Bowdun Offshore Wind Farm, Offshore EIA Report

Volume 3, Technical Appendix 13.1: Commercial Fisheries Technical Report

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Contents

List of Tables

List of Figures

Glossary

Defined term	Definition
Applicant (the)	Bowdun Offshore Wind Farm Limited (BOWFL).
Array Area	The Array Area is the area in which the Offshore Generation Assets will be located.
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.
Beam Trawl	A method of bottom trawling with a net that is held open by a beam, which is generally a heavy steel tube supported by steel trawl heads at each end. Tickler chains or chain mats, attached between the beam and the ground rope of the net, are used to disturb fish and crustaceans that rise up and fall back into the attached net.
Bowdun Offshore Wind Farm Limited (BOWFL)	A Special Purpose Vehicle (SPV) (legal entity) for the purpose of developing the Project. BOWFL are the Applicant for the Offshore Application.
Bycatch	Catch which is retained and sold but is not the target species for the fishery.
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.
Demersal Fish	Fish which live and feed on or near the seabed.
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)	Process for the assessment of likely significant environmental effects of a project on the physical, biological and human environment during construction, Operation and Maintenance (O&M) and decommissioning.
EU-exit	The withdrawal of the United Kingdom (UK) from the European Union (EU).
Exclusive Economic Zone (EEZ)	An area from the outer limit of the territorial sea up to 200 nm from the coastal baseline, over which a sovereign state has rights regarding marine resources.
Export Cable Corridor	The area seaward of MHWS which connects the Array Area with the Landfall within which the Offshore Export Cables will be installed.

Defined term	Definition
Functional Unit (FU) (Nephrops)	For the purposes of management and stock assessment, Nephrops are split into a number of stocks or ICES 'functional units' (FUs) based on the discrete patches of mud which they inhabit.
Gear Type	The method/equipment used for fishing.
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 30 x 30 nm). A number of rectangles are amalgamated to create ICES statistical areas.
Landfall	The area in which the Offshore Export Cables make landfall and is also the transitional area between the Offshore Transmission Assets and the Onshore Transmission Assets. Located in the Intertidal Area at Benholm.
Marine Directorate (MD)	The Marine Directorate of the Scottish Government, formerly known as Marine Scotland. The planning and licensing authority for Scotland's seas and custodian of Scotland's National Marine Plan (NMP). The Marine Directorate - Licensing Operations Team (MD-LOT) are specifically responsible for managing Section 36 Consent and Marine Licence Applications seaward of MHWS.
Maximum Sustainable Yield	Maximum Sustainable Yield (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.
Métier	A homogenous subdivision, either of a fishery by vessel type or a fleet by voyage type.
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.
Offshore Environmental Impact Assessment (EIA) Report (hereafter, 'Offshore EIA Report')	Document prepared to report the findings of the EIA for the Proposed Development and produced in accordance with the EIA Regulations. The Offshore EIA Report is submitted to support the Offshore Application for the Proposed Development, and to comply with EIA Regulations.
Offshore Export Cables	Subsea cables used to transmit electricity generated offshore by the Wind Turbines from the OSPs to shore. The Transition Joint Bay (TJB) is the location where the Offshore Export Cables terminate, and the onshore cabling begins.
Offshore Scoping Report	The report that presents the findings of the EIA scoping process undertaken for the Proposed Development with the purpose of obtaining a Scoping Opinion. The Offshore Scoping Report defines what is intended to be assessed and reported as part of the EIA.
Offshore Substation Platform(s) (OSPs)	OSPs comprise the support structure, topside and electrical components used for collecting and/or converting electricity generated by the Wind Turbines for transmission by the Offshore Export Cables.

Defined term	Definition
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.
Pelagic Trawl	A net used to target fish species in the mid-water 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.
Project (the)	An overarching term for the Bowdun Offshore Wind Farm (Bowdun OWF) comprising the offshore and onshore infrastructure required to generate and transmit electricity from the Array Area to the onshore GCP. The Project includes the Offshore Generation Assets, the Offshore Transmission Assets and the Onshore Transmission Assets.
Proposed Development	Term used to define the Offshore Infrastructure associated with the Project seaward of MHWS for which consent is being sought. Further details of the parameters are included in Volume 1, Chapter 3: Project Description.
Quota	A proportion of the Total Allowable Catch for a fish stock.
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.
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.
Sectoral Marine Plan (SMP)	A plan developed by the Scottish Government which provide the strategically planned spatial footprint for offshore wind development in Scotland.
Study Area	For each environmental topic, the baseline environment will be characterised, and the potential environmental impacts 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 potential impacts of the Project may be experienced by the relevant receptors (i.e. Zone of Influence).
Swept Area Ratio	Swept Area Ratio (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.
Thistle Wind Partners (TWP)	Company established for the development of the Project.
Total Allowable Catch (TAC)	TACs are catch limits, expressed in tonnes or numbers, that are set for some commercial fish stocks.

Defined term	Definition
Vessel Monitoring System (VMS)	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.
Wind Turbines	Structures comprising of a tubular tower, rotor blades, and a nacelle which houses the Wind Turbine generator.

Acronyms

Acronym	Definition
AIS	Automatic Identification System
CEFAS	Centre for Environment, Fisheries, and Aquaculture Science
DCF	Data Collection Framework
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EMSA	European Maritime Safety Agency
EU	European Union
FiSMaDiM	Fisheries Sensitivity Mapping & Displacement
FLO	Fisheries Liaison Officer
FU	Functional Unit
ICES	International Council for the Exploration of the Seas
MCRS	Minimum Conservation Reference Size
MMO	Marine Management Organisation
MPA	Marine Protected Area
MSY	Maximum Sustainable Yield
N&EC RIFG	North and East Coast Regional Inshore Fishery Group
NiMa	NiMa Consultants Limited
NMPi	National Marine Plan interactive
OSP	Offshore Substation Platform
OWF	Offshore Wind Farm
RBS	Register of Buyers and Sellers
SFF	Scottish Fishermen's Federation
SPFA	Scottish Pelagic Fisherman's Association
TAC	Total Allowable Catch
TCA	Trade and Cooperation Agreement
UK	United Kingdom
VMS	Vessel Monitoring System

Table of Units

Units	Definition
cm	Centimetre
g	Gram
hp	Horsepower
kg	Kilograms
km	Kilometre
km²	Square kilometre
kts	Knots
m	Metre
mm	Millimetre
nm	Nautical Mile
t	Tonne
£	Great British Pound
%	Percent
°C	Degrees Celsius

1 Introduction

1.1.1 This Commercial Fisheries Technical Report presents a detailed baseline characterisation of commercial fishing activity relevant to the offshore elements of the Bowdun Offshore Wind Farm (OWF) Project (hereafter referred to as the Proposed Development). The Proposed Development covers the Option Lease Area (OLA) comprises of the Array Area, which is located in the E3 Plan Option Area (POA) detailed in the Scottish Sectoral Marine Plan (SMP) (Scottish Government, 2020), and the Export Cable Corridor. The Array Area is located 38 km from the Aberdeenshire coast at its closest point, covering an area of 187 km^2. The Proposed Development will comprise of Wind Turbines (fixed foundations), Inter-Array Cables (IACs), Offshore Substation Platforms (OSPs), Interconnector Cables, Offshore Export Cables and any necessary scour/cable protection. The Export Cable Corridor will include a maximum of three High Voltage Alternating Current (HVAC) Offshore Export Cables, each with a length of up to 70 km and will make Landfall at Benholm, Aberdeenshire.

1.1.2 This technical report has been prepared by NiMa Consultants Limited (NiMa) to support the Environmental Impact Assessment (EIA) for the Proposed Development, providing a commercial fisheries baseline against which the potential impacts of the Proposed Development can be assessed. This technical report accompanies Volume 2, Chapter 13: Commercial Fisheries.

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 charter angling activity, defined as fishing for marine species where the purpose is recreation and not sale or trade, is provided in Volume 2, Chapter 18: Socio-Economic, Tourism and Recreation. The ecology of the fish and shellfish species targeted by commercial fishing activity is described in Volume 2, Chapter 9: Fish and Shellfish Ecology. Maritime shipping activity, inclusive of commercial fishing vessel activity where relevant, is described in Volume 2, Chapter 14: Shipping and Navigation.

2 Commercial Fisheries Study Area

2.1.1 The Proposed Development is located within the International Council for the Exploration of the Seas (ICES) Division 4b (Central North Sea) statistical area; within United Kingdom (UK) Exclusive Economic Zone (EEZ) waters. For recording commercial fisheries landings, ICES Division 4b is divided into statistical rectangles, of which the Proposed Development overlaps with 42E7, 42E8 and 43E8.

2.1.2 Two study areas (shown in Figure 2.1) are defined for commercial fisheries:

- the Local Commercial Fisheries Study Area covering ICES rectangles 42E7, 42E8 and 43E8; and
- the Regional Commercial Fisheries Study Area covering ICES rectangles 41E7 to 41E9, 42E7 to 42E9, 43E7 to 43E9 and 44E8 to 44E9.

2.1.3 The Local Commercial Fisheries Study Area focuses on the overlap of the Proposed Development with ICES rectangles 42E7, 42E8 and 43E8. Noting that the Array Area overlaps ICES rectangles 42E8 and 43E8, and the Export Cable Corridor overlaps with ICES rectangles 42E7 and 42E8.

2.1.4 A wider regional 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 Offshore EIA Report. The Regional Commercial Fisheries Study Area includes those ICES rectangles that overlap the Proposed Development, together with those immediately adjacent to the Local Commercial Fisheries Study Area (rectangles 41E7 to 41E9, 42E7 to 42E9, 43E7 to 43E9 and 44E8 to 44E9), as indicated in Figure 2.1.

2.1.5 To provide context to the description of commercial fishing activity presented in this technical report, Figure 2.2 identifies spatial fishery restrictions relevant to the Commercial Fisheries Study Areas, inclusive of Marine Protected Areas (MPAs) with proposed fisheries management measures. There are no current fishery related restrictions across the Array Area. The nearshore section of the Export Cable Corridor overlaps the Mons Craig to Doolie Ness managed area[1], within which fishing for sea fish with mobile or active gear is prohibited. It is noted that as of 2024, sandeel fishing within the UK EEZ has been prohibited for all UK and non-UK vessels. As indicated in landing statistics presented in Section 6, the sandeel fishery has not historically been heavily targeted across the Commercial Fisheries Study Areas.

[1] SSI 2004 No. 276 (Art 3) https://www.legislation.gov.uk/ssi/2004/276/schedule/1/made

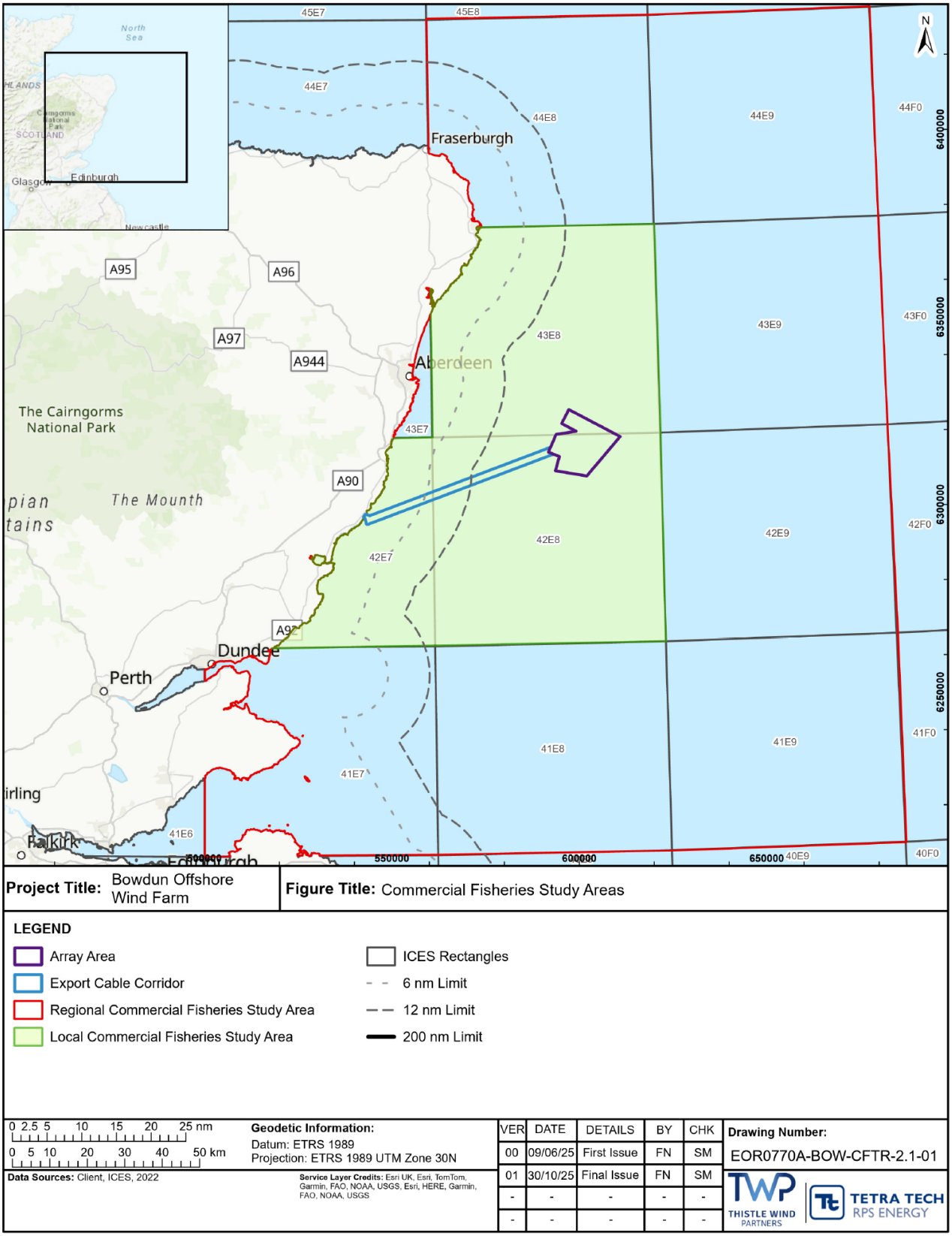

Figure 2.1: Commercial Fisheries Local and Regional Study Areas

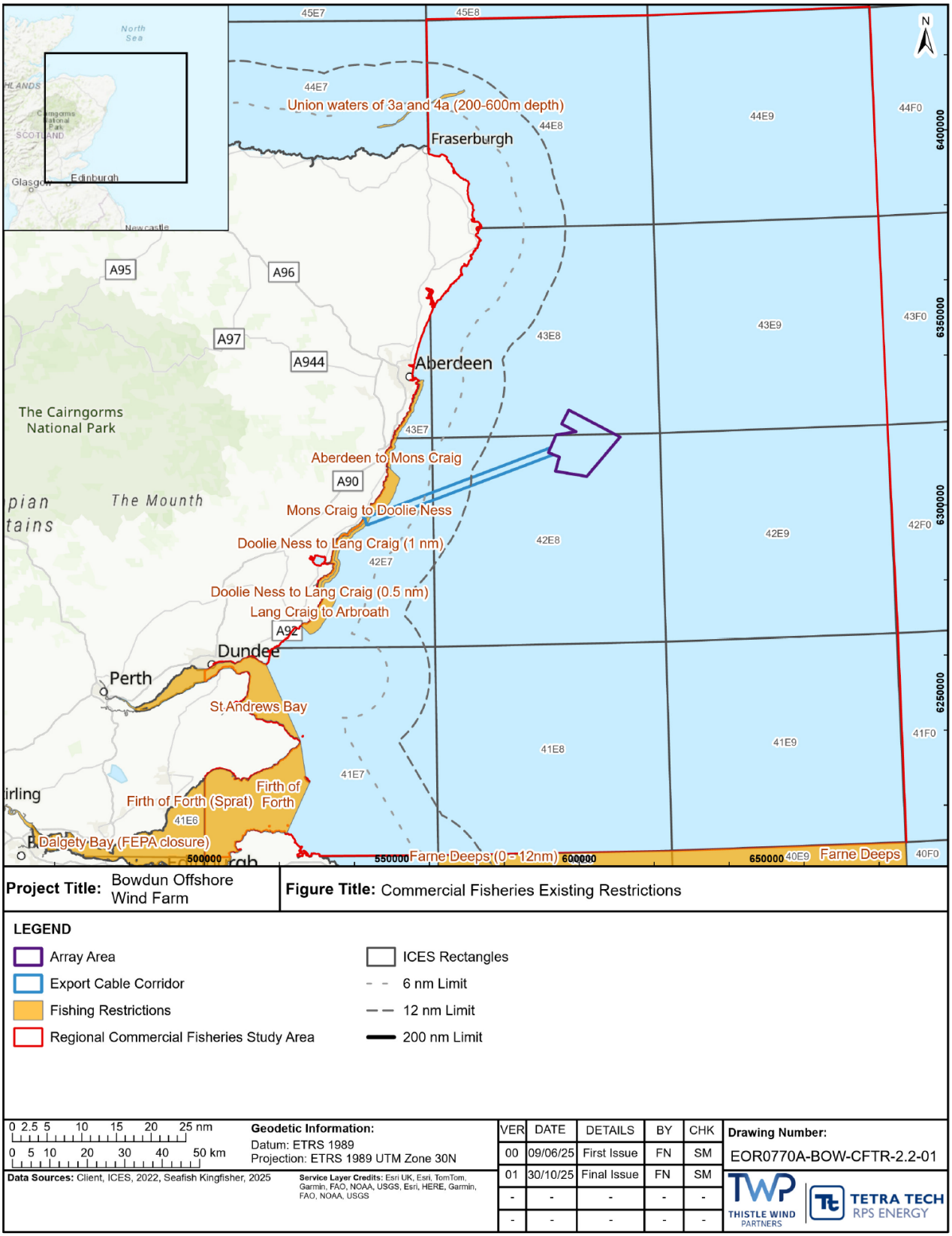

Figure 2.2: Spatial Fisheries Restrictions Proximate to the Commercial Fisheries Study Areas (Seafish Kingfisher Information Service, 2025)

3 Methodology

3.1.1 This 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. Landings statistics have been analysed using Microsoft Excel, while Vessel Monitoring System (VMS) data and Automatic Identification System (AIS) data have been evaluated using ArcMap Geographic Information System (GIS) software.

3.1.2 In addition to quantitative data, qualitative insights have been gathered through direct consultation with the fishing industry, as described in Volume 2, Chapter 13: Commercial Fisheries.

3.2 Desktop Study

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

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

3.2.3 Engagement and discussion with the fishing industry organisations (see Volume 2, Chapter 13: Commercial Fisheries) has 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 has provided clarity on the spatial distribution of fishing grounds within the area. Information has also been provided by the TWP Company Fisheries Liaison Officer (FLO), which includes records of vessels active in and around the Proposed Development. Whilst no specific commercial fisheries survey has been undertaken, vessel traffic surveys have been undertaken and are also considered in this desktop study.

3.2.4 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 2010 to 2024) as annotated in Table 3.1.

3.2.5 Relevant literature from a number of sources has also been reviewed in the preparation of this report. A full list of references is provided at the end of this technical report and are 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 (t); and value (£)	MMO	UK waters	2010 to 2024[2]	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
Spatial Data				
VMS data for UK registered vessels ≥15 m length. Note that UK vessels ≥12 m in length have VMS on board, however, to date, the MMO provide amalgamated VMS datasets for ≥15 m vessels only. VMS data sourced from MMO displays the first sales value (£) of catches	MMO	UK waters	2016 to 2020	MMO, 2022
VMS data for EU registered vessels ≥12 m length. VMS data sourced from ICES displays the surface Swept Area Ratio of catches by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface Swept Area Ratio indicates the number of times in an annual period that a demersal fishing gear makes contact with (or sweeps) the seabed surface. Surface Swept Area Ratio provides a proxy for fishing intensity	ICES	EU waters	2016 to 2020	ICES, 2022
Positional data for Scottish registered vessels ≥12 m length	Marine Scotland MAPS NMPi	Scottish waters	2017 to 2021	Marine Directorate, 2022

[2] MMO annual landings statistics for 2024 were published while this document was in preparation. These have now been incorporated into the document.

Title	Source	Extent	Year	Author
Fishing intensity based on VMS and landings data for UK vessels ≥15 m in length for squid, demersal species, Nephrops and scallops	Marine Scotland MAPS NMPi	Scottish waters	2009 to 2013	Kafas *et al.*, 2013
Fishing vessel route density, based on vessel AIS positional data. AIS is required to be fitted on fishing vessels ≥15 m length	EMSA	EU waters	2023	EMSA, 2024
Norwegian vessels over 15 m in length VMS data by gear type	Barents Watch	EU (including Norwegian) waters	2011 to 2023	Barents Watch, 2024
Surveillance data indicating vessel nationality and gear type for actively fishing vessels	NMPi	Scottish waters	2018 to 2023	Marine Directorate, 2024
Scottish Pelagic Fishermen's Association (SPFA) VMS data for Scottish pelagic trawl member vessels	SPFA	Scottish waters	2013 to 2021	SPFA, 2024
Scottish Fishermen's Federation (SFF) vessel plotter data indicating location of fishing	SFF	Proposed Development	Long term data series	SFF, 2025 [Confidential]
North and East Coast Regional Inshore Fishery Group (N&EC RIFG) mapping of fishing activity and critical habitats within 12 nm of the coast in the N&EC RIFG area	N&EC RIFG	N&EC RIFG waters	Various	Shelmerdine and Mouat, 2021
Fisheries Sensitivity Mapping and Displacement Modelling (FiSMaDiM)	Centre for Environment, Fisheries and Aquaculture Science (Cefas)	UK waters	2012 to 2021	Cefas, 2025
Vessel traffic (AIS and radar) survey data	Nash Maritime	Array Area plus 10 nm buffer	June/July 2023, January 2024, July 2025 and December 2025	Nash Maritime, 2024 & 2025

3.3 Data Limitations and Uncertainties

3.3.1 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.

3.3.2 Limitations of landings data include the spatial size of ICES rectangles which can misrepresent actual activity across the Proposed Development Site Boundary; care is therefore required when interpreting these data.

3.3.3 It is noted that all commercial landings by UK registered vessels are subject to the Registration of Buyers and Sellers (RBS) legislation[3,4] and therefore landings by UK vessels of all lengths are recorded within the MMO iFish database. While it is recognised that there is no statutory requirement for owners of vessels 10 m and under to declare their catches, registered buyers are legally required to provide sales notes of all commercially sold fish and shellfish due to the 2005 Registration of Buyers and Sellers of First Sale Fish Scheme (RBS legislation) (MMO, 2021). The RBS legislation is applicable to licensed 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 10 m and under sector, landing statistics are recorded on sales notes provided by the registered buyers (MMO, 2021). Information that may not be formally recorded on the sales note, such as gear and fishing area, is added by coastal staff based on local knowledge of the vessels they administer. For example, from observations of the vessel during inspections at ports or from air and sea surveillance activities as well as discussions with the owner and/or operator of the vessel[5]. 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 25 kg is bought per day.

3.3.4 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 to 2022) 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 Proposed Development.

3.3.5 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 ≥12 m 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

[3] The Registration of Fish Sellers and Buyers and Designation of Auction Sites (Scotland) Regulations 2005, accessed at: The Registration of Fish Sellers and Buyers and Designation of Auction Sites (Scotland) Regulations 2005
[4] The Registration of Fish Sellers and Buyers and Designation of Auction Sites (Scotland) Amendment Regulations 2005, accessed at: The Registration of Fish Sellers and Buyers and Designation of Auction Sites (Scotland) Amendment Regulations 2005
[5] Fishing data collection, coverage, processing and revisions - GOV.UK

applied to vessels that are ≥12 m in length. Limitations of publicly available VMS data are primarily focused on the coverage being limited to larger vessels 15 m and over for UK fishing vessels. It is important to be aware that where mapped VMS data may 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 <15 m in length). To assist in mitigating the risk of under-representing smaller inshore vessels, site-specific vessel traffic survey data comprising information on vessel movements gathered by both AIS and radar has been analysed alongside publicly sourced VMS and AIS data.

3.3.6 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; and
- 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[6])

Data	Type of Data	Limitations and Uncertainty
Landings statistics, MMO	Annual fisheries landings data providing information on fishing activity for all UK commercial fishing vessel landings plus foreign vessel landings into UK ports.	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, EU DCF	Annual fisheries landings data for UK and EU registered fishing vessels landing to their home nation ports.	The data is submitted by individual member states and therefore limitations vary per country. Vessels <10 m may be omitted or mis-represented by the data. Accuracy is likely to be greater for landings from larger vessels. For UK vessels under 10 m length data is assessed with high uncertainty and low confidence. For all other EU vessels data is assessed with low uncertainty and high confidence.
VMS data, MMO	VMS data for UK fishing vessels greater than 15 m in length, including vessels registered in Scotland, England, Northern Ireland, Wales and Isle of Man.	The data is only available for 15 m and over vessels, so is not representative of <15 m vessels. Data assessed with medium uncertainty and medium confidence.
VMS data, ICES	VMS data for UK and EU fishing vessels greater than 12 m in length.	The data is only available for 12 m and over vessels, so is not representative of <12 m vessels. Data assessed with medium uncertainty and medium confidence.
AIS data, EMSA	AIS data for fishing vessels ≥15 m length.	The data is only available for 15 m and over vessels, so is not representative of <15 m vessels. Data assessed with medium uncertainty and medium confidence.
Positional data, Marine Scotland MAPS NMPi	Positional data for Scottish registered vessels under 12 m length.	Data is derived from positions self-declared by fishers. These positions have not been verified by other sources. Data assessed with medium uncertainty and medium confidence.
VMS data, Kafas *JW Od*(2013)	Amalgamated VMS intensity data layers by gear type.	The data layers are based on data only available for 15 m and over vessels, so is not representative of <15 m vessels. Data assessed with medium uncertainty and medium confidence.

[6] 'Confidence' in this context refers to the degree of certainty or belief in the accuracy of an estimate or conclusion, while 'Uncertainty' level quantifies the potential variability or imprecision in that estimate or conclusion.

Data	Type of Data	Limitations and Uncertainty
VMS data, Barents Watch	Norwegian VMS data for vessels ≥15 m length.	The data is only available for 15 m and over vessels, so is not representative of <15 m vessels. Data assessed with medium uncertainty and medium confidence.
Fisheries surveillance data, Marine Directorate	Surveillance data for all observed 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 data, Cefas	Augmented VMS and AIS data used to map UK vessel fishing effort.	Fishing activity data was extracted from the MMO database. The data is only available for 15 m and over vessels, so is not representative of <15 m vessels. Data assessed with medium uncertainty and medium confidence.
Vessel traffic survey data, Nash Maritime	Vessel traffic (AIS and radar) survey data.	An assessment of fishing vessel activity to inform the Navigational Risk Assessment (NRA) undertaken for the Proposed Development based on a 14-day AIS and radar survey in June/July 2023, January 2024, July 2025 and December 2025 of the Array Area plus a buffer. Data assessed with low uncertainty and high confidence.
Fishing vessel plotter data	Fishing vessel plotter data for a sample of 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 across a long term basis, expected to be approximately 10 years, however the time 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.

4 Key Species

4.1.1 The key commercial species caught across the Commercial Fisheries Local and Regional Study Areas are discussed in this section in terms of biological characteristics, seasonal trends and relevant fisheries management.

4.2 Shellfish

King Scallop

4.2.1 King scallop *Pecten maximus* are most common in water depths of -20 m to -70 m, in areas of clean firm sand and fine gravel exposed to water currents, which provide good feeding conditions for this bivalve mollusc. Adults are largely sedentary and usually found recessed in sediment. King scallop live for ten to 15 years and reach reproductive maturity between three to five years, at a size of 60 mm; the average maximum size is 160 mm. Recruitment is usually unpredictable as it depends not only on successful spawning and larval production but also on whether larvae are retained or transported to areas suitable for larval settlement. Larvae are pelagic, making settlement in a particular area somewhat unpredictable, which leads to an unstable age structure within stocks. As a consequence of this, scallop beds frequently show a regional separation of year classes and spatial variability in age structure.

4.2.2 Whilst annual assessments of king scallop stock status in English waters are undertaken by Cefas, the latest analytical assessment of stock status in Scottish waters was undertaken in 2016.

4.2.3 There are no Total Allowable Catches (TACs) or quotas (i.e. catch limits) in place for this species; instead, UK scallop fisheries are controlled predominantly through the use of minimum legal landing sizes, gear restrictions, seasonal closures and some effort controls on the largest boats. An EU Minimum Conservation Reference Size (MCRS) exists of 100 mm (Council Regulation 850/98).

Lobster

4.2.4 Lobster *Homarus gammarus* is a long-lived decapod crustacean. Lobster breed once per year in the summer and newly berried females begin to appear from September to December. Lobsters do not undertake any significant migrations and juveniles in the first three to four years of life may be particularly sedentary. 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).

4.2.5 There are no TACs or quotas in place for lobster. Primary management is by the technical measure of a MCRS of 87 mm (Council Regulation 850/98).

4.2.6 Lobster is one of the highest value per kilogram, commercially exploited shellfish species found in UK waters. Fishing activity typically peaks across summer months, with a second peak in December associated with supplying the Christmas-time market.

Brown Crab

4.2.7 Brown crab *Cancer pagurus* is a long-lived, large decapod crustacean. Brown crabs are very productive animals, and each female can hatch between one and four million eggs. Post larvae are known to settle inshore and juvenile crabs are more common in shallow waters. Adult crabs undertake extensive migrations, which may be associated with their reproductive cycle. Brown crab is found across a wide range of habitat types, ranging from rocky reefs to soft mud and sand.

4.2.8 As with lobster, brown crab are caught by pots and have no TACs or quotas (i.e. catch limits) in place. Primary management is by the technical measure of a MCRS of 140 mm carapace width inside 6 nm and 130 mm outside 6 nm (UK Government, 2018).

Velvet Crab

4.2.9 The velvet crab *Necora puber* is a medium-sized species of crab found typically in rocky habitats from the shore down to water depths of approximately 50 m.

4.2.10 Stocks of velvet crab are relatively unstudied. The velvet crab fishery in Scotland relies on overseas markets and thus depends on vivier operators for transporting live crabs. Vivier operators prioritise maintaining a regular supply, although less so during September/October when catch quality diminishes in the months following the moult period.

4.2.11 Currently there is no restriction on catches of velvet crabs. There is a MCRS in UK waters for UK fishing vessels of 65 mm except around the Outer Hebrides and Orkney where it is 70 mm (Statutory Instrument 1898/919 Undersized Velvet Crabs Order 1989).

Nephrops

4.2.12 *Nephrops norvegicus* (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 cm (including the tail and clawed legs), although individuals are normally between 18 cm to 20 cm. 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.

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

4.2.14 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 Regional Commercial Fisheries Study Area overlaps Nephrops FU9 (Moray

Firth) and Nephrops FU8 (Firth of Forth), whilst the Local Commercial Fisheries Study Area does not overlap with any Nephrops FUs. Management is applied via a TAC set for the whole of the North Sea (ICES Division 4).

4.2.15 There is a MCRS of 85 mm total length (25 mm carapace length and 46 mm 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.

4.2.16 Under the Fisheries Act 2020, the Marine Directorate are currently developing a Nephrops Fisheries Management Plan for the North Sea, expected to be published in spring 2026. Stock assessments are typically undertaken annually by ICES within FUs using underwater Television (TV) surveys. ICES advises that when the Maximum Sustainable Yield (MSY) approach is applied, catches in 2025 should be no more than 9,149 t in FU7 (ICES, 2024a).

Whelks

4.2.17 Whelks *Buccinum undatum* are widely distributed around the UK. They grow to approximately 10 cm and are found primarily on muddy sand and gravel seabed habitats typically between -5 m and -200 m water depth.

4.2.18 Whelks are targeted using baited pots and caught predominantly in inshore waters by small vessels known as day boats. Expansion of export markets for whelks, combined with reduced fishing opportunities for other species has, in recent years, contributed to an increase in whelk fishing effort in UK waters.

4.2.19 There is currently insufficient evidence to complete a stock assessment for whelks in UK waters. Unlike other important shellfish fisheries (e.g. crab and scallop), access to whelk fisheries is largely unrestricted. A national MCRS of 45 mm (UK Government, 2018), is the only national management measure in place for the whelk fishery.

4.3 Demersal Finfish

Haddock

4.3.1 Haddock *Melanogrammus aeglefinus* are a demersal bottom feeding round fish that occur mainly in waters from 40 m to 200 m 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 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; indicating that the species is currently harvested sustainably (Figure 4.1). ICES (2024b) advice indicates that the recruitment in four recent year classes (2019 to 2022) has been above the recent mean level; this high recruitment, in combination with low fishing mortality, has led to a sharp increase in spawning stock biomass as shown in Figure 4.1. The ICES catch advice for this stock in

2025 is 112,435 t, which represents a reduction of 25% compared to ICES catch advice for 2024 of 149,024 t.

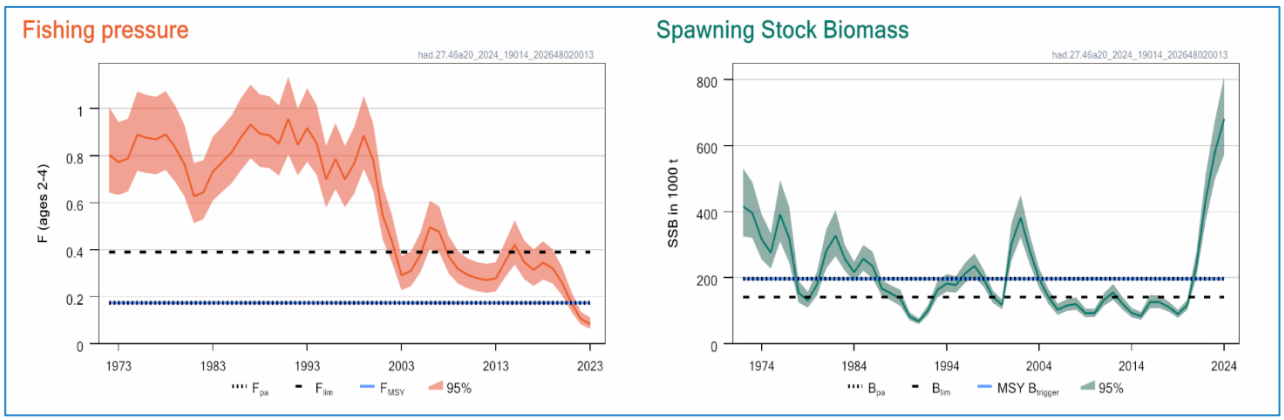

Figure 4.1: Haddock North Sea, West of Scotland, Skagerrak Stock Assessment Indicating Fishing Pressure and Stock Size (ICES, 2024a)

Monkfish

4.3.3 There are two closely related species of monkfish; white monkfish *Lophius piscatorius* and black monkfish *L. budegassa*. White monkfish occur throughout the North-East Atlantic and are more abundant than black monkfish in northern areas. It is a very distinctive fish, recognisable 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 200 cm in length, reaching maturity at four to five years at a length of 35 cm.

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

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

4.3.6 Monkfish are a highly valuable demersal fish species, caught almost exclusively by demersal otter trawls.

Cod

4.3.7 Atlantic cod *Gadus 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 -10 m to -200 m. Within its geographical range cod is a generalist, both in terms of habitat use and diet.

4.3.8 In terms of fisheries management measures, a TAC is in place for Northern Shelf cod, which has been reduced for 2025 (from 2024) in line with ICES advice. A MCRS of 35 cm is in place. A UK National North Sea Cod Avoidance Plan (Scottish

Government, 2024) is in place to support recovery of the North Sea cod stock (Figure 4.2), which allows for fisheries closures.

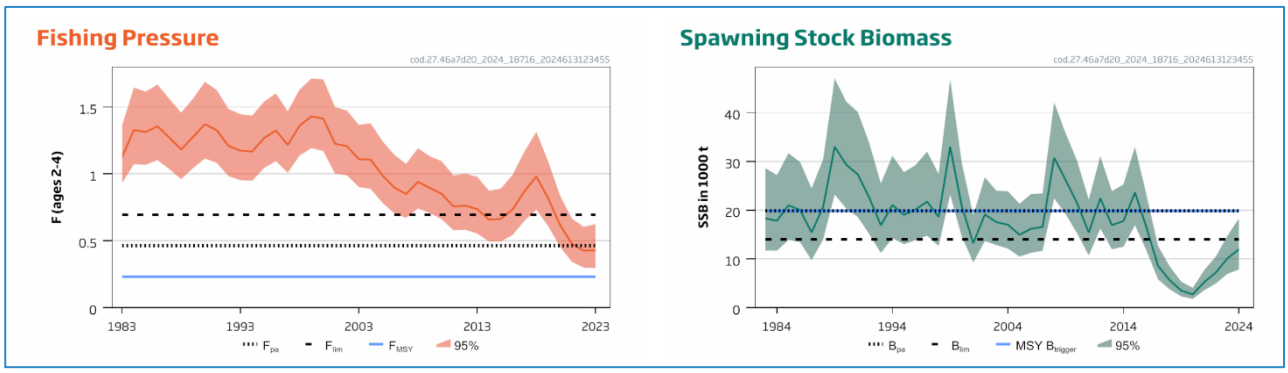

Figure 4.2: Cod North Sea, West of Scotland, Eastern English Channel, and Skagerrak Stock Assessment Indicating Fishing Pressure and Stock Size (North-Western Stock) (ICES, 2024b)

Whiting

4.3.9 Whiting *Merlangius merlangus* are commonly found on mud and gravel bottoms, but also on sand and rock. Whiting migrate to the open sea after the first year of life (Cohen *et al.*, 1990). ICES consider the North Sea stock to be harvested sustainably with fishing mortality well below precautionary and limit reference levels. The spawning stock biomass is at full reproductive capacity and has increased sharply across the past four to five years (Figure 4.3).

4.3.10 Whiting are targeted by demersal otter trawlers as part of targeted and mixed demersal fisheries.

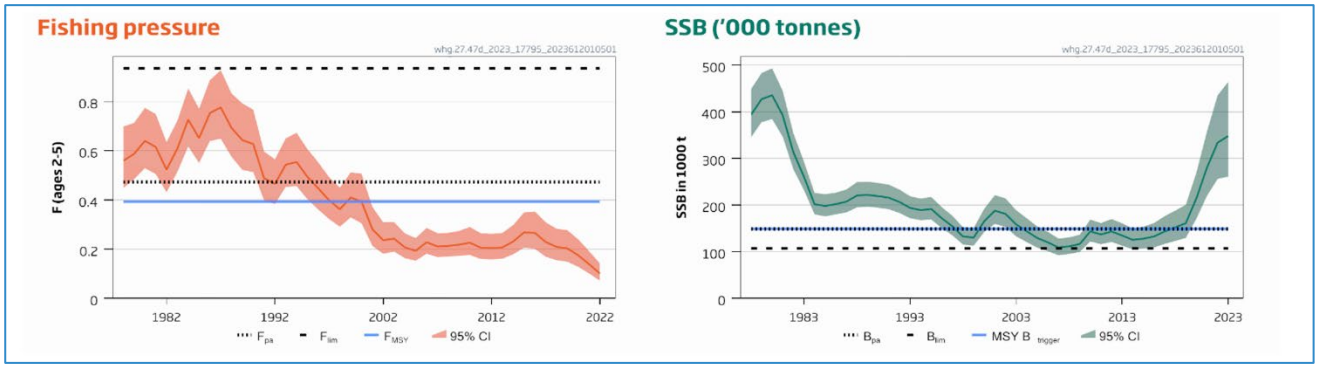

Figure 4.3: Whiting North Sea and Eastern English Channel Stock Assessment Indicating Fishing Pressure and Stock Size (ICES, 2024c)

4.4 Pelagic Finfish

Herring

4.4.1 The North Sea herring *Clupea harengus* 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 MSY and fishing pressure has remained below the MSY benchmark though there are concerns that future low recruitment

could alter this trend. Applicable to directed herring fisheries in the North Sea there is a MCRS of 20 cm (3 cm above the size of maturity). Catches below this size must be landed but cannot be sold for human consumption and so are less valuable.

4.4.2 Herring shoals 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 (-15 m to -40 m depth), or on offshore banks down to -200 m. Spawning usually occurs on gravel or rock bottoms. Spawning is highly associated with benthic habitat type.

4.4.3 The latest ICES (2024d) advice indicates that the spawning stock biomass is above limit and target reference points, and the fishing pressure is below fishing mortality reference points; indicating a healthy stock (Figure 4.4).

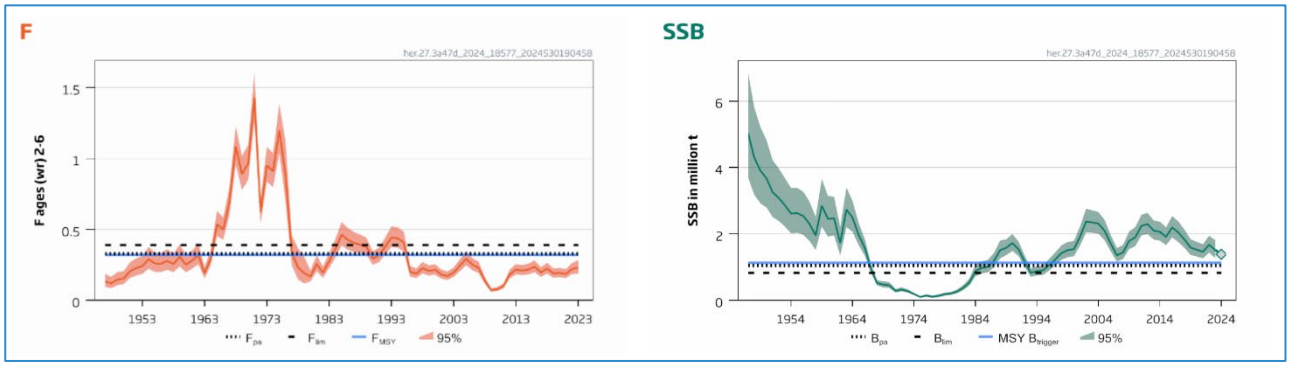

Figure 4.4: Herring Autumn Spawners North Sea, Skagerrak and Kattegat, Eastern English Channel Stock Assessment Indicating Fishing Pressure (F) and Stock Size (Spawning Stock Biomass (SSB)) (ICES, 2024d)

Mackerel

4.4.4 Mackerel *Scomber scombrus* 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.

4.4.5 In terms of fisheries management measures, a TAC is in place that covers all North-East Atlantic fisheries. A MCRS of 30 cm is in place.

4.5 Cephalopods

Squid

4.5.1 Squid *Loligo forbesi* is the most important fished cephalopod in Scottish waters and the only cephalopod for which there is a reliable market, although other squid species (e.g. European flying squid *Todarodes sagittatus*) and octopus *Eledone cirrhos* are frequently caught and landed as 'mixed squid and octupi'.

4.5.2 The squid fishery occurs in coastal waters, peaking in September and October, corresponding to the occurrence of pre-breeding squid (Young *et al.*, 2006). In

the UK, squid is normally taken as a bycatch from the mixed demersal otter trawl fishery. However, to the south of the Commercial Fisheries Study Areas in the Moray Firth there is a squid directed fishery.

4.5.3 It is postulated that squid move from the West Coast of Scotland to the North Sea to spawn and that there may be squid spawning grounds located in the Moray Firth (Young *et al.*, 2006).

4.5.4 The UK fishery for squid in the North Sea is not subject to management regulations for a TAC or quota or any other limits.

4.5.5 Squid are normally associated with the water column, above sandy or hard substrate. Squid require presence of substrata for the attachment of egg strings during the spawning period.

5 Key Fishing Gears

5.1.1 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); and
- métier – a homogenous subdivision, either of a fishery by vessel type or a fleet by voyage type.

5.1.2 A range of fleets target different fisheries across the Commercial Fisheries Local and Regional Study Areas which are described on a fleet basis within this section. Fishing gear descriptions are largely derived from information published by Seafish (2022).

5.1.3 Key gears expected to be actively deployed within the Proposed Development are pots, demersal otter trawls and scallop dredges. Other gear types, less likely to be active with any regularity in the Proposed Development but present in the wider study areas include demersal seines, pelagic trawls and other passive gears.

5.2 Pots

5.2.1 Figure 5.1 shows a typical UK potting vessel and Table 5.1 describes the profile of potting vessels active across the Regional Commercial Fisheries Study Area.

5.2.2 Creels or pots are used for the capture of lobsters and crabs, including brown crab and velvet crab. Pots are typically rigged in ‘fleets’ or ‘strings’ of between 15 to 60 pots (up to 100 pots for larger vessels), depending upon vessel size and area fished. Hundreds of pots can be deployed across a fishing location. Lengths of fleets may range from 100 m to over 1 nm (approximately 1,800 m), anchored at each end with anchors or chain clump weights. A variety of surface markers are used, including flagged dhans, buoys and cans. Soak times, the time between emptying and re-baiting the pots, can vary between six and 168 hours, but would typically be 24 hours. All pots are worked on a rotational basis; after hauling and emptying, pots are baited and re-set. Creel design is typically D-shaped in section and made from steel rods covered in netting and protected or “bumpered” with rope or rubber strips. Pots are usually deployed on rocky substrate, though may less frequently be found on other softer substrates.

5.2.3 Larger potters working further offshore make fishing trips lasting around two days. Vivier vessels capable of storing live crab on board in their holds may make week-long trips. Smaller potters under 10 m in length operate as day boats, returning to port after hauling, emptying, baiting and re-setting fleets of pots. Potting vessels may target a single or multiple shellfish species.

5.2.4 Seasonality for the potters operating across the Local Commercial Fisheries Study Area indicates landings throughout the year with relative peaks in summer and December (Figure 5.2).

Table 5.1: Profile of Typical Potting Vessels

Parameter	Indicative details
Main target species	Brown crab, lobster, velvet crab, some whelk
Nationality	Scottish
Vessel length	Over 10 m and under 10 m
Horsepower	60 hp to 350 hp
Typical towing speed	0 kts to 9 kts
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 50 t of live shellfish in pumped seawater.

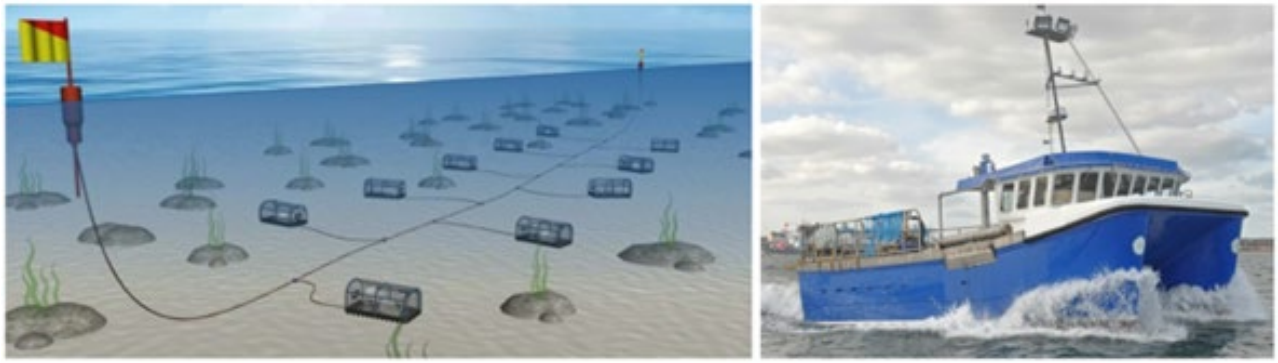

Figure 5.1: Profile of Typical Potting Gear and Vessel (Seafish, 2022; Fishing News[7])

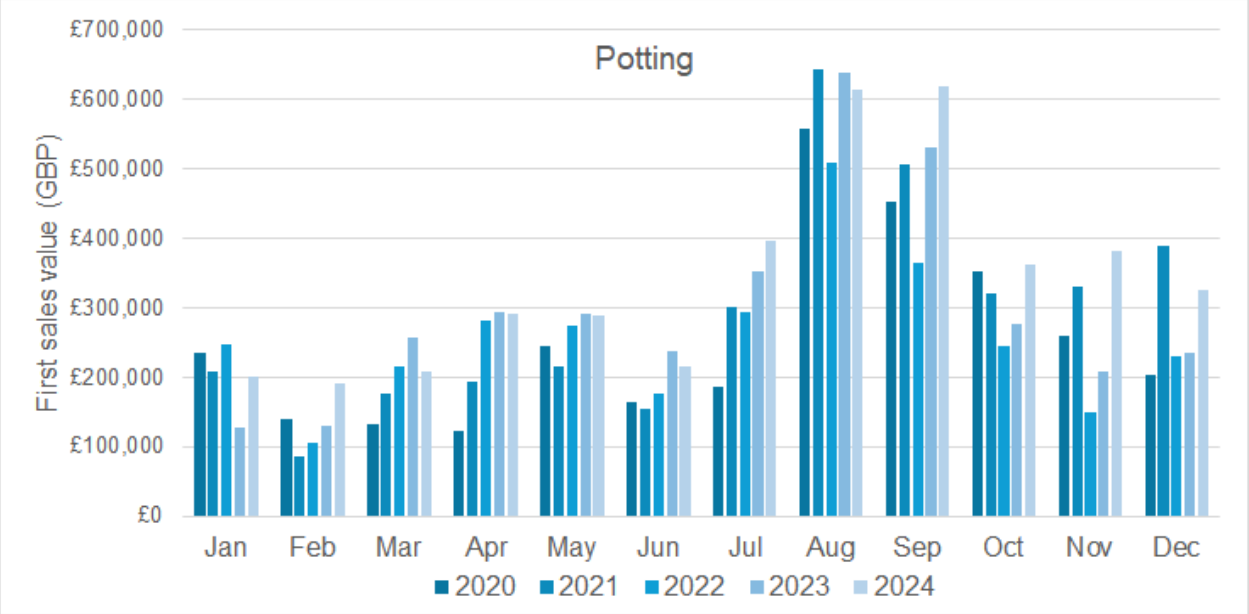

Figure 5.2: Seasonality of Landings by Pots from the Local Commercial Fisheries Study Area (2020 to 2024) (Source: MMO, 2011 to 2025)

[7] Several example vessel images have been sourced from Fishing News https://fishingnews.co.uk/

5.3 Demersal Otter Trawl

5.3.1 A typical UK demersal trawler and associated gear in a pair trawl formation is shown in Figure 5.3 and Table 5.2 describes the profile of demersal otter trawling vessels active across the Commercial Fisheries Regional Study Area. Otter trawls typically catch gadoids (including haddock, cod, whiting), monkfish, squid, and Nephrops; however, the species composition of the catch depends on the area and depth fished, and the gear design.

5.3.2 Vessel numbers vary, and their presence is dependent upon the success of demersal and/or Nephrops catches elsewhere.

5.3.3 Demersal trawlers operating across the Regional Commercial Fisheries Study Area tend to tow in directions which are in line with natural seabed contours.

5.3.4 Seasonality for the demersal otter trawl vessels operating across the Commercial Fisheries Local Study Area indicates highest landings across late spring and summer (Figure 5.4). Prominent spikes in landings occurred in 2023 in May, June and July due to an increase in haddock landings.

Table 5.2: Profile of Typical Demersal Otter Trawling Vessels

Parameter	Indicative details
Main target species	Haddock, monkfish
Nationality	Primarily Scottish, some English and Northern Irish
Vessel length	16 m to 35 m
Horsepower	300 hp to 850 hp
Typical towing speed	2 kts to 6 kts
Typical gear	Possible twin or multi-rig bottom trawl. Two trawl doors ('otter boards') approximately 1 t each hold the net open. Various forms of ground gear depending on target species.

Figure 5.3: Profile of Typical Demersal Otter Trawler Vessel and Pair Trawl Gear Diagram (Seafish, 2022; NiMa, 2024)

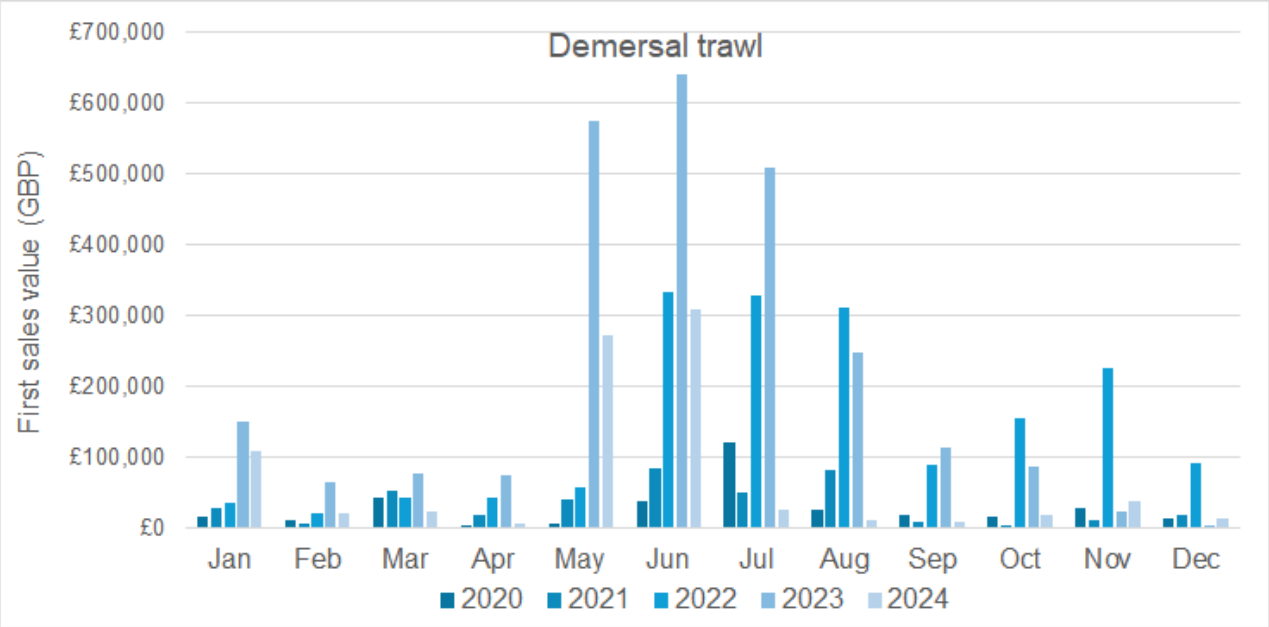

Figure 5.4: Seasonality of Landings by Demersal Otter Trawl from the Local Commercial Fisheries Study Area (2020 to 2024) (Source: MMO, 2011 to 2025)

5.4 Dredge

5.4.1 A typical scallop dredging vessel is shown in Figure 5.5 and Table 5.3 describes the profile of scallop dredging vessels active across the Commercial Fisheries Regional Study Area.

5.4.2 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.

5.4.3 UK scallop dredgers operate around the entire coastline of the UK with scallop dredging taking place year-round. The UK scallop fleet has two main components: a fleet of larger boats (> 20 m in length) which range in a nomadic fashion exploiting both inshore and offshore scallop stocks around the UK; and smaller inshore boats (< 15 m 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.

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

5.4.5 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.

5.4.6 Seasonality for the dredge vessels operating across the Commercial Fisheries Local Study Area indicates highest landings across spring and summer months (Figure 5.6).

Table 5.3: Profile of Typical Scallop Dredge Vessels

Parameter	Indicative details
Main target species	King scallop
Nationality	Primarily Scottish, some English
Vessel length	10 m to 25 m
Horsepower	200 hp to 400 hp
Typical towing speed	2 kts to 6 kts
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 5.5: Profile of Typical Scallop Dredging Gear and Vessel (Seafish, 2022; Fishing News)

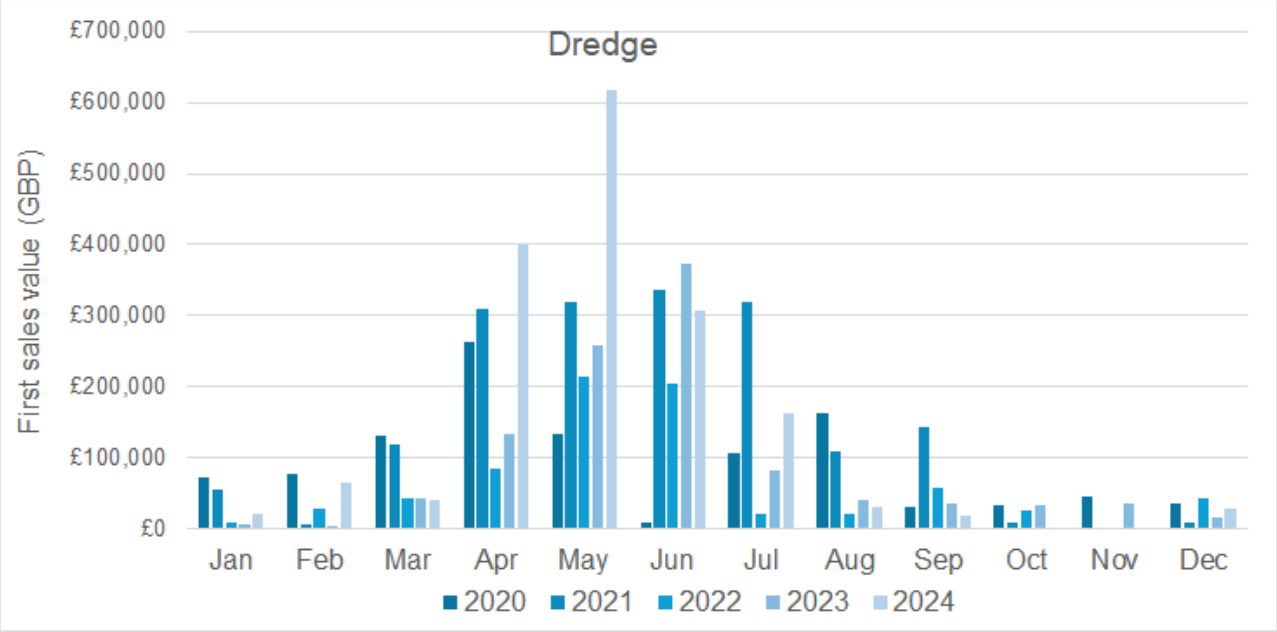

Figure 5.6: Seasonality of Landings by Dredge from the Local Commercial Fisheries Study Area (2020 to 2024) (Source: MMO, 2011 to 2025)

5.5 Other Gear Types

Demersal Seine

5.5.1 Scottish seine netting 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. 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.

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

Table 5.4: Profile of Typical Scottish Seine Vessels

Parameter	Indicative details
Main target species	Haddock
Nationality	Scottish
Vessel length	18 m to 40 m
Horsepower	150 hp to 1,500 hp
Typical towing speed	N/A
Typical gear	An encircling net is shot using very long – over 200 m - ropes to lay out the net. The net is towed closed and hauled from a boat under its own power.

Figure 5.7: Profile of Typical Scottish Seine Gear and Vessel (Seafish, 2022; Fishing News)

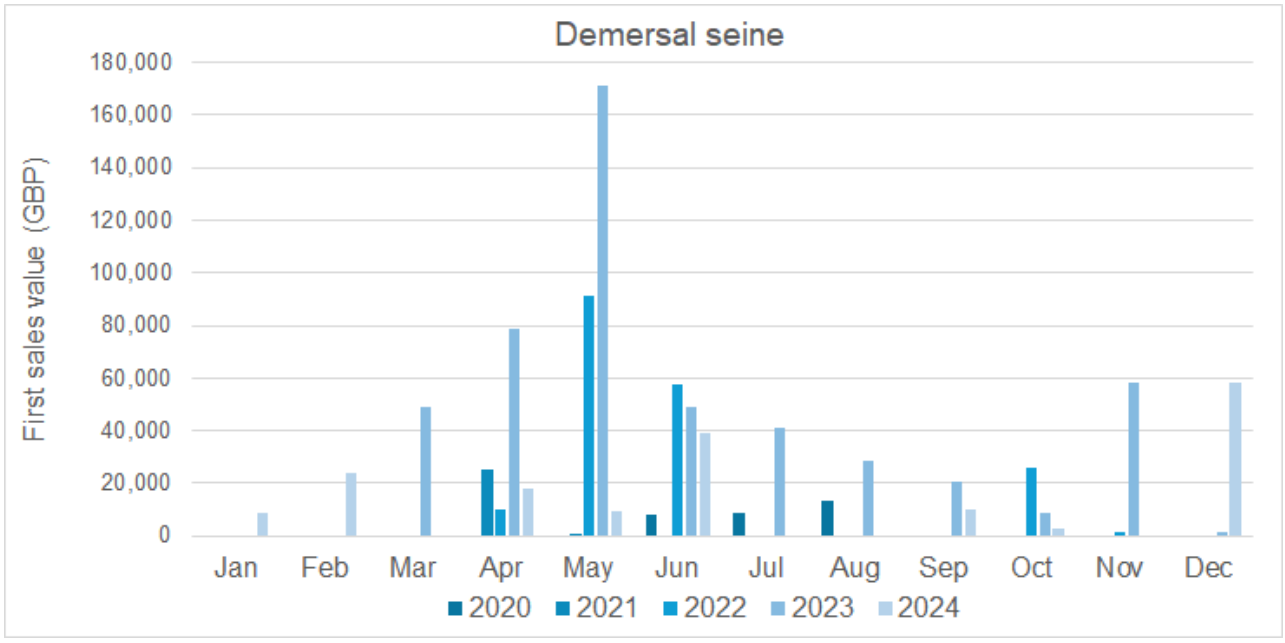

Figure 5.8: Seasonality of Landings by Demersal Seine from the Commercial Fisheries Local Study Area (2020 to 2024) (Source: MMO, 2011 to 2025)

Pelagic Trawl

5.5.3 Figure 5.9 shows a typical pelagic trawl vessel and Table 5.5 describes the profile of pelagic trawl vessels active across the Regional Commercial Fisheries Study Area.

5.5.4 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 2 nm to position their nets, undertake a tow and then haul nets.

5.5.5 Seasonality for the pelagic trawlers operating across the Local Commercial Fisheries Study Area indicates that landings are infrequent and in the past five years have only occurred in significant quantities in August 2023, when £1.6 million of herring were caught in the Local Commercial Fisheries Study Area.

Table 5.5: Profile of Typical Pelagic Trawl Vessels

Parameter	Indicative details
Main target species	Herring, mackerel
Nationality	Scottish, Danish, Dutch, French, German
Vessel length	30 m to 50 m
Horsepower	500 hp to 1,200 hp
Typical towing speed	2.5 kts to 5 kts
Typical gear	Pair or single trawls. Net depth changed by altering either warp (rope) length or towing speed.

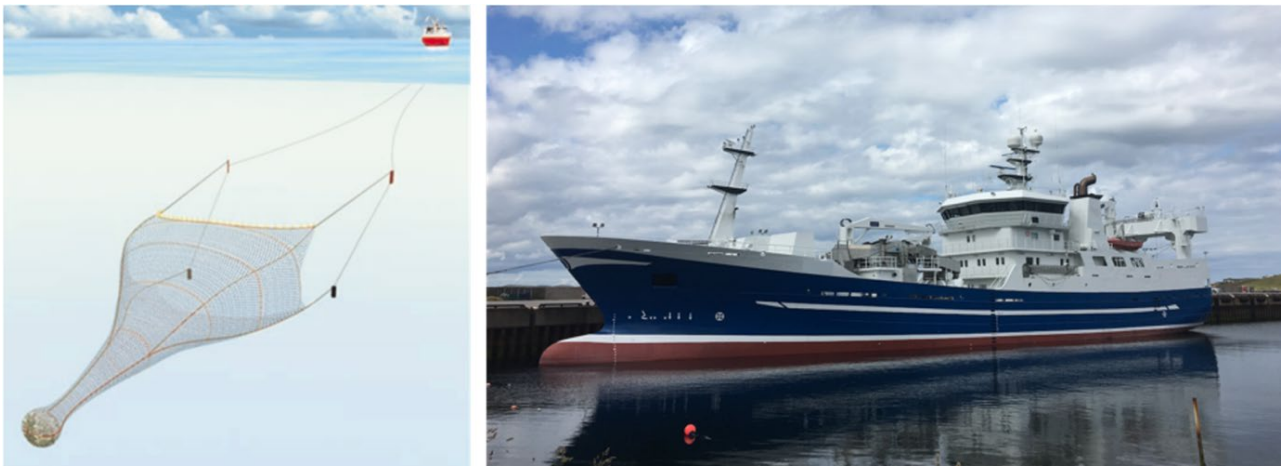

Figure 5.9: Profile of Typical Pelagic Trawl Gear and Vessel (Seafish, 2022; NiMa 2024)

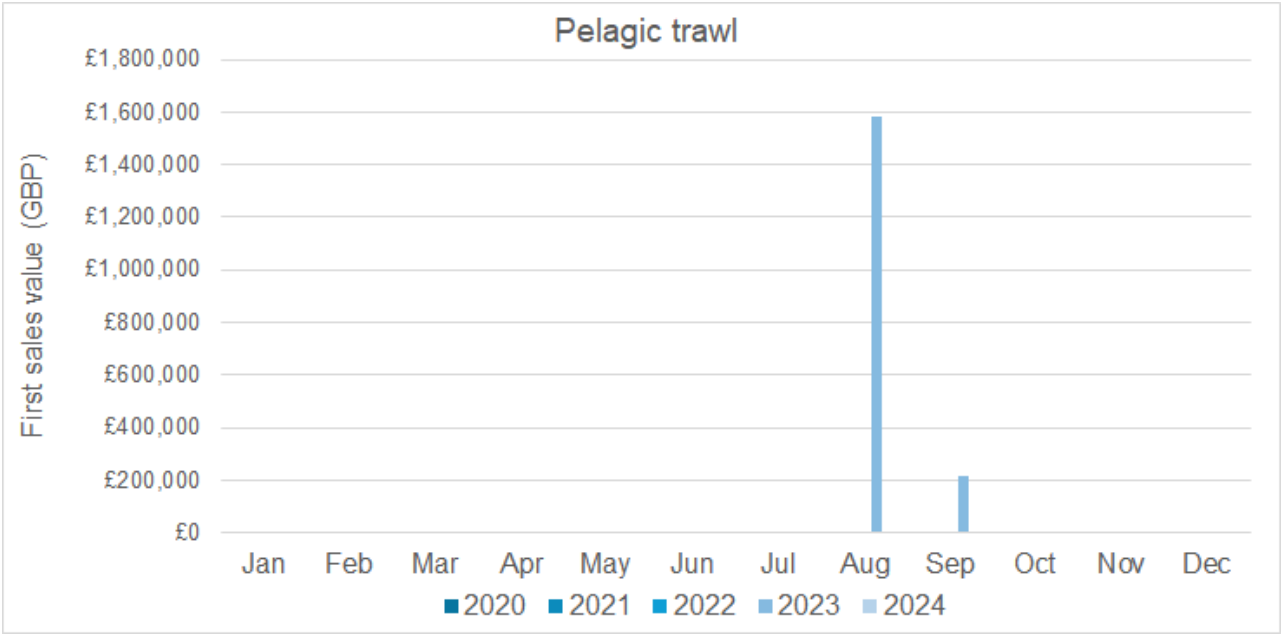

Figure 5.10: Seasonality of Landings by Pelagic Trawl from the Local Commercial Fisheries Study Area (2020 to 2024) (Source: MMO, 2011 to 2025)

Handline

5.5.6 Small inshore vessels of under 10 m length use hook and line methods to primarily target mackerel, though a variety of other species may be taken. Details of typical gear operational attributes are provided in Table 5.6, with gear configuration illustrated in Figure 5.11.

5.5.7 Mackerel handlining is typically deployed seasonally by vessels that also deploy pots. In this fishery, a fisher uses a single line with a weight and multiple hooks, often as many as 20 or 30. The hooks are typically equipped with small feathers or pieces of coloured plastic to serve as lures, although sometimes the fish will bite a bare, shiny hook without any added attractants. The lines are hauled by hand, and the fish are shaken off as they come aboard. Alternatively, the line may be wound onto a large reel, known as a 'gurdy.' In this case, the line is often passed through a device called a 'stripper,' which removes the fish from the hooks as the line is brought in. This system allows the line to be re-shot immediately after the last hook passes through the stripper.

5.5.8 Some fishers use electronic jigging machines which are computer-controlled and can be programmed to drop lures to a specific depth, then retrieve them once a fish bites. While the lines in the Scottish fishery are hauled by a machine, the fish are still categorised as handline caught.

5.5.9 Landings by handline are recorded primarily from July to September (Figure 5.12).

Table 5.6: Profile of Typical Vessel Deploying Handline

Parameter	Indicative details
Main target species	Mackerel
Nationality	Scottish
Vessel length	Majority under 10 m
Seasonality of activity	Summer/autumn peak
Typical gear	Single line with a weight and multiple hooks with small feathers or pieces of coloured plastic to serve as lures.

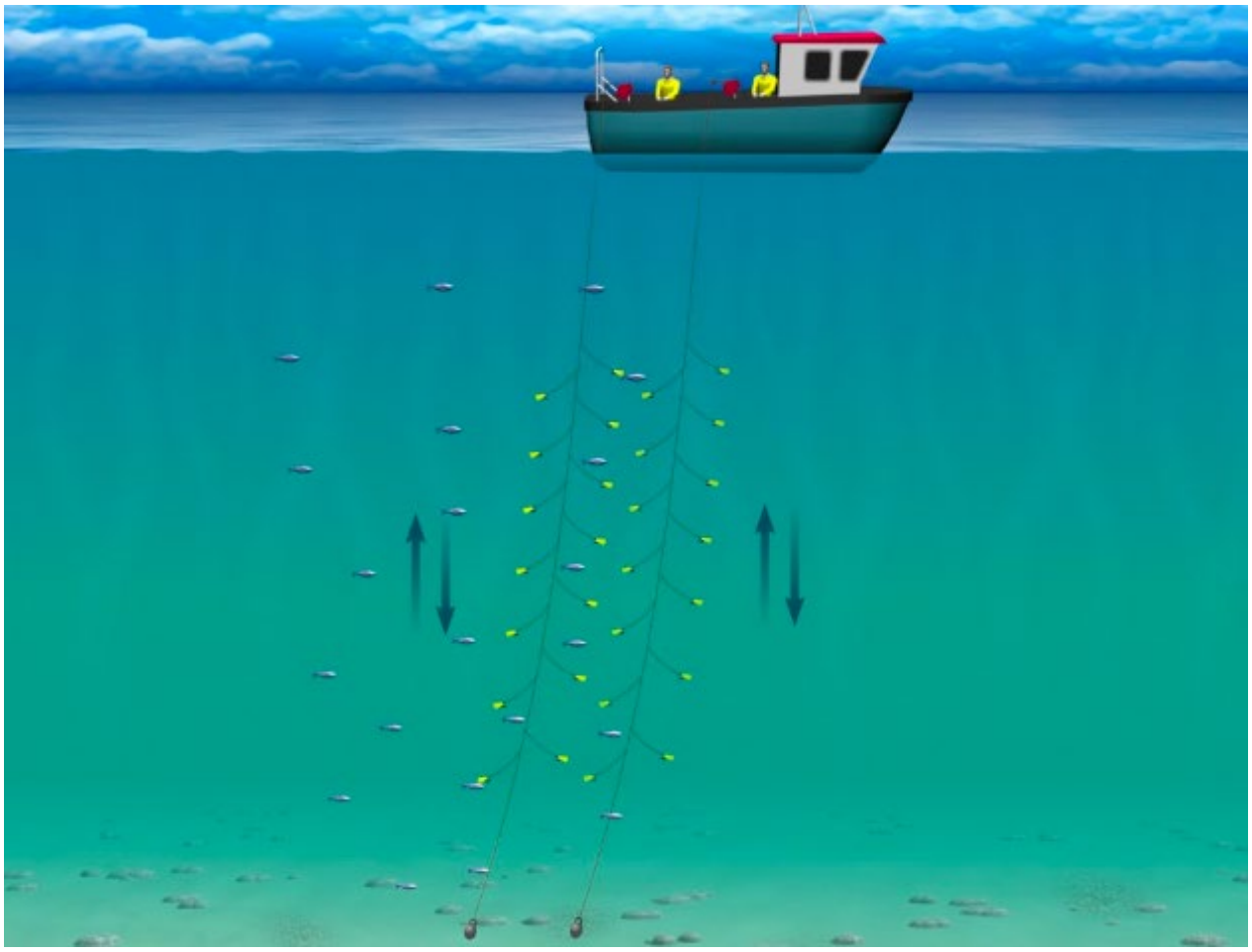

Figure 5.11: Typical line-jigging configuration (Source: Seafish, 2022)

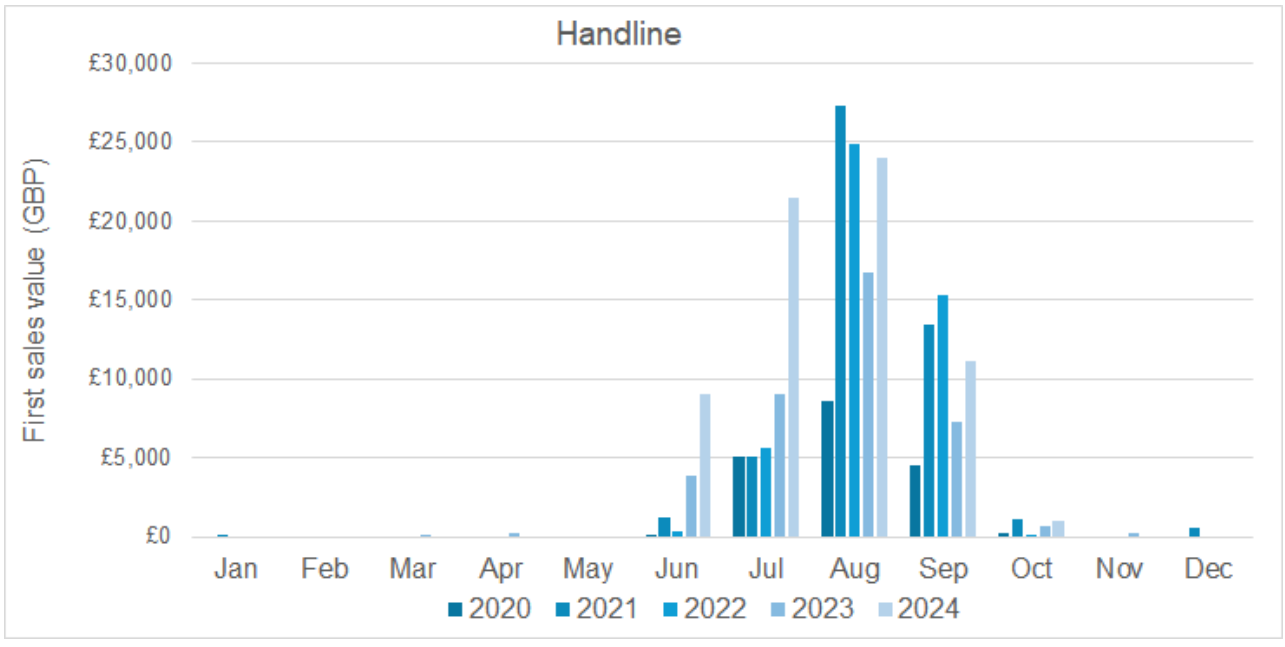

Figure 5.12: Seasonality of Landings by Handline from the Local Commercial Fisheries Study Area (2020 to 2024) (Source: MMO, 2011 to 2025)

6 Overview of Landings Statistics

6.1 Local Commercial Fisheries Study Area

6.1.1 The Local Commercial Fisheries Study Area comprises ICES rectangles 42E7, 42E8 and 43E8, with the highest value landings taken from ICES rectangle 42E7 (Figure 6.1) (accounting for 52% of landings from the Local Commercial Fisheries Study Area) which overlaps the inshore section of the Export Cable Corridor.

6.1.2 Commercial fisheries landings statistics, showing annual first sales value and landed weight by UK registered vessels operating within the Local Commercial Fisheries Study Area are shown in Figure 6.2 and Figure 6.3 respectively. An annual average value of £6.5 million was landed by all UK vessels across the years 2020 to 2024, compared to an average of £7.7 million across the years 2015 to 2019. The timeseries presented in the aforementioned figures covers the period 2010 to 2024 and provides insight into long term trends in catches from the Local Commercial Fisheries Study Area.

6.1.3 The statistics indicate that lobster, king scallop, brown crab and haddock are the most economically important species as demonstrated by landed value (with an annual average landed value of £2 million, £1.3 million, £966,000 and £817,000 respectively across 2020 to 2024). Landings of these species have varied annually across the 2010 to 2024 time series.

6.1.4 Landings of king scallop peaked in 2015, remained high in 2016 and have dropped since then, although remain one of the highest value species in the area with landings of £1.7 million from the Local Commercial Fisheries Study Area in 2024. Landings of lobster have remained relatively consistent over the time period with higher prices and values noted from 2016 onwards. The landed weight of brown crab has shown decline, yet the landed value has increased as crab market prices have grown.

6.1.5 Landings of haddock increased substantially from 2021 to 2022, with further sustained growth in 2023 reaching £2.3 million, compared to £120,000 in 2021. In 2024, annual landings value decreased to £615,000.

6.1.6 Landings of Nephrops, velvet crab, herring, squid and mackerel are also important to the Local Commercial Fisheries Study Area. Herring landings have varied substantially across the time series, with relatively low catches from 2010 to 2015, no catches from 2016 to 2022, and a substantial catch of £1.8 million in 2023.

6.1.7 The majority of landings by UK fishing vessels are made by vessels registered in Scotland (94% by value), with small proportions by English, Northern Irish and Welsh vessels (Figure 6.4). Key local landings ports include Arbroath, Peterhead, Montrose, Fraserburgh, Gourdon, Stonehaven and Aberdeen.

6.1.8 Landed value by gear type for the Local Commercial Fisheries Study Area is shown in Figure 6.5. Landings are primarily associated with pots, demersal otter trawls and scallop dredges.

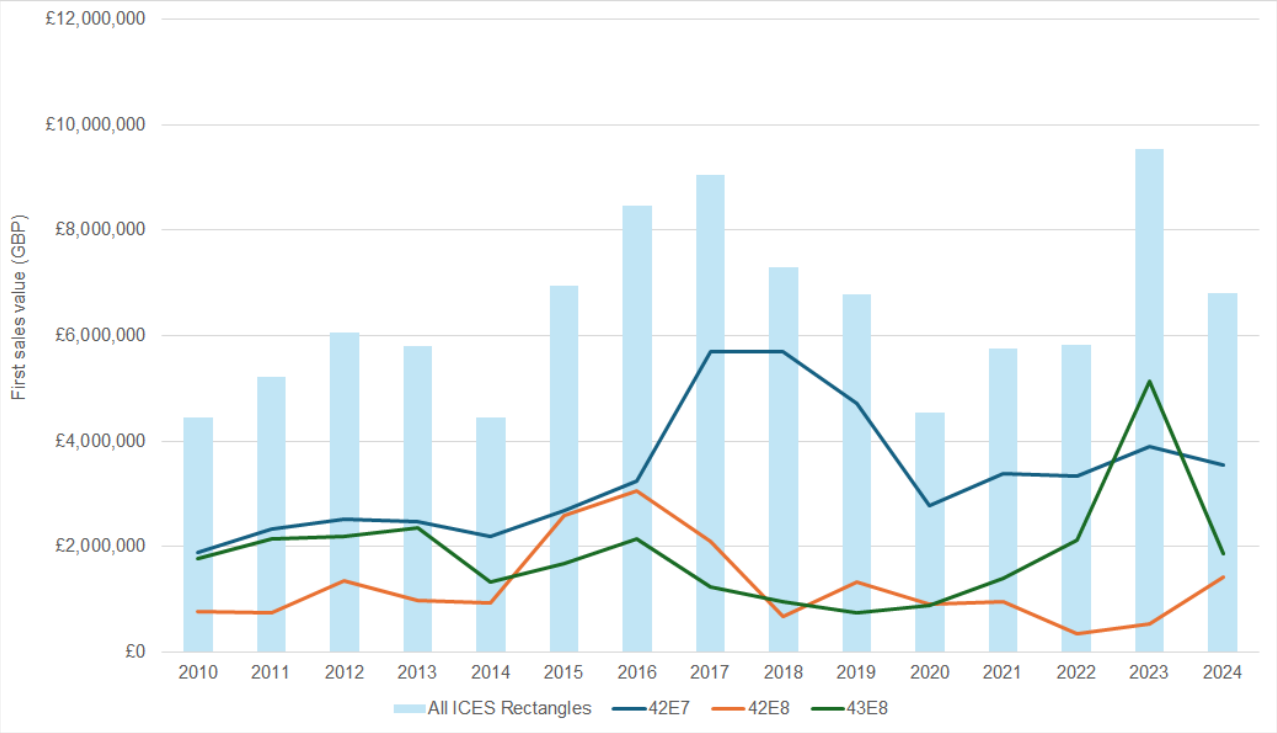

Figure 6.1: Annual Landings Value (£) by UK Registered Vessels from the Local Commercial Fisheries Study Area (light blue columns), by ICES Rectangle (lines), Between 2010 and 2024 (Source: MMO, 2011 to 2025)

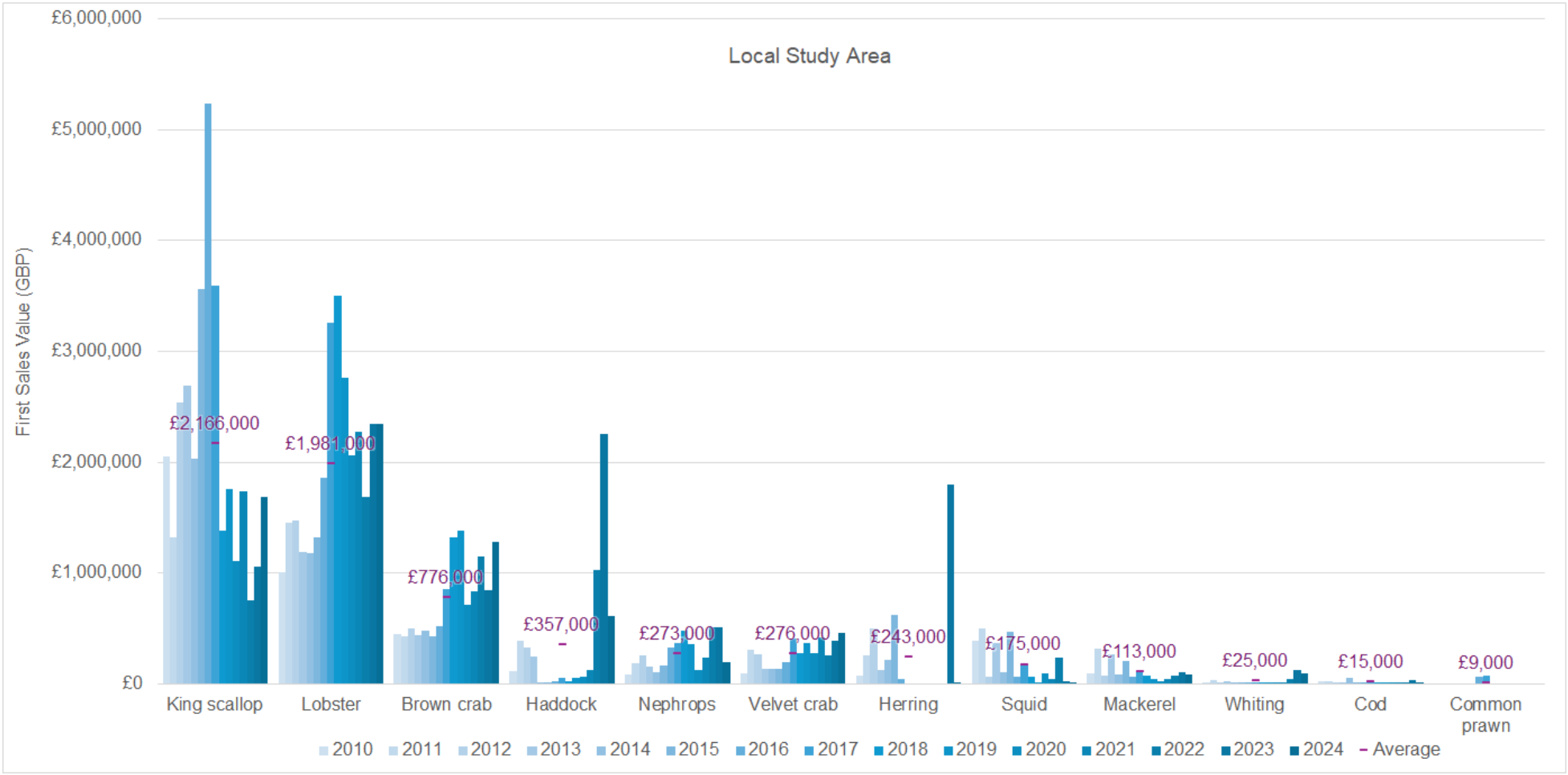

Figure 6.2: Key Species by Annual Landed Value (£) (2010 to 2024) from the Local Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

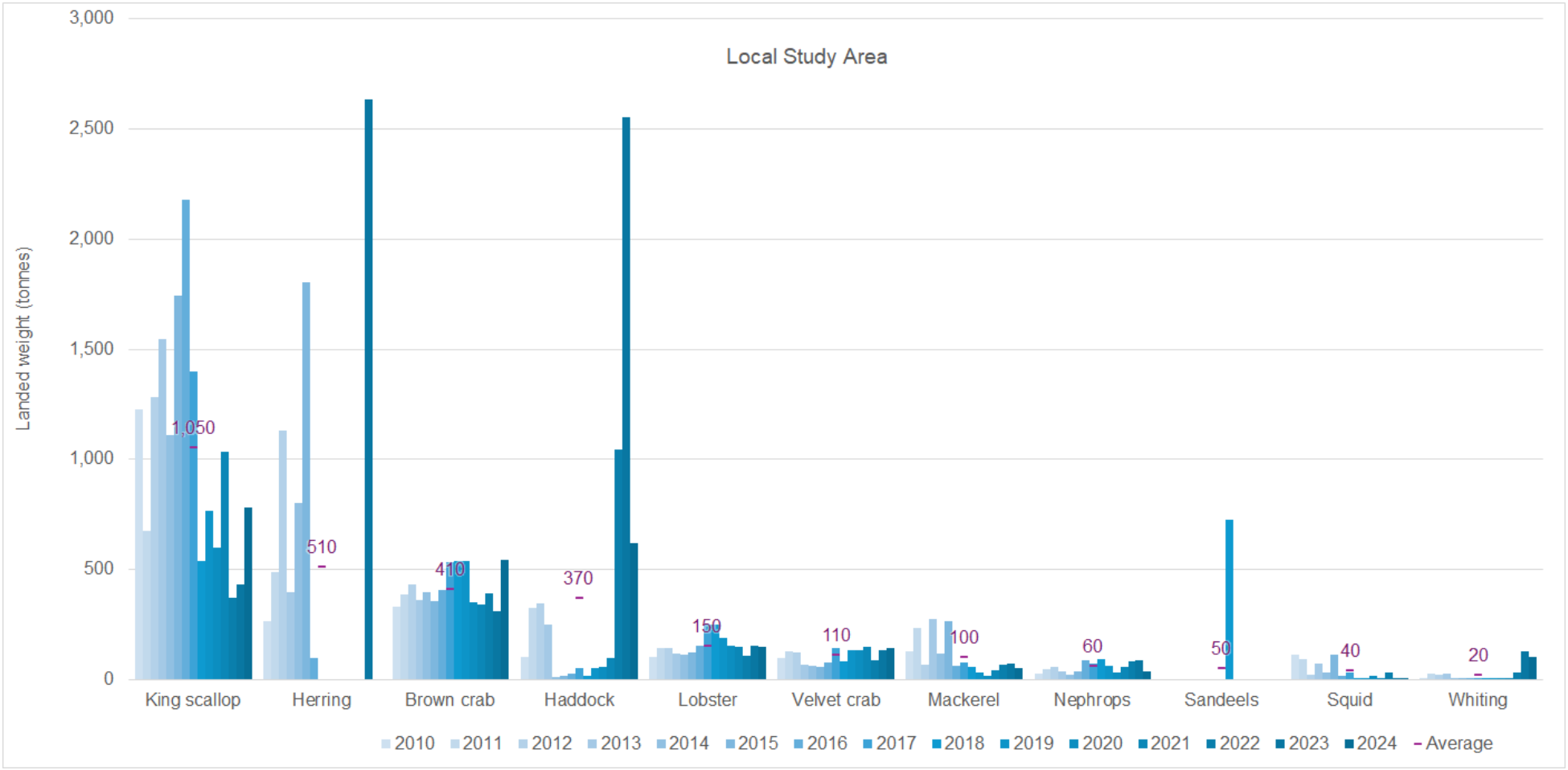

Figure 6.3: Key Species by Annual Landed Weight (t) (2010 to 2024) from the Local Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

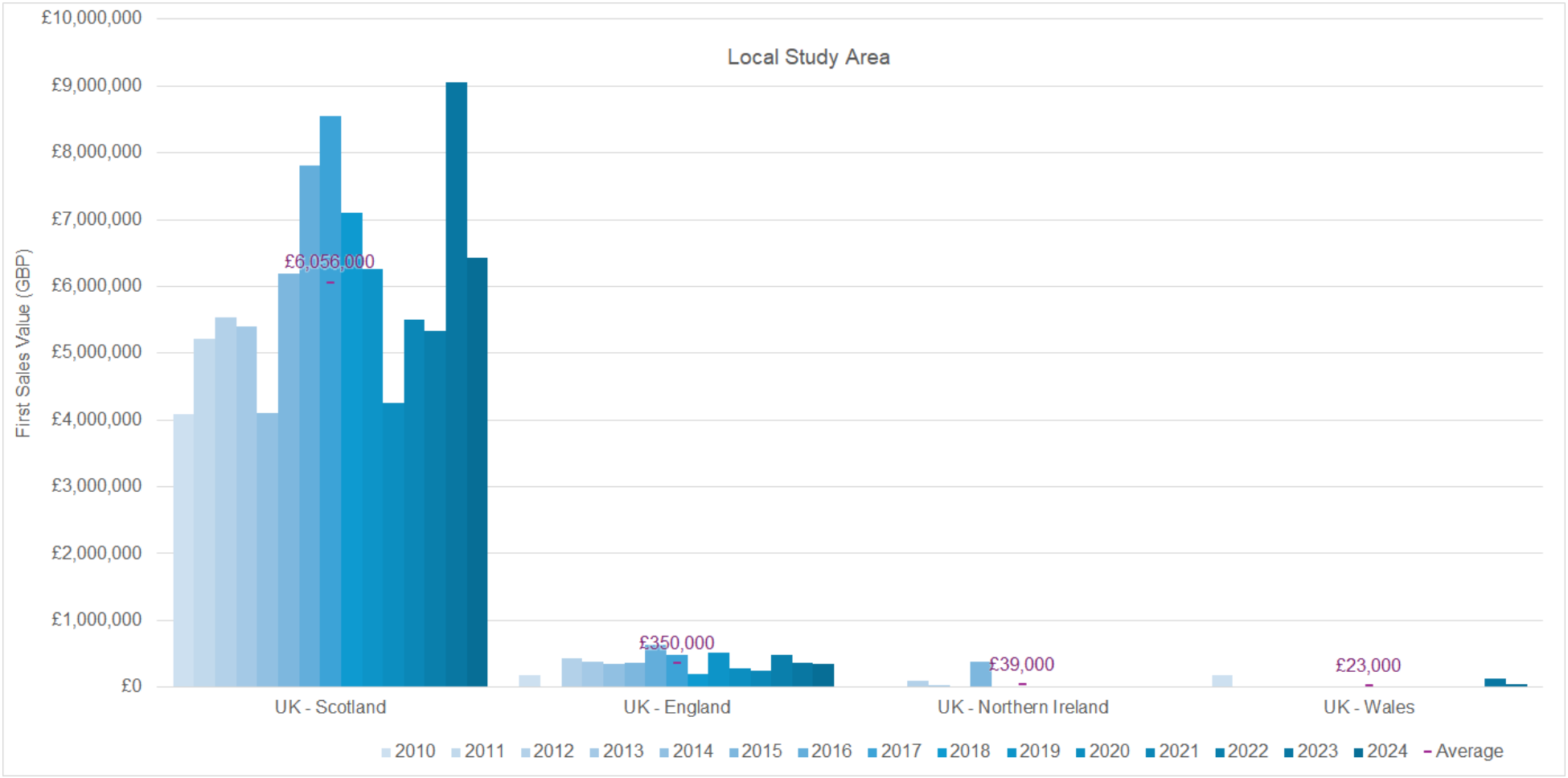

Figure 6.4: Annual Landed Value (£) (2010 to 2024) by Vessel Nationality from the Local Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

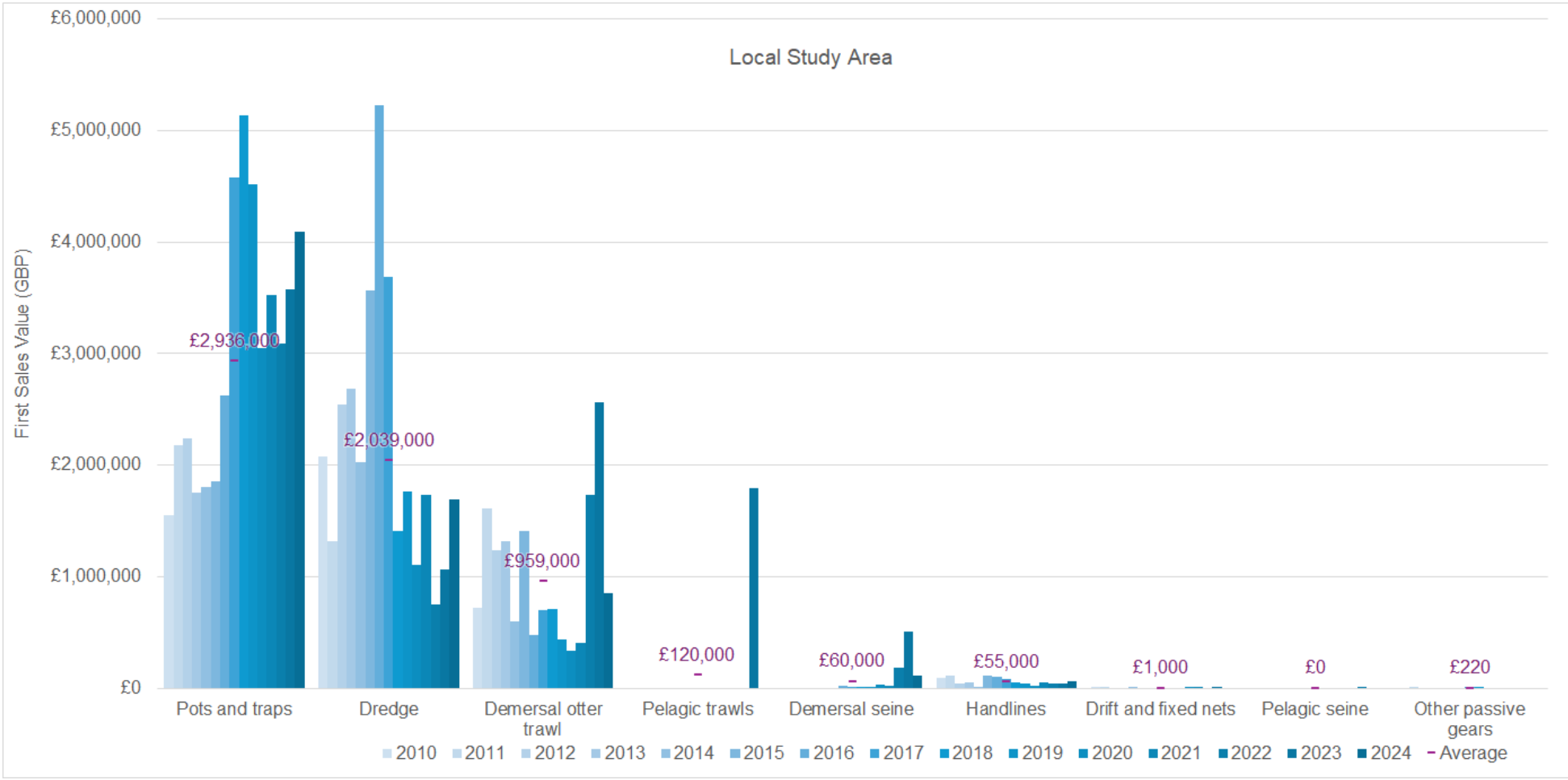

Figure 6.5: Average Annual Landed Value (£) (2010 to 2024) by Gear Type from the Local Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

6.1.9 Long term landings data has been analysed for the top four species from the Local Commercial Fisheries Study Area indicating the landed weight and first sales value by ICES rectangle from 2010 to 2024 for king scallop (Figure 6.6), lobster (Figure 6.7), brown crab (Figure 6.8) and haddock (Figure 6.9).

6.1.10 Landings of king scallop have shown some fluctuation across the time series as would be expected; king scallop landings are known to be cyclical in nature, with vessels fishing offshore with an extensive operational range, moving around the entirety of the UK coastline to target productive grounds on a rotational basis. Landings show relative peaks in 2016 (with a value of £5.2 million) and the following year in 2017 (£3.6 million) (Figure 6.6). King scallop landings are primarily associated with the offshore ICES rectangle 42E8 and 43E8 within the Local Commercial Fisheries Study Area which overlap the offshore section of the Export Cable Corridor and the Array Area.

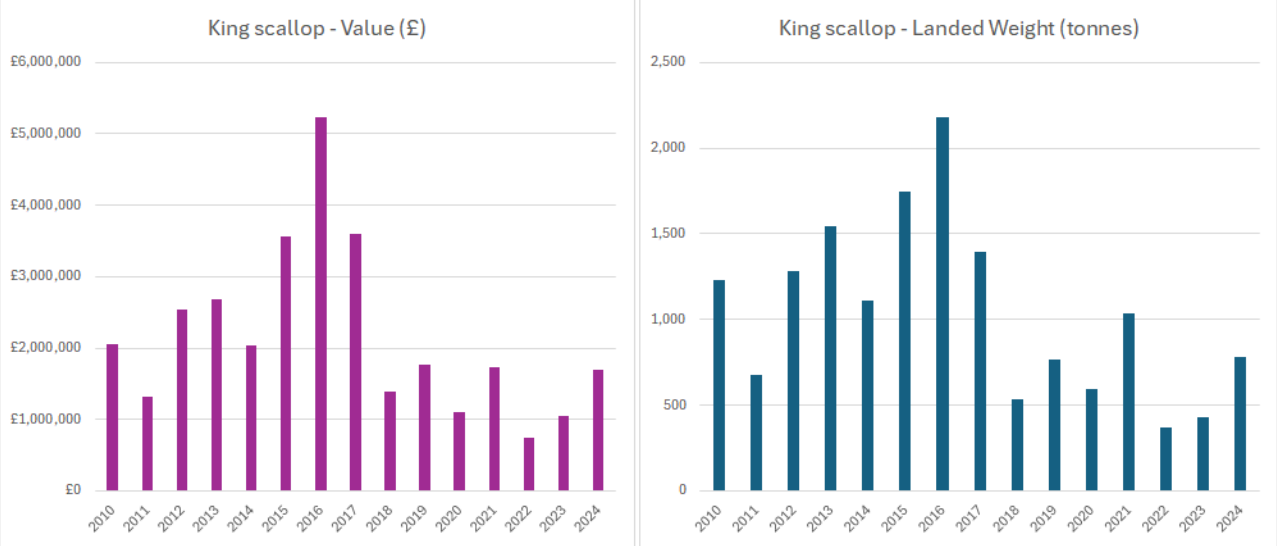

Figure 6.6: Long Term Landing Trends (First Sales Value on Left and Landed Weight on Right) for King Scallop from the Local Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

6.1.11 Lobster landings have shown overall growth with peaks in landed value and weight mid-time series across 2017 to 2019, peaking in 2018 at £3.5 million. Landings were relatively consistent across 2020 to 2024 (Figure 6.7). The highest value of landings is associated with the inshore ICES rectangle 42E7, which overlaps the inshore section of the Export Cable Corridor.

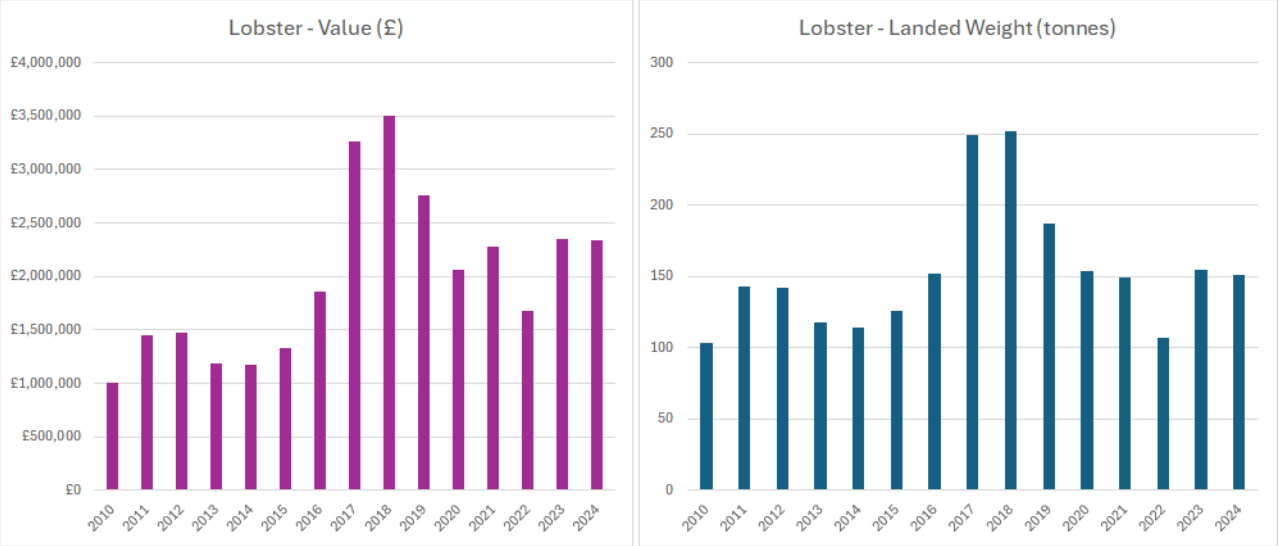

Figure 6.7: Long Term Landing Trends (First Sales Value on Left and Landed Weight on Right) for Lobster from the Local Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

6.1.12 The landed value of brown crab has increased over the time series, peaking in 2018 (with a value of £1.3 million) and 2019 (£1.4 million) (Figure 6.8). Landings of brown crab dropped significantly from 2019 to 2020, though have since shown increase with landings valued at £1.3 million in 2024. The highest value of landings from the Local Commercial Fisheries Study Area are associated with ICES rectangle 42E7 with which the Export Cable Corridor overlaps.

6.1.13 Haddock landings have fluctuated across the time series, declining notably from 2014 to 2021. However, a significant and substantial increase is noted in 2022 and 2023 at £1 million and £2.3 million respectively (Figure 6.9). landings declined in 2024. Landings are within the Local Commercial Fisheries Study Area are greatest from ICES rectangle 43E8 which overlaps the Array Area.

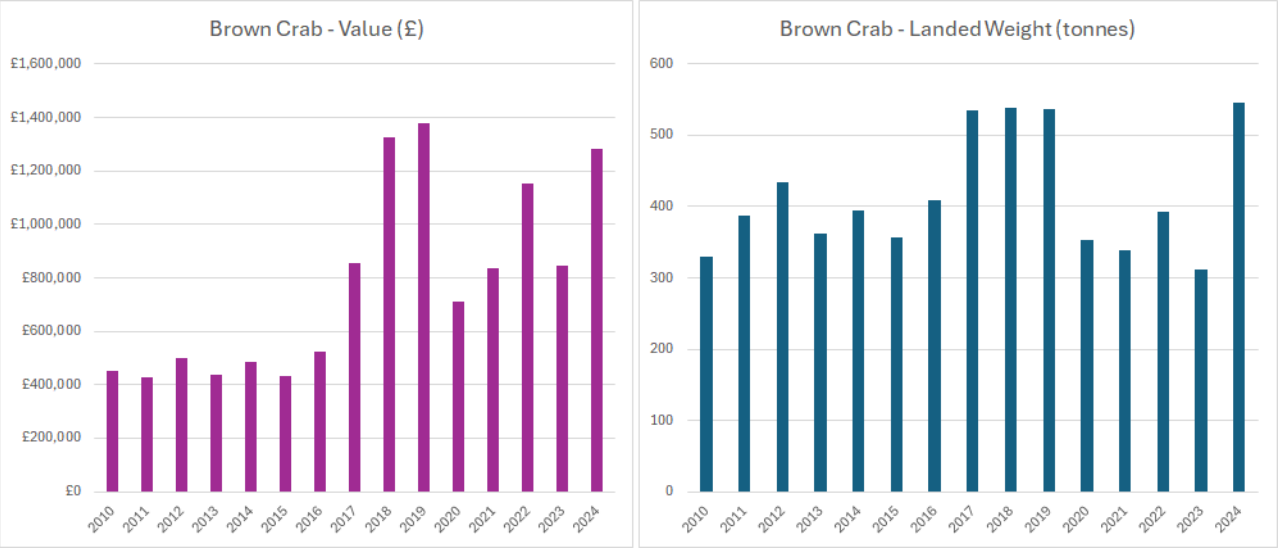

Figure 6.8: Long Term Landing Trends (First Sales Value on Left and Landed Weight on Right) for Brown Crab from the Local Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

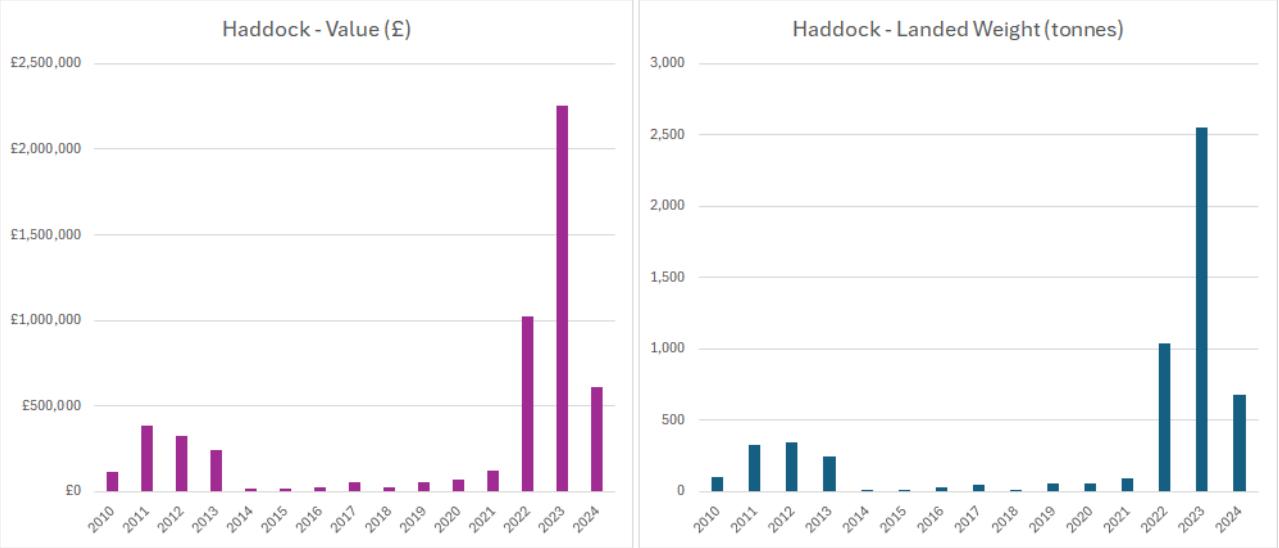

Figure 6.9: Long Term Landing Trends (First Sales Value on Left and Landed Weight on Right) for Haddock from the Local Commercial Fisheries Study Area (Source: MMO, MMO, 2011 to 2025)

6.2 Regional Commercial Fisheries Study Area

6.2.1 The Regional Commercial Fisheries Study Area comprises ICES rectangles 41E7-41E9, 42E7-42E9, 43E7-43E9 and 44E8-44E9, with the highest value landings taken from ICES rectangle 41E7 (Figure 6.10), accounting for 29% of landings from the Regional Commercial Fisheries Study Area and which is inshore and south of the Export Cable Corridor.

6.2.2 Commercial fisheries statistics presenting data for the annual (2010 to 2024) first sales value and landed weight by UK vessels from the Regional Commercial Fisheries Study Area (11 ICES rectangles) are shown in Figure 6.11 and Figure 6.12 respectively.

6.2.3 The statistics indicate that within this wider Regional Commercial Fisheries Study Area, landings are dominated by similar commercially important species are as per those in the Local Commercial Fisheries Study Area, including Nephrops, lobster, haddock, king scallop and brown crab, as well as pelagic species of herring and mackerel.

6.2.4 Landings are predominately made by Scottish vessels (Figure 6.13), operating demersal otter trawl, pots, scallop dredges and pelagic trawl with some presence of pelagic and demersal seine activity (Figure 6.15).

6.2.5 UK fishing vessel landings by ICES rectangle across the Regional Commercial Fisheries Study Area are shown in Figure 6.14. Landings are most substantial in value from ICES rectangles 41E7 located outside of and to the south of the Export Cable Corridor. This ICES rectangle overlaps with the Firth of Forth Nephrops FU. Regionally, the lowest value of landings is taken from ICES rectangle 41E9 located south-east of the Array Area.

6.2.6 The seasonality of landings across the Regional Commercial Fisheries Study Area for key species are depicted in Figure 6.16. Landings occur year-round and

are highest in summer months due to lobster landings and autumn months due to spikes in landings of herring which are targeted in their autumn migrations.

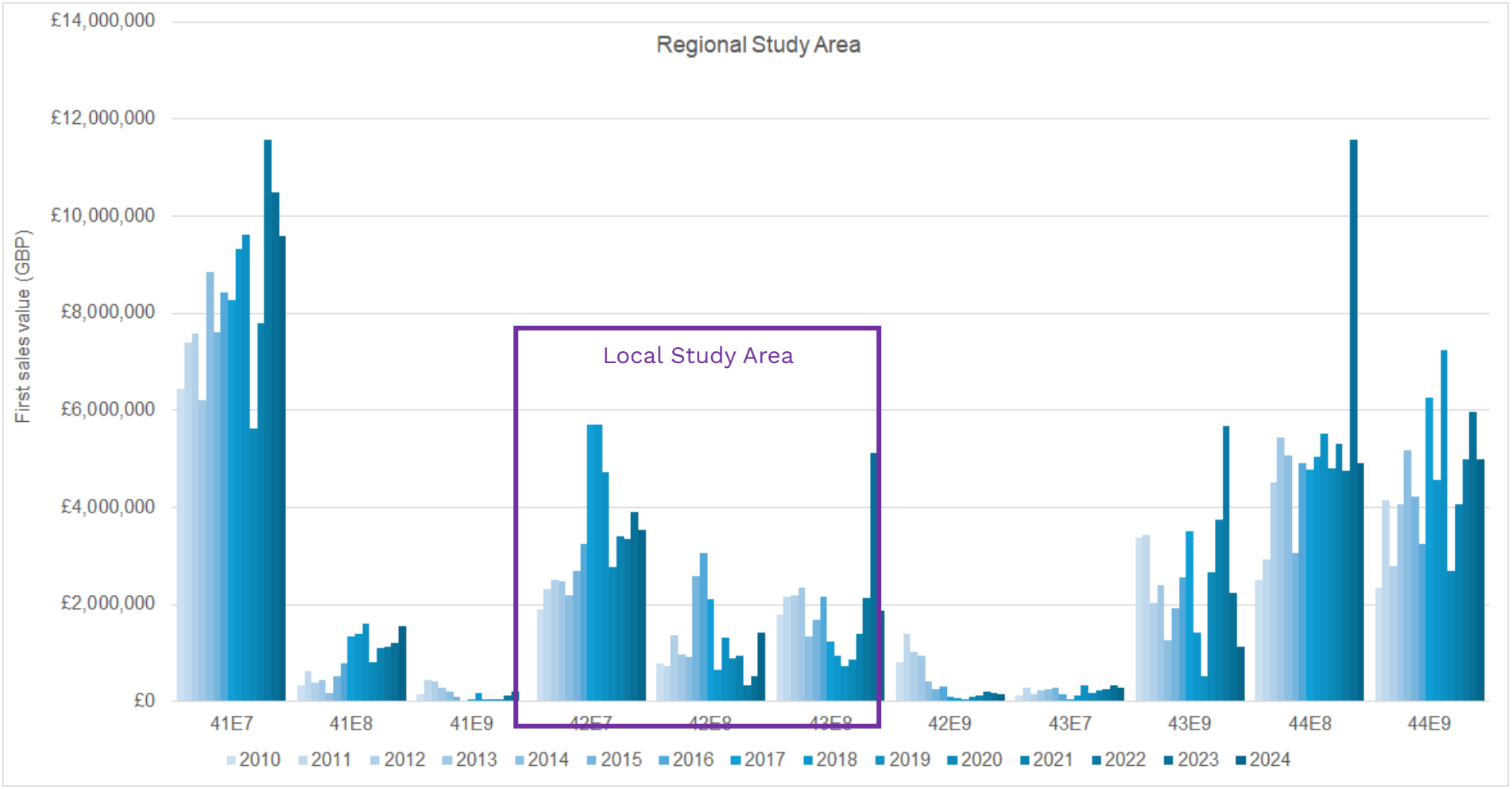

Figure 6.10: Annual Landings Value (£) by UK Registered Vessels from the Regional Commercial Fisheries Study Area, by ICES Rectangle, Between 2010 and 2024 (Source: MMO, 2011 to 2025)

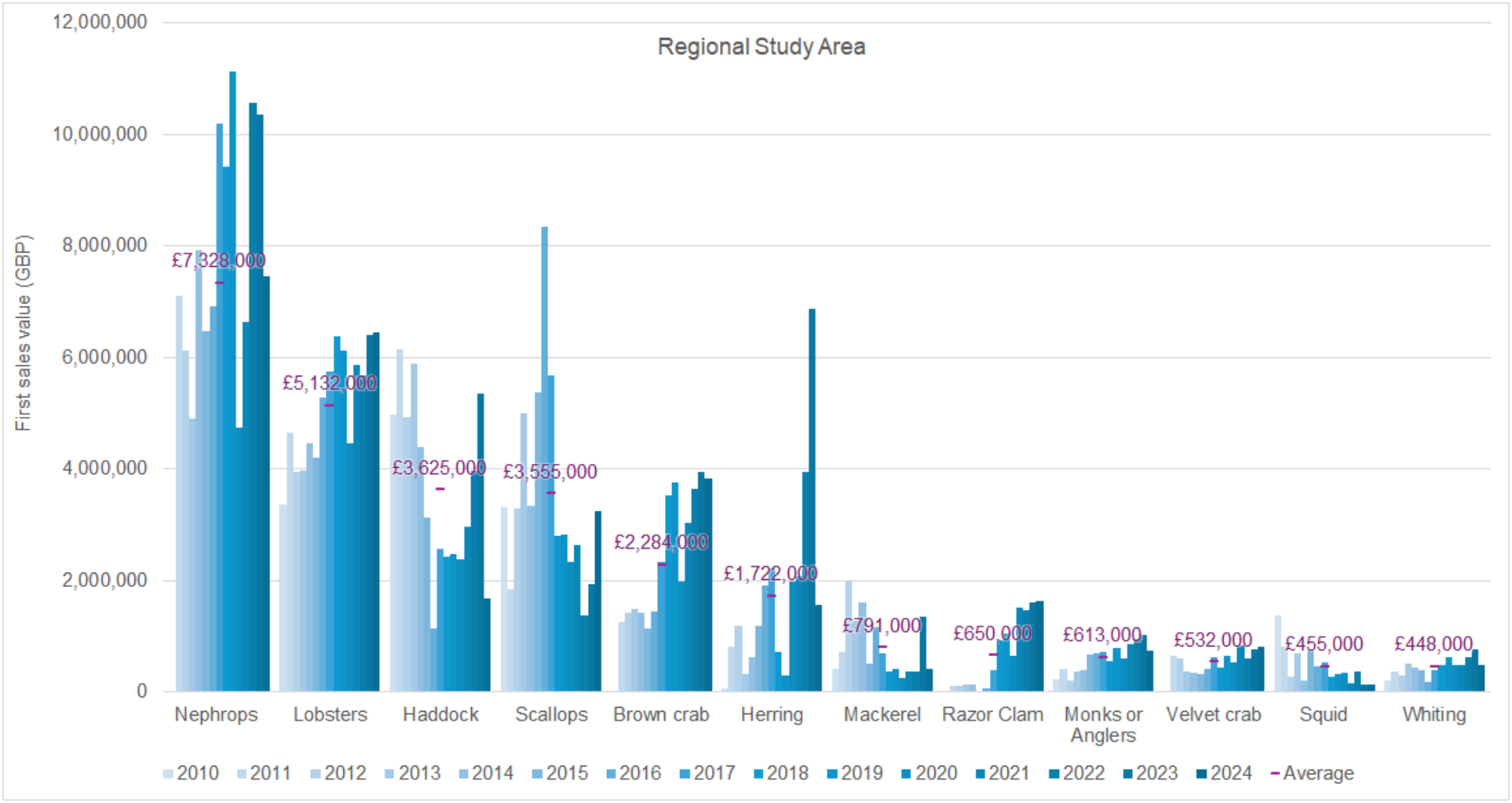

Figure 6.11: Key Species by Annual Landed Value (£) (2010 to 2024) from the Regional Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

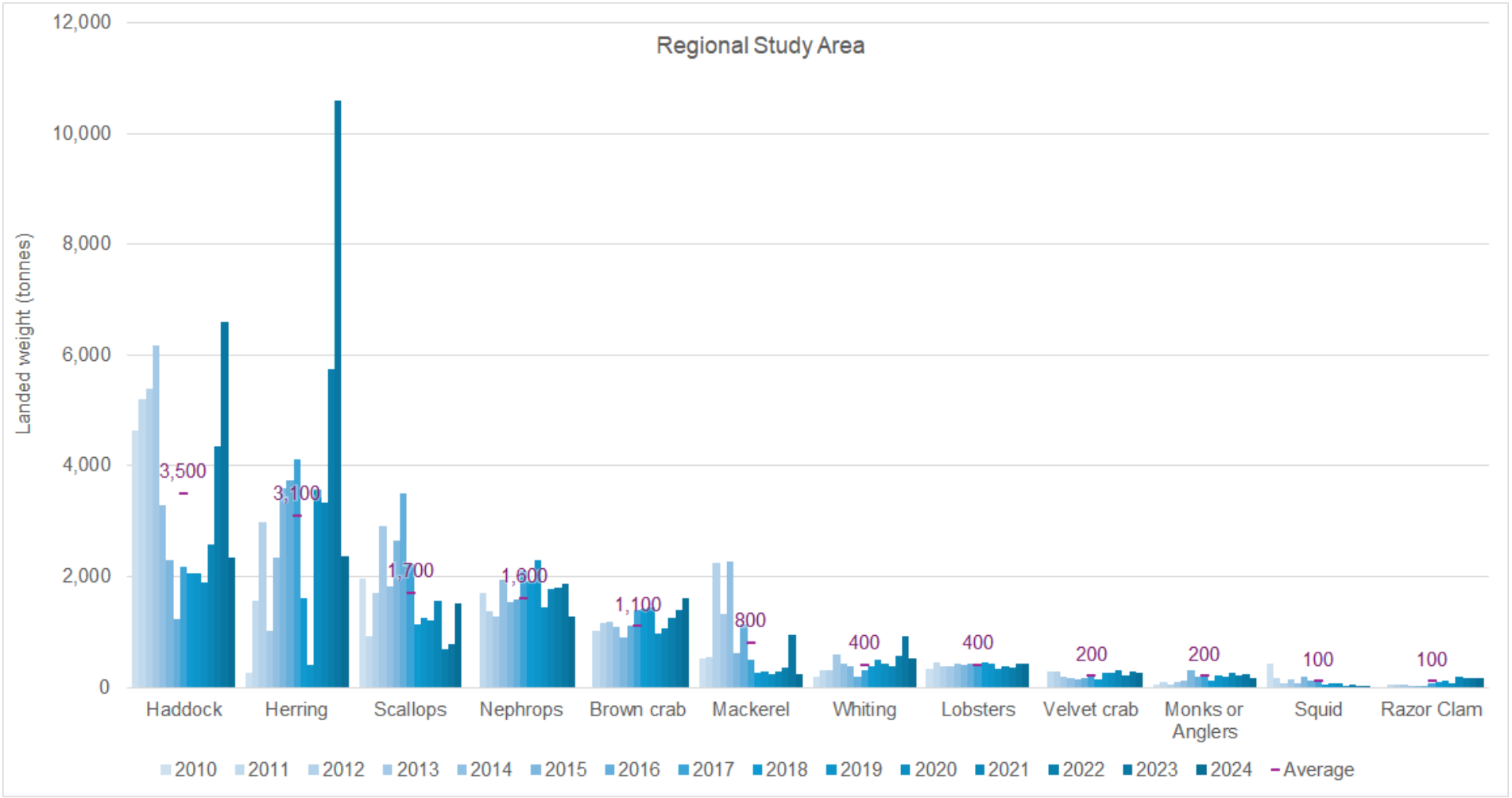

Figure 6.12: Key Species by Annual Landed Weight (T) (2010 to 2024) from the Regional Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

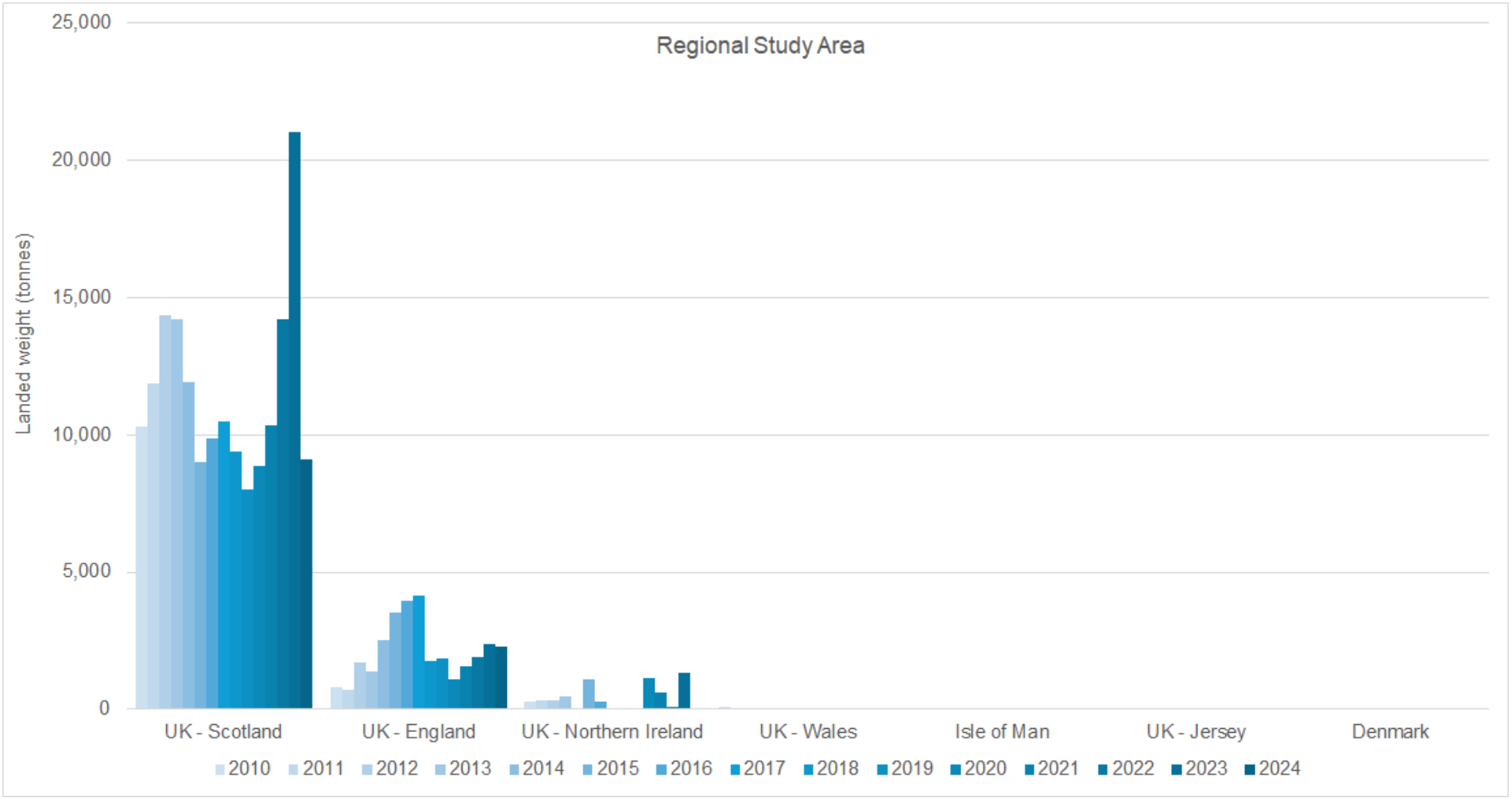

Figure 6.13: Annual Landed Weight (T) (2010 to 2024) by Vessel Nationality from the Regional Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

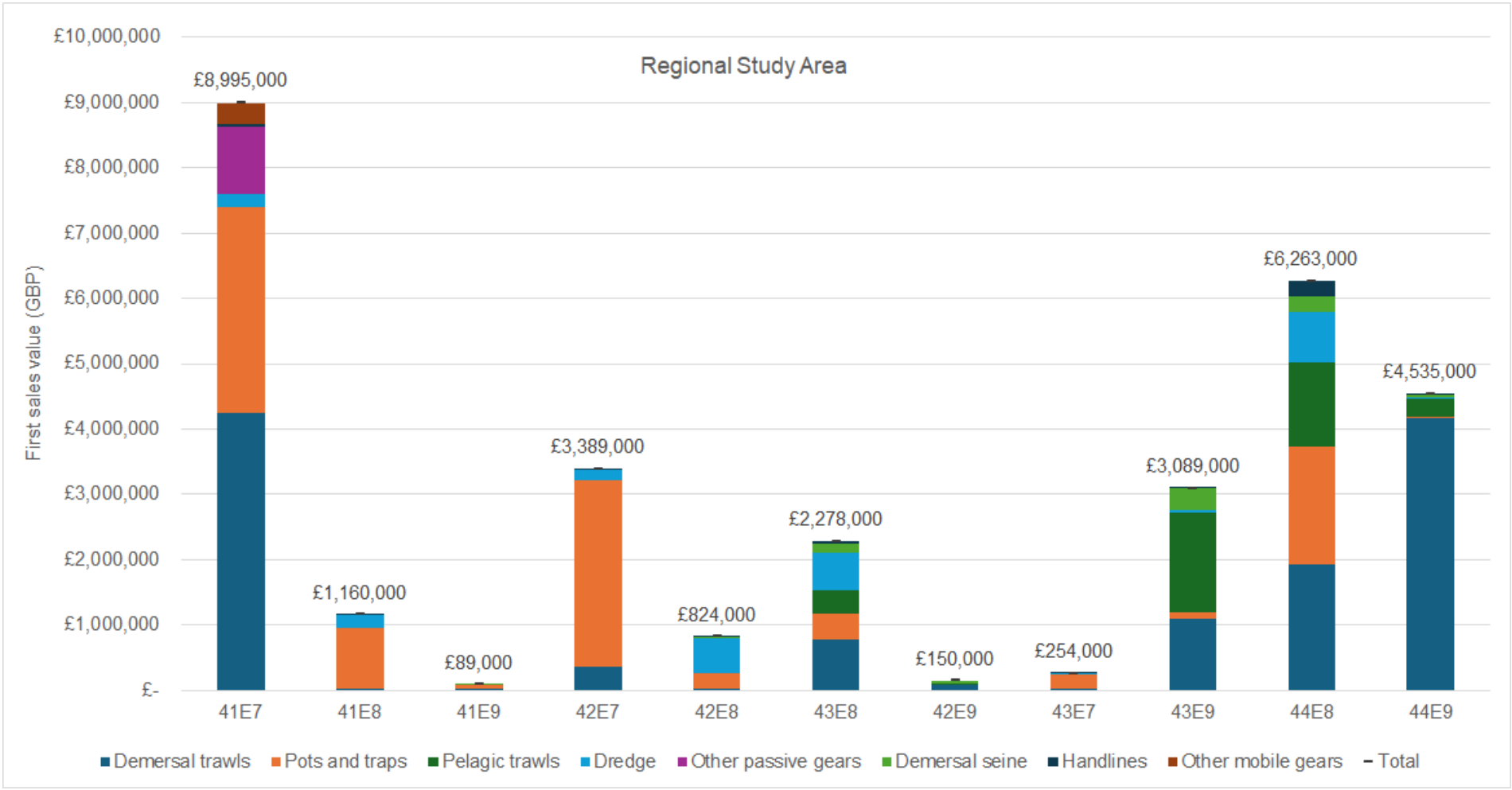

Figure 6.14: Average annual Landed Value (£) (2020 to 2024) by ICES Rectangle and Gear Type from the Regional Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

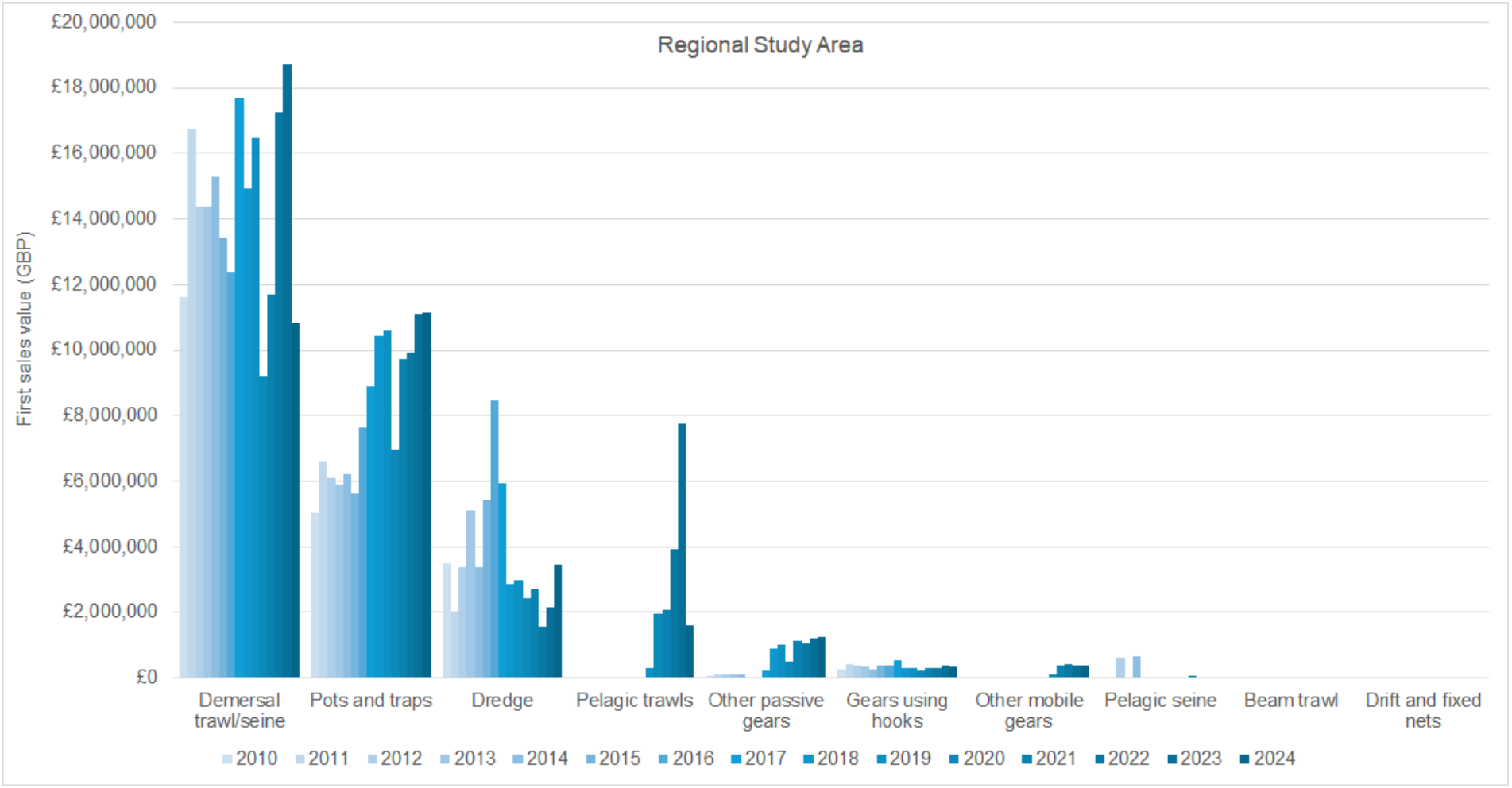

Figure 6.15: Average Annual Landed Value (£) (2010 to 2024) by Gear Type from the Regional Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

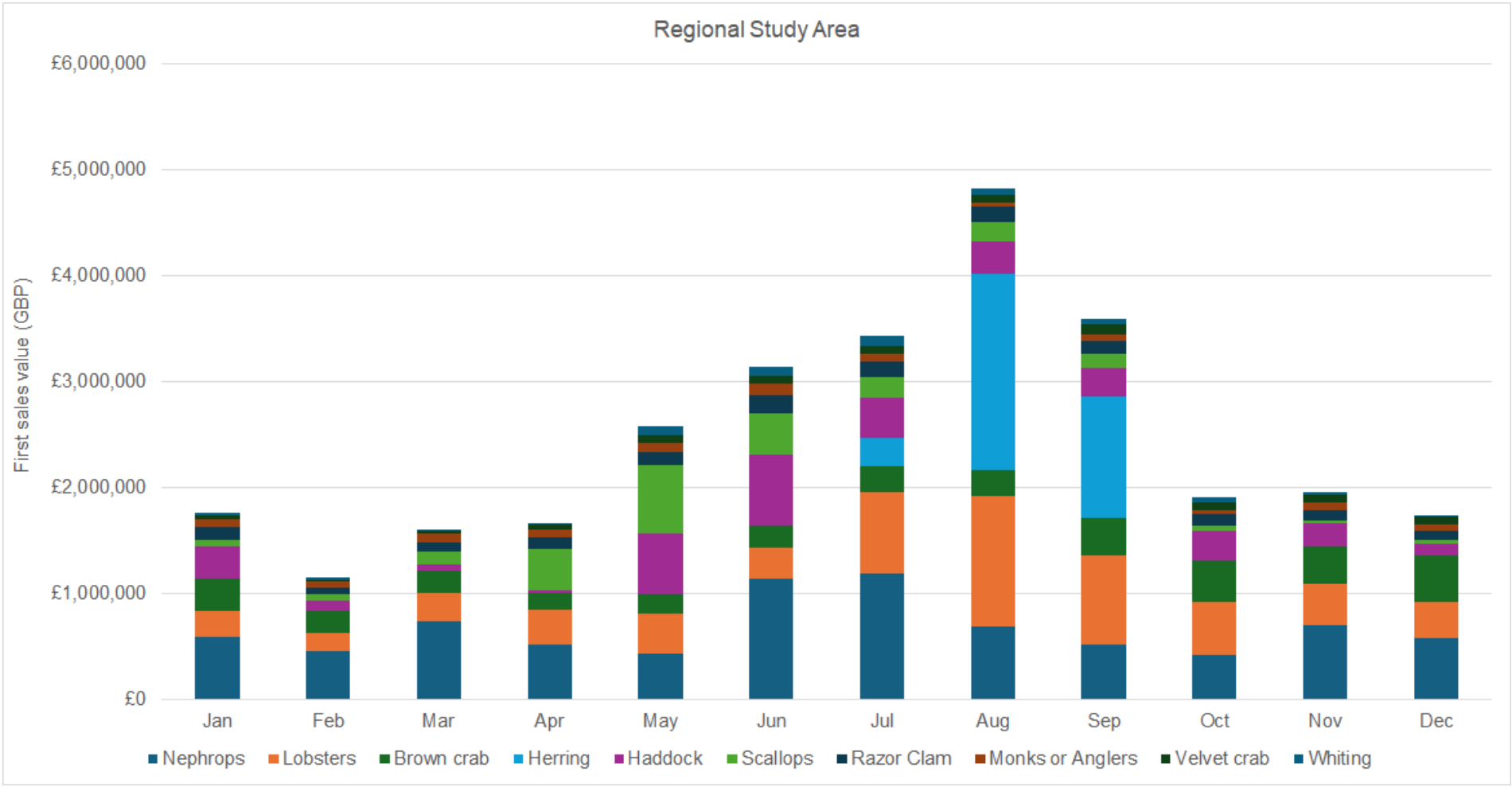

Figure 6.16: Average Monthly Landed Value (£) (2020 to 2024) by Species from the Regional Commercial Fisheries Study Area (Source: MMO, 2011 to 2025)

6.3 Landings by Non-UK Fishing Vessels

6.3.1 Landings by EU countries from the Local Commercial Fisheries Study Area are shown in Figure 6.17, indicating the average annual landed weight during the period 2006 to 2016. This data is considered historic, and pre-EU-exit (i.e. before the exit of the UK from the EU), however is the most up-to-date publicly available data by ICES rectangle for all EU fleets and allows an indication of which countries may be active across the Local Commercial Fisheries Study Area.

6.3.2 Vessels registered in Denmark, Netherlands, France, Germany and Lithuania are recorded to historically fish within the Local Commercial Fisheries Study Area. The key target species for these international fleets are herring, targeted by large pelagic trawlers.

6.3.3 EU vessels are included in the spatial activity assessment provided in Section 7. Activity by Norwegian vessels is also captured in Section 7.

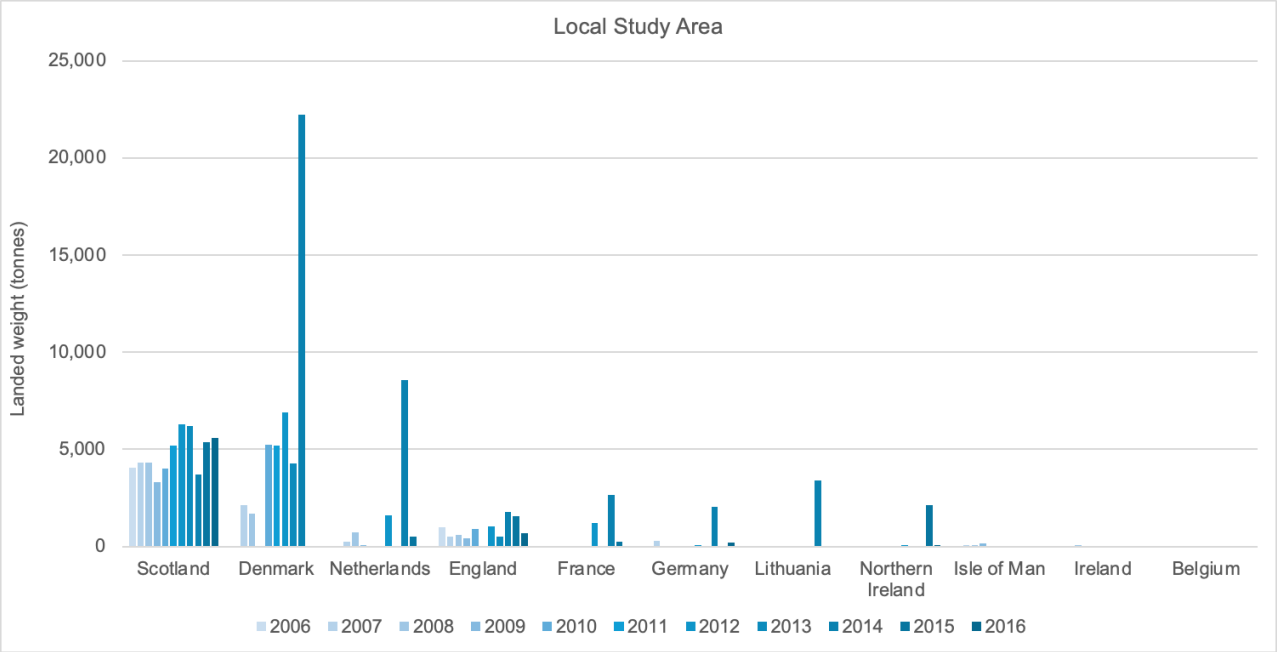

Figure 6.17: Annual Landed Weight (2006 to 2016) by Vessel Nationality from the Local Commercial Fisheries Study Area (Source: EU DCF, 2023)

7 Spatial Fishing Activity

7.1 Fishing Intensity Based on VMS Data

7.1.1 This section presents the spatial mapping data and information available to inform the location and intensity of fishing across the Regional Commercial Fisheries Study Area, and at a wider spatial scale as available.

7.1.2 VMS data has been obtained from five different sources, with varying details as follows:

- ICES VMS data displays the surface Swept Area Ratio of catches by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface Swept Area Ratio indicates the number of times in an annual period that a demersal fishing gear makes contact with (or sweeps) the seabed surface. Surface Swept Area Ratio provides a proxy for fishing intensity and has been analysed to determine an average annual Swept Area Ratio based on data from 2016 to 2020;
- MMO VMS data displaying the first sales value (£) of catches and covers UK registered vessels 15 m and over in length from 2016 to 2020;
- Scottish vessel VMS data sourced from the Marine Scotland MAPS NMPi data catalogue variously displaying the first sales value (£) of catches and fishing intensity (2009 to 2013) for different gear types and target species, and for vessels under 12 m length (2017 to 2021);
- SPFA VMS data for their Scottish pelagic trawl member vessels for 2013 to 2021; and
- Norwegian vessel VMS data showing fishing activity by gear type.

7.1.3 Demersal otter trawl activity is depicted in Figure 7.3 to Figure 7.6, indicating some activity across the Array Area and relatively lower levels of activity across the Export Cable Corridor. In a wider context, data indicates key demersal trawl grounds are located to the east of the Proposed Development, with the Array Area located on the fringes of these grounds and being variously more or less heavily targeted across the mapped time series.

7.1.4 Demersal seine activity is depicted in Figure 7.7 to Figure 7.9 and shows a very similar pattern to that of demersal trawl activity.

7.1.5 Dredge activity is depicted in Figure 7.10 to Figure 7.13 indicating that there is an overlap of the central portion of the Export Cable Corridor with scallop grounds, with very limited dredge activity in the Array Area.

7.1.6 Pelagic trawl activity is depicted in Figure 7.14 and Figure 7.15. 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. The VMS data indicate very limited potential for pelagic trawling within the Proposed Development with more routinely targeted areas to the north and

east. It is noted that the pelagic fishery is highly seasonal, with activity for approximately eight to 12 weeks in the year.

7.1.7 Beam trawl activity is shown in Figure 7.16. The data indicates no beam trawl activity in the Proposed Development.

7.1.8 Potting activity is depicted in Figure 7.17 and Figure 7.18, indicating an expansion over time of activity by vessels over 15 m length with historically no activity in the Proposed Development, but increasing levels of activity across recent years. 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 15 m in length and therefore not likely to be represented within the MMO VMS dataset, but their activity is expected to be captured in Figure 7.19 showing the activity of vessels under 12 m length. This data indicates the presence of smaller vessel activity along the local coastline inside of the 6 nm limit, including in the nearshore portion of the Export Cable Corridor. Data indicates that highest levels of small vessel activity are located outside of the Proposed Development.

7.1.9 VMS data from 2009 to 2013 has been amalgamated and presented to show fishery intensity in Figure 7.20 for the wider demersal fishery (targeting species including haddock, squid and Nephrops), Figure 7.21 for Nephrops, Figure 7.22 for squid and Figure 7.23 for king scallop. Data is considered historical. Data indicates very limited potential for the overlap of the Proposed Development with key demersal grounds. Data indicates, as per the VMS data presented in other figures, that a portion of the Export Cable Corridor overlaps king scallop grounds.

7.1.10 VMS data for Norwegian registered vessels is presented in Figure 7.24 for the period 2011 to 2023, displaying VMS data for fishing vessels by gear type. The data indicate no activity within the Proposed Development.

7.2 Fishing Intensity Based on AIS Data

7.2.1 Fishing vessel route density, based on vessel AIS positional data is shown in Figure 7.25 for 2023, in Figure 7.26 for 2019 to 2022 and in Figure 7.27 for seasonal activity. AIS is required to be fitted on fishing vessels ≥ 15 m 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.

7.2.2 AIS data indicates key vessel transit routes and areas of sustained fishing vessel presence across distinct sections of the Export Cable Corridor and across the south-east corner of the Array Area.

7.3 Fishing Activity Based on Marine Directorate Surveillance Data

7.3.1 Fisheries surveillance data from 2017 to 2022 has been sourced from the Marine Directorate and is presented in Figure 7.28. Fisheries surveillance data broadly aligns with other spatial data sources with 'patches' of fishing vessel observations across distinct portions of the Export Cable Corridor, though within the Array Area observations are relatively greater across the northern section (differing from areas of relatively higher activity shown in the AIS data). Observations are relatively more frequent to the east and south of the Proposed Development.

7.4 Fishing Activity Based on Vessel Traffic Survey Data

2023/24 Surveys

7.4.1 A project-specific vessel traffic survey was undertaken in June/July 2023 and January 2024 (See Volume 2, Chapter 14: Shipping and Navigation for additional detail), using AIS and radar tracking and visual observations to record vessel activity across the Array Area and a surrounding 10 nm buffer. Additional surveys covering the same area were conducted in July and December 2025.

7.4.2 A total of 24 fishing vessels entered the Survey Area during the summer survey with three entering the Array Area. The winter survey recorded similar results with 24 fishing vessel tracks observed through the Survey Area and three vessels transiting the Array Area. Across both surveys, five unique vessels were identified entering the Array Area. Approximately 7% of all vessels recorded in the summer survey were fishing vessels, and 10% were fishing vessels in the winter survey.

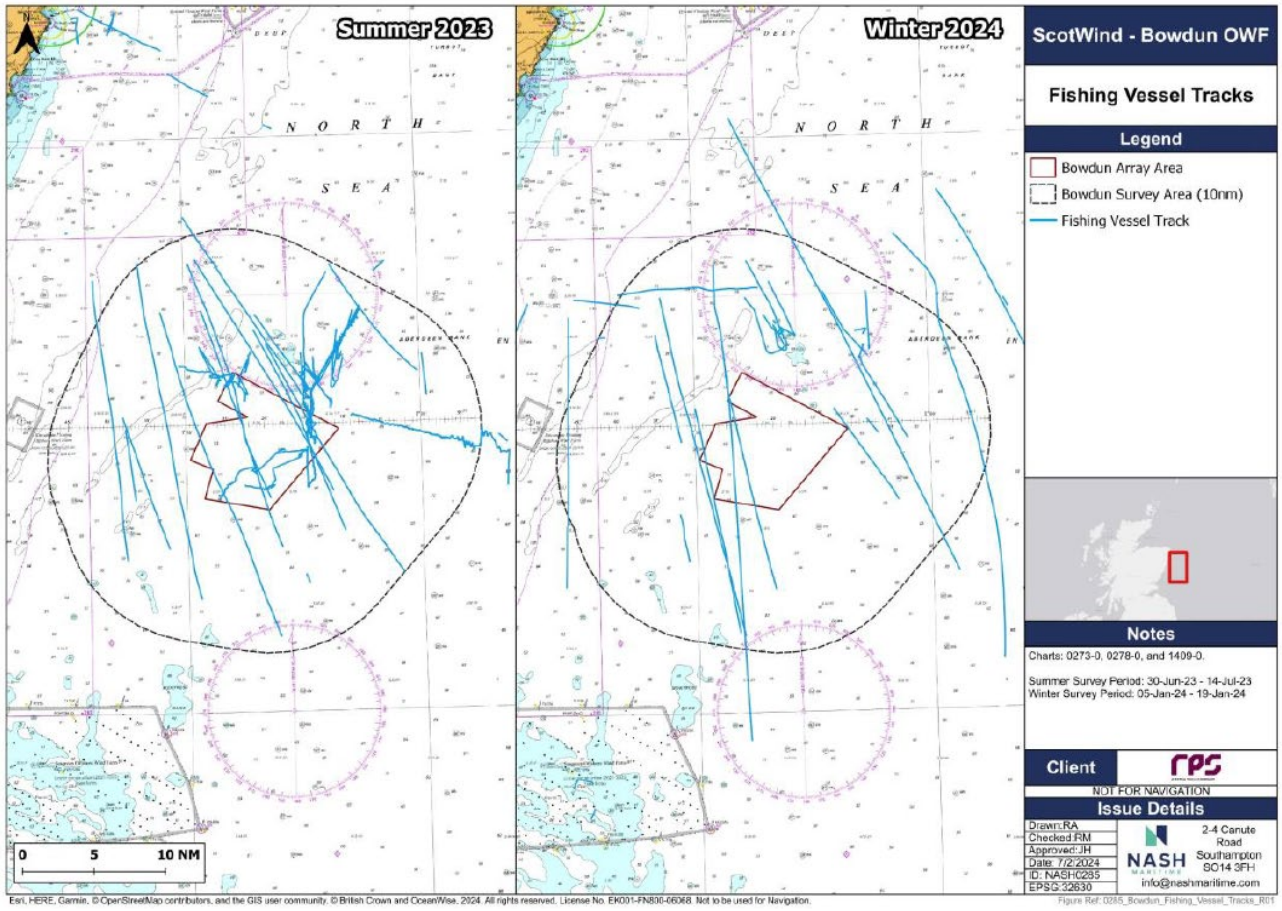

Figure 7.1: Fishing Vessel Tracks Recorded During the 2023/24 Summer and Winter Marine Traffic Surveys

2025 Surveys

7.4.3 A total of 25 fishing vessel transits were recorded in the Survey Area during the July 2025 summer survey (representing 6.6% of total summer survey transits in the Survey Area) with 13 transits entering the Array Area. Vessel tracks are shown in Figure 7.2.

7.4.4 The December 2025 winter survey recorded 13 fishing vessel transits within the Survey Area and five of these intersected the Array Area.

7.4.5 During the summer survey, aside from five unidentified vessel transits recorded with non-AIS data, most transits within the Array Area were attributed to a single trawler. During the winter survey there were 12 different fishing vessels recorded in the Survey Area.

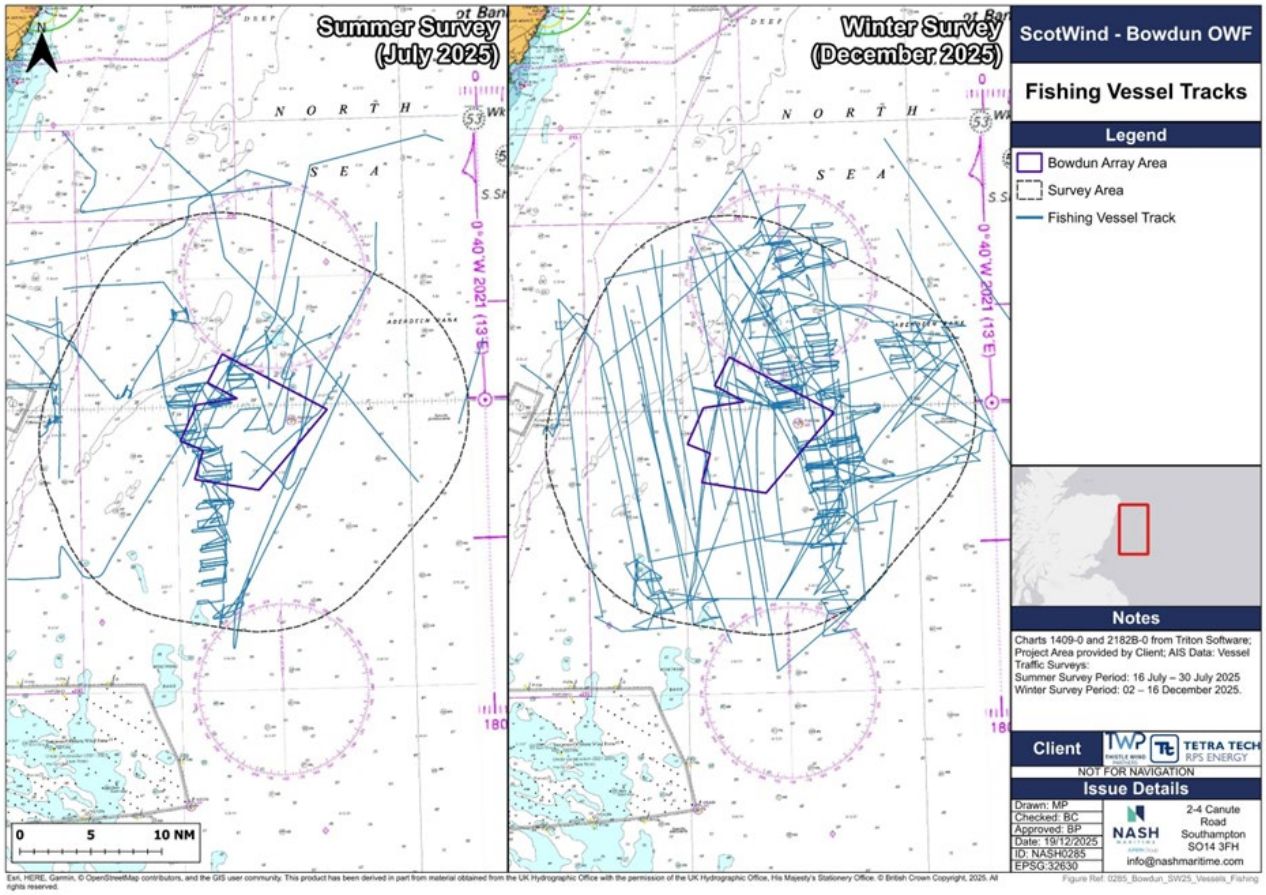

Figure 7.2: Fishing Vessel Tracks Recorded During the 2025 Summer and Winter Marine Traffic Surveys (Source: Nash Maritime, 2025)

7.5 Fishing Activity Based on Other Data Sources

Fishing Vessel Plotter Data

7.5.1 A representative sample of fishing vessel plotter data for the Proposed Development has been provided in confidence to the Applicant by the SFF. The plotter data depicts the activity of SFF member vessels and indicates the presence of fishing activity across the northern half of the Array Area, with relatively limited activity across the south-eastern portion of the Array Area.

7.5.2 The data indicates the presence of fishing activity across the Export Cable Corridor, with distinct grounds targeted in discrete sections of the corridor by demersal trawlers and dredgers.

Regional Inshore Fishery Group Mapping

7.5.3 The N&EC RIFG commissioned the North Atlantic Fisheries College (NAFC) Marine Centre to undertake a mapping exercise for all fisheries activity (Shelmerdine and Mouat, 2021).

7.5.4 The mapping produced as part of the N&EC RIFG fishery assessment is presented in this section and georeferenced to include the location of the Proposed Development.

7.5.5 Mapping is provided for the following fishery assessments indicating fishery likelihood/occurrence on a scale of high to low as undertaken by Shelmerdine and Mouat (2021):

- demersal otter trawl targeting Nephrops (Figure 7.29 and Figure 7.31), indicating important grounds located outside of the Proposed Development and further south within the Moray Firth;
- demersal otter trawl and demersal seine targeting haddock, cod and mixed demersal species (Figure 7.29, Figure 7.30 and Figure 7.32), indicating overlap of fishing activity with the Proposed Development, though with relatively more intense fishing activity to the north and south;
- scallop dredging (Figure 7.33), indicating the likely presence of the scallop fishery across portions of the Export Cable Corridor, proximate to the 6 nm and 12 nm limits;
- creel for crab and lobster (Figure 7.34 and Figure 7.35), indicating overlap of creel activity with the inshore portion of the Export Cable Corridor; and
- lines (Figure 7.36), indicating potential for overlap of line activity with the Export Cable Corridor inside of the 12 nm limit.

Fisheries Sensitivity Mapping and Displacement Mapping

7.5.6 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).

7.5.7 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 and number of vessels (Figure 7.37 and Figure 7.38), indicating relatively low effort in the Export Cable Corridor, and slightly greater effort in the northern portion of the Array Area, though with areas of notably greater effort located to the south and north of the Proposed Development;
- demersal seine effort and number of vessels (Figure 7.39 and Figure 7.40), indicating limited effort in the Export Cable Corridor and some effort in the Array Area, with relatively higher levels of effort to the east and north-east of the Proposed Development;
- dredge effort and number of vessels (Figure 7.41 and Figure 7.42), indicating some effort in the Export Cable Corridor and none in the Array Area, with relatively higher levels of effort to the south of the Proposed Development;
- pelagic trawl effort and number of vessels (Figure 7.43 and Figure 7.44), indicating no effort within Proposed Development boundaries; and

- potting effort and number of vessels (Figure 7.45 and Figure 7.46), indicating some effort in discrete sections of the Export Cable Corridor and none in the Array Area.

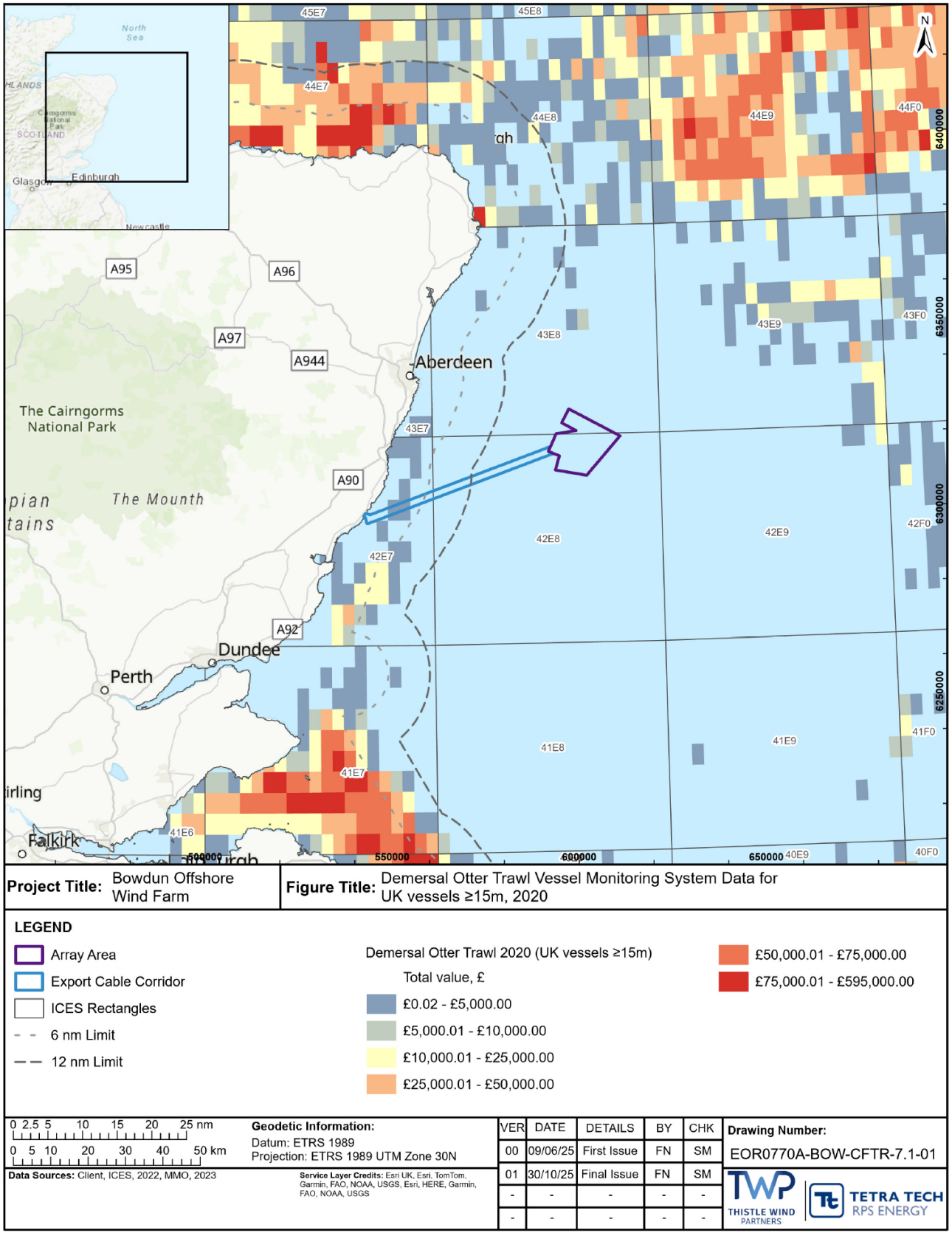

Figure 7.3: Demersal Otter Trawl Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2020 (Source: MMO, 2022)

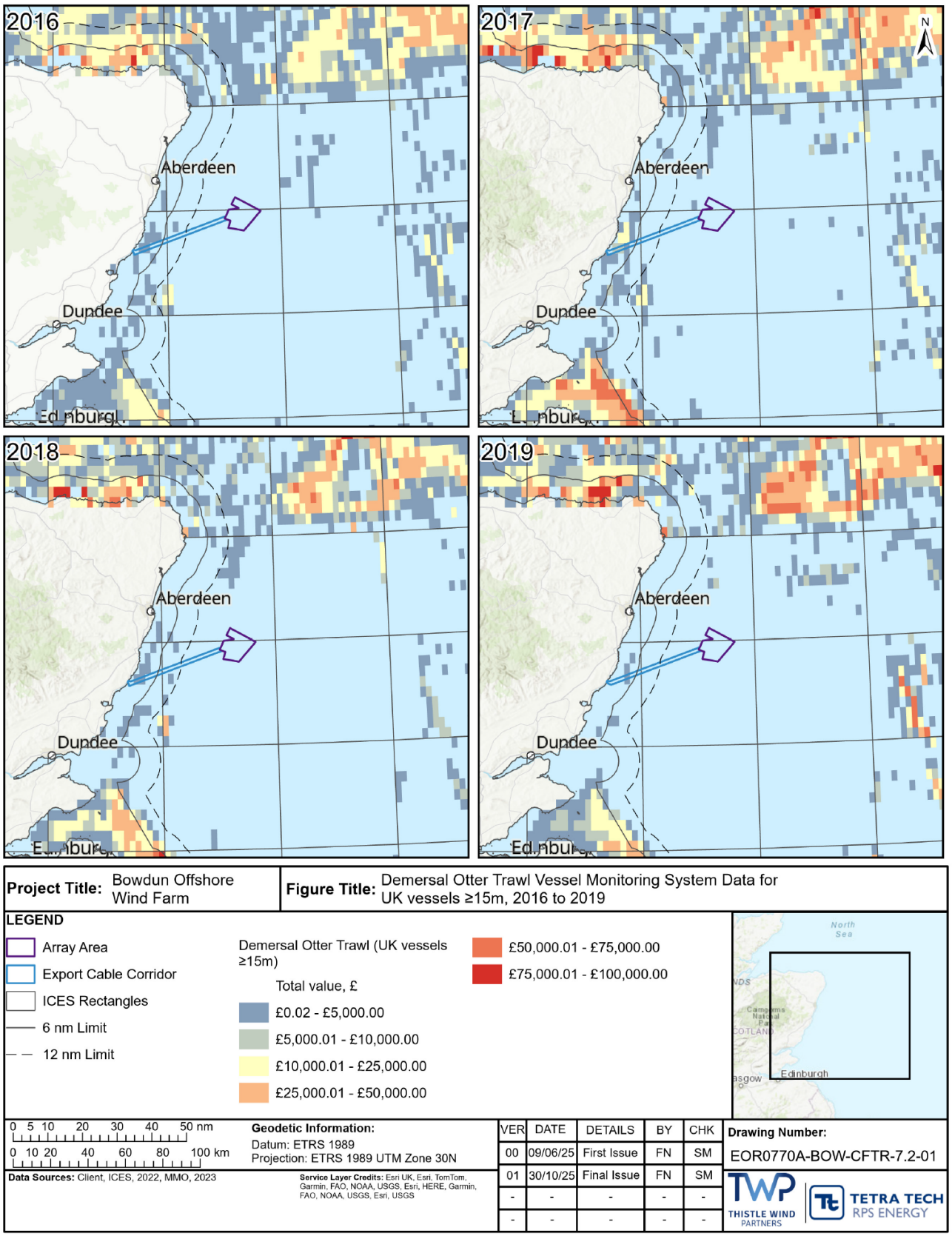

Figure 7.4: Demersal Otter Trawl Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2016 to 2019 (Source: MMO, 2022)

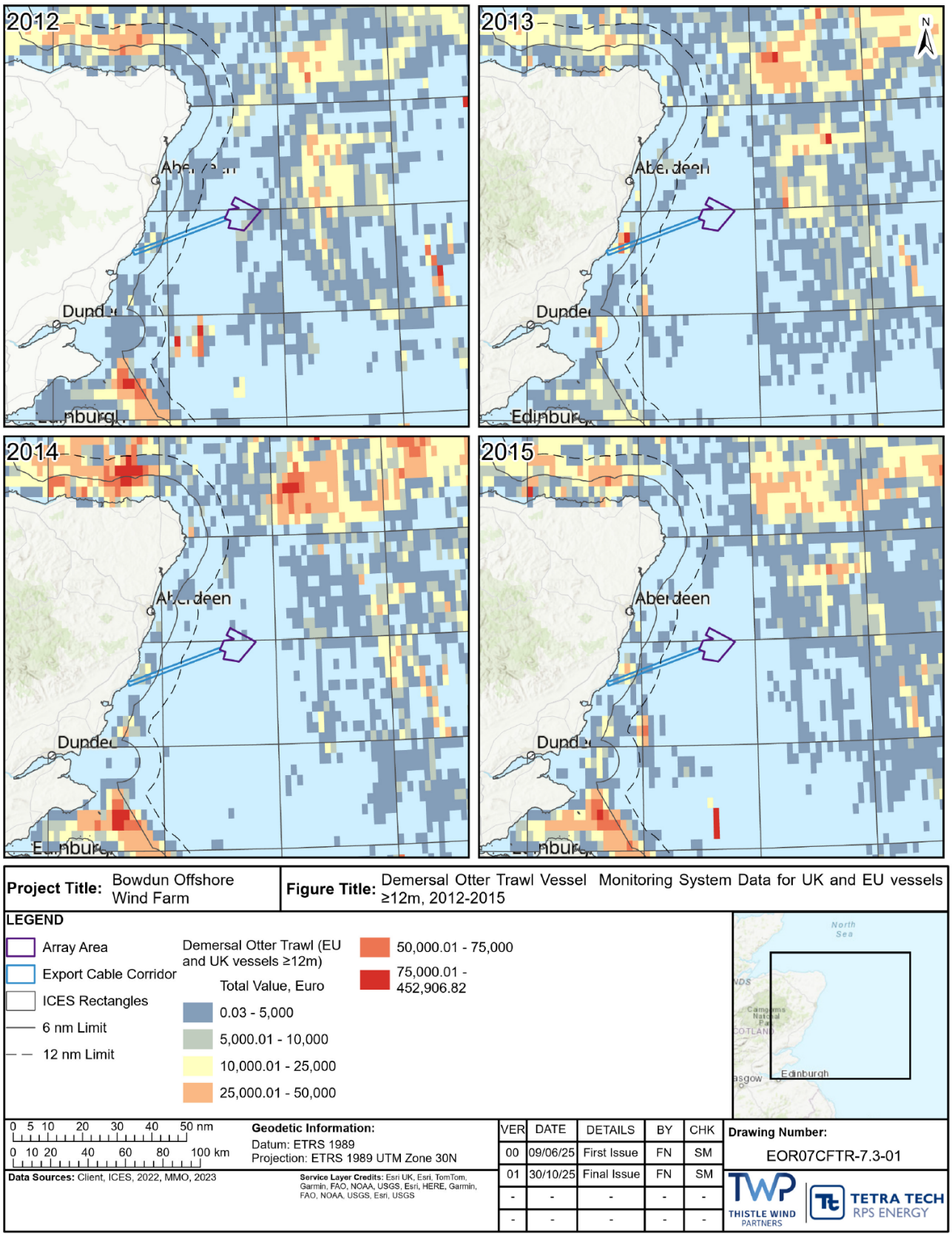

Figure 7.5: Demersal Otter Trawl Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2012 to 2015 (Source: MMO, 2022)

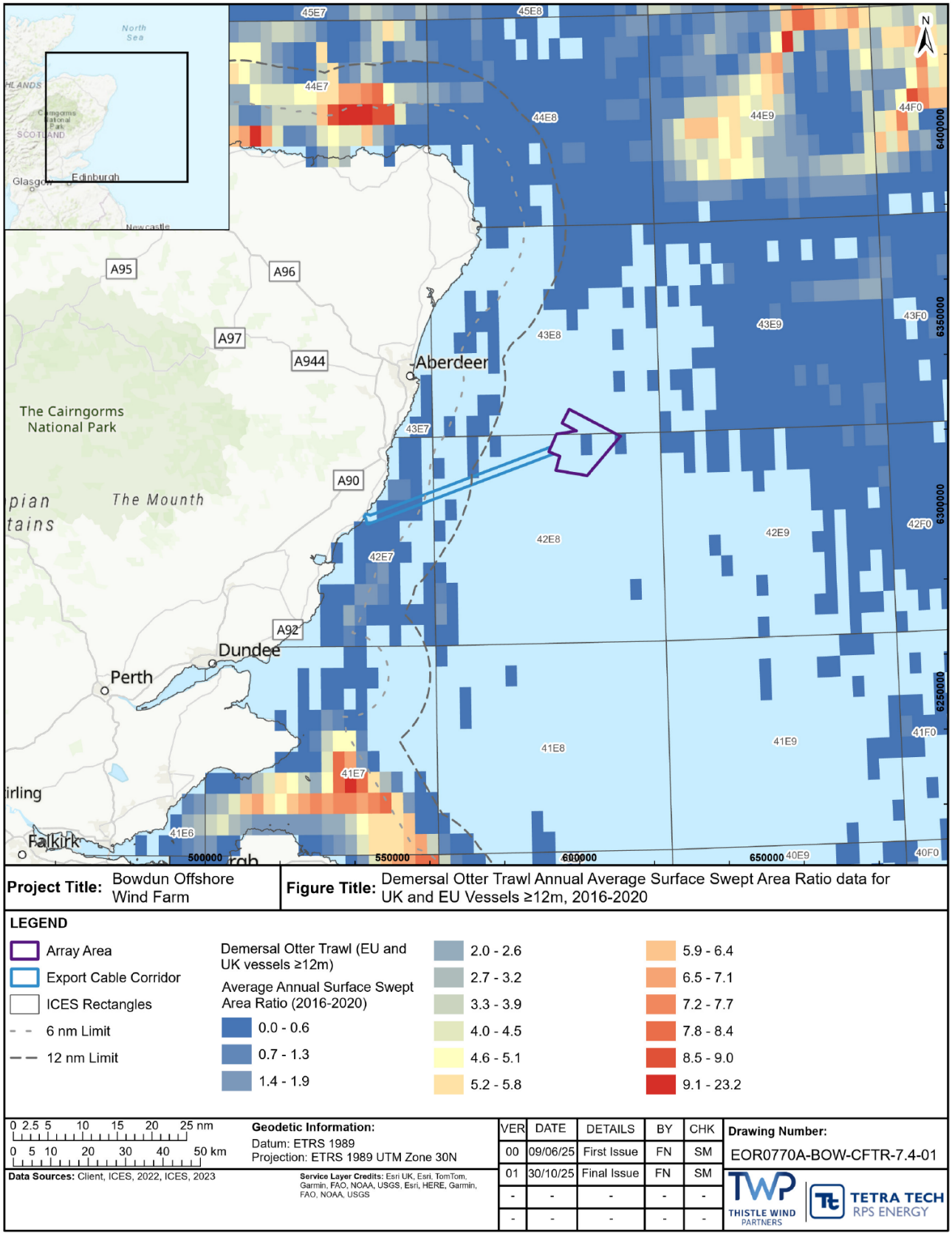

Figure 7.6: Demersal Otter Trawl Gear Annual Average Surface Swept Area Ratio Data for UK and EU Vessels ≥ 12 m, 2016 to 2020 (Source: ICES, 2022)

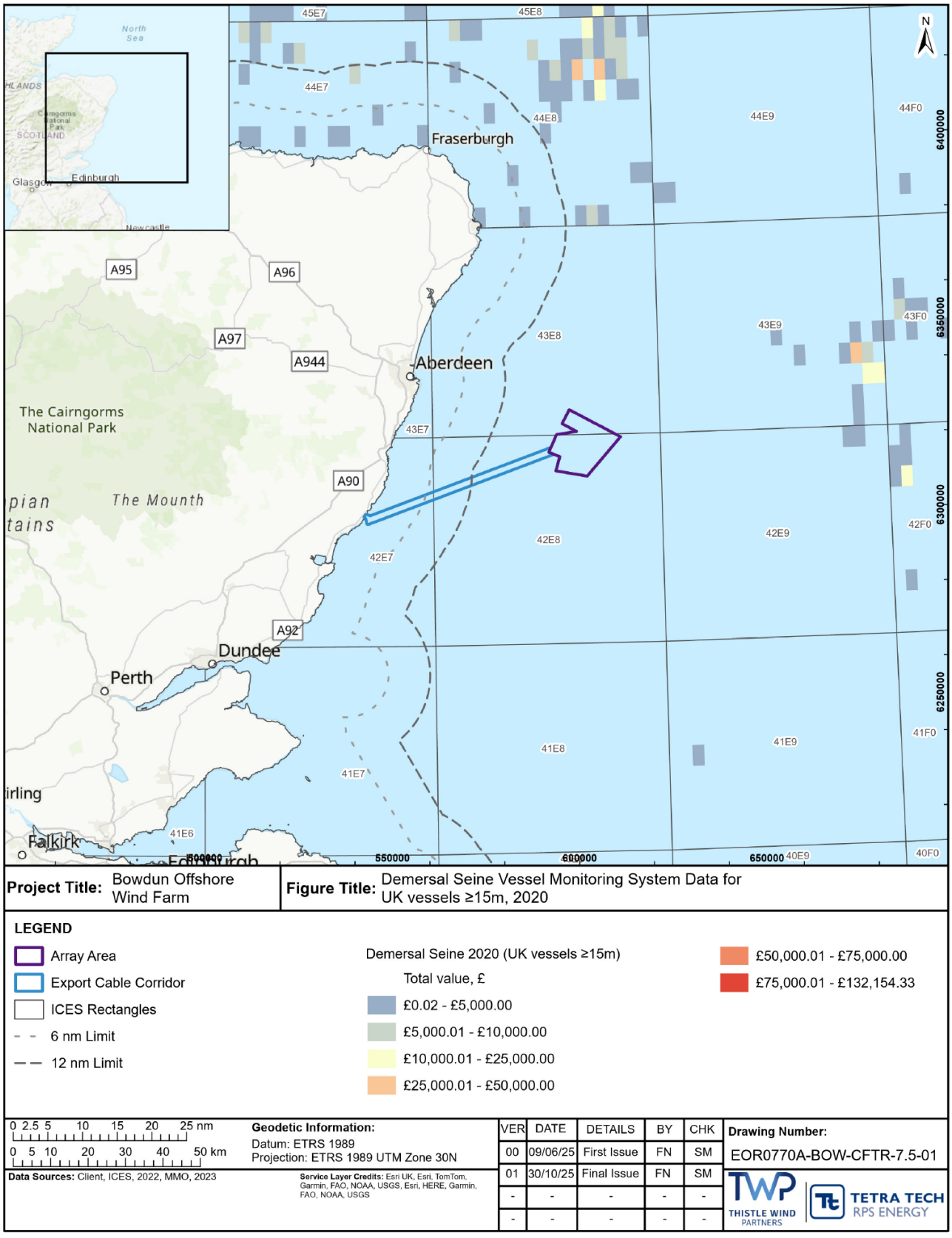

Figure 7.7: Demersal Seine Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2020 (Source: MMO, 2022)

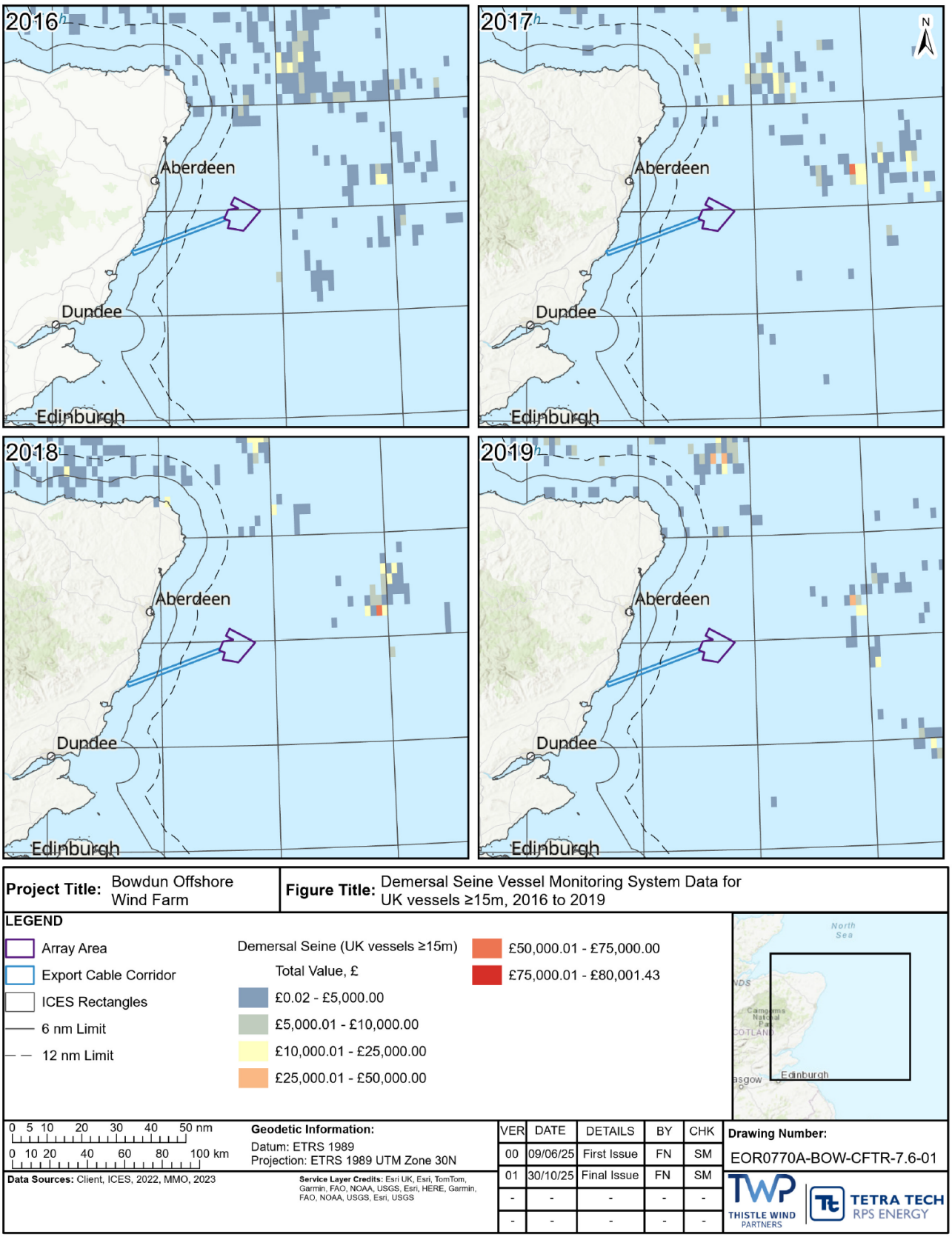

Figure 7.8: Demersal Seine Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2016 to 2019 (Source: MMO, 2022)

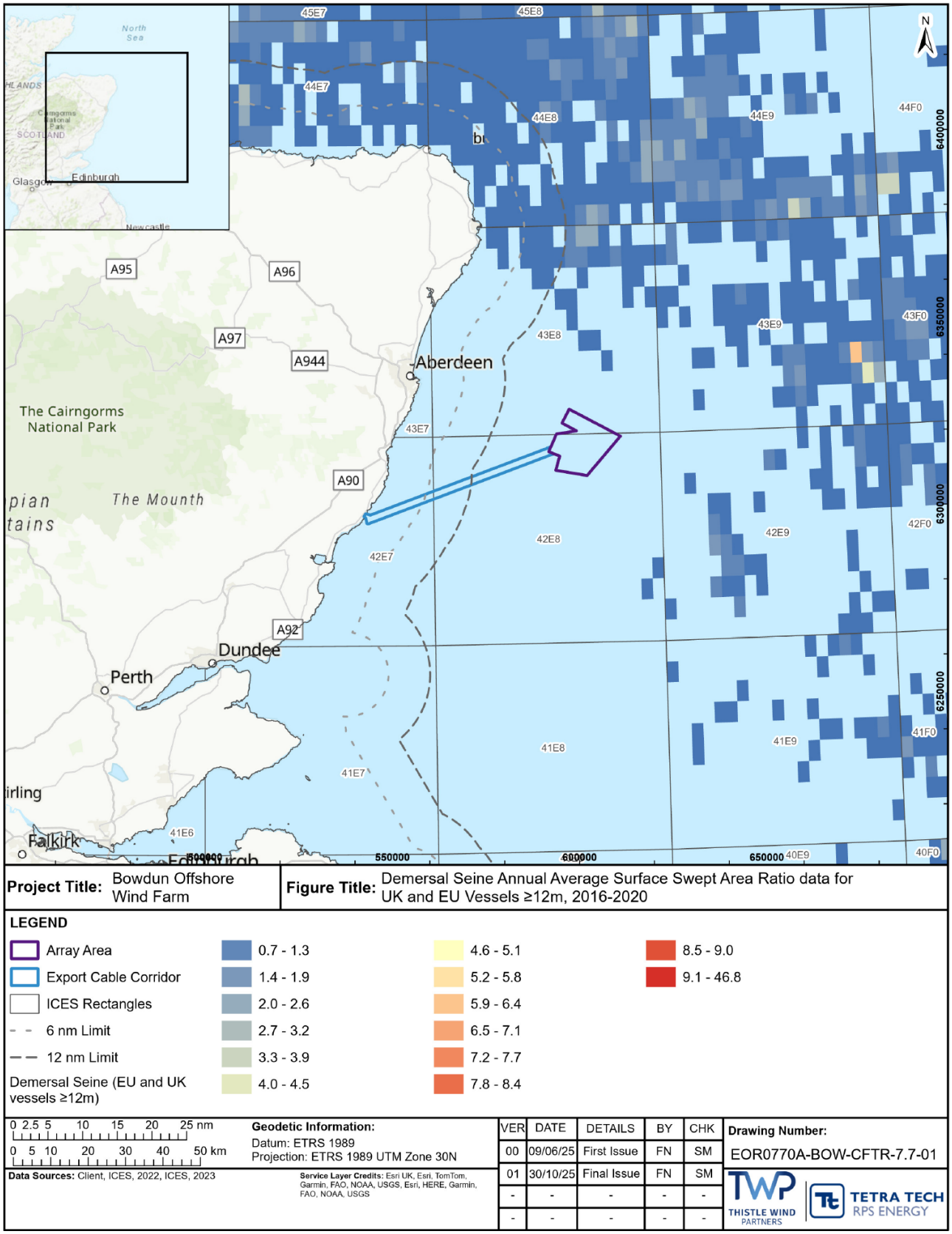

Figure 7.9: Demersal Seine Gear Annual Average Surface Swept Area Ratio Data for UK and EU Vessels ≥ 12 m, 2016 to 2020 (Source: ICES, 2022)

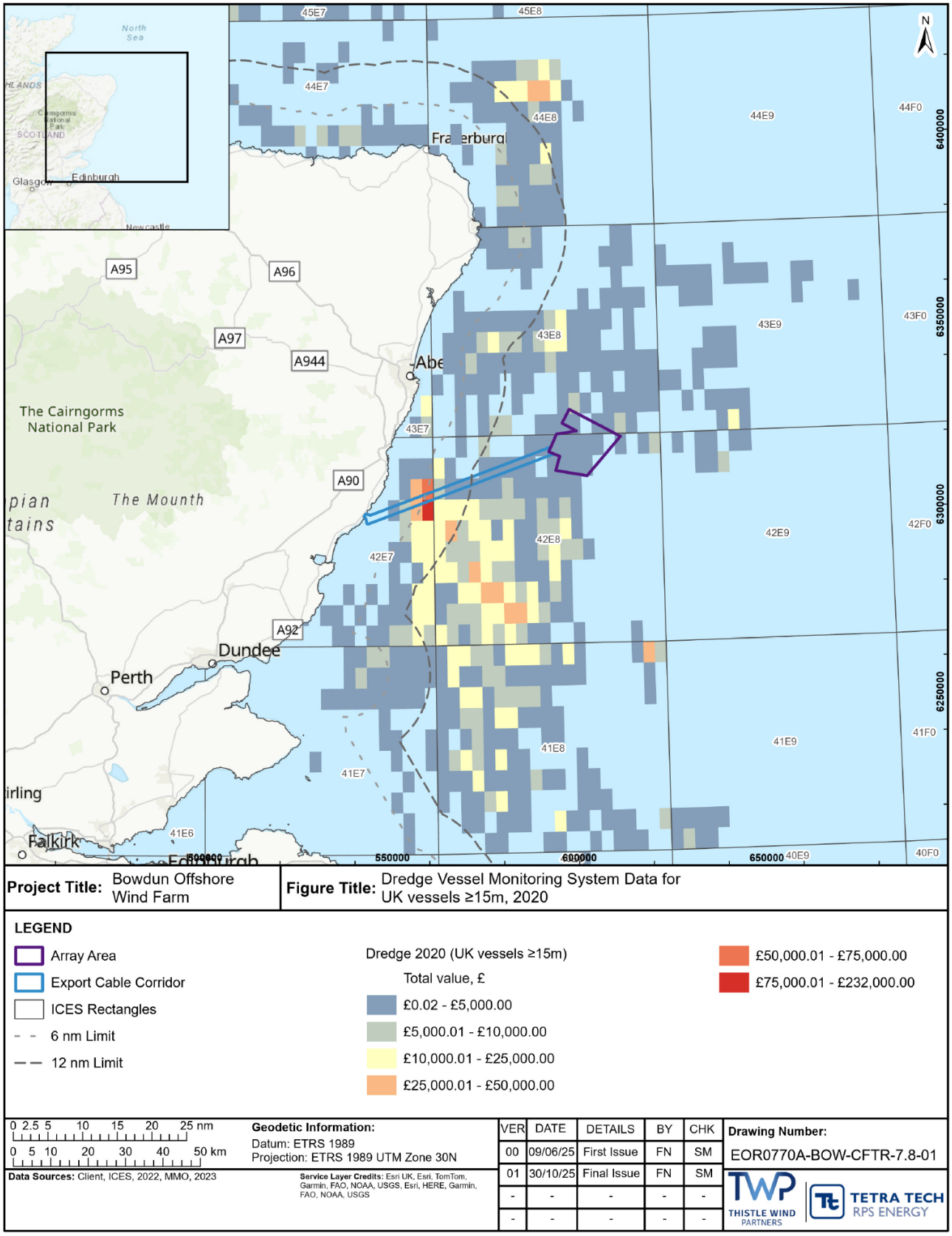

Figure 7.10: Dredge Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2020 (Source: MMO, 2022)

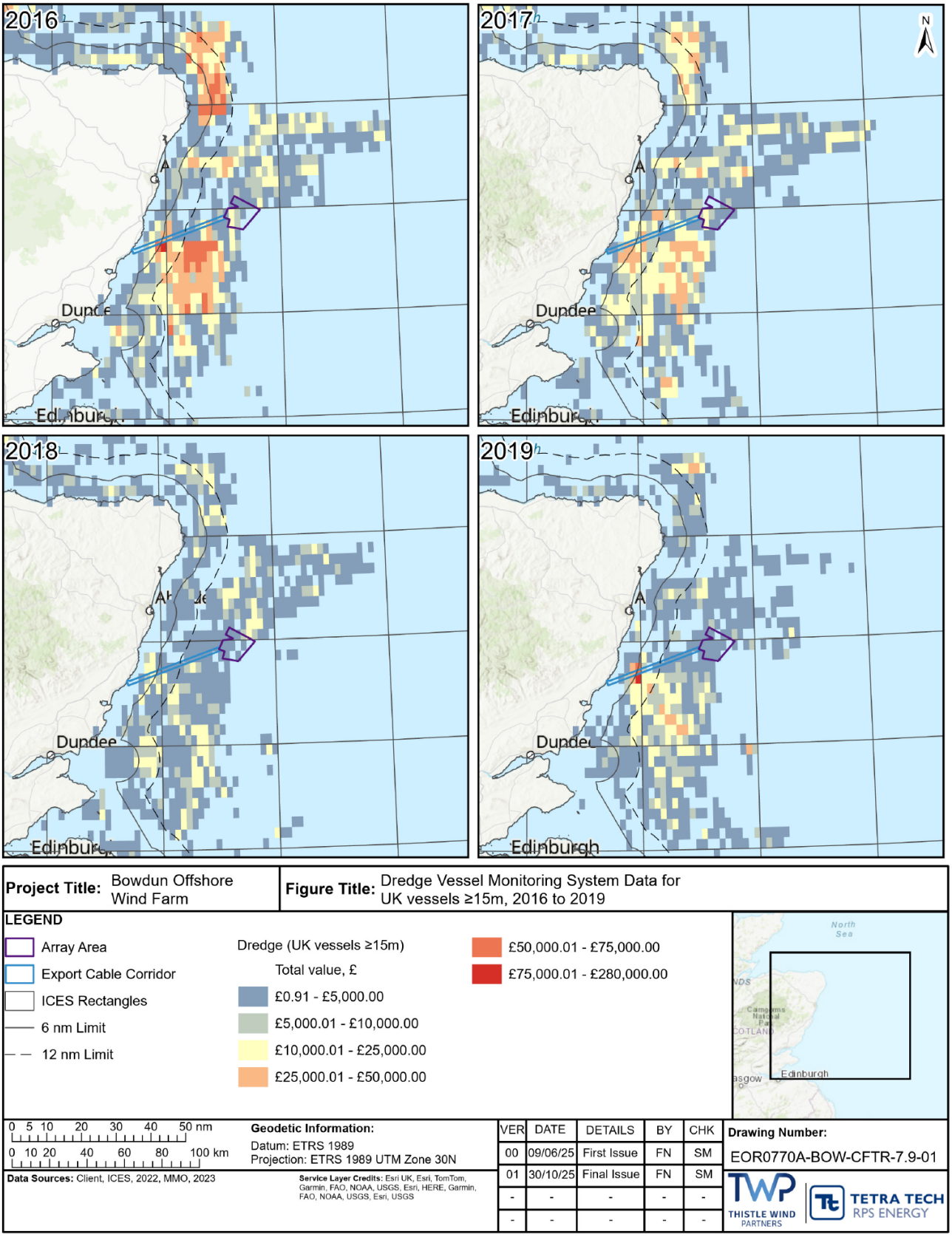

Figure 7.11: Dredge Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2016 to 2019 (Source: MMO, 2022)

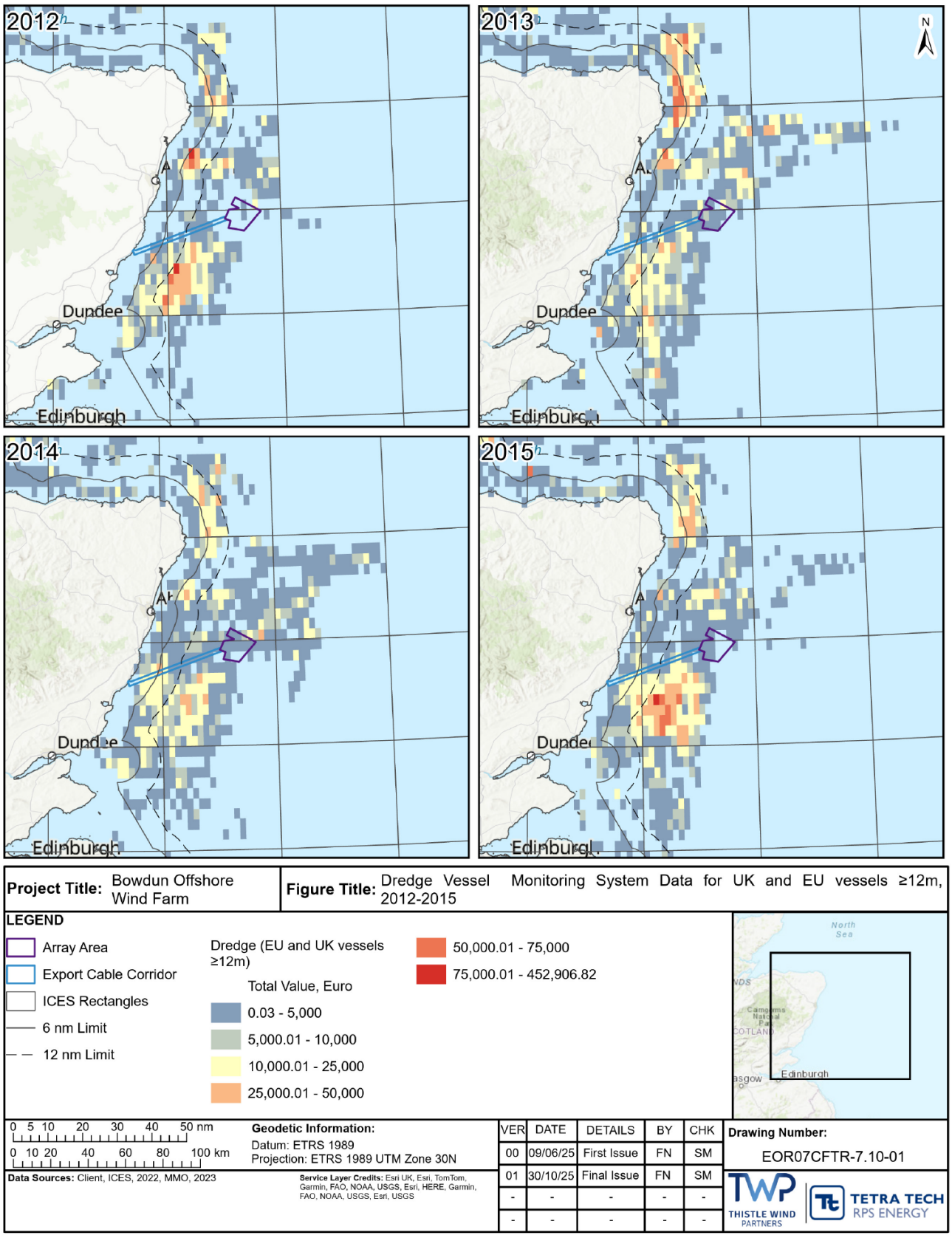

Figure 7.12: Dredge Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2012 to 2015 (Source: MMO, 2022)

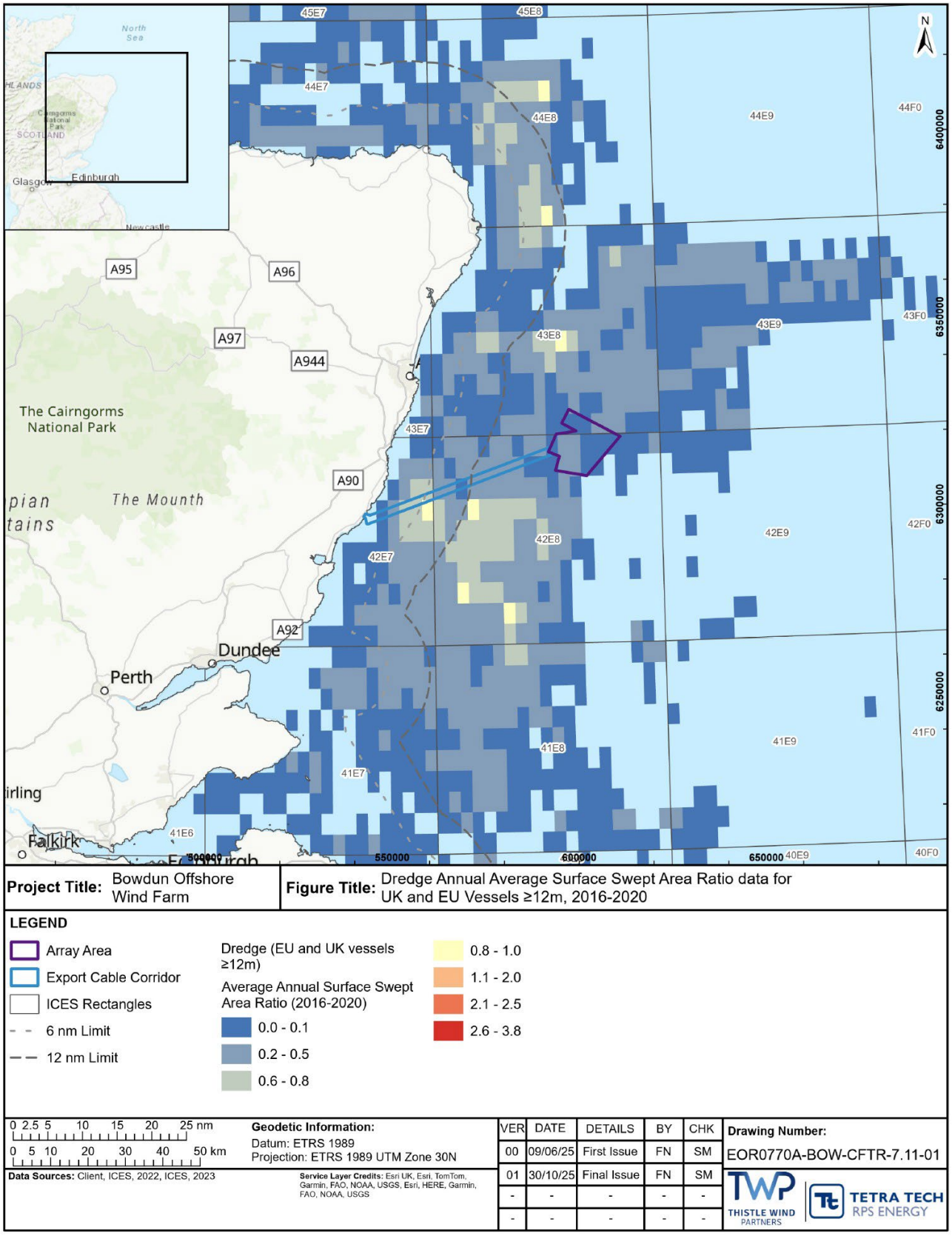

Figure 7.13: Dredge Annual Average Surface Swept Area Ratio Data for UK and EU Vessels ≥ 12 m, 2016 to 2020 (Source: ICES, 2022)

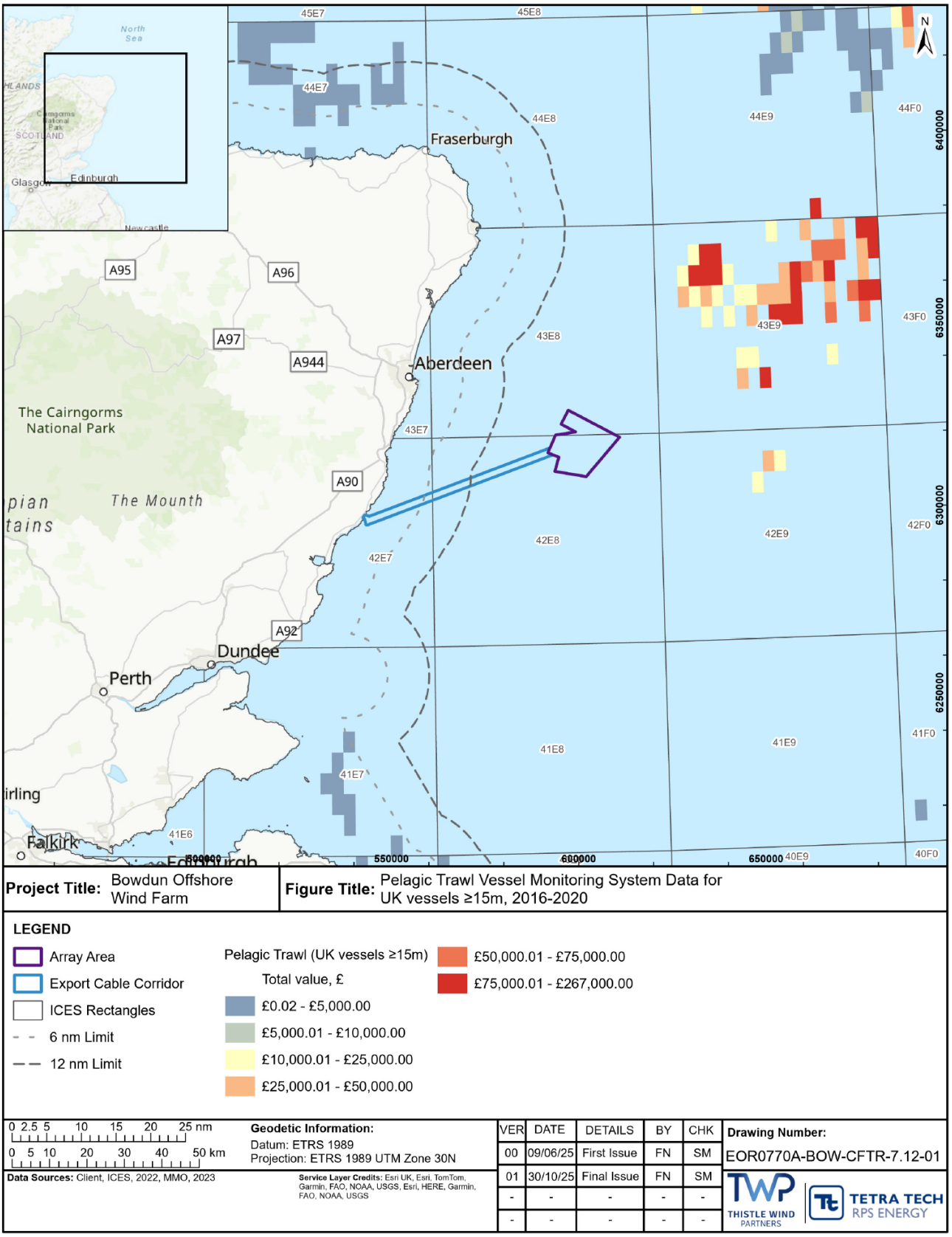

Figure 7.14: Pelagic Trawl Vessel Monitoring System Data for UK Vessels ≥ 15 m, cumulative 2016 to 2020 (Source: MMO, 2022)

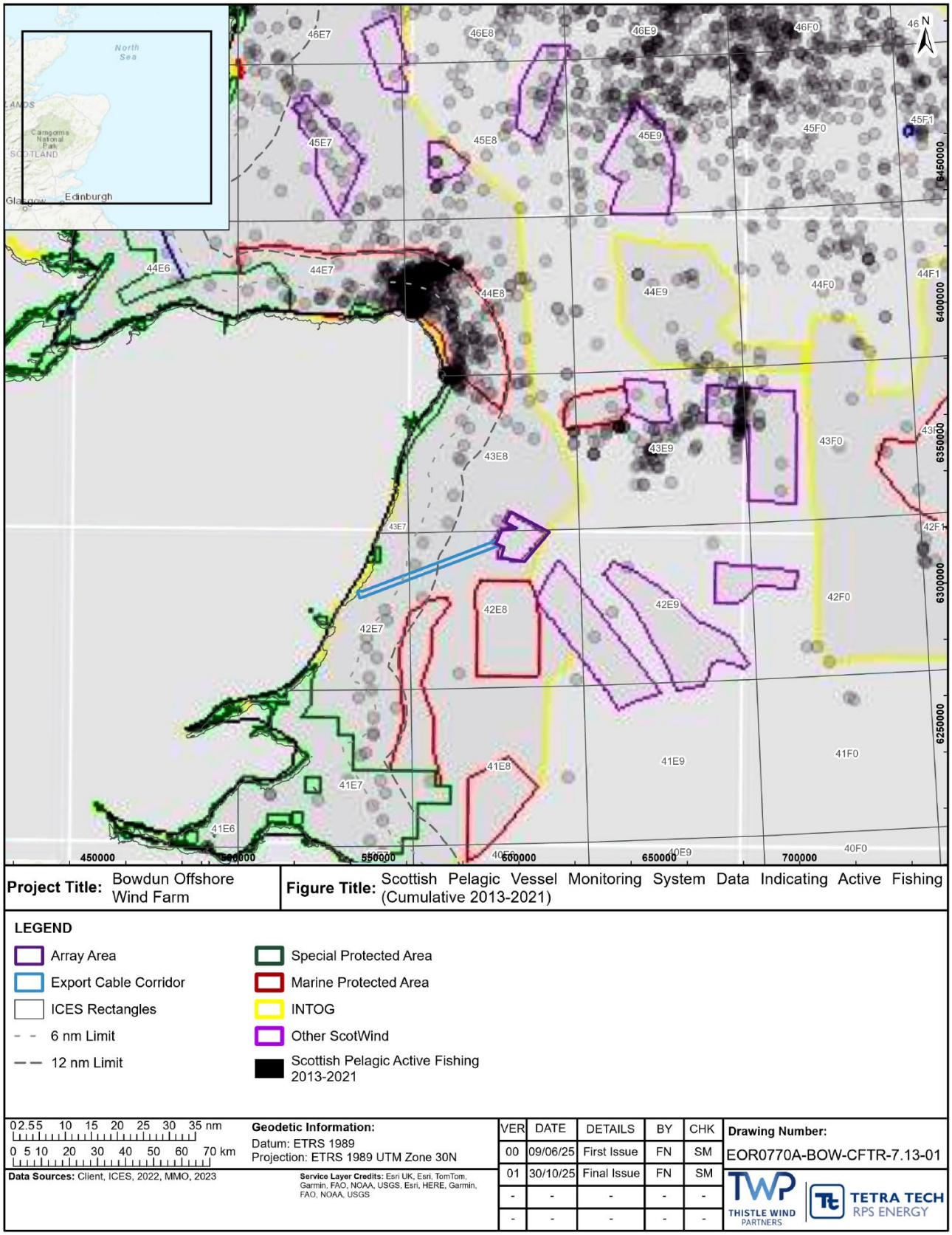

Figure 7.15: Scottish Pelagic Vessel Monitoring System Data Indicating Active Fishing (Cumulative 2013 to 2021) (Source: SPFA, 2024)

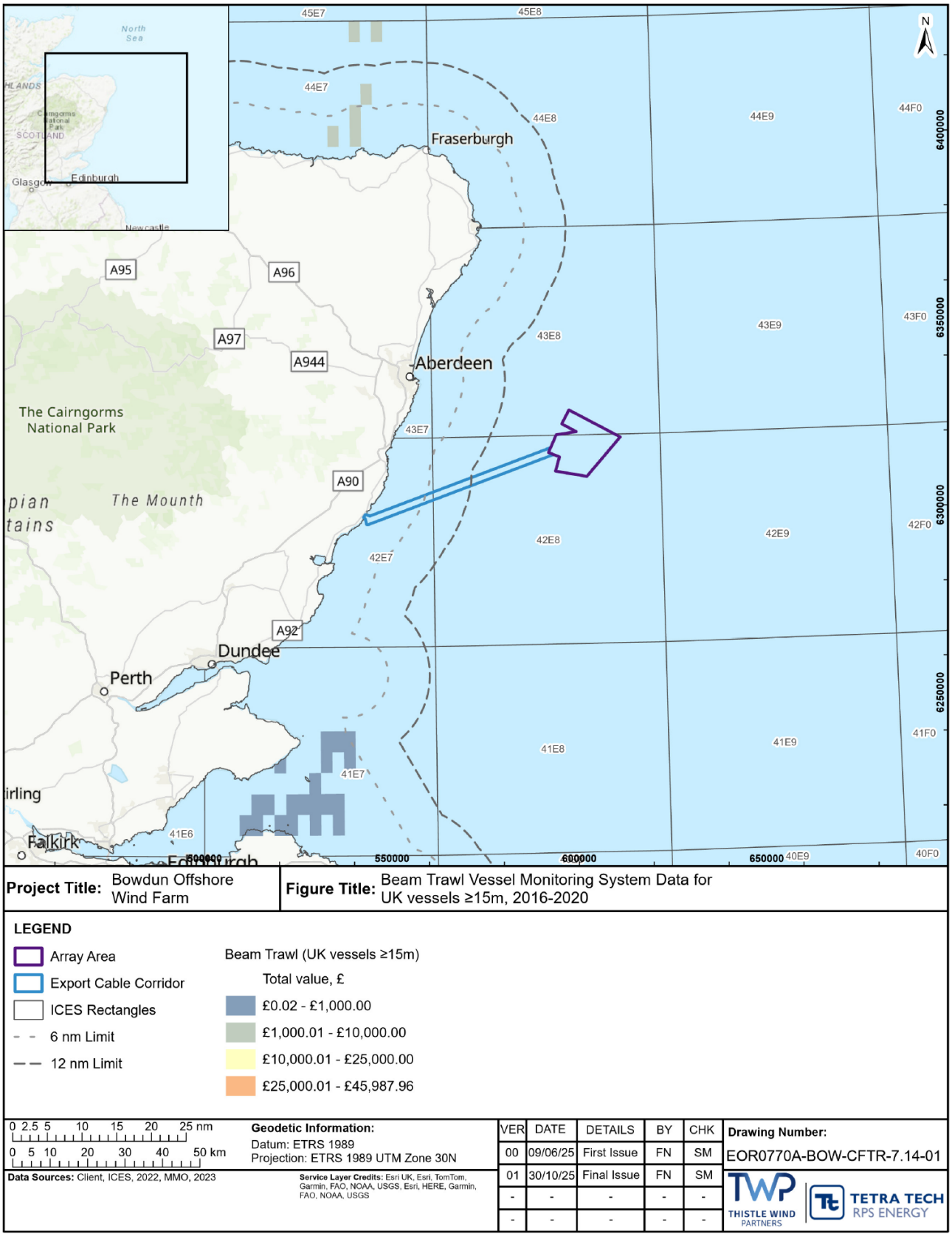

Figure 7.16: Beam Trawl Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2016 to 2020 (Source: MMO, 2022)

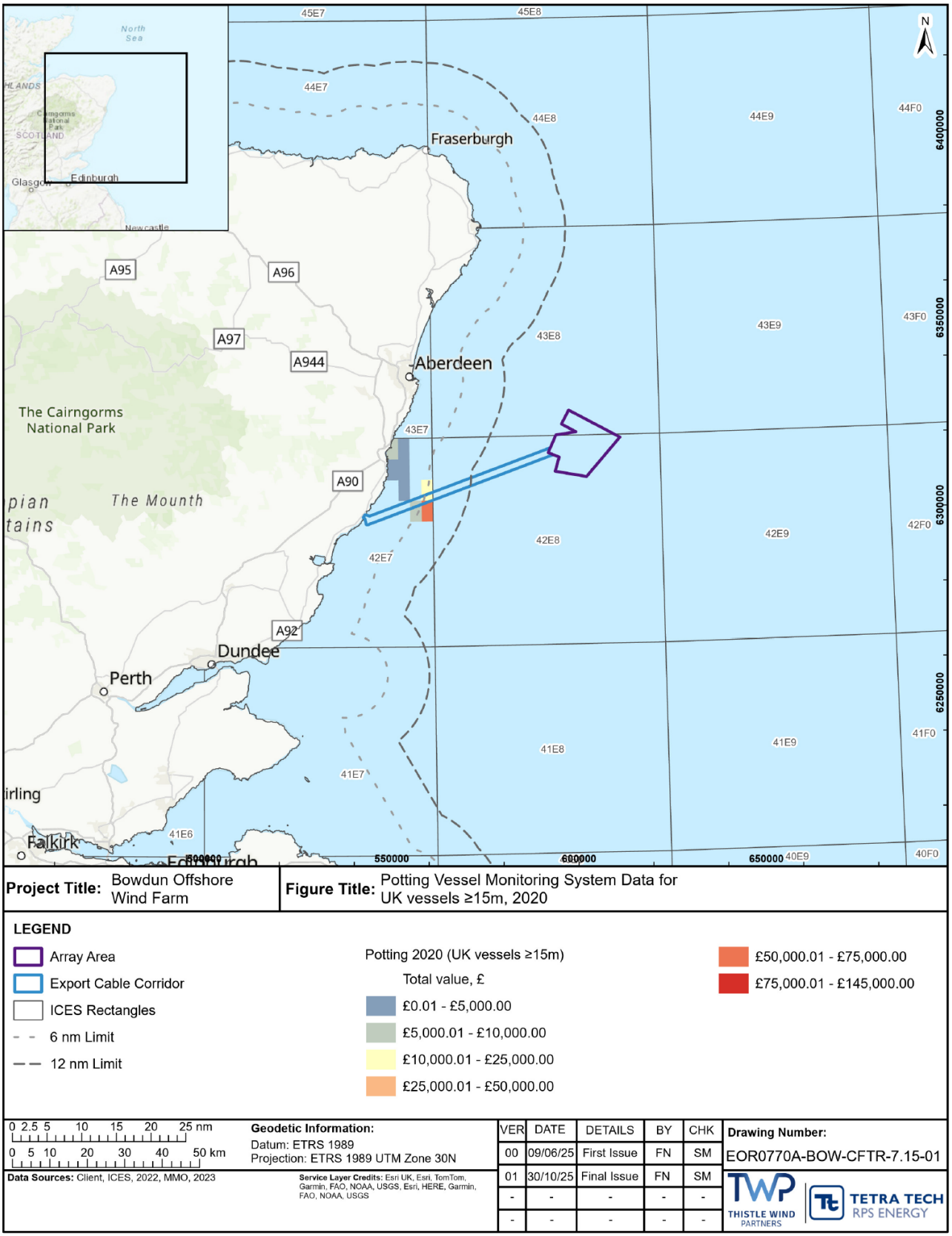

Figure 7.17: Potting Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2020 (Source: MMO, 2022)

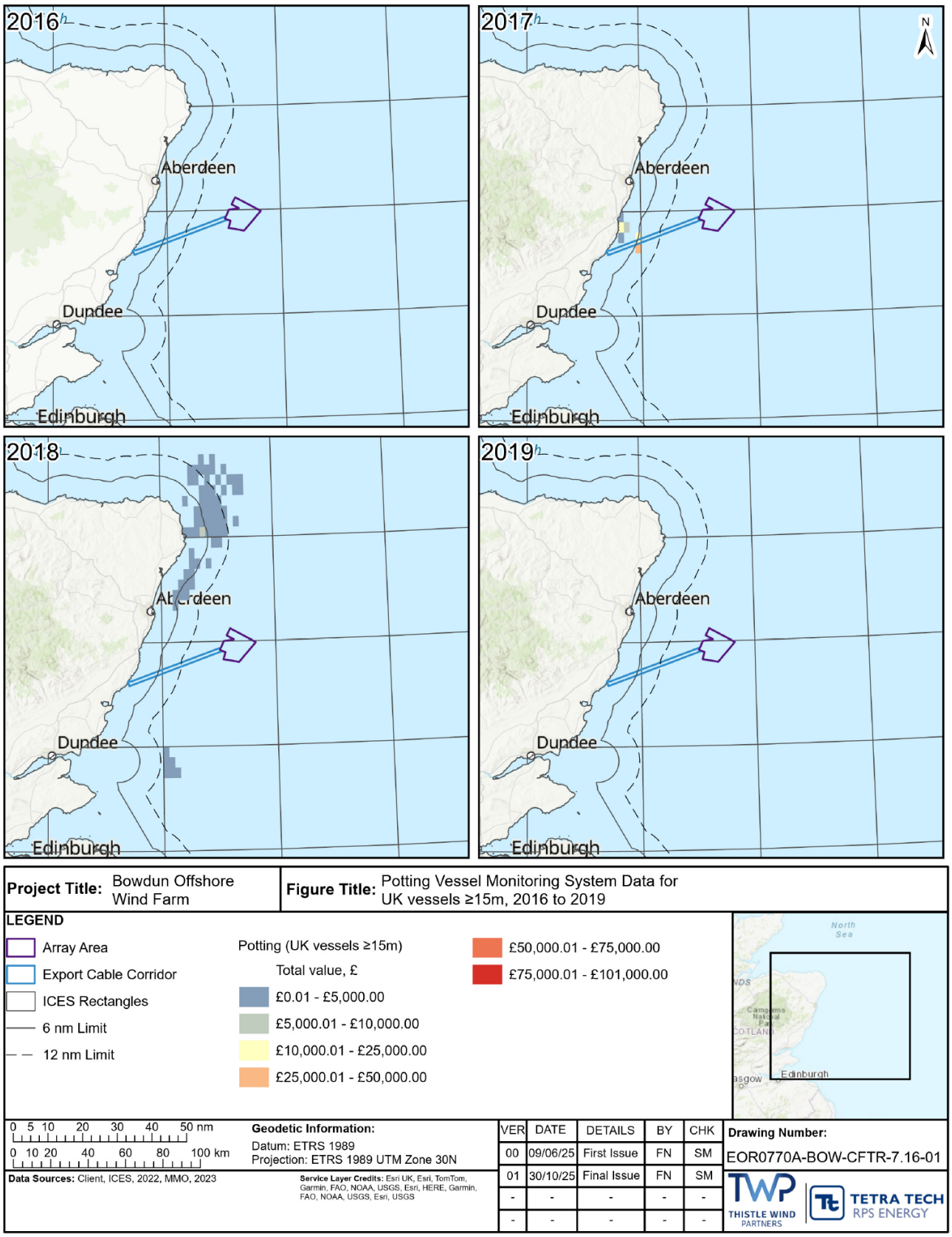

Figure 7.18: Potting Vessel Monitoring System Data for UK Vessels ≥ 15 m, 2016 to 2019 (Source: MMO, 2022)

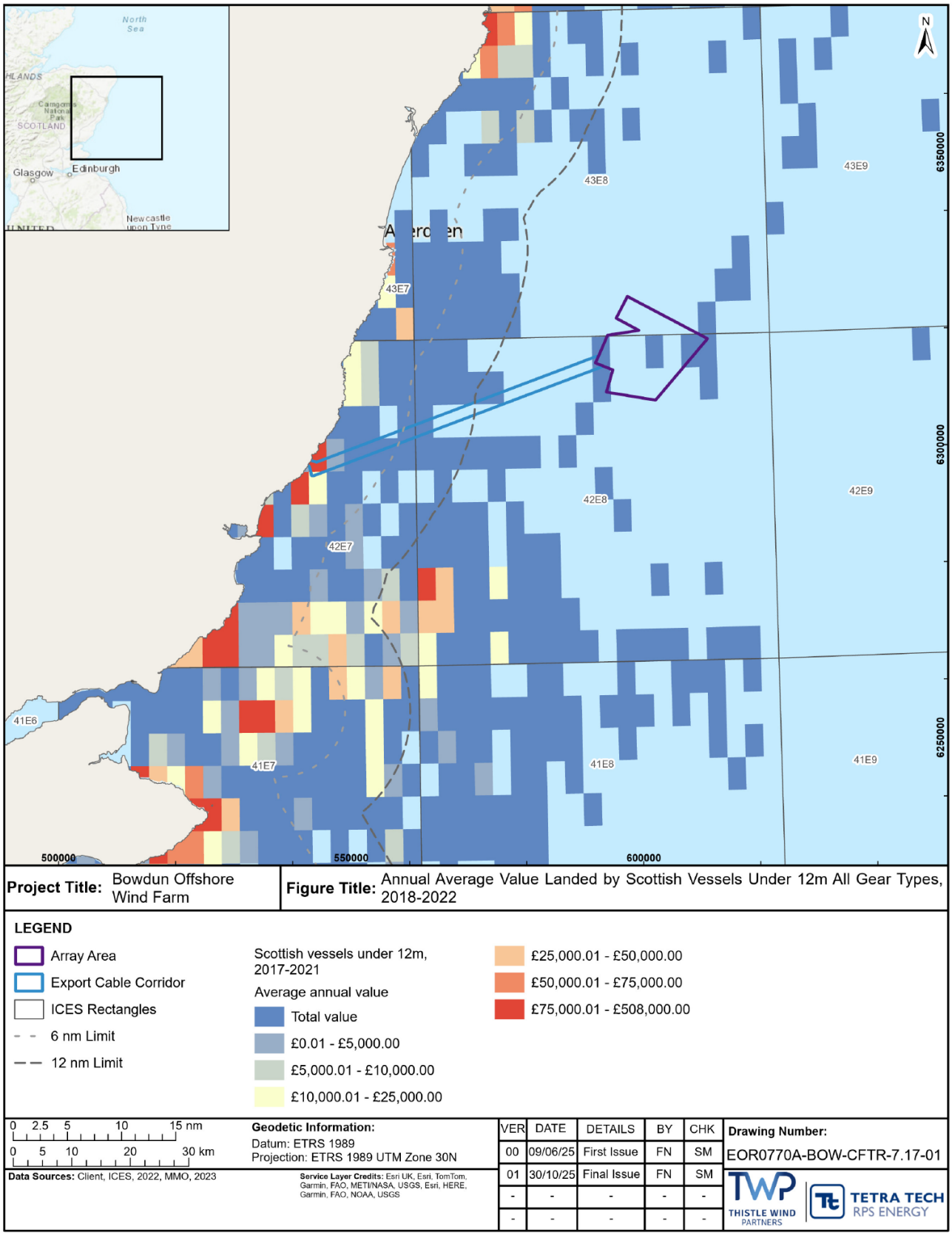

Figure 7.19: Annual Average Value Landed by Scottish Vessels Under 12 m All Gear Types, 2018 to 2022 (Source: Marine Scotland MAPS NMPi, 2022)

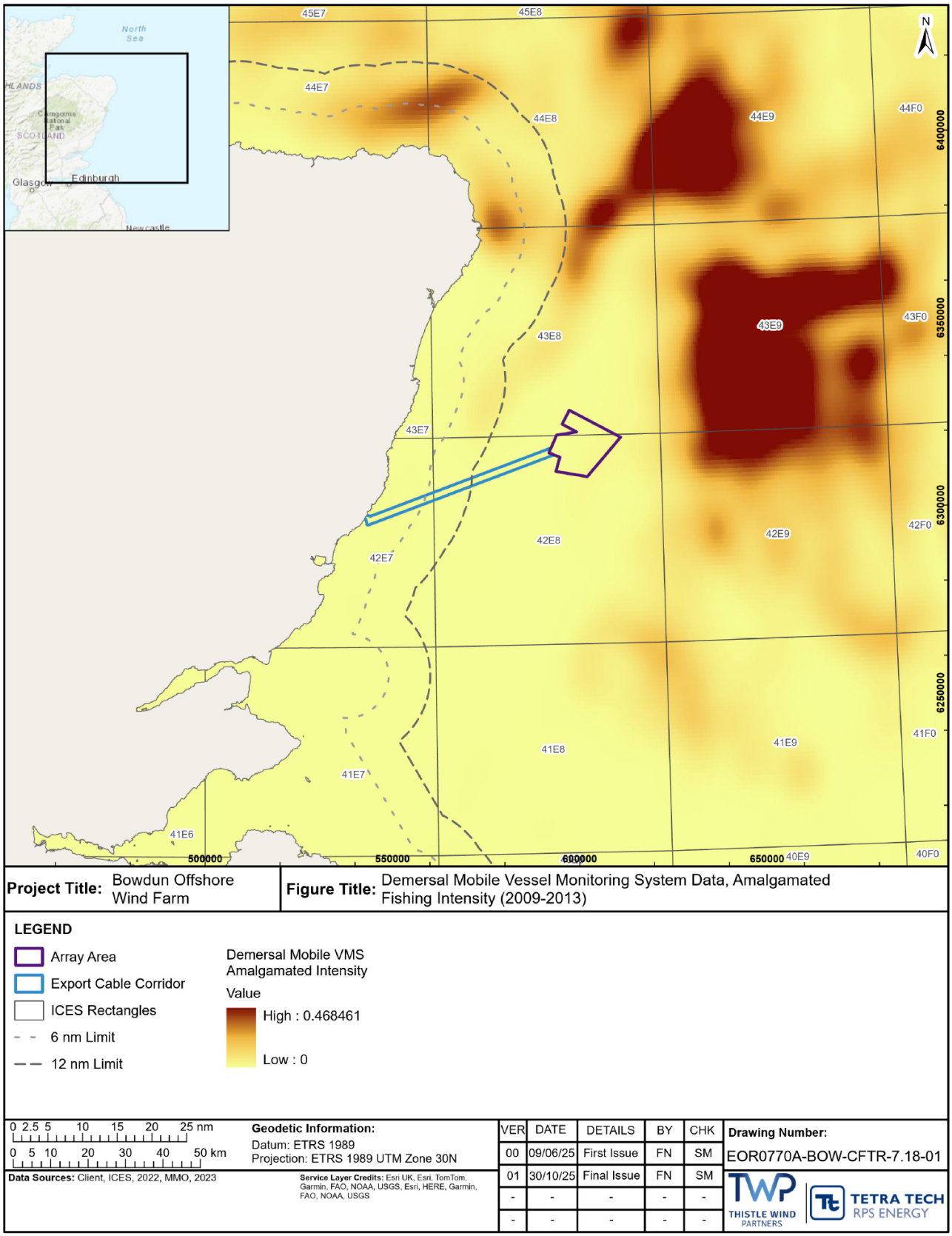

Figure 7.20: Demersal Mobile Vessel Monitoring System Data, Amalgamated Fishing Intensity (2009 to 2013) (Source: Marine Scotland MAPS NMPi, 2022)

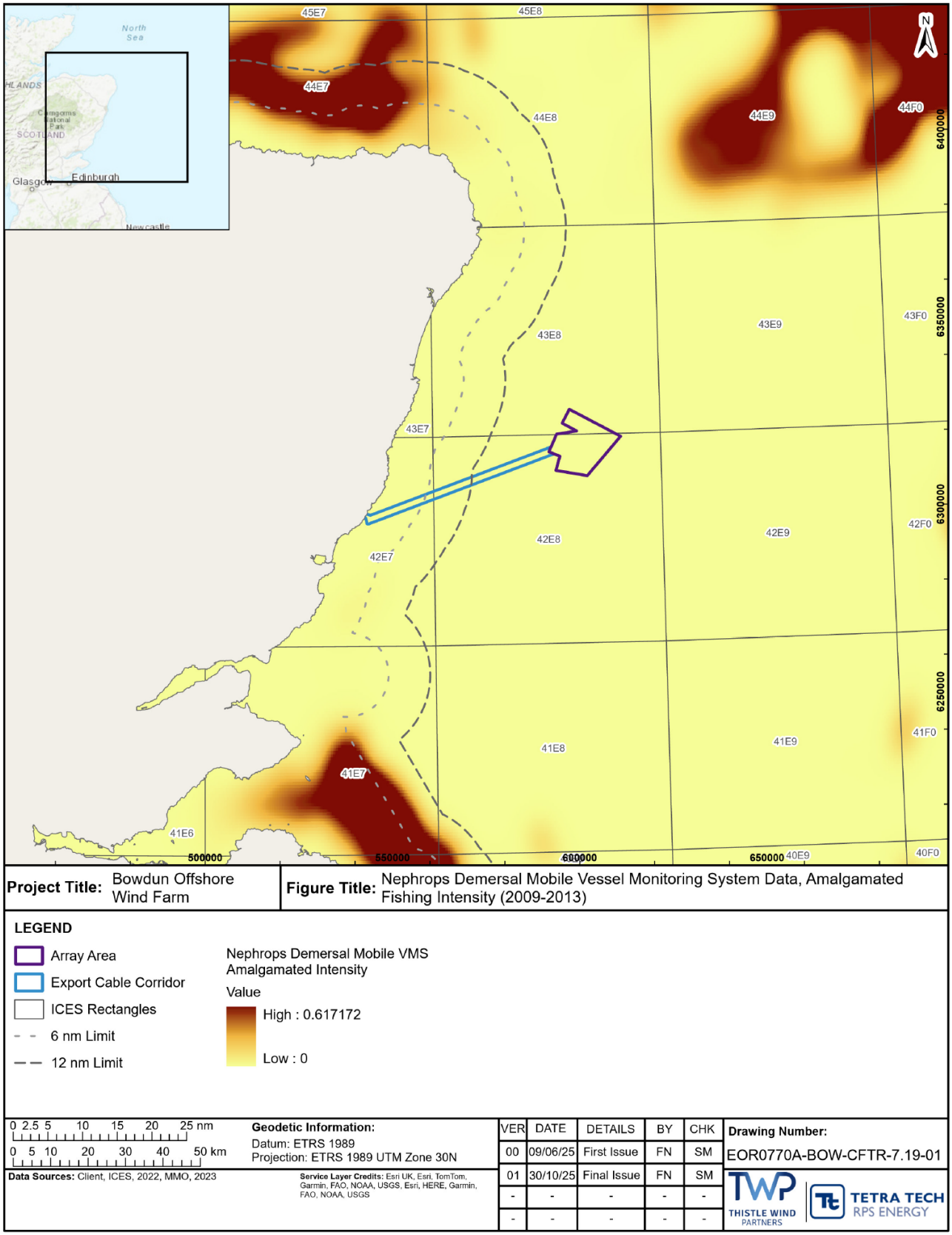

Figure 7.21: Nephrops Demersal Mobile Vessel Monitoring System Data, Amalgamated Fishing Intensity (2009 to 2013) (Source: Marine Scotland MAPS NMPi, 2022)

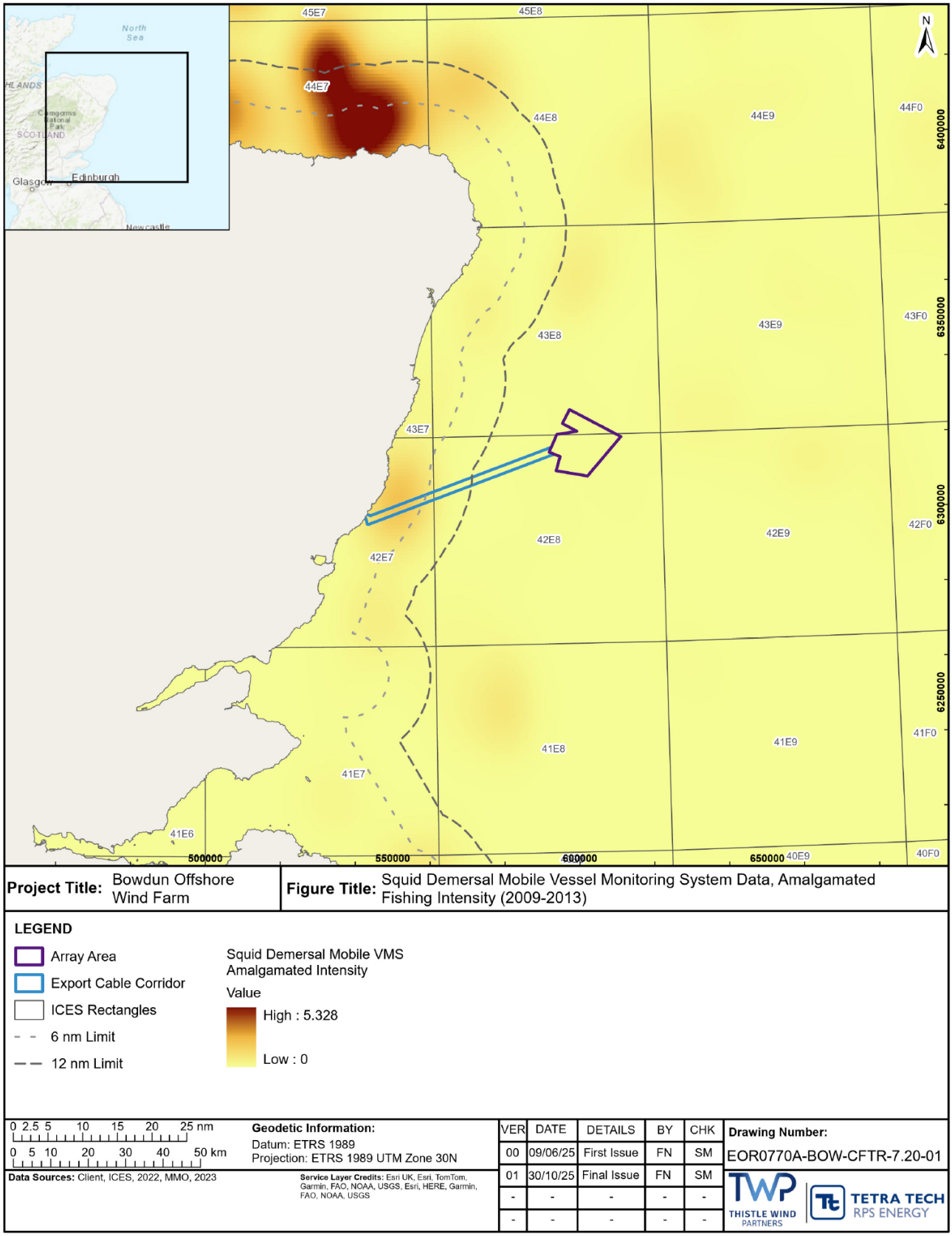

Figure 7.22: Squid Demersal Mobile Vessel Monitoring System Data, Amalgamated Fishing Intensity (2009 to 2013) (Source: Marine Scotland MAPS NMPi, 2022)

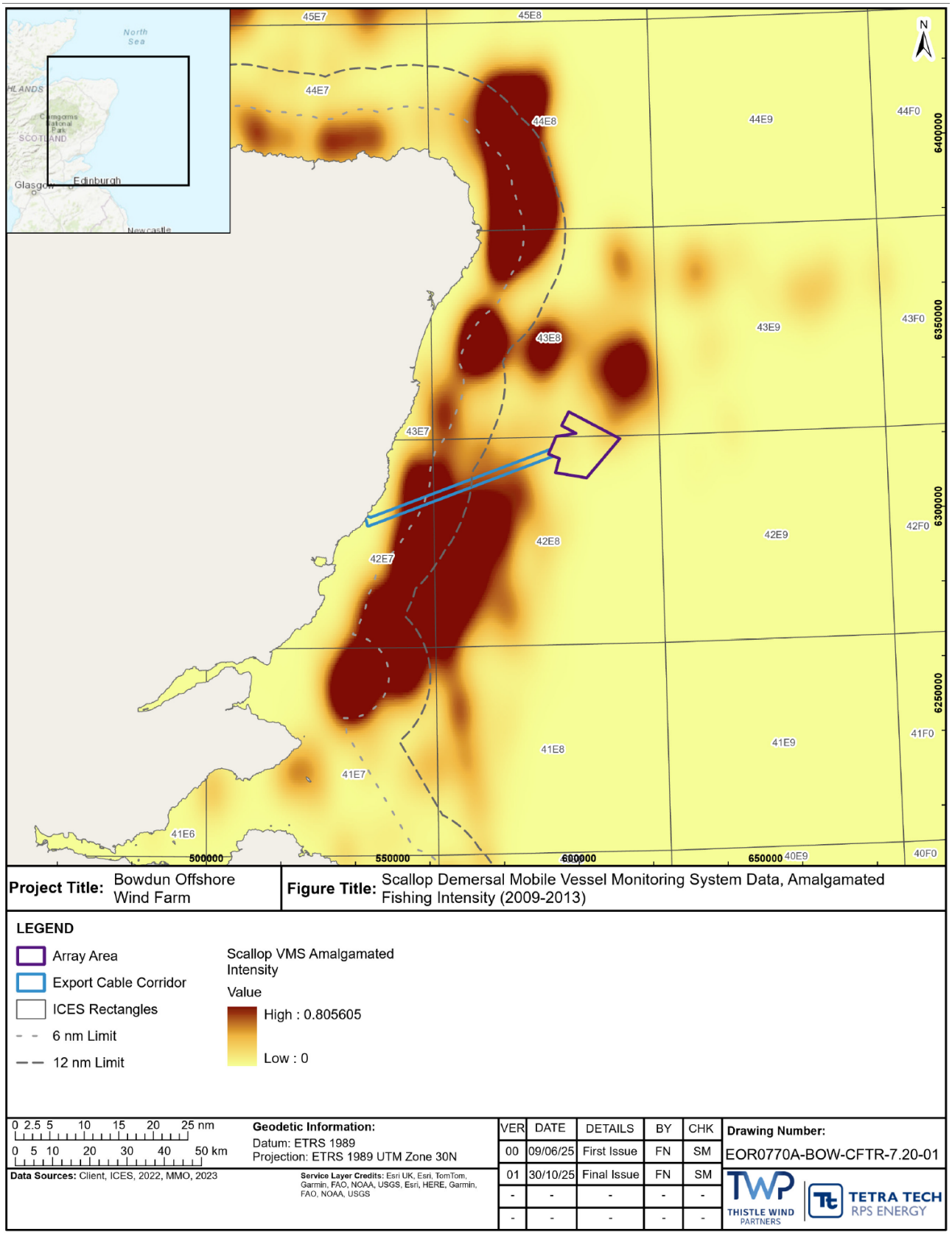

Figure 7.23: Scallop Demersal Mobile Vessel Monitoring System Data, Amalgamated Fishing Intensity (2009 to 2013) (Source: Marine Scotland MAPS NMPi, 2022)

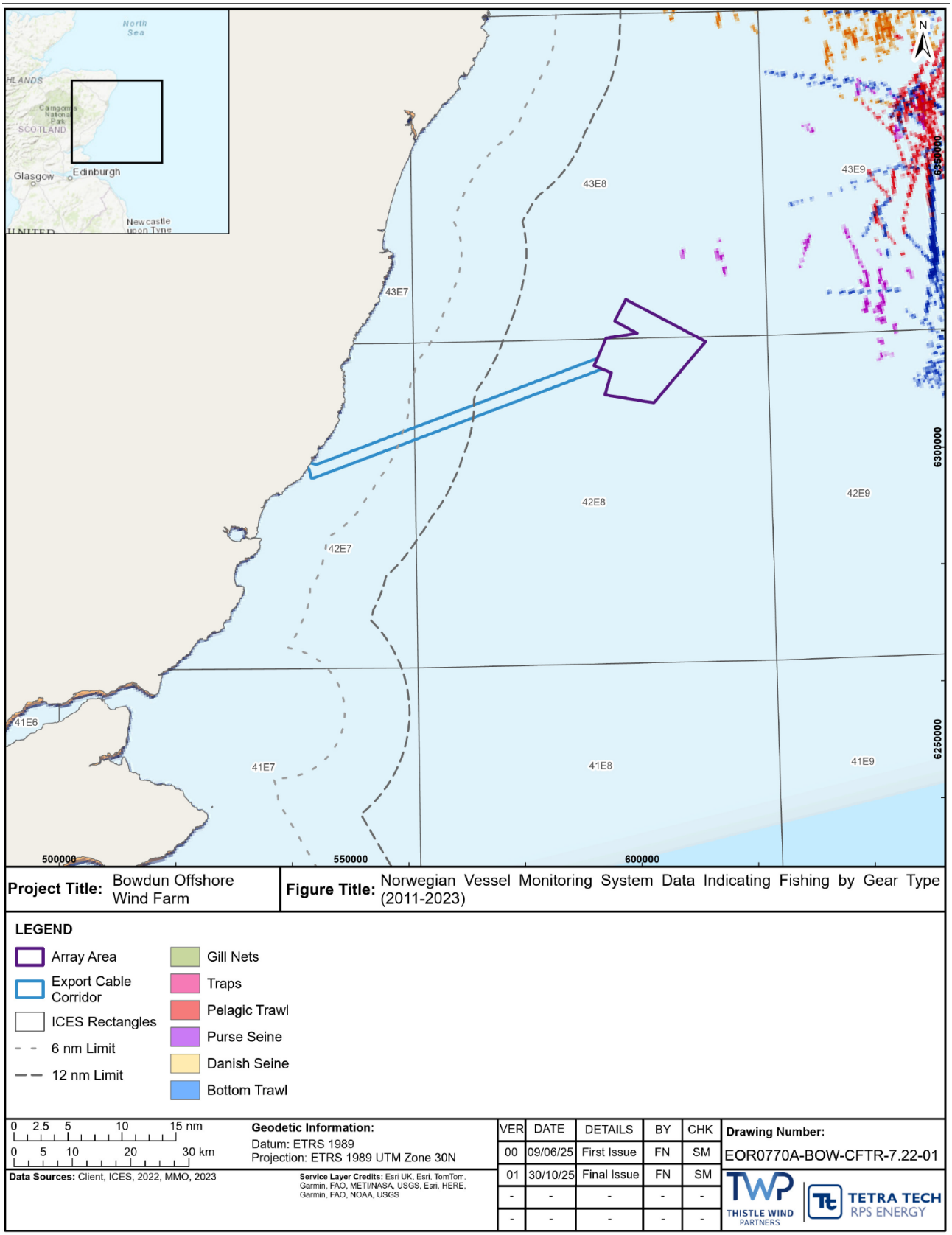

Figure 7.24: Norwegian Vessel Monitoring System Data Indicating Fishing by Gear Type (2011 to 2023) (Source: Barents Watch, 2024)

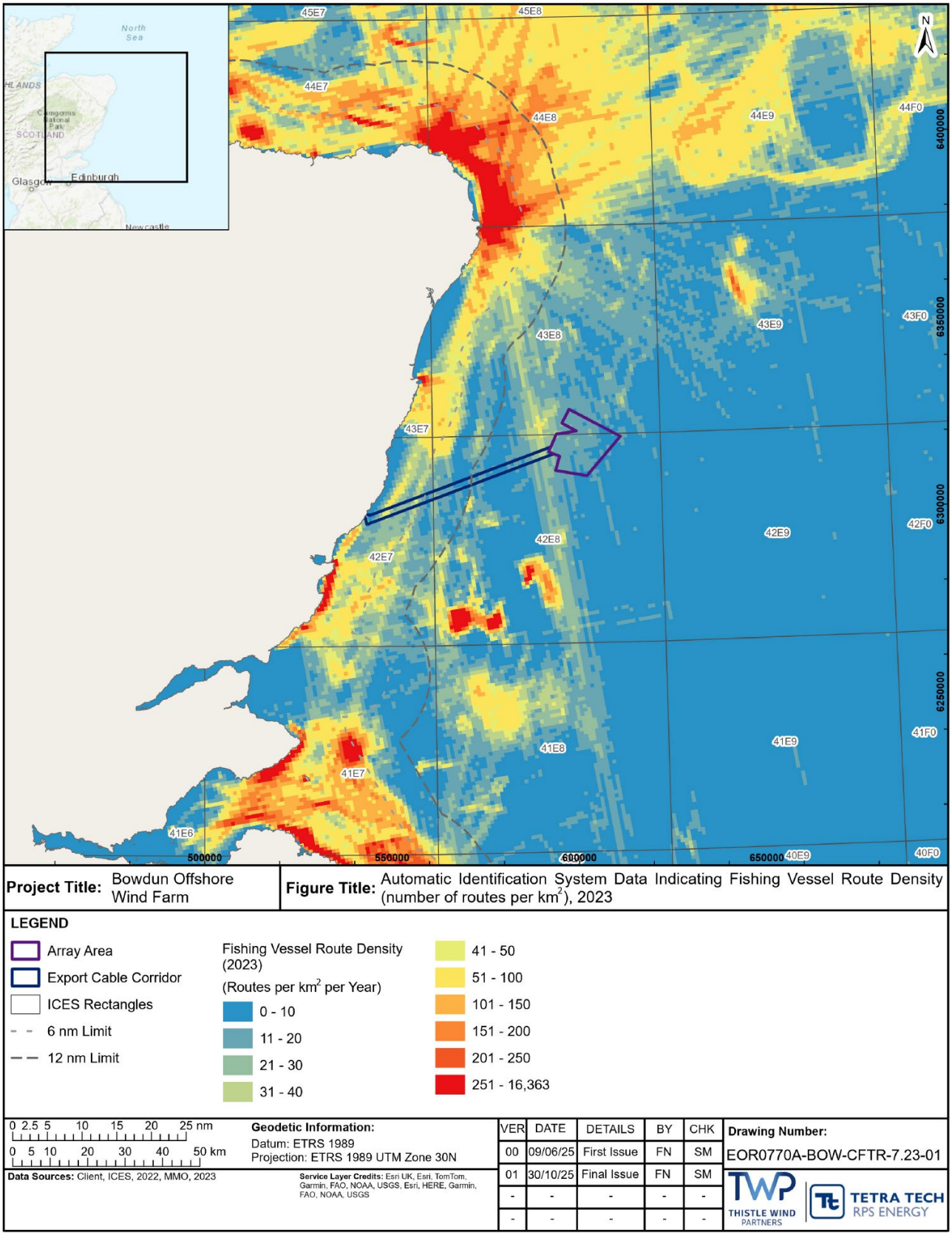

Figure 7.25: Automatic Identification System Data Indicating Fishing Vessel Route Density (Number of Routes per km²), 2023 (Source: EMSA, 2024)

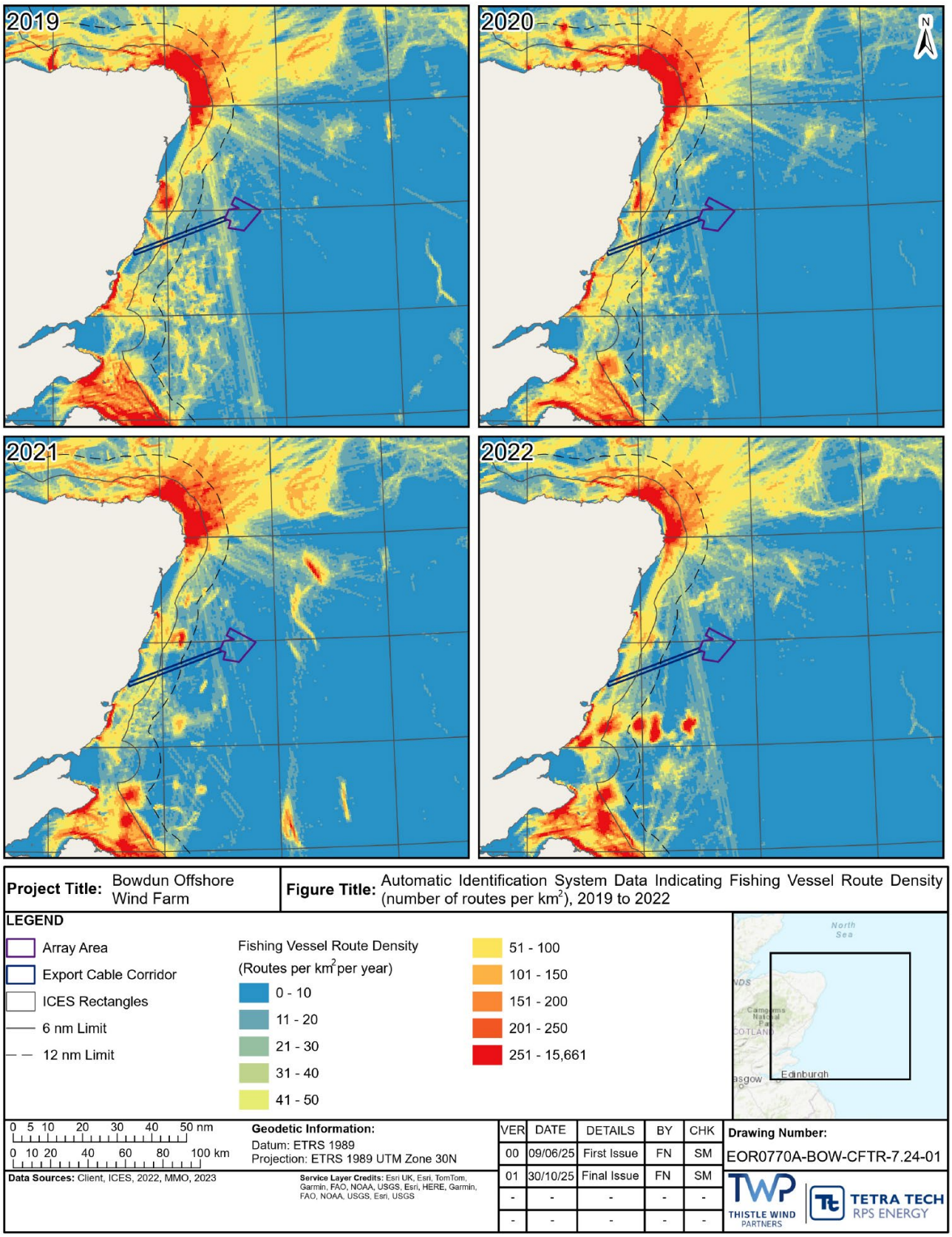

Figure 7.26: Automatic Identification System Data Indicating Fishing Vessel Route Density (Number of Routes per km²), 2019 to 2022 (Source: EMSA, 2024)

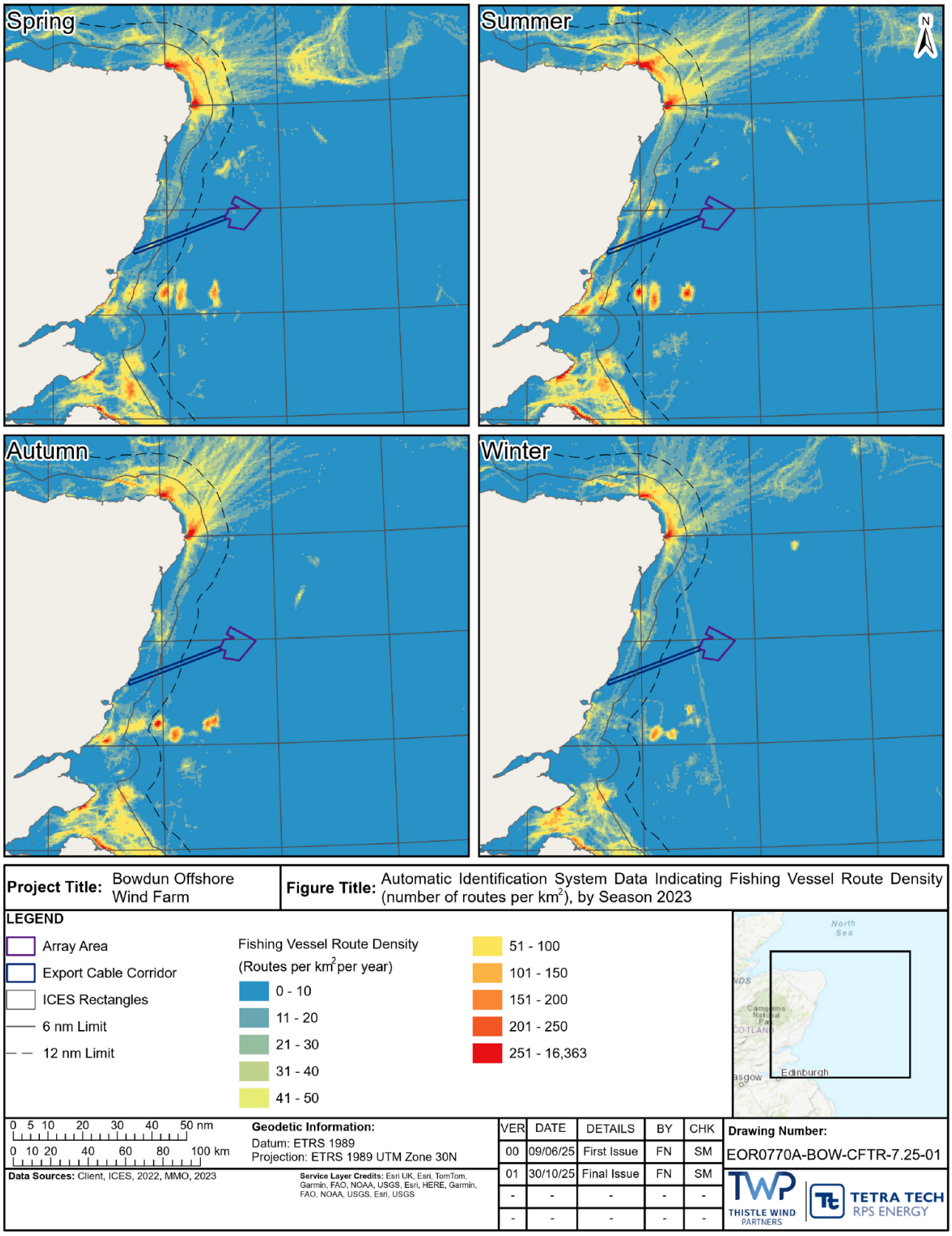

Figure 7.27: Automatic Identification System Data Indicating Fishing Vessel Route Density (Number of Routes per km²), by Season 2023 (Source: EMSA, 2024) (Distinct High Intensity Red Hotspots in Summer and Autum are Expected to Represent Fishing Vessel[s] Acting in a Guard Vessel Capacity)

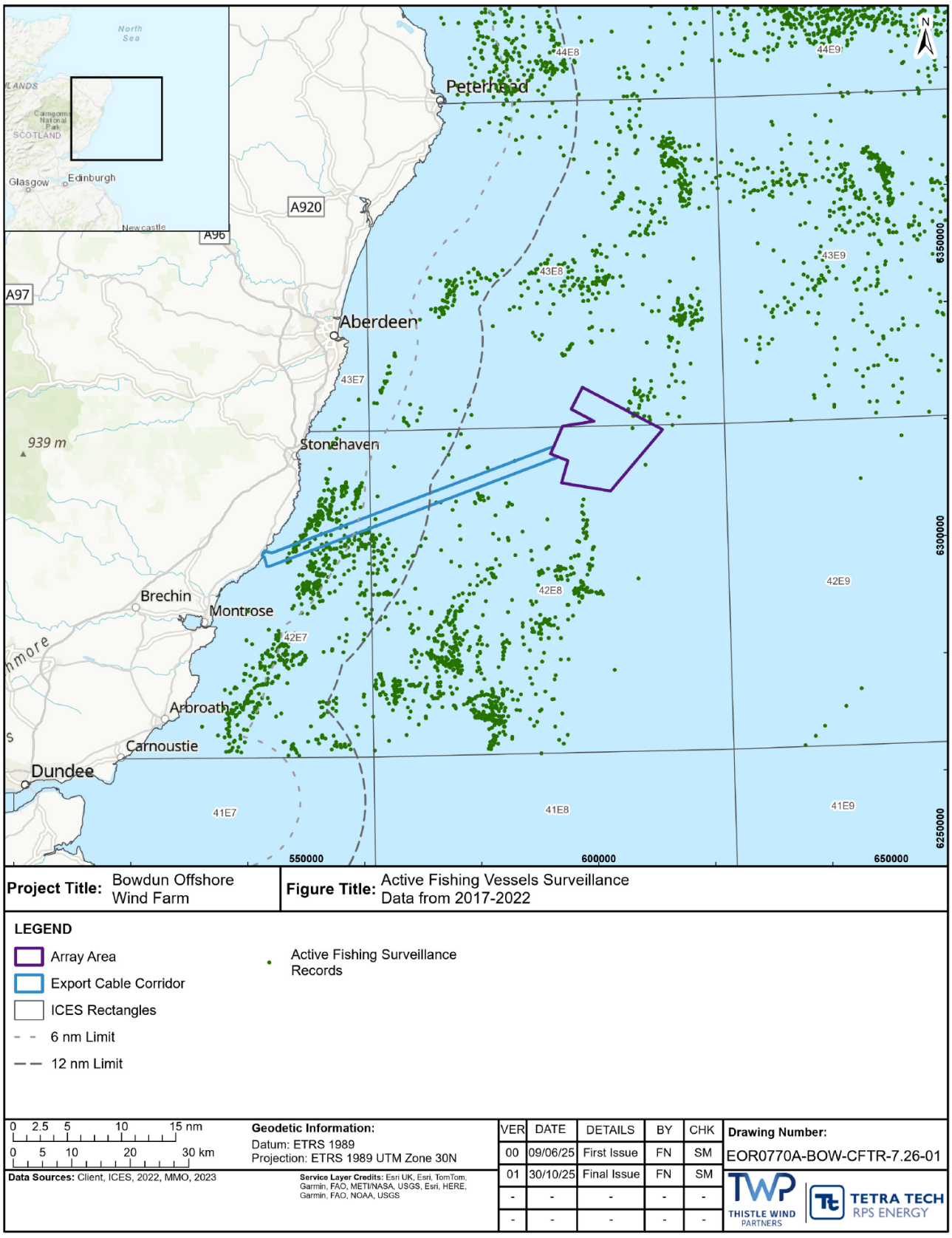

Figure 7.28: Active Fishing Vessels Surveillance Data from 2017- 2022 (Source: Marine Directorate, 2024)

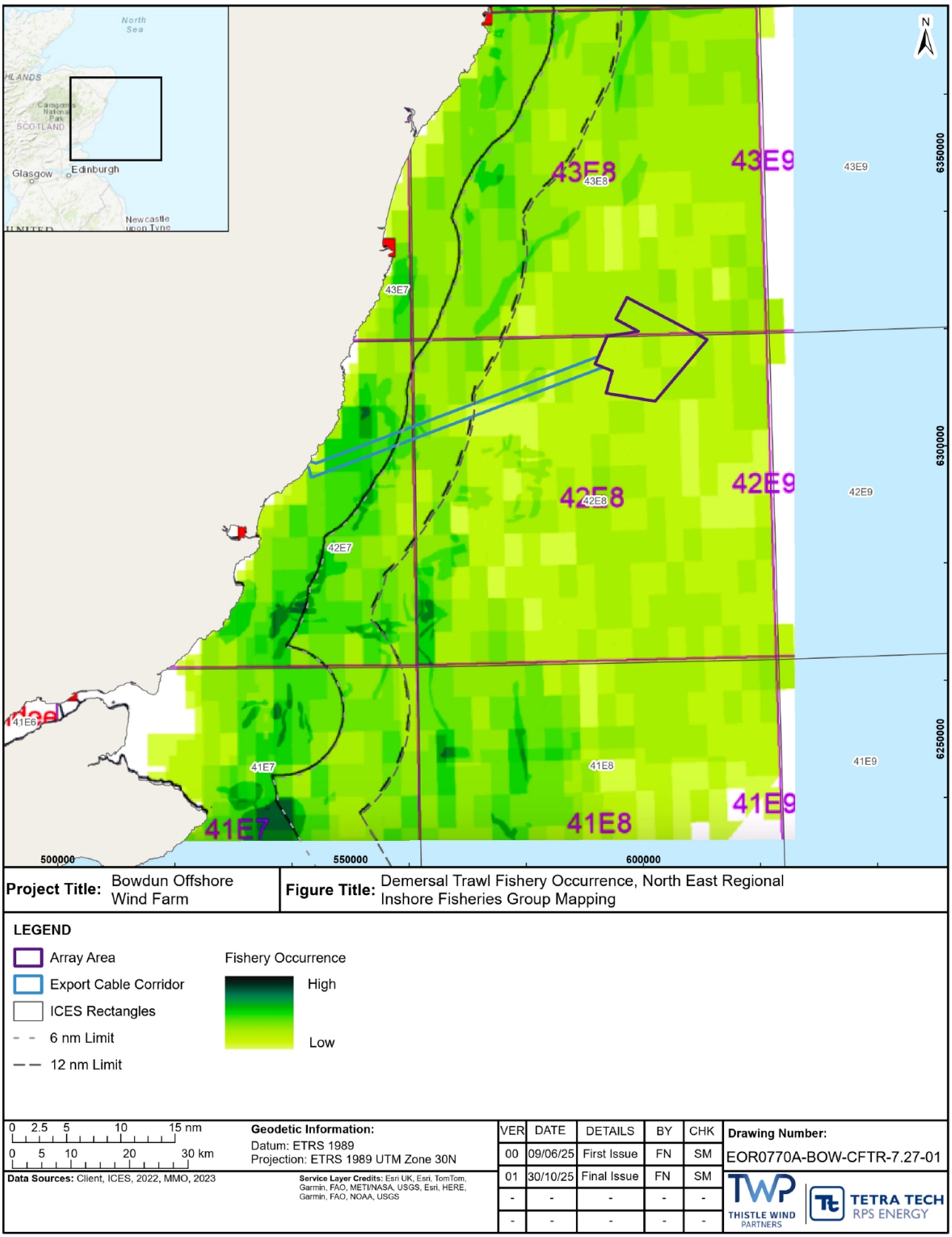

Figure 7.29: Demersal Otter Trawl Fishery Occurrence, North East Regional Inshore Fisheries Group Mapping (Source: Shelmerdine and Mouat, 2021)

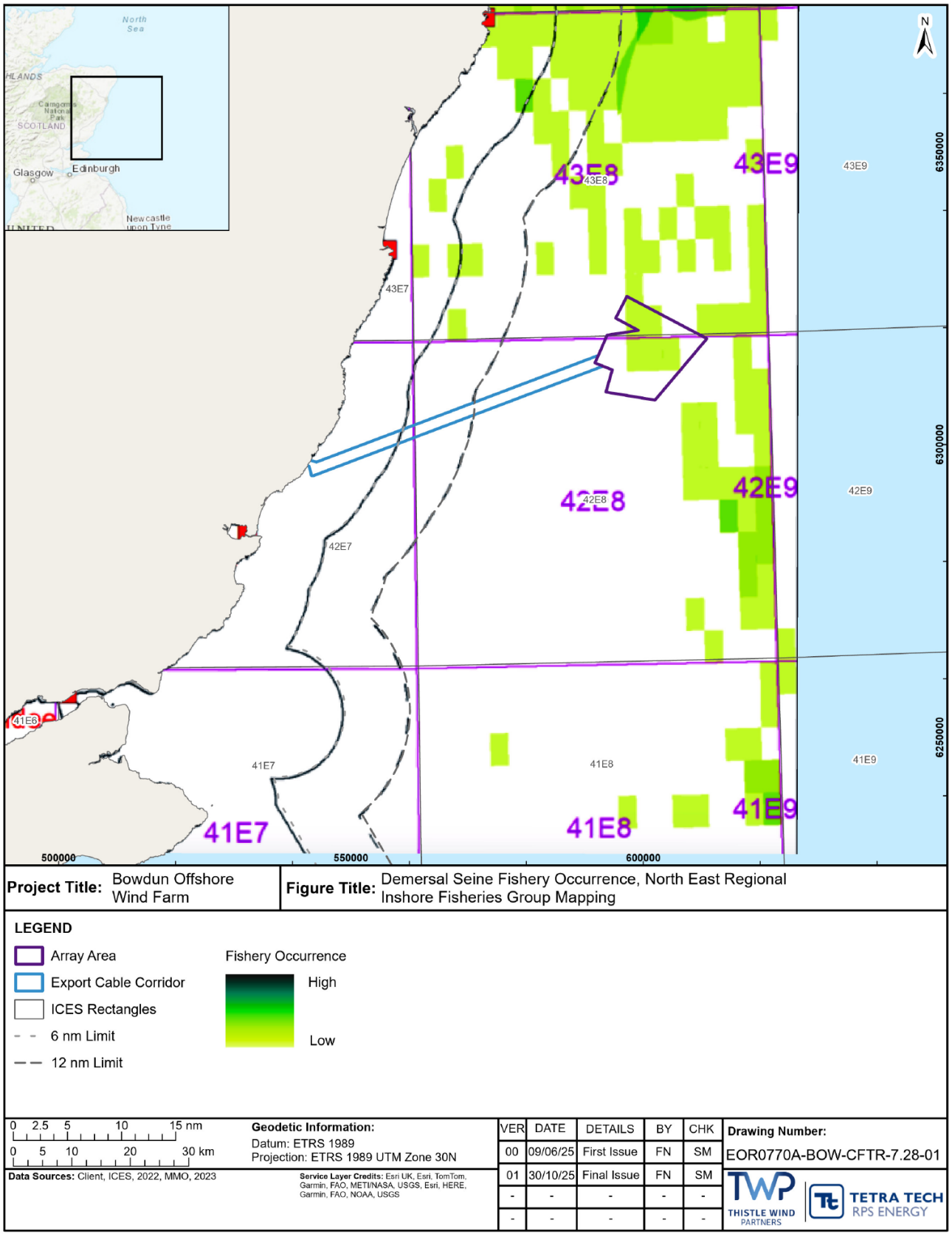

Figure 7.30: Demersal Seine Fishery Occurrence, North East Regional Inshore Fisheries Group Mapping (Source: Shelmerdine and Mouat, 2021)

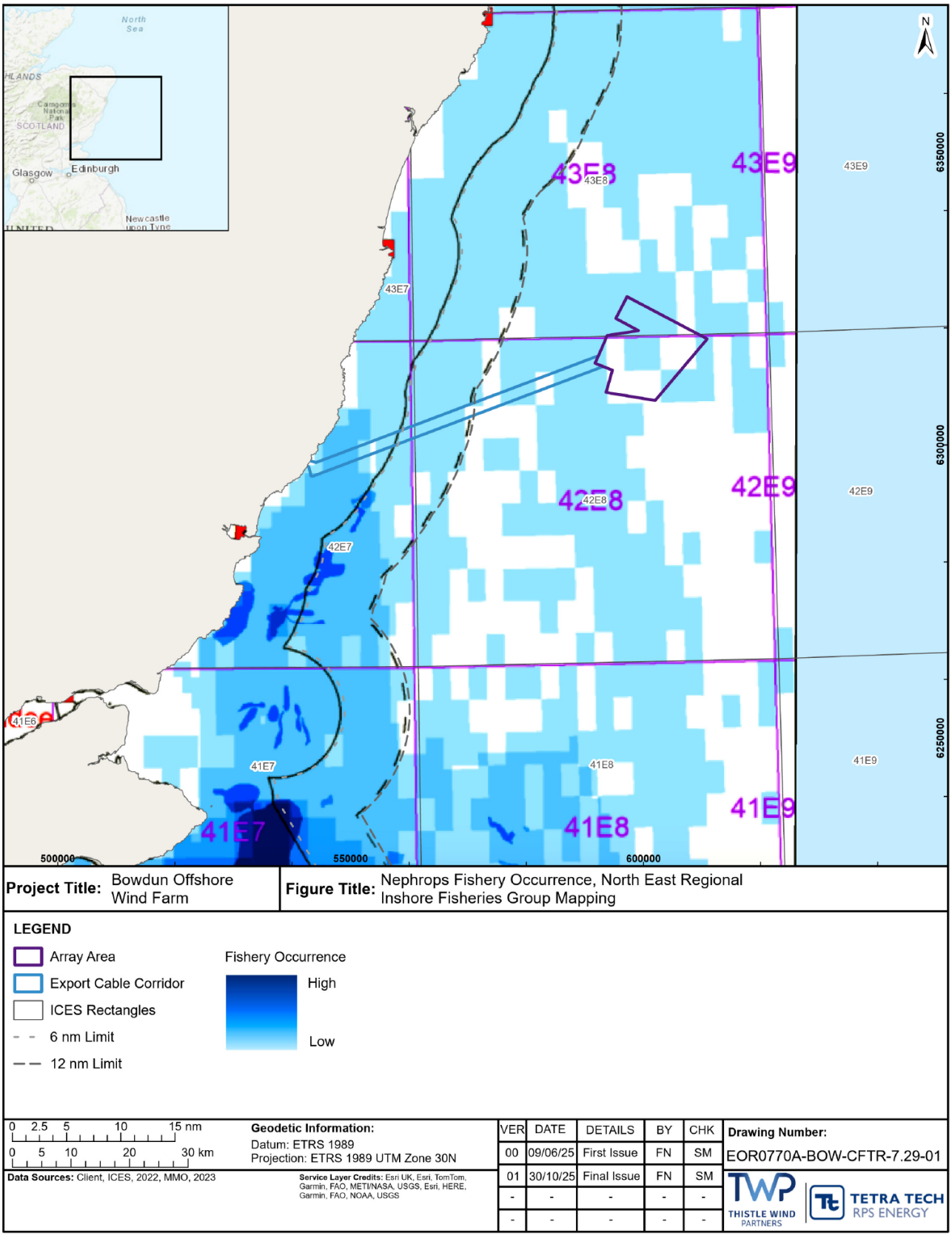

Figure 7.31: Nephrops Fishery Occurrence, North East Regional Inshore Fisheries Group Mapping (Source: Shelmerdine and Mouat, 2021)

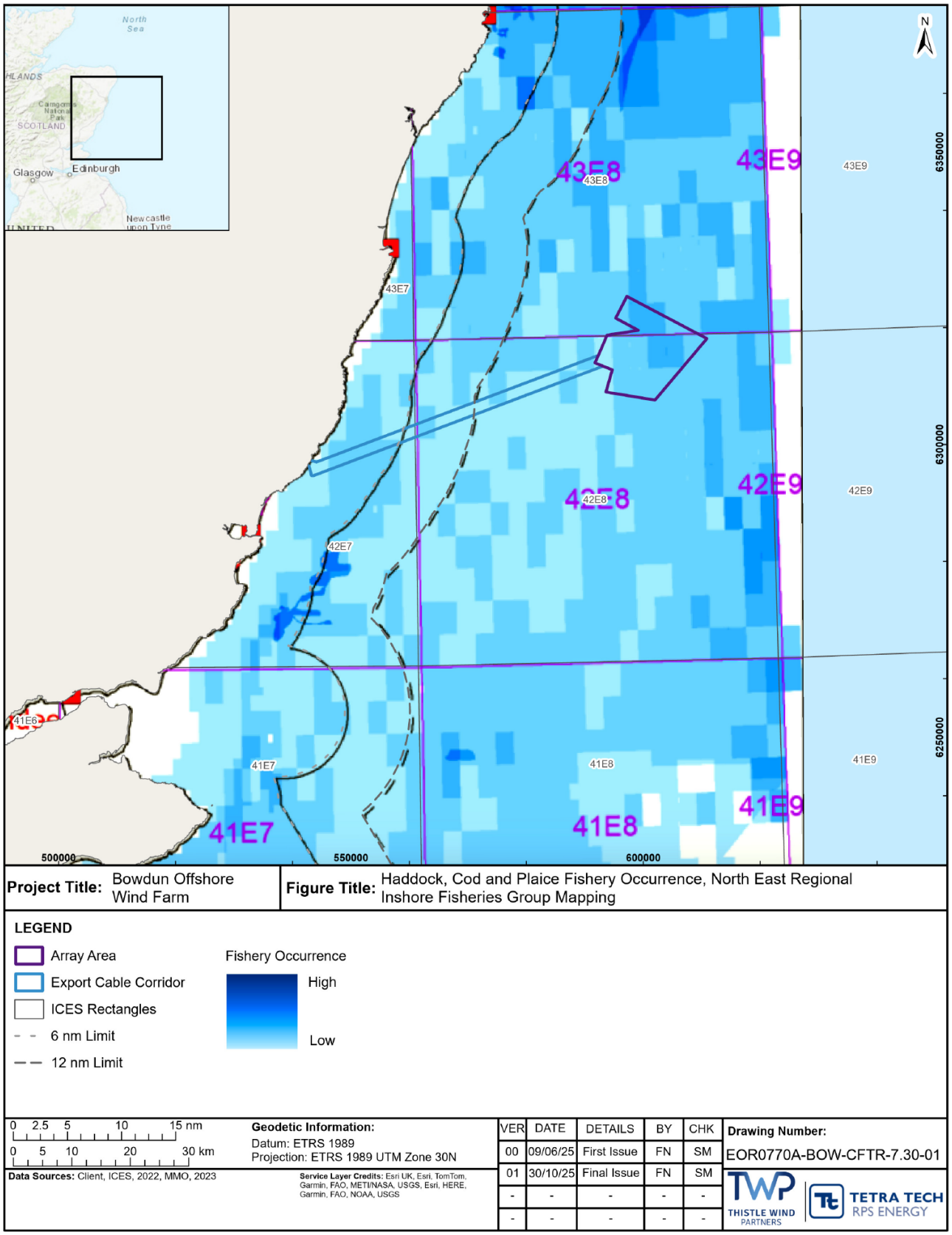

Figure 7.32: Haddock, Cod and Plaice Fishery Occurrence, North East Regional Inshore Fisheries Group Mapping (Source: Shelmerdine and Mouat, 2021)

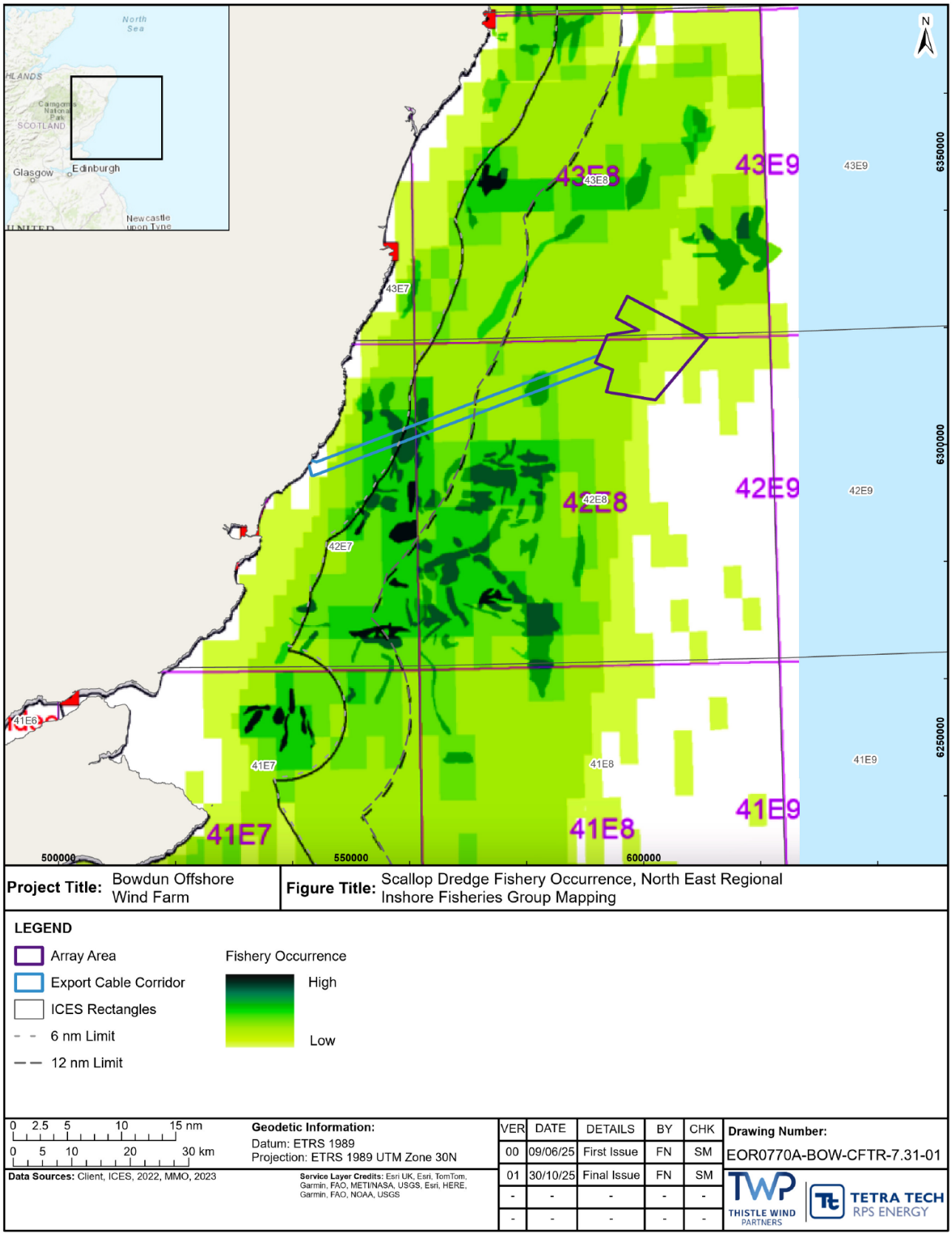

Figure 7.33: Scallop Dredge Fishery Occurrence, North East Regional Inshore Fisheries Group Mapping (Source: Shelmerdine and Mouat, 2021)

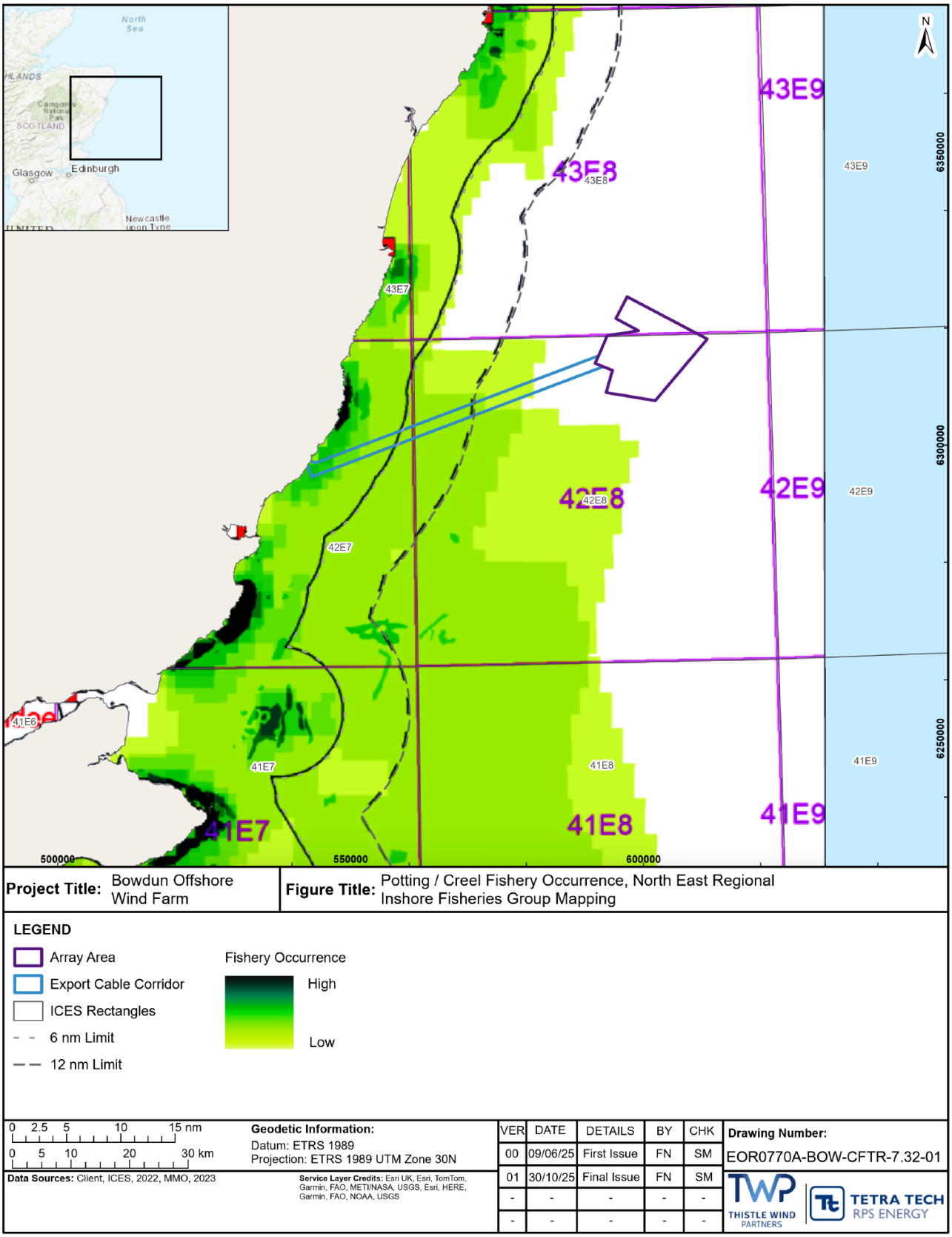

Figure 7.34: Potting/Creel Fishery Occurrence, North East Regional Inshore Fisheries Group Mapping (Source: Shelmerdine and Mouat, 2021)

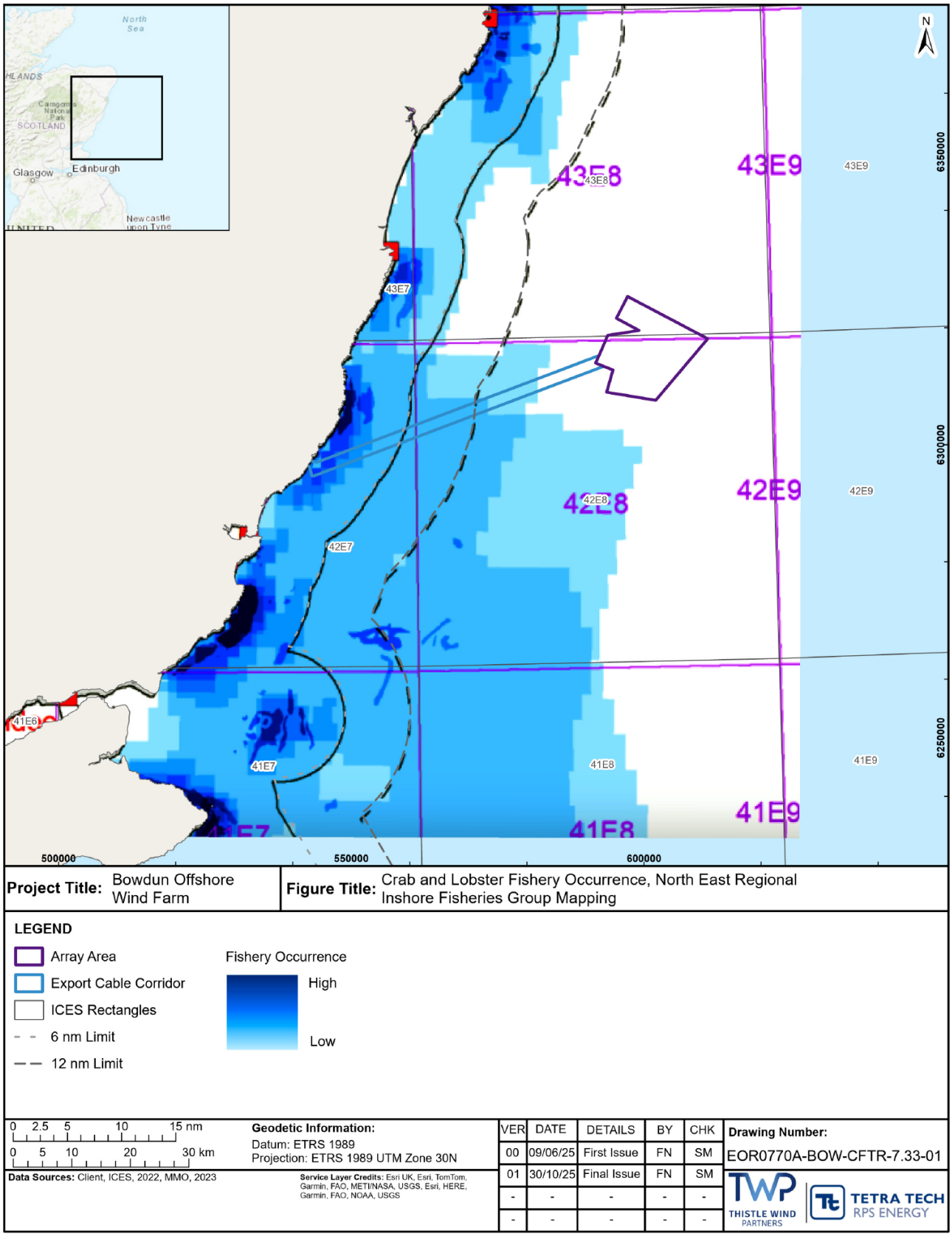

Figure 7.35: Crab and Lobster Fishery Occurrence, North East Regional Inshore Fisheries Group Mapping (Source: Shelmerdine and Mouat, 2021)

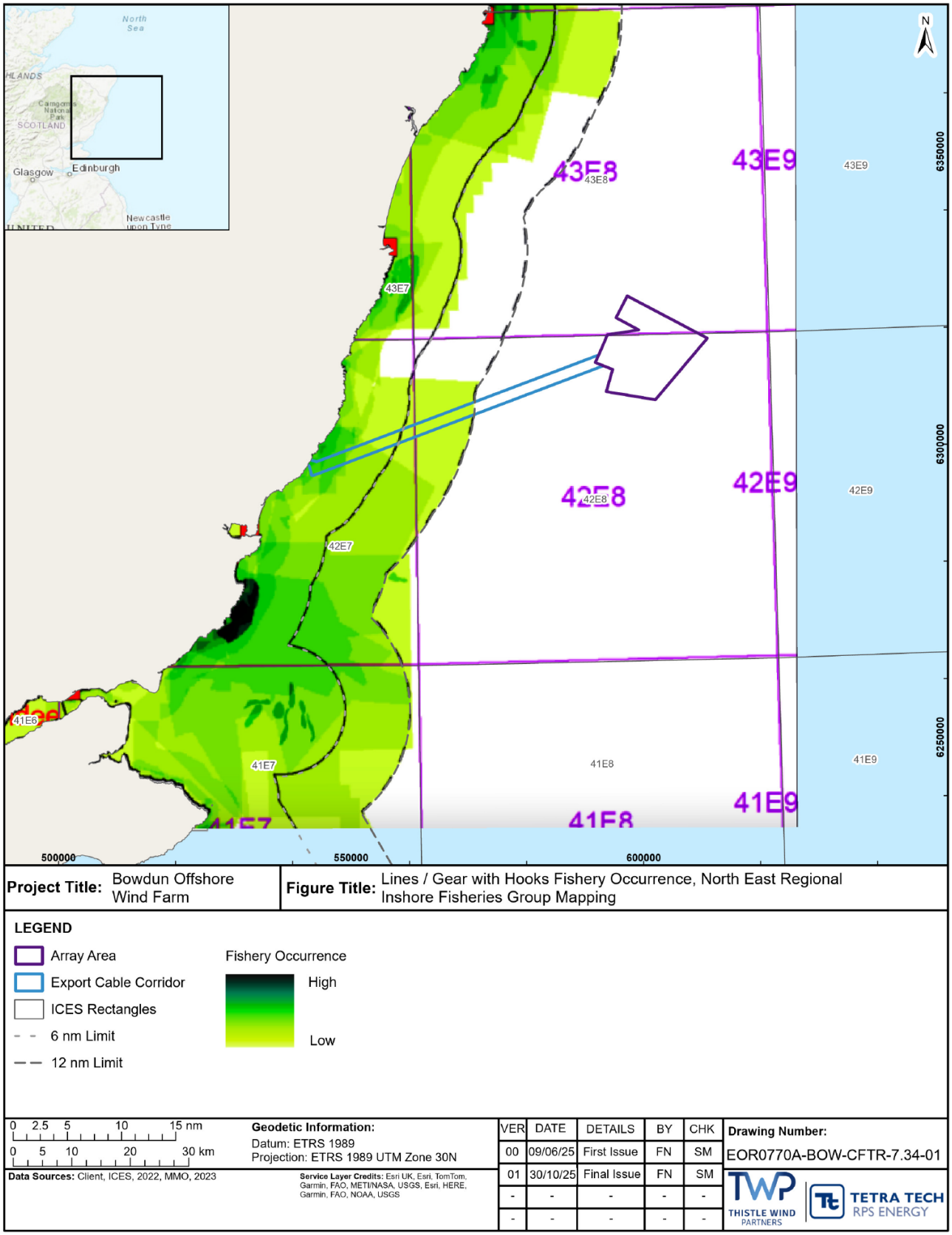

Figure 7.36: Lines/Gear with Hooks Fishery Occurrence, North East Regional Inshore Fisheries Group Mapping (Source: Shelmerdine and Mouat, 2021)

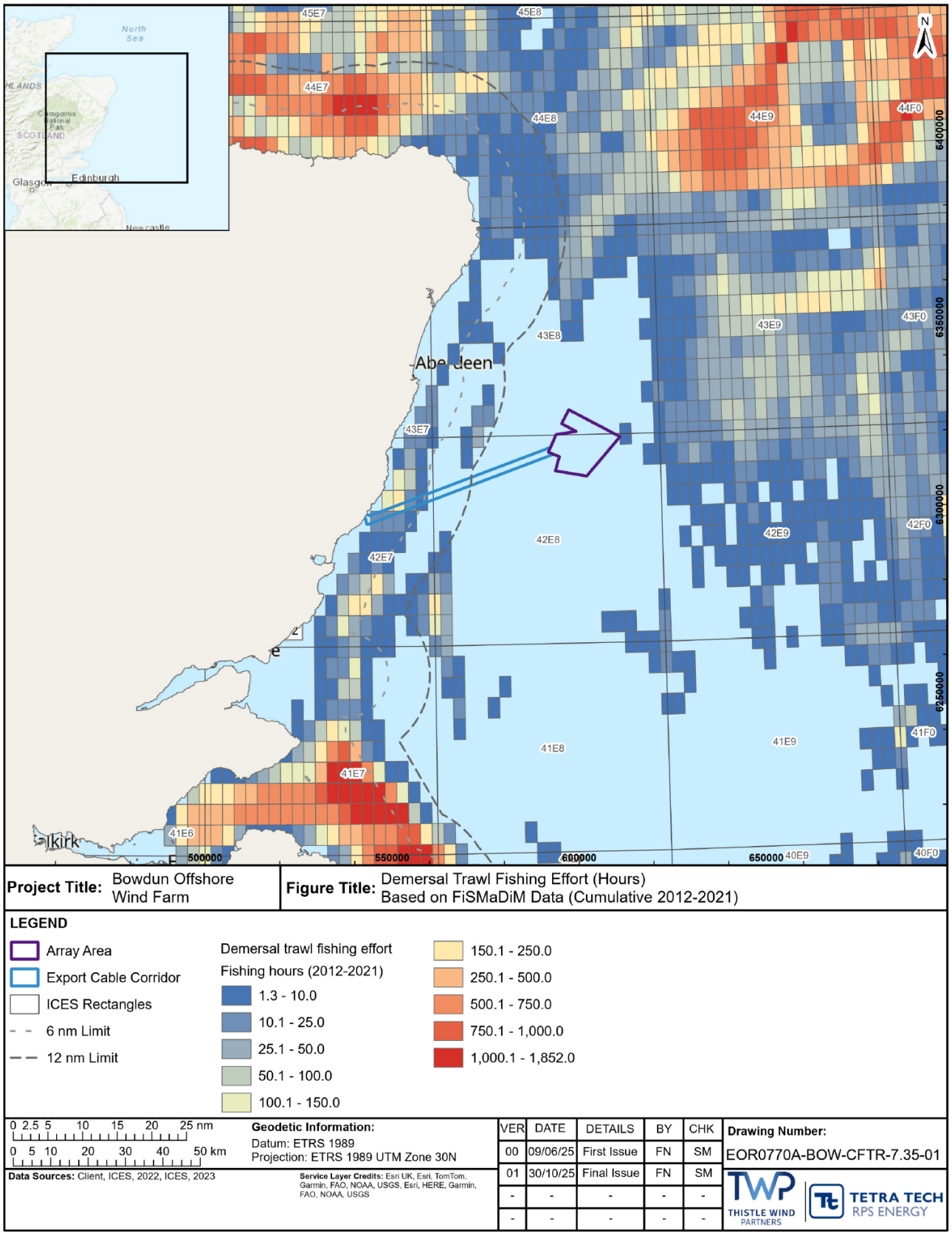

Figure 7.37: Demersal Trawl Fishing Effort (Hours) Based on FiSMaDiM data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

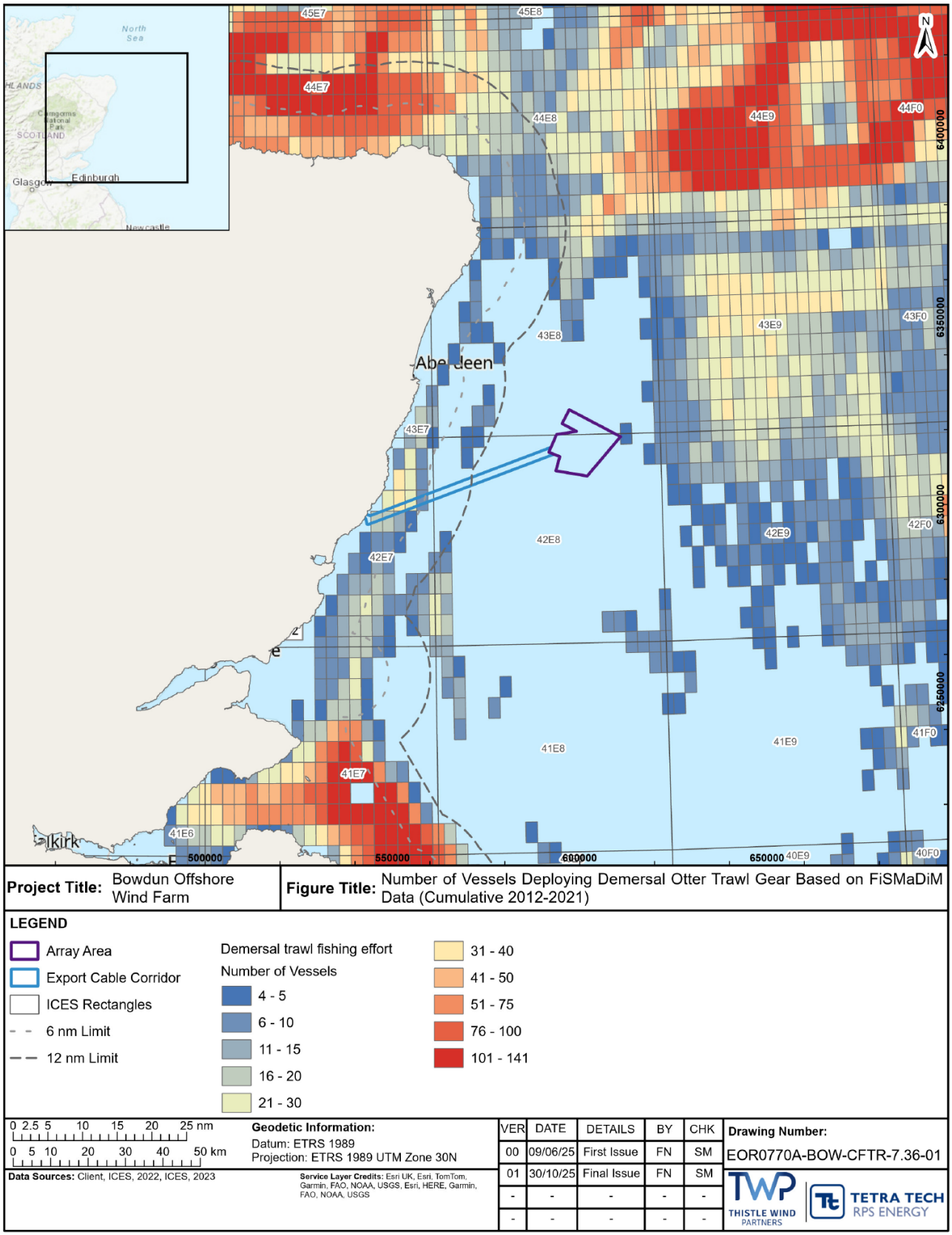

Figure 7.38 Number of Vessels Deploying Demersal Trawl Gear Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

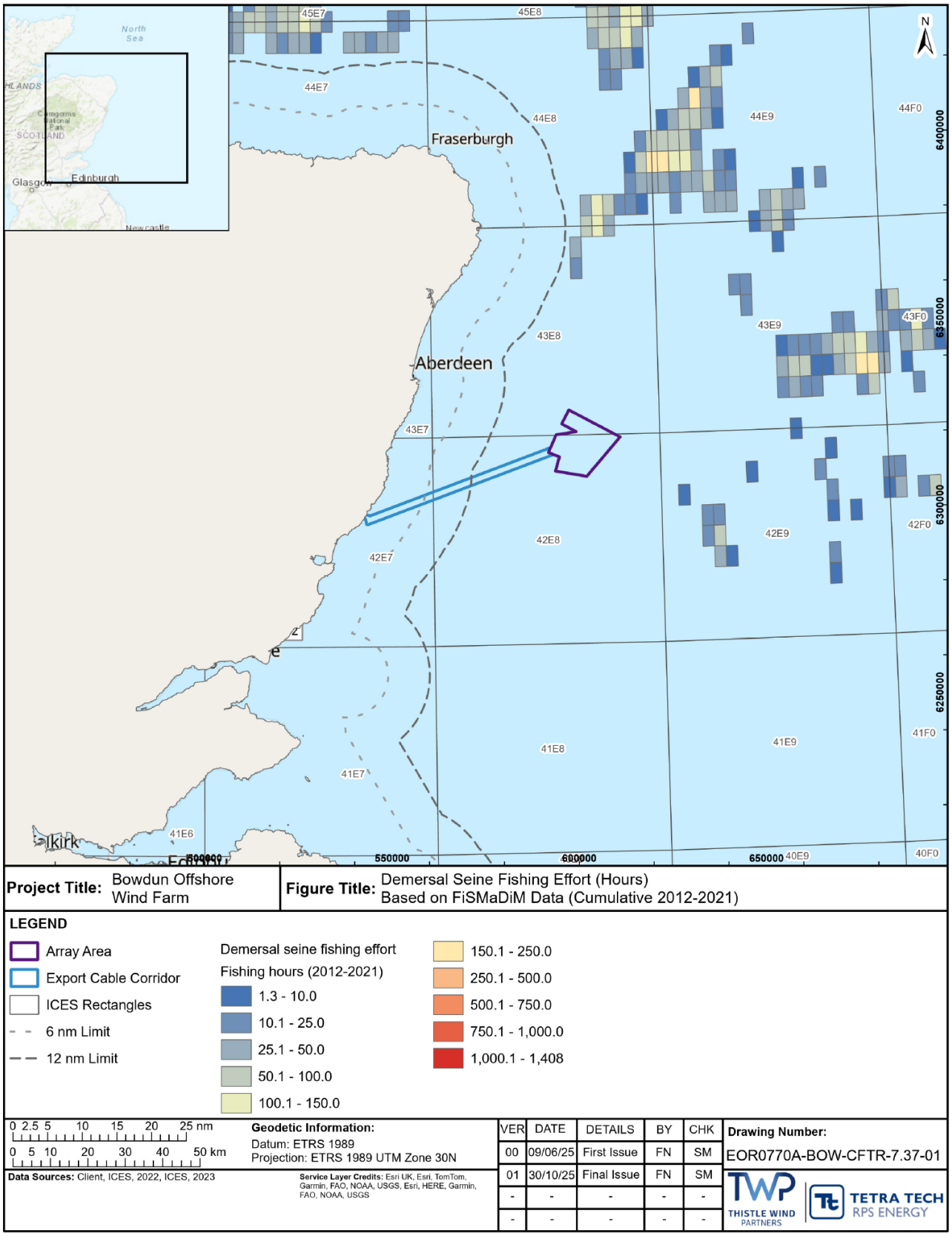

Figure 7.39: Demersal Seine Fishing Effort (Hours) Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

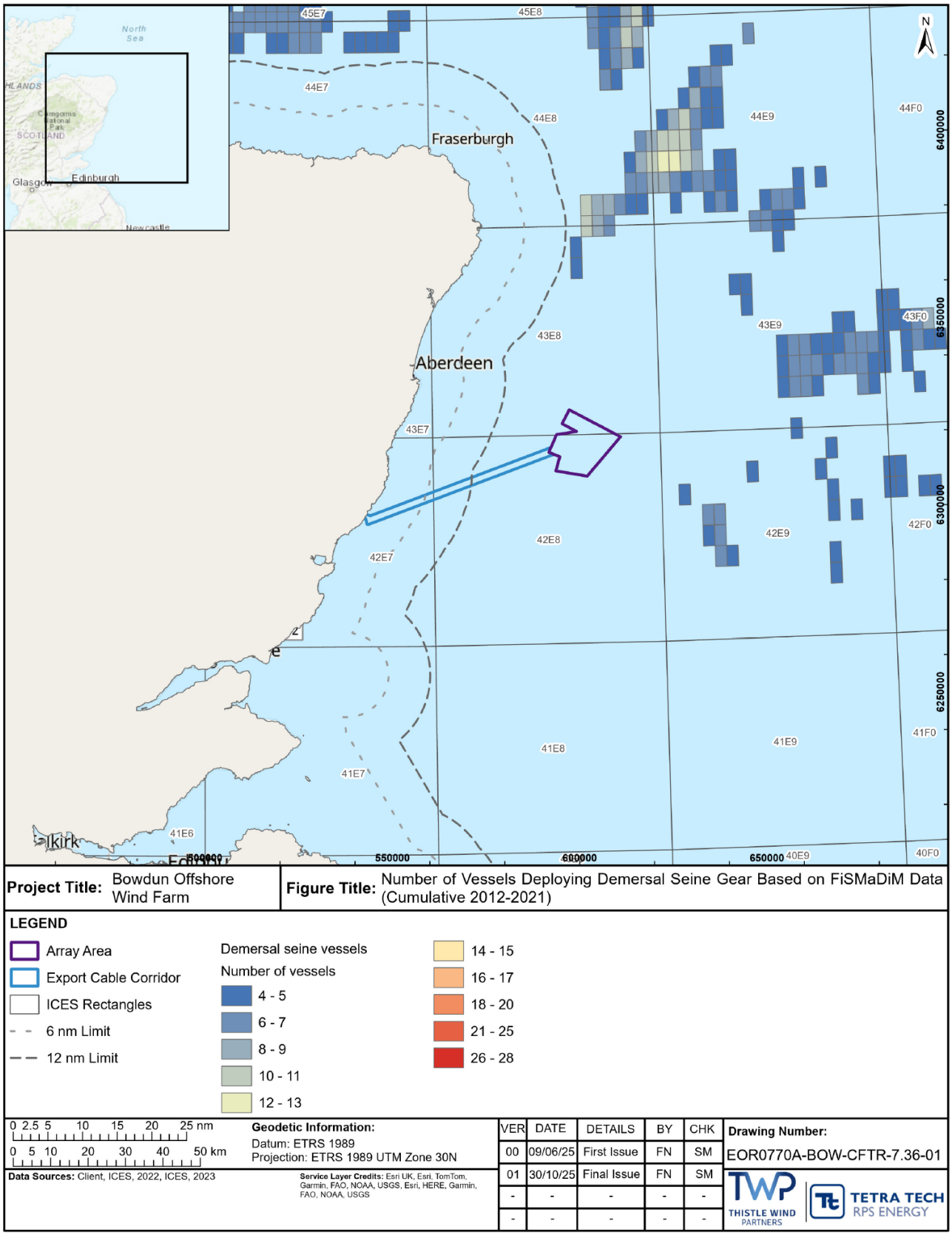

Figure 7.40 Number of Vessels Deploying Demersal Seine Gear Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

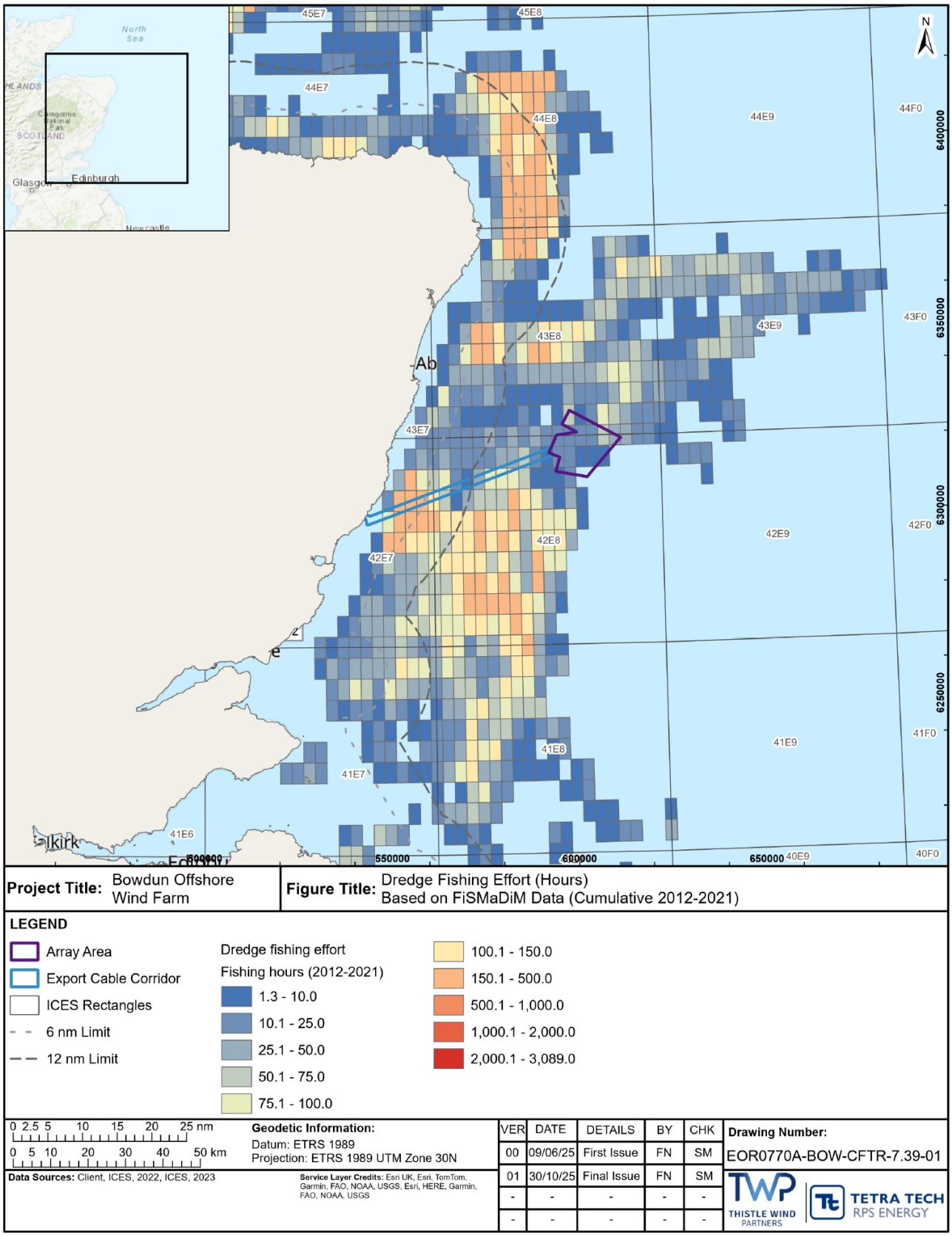

Figure 7.41: Dredge Fishing Effort (Hours) Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

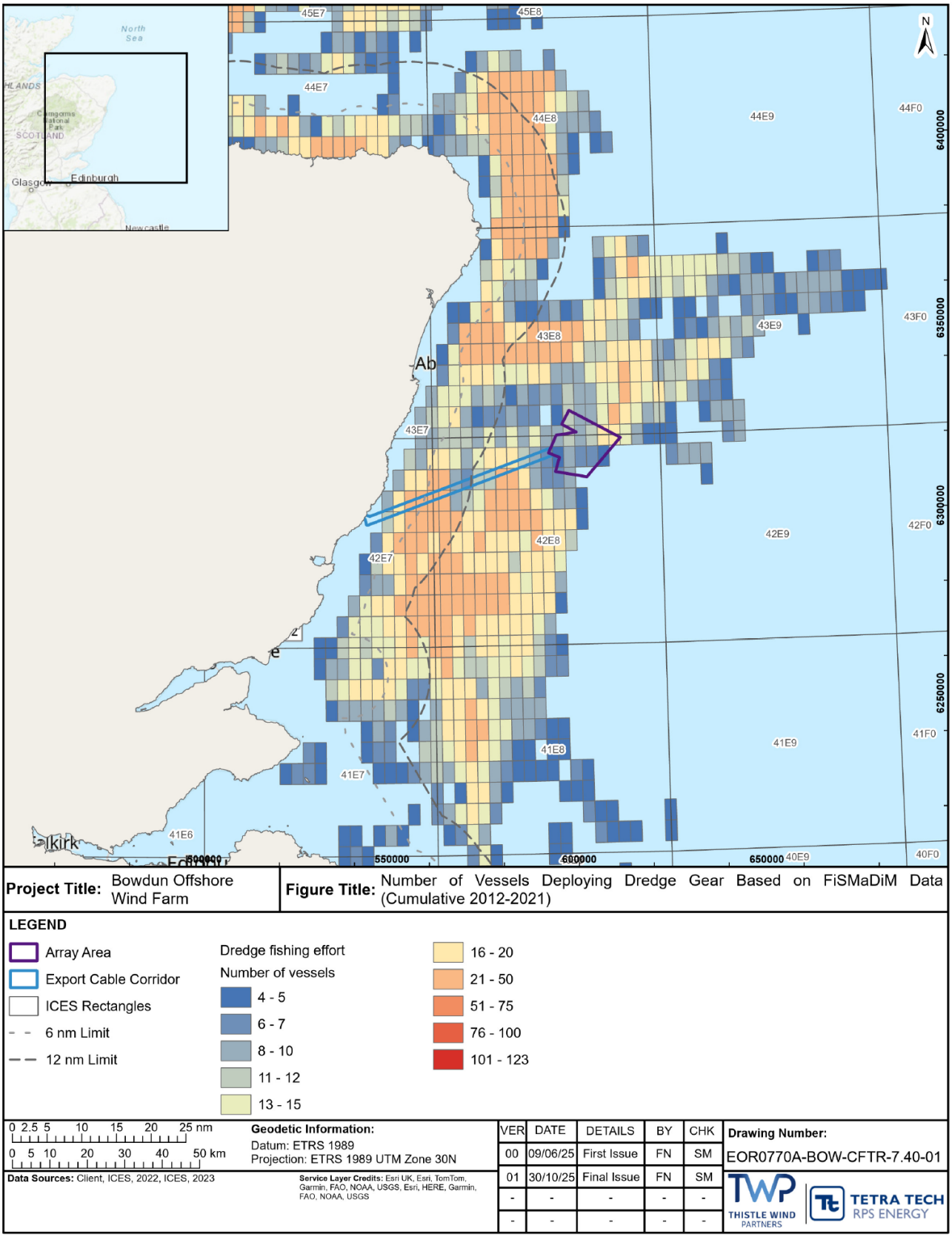

Figure 7.42 Number of Vessels Deploying Dredge Gear Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

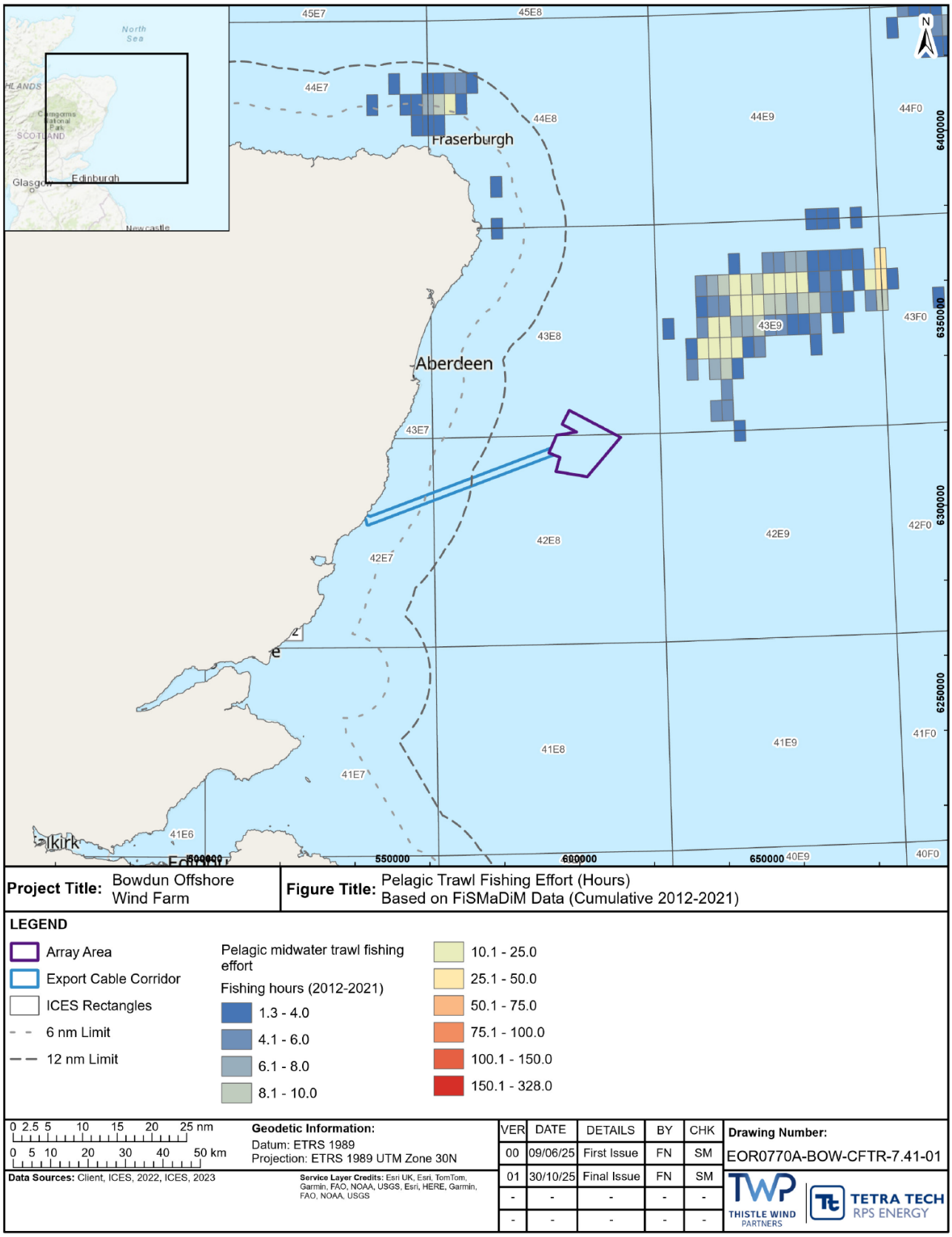

Figure 7.43: Pelagic Mid-Water Trawl Fishing Effort (Hours) Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

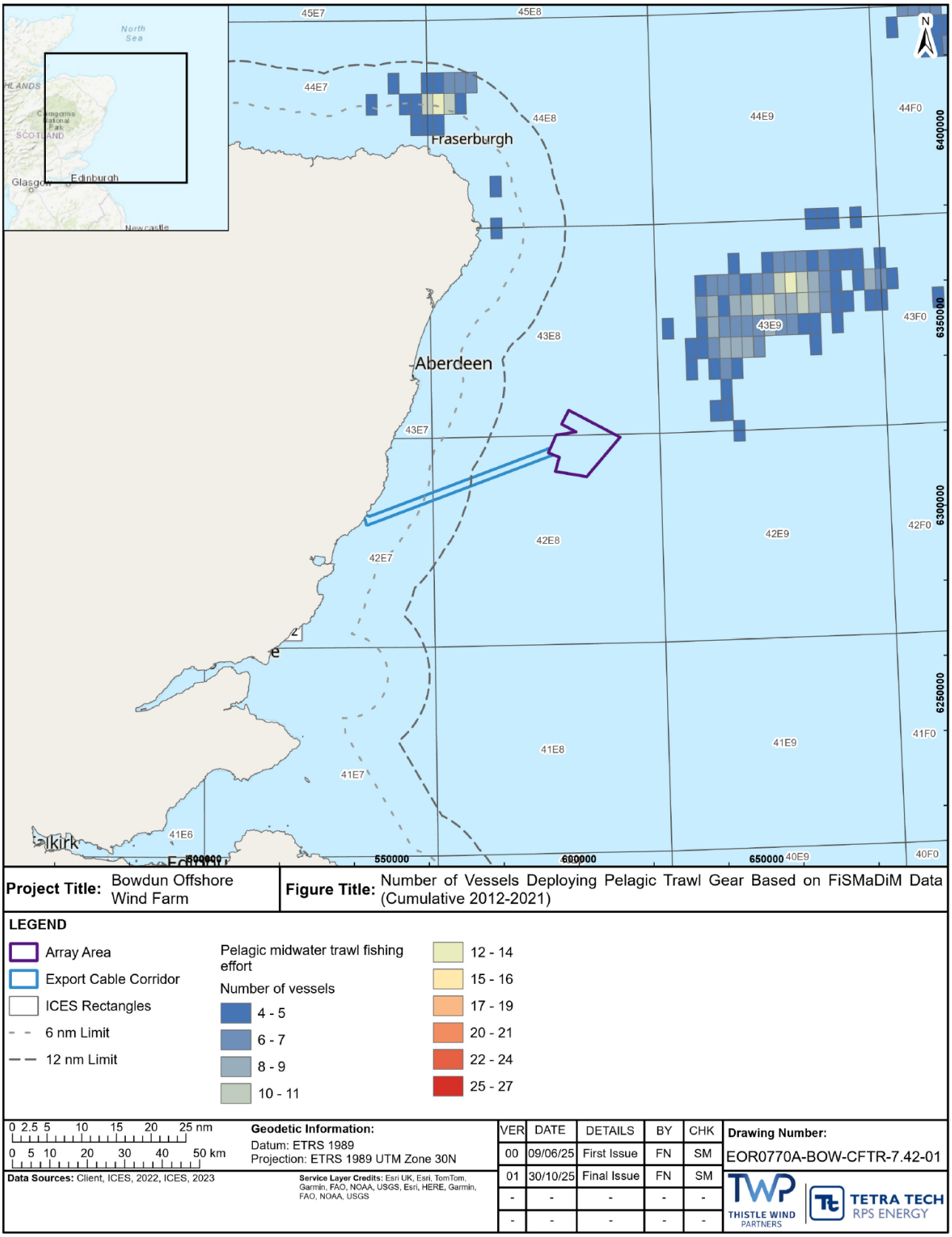

Figure 7.44 Number of Vessels Deploying Pelagic Trawl Gear Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

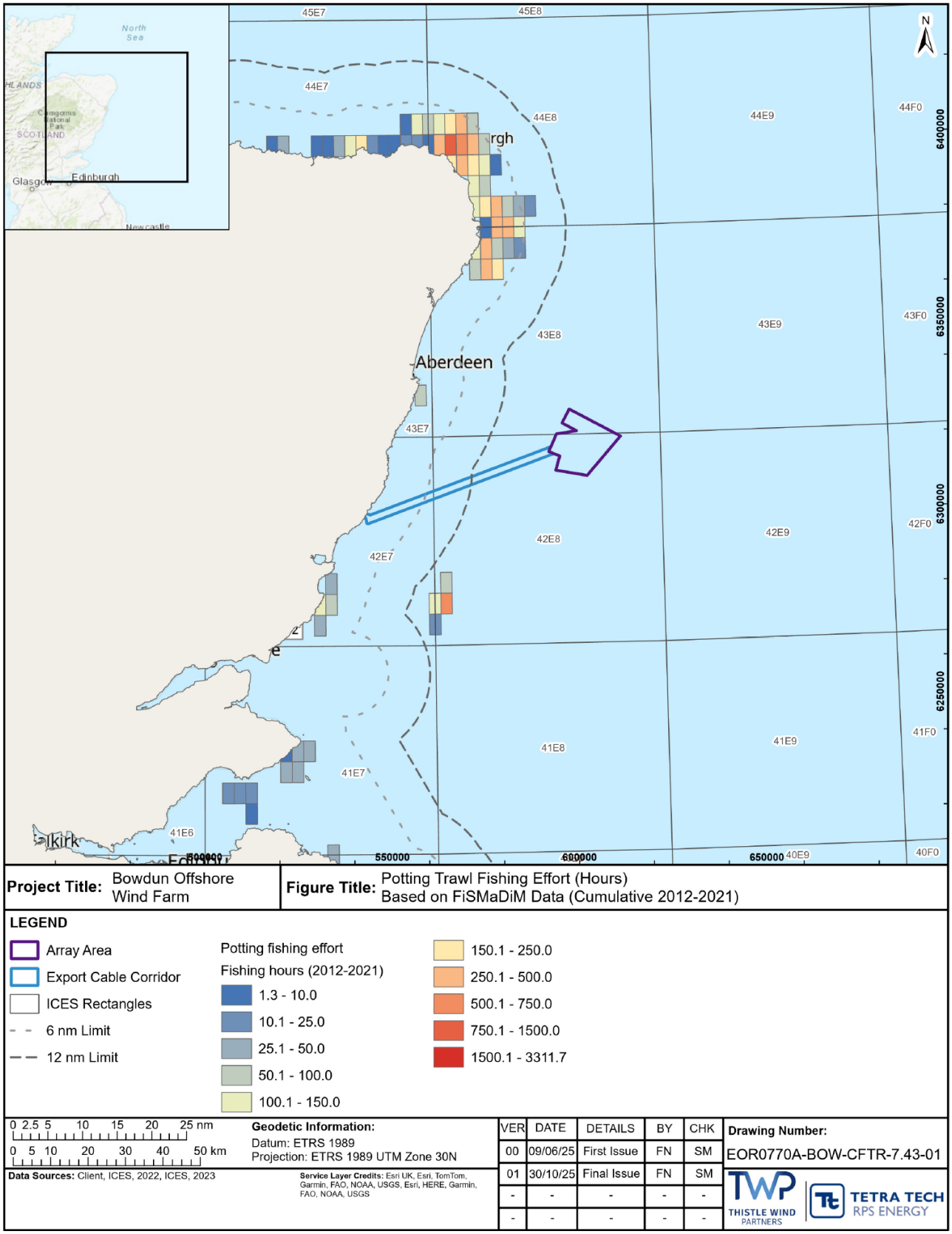

Figure 7.45: Potting Fishing Effort (Hours) Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

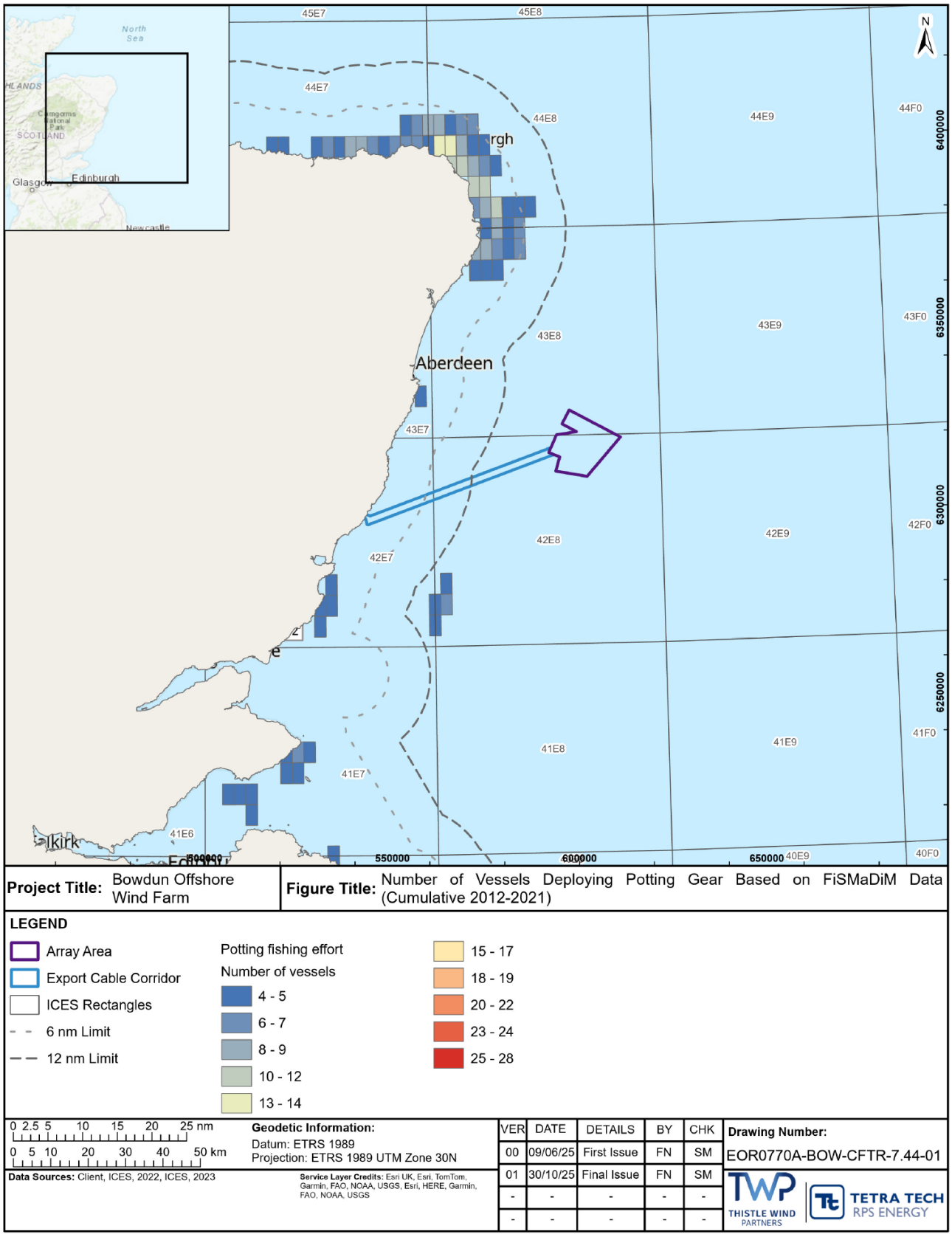

Figure 7.46 Number of Vessels Deploying Potting Gear Based on FiSMaDiM Data (Cumulative 2012 to 2021) (Source: Cefas, 2025)

8 Future Baseline

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

- Market demand: commercial fishing fleets respond to market demand, which is impacted by a range of factors, including the 2020 to 2021 COVID-19 pandemic.
- Market prices: commercial fishing fleets respond to market prices by focusing effort on higher value target species when prices are high, and markets are in demand.
- 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, sea temperature etc.), and changes in fishing pressure etc.
- Fisheries management: including new management for specific species where overexploitation has been identified, or changes in TACs leading to the relocation of effort, and/or an overall increase/decrease of effort and catches from specific areas.
- Environmental management: including the potential restriction of certain fisheries within protected areas.
- Improved efficiency and gear technology: with fishing fleets constantly evolving to reduce operational costs (e.g. by moving from beam trawl to demersal seine).
- 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.

8.1.2 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. 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.

8.1.3 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 12 nm 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.

8.1.4 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 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.

8.1.5 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 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 (12 nm to 200 nm) to fish. In this period, EU vessels will also be able to fish in specified parts of UK waters between 6 nm to 12 nm.

8.1.6 Twenty five percent 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.

8.1.7 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 6–12 nm 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.

8.1.8 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.

8.1.9 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, 2022).

8.1.10 Commercial fisheries receptors (i.e. relevant fishing fleets) could theoretically be impacted by climate change over the lifetime of the 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. Changes may result from changes in seabed habitat or natural disturbance events. Changes would be expected to have limited effects on mobile species, but with potential for effects on substrate-dependent species such as herring, and on shellfish. Changes 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. 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.

9 Summary

9.1.1 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 9.1.

9.1.2 This technical report reviewed all datasets available to characterise the commercial fisheries activity across the d 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.

Table 9.1: Summary of Fishing Fleets Active in the Study Areas, and Identified as Commercial Fisheries EIA Receptors

Fishing Fleet	Array Area	Export Cable Corridor
UK fishing fleets		
UK potting	Scottish registered vessels, under and over 10 m length, targeting brown crab and other shellfish – limited activity across portions of the Array Area.	Scottish registered vessels, under and over 10 m length, targeting brown crab and other shellfish – variable levels of activity across discrete sections of the Export Cable Corridor.
UK dredge	Primarily Scottish registered vessels, over 15 m length, targeting king scallop – no/very low levels of activity in the Array Area.	Primarily Scottish registered vessels, over 15 m length, targeting king scallop – variable levels of activity across discrete sections of the Export Cable Corridor.
UK demersal trawl	Primarily Scottish registered vessels, over 15 m length, targeting haddock, squid, cod and monkfish – some activity across discrete portions of the Array Area.	Primarily Scottish registered vessels, over 15 m length, targeting haddock, squid, cod and monkfish – low levels of activity across discrete sections of the Export Cable Corridor.
UK demersal seine	Primarily Scottish registered vessels, over 15 m length, targeting haddock and cod – some activity across discrete portions of the Array Area.	Primarily Scottish registered vessels, over 15 m length, targeting haddock and cod – low levels of activity across discrete sections of the Export Cable Corridor.
UK handline/ gear with hooks	No activity.	Scottish registered vessels, under 12 m length, targeting mackerel – potential for activity across discrete sections of the Export Cable Corridor.
UK pelagic trawl	Scottish registered vessels, over 40 m length, targeting herring – no/very low levels of activity within the Array Area but present in the wider Regional Commercial Fisheries Study Area.	Scottish registered vessels, over 40 m length, targeting herring – no/very low levels of activity within the Export Cable Corridor but present in the wider Regional Commercial Fisheries Study Area.
Non-UK fishing fleets		
EU pelagic trawl	Highly sporadic landings of herring and mackerel by vessels registered in Ireland, Denmark, Netherlands, Germany and France. Very unlikely to be active within the Array Area but may be present in the wider Regional Commercial Fisheries Study Area.	Highly sporadic landings of herring and mackerel by vessels registered in Ireland, Denmark, Netherlands, Germany and France. Very unlikely to be active within the Export Cable Corridor but may be present in the wider Regional Commercial Fisheries Study Area.

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