LLŶR FLOATING OFFSHORE WIND PROJECT

Llŷr 1 Floating Offshore Wind Farm

Environmental Statement

Volume 3: Chapter 26 – Commercial Fisheries

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Prepared by: Llŷr Floating Wind Ltd

FLOVENTIS ENERGY

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Prepared for	Llŷr Floating Wind Limited
Approved by	Jay Hilton-Miller

Acronyms and abbreviations

Acronym or Abbreviation	Definition	Acronym or Abbreviation	Definition
AIS	Automatic Identification System	IFCA	Inshore Fisheries and Conservation Authority
BEIS	Department for Business, Energy & Industrial Strategy	IFPO	Irish Fish Producers Organisation
CEA	Cumulative Effects Assessment	IPC	Infrastructure Planning Commission
Cefas	Centre for Environment, Fisheries and Aquaculture Science	JFS	Joint Fishery Statement
DCF	Data Collection Framework	MCA	Maritime and Coastguard Agency
DECC	Department of Energy & Climate Change, now Department of Business, Energy and Industrial Strategy (BEIS)	MHWS	Mean High Water Springs
DESNZ	Department for Energy Security and Net Zero	MMO	Marine Management Organisation
EEA	European Economic Area	MPS	Marine Policy Statement
EEZ	Exclusive Economic Zone	MSY	Maximum Sustainable Yield
EIA	Environmental Impact Assessment	NFFO	National Federation of Fishermen's Organisations
EMF	Electro-magnetic Field	NPS	National Policy Statement
ES	Environmental Statement	NRA	Navigational Risk Assessment
ESCA	European Subsea Cables Association	NtM	Notice to Mariners
EU	European Union	OfECC	Offshore Export Cable Corridor
FLCP	Fisheries Liaison and Coexistence Plan	SSC	Suspended Sediment Concentration
FLO	Fisheries Liaison Officer	TAC	Total Allowable Catch
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables	TCA	Trade and Cooperation Agreement
GES	Good Ecological Status	UK	United Kingdom
GIS	Geographic Information System	UKFEN	UK Fisheries Economic Network
GPS	Global Positioning System	VMS	Vessel Monitoring System
ICES	International Council for the Exploration of the Sea	WFA-CPC	Welsh Fishermen's Association - Cymdeithas Pysgotwyr Cymru

Glossary of terms

Term	Definition
The Applicant	The developer of the Project, Llŷr Floating Wind Limited
Array	All wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure within the Array Area, as defined, when considered collectively, excluding the offshore export cable(s).

Term	Definition
Array Area	The area within which the wind turbine generators, inter array cables, mooring lines, floating sub-structures and supporting subsea infrastructure will be located
Beam trawl	A method of bottom trawling with a net that is held open by a beam, which is generally a heavy steel tube supported by steel trawl heads at each end. Tickler chains or chain mats, attached between the beam and the ground rope of the net, are used to disturb fish and crustaceans that rise up and fall back into the attached net.
Bycatch	Catch which is retained and sold but is not the target species for the fishery.
Demersal	Living on or near the sea bed.
Design Envelope	A description of the range of possible elements that make up the design options under consideration for the proposed Project, as set out in detail in the project description. This envelope is used to define the proposed Project for Environmental Impact Assessment (EIA) purposes when the exact engineering parameters are not yet known. This is also often referred to as the "Rochdale Envelope" approach.
Fish stock	Any natural population of fish which an isolated and self-perpetuating group of the same species.
Fishery	A group of vessel voyages which target the same species or use the same gear.
Fishing ground	An area of water or sea bed targeted by fishing activity.
Fishing mortality	Mortality due to fishing; death or removal of fish from a population due to fishing.
Fleet	A physical group of vessels sharing similar characteristics (e.g., nationality).
Gear type	The method / equipment used for fishing.
ICES statistical rectangles	ICES standardise the division of sea areas to enable statistical analysis of data. Each ICES statistical rectangle is '30 min latitude by 1 degree longitude' in size (approximately 30 x 30 nautical miles). A number of rectangles are amalgamated to create ICES statistical areas.
Landfall	The location where the offshore export cable(s) from the Array Area, as defined, are brought onshore and connected to the onshore export cables (as defined) via the transition joint bays (TJB).
Landings	Quantitative description of amount of fish returned to port for sale, in terms of value or weight.
Llŷr 1	The proposed Project, for which the Applicant is applying for Section 36 and Marine Licence consents. Including all offshore and onshore infrastructure and activities, and all project phases.
Metier	A homogenous subdivision, either of a fishery by vessel type or a fleet by voyage type.
Offshore Development Area	The footprint of the offshore infrastructure and associated temporary works, comprised of the Array Area and the Offshore Export Cable Corridor, as defined, that forms the offshore boundary for the S36 Consent and Marine Licence application.
Offshore Export Cable	The cable(s) that transmit electricity produced by the WTGs to landfall.

Term	Definition
Offshore Export Cable Corridor (OfECC)	The area within which the offshore export cable circuit(s) will be located, from the Array Area to the Landfall.
Otter trawl	A net with large rectangular boards (otter boards) which are used to keep the mouth of the trawl net open. Otter boards are made of timber or steel and are positioned in such a way that the hydrodynamic forces, acting on them when the net is towed along the seabed, pushes them outwards and prevents the mouth of the net from closing.
Pelagic	Of or relating to the open sea.
Pelagic trawl	A net used to target fish species in the mid water column.
Pots	Pots and traps are generally rigid structures into which fish or shellfish are guided or enticed through funnels that make entry easy but from which escape is difficult. There are many different styles and designs, each one has been designed to suit the behaviour of its target species.
proposed Project	All aspects of the Llŷr 1 development (i.e. the onshore and offshore components).
Scallop dredge	A method to catch scallop using steel dredges with a leading bar fitted with a set of spring loaded, downward pointing teeth. Behind this toothed bar (sword), a mat of steel rings is fitted. A heavy net cover (back) is laced to the frame, sides and after end of the mat to form a bag.
Stock assessment	An assessment of the biological stock of a species and its status in relation to defined references points for biomass and fishing mortality.
String	A series of static fishing gear (pots) joined together to form a single deployable linear line of pots.
Swept Area Ratio (SAR)	SAR (derived from VMS data) indicates the number of times in an annual period that a fishing gear makes contact with (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity.
The Project	Llŷr 1 Floating Offshore Wind Farm.
Total Allowable Catch (TAC)	TACs are catch limits, expressed in tonnes or numbers, that are set for some commercial fish stocks.
Vessel Monitoring System (VMS)	A system used in commercial fishing to allow environmental and fisheries regulatory organizations to monitor, minimally, the position, time at a position, and course and speed of fishing vessels.

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26. COMMERCIAL FISHERIES

26.1 Introduction

1. Llŷr Floating Wind Limited (hereafter the Applicant) is proposing to develop the Llŷr 1 Floating Offshore Wind Farm (hereafter referred to as the proposed Project), located approximately 35 km off the coast of Pembrokeshire in the Celtic Sea.

2. The proposed Project is a test and demonstration wind farm development, comprising up to 10 wind turbine generators (WTGs). The proposed Project will make landfall at Freshwater West before connecting into Pembroke Dock power station and the national grid network.

3. The Applicant is seeking a Section 36 consent and Marine Licence for Llŷr 1, and this chapter forms part of the Environmental Statement (ES) which is submitted in support of those consent applications. This chapter describes the potential impacts and effects of the proposed Project on commercial fisheries during the construction, operation and maintenance and decommissioning phases, and includes mitigation and good practice measures to reduce the impacts of the proposed Project on commercial fisheries.

4. **Section 26.10** of this ES chapter provides a summary of the impact assessment undertaken and any residual significant effects on commercial fisheries following consideration of any mitigation measures.

5. The assessment presented in this chapter should be read in conjunction with the following linked and supporting chapters:

   - **Chapter 04: Description of the Proposed Project -** provides further details of the project design parameters;
   - **Chapter 05: EIA Approach and Methodology** - provides further details of the general framework and approach to the EIA;
   - **Chapter 20: Fish and Shellfish Ecology** - where impacts on the ecology of fish and shellfish, including species of commercial interest, are assessed; and
   - **Chapter 28: Shipping and Navigation** - where impacts on the navigational safety aspects of fishing activity are assessed.

6. This chapter should be read in conjunction with the Appendix 26A: Commercial Fisheries Baseline Technical Report.

7. This chapter considers commercial fisheries activity, which is understood as fishing activity legally undertaken where the catch is sold for taxable profit. Potential impacts of the Project on charter angling, defined as fishing for marine species where the purpose is recreation and not sale or trade, are assessed in **Chapter 27: Other Sea Users**.

8. The assessment has been undertaken by Poseidon Aquatic Resource Management Ltd ('Poseidon'). Further details of the Project Team's competency are provided in (**Appendix 1A: Statement of Competence**).

26.2 Legislation, Policy and Guidance

9. The following sections identify specific legislation, policy and guidance that is applicable to the assessment of commercial fisheries. Further detail on the wider legislation, policy and guidance relevant to this ES is provided in **Chapter 02: Regulatory and Planning Policy Context**.

26.2.1. Legislation

10. This section identifies the legislation, policy and other documentation that has informed the assessment of effects with respect to commercial fisheries.

11. This chapter has been prepared in accordance with the Marine Works (Environmental Impact Assessment (EIA)) Regulations 2007, of specific relevance to marine licensing under the Marine and Coastal Access Act (MCAA) 2009 in Welsh waters, and the Electricity Works (England and Wales) Regulations 2017, of relevance to applications for Section 36 consent under the Electricity Act 1989.

12. Of relevance to commercial fisheries, the UK Fisheries Act 2020sets out a series of objectives for management of commercial fisheries as follows:

- (a) the sustainability objective,
- (b) the precautionary objective,
- (c) the ecosystem objective,
- (d) the scientific evidence objective,
- (e) the bycatch objective,
- (f) the equal access objective,
- (g) the national benefit objective, and
- (h) the climate change objective.

26.2.2. The Joint Fishery Statement (JFS) was published in November 2022 and outlines commitments for delivery of Fisheries Management Plans (FMPs) for delivery by UK fisheries administrators. Of note for the region is the development of FMPs for English and Welsh waters for the following species: brown crab and lobster, whelk, king scallop (published in 2023) and bass (published in 2023). The JFS defines which fisheries administrator is responsible for the delivery of the FMPs, including development of co-management groups with the industry. Delivery of the FMPs, which will specify fisheries management actions required to maintain species stock levels, and which will be relevant to some of the commercial fishing fleets active in and around the Offshore Development Area is expected across 2023 and 2024, with some FMPs scheduled to be delivered later than this.

26.2.3. National Planning Policy

13. Whilst not a Nationally Significant Infrastructure Project (NSIP), this document has been prepared in cognisance of planning policy relevant to offshore renewable energy NSIPs, as follows:

- Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change (DECC) 2011a); and
- NPS for Renewable Energy Infrastructure (EN-3) (DECC 2011b).

14. It is noted that the NPS for Energy (EN-1) and the NPS for Renewable Energy Infrastructure (EN-3) are in the process of being revised. Draft versions were published for consultation in March 2023 (Department for Energy Security and Net Zero (DESNZ), 2023a and DESNZ 2023b, respectively) and have also been considered in this assessment. The 2011 versions of the National Policy Statements remain in force until the revised NPS are designated in early 2024.

15. The UK Marine Policy Statement (MPS; HM Government 2011) explicitly expresses support for the fishing sector, and advocates that wherever possible, decision makers should "*seek to*

encourage opportunities for co-existence between fishing and other activities", noting that "*many fishing activities are compatible with other sea users*".

16. The Welsh National Marine Plan (WNMP; Welsh Government, 2019) echoes the MPS, and Policy SAF-01b seeks to "*enable established activities to continue and thrive wherever possible*" (paragraph 404). The Policy also recognises that much of Wales' fishing activity is often very localised and dependent upon a particular area or habitat. Unlike larger, more nomadic vessels with mobile gears, Welsh inshore vessels, which are typically smaller in length, cannot easily relocate to other areas where the available space and catch opportunity is likely to be limited. The WNMP supports development proposals that will support and enhance sustainable fishing activities.

17. The UK Marine Strategy provides the framework for delivering marine policy at the UK level and sets out how we will achieve the vision of clean, healthy, safe, productive and biologically diverse oceans and seas. The UK Marine Strategy consists of a simple 3-stage framework for achieving good environmental status (GES) in our seas. According to the UK Marine Strategy, achieving GES is about protecting the marine environment, preventing its deterioration and restoring it where practical, while allowing sustainable use of marine resources. The strategy covers 11 elements (known as descriptors) including 'commercial fish', with GES to be achieved by working towards achieving sustainable fishing at levels consistent with a maximum sustainable yield (MSY). The updated UK Marine Strategy Part 1, published in 2019, stated that it is uncertain when GES will be achieved for the commercial fish descriptor, noting that GES has been achieved for some commercially exploited fish, but for most shellfish stocks GES has not yet been achieved or their status is uncertain (Defra, 2019).

26.2.4. Guidance

18. In addition to the above, the following documents have been used to inform the assessment of potential impacts of the proposed Project on commercial fisheries:

- Good Practice Guidance for Assessing Fisheries Displacement (Scottish Government, 2022);
- Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (United Kingdom Fisheries Economic Network (UKFEN) and Seafish, 2012);
- Fisheries Liaison with Offshore Wind and Wet Renewables group (FLOWW) Recommendations for Fisheries Liaison: Best Practice guidance for offshore renewable developers (FLOWW, 2014 and Department for Business, Enterprise and Regulatory Reform [BERR], 2008);
- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (FLOWW, 2015);
- Damage to Gear Compensation Claim Forms (Marine Scotland, 2021);
- Guidance on completing Damage to Gear Compensation Claim Forms (Marine Scotland, 2021);
- Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010a);
- Developing guidance on fisheries Cumulative Impact Assessment for wind farm developers (Blyth-Skyrme, 2010b);
- Cumulative impact assessment guidelines, guiding principles for cumulative impacts assessments in offshore wind farms (RenewableUK, 2013);

- Fishing and Submarine Cables – Working Together (International Cable Protection Committee, 2009);
- Guidance on preparing a Fisheries Management and Mitigation Strategy ("FMMS") (draft) (Marine Scotland, 2020); and
- Planning Inspectorate Scoping Opinion (Planning Inspectorate, 2022) which included scoping responses from statutory consultees.

19. Several of the documents cited above have been prepared by the Scottish Government; they are referenced in the absence of equivalent guidance specific to Wales and/or England.

26.3 Stakeholder Engagement and Consultation

20. Consultation with statutory and non-statutory organisations is a key element of the EIA process. Consultation with regards to commercial fisheries has been undertaken to inform the approach to, and scope of, the assessment.

21. Stakeholders for the proposed Project include statutory consultees, landowners, local communities and other sea users. In addition to the statutory consultation process, there has been ongoing engagement with statutory and non-statutory consultees to steer the development of the proposed Project and this is detailed in **Table 26-1.**

22. Engagement has been ongoing with several stakeholders in relation to commercial fisheries since early 2023. A summary of the informal engagement undertaken since then is outlined in this section. The Applicant has appointed a Company Fisheries Liaison Officer (FLO) who has been in ongoing dialogue with several local fishers to provide them with Project updates and gain insight into fishing activity in the Project area.

Table 26-1 Summary of the key issues raised by consultees and how each issue was addressed

Consultee	Consultation type and date	Comment raised	How issue has been addressed and location of response in chapter
Scoping			
National Federation of Fishermen's Organisation (NFFO)	NRW Scoping Opinion July 2022	NFFO disagrees with the assessment of the likely impact on fishing businesses of the construction of this wind farm. **Table 26.1** of the Scoping Report assumes that the "loss or restricted access to commercial fishing grounds" during the operational phase of the project will be temporary or partial, at least for static gear fishing vessels. NFFO disagrees with this assumption (the NFFO response provides further justification for this position).	The Applicant acknowledges the NFFO response. Whilst UK legislation does not prohibit commercial fishing within offshore wind farms it is acknowledged that there are likely to be stakeholder concerns around fishing within the Array Area where floating foundations are deployed. A realistic worst-case scenario has been applied in the assessment presented in the chapter,

Consultee	Consultation type and date	Comment raised	How issue has been addressed and location of response in chapter
			assuming commercial fishing activity will not resume within the operational Array Area. The realistic worst case design scenario upon which the impact assessment is based is presented in **Table 26-8.**
NFFO	NRW Scoping Opinion July 2022	NFFO considers that fisheries exclusion from the site will create the additional problem of displacement of fishing effort, which the scoping report does not acknowledge, and which will be exacerbated by the cumulative effects of displacement from the many other floating turbine arrays currently being proposed for the Celtic Sea.	The Applicant acknowledges the NFFO response and the impact assessment presented in this chapter considers the potential for displacement and assesses potential cumulative displacement effects. The potential for displacement is assessed in **Section 26.8.** Potential cumulative effects are assessed in **Section 26.11.3.**
Pre-application			
Devon and Severn Inshore Fisheries and Conservation Authority (IFCA)	Email correspondence March 2023	Devon and Severn IFCA indicated that the sites are some distance from their District and therefore they do not have a great deal of knowledge about fishing activity in the study area. The Devon and Severn IFCA queried where export cabling would likely come ashore and noted it may be helpful to contact other local fisheries associations.	The Applicant provided a response to the IFCA confirming that the intention was for the export cables to make landfall in Wales (the precise location of the landfall was not confirmed at this time). The Applicant has sought to contact several local fisheries associations.

Consultee	Consultation type and date	Comment raised	How issue has been addressed and location of response in chapter
FROM NORD (French fisheries Producer Organisation)	Email correspondence March 2023	FROM NORD stated that their members are not concerned about the Project and did not wish to be further engaged.	No further action required.
Welsh Fishermen's Association - Cymdeithas Pysgotwyr Cymru (WFA-CPC)	Teams meeting September 2023	Meeting involved discussion of commercial fisheries EIA, covering study area definition, baseline data sources and preliminary impact assessment outcomes. General consensus that all available baseline data sources had been utilised. WFA-CFC identified particular concerns around potential displacement effects and cumulative effects.	The Applicant acknowledges the WFA-CPC response, and the impact assessment presented in this chapter considers the potential for displacement and assesses potential cumulative displacement effects. The potential for displacement is assessed in **Section 26.8.** Potential cumulative effects are assessed in **Section 26.11.**
Irish Fish Producers Organisation (IFPO)	Email January 2024	Email from IFPO noting that engagement with them would be welcomed and that in relation to any consultation, IFPO adheres to the ORE Communication Guidelines published in 2022.	The Applicant is in the process of arranging engagement with IFPO.

26.4 Approach to Assessment

26.4.1. Assessment Methodology

23. **Chapter 05 EIA Approach and Methodology** provides a summary of the general impact assessment methodology applied in this ES. The following sections provide further detail on the specific methodology used to assess the potential impacts on commercial fisheries.

24. The approach to the assessment of cumulative impacts, transboundary impacts and interrelated effects is provided in **Sections 26.11, 442 and 26.13.**

25. The significance of potential effects has been evaluated using a systematic approach together with the expert judgement of the specialist consultant. The systematic approach is based upon the identification of the importance/value of receptors and their sensitivity to the proposed Project together with the predicted magnitude of the potential impact.

26.4.2. Significance Criteria

26. The method for determining the significance of effects is a two-stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts. This section describes the criteria applied in this chapter to assign values to the sensitivity of receptors and the magnitude of potential impacts.

Magnitude of Impact

27. The scale or magnitude of potential impacts (both beneficial and adverse) is determined by a combination of three criteria: scale of change, spatial extent of change and duration of change, as outlined in **Chapter 05 EIA Approach and Methodology**, **Section 5.4.9.**

28. In assessing the magnitude of the impact, the value and vulnerability of the receptor, i.e., the fishing fleet under assessment, together with the reversibility of the impact, are considered. 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 value within the categories of high, medium or low. Instead, these classifications were based on judgement informed by the baseline characterisation and consultation with the industry.

29. The criteria for defining magnitude of impact for the purpose of the assessment on commercial fisheries are provided in **Table 26-2**.

Table 26-2 A summary of the magnitude criteria that are associated to specific impacts

Magnitude Criteria	Definition
Large	The impact occurs over a large spatial extent resulting in widespread, long-term (e.g., greater than five years duration), or permanent changes in baseline conditions or affects a large proportion of a receptor population. The impact is very likely to occur and/or will occur at a high frequency or intensity. **Adverse:** Impact is expected to result in one or more of the following: • substantial loss of target fish or shellfish biological resource (e.g., loss of substantial proportion of resource within project area); • substantial loss of ability to undertake fishing activities (e.g., substantial proportion of effort within project area); and • substantial loss of economic value of commercial landings, that is nationally/regionally significant. **Beneficial:** Impact is expected to result in one or more of the following: • large scale or major improvement of resource quality, measurable against biomass reference points; • extensive restoration or enhancement of habitats supporting commercial fisheries resources; and • substantial gain of economic value of commercial landings.
Medium	The impact occurs over a medium spatial extent resulting in medium-term (e.g., less than five years but more than two to three years), or partial changes in baseline conditions or partially affects a proportion of a receptor population. The impact is likely to occur and/or will occur at a medium frequency or intensity. **Adverse:** Impact is expected to result in one or more of the following:

Magnitude Criteria	Definition
	• partial loss of target fish or shellfish biological resource (e.g., moderate loss of resource within project area); • partial loss of ability to carry on fishing activities (e.g., moderate reduction of fishing effort within project area); and • partial loss of economic value of commercial landings, that is locally significant. **Beneficial:** Impact is expected to result in one or more of the following: • moderate improvement of resource quality; • moderate restoration or enhancement of habitats supporting commercial fisheries resources; and • partial gain of economic value of commercial landings.
Small	The impact occurs over a small spatial extent resulting in short-term (e.g., less than two to three years), or small changes in baseline conditions or partially affects a small proportion of a receptor population. The impact has a low likelihood of occurring and/or will occur at a low frequency or intensity. **Adverse:** 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); • minor loss of ability to carry on fishing activities (e.g., minor reduction of fishing effort within project area); and • minor loss of economic value of commercial landings that is not locally significant. **Beneficial:** Impact is expected to result in one or more of the following: • minor benefit to or minor improvement of resource quality; • minor restoration or enhancement of habitats supporting commercial fisheries resources; and • minor gain of economic value of commercial landings.
Negligible	The impact occurs over a minor spatial extent resulting in very short-term (e.g., less than one year), or minor changes in baseline conditions or partially affects a very small proportion of a receptor population. The impact has a very low likelihood of occurring and/or will occur at a very low frequency or intensity. **Adverse:** 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); • slight loss of ability to carry on fishing activities (e.g., slight loss of fishing effort within project area); and • minimal loss of economic value of commercial landings. **Beneficial:** Impact is expected to result in one or more of the following: • very minor benefit to or very minor improvement of resource quality; • very minor restoration or enhancement of habitats supporting commercial fisheries resources; and • minimal gain of economic value of commercial landings.

Sensitivity of Receptor

30. Receptor sensitivity is defined as the degree to which a receptor would be affected by an impact. The sensitivity of the receptor is characterised by three factors: vulnerability, recoverability and importance, as outlined in **Chapter 05: EIA Approach and Methodology**, **Section 5.4.10.**

31. The criteria for defining receptor sensitivity for the purpose of the assessment on commercial fisheries are provided in **Table 26-3**.

Table 26-3 A summary of the criteria determining a receptor's sensitivity

Receptor Sensitivity Criteria	Definitions
Very High	Receptor is very highly vulnerable to impacts that may arise from the project and recoverability is long-term or not possible. And/or: No alternative fishing grounds are available.
High	Receptor is highly vulnerable to impacts that may arise from the project and recoverability is long-term or not possible. And/or: Very limited alternative fishing grounds are available.
Medium	Receptor is generally vulnerable to impacts that may arise from the project and recoverability is slow and/or costly. And/or: Low levels of alternative fishing grounds are available and/or fishing fleet has low operational range.
Low	Receptor is somewhat vulnerable to impacts that may arise from the project and has moderate levels of recoverability. And/or: Moderate levels of alternative fishing grounds are available and/or fishing fleet has moderate operational range.
Negligible	Receptor is not generally vulnerable to impacts that may arise from the project and/or has high recoverability. And/or: High levels of alternative fishing grounds are available and/or fishing fleet has large to extensive operational range; fishing fleet is adaptive and resilient to change.

Significance of Effect

32. As set out in **Chapter 05 EIA Approach and Methodology**, an Impact Assessment Matrix (IAM) is used to determine the significance of effect which is a function of the sensitivity of the receptor and the magnitude of the impact, as shown in **Table 26-4.**

33. The matrix provides a framework for the consistent and transparent assessment of predicted effects across all receptor topics, however, it is important to note that the IAM acts as a guide and that assessments also allow for the application of expert judgement.

Table 26-4 Significance matrix

		Value / Sensitivity				
		Very High	High	Medium	Low	Negligible
Magnitude	Large	Major	Major / Moderate	Major / Moderate / Minor	Moderate / Minor	Minor / Negligible
	Medium	Major / Moderate	Major / Moderate	Moderate / Minor	Minor / Negligible	Negligible

	Value / Sensitivity				
	Very High	**High**	**Medium**	**Low**	**Negligible**
Small	Major / Moderate / Minor	Moderate / Minor	Moderate / Minor	Minor / Negligible	Negligible
Negligible	Minor / Negligible	Minor / Negligible	Minor / Negligible	Negligible	Negligible

34. The IAM provides levels of effect significance ranging from major to negligible. Assignment of significance is carried out with consideration of embedded mitigation measures relevant to commercial fisheries. Embedded mitigation measures (including project design measures and best practice) are presented within **Section 26.7**. Details on additional mitigation measures and associated definitions can be found in **Section 26.9.** For the purposes of this assessment, Moderate and Major levels of significance are defined as significant, and where relevant additional mitigation measures may be required, whilst Negligible or Minor impacts are defined as not significant.

Table 26-5 A summary of the definitions of each significant of effect criteria

Significance Category	Definitions	Significant / Not Significant Effect
Major	A large and detrimental change to a valuable / sensitive receptor; likely or apparent exceeding of accepted (often legal) threshold. Or, A large and beneficial change, resulting in improvements to the baseline result in previously poor conditions being replaced by new legal compliance or a major contribution being made to national targets. These effects may represent key factors in the decision-making process. Potentially associated with sites and features of national importance or likely to be important considerations at a regional or district scale. Major effects may relate to resources or features which are unique and which, if lost, cannot be replaced or relocated.	Significant
Moderate	A medium scale change which, although not beyond an acceptable threshold, is still considered to be generally unacceptable, unless balanced out by other significant positive benefits of a project. Likely to be in breach of planning policy rather than a legal statute. Or, A positive moderate effect is a medium scale change that is significant in that the baseline conditions are improved to the extent that guideline targets (e.g., UK BAP targets) are contributed to. These effects, if adverse, are likely to be important at a local scale and on their own could have a material influence on decision making.	Significant (unless otherwise specified)

Significance Category	Definitions	Significant / Not Significant Effect
Minor	A small change that, whilst adverse, does not exceed legal or guideline standards. Unlikely to breach planning policy. Or, A small positive change, but not one that is likely to be a key factor in the overall balance of issues. These effects may be raised as local issues and may be of relevance in the detailed design of a project but are unlikely to be critical in the decision-making process.	Not Significant
Negligible	A very small change that is so small and unimportant that it is considered acceptable to disregard. Effects which are beneath levels of perception, within normal bounds of variation or within the margin of forecasting error. These effects are unlikely to influence decision making irrespective of other effects.	Not Significant

26.4.3. Study Area

35. The Offshore Development Area is located within the southern portion of the International Council for the Exploration of the Sea (ICES) Division 7g (Celtic Sea) statistical area (**Figure 25-1**) within United Kingdom (UK) Exclusive Economic Zone (EEZ) waters, with the Array Area located outside the 12 nautical mile (NM) limit. For recording fisheries landings, ICES Division 7g is divided into statistical rectangles which are consistent across all Member States operating in the North Sea.

36. The Array Area is located within ICES rectangle 31E4 and the majority of the offshore Export Cable Corridor (OfECC) is within rectangle 32E4, as shown in **Figure 25-1**. The local commercial fisheries study area is therefore defined as ICES rectangles 31E4 and 32E4.

37. Baseline data relevant to a wider regional study area comprising ICES rectangles 30E3, 30E4, 30E5, 31E3, 31E4, 31E5, 32E3, 32E4, 32E5 has also been gathered and analysed. The justification for defining this wider regional study area is that it aligns with the scale of statistical landings data; covers a wider area than the Offshore Development Area; and takes into consideration that most commercial fish and shellfish receptor populations are distributed at a wider spatial scale, ensuring that potential implications of displacement of fishing activity can be adequately understood.

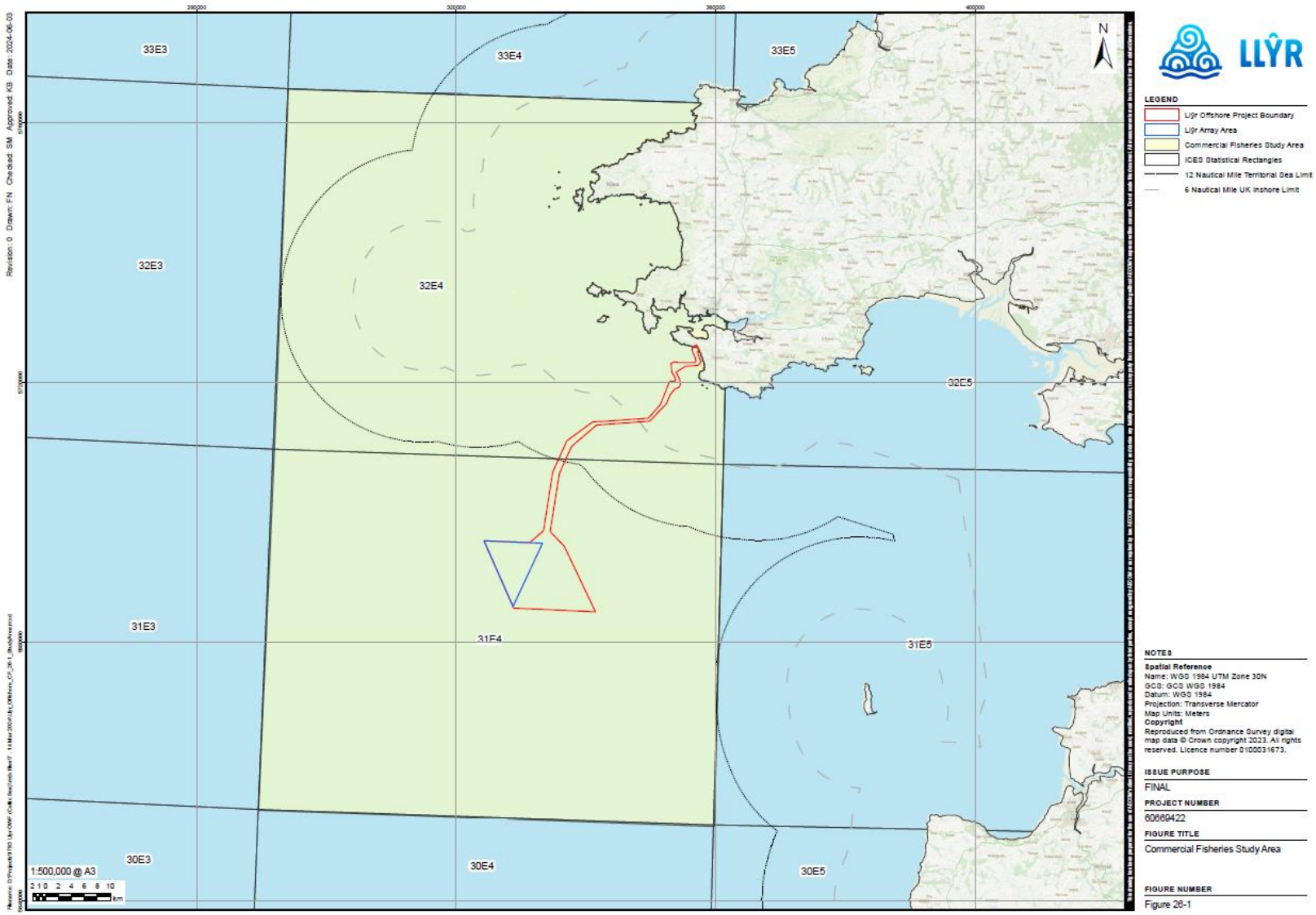

Figure 26-1 Commercial fisheries study area

26.4.4. Data Sources

Site Specific Surveys

38. No commercial fisheries-specific site surveys were conducted to inform the EIA. The EIA has drawn however on fisheries-relevant data gathered during other site-specific surveys, as described in **Table 26-6**.

Desk Study

39. A comprehensive desk-based review was undertaken to inform the baseline for Commercial Fisheries. Key data sources used to inform the assessment are set out in **Table 26-6**.

40. Landings statistics for UK registered vessels were obtained from the Marine Management Organisation (MMO) with the following parameters: year; month; gear type; ICES rectangle; species; live weight (tonnes) and first sales value (£) across a five-year period (2017 to 2021). During preparation of this assessment, landings statistics for 2022 were also published and have been incorporated.

41. Landings data for all species are collected via the European Union (EU) logbooks scheme and recorded by ICES statistical rectangle and stored in the EU DCF database, accessible through the EU Joint Research Committee (EU DCF, 2020). Landings data has been collated for all EU Member States for the ICES statistical rectangles that overlap the commercial fisheries study area. Landing statistics were collated across five years (2012 to 2016). Landing statistics include all landings by that country's nationally registered vessels into all ports. The following parameters were examined: year; season (quarter); gear type; ICES rectangle; species; effort (hours fished); and live weight (tonnes).

42. Vessel Monitoring System (VMS) is a form of satellite tracking using transmitters on board fishing vessels. Annual VMS data are collated by the MMO for all vessels ≥15m in length registered to the UK, including all fishing gear types operated. VMS data for UK vessels have been analysed for 2016 to 2019.

43. Through a European wide data call, ICES collated VMS data for vessels ≥12m operating mobile gear that has contact with the seabed. This VMS data set includes vessels registered to the following countries: Belgium, Denmark, France, Germany, the Netherlands, Ireland, Sweden and UK. Data is amalgamated for all countries and not available on a country-by-country basis; data has been analysed over a five-year period from 2016 to 2020.

44. Information on fisheries activity specifically in the Project area, gathered via marine traffic surveys and fisheries gear observations, has also been analysed. In addition to analysis of fisheries data, various sources of literature have been reviewed to inform the assessment. These include species stock assessments published by ICES and Cefas. Literature sources are cited and fully referenced in **Appendix 26A: Commercial Fisheries Baseline Technical Report**.

Table 26-6 Summary of key desktop sources

Title	Source	Year	Brief description
UK fisheries landings statistics	MMO	2016 to 2021, with 2022 data incorporated	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.

Title	Source	Year	Brief description
European Union (EU) and UK fisheries landings statistics	EU Data Collection Framework (DCF) database	2012 to 2016	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).
UK VMS data	MMO	2016 to 2020	VMS data for UK registered vessels ≥15m length. Note that UK vessels ≥12m in length have VMS on board, however, to date, the MMO provide amalgamated VMS datasets for ≥15m vessels only. VMS data sourced from MMO displays the first sales value (£) of catches.
EU and UK VMS data	ICES	2017 to 2020	VMS data for EU registered vessels ≥12m length. VMS data sourced from ICES includes data that displays the surface Swept Area Ratio (SAR) of catches by different gear types and covers EU (including UK) registered vessels 12m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear contacts (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity.
EU and UK Automatic Information System (AIS) data	European Maritime Safety Agency (EMSA)	2019 to 2022	Fishing vessel route density, based on vessel AIS positional data. AIS is required to be fitted on fishing vessels ≥15m length.
Welsh National Marine Plan	Welsh Government	2019	Generalised fishing activity maps for mobile and static gear operating in Welsh waters.
Fisheries surveillance data	MMO	2013 to 2017	Fisheries surveillance data, capturing aerial and patrol vessel surveillance observations. Location of fishing vessel, fishing gear type and vessel nationality are noted, and vessel activity is recorded as 'fishing', 'steaming' or 'laid'.
Welsh scallop fishing activity maps	Welsh Government	2012 to 2022	Total Welsh scallop fishing vessel activity.
Marine traffic survey data (site-specific survey)	Anatec	Summer 2021 and Winter 2022	Project marine traffic (AIS, radar and visual observation) survey data.
Fishing gear observations data (site-specific survey)	Applicant	2022	Fishing gear observations recorded during site investigation survey.

45. No single source of data can be used to comprehensively describe commercial fishing activity. A range of different data limitations and uncertainty exist for all of the commercial fisheries

datasets used to inform this assessment and they are described in **Appendix 26A: Commercial Fisheries Baseline Technical Report**.

46. Limitations of landings data include the spatial size of ICES rectangles which can misrepresent actual activity across the proposed Project and care is therefore required when interpreting these data.

47. It is noted that all commercial landings by UK registered vessels are subject to the Register of Buyers and Sellers legislation and therefore landings by UK vessels of all lengths are recorded within the MMO iFISH database. While it is recognised that there is no statutory requirement for owners of vessels 10 m and under to declare their catches, registered buyers are legally required to provide sales notes of all commercially sold fish and shellfish under the Registration of Fish Buyers and Sellers and Designation of Fish Auction Sites Regulations 2005 due to the 2005 Registration of Buyers and Sellers of First-Sale Fish Scheme (RBS legislation). The RBS legislation is applicable to licenced fishing vessels of all lengths and requires name and PLN (port letter and number) of the vessel which landed the fish to be recorded in relation to each purchase. For the 10 m and under sector, landing statistics are recorded on sales notes provided by the registered buyers (MMO, 2021). Information that may not be formally recorded on the sales note, such as gear and fishing area, is added by coastal staff based on local knowledge of the vessels they administer - for example, from observations of the vessel during inspections at ports or from air and sea surveillance activities as well as discussions with the owner and/or operator of the vessel (MMO, 2021). There are occasions when fish are not subject to the RBS legislation and therefore are not represented within the MMO landings statistics database, for instance when purchases of first sale fish direct from a fishing vessel are wholly for private consumption, and less than 25kg is bought per day.

48. Lack of recent landings statistics for EU (non-UK) 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. Data at a scale of ICES division (i.e., the whole of the southern North Sea) is less useful to understand fishing activity specific to the area overlapping the proposed Project.

49. All UK and EU fishing vessels (i.e., fishing vessels flying the flag of the UK or an EU Member State), and third-party fishing vessels operating in UK and EU waters that are ≥ 12m in length are required to have a VMS on board. This reports the vessels' position to fisheries management authorities, which in the case of EU fishing vessels, is every two hours. Since 1st January 2012, this obligation has applied to vessels that are ≥ 12m in length. Limitations of publicly available VMS data are primarily focused on the coverage being limited to larger vessels 15 m and over for UK fishing vessels. It is important to be aware that where mapped VMS data may therefore 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 areas (i.e., which typically comprises of vessels <15m in length). To assist in mitigating the risk of under-representing smaller vessels that work inshore, site-specific marine traffic survey data comprising information on vessel movements gathered by Automatic Identification System (AIS), radar and visual observation (via the Marine Traffic Survey as detailed in **Chapter 28: Shipping and Navigation)** has been analysed alongside VMS data (Anatec, 2021 and 2022). Consultation with individual fishermen active in the study area has also informed the determination of the extent and distribution of fishing activity by the <12 m fleet.

50. Maps of fishing activity produced by the Welsh Government for inclusion in the WNMP provide a useful indication of the spatial extent of mobile and static gear activity, though it is

noted that a number of data sources have been compiled in preparation of these maps, each with their own limitations. It is acknowledged that some stakeholders have advised that these datasets are not considered to be representative of fishing activity in the study area; as such, the data are used to indicate areas of likely fishing activity, rather than suggest areas of lesser activity and are used alongside other baseline data sources and consultation outputs to inform characterisation of the existing environment.

26.5 Baseline

51. The following sections describe the baseline environment relating to commercial fisheries.

26.5.1. Existing Baseline

Overview of Landings from the Study Area

Regional Overview

52. Landings by UK vessels from the local study area are shown in the context of the wider regional study area in **Figure 26- 2** and **Figure 26-3**. Average annal landings values from all ICES rectangles in the study area were £1.5 million across 2016 to 2022. Landings from ICES rectangle 31E4 within which the Array Area is located had an annual average value of £544,000 across the same period, and landings from ICES rectangle 32E4 within which the majority of the OfECC is located had an average annual value of £2.3 million. Landings from the local study area were dominated by shellfish species, reflective of a similar pattern across much of the regional study area except for those ICES rectangles further offshore to the south of the proposed Project, where demersal and pelagic landings dominate.

53. EU landings data indicate that across the regional study area, vessels registered in the UK (England, Wales, Northern Ireland, Isle of Man, Scotland), Ireland, Belgium, France and the Netherlands are active (**Figure 26-7** and **Figure 26-8**). Within the local study area, vessels from the UK (England and Wales), Ireland, Belgium and France are likely to be active. Data indicates that Irish vessel activity is focused to the west of the local study area.

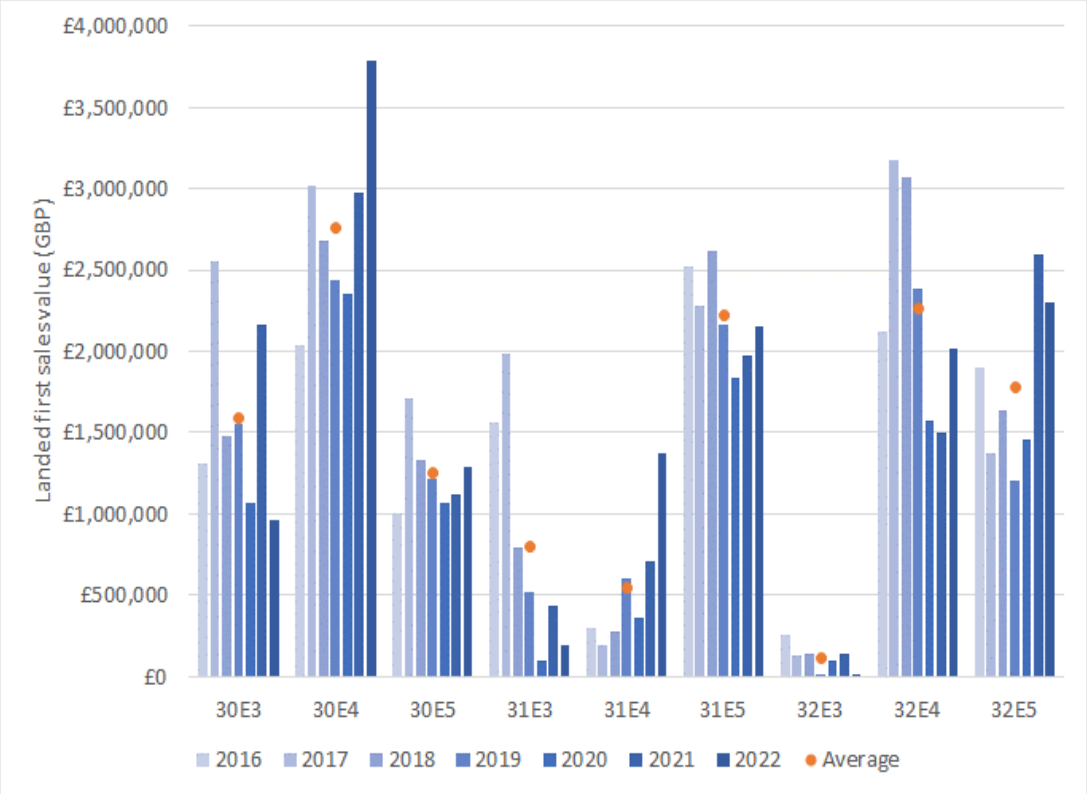

Figure 26-2 Value of landings (2016 to 2022) by ICES rectangle in the regional study area (MMO, 2023)

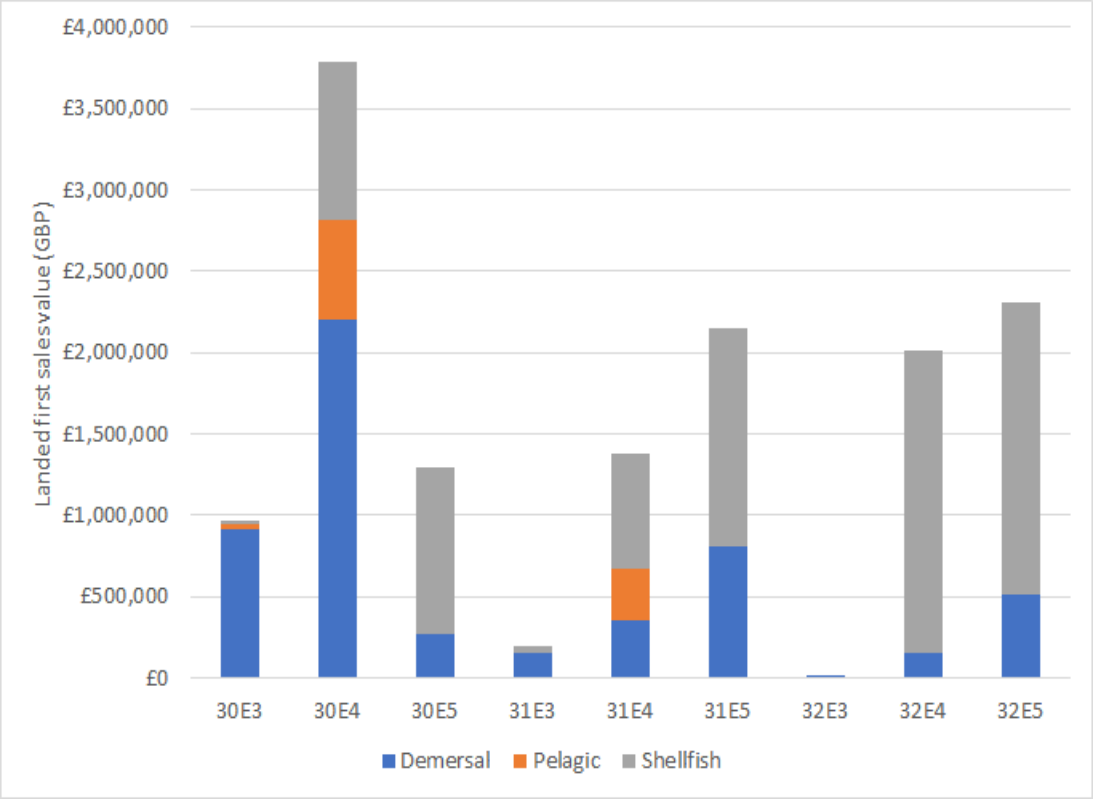

Figure 26-3 Value of landings (2022) by ICES rectangle and species group in the regional study area (MMO, 2023)

Local Overview

UK Vessel Landings

54. The annual average value of landings from UK-registered vessels from the two ICES rectangles that comprise the local study area is shown in **Figure 26-4**. Landings across the seven-year period have been consistently of greatest value in ICES rectangle 32E4 within which the OfECC is located. Average annual landings value in ICES rectangle 32E4 from 2016 to 2022 were £2.3 million whilst the equivalent value in ICES rectangle 31E4 was £544,000. Landings are dominated by shellfish species. 66% of all landings by UK vessels from the study area are made by vessels registered in Wales, with 32% made by English-registered vessels. Limited landings were associated with vessels registered in Jersey (0.6%), Northern Ireland (0.9%) and Scotland (0.3%).

55. **Figure 26-5** and **Figure 26-6** show annual landings values and weights respectively by species across the local study area, between 2016 and 2022. These data indicate that the key species landed from ICES rectangle 31E4 (inclusive of the offshore Array Area) are brown crabs *Cancer pagurus*, lobsters *Homarus gammarus* and sole *Solea solea*, and from ICES rectangle 32E4 (inclusive of the majority of the OfECC) are lobsters, whelks *Buccinum undatum*, brown crabs and spider crabs *Maja brachydactyla*. By both weight and value, landings from both ICES rectangles 31E4 and 32E4 have shown some fluctuation across the seven-year time series, with a relative peak in 2022 in ICES rectangle 31E4, and in 2017 and 2022 in rectangle 32E4 (Roach, et. al., 2018, 2022). The 2022 peak in ICES rectangle 31E4 is partially attributable to a single catch (or small number of catches) of horse mackerel *Trachurus trachurus,* a pelagic species which is not typically taken in the local study area.

56. MMO landings statistics indicate that catches from the local study area are primarily landed into Milford Haven by Welsh vessels and into Padstow and Brixham by English vessels.

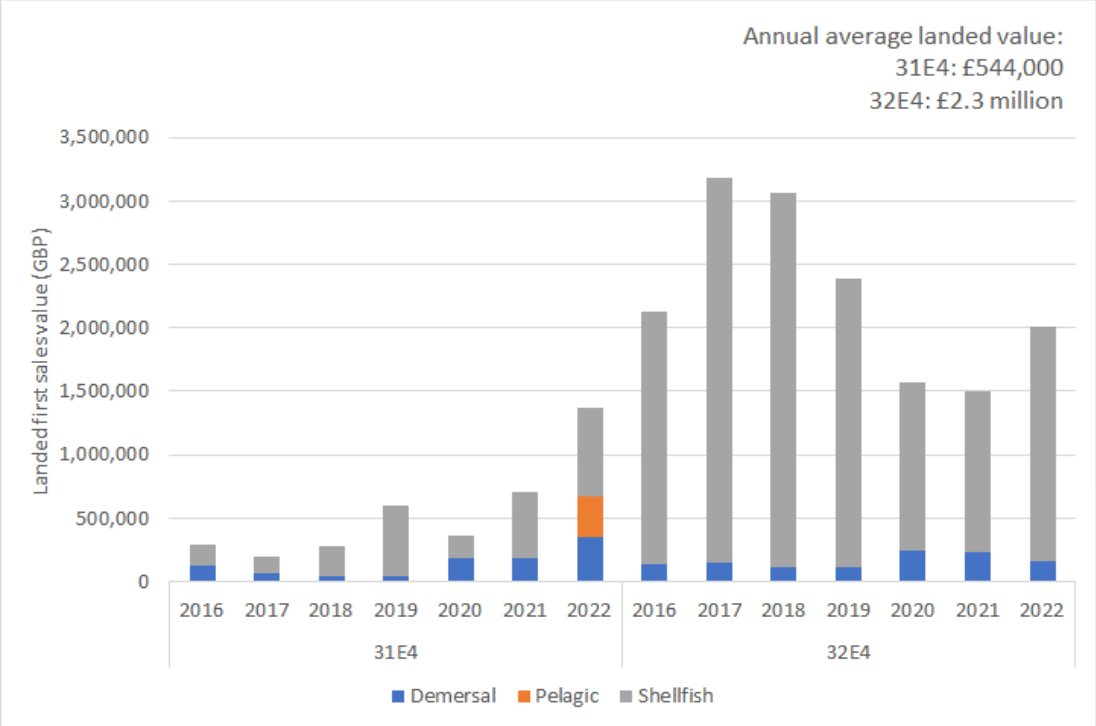

Figure 26-4 Value of landings (2016 to 2022) by ICES rectangle and species group (MMO, 2023)

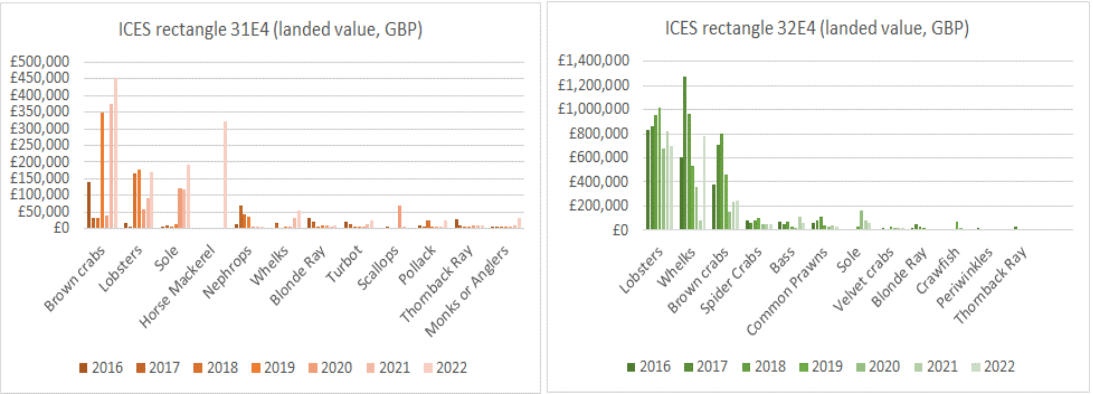

Figure 26-5 Key species by annual landed value (GBP) (2016 to 2022) from ICES rectangles 31E4 and 32E4 (MMO, 2023)

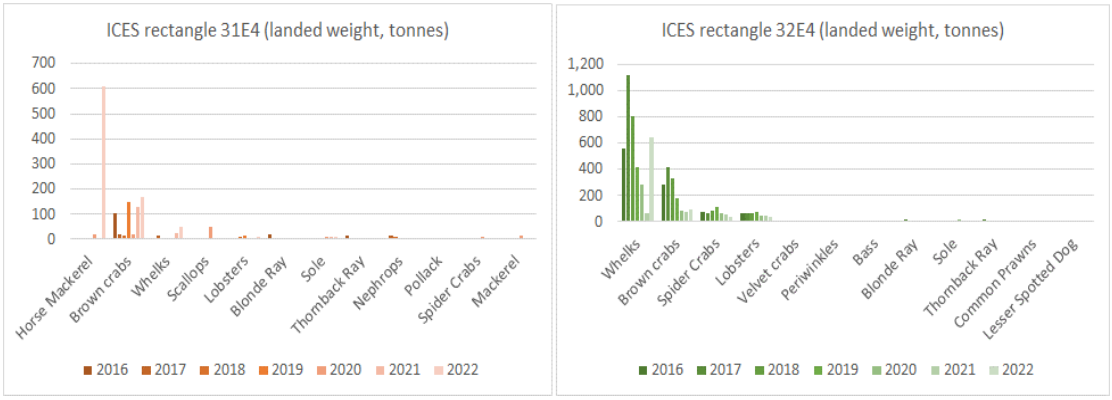

Figure 26-6 Key species by total annual landed weight (tonnes) (2016 to 2022) from ICES rectangles 31E4 and 32E4 (MMO, 2023)

Non-UK Vessel Landings

57. Within the UK exclusive economic zone, fishing activity from the shore to the 6 NM limit is only permissible for UK-registered vessels. Within the 6 NM limit a number of restrictions are in place based on Welsh legislation (e.g., Scallop Order 2010) and byelaws. Beyond the 6 NM limit, foreign vessels may fish in the UK EEZ if they have a valid foreign vessel licence and additionally during the UK-EU Trade and Cooperation Agreement adjustment period, qualifying EU vessels have rights of access for fishing in specific parts of UK waters, including in ICES division 7g.

58. Landings data sourced from the EU DCF database indicates that there is likely to be some non-UK fishing activity in the local study area (**Figure 26-7**). Non-UK vessels which are active in the area include Belgian beam and otter trawlers targeting sole and other demersal species, and French otter trawlers targeting demersal species including blonde rays *Raja brachyura,* haddock *Melanogrammus aeglefinus* and whiting *Merlangius merlangus* (**Figure 26-8**). EU landings data also indicates some Irish vessel activity, with otter trawlers targeting *Nephrops norvegicus* and whiting. Across the 2012 to 2016 time series, landings by EU vessels peaked in 2012. Most landings by weight were accounted for by rays (11%), whiting (11%), anglerfish *Lophius piscatorius* (11%), haddock (9%) and sole (7%). Mixed demersal species and Nephrops accounted for the remainder of landings.

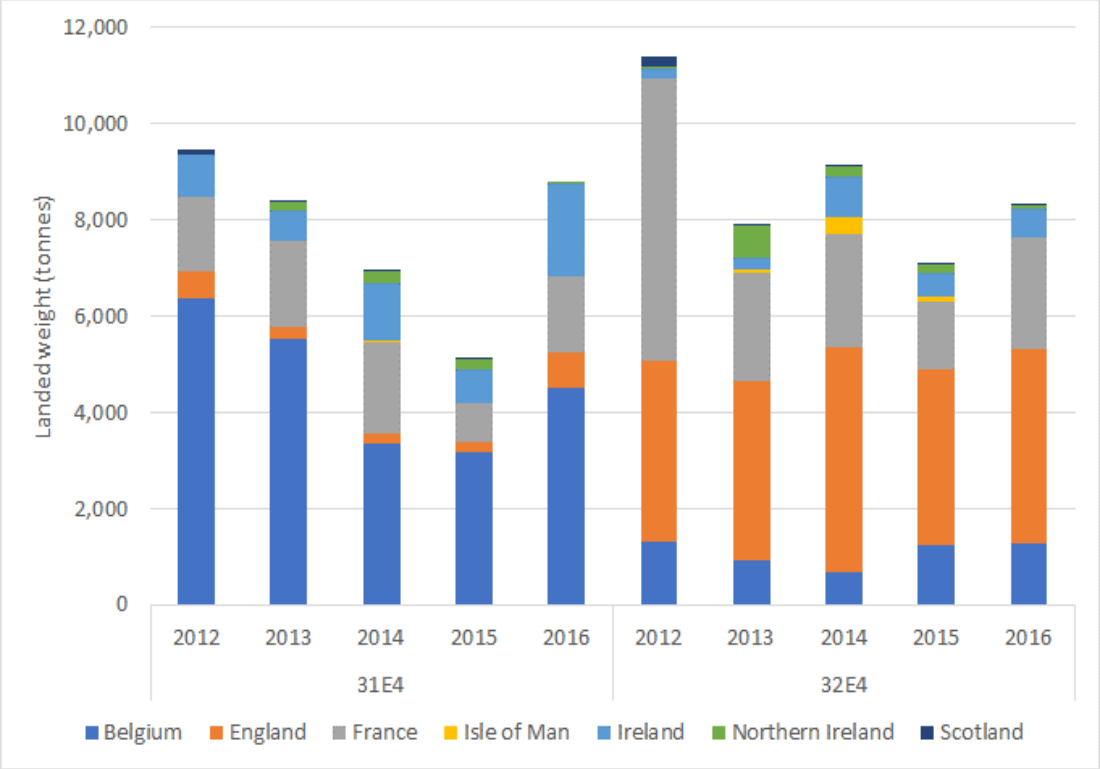

Figure 26-7 Average annual landed weight (tonnes) landed by all UK and EU countries from ICES rectangles 31E4 and 32E4 (2012 to 2016) (EU DCF, 2022)

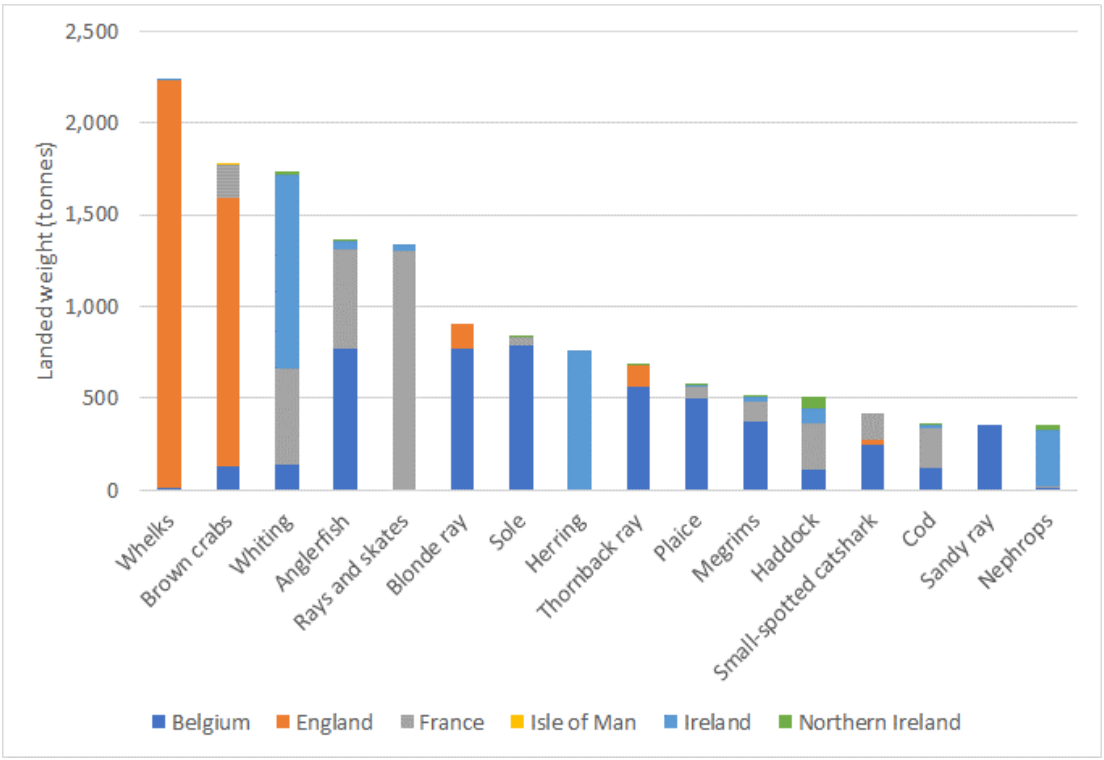

Figure 26-8 Average annual landed weight (tonnes) of species landed by all UK and EU countries from ICES rectangles 31E4 and 32E4 (2012 to 2016) (EU DCF, 2022)

Description of Fishing Methods in the Study Area

59. The description provided below is a summary of the information presented in **Sections 3.1 and 3.5 of Appendix 26A: Commercial Fisheries Baseline Technical Report.**

Activity by vessels operating Pots and Traps

60. In the commercial fisheries local study area (ICES rectangles 31E4 and 32E4), landings data indicates that landings by vessels using pots and traps are exclusively undertaken by the UK fleet, primarily by Welsh and English vessels. Within the local study area, approximately 88% of landings values by vessels operating pots originate from inshore ICES rectangle 32E4. Landings from potting vessels in the study area are dominated by lobster (340 tonnes per year on average, between 2017 and 2021), brown crab (281 tonnes per year on average) and whelk (418 tonnes per year on average). The value of landings targeted by the potting fleet have fluctuated across the time series, peaking in 2017 and averaging £2.3 million across 2016 to 2022.

61. Landings statistics indicate that most landings from the study area are made by potting vessels between 8m and 15m length.

62. VMS data showing activity by vessels ≥ 15m length actively fishing using pots and traps is presented in Figure 32 and 34 in **Appendix 26A: Commercial Fisheries Baseline Technical Report** for 2016 to 2020 and indicates potting activity is carried out by these >15m vessels in the southern and western portion of the Array Area and in inshore areas, inside of and around the 6 NM boundary. VMS data also indicates activity by vessels operating static gear across the local and regional study areas, outside of the project area and particularly to the south of the Array Area and west of the OfECC.

Activity by vessels operating Drift and Fixed Nets

63. In the commercial fisheries local study area (ICES rectangles 31E4 and 32E4), landings data indicates that landings by vessels using drift and fixed nets are exclusively undertaken by the UK fleet, primarily by Welsh vessels. Within the study area, approximately 93% of landings values by vessels operating drift and fixed nets originate from inshore ICES rectangle 32E4. Landings from netting vessels in the study area average £189,00 per year across 2016 to 2022 and are dominated by bass with an annual average landed value of £24,000 across 2017 to 2022, notably peaking in 2021 with a landed value of £77,000.

64. Landings statistics indicate that most landings from the study area by vessels operating drift and fixed nets are made by vessels under 10m length whose operational range is mostly in inshore waters.

65. VMS data presented in Figure 24 and Figure 25 of **Appendix 26A: Commercial Fisheries Baseline Technical Report** for 2016 to 2020 confirms that netting activity within the study area is relatively higher in inshore ICES rectangle 32E4, with limited activity expected to occur in the Array Area.

Activity by vessels operating Hooked Gear

66. In the commercial fisheries local study area (ICES rectangles 31E4 and 32E4), landings data indicates that landings by vessels using hooked gear (primarily handlines) are exclusively undertaken by the UK fleet, by Welsh vessels. Within the study area, all landings using hooked gear originate from inshore ICES rectangle 32E4. Landings from vessels operating hooked gear in the local study area are dominated by bass. Annual average landed values of £33,000 are recorded across 2017 to 2022.

67. Landings statistics indicate that all landings by vessels operating hooked gear from the local study area are made by inshore vessels under 10m length.

Activity by vessels operating Beam Trawls

68. In the commercial fisheries local study area (ICES rectangles 31E4 and 32E4), landings data indicates that landings by vessels using beam trawl are undertaken by the UK and Belgian fleets, with vessels typically over 24m length.

69. Landings by the UK fleet in the local study area have been low from 2017 to 2019 but increased from 2020 and have an annual average first sales value of £196,000 across the 2016 to 2022 time series. The English beam trawlers travel from the South West coast of England to target grounds that run along the 12 NM boundary for sole and plaice. The Belgian beam trawlers fish a similar area. Sole is the most valuable species caught by beam trawlers in this area, followed by monks and anglers, and plaice.

70. VMS data showing activity by vessels ≥ 12m length actively fishing using beam trawls is presented in Figure 29 in **Appendix 26A: Commercial Fisheries Baseline Technical Report** for 2016 to 2020. It indicates beam trawl activity in the Array Area and portions of the OfECC. The mapping also indicates beam trawl activity across the wider study area, outside of the project area and particularly to the east of the Array Area.

Activity by vessels operating Otter Trawls

71. In the commercial fisheries local study area (ICES rectangles 31E4 and 32E4), landings data indicates that landings by vessels using demersal otter trawl are undertaken by the Irish and French fleets.

72. French demersal trawlers typically target whiting, haddock and rays and Irish trawlers target whiting and Nephrops.

73. VMS data showing activity by vessels ≥ 12m length actively fishing using beam trawls is presented in Figure 20 in **Appendix 26A: Commercial Fisheries Baseline Technical Report** for 2016 to 2020. VMS data indicates beam trawl activity in the central portion of the OfECC, between the 6 and 12 nautical mile limits, which is expected to reflect French vessel activity. The mapping also indicates otter trawl activity across the wider study area, outside of the project area and particularly to the west of the Array Area where an important Nephrops ground is located.

Activity by vessels operating Dredges

74. In the commercial fisheries local study area (ICES rectangles 31E4 and 32E4), landings data indicates that landings by vessels using dredges to target king scallop are exclusively undertaken by the UK fleet, primarily by English vessels. Within the local study area, landings of scallop have fluctuated significantly across the 2017 to 2022 period, ranging from zero tonnes in 2017 and 2021 to 53 tonnes in 2020 and with roughly equivalent landings volumes taken in both ICES rectangle 31E4 and 32E4.

75. Landings statistics indicate that most landings from the study area are made by potting vessels between 12m and 15m length.

76. VMS data showing activity by vessels ≥ 12m length actively fishing using dredges is presented in **Appendix 26A: Commercial Fisheries Baseline Technical Report** and indicates very limited dredge activity in the study area with no indication of active dredging within project boundaries.

Summary

77. A summary of fishing fleets active in the study area, with a focus on those expected to be active in the Project Array Area and OfECC, is provided in **Table 26-7**.

Table 26-7 Summary of fishing fleets active in the study area

Fishing Fleet	Array Area	OfECC
UK potting *(Local study area annual average landings value £2.3 million, 2016 to 2022)*	Welsh and English vessels, typically between 12m and 15m length, primarily targeting crab, lobster and whelk.	Welsh and English vessels, typically under 12m length, primarily targeting crab, lobster and whelk.
UK netting *(Local study area annual average landings value £189,000, 2016 to 2022)*	Negligible activity.	Welsh vessels, typically under 10m length, primarily targeting bass.
UK hooked gear *(Local study area annual average landings value £33,000, 2016 to 2022)*	Negligible activity.	Welsh vessels, typically under 10m length, primarily targeting bass.
UK beam trawl *(Local study area annual average landings value £196,000, 2016 to 2022)*	Potential for occasional activity by English vessels, typically over 24m length, primarily targeting sole.	
UK scallop dredge *(Local study area annual average landings value £20,000, 2016 to 2022)*	Potential for very occasional activity by UK vessels targeting scallop.	
Belgian beam trawl *(Local study area annual average landings weight 2,200 tonnes, 2012 to 2016)*	Potential for occasional activity by Belgian vessels, typically over 24m length, primarily targeting sole.	
French demersal otter trawl *(Local study area annual average landings weight 2,100 tonnes, 2012 to 2016)*	Negligible activity.	Potential for occasional activity by French vessels, typically over 24m length, primarily targeting whiting, haddock and rays.
Irish demersal otter trawl *(Local study area annual average landings weight 680 tonnes, 2012 to 2016)*	Negligible activity.	Negligible activity.

26.5.2. Future Baseline

78. This section considers any changes to the baseline conditions described above that might occur over the lifespan of the proposed Project.

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

- Market demand: commercial fishing fleets respond to market demand, which is impacted by a range of factors, including the 2020 to 2021 COVID pandemic;
- 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.), 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 sustainably of fish and shellfish products, such as the Marine Stewardship Council certification, industry is adapting to improve fisheries management and wider environmental impacts.

Effects of Brexit

80. 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. Given the time periods assessed, the future baseline scenario would typically be reflected within the current baseline assessment undertaken. However, in this case, existing baseline data do not fully capture any potential changes in commercial fisheries activity resulting from the withdrawal of the UK from the EU.

81. Following withdrawal, the UK and the EU have agreed to a Trade and Cooperation Agreement (TCA), applicable on a provisional basis from 01 January 2021. The TCA sets out fisheries rights and confirms that from 01 January 2021 and during a transition period until 30 June 2026, UK and EU vessels will continue to access respective Excusive Economic Zones (EEZs, 12 to 200 NM) to fish. In this period, EU vessels will also be able to fish in specified parts of UK waters between 6 to 12 NM.

82. 25% of the EU's fisheries quota in UK waters will be transferred to the UK over the five-year transition period; most of this quota has already been transferred and distributed across the four nations of the UK. After the five-year transition there will be annual discussions on fisheries opportunities. Across the study area, where UK fisheries primarily target non-quota shellfish species, it is expected that fleets are unlikely to be impacted by quota transfers. It is possible that UK vessels will seek to exploit additional quota-species opportunities, but vessels would need to access quota holdings.

83. Market changes have the potential to impact fishing activity in the study area. Some of the catch landed by UK vessels is exported to EU markets (e.g., brown crab) and potential tariff/non-tariff barriers could affect which species are targeted and to what extent. One of the key species landed by potters in the area, is whelk, which is primarily exported to non-EU countries, including Korea, Taiwan and Singapore. The trade in UK landed whelk has therefore not been as affected by the Brexit process and associated implications on shellfish exports in comparison to other species. In terms of future baseline scenarios, it is therefore possible, for example, that the UK fleet will more heavily target whelk given that prices have increased in recent years, and they are exported to non-EU countries.

84. In relation to EU access to UK territorial waters, provision has been made for EU vessels with a track record of fishing between 6 NM and 12 NM to be issued with licences to continue fishing in UK waters after the UK exit from the EU. This licencing process is ongoing, and it is unknown how many EU vessels this will be applicable to. Therefore, fishing activity within the study area is likely to remain consistent with the current baseline in terms of the fleets and Member States in operation.

Effects of COVID pandemic

85. In relation to the effects of the COVID pandemic, MMO annual reporting notes that the effects of the pandemic on the UK fishing industry were felt from March 2020. The MMO UK Sea Fisheries Statistics 2021 report observes that an increase in overall UK landings quantity and value in 2021 (relative to 2020) largely reflected recovery from the COVID period and some additional quota being available to the UK fleet after leaving the EU (MMO, 2022).

Effects of climate change

86. Commercial fisheries receptors (i.e. relevant fishing fleets) could theoretically be impacted by climate change over the lifetime of the project (30 years). Increased sea temperature/change in pH levels which may result from changes in climate, have the potential to affect the distribution of commercially targeted fish and shellfish stocks in the commercial fisheries study area. Climate change may also result in changes in seabed habitat or natural disturbance events. This would be expected to have limited effects on mobile species, but with potential for effects on substrate-dependent species such as herring and sandeel, and on shellfish. Changes may in turn affect commercial fishing activity in the study area over the long-term; for example, altering fishing methods, targeted grounds and seasonal patterns in activity. An increase in storm events anticipated from climate change may also directly impact fishing activity in the study area, with changes with seasonal fishing patterns in response to changes in weather and periods of safe fishing conditions.

87. Therefore, climate change could potentially cause changes in patterns of fishing activity over the lifetime of the project and therefore the future baseline. However, the project will not contribute to the impacts of climate change to any significant extent. Accordingly, climate change does not alter the basis or conclusions of the assessments made in relation to commercial fisheries as presented in this chapter.

26.6 Scope of the Assessment

88. An EIA Scoping Report for the proposed Project was submitted to NRW Marine Licensing Team (MLT) in April 2022. The Scoping Report was also shared with relevant consultees, inviting comment on the proposed approach adopted by the Applicant. A Scoping Opinion was provided to the Applicant by NRW MLT in July 2022. Based on the Scoping Opinion received, and further consultation undertaken, potential impacts on commercial fisheries scoped into the assessment are listed below in **Table 26-8**. Impacts scoped out of the assessment are listed in **Section 26.6.1.**

26.6.3. Impacts Scoped in to Assessment

89. As set out in **Section 26.4.1**, this assessment considers the design parameters of the proposed Project which are predicted to result in the greatest environmental impact, known as the 'realistic worst case scenario'. The realistic worst case scenario represents, for any given receptor and potential impact on that receptor, various options in the Design Envelope that would result in the greatest potential for change to the receptor in question. Given that the realistic worst case scenario is based on the design option (or combination of options) that represents the greatest potential for change, confidence can be held that the development of any alternative options within the design parameters will give rise to effects no greater or worse than those included in this impact assessment.

90. The design scenarios identified in **Table 26-8** have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group within the

commercial fisheries Study Area. These scenarios have been selected from the details provided in **Chapter 04: Description of the proposed Project**.

Table 26-8 Design scenario considered for the assessment

Potential impact	Design scenario	Justification
Construction		
Impact 1: Reduction in, or temporary loss of access to, established fishing grounds	<u>Total temporary reduction:</u> Offshore construction duration: Up to 24 months Seabed preparation and installation works across total Offshore Development Area of 194.24 km^2: • Pre-construction surveys and UXO clearance across Array Area and offshore export cable corridor (10 days for OfECC and 12 days for Array Area) • Pre-lay grapnel run across offshore export cable corridor (50 days) • Boulder clearance across offshore export cable corridor (60 days) • Sandwave levelling across offshore export cable corridor (30 days) • Export cable installation and protection (100 days) and nearshore cable installation (42 days) • Installation of mooring lines and anchors (100 days) • Tow out and hook up of floating platforms (60 days) • Inter-array cable installation and protection (95 days) Safety Zones:	This represents the maximum duration and extent of impact pathways which may lead to changes in access to fishing grounds throughout the construction phase and hence the greatest potential to restrict or temporarily lose access to fishing grounds. The construction footprint comprises the full permanent seabed area of structures, scour protection, cable crossings and cable protection plus the temporary footprint of preparatory works including seabed preparation, sandwave levelling and boulder clearance. The impact area also incorporates Safety Zones around major activities. It is important to note that the temporal aspect of temporary works will not apply in full throughout the 24-month offshore construction phase, as activities will be completed sequentially.

Potential impact	Design scenario	Justification
	• 500m Safety Zones around construction activities = 0.79 km^2 per structure under construction at any one time • 50m Safety Zones around incomplete structures = 7,854 m^2 per partially constructed structure at any one time • Construction buoyage deployed around the maximum extent of the Array Area. <u>Total permanent reduction:</u> • Up to 10 wind turbine generators (WTGs) on barge floating platforms (maximum 6,500m^2 footprint each with maximum draught of 45m) with up to eight mooring lines and anchors/piles each (up to 1,350m excursion from platform hull to anchor per line). • Maximum rock protection for 20% of 17.31 km of inter-array cables (17,100 m^2), which will be buried to a target depth of 1.2m below seabed where technically possible. • Maximum rock protection for 49 km x 2 of export cables, including at cable crossings (12,000 m^2 per cable), export cables will be buried to a minimum depth of 0.8m below seabed where technically possible.	
Impact 2: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	As for 'Reduction in access to, or exclusion from established fishing grounds' (see above).	This represents the maximum duration and extent of fishing exclusion throughout the construction phase and hence the greatest potential for displacement.

Potential impact	Design scenario	Justification
Impact 3: Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	See fish and shellfish ecology maximum design scenario presented in **Chapter 20: Fish and Shellfish Ecology.**	The scenarios presented in **Chapter 20: Fish and Shellfish Ecology** provide for the greatest disturbance to fish and shellfish species and therefore the greatest effect to commercially exploited fish and shellfish species. Importantly, this considers the impacts as a whole on commercially important species as considered in the maximum design scenario for the fish and shellfish chapter, rather than any one impact in particular.
Impact 4: Increased vessel traffic associated with the proposed Project within fishing grounds leading to interference with fishing activity	• Maximum number pre-construction survey vessels: 2 • Maximum number boulder clearance vessels: 1 • Maximum number pre-lay grapnel run vessels: 1 • Maximum number pre-trenching vessels: 1 • Maximum number sandwave levelling vessels: 2 • Maximum number inter-array cable installation vessels: 4 • Maximum number export cable protection installation vessels: 2 • Maximum number construction buoyage installation vessels: 1 • Maximum number mooring line and anchor installation vessels: 4 • Maximum number platform tow and hook-up vessels: 8	The maximum number of WTGs and associated infrastructure will lead to the highest level of construction activities and therefore highest level of construction vessel round trips. The maximum number of vessels transits and the maximum duration of the construction will result in the greatest potential for interference.

Potential impact	Design scenario	Justification
	Indicative peak number vessels on-site simultaneously: 17	
Impact 5: Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Project area.	As for 'Reduction in access to, or exclusion from established fishing grounds' (see above).	This represents the maximum duration and extent of fishing exclusion throughout the construction phase and hence the greatest potential for additional steaming to alternative grounds.
Operation and maintenance		
Impact 6: Reduction in, or temporary loss of access to, from established fishing grounds	<u>Total permanent reduction:</u> • Duration: Operational design life of approximately 30 years. • Up to 10 wind turbine generators (WTGs) on barge floating platforms (6,500 m^2 footprint each) with up to eight mooring lines each (up to 1,350m excursion from platform hull to anchor per line). • Maximum rock protection for 20% of 17.31 km of inter-array cables (17,100 m^2), which will be buried to a target depth of 1.2m below seabed where technically possible. • Maximum rock protection for 49 km x 2 of export cables, including at cable crossings (12,000 m^2), export cables will be buried to a minimum target depth of 0.8m below seabed where technically possible. • Minimum spacing between WTGs: 1,000 m (centre to centre). <u>Temporary reduction from maintenance activities</u>	This represents the maximum duration and extent of fishing exclusion throughout the operation and maintenance phase and hence the greatest potential to restrict access to fishing grounds. It comprises the maximum footprint of infrastructure on the seabed plus maintenance activities throughout the operational and maintenance phase and associated temporary safety zones. The assessment assumes that fishing will not resume around and between infrastructure within the Project Array Area, but that it will resume across the OfECC. The individual decisions made by skippers with their own perception of risk will determine the likelihood of whether their fishing will resume within the proposed Project which cannot be predicted and therefore the assumption of no fishing activity resuming within the Array Area during the operation and maintenance phase is a worst case scenario.

Potential impact	Design scenario	Justification
	• Seabed disturbance associated with inter-array cable repair/remediation event (25m wide and 200m long) • Seabed disturbance associated with export cable repair/remediation event (25 m wide and 200 m long) Safety Zones: • Temporary 500m safety zones around WTGs undergoing major maintenance.	
Impact 7: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	As for 'Reduction in access to, or exclusion from established fishing grounds' (see above).	This represents the maximum duration and extent of fishing exclusion throughout the operation and maintenance phase and hence the greatest potential for displacement.
Impact 8: Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	See fish and shellfish ecology maximum design scenario presented in **Chapter 20: Fish and Shellfish Ecology.**	The scenarios presented in fish and shellfish ecology provide for the greatest disturbance to fish and shellfish species and therefore the greatest knock-on effect to commercial fisheries. Importantly, this considers the impacts as a whole on commercially important species as considered in the maximum design scenario for fish and shellfish chapter, rather than any one impact in particular.
Impact 9: Increased vessel traffic associated with the Project within fishing grounds leading to interference with fishing activity	• Duration: Operational design life of approximately 30 years. • Vessels in the Project area at any one time to include Crew Transfer Vessel (CTV) and Service Operation Vessel (SOV). Maximum number vessel visits to WTG per year: 12	The maximum number of WTGs and associated infrastructure will lead to the highest level of operation and maintenance activities and therefore highest level of operation and maintenance vessel round trips.
Impact 10: Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Project area	As for 'Reduction in access to, or exclusion from established fishing grounds' (see above).	This represents the maximum duration and extent of fishing exclusion throughout the operation and maintenance phase

Potential impact	Design scenario	Justification
		and hence the greatest potential for additional steaming to alternative grounds.
Impact 11: Physical presence of infrastructure leading to gear snagging	As for 'Reduction in access to, or exclusion from established fishing grounds' (see above).	This represents the maximum potential for interactions between infrastructure and fishing gear.
Decommissioning		
Impact 12: Reduction in, or temporary loss of access to, from established fishing grounds	In the absence of detailed methodologies and schedules, decommissioning works and associated implications for commercial fisheries are considered analogous with those assessed for the construction phase, although of shorter duration, noting that the physical presence of infrastructure leading to gear snagging is additionally relevant during decommissioning. <u>Removal of:</u> • 10 WTGs and associated platforms and moorings. • Unburied and buried inter-array cables. • Buried export cables and associated scour and cable protection.	Decommissioning arrangements will be detailed in a Decommissioning Programme, which will be drawn up and agreed with the Department for Business, Energy and Industrial Strategy (BEIS) prior to construction. Assessment is based upon decommissioning being likely to include removal of all of the WTG components and part of the foundations (those above seabed level) and removal of all other surface infrastructure. It is assumed the IACs and the offshore export cables will be removed along with scour and cable protection. It is assumed fishing can resume in the Array Area following decommissioning.
Impact 13: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds		
Impact 14: Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity		
Impact 15: Increased vessel traffic associated with the Project within fishing grounds leading to interference with fishing activity		
Impact 16: Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Project area		
Impact 17: Physical presence of infrastructure leading to gear snagging		

26.6.1. Impacts Scoped out of Assessment

91. Reflective of the Scoping Opinion (Natural Resources Wales, 2022) and based on the receiving environment, expected parameters of the Project (Chapter 04 Description of the Projects), and expected scale of impact/potential for a pathway for effect on the environment, no impacts have been scoped out of the assessment.

26.6.2. Assessment Assumptions and Limitations

92. Limitations associated with the data used to inform the description of the existing environment are described in **Section 26.4.4** above, and further in **Appendix 26A: Commercial Fisheries Baseline Technical Report**. As explained above, these limitations have been managed by ensuring accurate interpretation of the data and clear understanding of its scope, together with cross-referencing between data sources and consultation with the fishing industry. As data form only part of the evidence base, the limitations identified are not considered to significantly affect the certainty or reliability of the impact assessments in **Section 26.8.1** onwards.

93. The proposed Project is in development and the final design of the project is not yet defined (as is standard practice within the industry for offshore wind projects at this stage of development). To manage this uncertainty and allow a robust impact assessment to be undertaken, the assessment presented in this chapter is based on a maximum design scenario for the Project. Though adoption of this maximum (or 'realistic worst case') scenario, there is confidence that the maximum potential adverse impact has been assessed, and as a result impacts of greater adverse significance would not arise should any other development scenario to that assessed within this Chapter be taken forward in the final scheme design.

26.7 Embedded Mitigation, Management Plans and Best Practice

94. As part of the project design process, a number of designed-in measures have been proposed to reduce the potential for impacts on commercial fisheries (see **Table 26-9**). The design of the proposed Project therefore includes embedded mitigation measures and reference to various management plans that will be produced as conditions of consent, and which will further mitigate potential impacts. This approach has been employed in order to demonstrate commitment to mitigation measures by including them in the design of the proposed Project and as such these measures have been considered within the assessment presented in section 26.8 below. Assessment of sensitivity, magnitude and therefore significance includes the implementation of these measures.

Table 26-9 Mitigation measures, management plans and best practice adopted as part of the proposed Project

Embedded Mitigation Measures, Management Plans and Best Practice	Justification
Design Embedded Measures	
Project design	The Applicant has reduced the number of WTGs from 14 to 10 and the overall Array Area by 11% from that proposed during the scoping phase in order to reduce the spatial extent of potential impacts as far as practicable. In addition, the OfECC has been reduced in area, and refined particularly nearshore and at landfall, to refine the design and align with the selected landfall location at Freshwater West. In addition, the alternative landfall location to the south of West Angle Bay was removed following review of

Embedded Mitigation Measures, Management Plans and Best Practice	Justification
	technical, engineering and environmental constraints and the selection of Freshwater West as the most appropriate landfall location.
Marking and lighting	Lights, marks, sounds, signals and other aids to navigation will be exhibited as required by Trinity House, Maritime and Coastguard Agency (MCA), and the Civil Aviation Authority (CAA), including a buoyed construction area around the Array Area. There will be appropriate marking of all offshore infrastructure associated with the proposed Project on UKHO admiralty charts (UKHO, 2020). Appropriate lighting and marking of project infrastructure will assist in raising awareness of the proposed Project, including the buoyed construction area of which there will be no restrictions on entry. Appropriate marking and charting will assist in raising awareness of the proposed Project.
Cable burial	Where possible, subsea cable burial will be the preferred option for cable protection. Cable burial and protection requirements will be informed by the cable burial risk assessment (CBRA) prepared post consent. The CBRA will detail the minimum burial depths of the offshore export cables throughout the offshore export cable routes, and indicative proposed locations where the target depth of burial may not be achievable and external protection is expected to be required. The CBRA will also detail which type of cable protection measure would be located at which locations. Burial of cables to an agreed target depth will minimise the likelihood of a vessel experiencing an interaction with a cable.
Safety Zones and guard vessels	The Applicant will for safety zones post consent including up to 500 m around ongoing activities during construction, major maintenance, and decommissioning and up to 50 m for installed structures pre commissioning. Where appropriate, guard vessels will be used to ensure adherence with safety zones or advisory passing distances associated with project operations. The application of safety zones will assist in raising awareness of the proposed Project and protect project vessels undertaking construction, major maintenance, and decommissioning activities. The use of guard vessels will assist in raising awareness of the proposed Project and alerting a vessel on a closing point of approach to a project vessel.
Procedures for dropped objects and claim processes for loss/damage to fishing gear/vessels	The FLCP will include protocols and procedures for dropped objects to minimise the risk of equipment snagging on large, dropped objects associated with the Offshore Development Area.
Marine coordination	Marine coordination will be implemented to manage project vessels throughout construction and maintenance periods.

Embedded Mitigation Measures, Management Plans and Best Practice	Justification
	Marine coordination of all project vessels minimise the likelihood of a project vessel instigating or being involved in an incident.
Project vessels	Project vessels will ensure compliance with Flag State regulations including the COLREGs and SOLAS. Compliance with Flag State regulations by project vessels will minimise the likelihood of a project vessel instigating or being involved in an incident and through assistance reduce the likelihood of significant consequences should an incident occur.
Fisheries liaison	The Applicant is committed to ongoing liaison with fishermen throughout all stages of the project, based upon FLOWW (2014, 2015) guidance and the following: • Appointment of a company Fisheries Liaison Officer (FLO) to maintain effective communications between the proposed Project and fishermen; • Appropriate liaison with relevant fishing interests to ensure that they are fully informed of development planning and any offshore activities and works; • Timely issue of notifications including Notice to Mariners (NtMs), Kingfisher Bulletin notifications and other navigational warnings to the fishing community to provide advance warning of project activities and associated Safety Zones and advisory safety distances. Appointment of a company FLO will assist in raising awareness of the proposed Project and associated operations with the fishing industry. Appropriate promulgation of information and notification to other sea users will assist in raising awareness of the proposed Project and associated operations.
Management Plans	
Fisheries Liaison and Co-existence Plan (FLCP)	Development, prior to construction, of a Fisheries Liaison and Co-existence Plan, setting out in detail the planned approach to fisheries liaison and means of delivering any other mitigation measures relevant to commercial fishing activity. The development of an FLCP will ensure structured liaison between the Applicant and fishing industry and minimise effects on commercial fisheries.
Decommissioning Environmental Management Plan (DEMP)	A DEMP will be developed prior to decommissioning. The development and agreement of a decommissioning programme will ensure that the process of decommissioning the proposed Project minimises effects on commercial fisheries.
Project (Array) Layout Plan	A Project (Array) Layout Plan will be developed prior to construction. The plan sets out the layout of the Array Area so it is compliant with Marine Guidance Note (MGN) 645.

26.8 Assessment of Environmental Effects

95. The impacts and effects (both beneficial and adverse) associated with the construction, operation and maintenance and decommissioning of the proposed Project are outlined in the sections below. The assessments consider the embedded mitigation measures described in **Section 26.7**.

26.8.1. Construction Effects

Reduction in, or temporary loss of access to, established fishing grounds

96. The impact is of relevance to international and national fishing fleets and is described below on a fleet-by-fleet basis.

Magnitude of Impact

97. 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 20-month period of construction, which will directly affect fleets over a short-term duration (i.e., less than 2-3 years). The impact is predicted to be intermittent with localised exclusion surrounding construction activities, reflecting the construction phase design scenario presented in **Table 26-8.**

98. **UK potting fishery**: VMS and landings data indicate that potting activity is undertaken throughout the study area and within the Offshore Development Area, by vessels targeting lobster, crab and whelk. Across 2016 to 2022, landings by potting vessels from the study area had an average first sales value of £2.2 million, with over 70% of this value attributed to landings from inshore ICES rectangle 32E4. The Offshore Development Area boundary overlaps with approximately 2% of the commercial fisheries study area; this equates to a pro-rata value of approximately £44,000 for potting vessel landings (based on uniform distribution of landings across the entire study area). Noting that the Array Area overlaps with approximately 1.3% of ICES rectangle 31E4 (annual average landings value of £320,000), this equates to a pro-rata value of approximately £4,160 for potting vessel landings (based on uniform landings across the entire rectangle). While such a simplistic calculation incurs a level of uncertainty to the resulting figure, it does indicate the scale potential potting opportunity within the study area and Array Area.

99. During construction, potting vessels will be required to remove pots from areas under construction and either relocate or bring to shore depending on available grounds and fishing preferences. Potting fishermen will therefore experience loss of earnings for the time taken to relocate gear, and potentially a loss of earnings associated with not being able to fish the specific grounds under construction (e.g., if alternative grounds are either not available, or not as productive). Potting typically involves several fleets of pots being deployed across a range of areas, and while it is highly unlikely that 100% of pots deployed by a single vessel will be impacted at any one time, it is understood that specific potting grounds may be targeted by specific operators. In this case, individual fishing businesses that routinely target the Offshore Development Area will be impacted to a higher extent, due to their smaller operational ranges and this is accounted for within the assessment. FLO-led engagement with fishers active in the local study area has indicated it is unlikely that potting vessels will be heavily reliant on fishing grounds within the Array Area, noting that the potential for interaction with mobile gear fleets will tend to limit potting activity here.

100. The impact on the UK potting fleet is predicted to be direct, of local spatial extent, short-term duration and intermittent. It is predicted that the impact will result in a temporary and partial

loss of ability to carry on fishing activity in the Array Area and OfECC. The magnitude of impact is therefore considered to be **medium adverse** for the UK potting fleet.

101. **UK netting fishery**: The UK netting fleet primarily targets bass, but also pollack and turbot, and within the study area is active in inshore ICES rectangle 32E4 with limited activity in ICES rectangle 31E4 where the Array Area is located. The annual average value of landings by netting vessels from the study area across 2016 to 2022 is £189,000, peaking in 2018 and declining annually since then.

102. The impact on the UK netting fleet is predicted to be direct, of local spatial extent, short-term duration and intermittent. It is predicted that the impact will affect the receptor directly and result in a partial loss of ability to carry on fishing activity in the OfECC (noting no netting activity is expected to be undertaken in the Array Area). The magnitude is **small adverse** for the UK netting fleet.

103. **UK hooked gear (primarily handline) fishery**: The UK hooked gear fleet primarily targets bass and within the study area is active in inshore ICES rectangle 32E4 with no/limited activity in ICES rectangle 31E4 where the Array Area is located. The annual average value of landings by hooked gear vessels from the study area across 2016 to 2022 is £33,000, peaking in 2018.

104. The impact on the UK hooked gear fleet is predicted to be direct, of local spatial extent, short-term duration and intermittent. It is predicted that the impact will affect the receptor directly and result in a partial loss of ability to carry on fishing activity in the OfECC (noting no hooked gear activity is expected to be undertaken in the Array Area). The magnitude is **small adverse** for the UK netting fleet.

105. **UK beam trawl fishery**: The UK beam trawl fleet primarily targets sole, also taking plaice and monks and anglers, and is active across the study area with landings data indicating that approximately 55% of landings by value being taken from inshore ICES rectangle 32E4 and the remainder from ICES rectangle 31E4. VMS data for the period 2016 to 2020 indicates that beam trawl activity is sporadic across the study area, and where activity is present it is typically focused across the offshore portion of the OfECC, with evidence of occasional activity in the Array Area. The annual average value of landings by UK beam trawl vessels from the study area across 2016 to 2022 is £196,000, peaking in 2020.

106. The impact on the UK beam trawl fleet is predicted to be direct, of local spatial extent, short-term duration and intermittent. It is predicted that the impact will affect the receptor directly and result in a partial loss of ability to carry on fishing activity in the OfECC and Array Area. The magnitude is **small adverse** for the UK beam trawl fleet.

107. **UK scallop dredge fishery:** The annual average value of scallop landings from the study area by UK dredge vessels is £20,000, though this value is largely dictated by notable landings in 2020, with minimal landings across the remainder of the 2016 to 2022 period. VMS data indicate that the Project boundaries do not overlap with important scallop grounds and do not indicate dredge activity within the boundaries.

108. Where the impact may affect the receptor, it will be direct, of local spatial extent, short-term duration and intermittent resulting in a potential minor loss of ability to carry on fishing activity. The magnitude of impact is **negligible adverse** for the UK dredge fleet.

109. **Belgian beam trawl fishery:** VMS data indicates that Belgian beam trawl activity is focused along the 12 nautical mile limit and across fishing grounds located to the immediate east of the Array Area and to the south. Data indicates the potential for non-UK beam trawlers to be active within the Array Area. Within the study area, landings data also confirms the potential

for Belgian trawl activity, with vessels targeting sole and also taking monks and anglers and rays. Between 2012 and 2016, annual average landings by Belgian trawlers from the study area were 5,700 tonnes, peaking in 2012.

110. Where the impact may affect the receptor, it will be direct, of local spatial extent, short-term duration and intermittent. The magnitude of impact is **small adverse** for the Belgian beam trawl fleet, with the potential for a slight loss of opportunity to carry on fishing activity.

111. **French demersal otter trawl fishery**: VMS data indicates that French demersal otter trawl activity may take place between the 6 and 12 nautical mile limits, overlapping the central portion of the OfECC. Within the study area, landings data also confirms the potential for French demersal otter trawl activity, and between 2012 and 2016, annual average landings by French trawlers from the study area were 4,400 tonnes, peaking in 2012.

112. Where the impact may affect the receptor, it will be direct, of local spatial extent, short-term duration and intermittent. The magnitude of impact is **small adverse** for the French demersal otter trawl fleet, with the potential for a slight loss of opportunity to carry on fishing activity.

113. **Irish demersal otter trawl fishery**: VMS data indicates that Irish Nephrops trawlers are active within the study area but targeting important Nephrops grounds located to the west of Project boundaries. Nephrops trawl activity within Project boundaries is expected to be very limited. Landings data indicates that between 2012 and 2016, annual average landings by Irish trawlers from the study area were 1,500 tonnes, peaking in 2016.

114. Where the impact may affect the receptor, it will be direct, of local spatial extent, short-term duration and intermittent. The magnitude of impact is **negligible adverse** for the Irish Nephrops trawl fleet, with the potential for a very slight loss of opportunity to carry on fishing activity.

Sensitivity of the receptor

115. The mobile fleets targeting demersal and dredge fisheries across the study area are typically larger vessels that operate across large areas of the Celtic Sea and beyond. Given adequate notification it is expected that these vessels will be able to avoid construction areas. All mobile fleets are considered to have a large operational range and moderate-high levels of alternative fishing grounds. These fleets are deemed to be of low vulnerability and high recoverability and the sensitivity of these receptors is therefore, considered to be **negligible**.

116. The UK potting fleet are typically <15m in length and operate across more distinct areas of ground, typically 0 to 12 nautical miles from shore, but also extending beyond 12 nautical miles, in areas that are already exploited and are therefore more sensitive to disruption. The UK potting fleet are deemed to be of low to medium vulnerability, in reflection of their expected operational ranges, medium recoverability and medium value across the study area. The sensitivity of the receptor is therefore, considered to be **low to medium**.

117. The UK netting fleet are typically <15m in length and operate across more distinct areas of ground, typically inshore of the Array Area. The UK netting fleet are deemed to be of low vulnerability, medium recoverability and low-medium value across the study area. The sensitivity of the receptor is **low**.

118. The UK hooked gear fleet are typically <15m in length and operate across more distinct areas of ground, typically inshore of the Array Area. The UK hooked gear fleet are deemed to be of low vulnerability, medium recoverability and low value across the study area. The sensitivity of the receptor is **low**.

Significance of the effect

119. The Project embedded environmental measures include advance notification of planned construction activities to fishermen and ongoing liaison throughout construction.

120. Taking account of these measures, the residual effect on each fishery is set out immediately below, noting that that effect in all cases will be direct and temporary.

121. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of **minor to moderate adverse significance**, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

122. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse significance**, which is not significant in EIA terms.

123. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse significance**, which is not significant in EIA terms.

124. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse significance**, which is not significant in EIA terms.

125. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse significance**, which is not significant in EIA terms.

126. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse significance**, which is not significant in EIA terms.

127. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse significance**, which is not significant in EIA terms.

128. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse significance**, which is not significant in EIA terms.

Further mitigation and residual effects

129. **UK potting fishery:** Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will define measures to encourage co-existence and further mitigate the effect. This FCLP will include a process for evidence-based mitigation measures in line with FLOWW guidance, to be applied where relevant and appropriately evidenced (2014, 2015).

130. Through the application of the FLCP, the residual effect will be of minor adverse significance, which is not significant in EIA terms.

Displacement leading to gear conflict and increased fishing pressure on adjacent grounds

The impact is of relevance to national and international fishing fleets and is described below

on a fishery-by-fishery basis.

Magnitude of impact

131. Localised loss of access to fishing grounds during construction in the Offshore Development 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.

132. In terms of the total area impacted by construction activities within the Project boundaries, this would not exceed the Offshore Development Area, noting that the Array Area occupies 50 km^2. In addition, there will be 500 m safety distance around infrastructure under construction (equating to 0.79 km^2 per structure) and 500m safe passing distance around construction vessels (equating to 0.79 km^2 per vessel).

133. **UK potting fishery:** Conflict over diminished grounds may occur if displaced vessels operating mobile gear (e.g., beam trawl) explore grounds traditionally fished by potters; and/or displaced potting gear is relocated into actively fished potting grounds. Displacement of mobile gear may therefore increase the risk of interaction with potting gear. For mobile gear, displacement could be expected to be focused on alternative established grounds both in the vicinity of the Project and throughout the southern Celtic Sea, with limited displacement onto potting grounds.

134. When considering the impact of potters being displaced from the Offshore Development Area 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 relocation impacts will limit this.

135. On balance, the displacement effect to potters targeting the Array Area is considered likely to have an equivalent or lower magnitude of impact than the loss of access to fishing grounds impact causing the displacement. Taking all of these aspects into consideration, the magnitude of the displacement impact is assessed to be **medium adverse** for UK potters.

136. **UK netting fishery:** Displacement from the Offshore Development Area may have some effect on the netting fishery. Fixed nets are static gear since they remain in situ for a period of time, and there is some limited potential for vessels being required to temporarily relocate gear to other grounds during the construction phase. The magnitude of the displacement impact is assessed to be **small adverse**.

137. **UK hooked gear fishery:** Displacement from the Offshore Development Area is considered unlikely to have an effect on the hooked gear fishery, which is expected to take place across relatively wide areas inshore. The magnitude of the displacement impact is assessed to be **small adverse**.

138. **UK beam trawl fishery**: VMS data indicate that there are large areas surrounding the Offshore Development Area that are targeted by the same beam trawl gear types used within the study area. Whether or not displaced vessels are likely to disperse into these areas depends on the normal fishing patterns of the fleets targeting the area. Displacement is not expected to affect mobile fleets. The magnitude of the displacement impact is assessed to be **small adverse**.

139. **UK scallop dredge fishery:** Displacement from the Offshore Development Area is not expected to affect the dredge fishery, which has a wide operational range, since it is understood to predominantly take place on grounds outside of the Project. The magnitude of the displacement impact is assessed to be **negligible adverse** for UK scallopers.

140. **Belgian beam trawl fishery:** VMS data indicate that there are large areas surrounding the Project that are targeted by the same beam trawl gear types used within the study area. Whether or not displaced vessels are likely to disperse into these areas depends on the normal fishing patterns of the fleets targeting the area. Displacement is not expected to affect mobile fleets. The magnitude of the displacement impact is assessed to be **small adverse**.

141. **French demersal otter trawl fishery:** VMS data indicate that there are large areas surrounding the proposed Project that are targeted by the same demersal otter trawl gear types used within the study area. Whether or not displaced vessels are likely to disperse into these areas depends on the normal fishing patterns of the fleets targeting the area. Displacement is not expected to affect mobile fleets. The magnitude of the displacement impact is assessed to be **small adverse**.

142. **Irish demersal otter trawl fishery:** Displacement from the Offshore Development Area is not expected to affect the Irish Nephrops fishery, which has a wide operational range, since it is understood to predominantly take place on grounds outside of the Project. The magnitude of the displacement impact is assessed to be **negligible adverse** for Irish Nephrops trawlers.

Sensitivity of the receptor

143. All mobile commercial fisheries fleets (beam trawl, dredge, otter trawl) operating within the study area are considered to have high availability of alternative fishing grounds, and an operational range that is not limited to the Offshore Development Area. These fleets are deemed to be of low vulnerability and high recoverability and the sensitivity of these receptors is therefore, considered to be **negligible**.

144. The UK potting fleet are typically <15m in length and operate across more distinct areas of ground, typically 0 to 12 nautical miles from shore, but also extending beyond 12 nautical miles, in areas that are already exploited and are therefore more sensitive to disruption. The UK potting fleet are deemed to be of low to medium vulnerability depending on the area and extent of their fishing operations, medium recoverability and medium value across the study area. The sensitivity of the receptor is therefore, considered to be **low to medium**.

145. The UK netting fleet are typically <15m in length and operate across more distinct areas of ground, typically inshore of the Array Area. The UK netting fleet are deemed to be of low vulnerability, medium recoverability and low-medium value across the study area. The sensitivity of the receptor is considered to be **low**.

146. The UK hooked gear fleet are typically <15m in length and operate across more distinct areas of ground, typically inshore of the Array Area. The UK hooked gear fleet are deemed to be of low vulnerability, medium recoverability and low value across the study area. The sensitivity of the receptor is considered to be **low**.

Significance of the effect

147. Embedded mitigation measures include advance notification of planned construction activities to fishermen and ongoing liaison throughout construction. Taking account of these measures, the residual effect on each fishery is set out immediately below, noting that the effect in all cases will be short-term and temporary.

148. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of minor to **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

149. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

150. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

151. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

152. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

153. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

154. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

155. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Further mitigation and residual effects

156. UK potting fishery: Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will define measures to encourage co-existence and further mitigate the effect. This FCLP will include a process for evidence-based mitigation measures in line with FLOWW guidance, to be applied where relevant and appropriately evidenced (2014, 2015).

157. Through the application of the FLCP, the residual effect will be of minor adverse significance, which is not significant in EIA terms.

Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity

158. Temporary effects of noise and seabed disturbances during construction activities may impact commercially important fish and shellfish populations. 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 will be affected.

Magnitude of Impact

159. Detailed assessments of potential construction impacts on fish and shellfish receptors have been undertaken in **Chapter 20: Fish and Shellfish Ecology** and are not repeated here.

160. With respect to the magnitude of disturbance of commercially important fish and shellfish resources on commercial fisheries, the overall significance of the effect on fish and shellfish species is considered (i.e., both the magnitude of impact and sensitivity of fish and shellfish species are considered to assess the magnitude of impact 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 small magnitude is assessed for commercial fishing, and so on.

161. The magnitude of the impact of disturbance of commercially important fish and shellfish resources on commercial fisheries is therefore considered to be **small adverse** for all species and all potential impacts, reflecting the conclusions of the assessment in **Chapter 20: Fish and Shellfish Ecology**.

Sensitivity of Receptor

162. There is potential for fishing grounds beyond the immediate construction activities to be affected by impacts resulting from noise and seabed disturbance. Exposure of commercially exploited species, including shellfish and demersal fish species, to the impacts are likely and commercial fleets targeting these species will be affected.

163. There is potential for shellfish grounds beyond the immediate construction activities to be affected by increased suspended sediment and sediment deposition, impacting potting fleets, though effects are predicted to be very short-term (hours) and highly localised (within 50 m of disturbance activity) (see **Chapter 20**). The potting fleet is deemed to be of low to medium vulnerability and medium recoverability. The sensitivity of the receptor is **low**.

164. Due to the range of alternative fishing grounds targeted and the distribution of key commercial species throughout the Celtic Sea, all other fleets are deemed to be of low vulnerability and high recoverability. The sensitivity is **low to negligible** for all other fleets.

Significance of Effect

165. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

166. **UK netting fishery**: Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

167. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

168. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

169. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

170. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

171. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

172. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Increased vessel traffic associated with the proposed Project within fishing grounds leading to interference with fishing activity

173. This assessment focuses on the potential impact of proposed Project related vessel traffic and changes to shipping patterns as a result of navigational channels leading to interference with fishing activity (i.e., reduced access) during construction.

Magnitude of Impact

174. Vessel movements (i.e., construction vessels transiting to and from areas undergoing construction works) related to the construction of the Project will add to the existing level of shipping activity in the area (see **Chapter 25: Shipping and Navigation** for a full assessment of additional vessel movements).

175. Continuous liaison with the fishing industry will be undertaken including prior notification of the location and duration of construction activities.

176. All fishing fleets are able to avoid vessel movements related to the Project construction. The impact is predicted to be of regional spatial extent, short-term duration, intermittent and high reversibility. It is predicted that the impact will affect the receptor directly. The magnitude is **small adverse** for all fisheries.

Sensitivity of Receptor

177. Construction traffic is likely to constrain potting and static netting activity across established construction supply routes due to the vulnerability of the marker buoys to the propellers of passing construction vessels. It is noted that several shipping routes (e.g. tankers transiting Milford Haven to Mediterranean ports or to the Scilly Isles Traffic Separation Scheme) do currently cross the OfECC and Array Area (see **Chapter 25: Shipping and Navigation, Figure 25-4**) and that the construction vessels are likely to follow similar routes where possible. The UK potting and netting fisheries are deemed to be of low to medium vulnerability, medium to high recoverability and low to medium value. The sensitivity of these receptors is therefore, considered to be **low**.

178. All other fishery fleets are expected to be able to avoid the proposed Project construction areas. Trawl, hooked gear and dredge fisheries are deemed to be of low vulnerability, high recoverability and low to medium value. The sensitivity of the receptor is therefore, considered to be **low**.

Significance of Effect

179. Project embedded environmental measures include advance notification of planned construction activities to fishermen and ongoing liaison throughout construction. Taking account of these measures, the residual effect on each fishery is set out immediately below, noting that that effect in all cases will be direct and temporary.

180. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

181. **UK netting fishery**: Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

182. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

183. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

184. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

185. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

186. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

187. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

Additional steaming time to alternative fishing grounds

188. A detailed Navigational Risk Assessment has been undertaken within **Chapter 25**, which includes full consideration of commercial fishing vessels while transiting (e.g., from a collision and allision perspective). This assessment focuses on the potential impact of longer steaming distances to alternative fishing grounds while construction processes are ongoing.

Magnitude of Impact

189. The impact is predicted to be of regional spatial extent, of relevance to international and national fishing fleets, and of short-term duration. It is predicted that the impact will affect the receptor directly.

190. Details of the proposed Project's construction activities will be promulgated in advance of, and during construction via the usual means (e.g., Notice to Mariners, Kingfisher bulletin) to ensure mariners are aware of the ongoing works. Construction works will only necessitate minor deviations for fishing vessels transiting through the Offshore Development Area during the construction phase. Therefore, it is anticipated that the spatial extent of this impact will

be limited to the immediate area of construction activity and associated construction vessels, and therefore will be localised. The duration of construction activities which may necessitate the deviation of transiting fishing vessels will be short term and temporary. The magnitude is therefore, considered to be **small adverse** for all fishing fleets.

Sensitivity of Receptor

191. The UK static gear fleets active in the Offshore Development Area operate across a range of grounds to haul and re-set different fleets of traps, pots, nets daily. Their normal operating range extends well beyond the 500m safety zones that will be in place around active installation works and advisory safety distances around construction vessels. In light of the adequate notification the Applicant is committed to provide, it is expected that these vessels will be in a position to avoid construction areas with limited impact upon steaming times.

192. All commercial fisheries fleets are considered to have medium to high availability of alternative fishing grounds and an operational range that is not limited to the Offshore Development Area. Additionally, **Chapter 25: Shipping and Navigation** notes that there is limited transit activity featuring fishing vessels in proximity to the Array Area and that fishing vessels transits in / out of Milford Haven in the majority occur clear of the OfECC. The sensitivity of the receptor is therefore, considered to be **low** for the UK potting, netting and handline fleets and **negligible** for all other fisheries. This aligns with the conclusions of the assessment of vessel displacement presented in **Chapter 25: Shipping and Navigation.**

Significance of Effect

193. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the magnitude of impact is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

194. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the magnitude of impact is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

195. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the magnitude of impact is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

196. **All other fisheries:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the magnitude of impact is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

26.8.2. Operation and Maintenance (O&M) Effects

Reduction in or loss of access to established fishing grounds

Array Area assumptions

197. The assessment assumes that commercial fisheries will be prevented from actively fishing within the footprint of installed infrastructure within the Array Area, together with associated safety zones for maintenance activities and assumed safe operating distances. Minimum turbine spacing is 1,000m (centre to centre of WTGs) between WTGs. Turbine platform mooring lines may extend up to 1,350m from platform hulls and be present in the water column between turbines. The assessment therefore precautionarily assumes that fishing will not be possible within the Array Area (which covers approximately 50 km^2) where turbine spacing and mooring layout are considered unlikely to allow productive grounds to be safely targeted using either static or mobile gear, though it is noted that the individual decisions

made by the skippers of fishing vessels with their own perception of risk will determine the likelihood of whether their fishing will resume within the Array Area. Whilst specific to the project in question, it is noted that fishing gear trials in 2022 demonstrated that it was possible to fish safely within the Hywind floating offshore wind farm located off the northeast coast of Scotland with the tested static fishing gear types (traps, creels, jiggers) and where weather and sea conditions were suitable (Wright et. al., 2023).

Offshore Export Cable Corridor assumptions

198. In relation to the OfECC, temporary 500m safety zones and advisory safety distances requested around vessels engaged in export cable repair works and restricted in their ability to manoeuvre, could limit fishing opportunities within those localised areas while such maintenance works are carried out. The European Subsea Cables Association (ESCA, 2018) notes that cables are potential subsea hazards, and that while great effort is made to bury and protect them, mariners should never assume that cables are completely buried. Furthermore, the Mariners Handbook advises that: "every care should be taken to avoid anchoring, trawling, fishing, dredging, drilling or carrying out any other activity in the vicinity of cables which might damage them". Notwithstanding this, subsea cables are widespread throughout the waters of Europe, providing power and telecommunications links, and it is understood that fishing does take place in the vicinity of subsea cables (KIS-ORCA, 2022). For the purposes of this assessment, it is assumed that fishermen will be well informed of the location and integrity of the offshore export cables i.e., locations of cable protection, details of any cable inspection surveys and location and schedule for any maintenance works, and that based on this knowledge will seek to exploit grounds across the offshore export cables with caution. The assessment therefore assumes that fishing will resume within the vicinity of the export cables.

Magnitude of impact

199. This impact will lead to localised loss of access to fishing grounds and the fish and shellfish resources within these grounds for a range of fishing opportunities during the operational and maintenance phase, which will directly affect fleets over a long-term duration, noting an operational design life of up to 30 years. The impact is predicted to be continuous with low reversibility for the lifetime of the proposed Project and is of relevance to national and international fishing fleets, reflecting the operational phase design scenario presented in **Table 26-8.**

200. Evidence on the extent, value and importance of the Offshore Development Area to commercial fishing fleets is the same as that presented for construction.

201. **UK potting fishery:** It is expected that potting will resume within the OfECC, with potential for only a slight loss of fishing effort occurring. The magnitude is assessed as **negligible adverse** in relation to the OfECC. It is expected that potting will not resume within the Array Area during the operation and maintenance phase. The impact is of moderate spatial extent and will result in a partial reduction in fishing effort across the Array Area. During the operation and maintenance phase and the overall magnitude is assessed as **medium adverse**.

202. **UK netting fishery:** It is expected that netting will resume within the OfECC, with potential for only a slight loss of fishing effort occurring. The magnitude is assessed as **negligible adverse** in relation to the OfECC. There is limited netting effort in the Array Area. The impact has the potential to result in a slight reduction in fishing effort across the Array Area during periods of maintenance activity. During the operation and maintenance phase and the overall magnitude is assessed as **small adverse.**

203. **UK hooked gear fishery:** It is expected that hooked gear fishing will resume within the OfECC, with potential for only a slight loss of fishing effort occurring. The magnitude is assessed as **negligible adverse** in relation to the OfECC. There is limited hooked gear fishing effort in the Array Area. The impact has the potential to result in a slight reduction in fishing effort across the Array Area during periods of maintenance activity. During the operation and maintenance phase and the overall magnitude is assessed as **small adverse.**

204. **UK beam trawl fishery:** It is expected that beam trawling will resume within the OfECC, with potential for only a slight loss of fishing effort occurring. The magnitude is assessed as **negligible adverse** in relation to the OfECC. It is expected that beam trawling will not resume within the Array Area during the operation and maintenance phase. The impact is of moderate spatial extent and will result in a partial reduction in fishing effort across the Array Area. During the operation and maintenance phase and the overall magnitude is assessed as **medium adverse**.

205. **UK scallop dredge fishery:** Given the potential for resumption of fishing across the OfECC, coupled with the very limited/no baseline activity in the Array Area (noting higher intensity fishing grounds elsewhere in the region), the magnitude is assessed as **negligible adverse**.

206. **Belgian beam trawl fishery:** It is expected that beam trawling will resume within the OfECC, with potential for only a slight loss of fishing effort occurring. The magnitude is assessed as **negligible adverse** in relation to the OfECC. It is expected that beam trawling will not resume within the Array Area during the operation and maintenance phase. The impact is of moderate spatial extent and will result in a partial reduction in fishing effort across the Array Area. During the operation and maintenance phase and the overall magnitude is assessed as **small to medium adverse**.

207. **French demersal otter trawl fishery:** Given the potential for resumption of fishing across the OfECC, coupled with the very limited/no baseline activity in the Array Area (noting higher intensity fishing grounds elsewhere in the region), the magnitude is assessed as **negligible adverse**.

208. **Irish demersal otter trawl fishery:** Given the potential for resumption of fishing across the OfECC, coupled with the very limited/no baseline activity in the Array Area (noting higher intensity fishing grounds elsewhere in the region), the magnitude is assessed as **negligible adverse**.

Sensitivity of the receptor

209. The sensitivity of the commercial fisheries receptors is the same as that presented for construction, summarised as **low to medium** for potting, **low** for UK netting and hooked gear fleets, and **negligibl**e for all other fleets.

Significance of the effect

Array Area

210. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

211. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

212. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

213. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is medium. The effect is of **negligible** significance, which is not significant in EIA terms.

214. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligibl**e significance, which is not significant in EIA terms.

215. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small to medium. The effect is of **negligible** significance, which is not significant in EIA terms.

216. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible** significance, which is not significant in EIA terms.

217. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

Offshore Export Cable Corridor

218. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

219. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

220. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

221. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

222. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligibl**e significance, which is not significant in EIA terms.

223. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

224. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

225. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

Further mitigation and residual effects

226. UK potting fishery: Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will define measures to encourage co-existence and further mitigate the effect. This FCLP will include a process for evidence-based mitigation measures in line with FLOWW guidance, to be applied where relevant and appropriately evidenced (2014, 2015).

Displacement leading to gear conflict and increased fishing pressure on adjacent grounds

227. Displacement due to relocation of fishing activity from fishing grounds during operation and maintenance of the Project may lead to increases in fishing effort in other areas that may already be exploited thereby leading to gear conflict.

Magnitude of impact

228. On balance, the displacement effect to fishing fleets targeting the Offshore Development Area is considered likely to have an equivalent or lower magnitude of impact than the relocation of activity, the impact causing the displacement.

229. The magnitude of the impact is therefore considered to be aligned with that presented above under the assessment of potential reduced access impacts and is **medium to large** adverse for the UK potting fleet, **small adverse** for the UK netting and hooked gear fleets and for the Belgian beam trawl fleet, **medium adverse** for the UK beam trawl fleet and **negligible adverse** for all other fleets.

Sensitivity of the receptor

230. The sensitivity of the commercial fisheries receptors is as per that presented for construction, summarised as **low to medium** for the UK potting fleet, **low** for the UK netting and hooked gear fleets, and **negligible** for all other fleets.

Significance of the effect

231. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

232. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

233. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

234. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is medium. The effect is of **negligible** significance, which is not significant in EIA terms.

235. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

236. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

237. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible** significance, which is not significant in EIA terms.

238. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

Further mitigation and residual effects

239. UK potting fishery: Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will define measures to encourage co-existence and further mitigate the effect. This FCLP will include a process for evidence-based mitigation measures in line with FLOWW guidance, to be applied where relevant and appropriately evidenced (2014, 2015).

Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity

240. Permanent and temporary impacts from operation of the Project and maintenance activities may disturb commercially important fish and shellfish populations. This section assesses the potential 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.

Magnitude of Impact

241. The approach to this assessment follows that outlined for construction, with details of the fish and shellfish ecology assessment provided in **Chapter 20: Fish and Shellfish Ecology**. The impact is predicted to be of regional spatial extent and of relevance to international and national fishing fleets. It is predicted that the impact will affect the receptor directly through loss of resources. Taking a precautionary approach, the magnitude is **small adverse** for all species and all potential impacts, reflecting the conclusions of the assessment in **Chapter 20: Fish and Shellfish Ecology**.

Sensitivity of Receptor

242. The sensitivity of the commercial fisheries receptors is the same as that presented for construction, summarised as low for the UK potting fisheries, and **low to negligible** for all other fisheries.

Significance of Effect

243. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

244. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

245. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

246. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

247. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

248. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

249. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

250. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Increased vessel traffic associated with the Project within fishing grounds leading to interference with fishing activity

251. The effects of the operational and maintenance phase are expected to be the same or less than the effects from construction. The significance of effect is therefore **minor adverse** for all fisheries, which is not significant in EIA terms.

Additional steaming time to alternative fishing grounds

252. A detailed Navigational Risk Assessment (discussed in **Chapter 25: Shipping and Navigation** and presented in **Appendix 25A**) includes full consideration of commercial fishing vessels while transiting (e.g., from a collision and allision perspective). This assessment focuses on the potential impact of longer steaming distances to alternative fishing grounds during operational and maintenance phase.

Magnitude of Impact

253. The impact is predicted to be of regional spatial extent, of relevance to national and international fishing fleets, and of long-term duration for the lifetime of the proposed Project. It is predicted that the impact will affect the receptor directly.

254. During the operation and maintenance phase, fishing is expected to resume across the OfECC with the exception of in safety zones around cables undergoing major maintenance and advisory safety distances around vessels undertaking major maintenance activities. Such activities will be communicated through Notice to Mariners and Kingfisher Bulletins with ample warning provided. Applying precautionary assumptions, fishing is assumed not to resume within the Array Area. It is therefore acknowledged that some additional steaming to alternative grounds may be necessary where skippers previously targeting grounds in the Array Area choose to steam to alternative grounds. Transit by fishing vessels through the Array Area is expected to be possible given spacing between turbines (as aligned with the assumptions presented in **Chapter 25: Shipping and Navigation**), though it is acknowledged that this will be influenced by decisions made by individual skippers.

255. The magnitude is therefore, considered to be **small to medium adverse** for all fishing fleets.

Sensitivity of Receptor

256. The sensitivity of commercial fishing fleets to this impact is expected to be the same or like that for construction and is **low** for the UK potting, netting and hooked gear fleets and **negligible** for all other fisheries.

Significance of Effect

257. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small to medium. The effect is of **minor adverse** significance, which is not significant in EIA terms.

258. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small to medium. The effect is of **minor adverse** significance, which is not significant in EIA terms.

259. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small to medium. The effect is of **minor adverse** significance, which is not significant in EIA terms.

260. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small to medium. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

261. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small to medium. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

262. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small to medium. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

263. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small to medium. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

264. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small to medium. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Physical presence of infrastructure leading to gear snagging

265. The array cables and export cables and associated cable protection, together with any structures (and associated scour protection) and mooring lines represent potential snagging points for fishing gear and could lead to damage to, or loss of, fishing gear. The safety aspects resulting from snagging risk during the operation and maintenance phase are beyond the scope of this commercial fisheries assessment and are further considered in **Chapter 25: Shipping and Navigation**.

Magnitude of Impact

266. Embedded mitigation measures include adherence to FLOWW guidance (2014), application of Safety Zones during maintenance, a commitment to cable burial as the preferred option for cable protection where feasible, and appropriate marking and charting of infrastructure. These measures will all be detailed and confirmed in a Project FLCP (see **Table 26-9**).

267. Recognising the clear guidance that will be provided in the FLCP, it is anticipated that fishermen will operate appropriately and in line with standard maritime rules (i.e., avoiding

the indicated infrastructure at the defined location) given adequate notification of the locations of any snagging hazards. This assumption is also reflected in the assessment presented in **Chapter 25: Shipping and Navigation.**

268. Overall, given the relatively small area impacted by the proposed Project, together with the embedded measures, the effect would be expected to impact only a very small proportion of any fleet and result in a temporary loss of ability to continue fishing activities and minor loss of commercial landings value; the magnitude is **small adverse** for all fleets.

Sensitivity of Receptor

269. Due to the nature and operation of mobile trawl and dredge gear (i.e., it is actively towed and 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 all mobile trawl and dredge fisheries.

270. UK potters, gear with hooks and netters show a low vulnerability as the gear is placed, not towed and is less likely to penetrate the seabed. The sensitivity of UK potters, netters and gears with hooks is considered to be **low**.

Significance of Effect

271. **All fishing fleets:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

26.8.3. Decommissioning Effects

Reduction in, or temporary loss of access to, established fishing grounds

Significance of effect

272. The effects of decommissioning activities are expected to be the same or on a smaller scale than the effects from construction, reflecting the worst-case scenario that all installed infrastructure will be removed. Effects will be short-term and temporary. Rather than repeat the assessment presented in **Section 26.8.1** in full, summary statements are presented immediately below confirming impact magnitude, receptor sensitivity and overall effect significance.

273. **UK potting fishery**: Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of minor to **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

274. **UK netting fishery**: Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

275. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

276. **UK beam trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

277. **UK scallop dredge fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

278. **Belgian beam trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

279. **French demersal otter trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

280. **Irish demersal otter trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Further mitigation and residual effects

281. **UK potting fishery:** Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will explore options to encourage co-existence and further mitigate the effect. This FCLP may also include a process for evidence-based mitigation measures in line with FLOWW guidance (2014, 2015).

282. Through the application of the FLCP, the residual effect will be of **minor adverse** significance, which is not significant in EIA terms.

Displacement leading to gear conflict and increased fishing pressure on adjacent grounds

Significance of effect

283. The effects of decommissioning activities are expected to be the same or on a smaller scale than the effects from construction, reflecting the worst-case scenario that all installed infrastructure will be removed. Effects will be short-term and temporary. Rather than repeat the assessment presented in **Section 26.8.1** in full, summary statements are presented immediately below confirming impact magnitude, receptor sensitivity and overall effect significance.

284. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of minor to **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

285. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

286. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

287. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

288. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

289. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

290. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

291. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Further mitigation and residual effects

292. UK potting fishery: Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 25.7) will explore options to encourage co-existence and further mitigate the effect. This FCLP may also include a process for evidence-based mitigation measures in line with FLOWW guidance (2014, 2015).

293. Through the application of the FLCP, the residual effect will be of **minor adverse** significance, which is not significant in EIA terms.

Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity

Significance of Effect

294. The effects of decommissioning activities are expected to be the same or on a smaller scale than the effects from construction, reflecting the worst-case scenario that all installed infrastructure will be removed. Effects will be short-term and temporary. Rather than repeat the assessment presented in **Section 26.8.1** in full, summary statements are presented immediately below confirming impact magnitude, receptor sensitivity and overall effect significance.

295. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

296. **UK netting fishery**: Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

297. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

298. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

299. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

300. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

301. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

302. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Increased vessel traffic associated with the proposed Project within fishing grounds leading to interference with fishing activity

Significance of Effect

303. The effects of decommissioning activities are expected to be the same or on a smaller scale than the effects from construction, reflecting the worst-case scenario that all installed infrastructure will be removed. Effects will be short-term and temporary. Rather than repeat the assessment presented in **Section 26.8.1** in full, summary statements are presented immediately below confirming impact magnitude, receptor sensitivity and overall effect significance.

304. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

305. **UK netting fishery**: Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

306. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

307. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

308. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

309. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

310. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

311. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

Additional steaming to alternative fishing grounds

Significance of Effect

312. The effects of decommissioning activities are expected to be the same or on a smaller scale than the effects from construction, reflecting the worst-case scenario that all installed infrastructure be removed. Effects will be short-term and temporary. Rather than repeat the assessment presented in **Section 26.8.1** in full, summary statements are presented immediately below confirming impact magnitude, receptor sensitivity and overall effect significance.

313. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the magnitude of impact is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

314. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the magnitude of impact is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

315. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the magnitude of impact is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

316. **All other fisheries:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the magnitude of impact is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Physical presence of infrastructure leading to gear snagging

Significance of effect

317. The effects of decommissioning activities are expected to be the same or similar to the effects from operation phase for any infrastructure that is left in situ while in the process of being removed, noting however that any infrastructure remaining in-situ is expected to be buried beneath the seabed and pose very low snagging risk or be provided with a guard vessel and 500 m safety zone.

318. **All fishing fleets:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

26.9 Summary of Additional Mitigation Measures

319. Specific to the UK potting fleet, assessment has identified potential for a significant impact in relation to reduced access to fishing grounds and associated displacement. In response to this the Applicant proposed to develop a FLCP (see **Section 26.7**) post-consent. the FLCP (see Section 26.7) will define measures to encourage co-existence and further mitigate the effect. This FCLP will include a process for evidence-based mitigation measures in line with FLOWW guidance, to be applied where relevant and appropriately evidenced (2014, 2015).

320. Through the application of the FLCP, the residual effect on the UK potting fleet will be of minor adverse significance, which is not significant in EIA terms.

26.9.4. Monitoring

321. No monitoring requirements specific to commercial fisheries have been identified through the EIA process.

26.10 Summary of Effects and Conclusions

322. This chapter of the ES has assessed the potential environmental effects on commercial fisheries from the construction, operation and maintenance and decommissioning phases of the proposed Project. Where significant effects have been identified, additional mitigation has been considered and incorporated into the assessment.

323. **Table 26-10** summarises the impact assessment undertaken and confirms the significance of any residual effects, following the application of additional mitigation.

Table 26-10 Assessment summary

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
Construction						
Reduction in access to, or exclusion from established fishing grounds	UK potting	Low-Medium	Medium	Minor-Moderate (adverse)	Yes - implementation of evidence-based mitigation following procedures to be set out within the Fisheries Liaison and Coexistence Plan and in line with FLOWW guidelines	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	UK dredge	Negligible	Negligible	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Belgian beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	French demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
	Irish demersal otter trawl	Negligible	Negligible	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	UK potting	Low-Medium	Medium	Minor-Moderate (adverse)	Yes - implementation of evidence-based mitigation following procedures to be set out within the Fisheries Liaison and Coexistence Plan and in line with FLOWW guidelines	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	UK dredge	Negligible	Negligible	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Belgian beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
	French demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Irish demersal otter trawl	Negligible	Negligible	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
Displacement or disruption of commercially important fish and shellfish resources	UK potting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse) ; no significant adverse residual effect
	UK beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	UK dredge	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Belgian beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	French demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
	Irish demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
Increased vessel traffic associated with the proposed Project within fishing grounds leading to interference with fishing activity	UK potting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK dredge	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	Belgian beam trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	French demersal otter trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	Irish demersal otter trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the proposed Project area	UK potting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	UK dredge	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Belgian beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	French demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Irish demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
Operation and Maintenance						
Reduction in access to, or exclusion from	UK potting	Low-Medium	Medium	Minor-Moderate (adverse)	Yes - implementation of evidence-based mitigation following	Minor (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
established fishing grounds					procedures to be set out within the Fisheries Liaison and Coexistence Plan and in line with FLOWW guidelines	
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	UK dredge	Negligible	Negligible	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Belgian beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	French demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Irish demersal otter trawl	Negligible	Negligible	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	UK potting	Low-Medium	Medium	Minor-Moderate (adverse)	Yes - implementation of evidence-based mitigation following procedures to be set out within the Fisheries Liaison and Coexistence Plan and in line with FLOWW guidelines	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	UK dredge	Negligible	Negligible	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Belgian beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	French demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
	Irish demersal otter trawl	Negligible	Negligible	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
Displacement or disruption of commercially important fish and shellfish resources	UK potting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	UK dredge	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Belgian beam trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	French demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Irish demersal otter trawl	Negligible	Small	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
Increased vessel traffic associated with the proposed Project within fishing grounds leading to interference with fishing activity	UK potting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK dredge	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	Belgian beam trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	French demersal otter trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	Irish demersal otter trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
Additional steaming to alternative fishing grounds for vessels that	UK potting	Low	Small to Medium	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
would otherwise fish within the proposed Project area	UK netting	Low	Small to Medium	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK hooked gear	Low	Small to Medium	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Negligible	Small to Medium	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	UK dredge	Negligible	Small to Medium	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Belgian beam trawl	Negligible	Small to Medium	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	French demersal otter trawl	Negligible	Small to Medium	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
	Irish demersal otter trawl	Negligible	Small to Medium	Negligible (adverse)	Not Applicable – no additional mitigation identified	Negligible (adverse); no significant adverse residual effect
Physical presence of infrastructure leading to gear snagging	UK potting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK netting	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect

Potential Impact	Receptor	Receptor Sensitivity	Magnitude of impact	Significance of effect	Additional Mitigation	Residual Significance of Effect
	UK hooked gear	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK beam trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	UK dredge	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	Belgian beam trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	French demersal otter trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
	Irish demersal otter trawl	Low	Small	Minor (adverse)	Not Applicable – no additional mitigation identified	Minor (adverse); no significant adverse residual effect
Decommissioning						
All impacts	As per construction phase. The magnitude of effect is considered to be no greater, and in all probability less, than in the construction phase. Therefore, it is anticipated that any decommissioning impacts would be no greater than that assessed for the construction phase.					

26.11 Cumulative Effects of the Project

26.11.1. Introduction

324. Cumulative effects are those effects upon receptors arising from the proposed Project alongside all existing, and/ or reasonably foreseeable projects, plans and activities that result in cumulative effects with any element of the proposed Project. Existing Projects are generally considered as part of the baseline and as such are considered within the impact assessment presented in **Section 26.8**.

325. This section assesses potential cumulative effects on commercial fisheries from identified projects, plans and activities that have the potential to act cumulatively with the proposed Project.

326. PINS Advice 17: Cumulative Effects Assessment (2019) suggests that CEA follows a four-stage process. The aim of this approach is to accurately determine relevant projects and associated relationships with scoped in receptors identified in the ES, to be included within the interproject CEA.

327. The approach to the assessment of cumulative effects is detailed in **Appendix 5B: Approach to Cumulative Effects Assessment** and is also summarised in **Table-26-11.**

Table-26-11 PINS Advice 17 Stages of the CEA process

CEA Stage	Activity
Stage 1	Determine a zone of influence (ZoI) via desk study for each topic receptor scoped into the ES. This will establish a *long list* of projects within each ZoI that will be shortlisted in Stage 2. This list of plans and projects/activities is drawn up through a desk study of planning applications, development plan documents, relevant development frameworks and any other available sources to identify 'other development' within the ZoI. Information on each project (location, development type, status, etc.) is documented, along with the certainty or tier assigned to the 'other development' (i.e. confidence it will take place in the current form and when it will take place in relation to the project). PINS notes that the project should then consult with the relevant planning authority/ authorities and statutory consultees regarding the long list.
Stage 2	Screening of the long list identified in Stage 1, to establish a short list for the CEA. Screening is based on the criteria presented in the scoping report and subsequent comments by the regulator and statutory consultees. PINS has provided inclusions/ exclusion threshold criteria, against which the potential for 'other development to give rise to significant cumulative effects by virtue of overlaps in temporal scope, the scale and nature of the 'other developments' and /or receiving environment, or any other relevant factors is assessed. From this assessment, a shortlist of 'other developments' to be included in the CEA is produced. It is noted that documented information on each of the 'other developments' is likely to be high level at this stage, outlining the key issues to take forward.
Stage 3	Gathering of all information available on short listed projects generated in Stage 2. At this stage all available data and information about the shortlisted projects that will be included in the CEA is collected to inform the assessment. This should utilise the most current information for each project in the public domain, and assess the assumptions and limitations of the information collected on each shortlisted project.
Stage 4	Each of the shortlisted projects are reviewed in turn by the different topics to assess whether cumulative effects may arise and the nature of those effects (i.e. beneficial or adverse). The significance of the effects on environmental receptors

CEA Stage	Activity
	is established within each ES technical chapters. Where significant adverse cumulative effects are identified, mitigation measures are also considered within the CEA alongside the mechanism to secure that mitigation, e.g. consent condition requirements.

328. Certain impacts assessed for the proposed Project alone are not considered in the cumulative assessment due to:

- The highly localised nature of the impacts (i.e., they occur entirely within the offshore development area only);
- Management measures in place for the proposed project (**Table 26-9**) 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 project alone has been assessed as negligible.

329. The impacts excluded from the CEA for the above reasons are:

- Increased risk of gear snagging; and
- 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.

26.11.2. Scope of Cumulative Effects Assessment for Commercial Fisheries

330. The following impacts have been scoped into the CEA for commercial fisheries:

Construction

- Reduction in, or temporary loss of access to, established fishing grounds;
- Displacement leading to gear conflict and increased fishing pressure on established fishing grounds; and
- Displacement or disruption of commercially important fish and shellfish resources.

Operation and maintenance

- Reduction in, or loss of access to, established fishing grounds;
- Displacement leading to gear conflict and increased fishing pressure on established fishing grounds; and
- Displacement or disruption of commercially important fish and shellfish resources.

Decommissioning

- Reduction in, or temporary loss of access to, established fishing grounds;
- Displacement leading to gear conflict and increased fishing pressure on established fishing grounds; and
- Displacement or disruption of commercially important fish and shellfish resources.

331. **Table** 26-12 and **Figure 26-9** present the short list of projects identified and included within the CEA for commercial fisheries. Reference is made in the table and assessment that follows to 'Tiers', which are as defined in PINS Advice 17: Cumulative Effects Assessment (2019). The Tiers reflect the certainty that can be applied to each project from Tier 1 (most certain) to Tier 3 (least certain).

Table 26-12 List of projects considered for the commercial fisheries cumulative effects assessment

Project Name	Project Type	Tier and Status	Approx. distance from Array Area	Approx. distance from Offshore Cable Corridor
Llŷr 2 Project	Offshore wind farm	Scoping submitted (Tier 2)	0 km	0 km
Erebus	Offshore wind farm	Consented (Tier 1)	5 km	5 km
Trivane Demonstrator	Offshore wind farm	Concept (Tier 3)	46 km	15 km
Gwynt Glas	Offshore wind farm	Concept (Tier 3)	29 km	27 km
Llywelyn	Offshore wind farm	Concept (Tier 3)	15 km	15 km
Celtic Deep Phase 1	Offshore wind farm	Concept (Tier 3)	41 km	34 km
Celtic Deep Phase 2	Offshore wind farm	Concept (Tier 3)	44 km	35 km
Celtic Sea RWE Renewables	Offshore wind farm	Concept (Tier 3)	51 km	39 km
Petroc	Offshore wind farm	Concept (Tier 3)	39 km	39 km
White Cross	Offshore wind farm	Application submitted (Tier 1)	19 km	17 km
Celtic Sea Ocean Winds	Offshore wind farm	Concept (Tier 3)	52 km	45 km
Morwind	Offshore wind farm	Concept (Tier 3)	65 km	61 km
Merlin	Offshore wind farm	Concept (Tier 3)	75 km	74 km
Blackwater	Offshore wind farm	Concept (Tier 3)	77 km	77 km
Aurora	Offshore wind farm	Concept (Tier 3)	85 km	85 km
South Irish Sea Array	Offshore wind farm	Concept (Tier 3)	96 km	
TwinHub	Offshore wind farm	Consented (Tier 1)	102 km	102 km
Greenlink Interconnector	Interconnector cable	Consented (Tier 1)	Intersects	Intersects
Celtic Interconnector	Interconnector cable	Consented (Tier 1)	143 km	143 km
South Pembrokeshire Demonstration Zone	Marine energy	Pre-application (Tier 2)	11 km	8 km

Project Name	Project Type	Tier and Status	Approx. distance from Array Area	Approx. distance from Offshore Cable Corridor
Strumble Head Tidal Energy Project	Marine energy	Concept (Tier 3)	75 km	41 km
Cardiff Bay Tidal Lagoon	Marine energy	Pre-application (Tier 2)	163 km	141 km
Telecommunications cable	Telecommunications cable	Consented (Tier 1)	30 km	23 km
Telecommunications cable	Telecommunications cable	Consented (Tier 1)	44 km	37 km
Telecommunications cable	Telecommunications cable	Consented (Tier 1)	66 km	64 km
Telecommunications cable	Telecommunications cable	Consented (Tier 1)	65 km	62 km
Telecommunications cable	Telecommunications cable	Consented (Tier 1)	65 km	64 km

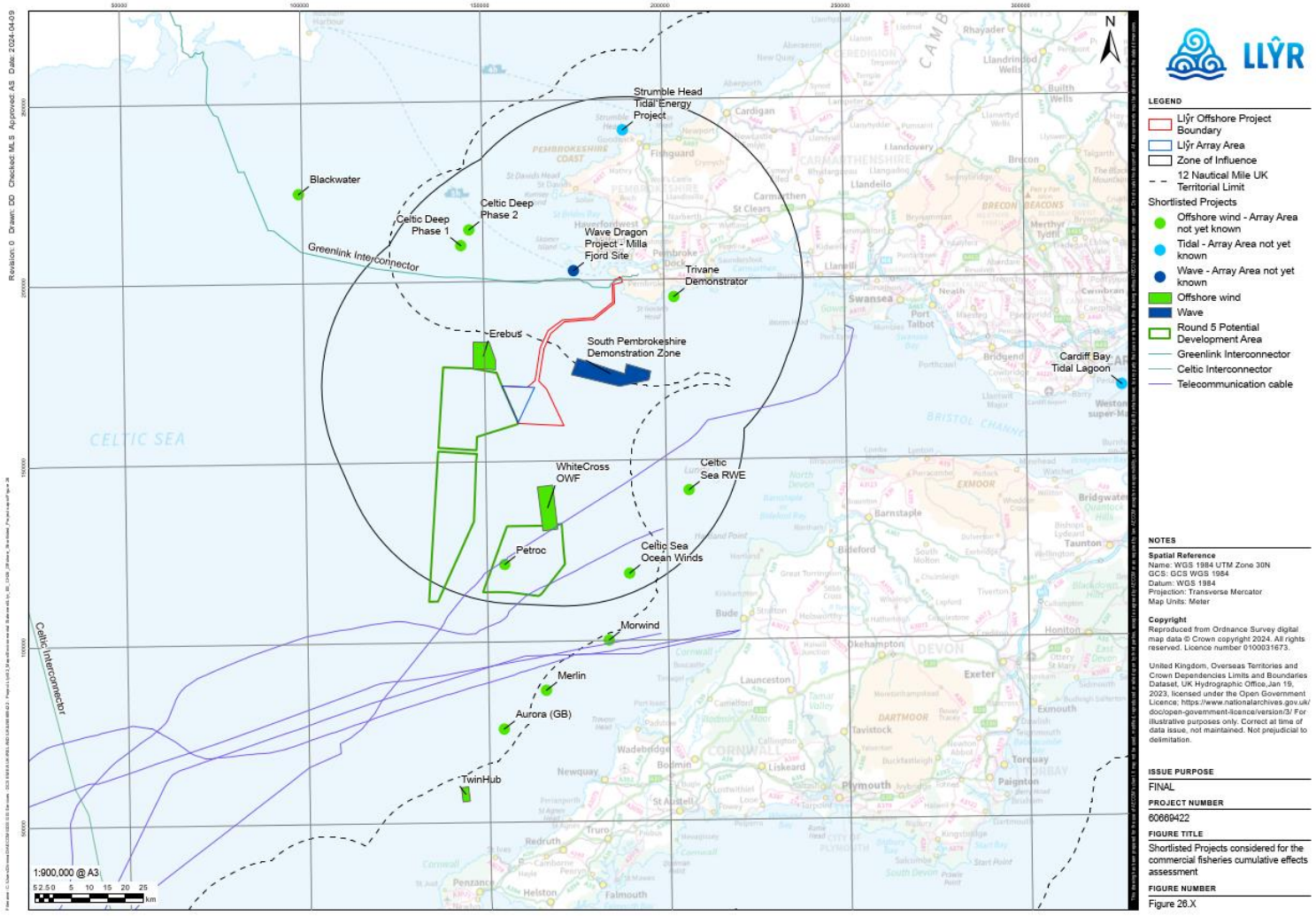

Figure 26-9 Shortlisted projects considered for Commercial Fisheries CEA

332. **Table 26-13** sets out the basis for the CEA relevant to commercial fisheries.

Table 26-13 Cumulative maximum design scenario

Potential Effect	Scenario	Justification
Cumulative reduction in access to, or exclusion from established fishing grounds	Tier 1: • Construction, operation and maintenance of two subsea interconnector cables (Greenlink and Celtic) • Construction, operation and maintenance of five subsea telecommunications cables • Construction, operation and maintenance of two offshore wind farms (Erebus and TwinHub) Tier 2: • Construction, operation and maintenance of two offshore wind farms (Llŷr 2 Project and White Cross) • Construction, operation and maintenance of two marine energy projects (Cardiff Bay Tidal Lagoon and South Pembrokeshire Demonstration Zone)	Outcome of the cumulative effects assessment will be greatest when the greatest number of other developments are considered
Cumulative displacement leading to gear conflict and increased fishing pressure on established fishing grounds		
Cumulative displacement or disruption of commercially important fish and shellfish resources		

26.11.3. Cumulative Effect Assessment

Construction

Reduction in, or loss of access to, established fishing grounds

333. There is potential for cumulative reduction in access to or exclusion from established fishing grounds.

334. The projects identified under Tier 1 are the Greenlink Inteconnector, which is currently under construction and is expected to become operational in 2024, the Celtic Interconnector, expected to complete construction in 2026, the Erebus offshore wind farm, expected to be installed between 2025 and 2026, and the TwinHub offshore wind farm expected to be installed between 2026 and 2027. The construction of the proposed Project during 2027 and 2028 may potentially overlap with the construction of TwinHub (over 100 km away), whilst other Tier 1 projects are expected to be already in operation with fishing activity resumed within their footprints except for within the Erebus Array Area. The projects identified under Tier 2 have less certain timelines.

335. The Tier 3 projects identified above in **Table** 26-12 may contribute to cumulative effects on commercial fisheries receptors where fishing fleets active in those project areas

overlap with the range of fishing fleets operational in the Offshore Development Area. However, at this stage and in the absence of project details on which to base assessment, it is not possible to quantify the level of impact further. Similarly, at present it is not known whether management measures for any fishing gear interaction within designated Marine Conservation Zones (MCZs) for which management measures are yet to be identified will be implemented, or when such measures may be implemented. Potentially relevant MCZs include North West of Lundy and South West Approaches to the Bristol Channel.

336. It is not anticipated that UK potting, netting and handline fleets operating in the proposed Project commercial fisheries study area will routinely target grounds in other Tier 1 or 2 project areas, with scope for some shared activity across the Offshore Development area, Erebus offshore wind farm and most proximate telecommunications cable. Whilst there is potential for these fleets to target grounds within these latter project footprints, data indicates that they operate over areas more extensive than the footprint of solely the proposed Project and the other proposed developments.

337. The UK potting, netting and handline fleets do however demonstrate some vulnerability to cumulative impacts of reduced access and the sensitivity of receptors is consistent with that assessed during construction and is **low to medium** for the UK potting fleet and **low** for the UK netting and handline fleets.

338. It is possible that the mobile gear fleets operating in the commercial fisheries study area will target grounds in other Tier 1 or 2 project areas, though it is noted that the majority of these projects are expected to be operational at the point of proposed Project construction and that fishing will have resumed within the boundaries of these other projects to some degree (e.g. fishing expected to resume across installed subsea cables), limiting the scale of cumulative impact. These mobile gear fleets operate over relatively wide areas and are not restricted to the footprint of the proposed Project and the sensitivity of the receptors is consistent with that assessed during construction and is **negligible** for beam trawl, scallop dredge and demersal otter trawl fleets.

339. In the case of potential effects arising from the presence of Tier 1 and 2 projects, it is considered that the combined magnitude does not raise the cumulative impact of the proposed Project with other developments above that already assessed for the proposed Project alone and the magnitude of impact is considered to be **medium adverse** for the UK potting fleet, **negligible adverse** for the UK dredge and Irish demersal trawl fleets, and **small adverse** for all other fleets.

Significance of Effect

340. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the cumulative impact magnitude is medium. The cumulative effect is of **minor to moderate adverse significance**, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

341. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the cumulative impact magnitude is small. The cumulative effect is of **minor adverse significance**, which is not significant in EIA terms.

342. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the cumulative impact magnitude is small. The cumulative effect is of **minor adverse significance**, which is not significant in EIA terms.

343. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is small. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

344. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is negligible. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

345. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is small. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

346. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is small. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

347. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is negligible. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

Further mitigation and residual effects

348. **UK potting fishery:** Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will explore options to encourage co-existence and further mitigate the effect. This FCLP may also include a process for evidence based mitigation measures in line with FLOWW guidance (2014, 2015).

349. Through the application of the FLCP, the residual effect associated with the proposed Project will be of **minor adverse** significance, which is not significant in EIA terms. The overall cumulative effect is also of **minor adverse** significance, which is not significant in EIA terms.

Displacement leading to gear conflict and increased fishing pressure on established fishing grounds.

350. The effect of displacement leading to gear conflict and increased fishing pressure is directly correlated to the previous impact of reduced access to fishing grounds (i.e. if there is no reduction in access, then there will be no displacement).

351. The sensitivity of receptors is considered to be consistent with that assessed during construction and is **low to medium** for the UK potting fleet, **low** for the UK netting and handline fleets and negligible for beam trawl, scallop dredge and demersal otter trawl fleets.

352. In the case of potential effects arising from the presence of Tier 1 and 2 projects, it is considered that the combined magnitude does not raise the cumulative impact of the proposed Project with other developments above that already assessed for the proposed Project alone and the magnitude of impact is considered to be **medium adverse** for the UK potting fleet, **negligible adverse** for the UK dredge and Irish demersal trawl fleets, and **small adverse** for all other fleets.

Significance of Effect

353. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the cumulative impact magnitude is medium. The cumulative effect is of **minor to moderate adverse significance**, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

354. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the cumulative impact magnitude is small. The cumulative effect is of **minor adverse significance**, which is not significant in EIA terms.

355. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the cumulative impact magnitude is small. The cumulative effect is of **minor adverse significance**, which is not significant in EIA terms.

356. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is small. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

357. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is negligible. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

358. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is small. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

359. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is small. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

360. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the cumulative impact magnitude is negligible. The cumulative effect is of **negligible adverse significance**, which is not significant in EIA terms.

Further mitigation and residual effects

361. **UK potting fishery:** Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will explore options to encourage co-existence and further mitigate the effect. This FCLP may also include a process for evidence based mitigation measures in line with FLOWW guidance (2014, 2015).

362. Through the application of the FLCP, the residual effect associated with the proposed Project will be of **minor adverse** significance, which is not significant in EIA terms. The overall cumulative effect is also of **minor adverse** significance, which is not significant in EIA terms.

Displacement or disruption of commercially important fish and shellfish resources

363. Cumulative effects on fish and shellfish have been assessed in **Chapter 20: Fish and Shellfish Ecology**. The cumulative effects on the populations of fish and shellfish receptors were found not to be materially elevated from Project-alone effects in EIA terms.

364. The approach to this assessment follows that outlined for the project-alone assessment detailed in earlier sections, with details of the fish and shellfish ecology assessment presented in **Chapter 20: Fish and Shellfish Ecology**. The impact is predicted to be of regional spatial extent and of relevance to national and international fishing fleets. It is predicted that the impact will affect the receptor directly through loss of resources. The magnitude is considered be **small adverse** for all species and all potential impacts, reflecting the conclusions of the assessment in **Chapter 20: Fish and Shellfish Ecology**.

365. The sensitivity of the commercial fisheries receptors is the same as that presented in the project-alone assessment sections above, summarised as **low** for the UK potting fisheries, and **low to negligible** for all other fisheries.

Significance of Effect

366. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

367. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

368. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

369. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

370. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

371. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

372. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

373. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Operation and Maintenance

Reduction in or loss of access to established fishing grounds

374. The cumulative effect during operation and maintenance on reduction in access to fishing grounds is typically expected to be lower than with that presented during construction on the basis that the majority of Tier 1 and Tier 2 projects will allow for the resumption of fishing once operational.

375. This assumption is not expected to be applicable in the case of the Tier 1 and Tier 2 floating offshore wind farm projects, namely Erebus, Llŷr 2 and White Cross, where resumption of fishing within Array Areas during operation is unlikely (as confirmed by the Erebus and White Cross commercial fisheries impact assessments). The Array Area of Erebus covers 43.5 km^2 and the White Cross Array Area covers 49.4 km^2. The final area of the Llŷr 2 is yet to be confirmed, but at scoping was 50 km^2. These areas when combined remain relatively small in the context of the operational ranges of fishing vessels active in the Offshore Development Area and the total area of loss is considered unlikely to represent a significant proportion of the area in which fishing vessels derive their annual landings value. It is additionally noted that fishing access is expected to resume across the offshore export cable corridors associated with these projects.

376. The sensitivity of receptors is considered to be consistent with that assessed during construction and is **low to medium** for the UK potting fleet, **low** for the UK netting and handline fleets and **negligible** for beam trawl, scallop dredge and demersal otter trawl fleets.

377. In the case of potential effects arising from the presence of Tier 1 and 2 projects, it is considered that the combined magnitude does not raise the cumulative impact of the Proposed Project with other developments above that already assessed for the Proposed Project alone.

Significance of Effect

Array Area

378. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

379. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

380. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

381. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is medium. The effect is of **negligible** significance, which is not significant in EIA terms.

382. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligibl**e significance, which is not significant in EIA terms.

383. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small to medium. The effect is of **negligible** significance, which is not significant in EIA terms.

384. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible** significance, which is not significant in EIA terms.

385. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

Offshore Export Cable Corridor

386. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is negligible. The cumulative effect is of **negligible** significance, which is not significant in EIA terms.

387. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is negligible. The cumulative effect is of **negligible** significance, which is not significant in EIA terms.

388. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is negligible. The cumulative effect is of **negligible** significance, which is not significant in EIA terms.

389. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The cumulative effect is of **negligible** significance, which is not significant in EIA terms.

390. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The cumulative effect is of **negligibl**e significance, which is not significant in EIA terms.

391. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The cumulative effect is of **negligible** significance, which is not significant in EIA terms.

392. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The cumulative effect is of **negligible** significance, which is not significant in EIA terms.

393. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The cumulative effect is of **negligible** significance, which is not significant in EIA terms.

Further mitigation and residual effects

394. **UK potting fishery:** Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will explore options to encourage co-existence and further mitigate the effect. This FCLP may also include a process for evidence-based mitigation measures in line with FLOWW guidance (2014, 2015).

395. Through the application of the FLCP, the residual effect associated with the proposed Project will be of **minor adverse** significance, which is not significant in EIA terms. The overall cumulative effect is also of **minor adverse** significance, which is not significant in EIA terms.

Displacement leading to gear conflict and increased fishing pressure on established fishing grounds

396. The effect of displacement leading to gear conflict and increased fishing pressure is directly correlated to the previous impact of reduced access to fishing grounds (i.e. if there is no reduction in access, then there will be no displacement).

397. The sensitivity of receptors is considered to be consistent with that assessed during construction and is **low to medium** for the UK potting fleet, **low** for the UK netting and handline fleets and **negligible** for beam trawl, scallop dredge and demersal otter trawl fleets.

398. It is considered that the combined magnitude does not raise the cumulative impact of the proposed Project with other developments above that already assessed for the proposed Project alone.

399. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

400. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

401. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

402. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is medium. The effect is of **negligible** significance, which is not significant in EIA terms.

403. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

404. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

405. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible** significance, which is not significant in EIA terms.

406. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible** significance, which is not significant in EIA terms.

Further mitigation and residual effects

407. UK potting fishery: Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will explore options to encourage co-existence and further mitigate the effect. This FCLP may also include a process for evidence-based mitigation measures in line with FLOWW guidance (2014, 2015).

408. Through the application of the FLCP, the residual effect associated with the proposed Project will be of **minor adverse** significance, which is not significant in EIA terms. The overall cumulative effect is also of **minor adverse** significance, which is not significant in EIA terms.

Displacement or disruption of commercially important fish and shellfish resources

409. Cumulative effects on fish and shellfish have been assessed in **Chapter 20: Fish and Shellfish Ecology**. The cumulative effects on the populations of fish and shellfish receptors were found not to be materially elevated from Project-alone effects in EIA terms.

410. The approach to this assessment follows that outlined for the project-alone assessment detailed in earlier sections, with details of the fish and shellfish ecology assessment presented in **Chapter 20: Fish and Shellfish Ecology**. The impact is predicted to be of regional spatial extent and of relevance to national and international fishing fleets. It is predicted that the impact will affect the receptor directly through loss of resources. The magnitude is considered be **small adverse** for all species and all potential impacts, reflecting the conclusions of the assessment in **Chapter 20: Fish and Shellfish Ecology**.

411. The sensitivity of the commercial fisheries receptors is the same as that presented in the project-alone assessment sections above, summarised as **low** for the UK potting fisheries, and **low to negligible** for all other fisheries.

Significance of Effect

412. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

413. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

414. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

415. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

416. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

417. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

418. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

419. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Decommissioning

Reduction in access to, or exclusion from established fishing grounds

420. The effects of decommissioning activities are expected to be the same or on a smaller scale than the effects from construction. The residual significance of effect will not exceed **minor adverse** is and not significant in EIA terms, as set out in the text below.

Significance of effect

421. **UK potting fishery**: Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of minor to **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

422. **UK netting fishery**: Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

423. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

424. **UK beam trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

425. **UK scallop dredge fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

426. **Belgian beam trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

427. **French demersal otter trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

428. **Irish demersal otter trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Further mitigation and residual effects

429. **UK potting fishery:** Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see Section 26.7) will explore options to encourage co-existence and further mitigate the effect. This FCLP may also include a process for evidence based mitigation measures in line with FLOWW guidance (2014, 2015).

430. Through the application of the FLCP, the residual effect associated with the proposed Project will be of **minor adverse** significance, which is not significant in EIA terms. The overall cumulative effect is also of **minor adverse** significance, which is not significant in EIA terms.

Displacement leading to gear conflict and increased fishing pressure on established fishing grounds

431. The effects of decommissioning activities are expected to be the same or on a smaller scale than the effects from construction. The residual significance of effect will not exceed **minor adverse** is and not significant in EIA terms, as set out in the text below.

Significance of effect

432. **UK potting fishery**: Overall, it is predicted that the sensitivity of the receptor is low to medium, and the impact magnitude is medium. The effect is of minor to **moderate adverse** significance, which is potentially significant in EIA terms. In response to this, and specific to the UK potting fleet where there is a significant residual impact, further mitigation has been identified and is presented below.

433. **UK netting fishery**: Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

434. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

435. **UK beam trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

436. **UK scallop dredge fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

437. **Belgian beam trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

438. **French demersal otter trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

439. **Irish demersal otter trawl fishery**: Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is negligible. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

Further mitigation and residual effects

440. **UK potting fishery:** Specific to the UK potting fleet where there is potential for a significant impact, the FLCP (see **Section 26.7**) will explore options to encourage co-existence and further mitigate the effect. This FCLP may also include a process for evidence-based mitigation measures in line with FLOWW guidance (2014, 2015).

441. Through the application of the FLCP, the residual effect associated with the proposed Project will be of **minor adverse** significance, which is not significant in EIA terms. The overall cumulative effect is also of **minor adverse** significance, which is not significant in EIA terms.

Displacement or disruption of commercially important fish and shellfish resources

442. Cumulative effects on fish and shellfish have been assessed in **Chapter 20: Fish and Shellfish Ecology**. The cumulative effects on the populations of fish and shellfish receptors were found not to be materially elevated from Project-alone effects in EIA terms.

443. The approach to this assessment follows that outlined for the project-alone assessment detailed in earlier sections, with details of the fish and shellfish ecology assessment presented in **Chapter 20: Fish and Shellfish Ecology**. The impact is predicted to be of regional spatial extent and of relevance to national and international fishing fleets. It is predicted that the impact will affect the receptor directly through loss of resources. The magnitude is considered be **small adverse** for all species and all potential impacts, reflecting the conclusions of the assessment in **Chapter 20: Fish and Shellfish Ecology**.

444. The sensitivity of the commercial fisheries receptors is the same as that presented in the project-alone assessment sections above, summarised as **low** for the UK potting fisheries, and **low to negligible** for all other fisheries.

Significance of Effect

445. **UK potting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

446. **UK netting fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

447. **UK hooked gear fishery:** Overall, it is predicted that the sensitivity of the receptor is low, and the impact magnitude is small. The effect is of **minor adverse** significance, which is not significant in EIA terms.

448. **UK beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

449. **UK scallop dredge fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

450. **Belgian beam trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

451. **French demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

452. **Irish demersal otter trawl fishery:** Overall, it is predicted that the sensitivity of the receptor is negligible, and the impact magnitude is small. The effect is of **negligible adverse** significance, which is not significant in EIA terms.

26.12 Inter-related Effects of the proposed Project

453. The term 'Inter-related' takes into account the environmental interactions ('inter-relationships') with other receptors within the proposed Project. These are referred to in the Infrastructure Planning (Environmental Impact Assessment) Regulations 2009 and further described in **Chapter 31: Inter-related Effect Assessment.**

454. As set out in PINS Advice Note 17 (PINS), 2019, *inter-related -project effects*, or 'interrelationships between topics', derive from combinations of different project specific impacts which, when acting together on the same receptor, could result in a new or different effect, or an effect of greater significance than the project effects, when considered in isolation.

455. Inter-related effects comprise the following:

- *Project lifetime effects*: effects that have the potential to occur during more than one phase of the proposed Project (i.e. construction, operation and maintenance and decommissioning) and also to interact in a way that could potentially create a more significant effect than if it was assessed in isolation
- *Receptor-led effects*: effects that have the potential to interact, spatially and temporally, to create inter-related effects on a receptor.

456. **Chapter 31: Inter-related Effects Assessment** details the approach to the inter-related effects assessment and includes a description of the likely inter-related effects that may occur as a result of the proposed Project on commercial fisheries.

457. In relation to proposed Project lifetime effects, the potential efects on commercial fisheries detailed in **Section 26.8** onwards, are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented for each individual project phase.

458. In terms of receptor-led effects, inter-related effects on commercial fisheries are considered with respect to Fish and Shellfish Ecology (**Chapter 20**) and Shipping and Navigation (**Chapter**

25). The commercial fisheries assessment inherently considers impacts on fish resource through assessment of displacement or disruption to commercially important fish and shellfish receptors. The commercial fisheries assessment inherently considers impacts of proposed Project vessels interacting with fishing activity through assessment of increased vessel traffic leading to interference with fishing activity, drawing on the assessment in Chapter 25: Shipping and Navigation. Receptor-led effects on commercial fisheries are not anticipated to interact in such a way as to result in combined effects of greater significance than the assessments presented above.

26.13 Transboundary Effects

459. A transboundary effect refers to the impacts or effects of a project that extend beyond the boundaries of the United Kingdom and have the potential to affect the environment of other countries within the European Economic Area (EEA). These effects can occur either from the proposed Project on its own or when combined with the effects of other projects or activities in the wider geographical area.

460. Due to the localised nature of any potential impacts and limited foreign fishing fleet activity (some potential for Irish, French and Belgian vessels, but not specifically focused within Offshore Development Area boundaries), transboundary impacts are unlikely to occur.

461. Effects on biological resources could occur over a range of 10's of kilometres and therefore potential for interaction is not expected to extend into the EEZ of the Republic of Ireland. Therefore, and reflecting the absence of an impact pathway, the potential transboundary impact of effects on commercial fish stocks in the waters of other states on commercial fisheries is concluded to be of **negligible adverse** significance and is therefore considered to be not significant in EIA terms.

462. Effects on commercial fishing fleets from the Republic of Ireland, France and Belgium have already been assessed in Sections 26.8.1 to 26.8.3 (thus not duplicated here) with all effects considered to be not significant in EIA terms.

26.14 References

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