitments to environmental monitoring in pre-, during and post-construction phases.</p> <p>Confirmatory surveys to verify the presence or absence of Annex I features (blue mussel beds, reefs) and to confirm predicted benthic habitats present. Avoidance will minimise direct and indirect impacts on these features.</p> <p>Undertaking of post-installation cable burial surveys and periodic monitoring of cables (every six months for the first two years and annually thereafter).</p>
Fisheries Management and Mitigation Strategy (Volume III, Appendix 25.3)	A FMMS has been prepared. The FMMS sets out the means of ongoing fisheries liaison through construction and operation and maintenance (O&M) phases of the Proposed Development and details and commits to mitigation measures of relevance to commercial fisheries.
Gear loss (Volume III, Appendix 25.3)	Implementation of a procedure for claim for loss or damage to fishing gear which is provided in the FMMS.
Vessel Management Plan and procedures for project vessels (Volume III, Appendix 25.7).	<p>A Vessel Management Plan (VMP) has been prepared. The VMP confirms the types and numbers of vessels that will be engaged on the Proposed Development, and considers vessel coordination including indicative transit route planning (Marine Coordination).</p> <p>All contractors undertaking works will be contractually obliged to ensure compliance with the FMMS, including prohibition of the discarding of objects or materials overboard and requirement for rapid recovery of accidentally dropped objects where feasible.</p> <p>A Code of Conduct included in the FMMS will be issued to all project vessel operators to advise on how to avoid impacts on marine megafauna and interference with fishing activities.</p> <p>Compliance of all project vessels with Irish marine regulations including the holding of correct certification as required by the Marine Survey Office (MSO)), and international maritime regulations as adopted by the relevant flag state including the International Regulations for Preventing Collisions at Sea (COLREGs) (IMO, 1974) and the International Convention for the Safety of Life at Sea (SOLAS) (IMO, 1974).</p>
Navigational safety	A Lighting and Marking Plan (LMP) (Volume III, Appendix 25.6) has been developed. The LMP confirms compliance with legal

Factored in measures	Justification
	<p>requirements with regards to shipping, navigation and aviation marking and lighting.</p> <p>The operator of the Proposed Development will issue, as necessary, requests to the Irish Aviation Authority (IAA) to submit Aeronautical Information Circulars in the event of any failure of aviation lighting. Any light which fails shall be repaired or replaced as soon as is reasonably practicable. An alerting system for light failure will be put in place, such as remote monitoring or other suitable methods.</p> <p>Navigational aids and marine charting to ensure other marine users are aware of the location of the Proposed Development.</p> <p>Compliance with UK Marine Guidance Note (MGN) 654 with respect to WTG design and construction, to ensure recognised safe standards are met with regards to navigational safety and emergency response (search and rescue, salvage and towing, counter pollution).</p>
Rehabilitation Schedule (Volume III, Appendix 4.1)	A Rehabilitation Schedule has been developed which provides measures for the decommissioning of the Proposed Development.
The Developer confirms and commits that it will not carry out any works in respect of the Proposed Development under the planning permission (if granted) at the same time as any activities the subject of the Foreshore Licence for Site Investigations (FS007339).	<p>The Developer was granted a Foreshore Licence (FS007339) for Site Investigations (associated with the Proposed Development) from the Minister for Housing, Local Government and Heritage in May 2022.</p> <p>The Developer confirms and commits that it will not carry out any works in respect of the Proposed Development under the planning permission (if granted) at the same time as any activities the subject of the Foreshore Licence for Site Investigations (FS007339) being carried out.</p> <p>As such there is no temporal overlap between the activities consented in this Foreshore Licence and the Proposed Development and there will be no potential for cumulative effects.</p>
The Developer confirms and commits that it will not carry out any works in respect of the Proposed Development under the planning permission (if granted) at the same time as any activities the subject of the Foreshore Licence Application for Site Surveys FS007555 (should a licence be granted) are being carried out.	<p>The Developer submitted a Foreshore Licence Application for Site Surveys to the Minister for Housing, Local Government and Heritage in April 2023 (FS007555) and this application is pending determination.</p> <p>The Developer confirms and commits that it will not carry out any works in respect of the Proposed Development under the planning permission (if granted) at the same time as any activities the subject of the Foreshore Licence Application for Site Surveys FS007555 (should a licence be granted) are being carried out.</p> <p>As such there is no temporal overlap between the activities proposed in the Foreshore Licence Application and the Proposed Development.</p>



## 14.9 Assessment of the significance of effects

- 14.9.1.1 The impacts of the construction, operational and maintenance and decommissioning phases of both Project Design Options forming the Proposed Development have been assessed on commercial fisheries and aquaculture. The potential impacts arising from the construction, operational and maintenance and decommissioning phases of the Proposed Development are listed in Table 14.6: and Table 14.7, along with the project parameters against which each impact has been assessed.
- 14.9.1.2 A description of the potential effect on commercial fisheries and aquaculture caused by each identified impact is provided in Section 14.10 and Section 14.11.

## 14.10 Assessment of Project Design Option 1

### 14.10.1 Impact 1 – Loss of grounds or restricted access to fishing grounds within the Array Area

- 14.10.1.1 During construction of the Proposed Development within the Array Area, commercial fisheries will be prevented from fishing where seabed preparation and construction activities are taking place. This includes advisory safety zones and/or advisory clearance distances of 500 m diameter around significant infrastructure under construction, and 50 m diameter around partially completed or pre-commissioned structure. The total offshore construction duration will be five years, with a number/range of construction activities being undertaken simultaneously across the site.
- 14.10.1.2 Seabed preparation activities will occur in advance of installation of the cabling, with sandwave clearance required for 30% of inter-array and interconnector cables; and boulder clearance required for 100% of cable routes. Cable burial will occur within the same area where sandwave clearance has previously been completed, therefore cable burial will represent a repeat disturbance of some of the area affected by pre-construction clearance, but will not take up additional area and is accounted for within the duration of the construction period.
- 14.10.1.3 This impact will lead to a localised loss of access to fishing grounds and the fish and shellfish resources within these grounds for a range of fishing opportunities during the period of construction, which will directly affect fleets over a short-term duration (i.e., 5 years). The impact is predicted to be intermittent with localised exclusion surrounding construction activities and partially completed structures.
- 14.10.1.4 The impact is of relevance to national fishing fleets and is described below on a fishery-by-fishery basis.

#### SENSITIVITY OF THE RECEPTOR

- 14.10.1.5 The Irish potting fleet operate across distinct areas of ground, from the coastline out to beyond 12 NM. The whelk fishery is comprised of several vessels and is considered to have moderate levels of alternative fishing grounds; is deemed to be generally vulnerable to this impact, have medium recoverability and high value. Some of these vessels have multipurpose capabilities, being able to operate nets and/or trawls in addition to pots. However, given their limited operational range and reliance on local grounds, their fishing opportunities are restricted. The sensitivity of this receptor is therefore, considered to be Medium.
- 14.10.1.6 The Irish mussel seed dredge fishery is operated in very discrete areas where mussel beds are located. Fishing opportunities are relatively limited and depend on presence of mussel seed beds which can be variable in a given season. Due to the highly localised nature of the fishery, it is considered to have low-moderate levels of alternative fishing grounds; is deemed to be generally



vulnerable to this impact, have high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be Medium.

- 14.10.1.7 Other Irish and foreign fishing fleets include fishing vessels over 12 m in length which operate towed fishing gears (including pelagic otter trawl, demersal otter trawl, beam trawl, demersal seine and scallop dredge). These vessels have extensive operational ranges and high levels of alternative fishing grounds. These vessels have the ability to exploit a varied range of fishing grounds across a wider geographic area and are not specifically associated with the fishing grounds that overlap the Proposed Development. The sensitivity of the receptor is therefore, considered to be Low.

## Construction phase

### MAGNITUDE OF THE IMPACT

- 14.10.1.8 **Irish potting fishery:** the Irish potting fleet targets whelk across a defined area from inshore grounds extending out to the boundary of the Array Area and overlapping with a small section of the Array Area in the north (Figure 14.1.5 of Appendix 14.1). This distinct area of fishing ground specifically targeted for whelk runs along the south-east coast of Ireland and extends in places out to the 12 NM territorial seas limit. Landing statistics, fisheries mapping for vessels under 15 m length, and consultation with a range of stakeholders corroborate that Irish potting vessels actively target whelk in the region and across grounds represented in Figure 3.4 of Appendix 14.1.
- 14.10.1.9 As described in Section 14.6.2, on average approximately 1,240 tonnes of whelk are landed annually from the Commercial Fisheries and Aquaculture Study Area, worth € 1.9 million (based on a first sales value of € 1,500 per tonne and landings from 2015 to 2020).
- 14.10.1.10 The area of whelk grounds that overlaps with the Commercial Fisheries and Aquaculture Study Area (as shown in Figure 14.1.5 of Appendix 14.1) covers an area of approximately 751 km<sup>2</sup>. The area of whelk grounds that overlaps the Array Area is approximately 7.1 km<sup>2</sup>, equating to 0.95% of the whelk grounds in the Commercial Fisheries and Aquaculture Study Area.
- 14.10.1.11 In addition to landing statistics, industry consultation undertaken by the FLO, together with the fisheries activity surveys cite low levels of activity within the Array Area.
- 14.10.1.12 The consequence of the impact to the potting fleet targeting whelk is assessed as minor, based on the relatively low loss of ability to carry on fishing activities, noting that the vessels within the fleet under assessment more regularly and routinely target areas outside of the Array Area. The impact is predicted to be of local spatial extent. The duration of the impact will be short to medium term and intermittent. The overall magnitude of impact is assessed as Low adverse.
- 14.10.1.13 **Mussel seed fishery:** Known mussel beds do not overlap with the Array Area, although are located immediately north and northwest of the Array Area. Currently, there is minimal risk of losing fishing grounds or access to them within the Array Area during the construction phase. The impact is predicted to be of local spatial extent. The duration of the impact will be short to medium term and intermittent. The magnitude of the impact is therefore considered to be Low adverse.
- 14.10.1.14 **All other fleets:** Activity by other Irish and foreign fishing vessels (including pelagic otter trawl, demersal otter trawl, beam trawl, demersal seine and scallop dredge) is understood to take place at very low levels in the proximity of the Array Area. This is informed by landing statistics, VMS data, fisheries activity surveys and knowledge from the FLO. Furthermore, the nature of the shallow sandbank that the Array Area overlaps is understood to not routinely support large mobile vessels. Overall, the Array Area supports very limited activity by these fisheries. The impact is predicted to be of local spatial extent. The duration of the impact will be short to medium term and intermittent. In addition, a range of liaison and management measures will be implemented

to minimise disturbance to fishing activities during construction. The magnitude of the impact is therefore considered to be Negligible.

#### SIGNIFICANCE OF THE EFFECT

- 14.10.1.15 For the Irish potting fleet the magnitude of the impact is deemed to be **Low adverse** 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.
- 14.10.1.16 For the Irish mussel seed dredge fleet the magnitude of the impact is deemed to be **Low adverse** 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.
- 14.10.1.17 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **not significant** in EIA terms.

#### RESIDUAL EFFECT ASSESSMENT

- 14.10.1.18 The significance of effect from changes in access to fishing grounds is not significant in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### Operational and maintenance phase

#### MAGNITUDE OF IMPACT

- 14.10.1.19 Commercial fisheries will be prevented from actively fishing within the footprint of installed infrastructure within the Array Area (OSP and monopile footprints) together with associated advisory safety distances for maintenance activities. Minimum turbine spacing is 944 m between structures, including between turbines and all other infrastructure (limit of deviation of up to 100m per structure).
- 14.10.1.20 Out with this area, fishing will not be prohibited from within the Array Area where turbine spacing and turbine layout allow productive grounds to be targeted.
- 14.10.1.21 **Irish potting fishery:** the activity of the Irish potting fleet targeting whelk is as described for the construction phase. Resumption of fishing within the Array Area would depend on the perception of risk of the individual skippers, which will be influenced by a number of factors including visibility and inclement weather, as well as strength of tide and the specific operational procedures of the fishing vessels when hauling gear. Access to fishing would temporarily be restricted during maintenance activities in very localised areas of the Array Area. The impact is of long term duration, throughout the operation and maintenance phase. The overall magnitude of impact is assessed as Low adverse.
- 14.10.1.22 **Mussel seed fishery:** As described during construction, known mussel beds do not overlap with the Array Area, however are located immediately adjacent to the boundary. It is not inconceivable that mussel seed would establish as an ephemeral bed within the boundary of the Array Area during the lifetime of the Proposed Development. Given the long term duration of the impact, overall the magnitude of the impact is considered to be Low adverse.
- 14.10.1.23 **All other fleets:** As described during construction, activity by other Irish and foreign fishing vessels (including pelagic otter trawl, demersal otter trawl, beam trawl, demersal seine and scallop dredge) is understood to take place at very low levels in the proximity of the Array Area. The magnitude of the impact is therefore considered to be Negligible.

#### SIGNIFICANCE OF EFFECT

- 14.10.1.24 For the Irish potting fleet 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.
- 14.10.1.25 For the Irish mussel seed dredge fleet 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.
- 14.10.1.26 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

#### RESIDUAL EFFECT ASSESSMENT

- 14.10.1.27 The significance of effect from changes in access to fishing grounds is not significant in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

#### Decommissioning phase

#### MAGNITUDE OF IMPACT

- 14.10.1.28 The magnitude of impact of decommissioning activities are expected to be the same or similar to the effects from construction, summarised as Low adverse for Irish potting and mussel seed fisheries and negligible for all other fishing fleets.

#### SIGNIFICANCE OF EFFECT

- 14.10.1.29 For the Irish potting fleet the magnitude of the impact is deemed to be **Low (adverse)** 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.
- 14.10.1.30 For the Irish mussel seed dredge fleet 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.
- 14.10.1.31 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

#### RESIDUAL EFFECT ASSESSMENT

- 14.10.1.32 The significance of effect from changes in access to fishing grounds is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### 14.10.2 Impact 2 – Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area

- 14.10.2.1 During construction of the offshore export cable within the Cable Corridor and Working Area, commercial fisheries will be prevented from fishing where construction activities are taking place. This includes advisory safety zones and/or advisory clearance distances of 500 m diameter around installation vessels and areas of cable awaiting protection. The total offshore construction duration will be 12 months.



- 14.10.2.2 Seabed preparation activities will occur in advance of installation of the cabling, with sandwave clearance required for 30%; and boulder clearance required 100% of the export cable routes. Cable burial will occur within the same area where sandwave clearance has previously been completed, therefore cable burial will represent a repeat disturbance of some of the area affected by confirmatory surveys clearance, but will not take up additional area and is accounted for within the duration of the construction period.
- 14.10.2.3 This impact will lead to a localised loss of access to fishing grounds and the fish and shellfish resources within these grounds for a range of fishing opportunities during the period of construction, which will directly affect fleets over a short-term duration. The impact is predicted to be intermittent with localised exclusion surrounding construction activities and installation vessels.
- 14.10.2.4 The impact is of relevance to national fishing fleets and is described below on a fishery-by-fishery basis.

#### SENSITIVITY OF THE RECEPTOR

- 14.10.2.5 The Irish potting fleet operate across distinct areas of ground, from the coastline out to beyond 12 NM. The whelk fishery is comprised of several vessels and is considered to have moderate levels of alternative fishing grounds; is deemed to be generally vulnerable to this impact, have medium recoverability and high value. Some of these vessels have multipurpose capabilities, being able to operate nets and/or trawls in addition to pots. However, given their limited operational range and reliance on local grounds, their fishing opportunities are restricted. The sensitivity of this receptor is therefore, considered to be Medium.
- 14.10.2.6 The Irish mussel seed dredge fishery is operated in very discrete areas where mussel beds are located. Fishing opportunities are relatively limited and depend on presence of mussel seed beds which can be variable in a given season. Due to the highly localised nature of the fishery, it is considered to have low-moderate levels of alternative fishing grounds; is deemed to be generally vulnerable to this impact, have high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be Medium.
- 14.10.2.7 Other Irish and foreign fishing fleets include fishing vessels over 12 m in length which operate towed fishing gears (including pelagic otter trawl, demersal otter trawl, beam trawl, demersal seine and scallop dredge). These vessels have extensive operational ranges and high levels of alternative fishing grounds. These vessels have the ability to exploit a varied range of fishing grounds across a wider geographic area and are not specifically associated with the fishing grounds that overlap the Proposed Development. The sensitivity of the receptor is therefore, considered to be Low.

### Construction phase

#### MAGNITUDE OF THE IMPACT

- 14.10.2.8 **Irish potting fishery:** the Irish potting fleet targets whelk across a defined area from inshore grounds extending across the Cable Corridor and Working Area (Figure 14.1.5 of Appendix 14.1). This distinct area of fishing ground specifically targeted for whelk runs along the south-east coast of Ireland and extends in places out to the 12 NM territorial seas limit. Landing statistics, fisheries mapping for vessels under 15 m length, and consultation with a range of stakeholders corroborate that Irish potting vessels actively target whelk in the region and across grounds represented in Figure 14.1.5 of Appendix 14.1.
- 14.10.2.9 As described in Section 14.6.2, on average approximately 1,240 tonnes of whelk are landed annually from the Commercial Fisheries and Aquaculture Study Area, worth € 1.9 million (based on a first sales value of € 1,500 per tonne and landings from 2015 to 2020).

- 14.10.2.10 The area of whelk grounds that overlaps with the Commercial Fisheries and Aquaculture Study Area (as shown in Figure 14.1.5 of Appendix 14.1) covers an area of approximately 751 km<sup>2</sup>. The area of whelk grounds that overlaps the Cable Corridor and Working Area is approximately 41.9 km<sup>2</sup>, equating to 5.6% of the whelk grounds in the Commercial Fisheries and Aquaculture Study Area, with an annual value of approximately € 106,000.
- 14.10.2.11 In addition to landing statistics, industry consultation undertaken by the FLO, together with the fisheries activity surveys cite moderate levels of activity within the Cable Corridor and Working Area, and higher levels of activity in the surrounding areas, out with the Cable Corridor and Working Area.
- 14.10.2.12 The consequence of the impact to the potting fleet targeting whelk is assessed as moderate over the short 12 month period of construction. Loss of ability to carry on fishing activities and the requirement for re-location of potting gear are recognised for this fleet that are known to routinely target the area overlapping the Cable Corridor and Working Area. The impact is predicted to be of local spatial extent. The duration of the impact will be short term and intermittent. The overall magnitude of impact is assessed as Medium adverse.
- 14.10.2.13 **Mussel seed fishery:** Known mussel beds overlap with a very small portion of the Cable Corridor and Working Area, in the north and very coastal area close to landfall, as indicated in Figure 14.1.10 of Appendix 14.1. The specific location of mussel seed is known to vary from season to season, with the majority of grounds located north the Array Area.
- 14.10.2.14 Ephemeral mussel seed beds refer to temporary habitats where mussel seed settle and grow before eventually dispersing or attaching to a more permanent substrate. These seed beds are characterised by their transient nature, as they can form and disappear within a relatively short period. These seed beds typically occur in intertidal or shallow subtidal areas with suitable conditions for mussel settlement, such as appropriate substrate, water quality, and food availability. They often form in areas with high mussel reproductive activity, where large numbers of mussel larvae are released into the water column during spawning events.
- 14.10.2.15 The formation of ephemeral mussel seed beds is influenced by various factors, including tidal currents, wave action, and the availability of suitable settlement substrates like rocks, shells, or other hard surfaces. These factors contribute to the aggregation and concentration of mussel larvae in specific areas, creating temporary hotspots of mussel seed abundance. Natural events such as storms or shifts in sediment dynamics can disrupt or disperse these seed beds and therefore presence of harvestable mussel seed grounds can be unpredictable.
- 14.10.2.16 Overall, it is considered that the risk of losing fishing grounds or access to them within the Cable Corridor and Working Area during the construction phase is low. The impact is predicted to be of highly localised spatial extent. The duration of the impact will be short term and intermittent. The magnitude of the impact is therefore considered to be Low adverse.
- 14.10.2.17 **All other fleets:** Activity by other Irish and foreign fishing vessels (including pelagic otter trawl, demersal otter trawl, beam trawl, demersal seine and scallop dredge) is understood to take place at very low levels in the proximity of the Cable Corridor and Working Area. This is informed by landing statistics, VMS data, fisheries activity surveys and knowledge from the FLO. Presence of some mobile fishing gear is noted within VMS data which is understood to reflect the transiting route of fishing vessels to and from fishing grounds. A highly seasonal and localised sprat fishery is noted in the extreme inshore areas, targeted by pelagic vessels during distinct periods of time.
- 14.10.2.18 The impact is predicted to be of local spatial extent. The duration of the impact will be short to medium term and intermittent. In addition, a range of liaison and management measures will be implemented to minimise disturbance to fishing activities during construction. The magnitude of the impact is therefore considered to be Negligible.

## SIGNIFICANCE OF THE EFFECT

- 14.10.2.19 For the Irish potting fleet the magnitude of the impact is deemed to be **Medium** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be of **Moderate (adverse)** significance, which is considered **significant** in EIA terms. The significance of the effect is attributed to the considerable physical effort and time that potting fishers need to invest in actively removing and relocating fishing gear from the Cable Corridor and Working Area, together with loss of ability to fish in that area.
- 14.10.2.20 For the Irish mussel seed dredge fleet 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.
- 14.10.2.21 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

## PROPOSED MITIGATION

- 14.10.2.22 **Irish potting fleet:** In order to mitigate the potential effects on the whelk fishery operating across the Cable Corridor and Working Area during the construction phase, the Developer has produced and submitted a Fisheries Management and Mitigation Strategy (FMMS) with the application (Volume III, Appendix 25.3), which provides principles for co-existence and details further mitigation, including cooperation agreements and associated payments. With respect to any cooperation agreements and associated payments, an evidence based procedure will be followed. This will include provision of evidence and data, including:
- Copy of the relevant vessel registry, fishing licences and entitlements;
  - Sight of vessels fishing charts and GPS plotter records to provide clear historic evidence of potential disruption in the area of the operations;
  - Evidence of sales notes and/or fishing accounts where available for an agreed time period; and
  - Fishing vessel or and/or fisheries landings data held by fisheries authorities.

## RESIDUAL EFFECT ASSESSMENT

- 14.10.2.23 Irish potting fleet: The FMMS provides mitigation including cooperation agreements and associated payments for the Irish whelk potting fleet, the impact magnitude is therefore reduced to **Low adverse**, and the residual effect is of **Slight (adverse)** significance, which is **Not significant** in EIA terms.
- 14.10.2.24 All other fleets: The significance of effect from changes in access to fishing grounds is **Not significant** in EIA terms for all other fleets. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

## Operational and maintenance phase

### MAGNITUDE OF IMPACT

- 14.10.2.25 Commercial fisheries will be prevented from actively fishing within advisory safety distances implemented during short-term maintenance activities.
- 14.10.2.26 Out with this period of maintenance activity, fishing will resume across the Cable Corridor and Working Area.
- 14.10.2.27 **Irish potting fishery:** the activity of the Irish potting fleet targeting whelk is as described for the construction phase. Resumption of fishing within the Cable Corridor and Working Area is



considered highly likely given the operational range across existing cable infrastructure. Access to fishing would temporarily be restricted during maintenance activities in very localised areas of the Cable Corridor and Working Area. The impact is of long term duration, but highly intermittent. The overall magnitude of impact is assessed as Low adverse.

14.10.2.28 **Mussel seed fishery:** As described during construction, known mussel beds do not extensively overlap with the Cable Corridor and Working Area, however some are located within the boundary and they are also present immediately north of the boundary. It is not inconceivable that mussel seed would establish as an ephemeral bed within the boundary of the Cable Corridor and Working Area during the lifetime of the Proposed Development. However, given cable burial, the mussel dredge fishery would not be restricted from operating across the Cable Corridor and Working Area during the operational phase, with exception of during maintenance activities. Overall the magnitude of the impact is considered to be Negligible.

14.10.2.29 **All other fleets:** As described during construction, activity by other Irish and foreign fishing vessels (including pelagic otter trawl, demersal otter trawl, beam trawl, demersal seine and scallop dredge) is understood to take place at very low levels in the proximity of the Array Area. The magnitude of the impact is therefore considered to be Negligible.

#### SIGNIFICANCE OF EFFECT

14.10.2.30 For the Irish potting fleet 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.

14.10.2.31 For the Irish mussel seed dredge fleet the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant** in EIA terms.

14.10.2.32 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

#### RESIDUAL EFFECT ASSESSMENT

14.10.2.33 The significance of effect from changes in access to fishing grounds is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### Decommissioning phase

#### MAGNITUDE OF IMPACT

14.10.2.34 The magnitude of impact of decommissioning activities are expected to be the same or similar to the effects from construction, summarised as Low adverse for Irish potting fleet and Negligible for mussel seed and all other fishing fleets.

#### SIGNIFICANCE OF EFFECT

14.10.2.35 For the Irish potting fleet 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.

14.10.2.36 For the Irish mussel seed dredge fleet 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.

- 14.10.2.37 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

#### RESIDUAL EFFECT ASSESSMENT

- 14.10.2.38 The significance of effect from changes in access to fishing grounds is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### 14.10.3 Impact 3 – Displacement of fishing activity into other areas

- 14.10.3.1 Localised exclusion from fishing grounds during construction of the Proposed Development, including the Array Area and Cable Corridor and Working Area, may lead to temporary increases in fishing effort in other areas that may already be exploited thereby leading to gear conflict and increased fishing pressure on adjacent grounds.

- 14.10.3.2 The impact is predicted to be of regional spatial extent, short-term duration, intermittent and with medium reversibility. It is predicted that the impact will affect the receptor directly. The impact is of relevance to national fishing fleets and is described below on a fishery-by-fishery basis.

#### SENSITIVITY OF THE RECEPTOR

- 14.10.3.3 The Irish potting fleet operate across distinct areas of ground, from the coastline out to beyond 12 NM. This form of static fishing gear is considered to have a high vulnerability to gear conflict interactions since it is left unattended on the seabed. Displacement from the Array Area and Cable Corridor and Working Area may lead to exploration of alternative grounds including areas currently targeted by potters and depending upon location, mussel dredgers. The potting fleet is, therefore, deemed to be of moderate adaptability, generally vulnerable, with moderate recoverability and medium value. The sensitivity of the potting fleet is therefore, considered to be Medium.

- 14.10.3.4 The Irish mussel seed dredge fishery is operated in very discrete areas where mussel beds are located. Fishing opportunities are relatively limited and depend on presence of mussel seed beds which can be variable in a given season. Due to the highly localised nature of the fishery, it is considered to have low-moderate levels of alternative fishing grounds; is deemed to be generally vulnerable to this impact, have high recoverability and medium value. The sensitivity of the receptor is therefore, considered to be Medium.

- 14.10.3.5 Other Irish and foreign fishing fleets include fishing vessels over 12 m in length which operate towed fishing gears (including pelagic otter trawl, demersal otter trawl, beam trawl, demersal seine and scallop dredge). These vessels have extensive operational ranges and high levels of alternative fishing grounds. These vessels have the ability to exploit a varied range of fishing grounds across a wider geographic area and are not specifically associated with the fishing grounds that overlap the Proposed Development. The sensitivity of the receptor is therefore, considered to be Low.

### Construction phase

#### MAGNITUDE OF THE IMPACT

- 14.10.3.6 **Irish potting fishery:** conflict over diminished grounds may occur if displaced potting gear is relocated into actively fished potting grounds. In practice, conflict can lead to the entanglement of potting lines, which is time consuming to separate and can create operational difficulties (for

example, the lines have to be cut and re-tied at each pot to disentangle and reassemble the string of pots).

14.10.3.7 When considering the impact of potters being displaced from the Array Area and Cable Corridor and Working Area may into grounds already targeted by potters two scenarios are feasible:

- Alternative fishing grounds are available to relocate gear, in which case gear conflict and displacement effects will be low; or
- Alternative fishing grounds are not available as adjacent areas are already being fished by potters, in which case the gear already on the ground limits the level of displacement. While there remains potential for gear conflicts and increased fishing pressure to arise, appropriately mitigated loss of access impacts will limit this.

14.10.3.8 On balance, the displacement effect to potters targeting the Array Area and Cable Corridor and Working Area is considered to have a lower magnitude of impact than the exclusion impact causing the displacement. Taking all these aspects into consideration, the magnitude of the displacement impact is assessed to be Low adverse for the potting fleet.

14.10.3.9 **All other fleets:** the fishing fleets targeting mussel seed, and all other fisheries are considered to have very limited and/or very occasional activity within the Array Area and Cable Corridor and Working Area. The magnitude of the impact is therefore considered to be Negligible.

#### SIGNIFICANCE OF THE EFFECT

14.10.3.10 For the Irish potting fleet 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.

14.10.3.11 For the Irish mussel seed dredge fleet the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant** in EIA terms.

14.10.3.12 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

#### RESIDUAL EFFECT ASSESSMENT

14.10.3.13 The significance of effect from displacement is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### Operational and maintenance phase

#### MAGNITUDE OF IMPACT

14.10.3.14 Exclusion from fishing grounds during operation and maintenance of the Proposed Development may lead to increases in fishing effort in other areas that may already be exploited thereby leading to gear conflict.

14.10.3.15 **Irish potting fishery:** Given that potting can resume across the Proposed Development during the operational phase, the magnitude for Irish potters is considered to be Low adverse.

14.10.3.16 **All other fleets:** the fishing fleets targeting mussel seed, and all other fisheries are considered to have very limited and/or very occasional activity within the Array Area and Cable Corridor and Working Area. The magnitude of the impact is therefore considered to be Negligible.



#### SIGNIFICANCE OF EFFECT

- 14.10.3.17 For the Irish potting fleet 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.
- 14.10.3.18 For the Irish mussel seed dredge fleet the magnitude of the impact is deemed to be **negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant** in EIA terms.
- 14.10.3.19 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

#### RESIDUAL EFFECT ASSESSMENT

- 14.10.3.20 The significance of effect from displacement is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

#### Decommissioning phase

#### MAGNITUDE OF IMPACT

- 14.10.3.21 The magnitude of impact of decommissioning activities are expected to be the same or similar to the effects from construction, summarised as Low adverse for Irish potting fleet and negligible for all other fishing fleets.

#### SIGNIFICANCE OF EFFECT

- 14.10.3.22 For the Irish potting fleet 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.
- 14.10.3.23 For the Irish mussel seed dredge fleet the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant** in EIA terms.
- 14.10.3.24 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

#### RESIDUAL EFFECT ASSESSMENT

- 14.10.3.25 The significance of effect from changes in access to fishing grounds is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### 14.10.4 Impact 4 – Interference with fishing activities

- 14.10.4.1 This assessment focuses on the potential impact of the Proposed Development related vessel traffic and changes to shipping patterns as a result of navigational channels leading to interference with fishing activity (i.e. reduced access due to physical presence of vessels).
- 14.10.4.2 The impact is predicted to be of regional spatial extent, short-term duration, intermittent and with high reversibility. It is predicted that the impact will affect the receptor directly. The impact is of relevance to national fishing fleets and is described below on a fishery-by-fishery basis.

## SENSITIVITY OF THE RECEPTOR

- 14.10.4.3 Irish potting fleet: Taking account of the static nature of potting gear which is left *in situ* in the sea, together with the nature of the gear configuration, with an identification buoy floating on the surface, marking location of the string of pots, this fleet and associated gear would have limited capability to avoid transiting construction vessels. The sensitivity of the receptor is, therefore, considered to be Medium.
- 14.10.4.4 All other fleets: In the case of fishing vessels operating towed gear, given their mobility, they would have increased capability to avoid conflict with construction vessels. The sensitivity of the receptor is, therefore, considered to be Low.

## Construction phase

## MAGNITUDE OF THE IMPACT

- 14.10.4.5 Irish potting fishery: In the case of fishing vessels that deploy potting gear, the main potential cause of interference would be the fouling of gear surface marker lines by transiting construction vessels.
- 14.10.4.6 Appropriate liaison will be undertaken with fisheries stakeholders to ensure that they are informed of the nature, timing and location of Proposed Development construction activities. This will include provisions for enabling awareness of construction vessel crews of the location of static gears and fishermen's awareness of construction vessel operations. In addition, the FMMS includes a Code of Conduct for contracted vessels and Offshore FLOs, and a procedure for claim of loss or damage to fishing gear.
- 14.10.4.7 Provisions for the measures above are included in the FMMS which has been produced for the Proposed Development (see Volume III, Appendix 25.3).
- 14.10.4.8 The impact is predicted to be of local spatial extent, medium term duration and intermittent in nature. It is predicted that the impact will affect the receptor directly. A range of fisheries liaison and management measures will be implemented to minimise potential interference between construction vessels and static gear fisheries. The magnitude of the impact is therefore, considered to be Low adverse.
- 14.10.4.9 All other fleets: the provisions described above are relevant to all mobile fleets in the area. In addition, transiting construction vessels will fully comply as required under the International Regulations for Preventing Collisions at Sea (COLREGS). Such compliance would negate the requirement for fishing vessels engaged in fishing to alter course or pose any risk to fishing gear being towed.
- 14.10.4.10 The impact is predicted to be of local spatial extent, medium term duration and intermittent in nature. It is predicted that the impact will affect the receptor directly. A range of fisheries liaison and management measures will be implemented. The magnitude of the impact is therefore, considered to be Low adverse.

## SIGNIFICANCE OF THE EFFECT

- 14.10.4.11 For the Irish potting fleet 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.
- 14.10.4.12 For all other fleets 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.

## RESIDUAL EFFECT ASSESSMENT

14.10.4.13 The significance of effect from interference with fishing activities is not significant in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

## Operational and maintenance phase

### MAGNITUDE OF IMPACT

14.10.4.14 During the operational and maintenance phase, there may be potential for transiting maintenance vessels to cause interference with fishing activities.

14.10.4.15 Irish potting fishery: the magnitude is considered to be the same or similar to that assessed for construction, summarised as Low adverse.

14.10.4.16 All other fleets: the magnitude is considered to be the same or similar to that assessed for construction, summarised as Low adverse.

### SIGNIFICANCE OF THE EFFECT

14.10.4.17 For the Irish potting fleet 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.

14.10.4.18 For all other fleets 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.

## RESIDUAL EFFECT ASSESSMENT

14.10.4.19 The significance of effect from interference with fishing activities is not significant in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

## Decommissioning phase

### MAGNITUDE OF IMPACT

14.10.4.20 The magnitude of impact of decommissioning activities are expected to be the same or similar to the effects from construction, summarised as Low adverse for all fishing fleets.

### SIGNIFICANCE OF THE EFFECT

14.10.4.21 For the Irish potting fleet 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.

14.10.4.22 For all other fleets 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.

## RESIDUAL EFFECT ASSESSMENT

14.10.4.23 The significance of effect from interference with fishing activities is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered



necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### 14.10.5 Impact 5 – Increased steaming times to fishing grounds

14.10.5.1 The implementation of advisory safety zones (of 500 m in radius around structures) and advisory clearance distances (of 500 m in radius around project related vessels) during the construction, operational and maintenance and decommissioning phases could result in some short term increases in steaming distances and steaming times to alternative fishing grounds.

14.10.5.2 The impact is predicted to be of regional spatial extent, short-term duration, intermittent and with high reversibility. It is predicted that the impact will affect the receptor directly. The impact is of relevance to national fishing fleets and is described below on a fishery-by-fishery basis.

#### SENSITIVITY OF THE RECEPTOR

14.10.5.3 Irish potting fleet: The majority of local vessels are under 12 m in length and have limited operational ranges. Given their operational range and size, they have limited capability to adapt to changes in steaming routes to/from fishing grounds. The sensitivity of the receptor is therefore considered to be Medium.

14.10.5.4 Irish mussel seed fishery: For vessels targeting mussel seed, given the discrete areas where mussel beds are located and as only some of these are available for fishing on a given season, they are also considered to have limited capability to adapt to changes in steaming routes to/from fishing grounds. The sensitivity of the receptor is therefore considered to be Medium.

14.10.5.5 All other fleets: Other fishing vessels potentially active at times in the Commercial Fisheries and Aquaculture Study Area include vessels over 12 m in length, which operate towed fishing gears (both Irish and foreign vessels). These vessels have more extensive operational ranges and are able to exploit a varied range of fishing grounds. These vessels therefore have higher adaptability to changes in steaming routes to/from fishing grounds. The sensitivity of the receptor is therefore considered to be Low.

### Construction phase

#### MAGNITUDE OF THE IMPACT

14.10.5.6 All fisheries: all of the fisheries included in this assessment operate across a range of grounds not limited to the Proposed Development. Fishing vessel operators choose to fish specific locations for a variety of reasons and with sufficient notice are able to plan their fishing activities to avoid specific areas undergoing construction activities. It is predicted that the impact will affect the receptor directly. The impact is predicted to be of very small spatial extent and short-term duration and a range of fisheries liaison and management measures will be implemented. The magnitude is therefore considered to be Negligible.

#### SIGNIFICANCE OF THE EFFECT

14.10.5.7 For the Irish potting fleet and mussel seed fishery the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant**.

14.10.5.8 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

## RESIDUAL EFFECT ASSESSMENT

14.10.5.9 The significance of effect from interference with fishing activities is not significant in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

## Operational and maintenance phase

### MAGNITUDE OF IMPACT

14.10.5.10 During the operational and maintenance phase, the presence of Proposed Development infrastructure could result in some short term increases in steaming distances and times for fishing vessels.

14.10.5.11 The magnitude of impact is considered to be the same or similar to that assessed for the construction phase, summarised as Negligible for all fisheries.

### SIGNIFICANCE OF THE EFFECT

14.10.5.12 For the Irish potting fleet and mussel seed fishery the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant**.

14.10.5.13 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

## RESIDUAL EFFECT ASSESSMENT

14.10.5.14 The significance of effect from interference with fishing activities is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

## Decommissioning phase

### MAGNITUDE OF IMPACT

14.10.5.15 The magnitude of impact of decommissioning activities are expected to be the same or similar to the effects from construction, summarised as Negligible for all fishing fleets.

### SIGNIFICANCE OF THE EFFECT

14.10.5.16 For the Irish potting fleet and mussel seed fishery the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant** in EIA terms.

14.10.5.17 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

## RESIDUAL EFFECT ASSESSMENT

14.10.5.18 The significance of effect from interference with fishing activities is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### 14.10.6 Impact 6 – Effects on commercially exploited species

14.10.6.1 Temporary noise and vibration, and seabed disturbances may displace commercially important fish and shellfish populations from the area. This section assesses the potential temporary subsequent impact for the owners of fishing vessels, where commercially important stocks may be disturbed or displaced to a point where normal fishing practices would be affected.

14.10.6.2 With respect to the magnitude of this impact on commercial fisheries, the overall significance of the effect on fish and shellfish species is considered (i.e. both the magnitude and sensitivity of fish and shellfish species are considered to assess the magnitude on commercial fishing fleets). This is because the overall effect on the fish and/or shellfish species relates directly to the availability and amount of exploitable resource. For instance, where an effect of negligible significance is assessed for a species, a negligible magnitude is assessed for commercial fishing; where an effect of minor adverse significance is assessed for a species, a low magnitude is assessed for commercial fishing, and so on.

#### SENSITIVITY OF THE RECEPTOR

14.10.6.3 Irish potting fleet: The majority of local vessels are under 12 m in length and have limited operational ranges. Given their operational range and size, they have limited capability to adapt to changes in steaming routes to/from fishing grounds. The sensitivity of the receptor is therefore considered to be Medium.

14.10.6.4 Irish mussel seed fishery: For vessels targeting mussel seed, given the discrete areas where mussel beds are located and as only some of these are available for fishing on a given season, they are also considered to have limited capability to adapt to changes in steaming routes to/from fishing grounds. The sensitivity of the receptor is therefore considered to be Medium.

14.10.6.5 All other fleets: Other fishing vessels potentially active at times in the Commercial Fisheries and Aquaculture Study Area include vessels over 12 m in length, which operate towed fishing gears (both Irish and foreign vessels). These vessels have more extensive operational ranges and are able to exploit a varied range of fishing grounds. These vessels therefore have higher adaptability to changes in steaming routes to/from fishing grounds. The sensitivity of the receptor is therefore considered to be Low.

### Construction phase

#### MAGNITUDE OF THE IMPACT

14.10.6.6 All fisheries: There is potential for the construction phase of the Proposed Development to result in impacts on commercially exploited fish and shellfish species. This could in turn indirectly affect the productivity of the fisheries that depend on them.

14.10.6.7 The potential impacts of the construction of the Proposed Development on fish and shellfish species, including those of commercial importance, are assessed in Chapter 10: Fish, Shellfish and Sea Turtle Ecology including consideration of the following:

- Temporary habitat loss/disturbance due to construction activities;
- Increased suspended sediment concentrations and associated sediment deposition due to foundation and cable installation;
- Injury and/or disturbance to fish and shellfish from underwater noise and vibration during pile-driving; and
- Accidental pollution.

14.10.6.8 The assessment presented in Chapter 10: Fish, Shellfish and Sea Turtle Ecology did not predict any impacts to be greater than of Slight (adverse) significance on fish and shellfish species.

Consequently, any associated impacts on the commercial fisheries that target these species are also not expected to exceed a Low magnitude of impact.

#### SIGNIFICANCE OF THE EFFECT

14.10.6.9 For the Irish potting fleet and mussel seed fishery 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.

14.10.6.10 For all other fleets 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.

#### RESIDUAL EFFECT ASSESSMENT

14.10.6.11 The significance of effect on commercially exploited species is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### Operational and maintenance phase

#### MAGNITUDE OF IMPACT

14.10.6.12 There is potential for the operational and maintenance phase of the Proposed Development to result in impacts on commercially exploited fish and shellfish species. This could in turn indirectly affect the productivity of the fisheries that depend on them.

14.10.6.13 The potential impacts of the operational and maintenance phase of the Proposed Development on fish and shellfish species, including those of commercial importance, are assessed in chapter 10: Fish, Shellfish and Sea Turtle Ecology including consideration of the following:

- Temporary habitat loss/disturbance due to cable repair/reburial activities;
- Increased suspended sediment concentrations and associated sediment deposition due to cable repair/reburial activities;
- Alteration of seabed habitats arising from changes in physical processes due to the presence of foundations;
- Long term habitat loss due to presence of foundations, scour and cable protection;
- Changes in Electromagnetic fields (EMFs) from subsea electrical cabling; and
- Accidental pollution.

14.10.6.14 The assessment presented in Chapter 10: Fish, Shellfish and Sea Turtle Ecology did not predict any impacts to be greater than of Slight (adverse) significance on fish and shellfish species. Consequently, any associated impacts on the commercial fisheries that target these species are also not expected to exceed a Low magnitude of impact.

#### SIGNIFICANCE OF THE EFFECT

14.10.6.15 For the Irish potting fleet and mussel seed fishery the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant** in EIA terms.

14.10.6.16 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.



## RESIDUAL EFFECT ASSESSMENT

14.10.6.17 The significance of effect on commercially exploited species is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

## Decommissioning phase

## MAGNITUDE OF IMPACT

14.10.6.18 The magnitude of impact of decommissioning activities are expected to be the same or similar to the effects from construction, summarised as Negligible for all fishing fleets.

## SIGNIFICANCE OF THE EFFECT

14.10.6.19 For the Irish potting fleet and mussel seed fishery the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Medium**. The effect will, therefore, be **Not significant** in EIA terms.

14.10.6.20 For all other fleets the magnitude of the impact is deemed to be **Negligible** and the sensitivity of the receptor is considered to be **Low**. The effect will, therefore, be **Not significant** in EIA terms.

## RESIDUAL EFFECT ASSESSMENT

14.10.6.21 The significance of effect on commercially exploited species is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

## 14.10.7 Impact 7 – Potential for snagging of gear

14.10.7.1 The inter-array cables and offshore export cables and associated cable protection, together with any structures (and associated scour protection) on the seabed represent potential snagging points for fishing gear and could lead to damage to, or loss of, fishing gear. The safety aspects are assessed within the Shipping and Navigation Chapter.

## SENSITIVITY OF THE RECEPTOR

14.10.7.2 Irish potting fleet: Potters show a low vulnerability as the gear is placed, not towed and is less likely to penetrate the seabed. The sensitivity of potters is considered to be Low.

14.10.7.3 All other fleets: Due to the nature and operation of mobile gear (i.e. it is actively towed and dredge, otter trawl and beam trawl gear directly penetrates the seabed with near continuous contact) there is increased vulnerability to this impact and the sensitivity is therefore considered to be Medium for mobile gear fisheries.

## Construction phase

## MAGNITUDE OF THE IMPACT

14.10.7.4 All fisheries: Snagging poses a risk to fishing equipment and in extreme cases may potentially lead to capsizing of vessel and crew fatalities, as well as damage to subsea infrastructure. Three phases of interaction are possible: initial impact of gear and subsea infrastructure; pullover of gear across subsea infrastructure; and snagging or hooking of gear on the 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.

14.10.7.5 It is considered likely that fishermen will operate appropriately (i.e. avoiding the indicated infrastructure and cable protection at the defined location) given adequate notification of the locations of any snagging hazards; and are highly likely to avoid the infrastructure and cable protection within the Array Area and Cable Corridor and Working Area.

14.10.7.6 In the instance that snagging does occur, the FMMS includes a procedure for dealing with claims for loss or damage of gear.

14.10.7.7 The impact is predicted to be of local spatial extent, long term duration, continuous and with low reversibility. It is predicted that the impact will affect the receptor directly. Based on the measures that will be implemented as part of the Proposed Development and the commitment to follow standard protocols should snagging occur, the magnitude is considered to be Low adverse for all fleets.

#### SIGNIFICANCE OF THE EFFECT

14.10.7.8 For the Irish potting fleet 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.

14.10.7.9 For all other fleets 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.

#### RESIDUAL EFFECT ASSESSMENT

14.10.7.10 The significance of effect of potential gear snagging is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

### Operational and maintenance phase

#### MAGNITUDE OF IMPACT

14.10.7.11 The magnitude of impact is considered to be the same or similar to that assessed for the construction phase, summarised as Low adverse for all fishing fleets.

#### SIGNIFICANCE OF THE EFFECT

14.10.7.12 For the Irish potting fleet 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.

14.10.7.13 For all other fleets 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.

#### RESIDUAL EFFECT ASSESSMENT

14.10.7.14 The significance of effect of potential gear snagging is not significant in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.



## Decommissioning phase

### MAGNITUDE OF IMPACT

14.10.7.15 The magnitude of impact of decommissioning activities are expected to be the same or similar to the effects from construction, summarised as Low adverse for all fishing fleets.

### SIGNIFICANCE OF THE EFFECT

14.10.7.16 For the Irish potting fleet 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.

14.10.7.17 For all other fleets 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.

### RESIDUAL EFFECT ASSESSMENT

14.10.7.18 The significance of effect of potential gear snagging is **Not significant** in EIA terms. Therefore, no additional mitigation to that already identified in Table 14.11 are considered necessary. Therefore, no significant adverse residual effects have been predicted in respect of commercial fisheries.

## 14.11 Assessment of Project Design Option 2

### 14.11.1 Impact 1 – Loss of grounds or restricted access to fishing grounds within the Array Area

14.11.1.1 The assessment for sensitivity, magnitude and significance of effect is as per Project Design Option 1. The reduction of WTGs from 56 (Option 1) to 47 (Option 2) does not change the results of the impact categories assessed for loss of grounds for any commercial fisheries fleet.

### 14.11.2 Impact 2 – Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area

14.11.2.1 The assessment for sensitivity, magnitude and significance of effect is as per Project Design Option 1.

### 14.11.3 Impact 3 – Displacement of fishing activity into other areas

14.11.3.1 The assessment for sensitivity, magnitude and significance of effect is as per Project Design Option 1. The reduction of WTGs from 56 (Option 1) to 47 (Option 2) does not change the results of the impact categories assessed for displacement for any commercial fisheries fleet.

### 14.11.4 Impact 4 – Interference with fishing activities

14.11.4.1 The assessment for sensitivity, magnitude and significance of effect is as per Project Design Option 1. The reduction of WTGs from 56 (Option 1) to 47 (Option 2) and associated reduction in the number of vessel return trips does not change the results of the impact categories assessed for interference with fishing activities for any commercial fisheries fleet.

### 14.11.5 Impact 5 – Increased steaming times to fishing grounds

14.11.5.1 The assessment for sensitivity, magnitude and significance of effect is as per Project Design Option 1. The reduction of WTGs from 56 (Option 1) to 47 (Option 2) does not change the results

of the impact categories assessed for increased steaming times for any commercial fisheries fleet.

### 14.11.6 Impact 6 – Effects on commercially exploited species

14.11.6.1 The assessment for sensitivity, magnitude and significance of effect is as per Project Design Option 1. The reduction of WTGs from 56 (Option 1) to 47 (Option 2) does not change the results of the impact categories assessed for effects on commercial resources for any commercial fisheries fleet.

### 14.11.7 Impact 7 – Potential for snagging of gear

14.11.7.1 The assessment for sensitivity, magnitude and significance of effect is as per Project Design Option 1. The reduction of WTGs from 56 (Option 1) to 47 (Option 2) does not change the results of the impact categories assessed for potential snagging for any commercial fisheries fleet.

## 14.12 Cumulative impacts assessment methodology

### 14.12.1 Methodology

14.12.1.1 The Cumulative Impact Assessment (CIA) takes into account the impacts associated with the Proposed Development together with other proposed and reasonably foreseeable projects, plans and existing and permitted projects. The projects and plans selected as relevant to the CIA presented within this chapter are based upon the results of a screening exercise (see Volume III, Appendix 3.2: CIA Screening). Each project and plan has been considered on a case-by-case basis for screening in or out of this chapter's assessment based upon, effect-receptor pathways and the spatial/temporal scales involved.

14.12.1.2 A tiered approach is adopted to provide an assessment of the Proposed Development as a whole. The tiering methodology is provided in Volume III, Appendix 3.2: CIA Screening.

14.12.1.3 The specific projects scoped into this cumulative impact assessment, and the tiers into which they have been allocated are presented in Table 14.12. The operational projects included within the table are included due to their completion/commission subsequent to the data collection process for the Proposed Development and as such not included within the baseline characterisation.

14.12.1.4 Due to the commitments made by the Developer in respect of the Foreshore Licence FS007339 and Foreshore Licence Application FS007555 (Table 14.11), FS007339 and FS007555 have been screened out of the cumulative impact assessment.

**Table 14.12: List of other projects and plans considered within the cumulative impact assessment**

Project/Plan	Status	Distance from Array Area (km)	Distance from Export Cable Corridors	Description of Project/Plan	Dates of Construction	Dates of Operation	Justification for screening in
<b>Tier 1</b>							
ABWP2 Operations and Maintenance Facility (OMF)	Consented	10.2	0	OMF located nearshore and required for the operation of the Proposed Development	2026 - 2030	2030 - 2066	Potential temporal overlap with the Proposed Development construction, operation and maintenance phases.
<b>Tier 2</b>							
Awel y Môr	Consented	148.5	147.6	Lease awarded. In Planning (DCO Submitted. AfL awarded 2019)	2026-2030	2030 onwards	
West Anglesey Demonstration Zone	Under construction	85.0	84.1	Tidal	2023-2024	2024 onwards	
CeltixConnect - Sea Fibre Networks	Under construction	49.2	48.3	Telecom	2022-2026	20206 onwards	
Mares Connect	Under construction	37.5	36.6	Power	2024-2027	2027 onwards	
Braymore Point	Approved	104.5	103.5	Wind farm now called Setanta. Offshore Wind Farm surveys and investigations. Geophysical,	N/A	Up to 2026	

				Geotechnical and Environmental Site Investigation works		
Codling Wind Park Ltd. Site Investigations for proposed Offshore Wind Farm, off Counties Wicklow and Dublin	Approved	67.1	66.1	Provide up to date detailed bathymetric mapping of the seabed (site surveys)	N/A	Up to 2029
Foreshore Licence application for geophysical, geotechnical, ecological and metocean site investigation works. Dundalk	Approved	115.1	114.2			Up to 2026
North Irish Sea Array Site Investigations	Approved	95.7	94.8	Surveys over a five year period		Up to 2027
Oriel Windfarm Limited, Site Investigations for the proposed offshore Oriel Wind Farm	Approved	111.7	110.8	Oriel has applied for a Foreshore Licence to undertake detailed geotechnical and geophysical investigations, ecological surveys and metocean surveys.		Up to 2027
Statkraft North Irish Sea Array Site Investigations	Approved	86.6	85.7	The application includes for geophysical surveys (mutli-beam echo sounder, sub bottom profiling, side-scan sonar and magnetometer), geotechnical		Up to 2026

for Export Cable Route				surveys (cone penetration tests and vibrocores along the potential routes and boreholes at the landfalls) and ecological surveys (fisheries surveys, benthic grab samples, intertidal benthic sampling).			
Greenlink Interconnector	Under construction	95.8	96.4	Installation of two high voltage directional current power cables and a fibre optics cable under the seabed between EirGrid's Great Island substation in County Wexford (Ireland) and the National Grid's Pembroke substation in Pembrokeshire (Wales).	2023-2025		
Installation of the EirGrid Celtic Interconnector Electricity Cable	Consented	151.1	151.6	EirGrid - That portion of the Celtic Interconnector project to be constructed below the Mean High Water Mark to approximately 35km offshore in Irish Territorial Waters.	2024-2026		
<b>Tier 3</b>							
Morgan	Proposed	146.7	145.7	Lease awarded. Concept/Early Planning (Submitting application Q2 2024)	2028-2029	2029 onwards	Potential temporal overlap with the Proposed Development construction, operation and maintenance and decommissioning phases.
North Channel Wind 2	Proposed	204.0	203.1	Concept/Early Planning	2029-2030	2030 onwards	
Mona	Proposed	146.7	145.7	Lease awarded. Concept/Early Planning (Stage 2 Consultation)	2028-2029	2029 onwards	
Isle of Man	Proposed	179.2	178.2	Concept/Early Planning	Unknown	Unknown	

North Channel Wind 1	Proposed	227.9	227.0	Concept/Early Planning	2029-2030	2030 onwards	Potential temporal overlap with the Proposed Development construction, operation and maintenance and decommissioning phases.
Morecambe	Proposed	174.2	173.3	Lease awarded. Concept/Early Planning (Submitting DCO application Q1 2024)	2026-2028	2028 onwards	
Erebus/Valorou s Potential Cable Route	Proposed	123.7	123.0	Concept/Early Planning	2025-2026	2027 onwards	
XLinks	Proposed	192.3	191.6	Concept/Early Planning	2027-2029	2030 onwards	
LirIC	Proposed	204.6	203.7	Concept/Early Planning	2028	2029 onwards	
Phase 1 Projects							
Oriel Wind Park	Proposed	108.1	107.2	Concept/Early Planning (Maritime Area Consent (MAC) awarded)	2026-2028	2028 onwards	Potential temporal overlap with the Proposed Development construction, operation and maintenance and decommissioning phases.
Dublin Array	Proposed	25.8	24.9	Concept/Early Planning (MAC awarded)	2028-2032	2032 onwards	
Codling	Proposed	10.3	9.4	Concept/Early Planning (MAC awarded)	2027-2028	2028 onwards	
North Irish Sea Array	Proposed	65.1	64.1	Concept/Early Planning (MAC awarded)	2027-2029	2029 onwards	



14.12.1.5 Table 14.13 presents the potential impacts, development phase, and the list of projects / plans with which the two Project Design Options have been cumulatively assessed.

**Table 14.13: Cumulative assessment impacts, phases, scenarios, and projects to be considered cumulatively**

Potential cumulative impact	Phase			Cumulative impact scenario	Justification
	C	O	D		
Loss of grounds or restricted access to fishing grounds within the Array Area	✓	✓	✓	<p>Project parameters associated with Project Design Option 1 or 2 plus the following projects:</p> <p><b>Tier 1</b></p> <ul style="list-style-type: none"> <li>ABWP2 Operations and Maintenance Facility (OMF).</li> </ul> <p><b>Tier 2</b></p> <ul style="list-style-type: none"> <li>Offshore Wind Farms: Awel y Môr</li> <li>Other renewable energy: West Anglesey Demonstration Zone</li> <li>Subsea cables: CeltixConnect - Sea Fibre Networks, Mares Connect</li> <li>Surveys: Braymore Point, Site investigations for Codling Wind Park Site, North Irish Sea Array, Oriel, Arklow Bank Wind Park 2 and Dundalk</li> <li>Coastal assets and infrastructure: Greenlink Interconnector, EirGrid Celtic Interconnector Electricity Cable</li> </ul> <p><b>Tier 3</b></p> <ul style="list-style-type: none"> <li>Offshore Wind Farms: Morgan, Mona, North Channel Wind 1, North Channel Wind 2, Isle of Man, Morecambe</li> </ul> <p><b>Phase 1 Projects</b></p> <ul style="list-style-type: none"> <li>Oriel Wind Park</li> <li>Dublin Array Offshore Wind Farm</li> <li>Codling Wind Park</li> <li>North Irish Sea Array Offshore Wind Farm</li> </ul>	<p>Outcome of the CIA will be highest when the greatest number of schemes are under construction, maintenance or decommissioning concurrently.</p> <p>Schemes which commercial fishing fleets operating over the same range or targeting the same resource</p>
Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area	✓	✓	✓		
Displacement of fishing activity into other areas	✓	✓	✓		
Displacement or disruption of commercially important fish and shellfish resources	✓	✓	✓		

## 14.13 Cumulative impact assessment

14.13.1.1 Certain impacts assessed for the Proposed Development alone are not considered in the cumulative assessment due to:

- The highly localised nature of the impacts (i.e., they occur entirely within the project boundary only);
- Embedded management measures in place for the Proposed Development will also be in place on other projects reducing their risk of occurring; and/or
- Where the potential significance of the impact from the Proposed Development alone has been assessed as negligible.

14.13.1.2 The impacts excluded from the CIA for the above reasons are:

- Increased risk of gear snagging;
- Increased vessel traffic within fishing grounds as a result of changes to shipping routes and project related vessel traffic leading to interference with fishing activity; and
- Additional steaming to alternative fishing grounds for vessels that would otherwise be fished within the Proposed Development.

14.13.1.3 Therefore, the impacts that are considered in the CIA during construction, operation and maintenance and decommissioning are as follows:

- Impact 1: Loss of grounds or restricted access to fishing grounds within the Array Area;
- Impact 2: Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area;
- Impact 3: Displacement of fishing activity into other areas; and
- Impact 4: Displacement or disruption of commercially important fish and shellfish resources.

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

### 14.13.2 Project Design Option 1 and 2 - Impact 1 - Loss of grounds or restricted access to fishing grounds within the Array Area

#### SENSITIVITY OF THE RECEPTOR

14.13.2.1 The sensitivity of the commercial fisheries receptors to Project Design Option 1 and 2 alone is presented in Section 14.10.1 and summarised as Medium for the potting fishery and mussel seed fishery and Low for all other fisheries. These Proposed Development alone sensitivity categories remains valid for the cumulative assessment for the construction, operation and maintenance and decommissioning phases for Tiers 1, 2 and 3 and the Phase 1 Projects.

#### Tier 1

#### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

14.13.2.2 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.

14.13.2.3 When assessed cumulatively with the Tier 1 project set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are

Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because the Tier 1 projects are not considered to interact with commercial fisheries receptors.

#### SIGNIFICANCE OF EFFECT

14.13.2.4 Overall, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

#### OPERATION AND MAINTENANCE PHASE

##### MAGNITUDE OF IMPACT

14.13.2.5 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.

14.13.2.6 When assessed cumulatively with the Tier 1 project set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because the Tier 1 projects are not considered to interact with commercial fisheries receptors.

#### SIGNIFICANCE OF EFFECT

14.13.2.7 Overall, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

#### DECOMMISSIONING PHASE

##### MAGNITUDE OF IMPACT

14.13.2.8 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.

14.13.2.9 When assessed cumulatively with the Tier 1 project set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because the Tier 1 projects are not considered to interact with commercial fisheries receptors.

#### SIGNIFICANCE OF EFFECT

14.13.2.10 Overall, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

## Tier 2

### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

14.13.2.11 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.

14.13.2.12 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because the effects from Tier 2 projects are assumed to be mitigated by project alone measures for example, during site investigation works that may require relocation of fishing gear.

#### SIGNIFICANCE OF EFFECT

14.13.2.13 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.

14.13.2.14 For the other fisheries, for Tier 2 combined with Tier 1 projects, the cumulative effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

### OPERATION AND MAINTENANCE PHASE

#### MAGNITUDE OF IMPACT

14.13.2.15 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.

14.13.2.16 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because contribution of other projects will not effect during operational stage when site investigations have been completed and subsea cables have been installed. This assumes that the potting fishery will resume operations across subsea cables.

#### SIGNIFICANCE OF EFFECT

14.13.2.17 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

## DECOMMISSIONING PHASE

### MAGNITUDE OF IMPACT

- 14.13.2.18 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.
- 14.13.2.19 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because contribution of other projects will not effect during decommissioning stage when site investigations have been completed and subsea cables have been installed. This assumes that the potting fishery will resume operations across subsea cables.

### SIGNIFICANCE OF EFFECT

- 14.13.2.20 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is **not significant** in EIA terms for both Project Design Options.
- 14.13.2.21 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

## Tier 3

## CONSTRUCTION PHASE

### MAGNITUDE OF IMPACT

- 14.13.2.22 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.
- 14.13.2.23 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because the effects from Tier 3 projects will not exceed those resulting from the Tier 2 projects based on location of whelk fishery.

### SIGNIFICANCE OF EFFECT

- 14.13.2.24 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.
- 14.13.2.25 For the other fisheries, for Tier 3 combined with Tier 1 and 2 projects, the cumulative effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.



## OPERATION AND MAINTENANCE PHASE

### MAGNITUDE OF IMPACT

- 14.13.2.26 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.
- 14.13.2.27 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because contribution of other projects will not effect during operational stage when fishing resumes within the operational Tier 3 projects.

### SIGNIFICANCE OF EFFECT

- 14.13.2.28 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

## DECOMMISSIONING PHASE

### MAGNITUDE OF IMPACT

- 14.13.2.29 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.
- 14.13.2.30 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because the effects from Tier 3 projects will not exceed those resulting from the Tier 2 projects based on location of whelk fishery.

### SIGNIFICANCE OF EFFECT

- 14.13.2.31 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.
- 14.13.2.32 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

## Phase 1 Projects

### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

- 14.13.2.33 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.
- 14.13.2.34 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to remain within the Low category for the potting fishery. This is due to multiple mitigation packages developed across individual Phase 1 Projects to mitigate across potting fleets active within the wider grounds routinely targeted for whelk. It is further noted that the Proposed Development is likely to have a very low contribution to this overall Low magnitude of cumulative effect, this is due to the Array Area not being directly targeted by whelk fisheries.
- 14.13.2.35 For the other fisheries, the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for mussel seed fisheries and Negligible for all other fisheries. This is because the location of mussel seed fisheries is highly localised and does not extend across the Phase 1 Projects to an extent that could lead to cumulative effects beyond a Low magnitude. For all other fisheries the magnitude remains Negligible due to the very low contribution of the Proposed Development to any potential loss of access.

#### SIGNIFICANCE OF EFFECT

- 14.13.2.36 Overall, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options. Furthermore, it is highlighted that the relative contribution of the Proposed Development to this cumulative effect is low based on the relative footprint compared to other Phase 1 Projects and given Proposed Development alone mitigation measures.
- 14.13.2.37 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

### OPERATION AND MAINTENANCE PHASE

#### MAGNITUDE OF IMPACT

- 14.13.2.38 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.
- 14.13.2.39 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because fishing is expected to resume within the operational Phase 1 Projects.

#### SIGNIFICANCE OF EFFECT

14.13.2.40 Overall, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

#### DECOMMISSIONING PHASE

#### MAGNITUDE OF IMPACT

14.13.2.41 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.

14.13.2.42 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to remain within the Low category for the potting fishery. This is due to multiple mitigation packages developed across individual Phase 1 Projects to mitigate across potting fleets active within the wider grounds routinely targeted for whelk. It is further noted that the Proposed Development is likely to have a very low contribution to this overall Low magnitude of cumulative effect, this is due to the Array Area not being directly targeted by whelk fisheries.

14.13.2.43 For the other fisheries, the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for mussel seed fisheries and Negligible for all other fisheries. This is because the location of mussel seed fisheries is highly localised and does not extend across the Phase 1 Projects to an extent that could lead to cumulative effects beyond a Low magnitude. For all other fisheries the magnitude remains Negligible due to the very low contribution of the Proposed Development to any potential loss of access.

#### SIGNIFICANCE OF EFFECT

14.13.2.44 Overall, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options. Furthermore, it is highlighted that the relative contribution of the Proposed Development to this cumulative effect is low based on the relative footprint compared to other Phase 1 Projects and given Proposed Development alone mitigation measures.

14.13.2.45 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

### 14.13.3 Project Design Option 1 and 2 - Impact 2 - Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area

#### SENSITIVITY OF THE RECEPTOR

14.13.3.1 The sensitivity of the commercial fisheries receptors to Project Design Option 1 and 2 alone is presented in Section 14.10.2 and summarised as Medium for the potting fishery and mussel seed fishery and Low for all other fisheries. These Proposed Development alone sensitivity categories

remains valid for the cumulative assessment for the construction, operation and maintenance and decommissioning phases for Tiers 1, 2 and 3 and the Phase 1 Projects.

## Tier 1

### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

14.13.3.2 The Proposed Development alone was predicted to have a Medium magnitude for potting fishery, Low magnitude for the mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

14.13.3.3 When assessed cumulatively with the Tier 1 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts. This is because the Tier 1 projects are not considered to interact with commercial fisheries receptors.

#### SIGNIFICANCE OF EFFECT

14.13.3.4 Overall, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

### OPERATION AND MAINTENANCE PHASE

#### MAGNITUDE OF IMPACT

14.13.3.5 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for the mussel seed fishery and all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

14.13.3.6 When assessed cumulatively with the Tier 1 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and Negligible for mussel seed and all other fisheries. This is because the Tier 1 projects are not considered to interact with commercial fisheries receptors.

#### SIGNIFICANCE OF EFFECT

14.13.3.7 Overall, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and **Not significant** for the mussel seed and all other fisheries.

### DECOMMISSIONING PHASE

#### MAGNITUDE OF IMPACT

14.13.3.8 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project



Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

- 14.13.3.9 When assessed cumulatively with the Tier 1 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because the Tier 1 projects are not considered to interact with commercial fisheries receptors.

#### SIGNIFICANCE OF EFFECT

- 14.13.3.10 Overall, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

### Tier 2

#### CONSTRUCTION PHASE

##### MAGNITUDE OF IMPACT

- 14.13.3.11 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

- 14.13.3.12 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because the effects from Tier 2 projects are assumed to be mitigated by project alone measures for example, during site investigation works that may require relocation of fishing gear.

#### SIGNIFICANCE OF EFFECT

- 14.13.3.13 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.
- 14.13.3.14 For the other fisheries, for Tier 2 combined with Tier 1 projects, the cumulative effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

#### OPERATION AND MAINTENANCE PHASE

##### MAGNITUDE OF IMPACT

- 14.13.3.15 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

- 14.13.3.16 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low



for potting and mussel seed fisheries and Negligible for all other fisheries. This is because contribution of other projects will not effect during operational stage when site investigations have been completed and subsea cables have been installed. This assumes that the potting fishery will resume operations across subsea cables.

#### SIGNIFICANCE OF EFFECT

14.13.3.17 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

#### DECOMMISSIONING PHASE

##### MAGNITUDE OF IMPACT

14.13.3.18 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

14.13.3.19 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because contribution of other projects will not effect during decommissioning stage when site investigations have been completed and subsea cables have been installed. This assumes that the potting fishery will resume operations across subsea cables.

#### SIGNIFICANCE OF EFFECT

14.13.3.20 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.

14.13.3.21 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

#### Tier 3

#### CONSTRUCTION PHASE

##### MAGNITUDE OF IMPACT

14.13.3.22 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

14.13.3.23 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because the effects from Tier 3 projects will not exceed those resulting from the Tier 2 projects

based on location of whelk and mussel seed fisheries and extent of temporary and localised Tier 2 project export cable interactions.

#### SIGNIFICANCE OF EFFECT

14.13.3.24 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.

14.13.3.25 For the other fisheries, for Tier 3 combined with Tier 1 and 2 projects, the cumulative effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

#### OPERATION AND MAINTENANCE PHASE

##### MAGNITUDE OF IMPACT

14.13.3.26 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

14.13.3.27 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because contribution of other projects will not effect during operational stage when fishing resumes across the Cable Corridor Working Area and the operational Tier 3 projects.

#### SIGNIFICANCE OF EFFECT

14.13.3.28 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and mussel seed fisheries and **Not significant** for all other fisheries.

#### DECOMMISSIONING PHASE

##### MAGNITUDE OF IMPACT

14.13.3.29 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

14.13.3.30 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because the effects from Tier 3 projects will not exceed those resulting from the Tier 2 projects based on location of whelk and mussel fisheries and extent of Tier 2 project interactions with the whelk fishery.

#### SIGNIFICANCE OF EFFECT

- 14.13.3.31 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.
- 14.13.3.32 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

### Phase 1 Projects

#### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

- 14.13.3.33 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Array Area.
- 14.13.3.34 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to remain within the Low category for the potting fishery. This is due to multiple mitigation packages developed across individual Phase 1 Projects during the construction phase to mitigate across potting fleets active within the wider grounds routinely targeted for whelk.
- 14.13.3.35 It is recognised that, multiple construction activities, affecting multiple locations that could otherwise provide whelk fishing grounds may result in additive impacts to the same fleets of vessels. However, it is assumed that these impacts at individual Project level will be appropriately mitigated to minimise the additive contribution to cumulative magnitude impacts over the Cable Corridor and Working Area.
- 14.13.3.36 For the other fisheries, the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for mussel seed fisheries and Negligible for all other fisheries. This is because the location of mussel seed fisheries is highly localised and does not extend across the Tier 2 projects to an extent that could lead to cumulative effects beyond a Low magnitude. For all other fisheries the magnitude remains Negligible due to the very low contribution of the Proposed Development to any potential loss of access.

#### SIGNIFICANCE OF EFFECT

- 14.13.3.37 Overall, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options. Furthermore, it is highlighted that the relative contribution of the Proposed Development to this cumulative effect is low based on the relative footprint compared to other Phase 1 Projects and given Proposed Development alone mitigation measures.
- 14.13.3.38 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

## OPERATION AND MAINTENANCE PHASE

### MAGNITUDE OF IMPACT

14.13.3.39 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

14.13.3.40 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and Negligible for mussel seed and all other fisheries. This is because fishing is expected to resume across the Cable Corridors of all Phase 1 Projects.

### SIGNIFICANCE OF EFFECT

14.13.3.41 Overall, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and **Not significant** for mussel seed fisheries and all other fisheries.

## DECOMMISSIONING PHASE

### MAGNITUDE OF IMPACT

14.13.3.42 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and mussel seed fishery and a Negligible magnitude for all other fisheries based on both Project Design Options due to loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area.

14.13.3.43 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to remain within the Low category for the potting fishery. This is due to multiple mitigation packages developed across individual Phase 1 Projects during the decommissioning phase to mitigate across potting fleets active within the wider grounds routinely targeted for whelk.

14.13.3.44 It is recognised that, multiple decommissioning activities, affecting multiple locations that could otherwise provide whelk fishing grounds may result in additive impacts to the same fleets of vessels. However, it is assumed that these impacts at individual Project level will be appropriately mitigated to minimise the additive contribution to cumulative magnitude impacts over the Cable Corridor and Working Area.

14.13.3.45 For the other fisheries, the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for mussel seed fisheries and Negligible for all other fisheries. This is because the location of mussel seed fisheries is highly localised and does not extend across the Phase 1 Projects to an extent that could lead to cumulative effects beyond a Low magnitude. For all other fisheries the magnitude remains Negligible due to the very low contribution of the Proposed Development to any potential temporary loss of access associated with decommissioning of the Cable Corridor.

### SIGNIFICANCE OF EFFECT

14.13.3.46 Overall, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options. It is highlighted that the



relative contribution of the Proposed Development to this cumulative effect is low based on the relative footprint compared to other Phase 1 Projects and given Proposed Development alone mitigation measures.

- 14.13.3.47 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for mussel seed fisheries and **Not significant** for all other fisheries.

### 14.13.4 Project Design Option 1 and 2 - Impact 3 – Displacement of fishing activity into other areas

#### SENSITIVITY OF THE RECEPTOR

- 14.13.4.1 The sensitivity of the commercial fisheries receptors to Project Design Option 1 and 2 alone is presented in Section 14.10.3 and summarised as Medium for the potting fishery and mussel seed fishery and Low for all other fisheries. These Proposed Development alone sensitivity categories remains valid for the cumulative assessment for the construction, operation and maintenance and decommissioning phases for Tiers 1, 2 and 3n and Phase 1 Projects.

#### Tier 1

#### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

- 14.13.4.2 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.3 When assessed cumulatively with the Tier 1 project set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts. This is because the Tier 1 projects are not considered to displace any commercial fishing fleets considered in this assessment.

#### SIGNIFICANCE OF EFFECT

- 14.13.4.4 Overall, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and **Not significant** for mussel seed and all other fisheries.

#### OPERATION AND MAINTENANCE PHASE

#### MAGNITUDE OF IMPACT

- 14.13.4.5 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.6 When assessed cumulatively with the Tier 1 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and Negligible for mussel seed and all other fisheries. This is because the Tier 1 projects are not considered to displace any commercial fishing fleets considered in this assessment.



#### SIGNIFICANCE OF EFFECT

14.13.4.7 Overall, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and **Not significant** for the mussel seed and all other fisheries.

#### DECOMMISSIONING PHASE

#### MAGNITUDE OF IMPACT

14.13.4.8 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.

14.13.4.9 When assessed cumulatively with the Tier 1 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and Negligible for mussel seed and all other fisheries. This is because the Tier 1 projects are not considered to displace any commercial fishing fleets considered in this assessment.

#### SIGNIFICANCE OF EFFECT

14.13.4.10 Overall, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and **Not significant** for mussel seed and all other fisheries.

### Tier 2

#### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

14.13.4.11 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.

14.13.4.12 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for the potting fishery and Negligible for the mussel seed and all other fisheries. This is because the effects from Tier 2 projects will be of a short duration, across a relatively small area and localised in nature.

#### SIGNIFICANCE OF EFFECT

14.13.4.13 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.

14.13.4.14 For the other fisheries, for Tier 2 combined with Tier 1 projects, the cumulative effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Not significant** for mussel seed and all other fisheries.

## OPERATION AND MAINTENANCE PHASE

### MAGNITUDE OF IMPACT

- 14.13.4.15 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.16 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because contribution of other projects will not effect during operational stage when fishing resumes, thereby minimising any displacement.

### SIGNIFICANCE OF EFFECT

- 14.13.4.17 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Option. The sensitivity of the receptor was deemed to be Medium to Low. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and **Not significant** for mussel seed fisheries and all other fisheries.

## DECOMMISSIONING PHASE

### MAGNITUDE OF IMPACT

- 14.13.4.18 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.19 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because the effects from Tier 2 projects will be of a short duration, across a relatively small area and localised in nature.

### SIGNIFICANCE OF EFFECT

- 14.13.4.20 Overall, for Tier 2 combined with Tier 1 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.
- 14.13.4.21 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Not significant** for mussel seed and all other fisheries.

## Tier 3

## CONSTRUCTION PHASE

### MAGNITUDE OF IMPACT

- 14.13.4.22 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.

- 14.13.4.23 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for the potting fishery and Negligible for the mussel seed and all other fisheries. This is because the Tier 3 projects are not located across grounds targeting by the Irish potting fleet. Notably, Morgan and Mona are principally located across scallop grounds. Morecambe Offshore Wind Farm is located across grounds targeted by UK whelk potting vessels, but with minimal effort from Irish potters due to the distance from the Irish coast. The Isle of Man Offshore Wind Farm export cable is targeted by Manx and UK whelk potting vessels.

#### SIGNIFICANCE OF EFFECT

- 14.13.4.24 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.
- 14.13.4.25 For the other fisheries, for Tier 3 combined with Tier 1 and 2 projects, the cumulative effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Not significant** for mussel seed and all other fisheries.

#### OPERATION AND MAINTENANCE PHASE

##### MAGNITUDE OF IMPACT

- 14.13.4.26 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.27 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for potting and mussel seed fisheries and Negligible for all other fisheries. This is because contribution of other projects will not effect during operational stage when fishing resumes, thereby minimising any displacement.

#### SIGNIFICANCE OF EFFECT

- 14.13.4.28 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and **Not significant** for mussel seed fisheries and all other fisheries.

#### DECOMMISSIONING PHASE

##### MAGNITUDE OF IMPACT

- 14.13.4.29 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.30 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for the potting fishery, Low for the mussel seed fishery and Negligible for all other fisheries. This is because the effects from Tier 3 projects will not exceed those resulting from any displacement related to Tier 2 projects.

#### SIGNIFICANCE OF EFFECT

- 14.13.4.31 Overall, for Tier 3 combined with Tier 1 and 2 projects, the cumulative magnitude of the impact is deemed **Low** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Slight adverse**, which is not significant in EIA terms for both Project Design Options.
- 14.13.4.32 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Not significant** for mussel seed and all other fisheries.

### Phase 1 Projects

#### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

- 14.13.4.33 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.34 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to increase to Medium for the potting fishery. The Phase 1 Projects are considered to have a similar individual, but additive contribution to cumulative magnitude impacts related to displacement. These vessels will be displaced into areas already targeted for whelk, leading to increased competition for space and increased pressure on the whelk resources. Displacement occurring across multiple projects is difficult to attribute to a specific project. Mitigation at individual project level is recognised as effective for mitigating the impact of loss of fishing grounds, however, these displaced vessels are likely to seek alternative grounds, leading to increased competition. It is noted that the Proposed Development alone impacts were not significant, and that the Proposed Development is likely to have a lower contribution to the cumulative effect, however notwithstanding this, an overall cumulative Medium impact is assessed due to multiple Phase 1 Projects construction impacts within the defined whelk fishing grounds which could lead to displacement into areas with existing high effort.
- 14.13.4.35 For the other fisheries, the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Negligible for mussel seed and all other fisheries. This is due to the very low contribution of the Proposed Development to any potential loss of access and thereby displacement is not anticipated at a cumulative level.

#### SIGNIFICANCE OF EFFECT

- 14.13.4.36 Overall, the cumulative magnitude of the impact is deemed **Medium** for the potting fishery, which has a **Medium** sensitivity, and therefore a the significance of effect is **Moderate adverse**, which is significant in EIA terms for both Project Design Options.
- 14.13.4.37 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Not significant** for mussel seed and all other fisheries.

#### PROPOSED MITIGATION

- 14.13.4.38 Irish potting fleet: In order to mitigate the potential cumulative effects on the whelk fishery operating across the Cable Corridor and Working Area during the construction phase, the Developer will continue to liaise with other Phase 1 Project developers and continue to actively participate in the Seafood / ORE Working Group, including commitment to joint development and



implementation of approaches to mitigating the cumulative effects of displacement. Further details are provided within the FMMS (Appendix 25.3).

#### RESIDUAL EFFECT ASSESSMENT

- 14.13.4.39 Irish potting fleet: The FMMS provides mitigation including joint development of approaches to mitigate cumulative displacement effects for the Irish whelk potting fleet, the impact magnitude is therefore reduced to **Low**, and the residual effect is of **Slight adverse** significance, which is **Not significant** in EIA terms.

#### OPERATION AND MAINTENANCE PHASE

##### MAGNITUDE OF IMPACT

- 14.13.4.40 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.41 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for potting and Negligible for mussel seed and all other fisheries. This is because fishing is expected to resume across all Phase 1 Projects during their operational phases.

##### SIGNIFICANCE OF EFFECT

- 14.13.4.42 Overall, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for potting and **Not significant** for mussel seed fisheries and all other fisheries.

#### DECOMMISSIONING PHASE

##### MAGNITUDE OF IMPACT

- 14.13.4.43 The Proposed Development alone was predicted to have a Low magnitude for potting fishery and a Negligible magnitude for mussel seed and all other fisheries based on both Project Design Options due to displacement of fishing activity into other areas.
- 14.13.4.44 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact of the magnitude is considered to increase to Medium for the potting fishery. The Phase 1 Projects are considered to have a similar individual, but additive contribution to cumulative magnitude impacts related to displacement. These vessels will be displaced into areas already targeted for whelk, leading to increased competition for space and increased pressure on the whelk resources. Displacement occurring across multiple projects is difficult to attribute to a specific project. Mitigation at individual project level is recognised as effective for mitigating the impact of loss of fishing grounds, however, these displaced vessels are likely to seek alternative grounds, leading to increased competition. It is noted that the Proposed Development alone impacts were not significant, and that the Proposed Development is likely to have a lower contribution to the cumulative effect, however notwithstanding this, an overall cumulative Medium impact is assessed due to multiple Phase 1 Projects construction impacts within the defined whelk fishing grounds which could lead to displacement into areas with existing high effort.
- 14.13.4.45 For the other fisheries, the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Negligible for the mussel seed and all other



fisheries. This is due to the very low contribution of the Proposed Development to any potential loss of access and thereby displacement is not anticipated at a cumulative level.

#### SIGNIFICANCE OF EFFECT

- 14.13.4.46 Overall, the cumulative magnitude of the impact is deemed **Medium** for the potting fishery, which has a **Medium** sensitivity, and therefore the significance of effect is **Moderate adverse**, which is significant in EIA terms for both Project Design Options.
- 14.13.4.47 For the other fisheries, the effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Not significant** for mussel seed and all other fisheries.

### 14.13.5 Project Design Option 1 and 2 - Impact 4 – Effects on commercially exploited species resources

#### SENSITIVITY OF THE RECEPTOR

- 14.13.5.1 The sensitivity of the commercial fisheries receptors to Project Design Option 1 and 2 alone is presented in Section 14.10.6 and summarised as Medium for the potting fishery and mussel seed fishery and Low for all other fisheries. These Proposed Development alone sensitivity categories remain valid for the cumulative assessment for the construction, operation and maintenance and decommissioning phases for Tiers 1, 2 and 3 and Phase 1 Projects.

#### Tier 1

#### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

- 14.13.5.2 The Proposed Development alone was predicted to have a Low magnitude for all fisheries based on both Project Design Options due to effects on commercially exploited species.
- 14.13.5.3 When assessed cumulatively with the Tier 1 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for all fisheries. This is because the Tier 1 projects are not considered to interact with commercial fisheries resources.

#### SIGNIFICANCE OF EFFECT

- 14.13.5.4 Overall, the cumulative magnitude of the impact is deemed **Negligible to Low** for both Project Design Options. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for all fisheries.

#### OPERATION AND MAINTENANCE PHASE

#### MAGNITUDE OF IMPACT

- 14.13.5.5 The Proposed Development alone was predicted to have a Low magnitude for all fisheries based on both Project Design Options due to effects on commercially exploited species.
- 14.13.5.6 When assessed cumulatively with the Tier 1 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are

Low for all fisheries. This is because the Tier 1 projects are not considered to interact with commercial fisheries resources.

#### SIGNIFICANCE OF EFFECT

14.13.5.7 Overall, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for all fisheries.

#### DECOMMISSIONING PHASE

##### MAGNITUDE OF IMPACT

14.13.5.8 The Proposed Development alone was predicted to have a Low magnitude for all fisheries based on both Project Design Options due to effects on commercially exploited species.

14.13.5.9 When assessed cumulatively with the Tier 1 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than the Proposed Development alone impacts which are Low for all fisheries. This is because the Tier 1 projects are not considered to interact with commercial fisheries resources.

#### SIGNIFICANCE OF EFFECT

14.13.5.10 Overall, the cumulative magnitude of the impact is deemed **Negligible** to **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for all fisheries.

#### Tier 2

#### ALL PHASES

##### MAGNITUDE OF IMPACT

14.13.5.11 The Proposed Development alone was predicted to have a Low magnitude for all fisheries based on both Project Design Options due to effects on commercially exploited species.

14.13.5.12 When assessed cumulatively with the Tier 2 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 1 impacts which are Low for all fisheries at all phases. This is because the effect of Tier 2 projects on fish and shellfish resources is expected to be for a short duration, across a relatively small area and therefore highly localised. This assumes effective burial of subsea cables, or protection where burial is not possible, and thereby no anticipated EMF effects.

#### SIGNIFICANCE OF EFFECT

14.13.5.13 Overall, the cumulative magnitude of the impact is deemed **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium** to **Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for all fisheries.

## Tier 3

### ALL PHASES

#### MAGNITUDE OF IMPACT

14.13.5.14 The Proposed Development alone was predicted to have a Low magnitude for all fisheries based on both Project Design Options due to effects on commercially exploited species.

14.13.5.15 When assessed cumulatively with the Tier 3 projects set out in Table 14.12 the impact of the magnitude is considered to be no more than that assessed for Tier 2 impacts which are Low for all fisheries at all phases.

#### SIGNIFICANCE OF EFFECT

14.13.5.16 Overall, the cumulative magnitude of the impact is deemed **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for all fisheries.

## Phase 1 Projects

### CONSTRUCTION PHASE

#### MAGNITUDE OF IMPACT

14.13.5.17 The Proposed Development alone was predicted to have a Low magnitude for all fisheries based on both Project Design Options due to effects on commercially exploited species.

14.13.5.18 The cumulative effects for fish and shellfish ecology have been assessed in Volume 2, Chapter 10 covering the following effects during the construction phase:

- Temporary habitat loss;
- Increased suspended sediment concentrations and associated sediment deposition;
- Injury and/or disturbance to fish and shellfish from underwater noise and vibration; and
- Accidental pollution.

14.13.5.19 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact on fish and shellfish ecology during construction are assessed to be of imperceptible to slight adverse significance. Therefore the magnitude of effect to commercial fisheries resources is assessed as Low for all commercial fishery fleets.

#### SIGNIFICANCE OF EFFECT

14.13.5.20 Overall, the cumulative magnitude of the impact is deemed **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for all fisheries.

### OPERATION AND MAINTENANCE PHASE

#### MAGNITUDE OF IMPACT

14.13.5.21 The Proposed Development alone was predicted to have a Low magnitude for all fisheries based on both Project Design Options due to effects on commercially exploited species.

14.13.5.22 The cumulative effects for fish and shellfish ecology have been assessed in Volume 2, Chapter 10 covering the following effects during the construction phase:

- Temporary Habitat loss;
- Increased suspended sediment concentrations and associated sediment deposition;
- Injury and/or disturbance to fish and shellfish from underwater noise and vibration;
- Accidental pollution;
- Long term habitat loss;
- Alterations of seabed habitats arising from changes in physical processes; and
- Temporary Changes in Electromagnetic Fields (EMF) from subsea electrical cabling.

14.13.5.23 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact on fish and shellfish ecology during construction are assessed to be of imperceptible to slight adverse significance. Therefore the magnitude of effect to commercial fisheries resources is assessed as Low for all commercial fishery fleets.

#### SIGNIFICANCE OF EFFECT

14.13.5.24 Overall, the cumulative magnitude of the impact is deemed **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for all fisheries.

#### DECOMMISSIONING PHASE

#### MAGNITUDE OF IMPACT

14.13.5.25 The Proposed Development alone was predicted to have a Low magnitude for all fisheries based on both Project Design Options due to effects on commercially exploited species.

14.13.5.26 The cumulative effects for fish and shellfish ecology have been assessed in Volume 2, Chapter 10 covering the following effects during the decommissioning phase:

- Temporary habitat loss;
- Increased suspended sediment concentrations and associated sediment deposition;
- Injury and/or disturbance to fish and shellfish from underwater noise and vibration; and
- Accidental pollution.

14.13.5.27 When assessed cumulatively with the Phase 1 Projects set out in Table 14.12 the impact on fish and shellfish ecology during construction are assessed to be of imperceptible to slight adverse significance. Therefore the magnitude of effect to commercial fisheries resources is assessed as Low for all commercial fishery fleets.

#### SIGNIFICANCE OF EFFECT

14.13.5.28 Overall, the cumulative magnitude of the impact is deemed **Low** for both Project Design Option. The sensitivity of the receptor was deemed to be **Medium to Low**. The effect for both Project Design Options will therefore be no more than the Proposed Development alone residual effects which are **Slight adverse** for all fisheries.



## 14.14 Transboundary effects

14.14.1.1 A screening of transboundary impacts has been carried out and has identified that there was potential for significant transboundary effects with regard to commercial fisheries from the Proposed Development upon the interests of other states.

14.14.1.2 Transboundary effects are defined as those effects upon the receiving environment of other states, whether occurring from the Proposed Development alone, or cumulatively with other projects in the wider area. A transboundary screening exercise was undertaken at Scoping, which identified that there was the potential for transboundary effects to occur in relation to commercial fisheries. The potential transboundary impacts considered for commercial fisheries are:

- Effects on commercial fishing fleets as a result of impacts from the Proposed Development on commercial fish stocks in the waters of other States; and
- Effects on commercial fishing fleets from all States as a result of constraints on foreign commercial fishing activities operating in the Proposed Development. These effects may include reduction in access to fishing grounds and potential displacement of fishing effort from the Proposed Development to alternative fishing grounds in other States, which will have direct implications to that fishing ground.

14.14.1.3 Effects on biological resources could occur over a range of 10s of kilometres from the Proposed Development and could therefore interact with the following States: the UK and the Isle of Man. Based on the minor to negligible significance of disruption to commercial species during all phases of the project, it is expected that the impact on stocks in the UK and the Isle of Man EEZs will be negligible. Therefore, the potential transboundary impact of effects on commercial fish stocks in the waters of other States on commercial fisheries is concluded to be **Not significant** in EIA terms.

14.14.1.4 Effects on commercial fishing fleets could occur over a range of 100s of kilometres from the Proposed Development (i.e. affecting fleets from other states that operate in the vicinity of the Proposed Development) and could therefore interact with the following States: the UK and Isle of Man. Effects on these foreign commercial fishing fleets from States, in terms of reduction in access to grounds within the Proposed Development and displacement into alternative grounds including other EEZs were found to be low to negligible for all non-Irish fishing fleets. Therefore, the potential transboundary impact of constraints on foreign commercial fishing activities is concluded to be **Not significant** in EIA terms.

## 14.15 Summary of effects

14.15.1.1 Information on commercial fisheries and aquaculture within the Commercial Fisheries and Aquaculture Study Area was collected through analysis of fisheries datasets, a desktop review of information, marine activity surveys and consultation with fisheries stakeholders.

14.15.1.2 Table 14.14 and Table 14.15 present a summary of the potential impacts, factored-in measures and residual effects in respect to Commercial Fisheries and Aquaculture. The impacts assessed include:

- Loss of grounds or restricted access to fishing grounds within the Array Area;
- Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area;
- Displacement of fishing activity into other areas;
- Interference with fishing activities;
- Increased steaming times to fishing grounds;
- Impacts on commercially exploited species; and
- Gear snagging.



- 14.15.1.3 Overall, it is concluded that there will be no significant residual effects arising from the Proposed Development during the construction, operational and maintenance or decommissioning phases.
- 14.15.1.4 Overall, it is concluded that there will be no significant residual cumulative effects from the Proposed Development alongside the Phase 1 Projects related all impacts including displacement of fishing activity for potters targeting whelk.
- 14.15.1.5 Potential transboundary impacts have been identified and overall, it is concluded that there will be no significant transboundary effects arising from the Proposed Development.

**Table 14.14 Summary of potential environmental impacts, mitigation and monitoring for Project Design Option 1**

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
1. Loss of grounds or restricted access to fishing grounds within the Array Area	✓	✓	✓	FMMS; FLO; OFLO; CBRA; Advisory safety zones; Construction Programme and	Potting fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
				Construction Methodology; EMP; Pre and Post-Construction surveys; Operational and	Mussel seed fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
				Maintenance Activities Methodology; Lighting and Marking Plan; Rehabilitation Schedule	Other fisheries	C: Negligible O: Negligible D: Negligible	Low	C, O & D: Not significant	None	C, O & D: Not significant	N/A
2. Loss of grounds or restricted access to fishing grounds within the	✓	✓	✓	FMMS; FLO; OFLO; CBRA; Advisory safety zones; Construction	Potting fishery	C: Medium O: Low D: Low	Medium	C: Moderate adverse (significant in EIA terms)	Cooperation agreements and associated payments	C: Slight adverse (not significant in EIA terms)	N/A

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
Cable Corridor and Working Area				Programme and Construction Methodology; EMP; Pre and Post-Construction surveys; Operational and Maintenance Activities Methodology; Lighting and Marking Plan; Rehabilitation Schedule				O & D: Slight adverse (not significant in EIA terms)			
					Mussel seed fishery	C: Low O: Negligible D: Low	Medium	C & D: Slight adverse (not significant in EIA terms) O: Not significant	None	C & D: Slight adverse (not significant in EIA terms) O: Not significant	N/A
					Other fisheries	C: Negligible O: Negligible D: Negligible	Low	C, O & D: Not significant	None	C, O & D: Not significant	N/A
3. Displacement of fishing activity into other areas	✓	✓	✓	FMMS; FLO; OFLO; CBRA; Advisory safety zones; Construction Programme	Potting fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
				and Construction Methodology; EMP; Pre and Post-Construction surveys; Operational and Maintenance Activities Methodology; Rehabilitation Schedule	Mussel seed fishery	C: Negligible O: Negligible D: Negligible	Medium	C, O & D: Not significant	None	C, O & D: Not significant	N/A
					Other fisheries	C: Negligible O: Negligible D: Negligible	Low	C, O & D: Not significant	None	C, O & D: Not significant	N/A
4. Interference with fishing activities	✓	✓	✓	FMMS; FLO; OFLO; Vessel Management Plan; Construction Programme and Construction Methodology; Operational and Maintenance Activities Methodology; Rehabilitation Schedule	Potting fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
					Mussel seed fishery	C: Low O: Low D: Low	Low	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
					Other fisheries	C: Low O: Low D: Low	Low	C, O & D: Slight adverse (not	None	C, O & D: Slight adverse (not	N/A

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
5. Increased steaming times to fishing grounds	✓	✓	✓	FMMS; FLO; OFLO; Construction Programme and Construction Methodology; Vessel Management Plan; Operational and Maintenance Activities Methodology; Rehabilitation Schedule	Potting fishery	C: Negligible O: Negligible D: Negligible	Medium	C, O & D: Not significant	None	significant in EIA terms) C, O & D: Not significant	N/A
					Mussel seed fishery	C: Negligible O: Negligible D: Negligible	Medium	C, O & D: Not significant	None	significant in EIA terms) C, O & D: Not significant	N/A
					Other fisheries	C: Negligible O: Negligible D: Negligible	Low	C, O & D: Not significant	None	significant in EIA terms) C, O & D: Not significant	N/A
6. Effects on commercially exploited species	✓	✓	✓	As per Fish and Shellfish Ecology Chapter	Potting fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	significant in EIA terms) C, O & D: Slight adverse (not significant in EIA terms)	N/A



Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
					Mussel seed fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
					Other fisheries	C: Low O: Low D: Low	Low	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
7. Potential for snagging of gear	✓	✓	✓	Advisory safety zones; Gear loss procedure; FLO; OFLO; Construction Programme and Construction Methodology; Vessel Management Plan; Operational and	Potting fishery	C: Low O: Low D: Low	Low	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
					Mussel seed fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
				Maintenance Activities Methodology; Rehabilitation Schedule	Other fisheries	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A

**Table 14.15 Summary of potential environmental impacts, mitigation and monitoring for Project Design Option 2**

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
1. Loss of grounds or restricted access to fishing grounds within the Array Area	✓	✓	✓	FMMS; FLO; OFLO; CBRA; Advisory safety zones; Construction Programme and	Potting fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
				Construction Methodology; EMP; Pre and Post-Construction surveys; Operational	Mussel seed fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
				and Maintenance Activities Methodology; Lighting and Marking Plan; Rehabilitation Schedule	Other fisheries	C: Negligible O: Negligible D: Negligible	Low	C, O & D: Not significant	None	C, O & D: Not significant	N/A
2. Loss of grounds or restricted access to fishing grounds within the Cable Corridor and Working Area	✓	✓	✓	FMMS; FLO; OFLO; CBRA; Advisory safety zones; Construction Programme and Construction Methodology; EMP; Pre and Post-Construction surveys; Operational and Maintenance Activities Methodology; Lighting and Marking Plan;	Potting fishery	C: Medium O: Low D: Low	Medium	C: Moderate adverse (significant in EIA terms) O & D: Slight adverse (not significant in EIA terms)	Cooperation agreements and associated payments	C: Slight adverse (not significant in EIA terms)	N/A
					Mussel seed fishery	C: Low O: Negligible D: Low	Medium	C & D: Slight adverse (not significant in EIA terms) O: Not significant	None	C & D: Slight adverse (not significant in EIA terms) O: Not significant	N/A

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
				Rehabilitation Schedule	Other fisheries	C: Negligible O: Negligible D: Negligible	Low	C, O & D: Not significant	None	C, O & D: Not significant	N/A
3. Displacement of fishing activity into other areas	✓	✓	✓	FMMS; FLO; OFLO; CBRA; Advisory safety zones; Construction Programme and Construction Methodology; EMP; Pre and Post-Construction surveys; Operational and Maintenance Activities Methodology; Rehabilitation Schedule	Potting fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
					Mussel seed fishery	C: Negligible O: Negligible D: Negligible	Medium	C, O & D: Not significant	None	C, O & D: Not significant	N/A
					Other fisheries	C: Negligible O: Negligible D: Negligible	Low	C, O & D: Not significant	None	C, O & D: Not significant	N/A
4. Interference with fishing activities	✓	✓	✓	FMMS; FLO; OFLO; Vessel Management Plan;	Potting fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant)	None	C, O & D: Slight adverse (not significant)	N/A

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring	
	C	O	D									
				Construction Programme and Construction Methodology; Operational and Maintenance Activities Methodology; Rehabilitation Schedule				in EIA terms)		in EIA terms)		
					Mussel seed fishery	C: Low O: Low D: Low	Low	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A	
					Other fisheries	C: Low O: Low D: Low	Low	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A	
5.	Increased steaming times to fishing grounds	✓	✓	✓	FMMS; FLO; OFLO; Construction Programme and Construction Methodology; Vessel Management Plan; Operational and Maintenance	Potting fishery	C: Negligible O: Negligible D: Negligible	Medium	C, O & D: Not significant	None	C, O & D: Not significant	N/A
						Mussel seed fishery	C: Negligible O: Negligible D: Negligible	Medium	C, O & D: Not significant	None	C, O & D: Not significant	N/A



Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
				Activities Methodology; Rehabilitation Schedule	Other fisheries	C: Negligible O: Negligible D: Negligible	Low	C, O & D: Not significant	None	C, O & D: Not significant	N/A
6. Effects on commercially exploited species	✓	✓	✓	As per Fish and Shellfish Ecology Chapter	Potting fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
					Mussel seed fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
					Other fisheries	C: Low O: Low D: Low	Low	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
	✓	✓	✓	Advisory safety zones; Gear loss	Potting fishery	C: Low O: Low D: Low	Low	C, O & D: Slight adverse	None	C, O & D: Slight adverse	N/A

Description of impact	Phase			Factored-in measures	Receptor	Magnitude of impact	Sensitivity of Receptors	Significance of effect	Additional measures	Residual effect	Proposed monitoring
	C	O	D								
7. Potential for snagging of gear				procedure; FLO; OFLO; Construction Programme and				(not significant in EIA terms)		(not significant in EIA terms)	
				Construction Methodology; Vessel Management Plan; Operational and Maintenance Activities Methodology; Rehabilitation Schedule	Mussel seed fishery	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A
					Other fisheries	C: Low O: Low D: Low	Medium	C, O & D: Slight adverse (not significant in EIA terms)	None	C, O & D: Slight adverse (not significant in EIA terms)	N/A

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