Morven Offshore Wind Farm

Morven Hawthorn Pit Grid Connection Project

Preliminary Environmental Information Report

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Glossary

Term	Meaning
Automatic Identification System (AIS)	A system by which vessels automatically broadcast their identity and key statistics including location, destination, length, speed and current status. Most commercial vessels and European Union fishing vessels over 15 metres (m) in length are required to carry AIS.
Bycatch	Non-target species unintentionally captured during fishing activities, which may be discarded or retained and can include fish, seabirds, marine mammals, and other marine fauna.
Cod-end	The narrow end of a tapered trawl net.
Commercial fishing	Any form of fishing activity legally undertaken where the catch is sold for taxable profit.
COVID-19 Pandemic	The COVID-19 pandemic was a global outbreak of coronavirus, an infectious disease caused by the severe acute respiratory syndrome coronavirus, first identified in 2019.
Crustacean	An invertebrate arthropod belonging to the subphylum of Crustacea, within the phylum Arthropoda. Includes crabs, lobsters, shrimps, barnacles and sand hoppers.
Demersal Fish Species	Fish that live near or on the seabed. Includes species such as haddock, cod, whiting and flatfish.
Demersal seine	A seine net is a long net, with or without a bag in the centre, which is set either from the shore or from a boat for surrounding a certain area and is operated with 2 (long) ropes fixed to its ends (for hauling and herding the fish).
Demersal trawl	A demersal trawl is a cone shaped net that is towed on the seabed to target Demersal Fish Species.
Dhan	A marker flag made of very hard-wearing material located on a pole or buoy to mark location of fishing gear.
Environmental Impact Assessment (EIA)	The process of identifying and assessing the significant effects likely to arise from a project. This requires consideration of the likely changes to the environment, where these arise as a consequence of a project, through comparison with the existing and projected future baseline conditions. Assessment of the potential likely significant effects of the MHPGC Project on the physical, biological, and human environment during construction, operations and maintenance (O&M) and decommissioning, in support of the DCO application.
EU-Exit	The withdrawal of the UK from the EU.
Exclusive Economic Zone (EEZ)	An area from the outer limit of the territorial sea up to 200 nautical miles (nm) from the coastal baseline, over which a sovereign state has rights regarding marine resources.
Fish Stock	Any natural population of fish which an isolated and self-perpetuating group of the same species.
Fishery	A group of vessel voyages which target the same species or use the same gear.
Fishing ground	An area of water or seabed targeted by fishing activity.
Fleet	A group of vessels classified together based on shared characteristics (such as nationality, vessel type, ownership or function).
Gear type	The method/equipment used for fishing.

Term	Meaning
iFISH Database	The Marine Management Organisation (MMO) fisheries database of commercial fisheries landings statistics for vessels registered in the UK.
Inshore Waters	Marine waters from mean high water springs extending seaward to 12 nautical miles (nm).
International Council for the Exploration of the Seas (ICES) statistical rectangles	ICES standardise the division of sea areas to enable statistical analysis of data. Each ICES statistical rectangle is "30 min latitude by 1 degree longitude" in size (approximately 30nm x 30nm). A number of rectangles are amalgamated to create ICES statistical areas.
Landings	Quantitative description of the amount of fish returned to port for sale, in terms of value or weight.
Marine Management Organisation (MMO)	The MMO, as a UK government body, is responsible for licensing, regulating and overseeing activities in the marine environment for English waters. For a DCO and deemed marine licence, the MMO acts as a statutory consultee, advising on marine planning, environmental impacts, habitats and compliance with marine licensing regulations.
Maximum Sustainable Yield (MSY)	MSY is the largest yield (catch, in tonnes) that can be taken from a specific fish stock over an indefinite period under constant environmental conditions. Fishing at MSY levels should ensure the capacity of the stock to continue to produce this level in the long term.
MHPGC Project Preliminary Environmental Impact Report (PEIR) Red Line Boundary	The area within which all components of the MHPGC Project will be located, including areas required on a temporary basis during construction and/or decommissioning (such as construction compounds).
MHPGC Project PEIR	A report that provides preliminary environmental information in accordance with the Infrastructure Planning (Environmental Impact Assessment) Regulations 2017. This is information that enables consultees to understand the likely significant environmental effects of a project and which helps to inform consultation responses.
MHPGC Project Scoping Opinions	Separate scoping opinions received from PINS (on behalf of the Secretary of State) and MD-LOT (on behalf of the Scottish Ministers) in response to the MHPGC Project Scoping Report. The MHPGC Project Scoping Opinions contain the range of issues that PINS, and MD-LOT in consultation with statutory stakeholders, have identified should be considered within the EIA process.
MHPGC Project Scoping Report	A Scoping Report for the MHPGC Project, scoping the likely significant effects of the project on the environment, was submitted and accepted by Planning Inspectorate (PINS) and submitted to the Scottish Ministers, via the Marine Directorate – Licencing Operations Team (MD-LOT) in February 2025.
Minimum Conservation Reference Size (MCRS)	For the protection and conservation of fisheries resources, MCRS are applied to certain species of fish and shellfish. The MCRS is the size of a living marine aquatic species below which restrictions or incentives apply that aim to avoid capture through fishing activity.
Minimum Landing Size (MLS)	A technical measure that limits the size of fish or shellfish species that can be legally landed and sold. The MLS varies per species. With the implementation of the Landings Obligation, the existing MLS are changed into MCRS, but they will remain largely the same.

Term	Meaning
Mollusc	Invertebrate animal belonging to the phylum Mollusca that includes snails, clams, chitons, tooth shells and octopi.
Morven Hawthorn Pit Grid Connection Project (hereafter 'MHPGC Project')	The MHPGC Project is comprised of the offshore export cables in Scottish and English waters from the Morven North or the Morven South offshore substation platform(s) (OSP), landfall, onshore export cables, the onshore land substation (LSS) and AC connection cables.
Morven North Offshore Wind Array Project (hereafter 'Morven North')	The Morven North Offshore Wind Array Project, which includes the wind turbines and foundations, OSPs and foundations, inter-array and inter-connector cables and associated infrastructure located within the Morven North Boundary. Consent for the export cables for Morven North will be sought separately.
Morven South Offshore Wind Array Project (hereafter 'Morven South')	The Morven South Offshore Wind Array Project, which includes the wind turbines and foundations, OSPs and foundations, inter-array and inter-connector cables and associated infrastructure located within the Morven South Boundary. Consent for the export cables for Morven South will be sought separately.
Nephrops Functional Unit (FU)	Nephrops FU is a geographic area used for managing and reporting on Nephrops populations.
Offshore export cable corridor	The proposed corridor in which the offshore export cables will be located, from either the Morven North or Morven South offshore substation platform to the transition joint bay (TJB) at landfall.
Offshore export cables	HVDC cables which bring electricity from either the Morven North or Morven South offshore substation platform to the TJB at landfall.
Offshore waters	The area seaward of 12nm extending out to the UK's continental shelf.
Otter trawl	A net with large rectangular boards (otter boards) which are used to keep the mouth of the trawl net open. Otter boards are made of timber or steel and are positioned in such a way that the hydrodynamic forces, acting on them when the net is towed along the seabed, pushes them outwards and prevents the mouth of the net from closing.
Pelagic fish	Fish which live within the water column, not on or near the seabed or at the coasts. Examples include herring, mackerel and sprat.
Pelagic Trawl	A net used to target fish species in the midwater column.
Potting	Pots (which may be referred to as creels) are generally rigid structures into which fish or shellfish are guided or enticed through funnels that make entry easy but from which escape is difficult. There are many different styles and designs, each one has been designed to suit the behaviour of its target species.
Quota	A proportion of the Total Allowable Catch (TAC) for a fish stock.
Recruitment	Recruitment can be defined as the number of fish surviving to enter the fishery or to some life history stage such as settlement or maturity.
Roundfish	Roundfish refers to finfish species that possess a cylindrical or laterally compressed body shape and typically inhabit the water column rather than the seafloor (for example, haddock or cod). Unlike flatfish, which have a flattened body and are adapted to benthic living, roundfish maintain a conventional upright body form.
Scallop dredge	A method to catch scallop using steel dredges with a leading bar fitted with a set of spring-loaded, downward pointing teeth. Behind this toothed bar (sword), a mat of steel rings is fitted. A heavy net cover (back) is laced to the frame, sides and to the after end of the mat to form a bag.

Term	Meaning
Scottish seine	An encircling net shot in the open sea using very long ropes to lay out the net, and ropes on the seabed prior to towing the net closed and hauling from a boat under its own power.
Spawning Grounds	The areas of water or seabed where fish/shellfish spawn or produce their eggs.
Stock assessment	An assessment of the biological stock of a species and its status in relation to defined references points for biomass and fishing mortality.
String	A series of static fishing gear (pots) joined together to form a single deployable linear line of pots.
the Study Area	For each environmental topic, the baseline environment will be characterised, and the likely significant effect will be described within a topic-specific Study Area. Specific Study Areas are defined for each topic and are based on the maximum spatial extent across which likely significant effects of the MHPGC Project may be experienced by the relevant receptors (i.e. Zone of Influence).
Swept Area Ratio (SAR)	SAR (derived from Vessel Monitoring System data) indicates the number of times per annum that a fishing gear makes contact with (or sweeps) the seabed surface. Surface Swept Area Ratio provides a proxy for fishing intensity.
Total Allowable Catch (TAC)	TACs are catch limits, expressed in tonnes or numbers, that are set for some commercial fish stocks.
Vessel Monitoring System	A system used in commercial fishing to allow environmental and fisheries regulatory organisations to monitor, minimally, the position, time at a position, and course and speed of fishing vessels.
Vivier	Vivier crabbers are generally larger vessels with the ability to retain large numbers of live crab onboard in storage tanks.

Acronyms

Acronym	Meaning
AIS	Automatic Identification System
Cefas	Centre for Environment, Fisheries and Aquaculture Science
DCF	Data Collection Framework
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMODNet	European Marine Observation and Data Network
EMSA	European Maritime Safety Agency
EU	European Union
FiSMaDiM	Fisheries Sensitivity Mapping & Displacement
FLO	Fisheries Liaison Officer
FMP	Fisheries Management Plan
FU	Functional Unit
GIS	Geographic Information System
ICES	International Council for the Exploration of the Seas

Acronym	Meaning
IFCA	Inshore Fisheries and Conservation Authority
iFISH	Integrated Fisheries System Holding
MCRS	Minimum Conservation Reference Sizes
MD-LOT	Marine Directorate - Licensing Operations Team
MHPGC	Morven Hawthorn Pit Grid Connection
MMO	Marine Management Organisation
MPA	Marine Protected Area
NEIFCA	North Eastern Inshore Fisheries and Conservation Authority
NMPi	National Marine Plan interactive
NRA	Navigational Risk Assessment
OSP	Offshore Substation Platform
PEIR	Preliminary Environmental Information Report
PINS	Planning Inspectorate
PLN	Port Letter and Number
RBS	Register of Buyers and Sellers
SAC	Special Area of Conservation
SAR	Swept Area Ratio
SFF	Scottish Fishermen's Federation
SPFA	Scottish Pelagic Fisherman's Association
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
TCA	Trade and Cooperation Agreement
UK	United Kingdom
VMS	Vessel Monitoring System

Units

Unit	Meaning
%	Percent
£	GB Pound
€	Euros
°C	Degrees Celsius
cm	Centimetres
hp	Horsepower
kg	Kilograms
km	Kilometre

km^2	Square kilometre
kt	Knots; Nautical mile per hour
kW	Kilowatt
m	Metre
mm	Millimetre
nm	Nautical mile
t	Tonne

Executive Summary

This Commercial Fisheries Technical Report provides a comprehensive assessment of commercial fishing activity relevant to the Morven Hawthorn Pit Grid Connection Project (referred to hereafter as 'the MHPGC Project'), which will connect the offshore substation platform(s) (OSP) of Morven North Offshore Wind Array Project or Morven South Offshore Wind Array Project (referred to hereafter as 'Morven North or Morven South'), located approximately 61 kilometres (km) at its closest point from the Aberdeenshire coast in Scottish waters, to the National Grid Hawthorn Pit Substation, located in County Durham, England. The Technical Report informs the Preliminary Environmental Information Report (PEIR), defining the existing commercial fisheries baseline against which impacts associated with the MHPGC Project will be assessed.

The MHPGC Project is situated within International Council for the Exploration of the Seas (ICES) Division 4b (Central North Sea) statistical area in the United Kingdom (UK) Exclusive Economic Zone (EEZ) and intersects nine ICES statistical rectangles that form the Local Commercial Fisheries Study Area. The wider Regional Commercial Fisheries Study Area comprises 22 ICES statistical rectangles surrounding the MHPGC Project and Local Commercial Fisheries Study Area, providing broader context for commercial fishing activity. Both areas encompass diverse, economically significant fishing grounds.

A detailed desktop review of data and literature drew upon UK Marine Management Organisation (MMO) landings statistics, European Union (EU) landings datasets, Vessel Monitoring System (VMS) records, Automatic Identification System (AIS) data, fisheries surveillance observations, Catch App entries and Inshore Fisheries and Conservation Authority (IFCA) shellfish returns. These datasets were supplemented with fishing vessel plotter information and industry engagement.

Spatial mapping shows heavy concentrations of demersal otter trawling and potting in the southern extent of the MHPGC Project PEIR Red Line Boundary, the former particularly over the Farn Deeps Nephrops ground with which the MHPGC Project overlaps. The northern section of the MHPGC Project PEIR Red Line Boundary sees comparatively low activity. IFCA data confirms intensive inshore potting relevant to the MHPGC Project PEIR Red Line Boundary as it approaches landfall.

Across the Local Commercial Fisheries Study Area, Nephrops, lobster, brown crab and king scallop are the most economically important species. Nephrops consistently account for the highest annual first-sale value from the Local Commercial Fisheries Study Area. While landed weights have gradually declined over the past decade, overall values have remained stable. Scottish and English fleets dominate activity, landing primarily into ports such as North Shields, Blyth, Amble, Eyemouth and Peterhead.

Fishing across the Regional Commercial Fisheries Study Area is dominated by shellfish and pelagic species and is undertaken primarily by Scottish and English vessels using a range of mobile and static gears, with distinct seasonal patterns evident.

Review of future baseline scenarios concludes that commercial fisheries activity is shaped by environmental conditions, market dynamics, international trade requirements, species stock trends, marine spatial planning and regulatory change. Key influences include EU-Exit quota adjustments, the recent prohibition of sandeel fisheries in the North Sea, fisheries management within protected areas, evolving stock assessments and potential climate-driven shifts in species distributions. A 2025 UK-EU agreement extends reciprocal access rights until 2038, maintaining EU fishing vessel access within the Regional and Local Commercial Fisheries Study Areas.

Overall, the analysis identifies demersal otter trawl, potting, scallop dredge, demersal seine and pelagic trawl fleets as key commercial fisheries receptors that will be subject to detailed impact assessment within the PEIR. The Technical Report concludes that, given the breadth and depth of datasets evaluated, the commercial fisheries baseline is sufficiently complete to underpin a robust Environmental Impact Assessment (EIA) for the MHPGC Project.

1 Introduction

1.1.1.1 This Commercial Fisheries Technical Report presents the detailed baseline characterisation of commercial fishing activity relevant to the Morven Hawthorn Pit Grid Connection Project (hereafter MHPGC Project). The MHPGC Project will connect the OSPs of Morven North Offshore Wind Array Project or Morven South Offshore Wind Array Project (referred to hereafter as 'Morven North or Morven South'), located approximately 61km at its closest point from the Aberdeenshire coast in Scottish waters, to the National Grid Hawthorn Pit Substation in County Durham, England. The offshore export cables have a proposed length of up to 326.4km, extending through Scottish offshore, English offshore and English inshore waters.

1.1.1.2 This Technical Report has been prepared by NiMa Consultants Ltd (NiMa), in line with the approach to commercial fisheries baseline characterisation set out in the MHPGC Scoping Report (RPS, 2025) and Scoping Opinion (Planning Inspectorate (PINS), 2025; Marine Directorate - Licensing Operations Team (MD-LOT), 2025), to support the PEIR for the MHPGC Project, providing a commercial fisheries baseline against which the potential impacts of the MHPGC Project can be assessed. This Technical Report accompanies **Volume 2, Chapter 7: Commercial Fisheries, of the PEIR**.

1.1.1.3 This Technical Report describes commercial fisheries activity, defined as fishing activity legally undertaken where the catch is sold for taxable profit. A description of recreational fishing activity, is provided in **Volume 2, Chapter 10: Infrastructure and Other Marine Users, of the PEIR**. The ecology of the fish and shellfish species targeted by commercial fishing activity is described in **Volume 2, Chapter 4: Fish and Shellfish Ecology, of the PEIR**. Maritime shipping activity, inclusive of commercial fishing vessel activity where relevant, is described in **Volume 2, Chapter 8: Shipping and Navigation, of the PEIR**.

2 Study Areas

2.1.1.1 The MHPGC Project is located within the ICES Division 4b (Central North Sea) statistical area; within UK EEZ waters. For recording commercial fisheries landings, ICES Division 4b is divided into statistical rectangles, of which the MHPGC Project overlaps with nine.

2.1.1.2 Two study areas [see **Figure 2.1**] are defined for commercial fisheries:

- The **Local Commercial Fisheries Study Area** covering ICES rectangles 38E8, 39E8, 39E9, 40E8, 40E9, 41E8, 41E9, 42E8 and 42E9;
- The **Regional Commercial Fisheries Study Area** covering ICES rectangles 38E8 to 38F0, 39E8 to 39F0, 40E7 to 40F0, 41E7 to 41F0, 42E7 to 42F0 and 43E7 to 43F0.

2.1.1.3 The Local Commercial Fisheries Study Area is defined by the ICES rectangles that the MHPGC Project overlaps with, as specified above.

2.1.1.4 The Regional Commercial Fisheries Study Area is considered to provide context to the description of commercial fishing activity in the Local Commercial Fisheries Study Area, and to inform assessment of displacement impacts within the commercial fisheries chapter of the PEIR. The Regional Commercial Fisheries Study Area includes ICES rectangles immediately adjacent to those that make up the Local Commercial Fisheries Study Area.

2.1.1.5 To provide context to the description of commercial fishing activity presented in this Technical Report, **Figure 2.2** to **Figure 2.4**Figure 2.3 identify spatial fishery restrictions relevant to the Commercial Fisheries Study Areas, inclusive of Marine Protected Areas (MPAs) with proposed fisheries management measures. The MHPGC Project directly overlaps several areas with fishery related restrictions in English waters, including:

- MMO restrictions:
  - Farne Deeps[1]: Vessels deploying demersal trawls and seines (with the exception of beam trawls) are prohibited from fishing in the Farne Deeps;
- North Eastern Inshore Fisheries and Conservation Authority (NEIFCA) byelaws:
  - Permit to fish for lobster, crab, velvet crab and whelk: No person shall fish for or take shellfish by means of static gear except under a specified permit issued by the NEIFCA;
  - Prohibition of seine net, draw net or “snurrevaad”: No person shall use in fishing for sea fish any seine net or any draw net of the kind known as the Danish seine or “snurrevaad”.
  - Scallop dredging prohibited area: A person must not use a scallop dredge within the prohibited area;
  - Trawling permit area: Trawling is prohibited unless a permit has been issued by the NEIFCA and the overall length of the vessel from trawling is carried out does not exceed 18.3 metres (m), and the engine power of the vessel does not exceed 400 kilowatts (kW).

2.1.1.6 It is noted that as of 2024, sandeel fishing within the UK EEZ – in both Scottish and English waters - has been prohibited for all UK and non-UK vessels (Defra, 2025 and Scottish Government, 2024).

[1] “Farn Deeps” is used when referring to ICES Functional Unit 6 (FU6) for Nephrops—i.e., the fisheries stock assessment unit. “Farne Deeps” is the spelling used in the context of MMO spatial restrictions.

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

44E8 44E9 44F0 44F1

43E8 43E9 43F0 43F1

43E7

42E8 42E9 42F0 42F1

42E7

41E8 41E9 41F0 41F1

41E7

41E6

40E6

40E7

40E8 40E9 40F0 40F1

39E8 39E9 39F0 39F1

38E8 38E9 38F0 38F1

37E9 37F0 37F1

Peterhead
berdeen
onehaven
ntrose
broath
noustie
St Andrews
Firth of Forth
Kirkcaldy
North Berwick
FIRTH OF FORTH
burgh
erwick-
Tweed
North Sea
South Fields
nderland
rtlepool
hitby

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0001

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES

Drawing Title:
FIGURE 2.1: LOCAL COMMERCIAL FISHERIES STUDY AREA AND REGIONAL COMMERCIAL FISHERIES STUDY AREA

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
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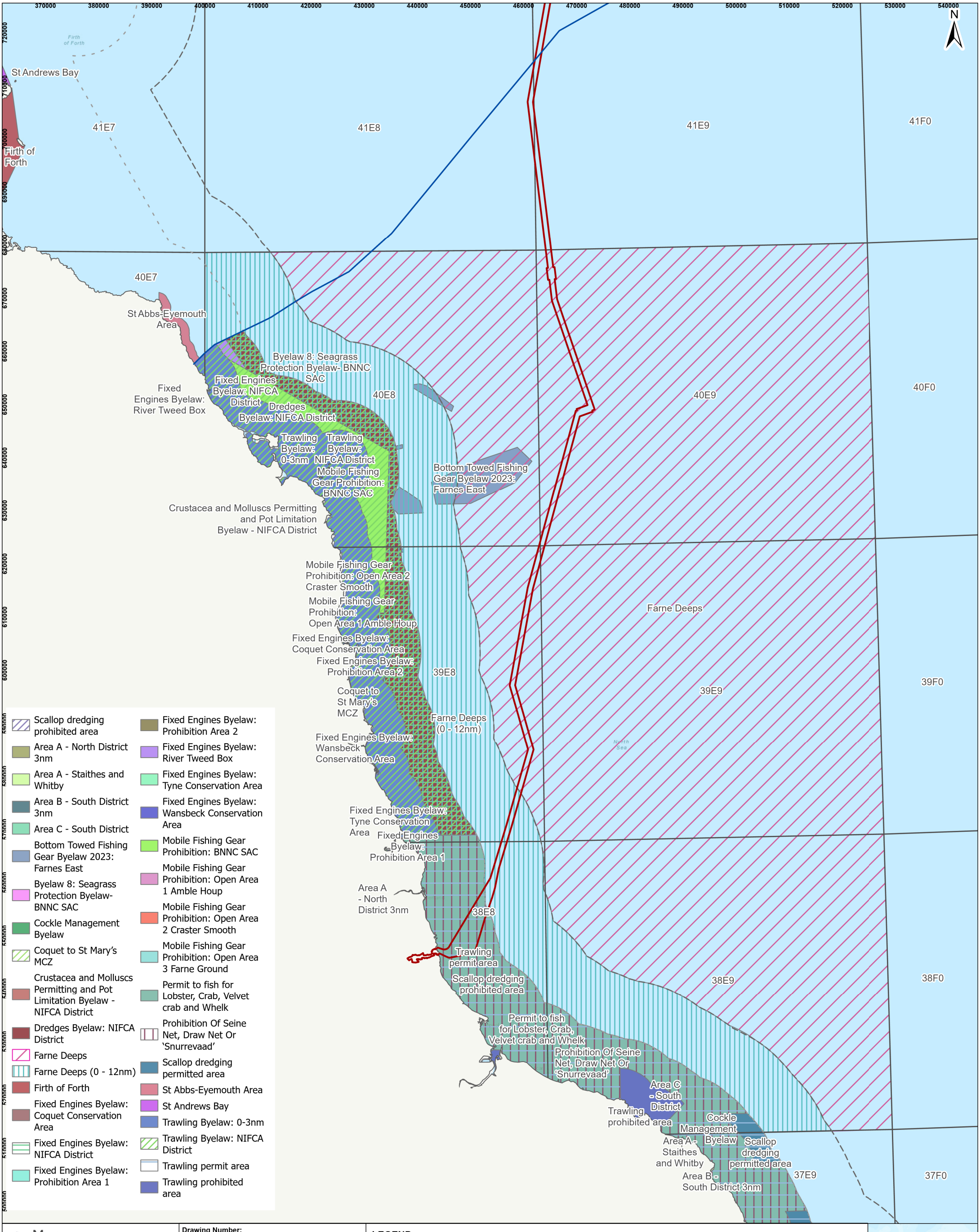
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- Commercial Fisheries Local Study Area
- Commercial Fisheries Regional Study Area
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- Territorial Limits



Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number: MHPGC-NIM-CF-0002

Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources: Ordnance Survey, ICES, Seafish Kingfisher Information Service, 2025

Drawing Title: FIGURE 2.2: SPATIAL FISHERIES RESTRICTIONS PROXIMATE TO ENGLISH TERRITORIAL WATERS

Geodetic Information: World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS; World Topographic Map: Esri UK, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 nm

Scale@A3:1:640,000

VER	DATE	DETAILS	BY	CHECK
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01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- Territorial Limits

330000 340000 350000 360000 370000 380000 390000 400000 410000 420000 430000 440000 450000 460000 470000 480000 490000 500000

820000 810000 800000 790000 780000 770000 760000 750000 740000 730000 720000 710000 700000 690000 680000 670000 660000 650000

N

North Sea

43E8 43E9 43E7 42E8 42E9 42E7 41E7 41E8 41E9 40E6 40E7 40E8 40E9 39E8 39E9

Aberdeen to Mons Craig

Mons Craig to Doolie Ness

Doolie Ness to Lang Craig (1 nm)

Doolie Ness to Lang Craig (0.5 nm)

Lang Craig to Arbroath

St Andrews Bay

Firth of Forth

41E6

Firth of Forth (Sprat)

St Abbs-Eyemouth Area

Firth of Forth Banks Complex Areas

Crustacea and Molluscs Permitting and Pot Limitation Byelaw - NIFCA District

Fixed Engines Byelaw: River Tweed Box

Trawling Byelaw: NIFCA District

Fixed Engines Byelaw: NIFCA District

Trawling Byelaw: 0-3nm

Farne Deeps (0 - 12nm)

Mobile Fishing Gear Prohibition: BNNC SAC

Byelaw 8: Seagrass Protection Byelaw- BNNC SAC

Mobile Fishing Gear Prohibition: Open Area 3 Farne Ground

Dredges Byelaw: NIFCA District

Mobile Fishing Gear Prohibition: Open Area 2 Craster Smooth

Mobile Fishing Gear Prohibition: Open Area 1 Amble Houp

Fixed Engines Byelaw: Coquet Conservation Area

Coquet to St Mary's MCZ

Farne Deeps

Bottom Towed Fishing Gear Byelaw 2023: Farnes East

Aberdeen to Mons Craig	Farne Deeps (0 - 12nm)
Bottom Towed Fishing Gear Byelaw 2023: Farnes East	Firth of Forth
Byelaw 8: Seagrass Protection Byelaw- BNNC SAC	Firth of Forth (Sprat)
Coquet to St Mary's MCZ	Fixed Engines Byelaw: Coquet Conservation Area
Crustacea and Molluscs Permitting and Pot Limitation Byelaw - NIFCA District	Fixed Engines Byelaw: NIFCA District
Doolie Ness to Lang Craig (0.5 nm)	Fixed Engines Byelaw: Prohibition Area 2
Doolie Ness to Lang Craig (1 nm)	Fixed Engines Byelaw: River Tweed Box
Dredges Byelaw: NIFCA District	Lang Craig to Arbroath
Farne Deeps	Mobile Fishing Gear Prohibition: BNNC SAC
Mobile Fishing Gear Prohibition: Open Area 1 Amble Houp	Mobile Fishing Gear Prohibition: Open Area 2 Craster Smooth
Mobile Fishing Gear Prohibition: Open Area 3 Farne Ground	Mons Craig to Doolie Ness
St Abbs-Eyemouth Area	St Andrews Bay
Trawling Byelaw: 0-3nm	Trawling Byelaw: NIFCA District
Firth of Forth Banks Complex NCMPA Areas (Offshore Fishing Order 2025)	

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0003

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Seafish Kingfisher Information Service, 2025

Drawing Title:
FIGURE 2.3: SPATIAL FISHERIES RESTRICTIONS PROXIMATE TO ENGLISH AND SCOTTISH TERRITORIAL WATERS

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS

0 1 2 4 6 8 10 12 14 nm

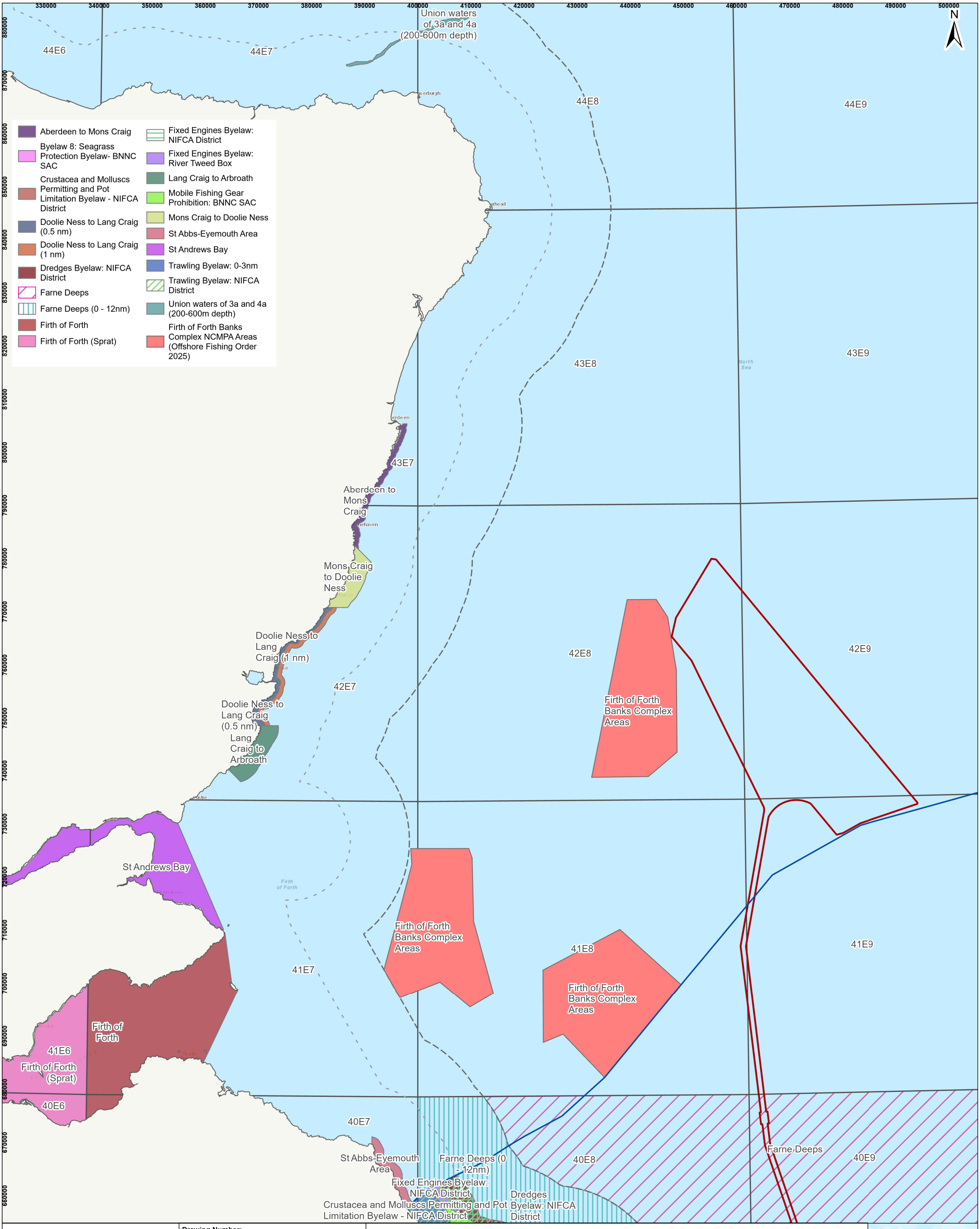
Scale@A3:1:640,000

VER	DATE	DETAILS	BY	CHECK
00	19/09/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- Territorial Limits



Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0003.5

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Seafish Kingfisher Information Service, 2025

Drawing Title:
FIGURE 2.4: SPATIAL FISHERIES RESTRICTIONS PROXIMATE TO SCOTTISH TERRITORIAL WATERS

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS

0 1 2 4 6 8 10 12 14 nm

Scale@A3:1:640,000

VER	DATE	DETAILS	BY	CHECK
00	19/09/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- Territorial Limits

3 Methodology

3.1.1.1 This Technical Report has been developed through an extensive and thorough analysis of data and literature, sources of which are fully referenced at the end of this document. The assessment encompasses both publicly available data sets and data obtained through specific requests made by the MHPGC Project. Landings statistics have been analysed using Microsoft Excel, while VMS data and AIS data have been evaluated using ArcMap Geographic Information System (GIS) software.

3.1.1.2 In addition to quantitative data, qualitative insights have been gathered through direct consultation undertaken by the MHPGC Project with the fishing industry. Consultation is summarised in **Volume 2, Chapter 7: Commercial Fisheries, of the PEIR**, and not duplicated here.

3.2 Desktop study

3.2.1.1 A detailed desktop review of existing studies and datasets was undertaken to gather information on commercial fisheries within the Regional and Local Commercial Fisheries Study Areas. **Table 3.1** summarises the studies and datasets used.

3.2.1.2 Data has been sourced from ICES, the EU Data Collection Framework (DCF), the Marine Directorate National Marine Plan interactive (NMPi), the UK MMO and the European Maritime Safety Agency (EMSA).

3.2.1.3 Engagement and discussion with the fishing industry organisations have provided insight into the location and importance of specific fishing grounds to a range of different fisheries. In particular, plotter data screenshots from a sample of organisations' member fishing vessels have provided clarity on the spatial distribution of fishing grounds within the area. Information has also been provided by the Applicant's Fisheries Liaison Officer (FLO), which includes records of vessels active in and around the MHPGC Project. Whilst no specific commercial fisheries survey has been undertaken, marine traffic surveys have been undertaken and are also considered in this desktop study.

3.2.1.4 Where data sources allow, a five to 13 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 2012 to 2024, as annotated in **Table 3.1**.

3.2.1.5 Relevant literature from a number of sources has also been reviewed in the preparation of this Technical Report. A full list of references is provided at the end of this Technical Report, cited within the text where appropriate.

Table 3.1: Summary of key desktop datasets and reports for commercial fisheries

Title	Source	Extent	Year	Author
Landings statistics				
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 (t) and value (£).	MMO	UK waters	2012 to 2024	MMO, annual landings statistics publications
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 (t).	EU DCF database	EU waters	2012 to 2016	EU DCF, 2023

Title	Source	Extent	Year	Author
Fisheries Dependent Information including landings and effort data for EU registered vessels, available by ICES division, provided by EU Member States in the context of the 2024 DCF Fisheries Dependent Information data call.	Scientific, Technical and Economic Committee for Fisheries (STECF)	North Atlantic	2013 to 2023	Gibin *et.al.*, 2024
Catch App anonymised data, showing catch records for English and Welsh registered vessels of under 10m length, with data query attributes for year; return port; ICES rectangle; species and live weight (t).	MMO	UK waters	2022 to 2024	MMO, 2025a (unpublished; response to 2025 data request)
NEIFCA shellfish catch return system data summary, identifying vessel numbers, numbers of pots hauled and landings of lobster and crab in ICES sub rectangles 38E8-7 and 38E8-8.	NEIFCA	ICES rectangle 38E8	2023 and 2024	NEIFCA (unpublished; response to 2025 data request)
Spatial data				
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	UK waters	2016 to 2020	MMO, 2022a
VMS data for EU registered vessels ≥12m length. VMS data sourced from ICES displays the surface Swept Area Ratio (SAR)[2] of catches by different gear types and covers EU (including UK) registered vessels 12m and over in length.	ICES	EU and UK waters	2016 to 2020	ICES, 2022
VMS data for EU registered vessels ≥12m length. VMS data sourced from ICES displays average fishing hours by different gear types and covers EU (including UK) registered vessels 12m and over in length.	ICES	EU and UK waters	2021 to 2024	ICES, 2025
Fishing vessel route density, based on vessel AIS positional data. AIS is required to be fitted on fishing vessels ≥15m length.	EMSA	EU waters	2023	EMSA, 2025

[2] 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

Title	Source	Extent	Year	Author
Scottish Pelagic Fishermen's Association (SPFA) vessel plotter data.	SPFA	MHPGC Project PEIR Red Line Boundary	Long term data series	SPFA, 2024
Scottish Fishermen's Federation (SFF) member vessel plotter data indicating location of fishing activity.	SFF	MHPGC Project PEIR Red Line Boundary	Long term data series	SFF, 2025 [Confidential]
Surveillance data indicating vessel nationality and gear type for actively fishing vessels.	MMO	English waters	2018 to 2023	MMO, 2025b (unpublished; response to 2025 data request)
Fisheries Sensitivity Mapping and Displacement Modelling (FiSMaDiM).	Centre for Environment, Fisheries and Aquaculture Science (Cefas)	UK waters	2012 to 2021	Cefas, 2025
Morven North and Morven South marine traffic (AIS and radar) survey data	Anatec	Morven North and Morven South plus a 10 nautical mile (nm) buffer	2024	Anatec, 2024 and 2025

3.3 Data limitations and uncertainties

3.3.1.1 A range of different data limitations and uncertainties exist for all of the commercial fisheries datasets assessed within this Technical Report. The level of uncertainty and confidence of each data set is defined in **Table 3.2** based on the expert judgement of the assessment team.

3.3.1.2 Limitations of landings data include the spatial size of ICES rectangles that landings are attributed to, which can misrepresent actual activity across the MHPGC Project PEIR Red Line Boundary; care is therefore required when interpreting these data.

3.3.1.3 It is noted that all commercial landings by UK-registered vessels are subject to Registration of Buyers and Sellers (RBS) legislation. Accordingly, landings by UK vessels of all lengths are recorded through the relevant fisheries administration's systems: landings by vessels administered by the MMO are recorded within the MMO iFish database, while landings by Scottish-administered vessels are recorded under the Scottish RBS regime. 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, 2021). The RBS legislation is applicable to licenced fishing vessels of all lengths and requires name and 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, 2021). Information that may not be formally recorded on the sales note, such as gear and fishing area, is added by coastal staff based on local knowledge of the vessels they administer. For example, from observations of the vessel during inspections at ports or from air and sea surveillance activities as well as discussions with the owner and/or operator of the vessel (MMO, 2021; MMO, 2023a). There are occasions when fish are not subject to the RBS legislation and therefore are not

represented within the MMO iFISH landings database, for instance when purchases of first sale fish direct from a fishing vessel are wholly for private consumption, and less than 25kg is bought per day.

3.3.1.4 Lack of recent landings statistics for EU (non-UK) fleets is also recognised as a data limitation; based on the most recent European Commission data call, more recent landings data (2017 onwards) is no longer available by ICES rectangle. Data at a scale of ICES division (i.e. the whole of the central North Sea) is less useful to understand fishing activity specific to the MHPGC Project, though has still been considered in characterising the commercial fisheries baseline.

3.3.1.5 All UK and EU fishing vessels (i.e. fishing vessels flying the flag of the UK or an EU Member State), and third-party fishing vessels operating in UK and EU waters that are ≥12m in length are required to have a VMS on board. This reports the vessels' position to fisheries management authorities, which in the case of EU fishing vessels, is every two hours. Since 01 January 2012, this obligation has applied to vessels that are ≥12m in length. Limitations of publicly available VMS data are primarily focused on the coverage being limited to larger vessels 15m and over for UK fishing vessels. It is important to be aware that where mapped VMS data may appear to show inshore areas as having lower (or no) fishing activity compared with offshore areas, this is not necessarily the case because VMS data do not include vessels typically operating in inshore area (i.e. which typically comprises of vessels <15m in length).

3.3.1.6 To assist in mitigating the risk of under-representing the activity of smaller vessels, site-specific marine traffic survey data comprising information on vessel movements gathered by both AIS and radar has been analysed alongside publicly sourced VMS and AIS data. IFCA-supplied data on shellfish catch returns made by vessels including smaller inshore vessels has been sourced. In addition, Catch App anonymised data and fisheries surveillance observations data has also been supplied by the MMO following a data request on behalf of the Applicant.

3.3.1.7 Catch App is a service used by English and Welsh under 10m length vessels that fish in UK waters to record their catches; no direct equivalent app is available for Scottish vessels. Vessel owners or skippers complete catch returns by submitting online records. In supplying Catch App data, MMO advised of the following caveats:

- There are ongoing issues with catch recording vessel coverage due to technical issues with data flows. More data may be received at a later stage following unblocking of data flow issue;
- There are ongoing issues in some cases of reporting incorrect spatial areas (ICES rectangles/sub rectangles) when recording catch locations. These are being reviewed and amended by the MMO but there may still be some errors within the data;
- The catch recording licence condition started to be enforced by MMO from 28 February 2022 onwards.

3.3.1.8 MMO fisheries patrol vessels and surveillance aircraft operate in coordination with the Royal Navy's Fisheries Protection Squadron. UK surveillance aircraft are used to construct an on-going picture of fishing activity within the UK EEZ and to make effective use of patrol vessel activity by coordinated use of surveillance data. These data cannot be considered to give an accurate picture of the actual level of activity and have a number of limitations, including:

- Patrol effort by vessels and patrol aircraft are optimised for enforcement purposes and not collection of sightings data. Areas with fewer fisheries enforcement issues are therefore likely to be visited less often and result in lower data confidence;
- Surveillance data are only indicative of areas where fishing activities occur, as there is no continuous monitoring of activities;
- Surveillance data present a snapshot of activity in an area, and it cannot be assumed that if no vessels have been sighted then no fishing takes place;
- Vessels fishing at night would likely remain undetected.

Table 3.2: Data limitations and uncertainty (the uncertainty and confidence levels are defined based on judgement and are intended to inform the appropriateness of data used to inform the EIA)

Data	Type	Limitation and uncertainty
Landings statistics data for UK registered vessels (MMO, 2024)	Landings statistics (2012 to 2024) data for UK registered vessels.	The data are recorded from sales notes and landing declarations for all vessel lengths. Due to the UK RBS legislation data is considered accurate and verifiable. Data assessed with low uncertainty and high confidence.
Landings statistics for EU registered vessels (EU DCF, 2023)	Landings statistics (2012 to 2016) data for all EU landings by country, species and gear type.	The data is submitted by individual member states and therefore limitations vary per country. Vessels < 10m may be omitted or mis-represented by the data. Accuracy is likely to be greater for landings from larger vessels. For UK vessels under 10m length data is assessed with high uncertainty and low confidence. For all other EU vessels data is assessed with medium uncertainty and medium confidence.
Fisheries Dependent Information including landings and effort data for EU registered vessels (Gibin *et.al.*, 2024)	Landings statistics (2013 to 2023) data for all EU landings by ICES division.	
Catch App anonymised data (MMO, 2025a)	Landings data (2022 to 2024) for English and Welsh vessels ≥10m length.	The data is only available for 10m and under vessels, so is not representative of larger vessels. Data quality issues with current Catch App data have been stated by the MMO and are summarised above, indicating the data may not accurately capture landings from ≥10m vessels. Data is assessed with high uncertainty and low confidence.
NEIFCA shellfish catch return system data summary (NEIFCA, 2025)	Summarised shellfish permit holder landings data from the NEIFCA catch return system (2023 and 2024).	The data are recorded from monthly permit catch returns made by vessels operating in the NEIFCA area with a commercial fishing permit. Data assessed with low uncertainty and high confidence.
VMS data for UK registered vessels ≥15m length (MMO, 2022)	UK VMS data (2016 to 2020) for vessels ≥15m length.	The data is only available for 15m and over vessels, so is not representative of <15m vessels. Data assessed with medium uncertainty and medium confidence.
VMS data for UK and EU registered vessels ≥12m length (ICES, 2022)	UK and EU SAR data (2016 to 2020) for vessels ≥12m length.	The data is only available for 12m and over vessels, so is not representative of <12m vessels. Data assessed with medium uncertainty and medium confidence.
Fishing vessel route density, based on vessel AIS positional data (EMSA, 2025)	AIS data (2023) for fishing vessels ≥15m length.	The data is only available for 15m and over vessels, so is not representative of <15m vessels. Data assessed with medium uncertainty and medium confidence.
Scottish Pelagic Fishermen's Association vessel plotter data (SPFA, 2024)	Fishing vessel plotter data for fisheries association's member vessels.	The data is for a selection of representative vessels that are members of specific organisations and therefore does not represent all fishing activity. Plotter data is available

Data	Type	Limitation and uncertainty
SFF member vessel plotter data (SFF, 2025)	Fishing vessel plotter data for a sample of fisheries association's member vessels.	across a long-term period, though the precise period is unknown and therefore does not allow identification of changes in fishing activity over time. Data is assessed with medium uncertainty and high confidence.
Surveillance data (MMO, 2025b)	Surveillance data (2018 to 2023) for all fishing vessels.	The data is for all vessel lengths and UK and non-UK vessels. Data presents a snapshot of activity at time of surveillance and is not routinely collected. Data assessed with medium uncertainty and medium confidence.
FiSMaDiM (Cefas, 2025)	Augmented VMS and AIS data used to map UK vessel fishing effort (2012 to 2021).	Fishing activity data was extracted from the MMO database. The data is only available for 15m and over vessels, so is not representative of <15m vessels. Data assessed with medium uncertainty and medium confidence.
Morven Site marine traffic (Anatec, 2024 and 2025)	Marine traffic (AIS and radar) survey data (2024 and 2025).	An assessment of fishing vessel activity to inform the Navigational Risk Assessment (NRA) undertaken for Morven North and Morven South based on two periods of 14-day AIS and radar survey of the Morven Site plus a buffer. Data assessed with low uncertainty and high confidence.

4 Baseline characterisation

4.1 Overview of landings statistics

4.1.1.1 This section considers landings statistics over the period 2012 to 2024. For the purposes of the baseline description, focus is given to the most recent datasets across a five-year period (2019 to 2024), with context for longer-term trends provided where relevant.

4.1.2 UK fishing vessels

Local Commercial Fisheries Study Area

4.1.2.1 Overall, first-sale values across the 2012 to 2024 period from the Local Commercial Fisheries Study Area show a relatively stable but moderately fluctuating pattern, punctuated by a sharp peak in 2019 (**Figure 4.1**). Total first-sale value generally oscillated between approximately £15 to £20 million (annual average of £17.8 million) for most of the 13-year period. The marked spike in 2019 indicates an anomalous year of elevated value associated with landings of Nephrops (*Nephrops norvegicus)* likely driven by favourable stock availability, strong market prices for higher-value species, or a combination of both.

4.1.2.2 Landed weight, in contrast, exhibits a clear long-term downward trend, falling from around 9,000t to 10,000t in 2012 to 2014 to approximately 4,000t by 2023 and 2024. The decline is progressive rather than abrupt. The divergence between relatively stable value and falling weight suggests a market shift towards higher-value species, stronger per-kilogram sales prices and/or a reduction in lower-value bulk landings.

4.1.2.3 The ICES rectangle–based distribution of first-sale values shows pronounced spatial variability (**Figure 4.2**). ICES rectangles 38E8, 39E8 and 40E8 emerge as the most economically significant areas, though landings values from them vary considerably year to year. Notably, 39E8 recorded very high values in 2014 and 2019, exceeding an annual landed value of £6 million in the peak years, demonstrating the importance of fishing activity in this ICES rectangle. Other rectangles show relatively more modest landings values.

4.1.2.4 Landed weights per ICES rectangle broadly mirror the value distribution but with additional distinctions, particularly where high-volume but lower-value catches dominate [see **Figure 4.3**]. For instance, substantial landings in 40E9 in 2019 highlight peak bulk catches of herring (*Clupea harengus*) that do not correspond proportionally to value trends. This disconnect between landed value and weight indicates the influence of species catch composition, for example, with large pelagic fish species landings not yielding high first sales values despite large tonnage.

4.1.2.5 The species-based first-sale value chart in **Figure 4.4** indicates Nephrops, lobsters (*Homarus gammarus*) and brown crab (*Cancer pagurus*) and king scallop (*Pecten maximus*) as key commercially targeted species in the Local Commercial Fisheries Study Area. Nephrops show consistently high annual first sales values, with an exceptional peak in 2019 exceeding £13 million. Average annual first sales values of Nephrops landings across a most recent five-year time series from 2020 to 2024 were £7.1 million. Equivalent values for lobsters were £5.3 million, for brown crab were £2.3 million and for king scallop were £756,000. Landed values of lobsters and brown crab have increased across the 2012 to 2024 period, largely reflecting growing market prices for these shellfish species. Landings of king scallop have declined across 2012 to 2023, though in looking at longer term landings statistics this may be expected and reflects long-established periodic cycles in king scallop fishing activity whereby particular grounds are heavily targeted and then less heavily targeted as stocks replenish. King scallop landings increase in 2024 further validating this anticipated cyclical pattern. Landings of Demersal Fish Species including haddock (*Melanogrammus aeglefinus*) and whiting (*Merlangius merlangus*) historically made greater contributions to overall landings values from the Local Commercial Fisheries Study Area; since 2012 landings of these species have shown broad decline in landed value, though some increase is observed across 2022 and 2023. Landed values of pelagic fish species, namely herring, show notable variability across the 2012 to 2024 time series, reflecting the highly nomadic nature of pelagic fisheries that target fast-moving pelagic fish.

4.1.2.6 The species-level landed weight distribution shown in **Figure 4.5** provides additional insight into fishing behaviour. Nephrops dominate in terms of landed tonnage, reflecting the scale of this fishery. Substantial landings of brown crab, scallops and herring also appear in several years, though with notable fluctuations. The extremely high herring landings in 2014 likely indicate a single large landing event, demonstrating the episodic nature of some pelagic fisheries.

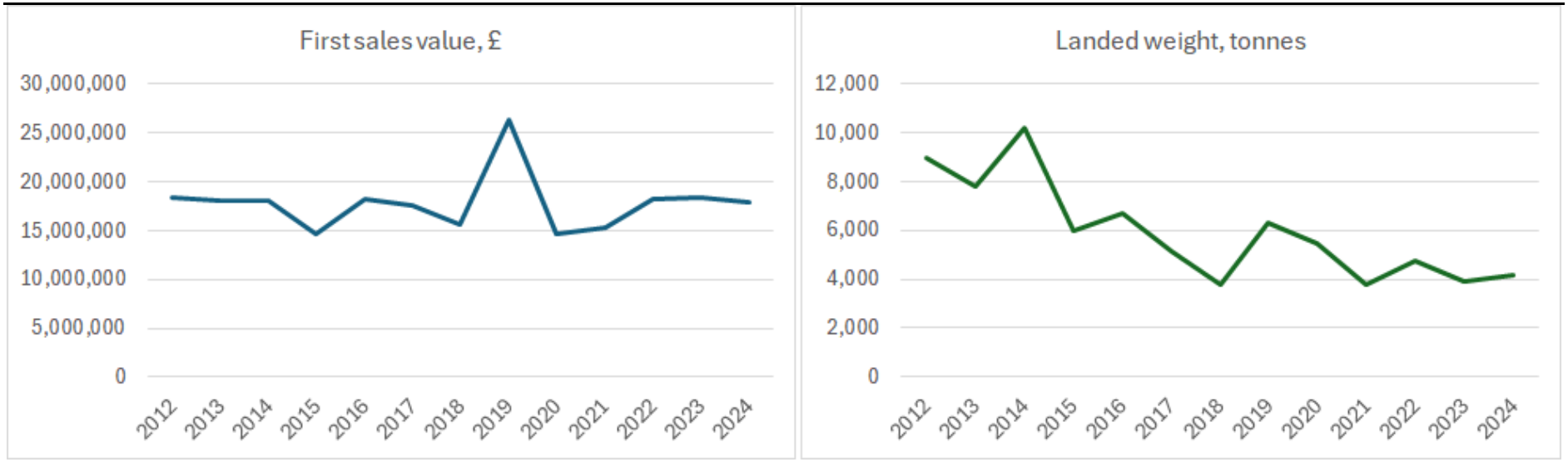


Figure 4.1: Annual first sales value and weight of landings by UK registered fishing vessels from the Local Commercial Fisheries Study Area between 2012 and 2024 (Source: MMO, 2013 to 2025)

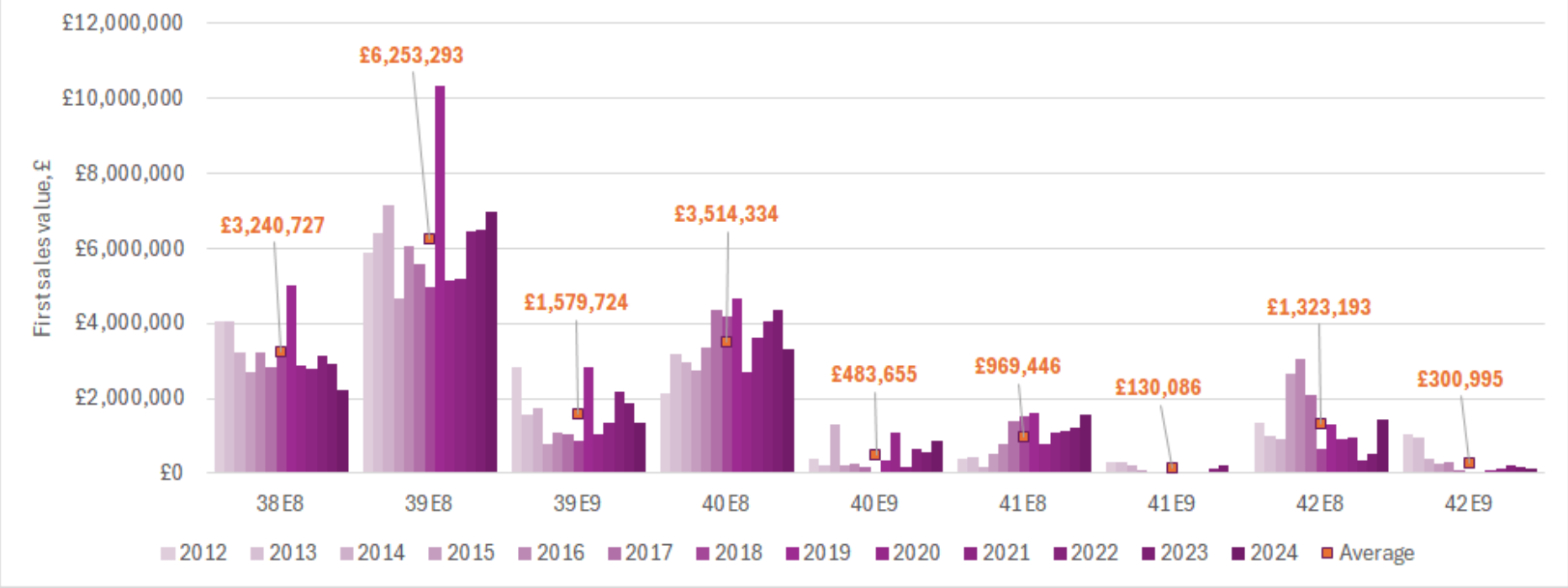


Figure 4.2: Annual first sales value (and average annual value in orange) of landings by UK registered fishing vessels from the Local Commercial Fisheries Study Area, by ICES rectangle, between 2012 and 2024 (Source: MMO, 2013 to 2025)

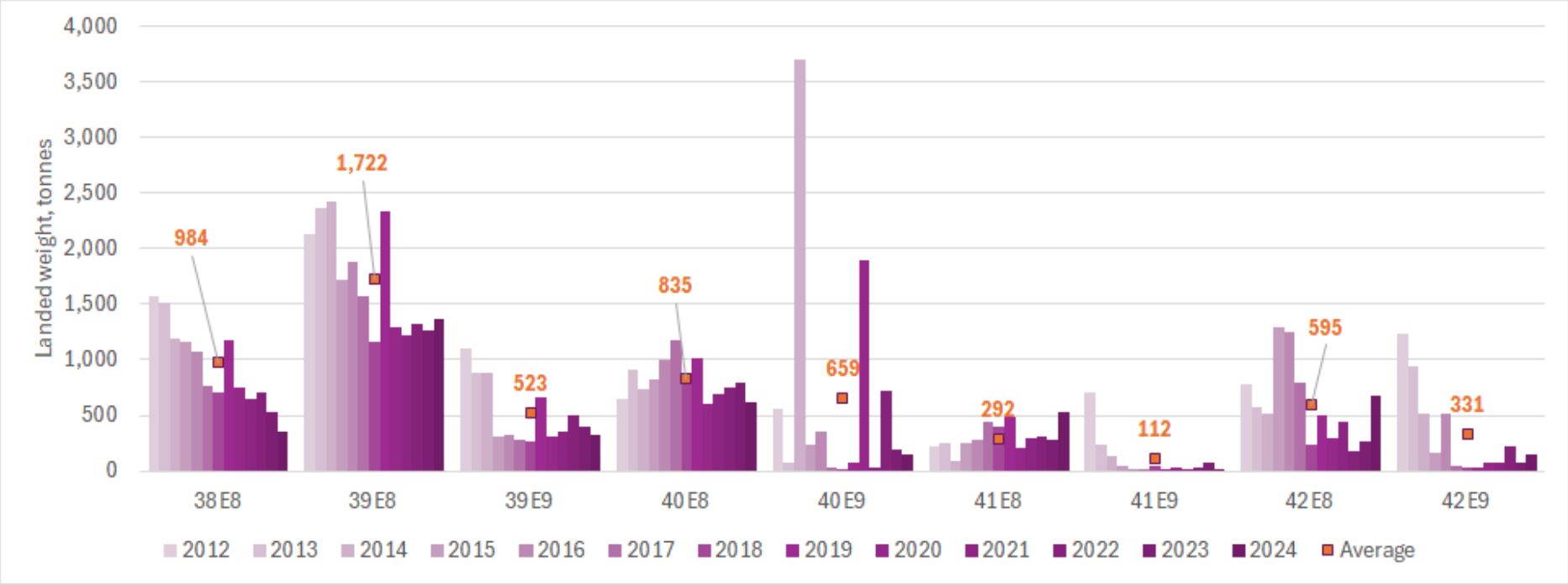


Figure 4.3: Annual weight (and average annual weight in orange) of landings by UK registered fishing vessels from the Local Commercial Fisheries Study Area, by ICES rectangle, between 2012 and 2024 (Source: MMO, 2013 to 2025)

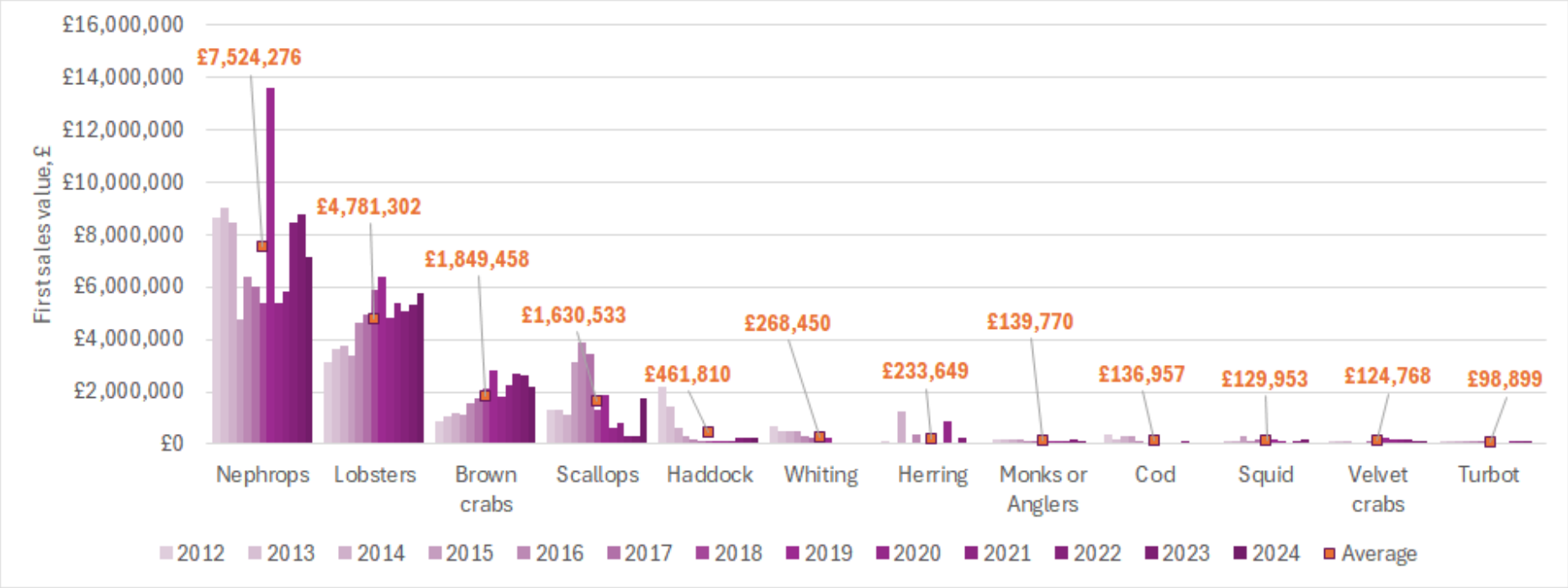


Figure 4.4: Key species by annual first sales value (2012 to 2024) (and average annual value in orange) from the Commercial Fisheries Local Study Area (Source: MMO, 2013 to 2025)

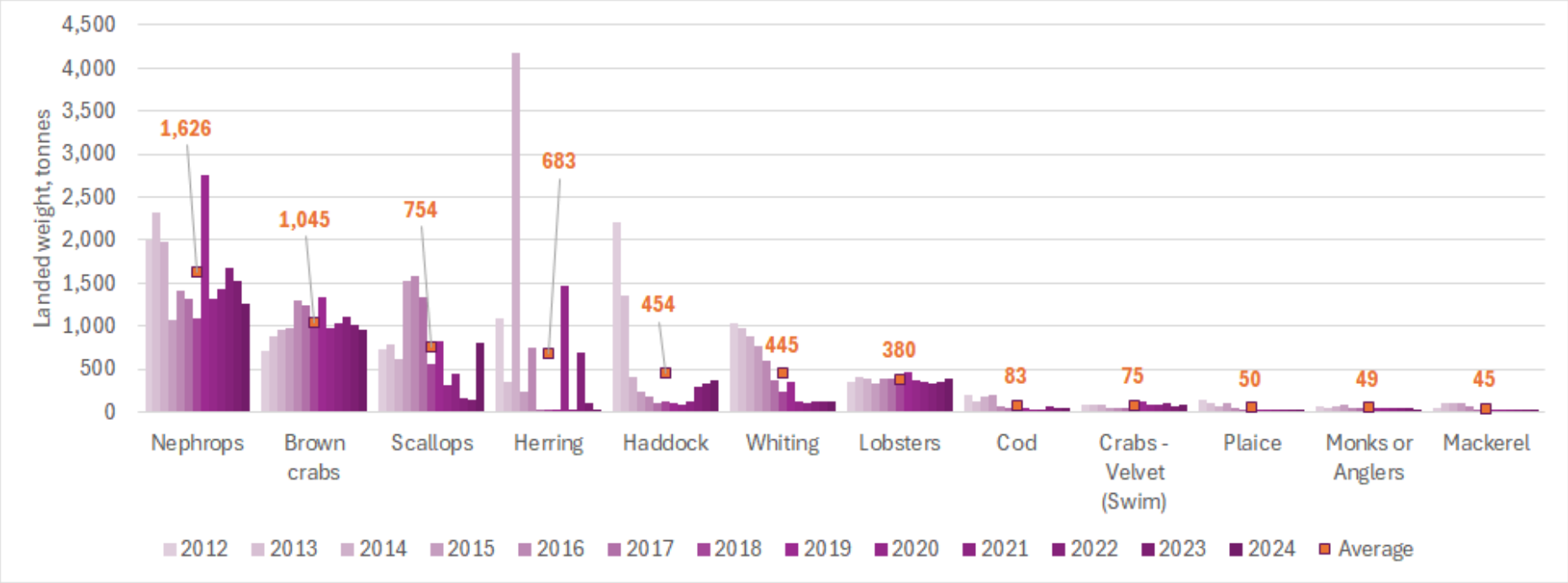


Figure 4.5: Key species by annual landed weight (2010 to 2024) (and average annual weight value in orange) from the Commercial Fisheries Local Study Area (Source: MMO, 2013 to 2025)

4.1.2.7 **Figure 4.6** to **Figure 4.9** present long-term trends in landed value and weight for key target species in the Local Commercial Fisheries Study Area. Nephrops landings show pronounced interannual variability, although the species remains consistently the highest-value component of landings from the Local Commercial Fisheries Study Area. The substantial spike in both landed weight and value in 2019 strongly suggests a combination of favourable stock conditions and firm market demand, as the year aligns with widely reported strong Nephrops recruitment in several grounds. The subsequent stabilisation in the early 2020s, at moderate levels relative to the historic peak, may reflect fleet behaviour adapting to market fluctuations during and after the COVID-19 period, as well as shifts in stock availability.

4.1.2.8 Lobster landings display a broadly stable pattern, but first-sale value shows clearer long-term growth, especially between 2015 and 2019. This divergence between weights and value points to an increase in unit prices, likely connected to strong export demand to European and Asian markets prior to EU Exit-related market disruptions. Lobsters generally have limited quota constraints, so effort and catch trends often track market incentives closely. The modest decline in value post-2019 may partly reflect changing export logistics and price sensitivity in key markets following both Brexit and pandemic-related supply chain effects and/or changes in local stock abundance.

4.1.2.9 Brown crab landed weight and first-sale value show steady upward trends until a peak around 2019 to 2021, reflecting the importance of this species to the potting fleet. The growth in landings from 2012 through to around 2019 to 2021 aligns with broader trends observed in the English North Sea, where brown crab stocks have generally been considered productive. The slight easing in both weight and value after 2021 may point to emerging pressures on local crab stocks, consistent with industry reports of variable catch rates in some northeast inshore grounds in recent years, as well as softening market prices following export challenges associated with EU-Exit and wider supply-chain disruptions.

4.1.2.10 King scallops show pronounced variability in landings, with exceptionally high weights and values in 2016 and 2017 followed by a sustained decline until growth again in 2024. This trend likely reflects the rotational nature of scallop bed exploitation and the sensitivity of scallop stocks to both fishing pressure and environmental variation. The strong mid-decade peaks correspond to widely documented good year classes reaching harvestable size. The subsequent downward trend may indicate reduced stock availability as the strong cohorts were fished through, combined with spatial management restrictions (e.g., temporary closures or voluntary measures).

4.1.2.11 Across all four species, the alignment of landings peaks around 2019 coincides with a period of strong market performance across the UK shellfish sector, with later declines reflecting a combination of post-Brexit market access challenges, pandemic disruptions and evolving stock pressures.

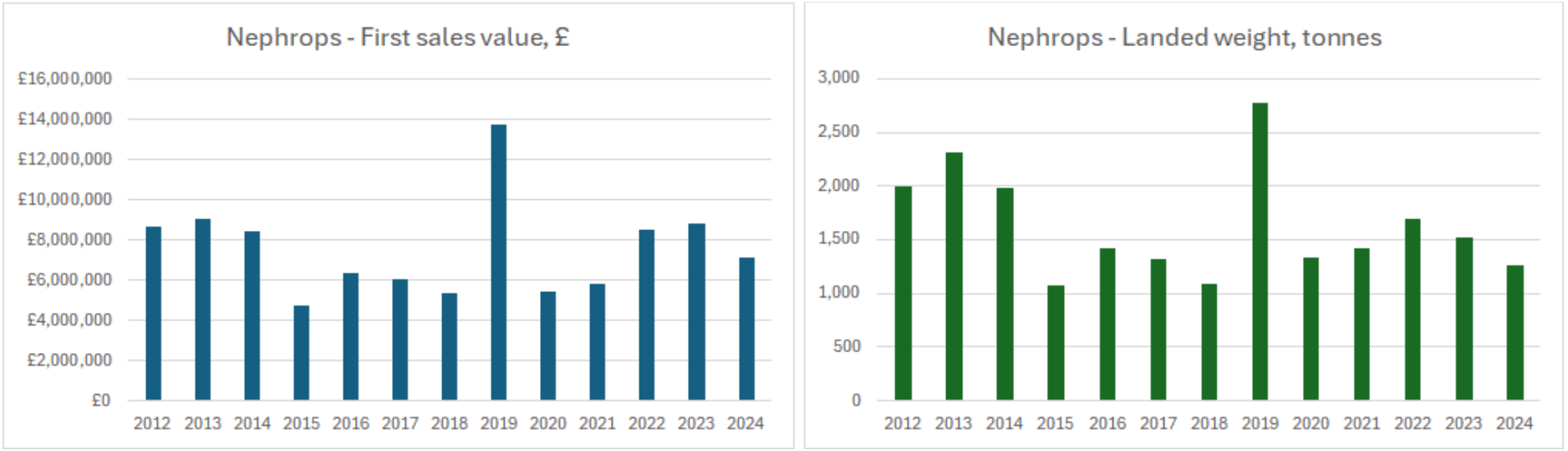


Figure 4.6: Long term landing trends (first sales value on left and landed weight on right) for Nephrops from the Local Commercial Fisheries Study Area (Source: MMO, 2013 to 2025)

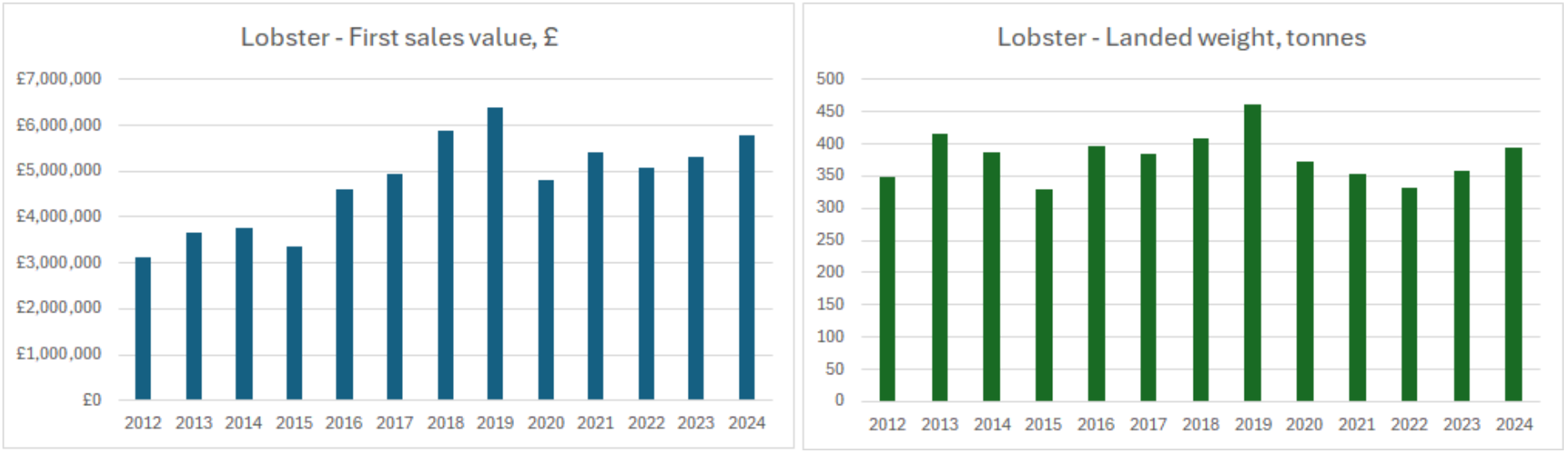


Figure 4.7: Long term landing trends (first sales value on left and landed weight on right) for lobster from the Local Commercial Fisheries Study Area (Source: MMO, 2013 to 2025)

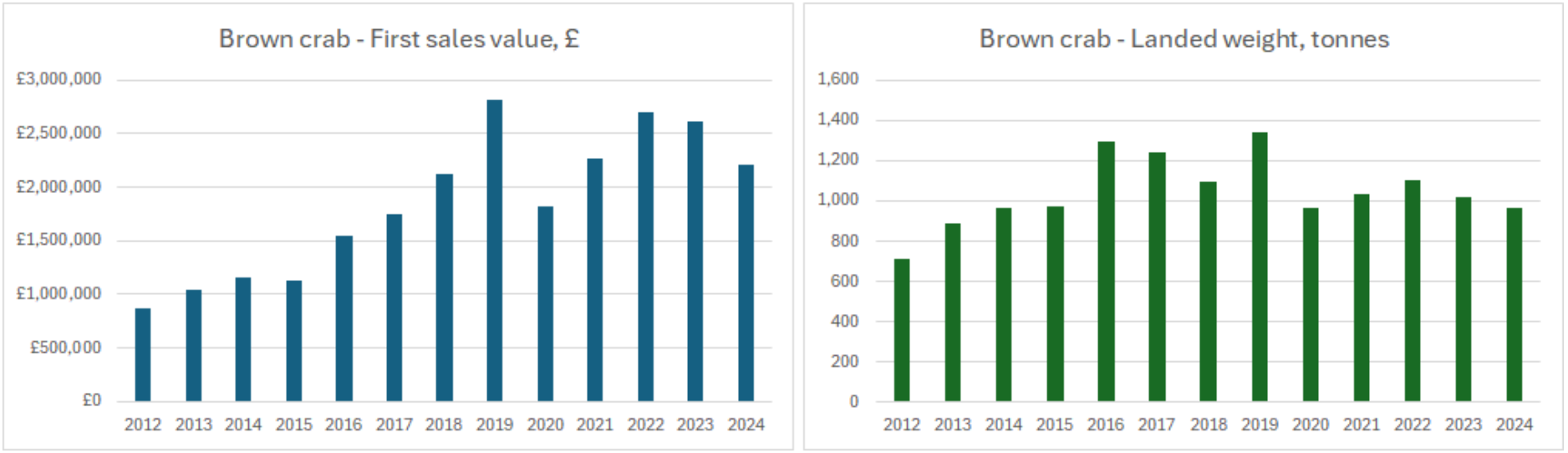


Figure 4.8: Long term landing trends (first sales value on left and landed weight on right) for brown crab from the Local Commercial Fisheries Study Area (Source: MMO, 2013 to 2025)

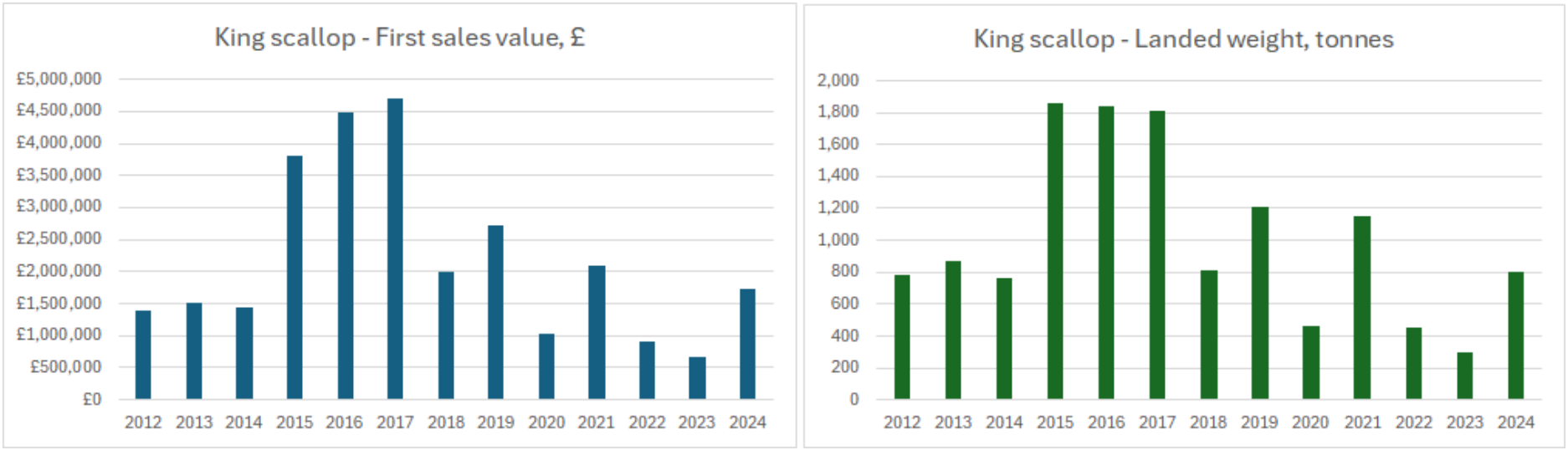


Figure 4.9: Long term landing trends (first sales value on left and landed weight on right) for king scallop from the Local Commercial Fisheries Study Area (Source: MMO, 2013 to 2025)

4.1.2.12 Landed value by gear type for the Local Commercial Fisheries Study Area is shown in **Figure 4.10.** The distribution of first-sale value by gear type highlights the dominance of demersal trawls and pots by fleets active in the Local Commercial Fisheries Study Area, with both gears generating consistently high landings values across the 2019 to 2024 period. Demersal trawls show the highest average value overall, reflecting the importance of Nephrops trawling in particular. In contrast, dredge fisheries and pelagic gears contribute relatively marginally to total landings values, with limited landings associated with other gear types.

4.1.2.13 Comparison of landings values attributed across UK home nations indicates that English and Scottish registered fishing vessels account for the vast majority of demersal trawl and potting values. Northern Irish vessels contribute more modestly overall [see **Figure 4.11**]. Landings data demonstrates the relevance fisheries within the Local Commercial Fisheries Study Area to both English and Scottish fleets.

4.1.2.14 Vessel length data shown in **Figure 4.12** illustrate a clear distinction between typically smaller inshore potting vessels and larger demersal trawlers within the Local Commercial Fisheries Study Area, though also indicates the presence of smaller, under 15m length demersal trawlers.

4.1.2.15 The seasonal landings trends shown in **Figure 4.13** indicate distinct seasonal patterns associated with different fisheries. Demersal trawl landings peak in winter (January–March) and again in late autumn (October to November), reflecting a winter Nephrops fishery. Potting activity, in contrast, peaks in midsummer (July to August). Dredge landings remain fairly consistent year-round, though with a slight increase in spring.

4.1.2.16 **Figure 4.14** shows landings from the Local Commercial Fisheries Study Area by gear type and port of landing. English demersal trawlers active in the Local Commercial Fisheries Study Area land into ports including North Sheilds, Blyth, Amble and Hartlepool and Scottish demersal trawlers land into Peterhead, Eyemouth and Fraserburgh. Potting vessels make landings into Blyth, Amble, Burnmouth, Eyemouth, Seahouses and Holy Island. Dredge vessels make their landings into Peterhead.

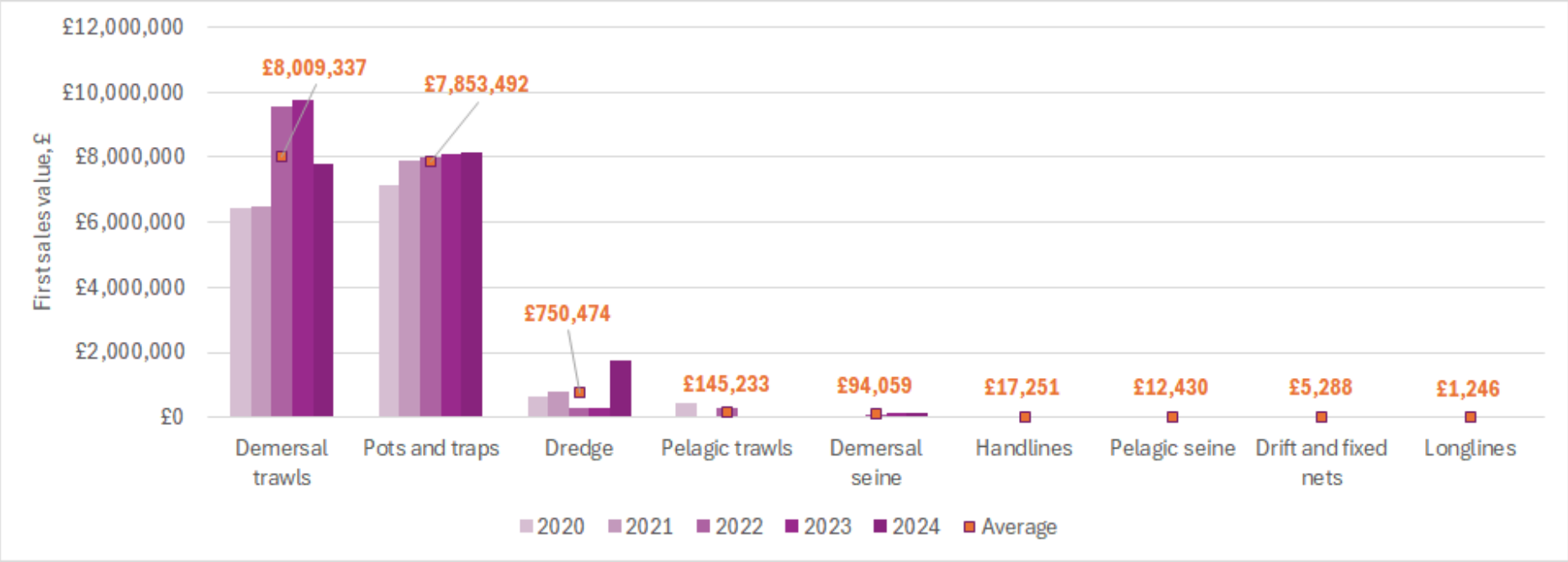


Figure 4.10: Annual and average first sales value of landings (2020 to 2024) by gear type from the Local Commercial Fisheries Study Area (Source: MMO, 2013 to 2025 with data extracted covering 2020 to 2024)

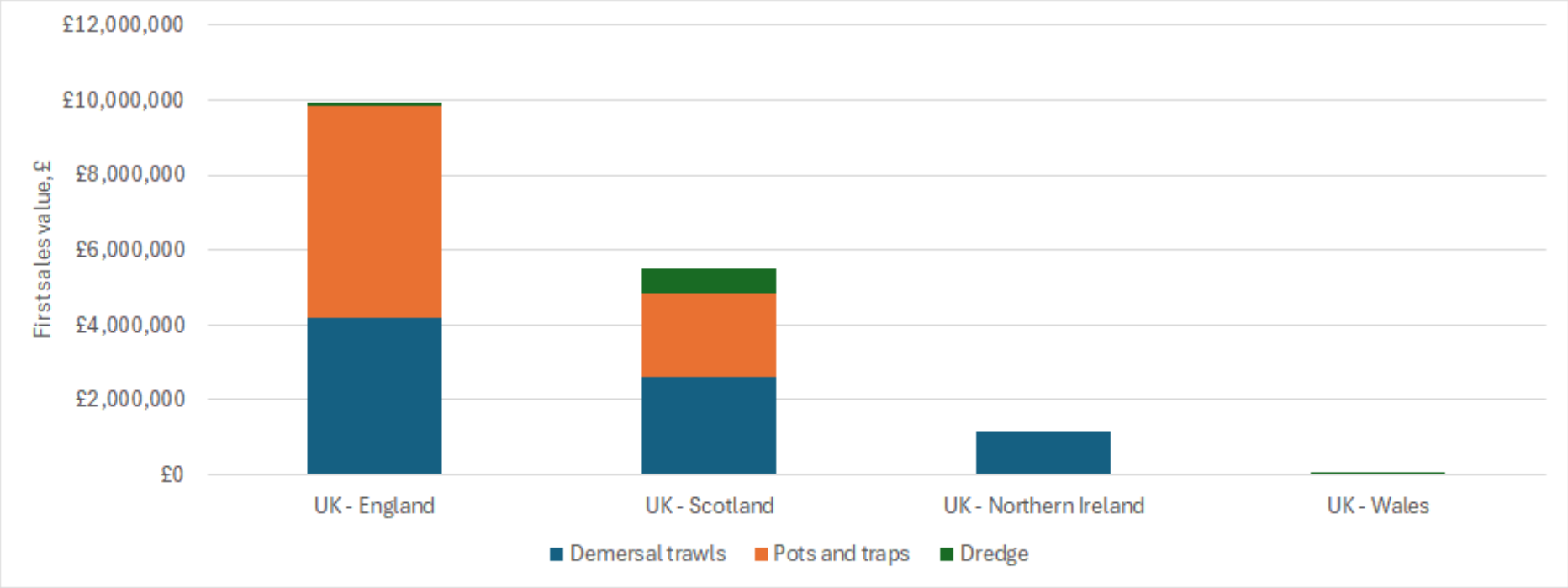


Figure 4.11: Average annual first sales value of landings (2020 to 2024) by key gear type and UK home nation from the Local Commercial Fisheries Study Area (Source: MMO, 2013 to 2025 with data extracted covering 2020 to 2024)

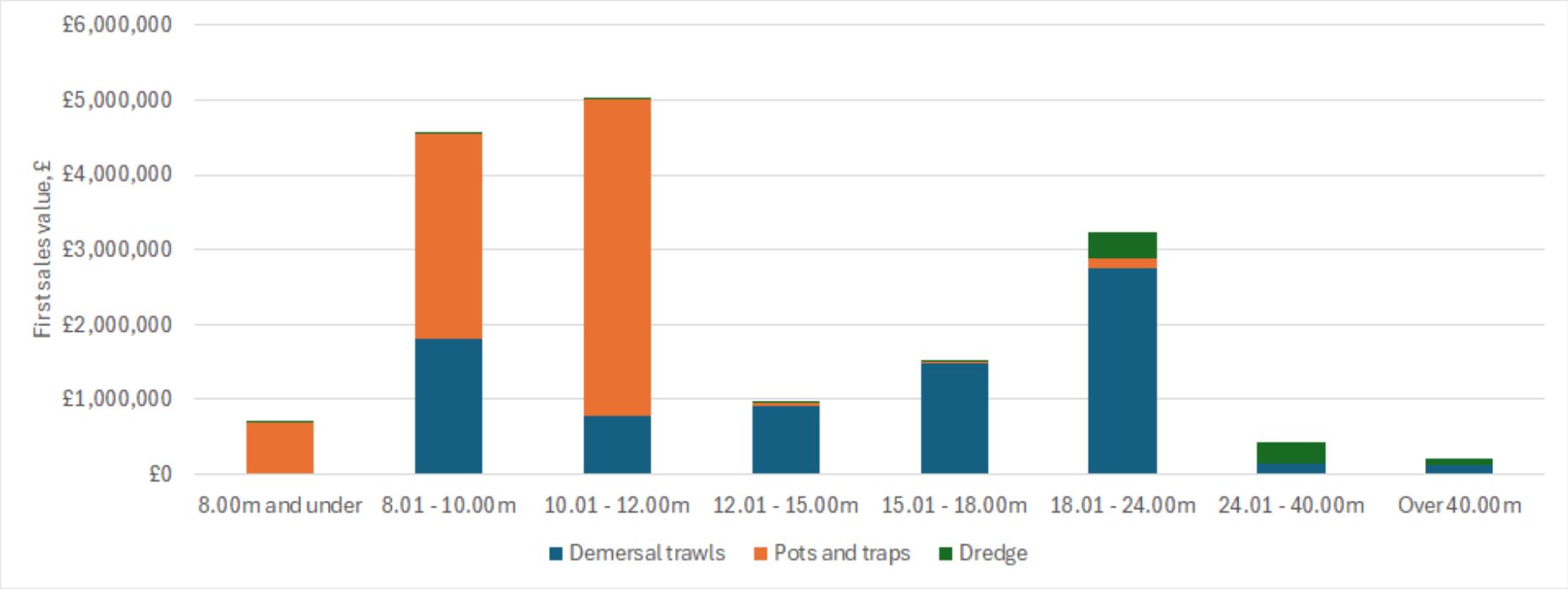


Figure 4.12: Average annual first sales value of landings (2020 to 2024) by fishing vessel length and gear type from the Local Commercial Fisheries Study Area (Source: MMO, 2013 to 2025 with data extracted covering 2020 to 2024)

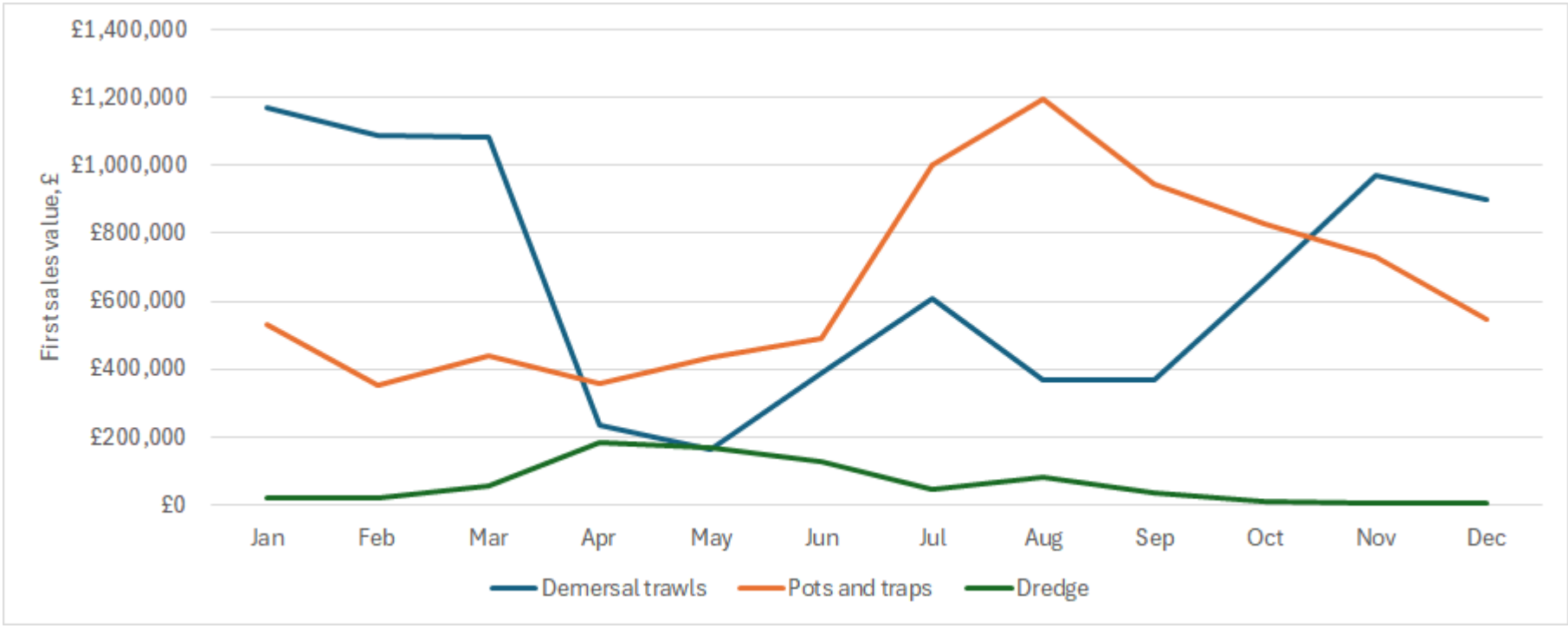


Figure 4.13: Seasonality of landings by key fishing gear type, based on annual average first sales values across 2020 to 2024 (Source: MMO, 2013 to 2025 with data extracted covering 2020 to 2024)

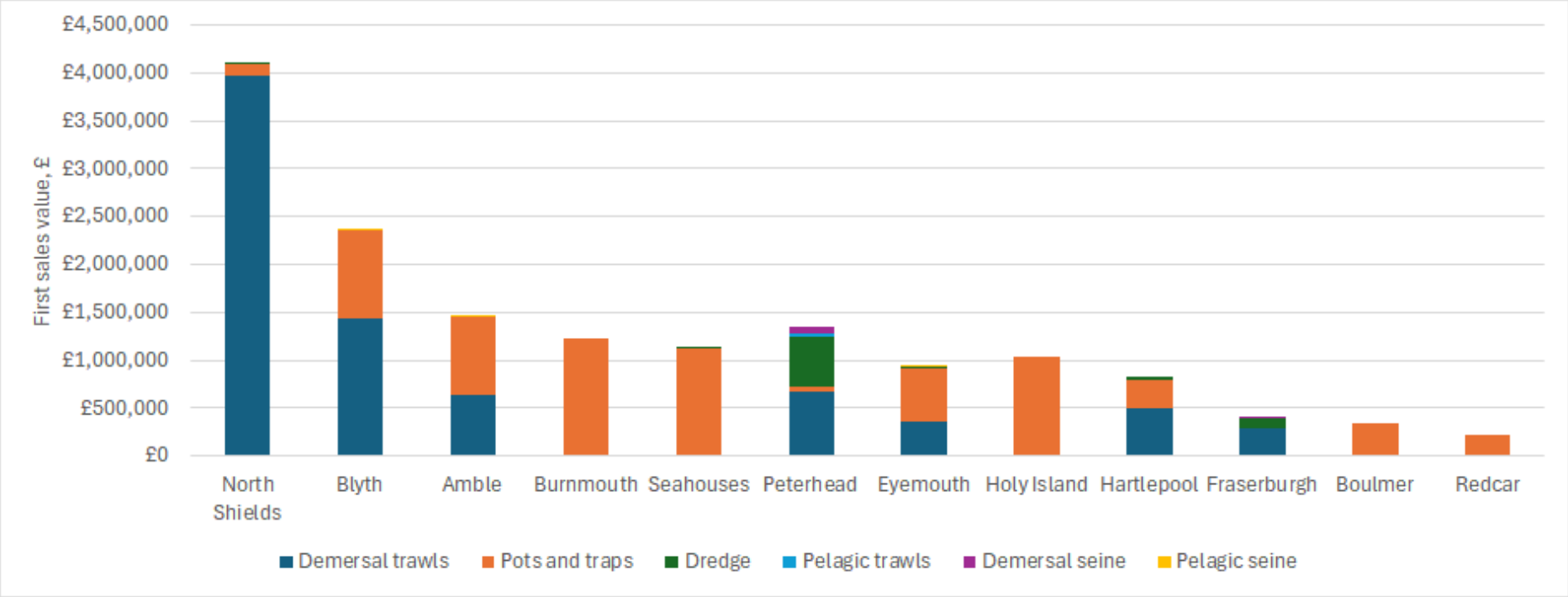


Figure 4.14: Average annual first sales value of landings (2020 to 2024) by port of landing and gear type from the Local Commercial Fisheries Study Area (Source: MMO, 2013 to 2025 with data extracted covering 2020 to 2024)

Regional Commercial Fisheries Study Area

4.1.2.17 Commercial fisheries statistics presenting data for the annual (2020 to 2024) first sales value of landings by UK vessels from the Regional Commercial Fisheries Study Area (22 ICES rectangles) are shown in **Figure 4.15**.

4.1.2.18 Annual average landings values from the Regional Commercial Fisheries Study Area have been relatively consistent across the five-year time series and averaged £43 million. Across the Regional Commercial Fisheries Study Area, peak landings values are consistently associated with ICES rectangles 41E7 and 39E8.

4.1.2.19 The statistics indicate that within this wider Regional Commercial Fisheries Study Area, landings are dominated by a similar suite of key species as in the Local Commercial Fisheries Study Area, including shellfish species Nephrops, brown crab, lobster and king scallop [see **Figure 4.16** and **Figure 4.17**]. Of greater relevance across the Regional Commercial Fisheries Study Area are landings of herring. Data also indicates the presence of a razor clam (*Ensis siliqua)* fishery, which is associated with ICES rectangle 41E7 only. Landings of sandeel (*Ammodytes marinus)* and sprat (*Sprattus sprattus)* are also noted from ICES rectangles 40E9 and 43F0; as described earlier in **Section 2**, it is noted that as of 2024, sandeel fishing within the UK EEZ has been prohibited for all UK and non-UK vessels.

4.1.2.20 Landings are predominately made by Scottish and English vessels operating demersal otter trawl, pelagic trawl, pots and scallop dredges with some presence of demersal seine and other mobile and passive gear activity [see **Figure 4.18**].

4.1.2.21 The seasonality of landings across the Regional Commercial Fisheries Study Area for key gear types are depicted in **Figure 4.19**. Landings from pots and pelagic trawls peak in autumn, noting the pelagic trawl fishery is highly seasonal with landings not made at other times of year. Demersal trawl landings occur with relative consistency year-round and dredge landings show a spring to early summer peak.

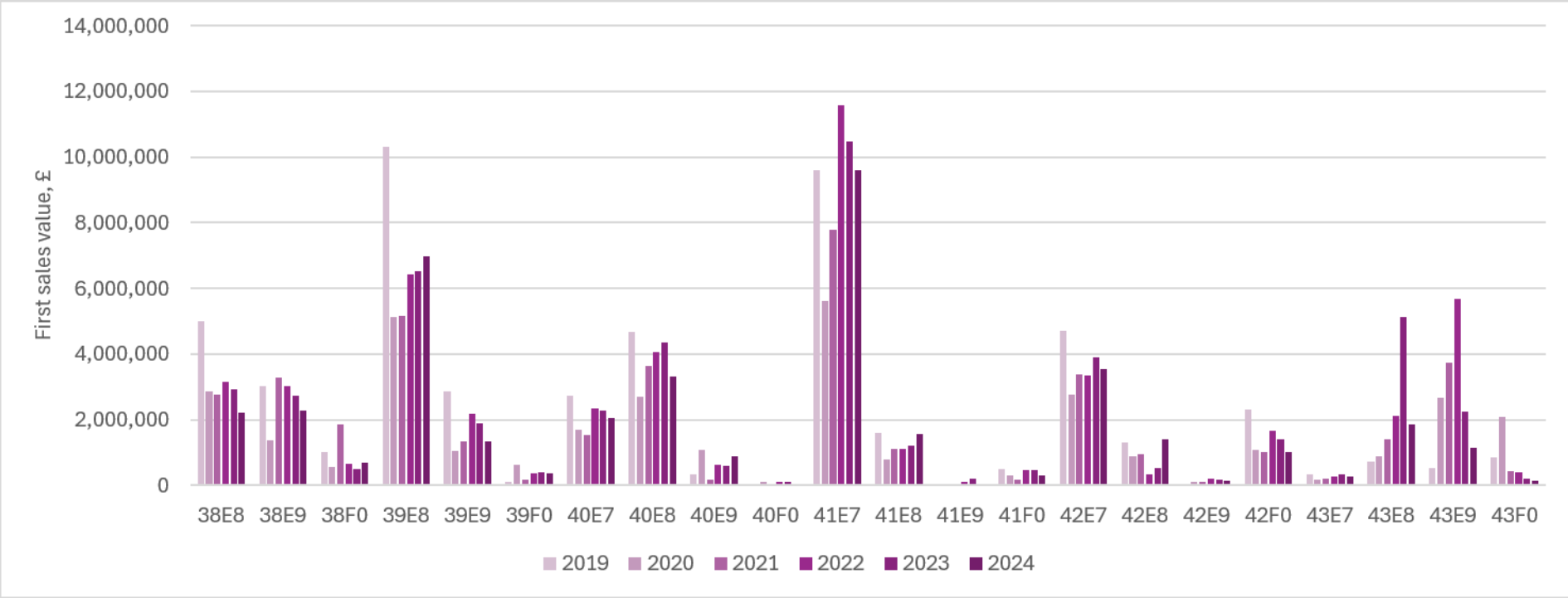


Figure 4.15: Annual first sales value of landings by UK registered fishing vessels from the Regional Commercial Fisheries Study Area, by ICES rectangle, between 2019 and 2024 (Source: MMO, 2013 to 2024 with data extracted covering 2019 to 2024)

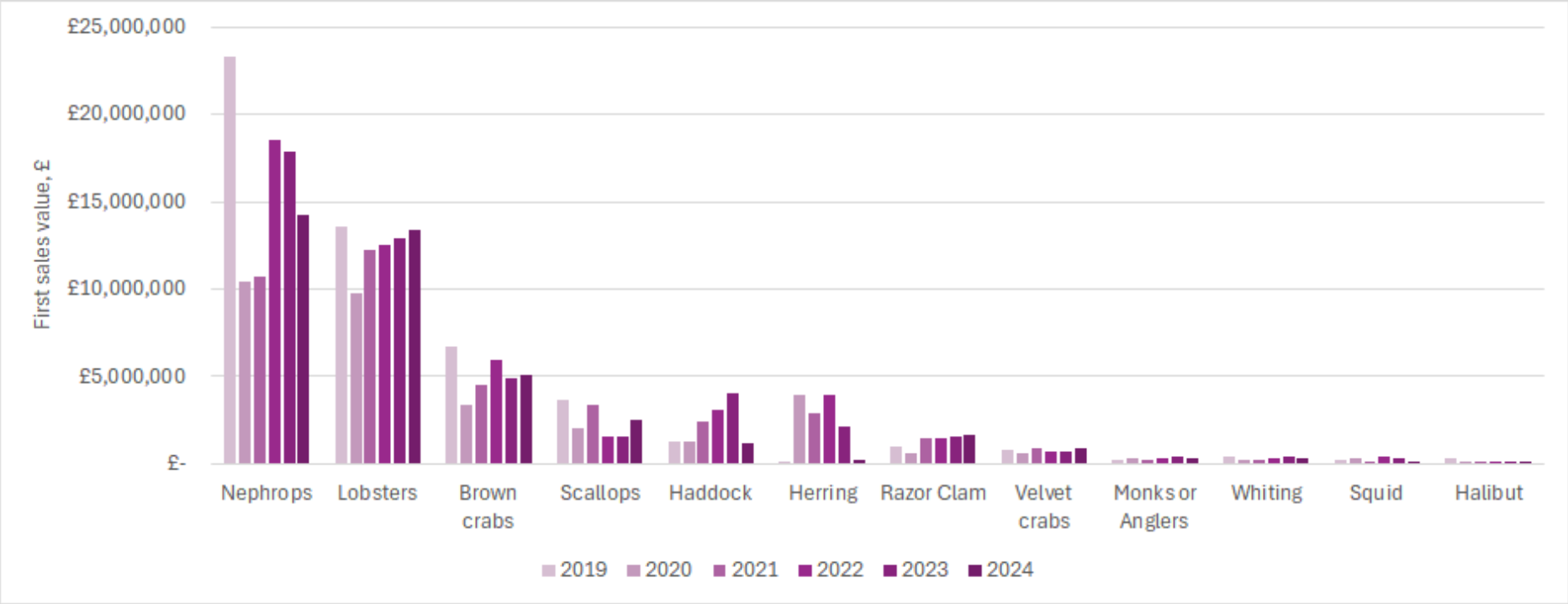


Figure 4.16: Annual first sales value of landings by UK registered fishing vessels from the Regional Commercial Fisheries Study Area, by key species, between 2019 and 2024 (Source: MMO, 2013 to 2025 with data extracted covering 2019 to 2024)

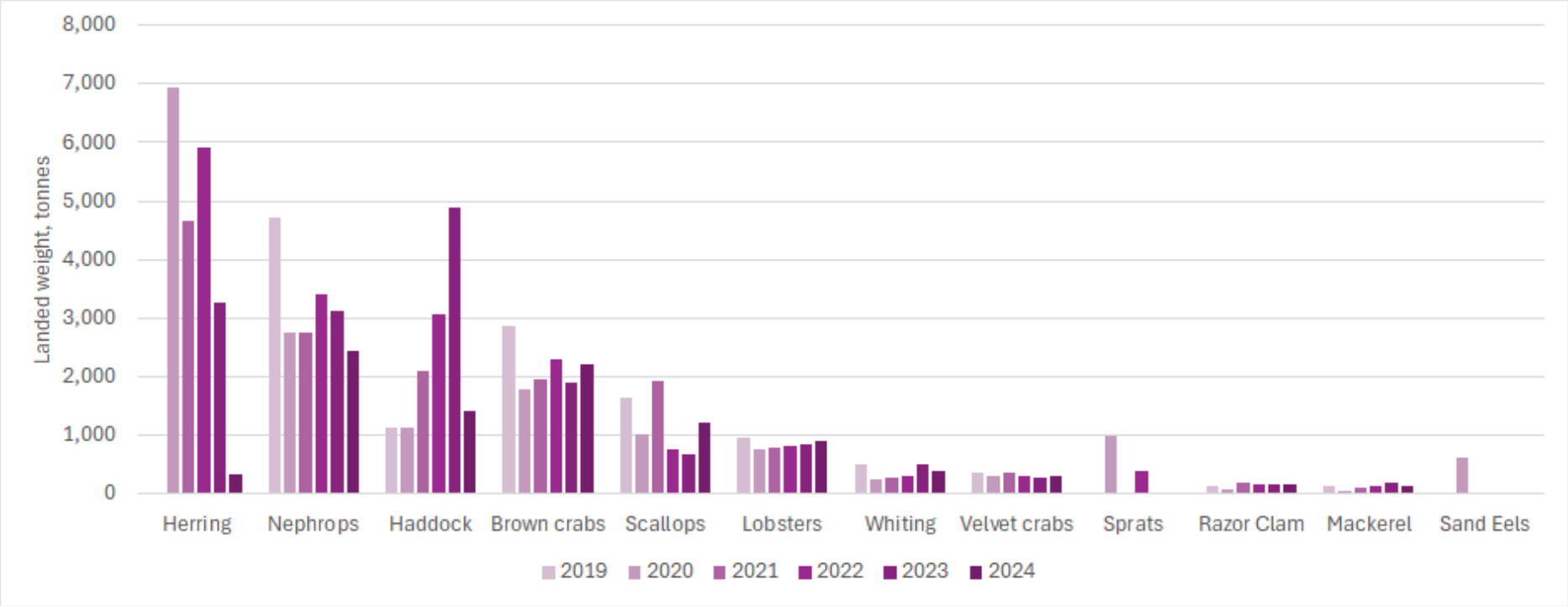


Figure 4.17: Annual weight of landings by UK registered fishing vessels from the Regional Commercial Fisheries Study Area, by key species, between 2019 and 2024 (Source: MMO, 2013 to 2025 with data extracted covering 2019 to 2024)

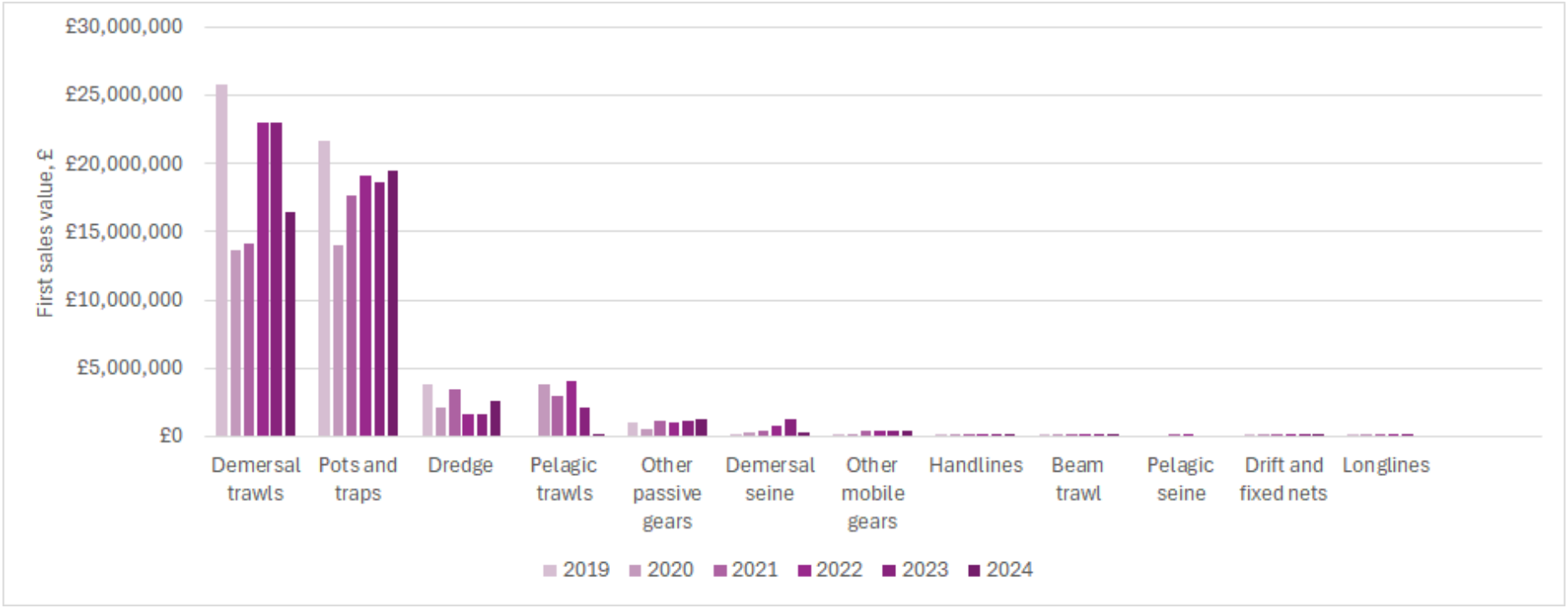


Figure 4.18: Annual first sales value of landings by UK registered fishing vessels from the Regional Commercial Fisheries Study Area, by gear type, between 2019 and 2024 (Source: MMO, 2013 to 2024 with data extracted covering 2019 to 2023)

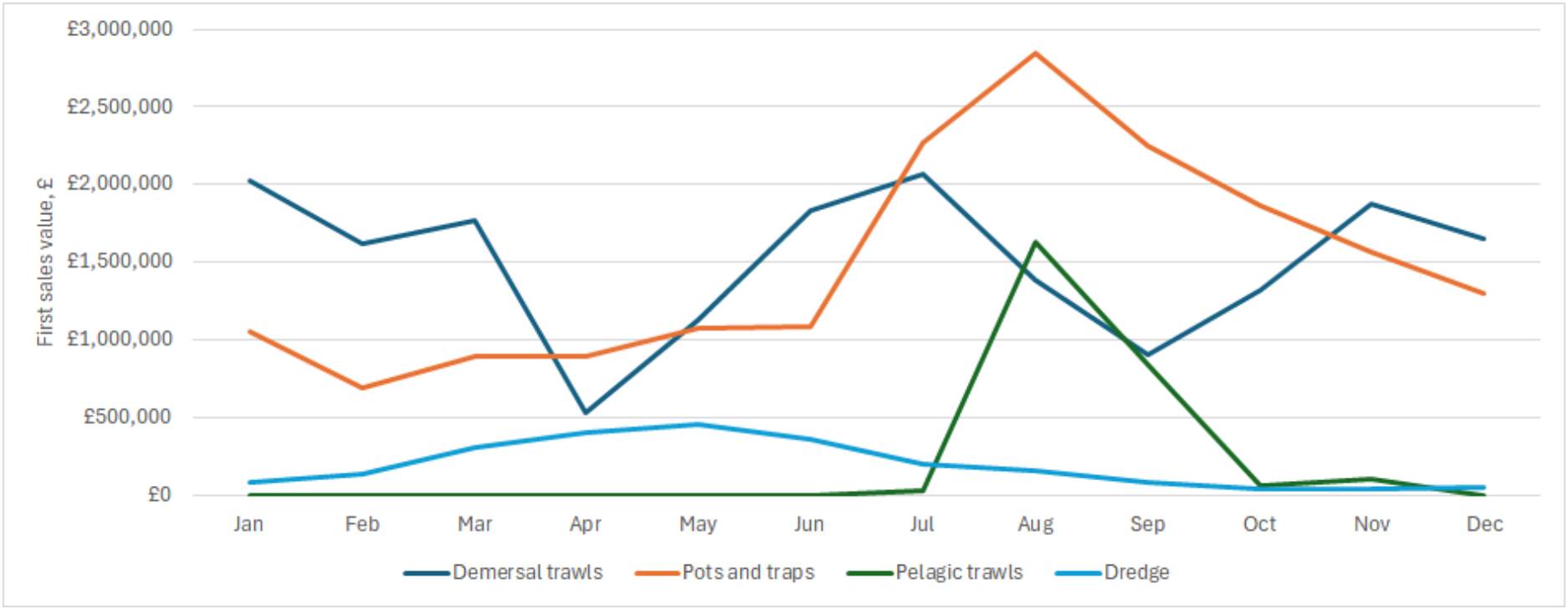


Figure 4.19: Seasonality of landings by key fishing gear type, based on annual average first sales values across 2020 to 2024 (Source: MMO, 2013 to 2025 with data extracted covering 2020 to 2024)

4.1.3 Non-UK fishing vessels

4.1.3.1 Landings by EU countries from the UK EEZ within ICES Division 4b (noting the spatial extent of the Division exceeds the Commercial Fisheries Study Areas) are shown in **Figure 4.20**, indicating the average annual landed value in Euros during the period 2013 to 2023. This data is not available by ICES rectangle and thus provides only some indication of which EU nations may be active across the Regional and Local Commercial Fisheries Study Areas.

4.1.3.2 Vessels registered in the Netherlands, Denmark, Belgium, France and Germany are active across the UK EEZ within ICES Division 4b. Large midwater and bottom trawl vessels from these nations target a variety of species, primarily pelagic and Demersal Fish Species.

4.1.3.3 EU vessels are included in the spatial activity assessment provided in **Section 4.2**.

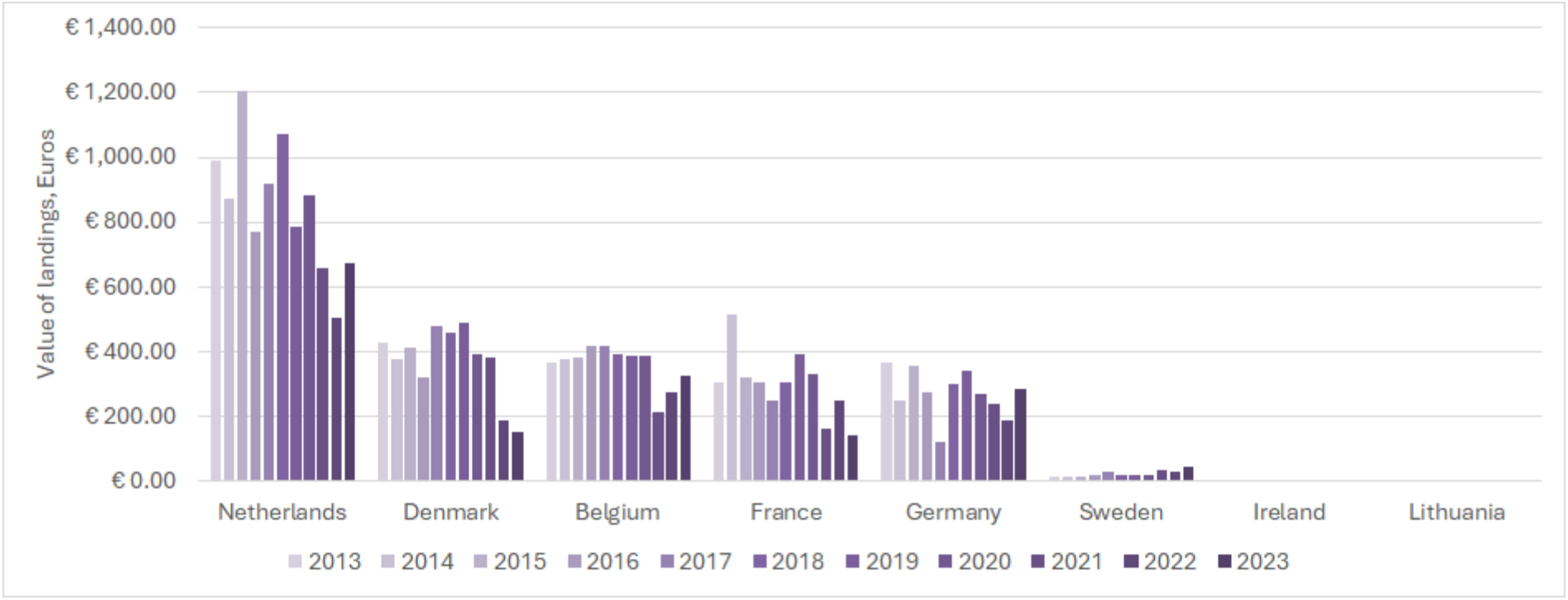


Figure 4.20: Annual landed value (2013 to 2023) by EU vessel nationality from the UK EEZ within ICES Division 4b (Source: Gibin *et.al.*, 2024)

4.2 Spatial mapping of fishing activity

4.2.1.1 This section presents the spatial mapping data and information available to inform the location and intensity of fishing across the Regional and Local Commercial Fisheries Study Areas. Data is presented and described in **Section 4.2.2** to **Section 4.2.9** in turn by data type/source.

4.2.2 Fishing intensity based on Vessel Monitoring System data

4.2.2.1 VMS data has been obtained from three different sources, with varying details as follows:

- ICES VMS data displaying the surface SAR of catches by different gear types and covering 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 and has been analysed to determine an average annual SAR based on data from 2016 to 2020;
- MMO VMS data displaying the first sales value (£) of catches and covering UK registered vessels 15m and over in length from 2016 to 2020;
- ICES VMS data displaying annual average fishing hours by different gear types and covering EU (including UK) registered vessels 12m and over in length from 2021 to 2024.

4.2.2.2 Demersal otter trawl activity is depicted in **Figure 4.21** to **Figure 4.24**Figure 4.23, indicating consistent levels of high-value and high-effort activity across the southern portion of the MHPGC Project PEIR boundary, aligning with the presence of a known Nephrops ground. ICES VMS data covering the period 2021 to 2024 indicates that the MHPGC Project PEIR boundary is located to the immediate east of the areas of peak fishing effort in this Nephrops ground. The same ICES data also indicates a hotspot of demersal otter trawl activity to the immediate east of the MHPGC Project PEIR boundary in ICES rectangle 41E9, though this is not reflected in UK landings statistics, MMO VMS data or ICES Surface SAR data and thus the weight of evidence does not point towards 41E9 being an established demersal otter trawl fishing ground.

4.2.2.3 Demersal seine activity is depicted in **Figure 4.25** to **Figure 4.28**Figure 4.27 and shows very limited activity in the MHPGC Project PEIR Red Line Boundary, with demersal seine activity primarily taking place in the northern extent of the Regional Commercial Fisheries Study Area.

4.2.2.4 Dredge activity is depicted in **Figure 4.29**Figure 4.29 to **Figure 4.32**Figure 4.31 indicating the presence of scallop grounds inshore of the MHPGC Project, and very limited dredge activity overlapping the MHPGC Project PEIR Red Line Boundary.

4.2.2.5 Beam trawl activity is shown in **Figure 4.33** to **Figure 4.36**Figure 4.35. The data indicates no UK vessel beam trawl activity of relevance to the MHPGC Project. The SAR data in **Figure 4.35** suggests EU beam trawls have historically been active inside of the 12nm limit in proximity to the MHPGC Project PEIR Red Line Boundary, though effort levels are low, and the ICES VMS data covering the period 2021 to 2024 reinforces that current beam trawl levels in the vicinity of the MHPGC Project PEIR boundary are negligible.

4.2.2.6 Pelagic trawl activity is depicted in **Figure 4.37**Figure 4.37 and **Figure 4.39**Figure 4.38. The nature of pelagic trawling activity means that vessels track shoals of fish and deploy fishing gear to harvest a portion of that migrating shoal. This means activity is not associated with specific seabed grounds, but with the migration route of the shoaling fish. Fishing locations are therefore generally across a wider area and vary spatially on an annual basis depending on the route taken by the fish. Spatial data indicates very limited potential for UK pelagic trawl activity within the MHPGC Project PEIR Red Line Boundary, noting that across 2016 to 2020, only in 2016 does pelagic trawl activity overlap the MHPGC Project. It is noted that the pelagic fishery is highly seasonal, with activity for approximately eight to 12 weeks in the year. ICES VMS data covering the period 2021 to 2024 indicates scope for some overlap of the MHPGC Project PEIR boundary with pelagic trawl activity, which may be associated with both UK and EU fleets.

4.2.2.7 Potting activity is depicted in **Figure 4.40** to **Figure 4.42**Figure 4.41, indicating an expansion over time of activity by vessels over 15m length with historically no activity proximate to the MHPGC Project, but increasing levels of activity across recent years in waters to the south of the MHPGC Project PEIR Red Line Boundary. This expansion may reflect a number of factors including

investment in larger fishing vessels, including vivier vessels, able to target grounds further offshore and a need to explore new grounds to continue to meet market demand. Potting vessels are typically smaller than 15m in length and therefore not likely to be represented within the MMO VMS dataset. Potting activity is expected to occur in and around the MHPGC Project PEIR boundary from nearshore out to around the 12nm limit.

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

berdeen
rose
nbroath
noustie
St Andrews
urgh
Berwick-upon-Tweed
North Sea

Morven Offshore Wind Farm / nima CONSULTANTS	**Drawing Number:** MHPGC-NIM-CF-0004				
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Data Sources:** Ordnance Survey, ICES, MMO, 2022				
Drawing Title: FIGURE 4.21: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING DEMERSAL OTTER TRAWLS IN 2020	**Geodetic Information:** World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA				
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	VER	DATE	DETAILS	BY	CHECK
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Otter Trawl 2020 (UK vessels ≥15m)

First Sales Value

Total value, £

- £0.02 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £595,000.00

2016

2017

2018

2019

N

North Sea

Firth of Forth

Hartlepool

Morven Offshore Wind Farm

nima CONSULTANTS

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Drawing Title:
FIGURE 4.22: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING DEMERSAL OTTER TRAWLS FROM 2016 TO 2019

0 5 10 20 30 40 nm

Scale@A3:1:2,000,000

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

Drawing Number:
MHPGC-NIM-CF-0005

Data Sources:
Ordnance Survey, ICES, MMO, 2022

Geodetic Information:
World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS, NGA

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

LEGEND

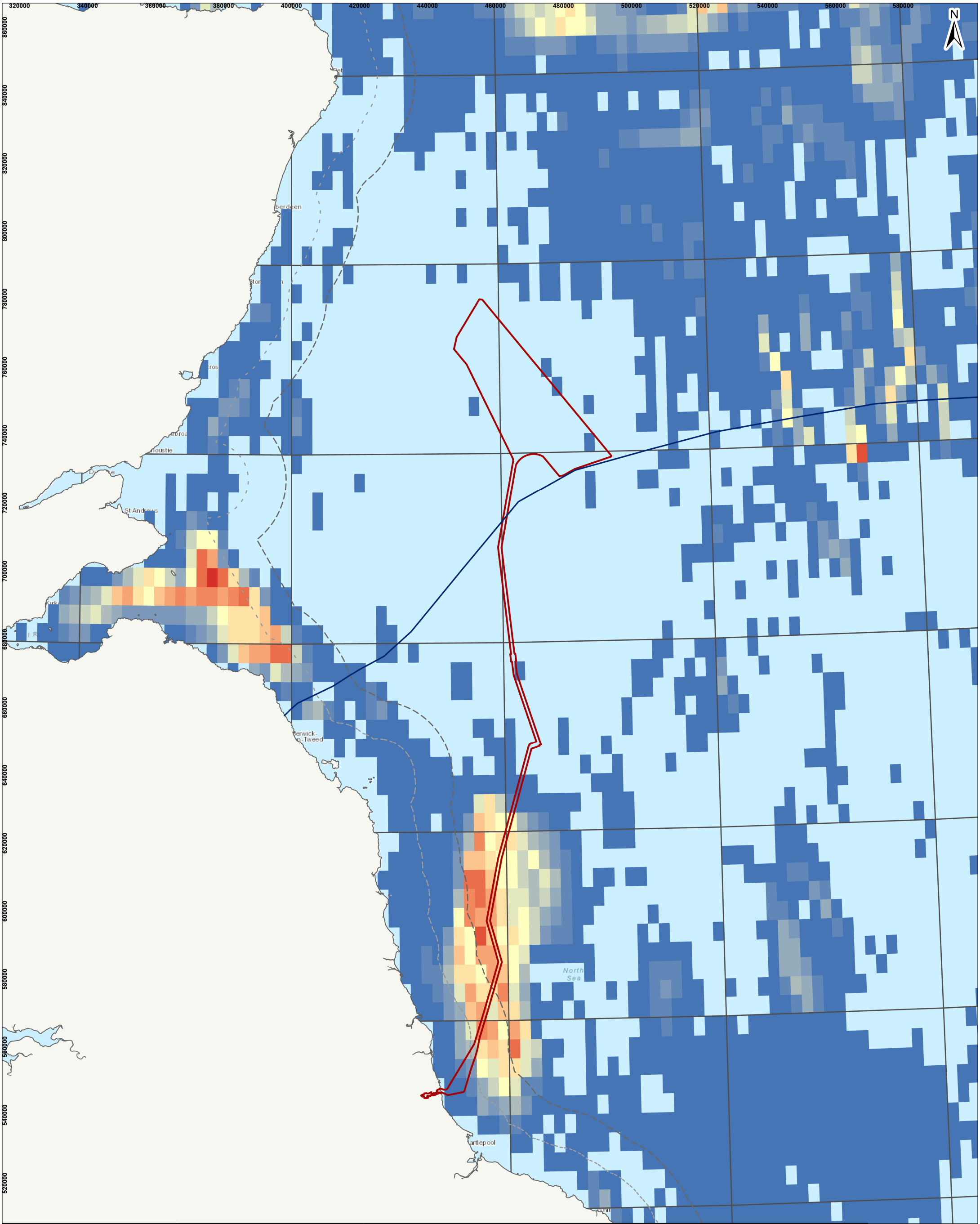
- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Otter Trawl (UK vessels ≥15m)

otbval

Total value, £

- £0.02 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £100,000.00



Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Drawing Number:** MHPGC-NIM-CF-0006				
Drawing Title: FIGURE 4.23: SURFACE SWEPT AREA RATIO 2016 TO 2020 FOR EU (INCLUDING UK) VESSELS ≥ 12M LENGTH USING DEMERSAL OTTER TRAWL GEAR	**Data Sources:** Ordnance Survey, ICES, MMO, 2022, ICES, 2022				
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	**Geodetic Information:** World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: Esri, HERE, Garmin, FAO, USGS				
	VER	**DATE**	**DETAILS**	**BY**	**CHECK**
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Otter Trawl
Average Annual Surface Swept Area Ratio

- 0.0 - 0.6
- 0.7 - 1.3
- 1.4 - 1.9
- 2.0 - 2.6
- 2.7 - 3.2
- 3.3 - 3.9
- 4.0 - 4.5
- 4.6 - 5.1
- 5.2 - 5.8
- 5.9 - 6.4
- 6.5 - 7.1
- 7.2 - 7.7
- 7.8 - 8.4
- 8.5 - 9.0
- 9.1 - 23.2

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

erhead
berdeen
Stonehaven
ntrose
nbroath
noustie
St Andrews
Firth of Forth
Kirkcaldy
FIRTH OF FORTH
North Berwick
burgh
Berwick-n-Tweed
North Sea
South Shields
nderland
artlepool
rnby

Morven Offshore Wind Farm / nima CONSULTANTS	**Drawing Number:** MHPGC-NIM-CF-0007				
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Data Sources:** Ordnance Survey, ICES, MMO, 2022				
Drawing Title: FIGURE 4.24: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING DEMERSAL SEINE IN 2020	**Geodetic Information:** World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA				
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	VER	DATE	DETAILS	BY	CHECK
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

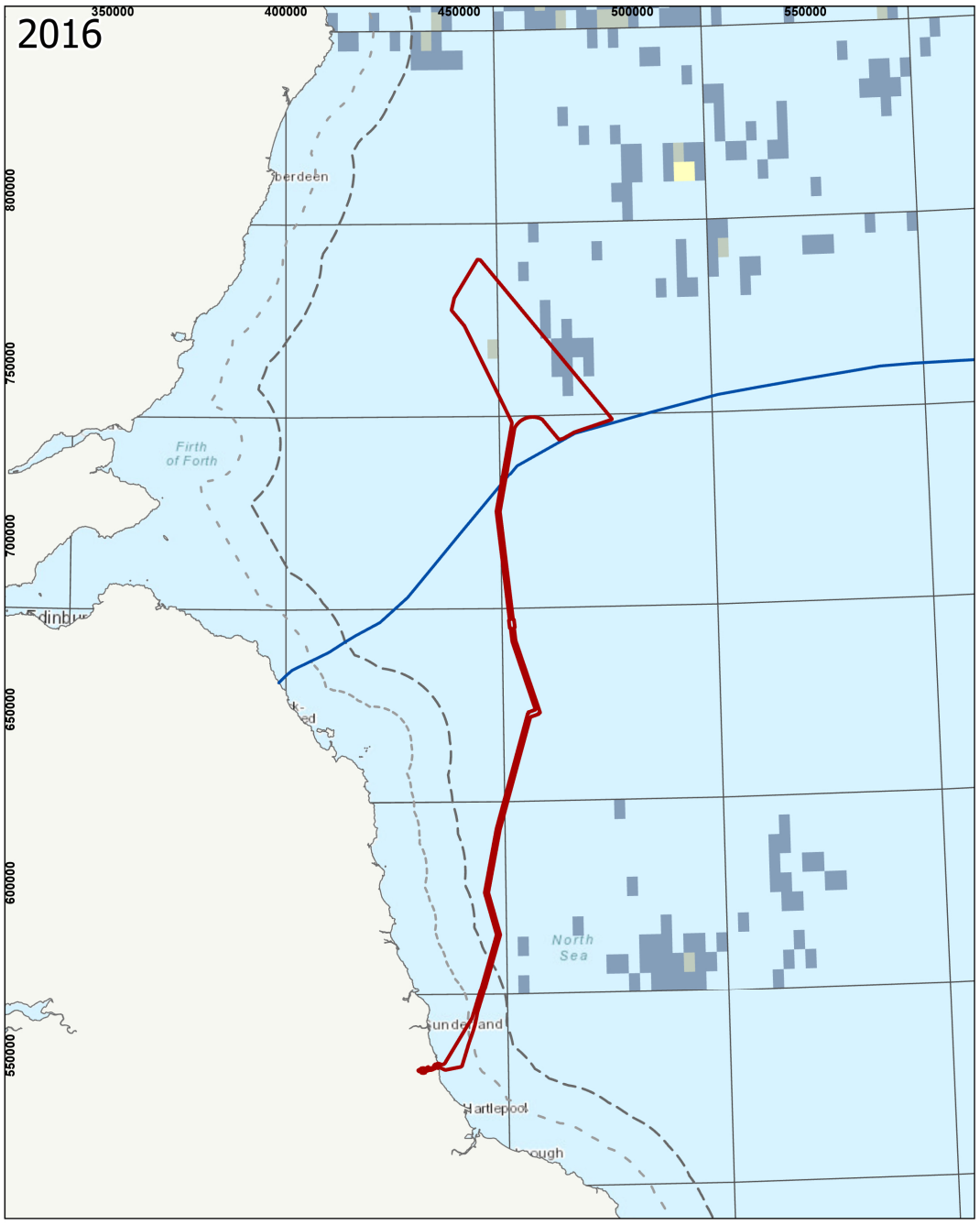
Demersal Seine 2020 (UK vessels ≥15m)

First Sales Value

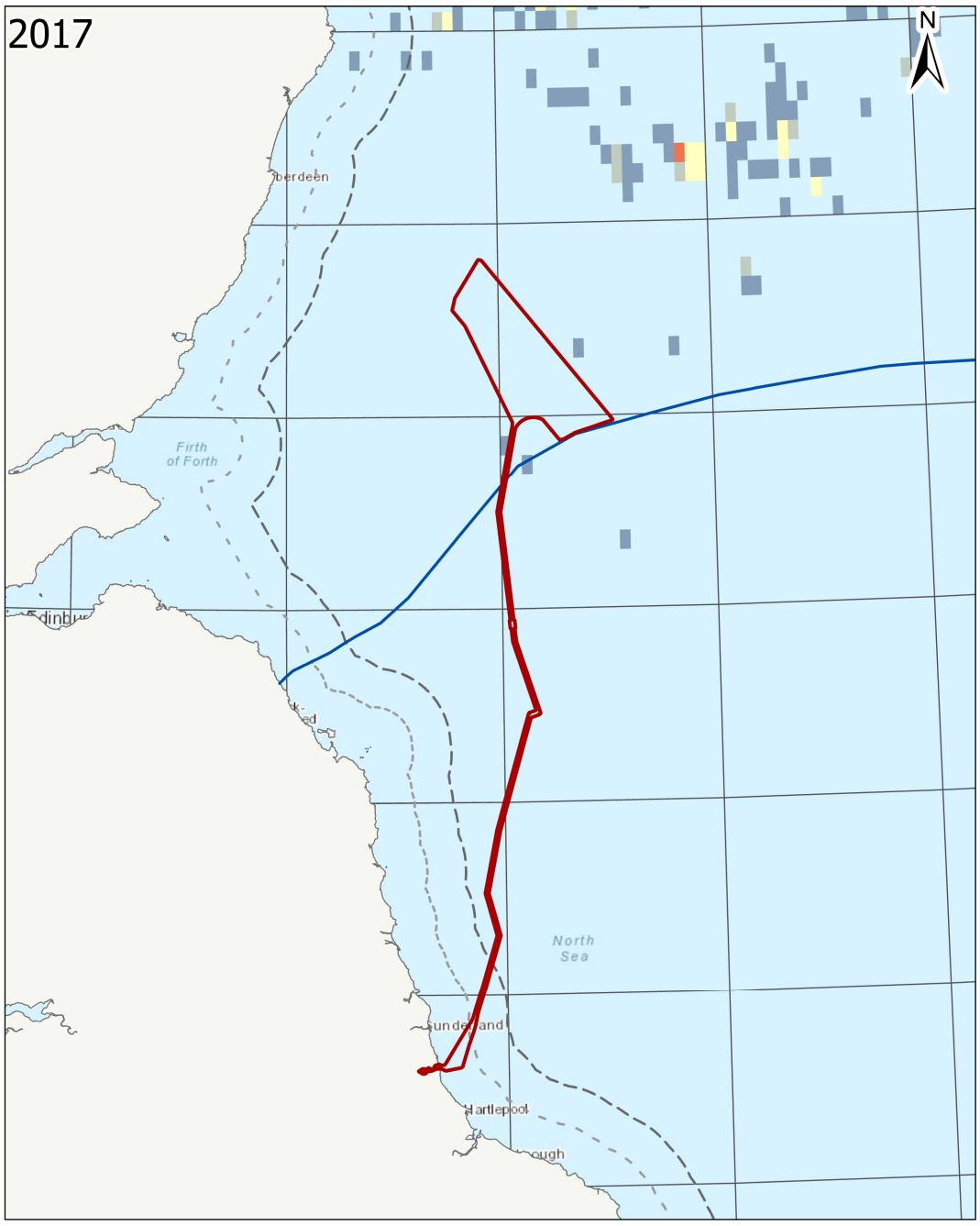
Total value, £

- £0.02 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £132,154.33

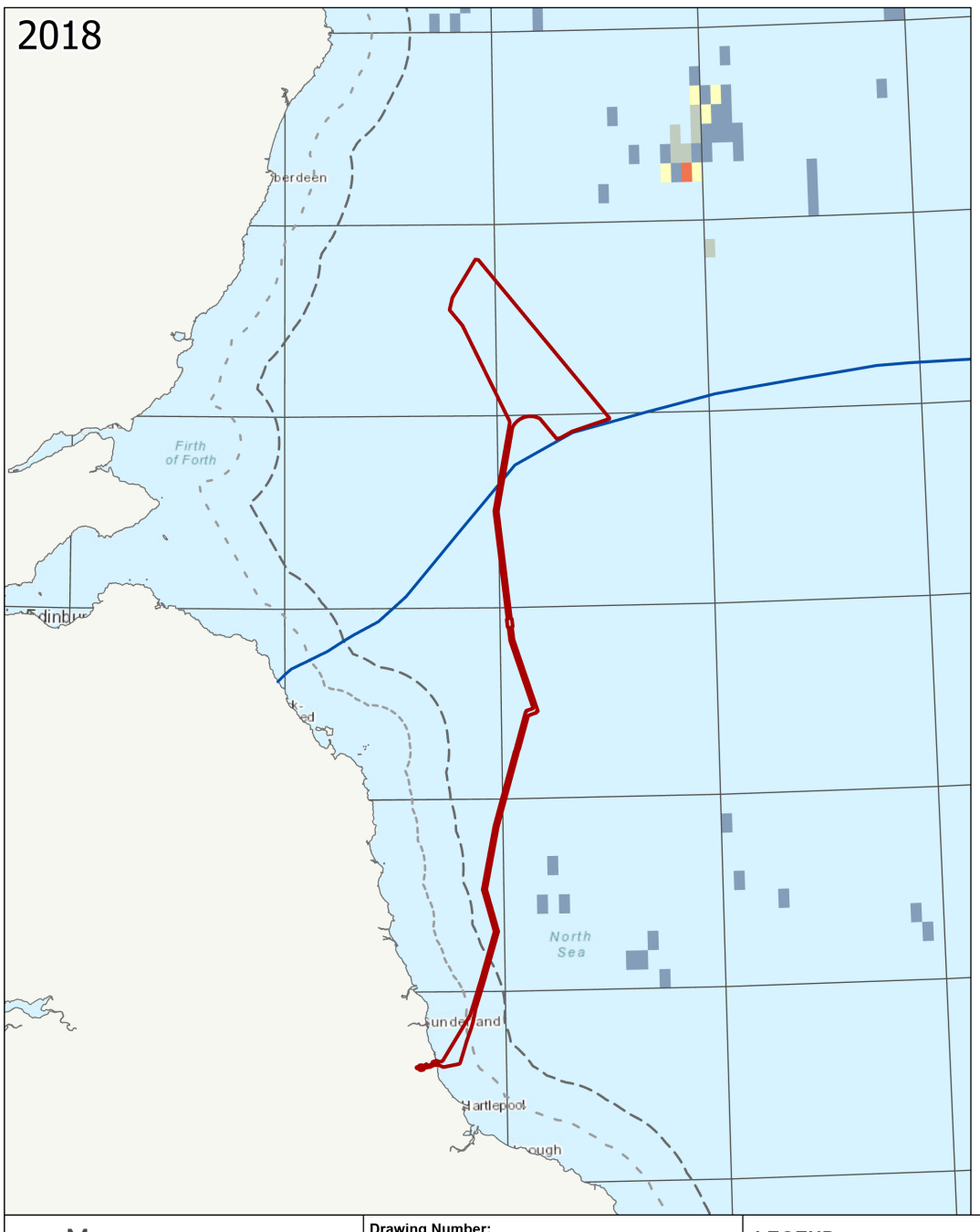
2016



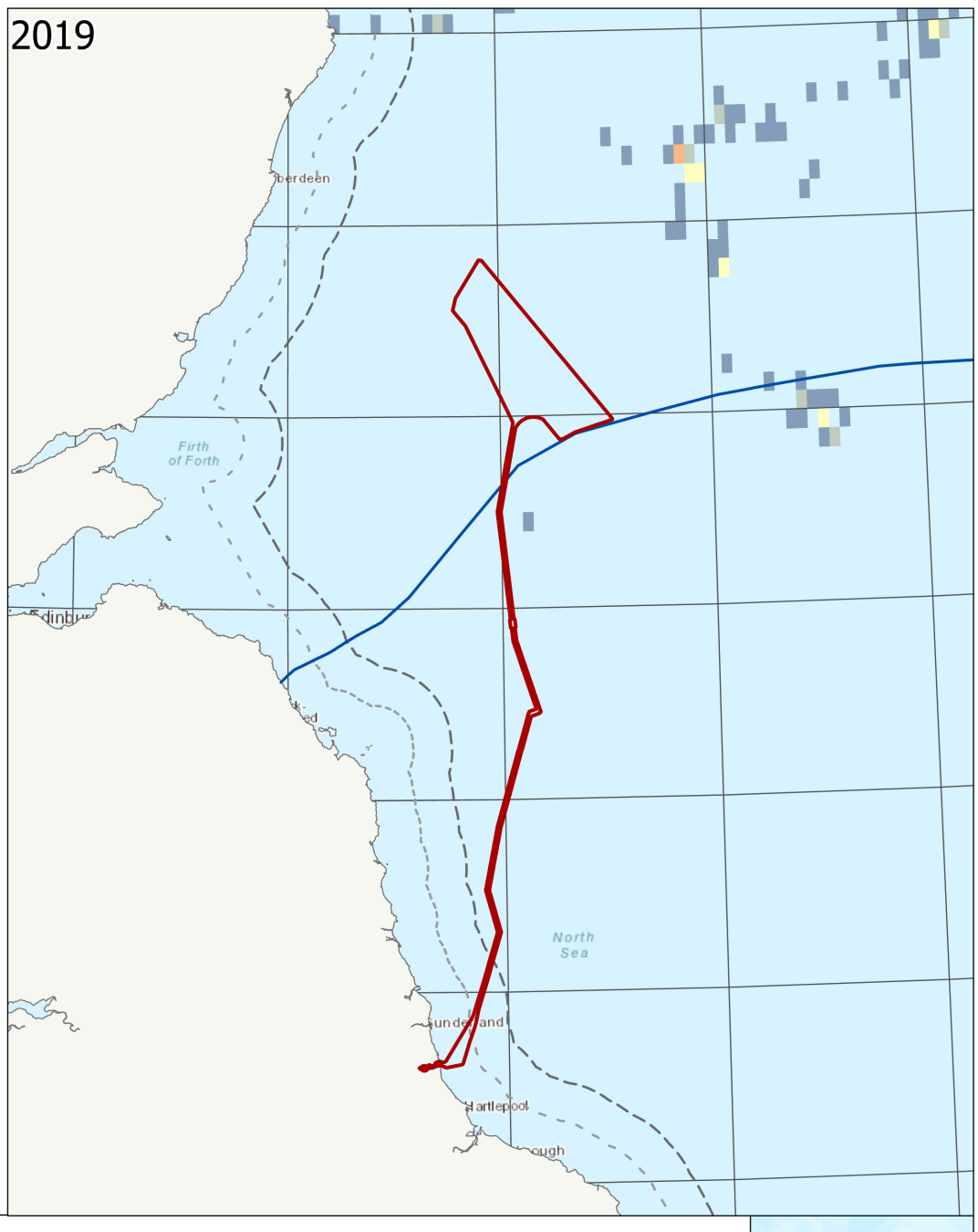
2017



2018



2019



Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0008

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, MMO, 2022

Drawing Title:
FIGURE 4.25: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING DEMERSAL SEINE FROM 2016 TO 2019

Geodetic Information:
World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS, NGA
World Hillshade: Esri, USGS

0 5 10 20 30 40 nm

Scale@A3:1:2,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

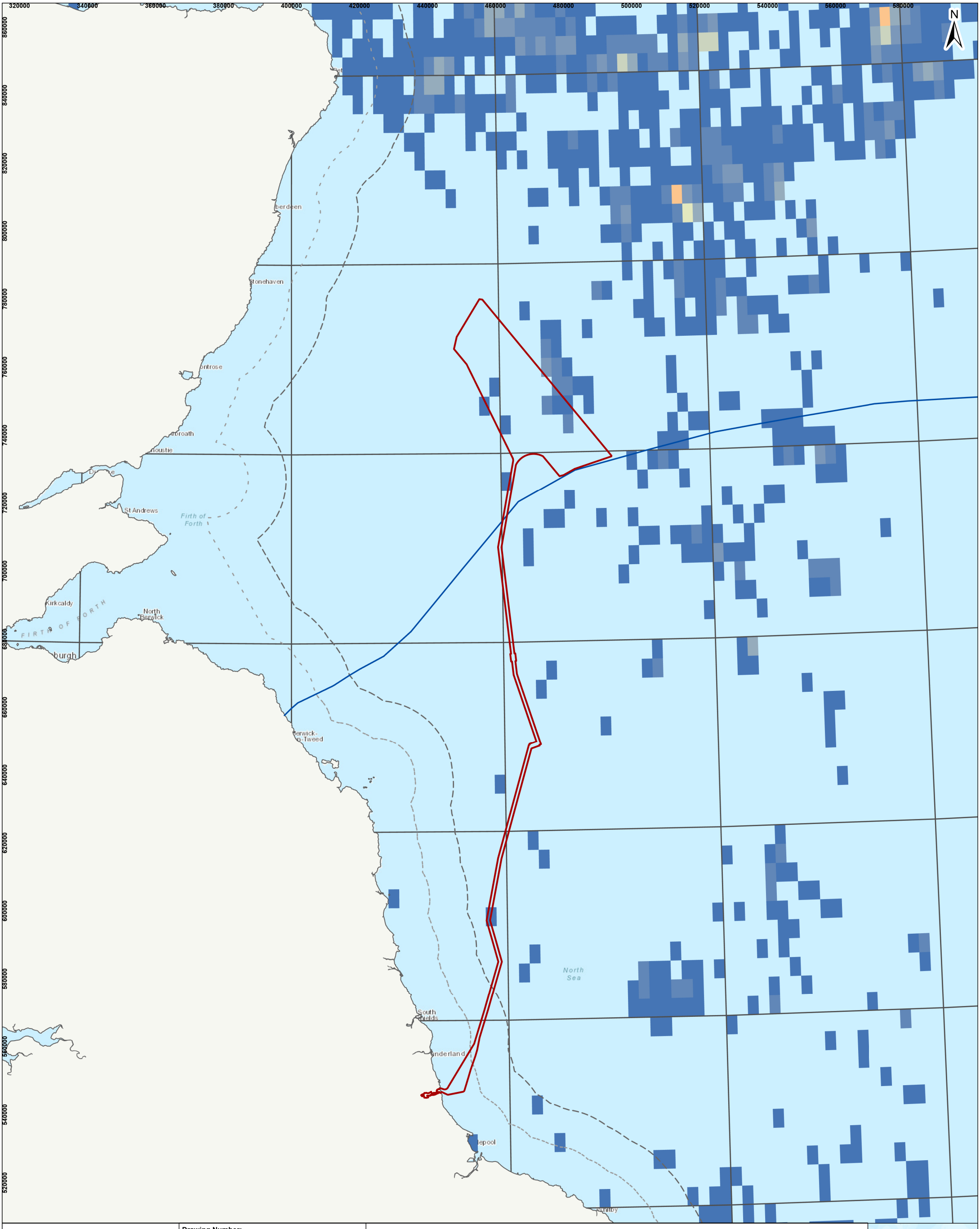
- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Seine (UK vessels ≥15m)

sscval

Total Value, £

- £0.02 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £80,001.43



Morven Offshore Wind Farm

nima CONSULTANTS

Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Drawing Number:** MHPGC-NIM-CF-0009
Drawing Title: FIGURE 4.26: SURFACE SWEPT AREA RATIO 2016 TO 2020 FOR EU (INCLUDING UK) VESSELS ≥ 12M LENGTH USING	**Data Sources:** Ordnance Survey, ICES, MMO, 2022, ICES, 2022 **Geodetic Information:** World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Seine
Average Annual Surface Swept Area Ratio

- 0.0 - 0.6
- 0.7 - 1.3
- 1.4 - 1.9
- 2.0 - 2.6
- 2.7 - 3.2
- 3.3 - 3.9
- 4.0 - 4.5
- 4.6 - 5.1
- 5.2 - 5.8
- 5.9 - 6.4
- 6.5 - 7.1
- 7.2 - 7.7
- 7.8 - 8.4
- 8.5 - 9.0
- 9.1 - 46.8

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

erh

berdeen

Stonehaven

ntrose

broa...

noustie

D...e

St Andrews

Firth of Forth

Kirkcaldy

FIRTH OF FORTH

North Berwick

burgh

Berwick-upon-Tweed

North Sea

South Shields

nderland

artlepool

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0010

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, MMO, 2022

Drawing Title:
FIGURE 4.27: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING DREDGES IN 2020

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

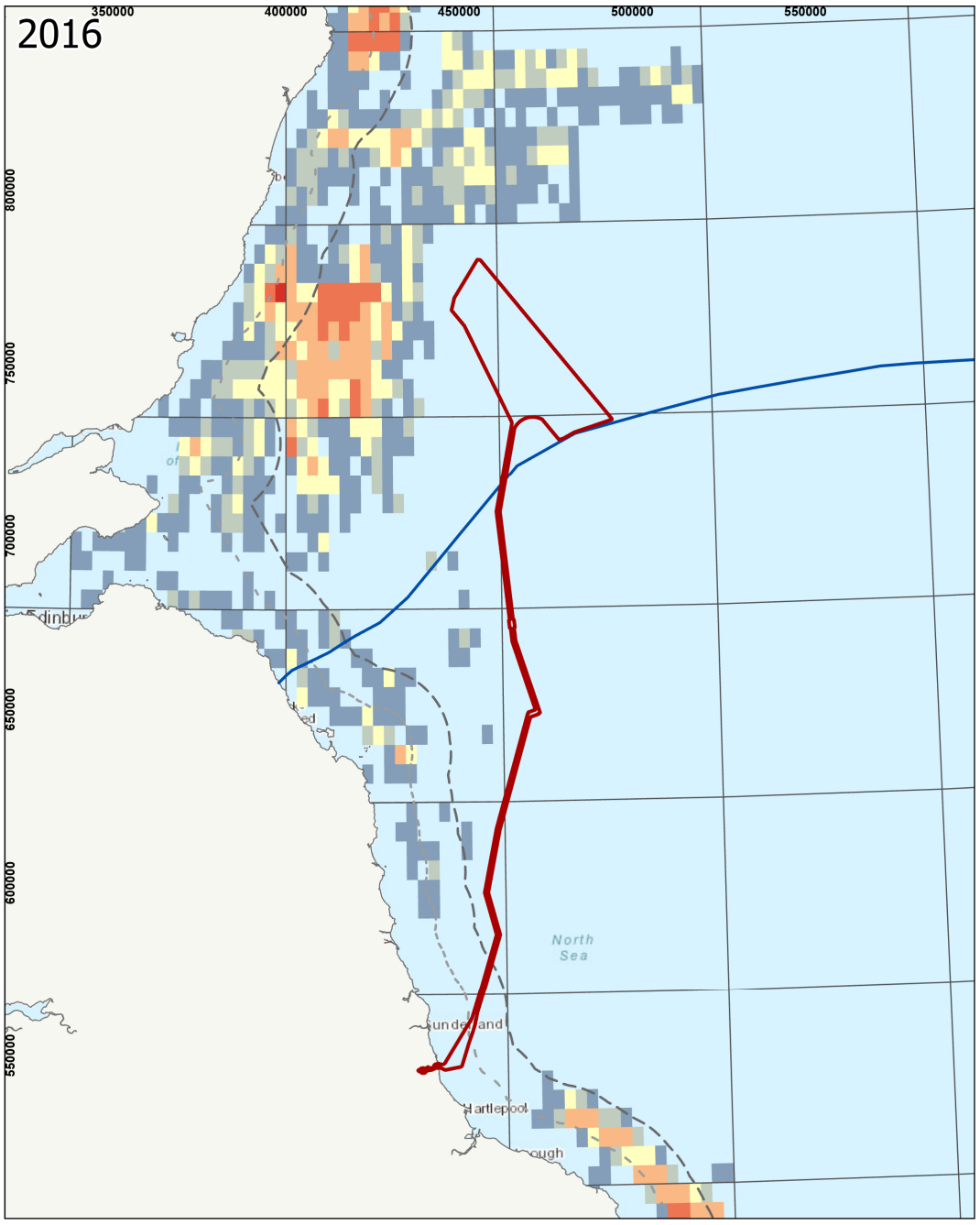
LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

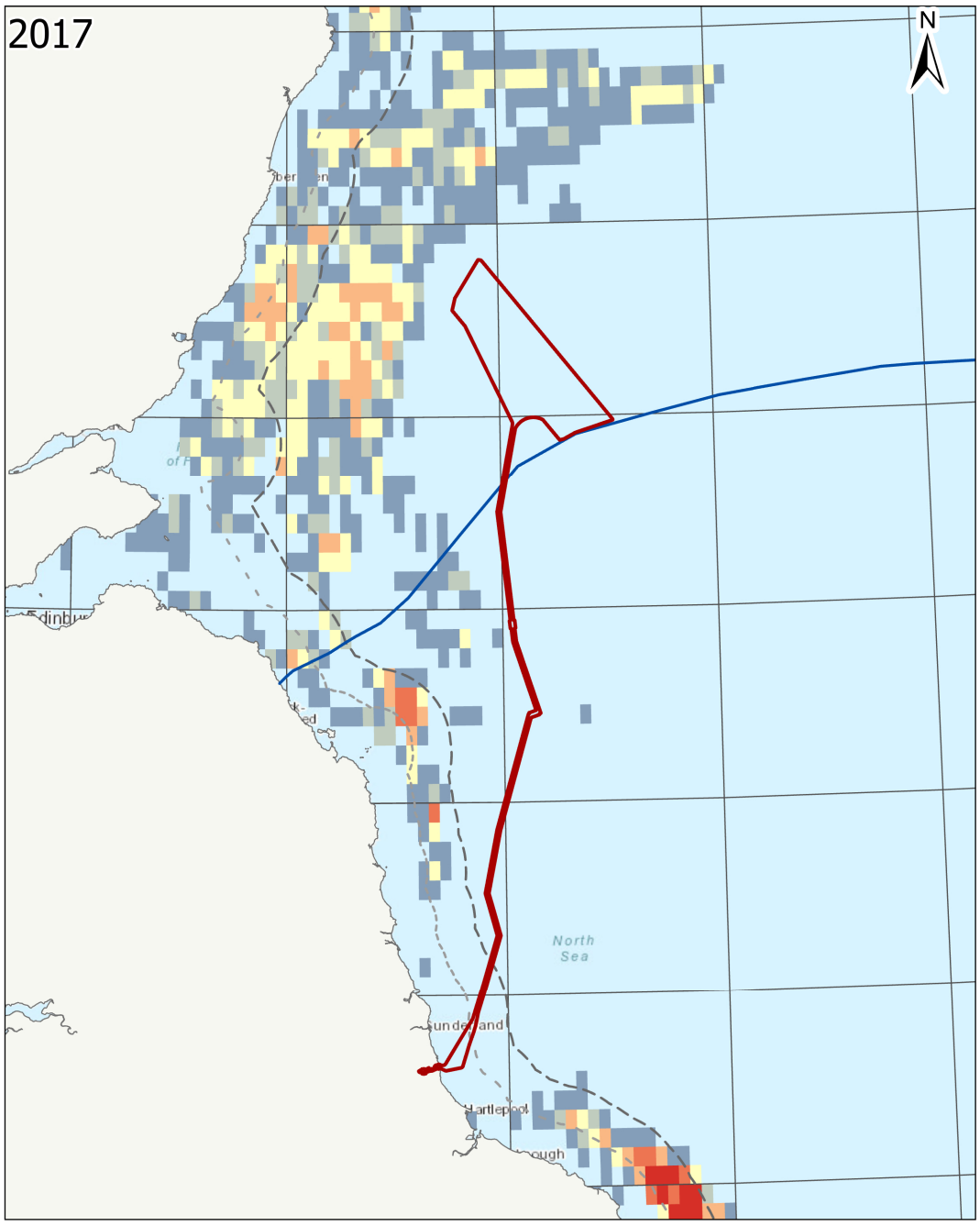
Dredge 2020 (UK vessels ≥15m)
First Sales Value
Total value, £

- £0.02 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £232,000.00

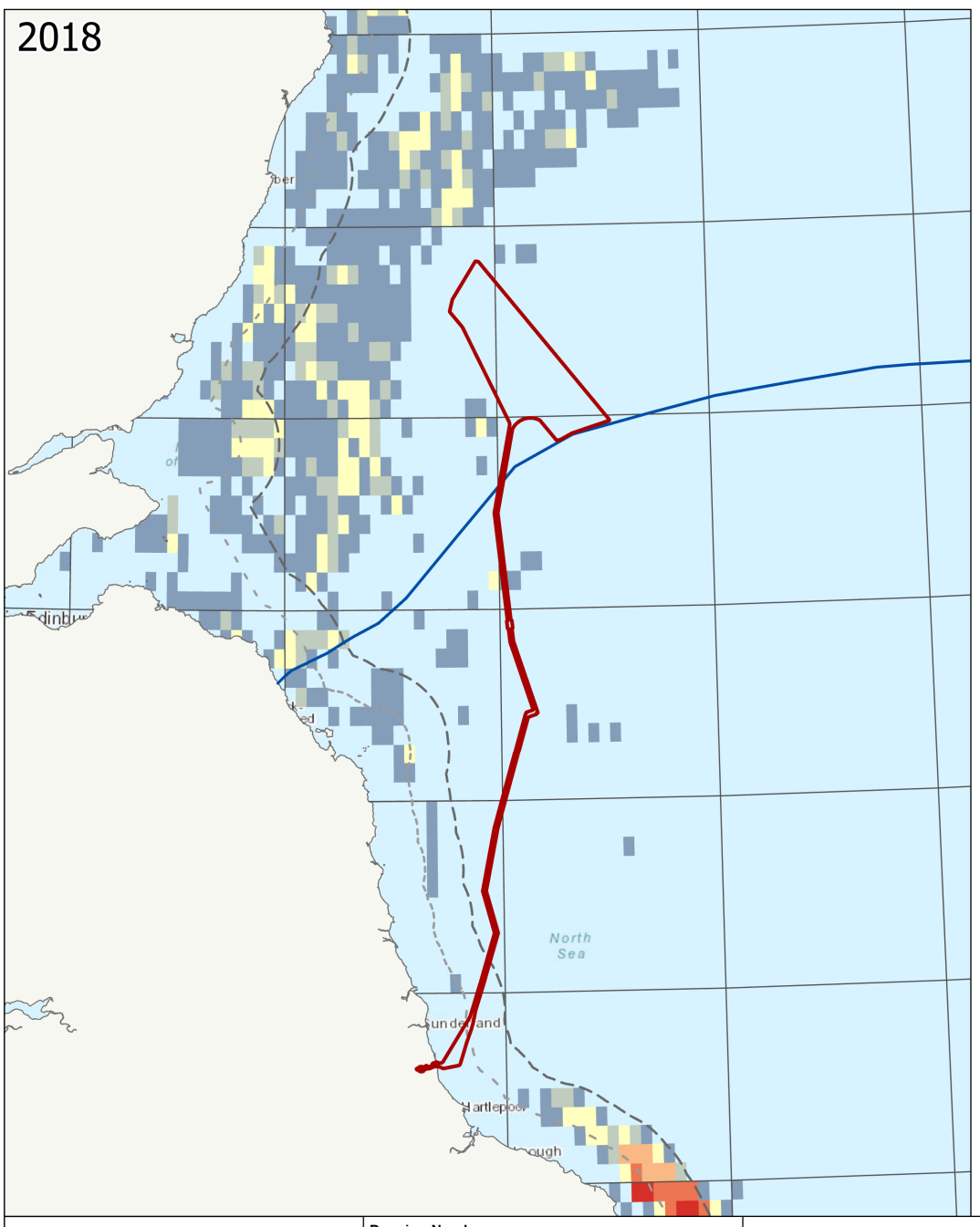
2016



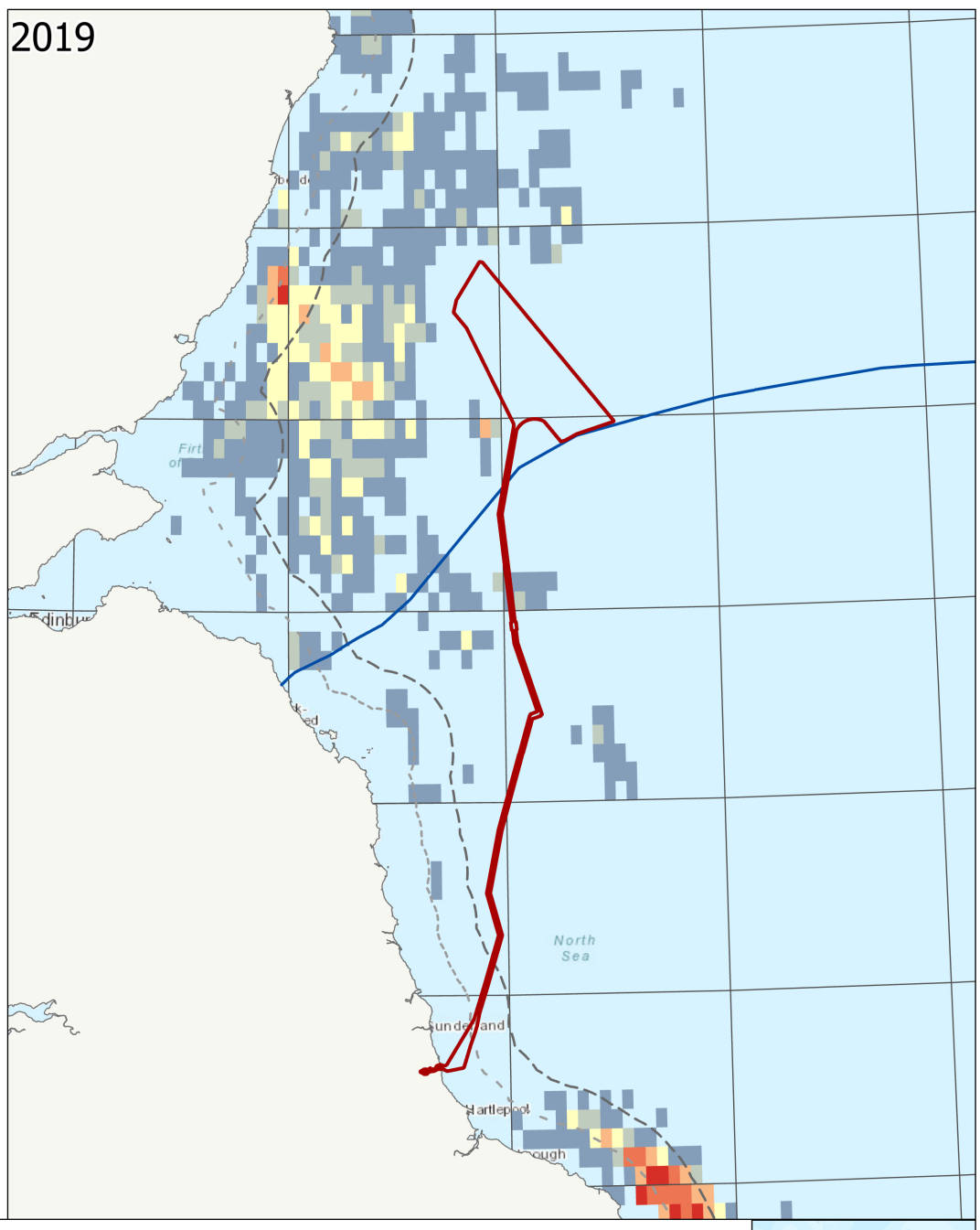
2017



2018



2019



Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0011

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, EMSA, 2025

Drawing Title:
FIGURE 4.28: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING DREDGES FROM 2016 TO 2019

Geodetic Information:
World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 26 28 30 32 34 36 38 40 nm

Scale@A3:1:2,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Dredge (UK vessels ≥15m)
First Sales Value
Total value, £

- £0.91 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £280,000.00

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

Stonehaven
Montrose
Arbroath
Carnoustie
Dundee
St Andrews
Kirkcaldy
FIRTH OF FORTH
Berwick-upon-Tweed
South Shields
Sunderland
North Sea

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0012

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, MMO, 2022, ICES, 2022

Drawing Title:
FIGURE 4.29: SURFACE SWEPT AREA RATIO 2016 TO 2020 FOR EU (INCLUDING UK) VESSELS ≥ 12M LENGTH USING

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Dredge (EU and UK vessels ≥12m)

Average Annual Surface Swept Area Ratio (2016-2020)

- 0.0 - 0.1
- 0.2 - 0.5
- 0.6 - 0.8
- 0.8 - 1.0
- 1.1 - 2.0
- 2.1 - 2.5
- 2.6 - 3.8

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

Peterhead
berdeen
Stonehaven
ntrose
nbroath
noustie
St Andrews
Firth of Forth
Kirkcaldy
FIRTH OF FORTH
burgh
erwick-n-Tweed
North Sea
South Shields
nderland
artlepool
rnby

Drawing Number:
MHPGC-NIM-CF-0013

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, MMO, 2022

Drawing Title:
FIGURE 4.30: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING BEAM TRAWLS IN 2020

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

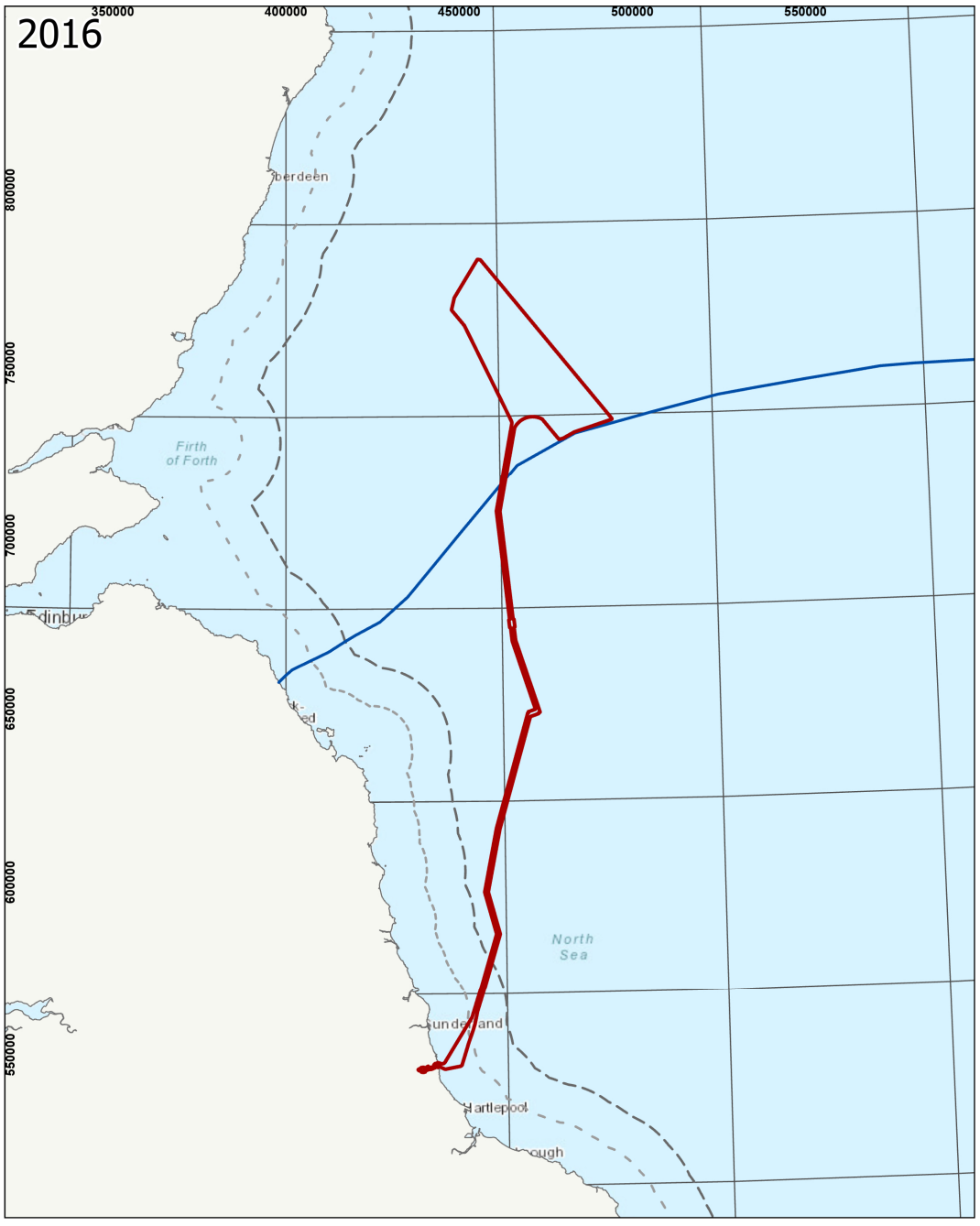
Beam Trawl 2020 (UK vessels ≥15m)

First Sales Value

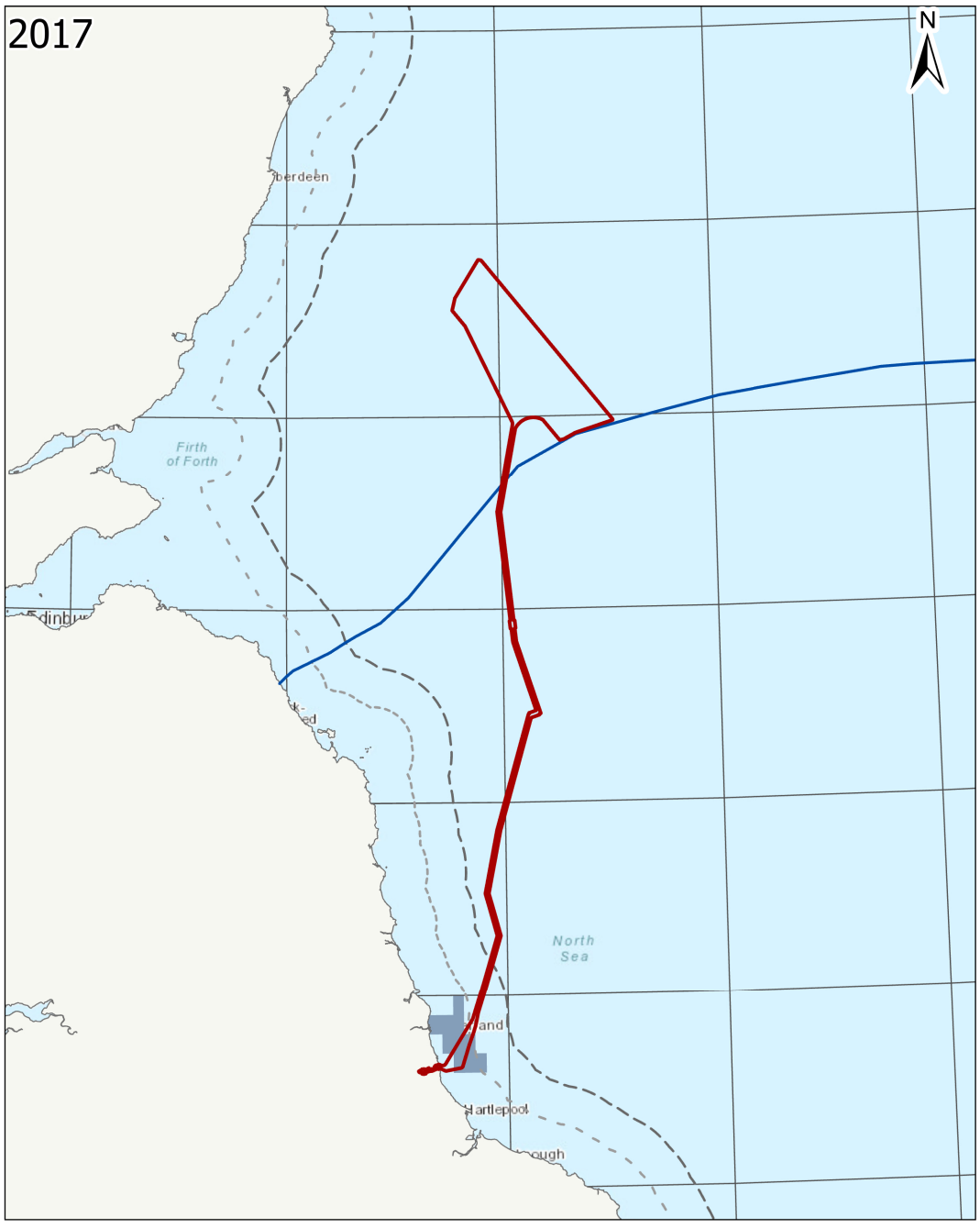
Total value, £

- £0.02 - £1,000.00
- £1,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £45,987.96

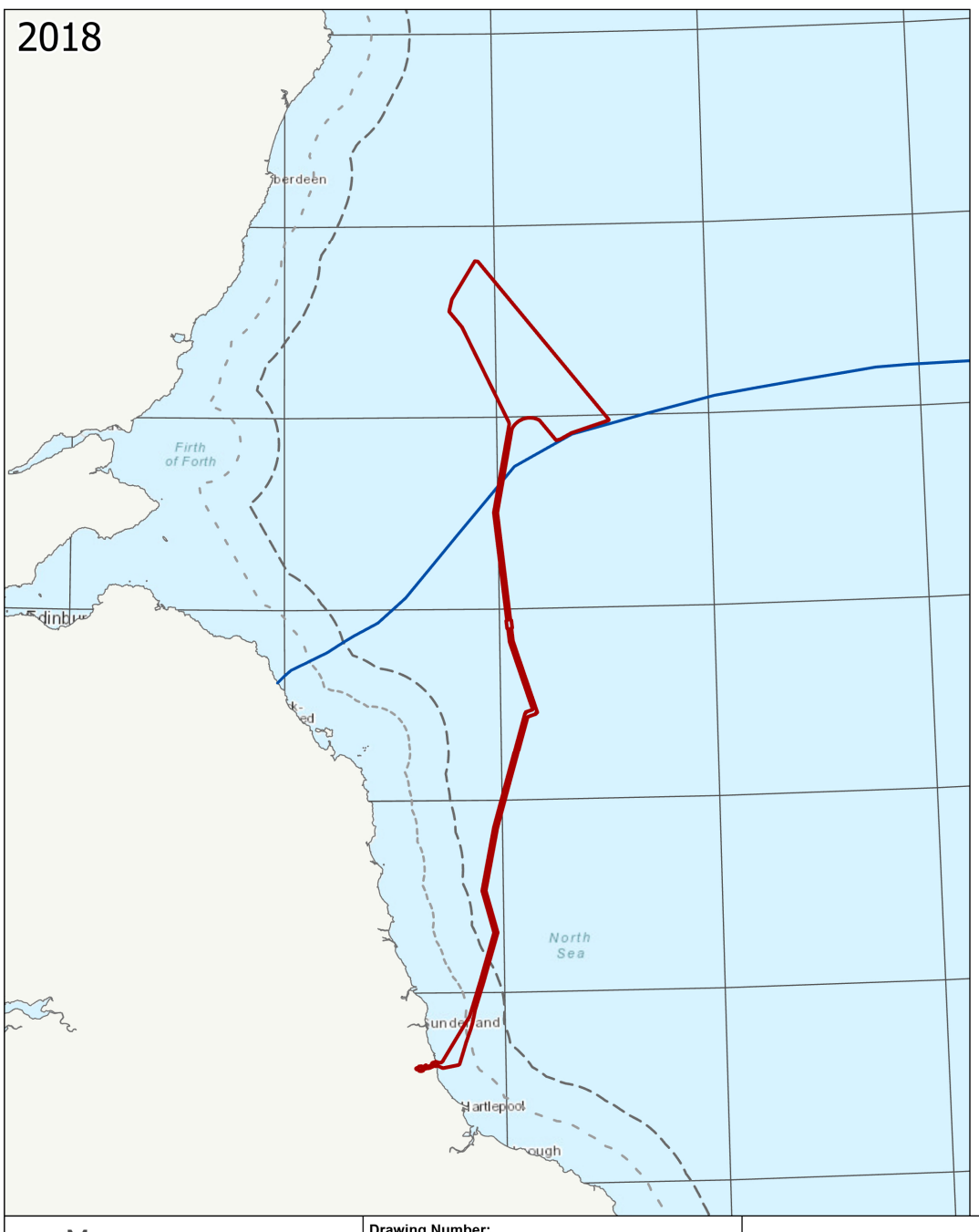
2016



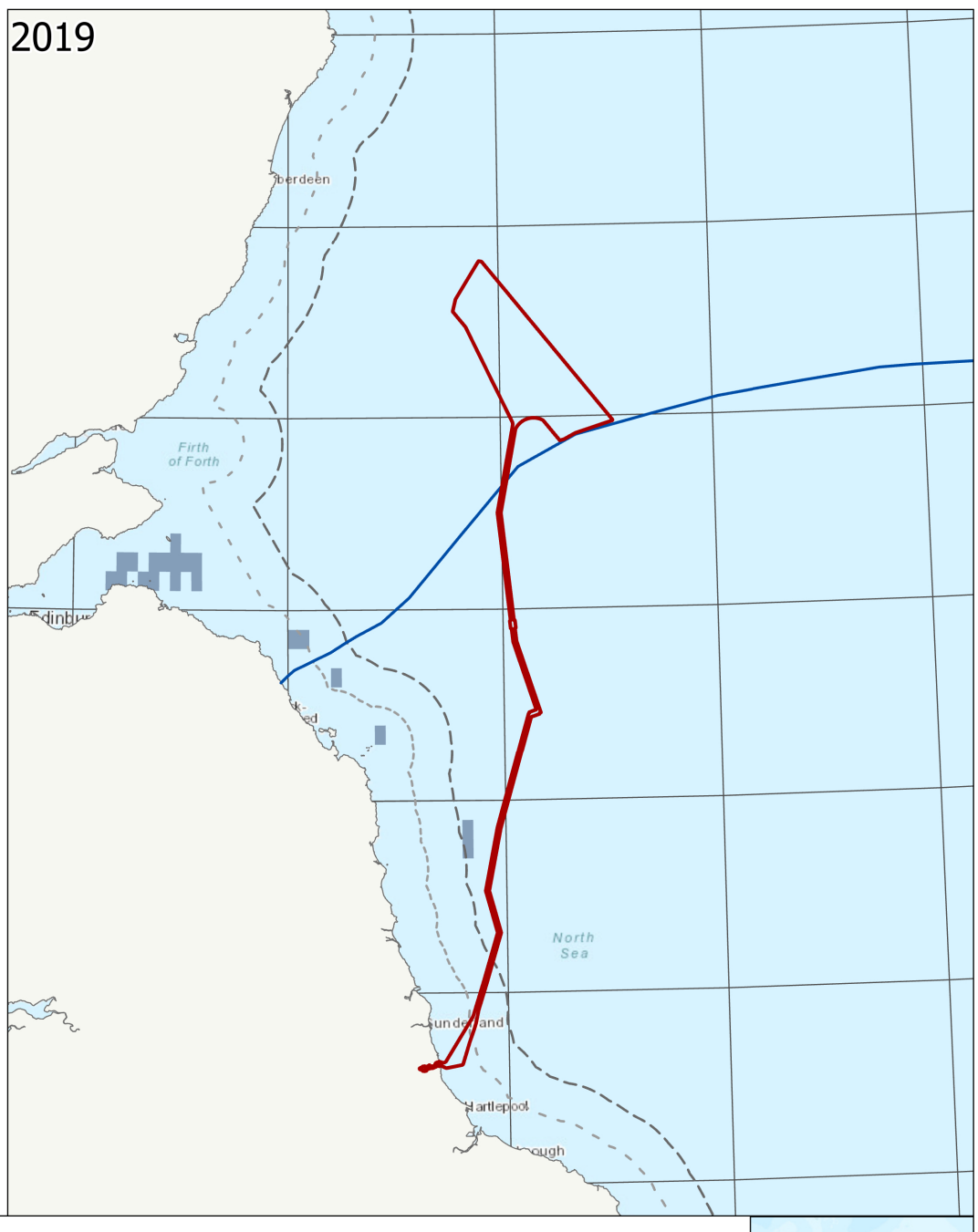
2017



2018



2019



Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0014

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, EMSA, 2025

Drawing Title:
FIGURE 4.31: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING BEAM TRAWLS FROM 2016 TO 2019

Geodetic Information:
World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS, NGA

0 5 10 20 30 40 nm

Scale@A3:1:2,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

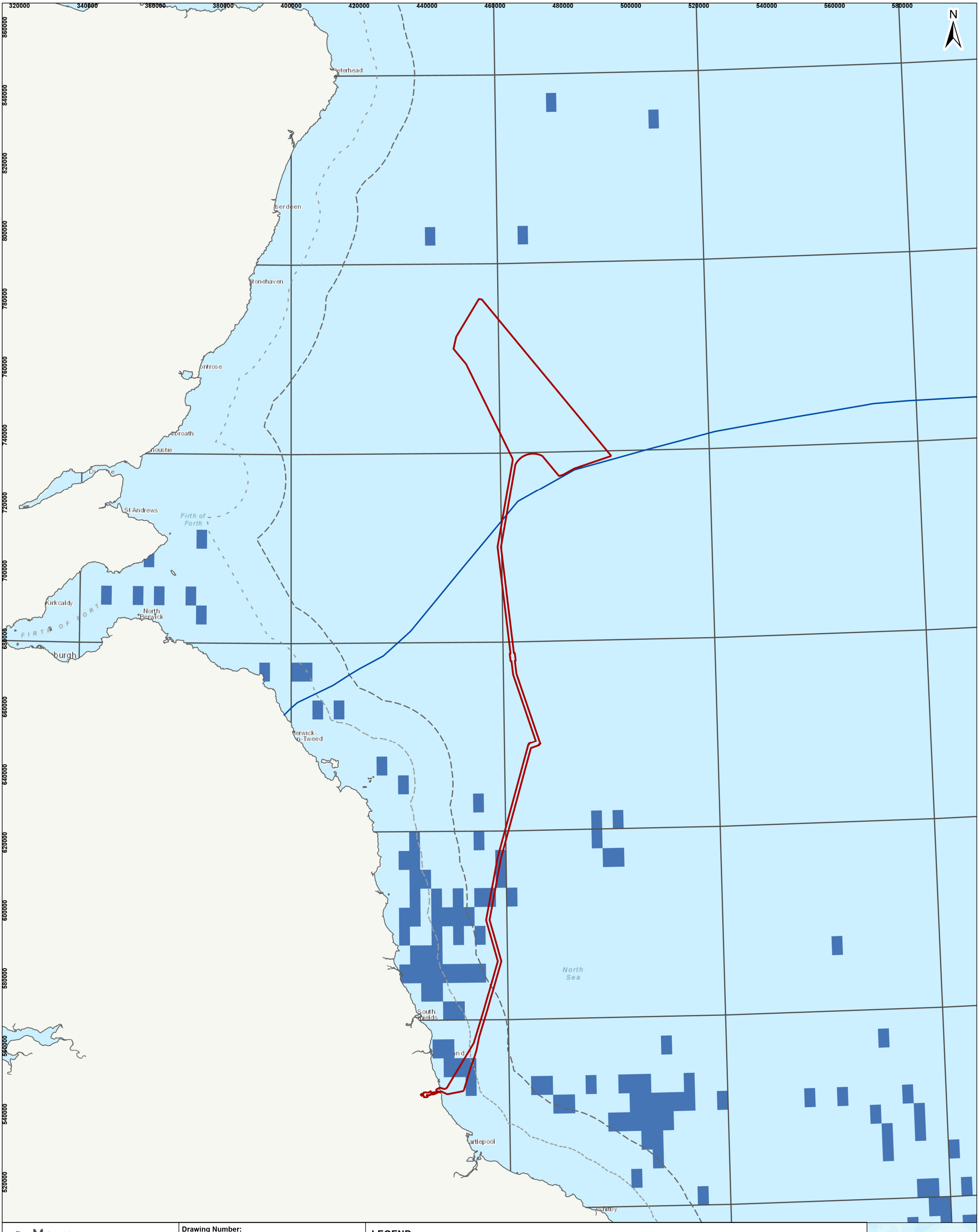
Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Beam Trawl (UK vessels ≥15m)
Total value, £

- £0.02 - £1,000.00
- £1,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £86,138.54


320000
340000
360000
380000
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580000
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840000
820000
800000
780000
760000
740000
720000
700000
680000
660000
640000
620000
600000
580000
560000
540000
520000
N
Peterhead
berdeen
Stonehaven
ontrose
nbroath
noustie
St Andrews
Firth of Forth
Kirkcaldy
North Berwick
FIRTH OF FORT
burgh
erwick-n-Tweed
North Sea
South Shields
rtlepool
hitby
Morven Offshore Wind Farm
nima CONSULTANTS
Drawing Number:
MHPGC-NIM-CF-0015
Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT
Data Sources:
Ordnance Survey, ICES, MMO, 2022, ICES, 2022
Drawing Title:
FIGURE 4.32: SURFACE SWEPT AREA RATIO 2016 TO 2020 FOR EU (INCLUDING UK) VESSELS ≥ 12M LENGTH USING BEAM
Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm
Scale@A3:1:1,000,000
VER | DATE | DETAILS | BY | CHECK
00 | 20/11/25 | Initial Issue | FN | SM
01 | 14/07/26 | Final Issue | FN | SM
Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid
LEGEND
MHPGC Project PEIR Red Line Boundary
ICES Rectangles
6 nm Limit
12 nm Limit
200 nm Limit
Territorial Limits
Beam Trawl (EU and UK vessels ≥12m)
Average Annual Surface Swept Area Ratio (2016-2020)
0.0 - 0.4
0.5 - 1.0
1.1 - 1.7
1.8 - 3.0
3.1 - 5.0
5.1 - 9.0
9.1 - 24.0
North Sea
SCOTLAND
Glasgow
Edinburgh
UNITED KINGDOM
Belfast
Irish Sea
Dublin
IRELAND
Manchester
Leeds
Birmingham
WALES
Cardiff
London
Celtic Sea
ENGLAND

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

Peterhead
berdeen
Stonehaven
ntrose
nbroath
noustie
St Andrews
Firth of Forth
Kirkcaldy
North Berwick
FIRTH OF FORTH
burgh
erwick-n-Tweed
North Sea
South Shields
nderland
artlepool
rnby

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0016

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, MMO, 2022

Drawing Title:
FIGURE 4.33: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING PELAGIC TRAWLS IN 2020

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Pelagic Trawl 2020 (UK vessels ≥15m)

First Sales Value

Total value, £

- £0.02 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £267,000.00

2016

2017

2018

2019

350000 400000 450000 500000 550000

800000 750000 700000 650000 600000 550000

Firth of Forth

North Sea

Hartlepool

N

Morven Offshore Wind Farm	nima CONSULTANTS	**Drawing Number:** MHPGC-NIM-CF-0017
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT		**Data Sources:** Ordnance Survey, ICES, EMSA, 2025
Drawing Title: FIGURE 4.34: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING PELAGIC TRAWLS FROM 2016 TO 2019		**Geodetic Information:** World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS World Topographic Map: Esri, HERE, Garmin, FAO, USGS, NGA
0 5 10 20 30 40 nm Scale@A3:1:2,000,000		
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid		

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Pelagic Trawl (UK vessels ≥15m)

UK pelagic trawl first sales value

Total value, £

- £0.02 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £242,000.00

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

Peterhead
berdeen
aven
ontrose
nbroath
noustie
St Andrews
Firth of Forth
Kirkcaldy
FIRTH OF FORTH
North Berwick
burgh
Berwick-n-Tweed
South Shields
nderland
artlepool
Whitby

Morven Offshore Wind Farm / nima CONSULTANTS	**Drawing Number:** MHPGC-NIM-CF-0018				
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Data Sources:** Ordnance Survey, ICES, MMO, 2022				
Drawing Title: FIGURE 4.35: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING POTS IN 2020	**Geodetic Information:** World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA				
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	**VER**	**DATE**	**DETAILS**	**BY**	**CHECK**
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Potting 2020 (UK vessels ≥15m)

First Sales Value

Total value, £

- £0.01 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £145,000.00

2016

2017

2018

2019

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0019

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, EMSA, 2025, MMO, 2022

Drawing Title:
FIGURE 4.36: UK VESSELS ≥ 15M LENGTH ACTIVELY FISHING USING POTS FROM 2016 TO 2019

Geodetic Information:
World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS, NGA
World Hillshade: Esri, USGS

0 5 10 20 30 40 nm

Scale@A3:1:2,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Potting (UK vessels ≥15m)
First Sales Value
Total value, £

- £0.01 - £5,000.00
- £5,000.01 - £10,000.00
- £10,000.01 - £25,000.00
- £25,000.01 - £50,000.00
- £50,000.01 - £75,000.00
- £75,000.01 - £101,000.00

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0020

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, EMSA, 2025

Drawing Title:
FIGURE 4.37: AUTOMATIC IDENTIFICATION SYSTEM DATA FISHING VESSEL ROUTE DENSITY ROUTES PER KM² PER YEAR,

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Fishing Vessel Route Density (2023)

(Routes per Square km per Year)

- 0 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 100
- 101 - 150
- 151 - 200
- 201 - 250
- 251 - 16,363

2019

2020

2021

2022

350000 400000 450000 500000 550000

800000 750000 700000 650000 600000 550000

N

Drawing Number: MHPGC-NIM-CF-0021					
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Data Sources:** Ordnance Survey, ICES, EMSA, 2025				
Drawing Title: FIGURE 4.38: AUTOMATIC IDENTIFICATION SYSTEM DATA FISHING VESSEL ROUTE DENSITY ROUTES PER KM² PER YEAR,	**Geodetic Information:** World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS World Topographic Map: Esri, HERE, Garmin, FAO, USGS, NGA				
0 5 10 20 30 40 nm Scale@A3:1:2,000,000	VER	DATE	DETAILS	BY	CHECK
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit

Fishing Vessel Route Density (Routes per Square km per year)

- 0 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 100
- 101 - 150
- 151 - 200
- 201 - 250
- 251 - 15,661

Spring

Summer

Autumn

Winter

350000 400000 450000 500000 550000

8000000 7500000 7000000 6500000 6000000 5500000

N

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Fishing Vessel Route Density (season 2022)

(Routes per Square km per year)

- 0 - 10
- 11 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 100
- 101 - 150
- 151 - 200
- 201 - 250
- 251 - 16,363

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0022

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, EMSA, 2025

Drawing Title:
FIGURE 4.39: AUTOMATIC IDENTIFICATION SYSTEM DATA FISHING VESSEL ROUTE DENSITY ROUTES PER KM² PER SEASON,

Geodetic Information:
World Topographic Map: Esri UK, Esri, TomTom, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Hillshade: Esri, CGIAR, N Robinson, NCEAS, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS, NGA
World Hillshade: Esri, USGS

0 5 10 20 30 40 nm

Scale@A3:1:2,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0023

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Drawing Title:
FIGURE 4.40: DEMERSAL TRAWL FISHING EFFORT (HOURS) BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Trawl Fishing Effort
Fishing hours (2012-2021)

- 1.3 - 5.0
- 5.1 - 10.0
- 10.1 - 25.0
- 25.1 - 50.0
- 50.1 - 75.0
- 75.1 - 100.0
- 100.1 - 150.0
- 150.1 - 250.0
- 250.1 - 500.0
- 500.1 - 1,852.0

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

berdee
ntrose
noustie
St Andrews
burgh
erwick-
n-Tweed
Sea

Morven Offshore Wind Farm / nima CONSULTANTS	**Drawing Number:** MHPGC-NIM-CF-0024				
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Data Sources:** Ordnance Survey, ICES, Cefas FISMaDiM, 2025				
Drawing Title: FIGURE 4.41: DEMERSAL OTTER TRAWL FISHING VESSEL NUMBERS BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)	**Geodetic Information:** World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA				
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	VER	DATE	DETAILS	BY	CHECK
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Trawl Number of Vessels

- 4 - 5
- 6 - 10
- 11 - 15
- 16 - 20
- 21 - 30
- 31 - 40
- 41 - 50
- 51 - 75
- 76 - 100
- 101 - 180

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

Peterhead
berdeen
Stonehaven
ontrose
nbroath
noustie
St Andrews
Firth of Forth
Kirkcaldy
FIRTH OF FORTH
North Berwick
burgh
Berwick-n-Tweed
North Sea
South Shields
nderland
artlepool
rnby

Drawing Number:
MHPGC-NIM-CF-0025

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Drawing Title:
FIGURE 4.42: DEMERSAL SEINE FISHING EFFORT (HOURS) BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Seine Fishing Effort

Fishing hours (2012-2021)

- 1.3 - 10.0
- 10.1 - 25.0
- 25.1 - 50.0
- 50.1 - 100.0
- 100.1 - 150.0
- 150.1 - 250.0
- 250.1 - 500.0
- 500.1 - 750.0
- 750.1 - 1,000.0
- 1,000.1 - 1,408

4.2.3 Fishing intensity based on Automatic Identification System data

4.2.3.1 Fishing vessel route density, based on vessel AIS positional data is shown in **Figure 4.43** for 2023 and **Figure 4.44** for 2019 to 2022. AIS is required to be fitted on fishing vessels ≥15m length. The data is specific to fishing vessels and indicates the route density per square kilometre (km^2) per year. This data does not distinguish between transiting vessels and active fishing but does provide a useful source to corroborate fishing grounds.

4.2.3.2 AIS data indicates key vessel transit routes and areas of consistent and intense fishing vessel presence across the southern extent of the MHPGC Project PEIR Red Line Boundary, aligned with the presence of known potting and Nephrops fishing grounds.

4.2.3.3 Season patterns in AIS data are shown in **Figure 4.45** for 2022; during winter months data indicates that fishing activity is at its greatest spatial extent.

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

Peterhead
berdeen
Stonehaven
ontrose
nbroath
noustie
St Andrews
Firth of Forth
Kirkcaldy
FIRTH OF FORTH
North Berwick
burgh
Berwick-n-Tweed
North Sea
South Shields
nderland
artlepool
rnby

Morven Offshore Wind Farm

nima CONSULTANTS

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Drawing Title:
FIGURE 4.43: DEMERSAL SEINE FISHING VESSEL NUMBERS BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

Drawing Number:
MHPGC-NIM-CF-0026

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Demersal Seine
Number of vessels

- 4 - 5
- 6 - 7
- 8 - 9
- 10 - 11
- 12 - 13
- 14 - 15
- 16 - 17
- 18 - 20
- 21 - 25
- 26 - 28

Morven Offshore Wind Farm

nima CONSULTANTS

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Drawing Title:
FIGURE 4.44: DREDGE FISHING EFFORT (HOURS) BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

Drawing Number:
MHPGC-NIM-CF-0027

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

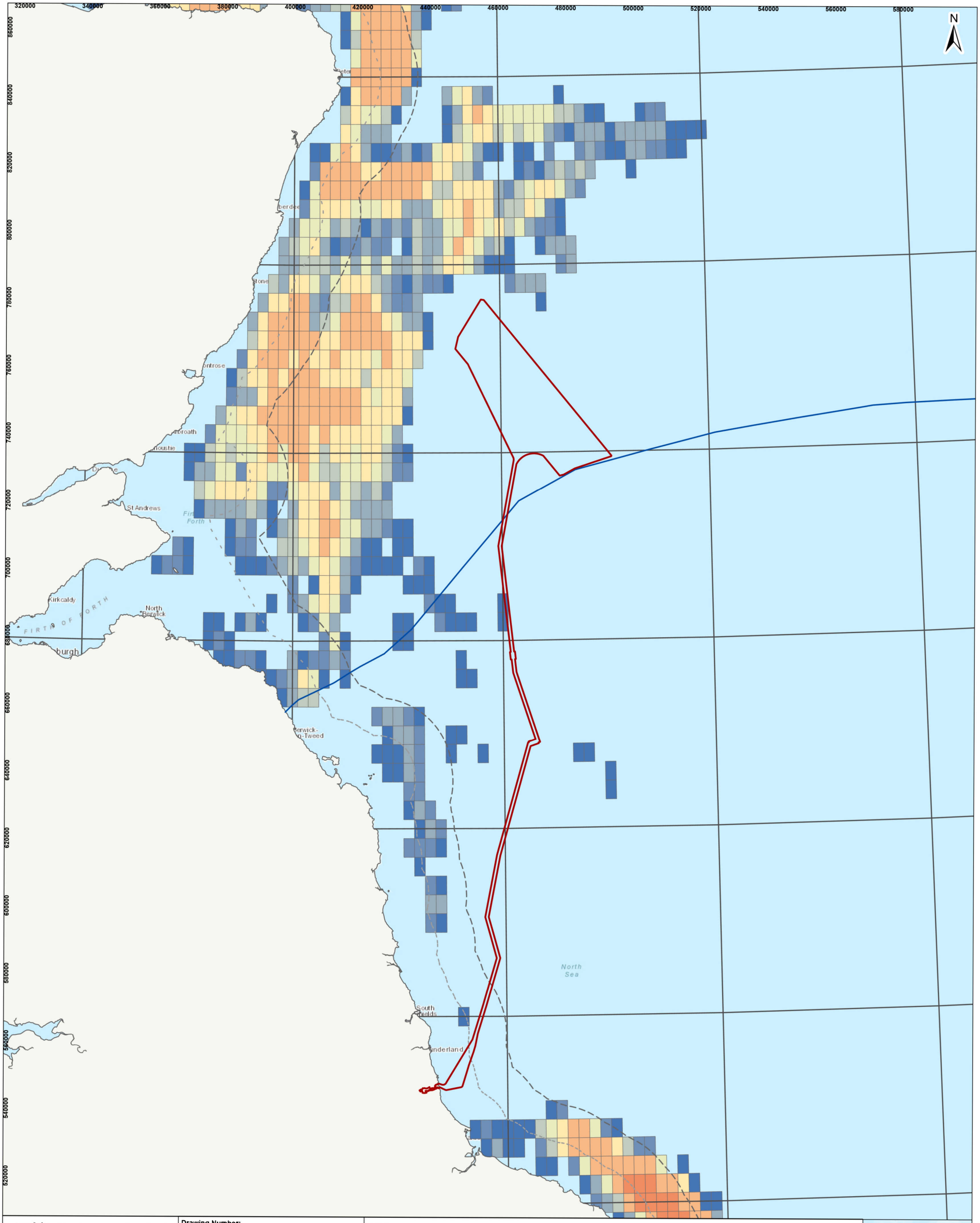
VER	DATE	DETAILS	BY	CHECK
00	20/11/25	Initial Issue	FN	SM
01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Dredge Fishing Effort
Fishing hours (2012-2021)

- 1.3 - 10.0
- 10.1 - 25.0
- 25.1 - 50.0
- 50.1 - 75.0
- 75.1 - 100.0
- 100.1 - 150.0
- 150.1 - 500.0
- 500.1 - 1,000.0
- 1,000.1 - 2,000.0
- 2,000.1 - 3,089.0



Morven Offshore Wind Farm / nima CONSULTANTS	Drawing Number: MHPGC-NIM-CF-0028				
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	Data Sources: Ordnance Survey, ICES, Cefas FiSMaDiM, 2025				
Drawing Title: FIGURE 4.45: NUMBER OF DREDGE VESSELS BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)	Geodetic Information: World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DeBH, OS, Esri, HERE, Garmin, USGS, NGA				
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	VER	DATE	DETAILS	BY	CHECK
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Dredge
Number of vessels

- 4 - 5
- 6 - 7
- 8 - 10
- 11 - 12
- 13 - 15
- 16 - 20
- 21 - 50
- 51 - 75
- 76 - 100
- 101 - 123

4.2.4 Fisheries sensitivity mapping and displacement mapping

4.2.4.1 The FiSMaDiM project is funded by The Crown Estate and led by Cefas, in collaboration with University of St Andrews and Scottish Government. It aimed to fill key evidence gaps, including identification of fishing activities at a high-spatial resolution in potential OWF areas and improvement of methods to estimate fishing intensity of fishing vessels in UK waters (Mendo *et.al.,* 2024).

4.2.4.2 The FiSMaDiM Public Web App was published in 2025 (Cefas, 2025), and the following mapping, based on merged AIS and VMS data obtained from the MMO, has been obtained from the App:

- Demersal trawl fishing effort [see **Figure 4.46** and **Figure 4.47**], indicating some low levels of effort across a distinct northern section of the MHPGC Project PEIR Red Line Boundary, no activity across the north/central portion and very high levels of effort across the southern portion of the MHPGC Project PEIR Red Line Boundary, coinciding with the Farn Deeps Nephrops ground (data indicates other key demersal trawl grounds within the Local and Regional Commercial Fisheries Study Areas);
- Demersal seine effort [see **Figure 4.48** and **Figure 4.49**], indicating no effort within the MHPGC Project PEIR Red Line Boundary and effort located to the north of the boundary;
- Dredge effort [see **Figure 4.50** and **Figure 4.51**, indicating negligible levels of effort across the MHPGC Project PEIR Red Line Boundary, with key dredge grounds located inshore;
- Pelagic trawl effort [see **Figure 4.52** and **Figure 4.53**], indicating negligible levels of effort across the MHPGC Project PEIR Red Line Boundary, with potential for some sporadic/occasional effort across the southern section of the MHPGC Project PEIR Red Line Boundary;
- Potting effort [**Figure 4.54** and **Figure 4.55**], indicating some effort by larger potting vessels across the southern section of the MHPGC Project PEIR Red Line Boundary, noting that the data here does not capture all activity of the potting fleet known to be comprised of predominantly under 15m length vessels.

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

N

Peterhead
Aberdeen
Stonehaven
Montrose
Arbroath
Carnoustie
Dundee
St Andrews
Firth of Forth
Kirkcaldy
FIRTH OF FORTH
North Berwick
Edinburgh
Berwick-upon-Tweed
North Sea
Sunderland
Hartlepool
Grimsby

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Pelagic Trawl Fishing Effort
Fishing hours (2012-2021)

- 1.3 - 4.0
- 4.1 - 6.0
- 6.1 - 8.0
- 8.1 - 10.0
- 10.1 - 25.0
- 25.1 - 50.0
- 50.1 - 75.0
- 75.1 - 100.0
- 100.1 - 150.0
- 150.1 - 328.0

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0029

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Drawing Title:
FIGURE 4.46: PELAGIC TRAWL FISHING EFFORT (HOURS) BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
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01	14/07/26	Final Issue	FN	SM
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Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

North Sea
SCOTLAND
Glasgow
Edinburgh
UNITED KINGDOM
Belfast
Irish Sea
Manchester
Leeds
Dublin
IRELAND
Birmingham
WALES
Cardiff
London
Celtic Sea
ENGLAND

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0030

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Drawing Title:
FIGURE 4.47: NUMBER OF PELAGIC TRAWL VESSELS BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: Esri, HERE, Garmin, FAO, USGS

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
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-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Pelagic Trawl
Number of vessels

- 4 - 5
- 6 - 7
- 8 - 9
- 10 - 11
- 12 - 14
- 15 - 16
- 17 - 19
- 20 - 21
- 22 - 24
- 25 - 27

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

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noustie

St Andrews

Firth of Forth

Kirkcaldy

FIRTH OF FORTH

North Berwick

burgh

North Sea

nderland

artlepool

Morven Offshore Wind Farm / **nima CONSULTANTS**	**Drawing Number:** MHPGC-NIM-CF-0031
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Data Sources:** Ordnance Survey, ICES, Cefas FiSMaDiM, 2025
Drawing Title: FIGURE 4.48: POTTING FISHING EFFORT (HOURS) BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)	**Geodetic Information:** World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	

VER	DATE	DETAILS	BY	CHECK
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01	14/07/26	Final Issue	FN	SM
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-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Potting Fishing Effort
Fishing hours (2012-2021)

- 1.3 - 10.0
- 10.1 - 25.0
- 25.1 - 50.0
- 50.1 - 100.0
- 100.1 - 150.0
- 150.1 - 250.0
- 250.1 - 500.0
- 500.1 - 750.0
- 750.1 - 1500.0
- 1500.1 - 3311.7

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

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Stonehaven

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noustie

St Andrews

Firth of Forth

Kirkcaldy

FIRTH OF FORTH

North Berwick

burgh

North Sea

underland

artlepool

Morven Offshore Wind Farm

nima CONSULTANTS

Drawing Number:
MHPGC-NIM-CF-0032

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Drawing Title:
FIGURE 4.49: NUMBER OF POTTING VESSELS BASED ON FISMADIM DATA (CUMULATIVE 2012-2021)

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
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01	14/07/26	Final Issue	FN	SM
-	-	-	-	-
-	-	-	-	-

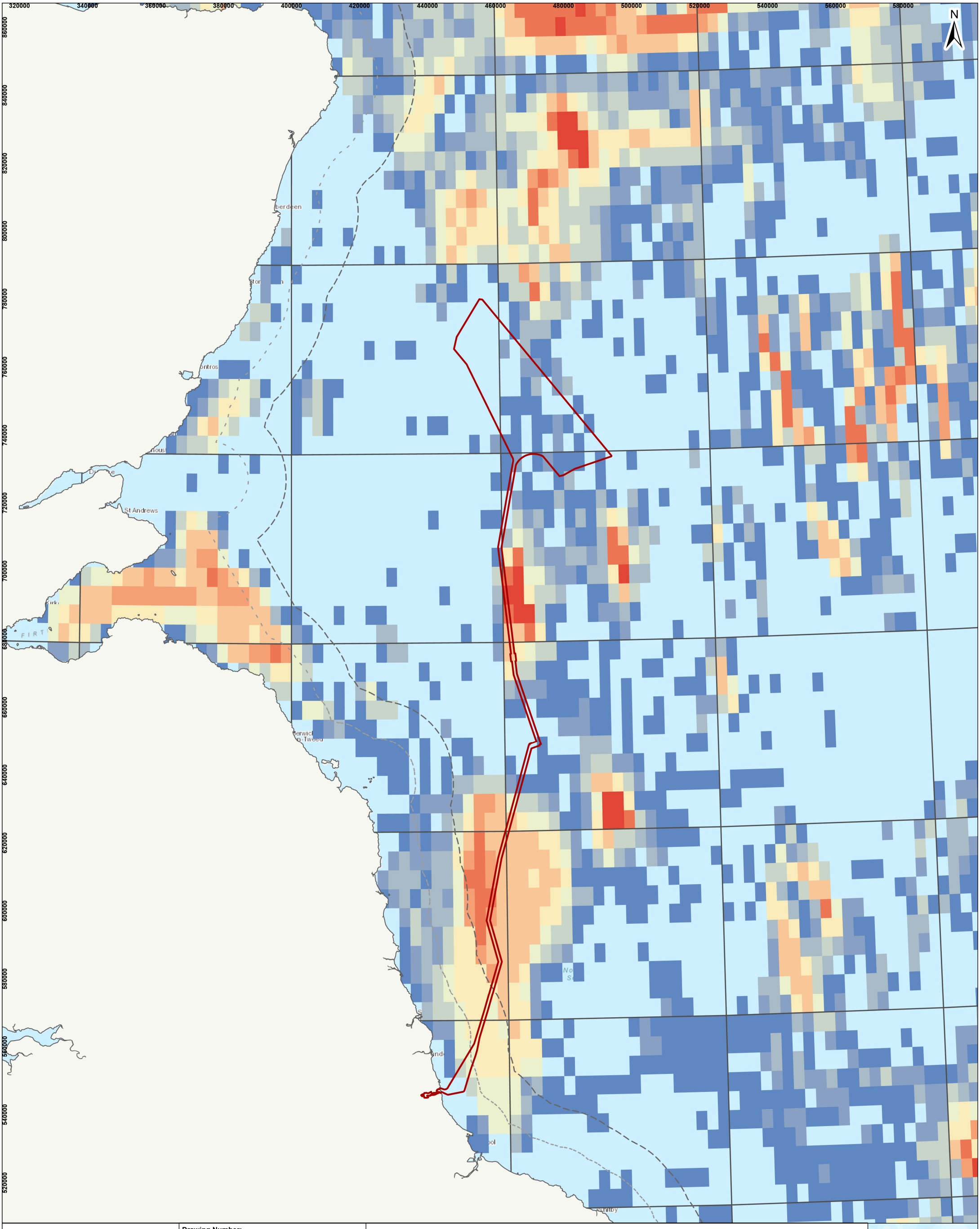
Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Territorial Limits

Potting
Number of vessels

- 4 - 5
- 6 - 7
- 8 - 9
- 10 - 12
- 13 - 14
- 15 - 17
- 18 - 19
- 20 - 22
- 23 - 24
- 25 - 28



Morven Offshore Wind Farm

RAMBØLL

Drawing Number:
MHPGC-NIM-CF-0033

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Drawing Title:
FIGURE 4.50: ANNUAL AVERAGE FISHING HOURS (2021-2024) EU AND UK VESSELS ≥12 M USING DEMERSAL OTTER TRAWL

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

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Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit

Demersal otter trawls
Annual Average MW Fishing hours (2021-2024)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 5.00
- 5.01 - 10.00
- 10.01 - 20.00
- 20.01 - 40.00
- 40.01 - 50.00
- 50.01 - 100.00
- 100.01 - 402.68

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

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Montrose
Arbroath
Carnoustie
St Andrews
Firth of Forth
Kirkcaldy
FIRTH OF FORTH
North Berwick
Berwick-upon-Tweed
North Sea
Sunderland
Hartlepool
Grimsby

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit

Demersal seine

Annual Average MW Fishing hours (2021-2024)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 5.00
- 5.01 - 10.00
- 10.01 - 20.00
- 20.01 - 40.00
- 40.01 - 50.00
- 50.01 - 100.00
- 100.01 - 402.68

Morven Offshore Wind Farm

RAMBOLL

Drawing Number:
MHPGC-NIM-CF-0034

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Drawing Title:
FIGURE 4.51: ANNUAL AVERAGE FISHING HOURS (2021-2024) EU AND UK VESSELS ≥12 M LENGTH USING DEMERSAL SEINE

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
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Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

Morven Offshore Wind Farm

RAMBOLL

Drawing Number:
MHPGC-NIM-CF-0035

Project Name:
MORVEN HAWTHORN PIT GRID CONNECTION PROJECT

Data Sources:
Ordnance Survey, ICES, Cefas FiSMaDiM, 2025

Drawing Title:
FIGURE 4.52: ANNUAL AVERAGE FISHING HOURS (2021-2024) EU AND UK VESSELS ≥12 M LENGTH USING DREDGE

Geodetic Information:
World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS
World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
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-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit
- Dredge

Annual Average MW Fishing hours (2021-2024)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 5.00
- 5.01 - 10.00
- 10.01 - 20.00
- 20.01 - 40.00
- 40.01 - 50.00
- 50.01 - 100.00
- 100.01 - 402.68

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Morven Offshore Wind Farm	RAMBOLL	Drawing Number: MHPGC-NIM-CF-0036
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT		Data Sources: Ordnance Survey, ICES, Cefas FiSMaDiM, 2025
Drawing Title: FIGURE 4.53: ANNUAL AVERAGE FISHING HOURS (2021-2024) EU AND UK VESSELS ≥12 M LENGTH USING BEAM TRAWL		Geodetic Information: World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA

0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm

Scale@A3:1:1,000,000

VER	DATE	DETAILS	BY	CHECK
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-	-	-	-	-

Service Layer Credits:
Datum: OSGB 1936
Projection: British National Grid

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit

Beam trawl
Annual Average MW Fishing hours (2021-2024)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 5.00
- 5.01 - 10.00
- 10.01 - 20.00
- 20.01 - 40.00
- 40.01 - 50.00
- 50.01 - 100.00
- 100.01 - 402.68

320000 340000 360000 380000 400000 420000 440000 460000 480000 500000 520000 540000 560000 580000

860000 840000 820000 800000 780000 760000 740000 720000 700000 680000 660000 640000 620000 600000 580000 560000 540000 520000

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Arbroath
Carnoustie
St Andrews
Firth of Forth
Kirkcaldy
FIRTH OF FORTH
Edinburgh
Berwick-upon-Tweed
North Sea
Hartlepool

Morven Offshore Wind Farm / RAMBOLL	**Drawing Number:** MHPGC-NIM-CF-0037				
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	**Data Sources:** Ordnance Survey, ICES, Cefas FISMaDiM, 2025				
Drawing Title: FIGURE 4.54: ANNUAL AVERAGE FISHING HOURS (2021-2024) EU AND UK VESSELS ≥12 M LENGTH USING PELAGIC TRAWL	**Geodetic Information:** World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA				
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	VER	DATE	DETAILS	BY	CHECK
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

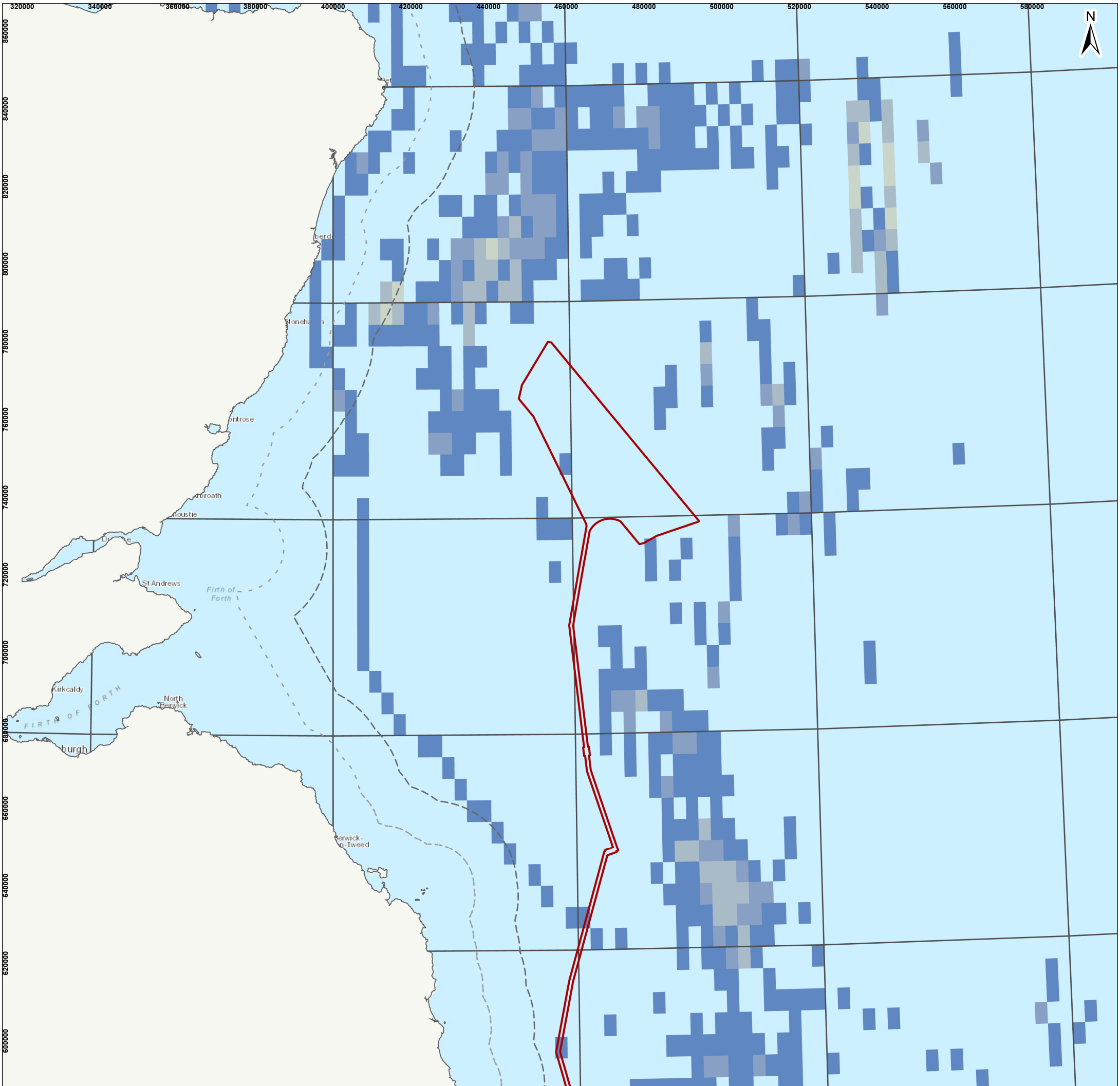
LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit

Pelagic trawl and seine

Annual Average MW Fishing hours (2021-2024)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 5.00
- 5.01 - 10.00
- 10.01 - 20.00
- 20.01 - 40.00
- 40.01 - 50.00
- 50.01 - 100.00
- 100.01 - 402.68



Morven Offshore Wind Farm / RAMBOLL	Drawing Number: MHPGC-NIM-CF-0038				
Project Name: MORVEN HAWTHORN PIT GRID CONNECTION PROJECT	Data Sources: Ordnance Survey, ICES, Cefas FISMaDiM, 2025				
Drawing Title: FIGURE 4.55: ANNUAL AVERAGE FISHING HOURS (2021-2024) EU AND UK VESSELS ≥12 M LENGTH USING STATIC GEAR	Geodetic Information: World Topographic Map: Esri, HERE, Garmin, FAO, NOAA, USGS World Topographic Map: DoBH, OS, Esri, HERE, Garmin, USGS, NGA				
0 1 2 4 6 8 10 12 14 16 18 20 22 24 nm Scale@A3:1:1,000,000	VER	DATE	DETAILS	BY	CHECK
	00	20/11/25	Initial Issue	FN	SM
	01	14/07/26	Final Issue	FN	SM
Service Layer Credits: Datum: OSGB 1936 Projection: British National Grid	-	-	-	-	-
	-	-	-	-	-

LEGEND

- MHPGC Project PEIR Red Line Boundary
- ICES Rectangles
- 6 nm Limit
- 12 nm Limit
- 200 nm Limit

Static Gear

Annual Average MW Fishing hours (2021-2024)

- 0.00 - 0.50
- 0.51 - 1.00
- 1.01 - 2.00
- 2.01 - 5.00
- 5.01 - 10.00
- 10.01 - 20.00
- 20.01 - 40.00
- 40.01 - 50.00
- 50.01 - 100.00
- 100.01 - 402.68

4.2.5 Fishing activity based on fisheries surveillance data

4.2.5.1 **Figure 4.56** displays MMO surveillance patrol data by gear type and vessel nationality. Data has been provided by the MMO for those ICES rectangles within the Local Commercial Fisheries Study Area that fall within English waters, namely: 38E8, 39E8, 39E9, 40E8 and 40E9.

4.2.5.2 The majority of surveillance records (63%) between 2018 and 2023 are associated with ICES rectangle 39E8, though this may be reflective of surveillance effort within this rectangle.

4.2.5.3 The data confirm the presence of fishing vessels deploying a variety of gear types across the Local Commercial Fisheries Study Area, in particular potting vessels (36% of surveillance records) and demersal trawlers (53%). Remaining surveillance records are tagged with a generic 'trawler' gear code.

4.2.5.4 The data indicate the relative dominance of UK vessels in surveillance observations but confirm the presence of fishing vessels from other EU fleets including Denmark, the Netherlands and France. Not all surveillance records have been allocated a vessel nationality code.

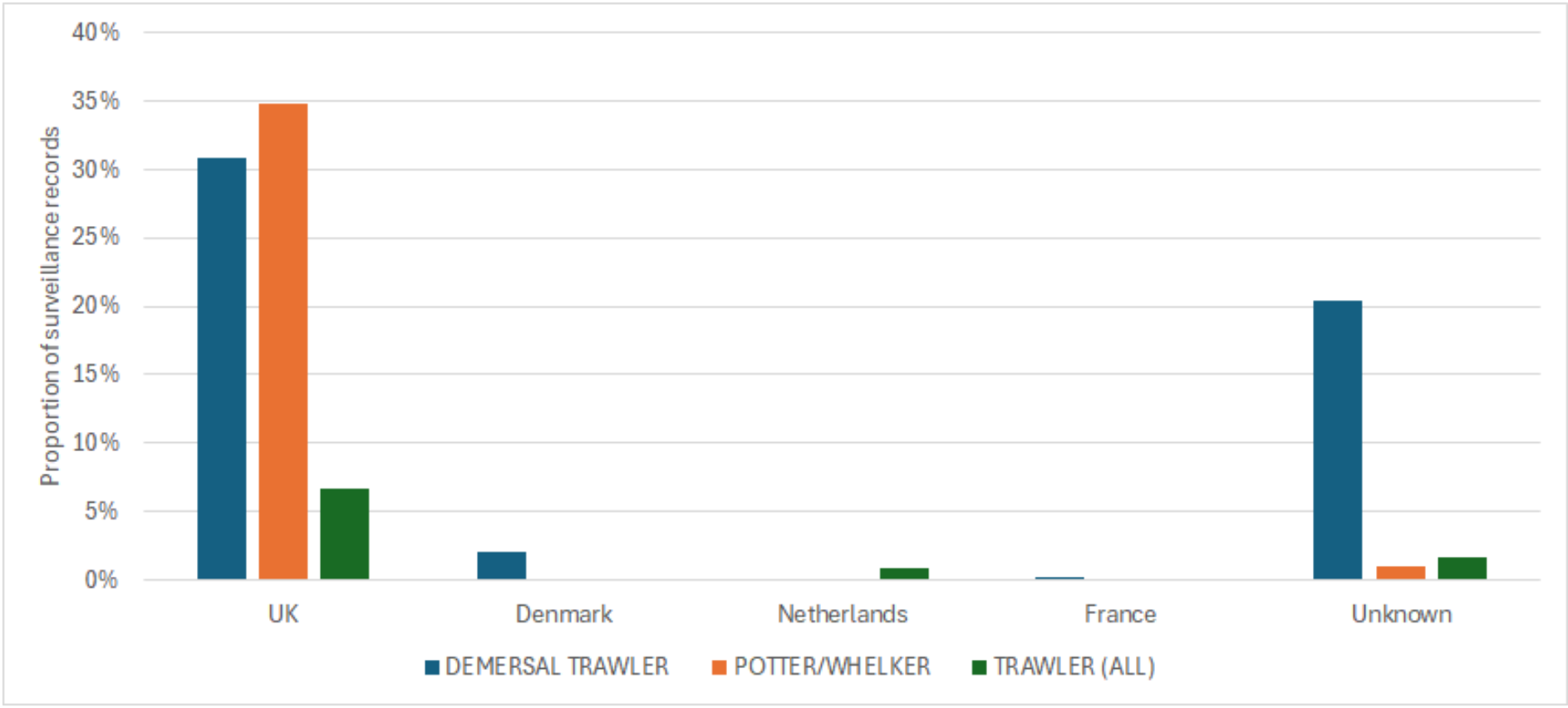


Figure 4.56: Fisheries surveillance records 2018 to 2023 (Source: MMO, 2025b)

4.2.6 Fishing activity based on Inshore Fisheries Conservation Authority catch return data

4.2.6.1 NEIFCA supplied summary data from their catch return system for the period 2023 to 2024. IFCAs manage and regulate inshore waters (out to 6nm) around the coast of England. Catch return data is the official record of fishing activity, submitted by permit holders (i.e. commercial fishers operating under an IFCA permit). It usually includes information on landed species, time and location of catch and gear type.

4.2.6.2 NEIFCA supplied data for catches from ICES sub-rectangles within ICES rectangle 38E8, where the MHPGC Project PEIR boundary makes landfall. The data provides an insight into fishing activity of the local potting fleet active in this location, and is summarised as follows:

- In 2024, 24 fishing vessels were active in the two sub-rectangles (38E8-7 and 38E8-8). Active vessels had registered home ports of: Hartlepool, Seaham, Sunderland, North Shields, Redcar, Southgare, Blyth and Amble. Total landings from these sub-rectangles were 49t of brown crabs and 36.8t of lobsters, and a total of 383,467 pots were hauled by vessels making these landings;
- In 2023, 25 fishing vessels were active, and home ports were: Hartlepool, Seaham, Sunderland, North Shields, Redcar, Southgare. Total landings of 36.6t of brown crabs and 26.5t of lobsters were recorded from these vessels, with a total of 332,340 pots hauled.

4.2.6.3 Data indicates increased landings in 2024, and more pots hauled. Approximate landings values in 2024 based on current market prices equate to £196,000 for brown crab and £920,000 for lobster, indicating the value of local fishing grounds in this location. Landings values are broadly aligned with landings values obtained from MMO landings statistics.

4.2.7 Fishing activity based on Catch App data

4.2.7.1 The MMO supplied anonymised Catch App data following a data request. The notable limitations of Catch App data are described in **Section 3.3**.

4.2.7.2 Catch App data indicates landings made by English and Welsh fishing vessels of 10m or less length. Data was requested and obtained from the MMO covering the period 2022 to 2024. Data has been provided for those ICES rectangles within the Local Commercial Fisheries Study Area that fall within English waters, namely: 38E8, 39E8, 39E9, 40E8 and 40E9. It should be noted that Catch App data represent self-reported landings by English and Welsh vessels under 10m in length and therefore constitute a subset of the wider MMO annual landings statistics. As such, landings recorded through the Catch App should also be captured within the MMO annual landings dataset, which includes landings from vessels of all size classes and reporting mechanisms.

4.2.7.3 Across these five ICES rectangles the annual average live weight of landings by vessels of 10m or less length was 681,000kg (or 681t) [see **Figure 4.57**]. MMO annual landings statistics, filtered for the same ICES rectangles, time period, and vessels of 10m and under length, indicate landings of 1,200 t.

4.2.7.4 Most landings by these smaller vessels are associated with ICES rectangle 39E8 off the northeast and Northumbrian coastline. Landings are attributed primarily to vessels deploying pots, but landings are also associated with demersal otter trawls and handlines [see **Figure 4.58**]. Landings are dominated by shellfish species including brown crabs and lobster, and Nephrops [see **Figure 4.59].** Vessels land into many local ports, with highest landings into North Shields, Amble, Seahouses, Hartlepool and Blyth as shown in **Figure 4.60**.

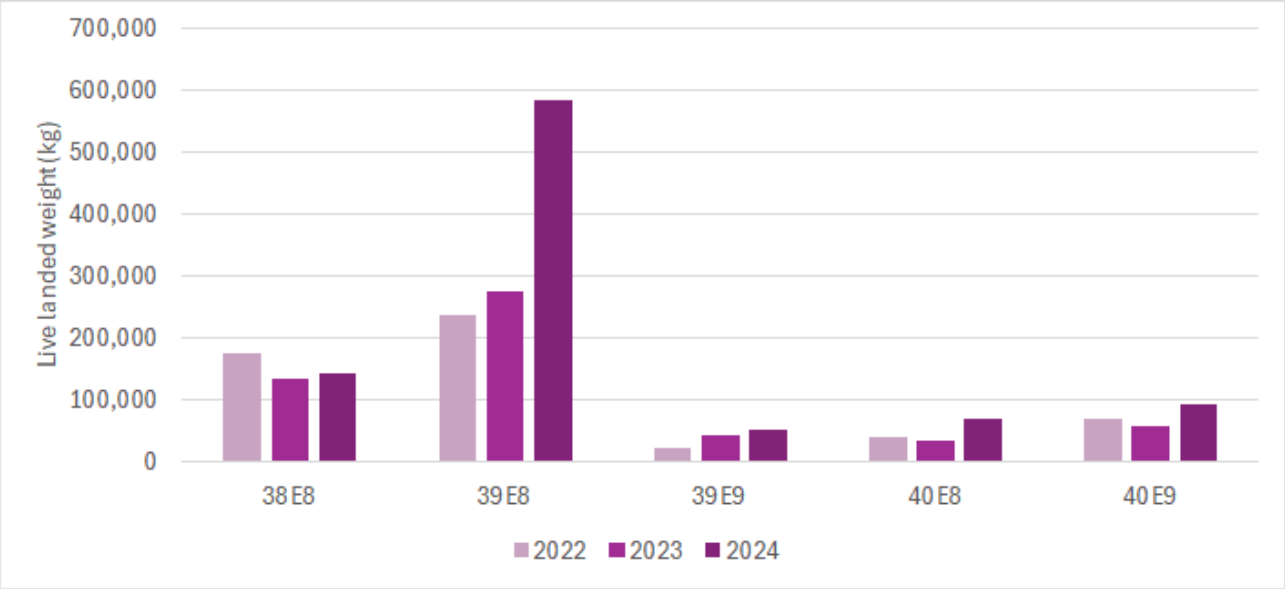


Figure 4.57: Annual weight of landings by UK registered under 10m length fishing vessels from the Local Commercial Fisheries Study Area between 2022 and 2024, by ICES rectangle, based on Catch App records (Source: MMO, 2025a)

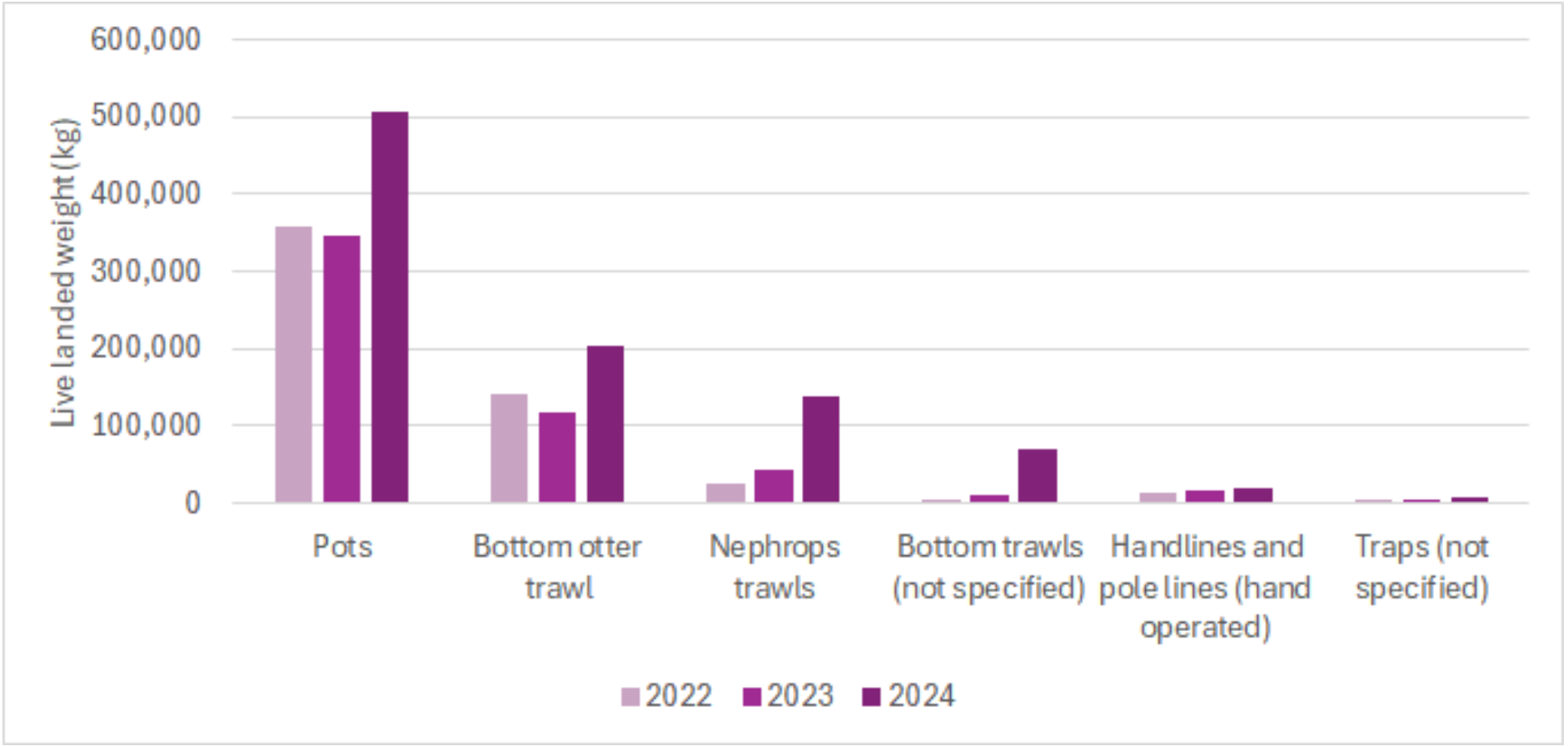


Figure 4.58: Annual weight of landings by UK registered under 10m length fishing vessels from the Local Commercial Fisheries Study Area between 2022 and 2024, by key gear type, based on Catch App records (Source: MMO, 2025a)

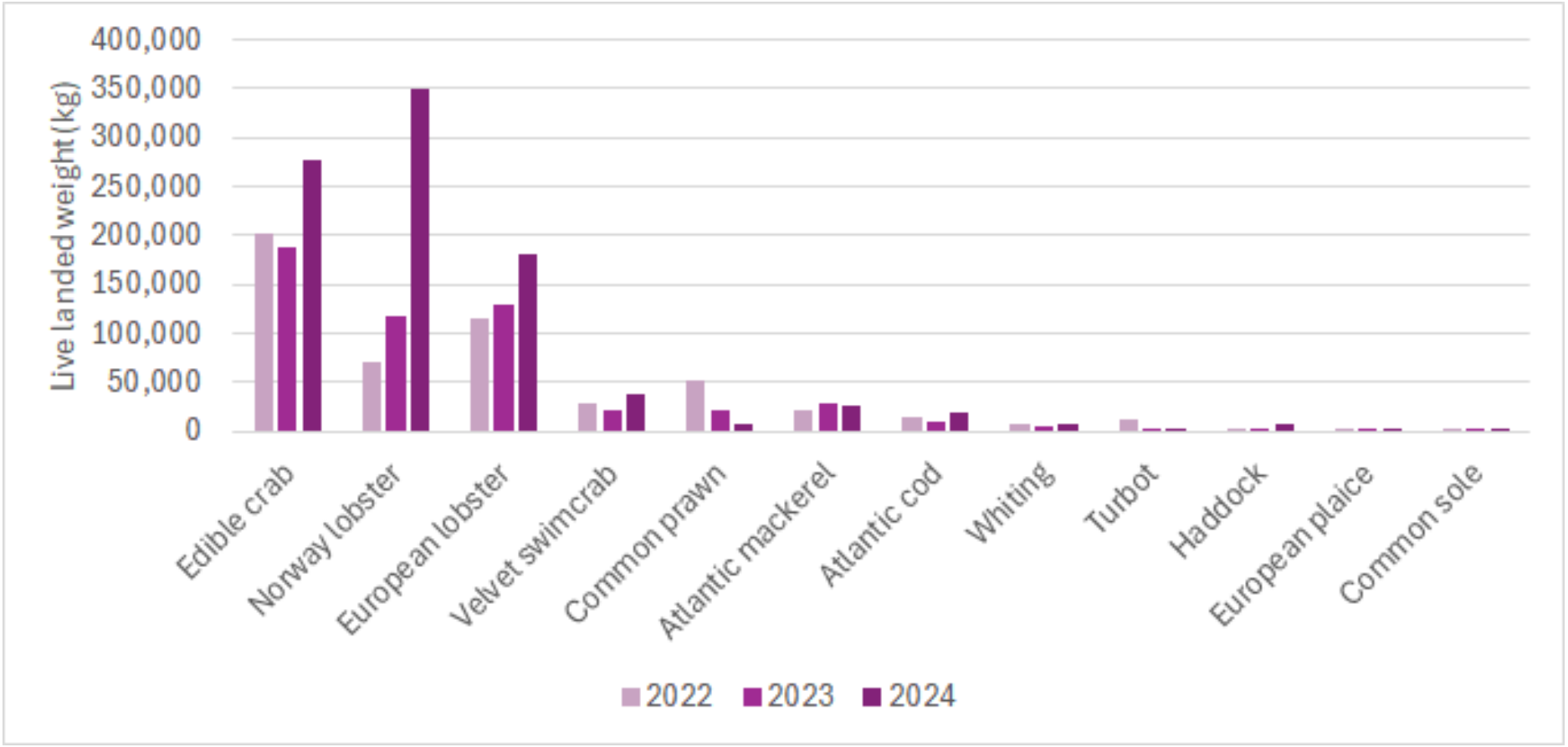


Figure 4.59: Annual weight of landings by UK registered under 10m length fishing vessels from the Local Commercial Fisheries Study Area between 2022 and 2024, by key species, based on Catch App records (Source: MMO, 2025a)

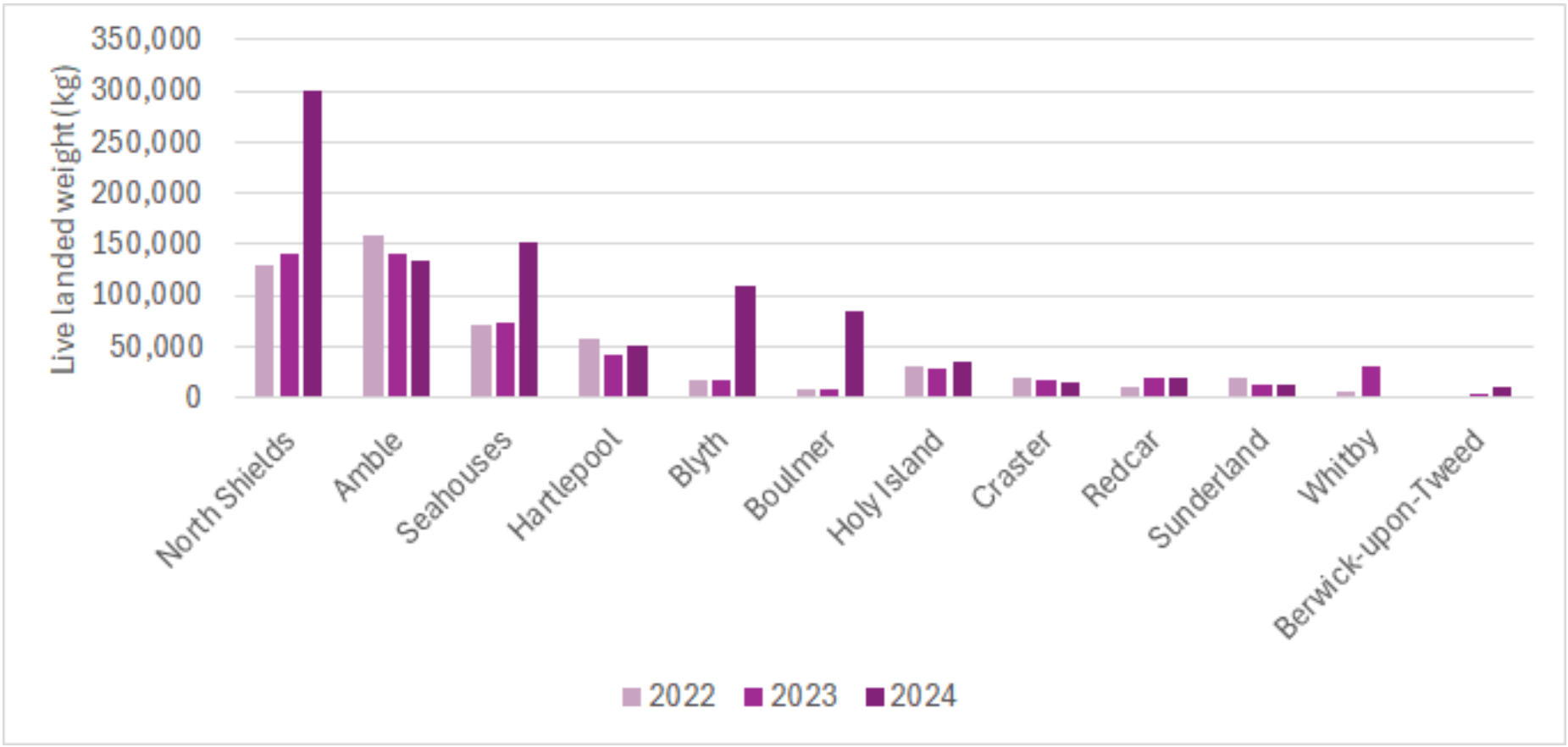


Figure 4.60: Annual weight of landings by UK registered under 10m length fishing vessels from the Local Commercial Fisheries Study Area between 2022 and 2024, by arrival port, based on Catch App records (Source: MMO, 2025a)

4.2.8 Fishing activity based on marine traffic survey data

4.2.8.1 Morven North and Morven South-specific marine traffic surveys were undertaken in June/July 2024 and November/December 2024 [see **Volume 2, Chapter 13: Shipping and Navigation, of the PEIR** for additional detail, and **Figure 4.61**], using AIS and radar tracking and visual observations to record vessel activity across a survey area comprising Morven North and Morven South and a surrounding 10nm buffer. Whilst the survey offers only limited coverage of the MHPGC Project PEIR Red Line Boundary, the data gathered provides some insight into fishing activity in the northernmost extent of the Local Commercial Fisheries Study Area.

4.2.8.2 During summer 2024, an average of two unique fishing vessels per day were recorded within the survey area during the 14-day survey period. The majority of these vessels were seen inshore of Morven North and Morven South (and of the MHPGC Project), with only three intersections recorded across Morven North. The majority of activity was from a single potting vessel. A second vessel also appeared to be engaged in active fishing at the northern extent of the survey area.

4.2.8.3 During winter 2024, an average of between one and two fishing vessels were recorded within the survey area per day of the 14-day survey period, and none recorded within the MHPGC Project PEIR Red Line Boundary. Potential active fishing behaviour was recorded in the north of the survey area, with transiting fishing vessels noted on general north-northwest/south-southeast courses across the area. Recorded fishing vessels were a potter and demersal trawler.

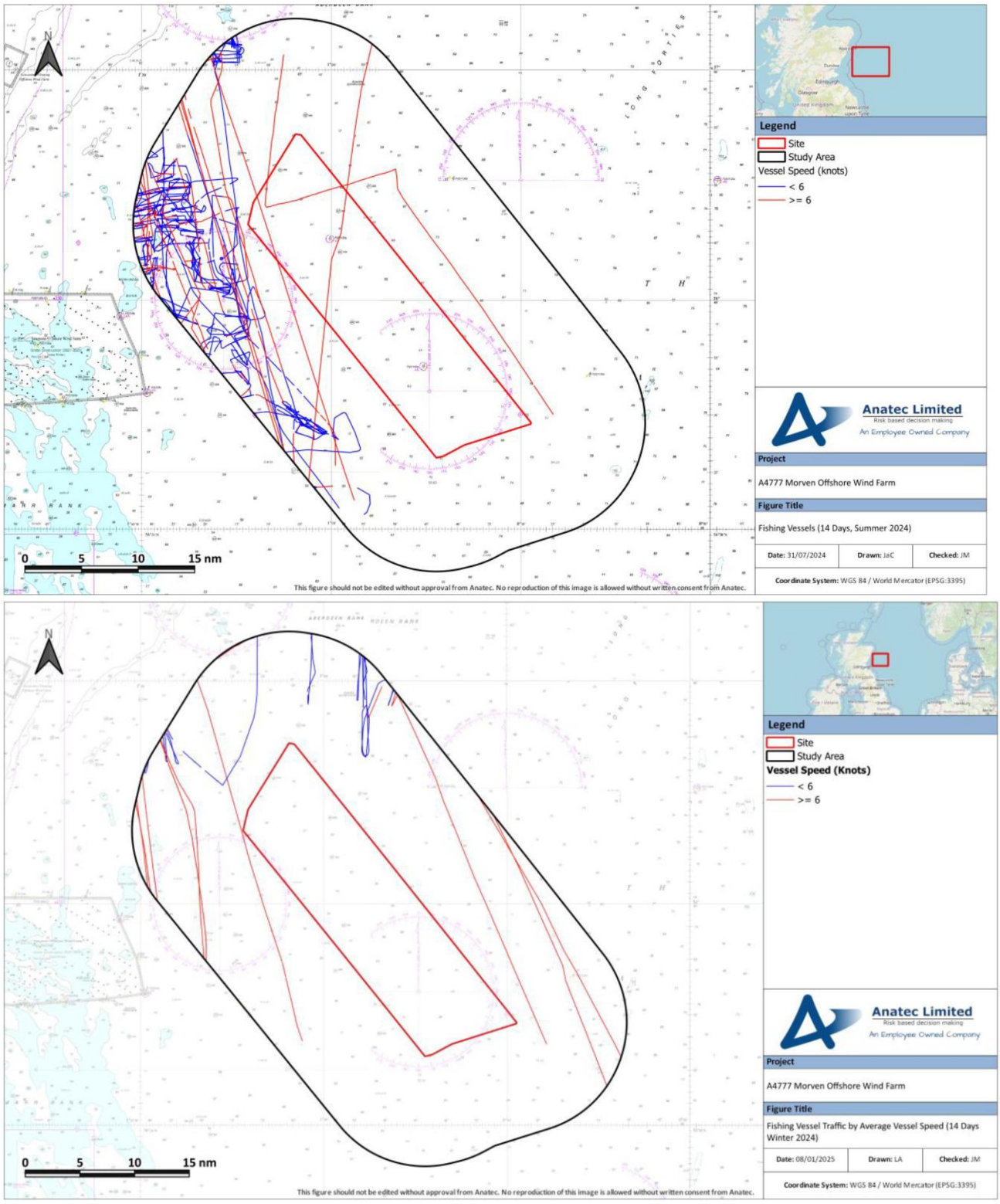


Figure 4.61: Fishing vessel traffic by average vessel speed during summer (top) and winter (bottom) recorded in 2024 Marine Traffic Surveys of Morven North and Morven South (data source: Anatec Ltd, 2024 and 2025)[3]

[3] As a general rule, average speeds of below 6kts indicate potential active fishing behaviour.

4.2.9 Fishing activity based on vessel plotter data

4.2.9.1 A representative sample of fishing vessel plotter data for the MHPGC Project has been provided in confidence to the Applicant by the SFF. SFF instruct that this data is not for publication.

4.2.9.2 The plotter data depicts the activity of SFF member vessels and indicates relatively low levels of activity across the northern portion of the MHPGC Project PEIR Red Line Boundary, and very intense trawl activity over that portion of the MHPGC Project PEIR Red Line Boundary that overlaps the Farn Deeps Nephrops ground; a significant fishing ground in the North Sea for both Scottish and English demersal otter trawl fleets, specifically within the Farne Deeps Nephrops Functional Unit (FU).

4.3 Key fishing fleets and target species

4.3.1.1 There are three descriptive units used for defining fisheries (Marchal, 2008):

- Fishery: a group of vessel voyages which target the same species or use the same gear;
- Fleet: a physical group of vessels sharing similar characteristics (e.g. Nationality);
- Métier: a homogenous subdivision, either of a fishery by vessel type or a fleet by voyage type.

4.3.1.2 A range of fleets target different fisheries across the Local and Regional Commercial Fisheries Study Areas which are described on a fleet basis within this section. Fishing gear descriptions are largely derived from information published by Seafish (2015).

4.3.1.3 Key gears expected to be routinely deployed in the Local and Regional Commercial Fisheries Study Areas are demersal trawls, pots and scallop dredges. Other gear types, less likely to be active with any regularity in the MHPGC Project PEIR Red Line Boundary but present in the wider study areas include pelagic trawls, and demersal seines. Some localised fishing activity associated with pelagic seines, passive gear, handlines, drift and fixed nets, longlines and beam trawls is present within the Local and Regional Commercial Fisheries Study Areas at low levels, and not expected to interact with the MHPGC Project based on location.

4.3.2 Demersal otter trawl

4.3.2.1 A typical UK demersal trawler and associated gear in a pair trawl formation is shown in **Figure 4.62** and **Table 4.1** describes the profile of demersal otter trawling vessels active across the Regional and Local Commercial Fisheries Study Areas. Otter trawls typically catch gadoids (including haddock, cod (*Gadus morhua*), whiting, squid (*Loligo* spp.), plaice (*Pleuronectes platessa*) and Nephrops; however, the species composition of the catch depends on the area and depth fished and the gear design.

4.3.2.2 With the Local Commercial Fisheries Study Area demersal trawlers are primarily targeting Nephrops in the Farn Deeps Neprhops ground. Vessels comprise a mix of small local boats and larger visiting vessels. The local fleet is dominated by under 10m length trawlers working single-rig gear, while fishing effort spikes have historically involved more powerful visiting twin-rig vessels from ports further afield, over 15m in length. These vessels work the relatively compact mud-ground Nephrops Farn Deeps functional unit off northeast England, mainly in autumn/winter, often on short trips targeting Nephrops and taking some mixed whitefish in the catch.

4.3.2.3 Most vessels use low demersal otter trawls designed for Nephrops, towed close to the seabed with the mouth held open by doors and a relatively light ground gear adapted to soft mud. Typical North Sea Nephrops trawl configurations use cod-end mesh sizes around 70 millimetre (mm) to 90mm with selective features such as square-mesh panels, cut-away headlines or grids to reduce whiting, cod and other roundfish bycatch, in line with current UK technical rules for Nephrops gears.

Table 4.1: Profile of typical demersal otter trawl vessels active across the Commercial Fisheries Study Areas

Parameter	Indicative details
Main target species	Lobster, brown crabs and velvet crabs
Nationality	Scottish and English, some Northern Irish

Parameter	Indicative details
Vessel length	Local English vessels from ports in the northeast of England, often under 15m length. Visiting vessels from Scotland and to a lesser extent from Northern Ireland, over 15m length.
Horsepower (hp)	60hp to 350hp
Typical towing speed	0kts to 9kts
Typical gear	Fleets of baited pots placed on the seabed. Pots typically hauled daily but may be left a number of days. Generally, day boats that return to port daily. Some vivier crabbers, with vessels having holds capable of storing up to 50t of live shellfish in pumped seawater.

Figure 4.62: Profile of typical demersal otter trawl gear and vessel (Source: Seafish, 2015; Fishing News, 2016[4])

Key target species

Nephrops

4.3.2.4 Nephrops (also known as Norway lobster, Dublin Bay prawn, langoustine and Nephrops) is a small lobster, pale orange in colour. It grows to a maximum total length of 25 centimetre (cm) (including the tail and clawed legs), although individuals are normally between 18cm to 20cm. Nephrops do not reach sexual maturity until two to three years. Life span in the North Sea is understood to be eight to nine years.

4.3.2.5 They are found in soft sediment, commonly at depths of between 200m and 800m, although considerable populations exist at depths <200m. They live in shallow burrows and are common on grounds with fine cohesive mud which is stable enough to support their unlined burrows.

[4] Unless stated otherwise, example vessel images have been sourced from Fishing News Home - Fishing News for illustrative purposes only.

4.3.2.6 Nephrops stock assessments are conducted by ICES. Stock assessments are produced for 33 areas across the North-East Atlantic, called Functional Units (FUs). However, management is applied to 18 areas, called management units. The MHPGC Project PEIR Red Line Boundary overlaps Nephrops FU6 (Farn Deeps). Management is applied via a Total Allowable Catch (TAC) set for the whole of the North Sea (ICES Division 4).

4.3.2.7 There is a Minimum Conservation Reference Sizes (MCRS) of 85mm total length (25mm carapace length and 46mm tail) for Nephrops in the North Sea. The landing obligation requires target species to be landed and therefore prohibits the discarding of quota species. In UK waters, the landing obligation is implemented via the Fisheries Act 2020 UK Statutory Instrument 2020 No. 1542. For the Nephrops trawl fishery in the North Sea, there is a de minimis exemption from the landing obligation consisting of a 6% discard rate by weight.

4.3.2.8 Stock assessments are typically undertaken annually by ICES within FUs using underwater Television (TV) surveys. Latest assessments relevant to FU6 indicate increasing stock abundance. ICES advises that when the Maximum Sustainable Yield (MSY) approach is applied, catches in 2026 should be no more than 2,176t in FU6 (ICES, 2025a).

Haddock

4.3.2.9 Haddock are a demersal bottom feeding round fish that occur mainly in waters from 40m to 200m deep. Haddock mature at around two to three years of age and feed mainly on small bottom-living organisms including crustaceans, molluscs, echinoderms, worms and fishes.

4.3.2.10 In the North Sea, haddock are caught as part of a mixed whitefish fishery and are also taken as bycatch in the Nephrops trawl fishery. The spawning stock biomass of haddock is currently well above biological limits and fishing pressure is low (ICES, 2025b); indicating that the species is currently harvested sustainably.

Whiting

4.3.2.11 Whiting are widely distributed both inshore and offshore throughout the North Sea. Whiting are commonly found on mud and gravel bottoms, but also on sand and rock. Whiting spawn between January and July with spikes in their breeding activity during the spring. Juveniles inhabit inshore nursery areas for their first year and then they migrate to deeper waters offshore.

4.3.2.12 ICES consider the North Sea stock to be harvested sustainably with fishing mortality well below precautionary and limit reference levels (ICES, 2025c). Whiting stocks are subject to a TAC, which is set for stock across both the North Sea and Norwegian Sea. Whiting is also subject to technical management measures, including an EU minimum conservation reference size of 27cm and a minimum mesh size of 80mm is applied to gears specifically targeting whiting.

Monkfish

4.3.2.13 There are two closely related species of monkfish; white monkfish (*Lophius piscatorius)* and black monkfish (*L. budegassa)*. White monkfish occur throughout the northeast Atlantic and are more abundant than black monkfish in northern areas of the North Sea. It is a very distinctive fish, recognizable by having its head and body depressed, a wide mouth, broad head and a fleshy lure at the end of its first dorsal spine, which is used to attract prey. They can live up to 24 years and reach 200cm in length, reaching maturity at four to five years at a length of 35cm.

4.3.2.14 Both species are most abundant from 200m to 500m, with white monkfish also occurring down to 800m. It is found mostly on sandy or muddy bottoms but is also present on shell, gravel and occasionally rocky areas.

4.3.2.15 A minimum marketing weight is in place (EC 2406/96) of 500g gutted or 200g tail per individual. A single TAC applies to both species of monkfish as they are often not separated in the landings.

4.3.2.16 Monkfish are a highly valuable Demersal Fish Species, caught almost exclusively by demersal otter trawls.

Cod

4.3.2.17 Atlantic cod (*G. morhua*) are widely distributed across the continental shelves and in the coastal waters of the northern North Atlantic. Cod prefer water temperatures from 2°C to 8°C and water

depth from 10m to 200m. Within its geographical range cod is a generalist, both in terms of habitat use and diet.

4.3.2.18 In terms of fisheries management measures, a TAC is in place for Northern Shelf cod, which was reduced for 2025 (from 2024) in line with ICES advice. A MCRS of 35cm is in place. A UK National North Sea Cod Avoidance Plan is in place to support recovery of the North Sea cod stock, which allows for fisheries closures.

4.3.3 Pots

4.3.3.1 **Figure 4.63** shows a typical UK potting vessel and **Table 4.2** describes the profile of potting vessels active across the Commercial Fisheries Regional and Local Study Areas.

4.3.3.2 Creels or pots used for the capture of lobsters and crabs, including brown crab and velvet crab. Pots are typically rigged in fleets or strings and their setup will be specific to targeted grounds and individual fishers. Vessels may operate 800 to 3,500 pots in total, with 20 to 30 pots per string for a typical vessel, and up to 50 per string for larger vessels; pots are spaced approximately 15 fathoms apart. Pots are shot away with the tide; one string can cover up to 0.3nm. Soak time is commonly 24 to 48 hours before pots are hauled. Catch is sorted at sea, with any undersize or poor-quality individuals returned immediately, whilst the remainder is sold to processors, restaurant outlets and local fishmongers once landed. All pots are worked on a rotational basis; after hauling and emptying, pots are baited and re-set. Pots are usually deployed on rocky substrate, though may less frequently be found on other softer substrates.

4.3.3.3 Historically, the potting fishery was an inshore mixed species creel fishery operating near the coastline, primarily due to limitations of the vessels and equipment. The introduction of larger vessels and the capability to store and transport live animals in subsequent years has increased the range in which potters operate, enabling fishing grounds further afield to be utilised. The potting fleet today is comprised of vessels with a range of varying capabilities; a significant number still fish in close proximity to the shore on the historic fishing grounds while many of the fishers have replaced their traditional vessels with larger boats, targeting both inshore and offshore grounds.

Table 4.2: Profile of typical potting vessels active across the Regional and Local Commercial Fisheries Study Areas

Parameter	Indicative details
Main target species	Lobster, brown crabs, velvet crabs
Nationality	Scottish and English
Vessel length	Mostly under 12m, some larger vessels
Horsepower	60hp to 350hp
Typical towing speed	0kts to 9kts
Typical gear	Fleets of baited pots placed on the seabed. Pots typically hauled daily but may be left a number of days. Generally, day boats that return to port daily. Some vivier crabbers, with vessels having holds capable of storing up to 50t of live shellfish in pumped seawater.

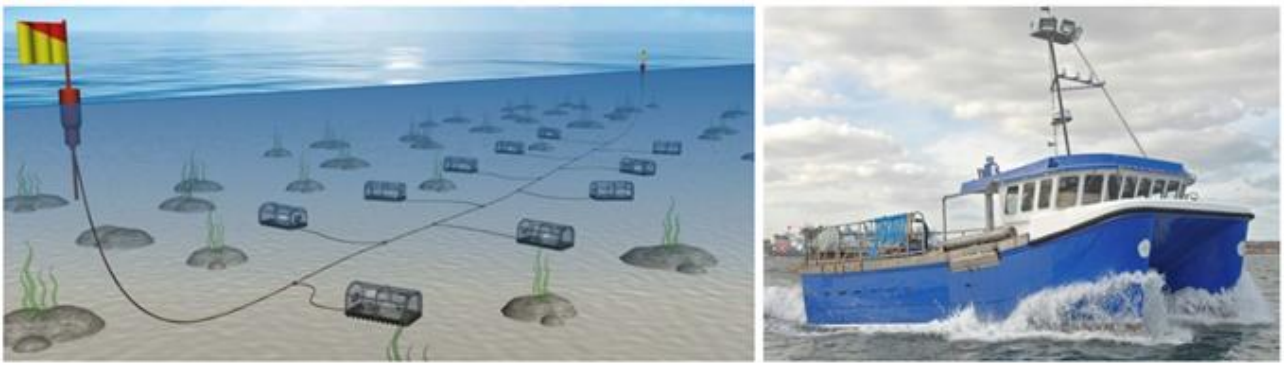


Figure 4.63: Profile of typical potting gear and vessel (Source: Seafish, 2015; Fishing News, 2016)

Key target species

Lobster

4.3.3.4 European lobster is a long-lived, large decapod crustacean. Lobster breed once per year in the summer and newly berried females begin to appear from September to December. Juveniles or adult lobsters do not undertake any significant migrations and juveniles in the first three to four years of life may be particularly sedentary. Unlike crab, which at times move appreciable distances, lobsters tend to be more sessile which reduces the area in which a lobster fishery can occur. From hatching it takes approximately five years for a lobster to recruit to the fishery. Lobsters typically inhabit rocky reef and rough ground, sheltering in crevices between rocks and boulders. The availability of suitable habitat is considered to influence the carrying capacity and size structure of lobster populations (Seitz *et al*., 2014).

4.3.3.5 Lobsters are caught by pots and there are no TACs or quotas in place. Primary management is by the technical measure of a MCRS of 87mm (UK Government, 2018). Due to the inshore location of lobster, they are predominantly targeted by the UK potting fleet along the local coastline.

4.3.3.6 A stock assessment undertaken by Cefas in 2023 (Cefas, 2024a), relevant to stocks within the Northumberland and Durham region, notes exploitation status is considered to be high. The assessment report that landings increased substantially in 2012 but have been fairly stable since with the exception of a large dip in 2015. Effort in terms of days fished for the dominant <10m fleet has been generally declining since 2014 while effort from the >10m fleet has been increasing. There is a seasonal pattern to fishing activity with an inshore focus on lobster through the summer to autumn with a more offshore (four to 30nm) focus on crab during winter to spring and fewer days at sea during this period.

Brown crabs

4.3.3.7 Brown crab (also known as edible crab) is one of the most economically important crab species in UK waters. This decapod crustacean is benthic and is found in a wide range of habitats ranging from soft mud to rocky substrata. Activity tends to be higher at night when foraging occurs although smaller crabs are known to be equally active during both day and night (Scott, 2019). Post larval settlement is generally in inshore areas and juvenile crabs are more commonly associated with the inshore shallower intertidal zones whereas the adults are commonly found at depths of 6m to 40m but have been known to occur at 100m.

4.3.3.8 Peak mating period is July to September usually at night and after the female has moulted. Eggs are attached to the female pleopods and take around seven to eight months to hatch, during which time the female does not feed but remains hidden and is unlikely to be captured in baited pots (Ondes *et al*., 2019). In the North Sea females tend to move offshore to release the planktonic larvae then move back inshore to feed. The period from hatching to recruitment into the fishery takes approximately four years and adults move into deeper water as they grow and mature.

4.3.3.9 Adult crabs are known to undertake extensive migrations, although previous studies have indicated that there were no migratory exchanges between the North Sea and English Channel (Bannister,

2009). Adult females have shown a migratory movement northward along the east coast from Norfolk to Yorkshire and Humberside (Bannister, 2009).

4.3.3.10 As with lobster, brown crab has no TACs or quotas in place. Primary management is by the technical measure of a MCRS of 140mm carapace width (UK Government, 2018).

4.3.3.11 A stock assessment undertaken by Cefas in 2023 (Cefas, 2024b), relevant to stocks within the central North Sea, concluded that the exploitation level of crab is high and that there has been a decrease in stock biomass since the previous assessment in 2019. The assessment notes that reported landings increased substantially from 2012 until 2018 with a sharp drop in 2020. A mass brown crab mortality event occurred in 2021 off the northeast coast of England, with a variety of potential causes cited (Bublitz and Anand, 2023). Potting fishery effort has decreased for the <10m fleet since 2014 while effort for the >10m fleet has been increasing. There has also been some transition to higher capacity vessels capable of handling substantially larger numbers of pots. The inshore fishery has seen an increase in pots hauled and pots set across the NEIFCA range.

4.3.4 Dredge

4.3.4.1 A typical scallop dredging vessel is shown in **Figure 4.64** and **Table 4.3** describes the profile of scallop dredging vessels active across the commercial fisheries regional study area.

4.3.4.2 Dredges are rigid structures that are towed along the seabed to target various species of shellfish. Scallop dredgers fish as the tooth bar of each dredge rakes through the sediment lifting out scallops and the spring-loaded tooth bar swings back, allowing the dredge to clear obstacles on the seabed. The dredges are held in a series on two beams, which are fished on each side of the vessel.

4.3.4.3 UK scallop dredgers operate around the entire coastline of the UK. Scallop dredging takes place year-round. The UK scallop fleet has two main components: a fleet of larger boats (> 20m in length) which range in a nomadic fashion exploiting both inshore and offshore scallop stocks around the UK; and smaller inshore boats (< 15m in length) that are restricted in range to inshore waters. Larger nomadic vessels tend to fish intensely in an area until harvesting scallops becomes unprofitable. They will then move on to new areas but will return a number of years later when the scallop stocks have returned to a level where dredging for them has once again become viable. Due to this fishing pattern a large scallop dredger may operate in four or five, or even more, areas and rotate around them over a period of several years. In this way, most of the suitable grounds around the UK are fished. At the other end of the spectrum are the smaller, inshore vessels, including some who will only fish for scallops on a part time basis, and others who rely on scallops for the majority of their income. These vessels are restricted, primarily by their size, in the areas and weather that they can fish meaning that they are likely to dredge for scallops only in their local area. The catching capacity of these vessels is significantly lower than the large vessels due to the lower number of dredges they can tow.

4.3.4.4 Scallop dredging is an activity which is generally engaged by larger (>10m vessel length) vessels due to the engine capacity required to tow this heavy fishing gear.

4.3.4.5 Not all scallops in the path of the dredge are retained by the dredges and efficiency of the Newhaven dredge (commonly used in the UK commercial scallop fishery) can vary between <10% on soft ground to 51% on hard ground. Dredge efficiency is affected by ground type (e.g. soft sand, gravel or cobble), towing speed, warp length, tide strength and direction and the experience of the skipper.

Table 4.3: Profile of typical scallop dredge vessels active across the Regional and Local Commercial Fisheries Study Areas

Parameter	Indicative details
Main target species	King scallop
Nationality	Primarily Scottish, some English
Vessel length	10m to 25 m
Horsepower	200hp to 400 hp

Parameter	Indicative details
Typical towing speed	2kts to 6kts
Typical gear	Up to 16 dredges per side of vessel. Each dredge consists of a triangular frame leading to an opening, a tooth bar with spring-loaded teeth and a bag of steel rings and netting back.

Figure 4.64: Profile of typical scallop dredge gear and vessel (Source: Seafish, 2015; Fishing News, 2020)

Key target species

King scallop

4.3.4.6 King scallop (hereafter referred to as scallop) are most common in water depths of 20m to 70m, in areas of clean firm sand and fine gravel exposed to water currents, which provide good feeding conditions for this bivalve mollusc. Scallops reach reproductive maturity at a minimum size of 60mm and will be fully mature between three to five years. Their lifespan can be up to 20 years. Recruitment is usually unpredictable as it depends not only on successful spawning and larval production but also on retention of larvae or transport of larvae into areas suitable for settlement. Settlement in a particular area may be unpredictable leading to an unstable age structure. As a consequence of this, scallop beds frequently show a regional separation of year classes and spatial variability in age structure.

4.3.4.7 Scallop are targeted almost exclusively in this area by UK-registered dredgers and there are no TACs or quotas in place with this species, therefore this species is primarily managed by a MCRS of 100mm (UK Government, 2018). National legislation limits the number of licenses for scallop vessels >10m. The English Scallop Order applies in England to British vessels and places spatial restrictions on the number of dredges that can be employed at any one time and specifies technical measures defining the type of dredge that can be used. In 2023, a newly developed Fisheries Management Plan (FMP) for king scallops in English and Welsh waters was published by the UK Government (2023) which lays the foundation for improved data acquisition on the state of king scallop stocks to allow a transition of fisheries management away from a precautionary approach to a robust estimation of maximum sustainable yield.

4.3.4.8 In their most recent scallop stock assessment, Cefas (2024c) observed that the scallop harvestable biomasses have shown slight declines off the Yorkshire and Durham coast, and harvest rates in the area have seen a large decline.

4.3.5 Demersal seine

4.3.5.1 Scottish seine netting, deployed in Scottish waters, is a fishing method involving use of long weighted ropes to herd fish into the mouth of a trawl net to target demersal species - in this case

primarily haddock - which live or feed on or near the seabed. The fishing gear is shot on the seabed in a rounded triangle shape with very long weighted ropes attached to each end of the net [see **Figure 4.65**]. The net is gradually hauled in with the vessel maintaining station using its engine power. As the net moves over the seabed it creates a light sand cloud that herds fish into the net.

4.3.5.2 The gear is only suitable for fishing on smooth sandy or muddy usually quite mobile seabed. It cannot be operated on hard rocky seabed as the gear would get damaged.

4.3.5.3 The total Scottish demersal seine fleet comprises of six to 10 vessels, with a subset of this expected to be active in the Regional and Local Commercial Fisheries Study Areas.

Table 4.4: Profile of typical demersal seine vessels active across the Regional and Local Commercial Fisheries Study Areas

Parameter	Indicative details
Main target species	Haddock
Nationality	Scottish
Vessel length	18m to 4m
Horsepower	150hp to 1,500hp
Typical towing speed	N/A
Typical gear	An encircling net is shot using very long – over 200m - ropes to lay out the net. The net is towed closed and hauled from a boat under its own power.

Figure 4.65: Profile of typical Scottish seine gear and vessel (Seafish, 2022; Fishing News)

Key target species

Haddock

4.3.5.4 Haddock is described under **Section 4.3.2** above.

4.3.6 Pelagic trawl

4.3.6.1 **Figure 4.66**Figure 4.66 shows a typical pelagic trawl vessel and **Table 4.5** describes the profile of pelagic trawl vessels active across the Commercial Fisheries Focal and Regional Study Areas.

4.3.6.2 Pelagic or mid-water trawls are towed at the appropriate level in the water column to intercept shoaling fish such as herring and mackerel. The location of the shoals is determined by sonar or vertical sounder echoes. Pelagic vessels typically require up to 2nm to position their nets, undertake a tow and then haul nets. The Scottish pelagic trawl fleet is understood to comprise approximately 20 vessels.

Table 4.5: Profile of typical pelagic trawl vessels active across the Regional and Local Commercial Fisheries Study Areas

Parameter	Indicative details
Main target species	Herring, mackerel
Nationality	Scottish, potential for some Danish, Dutch, French, German
Vessel length	30m to 50 m
Horsepower	500hp to 1200 hp
Typical towing speed	2.5kts to 5kts
Typical gear	Pair or single trawls. Net depth changed by altering either warp (rope) length or towing speed.

Figure 4.66: Profile of typical pelagic trawl gear and vessel (Source: Seafish, 2015; Poseidon, undated)

Key target species

Herring

4.3.6.3 The North Sea herring stock, which collapsed in the 1970s and was closed to fishing for several years, subsequently recovered, and although it fell back in the mid-1990s, it has again been rehabilitated. Since 1998 spawning stock biomass has been above maximum sustainable yield and fishing pressure has remained below the maximum sustainable yield benchmark, though there are concerns that future low recruitment could alter this trend and current ICES advice recommends notably reduced herring quota in the North Sea for 2026 (reduced by 30% from 2025) (ICES, 2025d). Applicable to directed herring fisheries in the North Sea there is a Minimum Conservation Reference Size of 20cm (3cm above the size of maturity). Catches below this size must be landed but can't be sold for human consumption and so are less valuable.

4.3.6.4 Herring schools move between spawning and wintering grounds in coastal areas and feeding grounds in open water. Herring populations are known to use traditional spawning grounds, many of which are along shallow coastal areas (15m to 40m depth), or on offshore banks down to 200m. Spawning usually occurs on gravel or rock bottoms.

4.3.6.5 Herring form distinct breeding stocks, known as races, categorised by their separate spawning grounds and some distinguishing features. The race most proximate to the Study Area is the Banks or dogger group, spawning in the central North Sea and off the eastern English coast from August to October. Herring schools move between spawning and wintering grounds in coastal areas and feeding grounds in open water. Herring are caught using pelagic trawls, typically in September.

Mackerel

4.3.6.6 Mackerel are a pelagic species that live near the surface of the sea in large shoals. North Sea mackerel overwinter in the deep water, to the east and north of Shetland and on the edge of the Norwegian Deep. In the springtime, they migrate south to spawn in the central part of the North Sea from May until July.

4.3.6.7 In terms of fisheries management measures, a TAC is in place that covers all North-east Atlantic fisheries. A minimum conservation reference size of 30cm is in place.

5 Future baseline

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

- Offshore development: Response to existing and planned offshore developments, including offshore wind farm projects;
- Market demand: Commercial fishing fleets respond to market demand, which is affected by a range of factors, such as changes in consumer preferences and international trade policies, and including the 2020 to 2021 COVID-19 pandemic which disrupted the seafood supply chain with, for example, lockdowns and restaurant closures;
- Market prices: Commercial fishing fleets respond to market prices by focusing effort on higher value target species when prices are high;
- Stock abundance: fluctuation in the biomass of individual species stocks in response to the status of the stock, recruitment, natural disturbances (e.g. due to storms), climate change and changes in fishing pressure etc;
- Fisheries management: including new management for specific species where overexploitation has been identified, or changes in TACs leading to the relocation of effort and/or an overall increase/decrease of effort and catches from specific areas;
- Environmental management: including the potential restriction of certain fisheries within protected areas. Consultation with fisheries stakeholders indicated potential for increased use of lighter fishing gear in the future, such as seine nets, in response to perceived effects of trawling;
- Improved efficiency and gear technology: with fishing fleets constantly evolving to reduce operational costs, e.g. by moving from beam trawl to demersal seine to respond to increasing fuel costs; and
- Sustainability: with seafood buyers more frequently requesting certification of the sustainability of fish and shellfish products, such as the Marine Stewardship Council certification, industry is adapting to improve fisheries management and wider environmental impacts.

5.1.1.2 A recent example of how fisheries management can change the baseline relates to sandeel; the sandeel fishery has significantly reduced in the UK EEZ over the past five years, with very low quotas relevant for this area (i.e. sandeel area 4). It is noted that the UK Government has prohibited UK vessels from catching sandeel from the North Sea from the period 2021 to 2023. As of 2024, catching sandeel from the North Sea has been prohibited for all UK and non-UK vessels in the UK EEZ[5].

5.1.1.3 Another example of changing fisheries patterns relates to the recent prohibition of scallop dredging in the Dogger Bank Special Area of Conservation (SAC). Many of the UK scallop vessels that operate outside 12nm will target areas throughout the UK, including central North Sea, English Channel, Irish Sea and West of Scotland. Restrictions on fisheries due to environmental management can displace the activity and also lead to higher reliance on existing grounds.

5.1.1.4 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 – and beyond where possible - five years of key baseline data. Given the time periods assessed, the future baseline scenario would typically be reflected within the current baseline assessment undertaken. However, in this case, existing baseline data do not capture any potential changes in commercial fisheries activity resulting from the withdrawal of the UK from the EU.

5.1.1.5 Following withdrawal, the UK and the EU have agreed to a Trade and Cooperation Agreement (TCA), applicable on a provisional basis from 01 January 2021. The TCA sets out fisheries rights and

[5] The UK-EU dispute over the North Sea sandeel ban has now concluded with an arbitration ruling that upheld the UK's scientific basis for the ban but found a procedural flaw in England's process, after which the UK redid its assessment, kept the ban in place, and notified the EU of compliance, leaving the closure intact.

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.

5.1.1.6 25%of the EU's fisheries quota in UK waters will be transferred to the UK over the five-year transition period; most of this quota has already been transferred and distributed across the four nations of the UK. After the five-year transition there will be annual discussions on fisheries opportunities. Across the Regional Commercial Fisheries Study Area, where UK fisheries primarily target non-quota shellfish species, it is expected that fleets are unlikely to be impacted by quota transfers. It is possible that UK vessels will seek to exploit additional quota species opportunities, but vessels would need to access quota holdings.

5.1.1.7 In May 2025, the UK and EU reached a new agreement extending reciprocal fishing access until 30 June 2038. This 12-year extension maintains the status quo, allowing EU vessels continued access to UK waters, including the six to 12nm zone, based on historical catch data from 2012 to 2016. The initial 25% quota transfer from the EU to the UK, as stipulated in the TCA, is still set to complete by 30 June 2026. While the new agreement extends access rights, it is expected that annual negotiations on specific quotas and fishing opportunities will continue, similar to the current framework.

5.1.1.8 Market changes have the potential to impact fishing activity in the Regional Commercial Fisheries 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.

5.1.1.9 In relation to the effects of the COVID-19 pandemic, MMO annual reporting notes that the effects of the pandemic on the UK fishing industry were felt from March 2020. The MMO UK Sea Fisheries Statistics 2021 report observes that an increase in overall UK landings quantity and value in 2021 (relative to 2020) largely reflected recovery from the COVID-19 pandemic period and additional quota available to the UK fleet after leaving the EU (MMO, 2022b).

5.1.1.10 Fishing fleets could theoretically be impacted by climate change over the lifetime of the MHPGC Project. Increased sea temperature/change in pH levels have the potential to affect the distribution of commercially targeted fish and shellfish stocks in the Regional and Local Commercial Fisheries Study Areas. Scientific research to date indicates the following for key commercially targeted species (Núñez-Riboni *et.al.*, 2019; OSPAR, 2023; European Environment Agency, 2024; Sailley *et.al.*, 2025; and Garrett and Pinnegar 2022):

- Of relevance to the Nephrops fishery, most shellfish are sedentary but have a high tolerance to changes in temperature. Some warming in this part of the North Sea is unlikely to significantly impact this target species;
- Any evidence around scallops and how changes in temperature will impact upon them is varied and not conclusive; and
- For white fish fisheries, such as those targeting haddock, climate change could have a large impact via warming sea, in turn reducing the area within the North Sea that is suitable for these fish species. This could cause fish to migrate further north, making areas of the northern North Sea more important as a fishery.

5.1.1.11 Changes in the distribution of target species may in turn affect commercial fishing activity in the Regional and Local Commercial Fisheries Study Areas over the long term; for example, altering fishing methods, targeted grounds and seasonal patterns in activity.

5.1.1.12 An increase in storm events may also directly impact fishing activity in the Regional and Local Commercial Fisheries Study Areas, with changes with seasonal fishing patterns in response to changes in weather and periods of safe fishing conditions.

6 Summary

6.1.1.1 This Technical Report reviewed all datasets available to characterise the commercial fisheries activity across the Regional and Local Commercial Fisheries Study Areas. Given the range of datasets assessed and the comprehensive analysis undertaken, it is considered that this Technical Report is adequate for the purposes of a robust EIA.

6.1.1.2 In summary, based on the data gathered to inform this Technical Report, the key fleets operating across the Regional and Local Commercial Fisheries Study Areas are identified in **Table 6.1**.

6.1.1.3 In addition to **Table 6.1**, the commercial fisheries baseline is summarised by jurisdiction immediately below to support a clear understanding of how fishing activity may interact with the MHPGC Project across different regulatory contexts. It is recognised that commercial fishing fleets operate across both English and Scottish jurisdictions, and that fishing grounds in the North Sea are shared by vessels registered in the UK and other nations.

6.2 Summary of commercial fisheries activity in Scottish waters

6.2.1.1 Commercial fishing activity within Scottish waters relevant to the MHPGC Project, located substantially beyond the 12nm limit, is undertaken mainly by large Scottish-registered vessels, with additional activity by visiting vessels from elsewhere in the UK and overseas. Fishing activity across the Regional and Local Commercial Fisheries Study Areas is dominated by mobile gear fisheries, including pelagic trawl, scallop dredge and demersal otter trawl and seine fleets. Spatial mapping indicates that very limited commercial fishing activity within Scottish waters overlaps the MHPGC Project PEIR Red Line Boundary, with the majority of fishing effort occurring outside the MHPGC Project PEIR Red Line Boundary and at a broader regional scale.

6.3 Summary of commercial fisheries activity in English waters

6.3.1.1 Commercial fishing activity within English waters relevant to the MHPGC Project comprises a combination of potting and demersal otter trawl activity. Inshore waters, particularly within 12nm miles of the coast, support potting fisheries targeting lobster and brown crab along the Northumberland and Durham coast. These fisheries are undertaken primarily by smaller English-registered vessels, many under 10m in length, operating from ports including North Shields, Blyth, Amble, Seahouses and Hartlepool, and exhibit strong seasonal patterns with peak activity typically during summer and autumn months.

6.3.1.2 Further offshore, demersal otter trawl activity is a key component of commercial fishing within English waters, particularly over the southern portion of the MHPGC Project PEIR Red Line Boundary where it overlaps the Farn Deeps Nephrops FU. This activity is undertaken by a mix of English-registered vessels and larger visiting vessels, including Scottish-registered trawlers, targeting Nephrops, and is most intensive during autumn and winter months. Spatial mapping confirms a clear overlap between the MHPGC Project PEIR Red Line Boundary within English waters and established, commercially important Nephrops trawling grounds and inshore potting grounds.

Table 6.1: Summary of fishing fleets active in the Commercial Fisheries Study Areas, and Identified as Commercial Fisheries Receptors

Fishing Fleet	MHPGC Project PEIR Red Line Boundary	Local and Regional Commercial Fisheries Study Areas
Dredge fishery	Limited dredge activity.	Dredge activity evident and focused inshore and to the northwest of the MHPGC Project. Primarily Scottish, and some English-registered vessels, mostly over 15m length, targeting king scallop.
Demersal Otter Trawl Fishery	Very high levels of activity overlapping southern portion of MHPGC Project PEIR Red Line Boundary, associated with Farn Deeps Nephrops fishing ground. Negligible activity across remainder of MHPGC Project PEIR Red Line Boundary.	High levels of demersal trawl activity in distinct Nephrops grounds. Primarily English and Scottish, and some Northern Irish-registered vessels targeting Nephrops and to a lesser extent haddock and other whitefish species. • English fleet comprising under and over 15m length vessels; • Scottish fleet comprising over 15m length vessels; • Northern Irish fleet comprising over 15m length vessels.
Potting Fishery	High levels of activity overlapping the southern portion of the MHPGC Project PEIR Red Line Boundary, primarily inside of the 12nm limit. Negligible activity across remainder of the MHPGC Project PEIR Red Line Boundary.	Potting activity evident throughout inshore waters, with notable grounds to the southeast of the MHPGC Project. English and some Scottish registered vessels, mostly under 15m length, targeting lobster, brown crab and velvet crab.
Demersal Seine Fishery	No demersal seine activity occurring with any regularity.	Low levels of demersal seine activity, focused to the north of the MHPGC Project. Primarily Scottish registered vessels, over 15m length, targeting haddock.
Pelagic Trawl Fishery	Limited, sporadic pelagic trawl activity across the southern portion of the MHPGC Project PEIR Red Line Boundary.	Low levels of pelagic trawl activity, focused in discrete areas to the north and east of the MHPGC Project. Primarily Scottish vessels, over 40m length, targeting herring. Occasional presence of non-UK pelagic trawlers from France, Denmark, the Netherlands, Germany.

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