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Volume 2 Proposed Development (Offshore)

Chapter 8 Commercial Fisheries

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Volume 2 Chapter 8 Commercial Fisheries

Code	UKCAL-CWF-CON-EIA-RPT-00002-2008
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Acronyms and Abbreviations

AIS	Automatic Identification System
CaP	Cable Plan
Cefas	Centre for Environment Fisheries and Aquaculture Science
CFLO	Company Fisheries Liaison Officer
CIA	Cumulative Impact Assessment
EEA	European Economic Area
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMF	Electro-magnetic Field
ESCA	European Subsea Cables Association
EU	European Union
FLOWW	Fisheries Liaison with Offshore Wind and Wet Renewables group
FMMS	Fisheries Management and Mitigation Strategy
ICES	International Council for the Exploration of the Sea
KIS-ORCA	Kingfisher Information Service - Offshore Renewable & Cable Awareness
LMP	Lighting and Marking Plan
MD-LOT	Marine Directorate - Licensing Operations Team
MD-SEDD	Marine Directorate - Science, Evidence, Digital and Data
MHWS	Mean High Water Springs
MMO	Marine Management Organisation
MPS	Marine Policy Statement (Scotland)

NAFC	North Atlantic Fisheries College
NERIFG	North and East Coast Regional Inshore Fisheries Group
nm	Nautical Mile
NMP	National Marine Plan (Scotland)
NMPi	National Marine Plan interactive
NSP	Navigational Safety Plan
OEC	Offshore Export Cable
OECC	Offshore Export Cable Corridor
O&M	Operation and maintenance
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
PAC	Pre-application Consultation
PEMP	Project Environmental Monitoring Plan
RBS	Registered Buyers and Sellers
SAR	Swept Area Ratio
SFF	Scottish Fishermen's Federation
SMP	Sectoral Marine Plan
SWFPA	Scottish White Fish Producers Association
TAC	Total Allowable Catch
TCA	Trade and Cooperation Agreement
UHI	University of Highlands and Islands
UK	United Kingdom
UKCS	United Kingdom Continental Shelf
VMS	Vessel Monitoring System

WTG	Wind Turbine Generator

Executive Summary

Commercial Fisheries refers to any form of fishing activity legally undertaken and sold for taxable profit. The commercial fisheries active across the Proposed Development (Offshore) and wider regional area was characterised via analysis of landing statistics and mapping of fishing grounds, including vessel monitoring system data, aerial surveillance, vessel plotter data and consultation with the industry.

The commercial fishing fleets operating across the wider regional area include:

- UK demersal otter trawlers targeting nephrops and mixed demersal species;
- UK demersal otter trawlers targeting squid;
- UK demersal otter trawlers targeting haddock and mixed demersal species;
- UK demersal seine targeting haddock and mixed demersal species;
- UK scallop dredgers targeting king scallop;
- UK potting vessels targeting brown crab and lobster;
- UK vessels deploying lines targeting mackerel; and
- UK, Norwegian, Irish, Danish, Dutch and German pelagic trawlers and purse seiners targeting mackerel.

The characterisation of commercial fisheries found that a range of fisheries are active across the Proposed Development (Offshore), including scallop dredge and demersal trawl and seine fisheries within the Caledonia Offshore Wind Farm (OWF) (Array Area) and Caledonia Offshore Export Cable Corridor (OECC); as well as vessels operating pots and seasonal line fishery across the Caledonia OECC.

A number of potential impacts on commercial fisheries, associated with the construction, operation and maintenance, and decommissioning of the Proposed Development (Offshore) were identified. These included reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF and Caledonia OECC, displacement of fishing activity into other areas, interference with fishing activity, increased snagging risk, which could result in loss or damage to fishing gear, increased steaming/vessel transit times and impacts to commercial exploited species populations. For reduced access or loss of fishing grounds during the operational phase it was assumed that fishing would resume within areas of fixed foundations (with exception of demersal seine and pelagic trawl/purse seine gear) and that fishing would not resume within the areas of floating foundations due to the moorings and anchoring systems deployed as part of the floating wind turbine infrastructure.

Caledonia Offshore Wind Farm Limited ('the Applicant') has developed embedded mitigation measures of relevance to the commercial fisheries including advance warning and accurate location details of construction operations via Notices to Mariners, and associated Safety Zones, advisory safe passing distances and on-going liaison with all fishing fleets. In addition, the southern site boundary was reduced to ensure that established nephrops trawling grounds could continue to be fished. This resulted to a reduction of 6.1km^2 of the Caledonia OWF boundary.

In addition to the embedded mitigation, a suite of robust additional mitigation and monitoring measures have been developed to be implemented through the Outline Fisheries Management and Mitigation Strategy, including cable protection surveys, monitoring of fisheries activity pre, during and post construction and during the operational phase. In addition, the Applicant has also committed to investigating whether defined fishing areas are feasible within the floating portion of Caledonia South based on final location of as-built infrastructure and a research package to explore fisheries and floating wind farm infrastructure.

With the proposed embedded and additional mitigation measures in place, the impacts on commercial fisheries resulted in effects of minor adverse significance (not significant in Environmental Impact Assessment (EIA) terms).

Cumulative impacts of the Caledonia OWF together with other ScotWind floating OWF developments and fisheries management measures implemented as part of the UK's Marine Protected Area network were assessed and predicted as likely to result in effects of moderate significance (significant in EIA terms) upon commercial fisheries. The Applicant is committed to continued discussion and development of appropriate cumulative mitigation with other OWF developers, including continued participation on regional and national commercial fisheries working groups and forums.

No likely significant transboundary effects with regard to commercial fisheries from the Proposed Development (Offshore) on the interests of European Economic Area States were predicted. No likely inter-related effects arising from the Proposed Development (Offshore) on commercial fisheries were predicted.

8 Commercial Fisheries

8.1 Introduction

8.1.1.1 This chapter of the Environmental Impact Assessment Report (EIAR) identifies the potential effects on commercial fisheries associated with the construction, operation and decommissioning of the Proposed Development (Offshore). This includes the Caledonia Offshore Wind Farm (OWF) and the Caledonia Offshore Export Cable Corridor (OECC), seaward of Mean High Water Springs (MHWS).

8.1.1.2 This chapter is supported by the following Technical Appendices:

- Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report;
- Volume 7, Appendix 17: Caledonia North Outline Fisheries Management and Mitigation Strategy; and
- Volume 7, Appendix 18: Caledonia South Outline Fisheries Management and Mitigation Strategy.

8.1.1.3 The following EIAR chapters also inform the assessment presented in this chapter:

- Volume 2, Chapter 5: Fish and Shellfish Ecology;
- Volume 2, Chapter 9: Shipping and Navigation where impacts on the navigational safety aspects of fishing activity are assessed; and
- Volume 6, Chapter 2: Socio-Economics, Tourism and Recreation where impacts on other businesses are assessed.

8.2 Legislation, Policy and Guidance

8.2.1.1 Volume 1, Chapter 2: Legislation and Policy of this EIAR sets out the policy and legislation associated with the Proposed Development (Offshore).

8.2.1.2 Legislation, policy and guidance that relate to the commercial fisheries assessment are identified and described in Table 8-1.

Table 8-1: Legislation, Policy and Guidance.

Relevant Legislation, Policy and Guidance	Description
Legislation and Policy	
Sectoral Marine Plan for Offshore Wind Energy (SMP) (Scottish Government, 2020[1])	Identifies plan option areas for OWF development and identifies key consenting issues associated with development. Potential impacts on commercial fishing are identified as a key risk factor to development in East Region plan option areas. Reflecting the key risk factors identified in the North East Region Plan Option areas, this chapter presents an

Relevant Legislation, Policy and Guidance	Description
	assessment of potential impacts on commercial fisheries in Section 8.7.
Scotland's National Marine Plan (NMP) (Scottish Government, 2015[2])	Contains sector-specific policies relevant to offshore wind and commercial fisheries. Policies under Chapter 6 Sea Fisheries ('FISHERIES 1 – 5') are considered relevant to commercial fisheries. Policies seek to safeguard existing fishing opportunities and activities wherever possible and advise that mechanisms for managing conflicts between the fishing sector and other users of the marine environment should be in place. Preparation of a Fisheries Management and Mitigation Strategy (FMMS) is recommended where existing fishing opportunities and activity cannot be safeguarded. Reflecting the key concerns and issues that should be addressed in an impact assessment and any FMMS, the EIAR: ▪ Assesses the potential impacts of the Proposed Development (Offshore) on commercial fisheries in Section 8.7; and ▪ Sets out measures to mitigate any constraints that the Proposed Development (Offshore) may place on commercial fishing activity in Section 8.5.6 and 8.11.
UK Marine Policy Statement (MPS) (HM Government, 2011[3])	Explicitly expresses support for the fishing sector, and with regard to displacement, advocates "seeking solutions such as co-location of activity wherever possible". Specifically, paragraphs 3.8.1, 3.8.2, and 2.3.1.5 stipulate that the process of marine planning should "enable the co-existence of compatible activities wherever possible" and supports the reduction of real and potential conflict as well as maximising compatibility and encouraging co-existence of activities. Reflecting the desire for co-existence of activities in the marine environment, this chapter presents an assessment of potential impacts on commercial fisheries in Section 8.7 and identifies measures to encourage co-existence in Sections 8.5.6 and 8.11.
Guidance	
Good Practice Guidance for assessing fisheries displacement by other licensed marine activities (Scottish Government, 2022[4])	In addition to the general approach and guidance outlined in Volume 1, Chapter 7: EIA Methodology, the assessment of potential impacts on commercial fisheries receptors is informed by and follows the listed guidance documents where they are specific to this topic.
Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (United Kingdom Fisheries Economic Network and Seafish, 2012[5])	

Relevant Legislation, Policy and Guidance	Description
Fisheries Liaison with Offshore Wind and Wet Renewables group (FLOWW) Recommendations for Fisheries Liaison: Best Practice guidance for offshore renewable developers (FLOWW, 2014[6]); noted to be currently in the process of being updated	
FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (FLOWW, 2015[7])	
Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010a[8])	
Developing guidance on fisheries Cumulative Impact Assessment for wind farm developers (Blyth-Skyrme, 2010b[9])	
Guidelines for data acquisition to support marine environmental assessments of offshore renewable energy projects. Contract report: ME5403 (Centre for Environment Fisheries and Aquaculture Science (Cefas), 2012[10])	
Guidelines for liaison with the fishing industry on the United Kingdom Continental Shelf UKCS – Issue 8 (Offshore Energies UK, 2023[11])	
Fishing and Submarine Cables - Working Together (International Cable Protection Committee, 2009[12])	

Relevant Legislation, Policy and Guidance	Description
European Subsea Cables Association (ESCA) Guideline 01 and Appendices (ESCA, 2018[13])	
Guidance on preparing a Fisheries Management and Mitigation Strategy (Draft) (Marine Scotland, 2020[14])	

8.3 Stakeholder Engagement

8.3.1 Overview

8.3.1.1 The Offshore Scoping Report (Volume 7, Appendix 2) was submitted to Marine Directorate - Licensing Operations Team (MD-LOT)[i] in September 2022, who then circulated the report to relevant consultees. A Scoping Opinion (Volume 7, Appendix 3) was received from MD-LOT on 13 January 2023. Relevant comments from the Scoping Opinion specific to commercial fisheries are provided in Table 8-2.

8.3.1.2 It is noted that the Scottish Fishermen's Federation (SFF) provided a number of comments relevant to fish and shellfish ecology, which are addressed in Volume 2, Chapter 5: Fish and Shellfish Ecology.

[i] In 2023, Marine Scotland was renamed Marine Directorate, and thus the marine licensing and consents team is now referred to as Marine Directorate - Licensing Operations Team (MD-LOT). It is also noted that Marine Scotland Science is now referred to as Marine Directorate - Science, Evidence, Digital and Data (MD-SEDD).

Table 8-2: Scoping Opinion response.

Consultee	Comment	Response
MD-LOT	The Developer identifies baseline data sources in table 12.1 of the Scoping Report. In addition to those identified the Scottish Ministers advise that the 2021 fisheries data is now available and should be utilised, in line with the MSS advice.	The 2021 data that is referenced has been used in describing the commercial fisheries baseline, as confirmed in Section 8.4.2 and Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report.
MD-LOT	In table 12.1 the Developer summarises the potential impacts to commercial fisheries which it proposes to scope in and out of the EIA Report. The Scottish Ministers agree with all the impacts scoped in and out of the EIA Report in line with the MSS advice.	Noted; the scope of the assessment aligns with the Scoping Opinion and is confirmed in Section 8.5.2.
MD-LOT	The Scottish Ministers highlight the Scottish Fishermen's Federation (SFF) representation in regard to displacement on whitefish, nephrops, scallops and squid fishers and advise that the Developer should consider this in the EIA Report.	Noted; the scope of the assessment aligns with the Scoping Opinion and is confirmed in Section 8.5.2. The commercial fisheries assessment includes consideration of displacement effects, as presented in Section 8.7.
MD-LOT	Additionally, assessments for king scallop should take place over a minimum of 7 years, though ideally 10 if the data is available, to present the fullest picture of the fishery possible.	Noted; an extended time series of landings data is available and has been considered, spanning over 10-years, as confirmed in Section 8.4.2 and Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report.
MD-SEDD	MSS advise that all potential impacts have been identified in relation to commercial fisheries and agree with the potential impacts that have been scoped in and scoped out of the EIA.	Noted; the scope of the assessment aligns with the Scoping Opinion and is confirmed in Section 8.5.2.
MD-SEDD	MSS advise that 2021 fisheries data are now available and these should be used in the EIA.	The 2021 data that is referenced has been used in describing the commercial fisheries baseline, as confirmed in Section 8.4.2 and

Consultee	Comment	Response
		Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report.
MD-SEDD	MSS advise that depending on the findings from the commercial fisheries assessment in the EIA, commercial fisheries pre-construction, during construction and post-construction monitoring should be considered as a method of validating the assumptions made within the EIA.	The project will consider monitoring options depending on the requirement of conditions post application. The Applicant has committed to Commercial Fisheries monitoring, as defined in Volume 7, Appendix 17: Caledonia North Outline Fisheries Management and Mitigation Strategy and Volume 7, Appendix 18: Caledonia South Outline Fisheries Management and Mitigation Strategy.
SFF	Since there are potentially at least 1465km of cables, each of the 3 categories (Inter-array, Inter connector & Export) needs to be assessed for their impacts such as Trenching, Ploughing, Non burial, Added protection, Electro-magnetic field (EMF) etc.	The worst case scenario set out in Section 8.6 presents the scenarios and methodology for cable burial being assessed, including where burial is not possible and where protection is required. The effect of EMF is assessed in Volume 2, Chapter 5: Fish and Shellfish Ecology, which in turn inform the commercial fisheries assessment presented in Section 8.7.
SFF	Finally, as there may be an element of Floating production included, the SFF would expect to see an assessment of the loss to fishing of these areas and an assessment of the long-term damage to the seabed of Anchors, ropes, chains and scour protection, up to and including decommissioning. All of this contributes to a lack of evidence on suspended sediments and impacts on spawning.	The worst case scenario set out in Section 8.6 presents the scenarios for deployment of floating foundations. For the purposes of the commercial fisheries assessment and due to the worst case scenario, it is assumed that fishing can not safely resume where floating foundations are deployed (based on catenary moorings as explained in the WCS presented in Table 8-9).

Consultee	Comment	Response
		The effect of increases in suspended sediments is assessed in Volume 2, Chapter 5: Fish and Shellfish Ecology, which in turn has informed the commercial fisheries assessment presented in Section 8.7.
SFF	In Chapter 4, the SFF is particularly keen to see the project adopt a much more comprehensive approach to the Cumulative Impact Assessment. It can be seen by the use of studies on the 3 existing windfarms that there is significant infrastructure already in the Moray Firth, and more developments will increase the spatial squeeze on fishing. It is no longer feasible to simply analyse the ICES square, it needs to take into account the impact on a whole national fishery.	The approach to cumulative effects assessment is set out in Section 8.8. The cumulative effects study area for commercial fisheries extends beyond the local study area, encompassing the North Sea for all fleets, except the scallop dredge fleet where the North Sea, West of Scotland, Irish Sea and English Channel is assessed to take account of the operational range of the scallop dredge fleet. The assessment also takes into the account the presence and effects of the Beatrice, Moray East and Moray West OWF.
SFF	Furthermore the development needs to consider the 4 metiers operating regularly in the area (Whitefish, Nephrops, Scallops & Squid) and the reality of displacement on each acknowledging that it may account for much more than moving a few metres, it could mean large distances.	This is noted by the Applicant. The scope of the assessment aligns with the Scoping Opinion and is confirmed in Section 8.5.2. The commercial fisheries assessment includes consideration of displacement effects, as presented in Section 8.7.
SFF	The King Scallop assessments need to be at least 7 years, if not 10, in order to get a full oversight of the fishery.	This is noted by the Applicant. An extended time series of landings data is available and has been considered, spanning over 10-years, as confirmed in Section 8.4.2 and Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report.

8.3.1.3 Further consultation has been undertaken throughout the pre-application stage. This has included regular meetings with the SFF and Scottish White Fish Producers Association (SWFPA), and Company Fisheries Liaison Officer (CFLO) led engagement with local fishers. Table 8-3 summarises the consultation activities carried out relevant to commercial fisheries.

8.3.1.4 Further information on the consultation process and wider engagement can be found in the Pre-Application Consultation Report (Application Document 1) accompanying both the Planning Permission in Principle (PPP) application to Aberdeenshire Council and the Section 36 applications and Marine Licence applications to MD-LOT.

Table 8-3: Stakeholder Engagement Activities.

Date	Consultee and Type of Consultation	Summary
27 July 2022	SFF and SWFPA	Introductory meeting to introduce the Proposed Development (Offshore) to SFF and SWFPA as a new ScotWind project.
20 October 2022	SFF and SWFPA	Initial meeting following submission of the Offshore Scoping Report and primary baseline characterisation discussion.
November 2022	Individual fishermen and fishermen's representatives	Pre-application consultation engagement events. Fishermen were in attendance at public events held in Buckie, Wick, Fraserburgh and Banff (Banff event held February 2023). Details of the pre-application consultation events are provided in Application Document 1.
12 December 2022	SFF and SWFPA	Catchup meeting to discuss responses to the Offshore Scoping Report and debrief on public exhibitions held in November 2022 (Wick, Buckie and Fraserburgh). Agreement on areas provided by fisheries members in-person (hand-drawings digitised by the Applicant).
15 March 2023	SFF and SWFPA	Discussion of approach to cumulative effects assessment. Agreed that existing Moray Firth OWF projects should be considered within the assessment and not considered part of the existing baseline. SFF requested that the geographic scope of the cumulative effects assessment covers the entirety of the UK reflecting grounds targeted by the nomadic scallop fleet. The Applicant confirms the geographic scope for cumulative effects assessment for the scallop dredge fleet covers the North Sea, West of Scotland, Irish Sea and English Channel (Section 8.8). Discussion of the design envelope for the Proposed Development (Offshore) (Section 8.6). Discussion of fishing activity within Beatrice and Moray East, noting some resumption of scallop dredging activity but no return of seine netting. Noted that fishers are less willing to fish within arrays at night due to concern over navigational risk (provides context for assessment presented in Section 8.7). Discussion of scouting surveys undertaken by the Applicant in 2023 (Section 8.4.2).

Date	Consultee and Type of Consultation	Summary
3 October 2023	SFF and SWFPA	Discussion on design elements of interest to the industry (specifically floating) prior to submission of consent application, and the division of Caledonia North, and Caledonia South and subsequent fixed and floating split. SFF presented plotter data which showed key fishing areas in the deepest section of the site's potential floating area, suggested avoidance of this area would be preferred.
3 April 2024	SFF and SWFPA	The Applicant presented the updated reduced boundary of the Proposed Development (Offshore) to avoid area of Nephrops fishing on southern edge of site. Mitigation was acknowledged by SFF and SWFPA.
7 May 2024	SFF and SWFPA	Participation from Commercial Fisheries stakeholders to Navigational Hazard Workshop to feed into the EIA's Navigational Risk Assessment.
17 May 2024	SFF, SWFPA, Scottish Pelagic Fishermen's Association and NERIFG	Commercial fisheries workshop discussion on baseline data sources including ground-truthing datasets and information sharing on vessel plotter data. Discussion on the impact assessment methodology, initial findings and mitigation options.
Monthly (July 2022 – present)	SFF	Rolling monthly meetings to discuss status of the Proposed Development (Offshore) and upcoming activities which may impact fishing (e.g., offshore survey activity).
April to June 2024	Individual fishermen and fishermen's representatives	Pre-application consultation engagement events. Fishermen were in attendance at public events held in Buckie, Wick and Banff. Details of the pre-application consultation events are provided in Application Document 1.

8.4 Baseline Characterisation

8.4.1 Study Area

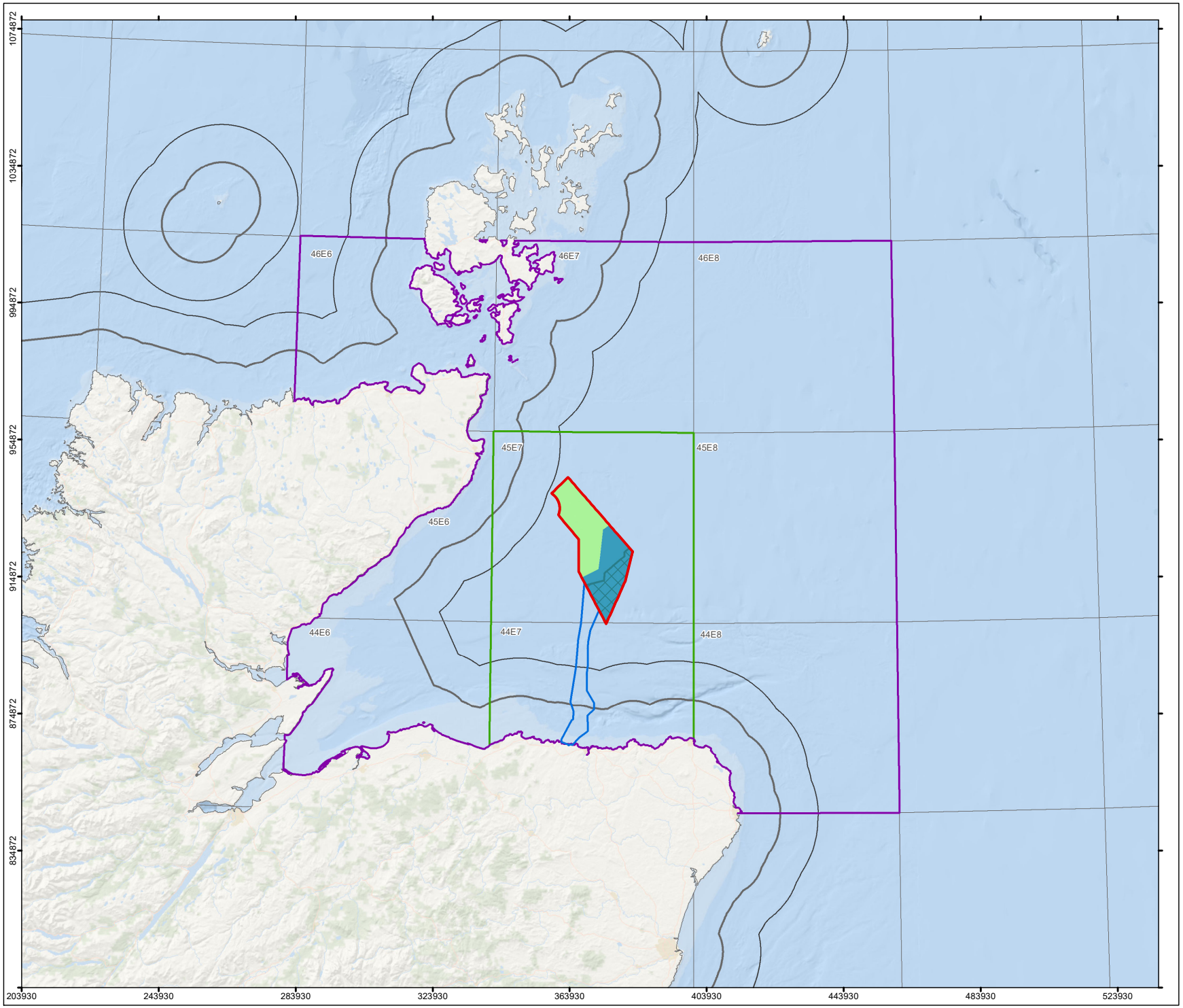
8.4.1.1 The Proposed Development (Offshore) is located within the south-west portion of the International Council for the Exploration of the Sea (ICES) Division 4a (northern North Sea) statistical area; within the United Kingdom (UK) Exclusive Economic Zone (EEZ) waters. The Caledonia OWF is located outside the UK territorial waters 12 nautical miles (nm) boundary and the OECC extends outside and inside the 12nm boundary to shore at landfall. For the purpose of statistical analysis, ICES Division 4a is divided into statistical rectangles which are consistent across all Member States operating in the North Sea. Each ICES statistical rectangle is '30 min latitude and 1 degree longitude' in size, which equates to approximately 30nm^2.

8.4.1.2 The Caledonia OWF is primarily located within ICES rectangle 45E7, with the very southern tip entering ICES rectangle 44E7. The OECC extends across ICES rectangles 44E7 and 45E7. These two ICES rectangles form the commercial fisheries local study area for the purposes of the Environmental Impact Assessment (EIA) (Figure 8-1).

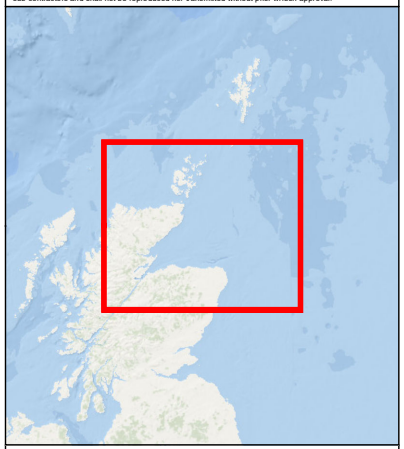
8.4.1.3 In order to understand fishing activity in waters adjacent to the Proposed Development (Offshore), a commercial fisheries regional study area has been defined to include the commercial fisheries local study area together with surrounding ICES rectangles 44E6, 44F8, 45E6, 45E7, 46E6, 46E7 and 46E8. Analysis of data at the scale of the commercial fisheries regional study area 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.

8.4.1.4 To summarise, there are two scales of commercial fisheries study areas as follows:

- Commercial fisheries local study area: 44E7 and 45E7; and
- Commercial fisheries regional fisheries study area: 44E6-E8, 45E6-E8, 46E6-E8.



- Caledonia OWF
- Caledonia North Site
- Caledonia South Site
- Proposed Floating
- Offshore Export Cable Corridor
- Commercial Fisheries Regional Study Area
- Commercial Fisheries Local Study
- ICES Statistical Rectangles
- 12 nm Boundary
- 6 nm Boundary



0 10 20 30 40 km

REV	DATE	DOC STATUS	ORIGIN	REVIEW	APP
01	22/03/2024	For Information	FN	SM	DH

CALEDONIA Offshore Wind Farm

nima CONSULTANTS

CONTRACTOR DRAWING NO: 8-1
CONTRACTOR REV: 01

GEODETIC PARAMETERS: OSGB36 / British National Grid (EPSG:27700)

DRAWING TITLE

Figure 8-1
Commercial Fisheries Study Areas

STATUS: Approved
SCALE: 1:1,500,000
DRAWING NUMBER: N/A
SHEET NO: 01 of 01
REV: 01

8.4.2 Data Sources

8.4.2.1 Commercial fisheries information and data has been reviewed and analysed to inform the commercial fisheries baseline. In addition, consultation with commercial fisheries industry representatives has been carried out to aid the collection of baseline information.

Desk Study

8.4.2.2 The data sources that have been used to inform this commercial fisheries chapter of the EIAR are presented within Table 8-4.

8.4.2.3 Data has been sourced from ICES (2022[21]), the European Union (EU) Data Collection Framework (DCF, 2022[15]), the Marine Directorate National Marine Plan interactive (NMPi; Marine Directorate, 2024[16]), the UK Marine Management Organisation (MMO, 2022a[17]; 2022b[20]; 2023a[18]; 2023b[23]) and the European Maritime Safety Agency (EMSA, 2023[22]).

8.4.2.4 Where data sources allow, a five to ten-year trend analysis has been undertaken, using the most recent annual datasets available at the time of writing. The temporal extent of this time period is dependent on each data source analysed (e.g., 2012 to 2016; 2016 to 2020; or 2011 to 2022).

8.4.2.5 Relevant literature from a number of sources has also been reviewed in the preparation of this report. A full list of references is provided at the end of this report and are cited within the text where appropriate.

8.4.2.6 The Commercial Fisheries Technical Report (Volume 7B, Appendix 8-1) includes full details of the analysis undertaken to develop the commercial fisheries baseline and describe limitations associated with data sources.

Table 8-4: Summary of key publicly available datasets for commercial fisheries.

Title/Description	Author	Year
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 (£).	MMO (2022a[17]; 2023a[18])	2011 to 2022
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).	EU DCF (2022[19])	2012 to 2016
Vessel Monitoring System (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.	MMO (2022b[20])	2016 to 2020
VMS data for EU registered vessels ≥12m length. VMS data sourced from ICES displays the surface Swept Area Ratio (SAR) of catches by different gear types and covers EU (including UK) registered vessels 12m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear makes contact with (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity.	ICES (2022[21])	2016 to 2020
Fishing vessel route density, based on vessel Automatic Identification System (AIS) positional data. AIS is required to be fitted on fishing vessels ≥15m length.	EMSA (2023[22])	2019 to 2022
Surveillance data indicating vessel nationality and gear type for actively fishing vessels.	MMO (2023b[23])	2017 to 2022
Marine Scotland National Marine Plan Interactive (NMPi) (various publication dates) Marine Scotland MAPS NMPi (2023) fisheries datasets.	Marine Scotland MAPS NMPi, (2024[16])	Various
Scottish Government (2020), Sectoral Marine Plan, including description of regional commercial fisheries activity.	Scottish Government, (2020[1])	2020
North Atlantic Fisheries College (NAFC) Marine Centre University of Highlands and Islands (UHI) (2021), Fisheries activity mapping in the North and East Coast Regional Inshore Fisheries Group (NERIFG) area.	Shelmerdine and Mouat (2021[24])	2021
Statistikkomrader: Norwegian long term vessel monitoring system data for Norwegian vessels.	Norwegian Directorate of Fisheries (2023[25])	Various

Site-specific Surveys

8.4.2.7 A pre-survey scout survey of fishing was undertaken in January 2023 of the Caledonia OECC; however, no static gear was observed during the survey. It is noted in seasonality data (presented in Figure 6.6 of Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report), that landings from potting vessels in the Local Study Area are lower from January to May, compared with June to December, and therefore the scouting survey undertaken in January is likely to under-representative potting gear in the water. Baseline data sources have been validated via engagement with fisheries stakeholders (see Table 8-3) and by the results of site-specific scouting surveys and marine traffic surveys that are described in Volume 2, Chapter 9: Shipping and Navigation.

8.4.3 Baseline Description

Overview of Landings

8.4.3.1 Landings over the period 2011 to 2022 are presented in Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report. For the purposes of this summary of the baseline description, focus is given to the most recent datasets across a five-year period (2018-2022), with context for longer-term trends provided where relevant. In summary, the 12-year analysis is presented in the Commercial Fisheries Technical Report, with more focus on a recent 5-year period provided in this section.

8.4.3.2 On average, £8.2 million in first sales value is landed from the commercial fisheries local study area, based on 5-years from 2018-2022. Peak landings occurred in 2019 at a value of £11.5 million. The average annual value landed from the commercial fisheries regional study area is £38.3 million, also peaking in 2019 at £60.1 million (Figure 8-2; MMO, 2022a[17]).

8.4.3.3 Trends in landings show a significant drop from 2019 to 2020, with landings remaining at 2020 levels across 2021 and 2022. It is noted that the time period of the baseline data analysis includes years impacts by Covid-19, specifically 2020 and 2021 when restrictions affected normal business operations and market trade. Landings at a national level were seen to decline over this period. For example, the total first sales value of commercial landings Scottish vessels decreased from a high of £735 million in 2016, to a low of £520 million in 2020 due to the impacts of Covid-19 (Marine Directorate, 2023). The total value landed by Scottish vessels has since increased to £617 million in 2022.

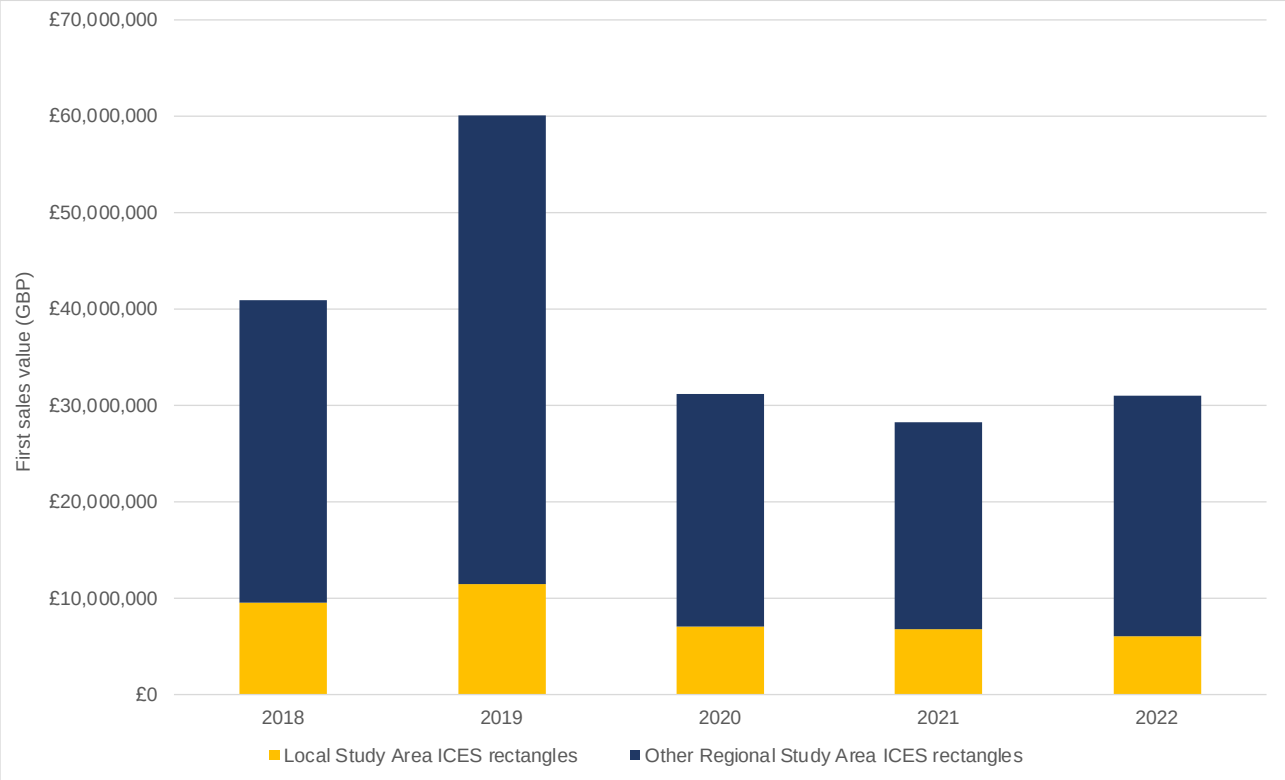


Figure 8-2: Annual landed value from the commercial fisheries regional study area indicating landings from the local study area (shown in yellow) and from the other ICES rectangles within the regional study area (shown in navy) (data source: MMO, 2022a[17]).

8.4.3.4 The key species landed from the commercial fisheries regional study area are mackerel *Scomber scombrus*, *Nephrops norvegicus* (also known as Norway lobster, langoustine or prawn, hereon referred to as nephrops), brown crab *Cancer pagurus*, haddock *Melanogrammus aeglefinus*, squid *Loligo* species, lobster *Homarus Gammarus* and king scallop *Pectan maximus*.

8.4.3.5 Landing statistics indicate that the key fisheries in the local study area are targeting nephrops, squid, haddock, king scallop and crab and lobster (Figure 8-3; MMO, 2022a[17]).

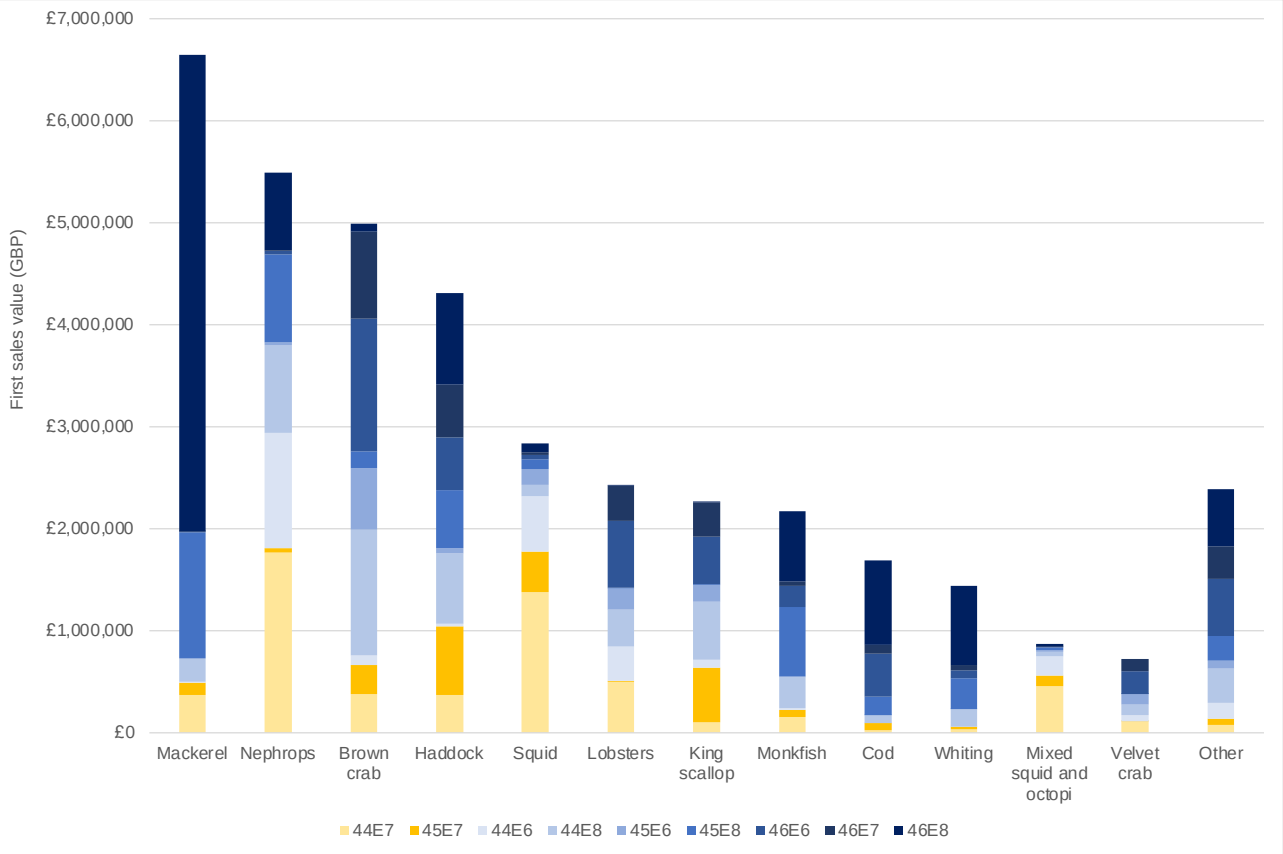


Figure 8-3: Average annual landed value of species from the commercial fisheries regional study area indicating ICES rectangle, with local study area shown in yellow, based on 5-year average from 2018 to 2022 (data source: MMO, 2022a[17]).

8.4.3.6 Average annual landings from the period 2018 to 2022 are presented by ICES rectangle and species in Figure 8-4 (based on MMO, 2022a[17]).

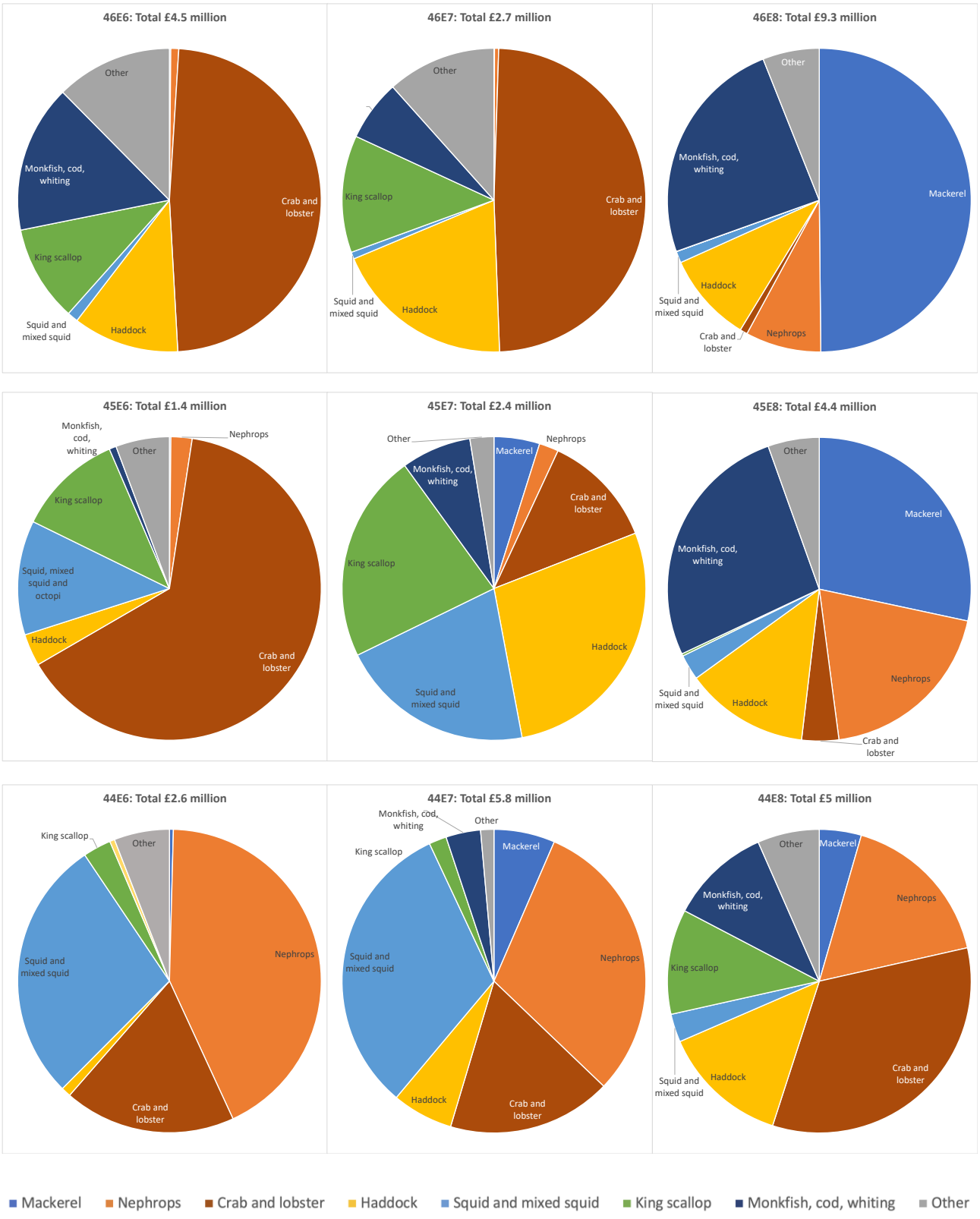


Figure 8-4: Average annual landed value of species from the commercial fisheries regional study area by ICES rectangle, based on 5-year average from 2018 to 2022 (data source: MMO, 2022a[17]).

Landings by Fishing Gear Types

Demersal Otter Trawl Fishery

8.4.3.7 The demersal otter trawl fishery targets three distinct fisheries:

- Nephrops;
- Squid; and
- Haddock and mixed finfish species (targeted by demersal trawl and demersal seine).

8.4.3.8 The demersal otter trawl/seine fisheries account for £5.7 million first sales value landed annually from the local study area, compared to £20 million from the regional study area. When compared to total landings from the local study area, the demersal trawl/seine fisheries account for 70% of the landed value (i.e., £5.7 million out of the total £8.2 million per annum).

8.4.3.9 The nephrops fishery is primarily targeted in inshore ICES rectangles, overlapping the Caledonia OECC, while squid is caught both inshore and offshore in the central and western ICES rectangles (44E6, 44E7, 45E6 and 45E7).

8.4.3.10 The haddock fishery is primarily targeted across the Caledonia OWF in ICES rectangle 45E7.

8.4.3.11 Landings by demersal otter trawl and demersal seine vessels are made into Fraserburgh, Buckie, Macduff and Peterhead. Nephrops are primarily targeted in spring and summer months (April to August); squid from July to September and haddock from August to February.

Scallop Dredge Fishery

8.4.3.12 The scallop dredge fishery primarily operates across the Caledonia OWF, with lower landing taken from the ICES rectangle that overlaps the inshore section of the OECC.

8.4.3.13 The scallop dredge fishery accounts for £643,000 first sales value landed annually from the local study area, compared to £1.9 million from the regional study area.

8.4.3.14 Landings by scallop dredge vessels are made into Fraserburgh, Buckie and Peterhead. Scallops are targeted seasonally from May to September.

Potting Fishery

8.4.3.15 The potting fishery primarily targets brown crab, lobster and velvet crab and accounts for £1.3 million first sales value landed annually from the local study area, compared to £8.9 million from the regional study area.

8.4.3.16 Based on available data, the areas north and west of the local study area are more important for landings, than the local study area itself.

8.4.3.17 In the local study area, activity is focused in the inshore areas from 0-3nm. Landings by potting vessel are made into Fraserburgh, Buckie and Peterhead.

Crabs are caught year round, peaking in December; and lobster are targeted from July to December with landings peaking in August.

Line or Jigging Fishery

8.4.3.18 The line or jigging fishery primarily targets mackerel and accounts for £370,000 first sales value landed annually from the local study area, compared to £611,000 from the regional study area.

8.4.3.19 In the local study area, activity is focused in the inshore areas from 0-3nm. Landings by vessel deploying lines/jigging gear are made into Fraserburgh, Rosehearty, Whitehills, Portsoy and Gardenstown. Mackerel caught by line/jigging are targeted seasonally in July and August.

Pelagic Trawl Fishery

8.4.3.20 The pelagic trawl fishery primarily targets mackerel and accounts for £112,000 first sales value landed annually from the local study area, compared to £4.8 million from the regional study area. The pelagic fleet includes both pelagic trawl and purse seine nets.

8.4.3.21 Landings are made into Peterhead, Hirtshals, Ijmuiden and Egersund. Mackerel are caught by pelagic otter trawls seasonally in October.

Key Commercial Fisheries Receptors

8.4.3.22 The key fleet métiers operating across the commercial fisheries local and regional study areas include (in no particular order):

- UK, Norwegian, Irish, Danish, Dutch and German pelagic trawlers and purse seines targeting mackerel;
- UK demersal otter trawlers targeting nephrops and mixed demersal species;
- UK demersal otter trawlers targeting squid;
- UK demersal otter trawlers targeting haddock and mixed demersal species;
- UK demersal seine targeting haddock and mixed demersal species;
- UK scallop dredgers targeting king scallop;
- UK potting vessels targeting brown crab and lobster; and
- UK vessels deploying lines targeting mackerel.

8.4.4 Do Nothing Baseline

8.4.4.1 If the Proposed Development (Offshore) does not come forward, an assessment of the future baseline conditions has also been carried out and is described within this section.

8.4.4.2 Commercial fisheries patterns change and fluctuate based on a range of natural and management-controlled factors, including the following:

- Response to existing OWF developments, including Moray East, Moray West and Beatrice OWFs;
- Market demand: commercial fishing fleets respond to market demand, which is impacted by a range of factors, including the 2020 to 2021 COVID-19 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 Total Allowable Catches (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.

8.4.4.3 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 12 years of key baseline data (noting that data for 2011-2022 are presented in Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report). 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 does not capture any potential changes in commercial fisheries activity resulting from the withdrawal of the UK from the EU.

8.4.4.4 Following the UK withdrawal from the EU, 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 EEZs, (12nm to 200nm) to fish. In this period, EU vessels will also be able to fish in specified parts of UK waters between 6nm to 12nm.

8.4.4.5 Over the five-year transition period, 25% of the EU's fisheries quota in UK waters will be transferred to the UK; with 15% transferred in year one, 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 commercial fisheries regional 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 fishing vessel owners would need to obtain the relevant quota allocation for that specific target species.

8.4.4.6 Market changes have the potential to impact fishing activity in the commercial fisheries regional 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.

8.4.5 Data Gaps and Limitations

8.4.5.1 Limitations of landings data include the spatial size of ICES rectangles, which can misrepresent actual activity across the Proposed Development (Offshore), and care is therefore required when interpreting the data.

8.4.5.2 It is noted that all commercial landings by UK registered vessels are subject to the Register of Buyers and Sellers (RBS) 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 10m and under to declare their catches, registered buyers are legally required to provide sales notes of all commercially sold fish and shellfish due to the 2005 Registration of Buyers and Sellers of First-Sale Fish Scheme (RBS legislation) (MMO, 2022a[17]; 2023a[18]). The RBS legislation is applicable to licenced fishing vessels of all lengths and requires name, port letters and numbers (PLN) of the vessel which landed the fish to be recorded in relation to each purchase. For the 10m and under sector, landing statistics are recorded on sales notes provided by the registered buyers (MMO, 2022a[17]; 2023a[18]). 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, 2022a[17]; 2023a[18]).

8.4.5.3 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 (from 2017 onwards) landings data is no longer available by ICES rectangle. Data at a scale of ICES division (the whole of the North Sea) is less useful to understand fishing activity specific to the area overlapping the Proposed Development (Offshore).

8.4.5.4 Limitations of VMS data are primarily focused on the coverage being limited to vessels ≥15m for MMO data. It is important to be aware that where mapped VMS data may appear to show inshore areas as having lower (or no) fishing

activity compared with offshore areas, this is not necessarily the case, because VMS data does not include vessels typically operating in inshore areas (which typically comprises vessels <15m in length). To assist in mitigating the risk of under-representing smaller inshore vessels, site-specific marine traffic survey data, comprising information on vessel movements gathered by AIS and radar, has been analysed alongside VMS data.

8.4.5.5 Fishing vessel route density data from the EMSA is based on AIS data, representing activity for vessels with AIS (≥15m in length). A limitation of AIS data is that it does not distinguish between steaming and actively fishing; nevertheless, it provides corroboration for key fishing grounds and insight into transit routes to alternative fishing grounds.

8.4.5.6 It is noted that within the baseline period, which focused on the most recent datasets between 2018-2022, offshore construction of Beatrice and Moray East OWF was underway, with fishing activities occurring throughout. Therefore, assessment of magnitude may be considered conservative regarding particular construction impacts.

8.4.5.7 Data 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 forms 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 8.7.

8.5 EIA Approach and Methodology

8.5.1 Overview

8.5.1.1 This section outlines the methodology for assessing the likely significant effects on commercial fisheries from the construction, operation and decommissioning of the Proposed Development (Offshore).

8.5.2 Impacts Scoped in to the Assessment

8.5.2.1 The Offshore Scoping Report (Volume 7, Appendix 2) was submitted to MD-LOT in September 2022. The Offshore Scoping Report set out the overall approach to assessment and allowed for the refinement of the Proposed Development (Offshore) over the course of the assessment. The proposed scope of the assessment is set out in Table 8-5.

Table 8-5: Commercial fisheries scope of assessment.

Potential Impact	Phase	Nature of Impact
Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF	All phases (construction, operation and decommissioning)	Direct
Reduction in access to, or exclusion from established fishing grounds within the OECC	All phases (construction, operation and decommissioning)	Direct
Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	All phases (construction, operation and decommissioning)	Direct
Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	All phases (construction, operation and decommissioning)	Direct
Increased vessel traffic associated with the Proposed Development (Offshore) within fishing grounds leading to interference with fishing activity	All phases (construction, operation and decommissioning)	Direct
Physical presence of infrastructure and potential exposure of that infrastructure leading to gear snagging	All phases (construction, operation and decommissioning)	Direct
Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Proposed Development (Offshore)	All phases (construction, operation and decommissioning)	Direct

8.5.3 Impacts Scoped out of the Assessment

8.5.3.1 None of the potential impacts identified for commercial fisheries have been scoped out of the assessment during EIA scoping.

8.5.4 Assessment Methodology

8.5.4.1 The project-wide generic approach to assessment is set out in Volume 1, Chapter 7: EIA Methodology. The assessment methodology for commercial fisheries for the EIAR is consistent with that provided in the Offshore Scoping Report (Volume 7, Appendix 2).

8.5.4.2 The criteria for defining magnitude in this chapter are outlined in Table 8-6 and are based upon the technical expert's experience and judgement. Each assessment considered the spatial extent, duration, frequency and

reversibility of impact when determining impact magnitude. The criteria for defining sensitivity in this chapter are outlined in Table 8-7.

Table 8-6: Definition of Terms Relating to the Magnitude of an Impact.

Potential Impact	Justification
High (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 the Array Area); and ▪ Substantial loss of ability to carry on fishing activities (e.g., substantial proportion of effort within the Array Area). And/or: Impact is of long-term duration (e.g., greater than 12 years duration) and/or is of extended physical extent.
High (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; and ▪ Extensive restoration or enhancement of habitats supporting commercial fisheries resources.
Medium (Adverse)	Impact is expected to result in one or more of the following: ▪ Partial loss of target fish or shellfish biological resource (e.g., moderate loss of resource within the Array Area); and ▪ Partial loss of ability to carry on fishing activities (e.g., moderate reduction of fishing effort within the Array Area). And/or: Impact is of medium-term duration (e.g., less than 12 years) and/or is of moderate physical extent.
Medium (Beneficial)	Impact is expected to result in one or more of the following: ▪ Moderate improvement of resource quality; and ▪ Moderate restoration or enhancement of habitats supporting commercial fisheries resources.
Low (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 the Array Area); and ▪ Minor loss of ability to carry on fishing activities (e.g., minor reduction of fishing effort within the Array Area). And/or: Impact is of short-term duration (e.g., less than 2 years) and/or is of limited physical extent.
Low (Beneficial)	Impact is expected to result in one or more of the following: ▪ Minor benefit to or minor improvement of resource quality; and ▪ Minor restoration or enhancement of habitats supporting commercial fisheries resources.
Negligible	Impact is expected to be undetectable compared to pre-development baseline conditions.

Table 8-7: Definition of Terms Relating to the Sensitivity of the Receptor.

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

8.5.4.3 The magnitude of the impact and the sensitivity of the receptors are combined when determining the significance of the effect upon commercial fisheries, as set out in Volume 1, Chapter 7: EIA Methodology.

8.5.4.4 Where a range is suggested for the significance of effect, for example, minor to moderate, it is possible that this may span the significance threshold. The technical specialist's professional judgement will be applied to determine which outcome defines the most likely effect, which takes in to account the sensitivity of the receptor and the magnitude of impact. Where professional judgement is applied to quantify final significance from a range, the assessment will set out the factors that result in the final assessment of significance. These factors may include the likelihood that an effect will occur, data certainty and relevant information about the wider environmental context.

8.5.4.5 For the purposes of this assessment:

- A level of residual effect of moderate or more will be considered a 'significant' effect in terms of the EIA Regulations; and
- A level of residual effect of minor or less will be considered 'not significant' in terms of the EIA Regulations.

8.5.4.6 Effects of moderate significance or above are therefore considered important in the decision-making process, whilst effects of minor significance or less warrant little, if any, weight in the decision-making process.

8.5.5 Approach to Cumulative Effects

8.5.5.1 The Cumulative Impact Assessment (CIA) assesses the impact associated with the Proposed Development (Offshore) together with other relevant plans, projects and activities. Cumulative effects are therefore the combined effect of the Proposed Development (Offshore) in combination with the effects from a number of different projects, on the same receptor or resource.

8.5.5.2 The approach to the CIA for commercial fisheries follows the process outlined in Volume 1, Chapter 7: EIA Methodology and is described in Section 8.8: Cumulative Effects.

8.5.6 Embedded Mitigation

8.5.6.1 Where possible, mitigation measures will be embedded into the design of the Proposed Development (Offshore) applications, specifically Caledonia North and Caledonia South. Where embedded mitigation measures have been developed into the design with specific regard to commercial fisheries, these are described in Table 8-8. The impact assessment presented in Sections 8.7 to 8.10 takes into account this embedded mitigation.

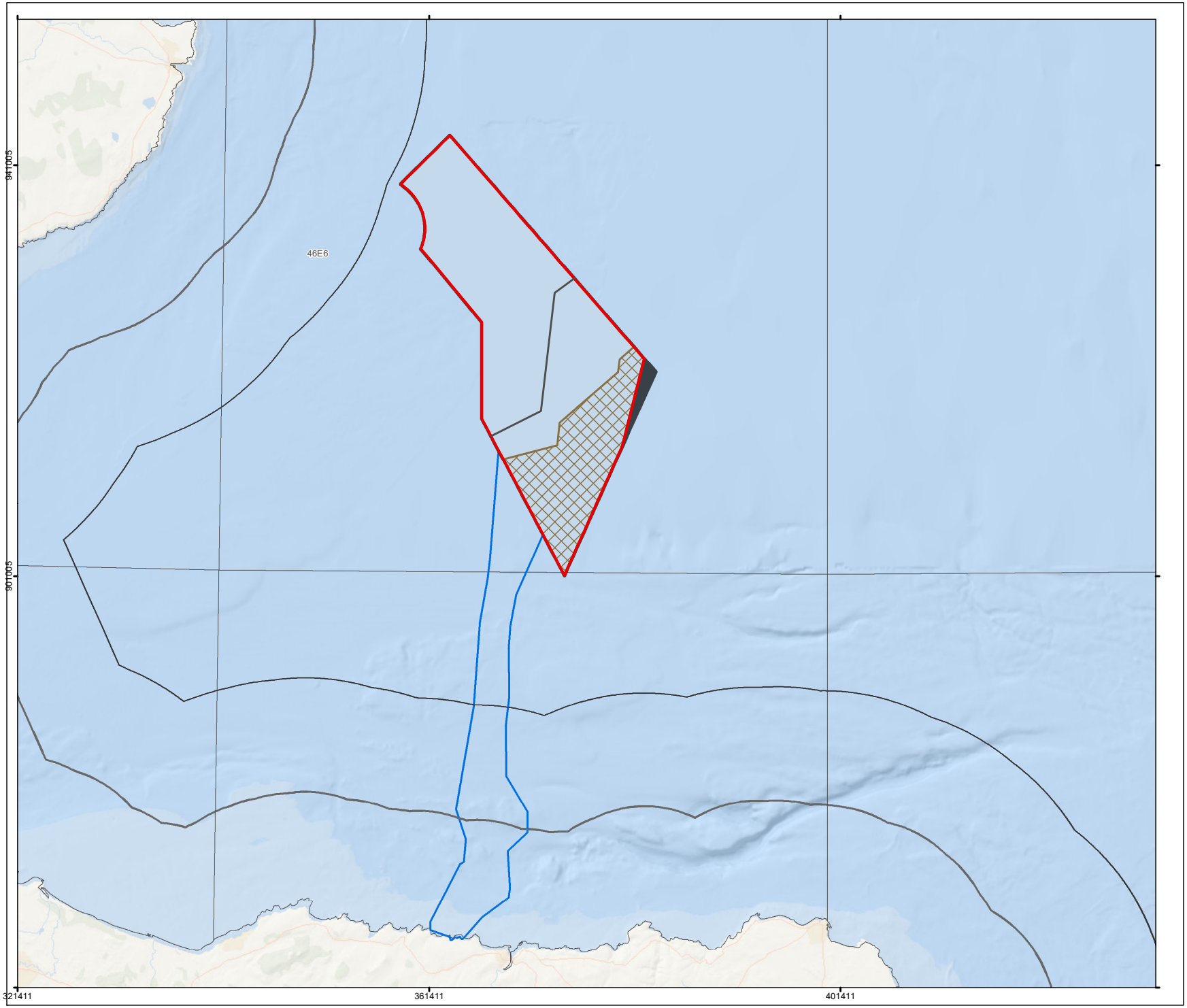
8.5.6.2 In addition to the measures detailed in Table 8-8, a significant embedded mitigation has been developed for the commercial fisheries sector through a boundary reduction from that shown at Scoping of Caledonia South. The Applicant committed to removing the south-east corner of Caledonia South for the purpose of avoiding the deep water area targeted by Nephrops trawlers. This boundary reduction of Caledonia South was informed by fishing industry plotter data, North and East Coast Regional Inshore Fishery Group mapping, landing statistics, VMS data and through consultation with the industry. The boundary reduction of Caledonia South has led to the removal of 6.1km^2 from the Caledonia South Site and is depicted in Figure 8-5. It is noted that this reflects a slight reduction in total size of the Caledonia OWF compared to the original NE4 Plan Option; refer to Volume 1, Chapter 6: Site Selection and Alternatives for further information.

Table 8-8: Embedded Mitigation.

Code	Mitigation Measure	Securing Mechanism
M-1	Development of and adherence to a Cable Plan (CaP). The CaP will confirm planned cable routing, burial and any additional protection and will set out methods for post-installation cable monitoring.	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-5	Where practicable, cable burial will be the preferred means of cable protection. Cable burial will be informed by the cable burial risk assessment and detailed within the CaP.	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-12	Development of and adherence to a Project Environmental Monitoring Programme (PEMP). The PEMP will set out commitments to environmental monitoring in pre-, during and post-construction phases of the Proposed Development (Offshore).	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-14	Development of and adherence to a Lighting and Marking Plan (LMP). The LMP will confirm compliance with legal requirements with regards to shipping, navigation and aviation marking and lighting.	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-17	Development of and adherence to a Fisheries Management and Mitigation Strategy (FMMS). The FMMS will set out the means of ongoing fisheries liaison through construction and operation and maintenance (O&M) phases of the Proposed Development (Offshore) and detail any mitigation measures to be put in place to limit effects on commercial fisheries activity. This will include the following project policies: Fisheries Liaison Policy and Engagement Schedule, Conflict Avoidance Policy, Incident Response Policy.	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-18	Appointment of a Company Fisheries Liaison Officer (CFLO). The CFLO will support ongoing liaison and ensure clear communication between the Proposed	To be secured as a condition of the Generation Asset and Transmission Asset

Code	Mitigation Measure	Securing Mechanism
	Development (Offshore) and commercial fisheries. Fishery manager employed by the Applicant to oversee liaison and detailed interaction.	Marine Licences for both Caledonia North and Caledonia South.
M-19	Development of and adherence to a Navigational Safety Plan (NSP). The NSP will describe measures put in place by the Proposed Development (Offshore) related to navigational safety, including information on Safety Zones, charting, construction buoyage, temporary lighting and marking, and means of notification of Project activity to other sea users (e.g., via Notice to Mariners).	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-20	Adherence to best practice guidance with regards to fisheries liaison and procedures in the event of interactions between the Proposed Development (Offshore) and fishing activities (e.g., FLOWW, 2014[6]; 2015[7]).	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-21	Advance warning and accurate location details of construction, maintenance and decommissioning operations, associated Safety Zones and advisory passing distances will be given via Notices to Mariners and Kingfisher Bulletins.	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-22	Continued participation in regional commercial fisheries working group to assist with liaison between the Proposed Development (Offshore) and the fishing community.	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.
M-23	Application for and use of Safety Zones of up to 500m during construction, major maintenance and decommissioning phases. Where appropriate, guard vessels will also be used to ensure adherence with Safety Zones or advisory passing distances, as defined by risk assessment, to mitigate any impact which poses a risk to surface navigation during construction, maintenance and decommissioning phases. Such impacts may include partially installed structures or cables, extinguished navigation lights or other unmarked hazards.	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.

Code	Mitigation Measure	Securing Mechanism
M-24	Any objects dropped on the seabed during works associated with the Proposed Development (Offshore) will be reported and objects will be recovered where they pose a hazard to other marine users and where recovery is possible.	To be secured as a condition of the Generation Asset and Transmission Asset Marine Licences for both Caledonia North and Caledonia South.



Caledonia OWF

Section of Caledonia South Site Removed

Overall Boundary North South Site Division

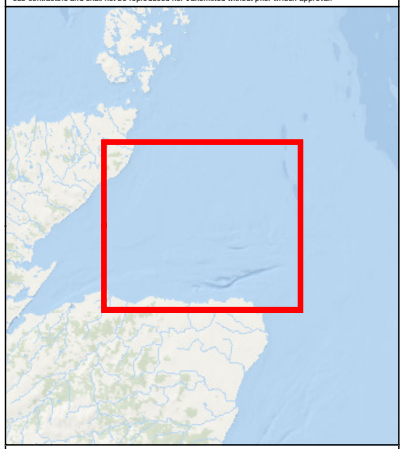
Proposed Floating Area

Offshore Export Cable Corridor

ICES statistical rectangles

12 nm Boundary

6 nm Boundary



0 4 8 12 16 km

REV	DATE	DOC STATUS	ORIGIN	REVIEW	APP
01	22/03/2024	For Information	FN	SM	DH

CALEDONIA Offshore Wind Farm

nima CONSULTANTS

CONTRACTOR DRAWING NO: 8-5

CONTRACTOR REV: 01

GEODETIC PARAMETERS: OSGB36 / British National Grid (EPSG:27700)

DRAWING TITLE

Figure 8-5
Boundary reduction for Caledonia South

STATUS: Approved

SCALE: 1:500,000

DRAWING NUMBER: N/A

SHEET NO: 01 of 01

REV: 01

8.6 Key Parameters for Assessment

8.6.1.1 Volume 1, Chapter 3: Proposed Development Description (Offshore) details the parameters of the Proposed Development (Offshore) using the Rochdale Envelope approach. This section identifies those parameters during construction, operation and decommissioning relevant to potential impacts on commercial fisheries.

8.6.1.2 The Caledonia OWF (Array Area) has been divided into two development sites, namely the Caledonia North Site and the Caledonia South Site. The shallower Caledonia North Site is proposed to contain bottom-fixed WTG technology only, while the relatively deeper Caledonia South Site is proposed to contain either bottom-fixed WTG technology only, or a combination of bottom-fixed and floating WTG technology. The total Caledonia OWF footprint is approximately 423km^2, which comprises the Caledonia North Site with a footprint of approximately 218.5km^2 and the Caledonia South Site with a footprint of approximately 204.5km^2.

8.6.1.3 The worst case assumptions with regard to commercial fisheries are summarised in Table 8-9.

Table 8-9: Worst Case Assessment Scenario Considered for Each Impact as Part of the Assessment of Likely Significant Effects.

Potential Impact	Assessment Parameter	Explanation
Construction		
Impact 1: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF	Construction period of six years assuming Caledonia North and Caledonia South are constructed sequentially in two phases. The design envelope allows for a gap of 5 years between phases. ▪ Caledonia OWF area: 423km^2 (of which up to 114.33km^2 contains floating foundations) **Construction/installation of:** ▪ 39 floating WTGs, semi-submersible foundations; o Catenary mooring line type with up to six mooring lines and anchors (per foundation); o Mooring line radius: 1,000m; o Mooring line cross-sectional area (πr^2): 3,141,593m^2; o Total mooring line area for 39 foundations: 122,522,113m^2 (or 122.52km^2); o Proportion of mooring radius compared to total proposed floating area: up to 100%; ▪ 101 bottom-fixed WTGs, jacket with suction caisson foundations; o Scour protection footprint 11,500m^2 per WTG; o Seabed area footprint during construction: 12,100m^2 per WTG; o Shadow footprint: total seabed area under the substructure; 3,025m^2 per WTG; o Minimum downwind and crosswind spacing between turbines: 944m; ▪ Four OSPs (bottom-fixed foundations); o Minimum spacing of OSPs to other structures: 1,310m; ▪ 140 inter-array cables of 655km combined length; o 20 crossings for the inter-array cables;	The worst case scenario represents the maximum duration and extent of fishing exclusion throughout the construction phase and, hence, the greatest potential to restrict access to fishing grounds. It is assumed that construction activities could occur anywhere within the Caledonia OWF at any given time. It is therefore assumed that fishing is not prohibited from resumption, but is unlikely to resume within the Caledonia OWF if and where floating foundations are deployed throughout the construction phase.

Potential Impact	Assessment Parameter	Explanation
	○ Minimum target burial depth: 1m; ▪ Two interconnector cables of 60km combined length; ○ Four crossings for the interconnector cables; ○ Minimum target burial depth: 1m; ▪ Cable protection (concrete mattress, rock placement, grout bags, iron cast, engineered CPS); ▪ Buoyed construction area encompassing the maximum extent of the Caledonia OWF; ○ Temporary ancillary equipment within buoyed construction area (e.g., mooring buoys); ▪ Up to 25 construction vessels on-site simultaneously and 3,992 vessel movements; ▪ 500m safety zones around wind farm structure or offshore transmission infrastructure (turbine or substation) and/or foundations during construction activities; and ○ 50m safety zones around partially complete structures or complete structures.	
Impact 2: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OECC	Construction period of six years assuming Caledonia North and Caledonia South are constructed sequentially in two phases. The design envelope allows for a gap of 5 years between phases, with duration of each phase: 12 months for seabed preparation and six months to lay offshore export cables, total construction period of 3 years. **Construction/installation of:** ▪ Four offshore export cables of 330km combined length; ○ Minimum target burial depth: 1m; ○ 16 crossings for the offshore export cables; ▪ Total width of Caledonia OECC: 2,000m; and ▪ Cable protection (concrete mattress, rock placement, grout bags, iron cast, engineered CPS).	The worst case scenario represents the maximum duration and extent of fishing exclusion throughout the construction and decommissioning phase and, hence, the greatest potential to restrict access to fishing grounds. It is assumed that construction activities would not occur across the entirety of the Caledonia OECC at any one time. Therefore, it is assumed that fishing is not prohibited from resumption in areas where construction has not yet commenced or is completed.

Potential Impact	Assessment Parameter	Explanation
Impact 3: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	Refer to Impacts 1 and 2.	Refer to Impacts 1 and 2.
Impact 4: Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	Refer to Impacts 1 to 5 in Volume 2, Chapter 5: Fish and Shellfish Ecology.	Refer to Impacts 1 to 5 in Volume 2, Chapter 5: Fish and Shellfish Ecology.
Impact 5: Increased vessel traffic associated with the Proposed Development (Offshore) within fishing grounds leading to interference with fishing activity	▪ Number of vessel working days over construction phase: 3,978 (sequential construction); ▪ Vessel movements over the total construction period: 441; and ▪ Maximum number of vessels on site at one time over the construction period: 25.	The maximum number of wind turbines 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 would result in the greatest potential for interference.
Impact 6: Physical presence of infrastructure and potential exposure of that infrastructure	Refer to Impacts 1 and 2.	Refer to Impacts 1 and 2.

Potential Impact	Assessment Parameter	Explanation
leading to gear snagging		
Impact 7: Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Proposed Development (Offshore)	Refer to Impacts 1 and 2.	Refer to Impacts 1 and 2.
Operation		
Impact 8: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF	Operational lifetime: 35 years ▪ Caledonia OWF area: 423km^2 (of which up to 114.33km^2 contains floating foundations) **Operation/maintenance of:** ▪ 39 floating WTGs, semi-submersible foundations; o Catenary mooring line type with up to six mooring lines and anchors (per foundation); o Mooring line radius: 1,000m; o Mooring line cross-sectional area (πr^2): 3,141,593m^2; o Total mooring line area for 39 foundations: 122,522,113m^2 (or 122.52km^2); o Proportion of mooring radius compared to total proposed floating area: up to 100%; ▪ 101 bottom-fixed WTGs, jacket with suction caissons foundations; o Scour protection footprint 11,500m^2 per WTG;	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. During the operation phase it is assumed that fishing will resume within the Caledonia North Site and the bottom-fixed area of the Caledonia South Site. Due to the cross-sectional area of mooring lines occupying up to 100% of the floating area of the Caledonia South Site, it is assumed that while fishing is not prohibited from resumption, it is unlikely to resume within the floating section of the Caledonia South Site throughout the operation and maintenance phase. This is the worst-case scenario and not necessarily the realistic

Potential Impact	Assessment Parameter	Explanation
	○ Shadow footprint: total seabed area under the substructure; 3,025m^2 per WTG; ○ Minimum downwind and crosswind spacing between turbines: 944m; ▪ Four OSPs (bottom-fixed foundations); ○ Minimum spacing of OSPs to other structures: 1,310m; ▪ 140 inter-array cables of 655km combined length; ○ 20 crossings for the inter-array cables; ○ Minimum target burial depth: 1m; ▪ Two interconnector cables of 60km combined length; ○ Four crossings for the interconnector cables; ○ Minimum target burial depth: 1m; ▪ Cable protection (concrete mattress, rock placement, grout bags, iron cast, engineered CPS); ▪ 500m safety zones around wind farm structure or offshore transmission infrastructure (turbine or substation) where major maintenance is being undertaken; and ▪ Frequency of preventative maintenance: annually.	case scenario, subject to final floating foundations and mooring systems chosen.
Impact 9: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OECC	**Operation/maintenance of:** ▪ Four offshore export cables of 330km combined length; ○ Minimum target burial depth: 1m; ○ 16 crossings for the offshore export cables; ▪ Total width of Caledonia OECC: 2,000m; and ▪ Cable protection (concrete mattress, rock placement, grout bags, iron cast, engineered CPS); ○ Cable protection width: 10-20m and height: 0.5-1.5m; ▪ Assumed 500m advisory safe passing distance around vessels undertaking major maintenance activities; ▪ Frequency of preventative maintenance: annually; and ▪ Frequency of corrective maintenance (floating foundations): minor: 6.5 per year and major: 1 every 5 years.	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. Given the burial of the offshore export cables, it is assumed that fishing will resume throughout the operation and maintenance phase, with exception of safety zones around major maintenance activities.

Potential Impact	Assessment Parameter	Explanation
Impact 10: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	Refer to Impacts 8 and 9.	Refer to Impacts 8 and 9.
Impact 11: Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	Refer to Impacts 6 to 11 in Volume 2, Chapter 5: Fish and Shellfish Ecology.	Refer to Impacts 6 to 11 in Volume 2, Chapter 5: Fish and Shellfish Ecology.
Impact 12: Increased vessel traffic associated with the Proposed Development (Offshore) within fishing grounds leading to interference with fishing activity	▪ Maximum number of vessels on site at one time during the operation phase: One Service Operation Vessel (SOV) and two Crew Transfer Vessels (CTVs), with up to five vessels where maintenance is unplanned; and ▪ Indicative vessel movements during the operation phase: 104 SOV movements per year and 365 CTV movements per year per CTV.	The maximum number of wind turbines 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 would result in the greatest potential for interference.
Impact 13: Physical presence of infrastructure and potential exposure of that infrastructure	Refer to Impacts 8 and 9.	Refer to Impacts 8 and 9.

Potential Impact	Assessment Parameter	Explanation
leading to gear snagging		
Impact 14: Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Proposed Development (Offshore)	Refer to Impacts 8 and 9.	Refer to Impacts 8 and 9.
Decommissioning		
Impact 15: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF	The worst-case scenario will be equal to (or less than) that of the construction phase. Refer to Impact 1.	To be determined, but assumed to include the reverse of construction activities, removing all offshore infrastructure. WTG and OSP foundations will be cut below the natural level of the seabed and removed. For floating WTGs, piled or driven anchors will also be cut below the natural level of the seabed. The approach to decommissioning scour, cables and cable protection will be considered in the final Decommissioning Programme.
Impact 16: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OECC	The worst-case scenario will be equal to (or less than) that of the construction phase. Refer to Impact 2.	To be determined, but assumed to include the reverse of construction activities, removing all offshore infrastructure. The approach to decommissioning cables and cable protection will be considered in the final Decommissioning Programme.

Potential Impact	Assessment Parameter	Explanation
Impact 17: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	The worst-case scenario will be equal to (or less than) that of the construction phase. Refer to Impact 3.	To be determined, but assumed to include the reverse of construction activities, removing all offshore infrastructure. WTG and OSP foundations will be cut below the natural level of the seabed and removed. For floating WTGs, piled or driven anchors will also be cut below the natural level of the seabed. The approach to decommissioning scour, cables and cable protection will be considered in the final Decommissioning Programme.
Impact 18: Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	The worst-case scenario will be equal to (or less than) that of the construction phase. Refer to Impact 4.	To be determined, but assumed to include the reverse of construction activities, removing all offshore infrastructure. WTG and OSP foundations will be cut below the natural level of the seabed and removed. For floating WTGs, piled or driven anchors will also be cut below the natural level of the seabed. The approach to decommissioning scour, cables and cable protection will be considered in the final Decommissioning Programme.
Impact 19: Increased vessel traffic associated with the Proposed Development (Offshore) within fishing grounds leading to	The worst-case scenario will be equal to (or less than) that of the construction phase. Refer to Impact 5.	To be determined, but assumed to include the reverse of construction activities, removing all offshore infrastructure. WTG and OSP foundations will be cut below the natural level of the seabed and removed. For floating WTGs, piled or driven anchors will also be cut below the natural level of the seabed. The approach to decommissioning scour, cables and cable

Potential Impact	Assessment Parameter	Explanation
interference with fishing activity		protection will be considered in the final Decommissioning Programme.
Impact 20: Physical presence of infrastructure and potential exposure of that infrastructure leading to gear snagging	The worst-case scenario will be equal to (or less than) that of the construction phase. Refer to Impact 6.	To be determined, but assumed to include the reverse of construction activities, removing all offshore infrastructure. WTG and OSP foundations will be cut below the natural level of the seabed and removed. For floating WTGs, piled or driven anchors will also be cut below the natural level of the seabed. The approach to decommissioning scour, cables and cable protection will be considered in the final Decommissioning Programme.
Impact 21: Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Proposed Development (Offshore)	The worst-case scenario will be equal to (or less than) that of the construction phase. Refer to Impact 7.	To be determined, but assumed to include the reverse of construction activities, removing all offshore infrastructure. WTG and OSP foundations will be cut below the natural level of the seabed and removed. For floating WTGs, piled or driven anchors will also be cut below the natural level of the seabed. The approach to decommissioning scour, cables and cable protection will be considered in the final Decommissioning Programme.

8.7 Potential Effects

8.7.1 Construction

Impact 1: Reduction in Access to, or Exclusion from Established Fishing Grounds within the Caledonia OWF

8.7.1.1 During the construction and decommissioning phases of the Proposed Development (Offshore) commercial fisheries will be prevented from fishing where construction/decommissioning activities are taking place, plus up to 500m safety zones around infrastructure under construction and/or up to 500m safe passing distance for mobile installation vessels.

8.7.1.2 The total construction duration for the turbines will be six years assuming Caledonia North and Caledonia South are constructed sequentially in two phases, plus a gap of up to five years between phases.

8.7.1.3 The total area of Caledonia OWF is 423m^2 (including the Caledonia North Site: 218.5km^2; and the Caledonia South Site: 204.5km^2 of which 114.33km^2 contains floating foundations). It is assumed that vessels will not enter the entirety of the floating section of the Caledonia South Site during construction. It is assumed that a number/range of construction activities may be undertaken simultaneously across the Caledonia OWF.

8.7.1.4 Based on the existing sites constructed by the Applicant, particularly Moray East and Moray West OWFs, it is the experience of the Applicant that construction of WTGs occurs in a phased approach. This is related to the availability of infrastructure and construction vessels, as well as other factors. During the phased construction of Moray East and Moray West OWFs, fishing activity by scallop dredgers and squid demersal otter trawl were evidenced within the areas of the arrays that were not under construction. The Applicant provided regular and routine updates to the fishing industry on the nature, duration and timing of construction activities. This promoted co-existence during the construction phase. This approach is expected to be emulated throughout the construction of the Proposed Development (Offshore).

Sensitivity of Receptor

8.7.1.5 The demersal otter trawl, demersal seine, dredge, potting and line fishing fleets specifically target the local study area from local ports (notably 75% of the landed value from the local study area is landed into local ports), specifically Fraserburgh, Buckie and Macduff. While these fishing fleets may have access to alternative fishing grounds outside the local study area, they are expected to have a higher dependence on local grounds due to fuel cost, operating distances and weather constraints. The demersal otter trawl, demersal seine, dredge, potting and line fishing fleets are considered

to have moderate levels of alternative fishing grounds; are deemed to be of medium vulnerability, medium recoverability and medium value. The sensitivity of these receptors is therefore, considered to be medium.

8.7.1.6 The pelagic mobile fleet actively targets a wide range of grounds on a seasonal basis and is not specifically focused across the Proposed Development (Offshore). All pelagic gear fleets are considered to have an extensive operational range, be highly adaptive and resilient to change. The sensitivity of these receptors is therefore considered to be low.

Magnitude of Impact

Demersal Otter Trawl Nephrops Fishery

8.7.1.7 This trawl fishery operates across distinct muddy habitat to target nephrops within the nephrops Moray Firth Functional Unit, which is a defined stock area for nephrops. The average annual value of nephrops landed from 45E7, which overlaps the Caledonia OWF is £50,000. Spatial mapping of the footprint of the demersal otter trawl fishery is provided in Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report for VMS (sourced from ICES and MMO) and regional mapping of fishing grounds specific to nephrops trawl (sourced from NERIFG; Shelmerdine and Mouat, 2021[24]).

8.7.1.8 For Caledonia North VMS data indicates low-moderate activity by demersal otter trawlers in the north of Caledonia North; NERIFG (Shelmerdine and Mouat, 2021[24]) mapping corroborates this low-moderate level of activity specific to the nephrops fishery. Mapping indicates that areas to the south and south-east are of higher importance to the nephrops fleet. Overall, the magnitude of impact effecting the demersal otter trawl fishery targeting nephrops is considered to be low in relation to Caledonia North due to the overall low value of landings from 45E7 and low-moderate activity.

8.7.1.9 For Caledonia South VMS data indicates low-moderate activity across the bottom-fixed area of the Caledonia South Site, and low-high activity across the floating area of the Caledonia South Site. An important nephrops trawl fishing ground running north-east to south is located in 45E7. The Caledonia South Site boundary has been modified to avoid this ground specifically related to this fishery, combined with potential higher engineering constraints. The floating area of the Caledonia South Site overlaps with a small portion of a ground running west to east at the very southern section of Caledonia South. The Caledonia South Site overlaps with 5% of the key nephrops ground running west to east within ICES rectangle 45E7. Overall, the magnitude of impact effecting the demersal otter trawl fishery targeting nephrops is considered to be low in relation to Caledonia South due to the overall low value of landings from 45E7, low-moderate activity and the modification of the Caledonia South Site boundary to avoid the nephrops trawl fishing ground running north-east to south (as shown in Figure 8-5).

8.7.1.10 Overall, for the Caledonia OWF the magnitude of impact to the demersal otter trawl nephrops fishery is considered to be low.

Demersal Otter Trawl Squid Fishery

8.7.1.11 This trawl fishery operates on a seasonal basis, with squid being caught primarily from July to December. The Moray Firth is recognised for its importance to the squid fishery nationally, with approximately 20% of Scottish vessel landings of squid coming from the regional study area (based on 2022 landings). The average annual value of squid landed from 45E7, which overlaps the Caledonia OWF is £400,000. Spatial mapping of the footprint of the demersal otter trawl fishery is provided in Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report for VMS (sourced from ICES and MMO) and regional mapping of fishing grounds specific to demersal otter trawl (sourced from NERIFG; Shelmerdine and Mouat, 2021[24]). The NERIFG mapping does not distinguish demersal otter trawl activity targeting squid from the nephrops and finfish activity mapping. It is notable that 84% of squid landed by value is done so by vessels 12m and over; and 76% by vessels 15m and over. The activity of vessels targeting squid should therefore be represented in ICES VMS data (for vessels 12m and over) and within MMO VMS data (for vessels 15m and over).

8.7.1.12 Mapping for Caledonia North indicates low-moderate activity by demersal otter trawlers in the north of the Caledonia North Site. Mapping indicates that activity occurs across the entirety of 45E7, with specific hot-spots occurring outside the Caledonia North Site, to the west, east and south. Overall, the magnitude of impact effecting the demersal otter trawl fishery targeting squid is considered to be medium in relation to Caledonia North due to the overall high value of landings from 45E7 and low-moderate activity within the Caledonia North Site.

8.7.1.13 Mapping for Caledonia South VMS data indicates low-moderate activity across the bottom-fixed area of the Caledonia South Site, and low-high activity across the floating area of the Caledonia South Site. Mapping indicates that activity occurs across the entirety of 45E7, with specific hot-spots occurring outside the Caledonia South Site, to the north-west, north-east and south. Overall, the magnitude of impact effecting the demersal otter trawl fishery targeting squid is considered to be medium in relation to Caledonia South due to the overall high value of landings from 45E7 and low-moderate activity within the Caledonia South Site, and knowledge provided by commercial fisheries stakeholders during consultation.

8.7.1.14 Overall, for the Caledonia OWF, the magnitude of impact to the demersal otter trawl squid fishery is considered to be medium.

Demersal Otter Trawl and Demersal Seine Haddock and Finfish Fishery

8.7.1.15 This mixed demersal finfish fishery occurs across wide areas targeting demersal bottom feeding species, including haddock, cod, monkfish, whiting, plaice and saithe (amongst other species). Haddock is one of the

most valuable species with an average annual value of approximately £675,000 landed from 45E7 (based on 5-years 2018-2022). Combined value of haddock and other mixed demersal species is £911,000 landed annually from 45E7. Spatial mapping of the footprint of the demersal otter trawl fishery is provided in Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report for VMS (sourced from ICES and MMO) and regional mapping of fishing grounds specific to haddock, cod and monkfish trawl (sourced from NERIFG; Shelmerdine and Mouat, 2021[24]).

8.7.1.16 Mapping for Caledonia North indicates low-moderate activity by demersal otter trawlers in the north of the Caledonia North Site. Mapping indicates that activity occurs across the entirety of 45E7, with specific hot-spots occurring outside the Caledonia North Site, to the west, east and south. Overall the magnitude of impact effecting the demersal otter trawl fishery targeting haddock and mixed demersal is considered to be medium in relation to Caledonia North due to the overall high value of landings from 45E7 and low-moderate activity within the Caledonia North Site, and knowledge provided by commercial fisheries stakeholders during consultation.

8.7.1.17 Evidence in the form of plotter data from a sample of commercial fishing vessels has been provided by the fishing industry which illustrates trawl grounds running north to south and north to southwest within the Caledonia North Site. Industry consultation indicates that the area is important to demersal otter trawl vessels targeting haddock and mixed demersal species, particularly during instances of inclement weather when grounds closer inshore may be favoured over grounds in the central northern North Sea.

8.7.1.18 Mapping for Caledonia South VMS data indicates low-moderate activity across the bottom-fixed area of the Caledonia South Site, and low-high activity across the floating area of the Caledonia South Site. Mapping indicates that activity occurs across the entirety of 45E7, with specific hot-spots occurring outside the Caledonia South Site, to the north-west, north-east and south. Overall, the magnitude of impact effecting the demersal otter trawl fishery targeting haddock and mixed demersal is considered to be medium in relation to Caledonia South due to the overall high value of landings from 45E7 and low-moderate activity within the Caledonia South Site, and knowledge provided by commercial fisheries stakeholders during consultation.

8.7.1.19 Overall, for the Caledonia OWF, the magnitude of impact to the demersal otter trawl haddock and mixed demersal fishery is considered to be medium.

Scallop Dredge Fishery

8.7.1.20 This fishery is operated across broadscale gravelly, sand-gravel and sandy habitats. Scallop grounds are targeted by UK vessels throughout the UK,

with vessels naturally rotating grounds based on productivity in a 5-7 year cycle. The scallop fishery in 47E5 is one of the most valuable species to be landed, with an annual value of £695,000 (based on 7-year average, 2016-2022). Spatial mapping of the footprint of the dredge fishery is provided in Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report for VMS (sourced from ICES and MMO) and regional mapping of fishing grounds specific to scallop dredge (sourced from NERIFG; Shelmerdine and Mouat, 2021[24]).

8.7.1.21 For Caledonia North, VMS data indicates notably high-moderate levels of landings from the Caledonia OWF during 2016, with lower levels taken from Caledonia North from 2017 onwards. The NERIFG data shows a moderate level of scallop dredge activity throughout most of the Caledonia North Site, focused in the southern section. Overall, the magnitude of impact effecting the scallop dredge fishery is considered to be medium in relation to Caledonia North due to the overall high value of landings from 45E7 and moderate activity within the Caledonia North Site, and knowledge provided by commercial fisheries stakeholders during consultation.

8.7.1.22 Evidence in the form of plotter data from a sample of commercial fishing vessels has been provided by fishing industry organisations which illustrates scallop dredge grounds within the Caledonia North Site. Scallop grounds are characterised within plotter data by the route taken when actively fishing, with multiple tows typically following a defined oval shape. The plotter data indicates approximately ten locations where scallop dredge gear is routinely fished within the Caledonia North Site.

8.7.1.23 For Caledonia South VMS data indicates notably high-moderate levels of landings from the bottom-fixed portion of the Caledonia South Site during 2016 and 2018, with limited levels taken from the floating area of the Caledonia South Site in all years analysed. The NERIFG data corroborates this moderate level of scallop dredge activity in the bottom-fixed area and low activity in the floating area of the Caledonia South Site. Overall the magnitude of impact effecting the scallop dredge fishery is considered to be medium in relation to Caledonia South due to the overall high value of landings from 45E7 and moderate activity within the bottom-fixed area of the Caledonia South Site, and knowledge provided by commercial fisheries stakeholders during consultation.

8.7.1.24 The plotter data provided by fishing industry organisations indicates approximately 20 locations where scallop dredge gear is routinely fished within the Caledonia South Site, including both the bottom-fixed and floating areas.

8.7.1.25 Overall, for the Caledonia OWF, the magnitude of impact to the scallop dredge fishery is considered to be medium.

Pelagic Otter Trawl Mackerel Fishery

8.7.1.26 This fishery is operated on a highly seasonal basis by a fleet of 22 Scottish vessels. Mackerel landings from 45E7 had an annual value of £4,000 (based on a 3-year period 2020-2022) and a notable peak in 2019 of £500,000. VMS data mapping for 2019 corroborates that landings were taken from 45E7, with almost all of the landings from areas outside the Caledonia OWF, specifically to the east and north-east. Mapping sourced from the Scottish Pelagic Fishermen's Federation indicates active fishing and transiting by 21 member vessels from 2017 to 2021. A significant transit route for pelagic vessels is noted running north-west to south-east directly through the centre of the Caledonia OWF. Some active fishing is mapped which follows this transit route. The impact of transiting vessels is considered in Volume 2, Chapter 9: Shipping and Navigation.

8.7.1.27 For Caledonia North, overall, it is considered that the level of active fishing by pelagic otter trawls is low and the magnitude of impact to the pelagic trawl fishery is considered to be low.

8.7.1.28 For Caledonia South, overall, it is considered that the level of active fishing by pelagic otter trawls is low and the magnitude of impact to the pelagic trawl fishery is considered to be low.

8.7.1.29 Overall, for the Caledonia OWF, the magnitude of impact to the pelagic trawl fishery is considered to be low.

Potting Fishery Targeting Crab and Lobster

8.7.1.30 This fishery is operated primarily within inshore waters, within 12nm boundary. Landing statistics indicate a value of approximately £291,000 landed annually from 45E7 (based on a 5-year period 2018-2022). NERIFG mapping indicates activity outside the 12nm limit and to the west of the Caledonia OWF; activity is also noted within 45E7 in the inshore areas adjacent to Wick. VMS data indicates no activity within the Caledonia OWF in 2016 to 2018 and low activity in 2019 and 2020. Overall, minimal activity from potting vessels is expected within the Caledonia OWF.

8.7.1.31 For Caledonia North, overall, it is considered that the level of active fishing by potting is low and the magnitude of impact to the potting fishery is considered to be low.

8.7.1.32 For Caledonia South, overall, it is considered that the level of active fishing by potting is low and the magnitude of impact to the potting fishery is considered to be low.

8.7.1.33 Overall, for the Caledonia OWF, the magnitude of impact to the potting fishery is considered to be low.

Line and Jigging Fishery Targeting Mackerel

8.7.1.34 This fishery is primarily operated by vessels that deploy potting gear and shift to jigging for mackerel on a highly seasonal basis. NERIFG mapping indicates activity by vessels deploying lines is focused within inshore

waters, with high activity out to 6nm and low activity from 6 to 12nm. No activity is recorded within the Caledonia OWF. Landing statistics corroborate the low level of landings from 45E7, with no landings from 2016 to 2021 and a total of £80 recorded in 2022 from 45E7. Analysis of a longer time series indicates no landings from 2011 to 2014 and a catch of £5,000 of mackerel in 2015. Overall, minimal activity from vessels deploying lines is expected within the Caledonia OWF.

8.7.1.35 For Caledonia North, overall, it is considered that the level of active fishing by lines/jigging is low and the magnitude of impact to the line fishery is considered to be low.

8.7.1.36 For Caledonia South, overall, it is considered that the level of active fishing by lines/jigging is low and the magnitude of impact to the line fishery is considered to be low.

8.7.1.37 Overall, for the Caledonia OWF, the magnitude of impact to the line fishery is considered to be low.

Significance of Effect

8.7.1.38 Taking the **Medium** sensitivity of demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish and scallop dredge fisheries and the **Medium** magnitude of impact, the overall effect of reduction in access during construction is considered to be **Moderate and Significant in EIA terms**.

8.7.1.39 Taking the **Medium** sensitivity of demersal otter trawl nephrops, potting and line/jigging fisheries and the **Low** magnitude of impact, the overall effect of reduction in access during construction is considered to be **Minor and Not Significant in EIA terms**.

8.7.1.40 Taking the **Low** sensitivity of pelagic otter trawl fishery and the **Low** magnitude of impact, the overall effect of reduction in access during construction is considered to be **Minor and Not Significant in EIA terms**.

Impact 2: Reduction in Access to, or Exclusion from Established Fishing Grounds within the Caledonia OECC

8.7.1.41 Fishing activity will be locally and temporarily excluded at the location of construction within the Caledonia OECC owing to the presence of construction vessels, construction operations and the need to observe The Convention on the International Regulations for Preventing Collisions at Sea, 1972 (COLREGS) (International Maritime Organization, 1974[26]).

8.7.1.42 The construction scenario assumes 12 months of seabed preparation and six months to lay the offshore export cables. In terms of the area impacted by construction activities, a width up to 20m of seabed surrounding each offshore export cable will be disturbed during construction. In addition, an

advisory safe passing distance of 500m radius around cable installation vessels active along the Caledonia OECC, is recommended.

Sensitivity of Receptor

8.7.1.43 The sensitivity is as described for reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF, summarised as medium for demersal otter trawl, demersal seine, dredge, potting and line fishing fleets; and low for pelagic otter trawl fishing fleet.

Magnitude of Impact

8.7.1.44 The Caledonia OECC is located across ICES rectangle 45E7 and 44E7, with the majority overlapping with 44E7. This is of relevance because the highest value from the local study area is landed from 44E7, with average annual value of £5.8 million, compared to £2.4 million from 45E7 (based on 5-years from 2018-2022).

Demersal Otter Trawl Nephrops Fishery

8.7.1.45 VMS data shows consistently targeted grounds within 44E7, particularly inshore, out to 12nm. The NERIFG mapping corroborates this, with identification of highly targeted nephrops grounds inshore and from 6 to 12nm, within 44E7 and overlapping the Caledonia OECC. The Caledonia OECC overlaps with approximately 7% of the grounds mapped for nephrops in 44E7 and 1% in 45E7. This equates to a combined value of £130,000 per annum (based on 5-years from 2018-2022). The overlap of the Caledonia OECC occurs within the central portion of the nephrops grounds targeted, thereby constriction activities could potentially impact duration or length of fishing vessel tow in east-to-west or west-to-east directions. Based on the value and extent of overlap, the magnitude of impact for the nephrops trawl fishery is assessed as medium.

Demersal Otter Trawl Squid Fishery

8.7.1.46 VMS data shows consistently targeted grounds within 44E7, particularly inshore, out to 12nm. The NERIFG mapping for demersal trawl fisheries is assumed to capture activity by the squid fleet. The Caledonia OECC overlaps with approximately 7% of the grounds mapped for nephrops in 44E7 and 1% in 45E7. This equates to a combined value of £140,000 per annum (based on 5-years from 2018-2022). Based on the value and extent of overlap, the magnitude of impact for the squid trawl fishery is assessed as medium.

Demersal Otter Trawl and Demersal Seine Haddock and Finfish Fishery

8.7.1.47 VMS data shows consistently targeted grounds within 44E7, particularly inshore, out to 12nm. The NERIFG mapping corroborates this, with identification of highly targeted haddock and mixed demersal fish grounds inshore, from 6 to 12nm and beyond, within 44E7 and overlapping the Caledonia OECC. The Caledonia OECC overlaps with approximately 7% of the grounds mapped for haddock in 44E7 and 1% in 45E7. This equates to

a combined value of £60,000 per annum (based on 5-years from 2018-2022). Based on the value and extent of overlap, the magnitude of impact for the haddock trawl and seine fishery is assessed as medium.

Scallop Dredge Fishery

8.7.1.48 VMS data and ICES surface swept area ratio data indicate that the primary grounds targeted by scallop dredgers are located within 0 to 6nm; while the NERIFG mapping shows a wider area targeted across the extent of the Caledonia OECC. It is understood that few scallop dredge vessels in Scotland are under 12m in length and therefore, the ICES SAR data is expected to be representative of scallop dredge activity. Overall, this shows an overlap of the Caledonia OECC with 11% with grounds in 44E7 and 1% with grounds in 45E7, equating to £29,100 value (based on 12-years from 2011-2022). Based on the value and extent of overlap, the magnitude of impact for the scallop dredge fishery is assessed as medium.

Pelagic Otter Trawl Mackerel Fishery

8.7.1.49 VMS data from the MMO indicates minimal activity by pelagic otter trawlers within 44E7. The VMS data provided by the Scottish Pelagic Fishermen's Association indicates some activity within 12nm, particularly adjacent to Fraserburgh, but minimal overlap with the Caledonia OECC. Based on the low overlap, the magnitude of impact for the pelagic trawl fishery is assessed as low.

Potting Fishery Targeting Crab and Lobster

8.7.1.50 The NERIFG mapping of potting activity for crab and lobster indicates that most potting activity occurs within 6nm from shore, with concentrated high effort close inshore (from 0-3nm). Overall, this shows an overlap of the Caledonia OECC with 6% with grounds in 44E7 and 0% with grounds in 45E7, equating to £61,000 value (based on 5-years from 2018-2022). Based on the value and extent of overlap, the magnitude of impact for the potting fishery is assessed as medium.

Line and Jigging Fishery Targeting Mackerel

8.7.1.51 The NERIFG mapping of line fishery activity indicates the fishery occurs within 12nm, with effort focused from 0-3nm. Specific high areas of activity are noted outside the Caledonia OECC, to the west and east. Overall, the mapping shows an overlap of the OECC with 9.2% with grounds in 44E7 and 0% with grounds in 45E7, equating to £34,000 value (based on 5-years from 2018-2022). Based on the high mobility of the species and high areas of activity identified outside the Caledonia OECC, the magnitude of impact for the line and jigging fishery is assessed as low.

Significance of Effect

8.7.1.52 Taking the **Medium** sensitivity of demersal otter trawl nephrops, demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish, scallop dredge and potting fisheries and the **Medium** magnitude of

impact, the overall effect is considered to be **Moderate and Significant in EIA terms**.

8.7.1.53 Taking the **Medium** sensitivity of the line/jigging fishery targeting mackerel and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.1.54 Taking the **Low** sensitivity of pelagic otter trawl fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

Impact 3: Displacement Leading to Gear Conflict and Increased Fishing Pressure on Adjacent Grounds

8.7.1.55 Loss of access or exclusion from fishing grounds due to the Proposed Development (Offshore) may lead to increases in fishing effort in other areas that may already be exploited thereby leading to increased pressure and gear conflict.

8.7.1.56 This assessment of displacement has been undertaken with due regard to Xodus (2022[27]) guidelines in defining the magnitude of impact to each receptor group and sensitivity of each commercial fishing fleet. The displacement considers both primary and secondary displacement, defined as follows (Xodus, 2022[27]):

- Primary displacement refers to the first instance of displacement where fishing effort is relocated to another area as a result of a change in the spatial environment. In the context of this guidance, this corresponds to displacement that is a direct result of other licensed marine activities and associated infrastructure.
- Secondary displacement is an indirect effect of the other licensed marine activity and associated infrastructure. This occurs when the fishing effort that is relocated through primary displacement also displaces fishing effort.

8.7.1.57 The guidance provides details on baseline data sources, highlighting that "*no single source of data can be used to comprehensively describe commercial fishing activity, due to the inherent limitations of each data source*". Data sources are detailed in Section 8.4.2 and Section 8.4.5, together with associated limitations and uncertainties. The guidance specifically recommends the following steps (Xodus, 2022[27]):

- Clear understanding of the commercial fishing 'receptors' for which impacts will be assessed, the fishing methods which are operated in the study area, including the areas where fishing activity may be relocated;
- Identification of the likely maximum distance of displacement by the receptors, and the potential spatial extent of displacement effects for the fishing vessels which are already operational in the area which vessels are displaced to;

- Identification of potential impacts on displaced commercial fisheries from the area that vessels are initially displaced from;
- Identification of potential impacts on any fishing vessel operators/ owners which are already active in the area in which vessels are displaced to and the potential for competition for space;
- Establishing the sensitivity of each commercial fisheries receptor to displacement, with reference to the specifications;
- If possible, a quantitative assessment of magnitude (e.g., taking account of spatial extent, duration, fishing effort, number of vessels); and
- Consideration of primary and secondary displacement where applicable.

Sensitivity of Receptor

8.7.1.58 The sensitivity is as described for reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF, summarised as medium for demersal otter trawl, demersal seine, dredge, potting and line fishing fleets; and low for pelagic otter trawl fishing fleet.

Magnitude of Impact

Demersal Otter Trawl Nephrops, Squid, Demersal Otter Trawl and Demersal Seine Haddock and Finfish and Scallop Dredge

8.7.1.59 These vessels have an operational range throughout the commercial fisheries regional study area and further into the North Sea and, in the case of scallop dredge throughout waters around the UK. These fishing fleets target a range of alternative grounds, including the Moray Firth area and local study area, which due to its proximity to key fishing ports is fished with higher intensity and considered an important fishing location. Given the higher dependence of local vessels on this local study area (based on high proportion of landings into local ports), these vessels could be expected to remain within the regional study area, so proportionally experience a higher degree of displacement. The value of the fisheries has been described within the reduction of access impacts. It is considered that a proportion of this value will be redirected to alternative fishing grounds that have been routinely fished by the displaced operators, with the remainder focused on alternative fishing grounds not routinely fished. The former causes increase pressure on alternative grounds and the later may cause increase conflict between fishers. Overall, the magnitude of the displacement impact from the Proposed Development (Offshore) is assessed to be medium for these fishing fleets.

Potting

8.7.1.60 Conflict over diminished grounds may occur if displaced vessels operating mobile gear (e.g., dredge or demersal trawl) explore grounds traditionally fished by potters; and/or displaced potting gear is relocated into other

actively fished potting grounds. Displacement of mobile gear may therefore increase the risk of interaction with potting gear.

8.7.1.61 When considering the impact of potters being displaced 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.
- 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 exclusion impacts will limit this.

8.7.1.62 Taking all of these aspects into consideration, the magnitude of the displacement impact is assessed to be medium for potting vessels.

Line Fishing

8.7.1.63 This fishery is highly seasonal, and operated within inshore grounds. Hot-spots of activity are noted to the west and east of the Caledonia OECC. Displacement is expected to be short term across the portion of Caledonia OECC targeted; with effort likely to move into these higher importance areas located outside the Caledonia OECC. Overall, the magnitude of the displacement impact is assessed to be low for line/jigging vessels.

Pelagic Trawl

8.7.1.64 Pelagic otter trawlers from all nationalities may occasionally operate within the Proposed Development (Offshore); however, these vessels operate throughout the entirety of the North Sea, west of Scotland and Celtic Sea across a range of established fishing grounds. Displacement is not expected to affect pelagic fleets due to the fishing not being directly associated with seabed types and the target species being highly mobile. Overall, the magnitude of the displacement impact is assessed to be low for pelagic vessels.

Significance of Effect

8.7.1.65 Taking the **Medium** sensitivity of demersal otter trawl nephrops, demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish, scallop dredge and potting fisheries and the **Medium** magnitude of impact, the overall effect is considered to be **Moderate and Significant in EIA terms**.

8.7.1.66 Taking the **Medium** sensitivity of line/jigging fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.1.67 Taking the **Low** sensitivity of pelagic otter trawl fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

Impact 4: Disturbance of Commercially Important Fish and Shellfish Resources Leading to Displacement or Disruption of Fishing Activity

8.7.1.68 Noise and seabed disturbances during the construction phase may decrease or displace commercially important fish and shellfish populations from the area. This section assesses the subsequent effect 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.

Sensitivity of Receptor

8.7.1.69 Exposure to the impact is likely and commercial fleets targeting key species may be affected, including *Nephrops*, scallop, squid, brown crab, lobster, haddock, monkfish and demersal finfish.

8.7.1.70 Due to the range of areas targeted and the distribution of key commercial species throughout the northern, central and southern North Sea, all fleets are deemed to be of low vulnerability and high recoverability. The sensitivity of the receptor for all fisheries is therefore, considered to be low.

Magnitude of Impact

8.7.1.71 Detailed assessments of the following potential construction impacts have been undertaken in relation to Fish and Shellfish Ecology (Volume 2, Chapter 5):

- Mortality, injury and behavioural changes resulting from underwater noise arising from construction activity;
- Temporary increases in suspended sediment concentrations (SSCs);
- Temporary habitat disturbance; and
- Direct and indirect seabed disturbance leading to release of sediment contaminants.

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

8.7.1.73 Details of the fish and shellfish ecology assessment, together with the supporting evidence and justification are provided in Volume 2, Chapter 5. Temporary habitat disturbance, increased SSCs and potential release of sediment contaminants during the construction phase are not expected to affect fish and shellfish resources; and underwater noise (assessed for

piling installation) is expected to be highly localised with high recoverability. The fish and shellfish ecology assessment found all construction impacts to be of negligible to minor adverse significance for all fish and shellfish receptors.

8.7.1.74 The magnitude of impact is predicted to be of regional spatial extent, of relevance to international fishing fleets, and of medium-term duration. It is predicted that the impact will affect the receptor directly through loss of resources. The magnitude is therefore considered to be low for all species and all potential impacts.

Significance of Effect

8.7.1.75 Overall (all fisheries), the magnitude of the impact is deemed to be **Low** and the sensitivity of the receptor is considered to be **Low**. The significance of effect will therefore be **Minor and Not Significant in EIA terms**.

Impact 5: Increased Vessel Traffic Associated with the Proposed Development (Offshore) Within Fishing Grounds Leading to Interference with Fishing Activity

8.7.1.76 This section assesses the likely significant effects arising from the Proposed Development (Offshore) related vessel traffic and changes to shipping patterns as a result of any potential navigational channels leading to interference with fishing activity (reduced access) during construction.

Sensitivity of Receptor

8.7.1.77 Potting gear can be vulnerable to increased construction vessel movements within supply routes to and from entry and exit points due to risk of entanglement of construction vessel propellers with marker buoys of fishing gear. It is noted that established shipping routes do currently cross the Caledonia OWF, and that the construction vessels are likely to follow these routes where possible. The sensitivity of the potting fleet is therefore, considered to be medium.

8.7.1.78 All other fishery fleets are expected to be in a position to avoid the Proposed Development (Offshore) construction areas. The sensitivity of pelagic trawl, demersal trawl fisheries (including otter trawl and demersal seine), the dredge fishery and line fishery are considered to be low.

Magnitude of Impact

8.7.1.79 Vessel movements (construction vessels transiting to and from areas undergoing construction works) related to the construction of the Proposed Development (Offshore) and all associated infrastructure will add to the existing level of shipping activity in the area (see Volume 2, Chapter 9: Shipping and Navigation for a full assessment of additional vessel movements).

8.7.1.80 Up to 3,978 vessel working days by construction vessels (and site preparation vessels) and 3,992 vessel movements may be made throughout the construction phase (sequential construction) and will include vessels which are Restricted in their Ability to Manoeuvre (RAM). Project vessels will be managed by marine coordination, including the use of traffic management procedures such as the designation of entry and exit points to and from the buoyed construction area. Project vessels will also carry AIS and be compliant with relevant Flag State regulations, including the COLREGs (IMO, 1974[26]), and comply with the procedures set out in the VMP (Vessel Management Plan) (which will be a condition of consent).

8.7.1.81 Safety zones will be applied for including up to 500m around structures where vessels are undertaking construction work and 50m around partially completed or completed surface piercing structures prior to commissioning of the wind farm. Such safety zones will protect project vessels involved in construction which may be RAM. If on-site as deemed necessary via risk assessment, guard vessels will also assist with monitoring safety zones and alerting third party traffic to their presence.

8.7.1.82 Details of construction activities, including the presence of safety zones and any use of advisory safe passing distances, as defined by risk assessment, will be suitably promulgated to maximise awareness of ongoing construction activities. The Applicant will emulate practices for information sharing developed during construction of existing wind farms, for example, the weekly construction updates provided for Moray West which have been received positively by the fishing industry community.

8.7.1.83 Additionally, the use of International Association of Marine Aids to Navigation and Lighthouse Authorities (IALA) G1162 (IALA, 2021[28]) compliant lighting and marking including lights, marks, sounds, signals and other aids to navigation as required by the Northern Lighthouse Board (NLB) and the Maritime and Coastguard Agency (MCA) will further maximise awareness, both in day and night conditions including in restricted visibility. This includes the buoyed construction area which will be agreed with the NLB prior to construction and within which project vessels undertaking construction activities will most likely be located during construction activities. In addition, the Applicant will endeavour to agree shelter areas for construction vessels with the fishing industry to minimise impacts on fishing activities to the extent practicable; further details are provided in the FMMS for Caledonia North (Volume 7, Appendix 17) and Caledonia South (Volume 7, Appendix 18).

8.7.1.84 It is noted that continuous liaison with the fishing industry will be undertaken including location and duration of construction activities; further details are provided in the FMMS (Volume 7, Appendix 17 and Volume 7, Appendix 18).

8.7.1.85 All fishing fleets are considered to be able to avoid vessel movements related to construction of the Proposed Development (Offshore) based on

prior provision of construction details (timings and locations) allowing fishing vessels to plan their activities; use of traffic management procedures including entry and exit points for project related vessels; use of buoyed construction area and adherence to the VMP. The magnitude is therefore, considered to be low for all fisheries.

Significance of Effect

8.7.1.86 Taking the **Medium** sensitivity of the potting fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.1.87 Taking the **Low** sensitivity of all other fisheries and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

Impact 6: Physical Presence of Infrastructure and Potential Exposure of that Infrastructure Leading to Gear Snagging

8.7.1.88 The under construction and physical presence of semi-constructed infrastructure on the seabed represents potential snagging points for fishing gear and could lead to damage to, or loss of, fishing gear. The safety aspects including potential loss of life as a result of snagging risk are assessed within Volume 2, Chapter 9: Shipping and Navigation.

8.7.1.89 Throughout the construction phase, safety zones will be applied for including up to 500m around structures where vessels are undertaking construction work and 50m around partially completed or completed surface piercing structures prior to commissioning of the wind farm.

Sensitivity of Receptor

8.7.1.90 Due to the nature and operation of mobile demersal gear (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 demersal fisheries.

8.7.1.91 Potting and line/jigging gear show a lower vulnerability as the gear is placed, not towed and is less likely to penetrate the seabed. The sensitivity of potters and line/jigging vessels is considered to be low.

8.7.1.92 Pelagic trawl gear does not come into contact with the seabed and therefore has low vulnerability to snagging seabed infrastructure, although snagging infrastructure within the water column remains a possibility. The sensitivity of pelagic trawl fleets is considered to be low.

Magnitude of Impact

8.7.1.93 In the instance that snagging does occur, the Applicant will work to the protocols laid out within the guidance produced by the FLOWW group and Recommendations for Fisheries Liaison: Best Practice Guidance for Offshore

Renewable Developers (FLOWW, 2014[6]), in particular section 11: Dealing with claims for loss or damage of gear.

8.7.1.94 Snagging poses a risk to fishing equipment and in extreme cases may potentially lead to capsize of vessel and crew fatalities, as well as damage to subsea infrastructure. Three phases of interaction are possible: initial impact of gear and subsea infrastructure; pullover of gear across subsea infrastructure; and snagging or hooking of gear on the subsea infrastructure. The snagging or hooking of fishing gear with infrastructure/ cables on the seabed is the most hazardous to the vessel and crew due to the possibility of capsizing.

8.7.1.95 It is considered likely that fishermen will operate appropriately (adhering to Safety Zones and exclusion zones, and avoiding under construction infrastructure and cable protection at the defined locations) given adequate notification of the locations of any snagging hazards; and are highly likely to avoid the under construction infrastructure and cable protection within the Caledonia OWF.

8.7.1.96 Based on the embedded mitigation measures that will be implemented as part of the Proposed Development (Offshore) and the commitment to follow standard protocols should snagging occur, the magnitude is considered to be low for all fleets.

Significance of Effect

8.7.1.97 Taking the **Medium** sensitivity of the demersal otter trawl nephrops, demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish, scallop dredge and line/jigging fisheries and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.1.98 Taking the **Low** sensitivity of potting and pelagic trawl fisheries and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

Impact 7: Additional Steaming to Alternative Fishing Grounds for Vessels that Would Otherwise Fish within the Proposed Development (Offshore)

8.7.1.99 A detailed Navigational Risk Assessment (Volume 7B, Appendix 9-1) has been undertaken and is discussed in Volume 2, Chapter 9: Shipping and Navigation, which includes full consideration of commercial fishing vessels while transiting (e.g., from a collision and allision perspective). This assessment focuses on the likely significant effects arising from longer steaming distances to alternative fishing grounds that would have otherwise been targeted within the Proposed Development (Offshore).

Sensitivity of Receptor

8.7.1.100 The demersal otter trawl, demersal seine, dredge and pelagic otter trawl fisheries targeting the local and regional study areas are understood to operate across wider areas of the North Sea and in the case of larger vessels, beyond this range. Given adequate notification it is expected that these vessels will be in a position to avoid construction areas within the Proposed Development (Offshore) with limited impact upon steaming times.

8.7.1.101 The UK potting fleet active in the local and regional study areas operate across a range of grounds to haul and re-set different fleets of traps/pots on a daily basis. Their normal operating range is expected to be inshore from the Proposed Development (Offshore). Given adequate notification it is expected that these vessels will be in a position to avoid construction areas with limited impact upon steaming times.

8.7.1.102 In relation to grounds within the Proposed Development (Offshore), all commercial fishing fleets are considered to have moderate availability of alternative fishing grounds and an operational range that is not limited to the Proposed Development (Offshore). Assuming prior notification which will allow fishers to plan fishing activities, the sensitivity of the receptor is therefore, considered to be low for all fisheries.

Magnitude of Impact

8.7.1.103 Details of the construction activities will be promulgated in advance of, and during construction via the usual means (e.g., Notices to Mariners, Kingfisher bulletin) so that mariners are made aware of the ongoing works. Localised construction works will necessitate minor deviations for fishing vessels. Localised impacts are anticipated but will be limited to the immediate area of construction activity and associated construction vessels. The vessel route density data for fishing vessels indicated a clear transit route through the centre of Caledonia OWF from northwest to southeast (Figures 7-22 and 7-23 of Volume 7B, Appendix 8-1: Commercial Fisheries Technical Report) and this is corroborated by VMS transiting data from the Scottish pelagic vessels (Figures 7-5 of Volume 7, Appendix 8-1). The requirement for route deviation has been considered within the Shipping and Navigation assessment (see Volume 2, Chapter 9: Shipping and Navigation) and may require a deviation of up to 0.7nm, an increase of 1% of the total route and passing further east of Caledonia OWF. For all other fleets, with prior notification of construction activities, it is not expected that additional steaming would be required to access fishing grounds normally targeted within the Proposed Development (Offshore).

8.7.1.104 The impact is predicted to be of regional spatial extent, medium term duration, intermittent and with high reversibility. It is predicted that the impact will affect the receptor directly. Based on the justifications above, the magnitude is therefore, considered to be low for all fisheries.

Significance of Effect

8.7.1.105 Overall (all fisheries), the magnitude of the impact is deemed to be **Low** and the sensitivity of the receptor is considered to be **Low**. The significance of effect will therefore be **Minor and Not Significant in EIA terms**.

8.7.2 Operation

Impact 8: Reduction in Access to, or Exclusion from Established Fishing Grounds Within the Caledonia OWF

8.7.2.1 During the operation and maintenance phase the assessment assumes that within the Caledonia North and Caledonia South bottom-fixed foundation areas, commercial fisheries will be prevented from actively fishing within a total area of 0.45km^2 due to the physical presence of infrastructure and scour protection, with a maximum of 101 bottom-fixed turbines including 39 in Caledonia South and 62 in Caledonia North plus four OSPs; plus across areas of inter-array and interconnector cable protection; together with associated safety zones for maintenance activities and assumed operating distances (full details of the area breakdowns are provided in Table 8-9). Minimum turbine spacing is 944m between WTGs and 1,310m between OSPs and other structures. In addition, during the lifetime of the project, routine and major maintenance may be undertaken, including component replacement and remedial cable burial, and as such there may be some temporary displacement to fishing activities within associated 500m maintenance safety zones.

8.7.2.2 For areas of Caledonia OWF with bottom-fixed foundations (in Caledonia North and Caledonia South), the assessment assumes that fishing will be possible within the Caledonia OWF where turbine spacing and turbine layout allow productive grounds to be targeted, with the exception of safety zones around infrastructure undergoing major maintenance and advisory safety distances around vessels undertaking major maintenance activities. In addition, 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 Caledonia OWF. Inclement weather will be a significant contributor to this risk perception. The type and dimension of fishing gear also influences the potential opportunities within the array area. For example, pelagic trawl, multi-rig otter trawl and demersal seine/fly shooting gear require a greater distance for safe operation and these gears are unlikely to target grounds in the vicinity of infrastructure. This is considered further within the magnitude assessment.

8.7.2.3 For areas of Caledonia OWF with floating foundations (as part of the Caledonia South Site), the assessment assumes that fishing will not

resume due to constraints of mooring and anchoring systems which occupy the full 114.32km^2 area of floating foundations.

Sensitivity of Receptor

8.7.2.4 The sensitivity is as described for construction, summarised as medium for demersal otter trawl, demersal seine, dredge, potting and line fishing fleets; and low for pelagic otter trawl fishing fleet.

Magnitude of Impact

8.7.2.5 It is assumed that fishing will resume within the Caledonia North Site during the operation and maintenance phase, with loss of access limited to physical presence of infrastructure and safety zones around major maintenance activities.

8.7.2.6 As described for the construction phase, there are low levels of activity within the Caledonia North Site for nephrops trawl, pelagic trawl, potting and line fishing and therefore the magnitude is assessed as low for these fisheries.

8.7.2.7 Activity is noted for the squid and finfish demersal otter trawl and demersal seine and scallop dredge fisheries. It is assumed that these fisheries will resume fishing within the operational wind farm and therefore the magnitude of impact of Caledonia North is assessed as low for these fisheries.

8.7.2.8 It is assumed that fishing will resume within the bottom-fixed area of the Caledonia South Site during the operation and maintenance phase, with loss of access limited to physical presence of infrastructure and safety zones around major maintenance activities.

8.7.2.9 As described for the construction phase, there are low levels of activity within the bottom-fixed area of the Caledonia South Site for nephrops trawl, pelagic trawl, potting and line fishing.

8.7.2.10 Activity is noted for the squid and finfish demersal otter trawl and demersal seine and scallop dredge fisheries. It is assumed that these fisheries will resume fishing within the bottom-fixed area of the Caledonia South Site during operational phase.

8.7.2.11 It is assumed that no fishing will resume within the floating area of the Caledonia South Site due to the network of mooring and anchor systems taking up the entirety of the proposed floating area.

8.7.2.12 The boundary of the floating area within the Caledonia South Site has been refined to avoid a defined nephrops ground (as indicated in the NERIFG mapping). Due to this avoidance the magnitude of impact of Caledonia South (bottom-fixed and floating) to nephrops trawl is assessed as low.

8.7.2.13 As described for the construction phase, there are low levels of activity within the floating area of the Caledonia South Site for pelagic trawl, potting and line fishing. Due to this low level of activity the magnitude of

impact of Caledonia South (bottom-fixed and floating) to pelagic trawl, potting and line fishing is assessed as low.

8.7.2.14 As described for construction, activity is noted for the squid and finfish demersal otter trawl and demersal seine and scallop dredge fisheries within the floating area of the Caledonia South Site. It is assumed that these fisheries will not resume fishing within the floating area of the Caledonia South Site during operational phase of 35 years. This represents a loss of 3.5% of surface area of ICES rectangle 45E7. The average annual first sales value landed from 45E7 is £2 million for these combined squid and finfish demersal otter trawl and demersal seine and scallop dredge fisheries. The loss of 3.5% equates to approximately £69,000 per annum for these combined squid and finfish demersal otter trawl and demersal seine and scallop dredge fisheries (based on equal distribution of activity throughout 45E7, which is precautionary, given identification of hotspots outside the Caledonia OWF). Due to this loss of access within the floating area across a 35 year timeframe, the magnitude of impact of Caledonia South (bottom-fixed and floating) to squid and finfish demersal otter trawl and demersal seine and scallop dredge fisheries is assessed as medium.

Significance of Effect

8.7.2.15 Taking the **Medium** sensitivity of demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish and scallop dredge fisheries and the **Medium** magnitude of impact, the overall effect is considered to be **Moderate and Significant in EIA terms**.

8.7.2.16 Taking the **Medium** sensitivity of demersal otter trawl nephrops, potting and line/jigging fisheries and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.2.17 Taking the **Low** sensitivity of pelagic otter trawl fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

Impact 9: Reduction in Access to, or Exclusion from Established Fishing Grounds within the Caledonia OECC

8.7.2.18 The assessment assumes that commercial fisheries will be prevented from actively fishing within a total area of 1.27km^2 within the Caledonia OECC, including cable protection and cable crossings. Temporary 500m advisory safety distances requested around vessels engaged in export cable repair works, could limit fishing opportunities within localised areas. In addition to 1.27km^2 that is permanently unavailable (due to cable protection and cable crossings), an estimated additional area of up to 1.76km^2 will be temporarily unavailable throughout the lifetime of the project due to remedial cable burial and cable repairs.

8.7.2.19 ESCA (2018[13]) notes that cables are potentially 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 (UK Hydrographic Office (UKHO), 2004[29]).

8.7.2.20 In addition, the MCA guidance MGN661 (MCA, 2021[30]), advises that fishing vessels should avoid fishing activity near either side of submarine cables in order to minimize the risk of damage as much as possible.

8.7.2.21 Notwithstanding this, subsea cables are widespread throughout the North Sea, providing power and telecommunications links, and it is understood that fishing does take place in the vicinity of subsea cables (Kingfisher Information Service - Offshore Renewable and Cable Awareness (KIS-ORCA), 2019[31]). The Applicant is a member of FLOWW and is actively working with fishing industry representatives to facilitate coexistence in relation to fishing and cables.

8.7.2.22 The assessment is undertaken on the understanding that it is illegal to wilfully, or negligently, break or damage any submarine cable and that burial, or other forms of protection, and routine burial surveys or other activities undertaken by the cable owner do not indemnify other seabed users should their activities result in damage to it.

Sensitivity of Receptor

8.7.2.23 The sensitivity is as described for construction, summarised as medium for demersal otter trawl, demersal seine, dredge, potting and line fishing fleets; and low for pelagic otter trawl fishing fleet.

Magnitude of Impact

8.7.2.24 For the purposes of this assessment, it is assumed that fishers will be well informed of the location and integrity of the Caledonia OECC (the Applicant will issue locations of as-built cable protection as soon as the information is available, together with details of routine cable integrity surveys and location and schedule for any maintenance works), and that based on this knowledge will seek to exploit grounds across the Caledonia OECC with caution. The assessment therefore assumes that fishing will resume within the vicinity of the export cables, and that fishers will comply with MGN661[30].

8.7.2.25 Notices to Mariners will be issued in advance of any maintenance works. Potting vessels may be required to temporarily relocate pots during maintenance works, although such works are likely to be infrequent.

8.7.2.26 Pelagic gear does not come into contact with the seabed and therefore the presence of the Caledonia OECC will not affect potential fishing opportunities.

8.7.2.27 Given that fishing is likely to resume across the majority of the Caledonia OECC, with exception of the cable protection and final location of the cable, the magnitude is considered to be low for all other fishing fleets.

Significance of Effect

8.7.2.28 Taking the **Medium** sensitivity of demersal otter trawl nephrops, demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish, scallop dredge, potting and line/jigging fisheries and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.2.29 Taking the **Low** sensitivity of pelagic otter trawl fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not significant in EIA terms**.

Impact 10: Displacement Leading to Gear Conflict and Increased Fishing Pressure on Adjacent Grounds

8.7.2.30 Loss of access or exclusion from fishing grounds during operation and maintenance of the Proposed Development (Offshore) may lead to increases in fishing effort in other areas that may already be exploited thereby leading to gear conflict and increased pressure on adjacent fishing grounds.

Sensitivity of Receptor

8.7.2.31 The sensitivity is as described for construction, summarised as medium for demersal otter trawl, demersal seine, dredge, potting and line fishing fleets; and low for pelagic otter trawl fishing fleet.

Magnitude of Impact

8.7.2.32 During the operational phase it is assumed that fishing will resume within the Caledonia North OECC for all gears and within the Caledonia North Site for all gears except pelagic otter trawl due to size of the net and area required when actively fishing. The magnitude of impact for demersal otter trawl nephrops, demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish, scallop dredge, potting and line/jigging fisheries is considered to be low. Given the limited amount of active fishing within the Caledonia North Site, the magnitude of impact to pelagic otter trawl fishery is considered to be low.

8.7.2.33 During the operational phase it is assumed that fishing will resume within the Caledonia South OECC for all gears and within the bottom-fixed area of the Caledonia South Site for all gears except pelagic otter trawl due to size of the net and area required when actively fishing. During the operational phase it is assumed that fishing would not resume within the floating area of the Caledonia South Site for all fishing fleets. There is potential for fleets to adapt to the presence of the floating area of the Caledonia South Site and for displacement effects to lessen with time; however, given the

potential for ongoing impacts and the assumption that fishing would not resume within the floating area, the magnitude is considered to be medium for demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish and scallop dredge fisheries. The magnitude is considered to be low for all other fisheries due to the limited activity within the floating area.

8.7.2.34 Overall, the magnitude is considered to align with the assessment for Caledonia South, due to ongoing impacts and the assumption that fishing would not resume within the floating area, the magnitude is considered to be medium for demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish and scallop dredge fisheries. The magnitude is considered to be low for all other fisheries due to the limited activity within the floating area.

Significance of Effect

8.7.2.35 Taking the **Medium** sensitivity of demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish and scallop dredge fisheries and the **Medium** magnitude of impact, the overall effect is considered to be **Moderate and Significant in EIA terms**.

8.7.2.36 Taking the **medium** sensitivity of demersal otter trawl nephrops, potting and line/jigging fisheries and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.2.37 Taking the **Low** sensitivity of pelagic otter trawl fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

Impact 11: Disturbance of Commercially Important Fish and Shellfish Resources Leading to Displacement or Disruption of Fishing Activity

8.7.2.38 Habitat loss, electromagnetic fields (EMF) and noise disturbances during the operation and maintenance phase may decrease or displace commercially important fish and shellfish populations from the area. This section assesses the subsequent effect 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.

Sensitivity of Receptor

8.7.2.39 Exposure to the impact is likely and commercial fleets targeting key species may be affected, including *Nephrops*, scallop, squid, brown crab, lobster, haddock, monkfish and demersal finfish.

8.7.2.40 Due to the range of areas targeted and the distribution of key commercial species throughout the northern, central and southern North Sea, all fleets are deemed to be of low vulnerability and high recoverability. The

sensitivity of the receptor for all fisheries is therefore, considered to be low.

Magnitude of Impact

8.7.2.41 Detailed assessments of the following potential operation and maintenance impacts have been undertaken in relation to Fish and Shellfish Ecology (Volume 2, Chapter 5):

- Long-term loss of habitat due to the presence of turbine foundations, scour protection and cable protection;
- Introduction/colonisation of hard substrate;
- EMF effects arising from cables; and
- Effects arising from underwater noise during operation.

8.7.2.42 The fish and shellfish ecology assessment found all operation and maintenance impacts to be of negligible to minor adverse significance for all fish and shellfish receptors. The potential effect on resources is not expected to be beyond what could be discernible from baseline conditions for fish and shellfish resources.

8.7.2.43 The magnitude of impact is predicted to be of regional spatial extent, of relevance to international fishing fleets, of long-term duration and to affect the receptor directly. The magnitude is therefore considered to be low for all species and all potential impacts.

Significance of Effect

8.7.2.44 Overall (all fisheries), the magnitude of the impact is deemed to be **Low** and the sensitivity of the receptor is considered to be **Low**. The significance of effect will therefore be **Minor and Not Significant in EIA terms**.

Impact 12: Increased Vessel Traffic Associated with the Proposed Development (Offshore) within Fishing Grounds Leading to Interference with Fishing Activity

8.7.2.45 This section assesses the likely significant effects arising from the Proposed Development (Offshore) related vessel traffic and changes to shipping patterns as a result of any potential navigational channels leading to interference with fishing activity (reduced access) during operation and maintenance phase.

Sensitivity of Receptor

8.7.2.46 The sensitivity is as described for construction, summarised as medium for the potting fishing fleet; and low for demersal otter trawl, demersal seine, dredge, line and pelagic otter trawl fishing fleets.

Magnitude of Impact

8.7.2.47 Up to 25 vessels on site simultaneously and 938 vessel movements annually may be made throughout the operation and maintenance phase and will include vessels which are Restricted in their Ability to Manoeuvre (RAM).

8.7.2.48 As per the construction phase, project vessels will be managed by marine coordination, carry AIS and be compliant with relevant Flag State regulations. Also, safety zones will be applied for including up to 500m around structures where vessels are undertaking major maintenance work.

8.7.2.49 The magnitude of impact of interference of fishing activity due to the presence and transiting of maintenance vessels during the operation and maintenance phase is decreased compared to in the construction phase given that fewer project vessels will generally be on-site at any time, noting the much longer duration of the operation and maintenance phase. Based on the low level of project related vessel activity across a long time period, the magnitude is therefore, considered to be low for all fisheries.

Significance of Effect

8.7.2.50 Taking the **Medium** sensitivity of the potting fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.2.51 Taking the **Low** sensitivity of all other fisheries and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

Impact 13: Physical Presence of Infrastructure and Potential Exposure of that Infrastructure Leading to Gear Snagging

8.7.2.52 The physical presence of infrastructure on the seabed represents potential snagging points for fishing gear and could lead to damage to, or loss of, fishing gear. The safety aspects including potential loss of life as a result of snagging risk are assessed within Volume 2, Chapter 9: Shipping and Navigation.

8.7.2.53 During operation and maintenance phase, a 500m advisory safe passing distance around vessels undertaking major maintenance activities will be assumed around structures undergoing maintenance and associated vessels.

8.7.2.54 Maintenance will include regular monitoring of cable burial integrity and condition of cable protection.

Sensitivity of Receptor

8.7.2.55 The sensitivity is as described for construction, summarised as medium for demersal otter trawl, demersal seine, dredge, and pelagic trawl fishing fleets; and low for potting and line fishing fleets.

Magnitude of Impact

8.7.2.56 The protocols outlined for construction, will be followed during operational phase. The magnitude of effect is considered to be the same as during construction, summarised as low for all fleets.

Significance of Effect

8.7.2.57 Taking the **Medium** sensitivity of demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish and scallop dredge fisheries and the **Medium** magnitude of impact, the overall effect is considered to be **Moderate and Significant in EIA terms**.

8.7.2.58 Taking the **Medium** sensitivity of demersal otter trawl nephrops, potting and line/jigging fisheries and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

8.7.2.59 Taking the **Low** sensitivity of pelagic otter trawl fishery and the **Low** magnitude of impact, the overall effect is considered to be **Minor and Not Significant in EIA terms**.

Impact 14: Additional Steaming to Alternative Fishing Grounds for Vessels that Would Otherwise Fish within the Proposed Development (Offshore)

8.7.2.60 A detailed Navigational Risk Assessment (Volume 7B, Appendix 9-1) has been undertaken and is discussed in Volume 2, Chapter 9: Shipping and Navigation, which includes full consideration of commercial fishing vessels while transiting (e.g., from a collision and allision perspective). This assessment focuses on the likely significant effects arising from longer steaming distances to alternative fishing grounds that would have otherwise been targeted within the Proposed Development (Offshore).

Sensitivity of Receptor

8.7.2.61 The sensitivity is as described for construction, summarised as low for all fisheries.

Magnitude of Impact

8.7.2.62 The magnitude of impact of increased steaming times due to the presence of the Proposed Development (Offshore) during the operation and maintenance phase is expected to be the same or similar to that during construction for all commercial fishing fleets. While the operational phase is longer duration (35 years) compared to construction, it is expected that fishing vessels will adjust to the presence of the Proposed Development (Offshore) over time. The impact is predicted to be of regional spatial extent, long term duration, intermittent and with high reversibility. It is also noted that commercial fishing vessels may choose to transit through the Caledonia OWF during the operation and maintenance phase. It is predicted that the impact will affect the receptor directly. Based on the

justifications above, the magnitude is therefore, considered to be low for all fisheries.

Significance of Effect

8.7.2.63 Overall (all fisheries), the magnitude of the impact is deemed to be **Low** and the sensitivity of the receptor is considered to be **Low**. The significance of effect will therefore be **Minor and Not Significant in EIA terms**.

8.7.3 Decommissioning

Impact 15: Reduction in Access to, or Exclusion from Established Fishing Grounds Within the Caledonia OWF

8.7.3.1 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. The significance of effect is therefore **Minor** adverse for pelagic trawl, demersal otter trawl nephrops, potting and line/jigging fisheries, which is **Not Significant in EIA terms**, and **Moderate** adverse for demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish and scallop dredge fisheries, which is **Significant in EIA terms**.

Impact 16: Reduction in Access to, or Exclusion from Established Fishing Grounds within the Caledonia OECC

8.7.3.2 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. The significance of effect is therefore **Minor** adverse for pelagic trawl fisheries, which is **Not Significant in EIA terms**, and **Moderate** adverse for demersal otter trawl nephrops, demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish, scallop dredge fisheries, potting and line/jigging, which is **Significant in EIA terms**.

Impact 17: Displacement Leading to Gear Conflict and Increased Fishing Pressure on Adjacent Grounds

8.7.3.3 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. The significance of effect is therefore **Minor** adverse for pelagic trawl fisheries, which is **Not Significant in EIA terms**, and **Moderate** adverse for demersal otter trawl nephrops, demersal otter trawl squid, demersal otter trawl and demersal seine haddock and finfish, scallop dredge fisheries, potting and line/jigging, which is **Significant in EIA terms**.

Impact 18: Disturbance of Commercially Important Fish and Shellfish Resources Leading to Displacement or Disruption of Fishing Activity

8.7.3.4 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. The significance of effect is therefore **Minor** adverse for all fisheries, which is **Not Significant in EIA terms**.

Impact 19: Increased Vessel Traffic Associated with the Proposed Development (Offshore) Within Fishing Grounds Leading to Interference with Fishing Activity

8.7.3.5 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. The significance of effect is therefore **Minor** adverse for all fisheries, which is **Not Significant in EIA terms**.

Impact 20: Physical Presence of Infrastructure and Potential Exposure of that Infrastructure Leading to Gear Snagging

8.7.3.6 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. The significance of effect is therefore **Minor** adverse for all fisheries, which is **Not Significant in EIA terms**.

Impact 21: Additional Steaming to Alternative Fishing Grounds for Vessels that Would Otherwise Fish Within the Proposed Development (Offshore)

8.7.3.7 The effects of decommissioning activities are expected to be the same or similar to the effects from construction. The significance of effect is therefore **Minor** adverse for all fisheries, which is **Not Significant in EIA terms**.

8.8 Cumulative Effects

8.8.1 Cumulative Overview

8.8.1.1 The CIA assesses the impact associated with the Proposed Development (Offshore) together with other relevant plans, projects and activities. Cumulative effects are therefore the combined effect of the Proposed Development (Offshore) in combination with the effects from a number of different projects, on the same receptor or resource.

8.8.1.2 The approach to the CIA for commercial fisheries follows the process outlined in Volume 1, Chapter 7: EIA Methodology.

8.8.1.3 The specific projects scoped into the CIA are presented in Table 8-10. The potential for cumulative effects with each of these developments is examined, and an assessment of the cumulative effects presented where appropriate. The full list of plans and projects considered, including those screened out, are presented in Volume 7A, Appendix 7-1: Cumulative Impact Assessment Methodology. It is anticipated that offshore construction of the Caledonia OWF will at the earliest commence in 2028. After construction, the Caledonia OWF will be operational for 35 years.

8.8.1.4 The commercial fisheries cumulative study area has been defined as the North Sea, which is considered to be representative of the fishing grounds exploited by the fleets active across the regional study area, for all fleets except scallop dredging. For scallop dredging the cumulative study area is defined at a UK level; this is because the UK fleet of scallop dredgers are nomadic in nature and target grounds across the North Sea, West of Scotland, Irish Sea and English Channel. This was discussed with commercial fisheries stakeholders (see Table 8-3). The commercial fisheries cumulative study area is presented in Figure 8-6. The projects included in the cumulative study area are presented in Figure 8-7.

8.8.1.5 The range of potential cumulative impacts that are identified and included is a subset of those considered for the Proposed Development (Offshore) alone CIA. This is because some of the potential impacts identified and assessed for the Proposed Development (Offshore) alone, are localised and temporary in nature. It is considered therefore, that these potential impacts have limited or no potential to interact with similar changes associated with other plans or projects. These have therefore not been taken forward for detailed assessment.

8.8.1.6 It is considered that other renewable projects in the North Sea, West of Scotland, Celtic Sea and English Channel have the potential to reduce access to fishing grounds, especially where floating foundations are proposed for OWF developments. This could lead to the potential cumulative effect of temporary (during construction and decommissioning) and long term (during operation and maintenance) loss or restricted access to fishing grounds. This incremental loss of fishing grounds is often termed 'spatial squeeze' and is a growing concern within the fishing industry. The loss of access to fishing grounds may lead to displacement at a cumulative level, where vessels are exploratory fishing and focusing effort in areas outside of cumulative developments. This could lead to the cumulative effect of incremental displacement throughout UK waters. This displacement effect and where a displaced fisher chooses to direct the displaced effort can be difficult to assign to a specific project, given that fishing operators are responding to multiple developments.

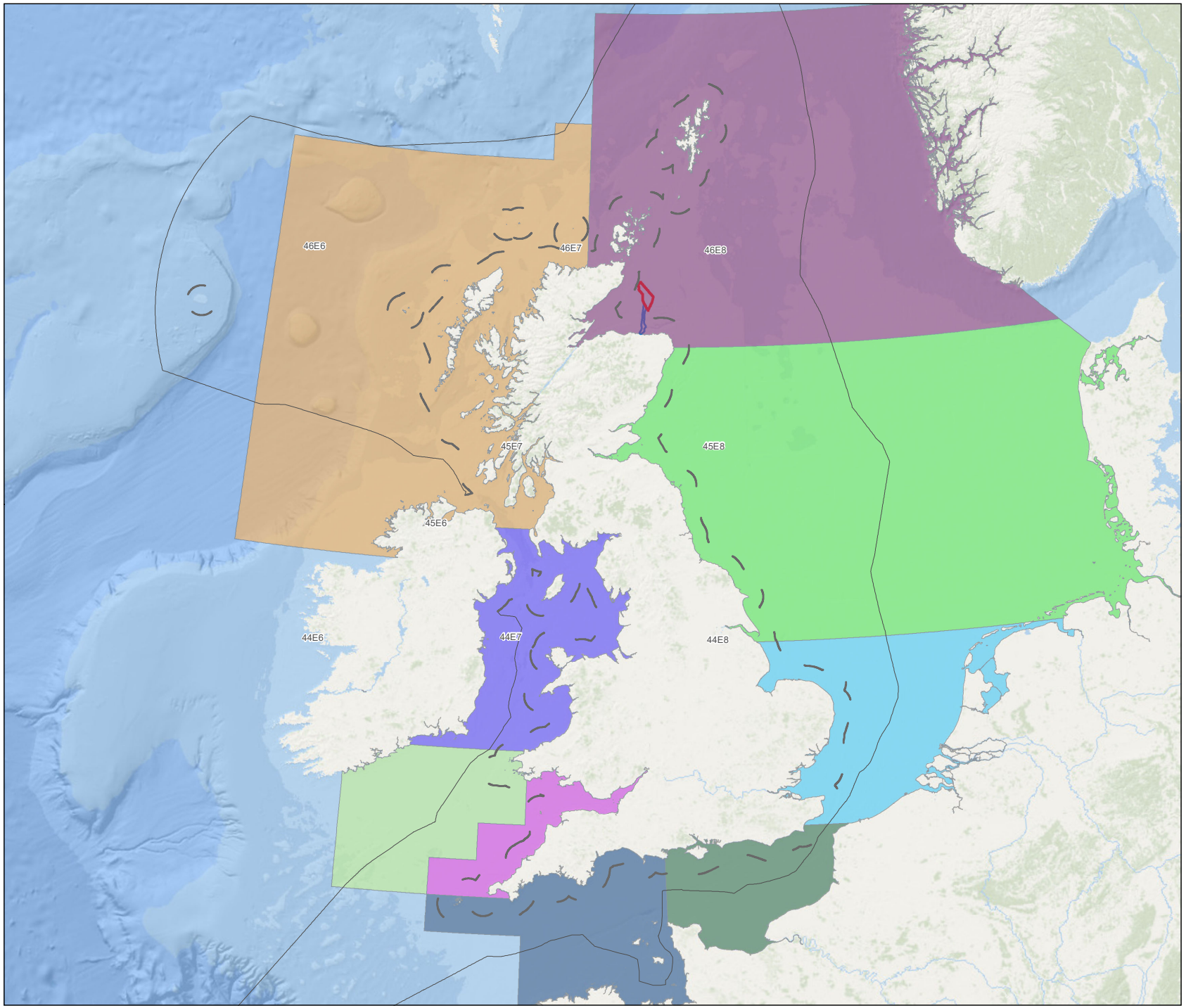
8.8.1.7 In addition, incremental disruption to fish and shellfish species could lead to cumulative displacement of the commercial resource. For example, at the ecosystem level OWFs and other developments in the marine environment could act as aggregation devices, attracting a different assemblage of species (which could in itself provide new commercial opportunity), or there could be barrier effects. The fish and shellfish ecology assessment has considered potential cumulative effects to specific species and species groups, as presented within Volume 2, Chapter 5: Fish and Shellfish Ecology, with potential knock-on effects considered within this chapter for commercially exploited resources.

8.8.1.8 The remaining impacts to commercial fisheries, including interference with fishing activity due to project-related vessel movements, snagging risk and increased transit times are considered to be highly localised to specific projects. Given the scale of the Proposed Development (Offshore) alone effects, any cumulative, additive effects across these impacts within the commercial fisheries cumulative study area would be negligible across projects.

8.8.1.9 To summarise, impacts that are scoped into the CIA are:

- Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF and OECC;
- Displacement leading to gear conflict and increased fishing pressure on adjacent grounds; and
- Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity.

8.8.1.10 The approach to CIA screening of projects for commercial fisheries has taken a wide and inclusive approach, including many developments that are in operational phase. This is because these developments are recognised to continue to pose a potential impact on commercial fisheries through incremental loss of fishing grounds.



Caledonia OWF

Offshore Export Cable Corridor

UK EEZ

12 nm boundary

ICES Divisions

North North Sea

Central North Sea

South North Sea

West of Scotland

Irish Sea

Eastern English Channel

Western English Channel

Bristol Channel

Celtic Sea

0 10 20 30 40
km

REV	DATE	DOC STATUS	ORIGIN	REVIEW	APP
01	26/07/2024	For Information	FN	SM	DH

CALEDONIA Offshore Wind Farm

nima CONSULTANTS

CONTRACTOR DRAWING NO	CONTRACTOR REV
8-6	01

GEODETIC PARAMETERS
OSGB36 / British National Grid (EPSG:27700)

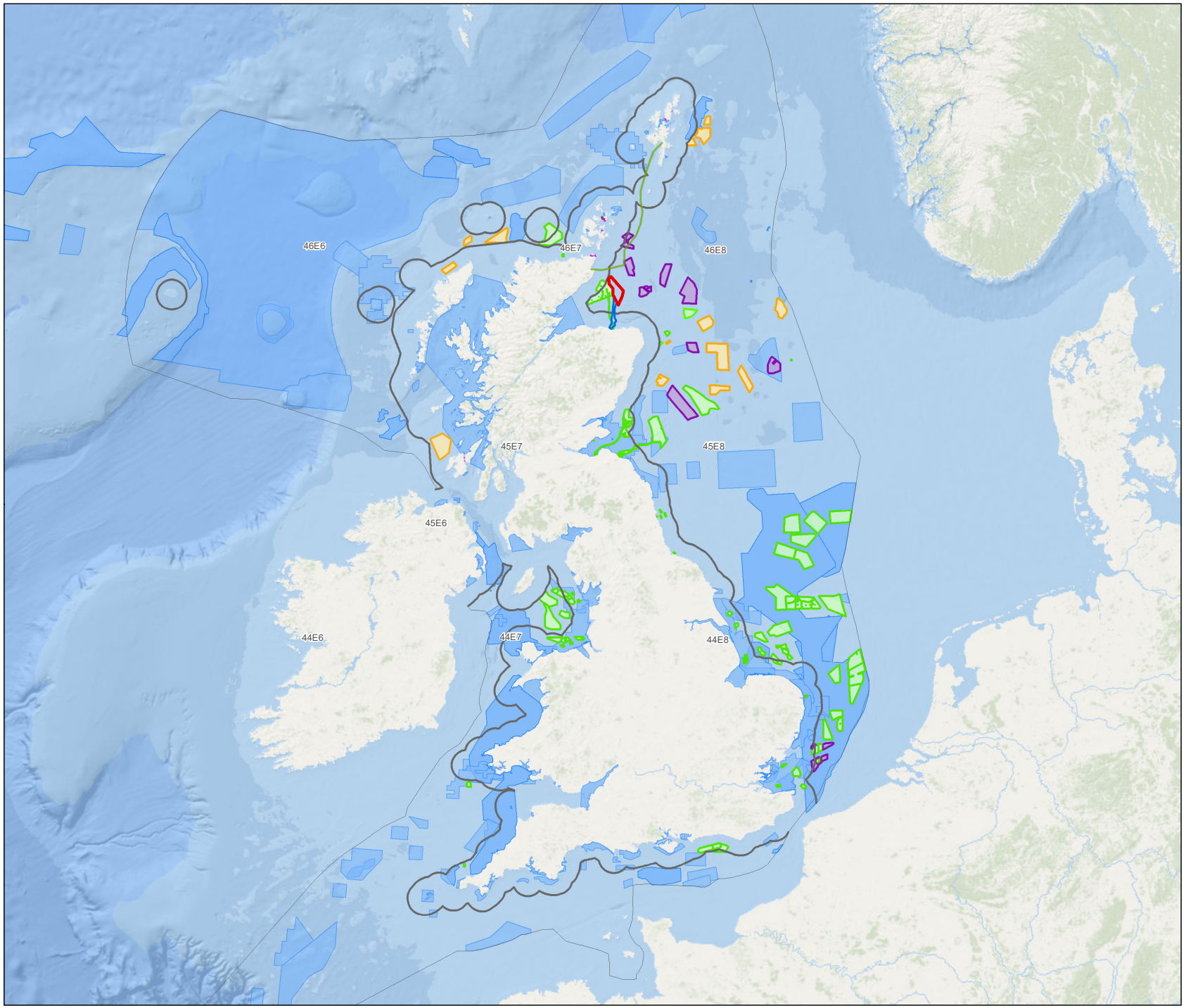
DRAWING TITLE

Figure 8-6

Commercial Fisheries Cumulative Study Area

STATUS	SCALE
Approved	1:8,000,000

DRAWING NUMBER	SHEET NO	REV
N/A	01 of 01	01

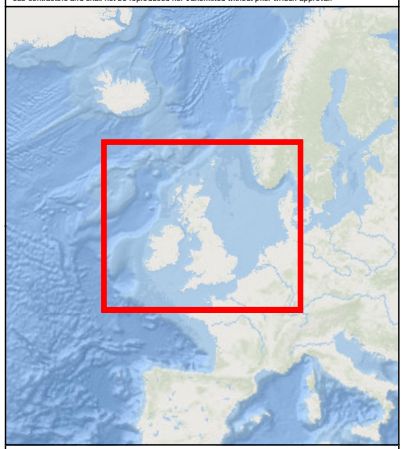


Caledonia OWF
Cable
UK EEZ
12 nm boundary

Tier 1
Offshore Wind Farm
Tidal Array
Offshore Export Cable Corridor

Tier 2
Offshore Wind Farm
Tidal Array
Marine Protected Areas

Tier 3
Offshore Wind Farm



0 100 200 300 km

REV	DATE	DOC STATUS	ORIGIN	REVIEW	APP
01	26/07/2024	For Information	FN	SM	DH

CALEDONIA Offshore Wind Farm

nima CONSULTANTS

CONTRACTOR DRAWING NO	CONTRACTOR REV
8-7	01

GEODETIC PARAMETERS
OSGB36 / British National Grid (EPSG:27700)

DRAWING TITLE

Figure 8-7
Commercial Fisheries
Cumulative Effects Assessment

STATUS	SCALE
Approved	1:8,000,000

DRAWING NUMBER	SHEET NO	REV
N/A	01 of 01	01

Table 8-10: Commercial fisheries cumulative effects.

Development	Potential for Significant Cumulative Effects	Comment
Moray West OECC[ii]	Yes	Moray West OECC is currently under construction however is expected to be operational by the time of construction activities at the Proposed Development (Offshore) and there is not potential for an overlap in cumulative impacts associated with construction activities. Instead there is a potential for cumulative impacts arising from the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Shetland HVDC Link	Yes	Shetland HVDC Link is currently under construction however is expected to be operational by the time of construction activities at the Proposed Development (Offshore) and there is not potential for an overlap in cumulative impacts associated with construction activities. Instead there is a potential for cumulative impacts arising from the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Moray East OWF and OECC	Yes	Moray East borders the Proposed Development (Offshore). It is already operational so there is no potential for an overlap in cumulative impacts associated with construction activities. Instead, there is a potential for cumulative impacts arising from the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Beatrice OWF and OECC	Yes	Beatrice OWF is already operational so there is no potential for an overlap in cumulative impacts associated with construction activities. Instead there is a potential for cumulative impacts arising from the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Stromar OWF and OECC	Yes	Stromar OWF is anticipated to have a similar construction period (2029-2032) and therefore it is likely that there will be potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access

[ii] Moray West Export Cable was commissioned after the CIA was undertaken, and therefore has been included as part of the longlist.

Development	Potential for Significant Cumulative Effects	Comment
		to fishing grounds, displacement and fisheries resource effects.
Moray West OWF[iii]	Yes	Morray West OWF is currently under construction however is expected to be operational by the time of construction activities at the Proposed Development (Offshore) and there is not potential for an overlap in cumulative impacts associated with construction activities. Instead there is a potential for cumulative impacts arising from the operation phase arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Broadshore OWF and OECC	Yes	Broadshore OWF is anticipated to have a similar construction window (2028-2030) and therefore it is likely that there will be potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Sinclair OWF and OECC	Yes	Construction of Sinclair OWF is expected to take place in 2028 and last 3-5 years, though 3 looks more likely and therefore it is likely that there will be potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Scaraben OWF and OECC	Yes	Construction timeline is unknown, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Ayre OWF and OECC	Yes	Construction of Ayre OWF is expected to take place in 2028 and last 3-5 years, though 3 looks more likely and therefore it is likely that there will be potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from

[iii]Moray West OWF was commissioned after the CIA was undertaken, and therefore has been included as part of the longlist.

Development	Potential for Significant Cumulative Effects	Comment
		reduction in access to fishing grounds, displacement and fisheries resource effects.
Buchan OWF and OECC	Yes	Buchan OWF is located 56km from the Proposed Development (Offshore). Construction is expected to take place through 2026 and the operational life of the Offshore Development will be up to 30 years and therefore it is likely that there will be potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Pentland Floating OWF and OECC	Yes	Pentland Floating OWF is located 74.52km from the Proposed Development (Offshore). Construction is expected during 2027 and the operational life of Pentland Floating OWF will be up to 30 years and therefore it is likely that there will be potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Salamander OWF and OECC	Yes	Construction is expected to be completed by 2030 and therefore it is likely that there will be potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Hywind OWF and OECC	Yes	Hywind OWF is expected to be operational by 2024/25. Therefore, it is unlikely that there will be potential for an overlap in cumulative impacts associated with construction activities. However there may be cumulative impacts associated with the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Marram OWF and OECC	Yes	Marram OWF construction is expected to be completed by 2030 and therefore it is likely that there will be potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts

Development	Potential for Significant Cumulative Effects	Comment
		arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Flora OWF and OECC	Yes	Construction timeline is unknown, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
West of Orkney OWF and OECC	Yes	West of Orkney OWF construction is expected to begin in 2028, continuing until 2031 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Green Volt OWF and OECC	Yes	Green Volt OWF construction is expected to begin in 2025, continuing until 2027 and therefore is expected to be operational by the time of construction activities at the Proposed Development (Offshore) and there is not potential for an overlap in cumulative impacts associated with construction activities. Instead there is a potential for cumulative impacts arising from the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Muir Mhor OWF and OECC	Yes	Construction expected to begin in 2027, continuing until 2030 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Aspen OWF and OECC	Yes	Construction expected to be complete by 2028 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.

Development	Potential for Significant Cumulative Effects	Comment
Bowdun OWF and OECC	Yes	Construction anticipated to take place between 2029-2034 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Campion OWF and OECC	Yes	Construction could take up to seven years after consent awarded, expected commissioning date of 2029 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Morven OWF and OECC	Yes	Construction anticipated to take place between 2026-2032 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Inch Cape OWF and OECC	Yes	Construction expected to be complete by 2025 and therefore is expected to be operational by the time of construction activities at the Proposed Development (Offshore) and there is not potential for an overlap in cumulative impacts associated with construction activities. Instead there is a potential for cumulative impacts arising from the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Ossian OWF and OECC	Yes	Offshore construction anticipated to take place between 2031-2038 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Havbredey OWF and OECC	Yes	Construction to potentially take place between 2032 and 2036 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.

Development	Potential for Significant Cumulative Effects	Comment
Berwick Bank OWF and OECC	Yes	Construction expected to begin in 2025, continuing until 2033 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Bellrock OWF and OECC	Yes	Construction expected between 2028 to 2031 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Neart Na Gaoithe OWF and OECC	Yes	Construction expected to be complete by 2024 and therefore is expected to be operational by the time of construction activities at the Proposed Development (Offshore) and there is not potential for an overlap in cumulative impacts associated with construction activities. Instead there is a potential for cumulative impacts arising from the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Cedar OWF and OECC	Yes	Construction expected to be complete by 2028 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Forthwind OWF and OECC	Yes	Construction timeline is unknown, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Talisk OWF and OECC	Yes	Construction expected to take place between 2028-2030 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.

Development	Potential for Significant Cumulative Effects	Comment
Spiorad na Mara OWF and OECC	Yes	Construction timeline is unknown, but expected to be operational in 2030 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Arven OWF and OECC	Yes	Construction timeline is unknown, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Beech OWF and OECC	Yes	Construction expected to be complete by 2028 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Cenos OWF and OECC	Yes	Construction expected to take place between 2029-2033 and therefore there is potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Stoura OWF and OECC	Yes	Construction timeline is unknown, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Culzean OWF and OECC	Yes	Construction expected to be completed by 2025 and therefore is expected to be operational by the time of construction activities at the Proposed Development (Offshore) and there is not potential for an overlap in cumulative impacts associated with construction activities. Instead there is a potential for cumulative impacts arising from the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.

Development	Potential for Significant Cumulative Effects	Comment
Other English east coast OWFs and OECCs (including Dogger Bank OWFs, Hornsea Project Four, Hornsea Project Three, Outer Dowsing, Dudgeon and Sheringham Shoal Extension, Norfolk Vanguard West, Norfolk Vanguard East, East Anglia Three, East Anglia Two, East Anglia One North, North Falls, Five Estuaries.)	Yes	Various OWFs either under construction or in operation, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Other North Sea OWFs off Belgium, Netherlands, Germany, and Denmark and OECCs	Yes	Various OWFs either under construction or in operation, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Other Channel OWFs off the coast of England and France and OECCs	Yes	Various OWFs either under construction or in operation, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Sound of Islay Tidal array	Yes	Operational, but considered to have an ongoing impact. Current licence expires April 2027. Cumulative impacts associated with operational phase arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Deer Sound Tidal array	Yes	Operational, but considered to have an ongoing impact and current licence expires December 2039. Cumulative impacts associated with operational phase arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
EMEC Bilia Croo Wave array	Yes	Operational, but considered to have an ongoing impact. Current licence expires 2030. Cumulative impacts associated with operational phase arising from reduction in access to fishing grounds, displacement and fisheries resource effects.

Development	Potential for Significant Cumulative Effects	Comment
EMEC Fall of Warness Tidal array	Yes	Operational, but considered to have an ongoing impact. Current licence expires 2038. Cumulative impacts associated with operational phase arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Westray South Tidal array	Yes	Expected to be operational in late 2020s, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
Oran na Mara Tidal array	Yes	Construction timeline is unknown, with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds, displacement and fisheries resource effects.
UK Marine Protected Areas (MPA) network	Yes	Network of Special Areas of Conservation (SAC), Special Protected Areas (SPA), Marine Conservation Zones (MCZ). Implementation of management measures for all MPAs expected from 2024 onwards with potential for an overlap in cumulative impacts associated with construction activities and the operation phase. There is a potential for cumulative impacts arising from reduction in access to fishing grounds and displacement.

Table 8-11: Worst Case Scenarios used to inform Cumulative Impact Assessment.

Potential Impact	Assessment Parameter	Explanation
Construction and Decommissioning		
Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF and Caledonia OECC Displacement leading to gear conflict and increased fishing pressure on adjacent grounds Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	**Tier 1 Projects:** ▪ Floating OWFs and associated OECCs (Culzean, Green Volt, Hywind, Ossian, Pentland Floating, Salamander); ▪ Bottom-fixed OWFs and associated OECCs (Berwick Bank, Neart na Gaoithe, Seagreen Phase 1, Forthwind, Inch Cape, West of Orkney, Beatrice, Moray East and Moray West); and ▪ Tidal array (Oran na Mara). **Tier 2 Projects:** ▪ Floating OWFs and associated OECC (Ayre, Broadshore, Buchan, Cenos, Marram, Muir Mhor, Scaraben, Sinclair, Stromar, Westray South); ▪ Bottom-fixed OWF and associated OECC (Morven); ▪ Tidal array (Westray South); and ▪ Network of MPAs. **Tier 3 Projects:** ▪ Floating OWFs and associated OECCs (Arven, Aspen, Beech, Bellrock, Bowdun, Campion, Cedar, Flora, Havbredey, Stoura, Talisk); and ▪ Bottom-fixed OWF and associated OECC (Spiorad na Mara). **Other:** ▪ Other English east coast, North Sea and Channel OWFs of various tiers as described in Table 8-10.	Full build out of all projects will lead to the maximum potential for cumulative effects during the construction phase.
Operation		
Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF and Caledonia OECC Displacement leading to gear conflict and increased fishing	**Tier 1 Projects:** ▪ Floating OWFs and associated OECCs (Culzean, Green Volt, Hywind, Ossian, Pentland Floating, Salamander); ▪ Bottom-fixed OWFs and associated OECCs (Beatrice, Berwick Bank, Forthwind, Inch Cape, Moray East, Moray West, Neart Na Gaoithe, West of Orkney);	Commissioning of all projects will lead to the maximum potential for cumulative effects during the operation phase.

Potential Impact	Assessment Parameter	Explanation
pressure on adjacent grounds	▪ Tidal arrays (Oran na Mara, Sound of Islay, Deer Sound, EMEC Fall of Warness) and wave array (EMEC Bilia Croo); and ▪ Power cable (Shetland HVDC Link).	
Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	**Tier 2 Projects:** ▪ Floating OWFs and associated OECCs (Ayre, Broadshore, Buchan, Cenos, Marram, MachairWind, Muir Mhor, Scaraben, Sinclair, Stromar, Westray South); ▪ Bottom-fixed OWF and associated OECC (Morven); ▪ Tidal array (Westray South); and ▪ Network of MPAs. **Tier 3 Projects:** ▪ Floating OWFs and associated OECCs (Arven, Aspen, Beech, Bellrock, Bowdun, Campion, Cedar, Flora, Havbredey, Stoura, Talisk); and ▪ Bottom-fixed OWF and associated OECC (Spiorad na Mara). **Other:** ▪ Other English east coast, North Sea and Channel OWFs of various tiers as described in Table 8-10.	

8.8.2 Construction and Decommissioning

Reduction in Access to, or Exclusion from Established Fishing Grounds within the Caledonia OWF and Caledonia OECC

Sensitivity of Receptor

8.8.2.1 All commercial fishing fleets are sensitive to incremental loss of access to fishing grounds.

8.8.2.2 All commercial fishing fleets are deemed to be of high vulnerability, medium recoverability and medium-high value. The sensitivity of the receptor is therefore, considered to be medium.

Magnitude of Impact

Tier 1

8.8.2.3 There is potential for cumulative reduction in access to or exclusion from established fishing grounds as a result of construction activities associated

with the Proposed Development (Offshore) and other projects that are under construction, in operation or with planned decommissioning.

8.8.2.4 The Tier 1 projects include eight fixed OWFs and it is assumed that access would be possible for most gear types (with exception of pelagic trawl) and access to export cable routes for most mobile gears, potting and pelagic trawl (noting that while MGN 661 advises that mobile fishing vessels with penetrative gear avoid submarine cables, cables are typically buried or protected to allow trawling, with the exception of dredging). Six floating wind farms are included in the Tier 1 assessment (Culzean, Green Volt, Hywind, Ossian, Pentland Floating, Salamander) and it is assumed that fishing will not resume within these floating projects during all their phases.

8.8.2.5 For the purposes of this assessment, this cumulative effect has been assessed within the North Sea (i.e., the commercial fisheries cumulative study area), which is considered to be a reasonable extent for the fishing grounds exploited by the commercial fisheries receptors active across the commercial fisheries regional study area, for all fleets except scallop dredging. For scallop dredging this effect is assessed at a UK level; this is because the UK fleet of scallop dredgers are nomadic in nature and target grounds across the North Sea, West of Scotland, Irish Sea and English Channel. Fisheries data has been reviewed against the Tier 1 projects.

8.8.2.6 Demersal otter trawl and demersal seine activity occurs throughout the North Sea, with highly defined grounds for targeting *Nephrops* (related to muddy habitat) and less defined grounds when targeting whitefish/mixed demersal species, including haddock and cod. Defined grounds for *Nephrops* fishery are noted primarily across the cable routes of Tier 1 OWFs, including in the Firth of Forth (Neart na Gaoithe, Berwick Bank, Inch Cape and Seagreen 1 OWFs) and Moray Firth (Beatrice, Moray East and Moray West OWFs). Lower levels of demersal otter trawl activity are noted across the floating OWFs (Culzean, Green Volt, Hywind, Ossian, Pentland Floating and Salamander) (Figure 8-8).

8.8.2.7 Scallop dredging is noted to occur across a number of Tier 1 projects, specifically in the Irish Sea: Mona OWF and in the North Sea: Beatrice, Moray East, Moray West and Dogger Bank A OWFs. Scallop dredging is evident within the 12nm boundary adjacent to the north-east coast of Scotland, with potential interaction with export cable construction identified (Figure 8-9).

8.8.2.8 Pelagic otter trawl activity occurs primarily northeast of the Proposed Development (Offshore), in the central areas of the northern North Sea (Figure 8-10). There is very limited overlap with Tier 1 projects.

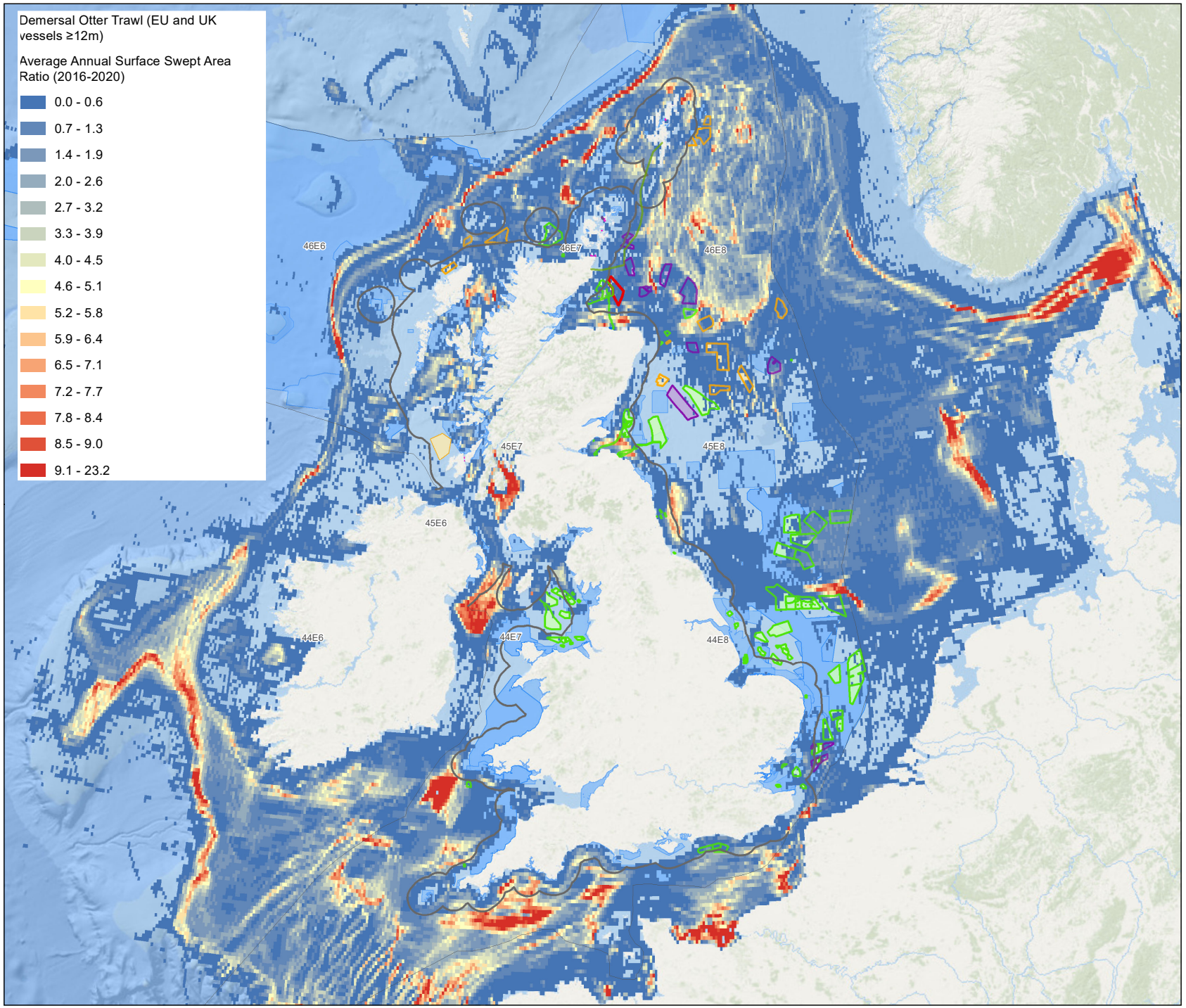
8.8.2.9 Potting VMS spatial data is not fully representative of the UK potting fleet because the data is only available for vessels 15m and over, while the majority of the potting fleet is less than 15m in length. Nevertheless, the potting VMS data does indicate areas of high activity for the 15m and over fleet, specifically north and north-east of the Proposed Development (Offshore) (Figure 8-11).

8.8.2.10 A number of operational OWFs are included in the Tier 1 assessment, which throughout their construction provided a range of mitigation directly to commercial fishing businesses. Fishermen have adapted their activities in response to the presence of these OWFs, including both operating within the arrays (e.g., by adapting how and where gear is used or set); avoiding construction areas and returning to fishing grounds across export cables post construction and in certain instances overtrawl surveys to confirm resumption of fishing.

8.8.2.11 The OWFs are located in areas where scallop dredgers, demersal otter trawls, pelagic trawls and potting activity were likely to have been operated, with varying degrees of effort. Overall, the commercial fishing fleets have adapted to the presence of the OWFs and adjusted practices to allow fishing businesses to continue operation.

8.8.2.12 The potential for incremental loss of fishing grounds is recognised in the ABPmer (2022[32]) spatial squeeze in fisheries report, which focused on assessment of mobile fishing gears in response to present and future scenarios for restricted access due to MPAs (included in Tier 2 of this assessment) and offshore developments including OWF and cables.

8.8.2.13 The ABPmer study found that the spatial footprint of activities and policies that constrain mobile trawling gear types represents 23% of the UK EEZ area for the 'present' scenario (i.e., as of 2022). It is noted, however, that the scenarios for loss within the ABPmer (2022[32]) report treat all areas equally (i.e., the report does not distinguish between areas that can actually be utilised (and are currently targeted) for fishing).

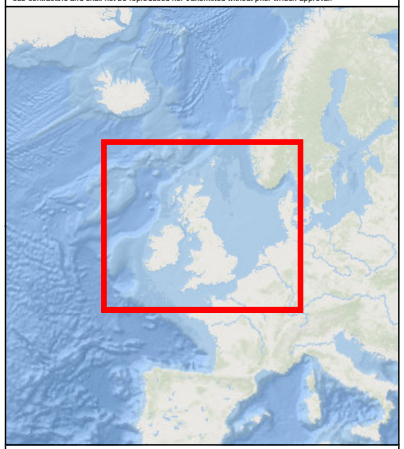


Caledonia OWF
Offshore Export Cable Corridor
UK EEZ
12 nm boundary

Tier 1
Offshore Wind Farm
Tidal Array
Cable

Tier 2
Offshore Wind Farm
Tidal Array
Marine Protected Areas

Tier 3
Offshore Wind Farm



0 100 200 300 km

REV	DATE	DOC STATUS	ORIGIN	REVIEW	APP
01	26/07/2024	For Information	FN	SM	DH

CALEDONIA Offshore Wind Farm

nima CONSULTANTS

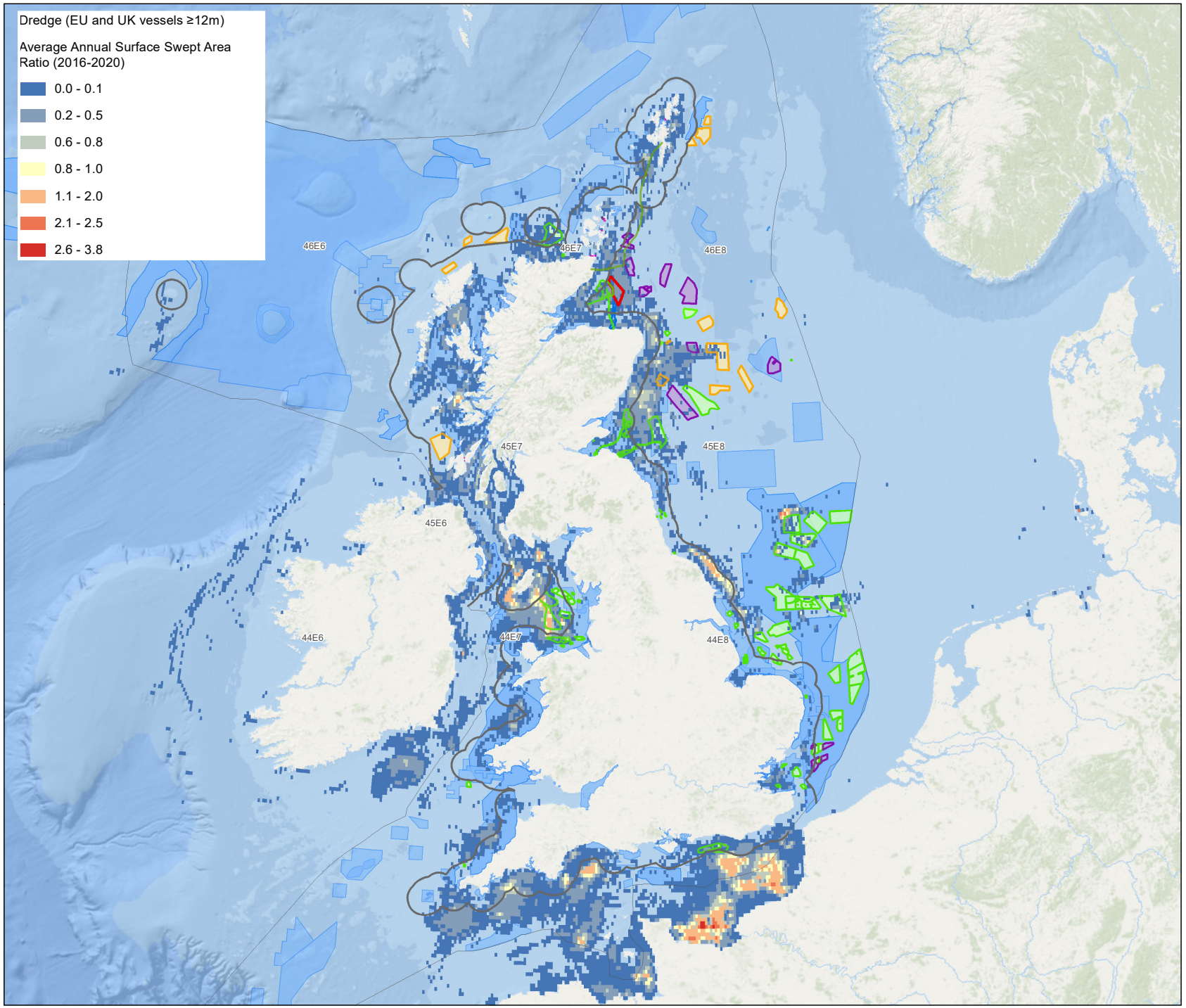
CONTRACTOR DRAWING NO: 8-8
CONTRACTOR REV: 01

GEODETIC PARAMETERS: OSGB36 / British National Grid (EPSG:27700)

DRAWING TITLE

Figure 8-8
Commercial Fisheries CEA Demersal Otter Trawl (EU and UK 12m and over)

STATUS: Approved
SCALE: 1:8,000,000
DRAWING NUMBER: N/A
SHEET NO: 01 of 01
REV: 01

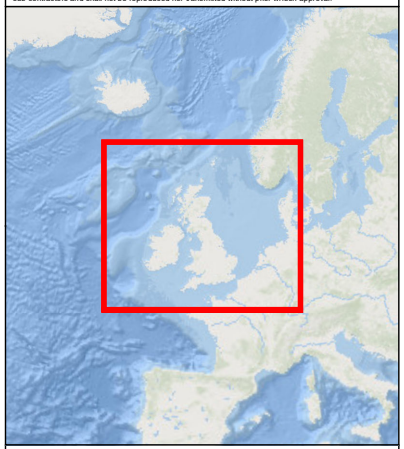


Cable
UK EEZ
12 nm boundary
Caledonia OWF
Offshore Export Cable Corridor

Tier 1
Offshore Wind Farm
Tidal Array

Tier 2
Offshore Wind Farm
Tidal Array

Tier 3
Offshore Wind Farm
Marine Protected Areas



0 100 200 300 km

REV	DATE	DOC STATUS	ORIGIN	REVIEW	APP
01	26/07/2024	For Information	FN	SM	DH

CALEDONIA Offshore Wind Farm

nima CONSULTANTS

CONTRACTOR DRAWING NO	CONTRACTOR REV
8-9	01

GEODETIC PARAMETERS
OSGB36 / British National Grid (EPSG:27700)

DRAWING TITLE

Figure 8-9
Commercial Fisheries CEA Dredge Otter Trawl (EU and UK 12m and over)

STATUS	SCALE
Approved	1:8,000,000

DRAWING NUMBER	SHEET NO	REV
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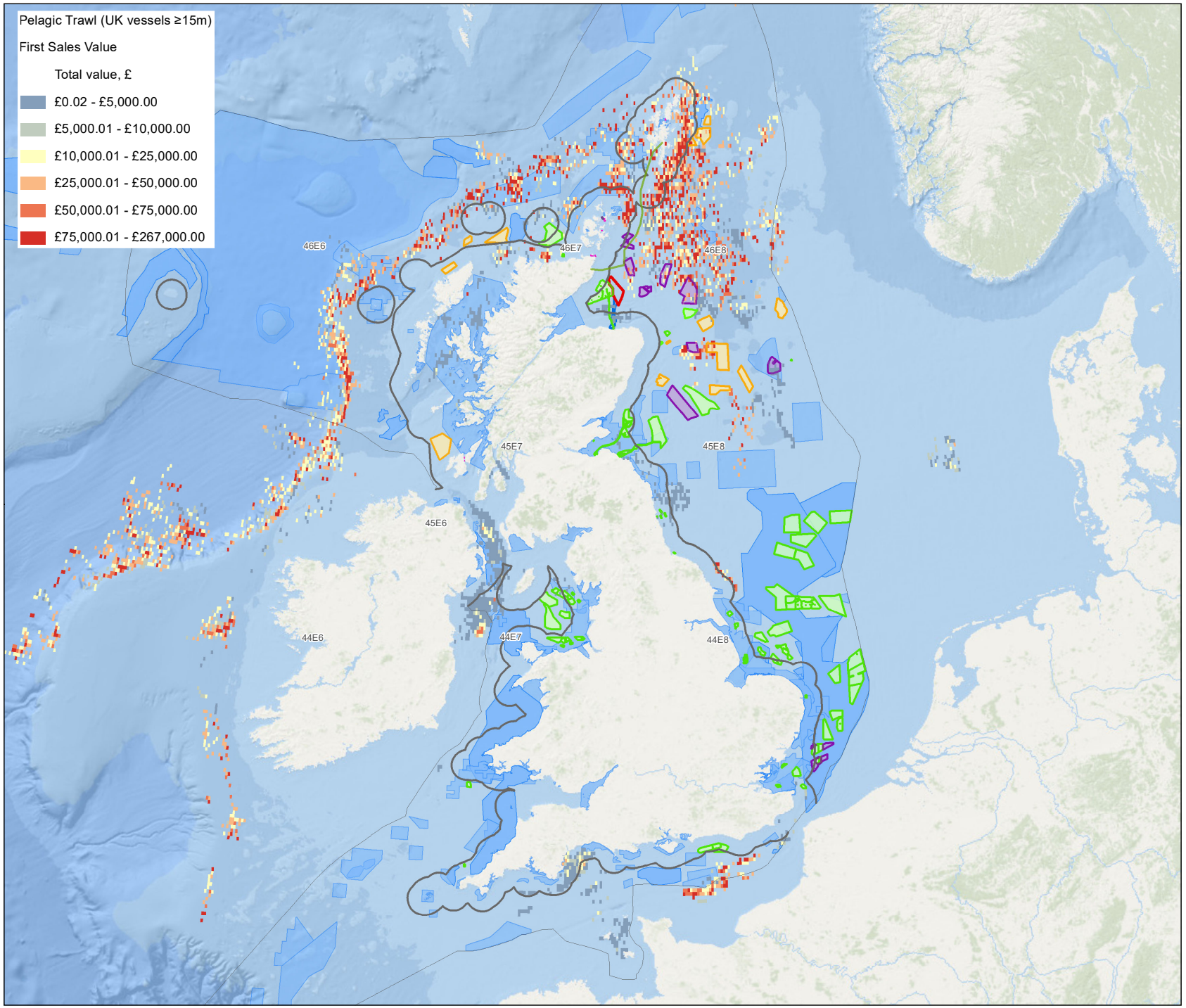
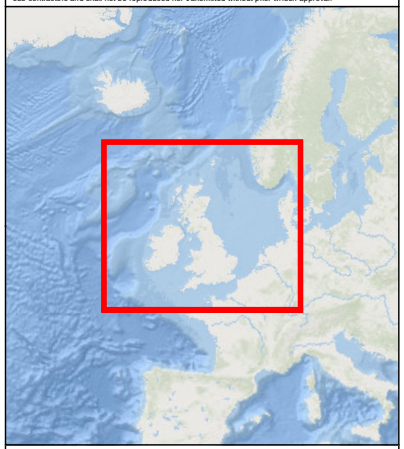


Caledonia OWF
Offshore Export Cable Corridor
UK EEZ
12 nm boundary

Tier 1
Offshore Wind Farm
Tidal Array
Cable

Tier 2
Offshore Wind Farm
Tidal Array
Marine Protected Areas

Tier 3
Offshore Wind Farm



0 100 200 300 km

REV	DATE	DOC STATUS	ORIGIN	REVIEW	APP
01	26/07/2024	For Information	FN	SM	DH

CALEDONIA Offshore Wind Farm

nima CONSULTANTS

CONTRACTOR DRAWING NO	CONTRACTOR REV
8-10	01

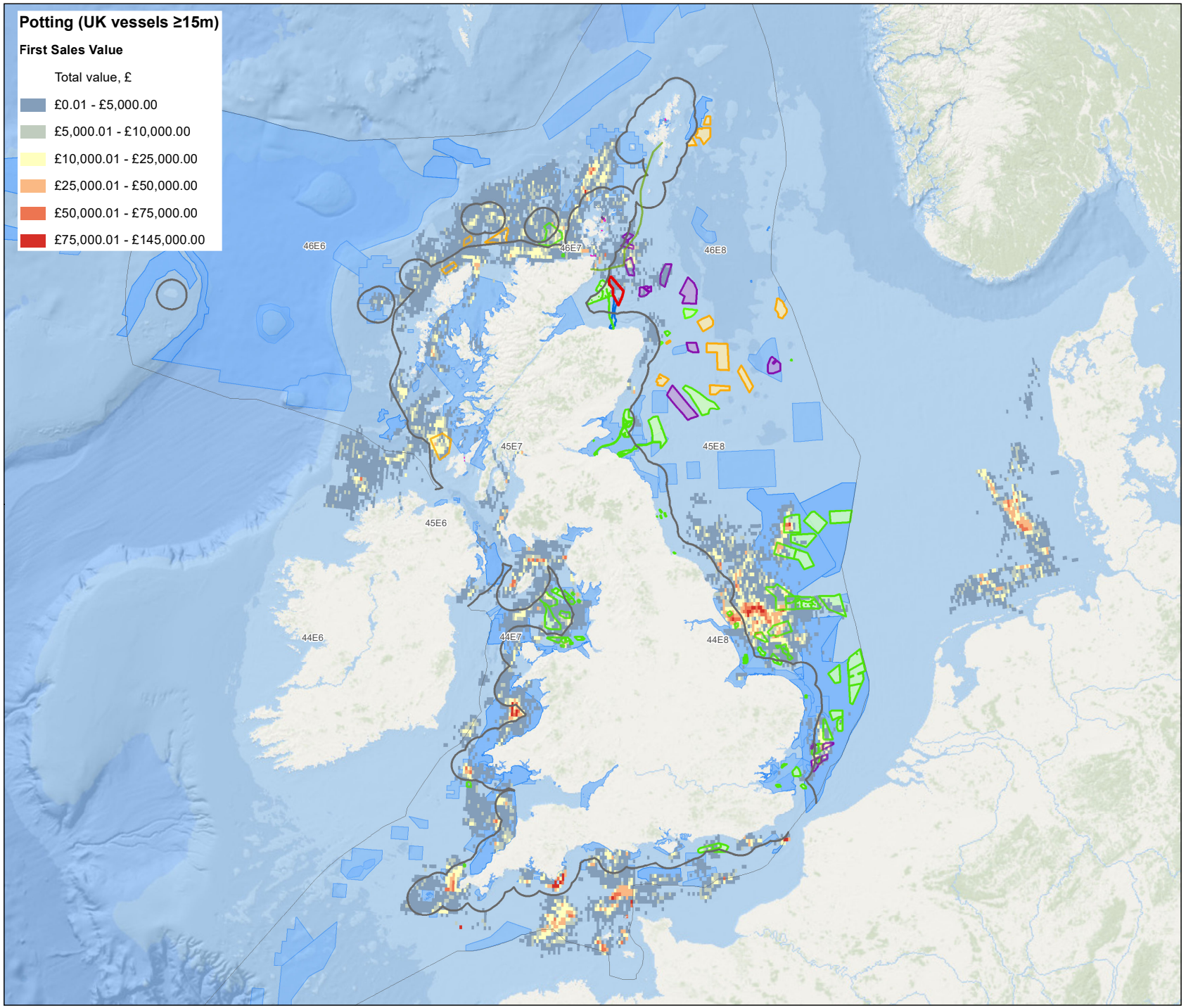
GEODETIC PARAMETERS
OSGB36 / British National Grid (EPSG:27700)

DRAWING TITLE

Figure 8-10
Commercial Fisheries CEA Pelagic Trawl (UK 15m and over) 2016-2020

STATUS	SCALE
Approved	1:8,000,000

DRAWING NUMBER	SHEET NO	REV
N/A	01 of 01	01

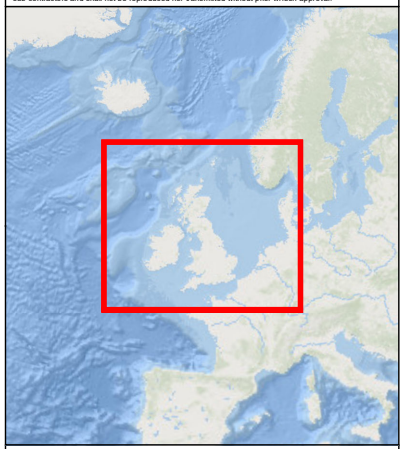


Caledonia OWF
UK EEZ
12 nm boundary

Tier 1
Offshore Wind Farm
Tidal Array
Offshore Export Cable Corridor
Cable

Tier 2
Offshore Wind Farm
Tidal Array
Marine Protected Areas

Tier 3
Offshore Wind Farm



0 100 200 300 km

REV	DATE	DOC STATUS	ORIGIN	REVIEW	APP
01	26/07/2024	For Information	FN	SM	DH

CALEDONIA Offshore Wind Farm

nima CONSULTANTS

CONTRACTOR DRAWING NO	CONTRACTOR REV
8-11	01

GEODETIC PARAMETERS
OSGB36 / British National Grid (EPSG:27700)

DRAWING TITLE

Figure 8-11
Commercial Fisheries CEA Potting (UK 15m and over) 2016-2020

STATUS	SCALE
Approved	1:8,000,000

DRAWING NUMBER	SHEET NO	REV
N/A	01 of 01	01

8.8.2.14 The 'future 2030' scenario predicted 36% of the UK EEZ would be restricted to trawling and the 'future 2050' worst case scenario predicted 49% of the UK EEZ would be restricted, with an area greater than 30,000km^2 occupied by the renewable offshore wind sector. The 'future 2050' worst case scenario assumes mobile fishing would be restricted within all wind farms, which is noted to not necessarily be the case.

8.8.2.15 The ABPmer (2022[32]) report highlights that the fishing industry has adapted to the 'present' scenario, based on the majority of restrictions being linked to nature conservation restrictions in waters deeper than 800m, together with OWFs sited in areas not previously intensively trawled.

8.8.2.16 Overall, it is considered that the fishing industry continue to adapt to operational projects included in the Tier 1 assessment, including active fishing within operational OWFs. This is expected to be the case for Tier 1 fixed foundation OWFs projects; with mitigation at individual project level and resumption of fishing during the operational phase.

8.8.2.17 Six floating OWFs are included in Tier 1. It is understood that these project are either located in areas that are not expected to cause disruption to commercial fishing fleets (e.g., Ossian), or have developed project-specific mitigation to avoid impacts (e.g., Green Volt).

8.8.2.18 The cumulative impact is predicted to be of international spatial extent, medium term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. Given the adaptation of the commercial fishing sector to operational OWF developments and the avoidance of key fishing grounds and project-level mitigation for Tier 1 floating OWFs, the magnitude is therefore, considered to be low for Tier 1 projects.

Tier 2

8.8.2.19 The Tier 2 cumulative assessment includes nine floating OWFs, one fixed OWF, one tidal array, together with the network of UK designated MPAs. Fisheries administrators across the UK are at various stages of implementing management measures within MPAs. The MMO recently (March 2024) implemented byelaws with prohibitions on bottom contact fishing gear within nine MPAs (MMO, 2024[33]). From a Scottish context, the Marine Directorate has implemented a series of Marine Conservation Orders (MCOs) and fisheries orders in MPAs and SACs, effective from 2022, and a series of possible MCOs and fisheries orders for other MPAs remains under consideration.

8.8.2.20 In terms of fishing activity, scallop dredge activity is notable within Muir Mhor, and to the north and west of Morven; and demersal otter trawl activity is notable within Marram and Muir Mhor OWFs.

8.8.2.21 The scale of potential restrictions to the commercial fishing fleets is recognised, including through the ABPmer (2022[32]) spatial squeeze analysis, as described under the Tier 1 assessment. Overall, there is potential for incremental loss of grounds to occur from Tier 2 floating OWFs and nature

conservation management. Potential mitigation packages for Tier 2 floating OWFs are not yet known or developed and therefore risk of significant cumulative impacts to loss of access remains for fishing fleets that typically operate across wider regional areas when targeting specific species.

8.8.2.22 The cumulative impact is predicted to be of international spatial extent, medium term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. Given the loss of access posed by the Tier 2 floating OWFs, together with the anticipated introduction of fisheries management within the MPA network, the magnitude is therefore, considered to be medium for Tier 2 projects for demersal otter trawl, demersal seine and dredge fisheries and low for all other fishing fleets.

Tier 3

8.8.2.23 The additional floating OWFs within Tier 3 raise the cumulative effect of loss or restricted access to fishing grounds, however this rise is considered to remain within the medium magnitude category (i.e., leading to moderate loss of access to fishing grounds) and does not enter the high magnitude category (i.e., leading to substantial loss of access to fishing grounds). The Tier 3 projects are not considered to raise the category of magnitude of impact beyond what is assessed for Tier 2, summarised as medium for all commercial fishing fleets.

Significance of Effects

Tier 1

8.8.2.24 For all commercial fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not Significant in EIA terms**.

Tier 2 and 3

8.8.2.25 Regarding demersal otter trawl, demersal seine and dredge fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Medium** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Moderate and Significant in EIA terms**.

8.8.2.26 Regarding other commercial fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not Significant in EIA terms**.

Displacement Leading to Gear Conflict and Increased Fishing Pressure on Adjacent Grounds

Sensitivity of Receptor

8.8.2.27 All commercial fishing fleets are sensitive to displacement into other areas and are deemed to be of high vulnerability and medium recoverability. The sensitivity of the receptor is therefore, considered to be medium.

Magnitude of Impact

Tier 1

8.8.2.28 The effect of displacement during construction 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). There is a low magnitude of impact for reduced access to fishing grounds from Tier 1 projects and therefore an ongoing cumulative displacement effect is not expected to be recognisable beyond baseline conditions. Resumption of fishing within existing wind farms included in Tier 1 is assumed for scallop dredge, potting and demersal otter trawl and therefore displacement over time will have dissipated as commercial fishing fleets adapt and operate within fixed foundation wind farms. While pelagic trawl gear would not be feasible within Tier 1 wind farms, these are not located across grounds specifically targeted by pelagic trawl, and it is assumed that the opportunity to catch the fish outside wind farm area is not wholly lost.

8.8.2.29 Displacement is possible in response to the floating OWF Tier 1 projects. However, it is expected that this will be limited in nature due to the project-level mitigation and siting within lower levels of fishing activity. Furthermore, it is assumed that appropriately mitigated loss of access impacts associated with floating OWF projects would limit the effect of displacement.

8.8.2.30 Overall, based on the above justifications, the magnitude of impact of displacement is assessed as low for all fleets.

Tier 2

8.8.2.31 The effect of displacement during construction 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). There is a medium magnitude of impact for reduced access to fishing grounds from Tier 2 projects, specifically due to the assumption that fishing will not resume within floating OWFs and therefore displacement is expected.

8.8.2.32 The Applicant is committed to explore opportunities for coexistence subject to final design and layout within the Proposed Development (Offshore).

8.8.2.33 The cumulative impact is predicted to be of international spatial extent, medium term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. Given the loss of access posed by floating OWF including in the Tier 2 assessment (Ayre, Broadshore, Buchan, Cenos, Marram, Muir Mhor, Scaraben, Sinclair, Stromar OWFs) and knock-on displacement effects, together with the anticipated introduction of fisheries management within the MPA network, the magnitude is therefore, considered to be medium for Tier 2 projects.

Tier 3

8.8.2.34 The additional floating OWFs within Tier 3 raise the cumulative effect of displacement, however this rise is considered to remain within the medium magnitude category (i.e., leading to moderate loss of access to fishing grounds) and does not enter the high magnitude category (i.e., leading to substantial loss of access to fishing grounds). The Tier 3 projects are not considered to raise the category of magnitude of impact beyond what is assessed for Tier 2, summarised as medium for all commercial fishing fleets.

Significance of Effects

Tier 1

8.8.2.35 For all commercial fishing fleets the overall magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not Significant in EIA terms**.

Tier 2 and 3

8.8.2.36 Regarding demersal otter trawl, demersal seine and dredge fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Medium** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Moderate and Significant in EIA terms**.

8.8.2.37 Regarding other commercial fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not Significant in EIA terms**.

Disturbance of Commercially Important Fish and Shellfish Resources Leading to Displacement or Disruption of Fishing Activity

Sensitivity of Receptor

8.8.2.38 All commercial fishing fleets are sensitive to displacement of their target resource.

8.8.2.39 All commercial fishing fleets are deemed to be of high vulnerability, medium recoverability and medium-high value. The sensitivity of the receptor is therefore, considered to be medium.

Magnitude of Impact

Tier 1

8.8.2.40 The cumulative effects for fish and shellfish ecology have been assessed in Volume 2, Chapter 5: Fish and Shellfish Ecology, and covers the following effects during the construction phase:

- Temporary threshold shift and behavioural changes resulting from underwater noise arising from noise and vibration underwater noise impacting fish and shellfish receptors; and
- Temporary increase in suspended sediment and sediment deposition.

8.8.2.41 The underwater noise effects on fish and shellfish receptors are assessed in Volume 2, Chapter 5: Fish and Shellfish Ecology and predicted to be of negligible to minor adverse significance. Temporary increase in suspended sediment and sediment deposition may occur due to the installation of infrastructure as assessed in Volume 2, Chapter 5: Fish and Shellfish Ecology and predicted to be of minor adverse significance.

8.8.2.42 Overall, cumulative effects on fish and shellfish ecology during construction are assessed to be of negligible to minor adverse significance. Therefore, the magnitude of effect to commercial fisheries resources is assessed as low for all commercial fishery fleets.

Tier 2 and 3

8.8.2.43 The Tier 2 and Tier 3 projects are not considered to raise the magnitude of impact beyond what is assessed for Tier 1, summarised as low for all commercial fishing fleets.

Significance of Effects

Tier 1, 2 and 3

8.8.2.44 Overall, the magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not significant in EIA terms**.

8.8.3 Operation

Reduction in Access to, or Exclusion from Established Fishing Grounds within the Caledonia OWF and Caledonia OECC

Sensitivity of Receptor

8.8.3.1 The justification for the sensitivity is the same or similar to that assessed for access to fishing grounds during construction, summarised as medium for all fleets.

Magnitude of Impact

Tier 1

8.8.3.2 The justification for the magnitude of impact is the same or similar to that assessed during construction for Tier 1 projects. While the operation and maintenance phase is of longer duration (35 years) than the construction phase; the impact magnitude is not considered to rise above that assessed for the construction phase.

8.8.3.3 The cumulative impact is predicted to be of international spatial extent (based on geographic scope of the commercial fisheries cumulative study area which covers multiple EEZs and UK and non-UK fishing fleets), long term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. Given the adaptation of the commercial fishing sector to operational wind farm developments, and the lower activity within Tier 1

floating projects, the magnitude is therefore, considered to be low for Tier 1 projects.

Tier 2

8.8.3.4 The justification for the magnitude of impact is the same or similar to that assessed during construction for Tier 2 projects due to the assumption that resumption of fishing would not be possible within the Tier 2 floating OWFs during the operational phase of these projects.

8.8.3.5 The cumulative impact is predicted to be of international spatial extent, medium term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. Given the loss of access posed by floating OWFs, together with the anticipated introduction of fisheries management within the MPA network, the magnitude is therefore, considered to be medium for Tier 2 projects.

Tier 3

8.8.3.6 The Tier 3 projects are not considered to raise the magnitude of impact beyond what is assessed for Tier 2 summarised as medium for all commercial fishing fleets.

Significance of Effects

Tier 1

8.8.3.7 For all commercial fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not Significant in EIA terms**.

Tier 2 and 3

8.8.3.8 Regarding demersal otter trawl, demersal seine and dredge fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Medium** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Moderate and Significant in EIA terms**.

8.8.3.9 Regarding other commercial fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be of **Minor and Not Significant in EIA terms**.

Displacement Leading to Gear Conflict and Increased Fishing Pressure on Adjacent Grounds

Sensitivity of Receptor

8.8.3.10 The justification for the sensitivity is the same or similar to that assessed for displacement during construction, summarised as medium for all fleets.

Magnitude of Impact

Tier 1

8.8.3.11 The effect of displacement during operational phase 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). There is a low magnitude of impact for reduced access to fishing grounds from Tier 1 projects and therefore displacement is not expected. As such the magnitude of impact of displacement is assessed as low for all fleets.

Tier 2

8.8.3.12 The justification for the magnitude of impact is the same or similar to that assessed for construction for Tier 2 projects.

8.8.3.13 The cumulative impact is predicted to be of international spatial extent, medium term duration, continuous and low reversibility. It is predicted that the impact will affect the receptor directly. Given the loss of access posed by floating OWFs, together with the anticipated introduction of fisheries management within the MPA network, and knock-on displacement effects, the magnitude is therefore, considered to be medium for Tier 2 projects.

Tier 3

8.8.3.14 The Tier 3 projects are not considered to raise the magnitude of impact beyond what is assessed for Tier 2 summarised as medium for all commercial fishing fleets.

Significance of Effects

Tier 1

8.8.3.15 For all commercial fishing fleets the overall magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not Significant in EIA terms**.

Tier 2 and 3

8.8.3.16 Regarding demersal otter trawl, demersal seine and dredge fishing fleets, the overall magnitude of the cumulative effect is deemed to be **Medium** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Moderate and Significant in EIA terms**.

8.8.3.17 Regarding other commercial fishing fleets, the overall, the magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not Significant in EIA terms**.

Disturbance of Commercially Important Fish and Shellfish Resources Leading to Displacement or Disruption of Fishing Activity

Sensitivity of Receptor

8.8.3.18 The justification for the sensitivity is the same or similar to that assessed for disturbance to resources during construction, summarised as medium for all fleets.

Magnitude of Impact

Tier 1

8.8.3.19 The cumulative effects for fish and shellfish ecology have been assessed in Volume 2, Chapter 5: Fish and Shellfish Ecology covering the following effects during the operation and maintenance phase:

- Long-term habitat loss; and
- Effects to fish and shellfish receptors due to EMF from subsea electrical cabling.

8.8.3.20 Effects of long-term habitat loss is assessed in Volume 2, Chapter 5: Fish and Shellfish Ecology and highlights that while habitat loss may be locally significant and comprise a permanent change in seabed habitat within the footprint of the structures and scour and cable protection, the footprint of the area affected will be highly localised. Furthermore, the seabed habitats that would be affected are common and widespread in the region.

8.8.3.21 In relation to EMF, it is noted in Volume 2, Chapter 5: Fish and Shellfish Ecology that EMF levels in the vicinity of subsea cables are influenced by a variety of design and installation factors, including distance between cables, cable sheathing, number of conductors, and internal cable configuration. Based on similar technology and project designs, the extent of EMF emissions from the OWF projects considered in the cumulative impact assessment is also expected to be highly localised and restricted to areas within the immediate proximity of the cable lines (i.e., within metres to tens of metres from cables).

8.8.3.22 Overall cumulative effects on fish and shellfish ecology during operation and maintenance are assessed to be of minor adverse significance. Therefore, the magnitude of effect to commercial fisheries resources is assessed as low for all commercial fishery fleets.

Tier 2 and 3

8.8.3.23 The Tier 2 and Tier 3 projects are not considered to raise the magnitude of impact beyond what is assessed for Tier 1, summarised as low for all commercial fishing fleets.

Significance of Effects

Tier 1, 2 and 3

8.8.3.24 Overall, the magnitude of the cumulative effect is deemed to be **Low** and the sensitivity of the receptor is considered to be **Medium**. The cumulative effect will, therefore, be **Minor and Not Significant in EIA terms**.

8.9 In-combination Effects

8.9.1.1 In-combination impacts may occur through the inter-relationship with another EIAR topic that may lead to different or greater environmental effects than in isolation. There is also the potential for in-combination impacts resulting from onshore and offshore works.

8.9.1.2 The potential in-combination effects for commercial fisheries receptors resulting from effects between offshore works of the Proposed Development (Offshore) are shown in Table 8-12, including:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the Proposed Development (Offshore) (construction, O&M and decommissioning); to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three key project stages; and
- Receptor-led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on commercial fisheries such as reduced access, displacement, longer steaming times etc., may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects might be short-term, temporary or transient effects, or incorporate longer term effects.

8.9.1.3 A description of the likely inter-related effects arising from the Proposed Development (Offshore) on commercial fisheries is summarised below:

- Shipping and Navigation – impacts to navigation routes may affect accessibility for commercial fisheries;
- Fish and Shellfish Ecology – impacts to fish and shellfish ecology may affect resource availability for commercial fisheries receptors; and
- Marine Water and Sediment Quality – impacts on water quality (i.e., resuspension of contaminants) may affect quality of commercial fisheries resources.

Table 8-12: In-combination Effects.

Project Phase(s)	Nature of Inter-related Effect	Assessment Alone	Inter-related Effects Assessment
Project-lifetime Effects			
Construction, O&M and decommissioning	Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF	Following additional mitigation measures, impacts were assessed as being Not Significant in the construction, O&M and decommissioning phases.	Loss or restricted access to fishing grounds is considered to be temporary during construction and decommissioning and long term during the operation and maintenance phase. Buoyed construction area around the entirety of the Caledonia OWF as it is constructed, will lead to loss of access up to the point of commissioning in the operation and maintenance phase when it is also assumed the entirety of the Caledonia OWF will not be accessed for fishing. The effects on commercial fisheries across the phases 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 phase.
Construction, O&M and decommissioning	Reduction in access to, or exclusion from established fishing grounds within the Export Cable Corridor	Following additional mitigation measures, impacts were assessed as being Not Significant in the construction, O&M and decommissioning phases.	See above.
Construction, O&M and decommissioning	Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	Following additional mitigation measures, impacts were assessed as being Not Significant in the construction, O&M and	Fishing may be disrupted and displaced into other areas due to the loss of access during all phases of the project. Similarly, for loss of access, in the floating section of Caledonia South, the level of displacement experienced is expected to increase incrementally up to the point of operation, when the entire floating section will not be accessed for fishing. Therefore, effects on commercial fisheries are not anticipated to interact in such a way as to

Project Phase(s)	Nature of Inter-related Effect	Assessment Alone	Inter-related Effects Assessment
		decommissioning phases.	result in combined effects of greater significance than the assessments presented for each individual phase.
Construction, O&M and decommissioning	Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	Impacts were assessed as being Not Significant in the construction, O&M and decommissioning phases.	Project lifetime inter-related effects are unlikely as the nature of potential impact is different during construction (underwater noise) and operation and maintenance phases (EMF, loss of habitat and increased SSCs and suspended sediments). Temporary and long term habitat loss which occurs across all phases is expected to be proportionally small in relation to habitat availability in the commercial fisheries regional study area. Across the project lifetime, the 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 for each individual phase.
Construction, O&M and decommissioning	Increased vessel traffic associated with the Proposed Development within fishing grounds leading to interference with fishing activity	Impacts were assessed as being Not Significant in the construction, O&M and decommissioning phases.	With the successful implementation of embedded measures (i.e., issue of Notice to Mariners), preparation of a FMMS, close liaison with the local vessels), no significant effects are predicted for the construction, operation and maintenance, and decommissioning phases of the Proposed Development (Offshore). The majority of vessel traffic (resulting in interference with fishing) is predicted to peak during construction and decommissioning with reduced potential for interference during the operation and maintenance phase. Therefore, across the project lifetime, the 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 for each individual phase.
Construction, O&M and decommissioning	Physical presence of infrastructure and potential exposure of	Impacts were assessed as being Not Significant in the construction,	Impacts due to gear snagging may occur during the construction and operation and maintenance phases due to the presence of fixed and floating wind turbine foundations

Project Phase(s)	Nature of Inter-related Effect	Assessment Alone	Inter-related Effects Assessment
	that infrastructure leading to gear snagging	O&M and decommissioning phases.	and associated moorings and anchoring. At the end of the Proposed Development (Offshore) operational lifetime, it is expected that all structures above the seabed (with the exception of scour protection and cable protection) will be fully removed where feasible. Environmental conditions and sensitivities will also be considered since removal of structures may result in greater environmental impacts in comparison to leaving in situ. However, across the project lifetime, the 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 for each individual phase.
Construction, O&M and decommissioning	Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Proposed Development	Impacts were assessed as being Not Significant in the construction, O&M and decommissioning phases.	Impacts on steaming and transit times are expected to be highest during construction and decommissioning when areas undergoing installation/decommissioning activities will be avoided. Vessels may also choose to avoid transiting through the Proposed Development (Offshore) during operation and maintenance phase. Therefore, across the project lifetime, the 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 for each individual phase.
Receptor-led Effects			
An inter-related receptor led effect may occur from the combination of the reduction in access to fishing grounds and the subsequent displacement and increased pressure on adjacent grounds. While these two affects may act together, given the proposed additional mitigation, it is considered that any inter-related effect will not be of any greater significance than those already assessed in isolation.			

8.10 Transboundary Effects

8.10.1.1 Transboundary effects are defined as those effects upon the receiving environment of European Economic Area (EEA) states, whether occurring from the Array alone, or cumulatively with other projects in the wider area. A screening of transboundary impacts has been carried out, which identified that there was the potential for transboundary effects to occur in relation to commercial fisheries. The potential transboundary impacts screened into the assessment for commercial fisheries are:

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

8.10.1.2 Effects on biological resources could occur over a range of tens of kilometres from the Proposed Development (Offshore) and could therefore interact with the following EEA states: Norway. Based on the minor to negligible significance of disruption to commercial species during all phases of the project, it is expected that the impact on stocks in the Norwegian EEZ will be negligible. Therefore, the potential transboundary impact of effects on commercial fish stocks in the waters of other EEA States on commercial fisheries is concluded to be not significant in EIA terms.

8.10.1.3 Effects on commercial fishing fleets could occur over a range of 100s of kilometres from the Proposed Development (Offshore) (affecting fleets from other states that operate in the vicinity of the Proposed Development (Offshore)) and could therefore interact with the following EEA states: the Netherlands, Germany, Denmark, Norway and Ireland. Effects on these foreign commercial fishing fleets from EEA states, in terms of reduction in access to fishing grounds and displacement into alternative grounds including other EEZs, have therefore been intrinsically considered throughout the commercial fisheries EIA process and are consistent to those presented in the impact assessment (Section 8.7) and CIA (Section 8.8).

8.11 Mitigation Measures and Monitoring

8.11.1 Construction

8.11.1.1 The impact assessment found significant impacts during the construction phase for the following fleets:

- Caledonia North Site (bottom-fixed): Squid trawl; finfish trawl and seine; and scallop dredge
- Caledonia South Site (bottom-fixed and floating): Squid trawl; finfish trawl and seine; and scallop dredge
- OECC: Nephrops trawl; squid trawl; finfish trawl and seine; scallop dredge; and potting crab and lobster.

8.11.1.2 The Applicant is committed to aligning with FLOWW guidance documents (2014[6] and 2015[7]; and future updates to this guidance), including future updates related to floating OWFs.

8.11.1.3 The Applicant is committed to implementing the FMMS. Outline FMMSs are provided in Volume 7, Appendix 17 (Caledonia North) and Volume 7, Appendix 18 (Caledonia South), which will be further developed in collaboration with and through engagement with the commercial fishing industry prior to construction commencing.

8.11.1.4 The Applicant will issue weekly notices of construction to the commercial fishing industry community to ensure effective propagation of information.

8.11.1.5 During the construction phase, areas under construction will be inaccessible to fishing activity. To mitigate this short-term impact, the Applicant is committed to following FLOWW guidance (2014[6] and 2015[7]; and future updates to this guidance).

8.11.1.6 The Applicant will endeavour to agree shelter areas and preferred transit routes for construction vessels with the fishing industry to minimise impacts on fishing activities to the extent practicable; these will be captured within the in the FMMS, and VMP (where applicable).

8.11.1.7 The Applicant is committed to mitigating justifiable disturbance experienced through loss of access due to construction activities. The Applicant is proposing a package of commitments and mitigation being developed and delivered through the FMMS including:

- Commitment to monitoring of fisheries activity pre, during and post-construction using existing data sources including landing statistics, VMS, AIS, OFLO observations and industry consultation; and
- Commitment to funding research and/or initiatives relevant to the fisheries affected.

8.11.1.8 Effective mitigation for disturbance due to the reduction in access is expected to work towards minimising the level of displacement. Direct mitigation of

displacement is challenging due to difficulties in attributing any change in fishing activity to a specific cause, especially when a range of fishing grounds are targeted by each individual fisher. Discussions are ongoing in the UK and elsewhere to establish effective mechanisms to mitigate displacement. The Applicant is committed to following FLOWW guidance. The Applicant is committed to implementing a FMMS, with opportunity to update the FMMS if and when future guidance becomes available.

8.11.1.9 In addition, the Applicant commits to surveys across areas of cable protection deployed across inter-array cables and offshore export cables to establish that fishing can resume safely post construction, this may include over-trawl surveys following consultation with commercial fishing industry. This will be secured within the FMMS.

8.11.1.10 The Applicant is committed to a 'Structure Exclusion Zone' along a portion of the eastern Caledonia South Site for the purposes of aiding safe passage of shipping. This additional mitigation is applicable to fishing vessels in transit. The co-ordinates of the Structure Exclusion Zone are provided in Table 8-13.

Table 8-13: Structure Exclusion Zone.

Point	Co-ordinates					
	Easting	Northing	DD Latitude	DD Longitude	DDM Latitude	DDM Longitude
1	534142.0769	6457516.0421	58.2574	-2.4182	58° 15.444' N	2° 25.092' W
2	539478.2685	6443317.1324	58.1294	-2.3297	58° 7.766' N	2° 19.781' W
3	541003.8019	6449861.5115	58.1881	-2.3026	58° 11.285' N	2° 18.158' W

8.11.2 Operation

8.11.2.1 During the operational phase significant impacts were identified for Squid trawl; finfish trawl and seine; and scallop dredge due to loss of access within the floating portion of the Caledonia South Site. The Applicant is proposing a package of commitments and mitigation being developed and delivered through the FMMS including:

- Commitment to monitoring of fisheries activity pre, during and post-construction using existing data sources including landing statistics, VMS, AIS, OFLO observations and industry consultation;
- Commitment to determine whether the as-built floating infrastructure allows any form of fishing to resume through investigation into defined fishing areas (Caledonia South Site floating section only); and
- Commitment to develop research on fisheries and floating (Caledonia South Site floating section only), recognising that the Proposed

Development (Offshore) presents a unique opportunity to develop research given combination of bottom-fixed and floating infrastructure.

8.11.3 Decommissioning

8.11.3.1 Mitigation during decommissioning is as per mitigation described for construction.

8.11.4 Cumulative

8.11.4.1 The projects and plans included in the Tier 2 CIA resulted in a significant cumulative effect of loss of access to fishing grounds predicted for demersal otter trawl, demersal seine and dredge fishing fleets. However, it is emphasised that the overall contribution of the Proposed Development (Offshore) to this cumulative impact is considered low due to the presence of bottom-fixed foundations in the Caledonia North Site and Caledonia South Site, together with the section of floating foundations in the Caledonia South Site that has avoided key trawling grounds.

8.11.4.2 Further mitigation is proposed at a regional scale to monitor fishing activity with the region to identify any changing effort. This monitoring will utilise publicly available datasets on landing statistics, VMS and AIS to monitor the fishing activity and patterns within the commercial fisheries regional study area. The intention of this monitoring is to identify any changes in the baseline assessment from 2023 onwards up to construction and operational phases to ensure that the impact assessment remains valid. Findings from the monitoring will be discussed with the CFWG and support any necessary updates to the FMMS so that mitigation remains valid throughout all phases of the development. Monitoring fisheries activity is not standard procedure and therefore not considered as an embedded measure. Monitoring in this instance is therefore defined as further mitigation, with the proposed approach detailed in the FMMS.

8.12 Residual Effects

8.12.1 Construction Effects

8.12.1.1 Through the application of the FMMS, including monitoring and research relevant to identified fleets, the residual effects during construction would be **Minor and Not Significant in EIA terms**.

8.12.2 Operation Effects

8.12.2.1 Through the package of mitigation developed through the FMMS, including monitoring fisheries activity, determination of defined fishing areas (floating only) and commitment to develop research on fisheries and floating wind

(floating only), the residual effects during operation would be **Minor and Not Significant in EIA terms** s.

8.12.3 Decommissioning Effects

8.12.3.1 Through the application of the FMMS, the residual effects during decommissioning would be **Minor and Not Significant in EIA terms**.

8.12.4 Cumulative Effects

8.12.4.1 Through the application of the FMMS, including regional monitoring of fisheries activity, the residual cumulative effects would be **Minor and Not Significant in EIA terms**.

8.13 Summary of Effects

8.13.1.1 Table 8-14 presents a summary of the significant effects assessed within this EIAR chapter, any mitigation required, and the residual effects are provided.

Table 8-14: Summary of effects for commercial fisheries.

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
Construction						
Impact 1: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8 and boundary reduction shown in Figure 8-5.	Minor
	Squid trawl	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative and surveys related to cable protection.	Minor
	Finfish trawl and seine	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative and surveys related to cable protection.	Minor
	Scallop dredge	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative and surveys related to cable protection.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 2: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OECC	Nephrops trawl	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative and surveys related to cable protection.	Minor
	Squid trawl	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative and surveys related to cable protection.	Minor
	Finfish trawl and seine	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative and surveys related to cable protection.	Minor
	Scallop dredge	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative and surveys related to cable protection.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative and surveys related to cable protection.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
					mitigation measures outlined in Table 8-8.	
Impact 3: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	Nephrops trawl	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Squid trawl	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Finfish trawl and seine	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Scallop dredge	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
Impact 4: Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 5: Increased vessel traffic	Nephrops trawl	Low	Low	Minor	No mitigation required above and beyond embedded	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
associated with the Proposed Development (Offshore) within fishing grounds leading to interference with fishing activity					mitigation measures outlined in Table 8-8.	
	Squid trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 6: Physical presence of infrastructure and potential exposure of	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
that infrastructure leading to gear snagging	Squid trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 7: Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the	Nephrops trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Low	Minor	No mitigation required above and beyond embedded	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
Proposed Development (Offshore)					mitigation measures outlined in Table 8-8.	
	Finfish trawl and seine	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Operation						
Impact 8: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF	Nephrops trawl	Fixed: Low Floating: Low Combined: Low	Medium	Fixed: Minor Floating: Minor Combined: Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8 and boundary reduction shown in Figure 8-5.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
	Squid trawl	Fixed: Low Floating: Medium Combined: Medium	Medium	Fixed: Minor Floating: Moderate Combined: Moderate	Fixed and Floating: Monitoring commercial fisheries activity and data and commitment to update FMMS based on findings to ensure FMMS remains valid and appropriate for operational phase. Floating: commitment to explore coexistence through investigation of defined fishing areas post-construction Floating: commitment to develop research on fisheries and floating turbines.	Minor
	Finfish trawl and seine	Fixed: Low Floating: Medium Combined: Medium	Medium	Fixed: Minor Floating: Moderate Combined: Moderate	Fixed and Floating: Monitoring commercial fisheries activity and data and commitment to update FMMS based on findings to ensure FMMS remains valid and appropriate for operational phase. Floating: commitment to explore coexistence through investigation of defined fishing areas post-construction Floating: commitment to develop research on fisheries and floating turbines.	Minor
	Scallop dredge	Fixed: Low Floating: Medium	Medium	Fixed: Minor Floating: Moderate	Fixed and Floating: Monitoring commercial fisheries activity and data and commitment to update FMMS based on	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
		Combined: Medium		Combined: Moderate	findings to ensure FMMS remains valid and appropriate for operational phase. Floating: commitment to explore coexistence through investigation of defined fishing areas post-construction Floating: commitment to develop research on fisheries and floating turbines.	
	Mackerel pelagic trawl	Fixed: Low Floating: Low Combined: Low	Low	Fixed: Minor Floating: Minor Combined: Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Fixed: Minor Floating: Minor Combined: Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Fixed: Low Floating: Low Combined: Low	Medium	Fixed: Minor Floating: Minor Combined: Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 9: Reduction in access to, or exclusion from established	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
fishing grounds within the Caledonia OECC	Squid trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 10: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Medium	Minor	No mitigation required above and beyond embedded	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
					mitigation measures outlined in Table 8-8.	
	Finfish trawl and seine	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Scallop dredge	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 11: Disturbance of commercially important fish and shellfish resources leading to displacement or	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
disruption of fishing activity	Finfish trawl and seine	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 12: Increased vessel traffic associated with the Proposed Development (Offshore) within fishing grounds leading to interference with fishing activity	Nephrops trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Low	Minor	No mitigation required above and beyond embedded	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
					mitigation measures outlined in Table 8-8.	
	Scallop dredge	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 13: Physical presence of infrastructure and potential exposure of that infrastructure leading to gear snagging	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
	Scallop dredge	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 14: Additional steaming to alternative fishing grounds for vessels that would otherwise fish within the Proposed Development (Offshore)	Nephrops trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Low	Minor	No mitigation required above and beyond embedded	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
					mitigation measures outlined in Table 8-8.	
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Decommissioning						
Impact 15: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OWF	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8 and boundary reduction shown in Figure 8-5.	Minor
	Squid trawl	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, and research/initiative.	Minor
	Finfish trawl and seine	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, and research/initiative.	Minor
	Scallop dredge	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, and research/initiative.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 16: Reduction in access to, or exclusion from established fishing grounds within the Caledonia OECC	Nephrops trawl	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative.	Minor
	Squid trawl	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative.	Minor
	Finfish trawl and seine	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative.	Minor
	Scallop dredge	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
	Potting crab and lobster	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative.	Minor
	Mackerel line or jigging mackerel	Medium	Medium	Moderate	Implementation of the FMMS, including monitoring, research/initiative.	Minor
Impact 17: Displacement leading to gear conflict and increased fishing pressure on adjacent grounds	Nephrops trawl	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Squid trawl	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Finfish trawl and seine	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Scallop dredge	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow FLOWW guidance and future updates.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Medium	Medium	Moderate	Implementation of the FMMS and commitment to follow	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
	Mackerel line or jigging mackerel	Medium	Medium	Moderate	FLOWW guidance and future updates.	Minor
Impact 18: Disturbance of commercially important fish and shellfish resources leading to displacement or disruption of fishing activity	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
Impact 19: Increased vessel traffic associated with the Proposed Development (Offshore) within fishing grounds leading to interference with fishing activity	Nephrops trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Squid trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 20: Physical presence of	Nephrops trawl	Low	Medium	Minor	No mitigation required above and beyond embedded	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
infrastructure and potential exposure of that infrastructure leading to gear snagging					mitigation measures outlined in Table 8-8.	
	Squid trawl	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
Impact 21: Additional steaming to alternative fishing grounds for vessels	Nephrops trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

Potential Impact	Receptor	Magnitude	Sensitivity	Significance	Mitigation Measure	Residual Effect
that would otherwise fish within the Proposed Development (Offshore)	Squid trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Finfish trawl and seine	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Scallop dredge	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel pelagic trawl	Low	Low	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Potting crab and lobster	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor
	Mackerel line or jigging mackerel	Low	Medium	Minor	No mitigation required above and beyond embedded mitigation measures outlined in Table 8-8.	Minor

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