NORTH FALLS

Offshore Wind Farm

ENVIRONMENTAL STATEMENT

Appendix 14.1 Commercial Fisheries Technical Report

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NORTH FALLS
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North Falls Wind Farm

Commercial Fisheries Technical Report

Brown & May Marine Ltd.

North Falls Wind Farm

Commercial Fisheries Technical Report

Undertaken by

Brown & May Marine Limited

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Glossary of Acronyms

AIS	Automatic Identification System
CBRA	Cable Burial Risk Assessment
Cefas	Centre for the Environment and Fisheries and Aquaculture Science
CFWG	Commercial Fisheries Working Group
CEA	Cumulative Effects Assessment
COLREG	International Regulations for Preventing Collisions at Sea
DCO	Development Consent Order
Defra	Department for Environment, Food and Rural Affairs
EC	European Commission
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
FLCP	Fisheries Liaison and Coexistence Plan
FLO	Fisheries Liaison Officer
FLOWW	Fishing Liaison with Offshore Wind and Wet Renewables Group
ICES	International Council for the Exploration of the Sea
ILVO	Flanders Research Institute Agricultural, Fisheries and Food Research
KEIFCA	Kent and Essex Inshore Fisheries Conservation Authority
km	Kilometre
Km2	Square kilometre
m	Metre
MCA	Maritime and Coastguard Agency
MCZ	Marine Conservation Zone
MMO	Marine Management Organisation
MPA	Marine Protected Area
MW	Megawatts
nm	Nautical Mile
NPS	National Policy Statements
NSIP	Nationally Significant Infrastructure Projects
NtM	Notice to Mariners
OFLO	Offshore Fisheries Liaison Officers
OSP	Offshore Substation Platform
OSPAR	Convention for the Protection of the Marine Environment of the North-East Atlantic (Oslo/Paris Convention)
OWF	Offshore Wind Farm
PEIR	Preliminary Environmental Information Report
PEMP	Project Environmental Management Plan
PINS	Planning Inspectorate
SAC	Special Area of Conservation
SOLAS	International Convention for the Safety of Life at Sea

SPA	Special Protection Area
STECF	Scientific, Economic and Technical Committee on Fishing
UK	United Kingdom
VMS	Vessel Monitoring Systems
WTG	Wind Turbine Generator
WUR	Wageningen University and Research

Glossary of Terminology

Array area	The offshore wind farm area, within which the wind turbine generators, array cables, platform interconnector cable, offshore substation platform(s) and/or offshore converter platform will be located.
Array cables	Cables which link the wind turbine generators with each other, the offshore substation platform(s) and/or the offshore converter platform.
Beam trawl	A trawl net whose lateral spread during trawling is maintained by a beam across its mouth.
Benthic	Relating to, or occurring at the sea bottom.
Demersal	Living on or near the seabed.
Diadromous	Migrating between fresh and salt water.
Evidence Plan Process	A voluntary consultation process with specialist stakeholders to agree the approach to the EIA and information to support HRA.
Horizontal directional drill	Trenchless technique to bring the offshore cables ashore at the landfall. The technique will also be used for installation of the onshore export cables at sensitive areas of the onshore cable route.
Landfall	The location where the offshore export cables come ashore at Kirby Brook.
Offshore cable corridor	The corridor of seabed from the array area to the landfall within which the offshore export cables will be located.
Offshore converter platform	Should an offshore connection to an HVDC interconnector cable be selected, an offshore converter platform would be required. This is a fixed structure located within the array area, containing HVAC and HVDC electrical equipment to aggregate the power from the wind turbine generators, increase the voltage to a more suitable level for export and convert the HVAC power generated by the wind turbine generators into HVDC power for export to shore via an HVDC interconnector cable.
Offshore export cables	The cables which bring electricity from the offshore substation platform(s) to the landfall.
Offshore project area	The overall area of the array area and the offshore cable corridor.
Offshore substation platform(s)	Fixed structure(s) located within the array area, containing HVAC electrical equipment to aggregate the power from the wind turbine generators and increase the voltage to a more suitable level for export to shore via offshore export cables.
Otter trawl	A trawl net fitted with two ‘otter’ boards which maintain the horizontal opening of the net.
Platform interconnector cable	Cable connecting the offshore substation platforms (OSP) or the OSP and offshore converter platform (OCP)
Safety zones	A marine zone outlined for the purposes of safety around a possibly hazardous installation or works / construction area
Scour protection	Protective materials to avoid sediment being eroded away from the base of the wind turbine generator foundations and offshore substation platform foundations as a result of the flow of water.
The Applicant	North Falls Offshore Wind Farm Limited (NFOW).
The Project or ‘North Falls’	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.

1.0 Introduction

This Technical Report describes the commercial fisheries baseline in relation to the North Falls Offshore Wind Farm ('the Project'). The areas of the Project relevant to this baseline characterisation are the North Falls array area and the offshore cable corridor. Collectively, these Project components are referred to as the 'offshore project area'.

The North Falls array area, the far shore section of the offshore cable corridor is located beyond the United Kingdom's (UK's) 12 nautical mile (nm) limit and therefore other European Union (EU) nationalities have rights to fish these areas. As a result, in order to inform the fisheries baseline, data and information has been obtained from a number of EU fisheries data centres and stakeholders. It should, however, be noted that the availability and methods of data collation varies between the various national data centres.

2.0 Study Area

Fisheries data are recorded and collated by International Council for the Exploration of the Sea (ICES) statistical rectangles. The offshore project area is situated in ICES division IVc (southern North Sea) with the array area located approximately 20nm from shore.

The commercial fisheries study area has been defined with reference to the ICES rectangles within which the offshore project area is located. As shown in Figure 2.1, these are as follows:

- ICES rectangle 32F1, where the majority of the offshore project area is located (including the whole offshore cable corridor and a majority of the array area); and
- ICES rectangle 32F2, where a small section of the array area is located.

The study area defined above has been used to identify fisheries active in areas relevant to the offshore project area. Where appropriate, data and information have been analysed for wider areas to provide context and describe the wider extent of activity of relevant fisheries.

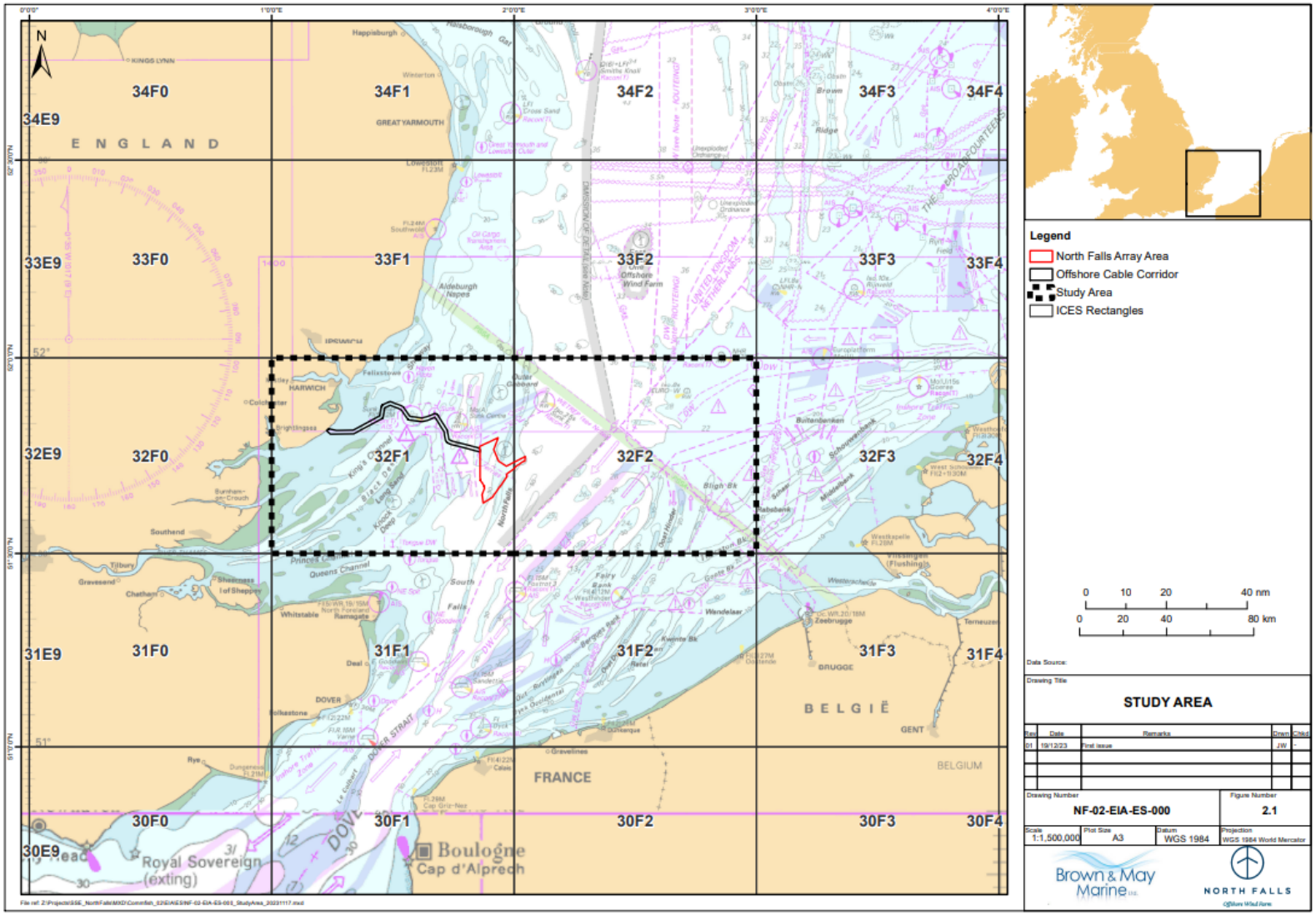


Figure 2.1 Study Area

3.0 Data and Information Sources

The principal sources of data to inform this baseline are outlined in Table 3.1.

Table 3.1: Key Datasets Used to Inform the Baseline

Dataset	Year	Coverage	Notes/Limitations
UK Landings Data by ICES Rectangle (Marine Management Organisation; MMO)	2018 - 2022	Landings statistics data for UK-registered vessels including: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type; species; live weight (tonnes) and live weight (value (£)).	Landings data have been analysed by value (£) and presented as an annual average for the period 2018 – 2022. It should be noted that fishing is normally not equally distributed across the whole area of an ICES rectangle and therefore overall activities identified for a given rectangle may not be necessarily representative of the activity that the specific area where the offshore project area is located supports. As described in the UK Sea Fisheries Statistics 2020 Report (MMO, 2021), the Covid-19 pandemic, where effects were felt from March 2020 onwards, resulted in significant impacts on commercial fishing during 2020. Like all parts of the UK economy, the pandemic had differential impacts on different sectors in the fishing industry. Overall, shellfish fisheries were hit most severely as shellfish species tend to be landed and sold fresh for use in the hospitality sector and demand from this sector in the UK and abroad dropped dramatically as lockdowns were being imposed across the UK and EU. While data from 2020 has been included in this report, it should be noted that data from 2020 may not be fully representative of normal fishing activity. In some instances, gear categories have been combined to aid visualisation of trends in the data. The following gear categories have been combined into single categories encompassing: • Bottom otter trawls (bottom otter trawls; otter trawls (not specified); otter twin trawls; bottom pair trawls); • Midwater trawls (midwater trawl; midwater pair trawls); • Longlines and other lines (longlines; hooks and lines (not specified); handlines and pole-lines); • Drift nets and Trammel Nets (drift nets; trammel nets); and • Other (unknown; hand dredges; traps (not specified)).
UK Fisheries Surveillance Sightings (MMO)	2012 - 2021	Surveillance sightings of vessels by gear type (all nationalities) recorded in	Only sightings of vessels recorded as “fishing” have been included in the analysis.

Dataset	Year	Coverage	Notes/Limitations
		UK waters by surveillance patrols.	While the data provides a good indication of key methods and nationalities potentially active in a given area, it should be noted that surveillance patrols are not carried out at constant time intervals and that the level of surveillance effort has been reduced in recent years. In some instances, gear categories have been combined to aid visualisation of trends in the data. The following gear categories have been combined into a single "trawlers combined" category, encompassing: trawler (all), demersal stern trawler, stern trawler (pelagic/demersal), demersal side trawler, and side trawler (pelagic/demersal).
Fishing Activity for UK Vessels 15m and over Data layers (MMO)	2016 - 2020	Satellite tracking data (Vessel Monitoring System (VMS) pings recorded in 0.05° by 0.05° grids from UK vessels in UK and European waters. VMS data is combined with log book data with values assigned to each cell in the grid in terms of effort and value (£).	This type of dataset is only available for vessels over 15m in length and therefore is not representative of fishing activity undertaken by smaller local vessels which normally operate in inshore waters. Data has been analysed by value (£) and presented as an annual average for the period 2016 – 2020 Fishing gear categories used in the dataset do not allow to distinguish activity between some fisheries. This s dataset is provided by broad gear category and does not differentiate between target species.
Belgian Fishing Activity for vessels over 15m in length (Flanders Research Institute Agricultural, Fisheries and Food Research; ILVO)	2010 - 2014	Belgian VMS data combined with logbook data presented at 1/16th of an ICES rectangle scale.	Includes information for Belgian registered vessels of 15m in length. The data included in this report is presented as an annual average in terms of fishing effort for the period 2010 - 2014. Recent VMS data for Belgian vessels is not publicly available. The data presented in this report is part of BMM in-house historic fisheries data sets for Belgian vessels obtained via data request to ILVO. BMM first requested VMS data up to 2021 in February 2022 but at the time of writing (November 2023) has yet to receive the new data.
Dutch Fishing Activity for vessels over 12m in length (Wageningen University and Research; WUR)	2017 - 2021	Dutch VMS data combined with logbook data presented at 1/16th of an ICES rectangle scale.	Includes information for Dutch registered vessels over 12m in length. The data included in this report is presented as an annual average in terms of fishing value (€) for the period 2017 to 2021.

Dataset	Year	Coverage	Notes/Limitations
Dutch Landings by ICES Rectangle (WUR)	2017 - 2021	Landings statistics data for Dutch-registered vessels including: landing year; vessel length category; ICES rectangle; vessel/gear type; species; and landings (€).	Landings data provided by WUR provides the top ten species by ices rectangle for each year. The top ten species are not necessarily consistent across each year. The data is analysed by selecting the species which are in the top ten for each of the years analysed (2017 – 2021), with all other species included in the "other" category.
Belgian and French Landings by ICES rectangle (European Commission's (EC) Scientific, Economic and Technical Committee on Fishing (STECF))	2012-2016	Landings statistics data for Belgian and French-registered vessels including: landing year; landing quarter; vessel length category; ICES rectangle; vessel/gear type; species; and landings (tonnes).	Belgian and French landings (tonnes) by ICES rectangle based on data submitted by Belgium and France to the EC's STECF. The same limitations noted above in relation to UK landings data by ICES rectangle also apply here. In some instances, gear categories have been combined to aid visualisation of trends in the data. The following gear categories have been combined into single categories: • Beam trawls (Beam trawls mesh >= 80mm and <120mm; 80mm or missing; >=120mm) • Bottom trawls and seines (bottom trawls and seines >=70mm and <100mm; >=100mm; >=16mm and <32mm). For both French and Belgian landings in the study area, the majority of landings recorded in the beam trawl category fall into mesh size between >= 80mm and <120mm, and for bottom trawls mesh size between >=70mm and <100mm.
KEIFCA Surveillance Sightings	2015 - 2020	Kent and Essex IFCA District	Limited to areas within the district and therefore within 6nm. This data set only provides a snapshot in time per sighting. In addition, sightings are skewed towards KEIFCA home ports.
European Fishing Vessels AIS (EMODnet, 2022)	2020	All European Fishing Vessels, Average MW Fishing Hours	EMODnet Human Activities deals with a diverse set of marine and maritime human activities. As a result, data feeding into the portal comes from a multitude of public and private data sources at EU, international, national, and local level. Each partner of the consortium is in charge of surveying existing data sources for a given activity.

4.0 Consultation

In addition to the review of publicly available information, the commercial fisheries baseline has been informed through the collection of information from local fishers active in the commercial fisheries study area. As discussed in section 3.0, there are limitations with the publicly available fisheries data, particularly with regard to vessels in the smaller length categories, as these are not currently satellite tracked (i.e. not included in the VMS dataset). In order to inform this report, consultation has been carried out with relevant UK and non-UK commercial fisheries stakeholders. Consultation is on-going and will continue after submission of the Environmental Statement (ES). A list of the consultation undertaken to date is given in Table 4.1.

Table 4.1 Summary of consultation

Consultees	Role/Organisation	Consultation Date
Representative 1	Secretary of Thanet Fishermen's Association	28/09/2022
Representative 2	Southwold Fishermen's Association	29/09/2022
Representative 3	Rederscentrale (Belgium)	08/12/2022
Representative 5	Kent & Essex IFCA	07/12/2022
Representative 6	National Fishermen's Federation Organisation	TBC
Representative 7	Visned	TBC
Representative 8	Visafslag Hollands Noorden	TBC
Representative 9	CRPMEM - Hauts De France	09/12/2022
Representative 10	CRPMEM - Normandie	TBC
Representative 11 Representative 12 Representative 13 Representative 14 Representative 15 Representative 16	Orford & District Fishermen's Association Harwich Haven Fishing Association Felixstowe Ferry Fisherman's Association West Mersea Fishermen's Association Southwold Fishermen's Representative Thanet Fishermen's Association	North Falls CFWG 19/10/2022
Fisher 1	Harwich Haven Fishing Association	31/10/2022
Fisher 2	Southwold Fishermen's Association	09/11/22
Fisher 3	Southwold Fishermen's Association	09/11/22
Fisher 4	Southwold Fishermen's Association	16/11/22
Fisher 5	Southwold Fishermen's Association	16/11/22
Fisher 6	Orford & District Fishermen's Association	23/11/22
Fisher 7	Felixstowe Ferry Fishermen's Association	15/11/22
Fisher 8	Felixstowe Ferry Fishermen's Association	15/11/22
Fisher 9	Felixstowe Ferry Fishermen's Association	15/11/22
Fisher 10	Felixstowe Ferry Fishermen's Association	15/11/22
Fisher 11	Felixstowe Ferry Fishermen's Association	15/11/22
Fisher 12	Felixstowe Ferry Fishermen's Association	15/11/22
Fisher 13	Felixstowe Ferry Fishermen's Association	15/11/22
Fisher 14	Felixstowe Ferry Fishermen's Association	15/11/22
Fisher 15	Felixstowe Ferry Fishermen's Association	22/11/22
Fisher 16	Felixstowe Ferry Fishermen's Association	22/11/22
Fisher 17	Felixstowe Ferry Fishermen's Association	22/11/22

5.0 Fisheries Management and Restrictions

Commercial fishing is subject to a wide range of policy and management measures and subsequent controls and regulations at the local, regional and national levels. The Marine Management Organisation (MMO) is responsible for fisheries management in the UK Exclusive Economic Zone (EEZ), in waters between 12nm to 200nm. In England, the MMO is additionally responsible for territorial waters between the 6 and 12nm limits.

The UK government allocates fish quotas between the four UK administrations (Scotland, England, Wales and Northern Ireland). The MMO subsequently allocates English quota to fishers licensed in England, primarily through fish Producer Organisations (POs). For vessels that are not PO members, quotas are managed directly by the MMO.

5.1 Regional and Local Restrictions

Within the 6nm limit, fisheries are managed by local Inshore Fisheries and Conservation Authorities (IFCAs). IFCAs are either committees or collaborative (joint) committees of the local authorities that fall within a given Inshore Fisheries Conservation district. IFCAs are primarily tasked with the sustainable management of inshore fisheries resources in their district. IFCAs have a number of different specific roles including fisheries management inside of 6nm, marine conservation and management of protected areas, sustainable management of fisheries and 'good regulation' implemented through a range of measures, including local bylaws.

The IFCA of relevance to the Project is the Kent and Essex IFCA (KEIFCA) with a section of the offshore cable corridor running through the KEIFCA district. Relevant byelaws enforced by the KEIFCA include:

- Minimum sizes byelaws;
- Permits for cockle and whelk fisheries;
- Prohibition of use of fishing gear from vessels with a length of 14m or more;
- Prohibition of bottom towed fishing gear within the Thanet Coast Special Area of Conservation (SAC) and Essex Estuaries SAC; and
- Restrictions on harvesting native oysters within the Blackwater, Crouch, Roach and Colne Estuaries Marine Conservation Zone (MCZ).

Fishing restrictions in the KEIFCA district and marine conservation areas of relevance to the offshore project area are illustrated in Figure 5.1 and described in Table 5.1.

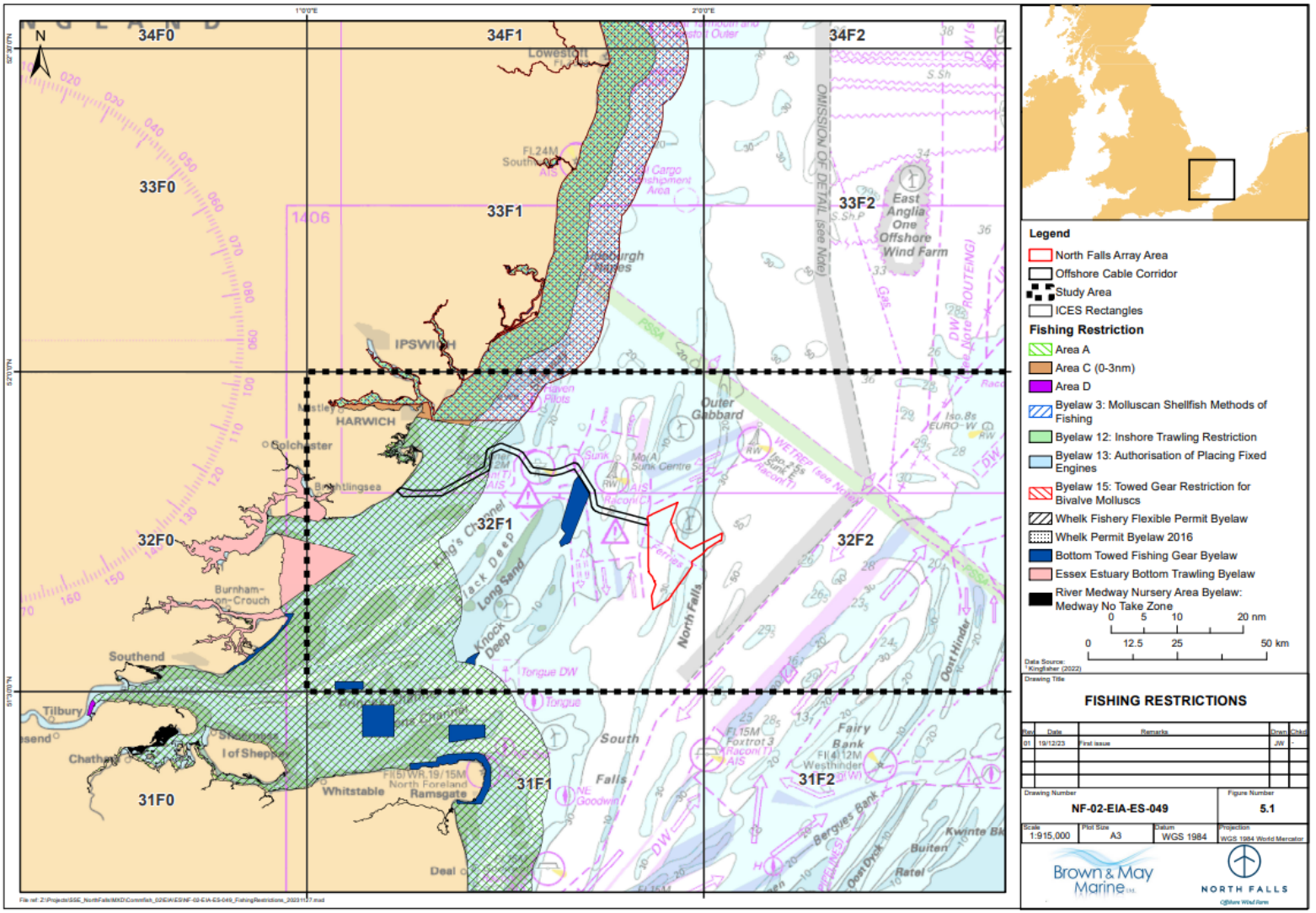


Figure 5.1 Fishing Restrictions (Source: Kingfisher, 2022)

Table 5.1 Fishing Restrictions and their Description (Source: Kingfisher, 2022)

Restriction Name	Summary	Source
Area A	No person shall use in fishing for sea fish or shellfish any net or any other instrument except from the beach or from a boat the overall length of which does not exceed 17 metres and when using trawl nets, dredges or other towed fishing instruments…	https://www.kentandessex-ifca.gov.uk/i-want-to-find-out-about/regulations/keifca-byelaws/byelaws-a
Area C (0-3nm)	No person shall in fishing for seafish use any kind of trawl net except in connection with a vessel whose overall length does not exceed 15.24 metres.	https://www.kentandessex-ifca.gov.uk/i-want-to-find-out-about/regulations/keifca-byelaws/byelaws-c
Area D	Any person who uses in fishing for sea fish any net or any other instrument except that used: i) from the beach; or ii) from the bank; or iii) from a boat, whose overall length does not exceed 17 metres and whose total engine power when using trawl nets.	https://www.kentandessex-ifca.gov.uk/i-want-to-find-out-about/regulations/keifca-byelaws/byelaws-d
Bottom Towed Fishing Gear Bylaw	A person must not use a bottom trawl fishing gear within the prohibited areas.	https://www.kentandessex-ifca.gov.uk/wp-content/uploads/2018/02/KEIFCA-Bottom-Towed-Gear-Byelaw-2017-SIGNED.pdf
Byelaw 12	Fishing vessels bigger than 15.24 meters in length are prohibited from fishing using towed nets within 3 nautical miles of the coast. Spatial description: Within 3 nautical miles for the 1983 baselines	https://www.eastern-ifca.gov.uk/byelaw-12-inshore-trawling-restriction/
Byelaw 13	It is prohibited to use any fixed fishing gear in areas up-river of the Eastern Sea Fisheries Joint Committee district but within the Eastern IFCA district.	https://www.eastern-ifca.gov.uk/byelaw-13-fixed-engines-authorisation/
Byelaw 15	Fishing vessels greater than 14 meters in length are prohibited form fishing for molluscs using any type of towed gear.	https://www.eastern-ifca.gov.uk/byelaw-15-towed-gear-restriction/
Byelaw 3	No person shall fish for oysters, mussels, cockles, clams, scallops or queens except by hand or with a hand rake unless under the authority of a certificate of approval issued by the Committee signed by their Clerk for the instrument or fishing gear...	https://www.eastern-ifca.gov.uk/byelaw-3-molluscan-shellfish-methods/
Essex Estuary Bottom Trawling Byelaw	A person must not use a bottom trawl from a vessel within the prohibited areas.	https://www.kentandessex-ifca.gov.uk/wp-content/uploads/2017/09/EE-Byelaw-SIGNED-150817.pdf
River Medway Nursery Area Byelaw: Medway No Take Zone	A person must not use a bottom trawl from a vessel within the prohibited areas.	https://www.kentandessex-ifca.gov.uk/wp-content/uploads/2019/01/KEIFCA-Medway-Byelaw-2016-SIGNED.pdf

Restriction Name	Summary	Source
Whelk Fishery Flexible Permit Byelaw	A person must not fish for, or take by any means, sea fisheries resources within the restricted area.	https://www.kentandessex-ifca.gov.uk/i-want-to-find-out-about/regulations/keifca-byelaws/keifca-district-byelaws
Whelk Permit Byelaw 2016	A person must not use fishing gear other than a whelk pot in fishing for whelk. A person must not set whelk pots unless the whelk pots are marked with valid whelk permit tags provided by the Authority and unless each string of whelk pots is marked.	https://www.eastern-ifca.gov.uk/byelaws/

5.2 Cockle Management Areas

Cockles prefer inshore sand and mud flats which are stable. Further offshore cockle beds are subject to a wider range of environmental conditions, high intensity wave action being a key factor. The local cockle fishery (Figure 5.2) is managed by the KEIFCA under two separate orders:

- The Thames Estuary Cockle Fishery Order, 1994, where fishers are licence holders. During consultation, it was explained that there are 14 vessels that have a licence for the Thames Estuary Cockle Fishery Order Area, where they can land approximately 11 tonnes per vessel per trip, fishing 2-4 trips per week until the total allowable catch (TAC) is reached and the fishery is closed again. The fishery normally opens in early June and generally shuts at the end of Sept/early Oct. The main commercial areas of the cockle fishery are Areas 4, 5, 6, 8, 9, 12 and 15.
- The Cockle Fishery Flexible Permit Byelaws (CFFPB), where fishers are permit holders. The permit fishery has between 24 to 35 vessels, with one trip permitted per year per vessel. It should be noted that this fishery does not open every year. The main commercial fishery within the CFFPB is found within area 7 (Haupt, 2022).

The areas 18 (Gunfleet Sand) and 20 (Wallet & North Essex Coast) that overlap the offshore cable corridor are managed under the CFFPB (Haupt, 2022). The stocks in the CFFPB area are surveyed each spring and to be fished, need to be above levels agreed in the management plan as part of the byelaw. During consultation, it was confirmed that none of the landings for the last 20 years come from the areas that overlap with the offshore cable corridor (KEIFCA, 2022). It was noted that this could change in the future, as if a fisherman finds a cockle fishery around the North Falls offshore cable corridor then, providing it meets the requirement for a commercially viable cockle fishery, a fishery could be opened there. However, this was not of concern to KEIFCA.

Given that the cockle fishery is not considered to be of relevance to the offshore cable corridor it has not been taken forward for further analysis.

5.3 Brexit

Since the exit of the UK from the European Union (EU) at the end of 2020, the Common Fisheries Policy (CFP) is no longer applicable to UK fisheries. Fishing in the UK is now governed by the Fisheries Act (2020) and agreements with the EU, including TACs and quotas which are governed under the EU – UK Trade and Cooperation Agreement (24 December/12/ 2020).

Under the Trade and Cooperation Agreement, a transition period is in place until 2026, under which 25% of the existing EU quotas in UK waters will be transferred to the between 2021 and 2026. with specific percentages of annually agreed TACs agreed for each fishing stock. After 2026, quota and TACs will be negotiated annually.

5.4 Territorial Limits and Historic Fishing Rights

Under the United Nations (UN) Convention on the Law of the Sea (UNCLOS, 1982), the UK's territorial sea extends out to 12nm from the mean low water mark. With few exceptions, access within 6nm of the coast is restricted to the vessels of that country. Access to fishing grounds between the 6nm and 12nm limit is only granted to vessels from non-UK countries if they have historic fishing rights

Belgian and French vessels have historic fishing rights to fish between the UK's 6 and 12nm limit within the study area (Figure 5.3).

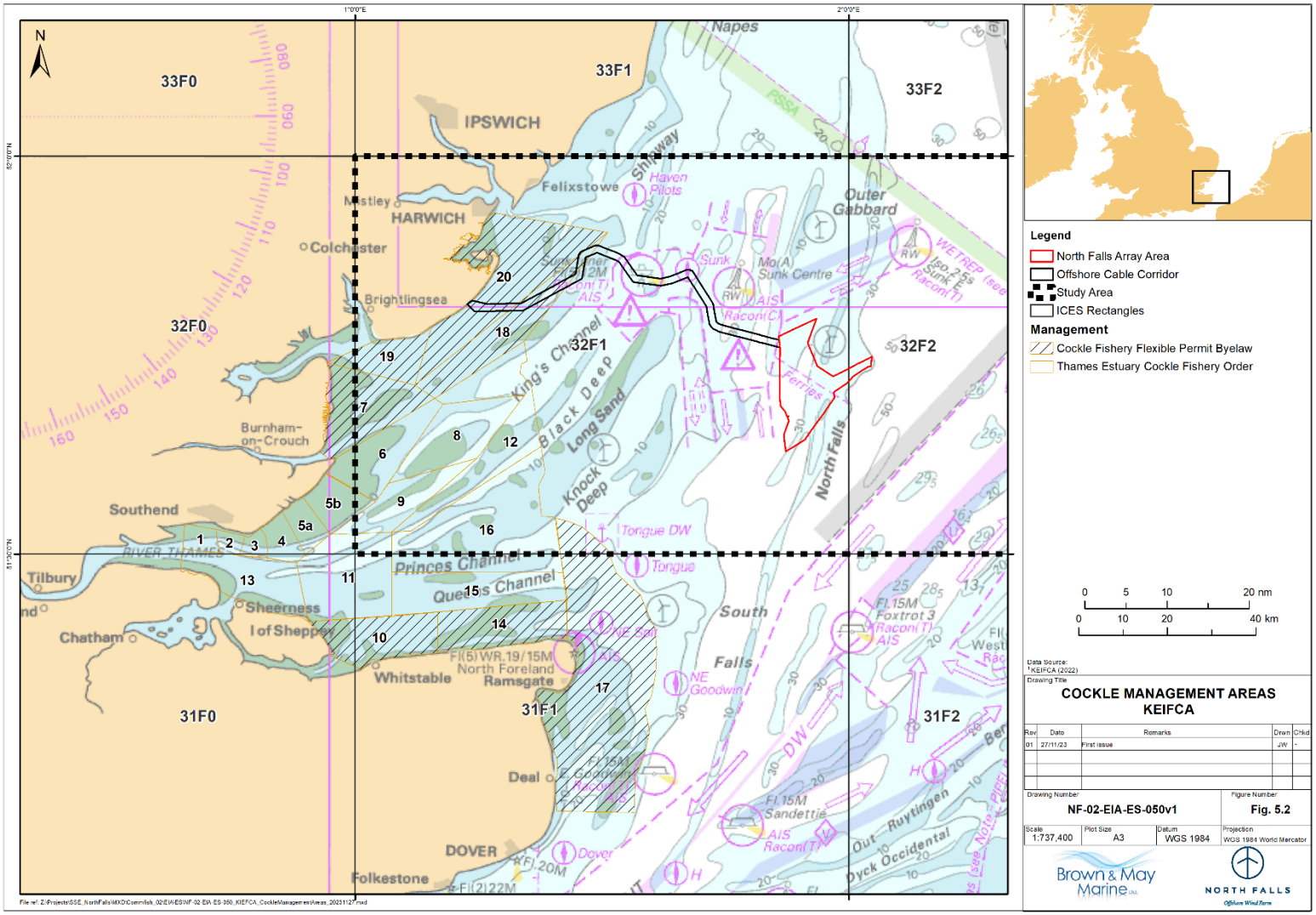


Figure 5.2 Cockle Management Areas (Haupt, 2021)

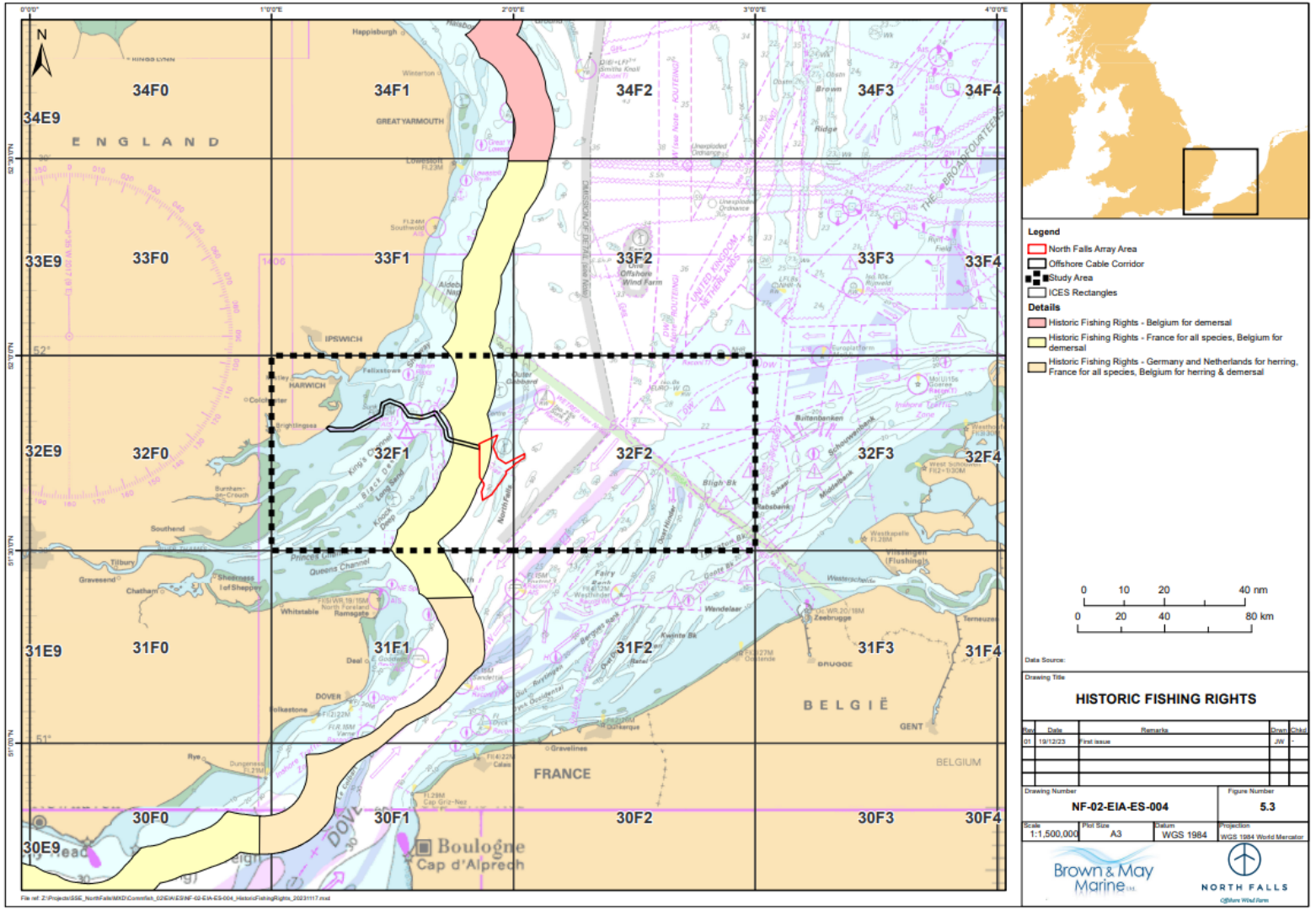


Figure 5.3: Historic Fishing Rights

6.0 Commercial Fisheries Baseline

6.1 Principal Fleets Active in the Study Area

An indication of the principal national fleets and fishing methods active in the study area is provided in Figure 6.1 and Figure 6.2, based on MMO surveillance sightings data for the period 2011 – 2020. A detailed breakdown of surveillance sightings by nationality and method is given in Table 6.1 for each of the ICES rectangles within the study area. The majority of fishing vessel sightings in the study area are in ICES rectangle 32F1, with comparatively low numbers of sightings in rectangle 32F2.

The majority of observations of fishing vessels in the study area are of UK vessels (65.0%). These are for the most part concentrated in the inshore areas within the 6nm limit. The UK vessels recorded are primarily trawlers, potters/whelkers, suction dredgers and gill and drift netters. Non-UK vessels of Belgian, Dutch and French nationality have also been recorded in the study area. As noted in section 5.4, only Belgian and French vessels have historic fishing rights to fish between the UK's 6 and 12nm limit (Figure 6.3). Other non-UK vessels do not have rights to fish within the 12nm limit and have therefore no access for fishing in the inshore sections of the export cable corridor. The surveillance sightings for non-UK vessels are summarised below by nationality and method:

- Sightings of Belgian vessels represent 17.0% of all observed vessels in the study area. The majority of these are beam trawlers, and are concentrated in ICES rectangle 32F1 outside the 6nm limit, including in areas that overlap with the offshore project area;
- Dutch fishing vessels (14.6% of observations), primarily beam trawlers, are concentrated south of the offshore project area, in the south eastern corner of ICES rectangle 32F1; and
- At much lower levels, French vessels are observed in the study area in ICES rectangle 32F2, with negligible sightings in ICES rectangle 32F1, where the majority of the offshore project area is located.

Available AIS data for all European fishing vessels (vessel nationality is not provided) generally supports the spatial patterns of vessel activity reported in the surveillance sightings, with highest densities found just to the south of the array area and just north of the offshore cable corridor (Figure 6.3).

An overview of fishing activity is provided separately by national fleet for the main nationalities identified as active in the study area, namely UK, Belgium, the Netherlands and France (see Sections 6.2 to 6.5). Detailed descriptions of the main fishing methods used in the offshore study area are provided in Annex 1- Fishing Methods.

Table 6.1: Surveillance Sightings in the Study Area, Nationality and Method (2012 – 2021) (Source: MMO, 2023)

Nationality	Vessel Type	Number of Sightings	% Total Sightings Within the Study Area
UK	Bottom Seiner (Anchor, Danish, Fly, Scots)	1	0.15%
	Drift Netter	36	5.41%
	Gill Netter	39	5.86%
	Other Dredges (including mussel)	18	2.71%
	Potter / Whelker	25	3.76%
	Rod and Line	23	3.46%
	Scallop Dredger (French / Newhaven)	1	0.15%
	Trawler (Combined)	272	40.90%
	Unknown	17	2.56%
	UK Total	432	64.96%
Belgium	Trawler (Combined)	38	5.71%
	Potter / Whelker	2	0.30%
	Beam Trawler	73	10.98%
	Belgium Total	113	16.99%
Netherlands	Beam Trawler	91	13.68%
	Bottom Seiner (Anchor, Danish, Fly, Scots)	4	0.60%
	Trawler (Combined)	2	0.30%
	Netherlands Total	97	14.59%
France	Bottom Seiner (Anchor, Danish, Fly, Scots)	1	0.15%
	Trawler (Combined)	16	2.41%
	France Total	17	2.56%
Other	Trawler (Combined)	3	0.45%
	Bottom Seiner (Anchor, Danish, Fly, Scots)	1	0.15%
	Gill Netter	2	0.30%
	Other Total	6	0.90%
Total		665	

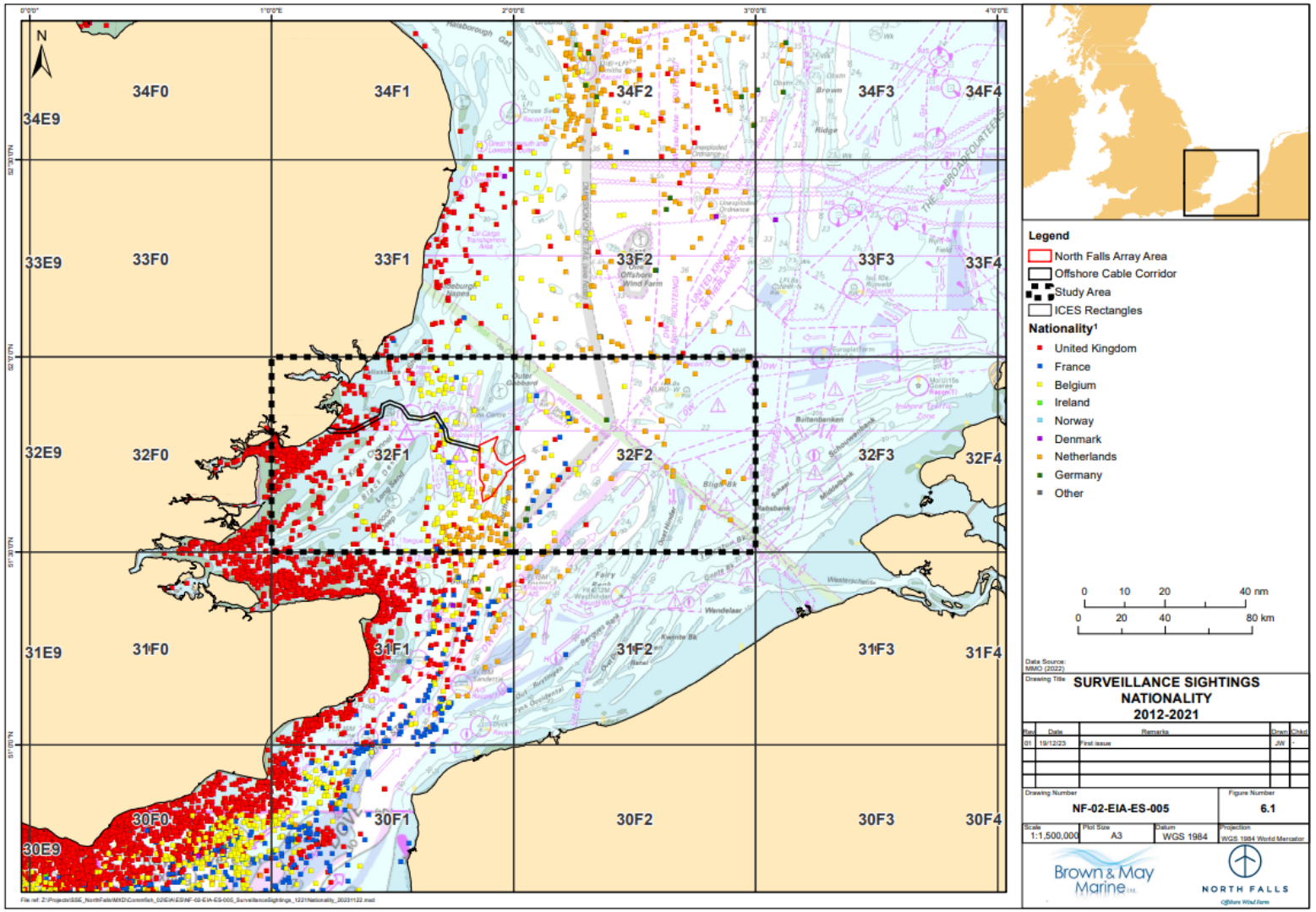


Figure 6.1: Surveillance Sightings by Nationality (2012 - 2021) (Source: MMO, 2022)

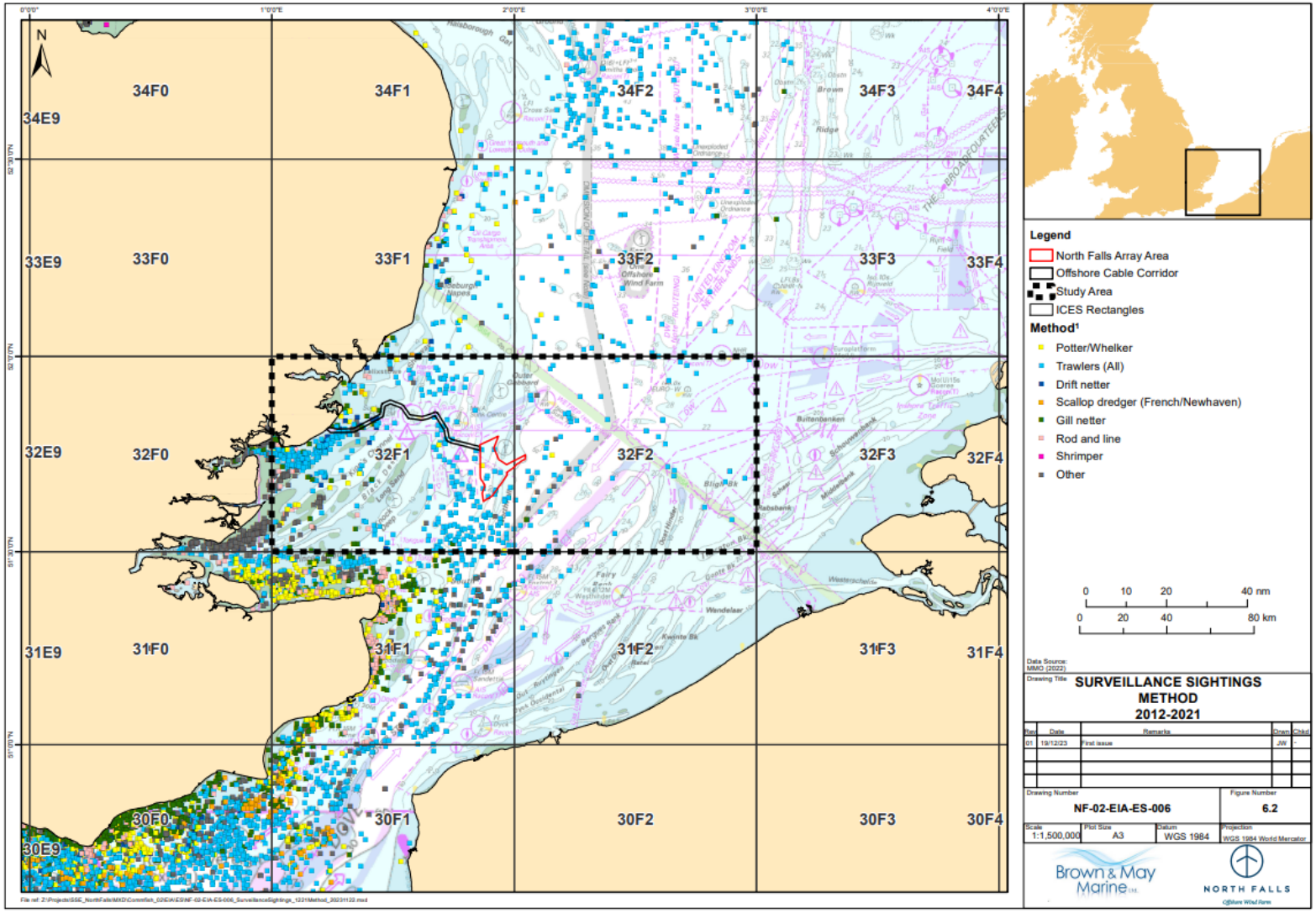


Figure 6.2: Surveillance Sightings by Method (2012 - 2021) (Source: MMO, 2022)

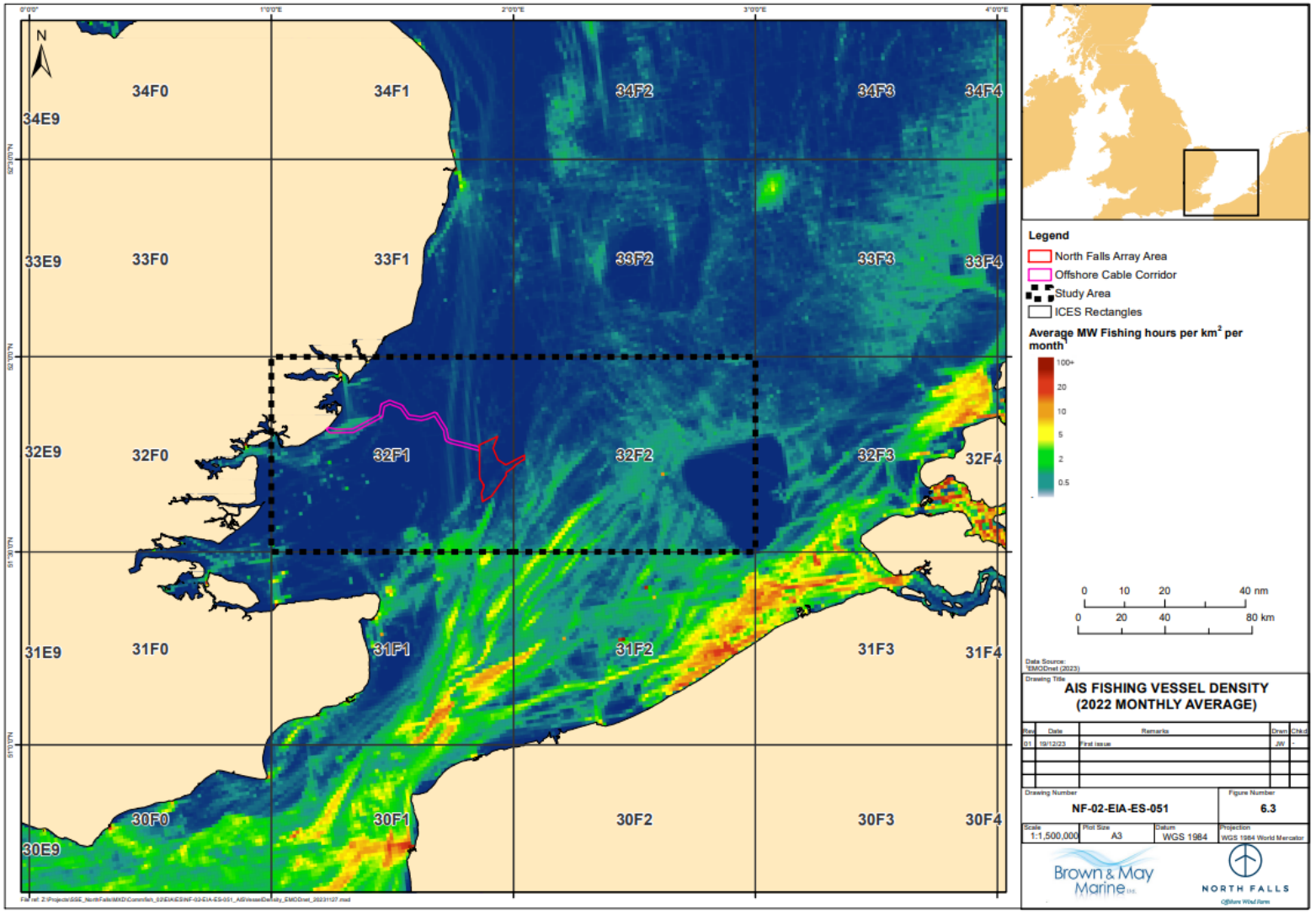


Figure 6.3 European AIS Showing Average MW Fishing Hours per km² per month (2020) Source (EMODnet, 2022)

6.2 UK Fleet

6.2.1 Distribution of Fishing Activity

6.2.1.1 Surveillance Sightings

The distribution of surveillance sightings of UK fishing vessels by method is given in Figure 6.4.

As previously noted, the majority of sightings of UK vessels are concentrated within the 6nm limit in ICES rectangle 32F1, including in areas of relevance to the offshore cable corridor. These are predominantly trawlers, gillnetters, potters/whelkers and drift netters. The number of sightings of UK fishing vessels is considerably lower in areas outside the 6nm limit, with no recorded sightings in the array area.

6.2.1.2 Landings Data

An indication of the value of the commercial fishing activities undertaken in the study area by UK vessels is based on analysis of UK landing values (£) by method, species and vessel length by ICES rectangle, provided in Figure 6.5 to Figure 6.10. Landings values are presented as an annual average for the five-year period 2018 to 2022.

Whilst the highest landings in the southern North Sea area are found south of the study area (31F1; £6,783,877), the highest landings within the study area are recorded in ICES rectangle 32F1 (Figure 6.5 to Figure 6.8). In this rectangle, approximately half the total landings value is from boat dredges targeting cockles, followed by potters targeting whelk, lobster and crab and, demersal trawls and drift and fixed nets predominantly catching sole. Although at lower levels, long-liners and midwater (pelagic) trawlers also contribute to the overall landings within this rectangle. Long-liners mainly target demersal fish species, including sole, bass, thornback ray and cod, whilst landings of midwater trawlers in this area are predominantly mackerel.

As discussed in section 5.2, the cockle fishery is not considered to be of relevance to the Project. In order to clearly show the target species that are of relevance to the offshore project area, landings values by species and method are presented where cockles have been excluded (Figure 6.8). The majority of landings recorded in 32F1 are by vessels under 15m in length (Figure 6.7). The highest landings values are from vessels between 12 and 15m in length but this is strongly influenced by the cockle landings value.

In rectangle 32F2, potting and demersal seines account for the majority of landings by value (Figure 6.5 and Figure 6.9). Although at lower levels, demersal trawls and beam trawls also contribute to the overall landings by value in this rectangle. Vessels engaged in potting predominantly target whelks in this area, whilst beam trawlers primarily target sole, plaice and red mullet (Figure 6.10). As indicated by Figure 6.7, the majority of vessels active in this rectangle belong to the larger size category (24 to 40m).

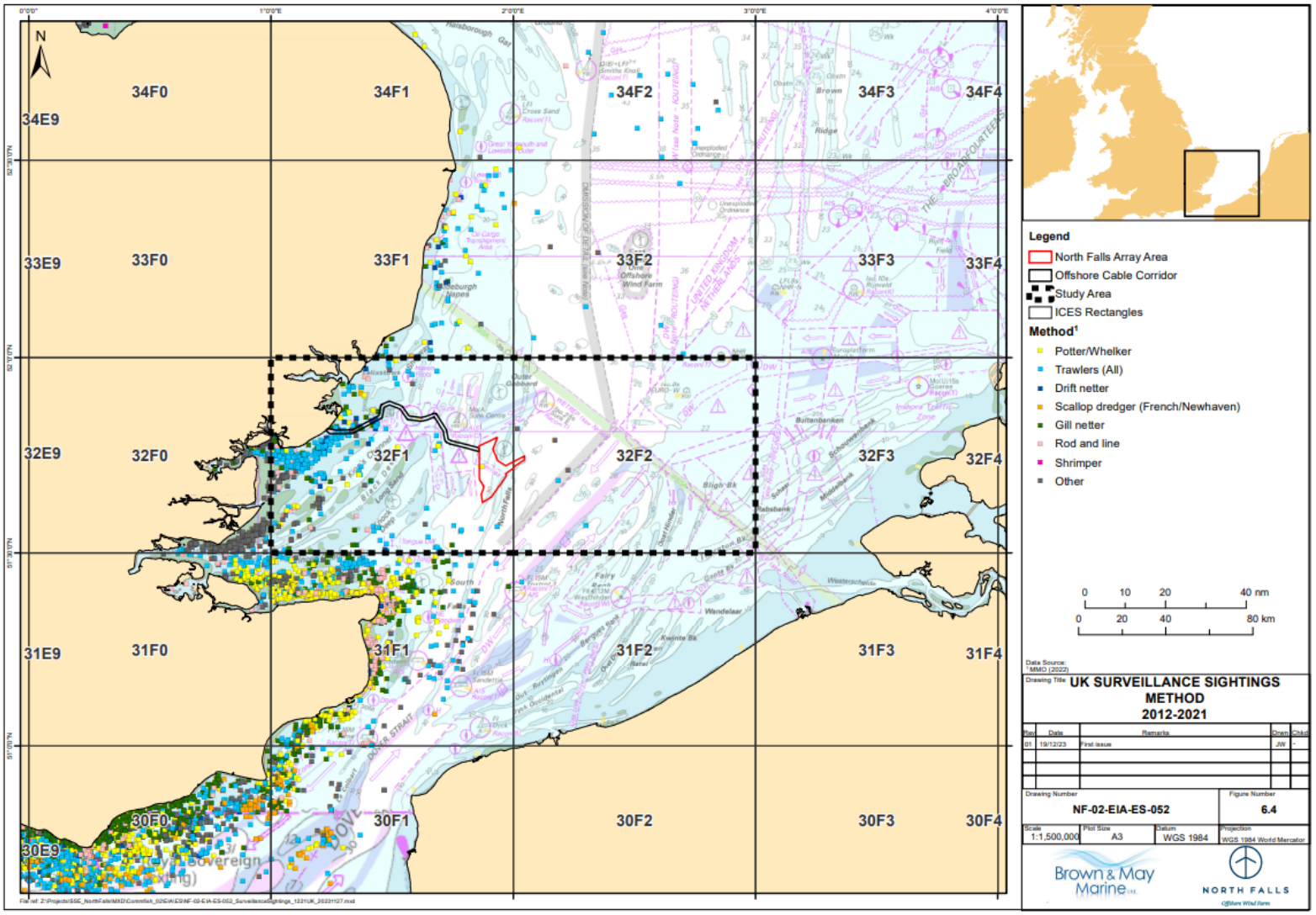


Figure 6.4: UK Surveillance Sightings by Method (2012 - 2021) (Source: MMO, 2022)

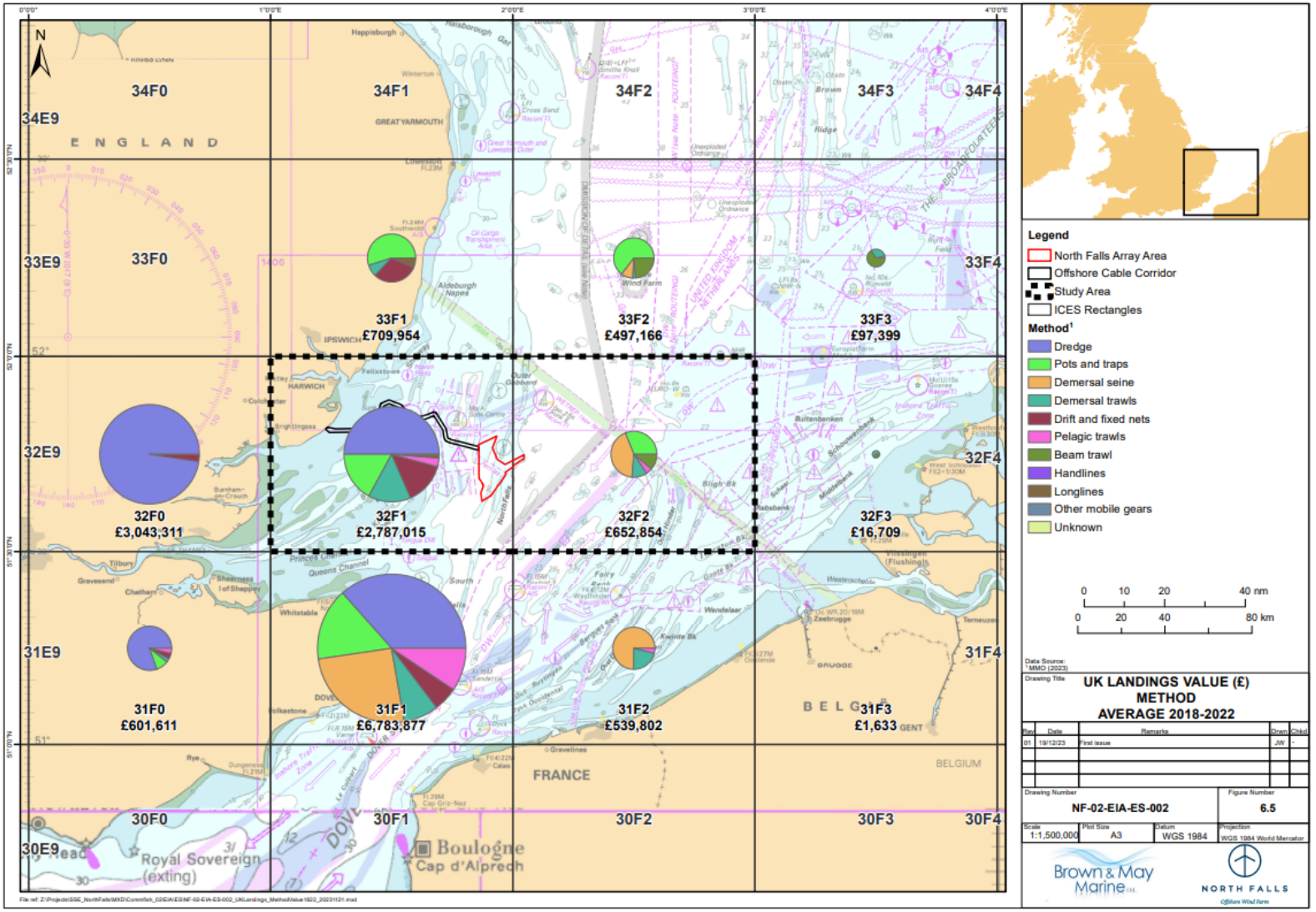


Figure 6.5: UK Landings (£) by Method (Average 2018 - 2022) (Source: MMO, 2023)

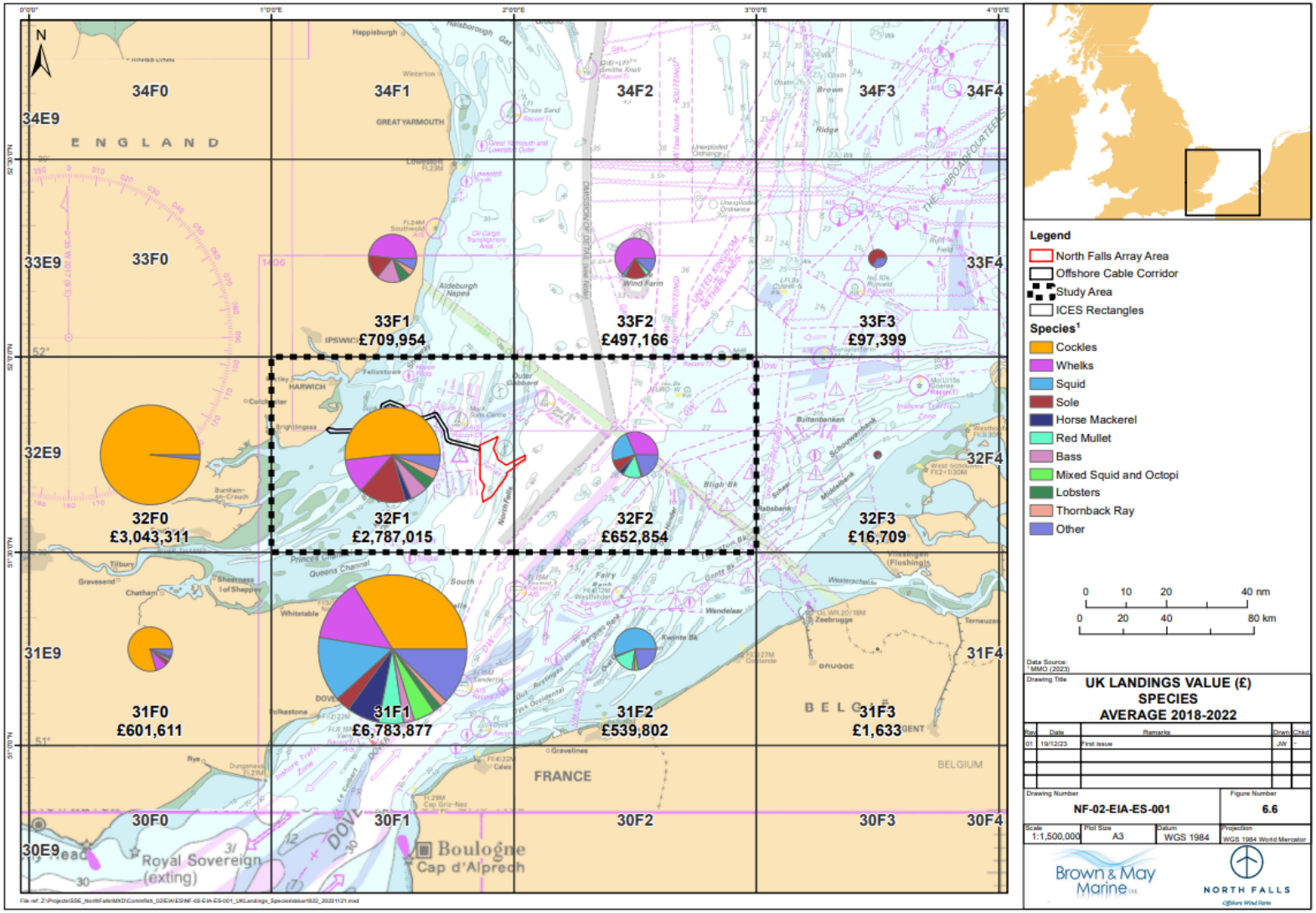


Figure 6.6: UK Landings (£) by Species (Average 2018 - 2022) (Source: MMO, 2023)

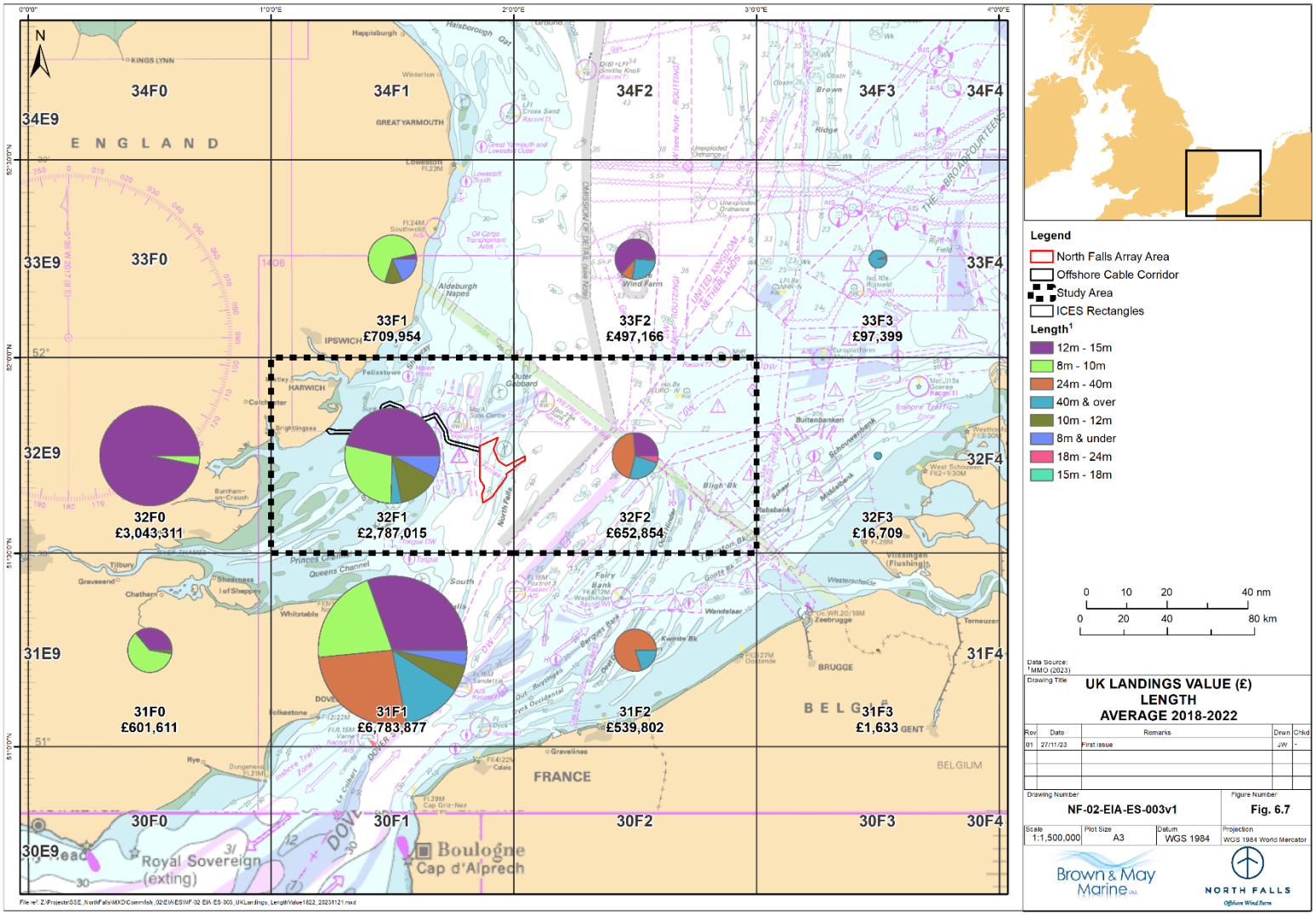
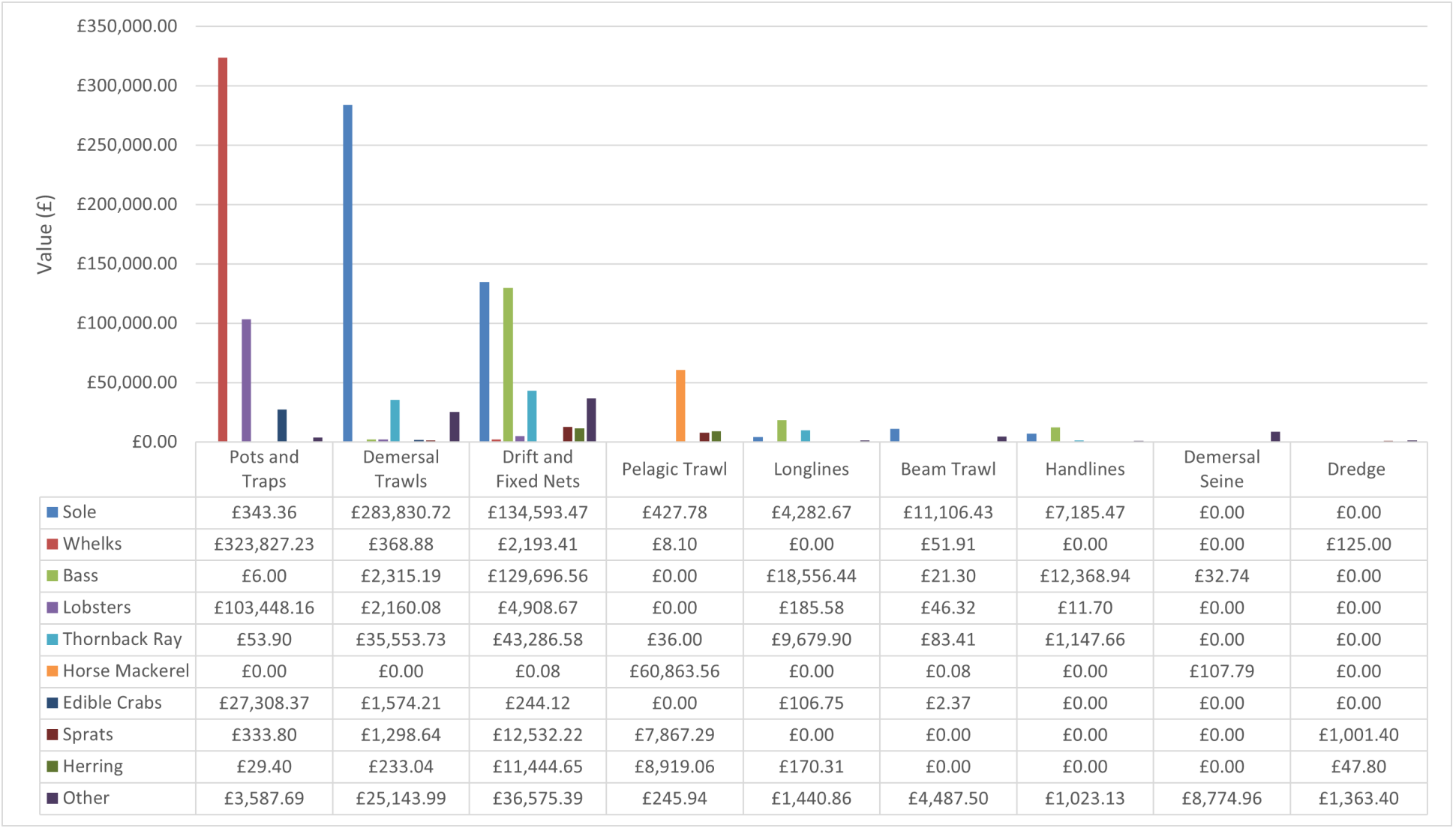
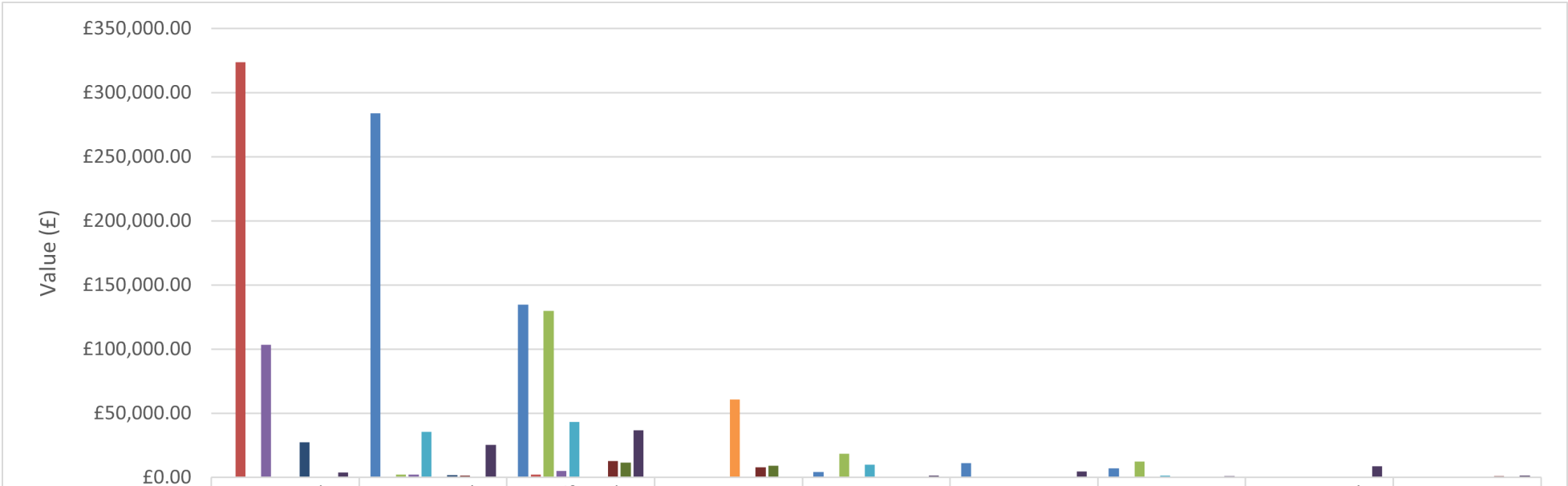


Figure 6.7 UK Landings (£) by Vessel Length (Average 2018 - 2022) (Source: MMO, 2023)



	Pots and Traps	Demersal Trawls	Drift and Fixed Nets	Pelagic Trawl	Longlines	Beam Trawl	Handlines	Demersal Seine	Dredge
Sole	£343.36	£283,830.72	£134,593.47	£427.78	£4,282.67	£11,106.43	£7,185.47	£0.00	£0.00
Whelks	£323,827.23	£368.88	£2,193.41	£8.10	£0.00	£51.91	£0.00	£0.00	£125.00
Bass	£6.00	£2,315.19	£129,696.56	£0.00	£18,556.44	£21.30	£12,368.94	£32.74	£0.00
Lobsters	£103,448.16	£2,160.08	£4,908.67	£0.00	£185.58	£46.32	£11.70	£0.00	£0.00
Thornback Ray	£53.90	£35,553.73	£43,286.58	£36.00	£9,679.90	£83.41	£1,147.66	£0.00	£0.00
Horse Mackerel	£0.00	£0.00	£0.08	£60,863.56	£0.00	£0.08	£0.00	£107.79	£0.00
Edible Crabs	£27,308.37	£1,574.21	£244.12	£0.00	£106.75	£2.37	£0.00	£0.00	£0.00
Sprats	£333.80	£1,298.64	£12,532.22	£7,867.29	£0.00	£0.00	£0.00	£0.00	£1,001.40
Herring	£29.40	£233.04	£11,444.65	£8,919.06	£170.31	£0.00	£0.00	£0.00	£47.80
Other	£3,587.69	£25,143.99	£36,575.39	£245.94	£1,440.86	£4,487.50	£1,023.13	£8,774.96	£1,363.40

Figure 6.8 UK Landings (£) Species by Method in ICES Rectangle 32F1 - Excluding Cockles (Average 2018 – 2022) (Source: MMO, 2023)



	Pots and Traps	Demersal Trawls	Drift and Fixed Nets	Pelagic Trawl	Longlines	Beam Trawl	Handlines	Demersal Seine	Dredge
Sole	£343.36	£283,830.72	£134,593.47	£427.78	£4,282.67	£11,106.43	£7,185.47	£0.00	£0.00
Whelks	£323,827.23	£368.88	£2,193.41	£8.10	£0.00	£51.91	£0.00	£0.00	£125.00
Bass	£6.00	£2,315.19	£129,696.56	£0.00	£18,556.44	£21.30	£12,368.94	£32.74	£0.00
Lobsters	£103,448.16	£2,160.08	£4,908.67	£0.00	£185.58	£46.32	£11.70	£0.00	£0.00
Thornback Ray	£53.90	£35,553.73	£43,286.58	£36.00	£9,679.90	£83.41	£1,147.66	£0.00	£0.00
Horse Mackerel	£0.00	£0.00	£0.08	£60,863.56	£0.00	£0.08	£0.00	£107.79	£0.00
Edible Crabs	£27,308.37	£1,574.21	£244.12	£0.00	£106.75	£2.37	£0.00	£0.00	£0.00
Sprats	£333.80	£1,298.64	£12,532.22	£7,867.29	£0.00	£0.00	£0.00	£0.00	£1,001.40
Herring	£29.40	£233.04	£11,444.65	£8,919.06	£170.31	£0.00	£0.00	£0.00	£47.80
Other	£3,587.69	£25,143.99	£36,575.39	£245.94	£1,440.86	£4,487.50	£1,023.13	£8,774.96	£1,363.40

Figure 6.9 UK Landings (£) by Species and Method in ICES Rectangle 32F2 (Average 2018 - 2022) (Source: MMO, 2023)

6.2.1.3 Landings by Port

The principal ports recording landings from the study area, and its constituent ICES rectangles are shown in Table 6.2 to Table 6.5. These show five-year average of annual landings from 2016 to 2020 for UK vessels.

The highest landings value recorded for rectangle 32F1 (where the majority of the offshore project area is located), are reported from Queenborough (£533,252), followed by Leigh-On-Sea and Whitstable at £451,886 and £442,472 respectively. The landings from 32F1 into Queenborough represent 19.1% of the total landings from 32F1 annually, with Leigh-On-Sea and Whitstable recording 16.2% and 15.9%. Most of the landings into these three ports however, are attributed to cockles harvested from grounds that do not overlap the offshore project area.

In rectangle 32F2, landings into Vlissengen (£245,865), represent 37.7% of landings value from 32F2 annually, followed by Lowestoft and Scheveningen (£201,060; 30.8% and £114,657; 17.6% respectively.

Table 6.2: Top 10 Ports by Average Annual Landings (2018 - 2022) from the Study Area by UK Vessels (Source: MMO, 2023)

Port	Average annual landings from the Study Area	% of Annual Value from the Study Area
Queenborough	£710,468.18	17.86%
Leigh-On-Sea	£201,060.13	5.05%
Whitstable	£120,408.44	3.03%
Lowestoft	£65,106.44	1.64%
Vlissengen	£63,953.16	1.61%
West Mersea	£19,818.30	0.50%
Harwich	£3,212.17	0.08%
Scheveningen	£2,644.53	0.07%
Felixstowe	£2,061.22	0.05%
Kings Lynn	£1,886.00	0.05%

Table 6.3: Top 10 Ports by Average Annual Landings (2018 - 2022) from ICES Rectangle 32F1 by UK Vessels (Source: MMO, 2023)

Port	Average annual landings from 32F1	% of Annual Value from the Study Area
Queenborough	£533,252.86	19.13%
Leigh-On-Sea	£451,885.57	16.21%
Whitstable	£442,472.30	15.88%
West Mersea	£246,667.32	8.85%
Harwich	£220,373.08	7.91%
Lowestoft	£180,738.25	6.49%
Felixstowe	£129,308.99	4.64%
Kings Lynn	£106,896.32	3.84%
Scheveningen	£87,805.61	3.15%
Wells	£70,918.58	2.54%

Table 6.4: Top 10 Ports by Average Annual Landings (2018 - 2022) from ICES Rectangle 32F2 by UK Vessels (Source: MMO, 2023)

Port	Average Annual Landings from 32F2	% of Annual Value from 32F2
Vlissengen	£245,864.99	37.66%
Lowestoft	£201,060.13	30.80%
Scheveningen	£114,656.91	17.56%
Ijmuiden	£39,523.19	6.05%
Oostende	£34,570.19	5.30%
Boulogne	£6,672.27	1.02%
Harlingen	£2,377.50	0.36%
Harwich	£2,144.33	0.33%
Portsmouth	£2,061.22	0.32%
Whitstable	£1,886.00	0.29%

6.2.1.4 Inshore Fisheries

The majority of surveillance sightings of UK vessels are recorded within 12nm, and concentrated within 6nm (Figure 6.4). Sightings indicate that a number of different methods are deployed within 6nm in areas relevant to the offshore cable corridor, including gillnetting, longlining, drift netting and trawling. Further south in the Thames Estuary, there is a high number of sightings of suction and other dredgers. The KEIFCA surveillance data also reported a mix of trawling, angling, netting and potting in the cable corridor out to the 6nm limit (Figure 6.11). As noted in section 3.0 this dataset can only be considered as a snapshot in time, and sightings are skewed towards KEIFCA home ports.

In order to identify the extent of the fishing area used by local UK vessels, information on fishing grounds was collected as part of the consultation process. From the consultation undertaken it is understood that most of the local vessels are smaller in size and therefore their operational range is limited. The offshore cable corridor is mainly fished by local under 15m vessels based at Felixstowe Ferry, Harwich and West Mersea, with limited activity in the array area, however, some of the larger vessels do fish in the array area. The fishing grounds from local consultation are shown in Figure 6.12 to Figure 6.15. The local vessels are primarily multi-purpose that operate pots, nets and trawls (further information from consultation is provided in section 6.2.1.5). The fishing methods and fishing grounds widely overlap and will also vary throughout the year depending on the target species.

Further offshore in the array area, potting for whelks, lobster and crab is the main activity, with some longlining and netting (Figure 6.16). It is understood that there is only one over 15m potter based locally that targets whelks.

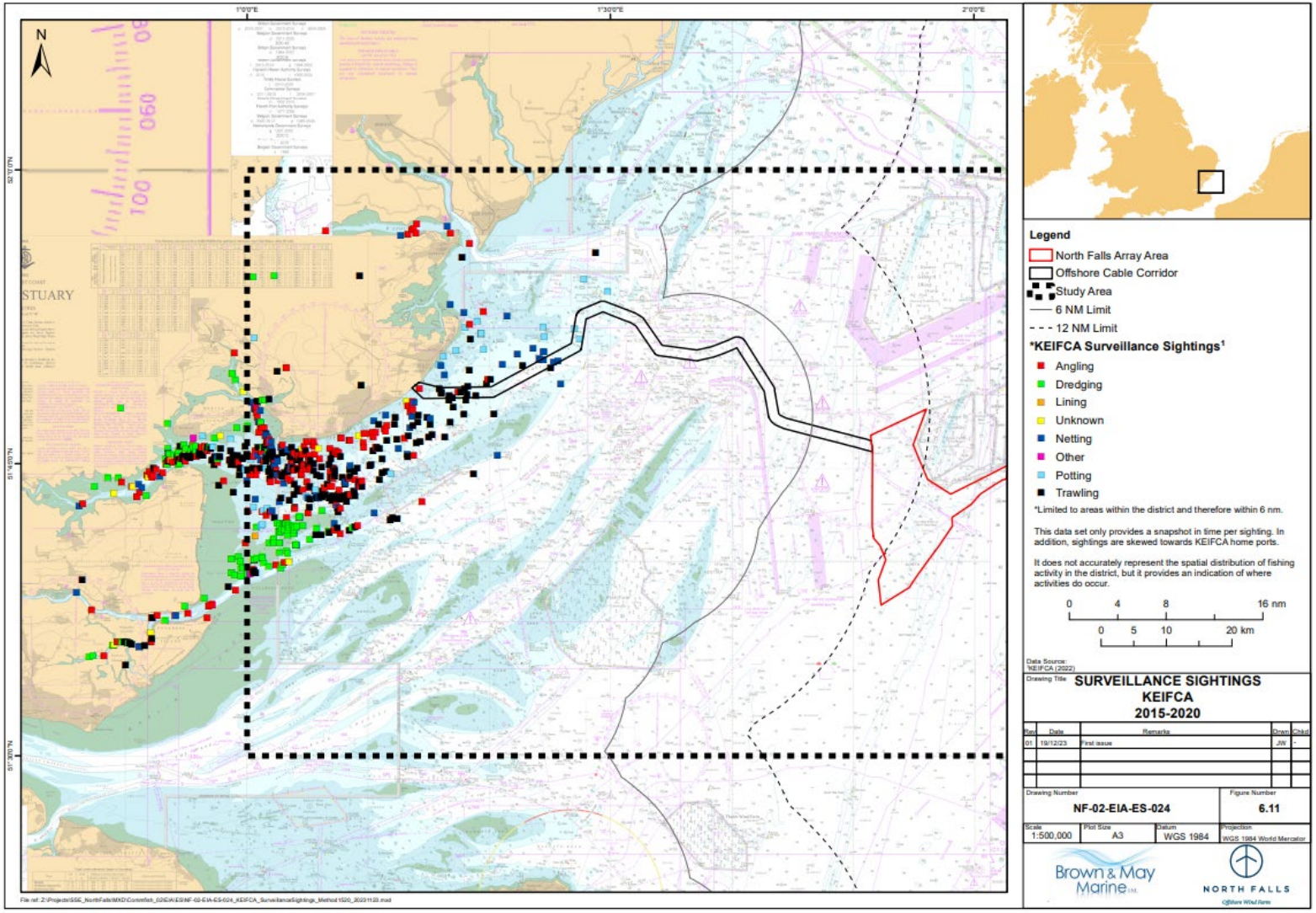


Figure 6.10 KEIFCA Surveillance Sightings (2015-2020) (Source: KEIFCA, 2022)

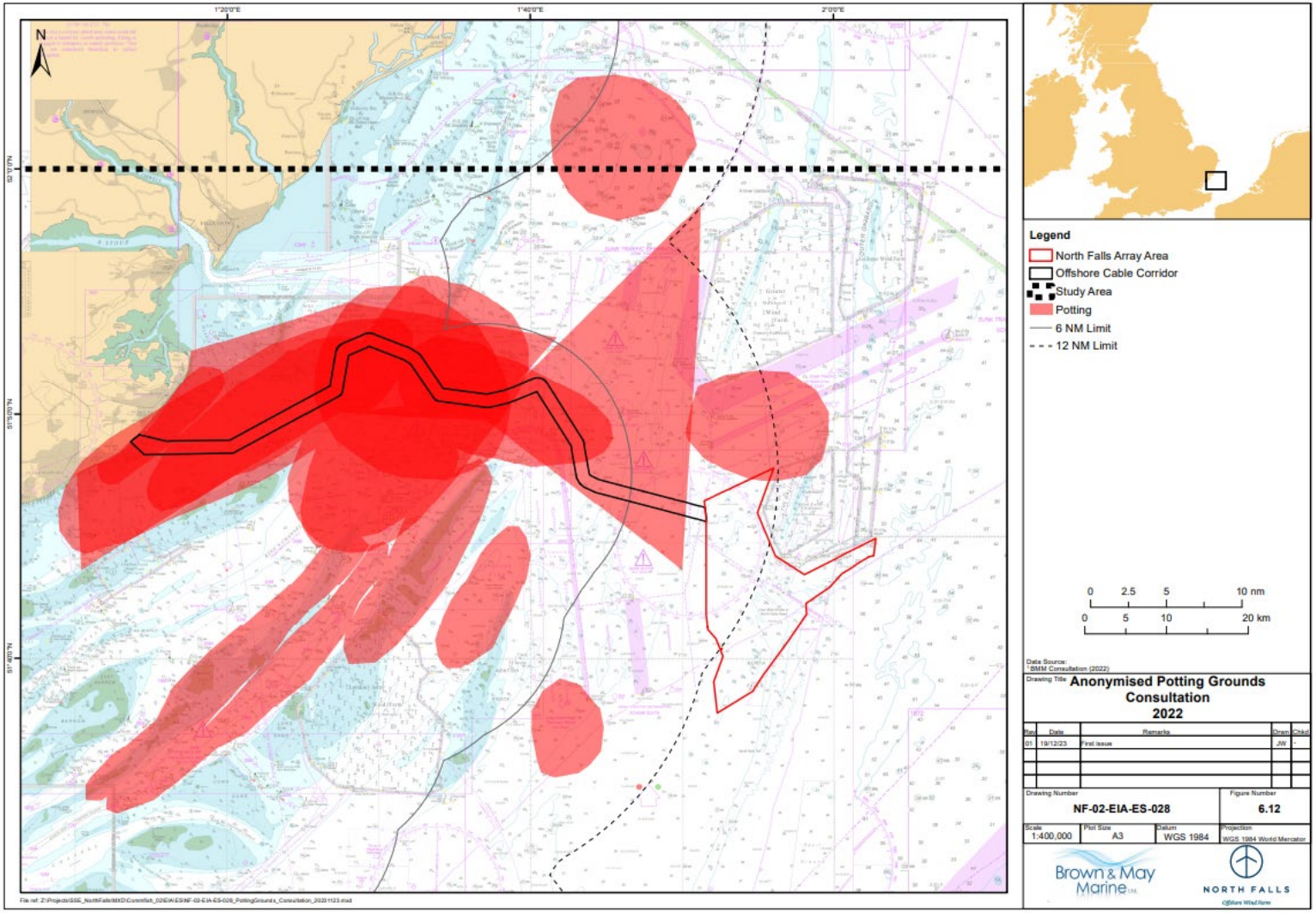


Figure 6.11 Anonymised Potting Grounds from Consultation (Source: BMM, 2022)

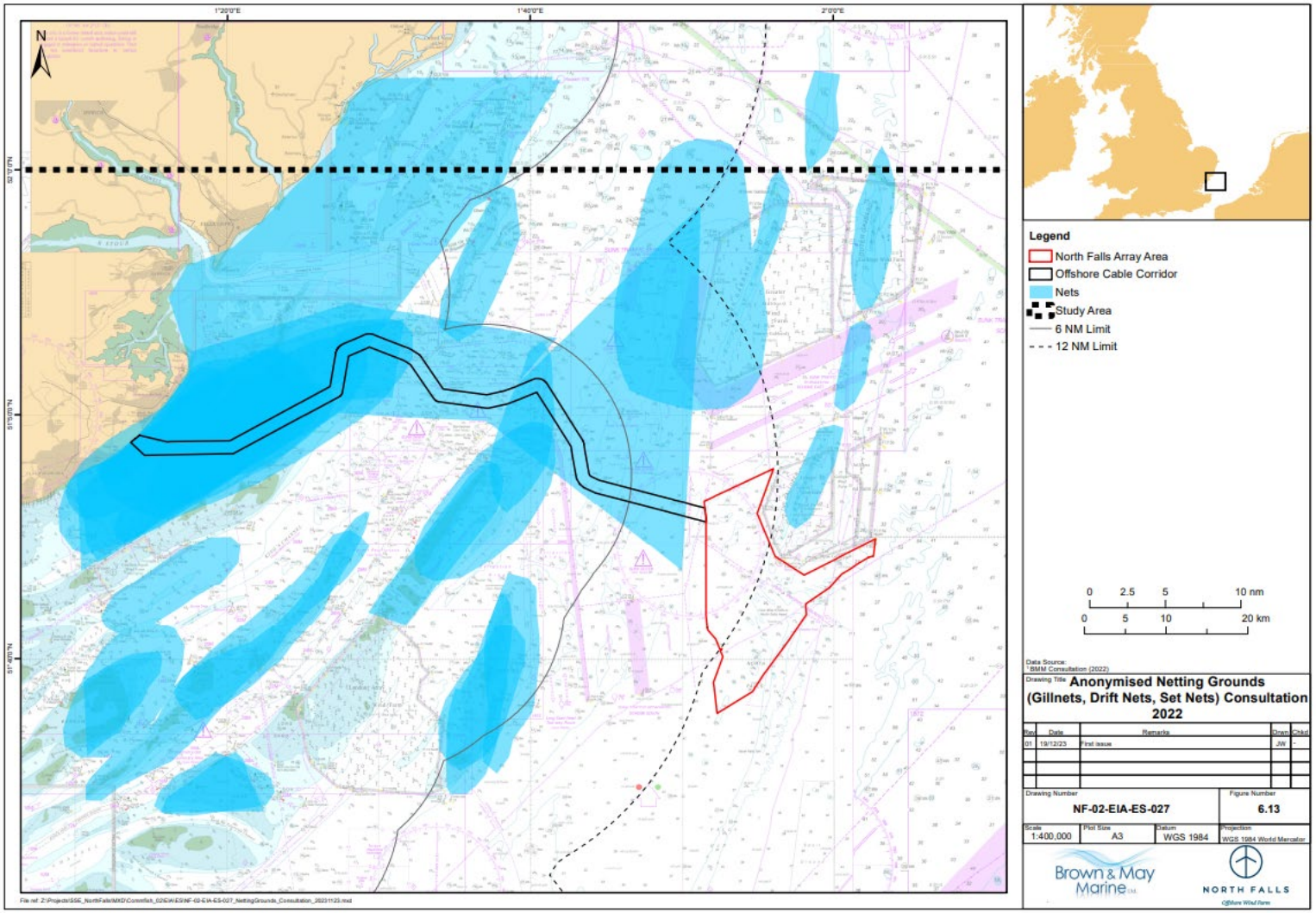


Figure 6.12 Anonymised Netting (Drift Nets, Set Nets, Gillnets, Trammel Nets) Grounds from Consultation (Source: BMM, 2022)

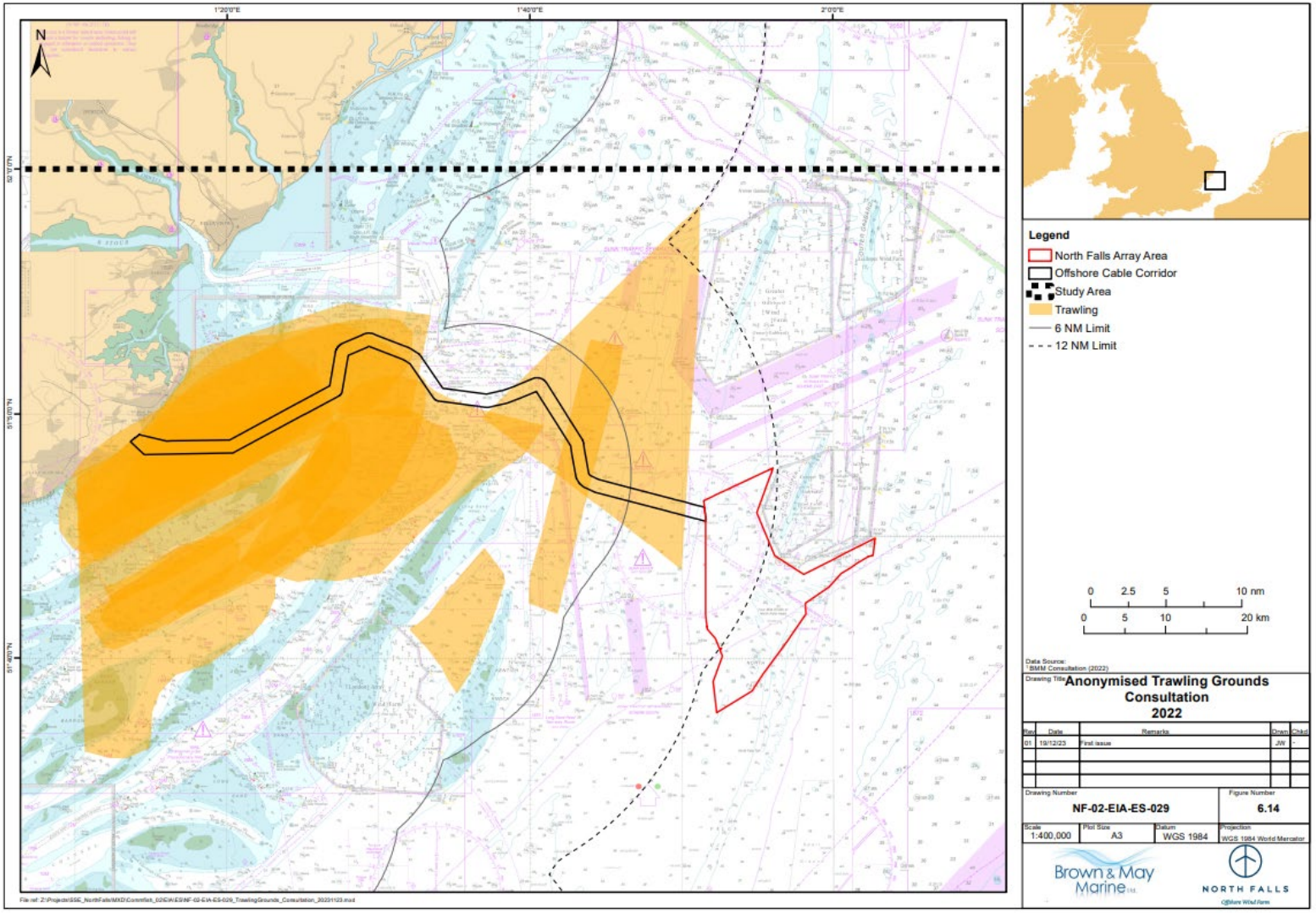


Figure 6.13 Anonymised Trawling Grounds from Consultation (Source: BMM, 2022)

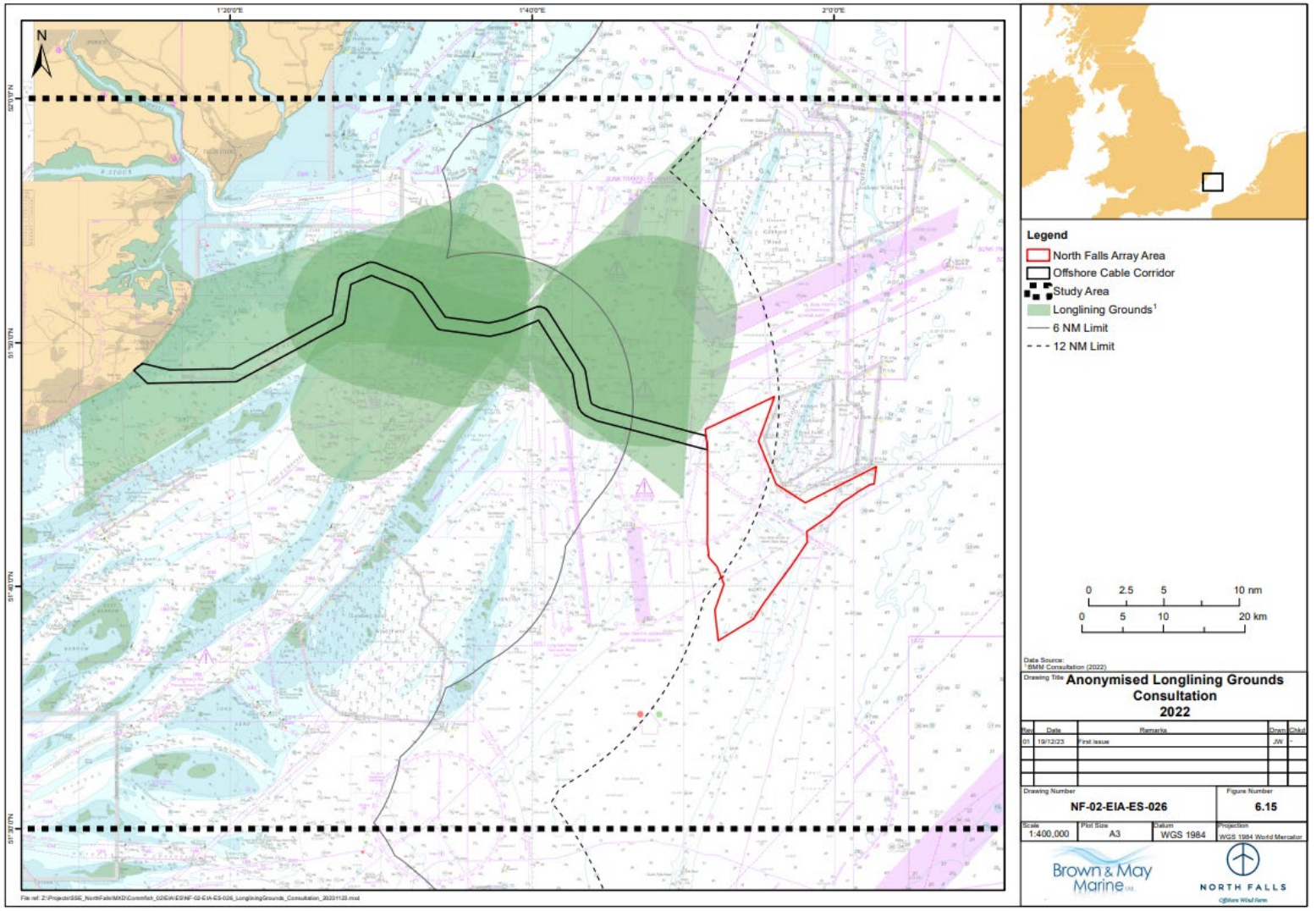


Figure 6.14 Anonymised Longlining Grounds from Consultation (Source: BMM, 2022)

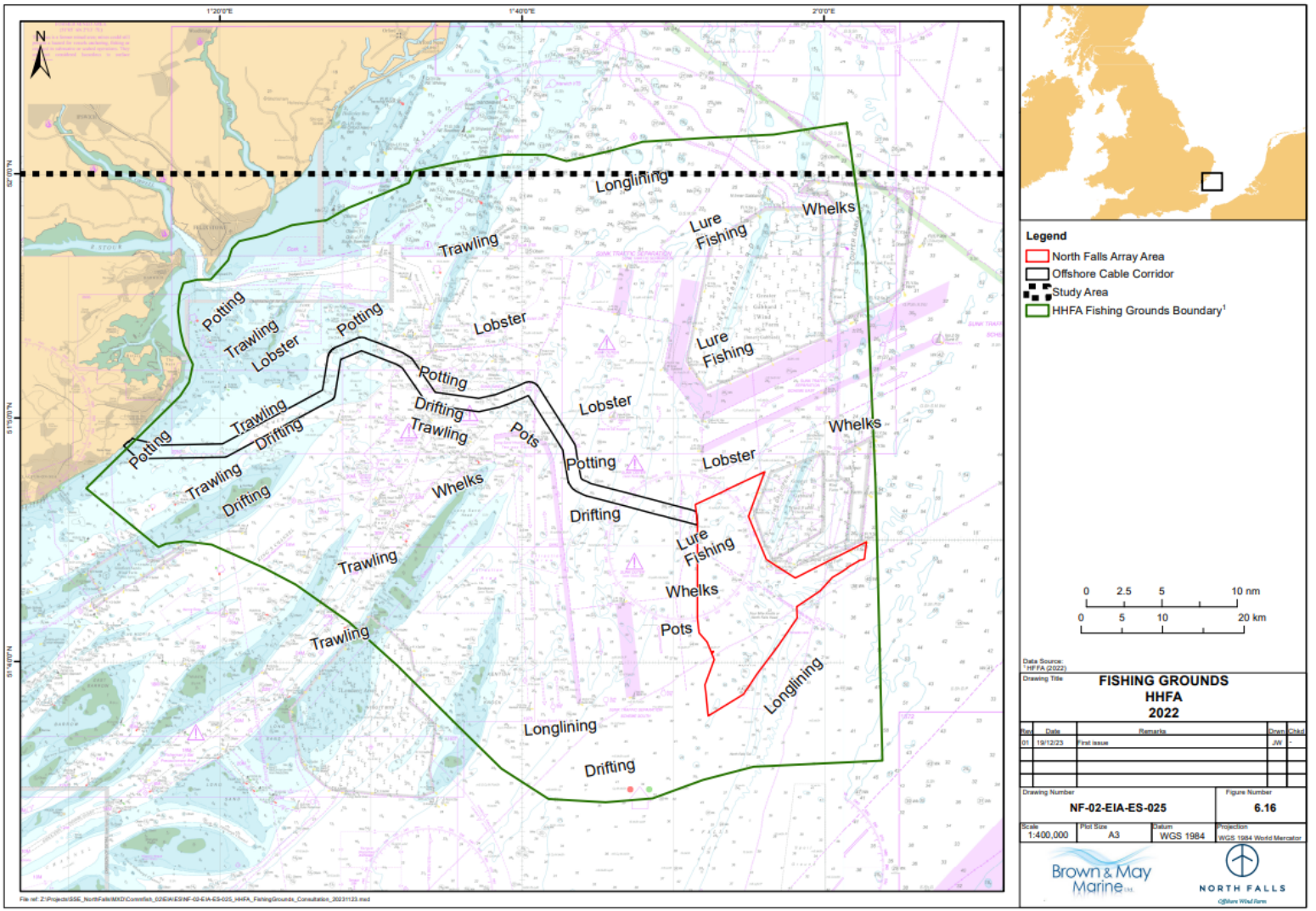


Figure 6.15 HHFA Fishing Grounds from Consultation (Source: BMM, 2022)

6.2.1.5 VMS

An analysis of UK VMS data by value is given in Figure 6.17 to Figure 6.21 for relevant UK fleets. As noted in section 3.0, information is only available on vessels over 15m in length. As previously discussed, a substantial proportion of UK vessels operating in the study area (particularly in ICES rectangles 32F1) are less than 15m in length and therefore activity by these vessels is not captured by VMS.

Low to moderate levels of beam trawling by UK vessels takes place in the study area (Figure 6.17.)Activity by these vessels is concentrated in the southern section of ICES rectangle 32F1, immediately to the south of the array area with limited overlap with the offshore project area. Potting activity is also recorded in the study area (Figure 6.19). It is understood, however, that there is only one locally based over 15m potter targeting whelks, with equivalent size vessels operating out of Brixham or are UK vessels based in the Netherlands and Denmark.

There is negligible overlap with the offshore project area from the remaining methods. Pelagic trawling occurs to the east and to the south of the array area (Figure 6.18) and bottom otter trawling is to the west of the array area overlapping the offshore cable corridor at low levels (Figure 6.21). While there is a low level of activity recorded in the study area for of Scottish seines there is no recorded overlap with the offshore project area (Figure 6.20). No activity was recorded for gillnets and trammel nets for vessels over 15m.

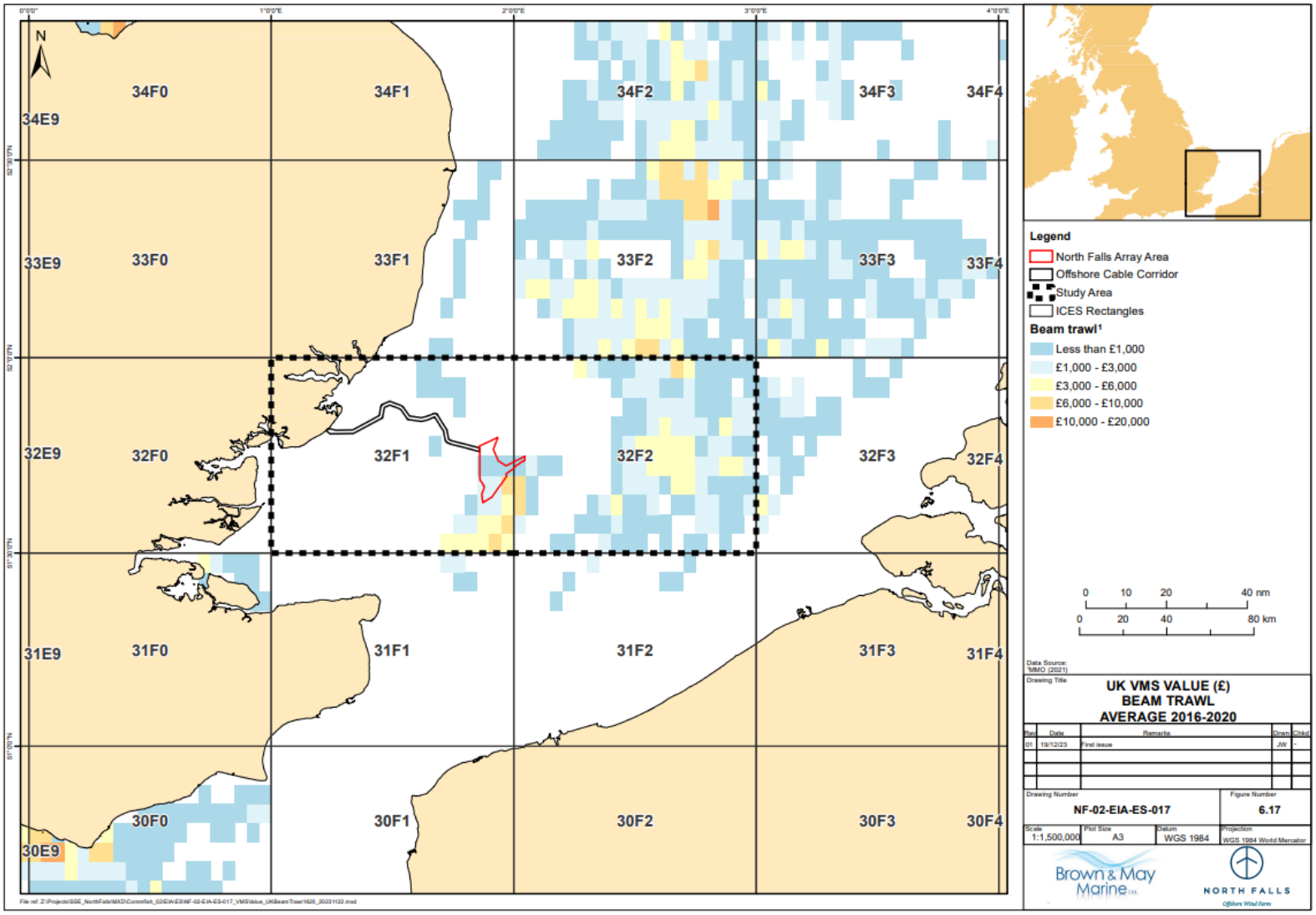


Figure 6.16 UK VMS (£) Beam Trawls (Average 2016 - 2020) (Source, MMO, 2021)

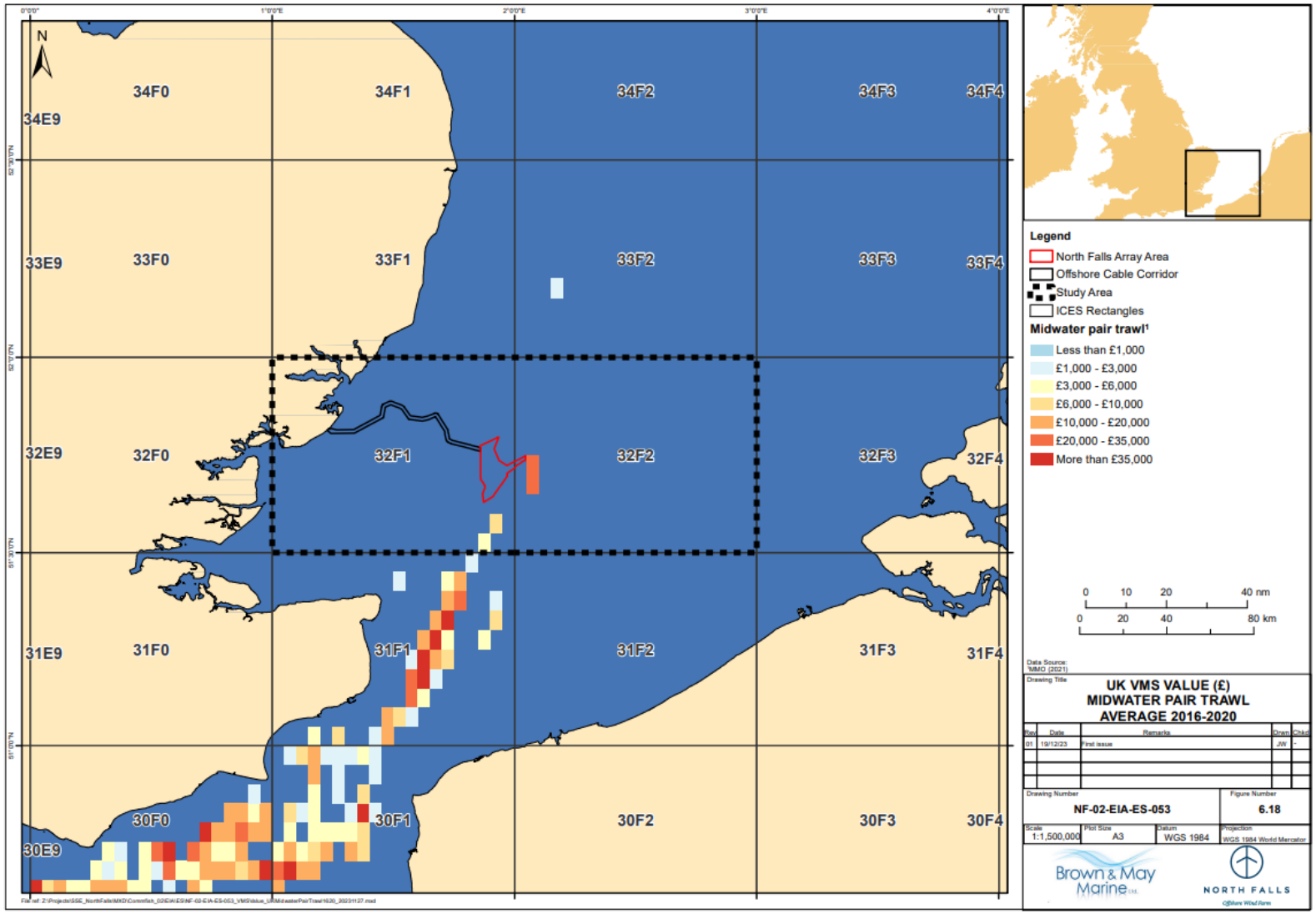


Figure 6.17 UK VMS (£) Midwater Pair Trawls (Average 2016 - 2020) (Source: MMO, 2021)

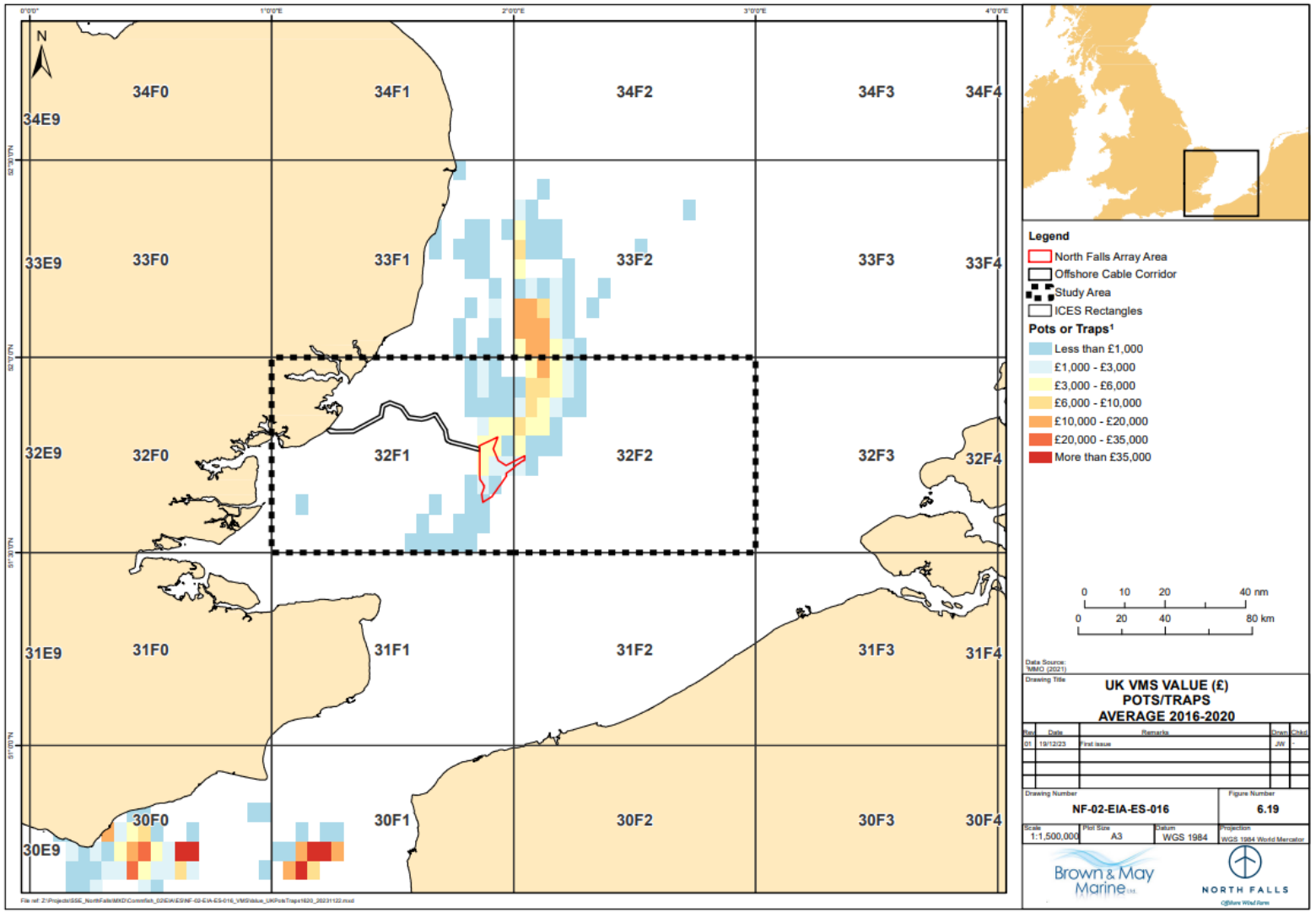


Figure 6.18 UK VMS (£) Pots and Traps (Average 2016 - 2020) (Source: MMO, 2021)

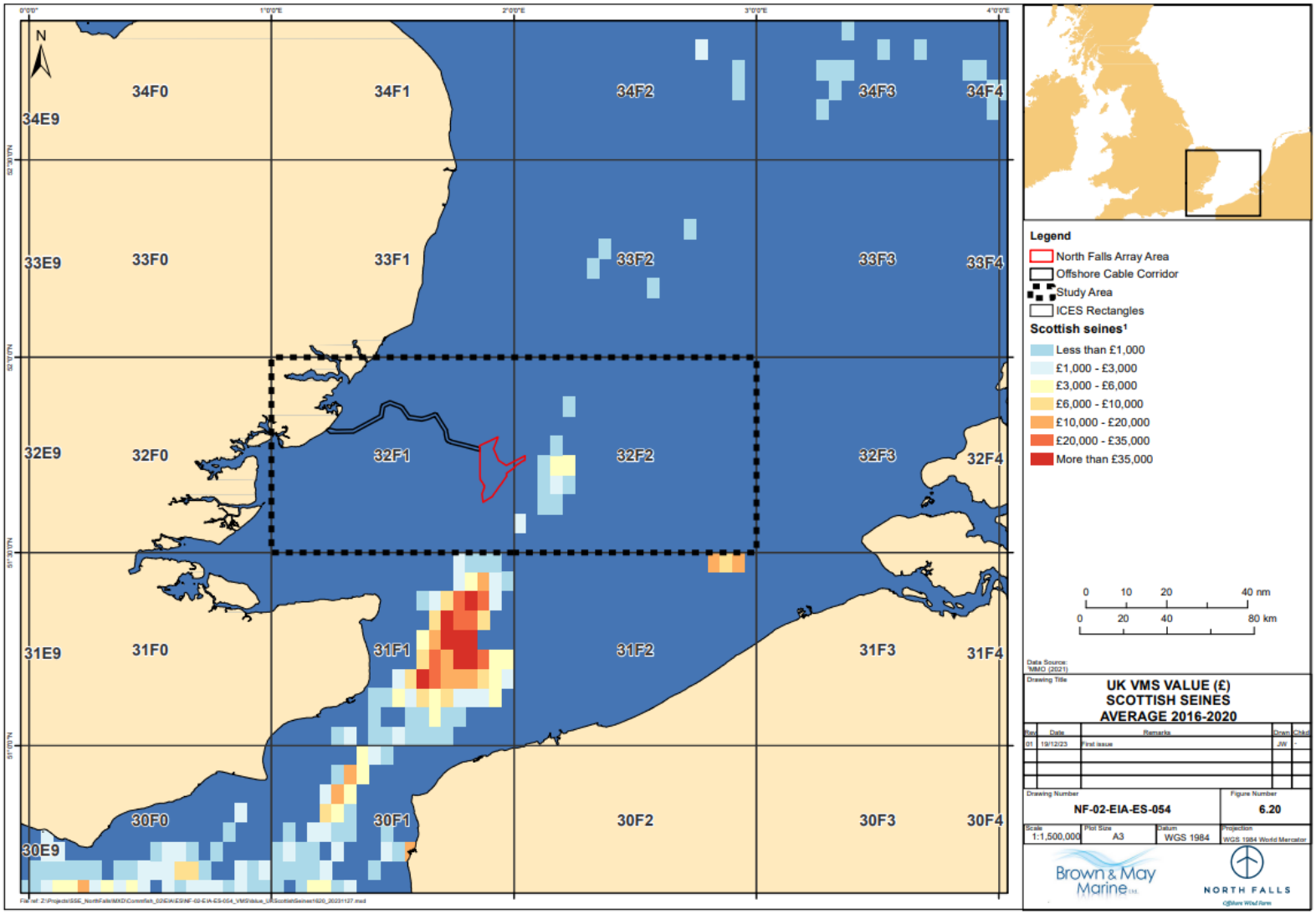


Figure 6.19 UK VMS (£) Scottish Seines (Average 2016 - 2020) (Source: MMO, 2021)

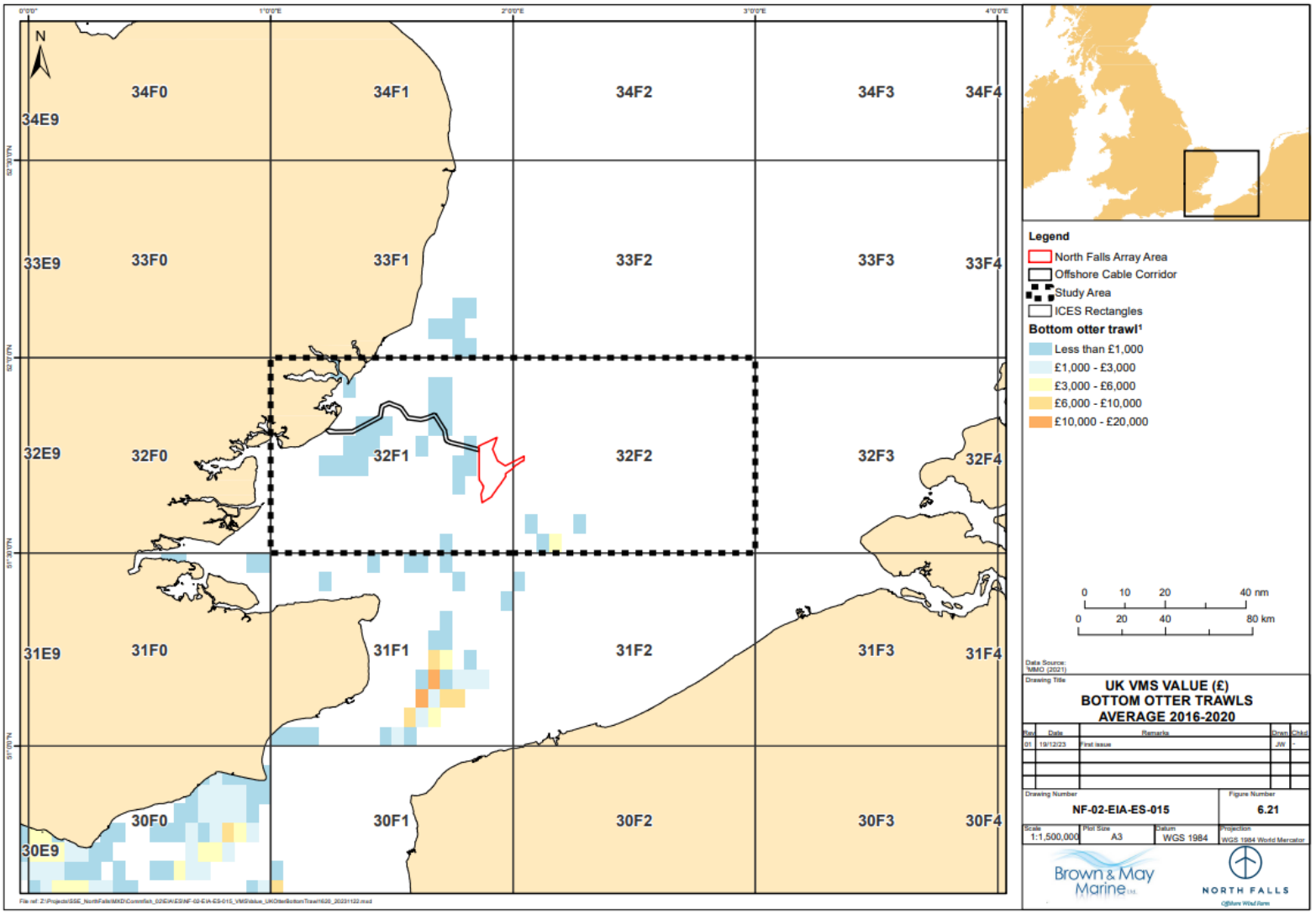


Figure 6.20 UK VMS (£) Bottom Otter Trawls (Average 2016 - 2020) (Source: MMO, 2021)

6.2.2 Vessels, Gear and Operating Patterns

UK fishing vessels present in the study area range in length, depending on fishing method, target species and fishing grounds, as indicated by Figure 6.7. In ICES rectangle 32F1, where the majority of the offshore project area is located, the majority of landings are by vessels are between 10 and 15m in length, followed by vessels under 10m. A summary of the typical length of vessel by fishing method present based on landings values in the study area is listed below (Figure 6.22):

- Potting vessels are mainly under 15m in length, with landings value split between vessels under 10m and 10-15m;
- Gillnetting vessels are mostly under 10m;
- Bottom otter trawls are mostly under 15m;
- Beam trawlers are mostly over 15m; and
- Boat dredges are mostly between 10-15m.

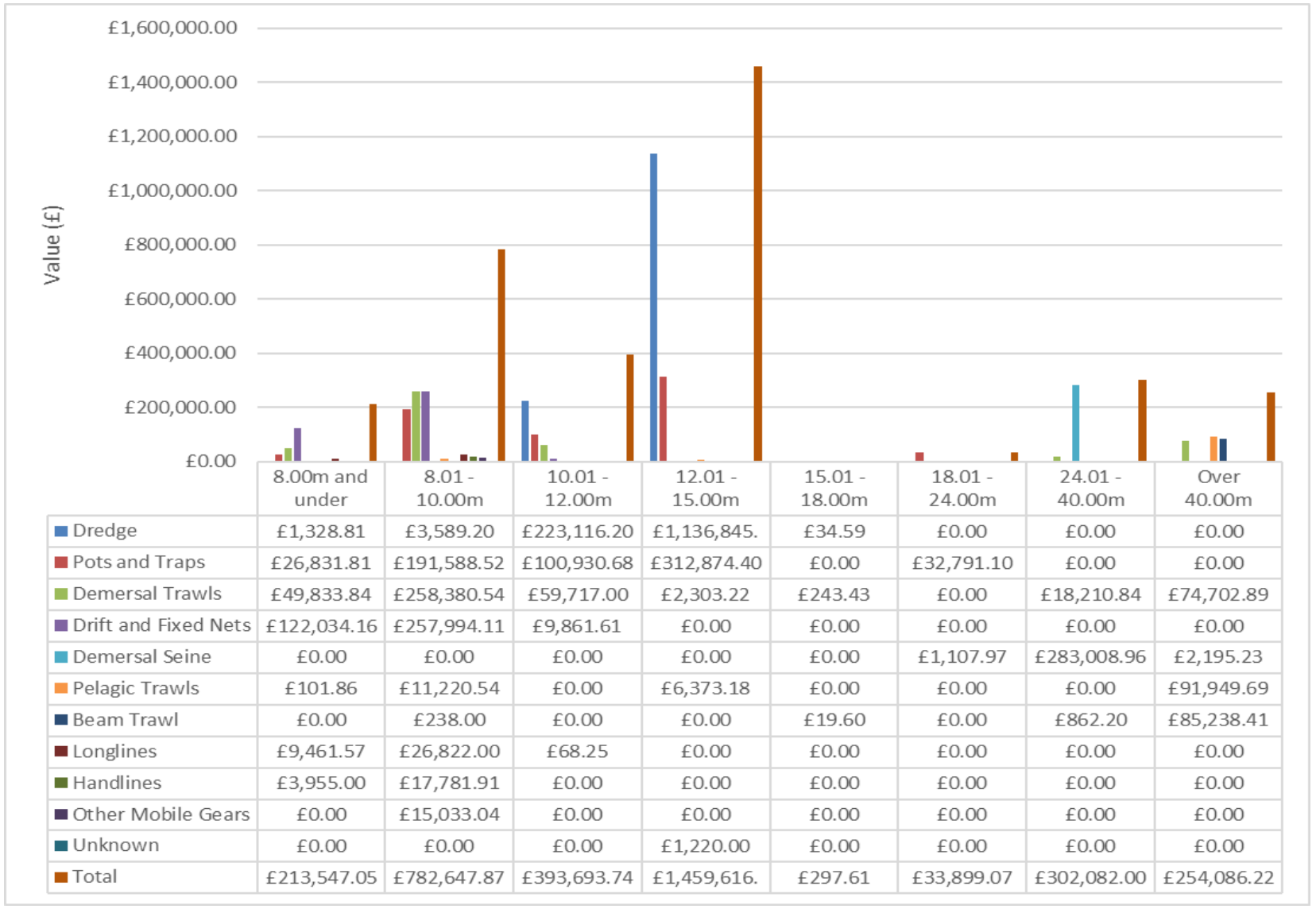
The numbers of under and over 10m vessels registered on the MMO monthly vessel lists for ports relevant to the study area are outlined in Table 6.6. It should be noted that a vessel's port of registration and / or defined home port as specified in MMO vessel lists, does not always reflect the port from which a vessel operates.

Table 6.5 Number of UK Registered Vessels Under and Over 10m in Length for UK Ports of Relevance to the Study Area (Source: MMO, May 2022)

Port	No. vessels under 10m in length	No. vessels over 10m in length
Lowestoft	20	4
Queenborough	6	4
Leigh-On-Sea	8	12
Whitstable	14	5
West Mersea	23	1
Harwich	18	0
Southwold	12	0
Felixstowe	20	0
Aldeburgh and Orford	6	0

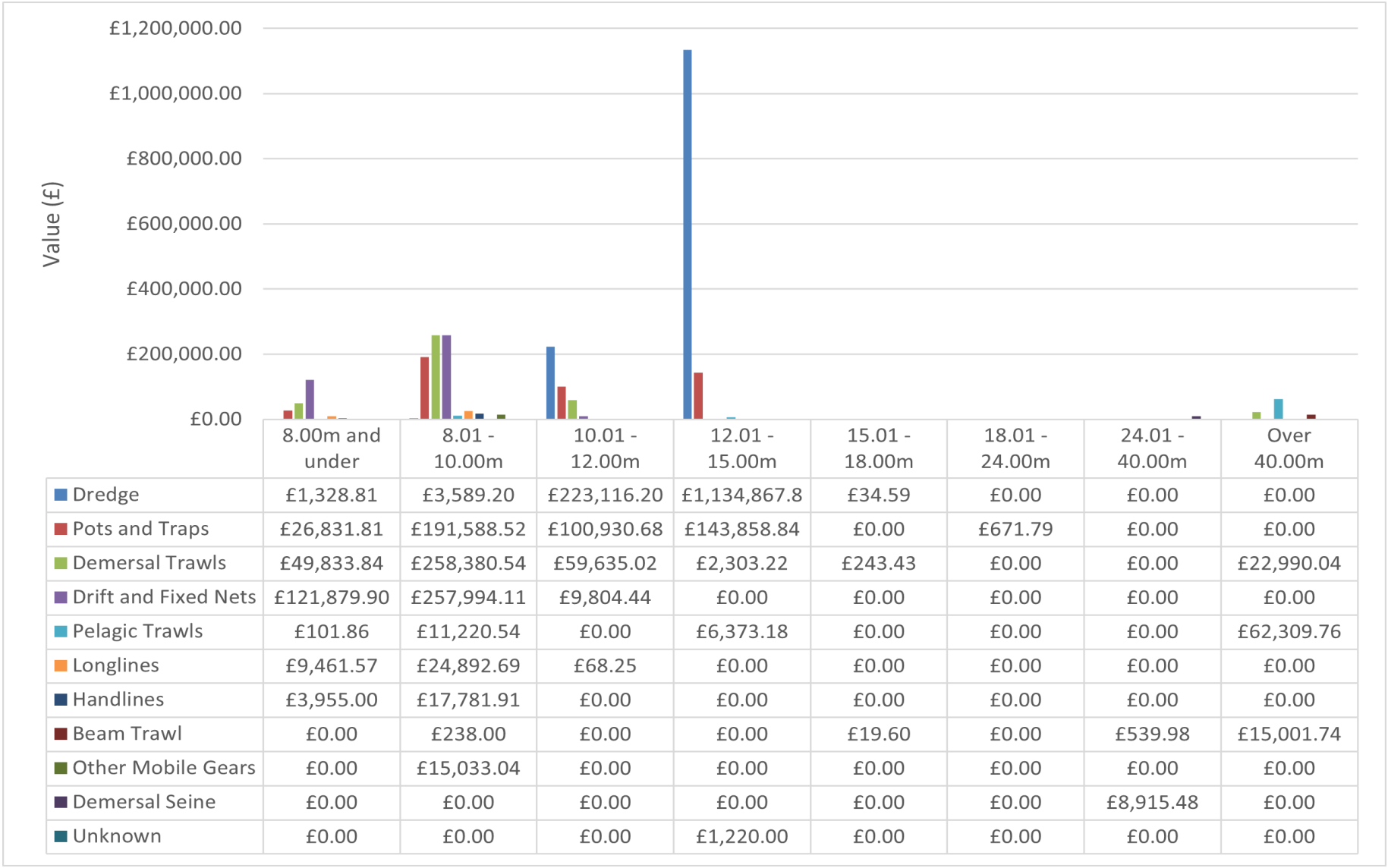
UK fishing vessels working in the offshore project area are anticipated to be predominantly locally based vessels that were met with during consultation. Local vessels principally fish grounds within the UK's 12nm limit and mostly within the 6nm limit. A number of the vessels are multi-purpose with the ability to switch between gears on a seasonal basis. With rising fuel prices, vessels operating trawling gear have been known to become multi-purpose and work static methods such as pots or nets. Some trawling vessels have also altered operating practices due to fuel prices, including reducing the number of trips or staying more locally to reduce steaming times.

Details collected from local consultation on the fishing vessels, fishing gear and operating practises of vessels working in areas relevant to the offshore project area are provided in Table 6.7. As previously noted, the majority of vessels are under 10m and, a significant number are multi-purpose and target different species with different gears at different times of year. Species targeted by these smaller local vessels include bass, sole, skate, herring, turbot, brill, lobster and crab from trawling, netting and potting (Table 6.7). This largely aligns with landings values for fishing methods and species by vessel size in the study area, as shown in Figure 6.22 and Figure 6.24. Landings values by method and vessel size for 32F1 show that the majority of landings (discounting the cockle boat dredge fishery) are by under15m potting, netting and bottom otter trawl vessels, catching predominantly sole, whelks and bass, (Figure 6.23 and Figure 6.25). Typical examples of UK fishing vessels relevant to the offshore project area are given in Figure 6.26 to Figure 6.28.



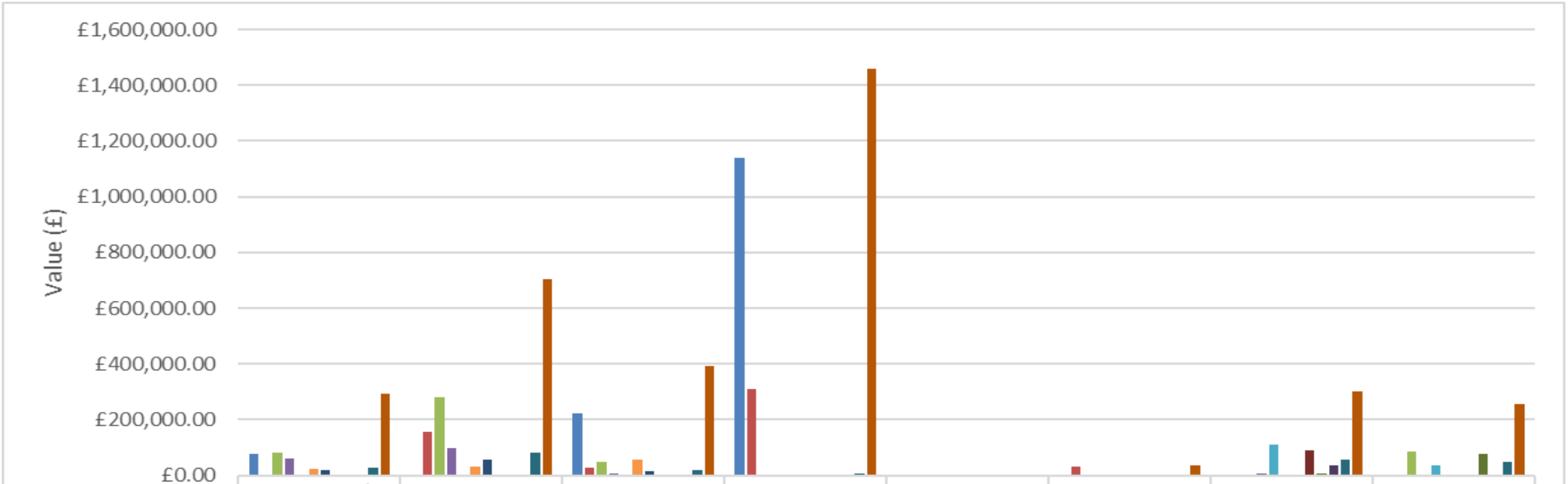
	8.00m and under	8.01 - 10.00m	10.01 - 12.00m	12.01 - 15.00m	15.01 - 18.00m	18.01 - 24.00m	24.01 - 40.00m	Over 40.00m
Dredge	£1,328.81	£3,589.20	£223,116.20	£1,136,845.	£34.59	£0.00	£0.00	£0.00
Pots and Traps	£26,831.81	£191,588.52	£100,930.68	£312,874.40	£0.00	£32,791.10	£0.00	£0.00
Demersal Trawls	£49,833.84	£258,380.54	£59,717.00	£2,303.22	£243.43	£0.00	£18,210.84	£74,702.89
Drift and Fixed Nets	£122,034.16	£257,994.11	£9,861.61	£0.00	£0.00	£0.00	£0.00	£0.00
Demersal Seine	£0.00	£0.00	£0.00	£0.00	£0.00	£1,107.97	£283,008.96	£2,195.23
Pelagic Trawls	£101.86	£11,220.54	£0.00	£6,373.18	£0.00	£0.00	£0.00	£91,949.69
Beam Trawl	£0.00	£238.00	£0.00	£0.00	£19.60	£0.00	£862.20	£85,238.41
Longlines	£9,461.57	£26,822.00	£68.25	£0.00	£0.00	£0.00	£0.00	£0.00
Handlines	£3,955.00	£17,781.91	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
Other Mobile Gears	£0.00	£15,033.04	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
Unknown	£0.00	£0.00	£0.00	£1,220.00	£0.00	£0.00	£0.00	£0.00
Total	£213,547.05	£782,647.87	£393,693.74	£1,459,616.	£297.61	£33,899.07	£302,082.00	£254,086.22

Figure 6.21 UK Landings (£) by Vessel Size and Method in the Study Area (Average 2018-2022) (Source: MMO, 2023)



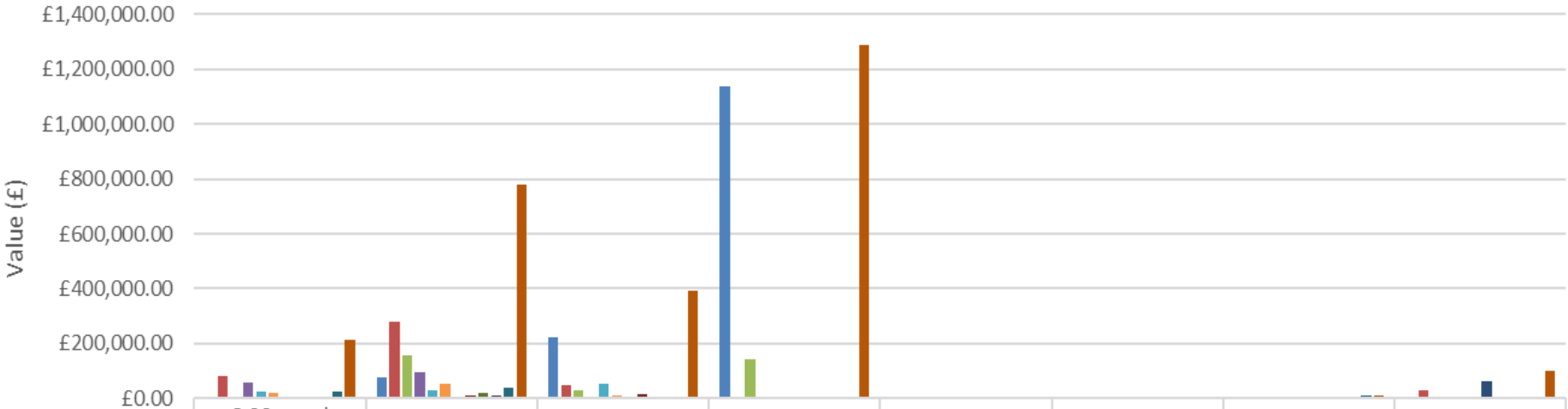
	8.00m and under	8.01 - 10.00m	10.01 - 12.00m	12.01 - 15.00m	15.01 - 18.00m	18.01 - 24.00m	24.01 - 40.00m	Over 40.00m
Dredge	£1,328.81	£3,589.20	£223,116.20	£1,134,867.8	£34.59	£0.00	£0.00	£0.00
Pots and Traps	£26,831.81	£191,588.52	£100,930.68	£143,858.84	£0.00	£671.79	£0.00	£0.00
Demersal Trawls	£49,833.84	£258,380.54	£59,635.02	£2,303.22	£243.43	£0.00	£0.00	£22,990.04
Drift and Fixed Nets	£121,879.90	£257,994.11	£9,804.44	£0.00	£0.00	£0.00	£0.00	£0.00
Pelagic Trawls	£101.86	£11,220.54	£0.00	£6,373.18	£0.00	£0.00	£0.00	£62,309.76
Longlines	£9,461.57	£24,892.69	£68.25	£0.00	£0.00	£0.00	£0.00	£0.00
Handlines	£3,955.00	£17,781.91	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
Beam Trawl	£0.00	£238.00	£0.00	£0.00	£19.60	£0.00	£539.98	£15,001.74
Other Mobile Gears	£0.00	£15,033.04	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
Demersal Seine	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00	£8,915.48	£0.00
Unknown	£0.00	£0.00	£0.00	£1,220.00	£0.00	£0.00	£0.00	£0.00

Figure 6.22 UK Landings (£) Vessel Size by Method in ICES Rectangle 32F1 (Average 2018-2022) (Source: MMO, 2023)



	8.00m and under	8.01 - 10.00m	10.01 - 12.00m	12.01 - 15.00m	15.01 - 18.00m	18.01 - 24.00m	24.01 - 40.00m	Over 40.00m
Cockles	£77,655.39	£0.00	£223,116.20	£1,139,550.38	£0.00	£0.00	£0.00	£0.00
Whelks	£0.00	£156,397.56	£28,413.87	£310,054.95	£0.00	£32,791.10	£0.00	£567.99
Sole	£81,155.40	£280,896.45	£47,267.37	£1,734.41	£28.63	£4.79	£132.51	£85,791.03
Bass	£59,765.65	£97,571.19	£6,199.11	£16.76	£0.00	£67.55	£5,070.78	£1,077.09
Squid	£6.97	£207.12	£0.00	£0.00	£0.00	£216.36	£110,636.50	£37,608.90
Lobsters	£24,884.13	£30,252.78	£55,575.12	£0.00	£2.16	£0.00	£68.43	£98.66
Thornback Ray	£20,488.87	£56,282.84	£13,400.58	£105.79	£192.91	£2.74	£2,514.24	£938.57
Red Mullet	£33.07	£8.61	£19.68	£0.00	£0.00	£115.83	£89,010.82	£663.77
Horse Mackerel	£0.08	£0.00	£0.00	£0.00	£0.00	£20.65	£4,727.93	£77,986.42
Whiting	£96.88	£271.40	£31.48	£31.26	£0.00	£222.93	£34,123.50	£3,116.01
Other	£27,116.01	£83,104.52	£19,670.34	£8,122.72	£73.90	£457.11	£55,797.29	£46,237.78
Total	£291,202.44	£704,992.48	£393,693.74	£1,459,616.28	£297.61	£33,899.07	£302,082.00	£254,086.22

Figure 6.23 UK Landings (£) by Vessel Size for Top 10 Species in the Study Area (Average 2018-2022) (Source: MMO, 2023)



	8.00m and under	8.01 - 10.00m	10.01 - 12.00m	12.01 - 15.00m	15.01 - 18.00m	18.01 - 24.00m	24.01 - 40.00m	Over 40.00m
Cockles	£0.00	£77,655.39	£223,116.20	£1,137,572.78	£0.00	£0.00	£0.00	£0.00
Sole	£81,155.40	£280,896.45	£47,209.86	£1,734.41	£28.63	£0.00	£0.00	£30,745.15
Whelks	£0.00	£156,397.56	£28,413.87	£141,039.40	£0.00	£671.79	£0.00	£51.91
Bass	£59,765.65	£96,964.81	£6,195.91	£16.76	£0.00	£0.00	£32.74	£21.30
Lobsters	£24,884.13	£30,252.78	£55,575.12	£0.00	£2.16	£0.00	£0.00	£46.32
Thornback Ray	£20,364.80	£55,149.01	£13,372.37	£105.79	£192.91	£0.00	£8.78	£647.52
Horse Mackerel	£0.08	£0.00	£0.00	£0.00	£0.00	£0.00	£107.79	£60,863.64
Edible Crabs	£225.44	£10,028.31	£17,375.17	£1,604.54	£0.00	£0.00	£0.00	£2.37
Sprats	£232.38	£22,800.97	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
Herring	£1,529.42	£11,674.21	£43.39	£6,208.61	£0.00	£0.00	£0.00	£1,388.64
Other	£25,235.50	£38,899.07	£2,252.71	£340.83	£73.90	£0.00	£9,306.16	£6,534.69
Total	£213,392.79	£780,718.56	£393,554.59	£1,288,623.12	£297.61	£671.79	£9,455.46	£100,301.53

Figure 6.24 UK Landings (£) by Top 10 Species and Vessel Size in 32F1 (Average 2016-2020) (Source: MMO, 2023)

Table 6.6 Anonymised vessel Details, Methods and Operation from Consultation (Source: BMM, 2022)

Consultee	Fishing Method	Vessel Length	No. of fleets	Gear no. per fleet	Fleet Length	Depth Fished	Soak/Tow Time	Headings/ patterns	Species Targeted	Seasonality	Average days fishing per year
Fisher 1	Gill/Tangle/Trammel Netting	9m	2-4	4-8	400-800m	10-40m	1-24 hrs	/	Bass, Sole, Skate, Herring, Turbot, Brill	12 months	>100
	Lining		7	1	220m	/	3-12hrs	E to W		3 months	
Fisher 2	Trawl	12m	/	/	18.3m trawl doors	20m	2hrs	/	Sole, Skate, Cod	/	150
Fisher 3	Trawl	9.9m	/	/	15.2m trawl doors	12.8m	1.5hrs	Tide & wind dependent	Sole, Skate Cod, Herring, Whiting	Feb-Nov Nov-Feb	120
Fisher 4	Longline	11.7m	/	/	4.8 – 6.4km	/	6hrs	Across tide	Cod, Bass, Dogfish, Skate, Sole	12 months	160
	Gillnets		6	5	365.8m	/	2 hrs– 2days	/			
	Pots		50 pots	Any no.	27.4m between pots	/	1 week	/	Lobster		
Fisher 5	Trawling	9.99m	/	/	18.3m trawl doors	0-21.3m	1-5hrs	/	Soles, Cod, Skate	Feb-Nov	150
	Potting		100 pots	Single pots	/	/	5days	/	Lobsters, Crabs	Jun-Oct	
	Netting		12	/	274.3ms	0-80ft	24-48hrs	/	Skate, Bass, Cod	Jan-Nov	
Fisher 6	Lining/Netting/Potting	8.5m	/	/	/	/	/	/	/	12 months	200
Fisher 7	Trawling	9.9m	/	/	27.4m trawl doors	12.2 - 45.7m	2hrs	/	Dover Sole	9-10 months	140
Fisher 8	Trawling	10m	/	/	60m trawl doors	9.1m	1hr	Weed or mud	Sole, Bass	12 months	150
	Set Nets/Drift Nets		4	7	700m	2.4-18.3m	12hrs	/			
	Longlines		/	/	60m (3000m total)	/	2hrs	/			

Consultee	Fishing Method	Vessel Length	No. of fleets	Gear no. per fleet	Fleet Length	Depth Fished	Soak/Tow Time	Headings/ patterns	Species Targeted	Seasonality	Average days fishing per year
	Oyster Dredging		/	/	/	/	/	/	Oysters		
Fisher 9	Potting	7.99	30	Up to 10	219.5m	Up to 100m	3 days	/	Lobster, Crab	Mar-Nov	150
	Lining		/	/	7.5km	/	3hrs	Across Tide	Bass, Cod, Skate, Whiting, Dogfish	Apr-Jun	
	Set Nets		6	5	400m	/	24hrs	/	Bass, Sole, Skate, Mullet, Cod, Dogfish	Nov-Jun	
	Drift Nets		6	5	400m	/	1hr	/	Sole, Skate, Cod, Whiting, Dogfish	Apr-Dec	
Fisher 10	Potting	7.98	12	Up to 6	109.7m	Up to 100m	3 days	/	Lobster, Crab	Mar-Nov	200
	Lining		/	/	9.1km	/	3hrs	Across Tide	Bass, Cod, Skate, Whiting, Dogfish	Apr-Jun	
	Set Nets		11	5	400m	/	1hr	/	Bass, Sole, Skate, Mullet, Cod, Dogfish	Nov-Jun	
	Drift Nets		11	5	400m	/	24hrs	/	Sole, Skate, Cod, Whiting, Dogfish	Apr-Dec	
Fisher 11	Nets	9.34	Varies	Varies	Varies	Varies	Varies	Varies	Bass, Skate, Cod, Sole, Flounder, Plaice, Whiting, Smoothhound, Lobster, Crabs, Dabs, Turbot, Brill, Herring, Dogfish, Sprats	Up to 12 months	As many as possible
	Lines		Varies	Varies	0 - 4.8km	Varies	Full tide cycle	Weather, Tide, Ground			
	Trawls		/	/	/	Varies	0-90 mins	Wind, Tide, Ground, Wrecks, Fasts			
	Pots		0-100+ pots	5-10	Varies	Varies	Varies	/	Lobster, Crab		
	Rods		/	/	/	/	/	/	/		
Fisher 12	Otter Trawl	7.9	/	/	18.3m door width	Varies	Varies	Up & Down Tide	Sole, Bass, Skate, Herring, Cod, Whiting, Plaice, Turbot, Brill, Lobster, Crab	12	150-200
	Longlines		/	/	Varies	Varies	2-4hrs	Across Tide			

Consultee	Fishing Method	Vessel Length	No. of fleets	Gear no. per fleet	Fleet Length	Depth Fished	Soak/Tow Time	Headings/ patterns	Species Targeted	Seasonality	Average days fishing per year
	Pots		Up to 50 pots	/	Varies	Varies	/	/			
	Set Nets		Varies	5	457.2m	Varies	2 – 24hrs	/			
	Drift Nets										
Fisher 13	Pots	9.9	8-20	30-40	100-400m	Any	6 days +	/	Lobster, Crab	Mar-Nov	150
	Longlines		/	/	8.0km	/	3hrs	Across Tide	Cod, Skate, Bass, Herring, Sole, Conger, Smoothhound, Spurdog	12 months	
	Gillnets		1-8	Varies	Varies	/	Few hrs – few days	/		12 months	

Figure 6.25 Multi-purpose vessel that operates pots and trawling gear (Source: BMM, 2021)

Figure 6.26 Local vessel that operates nets (Source: BMM, 2021)

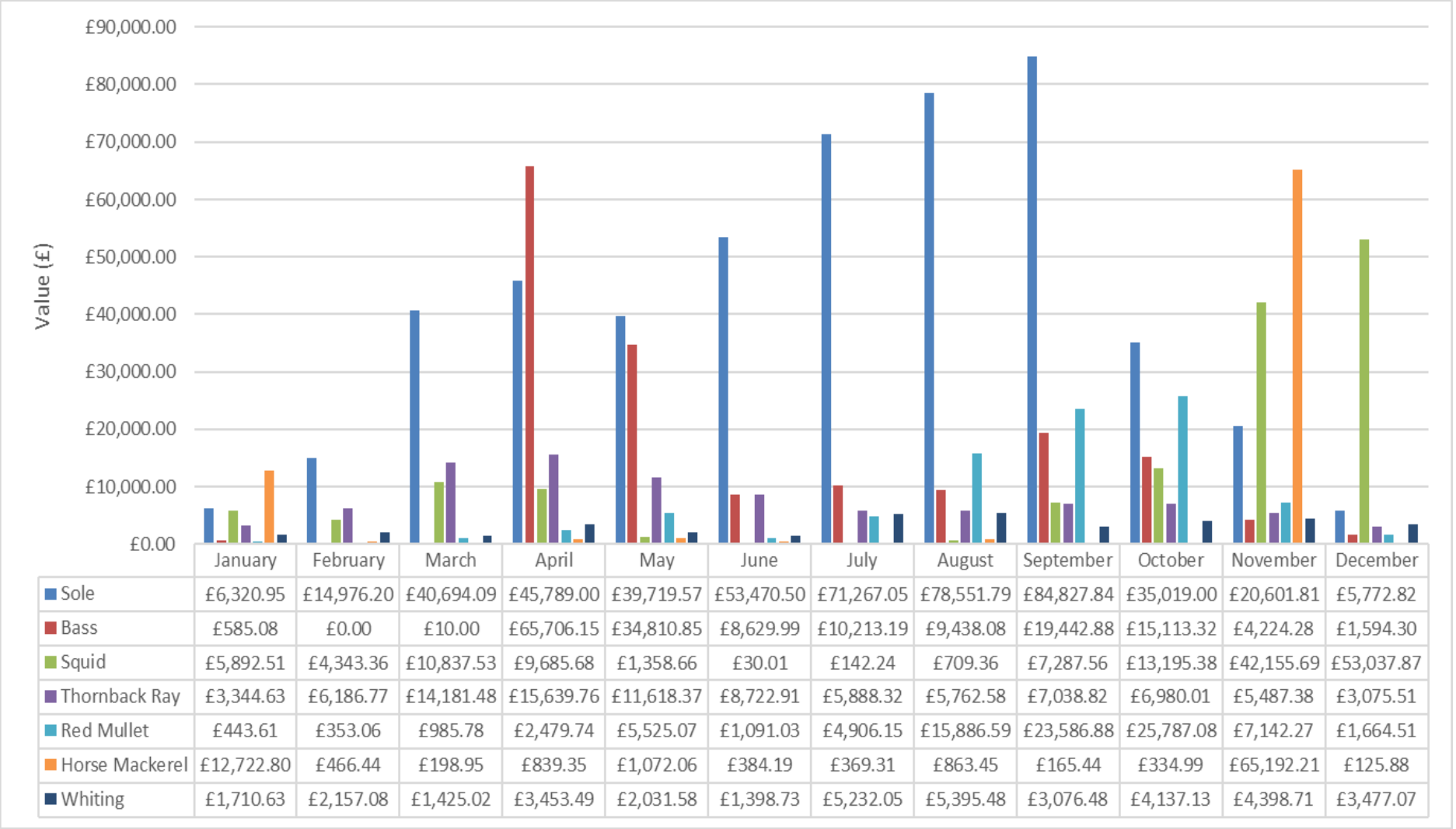
Figure 6.27 Multi-purpose netting and trawling vessel (Source: BMM, 2021)

6.2.2.1 Seasonality

An indication of the seasonality of the main species targeted in the study area is given in Figure 6.29 and Figure 6.30. The seasonality of species caught by pots (whelks, lobster, crab) was presented separately for clarity (Figure 6.30).

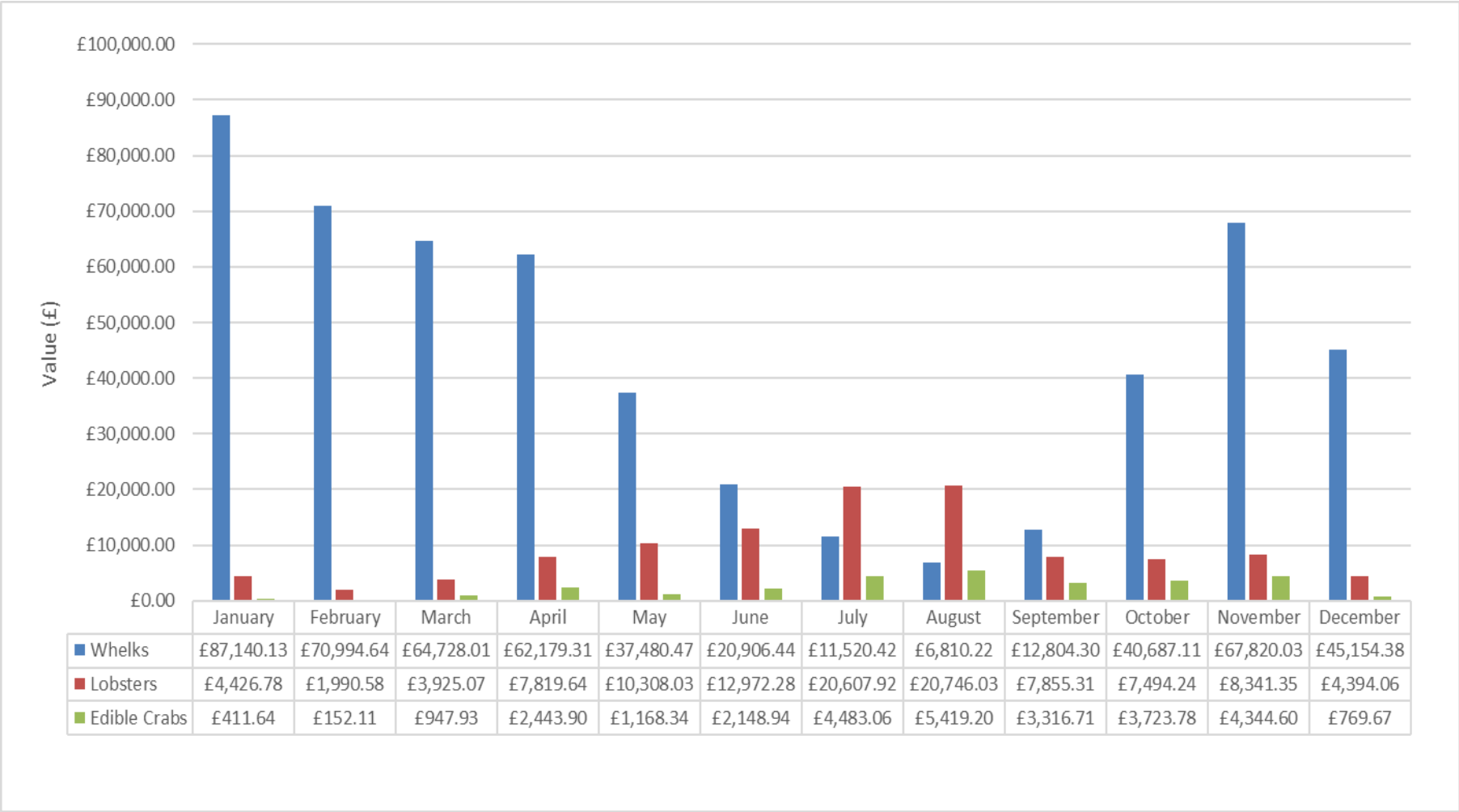
Sole is landed year-round with the highest value of landings reported from March to September, while landings of bass peak in April and May aligning with the bass season opening on the 1st April. Landings of horse mackerel are highest in November and January and landings of cod peak in spring. Thornback rays are landed at a relatively consistent value throughout the year and landings of herring were highest in March and November.

For species caught by pots, landings of whelks are highest between November and May, although they are targeted all year round, while landings of lobster and crab are highest during the summer and autumn months (Figure 6.30).



	January	February	March	April	May	June	July	August	September	October	November	December
Sole	£6,320.95	£14,976.20	£40,694.09	£45,789.00	£39,719.57	£53,470.50	£71,267.05	£78,551.79	£84,827.84	£35,019.00	£20,601.81	£5,772.82
Bass	£585.08	£0.00	£10.00	£65,706.15	£34,810.85	£8,629.99	£10,213.19	£9,438.08	£19,442.88	£15,113.32	£4,224.28	£1,594.30
Squid	£5,892.51	£4,343.36	£10,837.53	£9,685.68	£1,358.66	£30.01	£142.24	£709.36	£7,287.56	£13,195.38	£42,155.69	£53,037.87
Thornback Ray	£3,344.63	£6,186.77	£14,181.48	£15,639.76	£11,618.37	£8,722.91	£5,888.32	£5,762.58	£7,038.82	£6,980.01	£5,487.38	£3,075.51
Red Mullet	£443.61	£353.06	£985.78	£2,479.74	£5,525.07	£1,091.03	£4,906.15	£15,886.59	£23,586.88	£25,787.08	£7,142.27	£1,664.51
Horse Mackerel	£12,722.80	£466.44	£198.95	£839.35	£1,072.06	£384.19	£369.31	£863.45	£165.44	£334.99	£65,192.21	£125.88
Whiting	£1,710.63	£2,157.08	£1,425.02	£3,453.49	£2,031.58	£1,398.73	£5,232.05	£5,395.48	£3,076.48	£4,137.13	£4,398.71	£3,477.07

Figure 6.28 Seasonality of Top 7 Species (£) in the Study Area (Excluding Species Caught by Pots and Cockles) (Average 2018 -2022) (Source: MMO, 2023)



	January	February	March	April	May	June	July	August	September	October	November	December
Whelks	£87,140.13	£70,994.64	£64,728.01	£62,179.31	£37,480.47	£20,906.44	£11,520.42	£6,810.22	£12,804.30	£40,687.11	£67,820.03	£45,154.38
Lobsters	£4,426.78	£1,990.58	£3,925.07	£7,819.64	£10,308.03	£12,972.28	£20,607.92	£20,746.03	£7,855.31	£7,494.24	£8,341.35	£4,394.06
Edible Crabs	£411.64	£152.11	£947.93	£2,443.90	£1,168.34	£2,148.94	£4,483.06	£5,419.20	£3,316.71	£3,723.78	£4,344.60	£769.67

Figure 6.29 Seasonality of Landings (£) for Species Caught Using Pots in the Study Area (Average 2018 - 2022) (Source: MMO, 2023)

6.3 Belgian Fleet

6.3.1 Distribution of Fishing Activity

6.3.1.1 Surveillance Sightings

Surveillance sightings of Belgian vessels recorded by the MMO in the study area are given in Figure 6.31. As shown, within the study area most sightings of Belgian vessels are concentrated in ICES rectangle 32F1 and are predominantly beam trawlers. Activity by Belgian beam trawlers takes place from the 6nm limit along the offshore cable corridor and within the array area.

Although there are also records of bottom otter trawlers in the study area, these appear to mainly be recorded south of the offshore project area with limited overlap with the offshore cable corridor and no sightings recorded in the array area.

6.3.1.2 Landings Data

An overview of landings by Belgian vessels in each of the ICES rectangles within the study area is given by method and species, in Figure 6.32 and Figure 6.33 respectively. Beam trawling and demersal trawling and seines account for the majority of Belgian activity in the study area (Figure 6.32). There is an approximately even distribution of landings between beam trawling and bottom trawls and seines in 32F1, however in 32F2 landings are mainly from beam trawling.

A detailed breakdown of landings by species and method is given for ICES rectangles in the study area in Figure 6.34 to Figure 6.36. The principal species targeted in the study area are plaice and sole. In rectangles 32F1 and 32F2, other species of importance include thornback ray, cod, small spotted catshark and tub gurnard, shown in Figure 6.34 and Figure 6.36 respectively. In rectangle 33F1, shrimp and prawns are the principal species targeted by Belgian vessels Figure 6.35.

Given that only data up to 2016 is available, during consultation, the Belgian representative reported that fishing activity in the study area has decreased since 2016, but that the target species were relatively unchanged. It was noted however, that beam trawlers which historically targeted sole are now also landing squid, which was not reflected in the available data.

6.3.1.3 VMS

Analysis of VMS data for Belgian beam trawlers indicates activity over wide areas of the southern North Sea and extending into the Channel. The offshore project area sustains moderate levels of activity, with areas off the Belgian coast and in the Channel recording the highest activity levels (Figure 6.37).

Belgian demersal trawlers show a more constrained spatial distribution of activity, with activity within the southern North Sea for the most part concentrated around the study area (Figure 6.38).

As indicated by Figure 6.39, seine netting activity by Belgian vessels occurs at negligible levels in the study area with activity for the most part concentrated in the English Channel.

It was confirmed during consultation that the spatial data still represented the current fishing activity of the Belgian fleet, although the level of Belgian activity in the study area was reported to have decreased since 2016.

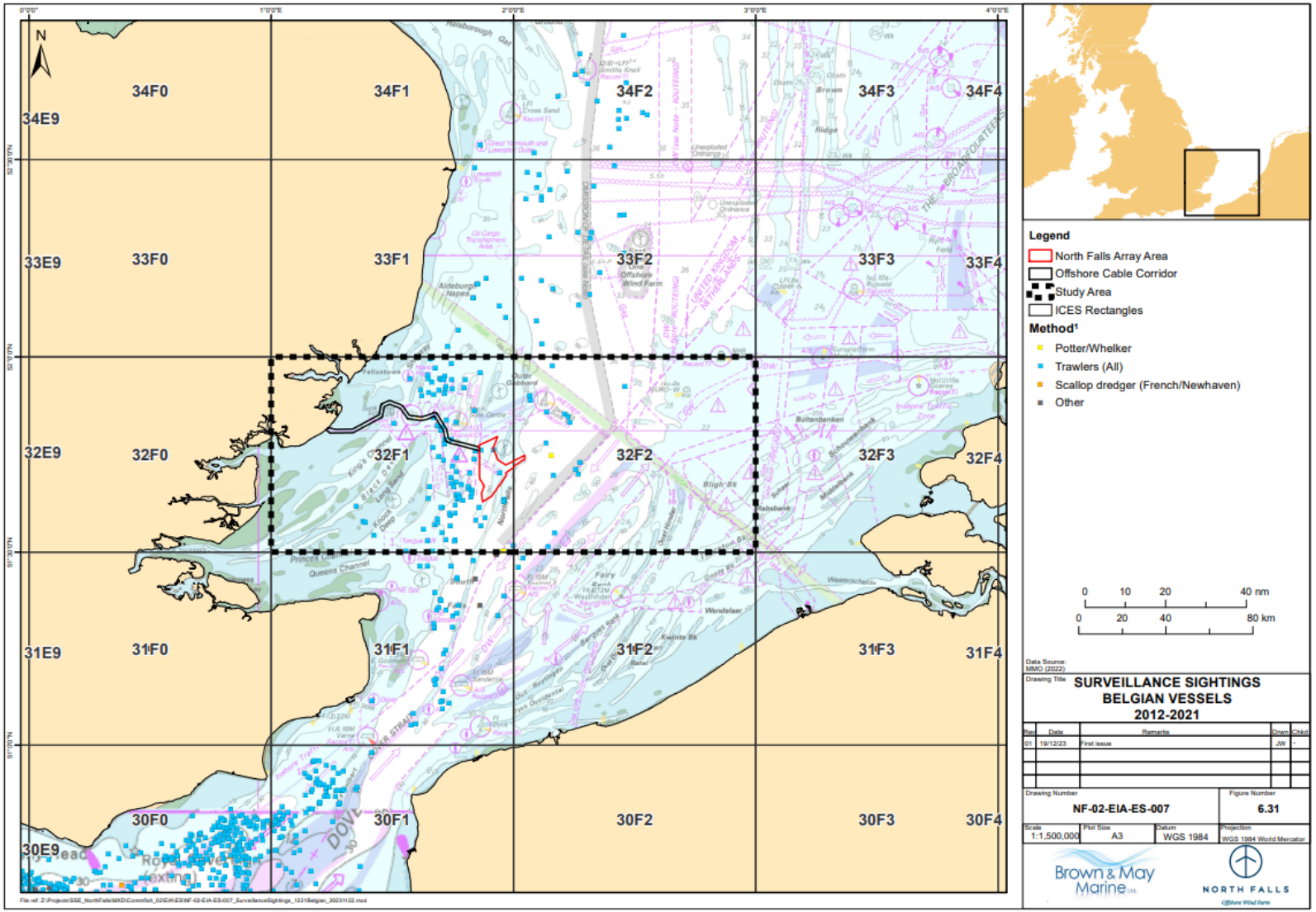


Figure 6.30 Belgian Surveillance Sightings (2012 - 2021) (Source: MMO, 2023)

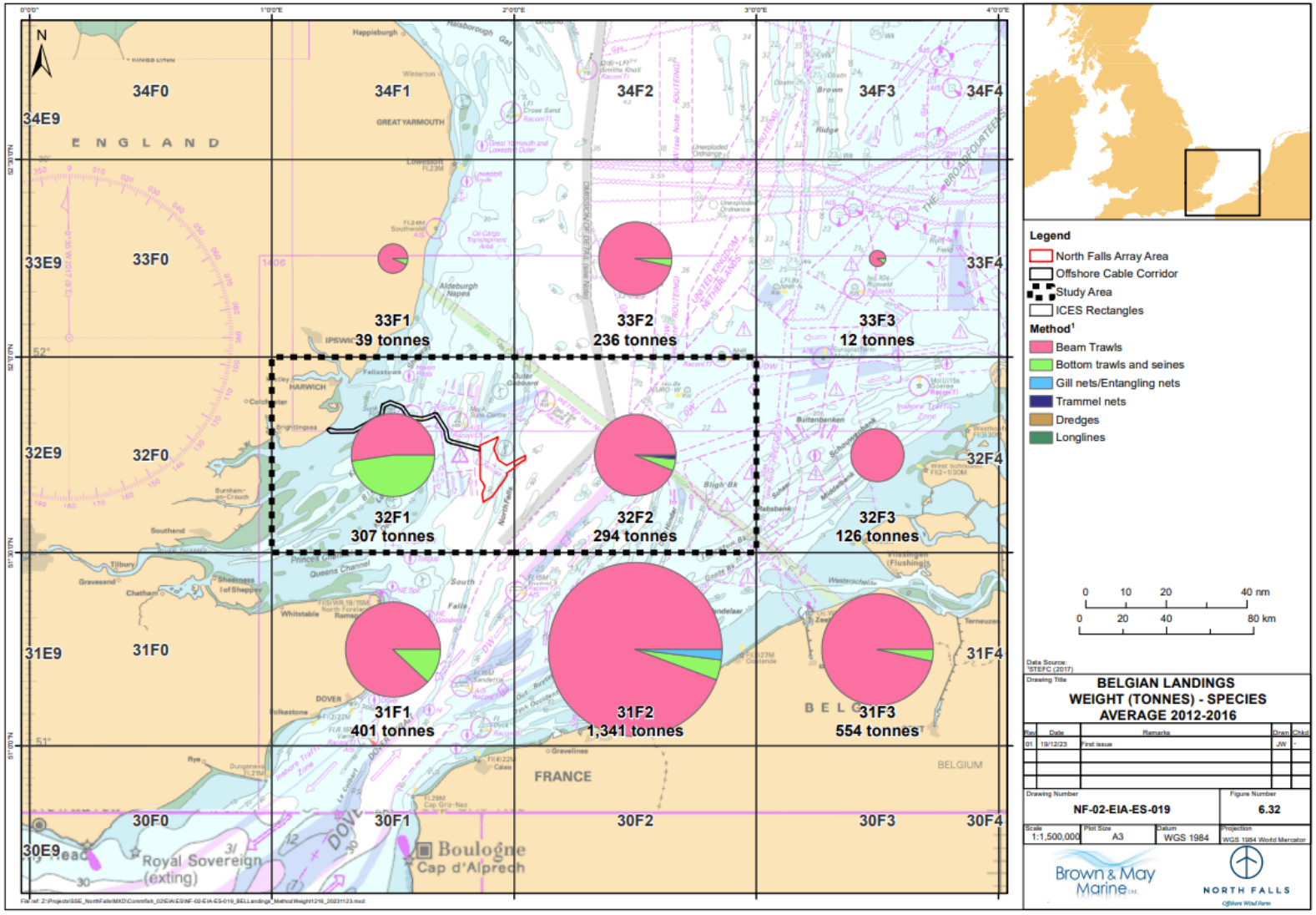


Figure 6.31 Belgian Landings (tonnes) by Method (Average 2012 - 2016) (Source: STECF, 2017)

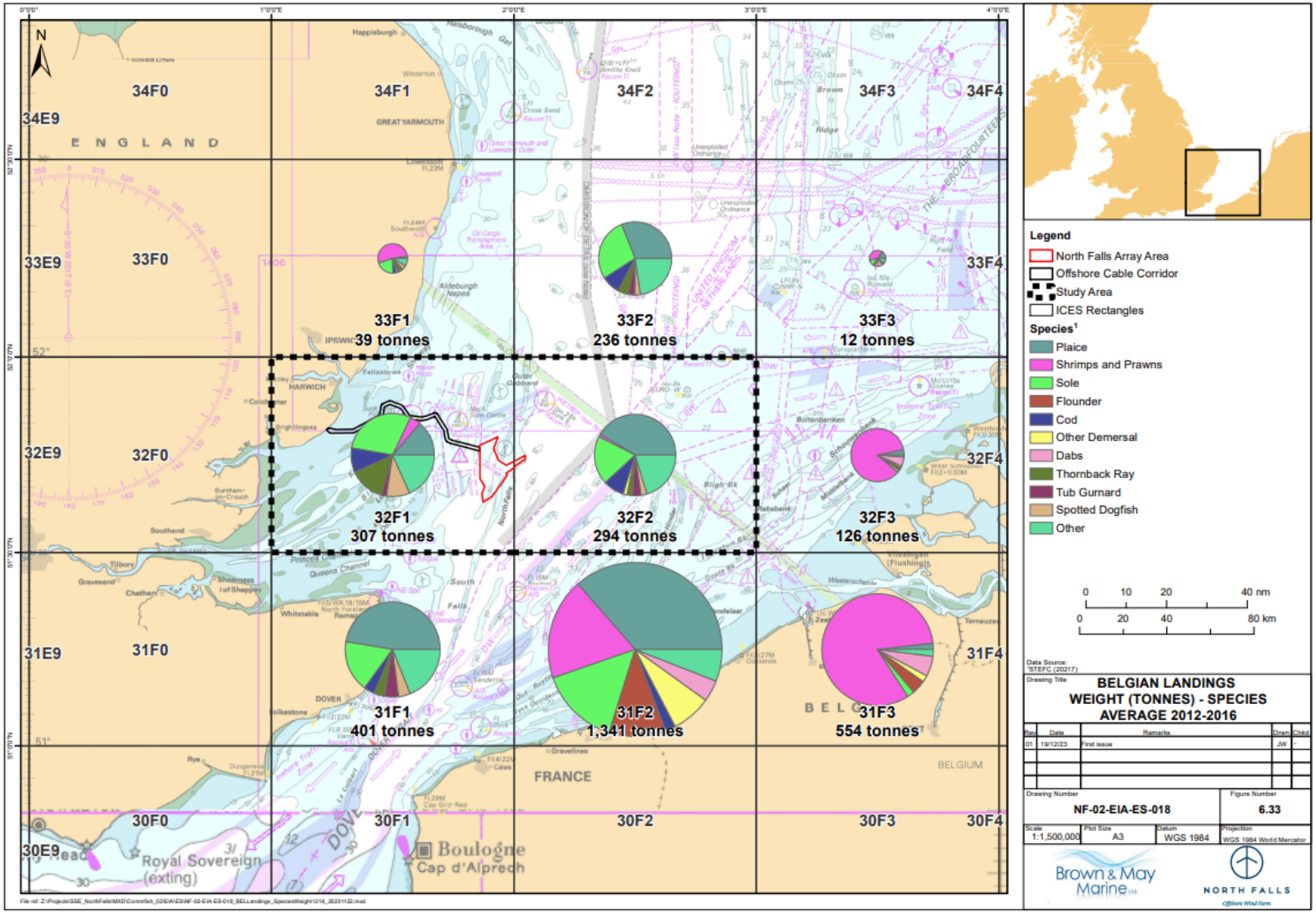
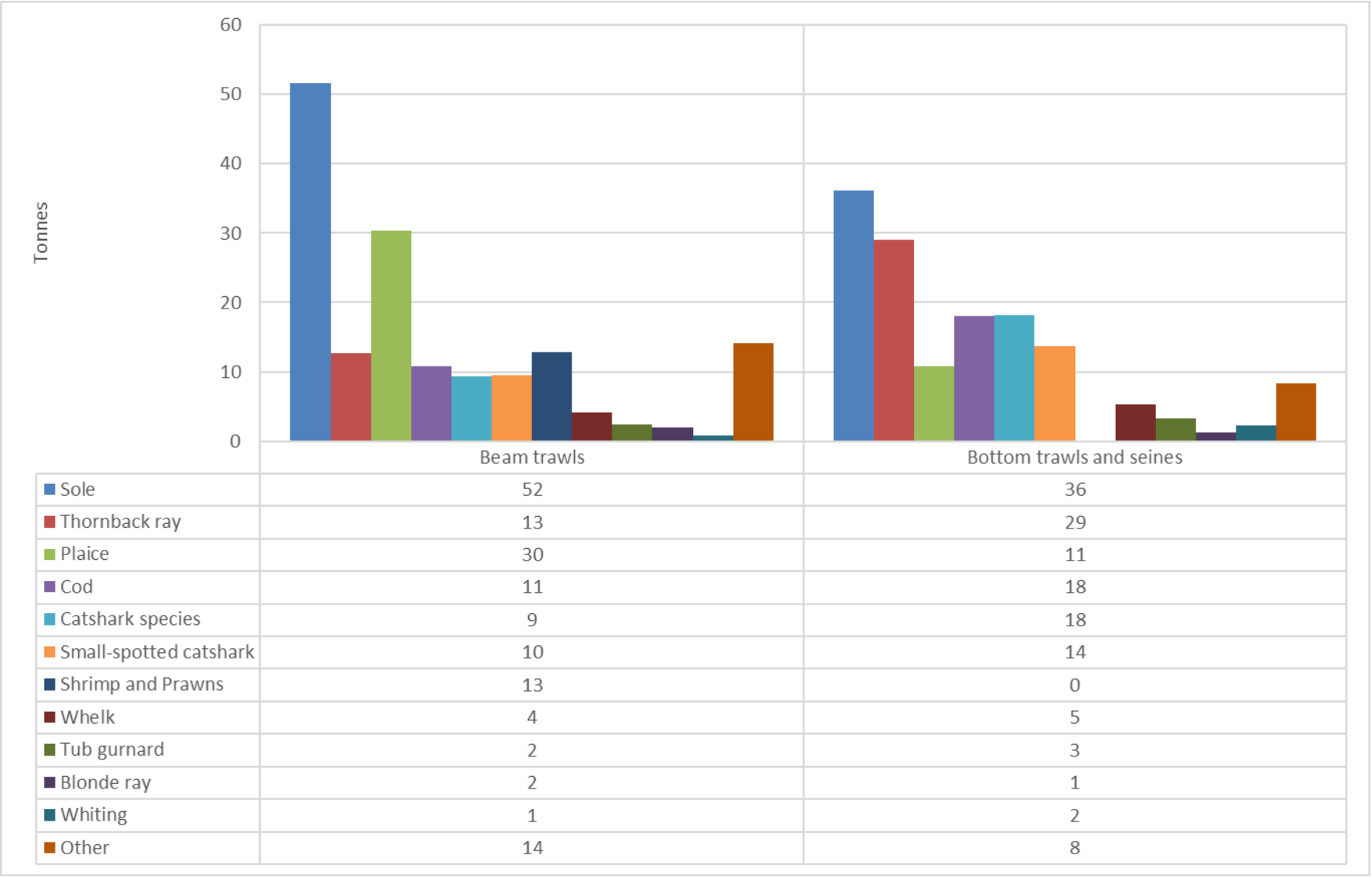
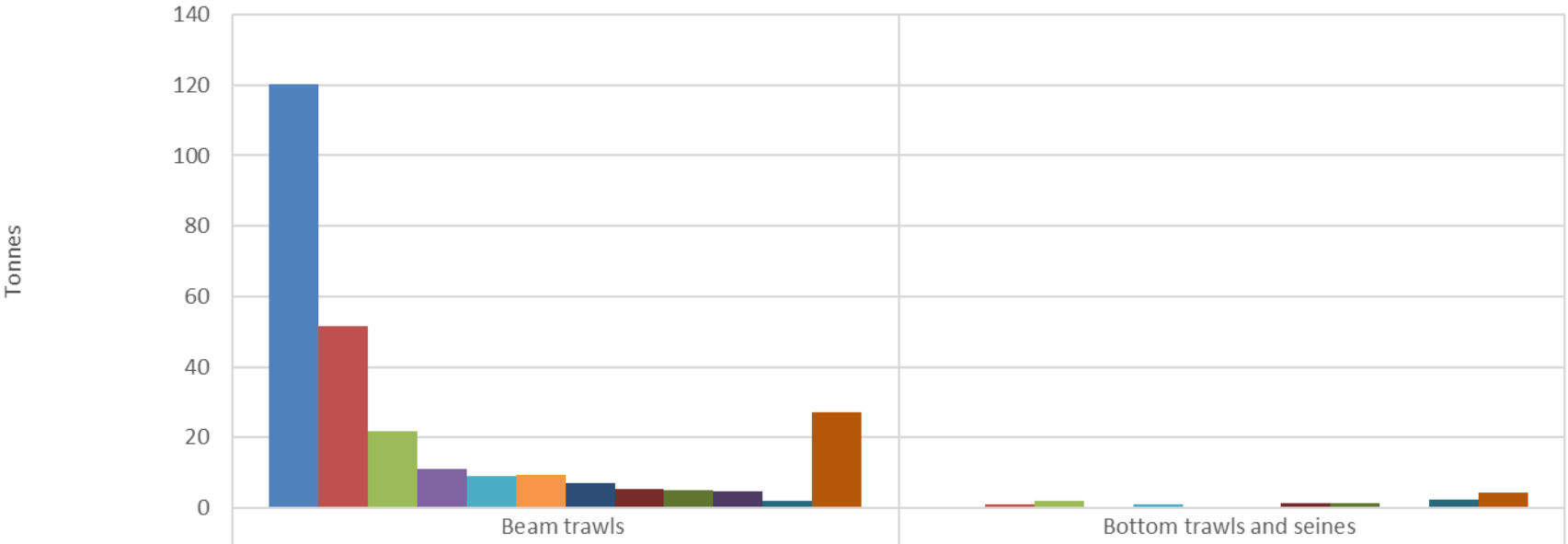


Figure 6.32 Belgian Landings (tonnes) by Species (Average 2012 - 2016) (Source: STECF, 2017)



	Beam trawls	Bottom trawls and seines
Sole	52	36
Thornback ray	13	29
Plaice	30	11
Cod	11	18
Catshark species	9	18
Small-spotted catshark	10	14
Shrimp and Prawns	13	0
Whelk	4	5
Tub gurnard	2	3
Blonde ray	2	1
Whiting	1	2
Other	14	8

Figure 6.33 Belgian Landings (t) Species by Method in ICES Rectangle 32F1 (Average 2012 – 2016) (Source: STECF, 2017)



	Beam trawls	Bottom trawls and seines
Plaice	120	0
Sole	52	1
Cod	22	2
Lemon sole	11	0
Tub gurnard	9	1
Common cuttlefish	9	0
Blonde ray	7	0
Catshark species	5	1
Thornback ray	5	1
Mixed flatfish	5	0
Whiting	2	2
Other	27	4

Figure 6.34 Belgian Landings (t) Species by Method in ICES Rectangle 32F2 (Average 2012 – 2016) (Source: STECF, 2017)

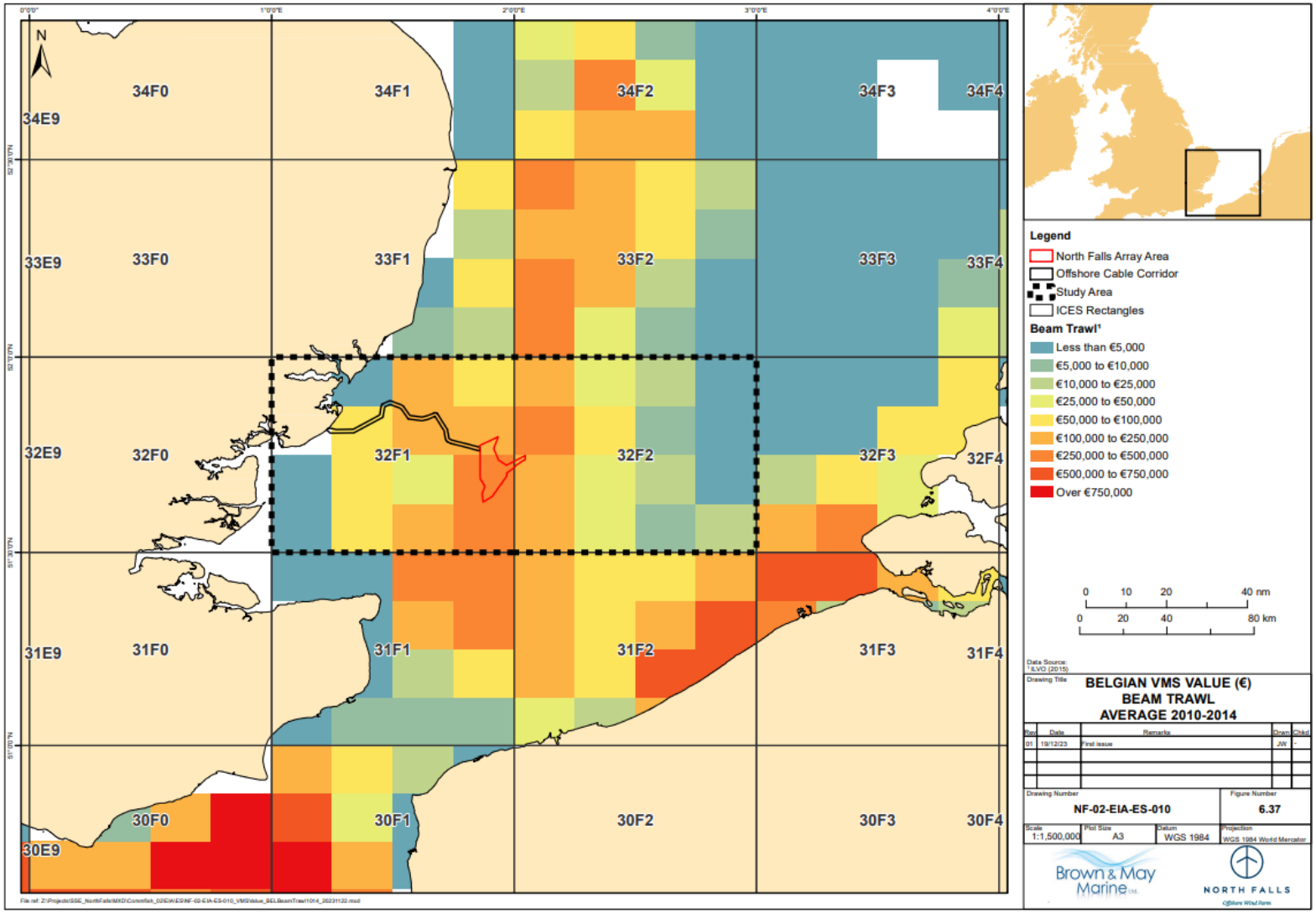


Figure 6.35 Belgian VMS (€) Beam Trawls (Average 2010 - 2014) (Source: ILVO, 2015)

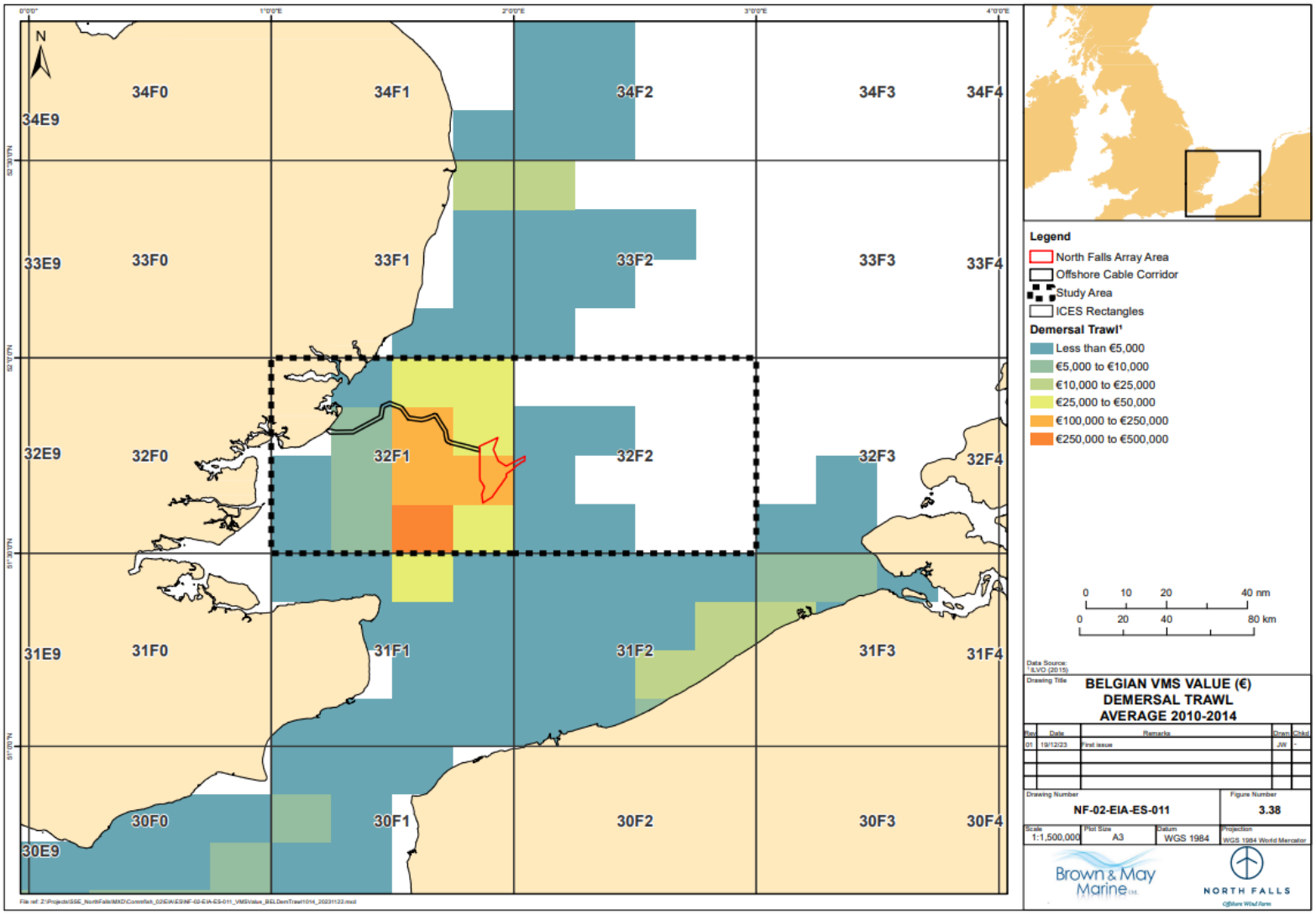


Figure 6.36 Belgian VMS (€) Demersal Trawls (Average 2010 - 2014) (Source: ILVO, 2015)

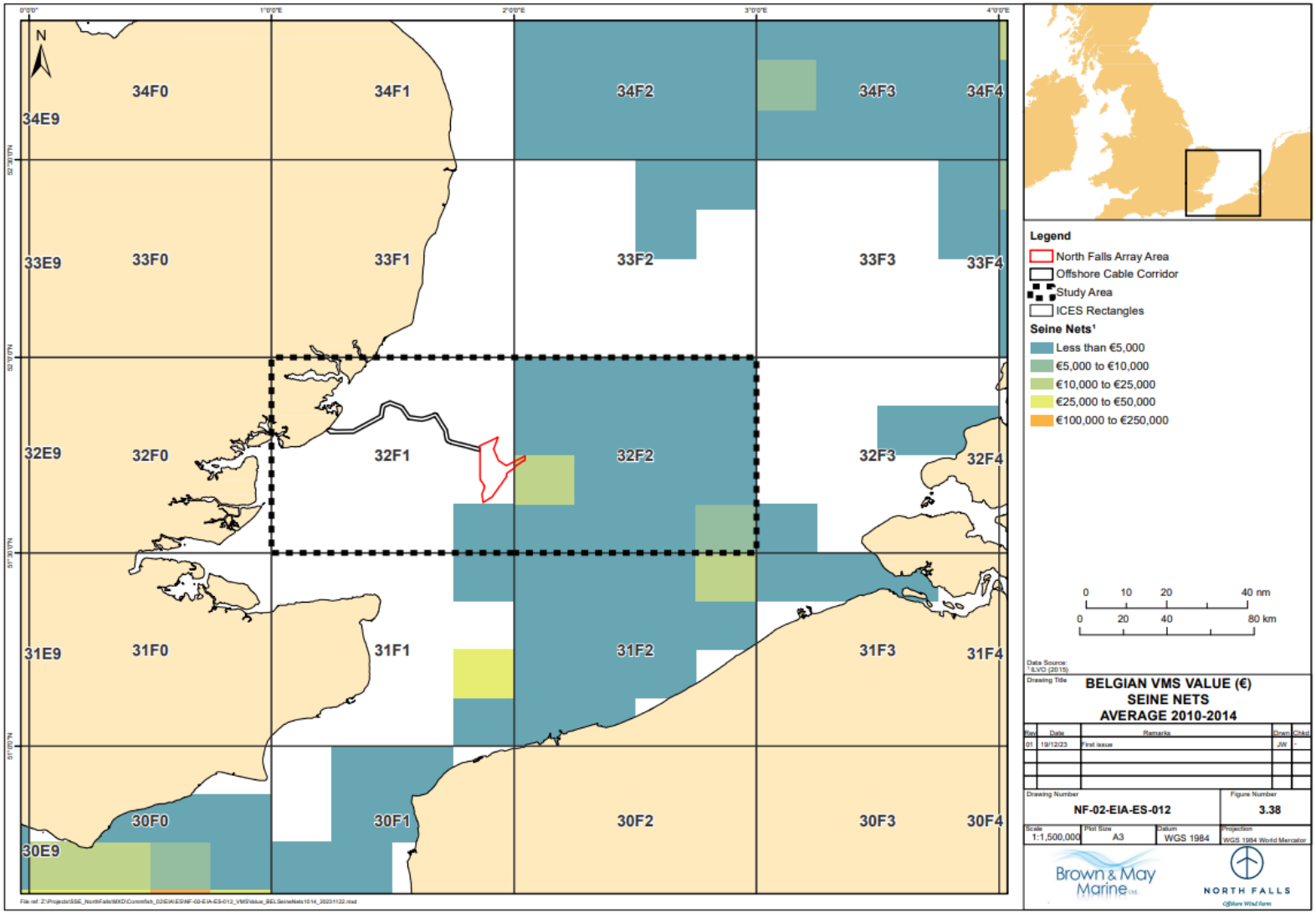


Figure 6.37 Belgian VMS (€) Seine Nets (Average 2010 - 2014) (Source: ILVO, 2015)

6.3.2 Vessels, Gear and Operating Patterns

In areas relevant to the offshore project area, fishing activity by Belgian vessels is predominantly by beam trawlers and demersal trawlers. The majority of the activity of the Belgian fishing fleet is focused in the southern North Sea and English Channel, with approximately 65 active vessels (ICES, 2021). Sole is the dominant species in terms of value, while plaice is the dominant species in terms of landings weights. Other important species targeted by the Belgian fleet in the North Sea include Nephrops, anglerfish, turbot, shrimp, lemon sole, common cuttlefish, squid, rays, and cod (ICES, 2021).

The majority of beam trawlers active in the area around the offshore project area are classed as 'Eurokotters' (Figure 6.39). These vessels have main engines of just under 300HP that are allowed to fish within 12nm of the coast (STECF, 2021). Most of this class of vessel operate from Oostende and typically land their catches once a week in Belgian ports on a Thursday, sell their catch on Friday

During consultation it was noted that the Belgian fleet can be further categorised into (i) larger vessels, (ii) smaller vessels (including Eurokotters) and (iii) the coastal fishery (closer to the continental coastline). The larger vessels, which make up most of the Belgian demersal trawlers operating in the study area, typically fish for between 7 – 10 days before landing.

Some seasonality is clear. The Belgian representative stated that most Belgian fishing activity is recorded in Q1 and Q4 of the year. The available landings data indicates a seasonal fishery for beam trawls, and for plaice, however, sole showed highest landed weights in Q2, and there is no obvious trend for other species (see Figure 6.41 and Figure 6.42).

Figure 6.38 A Belgian Eurokotter (BMM, 2017)

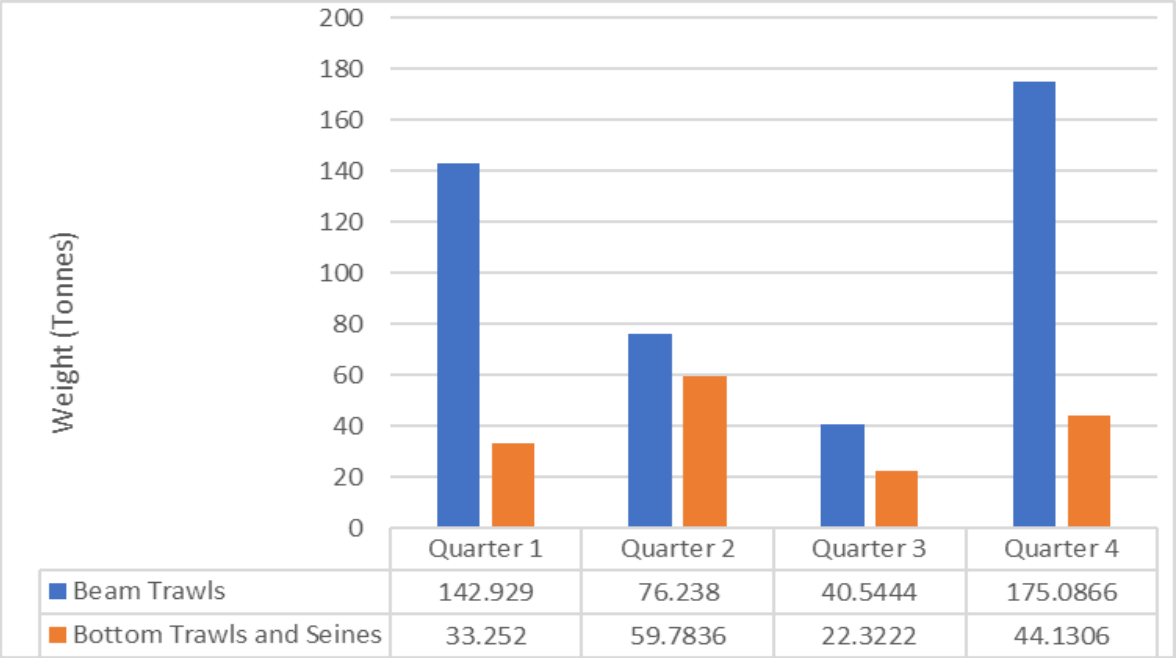


Figure 6.39 Seasonality of Belgian Landings (t) in the Study Area by Method (Average 2012-2016) (Source: STECF, 2017)

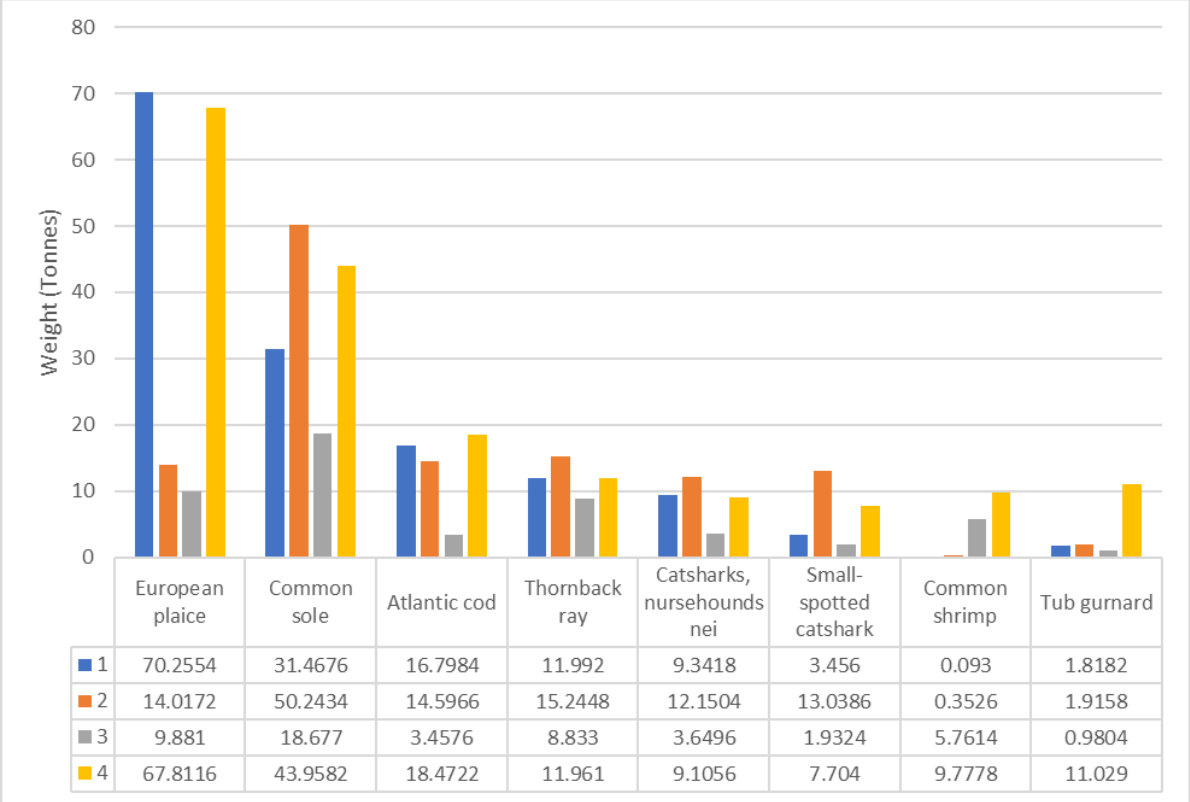


Figure 6.40 Seasonality of Belgian Landings (t) in the Study Area by Species (Average 2012-2016) (Source: STECF, 2017)

6.4 Dutch Fleet

6.4.1 Distribution of Fishing Activity

6.4.1.1 Surveillance Sightings

Dutch vessels recorded in the study area are concentrated in the south eastern section of ICES rectangle 32F1, south of the array area and are for the most part beam trawlers and other trawlers (Figure 6.43). Some Dutch beam trawlers, however, have also been sighted within the array area. Dutch vessels do not have historic rights to access the area between the 6 and 12nm in the study area and therefore can only fish sections of the offshore project area beyond the 12nm (Figure 5.3).

Whilst the majority of sightings of Dutch vessels are of trawlers, a limited number of seine netters have also been recorded in the study area. Sightings of these vessels have been recorded in rectangle 32F2, to the east of the array area, with no overlap with the offshore project area.

6.4.1.2 Landings Data

An overview of landings by Dutch vessels in each of the ICES rectangles within the study area is given by method and species in Figure 6.44 and Figure 6.45, respectively. The highest value landings within the study area are found in ICES rectangle 32F2, around 10 times higher than the next highest value in 32F1. Landings values of Dutch vessels from the study area are almost entirely from beam trawling. In rectangle 32F2, seine netting is also recorded although at lower levels (Figure 6.44).

The principal species landed in value by Dutch vessels from the study area is sole, with lower landings value from plaice and turbot (Figure 6.45). This is attributable to the higher sale price of sole compared to plaice. The “other” category will vary depending on year and method but is typically attributed to brill for beam trawls and mullet for seine nets.

It should be noted that as the Dutch beam trawlers cannot fish within the 12nm limit, the values given for rectangle 32F1 would therefore likely relate to the eastern sector of the rectangle.

A detailed analysis of landings values by species and method for the study area and for 32F1 is given in Figure 6.46 and Figure 6.47 respectively.

6.4.1.3 VMS

Analysis of VMS data for Dutch beam trawlers indicates that fishing activity by this method occurs at relatively high intensity over the majority of the southern North Sea (Figure 6.48). Within the study area, activity by these vessels takes place predominantly in ICES rectangle 32F2 in areas east of the array area, although there is overlap between Dutch beam trawling activity and the southern half of the array area. The rest of the offshore project area records negligible activity by Dutch beam trawlers.

With regard to seine netting activity by Dutch vessels, as it is apparent from Figure 6.50, there is some activity within the study area but this is focused on areas east and south of the offshore project area, with negligible activity within the array area and offshore cable corridor. The majority of seine netting activity appears to concentrate in the Channel. A similar pattern is also apparent for Dutch vessels engaged in pelagic trawling (Figure 6.51).

As indicated by Figure 6.49, Dutch demersal trawling occurs at low levels in the study area, including within the offshore project area. Activity by these vessels appears to concentrate to the south of the study area and in the central North Sea.

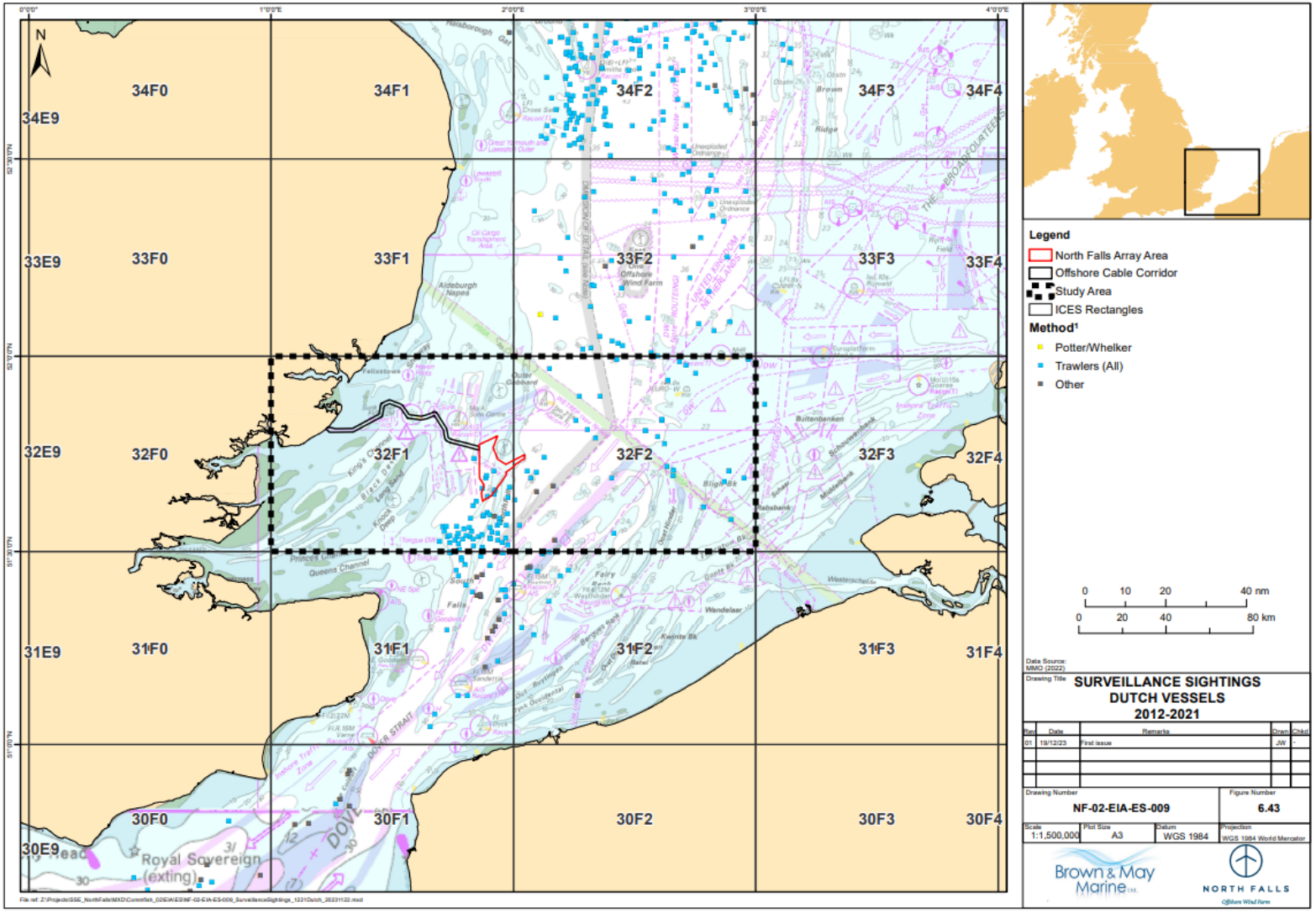


Figure 6.41 Dutch Surveillance Sightings (2012 - 2021) (Source: MMO, 2021)

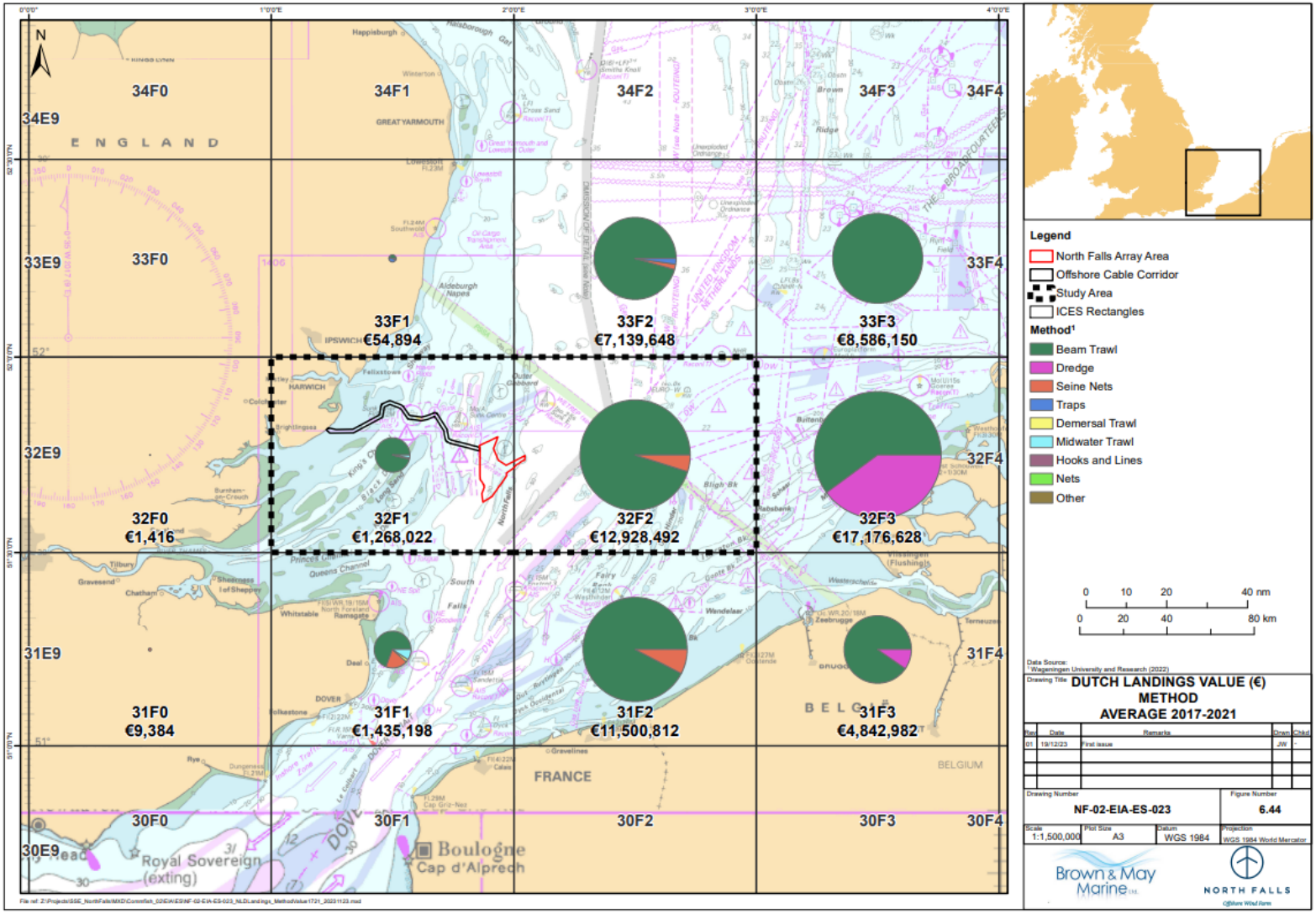


Figure 6.42 Dutch Landings (€) by Method (Average 2017 - 2021) (WUR, 2022)

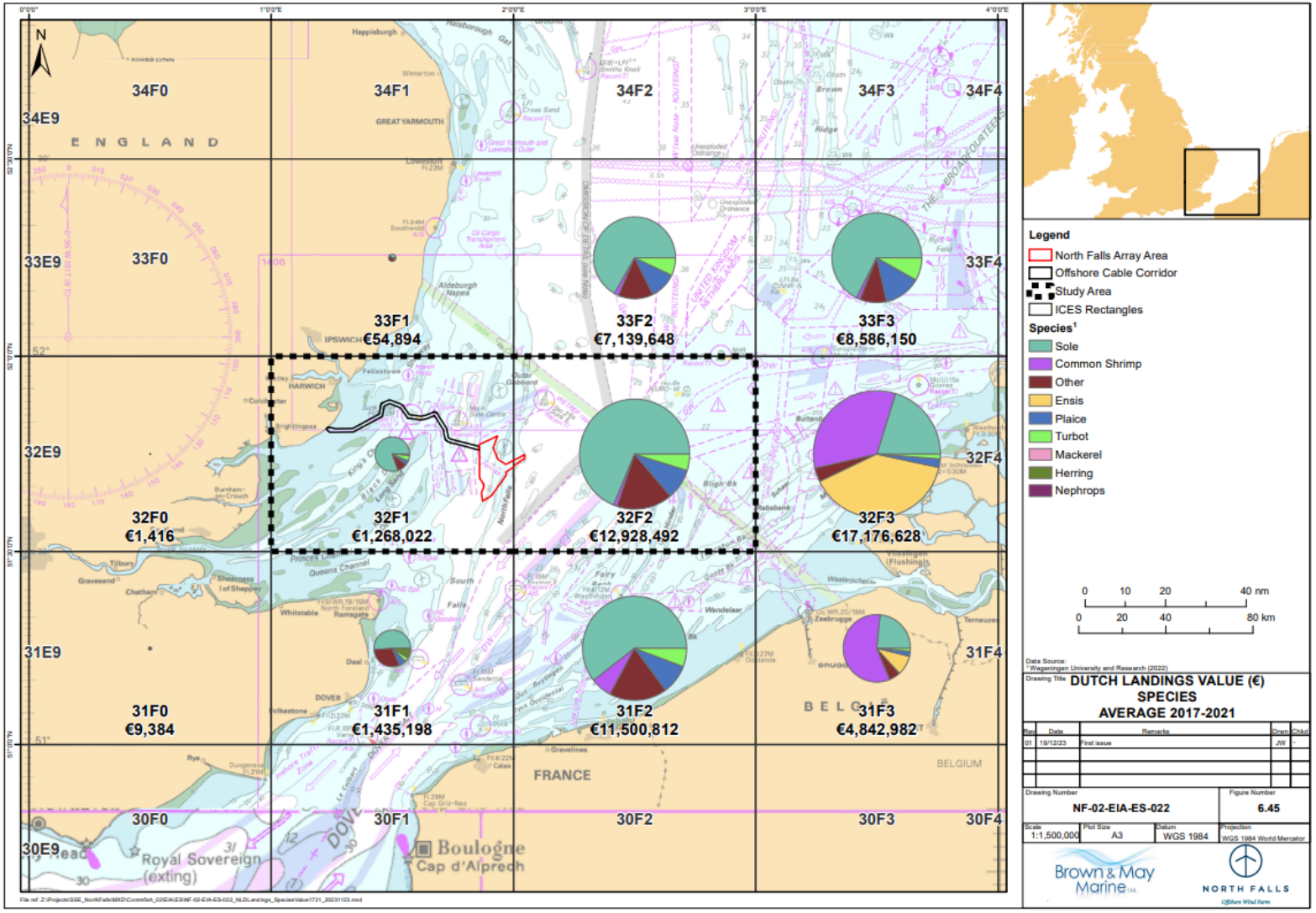
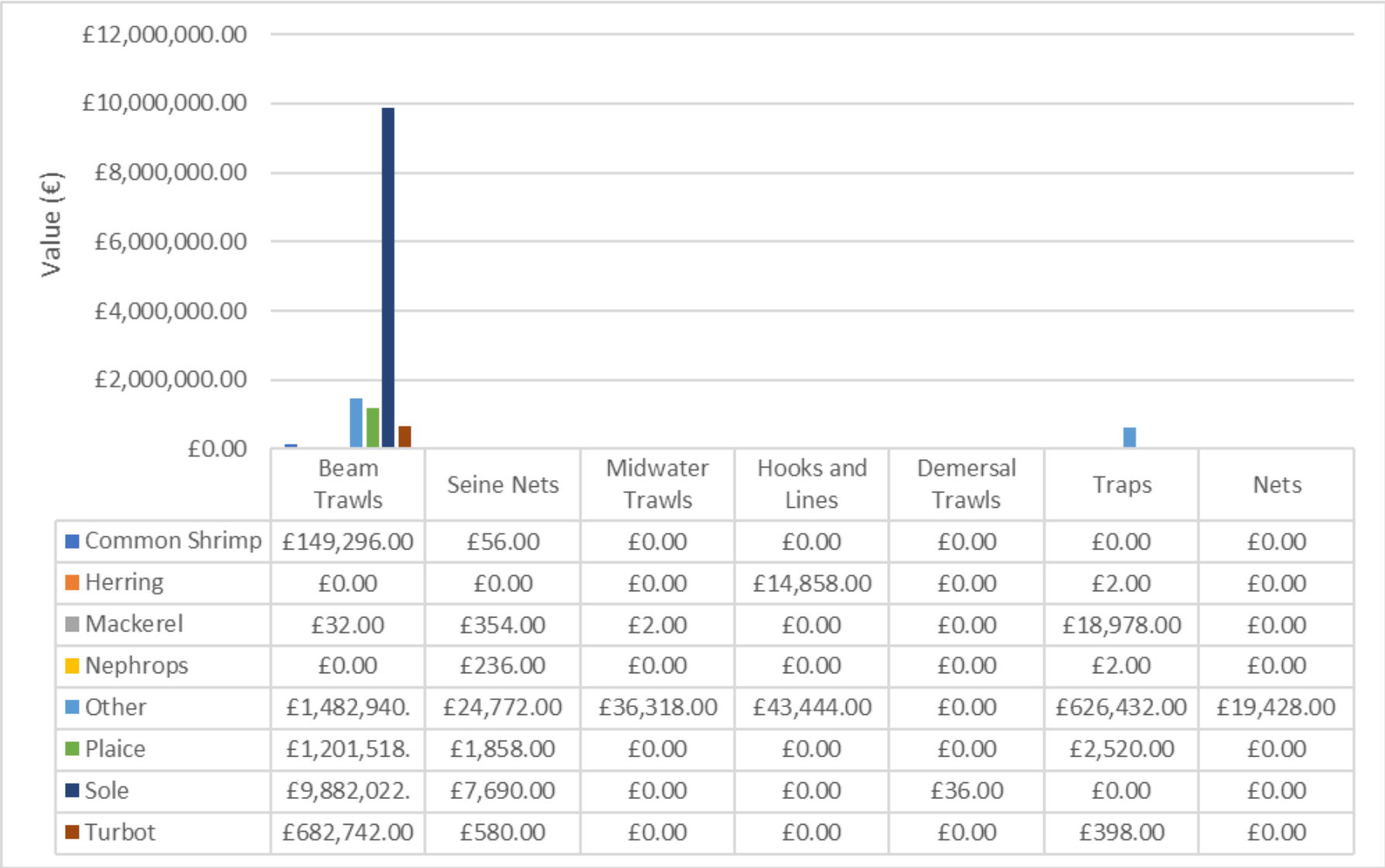
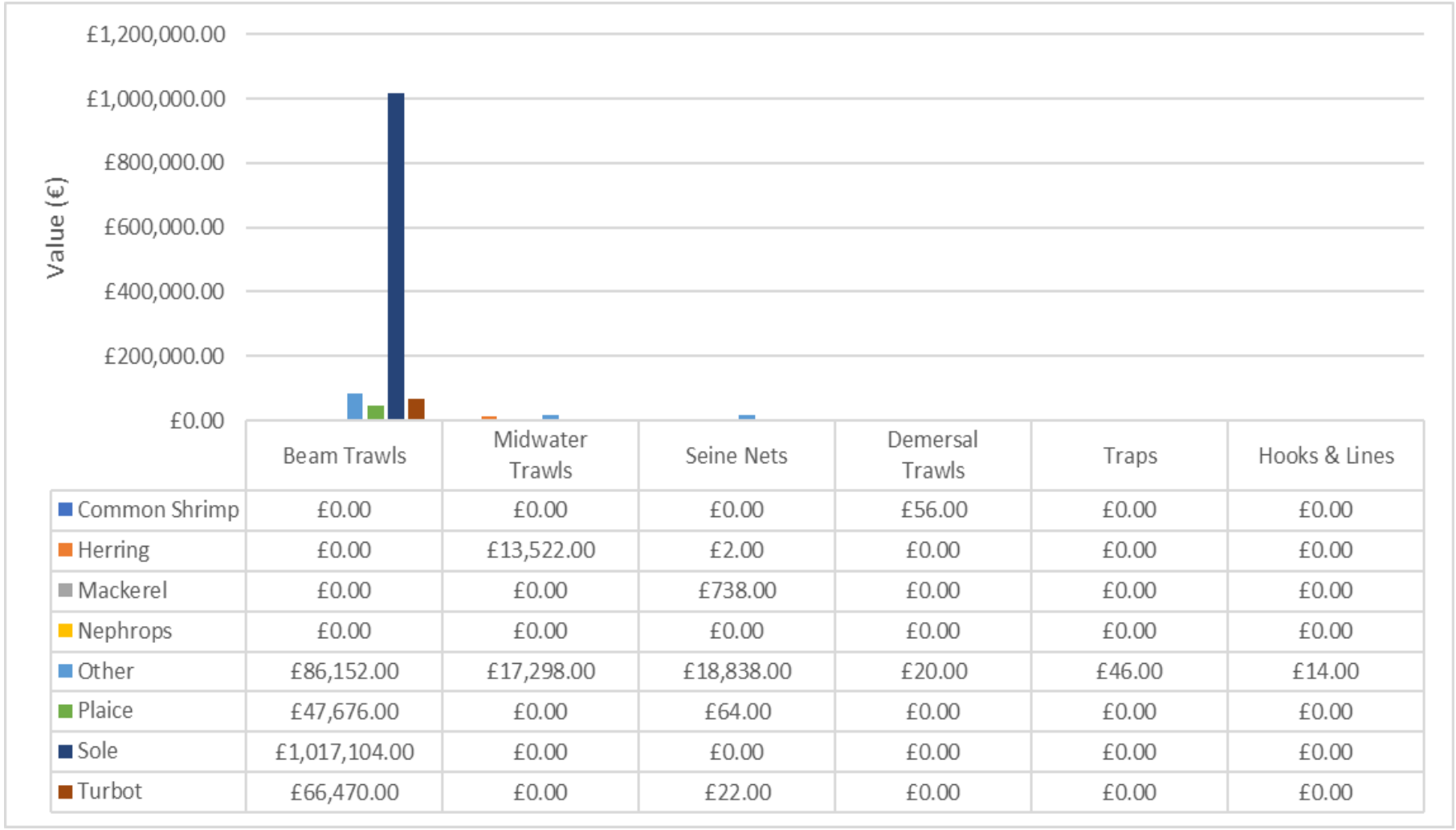


Figure 6.43 Dutch Landings (€) by Species (Average 2017 - 2021) (Source: WUR, 2022)



	Beam Trawls	Seine Nets	Midwater Trawls	Hooks and Lines	Demersal Trawls	Traps	Nets
Common Shrimp	£149,296.00	£56.00	£0.00	£0.00	£0.00	£0.00	£0.00
Herring	£0.00	£0.00	£0.00	£14,858.00	£0.00	£2.00	£0.00
Mackerel	£32.00	£354.00	£2.00	£0.00	£0.00	£18,978.00	£0.00
Nephrops	£0.00	£236.00	£0.00	£0.00	£0.00	£2.00	£0.00
Other	£1,482,940.	£24,772.00	£36,318.00	£43,444.00	£0.00	£626,432.00	£19,428.00
Plaice	£1,201,518.	£1,858.00	£0.00	£0.00	£0.00	£2,520.00	£0.00
Sole	£9,882,022.	£7,690.00	£0.00	£0.00	£36.00	£0.00	£0.00
Turbot	£682,742.00	£580.00	£0.00	£0.00	£0.00	£398.00	£0.00

Figure 6.44 Dutch Landings (€) by Species and Method in the Study Area (Average 2017 - 2021) (Source: WUR, 2022)



	Beam Trawls	Midwater Trawls	Seine Nets	Demersal Trawls	Traps	Hooks & Lines
Common Shrimp	£0.00	£0.00	£0.00	£56.00	£0.00	£0.00
Herring	£0.00	£13,522.00	£2.00	£0.00	£0.00	£0.00
Mackerel	£0.00	£0.00	£738.00	£0.00	£0.00	£0.00
Nephrops	£0.00	£0.00	£0.00	£0.00	£0.00	£0.00
Other	£86,152.00	£17,298.00	£18,838.00	£20.00	£46.00	£14.00
Plaice	£47,676.00	£0.00	£64.00	£0.00	£0.00	£0.00
Sole	£1,017,104.00	£0.00	£0.00	£0.00	£0.00	£0.00
Turbot	£66,470.00	£0.00	£22.00	£0.00	£0.00	£0.00

Figure 6.45 Dutch Landings (€) by Species and Method in ICES Rectangle 32F1 (Average 2017 - 2021) (Source: WUR, 2022)

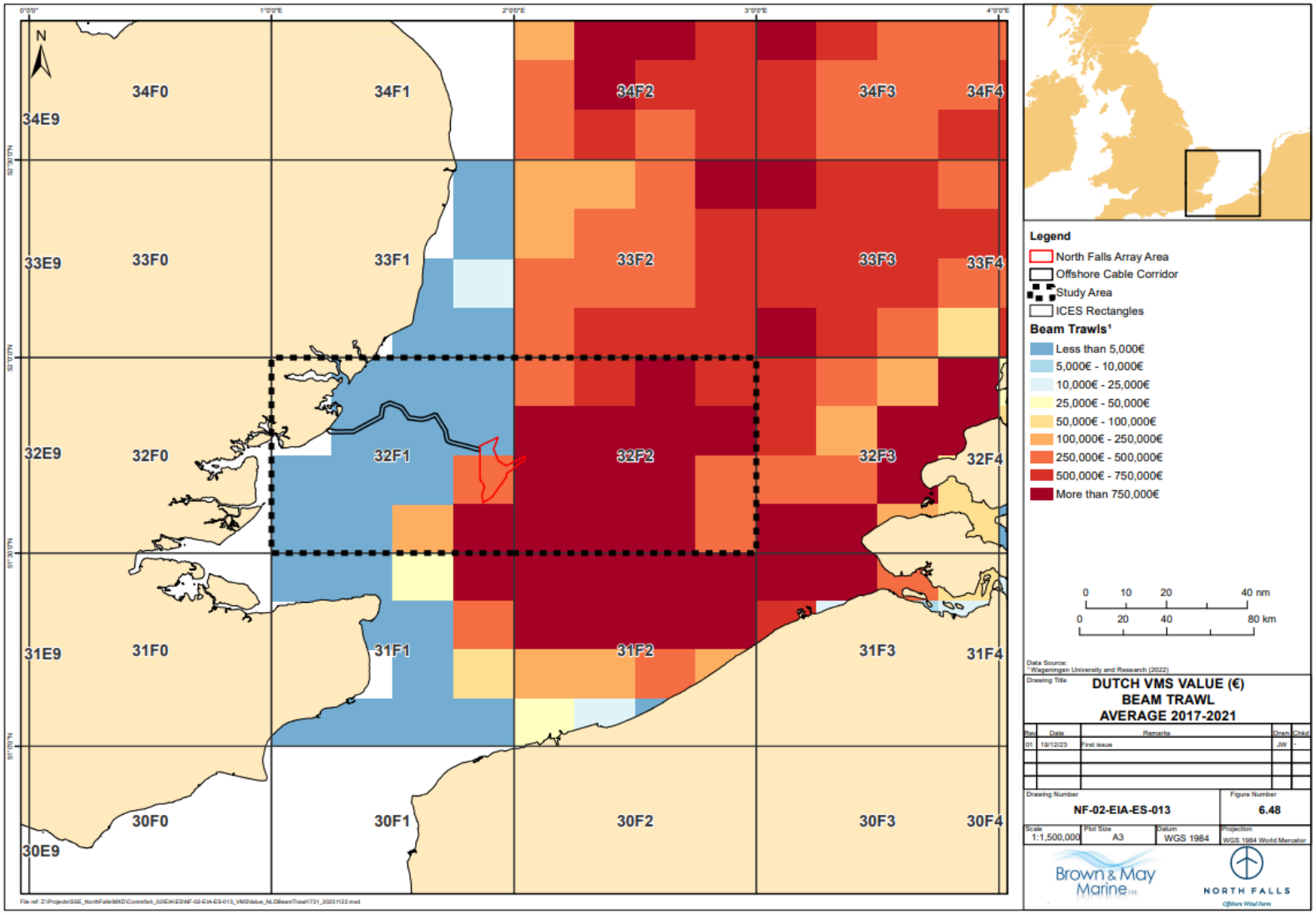


Figure 6.46 Dutch VMS (€) Beam Trawls Vessels Over 12m (Average 2017 - 2021) (Source: WUR, 2022)

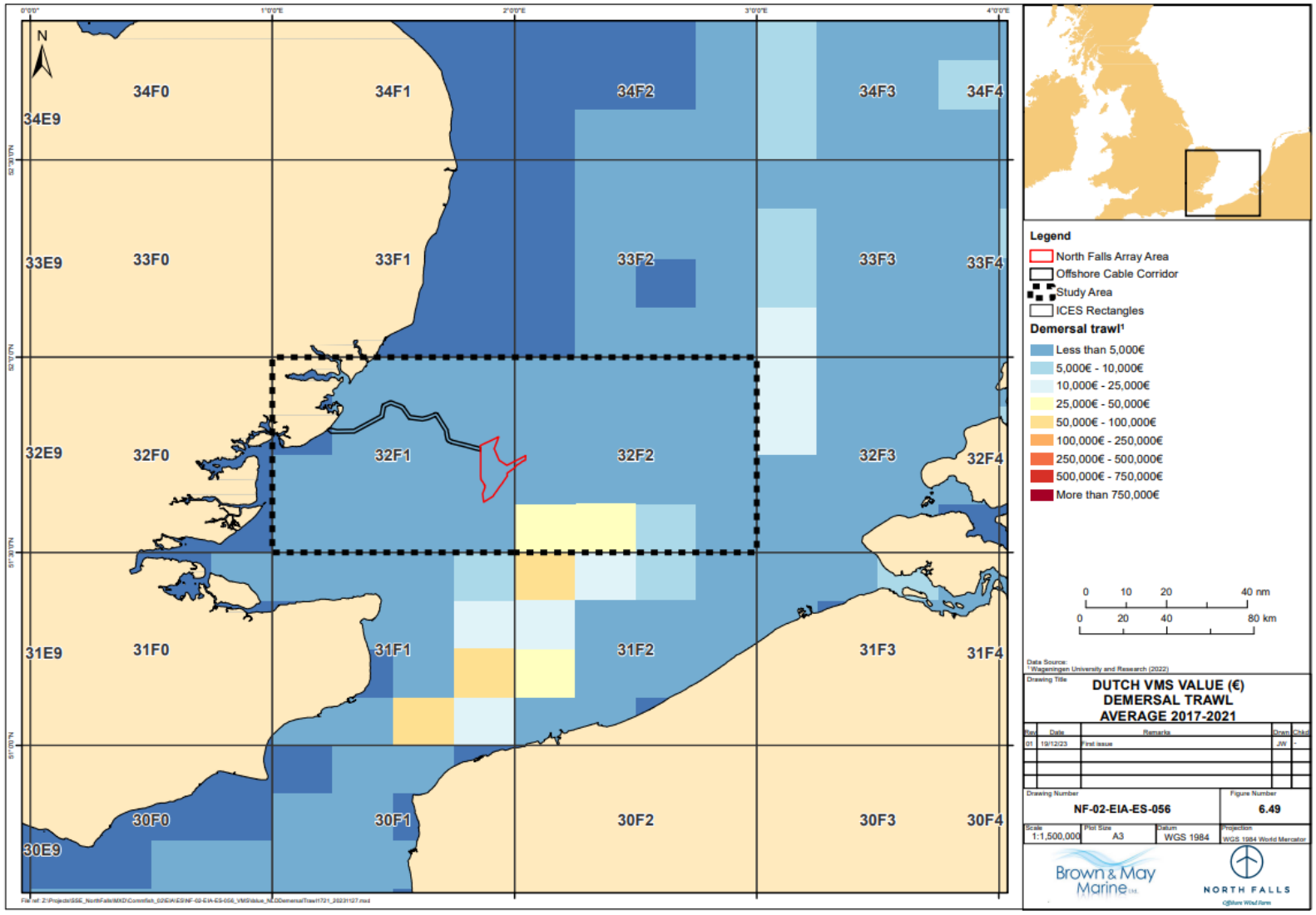


Figure 6.47 Dutch VMS (€) Demersal Trawls Vessels Over 12m (Average 2017 - 2021) (Source: WUR, 2022)

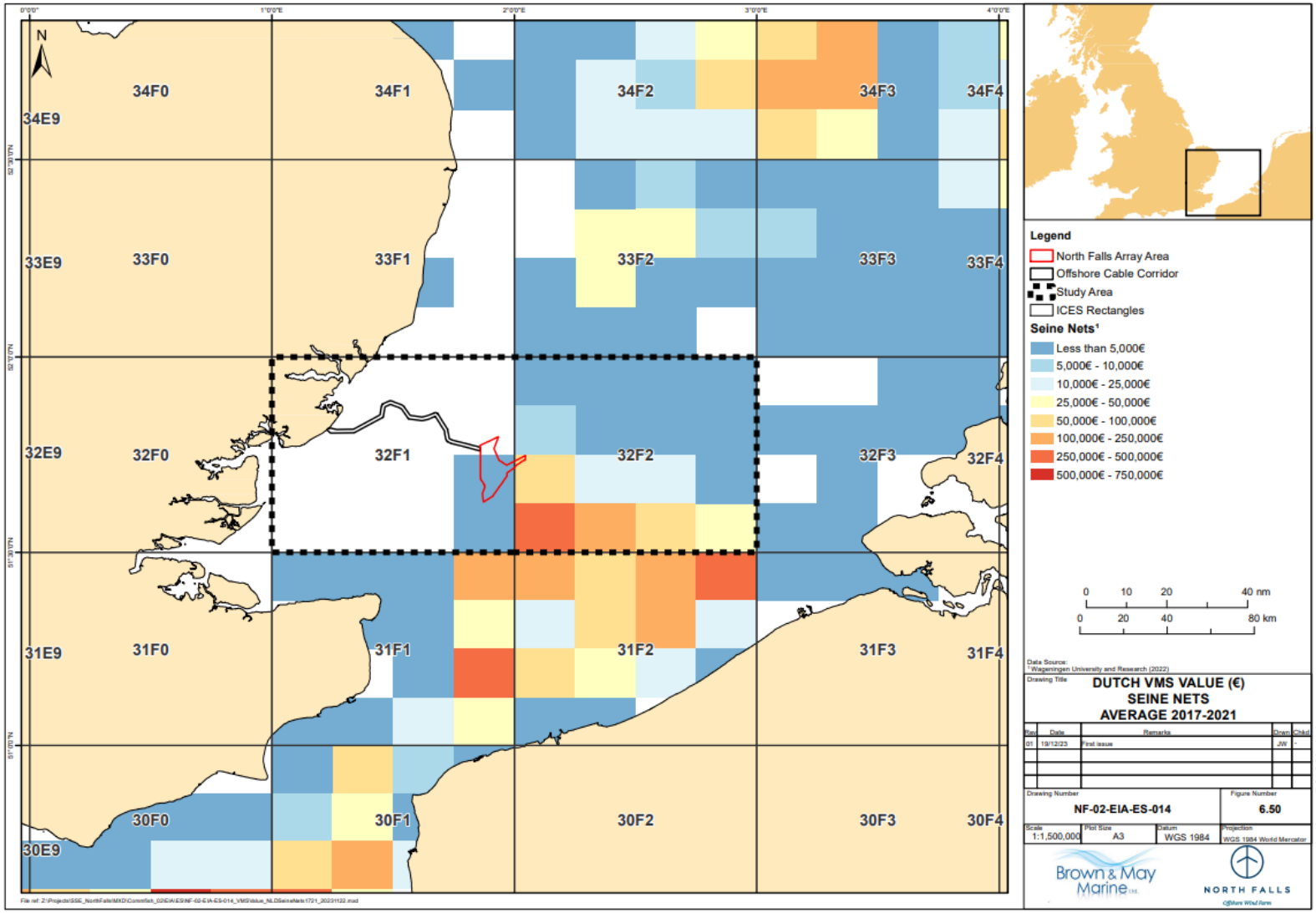


Figure 6.48 Dutch VMS (€) Seine Nets Vessels Over 12m (Average 2017 - 2021) (Source: WUR, 2022)

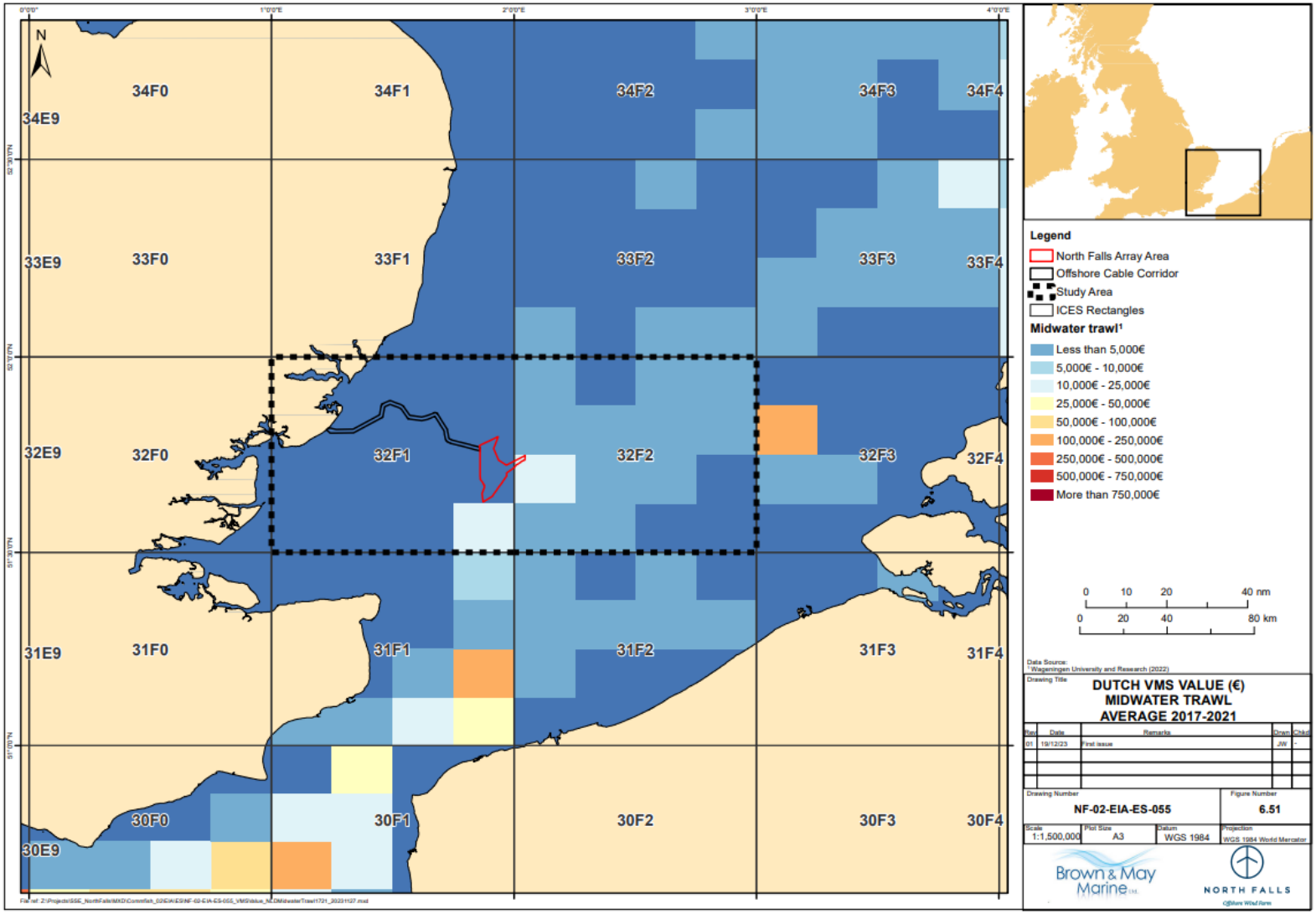


Figure 6.49 Dutch VMS (€) Midwater Trawls Vessels Over 12m (Average 2017 - 2021) (Source: WUR, 2022)

6.4.2 Vessels, Gear and Operating Patterns

The Dutch fishing fleet is one of the largest in Europe. The majority of the Dutch vessels operating in the southern North Sea are beam trawlers (known in the Netherlands as 'kotters') with lower numbers of seine netters and otter trawlers. The beam trawl fleet consists of approximately 275 vessels, targeting predominantly sole and plaice, with the majority under 24m in length (approx. 190 vessels). In the study area, the majority of Dutch vessels are over 15m in length.

The majority of Dutch beam trawlers under 24m in length in the southern North Sea have predominantly deployed pulse wings (ICES, 2021) under a 2006 derogation from the EU ban on pulse fishing implemented in 1998 (DEFRA, 2019). However, since 2015, only 84 exemptions from the EU ban on pulse wing trawling were granted to Dutch vessels (Harvey, 2018). In 2019 pulse fishing in the EU was banned completely, with the ban phased in with half of the pulse fishing licenses to be withdrawn in 2019, and the remaining in July 2021 (Regulation (EU) 2019/1241). In addition to the EU ban, the UK has additionally banned pulse fishing from taking place in UK waters following the end of the transition period in 2021. It is expected that these vessels will switch to traditional beam trawls (STECF, 2021). However, there is also likely to be a further reduction of the Dutch beam trawl fleet in 2023 following the introduction of a government purchase scheme. Of the 120 vessels targeting sole and flounder in the North Sea, it is estimated that only 40 will likely remain (NOS, 2022).

The majority of seine netters within the Dutch fleet are converted beam trawlers, the rationale for the switch to seine netting being in part due to the rise in fuel prices, as seine nets per tonne of fish caught consume considerably less fuel than beam trawlers (STECF, 2021). An example of a Dutch seine netter is given in Figure 6.52.

Figure 6.50 Dutch seine netter (Source: Trawler Photos, 2018)

6.5 French Fleet

6.5.1 Surveillance Sightings

Surveillance sightings for French fishing vessels are illustrated in Figure 6.53. As shown, very few sightings have been recorded within the study area. These concentrate primarily in ICES rectangle 32F2 and are for the most part trawlers. Only one sighting has been recorded within the offshore cable corridor and there are no records of French vessels in the array area.

6.5.2 Landings Data

French landings by weight in the study area are shown by method and species in Figure 6.54 and Figure 6.55 respectively. Landings are considerably lower than ICES rectangles to the south of the study area.

The majority of landings from the study area are from bottom trawls/seines and pelagic trawls (Figure 6.54). Landings in ICES rectangle 32F1 are primarily from pelagic trawls, whilst in rectangle 32F2 the majority of landings are from bottom trawls.

As indicated by Figure 6.55, in the study area French pelagic trawlers principally target herring, and at significantly lower levels mackerel, horse mackerel and sardine. Bottom trawlers in ICES rectangle32F2 principally target whiting as well as squid, cod, and lesser spotted catshark. It was confirmed during consultation that the available data can be still considered representative of current fishing activity, noting that squid has become an increasingly targeted species in recent years.

The pelagic vessels fish the study area between April and August, landing species such as mackerel, whiting and squid. A detailed breakdown of landings by species and method is given for the ICES rectangles in the study area in Figure 6.56 to Figure 6.58.

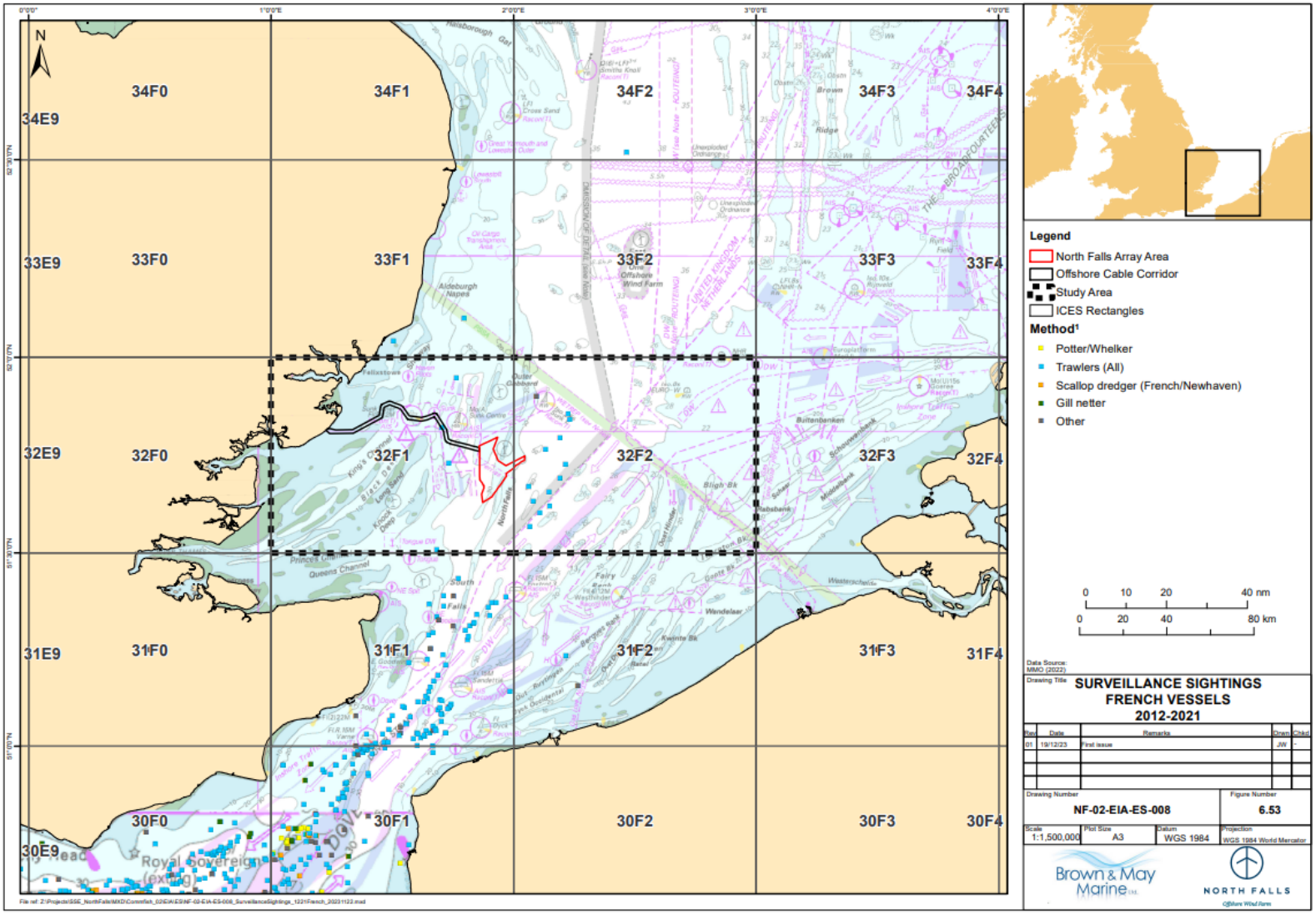


Figure 6.51 French Surveillance Sightings by Method (2012 -2021) (Source: MMO, 2021)

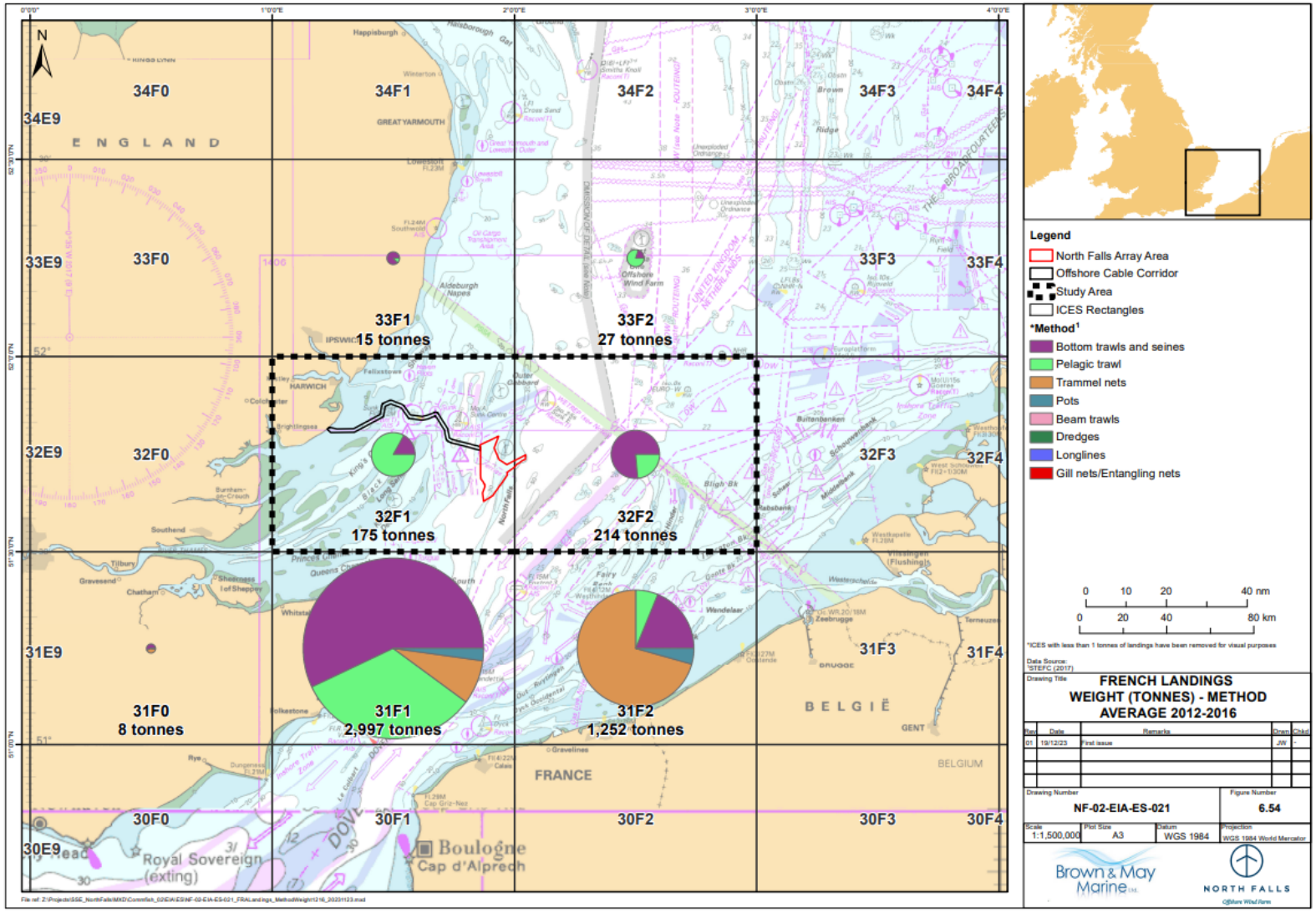


Figure 6.52 French Landings (tonnes) by Method (Annual Average 2012 - 2016) (Source: STECF, 2017)

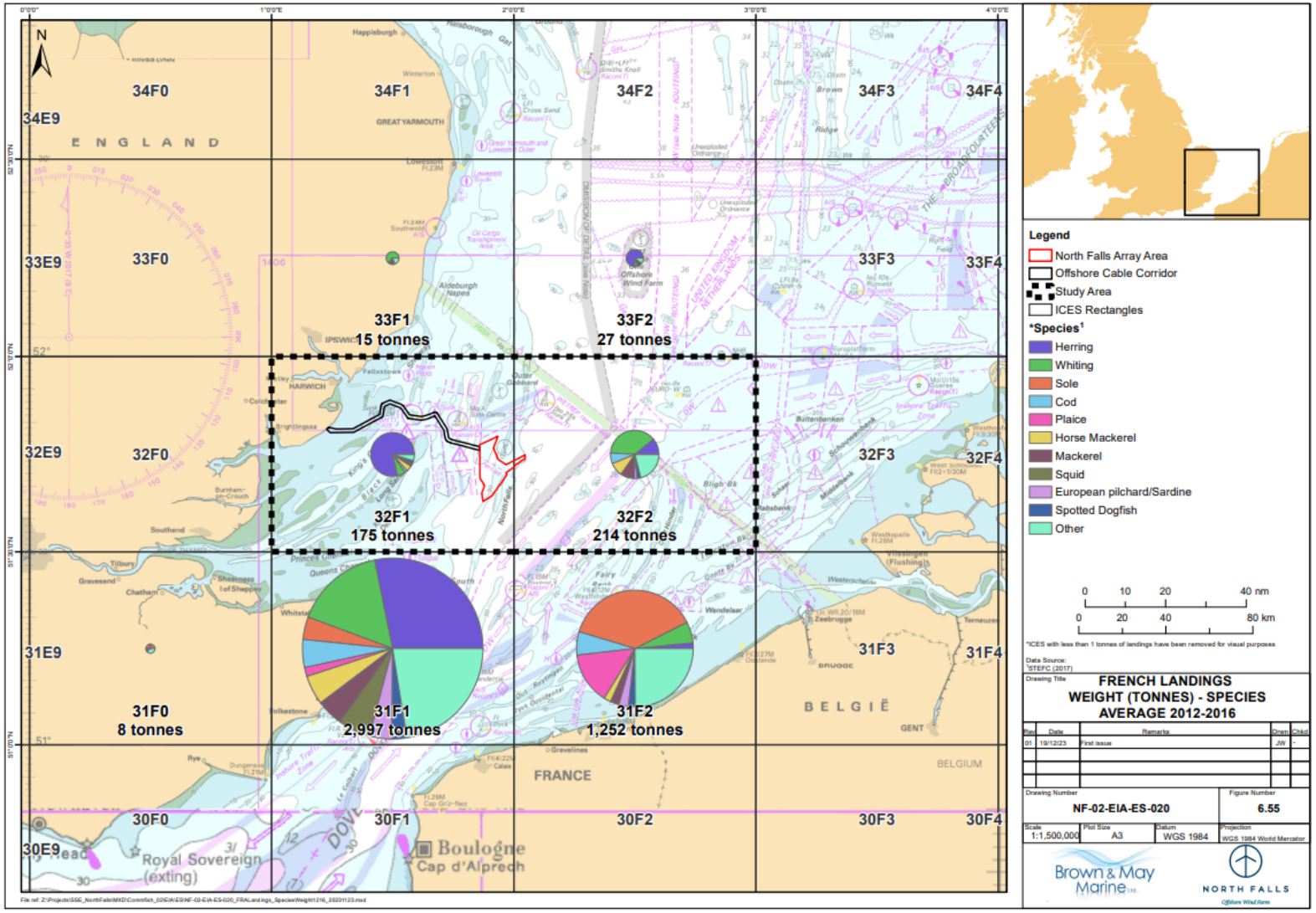
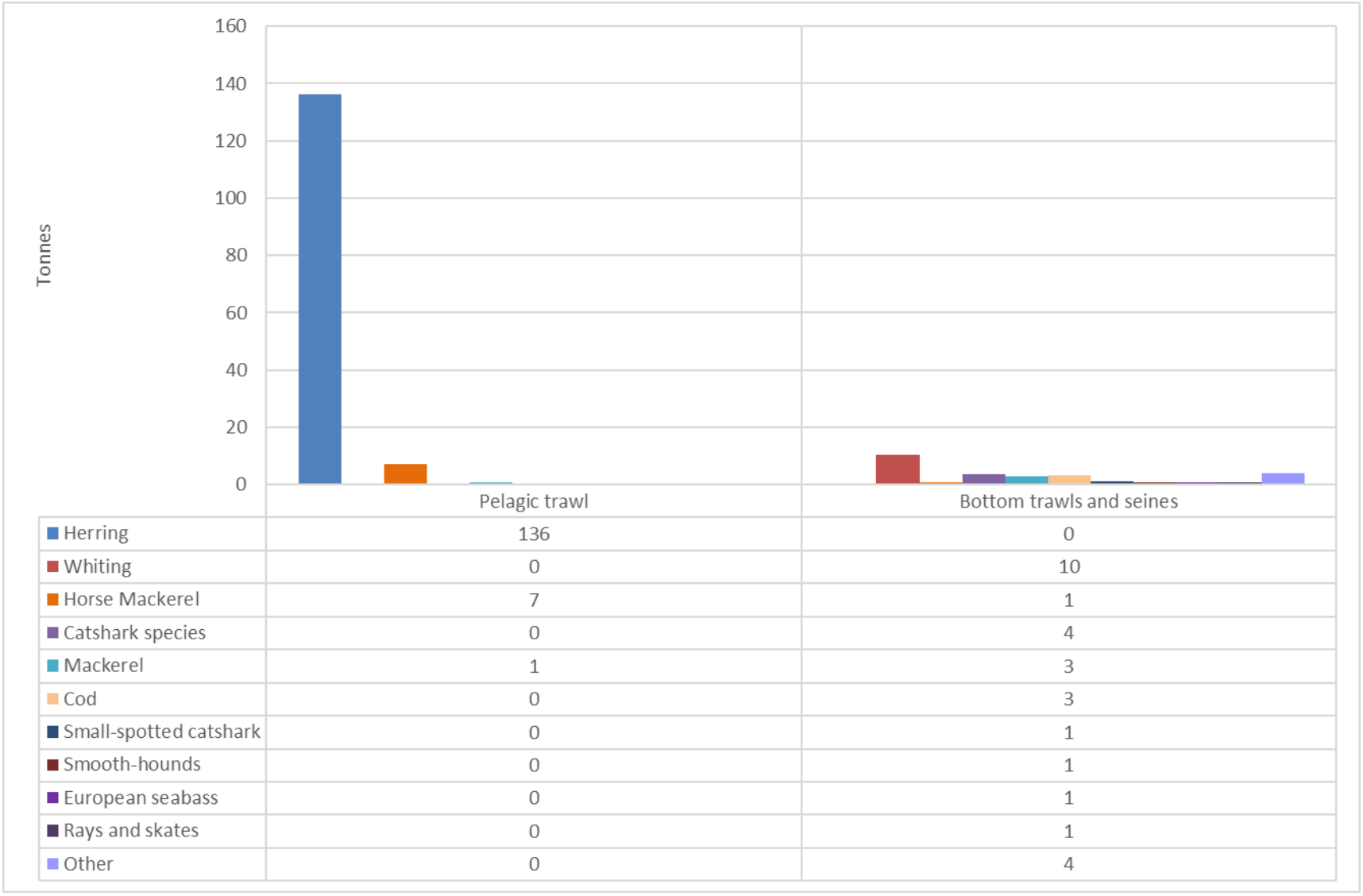
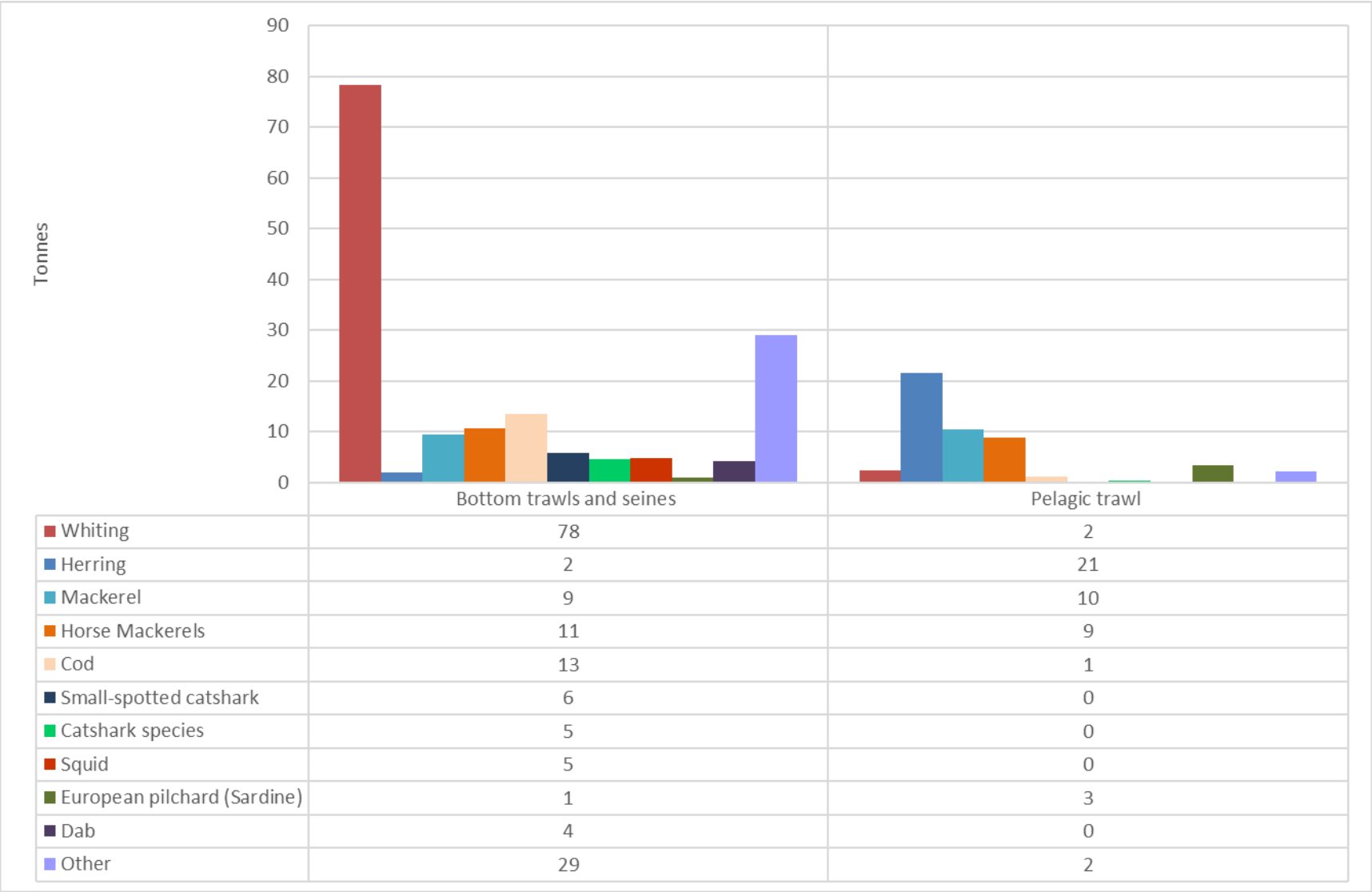


Figure 6.53 French Landings (tonnes) by Species (Annual Average 2012 - 2016) (Source: STECF, 2017)



	Pelagic trawl	Bottom trawls and seines
Herring	136	0
Whiting	0	10
Horse Mackerel	7	1
Catshark species	0	4
Mackerel	1	3
Cod	0	3
Small-spotted catshark	0	1
Smooth-hounds	0	1
European seabass	0	1
Rays and skates	0	1
Other	0	4

Figure 6.54 French Landings (tonnes) by Species and Method in ICES Rectangle 32F1 (Average 2012 – 2016) (Source: STECF, 2017)



	Bottom trawls and seines	Pelagic trawl
Whiting	78	2
Herring	2	21
Mackerel	9	10
Horse Mackerels	11	9
Cod	13	1
Small-spotted catshark	6	0
Catshark species	5	0
Squid	5	0
European pilchard (Sardine)	1	3
Dab	4	0
Other	29	2

Figure 6.55 French Landings (tonnes) by Species and Method in ICES Rectangle 32F2 (Average 2012 – 2016) (Source: STECF, 2017)

6.5.3 Vessels, Gear and Operating Patterns

As shown in the sections above, the principal methods deployed by French vessels in the offshore project area are bottom trawls and pelagic trawls. French demersal fisheries primarily operate in the southern North Sea and the eastern English Channel, with vessels between 12 – 24m, catching a range of demersal fish and cephalopod species (ICES, 2021). It was noted during consultation that the majority of French vessels are of the larger class of bottom trawlers and operate predominantly from the port of Boulogne.

The pelagic fishery is fished by three active vessels catching herring, mackerel, and horse-mackerel (ICES, 2021). During consultation it was noted that these pelagic vessels would be from Fécamp (Normandy).

An example of a French trawler is given in Figure 6.59.

Figure 6.56 French trawlers in Boulogne port (Source: BMM, 2017)

7.0 Summary

This report provides a description of the commercial fisheries baseline in relation to the North Falls offshore wind farm. The principal fishing activities of relevance to the Project have been identified through analysis of available fisheries data and from information gathered during consultation with fisheries stakeholders.

Fishing activity in the study area (ICES rectangles 32F1 and 32F2) is undertaken by vessels from a range of nationalities, including UK, Belgian, Dutch and French vessels.

In the most relevant ICES rectangle to the offshore project area; 32F1, the cable corridor is mostly targeted by local UK vessels under 15m in length that operate a range of gear including pots, trawls, nets and longlines for species such as whelks, sole, bass, thornback ray and others. A portion of these vessels are multi-purpose and switch between gears and target species depending on the time of year. There is also some Belgium beam trawling and demersal trawling over the offshore cable corridor.

The array area in 32F1 are targeted by larger UK vessels over 15m, potting for whelks and beam trawling for sole and other demersal species. The array area is also fished by Belgian and Dutch beam trawlers, Belgian demersal trawlers and French pelagic trawlers.

Activity by UK vessels is significantly lower in ICES rectangle 32F2 to the east of the offshore project area, however, there is still some activity by larger class potters targeting whelks, as well as beam trawlers and seine netters. The Dutch fishing fleet active in 32F2 is predominantly comprised of beam trawlers, and to a lesser extent seine netters, targeting sole, plaice and turbot.

The Dutch have the largest value fishery in the study area, with most of this value recorded in 32F2 and attributed to these beam trawlers. The Belgian fleet in 32F2 is also predominantly beam trawlers with high value activity, targeting sole, plaice and cod.

French vessels in the study area are principally pelagic herring trawlers, and bottom otter trawlers targeting whiting and haddock. French activity is undertaken at considerably lower levels than other nationalities.

8.0 References

DEFRA (2019). EU vessels prevented from electric shock fishing post Brexit. Available at: https://www.gov.uk/government/news/eu-vessels-prevented-from-electric-shock-fishing-post-brexit. Accessed: 07/06/2022.

EMODnet (2022) European Fishing Vessels AIS.

Fisheries Act (2020) Parliament: House of Lords. Bill 2019-21.

Harvey, F. (2018). European parliament votes to end electric pulse fishing. Available at: https://www.theguardian.com/environment/2018/jan/16/european-parliament-votes-to-end-electric-pulse-fishing. Accessed: 07/06/2022.

Haupt, P. (2021). Thames Estuary Cockle Survey Report 2021. Kent and Essex Inshore Fisheries and Conservation Authority. 47 pp. Available at: https://www.kentandessex-ifca.gov.uk/website-content/cockle-report-2021-final-1652093602.pdf Accessed 23/11/2022

Haupt, P. (2022). Spatial distribution and stock review of cockles in the Kent and Essex ICFA district. Available at: https://cocklereview.kentandessex-ifca.gov.uk/sites/default/files/2022-03/Spatial%20distribution%20and%20stock%20review%20of%20cockles%20in%20the%20Kent%20and%20Essex%20ICFA%20district.docx. Accessed 08/12/2022.

ICES (2021). Greater North Sea Ecoregion – Fisheries Overview. Available at: https://figshare.com/articles/report/Greater_North_Sea_ecoregion_Fisheries_overview/18639791/1. Accessed 06/06/2022.

ILVO (2015) Belgian Fishing Activity for vessels over 15m in length (Flanders Research Institute Agricultural, Fisheries and Food Research; ILVO).

KEIFCA (2021). Review of current management and development of future management related to the cockle fisheries within the Kent and Essex IFCA District - Listening Phase Questionnaire. Available at: https://www.kentandessex-ifca.gov.uk/downloads/nov21/20211108017.pdf. Accessed 21/06/2022.

KEIFCA (2022) Surveillance Sightings.

KEIFCA (2022). North Falls Consultation Meeting 07/12/2022 – Meeting minutes.

MMO (2023). UK Sea Fisheries Statistics 2022. Available at: https://assets.publishing.service.gov.uk/media/654e277cce0b3a000d491530/UK_Sea_Fisheries_Statistics_2022_101123.pdff. Accessed 16/11/2022.

NOS (2022). NOS News: “The end is imminent for Dutch cutter fishing due to Brexit, wind turbines and diesel price” article Available at: https://nos.nl/artikel/2457991-einde-dreigt-voor-nederlandse-kottervisserij-door-brexit-windmolens-en-dieselprijs. Accessed 16/01/2023.

Scientific, Technical and Economic Committee for Fisheries (STECF) (2021). The 2021 Annual Economic Report on the EU Fishing Fleet (STECF 21-08), EUR 28359 EN, Publications Office of the European Union. Available at: https://stecf.jrc.ec.europa.eu/documents/43805/2832286/STECF+21-08+-+AER+2021.pdf/e85eedd6-8bf5-4a1d-b5ae-97f0889dabb4. Accessed 07/06/2022.

Seafish (2015). Basic Fishing Methods: A Comprehensive Guide to Fishing methods written by Mike Montgomerie. https://www.seafish.org/document/?id=9f2fcd97-8bef-4c28-9185-b219b8eedf8a. Accessed: 07/06/2022

Trade and Cooperation Agreement between the European Union and the European Atomic Energy Community, of the one part, and the United Kingdom of Great Britain and Northern Ireland, of the other part, EU Commission and UK Government, 24 December 2020.

UN General Assembly, Convention on the Law of the Sea, 10 December 1982

WUR (2022) Dutch fisheries statistics (Wageningen University and Research; WUR).

9.0 Annex 1 – Fishing Methods

9.1 Beam Trawling

Beam trawling targets flatfish species, predominantly sole and plaice. Other species are also caught but to a lesser extent.

Traditional beam trawls comprise a steel beam held above the seabed to a height of up to approximately 50cm in by shoes at each end, onto which a net is attached. The beam is towed using chain bridles that attach to each of the shoes and gear and is towed from the vessel's outrigger booms on either side of the vessel. Tickler chains strung between the shoes ahead of the net ground line are used to disturb fish to rise from the seabed substrate into the path of the mouth of the net. When operating in areas of hard, rocky substrate, chain mats are used comprising a lattice of chains attached to the beam to hang down across the mouth of the net.

Beam trawls can range in length from four to twelve metres. Fully rigged (in air) weights of beam trawls used in the area can vary from four to six tonnes, although there has been a move to reduce weights and therefore drag in light of increasing fuel costs.

Towing directions are influenced by a number of factors such as seabed contours, tidal flow direction, weather and the need to avoid fasteners.

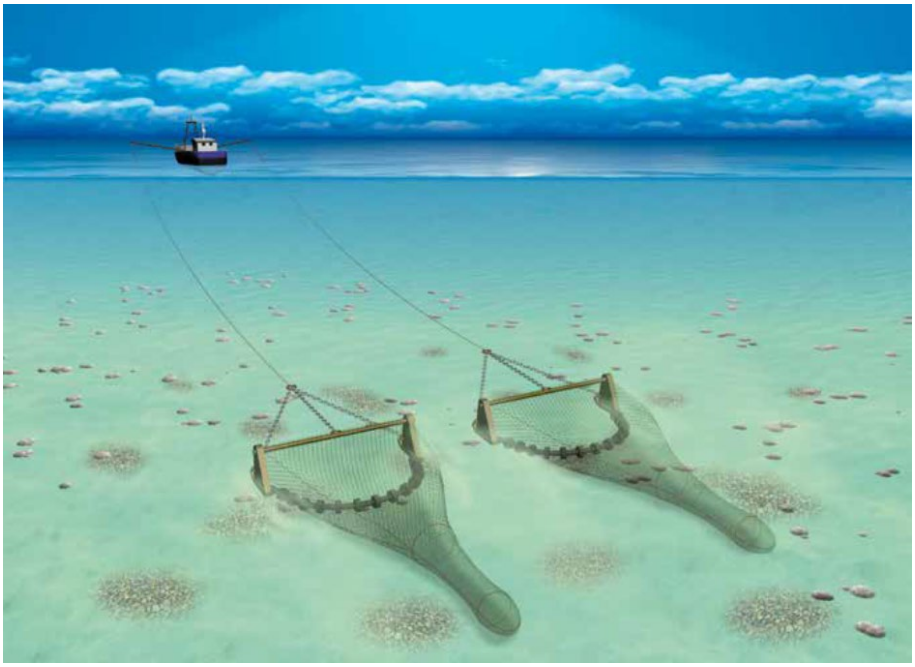


Figure 9.1 Beam Trawl (Source: ©Seafish, 2015)

9.1.1 Beam Trawl - Sumwing

Sumwing trawling replaces the beam with an aero foil shaped beam ('wing') without any beam shoes at the ends. The wing creates lift as it is towed through the and is designed to skim about 600mm above the seabed with a standard beam trawl net behind it. This gear is often combined with the pulse trawl system.

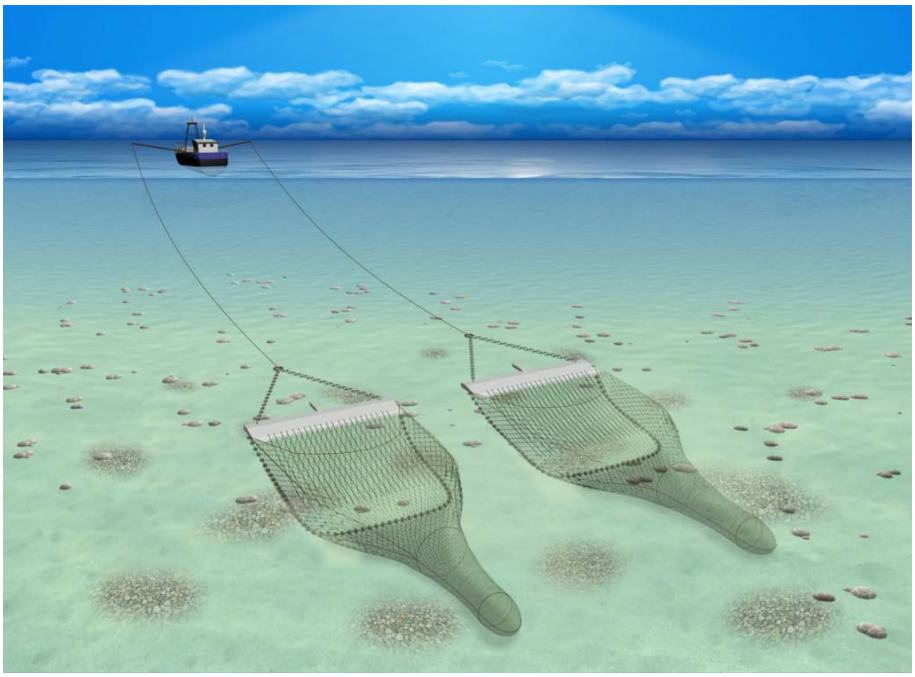


Figure 9.2 Sumwing Trawl (Source: ©Seafish, 2015)

9.2 Seines

Seine nets are deployed over clean seabeds free of obstructions for the capture of a range of demersal species. The seine ropes are laid on the seabed in a triangular pattern with the net located in the middle of the base of the triangle. Following deployment on the seabed, the initial phase involves the winching of the seine ropes so they move towards each other over the seabed. This exploits the reaction of the fish to swim away from the sediment cloud caused by the ropes moving over the seabed. Once the ropes are approximately parallel, the hauling speed is increased so that the net is hauled forwards capturing the fish that have been herded within its path. It is understood that the maximum lengths of ropes deployed each side of the net by the larger seine netters can be as much as 3km (Seafish, 2015; Pers. Comms: P. Visser, 11/04/2018).

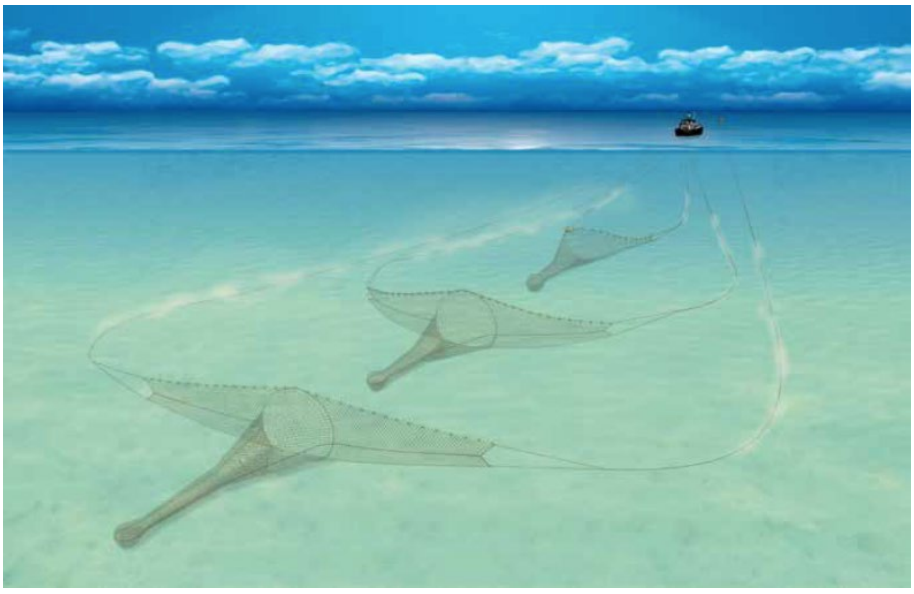


Figure 9.3 Seine Nets (Source: ©Seafish, 2015)

9.3 Bottom Trawling (otter)

9.3.1 Single Rig

The otter trawls as used by French and indeed UK trawlers are essentially a funnel shaped net towed over the seabed, with the fish being retained within the cod end. The horizontal opening of the net is achieved by a combination of the hydrodynamic and ground sheer forces acting on the trawl doors. The vertical opening of the net is maintained by a series of floats along the net headline and the base of the net kept on the seabed by the weighted ground line, which for fishing over rough ground can be fitted with a series of rubber disks known as “rock hoppers”. The effective gear width of demersal otter trawls is the distance between the trawl doors which can range from 25m for smaller vessels and up to 65m for larger vessels. Towing speeds are between 2.5 and 3.5 knots, depending on tidal state, seabed conditions and weather.

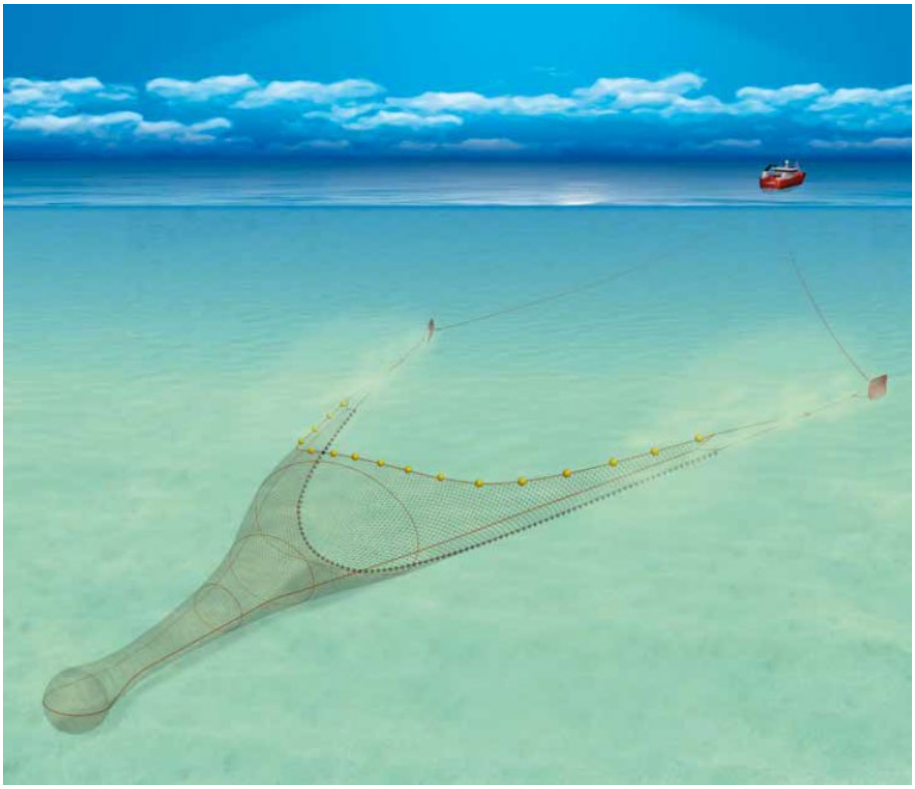


Figure 9.4 Single-rig Otter Trawl (Source: ©Seafish, 2015)

9.3.2 Twin Rig

A more common type of demersal trawling is twin-rig trawling whereby two nets are towed side by side with trawl doors attached via sweep lines to the outer wing ends of each net. The inner wing ends of the net are attached to a central clump weight which is normally towed from a third towing warp. The advantage of twin-rig trawling is the increased area of seabed trawled. Towing speeds are generally the same as for single net trawling although the effective gear width can be as much as 110m.

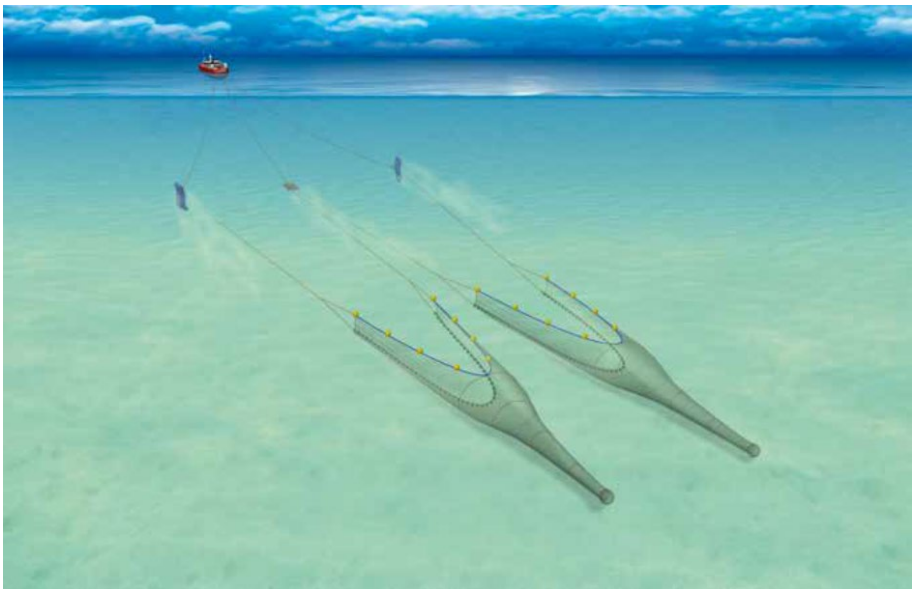


Figure 9.5 Twin-rig Otter Trawl (Source: ©Seafish, 2015)

9.4 Pelagic / Midwater Trawling

Pelagic trawling primarily targets shoaling species such as mackerel, sprats, and herring. The location of the shoals is determined by sonar or vertical sounder echoes detected by the vessels. Pelagic trawls typically have a larger opening than demersal trawls, of up to 160m deep and 240m wide, and usually are made using four panels to help them achieve a greater height than demersal trawls.

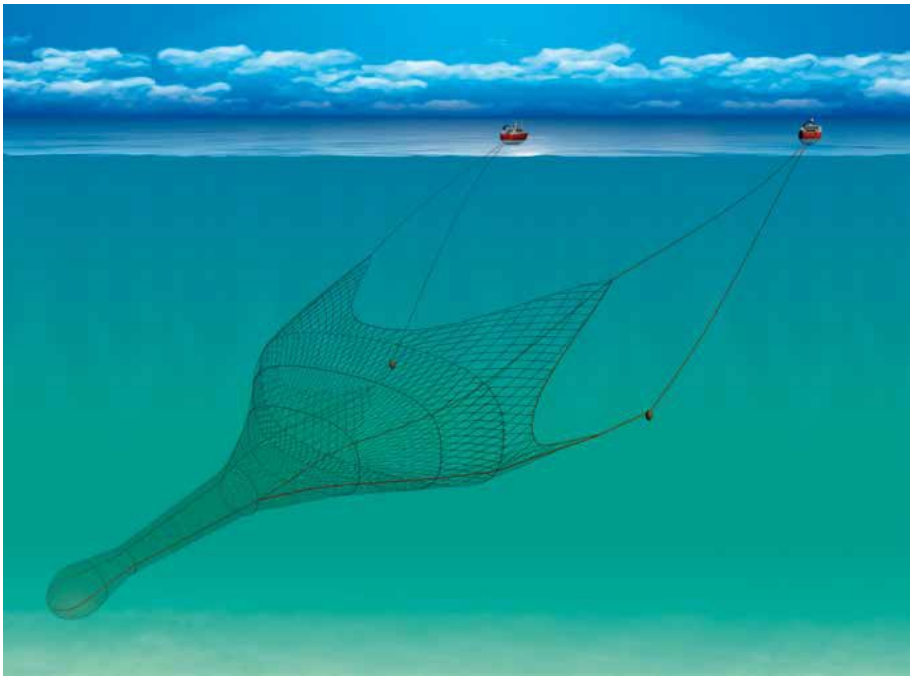


Figure 9.6 Twin-rig Pelagic / Midwater trawl (Source: ©Seafish, 2015)

9.5 Potting

Potting for crab, lobsters and whelks occurs throughout the southern North Sea. In general, crab and lobster pots have one or more "funnel" shaped entrances. Pot designs can however vary depending on region and target species. Pots can be rigged in fleets of between 10 and 50 pots per fleet, depending upon vessel size and the area to be fished. The lengths of fleets of pots may range from 100 to 500m, secured at each end with either anchors or weights. A variety of surface markers are used including flagged dhans (marker flags), buoys and cans. Soak times (the time between baiting and deployment to emptying and harvesting) generally varies from approximately 12 hours to two days, although this can be longer during periods of adverse weather.

Whelks are generally harvested using a purpose designed pot or more often, a modified and weighted 25-litre plastic drum. The number of whelk pots in a fleet can be higher than for crab and lobster, with up to 80 pots per fleet. Whelk fleets are normally of similar lengths to those used for crab and lobster potting but can be longer.

Figure 9.7 Whelk Pots (left) and "Parlour" Pots (right) used to Target Whelks and Lobsters (source: BMM 2016, 2013)

9.6 Longlining

Longlining involves a main line on to which a series of shorter lengths of line (snoods) are attached with baited hooks. Longlines can be up to several miles in length with anchors at regular intervals and at each end. This method can be used to catch both demersal and pelagic fish species but in the area under consideration it is used primarily for the capture of demersal species, such as sole, bass, thornback ray and cod. It is known to be fuel efficient and is recognised as a selective method with minimal bycatch.

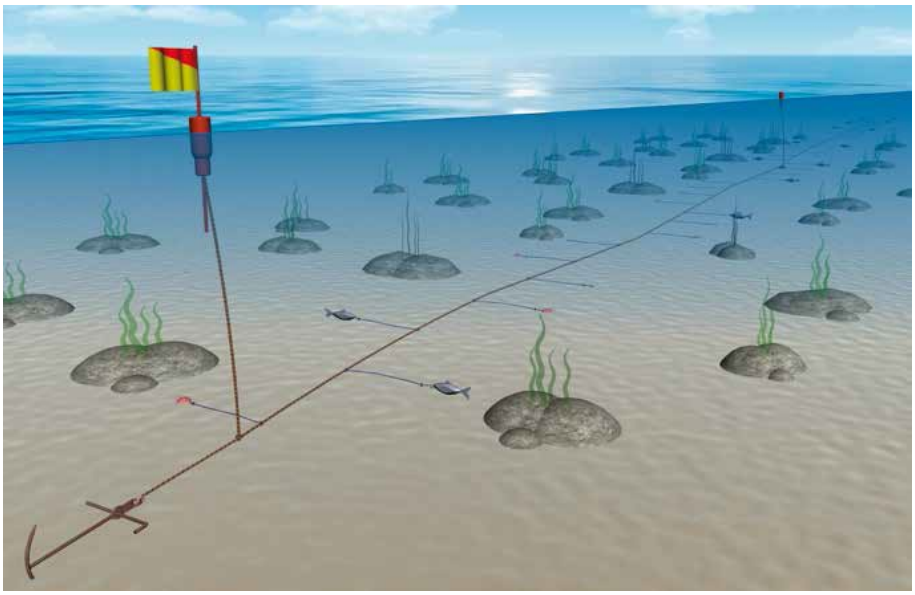


Figure 9.8 Demersal Longlines (Source: ©Seafish, 2015)

9.7 Gillnetting

Fleets of gillnets usually comprise a series of four to six 500m monofilament nets joined together. Nets can be either fixed or drifting. As with fleets of pots, each end of the fleet of nets is marked by surface marker buoys. Gillnets can either be panels of monofilament nets, also called tangle nets or trammel nets, which consist of a smaller mesh inner net with larger mesh net panels on either side. Fixed nets are set normally only during neap tides. Drift nets are deployed across the tide and left for a period of three to six hours to drift with the tidal current.

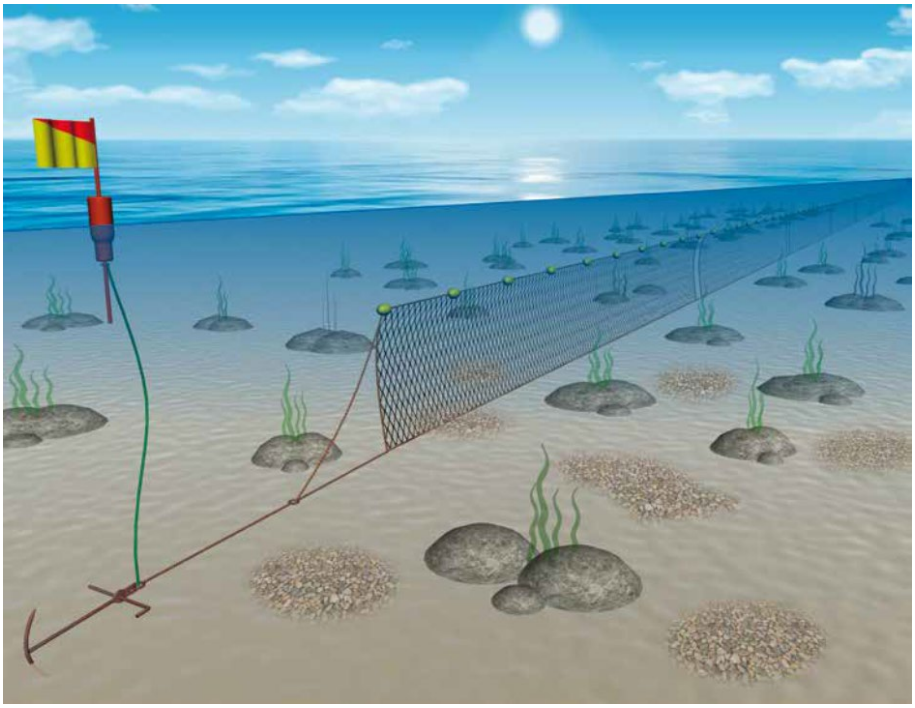


Figure 9.9 Fleet of Bottom Set Gillnets (Source: ©Seafish, 2015)

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