The Great Grid Upgrade

Sea Link

Preliminary Environmental Information Report

Volume: 2

Part 4, Offshore Scheme

Appendix 4.9.A, Commercial Fisheries Technical Report

Version A

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nationalgrid

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Abbreviations

Abbreviation	Description
AIS	Automatic Identification System
BMM	Brown and May Marine Limited
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CFFPB	Cockle Fishery Flexible Permit Byelaws
CFP	Common Fisheries Policy
COLREGS	International Regulations for Preventing Collisions at Sea
CRPMEM	Comité Régional des Pêches Maritimes et des Elevages Marins
EEZ	Exclusive Economic Zone
EU	European Union
HHFA	Harwich Haven Fishing Association
ICES	International Council for the Exploration of the Seas
IFCA	Inshore Fisheries and Conservation Authority
ILVO	Flanders Research Institute Agricultural, Fisheries and Food Research
KEIFCA	Kent and Essex Inshore Fisheries and Conservation Authority
MCZ	Marine Conservation Zone
MMO	Marine Management Organisation
MPA	Marine Protected Area
nmi	Nautical Mile
SAC	Special Area of Conservation
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
TEFCO	Thames Estuary Cockle Fishery Order
UK	United Kingdom
VMS	Vessel Monitoring System
WUR	Wageningen University and Research

Terminology

Terminology	Description
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 fish	Fish that live near or on the seabed.
Demersal trawl	A trawl net that is towed across the seabed rather than through the mid water. A single-rig trawler tows a single net, whilst a twin-rig trawler tows two nets behind the vessel. Also referred to as a (bottom) otter trawl.
Drift nets	A drift net is a static fishing method where the net is suspended in the water just below the surface.
Fleet	A number of vessels having a shared origin, purpose or area of operation
Fleet of pots	A number of pots shot in strings, where pots are attached to one long rope and laid on the seabed, with a buoy to mark the location of each end of the fleet.
Gillnet	A gillnet is a static fishing method with a single wall of netting anchored on the seabed.
ICES rectangles	Fisheries data are recorded and collated by International Council for the Exploration of the Sea (ICES) statistical rectangles. ICES rectangles provide a grid covering the area between 36°N and 85°30'N and 44°W and 68°30'E
Offshore Scheme Boundary	The presently anticipated maximum extent of seabed within which the proposed development may take place.
Longlines	A longline consists of a long length of line, with multiple branch lines with baited hooks on attached at regular intervals. This can be set either on the seabed to target demersal species or in the water column to target pelagic species.
Mobile gear	Any form of fishing gear that operates by being towed or moved through the water (i.e. demersal/otter trawls, midwater trawls, pelagic trawls, beam trawls, scallop dredgers).
Otter trawl	A trawl net fitted with two ‘otter’ boards which maintain the horizontal opening of the net.
Pelagic trawl	A pelagic trawl targets fish in the water column and is held open by a set of trawl doors. By altering the vessel speed and or changing the length of trawl warp between the vessel and the trawl doors, the position of the net in the water column can be altered to suit the depth where the shoals of fish are swimming at.

Scottish seine nets	The net, which forms a rounded triangle shape, is hauled in by a vessel using its engine to hold position
Static gear	Any form of fishing gear that operates without being towed or moved through the water (i.e. crustaceans pots, long lines, set nets, traps).
The Applicant	National Grid Sea Link.
The Offshore Scheme	Offshore elements of the Proposed Project.
The Proposed Project or 'Sea Link'	Sea Link, including all onshore and offshore infrastructure.
The 'study area'	The area within ICES rectangles 32F1, 32F2 and 33F1.
Trammel net	Similar to a gillnet but made up of three layers of netting.
VMS	A satellite-based monitoring system which at regular intervals provides data to the fisheries authorities on the location, course and speed of vessels
6 nmi limit	Inshore fishing boundary
12 nmi limit	Outer limit of the UK's territorial seas

4.9.A Commercial Fisheries Technical Report

4.9.A.1 Introduction

4.9.A.1.1 This Technical Report describes the commercial fisheries baseline in relation to the National Grid Electricity Transmission plc (National Grid) Sea Link Project ('the Proposed Project').

4.9.A.1.2 The Proposed Project involves the reinforcement of the electricity transmission system in the South East of England and East Anglia. This would be achieved by reinforcing the network with a predominantly High Voltage Direct Current (HVDC) Link between the proposed Friston substation in the Sizewell area of Suffolk and the existing Richborough to Canterbury 400 kV overhead line close to Richborough in Kent. This reinforcement would be approximately 145 km long, comprising of a principally offshore HVDC link.

4.9.A.1.3 The entirety of the Offshore Scheme currently located within the United Kingdom's (UK's) 12 nautical mile (nmi) limit. Due to the proposed location of the Offshore Scheme, other European Union (EU) nationalities have rights to fish these areas, primarily the French and Belgian fleets. Therefore, in order to inform the fisheries baseline, data and information have 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.

4.9.A.2 Study Area

4.9.A.2.1 Fisheries data are recorded and collated by International Council for the Exploration of the Sea (ICES) statistical rectangles. The Offshore Scheme is situated within the southern North Sea in ICES division IVc, within 12 nmi of the coast.

4.9.A.2.2 The commercial fisheries study area has been defined with reference to the ICES rectangles within which the Offshore Scheme Boundary is located. As shown in Figure 4.9.A.2.1, these are as follows:

- ICES rectangle 33F1, which contains the Suffolk landfall as well as the northern section of the Offshore Scheme Boundary;
- ICES rectangle 32F1, which contains the mid-section of the Offshore Scheme Boundary and
- ICES rectangle 31F1, which contains the Kent landfall, as well as the southern section of the Offshore Scheme Boundary.

4.9.A.2.3 The study area defined above has been used to identify fisheries active in areas relevant to the Offshore Scheme. Where appropriate, data and information have been analysed for wider areas to provide context and describe the wider extent of activity of relevant fisheries.

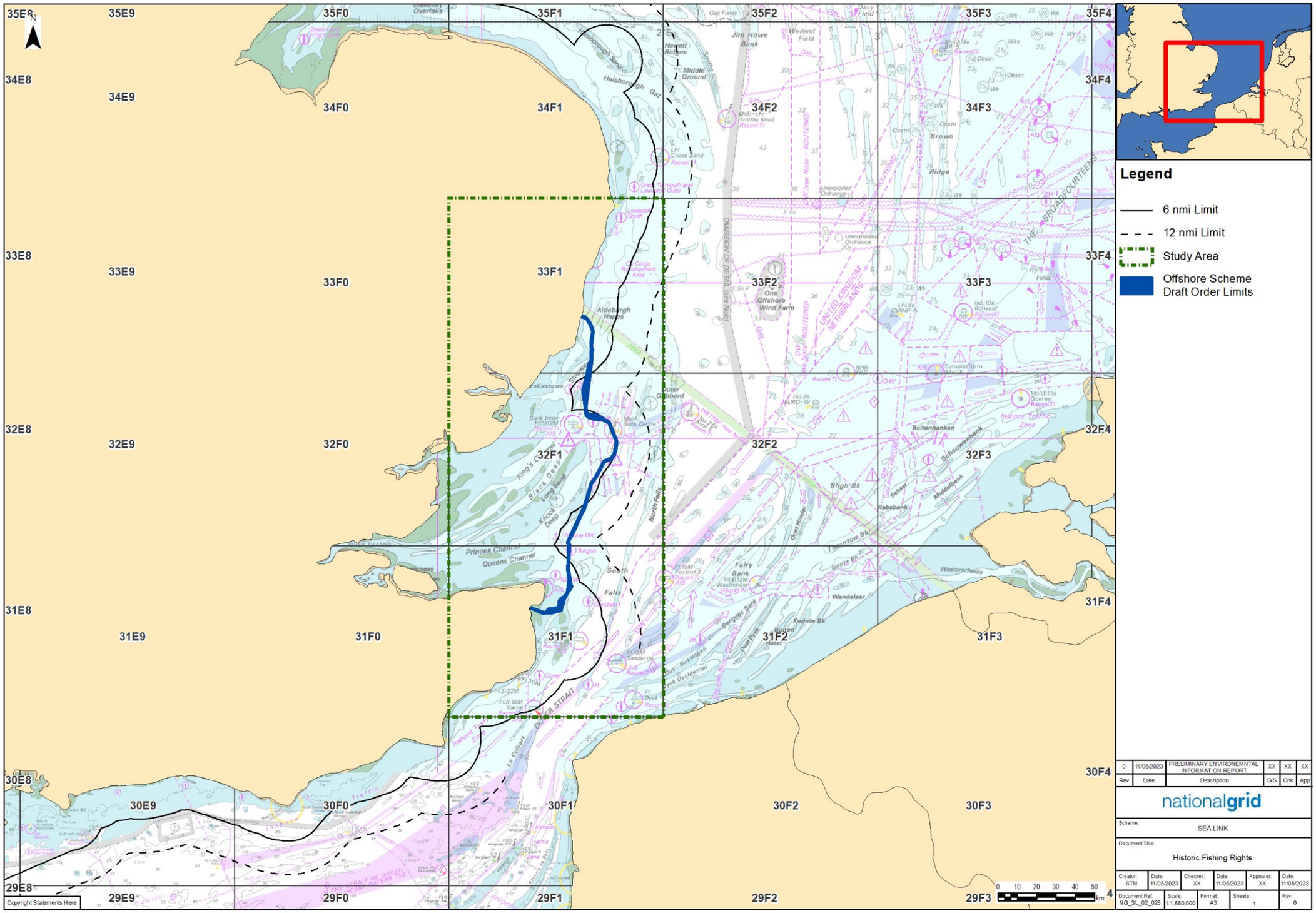


Figure 4.9.A.2.1: Study Area

4.9.A.3 Data and information sources

4.9.A.3.1 The principal sources of data to inform this baseline are outlined in Table 4.9.A.3.1.

Table 4.9.A.3.1 Key datasets used to inform the baselines

Dataset	Coverage	Notes/Limitations
Marine Management Organization (MMO). (2022). UK Landings Data by ICES Rectangle.	Landings statistics data for UK-registered vessels including: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type and live weight (value (£)). Years Covered: 2017 - 2021	Landings data have been analysed by value (£) and presented as an annual average for the period 2016 – 2020. 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 Scheme is located supports. As described in the UK Sea Fisheries Statistics 2020 Report (Ref 9.1)), 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.
MMO. (2022). UK Fisheries Surveillance Sightings.	Surveillance sightings of vessels by gear type (all nationalities) recorded in UK waters by surveillance patrols. Years Covered: 2012 - 2021	Only sightings of vessels recorded as “fishing” have been included in the analysis. While the data provides a good indication of key methods and nationalities potentially active in each 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.
MMO. (2021). Fishing Activity for UK Vessels 15m and over Data layers.	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 logbook data with values assigned to each cell in the grid in terms of effort and value (£). Years Covered: 2016 - 2020	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 annual averages for the period 2016 – 2020. Fishing gear categories used in the dataset do not allow to distinguish activity between some fisheries. This dataset is provided by broad gear category and does not differentiate between target species.
Flanders Research Institute Agricultural, Fisheries and Food Research; (ILVO). (2015). Belgian Landings Data by ICES Rectangles.	Landings statistics data for Belgian-registered vessels including: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type and live weight (value (€)). Years covered: 2010-2014	Belgian landings (€) by ICES rectangle based on data submitted by Belgium to the ILVO. The same limitations noted above in relation to UK landings data by ICES rectangle also apply here.
ILVO. (2015). Belgian Fishing Activity for Vessels Over 15m in Length.	Belgian VMS data combined with logbook data presented at 1/16th of an ICES rectangle scale. Years Covered: 2010 - 2014	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 value (€) for the period 2010 - 2014. Recent VMS data for Belgian vessels is not publicly available. The data presented in this report is part of Brown and May Marine Limited (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 after numerous follow ups, has yet to receive the new data.

Wageningen University and Research. (WUR). (2022). Dutch Fishing Activity for vessels over 12m in length	Dutch VMS data combined with logbook data presented at 1/16th of an ICES rectangle scale. Years Covered: 2017 - 2021	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.
WUR. (2022). Dutch Landings by ICES Rectangle	Landings statistics data for Dutch-registered vessels including: landing year; vessel length category; ICES rectangle; vessel/gear type; species; and landings (€). Years Covered: 2017 - 2021	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.
European Commission’s (EC) Scientific, Economic and Technical Committee on Fishing (STECF). (2017). French Landings by ICES Rectangle	Landings statistics data French-registered vessels including: landing year; landing quarter; vessel length category; ICES rectangle; vessel/gear type; species; and landings (tonnes). Years Covered: 2012 - 2016	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.
Kent and Essex Inshore Fisheries and Conservation Authority (KEIFCA). Cockle Management Areas	Kent and Essex IFCA District Years Covered: 2015 – 2020.	Limited to areas within the district and therefore within 6 nmi. Provides details of the Cockle Fishery Flexible Permit Byelaw and Thames Estuary Cockle Fishery Order.
EMODnet. (2022). European Fishing Vessels Automatic Identification System (AIS)	All European Fishing Vessels, Average MW Fishing Hours. Year Covered: 2022.	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 oversees surveying existing data sources for a given activity. The available data includes tracks of vessels at all speeds.

4.9.A.4 Consultation

4.9.A.4.1 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 the previous section, 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 4.9.A.4.1.

Table 4.9.A.4.1 Summary of consultation

Consultees	Role/Organisation	Consultation Date (start and end date)
Consultation event	CFWG	20/07/2021 – 20/07/2021
Consultation event	CFWG	06/10/2022- 06/10/2022
Fisher 1	Felixstowe Ferry Fishermen's Association	21/03/23 - 21/03/2023 (first contact through FFFA
Fishers 2 and 3	Aldeburgh Fishing Association	08/02/2023 – 29/03/2023
Fisher 4	Orford and District Fishermen's Association	08/02/2023 - 13/03/2023
Fishers 5 and 6	Whitstable Fishing Association	08/02/2023 – 29/03/2023
Fisher 7	Felixstowe Ferry Fishermen's Association (FFFA)	08/02/2023 - 01/03/2023
Fisher 8	Lowestoft Fishermen's Association	23/02/2023 - 29/03/2023
Fisher 9	Southwold Fishermen's Association	08/02/2023 - 24/02/2023
Meeting with FFFA members	Felixstowe Ferry Fishermen's Association	01/03/2023 – 29/03/2023
Fisher 10	West Mersea Fishermen's Association	08/02/2023 – 29/03/2023
Fisher 11	Southwold Fishermen's Association	14/03/2023 – 29/03/2023
Fisher 12	Felixstowe Ferry Fishermen's Association	13/03/2023 – 29/03/2023
Visned	Visned (Dutch PO)	16/03/2023 – 29/03/2023

Fisher 13	Felixstowe Ferry Fishermen's Association	08/02/2023 - 28/02/2023
Rederscentrale	Rederscentrale (Belgian PO)	16/03/2023 – 29/03/2023
CRPMEM	Comité Régional des Pêches Maritimes et des Elevages Marins (CRPMEM (French PO))	16/03/2023 – 29/03/2023
Fishers 14, 15 and 16	Lowestoft Fishermen's Association	08/02/2023 – 29/02/2023
Fisher 17	Independent, Aldeburgh	08/02/2023 - 17/02/2023
Fisher 18	Southwold Fishermen's Association	08/02/2023 - 02/03/2023
Fisher 19	Lowestoft Fishermen's Association	08/02/2023 - 21/03/2023
Fisher 20	Thanet Fishermen's Association	08/02/2023 – 29/03/2023
Fisher 21	Orford and District Fishermen's Association	08/02/2023 - 21/02/2023
Fisher 22	Felixstowe Ferry Fishermen's Association	08/02/2023 - 02/03/2023
NFFO	NFFO	16/03/2023 – 29/03/2023
Fishers 23 and 24	Independent, Sizewell	08/02/2023 - 21/02/2023
Fisher 25	Southwold Fishermen's Association	08/02/2023 - 13/03/2023
Fisher 26	Orford & District Fishermen's Association	08/02/2023 - 02/03/2023
Fisher 27	Southwold Fishermen's Association	08/02/2023 - 28/02/2023
Fisher 28	Southwold Fishermen's Association	08/02/2023 - 23/02/2023
Fisher 29	Southwold Fishermen's Association	08/02/2023 - 22/02/2023
Fisher 30	Southwold Fishermen's Association	08/02/2023 - 09/03/2023
Fisher 31	Lowestoft Fishermen's Association	08/02/2023 - 06/03/2023
Fisher 32	Lowestoft Fishermen's Association	08/02/2023 - 06/03/2023
Fisher 33	Harwich Haven Fishermen's Association	08/02/2023 – 29/03/2023

Eastern IFCA	Eastern Inshore Fishery and Conservation Authority	21/03/2023 – 29/03/2023
Kent & Essex IFCA	Kent & Essex Inshore Fishery and Conservation Authority	21/03/2023 – 29/03/2023

4.9.A.5 Fisheries management and restrictions

4.9.A.5.1 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's Exclusive Economic Zone (EEZ), in waters between 12 nmi to 200 nmi. In England, the MMO is additionally responsible for territorial waters between the 6 and 12 nmi limits, with regional Inshore Fishery and Conservation Authorities (IFCAs) responsible for the area between the 0 -6 nmi limits, as detailed below in 'Regional and Local Restrictions'.

4.9.A.5.2 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.

Regional and local restrictions

4.9.A.5.3 Within the 6 nmi limit, fisheries are managed by local Inshore Fisheries and Conservation Authorities (IFCAs). IFCAs are either committees or collaborative 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 the 6 nmi limit, marine conservation and management of protected areas, sustainable management of fisheries and 'good regulation' implemented through a range of measures, including local byelaws.

4.9.A.5.4 Across the area that the Offshore Scheme Boundary encompasses there are two IFCAs which have jurisdiction, the Eastern IFCA in the northern part of the study area, and the Kent & Essex IFCA in the southern part of the study area. Relevant byelaws enforced by these IFCAs include but are not limited to:

- minimum sizes byelaws;
- permits for cockle and whelk fisheries;
- prohibition related to fishing vessel length;
- no take zones;
- prohibition of bottom towed fishing gear within prohibited areas; and
- restrictions on harvesting shellfish (oysters, mussels, cockles, clams, scallops or queens).

4.9.A.5.5 Eastern and Kent & Essex IFCA fishing restrictions, as well as marine conservation areas of relevance to the Offshore Scheme located within the study area are illustrated in Figure 4.9.A.5.1 and described in Table 4.9.A.5.1.

Table 4.9.A.5.1 Fishing restrictions and their description (Source: Kingfisher, 2022)

Restriction Name	Summary
Area A	When fishing for sea fish or shellfish, no person shall use any net or any other instrument, except when fishing from the beach or from a boat which does not exceed 17 metres in length, or when using trawl nets, dredges, or other towed fishing instruments whose total engine does not exceed 221 kilowatts. No person shall use or cause to be used for the purpose of fishing for sea fish any parlour pot of any material, unless it has at least one unobstructed escape gap per parlour. No person shall fish for or take periwinkles or winkles other than by hand picking.
Area C (0-3 nmi)	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.
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.
Bottom Towed Fishing Gear Bylaw	A person must not use a bottom trawl fishing gear within the prohibited areas.
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.
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.
Byelaw 15	Fishing vessels greater than 14 meters in length are prohibited form fishing for molluscs using any type of towed gear.
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.
Essex Estuary Bottom Trawling Byelaw	A person must not use a bottom trawl from a vessel within the prohibited areas.

River Medway Nursery Area Byelaw: Medway No Take Zone	A person must not use a bottom trawl from a vessel within the prohibited areas.
Whelk Fishery Flexible Permit Byelaw	A person must not fish for, or take by any means, sea fisheries resources within the restricted area.
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.

Cockle management area

4.9.A.5.6 The local cockle fishery is managed by the Kent & Essex IFCA under two separate orders as detailed in Figure 4.9.A.5.2 and below:

- The Thames Estuary Cockle Fishery Order (TECFO) 1994, where fishers are licence holders.
  - In 2022 there were 14 vessels licensed for the TECFO, where they could land approximately 11 tonnes per vessel per trip, fishing 2-4 trips per week until the Total Allowable Catches (TAC) were reached, and the fishery closed. The fishery normally opens in early June and generally shuts at the end of September/ early October.
  - The tonnage that a licence holder is allowed to land is determined on an annual basis and 11 tonnes are typically awarded per trip, per vessel over 'X' number of trips per week, between set dates (depending on the stock assessment).
  - The stock assessment is yet to be completed for 2023, however, the vessel numbers licenced and TACs are likely to be similar to those stated for 2022 (K & E IFCA 2023, pers. comms, 28 March).
- The Cockle Fishery Flexible Permit Byelaws (CFFPB), where fishers are permit holders.
  - In 2022 the permit fishery had between 24 and 35 vessels, with one trip permitted per year per vessel. It should be noted that this fishery does not open every year (K & E IFCA 2023, pers. comms, 28 March).
  - The Kent & Essex IFCA are waiting on the full list of applications for 2023, therefore the number of vessels with a permit for the fishery are currently unknown.
  - The number of trips per vessel has often been one trip, with the number of trips varying between years depending on the stock assessment. In recent years management is aiming to stretch the fishery over a longer period, with more trips of smaller quantities (K & E IFCA 2023, pers. comms, 28 March).

4.9.A.5.7 The stocks in the CFFPB area are surveyed each spring and, in order to be fished, need to be above levels agreed in the management plan as part of the byelaw. During

consultation, it was confirmed that area 17, situated around Pegwell Bay (Figure 4.9.A.5.2) has historically been an important area to the cockle fishery and is likely to be increasingly important in the future under the TECFO 2024 regulation order, as the grounds become available to smaller fishing vessels (K & E IFCA 2023, pers. comms, 28 March).

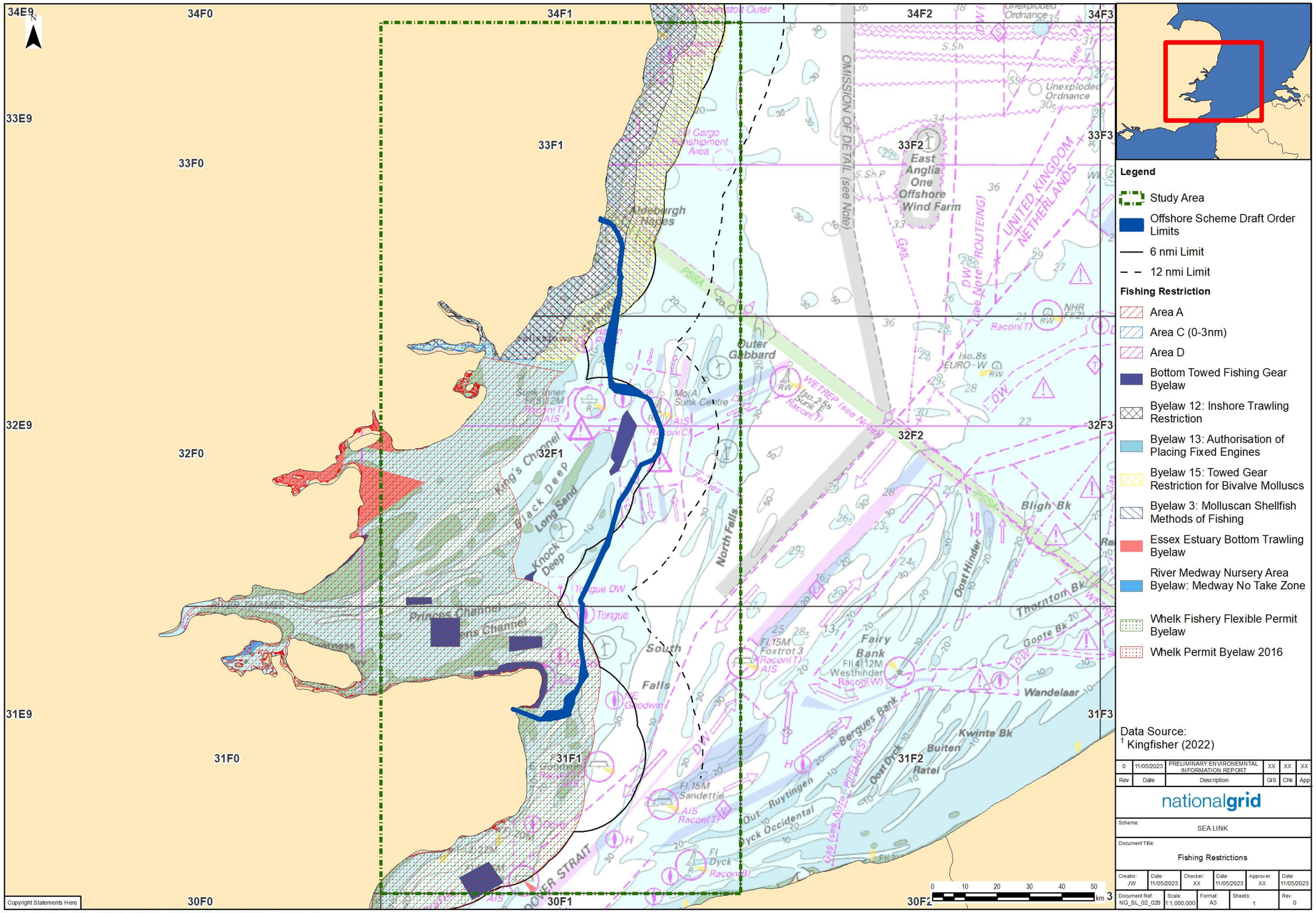


Figure 4.9.A.5.1: Fishing restrictions (Source: Kingfisher, 2022)

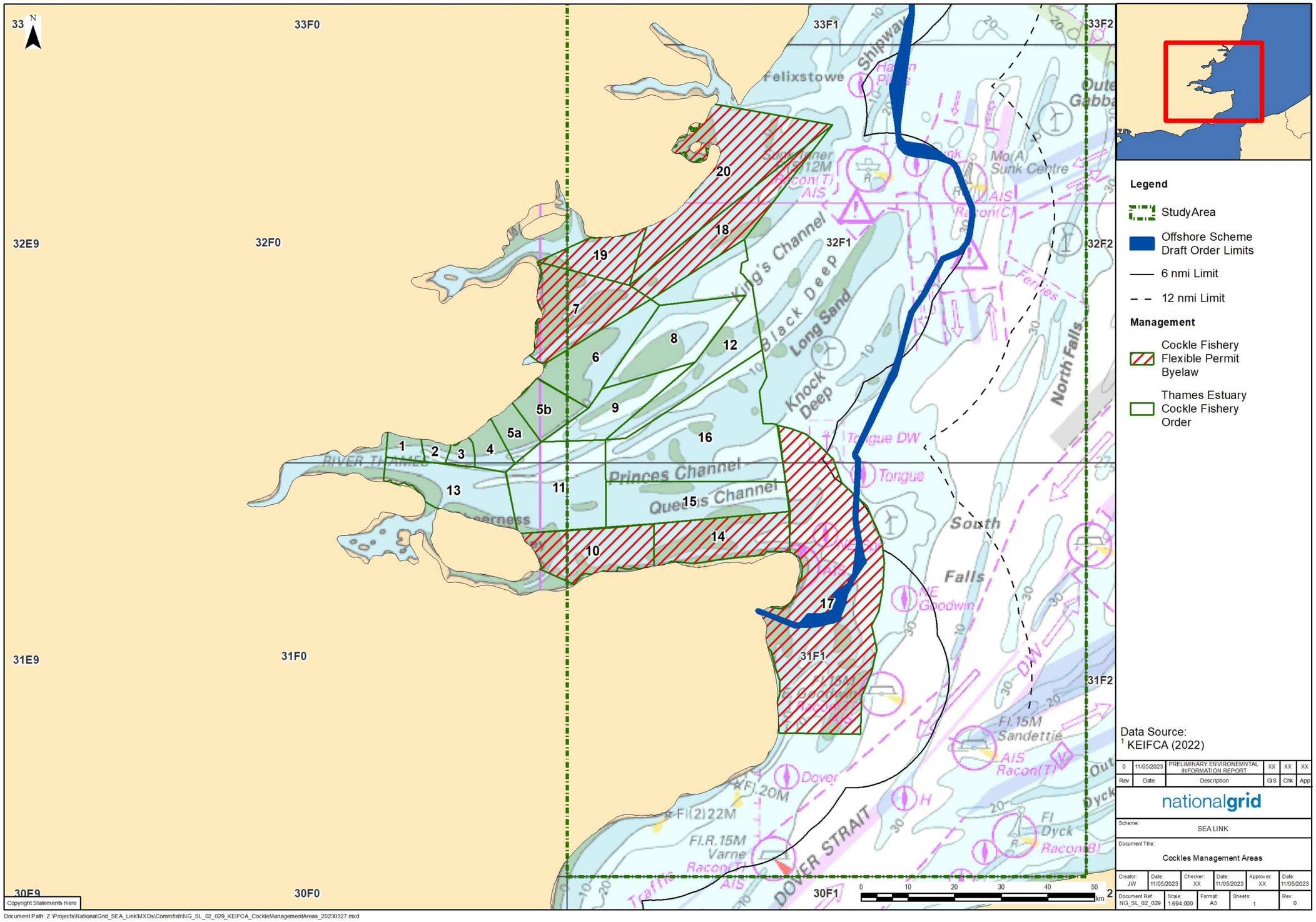


Figure 4.9.A.5.2: Cockle management areas (Ref 9.2)

Brexit

4.9.A.5.8 Since the exit of the UK from the European Union (EU) at the end of 2020, the Common Fisheries Policy (CFP) is no longer directly applicable to UK fisheries. Fishing in the UK is now governed by the Fisheries Act (2020) and agreements with the EU, including total allowable catches (TACs) and quotas which are governed under the EU – UK Trade and Cooperation Agreement (24 December 2020).

4.9.A.5.9 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 between 2021 and 2026. with specific percentages of annually agreed TACs agreed for each fishing stock. After 2026, quotas and TACs will be negotiated annually.

Territorial limits and historic fishing rights

4.9.A.5.10 Under the United Nations (UN) Convention on the Law of the Sea, the UK's territorial sea extends out to 12 nmi from the mean low water mark. With few exceptions, access within 6 nmi of the coast is restricted to the vessels of that country. Access to fishing grounds between the 6 nmi and 12 nmi limits is only granted to vessels from non-UK countries if they have historic fishing rights.

4.9.A.5.11 Belgian and French vessels have historic fishing rights to fish between the UK's 6 and 12nm limit within the study area (Figure 4.9.A.5.3).

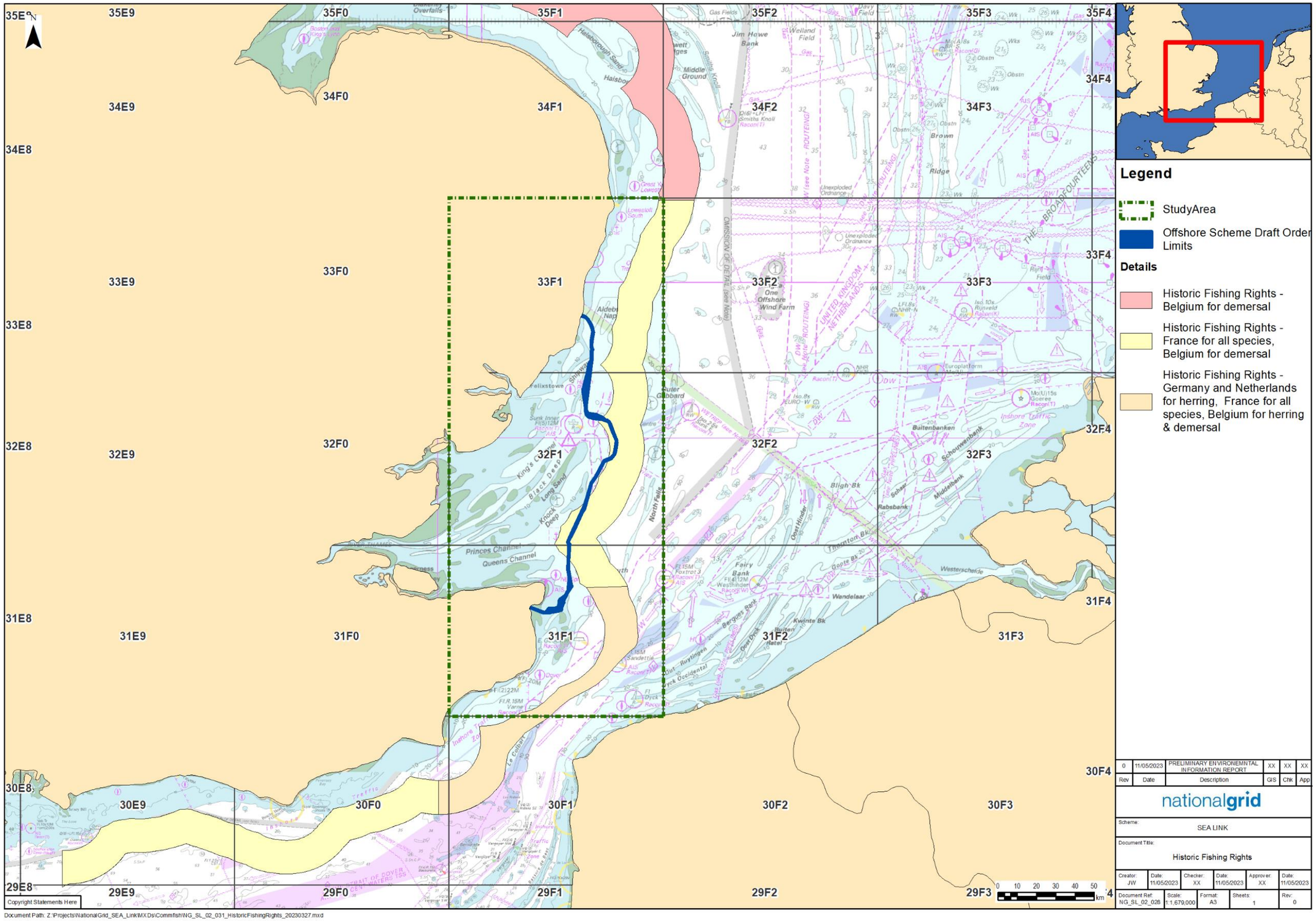


Figure 4.9.A.5.3: Historic Fishing Rights

4.9.A.6 Commercial fisheries baseline

Principal fleets active in the study area

4.9.A.6.1 The surveillance sightings illustrated in Figure 4.9.A.6.1 suggest varying degrees of activity by UK and transboundary vessels in the study area. The proportion of sightings of different nationalities are as follows:

- UK vessels account for 80.07% of total sightings, concentrated within the 6 nmi limit in ICES rectangles 32F1 and 31F1;
- Belgian vessels account for 8.43% of total sightings, predominantly within the 12 nmi in ICES rectangle 32F1;
- French vessels represent 5.69% of total sightings and are located predominantly within ICES rectangle 31F1;
- Dutch vessels account for 5.35% of total sightings, concentrated in the eastern sector of ICES rectangle 32F1;
- German vessels represent 0.29% of total sightings; and
- Danish vessels represent 0.17% of total sightings.

4.9.A.6.2 While UK vessels represent the majority of sightings in the study area, it is apparent from Figure 4.9.A.6.1 that it is in fact predominantly Belgian vessels that have been recorded in close proximity to the Offshore Scheme. Figure 4.9.A.6.2 illustrates that the majority of vessels recorded within the study area are trawlers, and to a lesser extent potters/whelkers. A more detailed overview of surveillance sightings by nationality and method is given in Table 4.9.A.6.1.

4.9.A.6.3 The vessel tracks derived from AIS for all nationalities combined in 2021 are shown in Figure 4.9.A.6.3. As mentioned previously, the available data includes tracks of vessels at all speeds and therefore, does not differentiate between those that are steaming and those engaged in fishing. The pattern of this data broadly reflects the surveillance data, with the majority of tracks within the study area occurring in ICES rectangle 31F1, and denser concentrations of vessels found outside of the study area in the English Channel.

4.9.A.6.4 As stated above, vessels from Denmark and Germany have been recorded in the study area, however at such negligible levels that they are not be discussed further in this report. Furthermore, vessels from Ireland and Norway have been recorded in the vicinity of the Offshore Scheme, however, as none have been recorded in the study area, they also will not be considered further.

Table 4.9.A.6.1: Surveillance sightings in ICES rectangles in the Study Area, nationality and method (2011 – 2021) (Source: MMO, 2022)

Nationality	Vessel Type	No. of Sightings within the Study Area	% of Total Sightings within the Study Area
UK	Potter/whelker	360	20.92%
	Demersal stern trawler	204	11.85%
	Gill netter	197	11.45%
	Trawler (all)	146	8.48%
	Rod and line	152	8.83%
	Other dredges (including mussel)	92	5.35%
	Suction dredger	70	4.07%
	Unknown	56	3.25%
	Drift netter	54	3.14%
	Beam trawler	30	1.74%
	Bottom seiner (anchor/Danish/fly/Scots)	17	0.99%
	Total UK	1378	80.07%
Belgium	Beam trawler	94	5.46%
	Trawler (all)	38	2.21%
	Stern trawler (pelagic/demersal)	9	0.52%
	Bottom seiner (anchor/Danish/fly/Scots)	3	0.17%
	Potter/whelker	1	0.06%
	Total Belgium	145	8.43%
France	Trawler (all)	74	4.30%
	Stern trawler (pelagic/demersal)	13	0.76%
	Unknown	7	0.41%
	Beam trawler	2	0.12%
	Suction dredger	1	0.06%
	Purse seiner	1	0.06%
	Total France	98	5.69%
Netherlands	Beam trawler	73	4.24%
	Bottom seiner (anchor/Danish/fly/Scots)	12	0.70%
	Stern trawler (pelagic/demersal)	5	0.29%
	Trawler (all)	2	0.12%

	Total Netherlands	92	5.35%
Germany	Trawler (all)	4	0.23%
	Bottom seiner (anchor/Danish/fly/Scots)	1	0.06%
	Total Germany	5	0.29%
Denmark	Trawler (all)	2	0.12%
	Bottom seiner (anchor/Danish/fly/Scots)	1	0.06%
	Total Danish	3	0.17%
Total		1721	

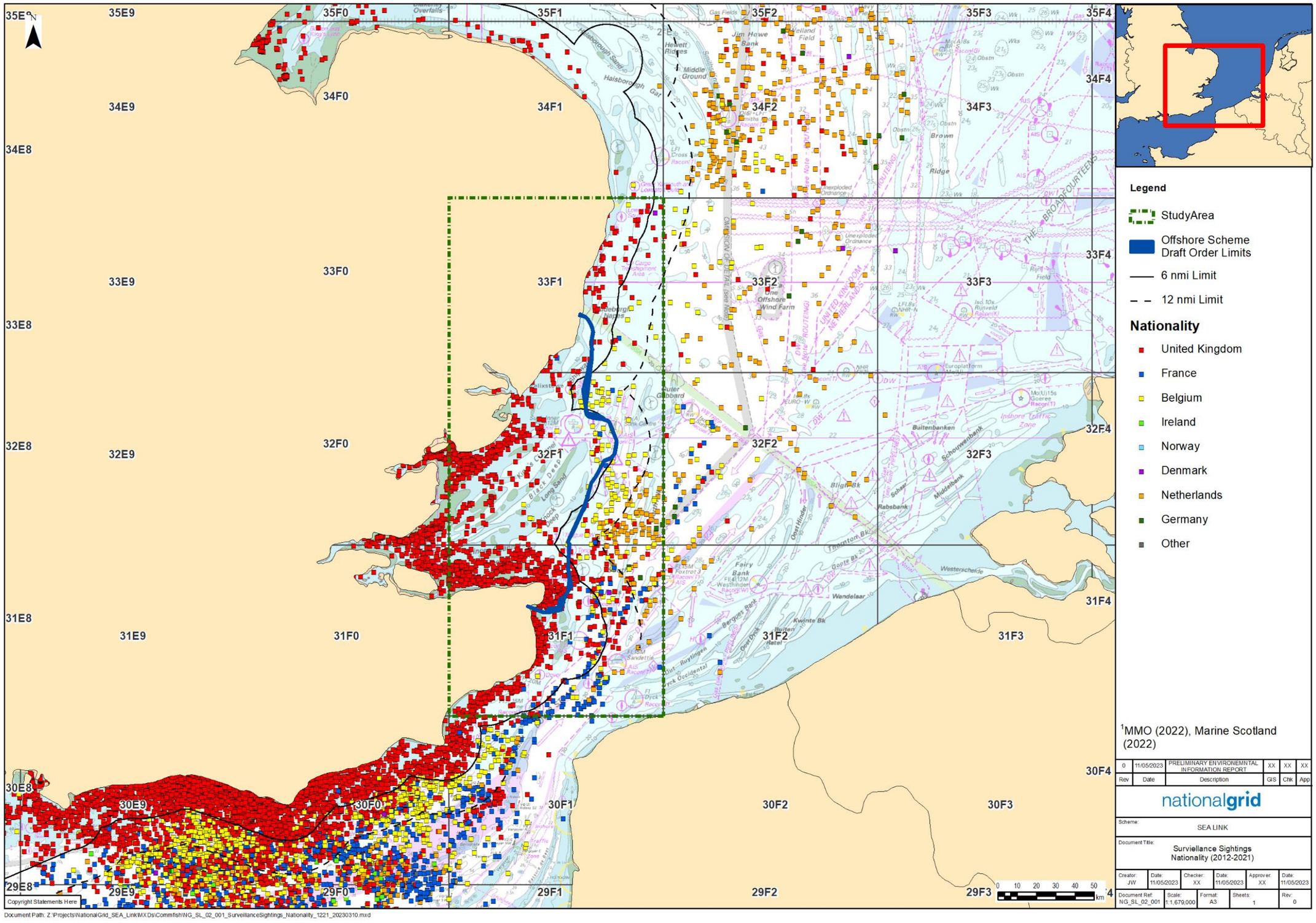


Figure 4.9.A.6.1: Surveillance sightings by nationality (2012 - 2021) (Source: MMO, 2022)

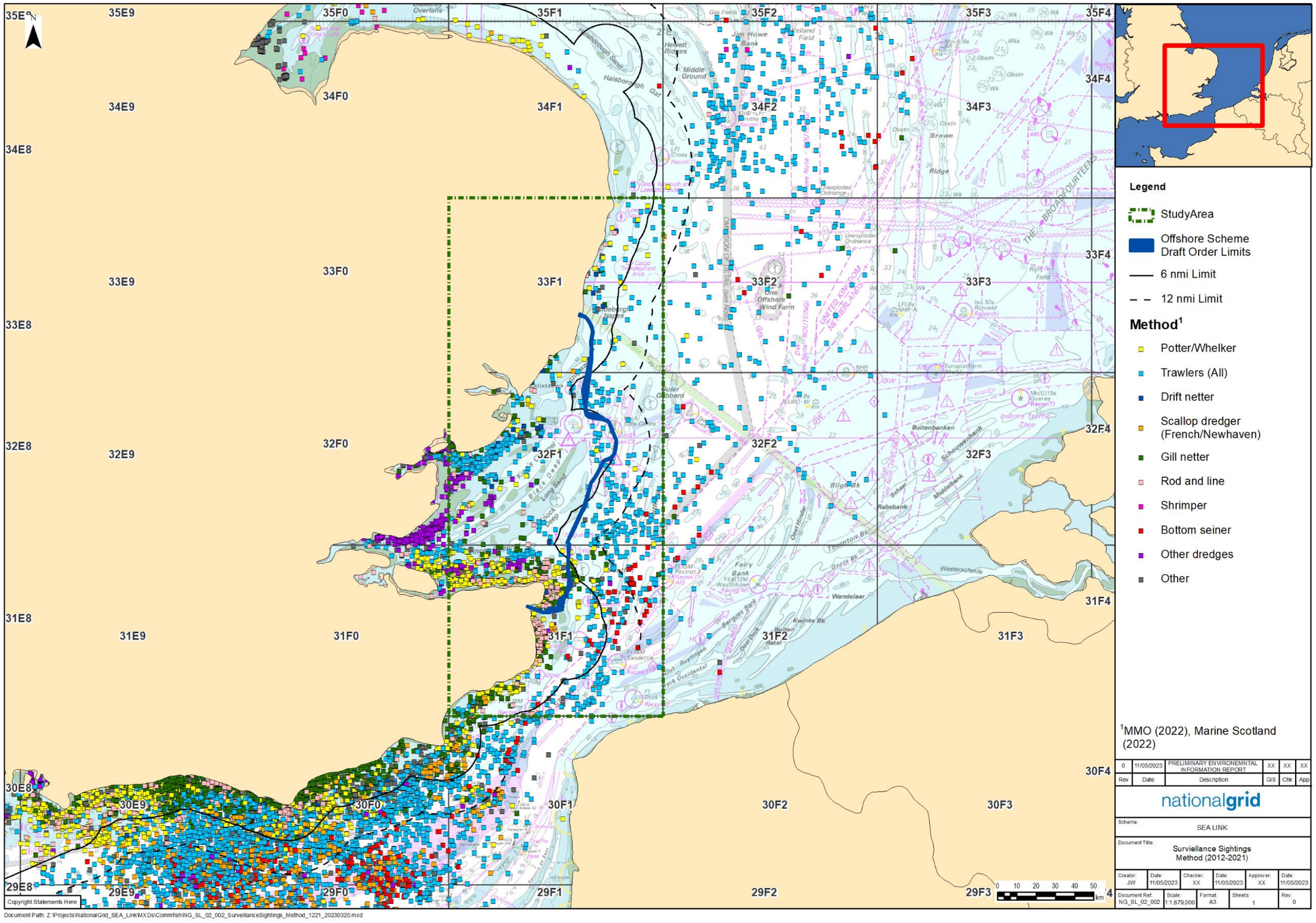


Figure 4.9.A.6.2: Surveillance sightings by method (2012 - 2021) (Source: MMO, 2022)

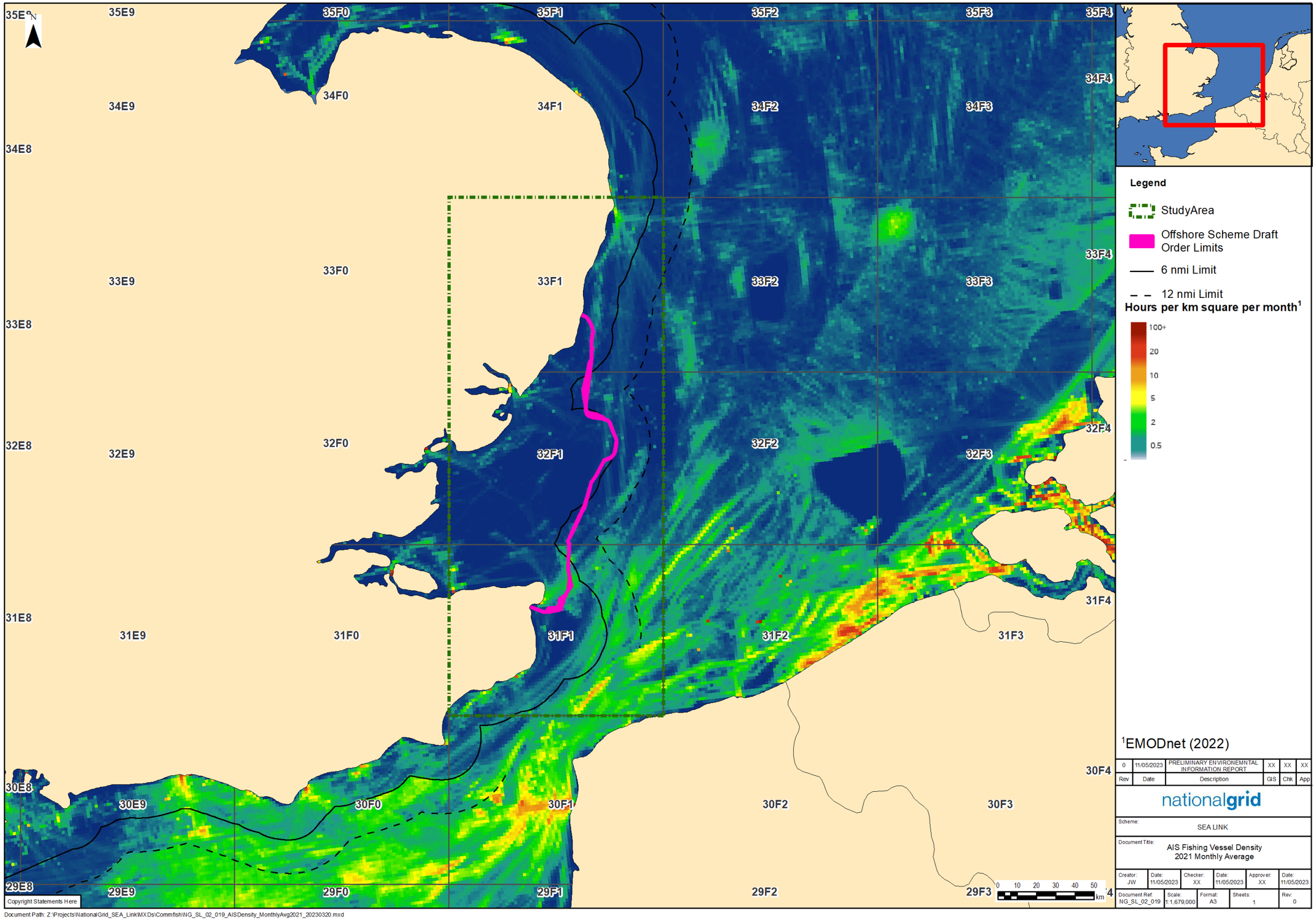


Figure 4.9.A.6.3: AIS showing average MW fishing hours per km² per month (2021) (Source: EMODnet, 2022)

UK fleet

Surveillance sightings

4.9.A.6.5 As shown in Image 4.9.A.1, the majority of UK vessels recorded in the study area were potters/whelkers, and to a lesser extent demersal stern trawlers and gill netters.

4.9.A.6.6 The spatial distribution of surveillance sightings of UK fishing vessels is illustrated in Figure 4.9.A.6.4. As shown, sightings of UK vessels in the study area are mostly focussed within the UK's 12 nmi limit, removed from the majority of the Offshore Scheme.

4.9.A.6.7 When considering fishing activity outside of the study area, it is apparent from Figure 4.9.A.6.4 that sightings of UK vessels are concentrated in the English Channel, in ICES rectangles 30E9 and 30F0, and that there is negligible UK fishing activity to the east of the study area.

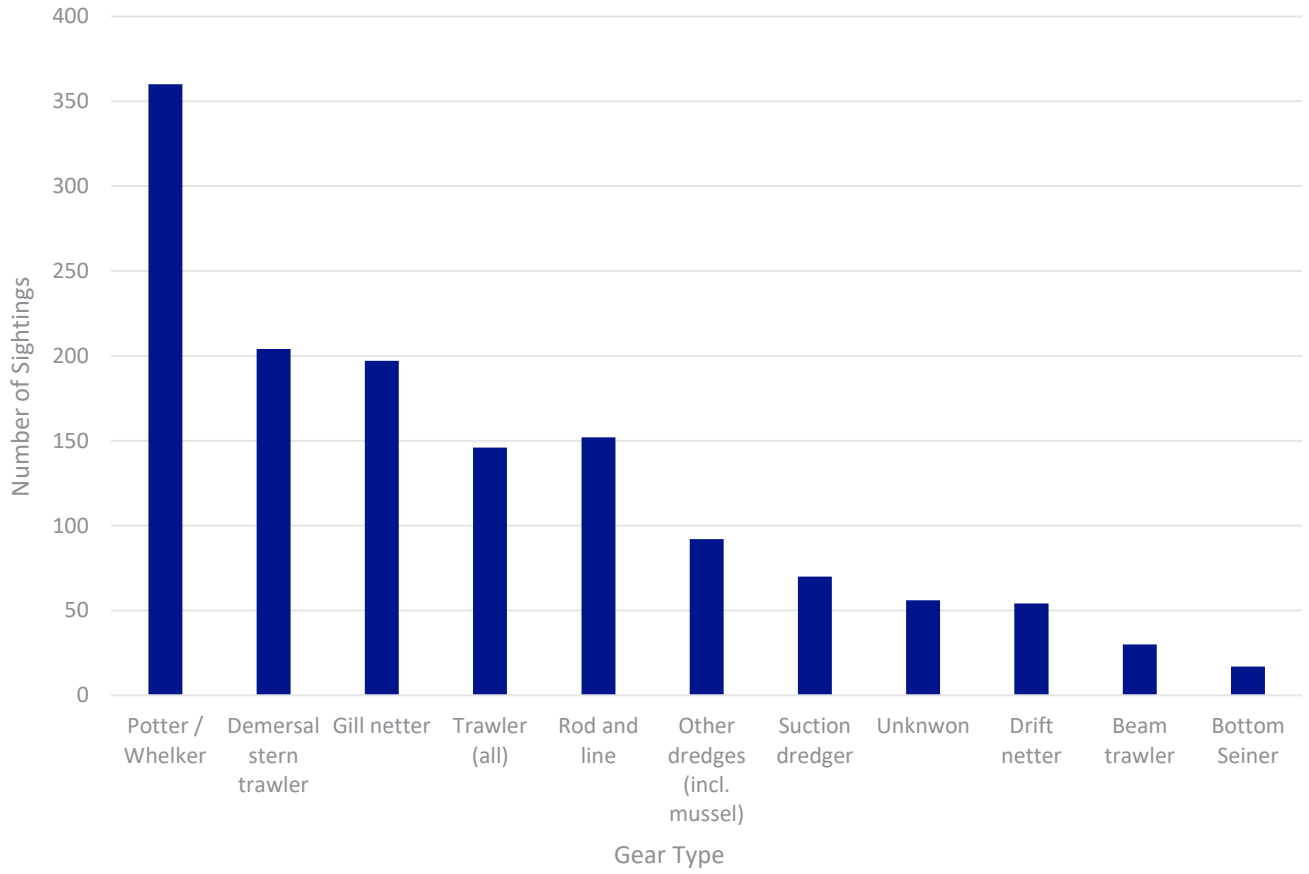


Image 4.9.A.1 Number of sightings of UK vessels in the Study Area (2012 – 2021) (Source: MMO, 2022)

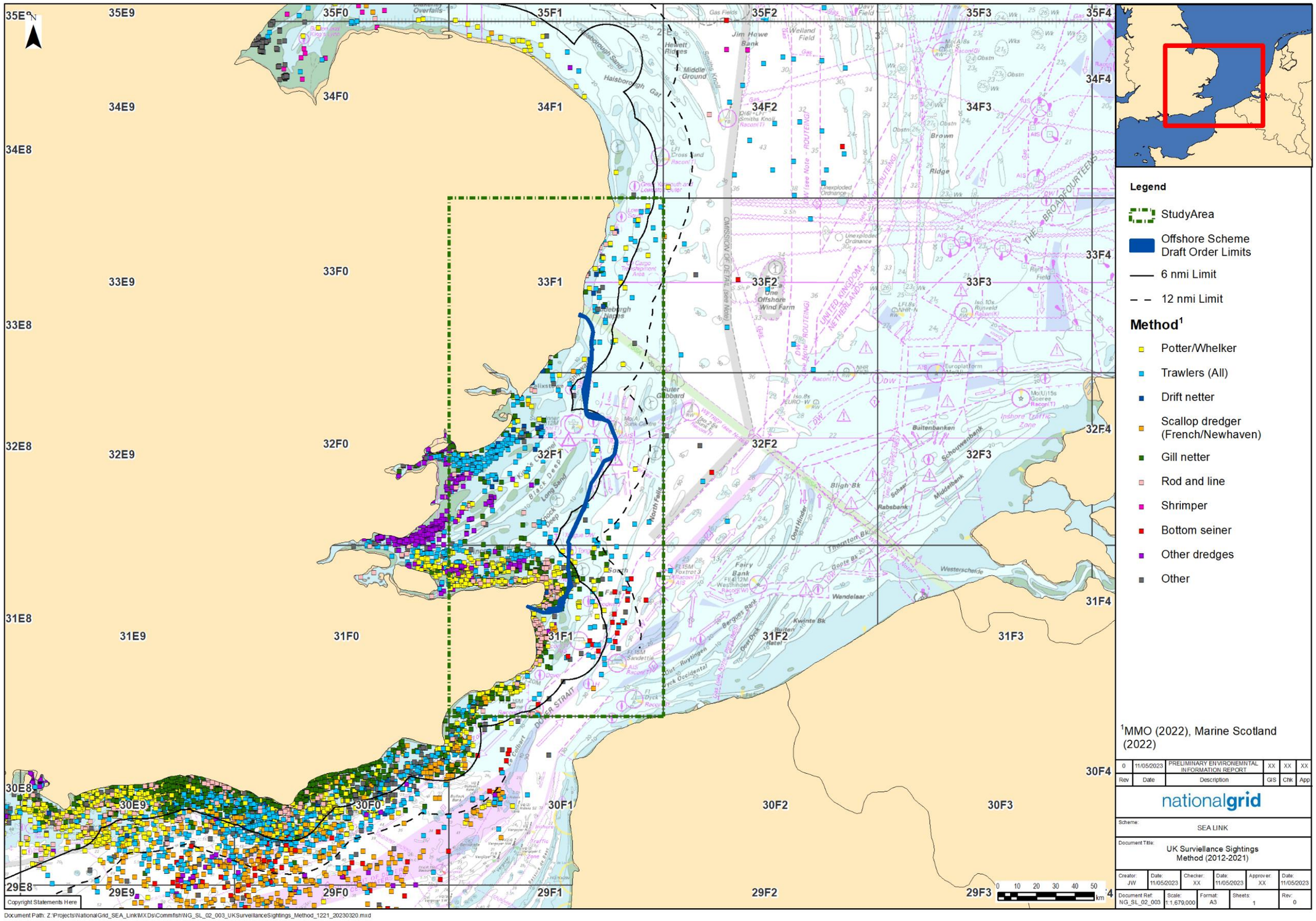


Figure 4.9.A.6.4: UK surveillance sightings by method (2012 - 2021) (Source: MMO, 2022)

UK landings values by species, method and vessel length

4.9.A.6.8 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 4.9.A.6.5 to Figure 4.9.A.6.7. Landings values are presented as an annual average for the five-year period from 2017 to 2021 (inclusive of both years).

4.9.A.6.9 From Figure 4.9.A.6.5 it is apparent that the pattern of recorded landings values for the ICES rectangles within the study area generally align with the surveillance data, with the majority of activity being focussed in the English Channel to the south of the study area.

4.9.A.6.10 Within the study area the highest landings by UK vessels are recorded in ICES rectangle 31F1, which contains the southern section of the Offshore Scheme, as well as the Kent landfall. Almost half of the landings value in this rectangle comes from dredges targeting cockles (Figure 4.9.A.6.6). Pots and traps targeting whelks, and demersal trawls and seines also contribute significantly to the landings in this ICES rectangle. Approximately half of the landings in this rectangle are from vessels between 10 and 15m, with vessels under 10m and vessels over 15m representing about a quarter of total landings each (Figure 4.9.A.6.7).

4.9.A.6.11 Similarly, in ICES rectangle 32F1, which contains the mid-section of the Offshore Scheme, approximately half the landings values are derived from dredges targeting cockles, with pots and traps targeting whelks, demersal trawls targeting sole and drift nets targeting bass and mackerel also contributing to the total landings (Figure 4.9.A.6.5 and Figure 4.9.A.6.6). The majority of landings in this rectangle also come from vessels measuring between 10 and 15m, followed by vessels 10m and under, with a negligible amount from vessels over 15m (Figure 4.9.A.6.7).

4.9.A.6.12 The lowest landings values in the study area come from ICES rectangle 33F1, which contains the northern section of the Offshore Scheme and the Suffolk landfall. Landings in this rectangle are predominantly from pots and traps targeting whelks, followed by drift and fixed nets, likely targeting bass (Figure 4.9.A.6.5 and Figure 4.9.A.6.6). The majority of landings in this rectangle come from vessels under 10m, with a small amount of between 10 and 15m also contributing to total landings (Figure 4.9.A.6.7).

4.9.A.6.13 An indication of the seasonality of the main species targeted in the study area is given in Image 4.9.A.2 to Image 4.9.A.4. Sole is landed year-round with the highest value of landings reported from August and November, while landings of bass peak in April and May aligning with the bass season opening on the 1st of April. Landings of horse mackerel are highest in October and December. Similarly, landings of Nephrops and scallops peak in the winter. Plaice are landed at a relatively consistent value throughout the year (Image 4.9.A.2).

4.9.A.6.14 For species caught by pots, landings of whelks are highest between March and July, although they are targeted all year round, while landings of lobster and crab are highest during the summer (Image 4.9.A.3).

4.9.A.6.15 Landings for cockles have been presented separately for clarity. As shown by Image 4.9.A.4, landings peak in July and August, before decreasing towards the winter.

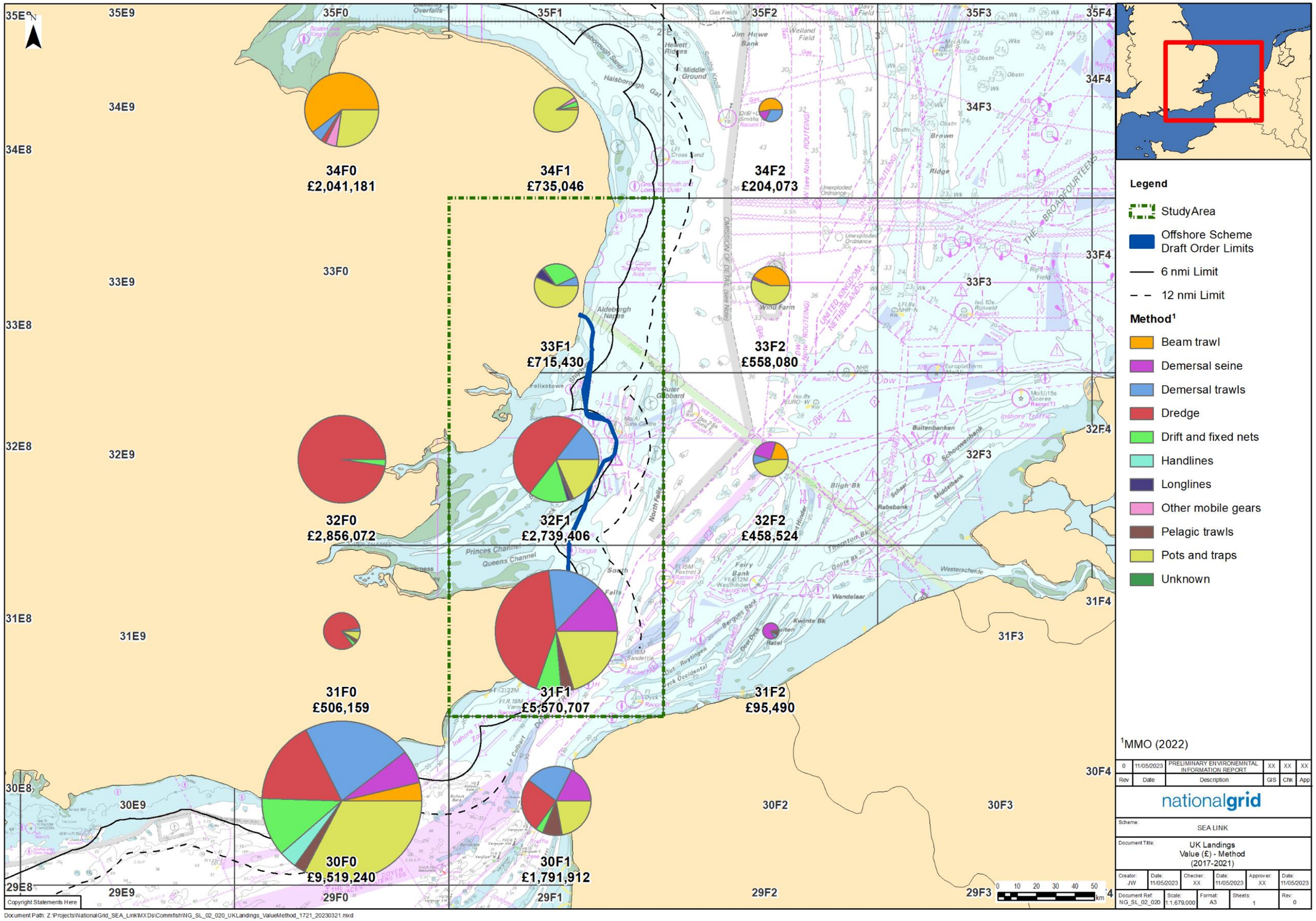


Figure 4.9.A.6.5: UK landings (£) by method (Average 2017 - 2021) (Source: MMO, 2022)

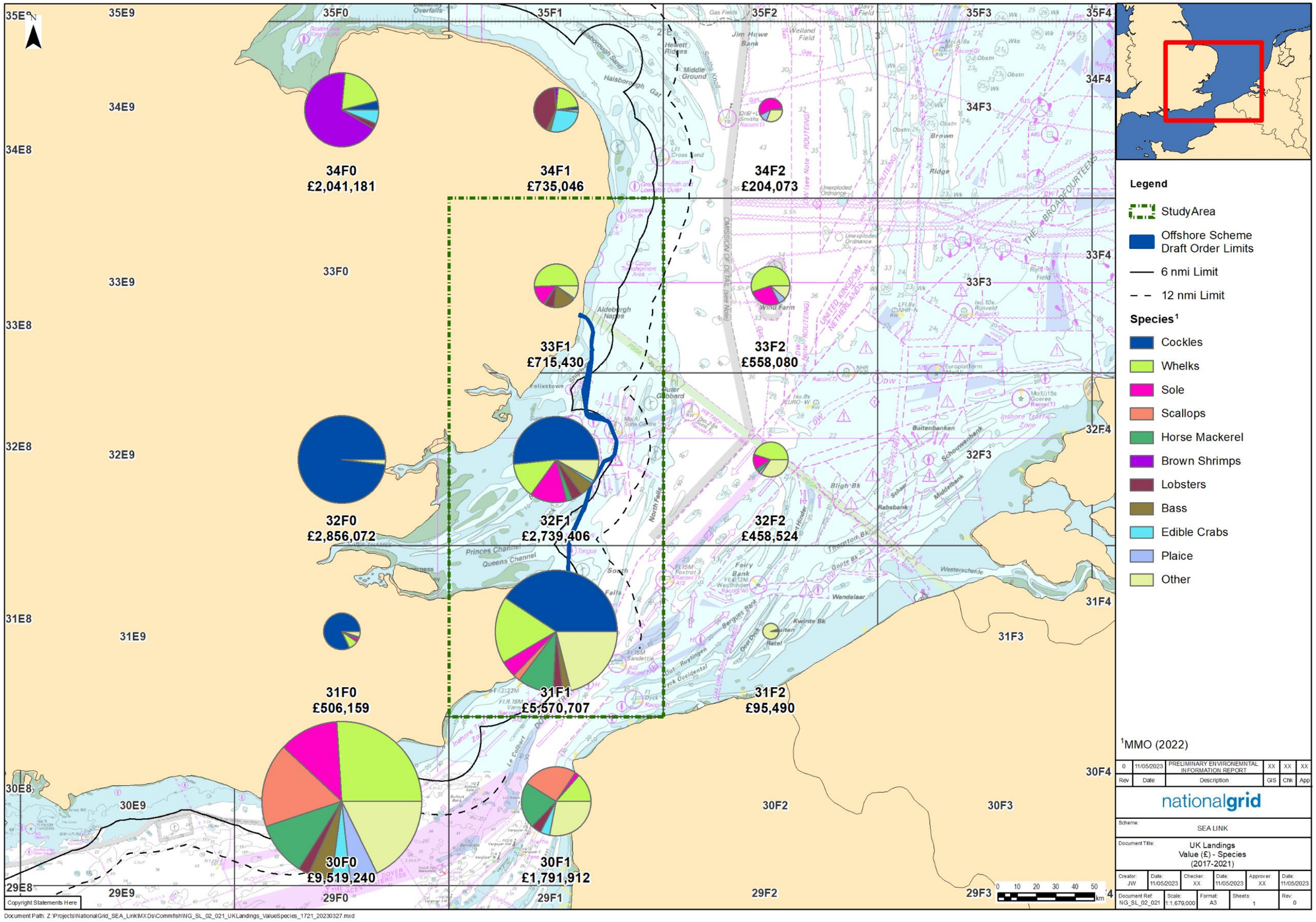


Figure 4.9.A.6.6: UK landings (£) by species (Average 2017 - 2021) (Source: MMO, 2022)

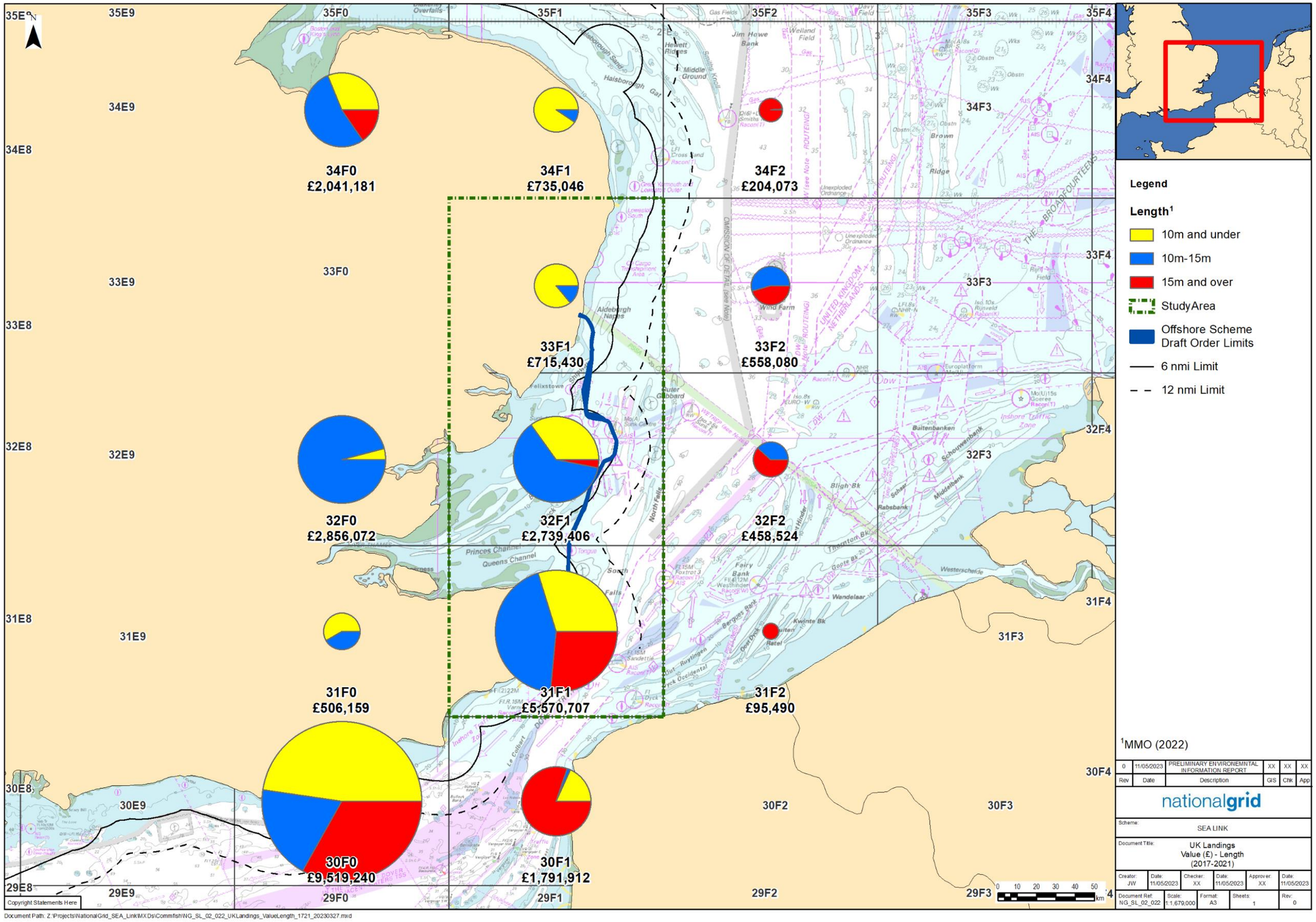
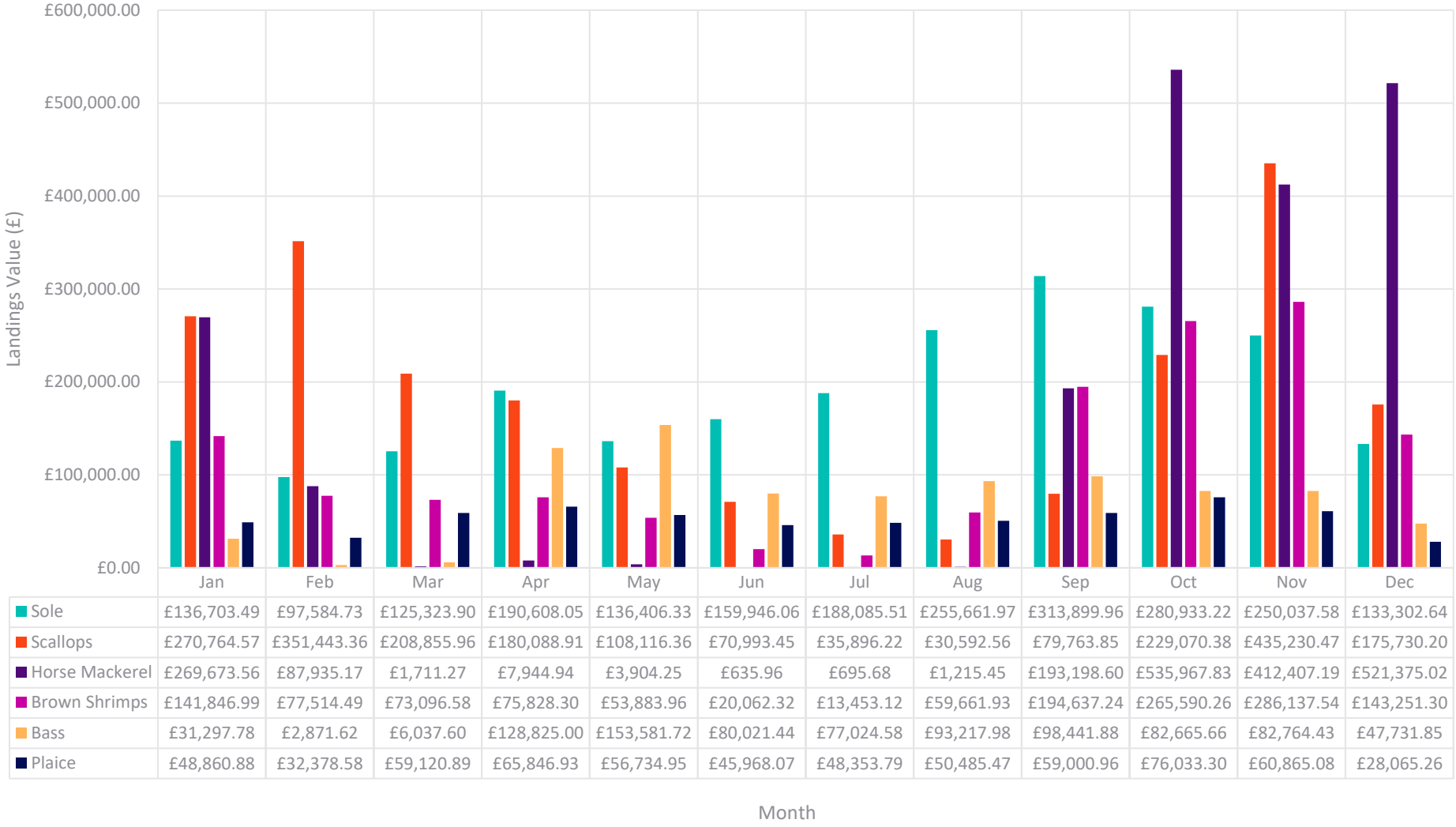
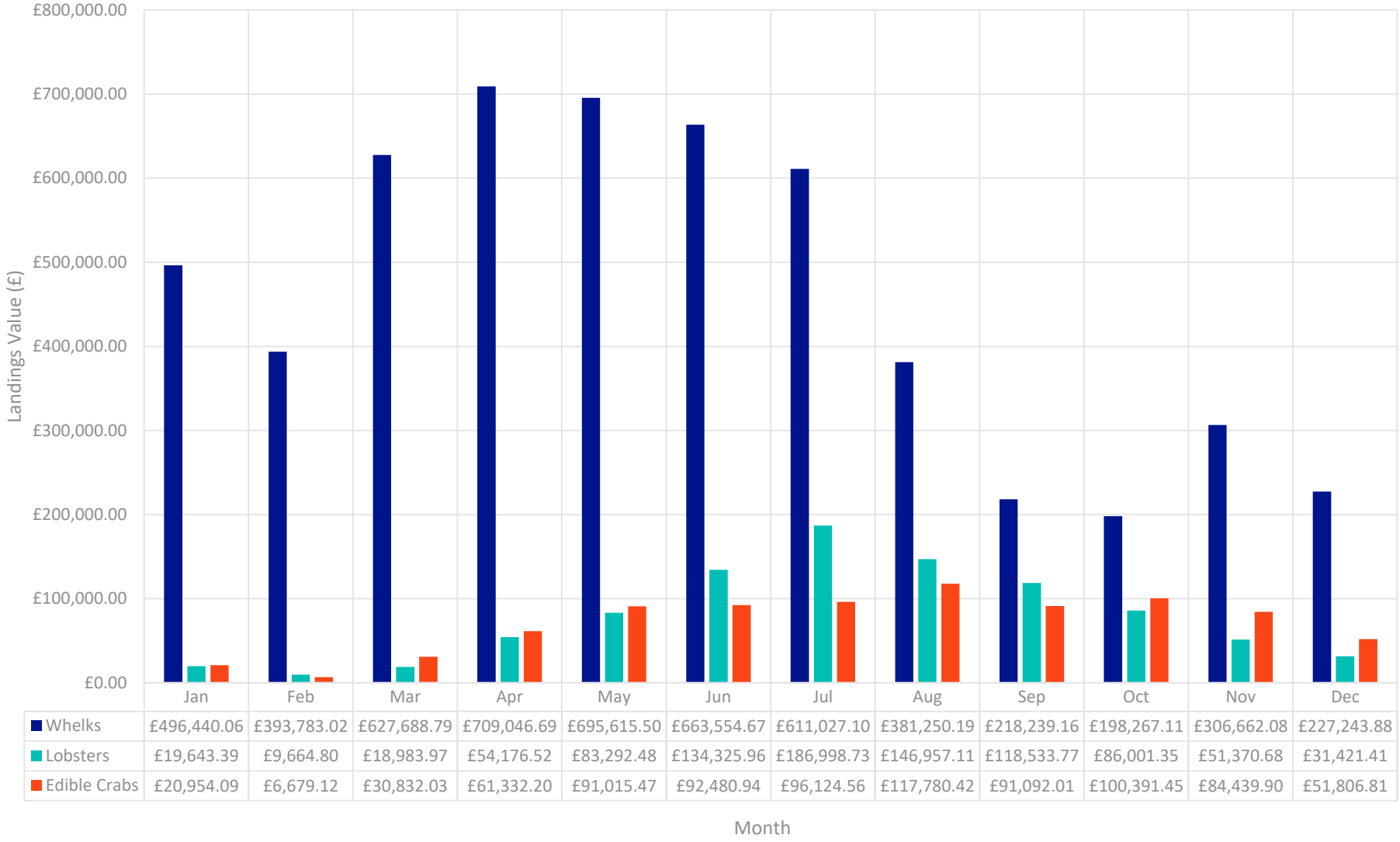


Figure 4.9.A.6.7 UK landings (£) by vessel length (Average 2017 - 2021) (Source: MMO, 2022)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Sole	£136,703.49	£97,584.73	£125,323.90	£190,608.05	£136,406.33	£159,946.06	£188,085.51	£255,661.97	£313,899.96	£280,933.22	£250,037.58	£133,302.64
Scallops	£270,764.57	£351,443.36	£208,855.96	£180,088.91	£108,116.36	£70,993.45	£35,896.22	£30,592.56	£79,763.85	£229,070.38	£435,230.47	£175,730.20
Horse Mackerel	£269,673.56	£87,935.17	£1,711.27	£7,944.94	£3,904.25	£635.96	£695.68	£1,215.45	£193,198.60	£535,967.83	£412,407.19	£521,375.02
Brown Shrimps	£141,846.99	£77,514.49	£73,096.58	£75,828.30	£53,883.96	£20,062.32	£13,453.12	£59,661.93	£194,637.24	£265,590.26	£286,137.54	£143,251.30
Bass	£31,297.78	£2,871.62	£6,037.60	£128,825.00	£153,581.72	£80,021.44	£77,024.58	£93,217.98	£98,441.88	£82,665.66	£82,764.43	£47,731.85
Plaice	£48,860.88	£32,378.58	£59,120.89	£65,846.93	£56,734.95	£45,968.07	£48,353.79	£50,485.47	£59,000.96	£76,033.30	£60,865.08	£28,065.26

Image 4.9.A.2 Seasonality of Top 5 species (£) in the Study Area (excluding cockles and species caught by pots) (Average 2017 -2021) (Source: MMO, 2022)



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Whelks	£496,440.06	£393,783.02	£627,688.79	£709,046.69	£695,615.50	£663,554.67	£611,027.10	£381,250.19	£218,239.16	£198,267.11	£306,662.08	£227,243.88
Lobsters	£19,643.39	£9,664.80	£18,983.97	£54,176.52	£83,292.48	£134,325.96	£186,998.73	£146,957.11	£118,533.77	£86,001.35	£51,370.68	£31,421.41
Edible Crabs	£20,954.09	£6,679.12	£30,832.03	£61,332.20	£91,015.47	£92,480.94	£96,124.56	£117,780.42	£91,092.01	£100,391.45	£84,439.90	£51,806.81

Image 4.9.A.3 Seasonality of Landings (£) for Species Caught Using Pots in the Study Area (Average 2017 – 2021) (Source: MMO, 2022)

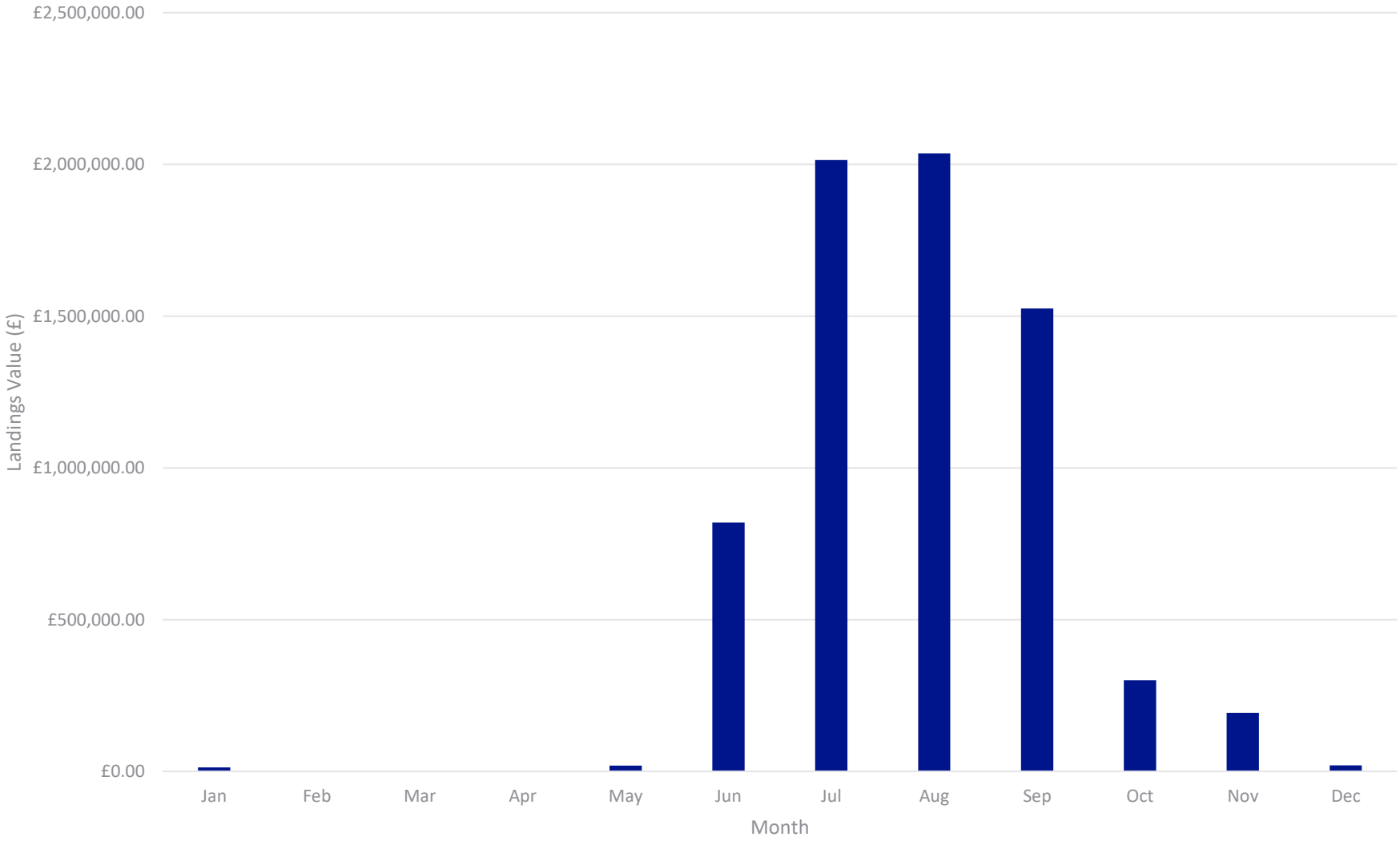


Image 4.9.A.4 Seasonality of Landings (£) for Cockles in the Study Area (Average 2017 – 2021) (Source: MMO, 2022)

Landings by port

4.9.A.6.16 The principal ports recording landings from the study area, and its constituent ICES rectangles are shown in Table 4.9.A.6.2 to Table 4.9.A.6.5. These show five-year averages of annual landings from 2017 to 2021 for UK vessels.

4.9.A.6.17 The highest landings value recorded for rectangle 31F1 (which contains the northern section of the Offshore Scheme) are reported from Whitstable (£2,314,758.76), followed by Ramsgate (£700,750.01) and Folkstone (£573,248.59). The landings from 33F1 into Whitstable represent 41.55% of the annual landings from rectangle 31F1, with Ramsgate and Folkstone recording 12.58% and 10.29% respectively (Table 4.9.A.6.3).

4.9.A.6.18 The highest landings value recorded for rectangle 32F1 (where the mid-section of the Offshore Scheme is located) are reported from Queenborough (£533,173.18), followed by Whitstable and Leigh-On-Sea at £441,151.45 and £429,678.58 respectively. The landings from 32F1 into Queenborough represent 19.46% of the total landings from 32F1 annually, with Whitstable and Leigh-on-Sea recording 16.10% and 15.69% respectively (Table 4.9.A.6.4).

4.9.A.6.19 In rectangle 33F1, the majority of landings are landed into Lowestoft (£354,382.41; 49.53%), followed by Southwold (£210,807.42; 29.47%) and Aldeburgh and Orford (£84,031.41; 11.75%).

Table 4.9.A.6.2: Top 10 ports by average annual landings (2017 - 2021) from the Study Area by UK vessels (Source: MMO, 2022)

Study Area Ports	Average Annual Landings from the Study Area	% of Annual Value from the Study Area	Total Average Annual Port Value	% Total Annual Port Value that the Study Area Represents
Whitstable	£2,755,910.21	30.53%	£2,944,138.15	93.61%
Ramsgate	£758,529.03	8.40%	£836,499.87	90.68%
Queenborough	£732,132.42	8.11%	£1,156,900.78	63.28%
Folkestone	£573,499.95	6.35%	£586,742.63	97.74%
Scheveningen	£558,231.80	6.19%	£7,265,955.04	7.68%
Lowestoft	£548,423.83	6.08%	£1,218,990.63	44.99%
Leigh-On-Sea	£527,526.21	5.84%	£3,281,658.47	16.07%
Boulogne	£443,106.99	4.91%	£3,033,764.88	14.61%
West Mersea	£264,700.25	2.93%	£268,687.09	98.52%
Oostende	£218,394.65	2.42%	£351,193.55	62.19%

Table 4.9.A.6.3: Top 10 ports by average annual landings (2017 - 2021) from ICES rectangle 31F1 by UK vessels (Source: MMO, 2022)

31F1 Ports	Average Annual Landings from 31F1	% of Annual Value from 31F1	Total Average Annual Port Value	% Total Annual Port Value that 31F1 Represents
Whitstable	£2,314,758.76	41.55%	£2,944,138.15	78.62%
Ramsgate	£700,750.01	12.58%	£836,499.87	83.77%
Folkestone	£573,248.59	10.29%	£586,742.63	97.70%
Scheveningen	£491,403.27	8.82%	£7,265,955.04	6.76%
Boulogne	£439,780.49	7.89%	£3,033,764.88	14.50%
Oostende	£215,798.89	3.87%	£351,193.55	61.45%
Queenborough	£198,817.03	3.57%	£1,156,900.78	17.19%
Ijmuiden	£190,639.47	3.42%	£22,610,905.88	0.84%
Vlissengen	£113,887.98	2.04%	£5,216,662.17	2.18%
Leigh-On-Sea	£97,847.63	1.76%	£3,281,658.47	2.98%

Table 4.9.A.6.4: Top 10 ports by average annual landings (2017 - 2021) from ICES rectangle 32F1 by UK vessels (Source: MMO, 2022)

32F1 Ports	Average Annual Landings from 32F1	% of Annual Value from 32F1	Total Average Annual Port Value	% Total Annual Port Value that 32F1 Represents
Queenborough	£533,173.18	19.46%	£1,156,900.78	46.09%
Whitstable	£441,151.45	16.10%	£2,944,138.15	14.98%
Leigh-On-Sea	£429,678.58	15.69%	£3,281,658.47	13.09%
West Mersea	£256,505.18	9.36%	£268,687.09	95.47%
Lowestoft	£192,429.60	7.02%	£1,218,990.63	15.79%
Harwich	£190,337.06	6.95%	£202,734.21	93.89%
Felixstowe	£136,614.88	4.99%	£141,623.77	96.46%
Kings Lynn	£92,961.87	3.39%	£2,187,386.51	4.25%
Scheveningen	£66,828.54	2.44%	£7,265,955.04	0.92%
Colchester	£58,654.95	2.14%	£78,655.32	74.57%

Table 4.9.A.6.5: Top 10 ports by average annual landings (2017 - 2021) from ICES rectangle 33F1 by UK vessels (Source: MMO, 2022)

33F1 Ports	Average Annual Landings from 33F1	% of Annual Value from 33F1	Total Average Annual Port Value	% Total Annual Port Value that 33F1 Represents
Lowestoft	£354,382.41	49.53%	£1,218,990.63	29.07%
Southwold	£210,807.42	29.47%	£285,391.00	73.87%
Aldeburgh and Orford	£84,031.41	11.75%	£119,261.76	70.46%
Brixham	£21,949.92	3.07%	£36,032,219.08	0.06%
Sizewell Beach	£10,061.74	1.41%	£10,061.74	100.00%
Holyhead	£6,895.90	0.96%	£1,815,558.60	0.38%
Great Yarmouth	£4,916.69	0.69%	£165,686.03	2.97%
Kings Lynn	£3,763.97	0.53%	£2,187,386.51	0.17%
Winterton	£3,416.10	0.48%	£53,634.37	6.37%
Grimsby	£2,925.19	0.41%	£8,093,883.93	0.04%

Spatial distribution of UK fishing activity

4.9.A.6.20 An analysis of VMS data for the relevant UK fleets is given in Figure 4.9.A.6.8 to Figure 4.9.A.6.12. As stated previously, the current VMS data provided by the MMO only relates to vessels over 15m in length and therefore will not capture a proportion of the UK's inshore fleet.

4.9.A.6.21 VMS data for beam trawls appears to corroborate the landings data presented in the previous section, with the majority of activity focussed to the east of the Offshore Scheme and low to negligible values being derived from beam trawling by UK vessels in the study area (Figure 4.9.A.6.8). The majority of the activity that is recorded within the study area is focussed in ICES rectangle 32F1, in close proximity to the Offshore Scheme

4.9.A.6.22 With regards to mid-water trawling, there is a small area of high value activity in the southern sector of the study area, in ICES rectangle 32F1, in proximity to the Offshore Scheme (Figure 4.9.A.6.9). With regards to beam trawling, however, the value derived from midwater trawling just outside of the study area is higher than within it. This data is also corroborated by the landings data, with both showing that midwater trawls occur predominantly in the south of the study area, moving towards the English Channel. Bottom otter trawls have also been recorded in the study area, however at low to negligible values (Figure 4.9.A.6.10).

4.9.A.6.23 VMS value data suggests that potting occurs at low levels in the northern and central sectors of the study area, and that there are some discrete patches of medium to high value areas to the east and north of the study area (Figure 4.9.A.6.11). This differs from the landings data presented previously, where landings from potting appear to be high in a significant proportion of the ICES rectangles that make up the Southern North Sea. However, as previously mentioned, a large proportion of the UK potting fleet is under 15m and will not have been captured by VMS, which has likely caused this discrepancy.

4.9.A.6.24 As is apparent from Figure 4.9.A.6.12, there is an area of high value Scottish seine netting in the southern sector of the study area, in close proximity to the Kent landfall.

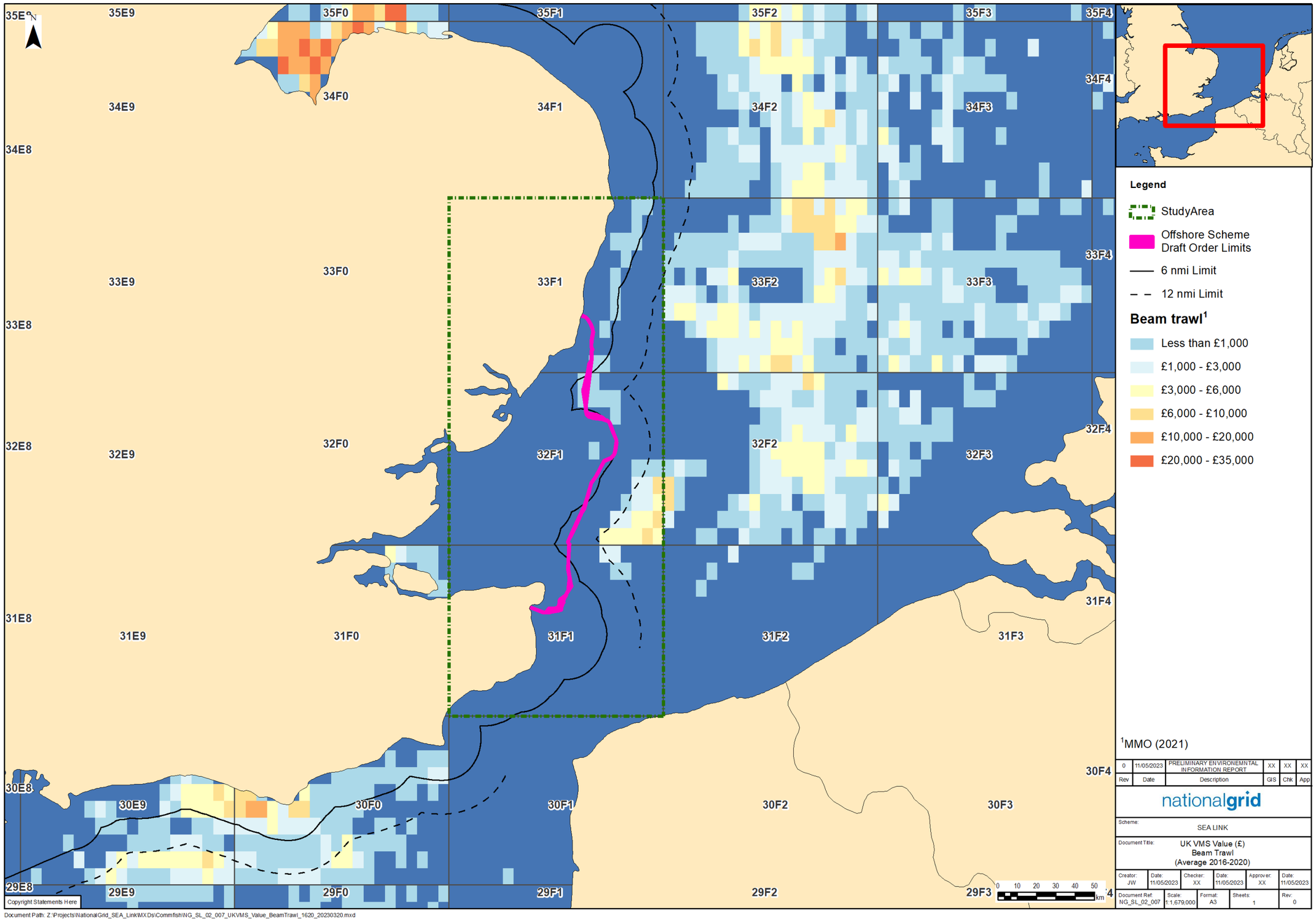


Figure 4.9.A.6.8 UK VMS (£) beam trawls (Average 2016 - 2020) (Source, MMO, 2021)

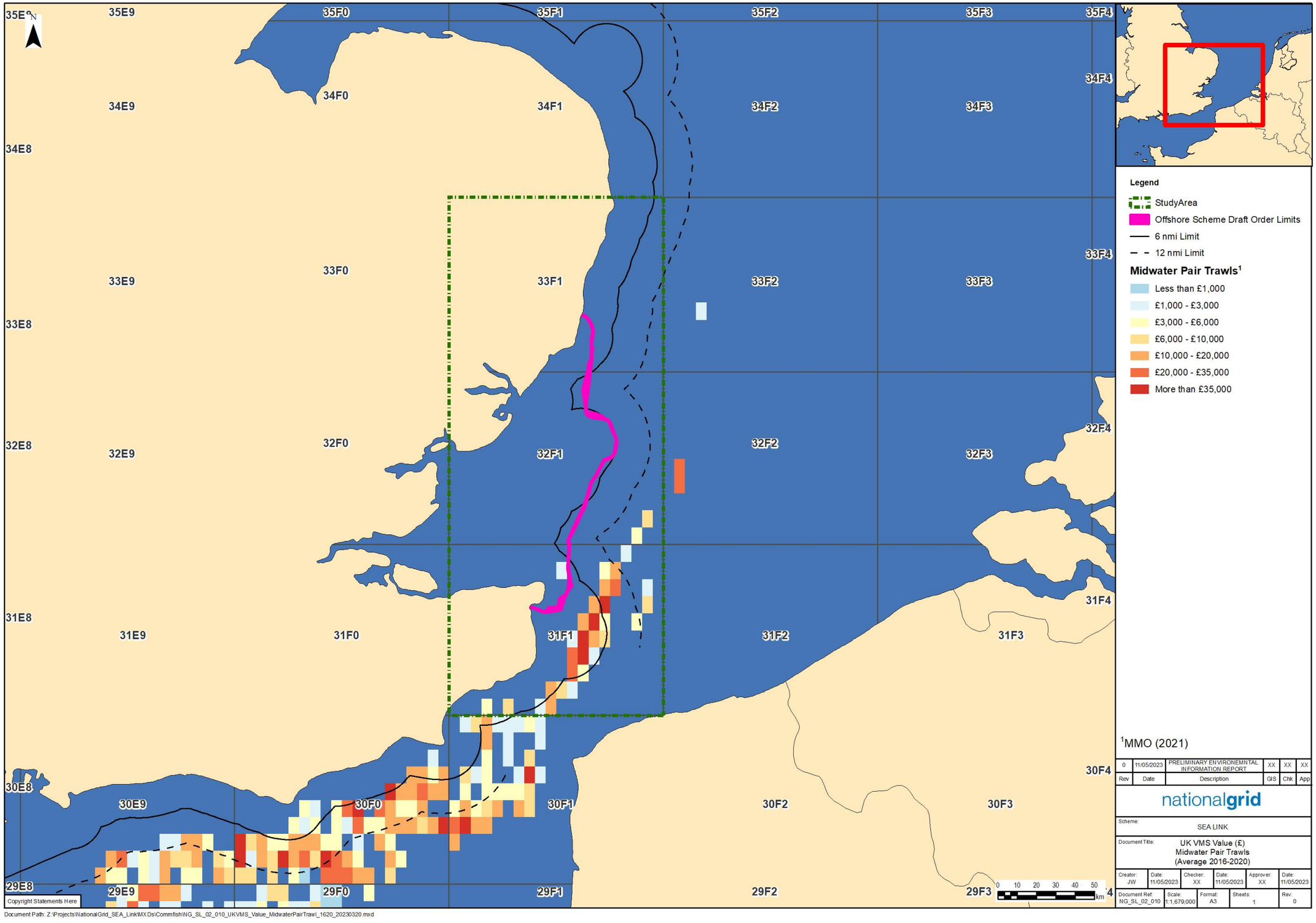


Figure 4.9.A.6.9: UK VMS (£) midwater pair trawls (Average 2016 - 2020) (Source: MMO, 2021)

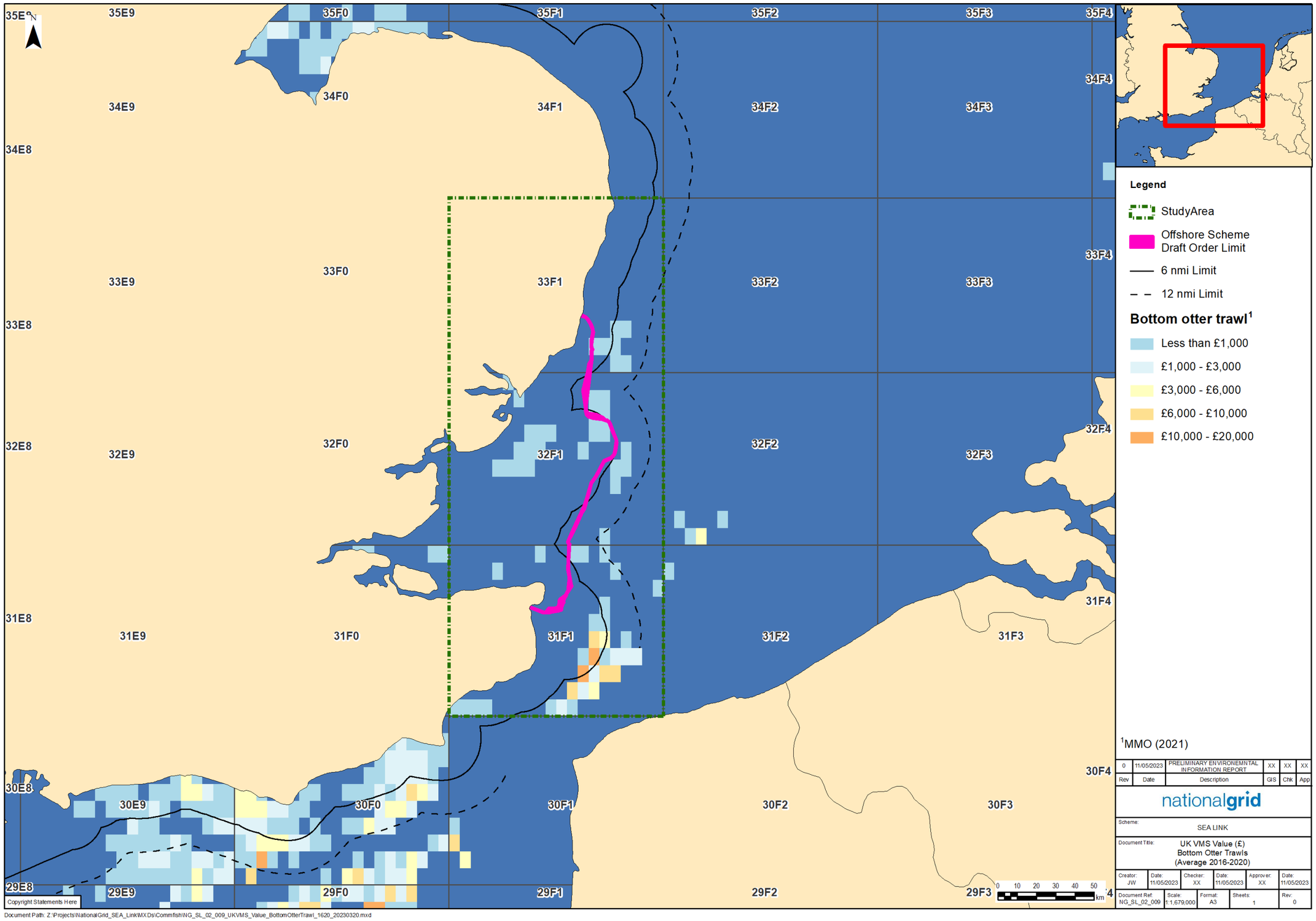


Figure 4.9.A.6.10: UK VMS (£) bottom otter trawls (Average 2016 - 2020) (Source: MMO, 2021)

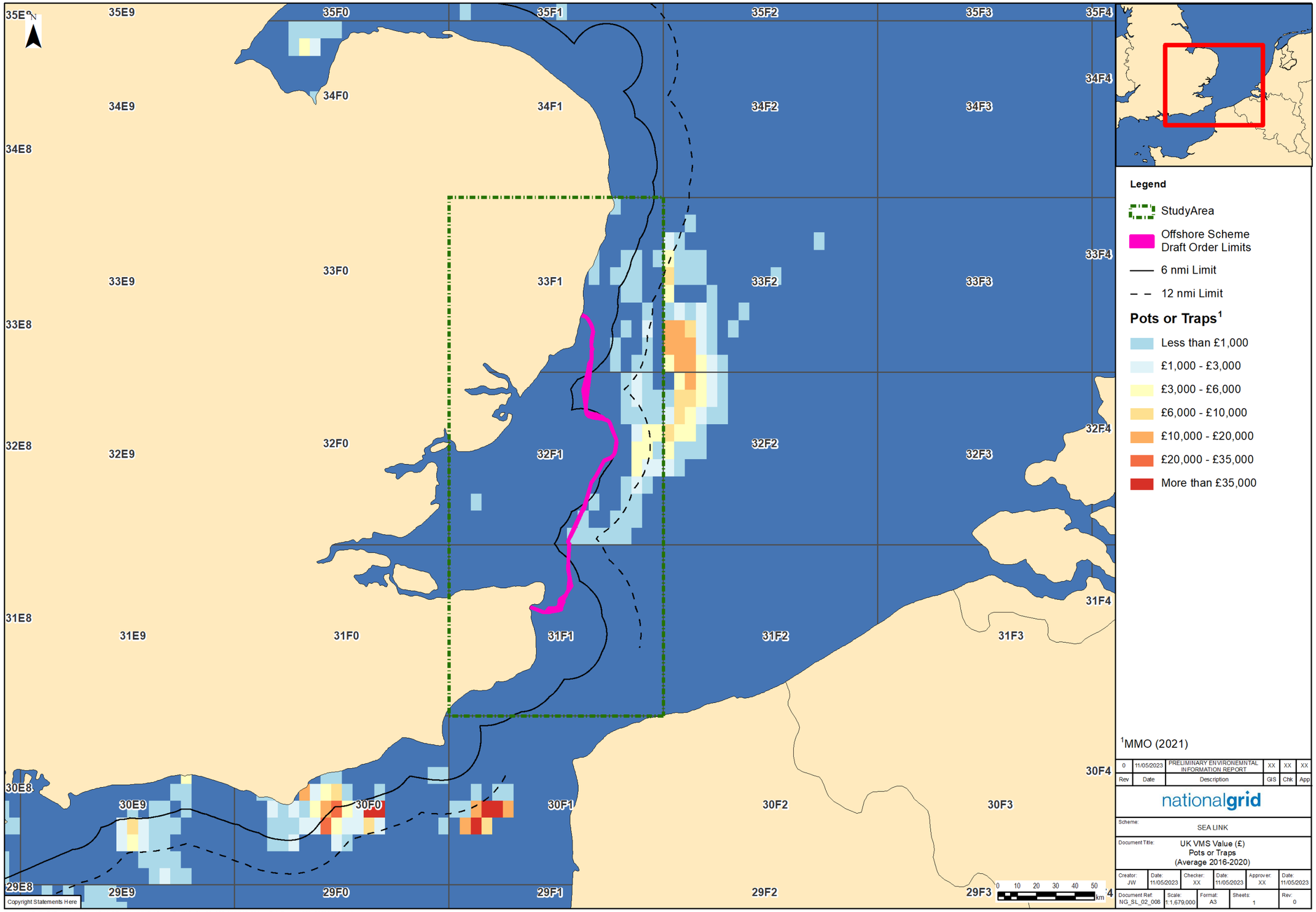


Figure 4.9.A.6.11: UK VMS (£) pots and traps (Average 2016 - 2020) (Source: MMO, 2021)

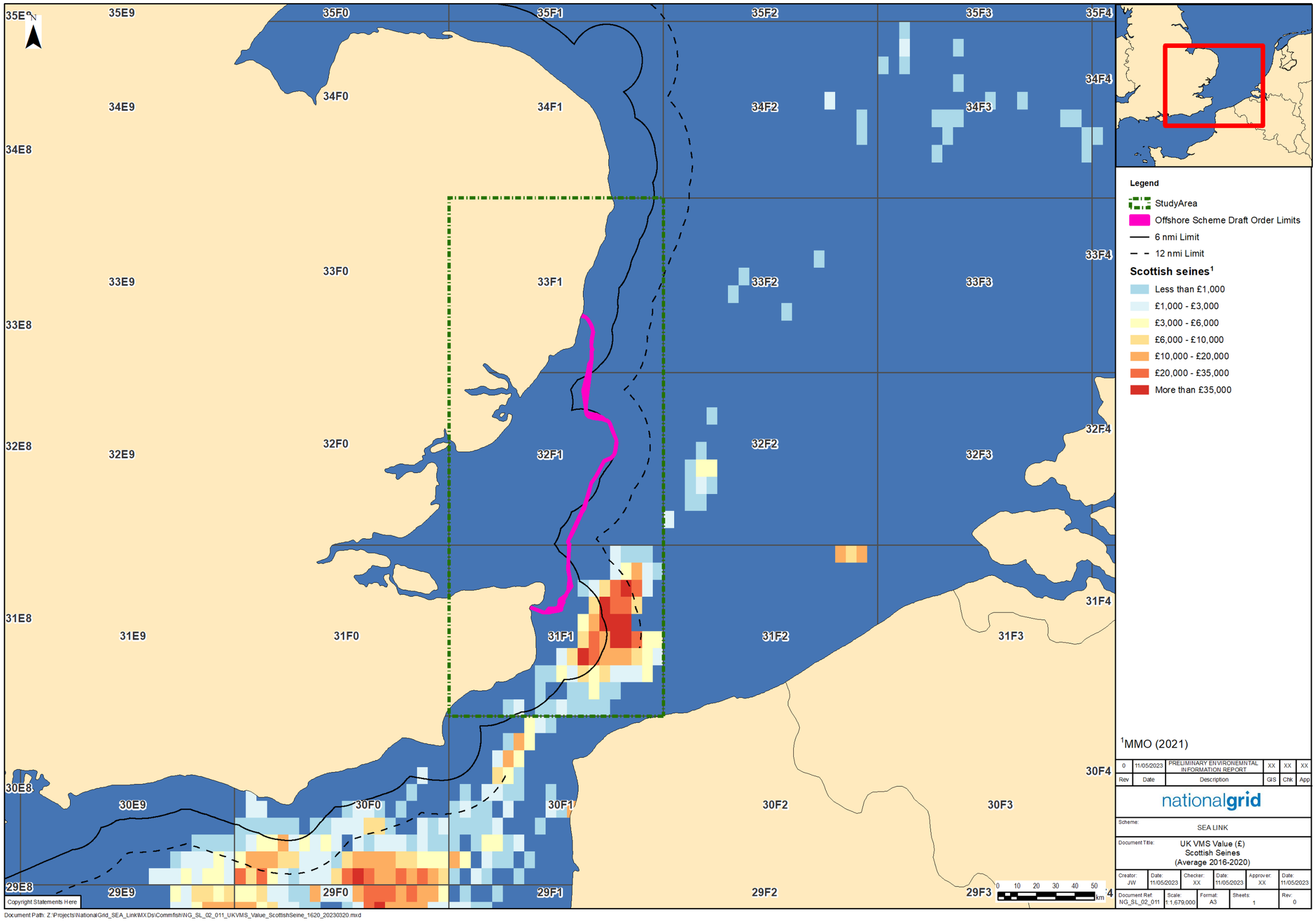


Figure 4.9.A.6.12: UK VMS (£) Scottish seines (Average 2016 - 2020) (Source: MMO, 2021)

Vessels, gear and operating patterns

4.9.A.6.25 UK fishing vessels present in the study area range in length, depending on fishing method, target species and fishing grounds, as indicated by Figure 4.9.A.6.7. Typical lengths of vessel by fishing method present based on landings values in the study area are as follows:

- 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.

4.9.A.6.26 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 4.9.A.6.6**.** It should be noted, however, that a vessel's port of registration or defined home port does not always reflect the port from which a vessel operates.

Table 4.9.A.6.6: 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
Ramsgate	21	0

4.9.A.6.27 UK fishing vessels working in the study area are anticipated to be predominantly locally based, the skippers of many of these were met with during consultation. Local vessels principally fish grounds within the UK's 12 nmi limit and mostly within the 6 nmi 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 by reducing the number of trips or staying more locally to reduce steaming times.

4.9.A.6.28 Figure 4.9.A.6.13 to Figure 4.9.A.6.16 show the spatial distribution of fishing grounds for different methods in the vicinity of the Offshore Scheme as identified by local fishers. A detailed summary of the vessel and gear specifications for the different methods used by inshore vessels in the study area can be found in Table 4.9.A.6.7 to Table 4.9.A.6.10. Typical examples of UK fishing vessels relevant to the Offshore Scheme are given in Image 4.9.A.5 to Image 4.9.A.7.

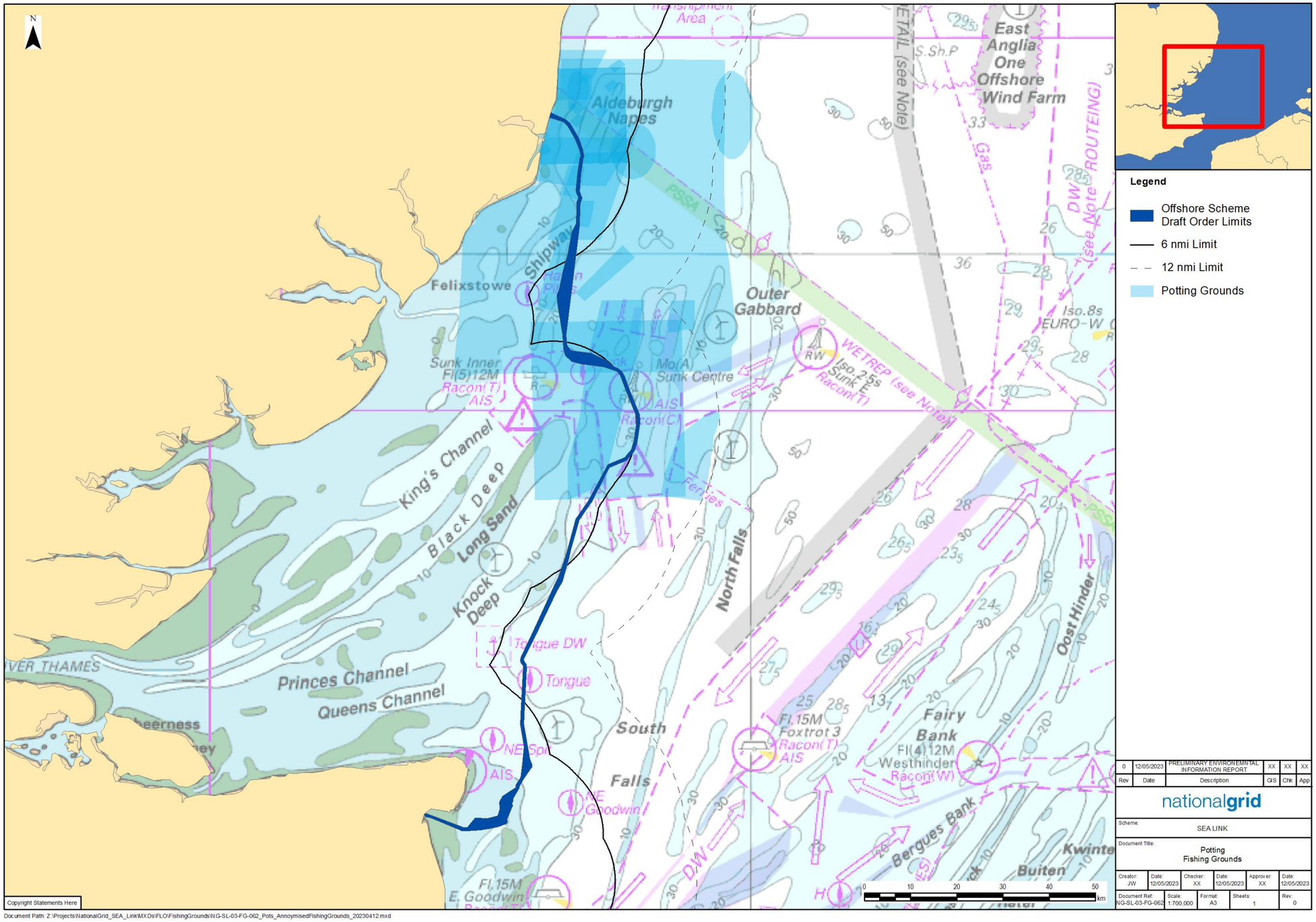


Figure 4.9.A.6.13: Fishing grounds for potting as identified through consultation

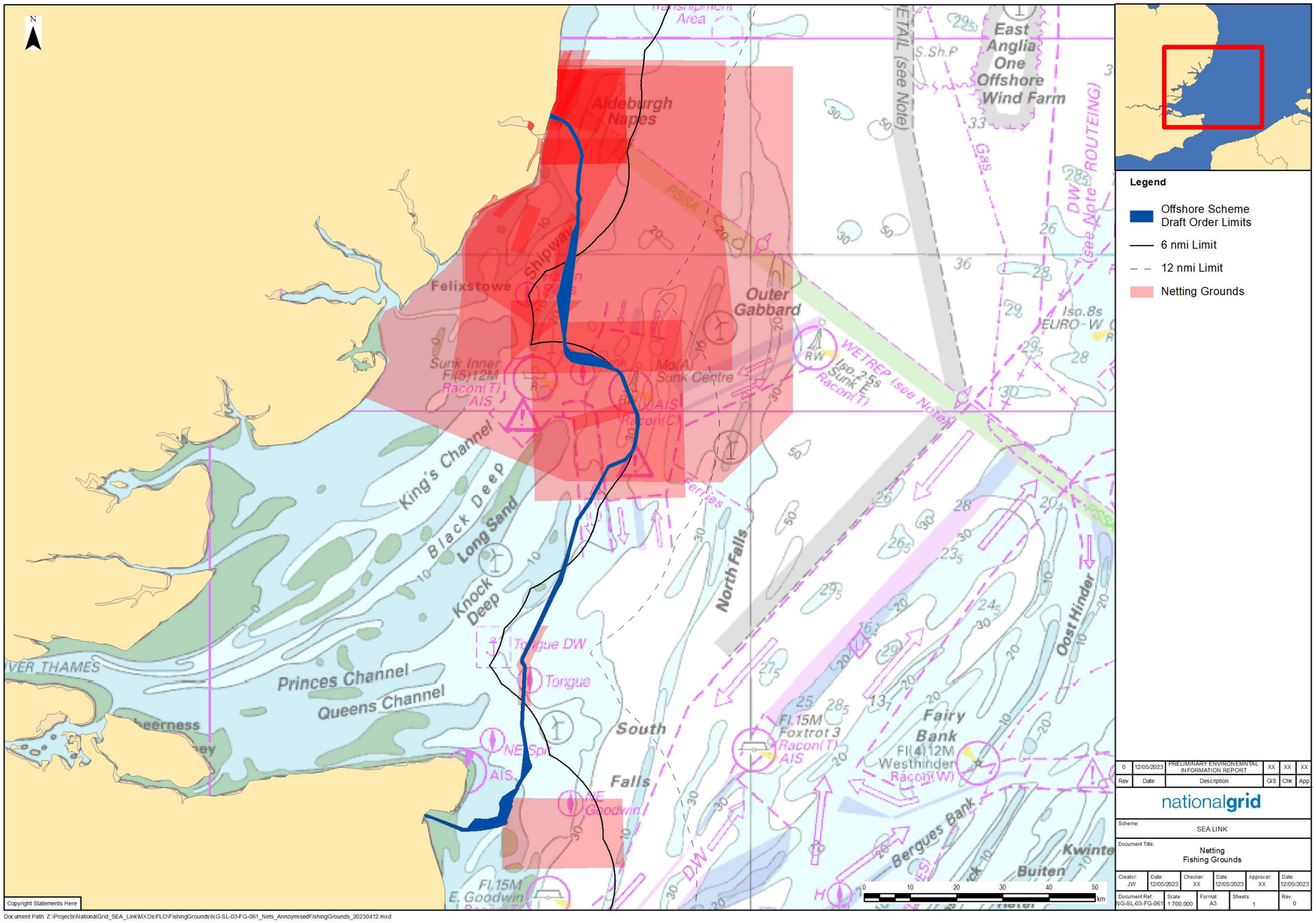


Figure 4.9.A.6.14: Fishing grounds for static nets as identified through consultation

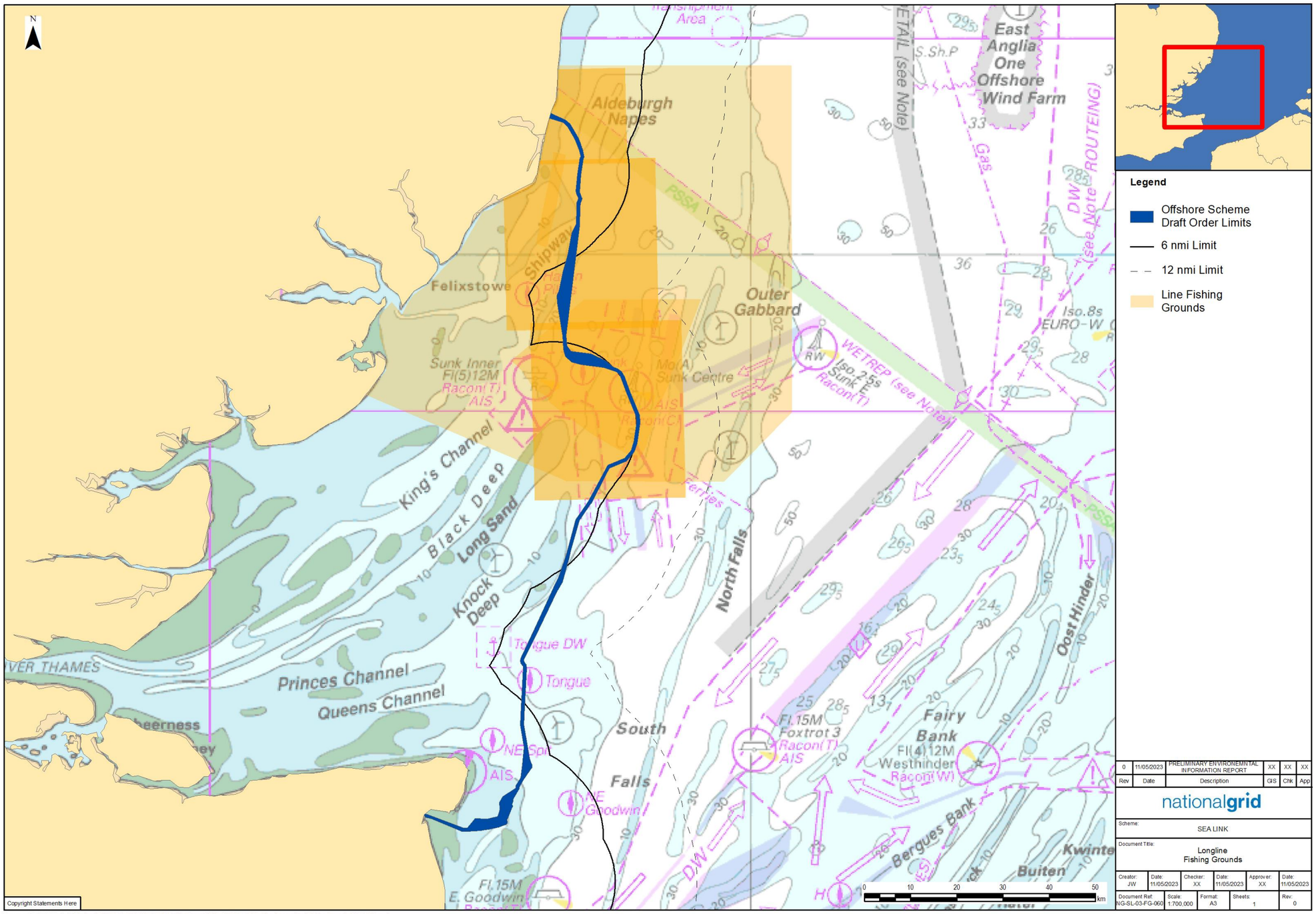


Figure 4.9.A.6.15: Fishing grounds for longlines as identified through consultation

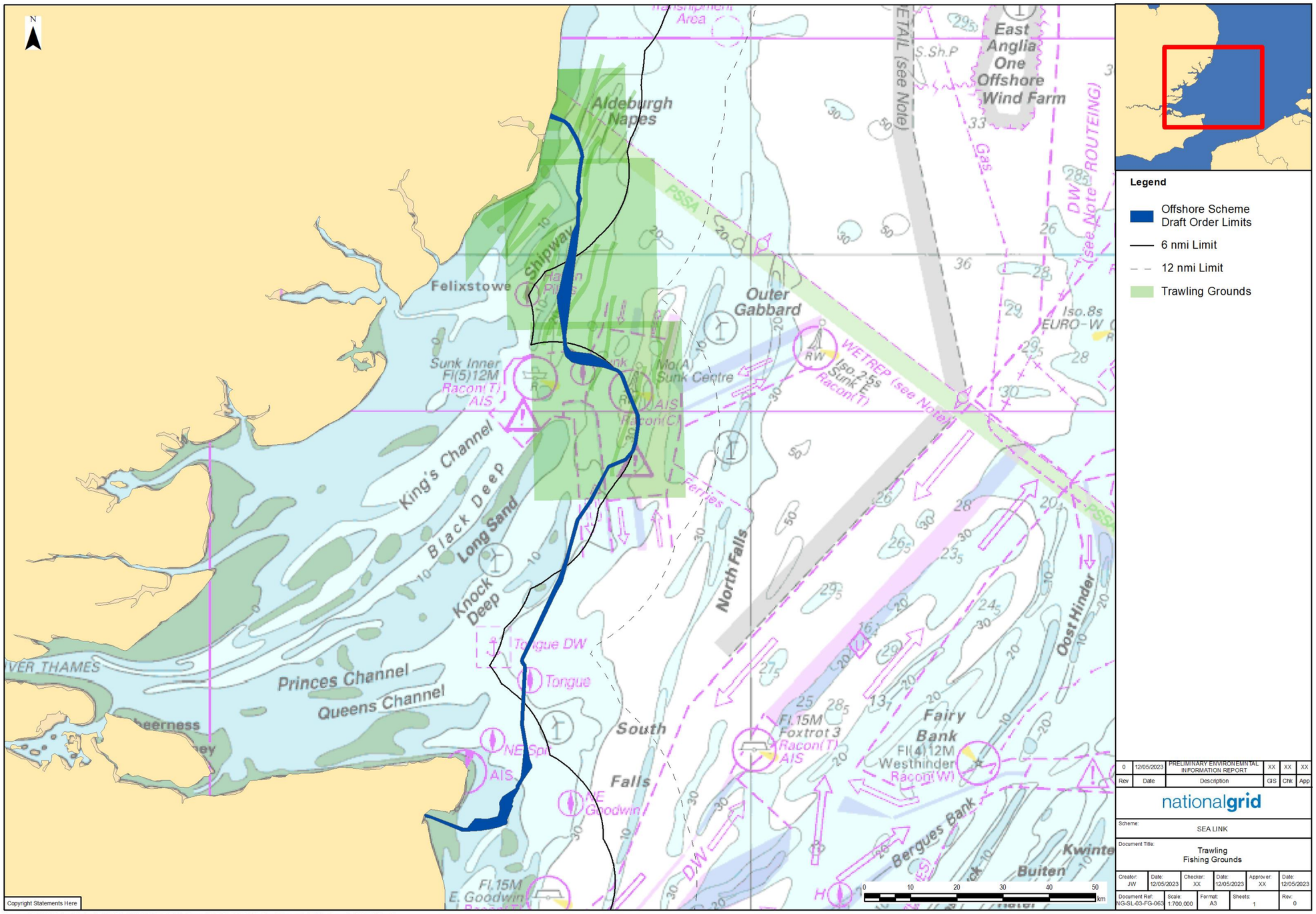


Figure 4.9.A.6.16 Fishing grounds for trawlers as identified through consultation

Table 4.9.A.6.7: Anonymised vessel details and operation for potting (Source: BMM, 2023)

Potting		Fisher 1	Fisher 2	Fisher 3	Fisher 4	Fisher 5	Fisher 6	Fisher 7	Fisher 9	Fisher 10	Fisher 11	Fisher 12
Vessel Details	Vessel Length (m)	3.85	8	11.7	6.9	6.9	8.25	10	8.3	6.85	10	7.75
	Main Engine HP		2 x 135	70			73.56	2 x 368	215	36	2 x 150	215
Fishing Effort	Average Number of Days Fished per Year	220	100	100 to 150	200 - 280	200	Variable	150	150 - 200	300	Variable	200
	Typical Fishing Trip Duration (hrs/day)	6 to 8	8	12	24	24	24	24	10	12	8 to 36	24
	Typical Distance Steamed (n. miles)	32	30	Variable	2 to 50	20	Variable	25	40	10	Variable	40
Gear Specs	Pot Type	Parlour	Parlour	Parlour	Parlour	Parlour	Parlour	Creel	Parlour	Parlour	Whelk	Parlour
	No. Pots Worked	5.0 Singles	250	30	150	50	40 to 50	85	90	60	>900	130
	No. Fleets	0	30	>10	15	5	Variable	12	10	Variable	Variable	13
	Fleet Length	0	Variable	300m	400m	100m	Variable	360m	300m	Variable	Variable	220m
	Distance Between Each Pot	460m	2 to 6m	>15m	30m	Variable	Variable	36m	30m	Variable	Variable	20m
	Typical depth fished	20 ft	60 ft	>120ft	20 to 80ft	16 to 115ft	60 to 90ft	110 to 150ft	50 to 115ft	15 to 60ft	Variable	130ft
	Typical Soak Time	1 to 2 days	7 days	7 days	3 to 6 days	Variable	3 days	5 days	Variable	2 to 4 days	Variable	7 days
Seasonality	Months Active	April - Sept	All year	May - Oct	All year	Spring and Summer	April to Dec	April to Dec	March to Jan	All year	March to Dec	March to Nov

Potting		Fisher 1	Fisher 2	Fisher 3	Fisher 4	Fisher 5	Fisher 6	Fisher 7	Fisher 9	Fisher 10	Fisher 11	Fisher 12
Target Species	Species	Lobster Brown Crab Whelks Hermits	Lobsters Crabs	Lobster Crab	Lobster Crab	Lobster Crab	Lobster Crab	Lobster Crab	Lobster Crab	Lobster Crab	Whelk	Lobster Crabs

Table 4.9.A.6-8: Anonymised vessel details and operation for static nets (Source: BMM, 2023)

Static Nets		Fisher 1	Fisher 2	Fisher 3	Fisher 4	Fisher 5	Fisher 7	Fisher 8	Fisher 9	Fisher 10	Fisher 11	Fisher 12
Vessel Details	Vessel Length (m)	3.85	8	11.7	6.9	6.9	10	8.29	8.3	6.85	10	7.75
	Main Engine HP		2 x 135	70			2 x 368	120	215	36	2 x 150	215
Fishing Effort	Average Number of Days Fished per Year	220	100	100	200 - 280	200	150	250	150 - 200	300	Variable	200
	Typical Fishing Trip Duration (hrs/day)	6 to 8	8	12	24	24	24	24	10	12hrs	8 - 36hrs	24
	Typical Distance Steamed per Trip (n. miles)	32	30	Variable	2 to 50	20	25	40	40	10	Variable	40
Gear Specification	Net Type	Trammel	Gill/ Trammel	Gill/trammel	Trammel	Gill nets	Trammel	Trammel	Drift	Trammel	Trammel	Drift
	No. Nets Per Fleet	3	4 to 6	>10	8	5	8	6	5	4	6	3
	Fleet Length (yrds)	300	400	>300	800	600	800	600	500	400	600	160
	No. Fleets fished	3	3 to 6	>5	5	4	2	9	5	5	>10	3
	Drift and Static Nets Fishing Period	18 to 24 hrs	1 to 48 hrs	1 to 24hrs	24hrs	24hrs	Variable	12hrs	1.5hrs	24hrs	Variable	2-4hrs

Static Nets		Fisher 1	Fisher 2	Fisher 3	Fisher 4	Fisher 5	Fisher 7	Fisher 8	Fisher 9	Fisher 10	Fisher 11	Fisher 12
	Typical depth fished	20 ft	100ft	<120 ft	20 to 80 ft	0 to 100ft	Variable	24 to 72ft	30 to 80ft	18 to 72ft	Variable	Variable
	Typical Soak Time	18 to 24 hrs	1 to 48 hrs	Variable	2 - 24 hrs	24hrs	Variable	12hrs	1.5hrs	24hrs	Variable	2-4hrs
Seasonality	Months Active	Nov-April	March - Dec	All year	All year	All Year	All year	April - Nov	All year	All year	All year	All year
Target Species	Species	Cod Bass Skate Flounder Whiting	Cod Bass Skate	Skate Bass Dover Sole	Sole Cod Skate	Sole Cod Skate	Bass Skate	Bass Skate Dover sole	Sole Bass Cod Skate	Sole Cod Bass	Cod Sole Bass Skate Whiting	Sole Skate

Table 4.9.A.6-9: Anonymised vessel details and operation for longlines (Source: BMM, 2023)

Longlines		Fisher 2	Fisher 3	Fisher 4	Fisher 5	Fisher 7	Fisher 9	Fisher 11	Fisher 12	Fisher 13	Fisher 14	Fisher 15
Vessel Details	Vessel Length (m)	8m	11.7	6.9	6.9	10	8.3	10	7.75	8.5	9	9.6
	Main Engine HP	2 x 135	70			2 x 368	215	2 x 150	215	147	80	90
Fishing Effort	Average Number of Days Fished per Year	100	100	200 - 280	200	150	150 - 200	Variable	200	200	~100	150
	Typical Fishing Trip Duration (hrs/day)	8	12	24	24	24	10	8 to 36	24	24	<24	12
	Typical Distance Steamed per Trip (n. miles)	30	Variable	2 to 50	20	25	40	Variable	40	60	1 to 35	1 to 50

Gear Specification	Line Type	6mm Nylon	5mm	4mm	Set longline	6mm Nylon	Nylon	3mm	3mm	Set longlines	5mm	3mm
	Length of Lines Used	0.05 miles	>4 miles	0.5 miles	3 miles	0.05 miles	3 miles	0.05 miles	0.75 miles	<3miles	0.2 miles	0.1 miles
	Total Length Deployed	5 miles	>4 miles	>4 miles	3 miles	2 miles	3 miles	3 miles	11 miles	<3miles	1.2 miles	2 miles
	Soak Time	2 to 3 hrs	6 hrs	2 to 24hrs	4hrs	4hrs	3hrs	>2hrs	6hrs	1 - 12hrs	2 -24hrs	2-24hrs
	Deployment Heading	Across the tide (SE to NW)	Across tides	Variable	West to East	West to East	Across tide	Variable	Variable	Variable	West to East	West to East
Seasonality	Months Active	All year	All year	All year	All year	All year	All year	All year	All year	All year	All Year	All Year
Target Species	Species	Dogfish Cod Herring Sprat	Spurdogs	Cod Skate Bass	Cod Skate Bass	Cod Skate Bass	Cod Skate Bass	Cod Skate Bass	Skate Bass	Skate Cod Bass	Bass Skate	Cod Skate Bass Pollack

Table 4.9.A.6.10: Anonymised vessel details and operation for trawling (Source: BMM, 2023)

Trawling		Fisher 6	Fisher 8
Vessel Details	Vessel Length (m)	8.25	8.29
	Main Engine HP	73.56	120
Fishing Effort	Average Number of Days Fished per Year	Variable	250
	Typical Fishing Trip Duration (hrs/day)	24	24
	Typical Distance Steamed per Trip (n. miles)	Variable	40
Gear Specification	Net Type	Single and twin	Twin rig
	Length of Warp	3 x 100 fathoms	15 - 45 fathoms
	Trawl Door Type	Steel V doors	Bison No.3
	Width Between Doors	60 to 120ft	70ft
	Ground Line Type	Chain and Disc	3inch rubber discs on chain
	Clump Weight Type and Weight	Skid, 70kg	Heavy duty mooring chain
	Average Tow Duration and Speed	2hrs at 2knts	2hrs at 2knts
	Typical Depth Trawled	50 to 100ft	24 – 90ft
Seasonality	Months Active	All year	March - November
Target Species	Species	Sole Skate	Sole Skate

Image 4.9.A.5 Multi-purpose vessel that operates pots and trawling gear (Source: BMM, 2021)

Image 4.9.A.6 Local vessel that operates nets and pots (Source: BMM, 2021)

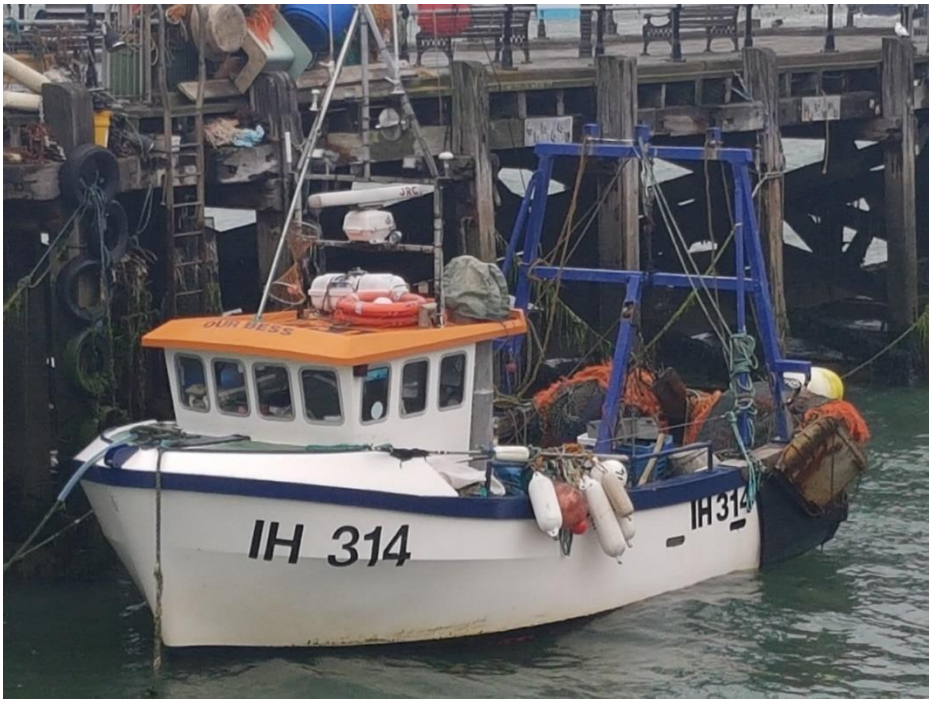


Image 4.9.A.7 Multi-purpose netting and trawling vessel (Source: BMM, 2021)

Belgian Fleet

Surveillance sightings

4.9.A.6.29 As shown in Image 4.9.A.8, the majority of Belgian vessels recorded in the study area were beam trawlers.

4.9.A.6.30 The spatial distribution of surveillance sightings of Belgian vessels is presented in Figure 4.9.A.6.17. As shown, the majority of Belgian surveillance sightings within the study area are in ICES rectangle 32F1, concentrated between the 6 nmi and 12 nmi limits. Belgian vessels recorded in the area are predominantly trawlers, with minimal sightings of other gear types.

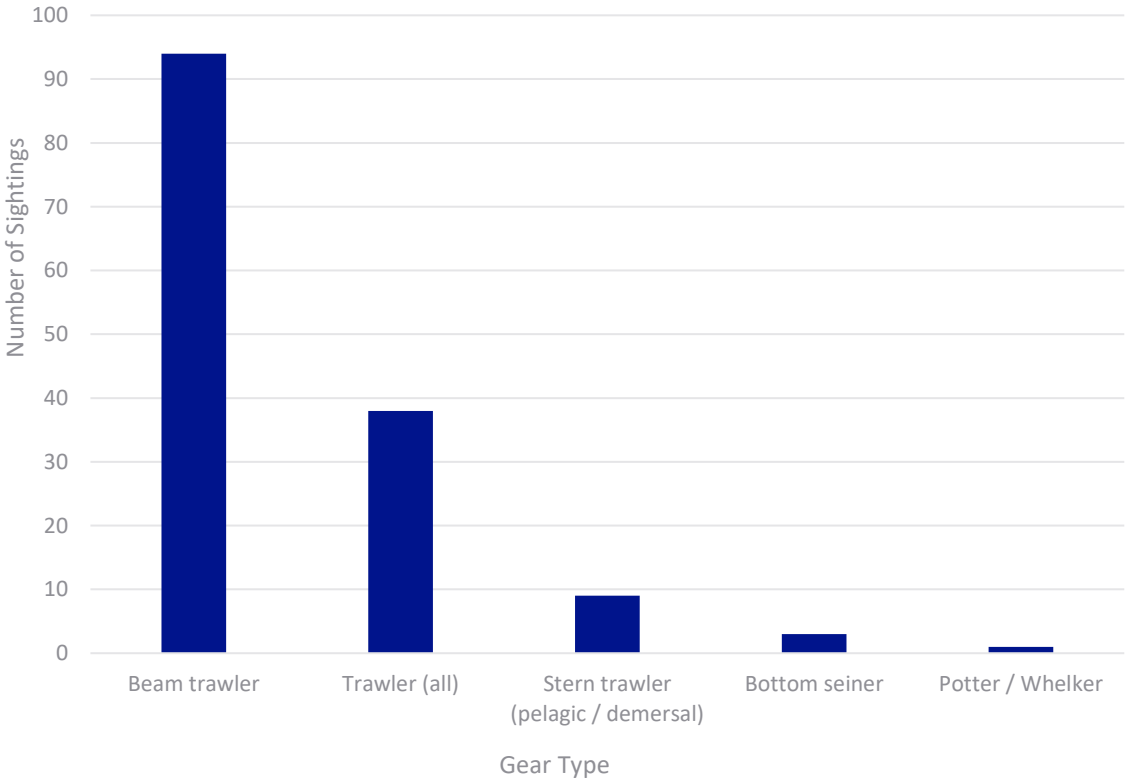


Image 4.9.A.8 Number of sightings of Belgian vessels in the Study Area (2012 – 2021) (Source: MMO, 2022)

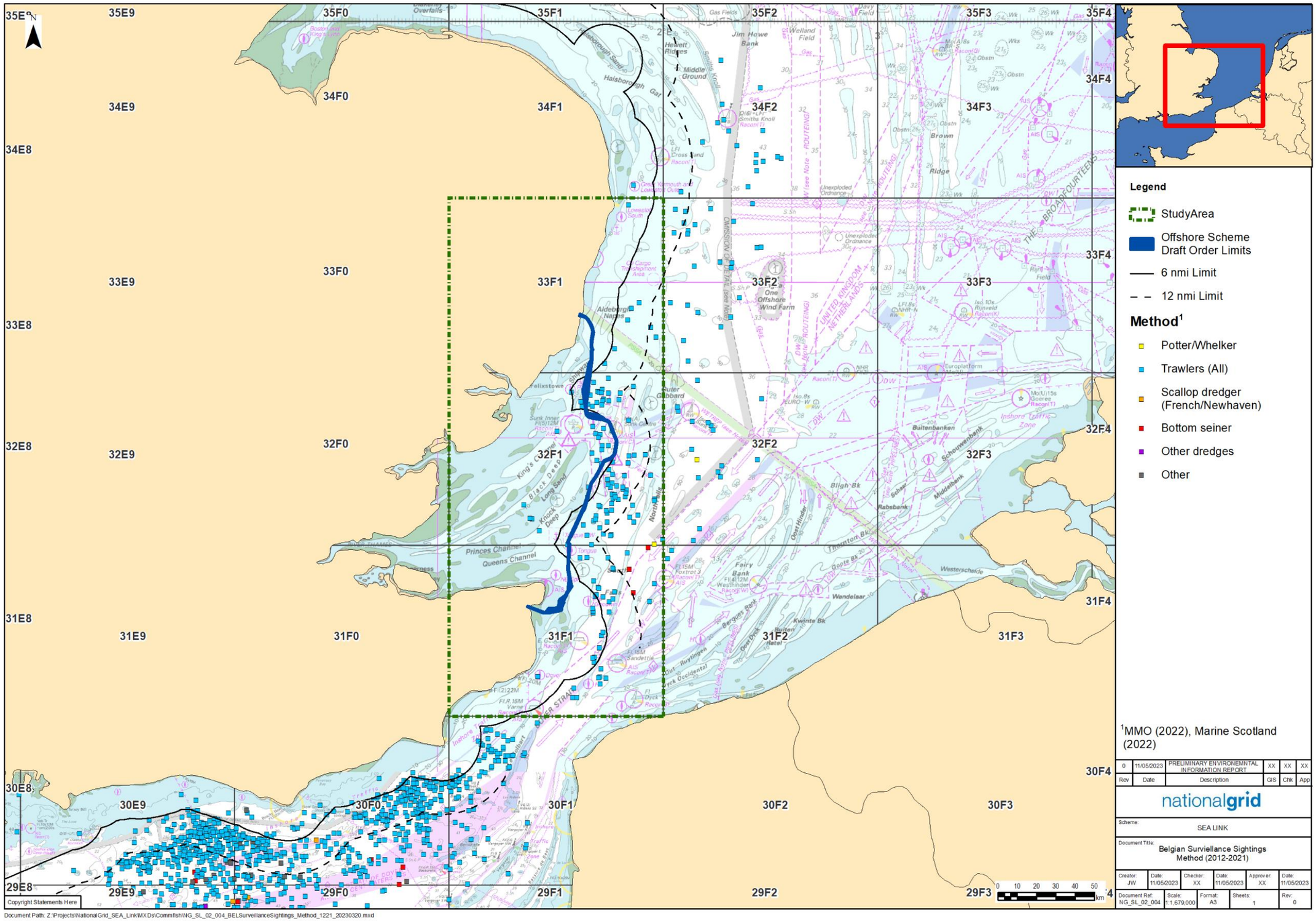


Figure 4.9.A.6.17: Belgian surveillance sightings by method (2012 – 2021) (Source: MMO, 2022)

Belgian landings values by species, method and vessel length

4.9.A.6.31 An indication of the value of the commercial fishing activities undertaken in the study area by Belgian vessels is based on analysis of Belgian landing values (£) by method, species and vessel length by ICES rectangle, provided in Figure 4.9.A.6.18 to Figure 4.9.A.6.19. Landings values are presented as an annual average for the five-year period 2020 to 2024 (inclusive of both years).

4.9.A.6.32 While both the landings data and the surveillance data show that Belgian activity is predominantly focussed in the English Channel, the landings data contradicts the surveillance data in that landings to the east of the study area appear relatively high (Figure 4.9.A.6.18), however few surveillance sightings have been recorded in the same area. This may be due to the temporal difference between the two datasets.

4.9.A.6.33 Across the Southern North Sea, beam trawling appears to be the predominant fishing method employed by the Belgian fleet. Within the study area, the highest landings are derived from ICES rectangle 32F1, which contains the mid-section of the Offshore Scheme. Landings in this rectangle are composed predominantly of beam trawls targeting Dover sole, and bottom otter trawls also targeting demersal species (Figure 4.9.A.6.19). Similarly, landings from ICES rectangle 33F1 are composed of beam trawls targeting Dover sole and bottom otter trawls targeting Nephrops.

4.9.A.6.34 Landings from ICES rectangle 31F1 are also predominantly composed of beam trawls targeting Dover sole as well as plaice. Bottom otter trawls, seines and nets also contribute to the total landings in this rectangle.

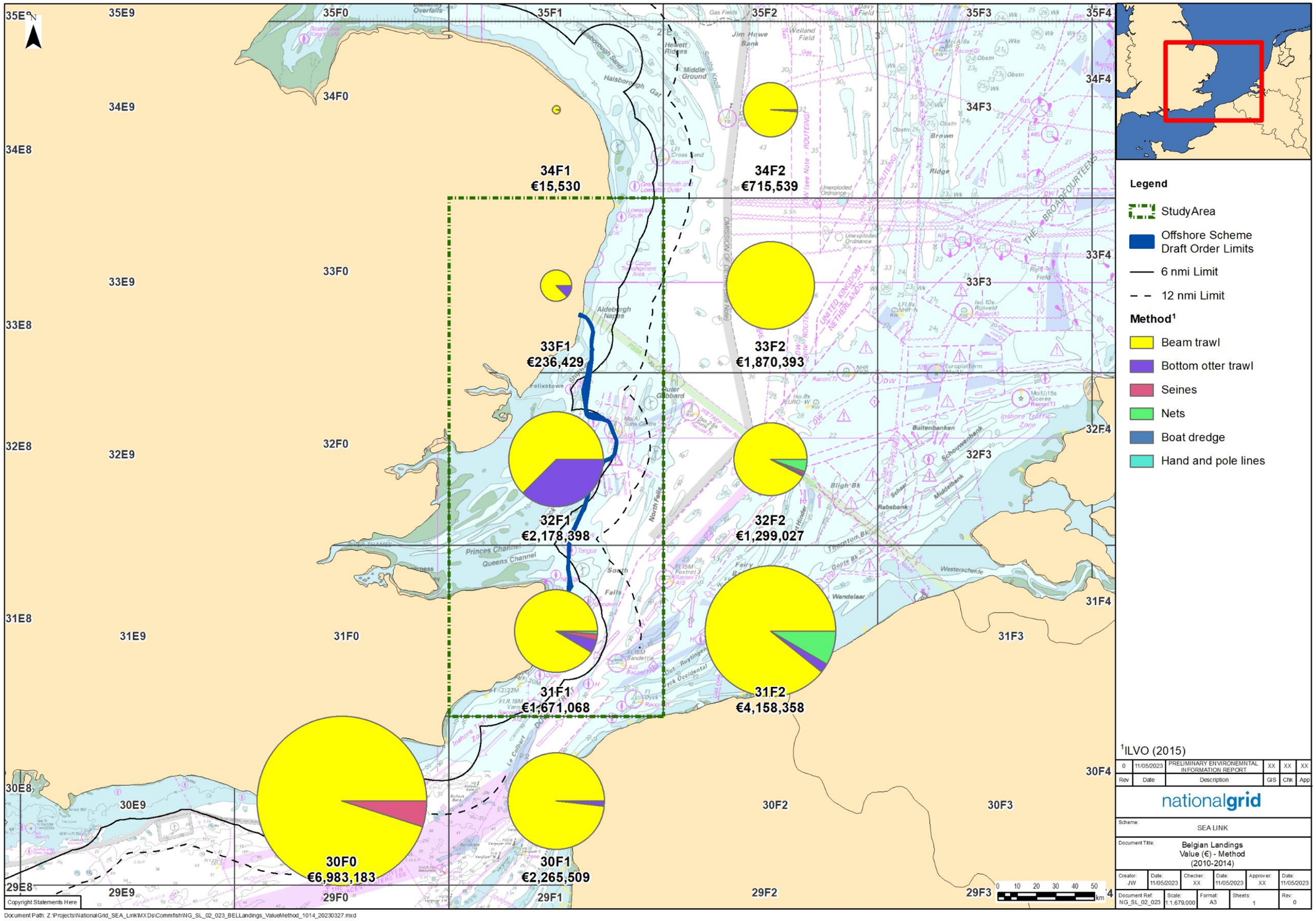


Figure 4.9.A.6.18: Belgian landings value (€) by method (Average 2010 - 2014) (Source: ILVO, 2015)

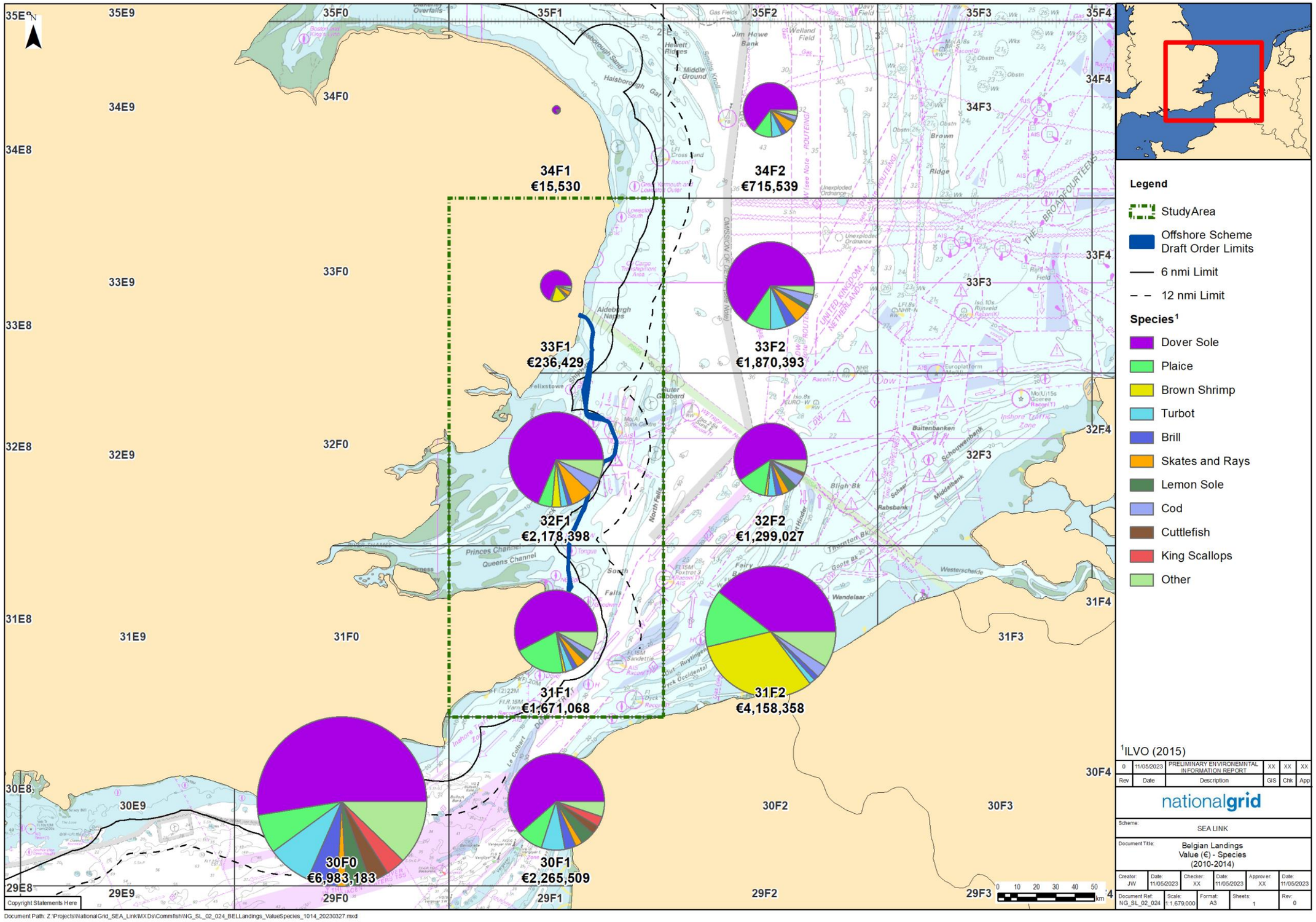


Figure 4.9.A.6.19: Belgian landings value (€) by species (Average 2010 - 2014) (Source: ILVO, 2015)

Spatial distribution of Belgian activity

4.9.A.6.35 Analysis of VMS data for Belgian beam trawlers indicates activity over wide areas of the southern North Sea and extending into the English Channel. The Offshore Scheme sustains areas of moderate value to the Belgian beam trawling fleet, with areas off the Belgian coast and in the Channel recording the highest activity levels (Figure 4.9.A.6.20).

4.9.A.6.36 In contrast, VMS data for Belgian demersal trawls suggests that activity is more spatially constrained, and the areas of high value are focussed largely within the study area in ICES rectangle 32F1 (Figure 4.9.A.6.21).

4.9.A.6.37 As apparent from Figure 4.9.A.6.22, seine netting activity by Belgian vessels occurs at negligible levels in the study area, with activity focussed largely in the English Channel.

4.9.A.6.38 It was confirmed during consultation that approximately 10 Belgian beam trawling vessels have relatively high activity levels in the first six months of the year, between the 6 and 12 nmi limits within the study area. There is also further activity to the south, with Belgian fishing vessels targeting mainly squid species (Rederscentrale, 2023, pers. comms, 28 March).

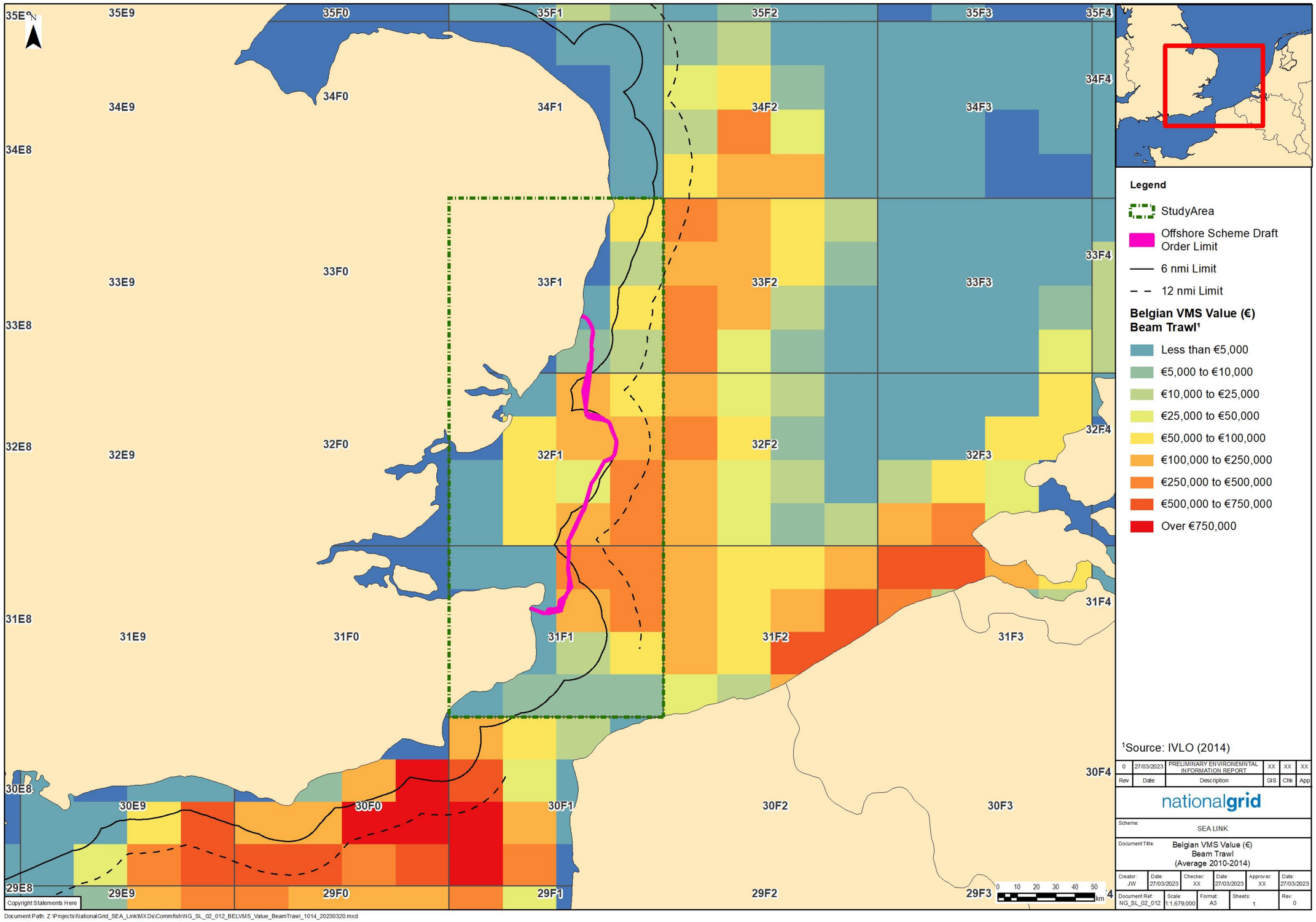


Figure 4.9.A.6.20: Belgian VMS (€) beam trawls (Average 2010 - 2014) (Source: ILVO, 2015)

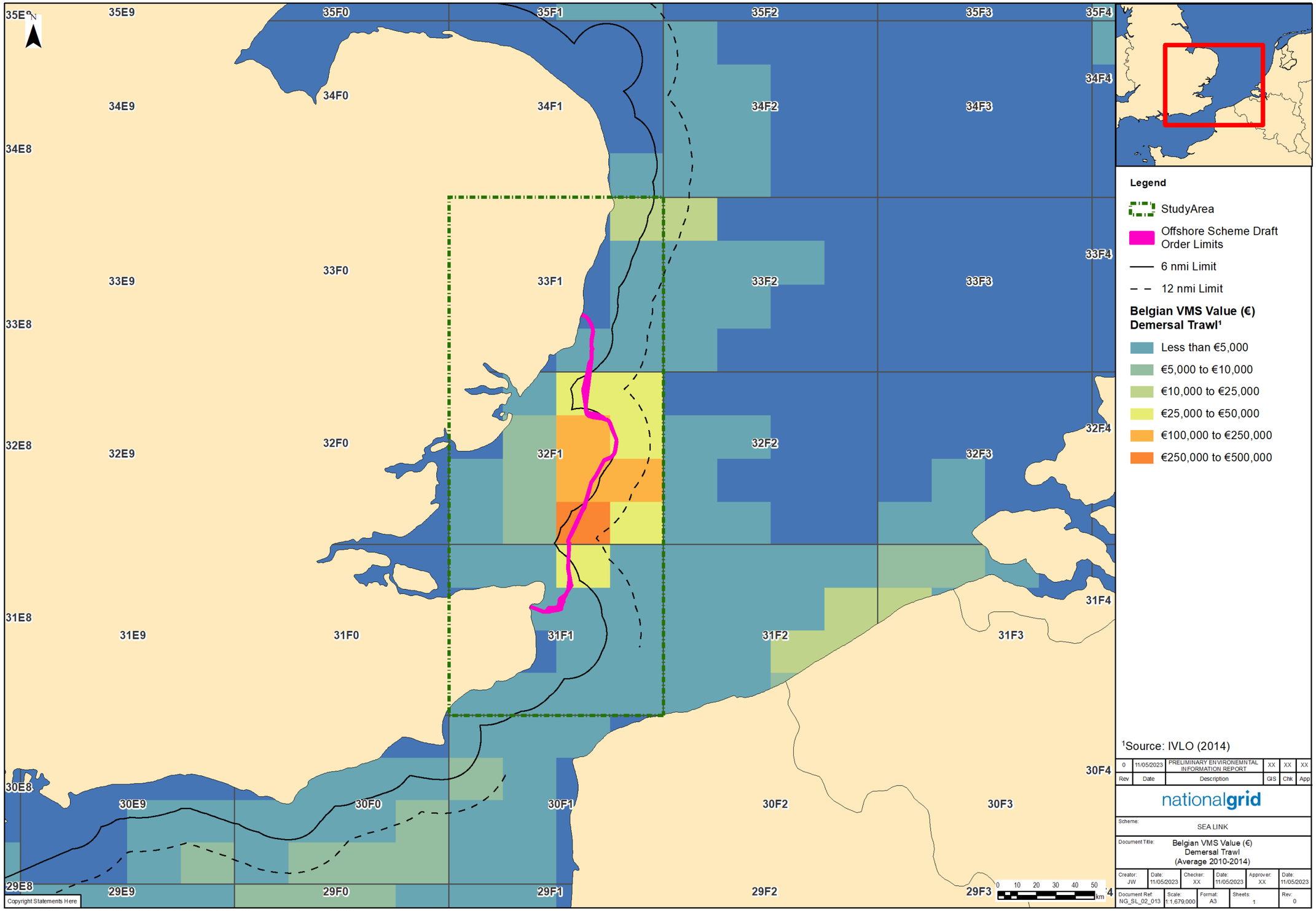


Figure 4.9.A.6.21: Belgian VMS (€) demersal trawls (Average 2010 - 2014) (Source: ILVO, 2015)

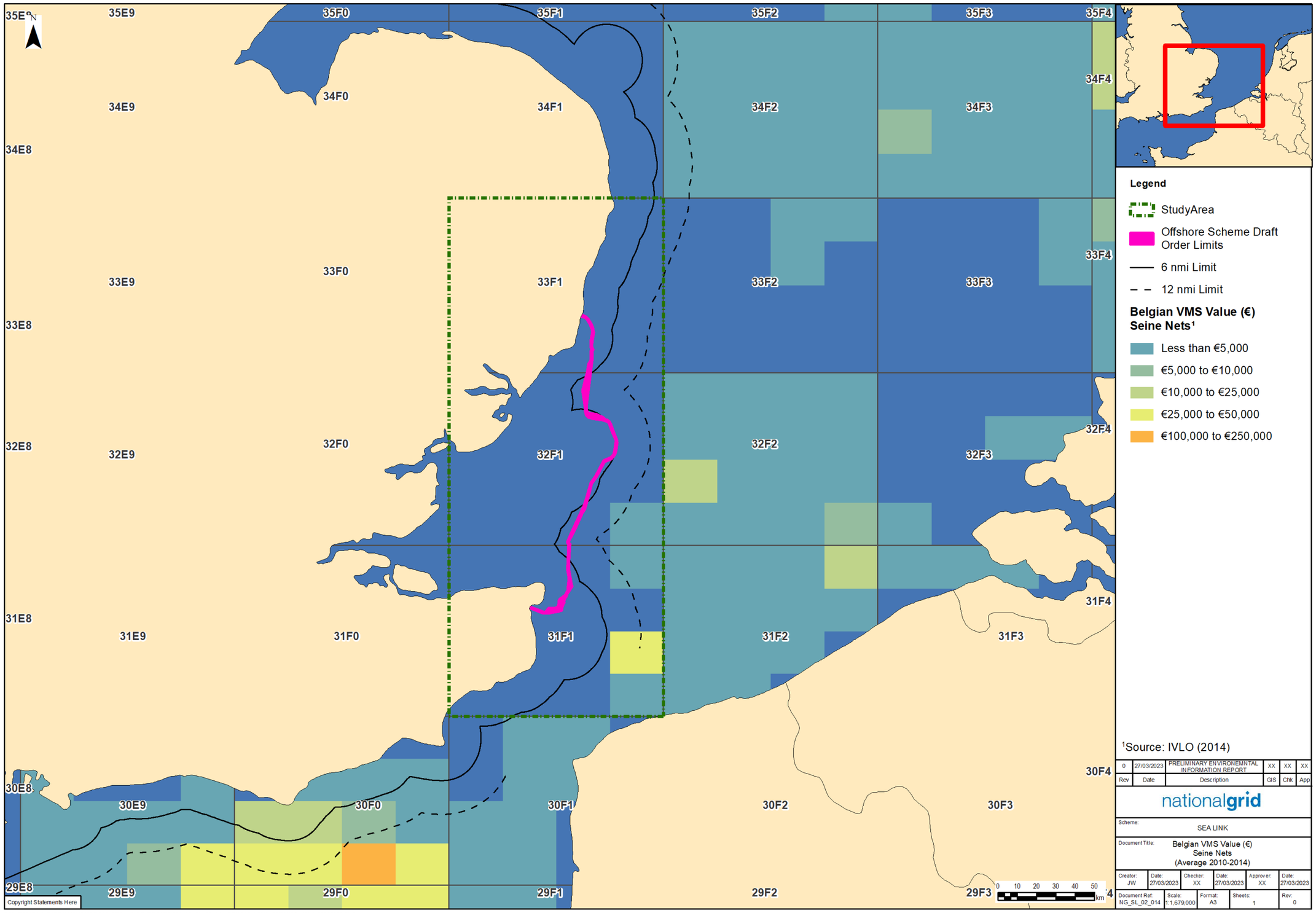


Figure 4.9.A.6.22: Belgian VMS (€) seine nets (Average 2010 - 2014) (Source: ILVO, 2015)

Vessels, gear and operating patterns

4.9.A.6.39 During consultation it was noted that the Belgian Eurokotters (which are the smaller beam trawlers in the Belgian fleet) operate between the 6 and 12 nmi limits within the study area. These vessels operate primarily in this area in the first six months of the year and have relatively high beam trawling activity, targeting sole, with rays being an important by-catch species. These vessels mostly transit back to Ostend to land their respective catches after five days of fishing (Rederscentrale, 2023, pers. Comms, 28 March).

4.9.A.6.40 Beyond the study area, to the south (in ICES 30F1 and 30F0), Belgian fishing vessels target squid species (Figure 4.9.A.6.19).

Image 4.9.A.9 A Belgian Eurokotter (BMM, 2017)

Dutch Fleet

Surveillance sightings

4.9.A.6.41 As shown in Image 4.9.A.10, the majority of Dutch vessels recorded in the study area were beam trawlers, followed by bottom seiners.

4.9.A.6.42 The spatial distribution of surveillance sightings of Dutch vessels is illustrated in Figure 4.9.A.6.23. As shown, Dutch vessels recorded in the study area are concentrated to the east of the Offshore Scheme, beyond the 12 nmi limit within ICES rectangles 32F1 and 31F1.

4.9.A.6.43 It should be noted that Dutch vessels do not have historic fishing rights to access the area between the 6 and 12 nmi limits within the study area, and therefore can only fish from the 12 nmi limit and beyond. For the few Dutch fishing vessels observed inside the 12 nmi limit in Figure 4.9.A.6.23, it can reasonably be expected that these vessels are transiting to or from a port.

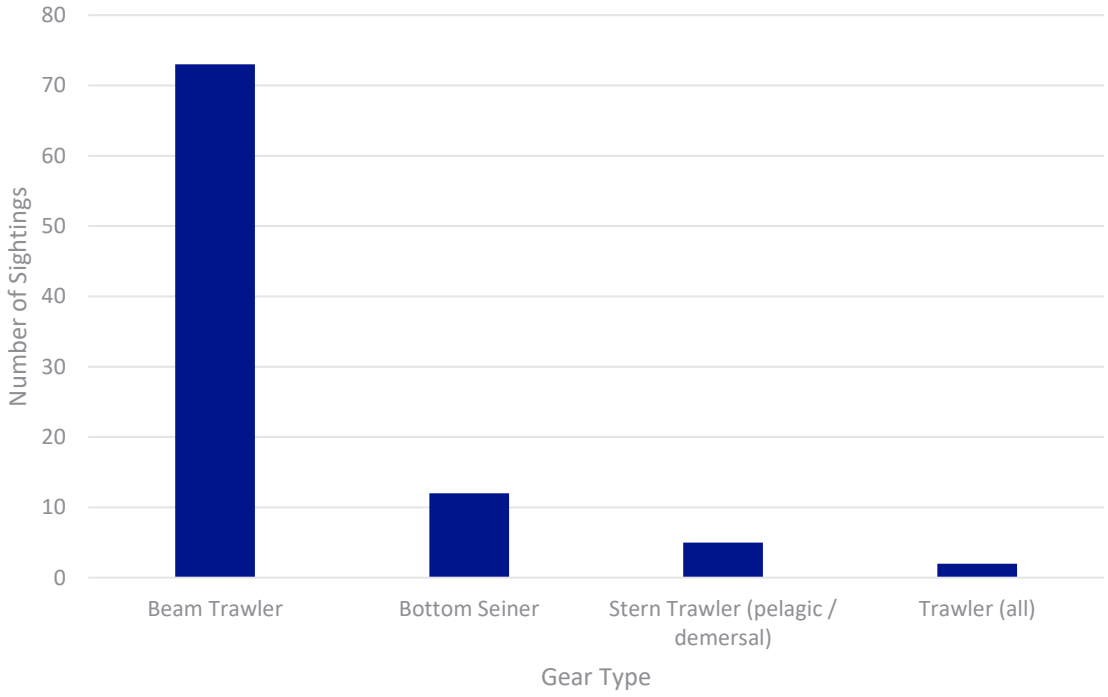


Image 4.9.A.10 Number of sightings of Dutch vessels in the Study Area (2012 – 2021) (Source: MMO, 2022)

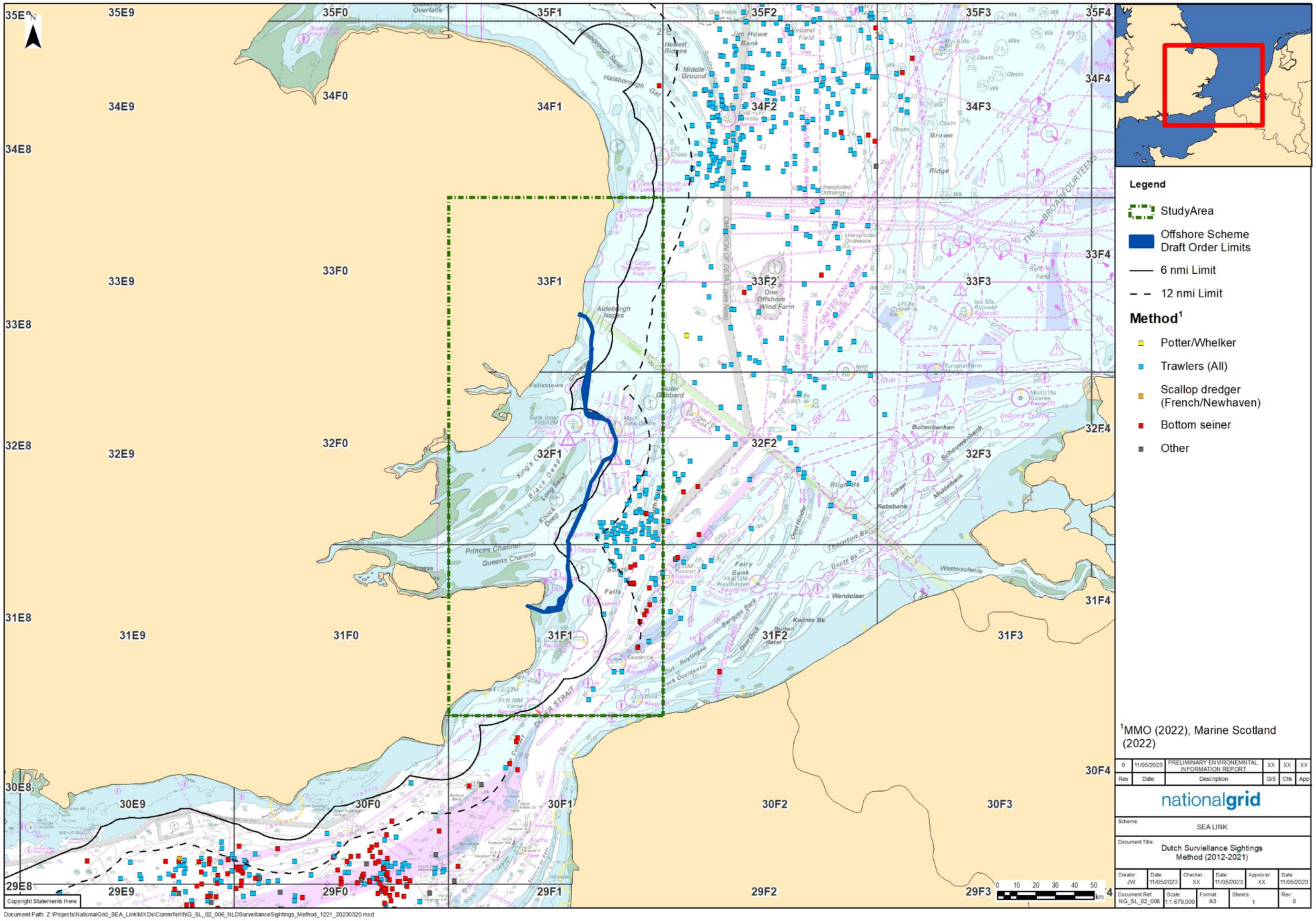


Figure 4.9.A.6.23: Dutch Surveillance Sightings by Method (2012 - 2021) (Source: MMO, 2022)

Dutch landings by species and method

4.9.A.6.44 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 4.9.A.6.24 and Figure 4.9.A.6.25 respectively.

4.9.A.6.45 The spatial distributions of landings deviate slightly from the surveillance data, however in both datasets it is apparent that the majority of fishing activity occurs outside the study area. The highest value landings are located within ICES 32F2 and 31F2, to the east of the study area, with landings values of over €13m and €11m respectively. In comparison, the highest landings within the study area are located in ICES 32F1 and 31F1, with a value of just over €1m in each respective ICES rectangle (Figure 4.9.A.6.24). The majority of landings by Dutch vessels are from beam trawls, with seine nets, traps, midwater trawls and demersal trawls also contributing to total landings (Figure 4.9.A.6.24).

4.9.A.6.46 The main species landed by Dutch fishing vessels inside the study area are sole and fish grouped into the category “other”, with lesser landings of Atlantic herring, turbot, and European plaice, as illustrated by Figure 4.9.A.6.25. Sole is also the predominant species landed outside of the study area.

4.9.A.6.47 As previously mentioned, Dutch vessels cannot fish inside the 12 nmi limit, therefore the landings values given within ICES rectangles 33F1, 32F1 and 31F1 are expected to be from the eastern extent of each respective ICES rectangle.

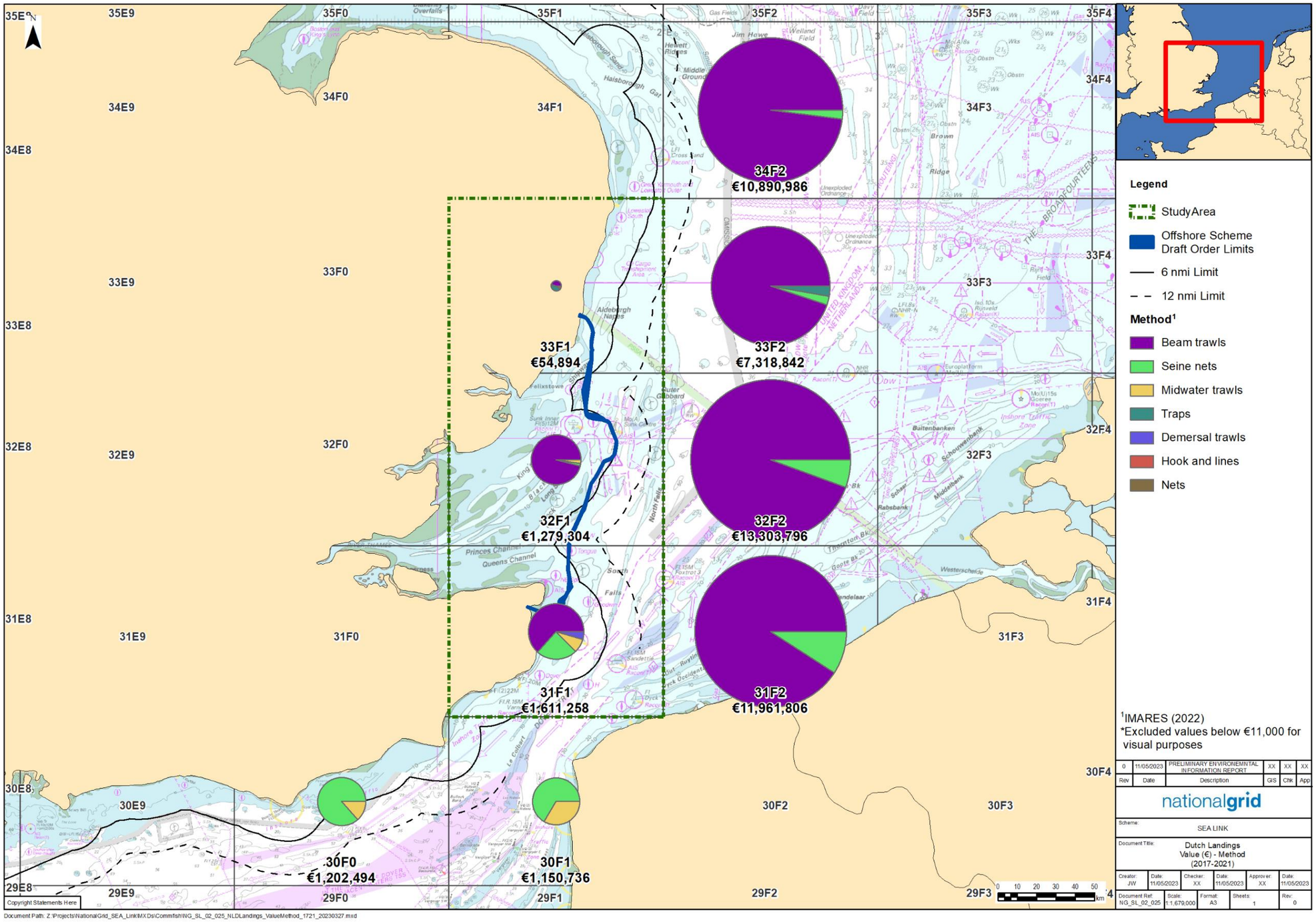


Figure 4.9.A.6.24: Dutch landings value (€) by method (Average 2017 – 2021) (WUR, 2022)

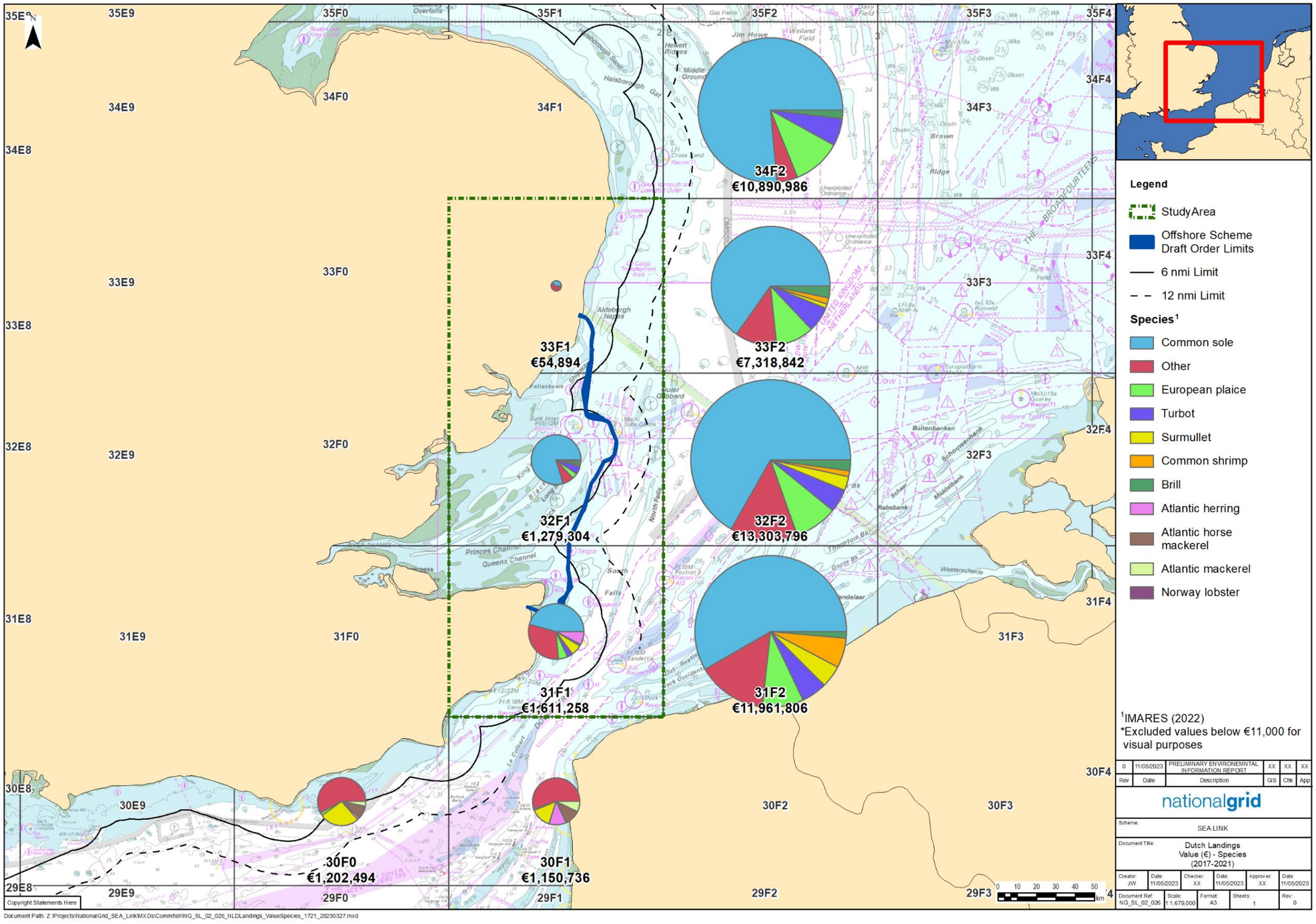


Figure 4.9.A.6.25: Dutch landings value (€) by species (Average 2017 - 2021) (Source: WUR, 2022)

Spatial distribution of Dutch landings

4.9.A.6.48 Analysis of VMS data for Dutch fishing vessels by method is shown by Figure 4.9.A.6.26 to Figure 4.9.A.6.29, encompassing beam trawling, demersal trawling, seine netting and midwater trawling activity.

4.9.A.6.49 Figure 4.9.A.6.26 shows that the waters to the east of the study area represent a high value area for the Dutch beam trawling fleet. This is corroborated by the landings data, which also shows the majority of activity is focussed outside of the study area. Within the study area, beam trawling is focused beyond the 12 nmi limit within ICES 32F1 and 31F1. It should be noted, that although there appears to be Dutch beam trawling which intersects with the Offshore Scheme in ICES 32F1 and 31F1 (at comparatively low levels), that Dutch fishing vessels are not permitted to fish within the 12 nmi limit, this is likely due to the recording of data which is presented at 1/16th of an ICES rectangle.

4.9.A.6.50 In relation to demersal trawling, illustrated by Figure 4.9.A.6.27 the Southern North Sea represents a comparatively low value area to the Dutch fishing fleet. The majority of activity that does occur is focussed in the southern section of the study area and in the waters adjacent to it in the east. This is corroborated by the landings data, which show a small contribution to total landings by demersal trawls in ICES rectangle 31F1.

4.9.A.6.51 Analysis of VMS data for Dutch seine netting vessels, as shown by Figure 4.9.A.6.28, shows that the majority of activity occurs to the east of the Offshore Scheme and within the English Channel. This is supported by the landings data, which shows that the majority of landings from seine nets are located within the English Channel. There appears to be an area of moderately high value located in ICES rectangle 31F1, within the study area. However, it should be noted that due to the reporting of data which is presented at 1/16th of an ICES rectangle, it is expected that this activity occurs beyond the 12 nmi limit (outside of the Offshore Scheme).

4.9.A.6.52 As shown by Figure 4.9.A.6.29, Dutch midwater trawling occurs predominantly at low levels within the Southern North Sea, including the study area, with the majority of activity again focussed in the English Channel.

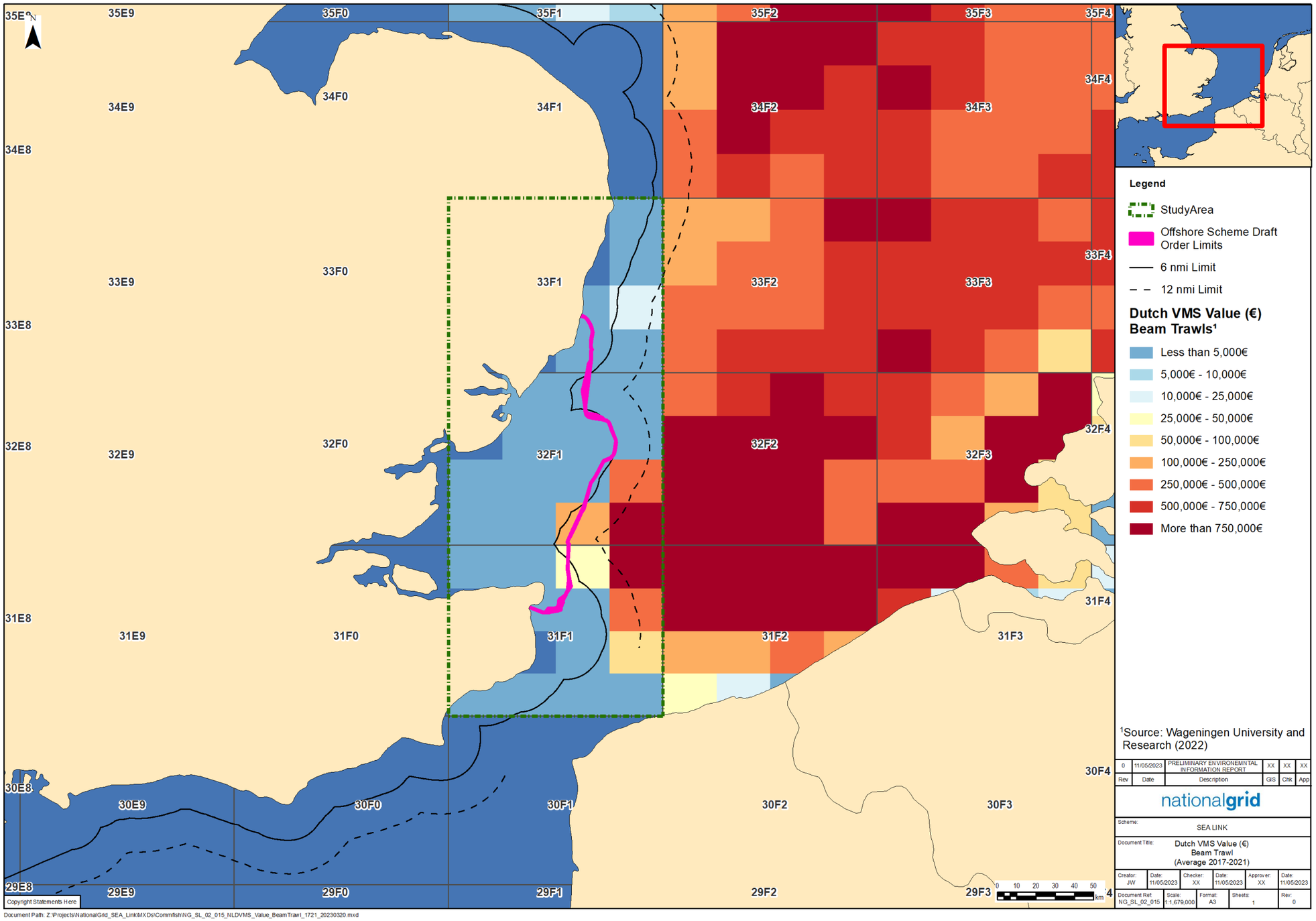


Figure 4.9.A.6.26: Dutch VMS (€) beam trawls vessels Over 12m (Average 2017 – 2021) (Source: WUR, 2022)

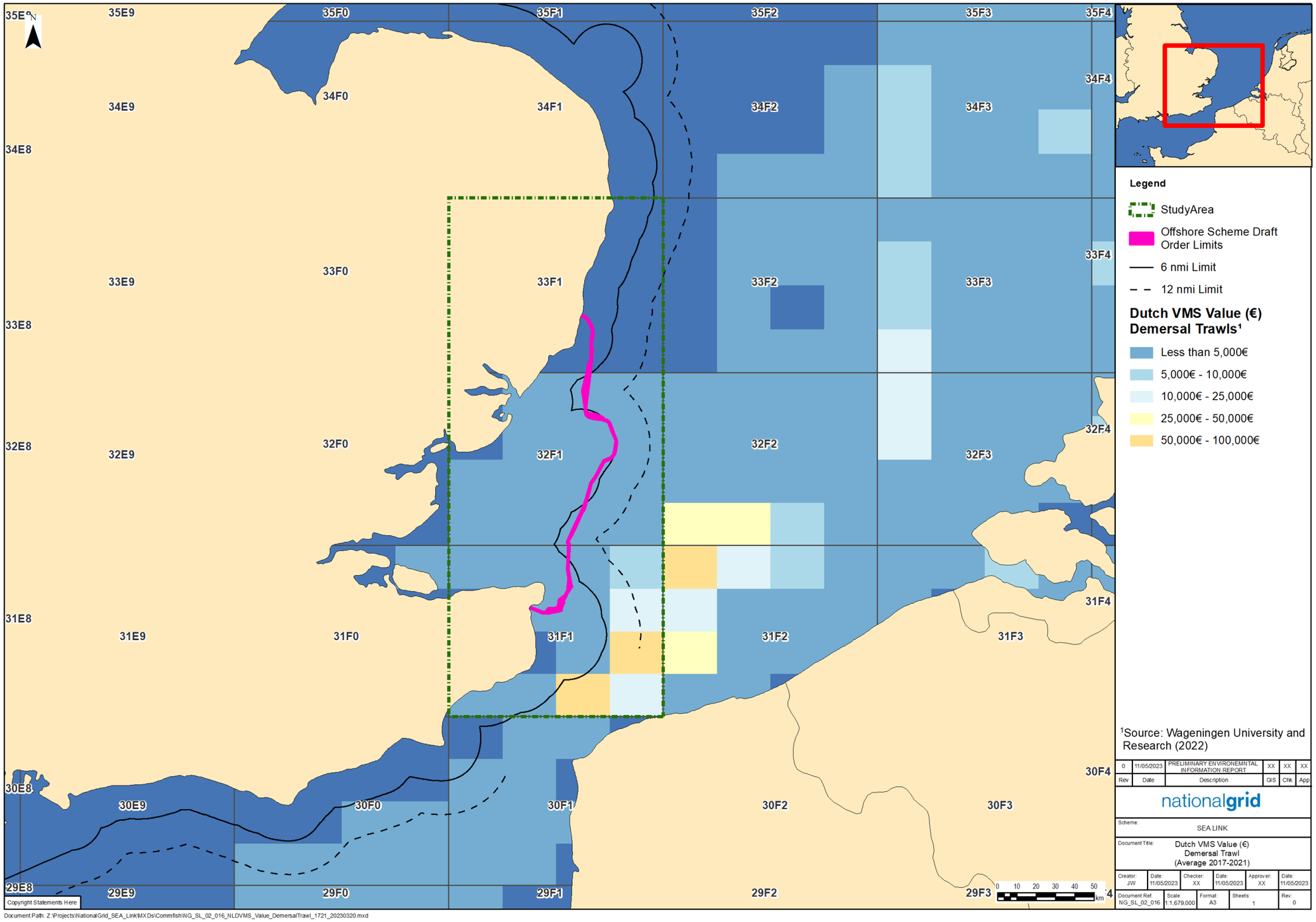


Figure 4.9.A.6.27: Dutch VMS (€) demersal trawls vessels over 12m (Average 2017 - 2021) (Source: WUR, 2022)

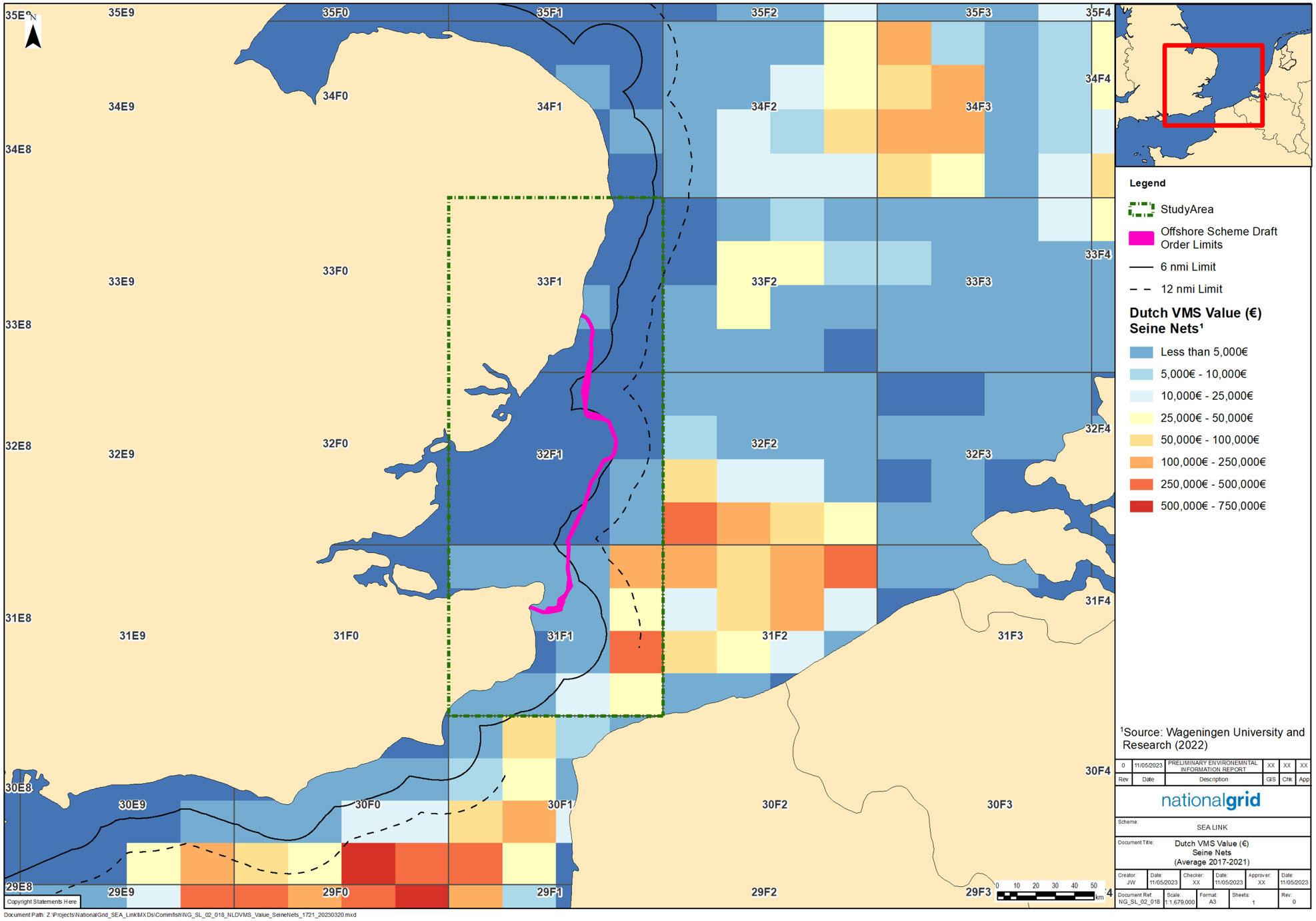


Figure 4.9.A.6.28: Dutch VMS (€) seine nets vessels over 12m (Average 2017 – 2021) (Source: WUR, 2022)

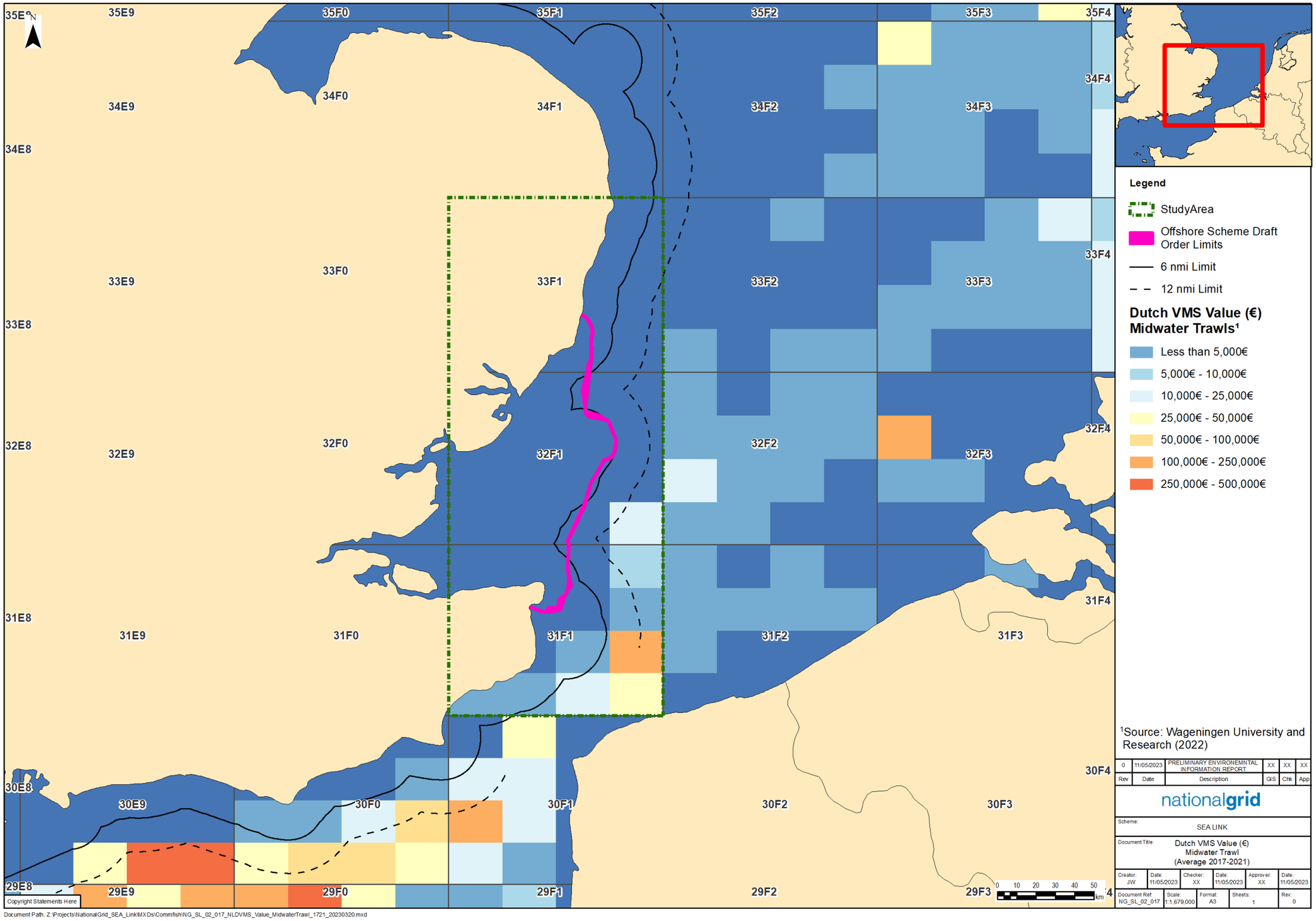


Figure 4.9.A.6.29: Dutch VMS (€) midwater trawls vessels Over 12m (Average 2017 - 2021) (Source: WUR, 2022)

Vessels, gears and operating patterns

4.9.A.6.53 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 (Ref 9.3).

4.9.A.6.54 The majority of Dutch beam trawlers under 24m in length in the Southern North Sea have deployed pulse wings in the past (Ref 9.3) due to a 2006 derogation from the EU ban on pulse fishing implemented in 1998 (Ref 9.4). However, since 2015, only 84 exemptions from the EU ban on pulse wing trawling were granted to Dutch vessels (Ref 9.5). In 2019 pulse fishing in the EU was banned completely, 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 (Ref 9.6). 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 (Ref 9.7).

4.9.A.6.55 The majority of seine netters within the Dutch fleet are converted beam trawlers, this may be due to the rise in fuel prices, as seine nets per tonne of fish caught consume considerably less fuel than beam trawlers (Ref 9.6). An example of a Dutch seine netter is given in Image 4.9.A.11.

Image 4.9.A.11 Dutch seine netter (Source: Trawler Photos, 2018)

French fleet

Surveillance sightings

4.9.A.6.56 As illustrated in Image 4.9.A.12 Number of sightings of French vessels in the Study Area (2012 – 2021) (Source: MMO, 2022)

4.9.A.6.57 , the majority of French vessels recorded in the study area are trawlers, with sightings of other vessel categories being very low.

4.9.A.6.58 The spatial distribution of surveillance sightings of French fishing vessels is shown by Figure 4.9.A.6.30. As illustrated, the majority of sightings of French vessels are within the English Channel, with comparatively few sightings of French fishing vessels within the study area. The majority of sightings within the study area are located within ICES 31F1.

4.9.A.6.59 French vessels have historic fishing rights to access the area between the 6 and 12 nmi limit within the study area and can therefore fish across a small proportion of the Offshore Scheme. It is expected that French vessels sighted inside the 6 nmi limit (Image 4.9.A.12), are transiting to or from a port and not actively fishing.

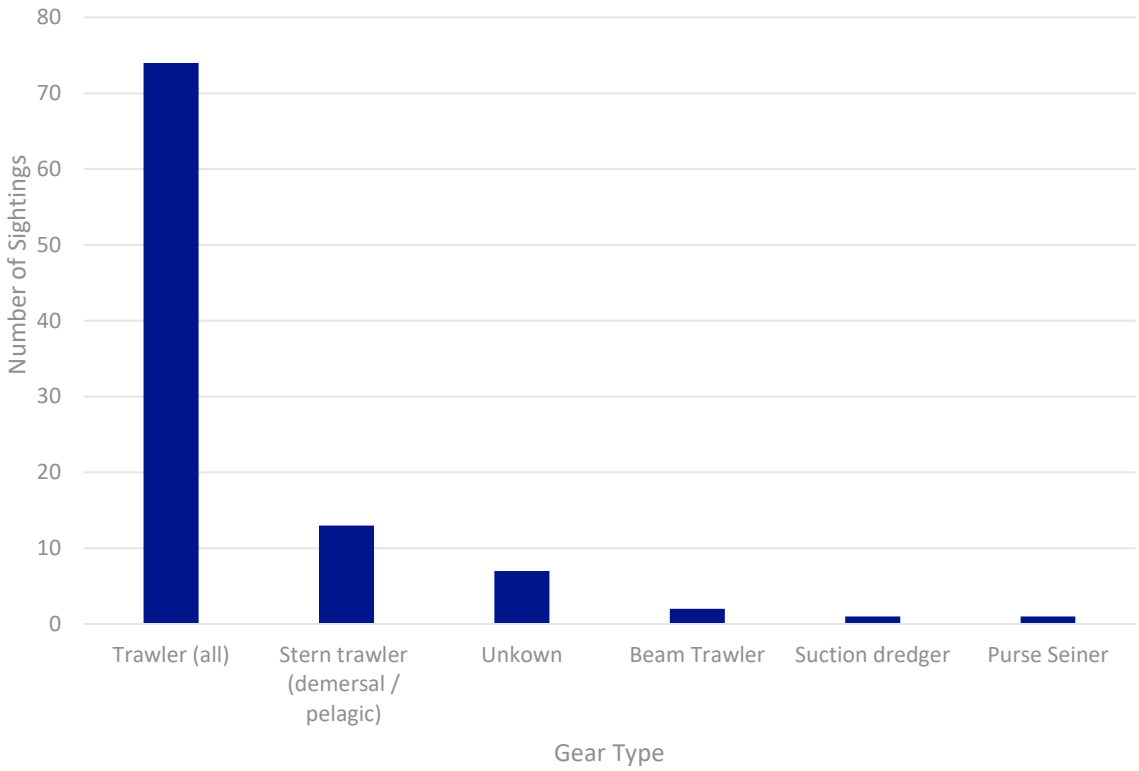


Image 4.9.A.12 Number of sightings of French vessels in the Study Area (2012 – 2021) (Source: MMO, 2022)

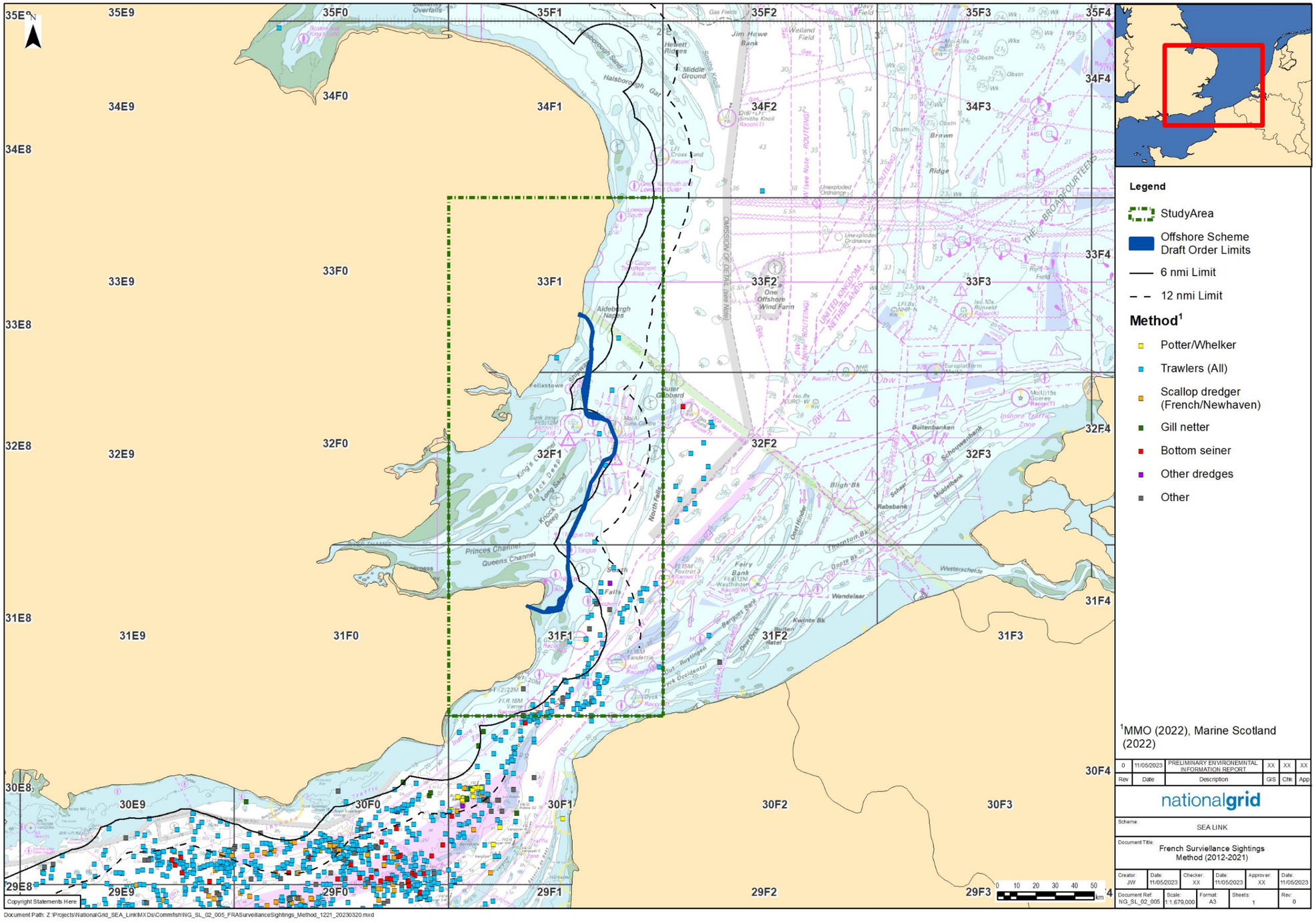


Figure 4.9.A.6.30: French surveillance sightings by method (2011 -2020) (Source: MMO, 2021)

French landings by species and method

4.9.A.6.60 French landings by weight are shown by method and species in Figure 4.9.A.6.31 and Figure 4.9.A.6.32 respectively. As is apparent, the highest landings in terms of weight are located beyond the study area in ICES rectangle 30F1.

4.9.A.6.61 The majority of landings by French vessels from the study area (ICES 32F1 and 31F1) are from bottom trawls/ seines and pelagic trawls, with lesser landings from trammel nets and pots, as illustrated by Figure 4.9.A.6.31. In comparison, landings by French vessels outside the study area are from bottom trawls/seines, pelagic trawls, trammel nets and dredges.

4.9.A.6.62 Figure 4.9.A.6.32 shows that the main species landed by French fishing vessels within the study area are Atlantic herring and whiting, with lesser landings of Atlantic mackerel, common sole, Atlantic cod, European pilchard and jack and horse mackerels. In comparison, outside the study area the main species landed are common sole, whiting, Atlantic herring and Atlantic mackerel.

4.9.A.6.63 Communications have been ongoing with the French industry representative; however specific fleet details have not been forthcoming as of yet.

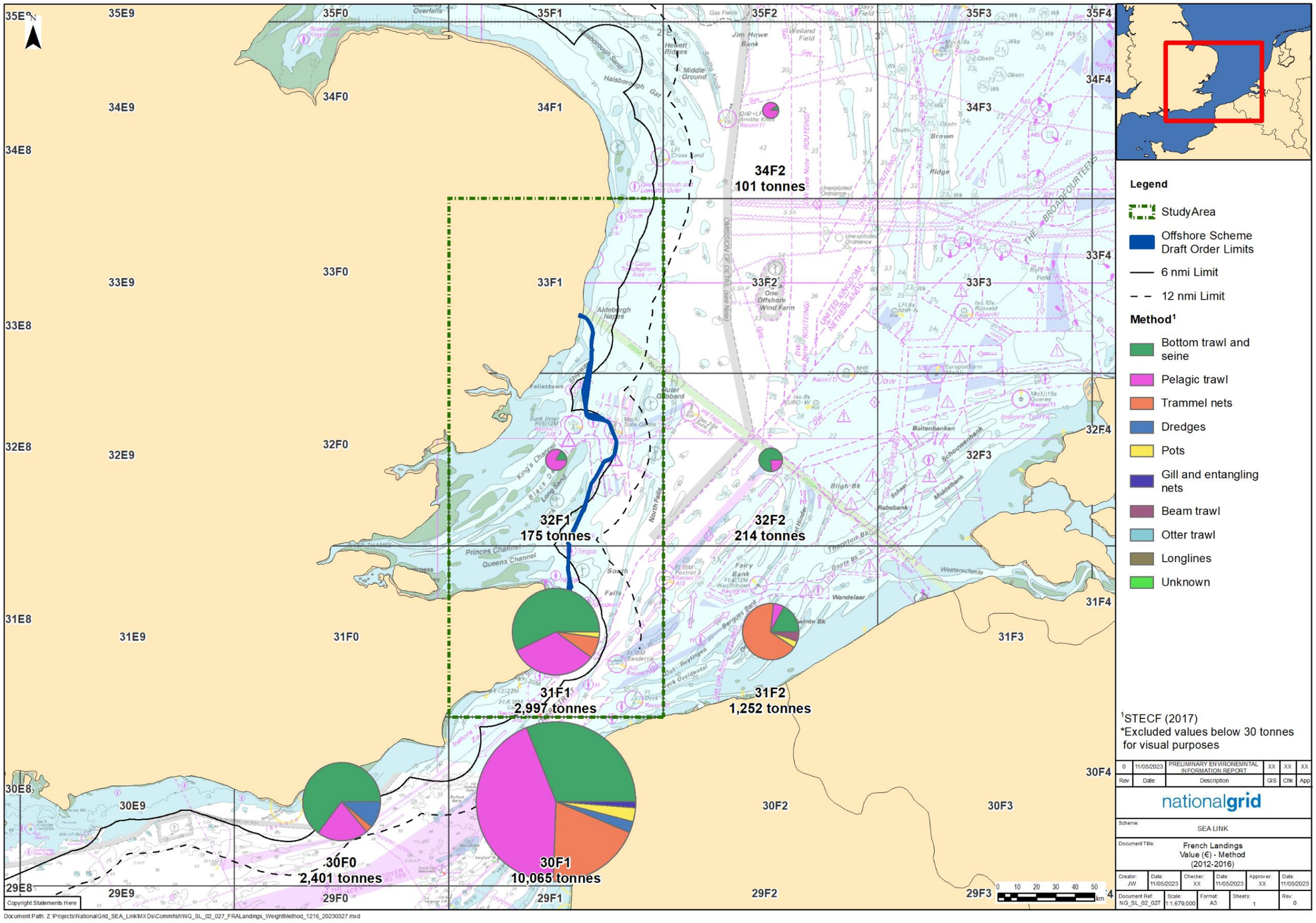


Figure 4.9.A.6.31: French landings (tonnes) by method (Annual Average 2012 - 2016) (Source: STECF, 2017)

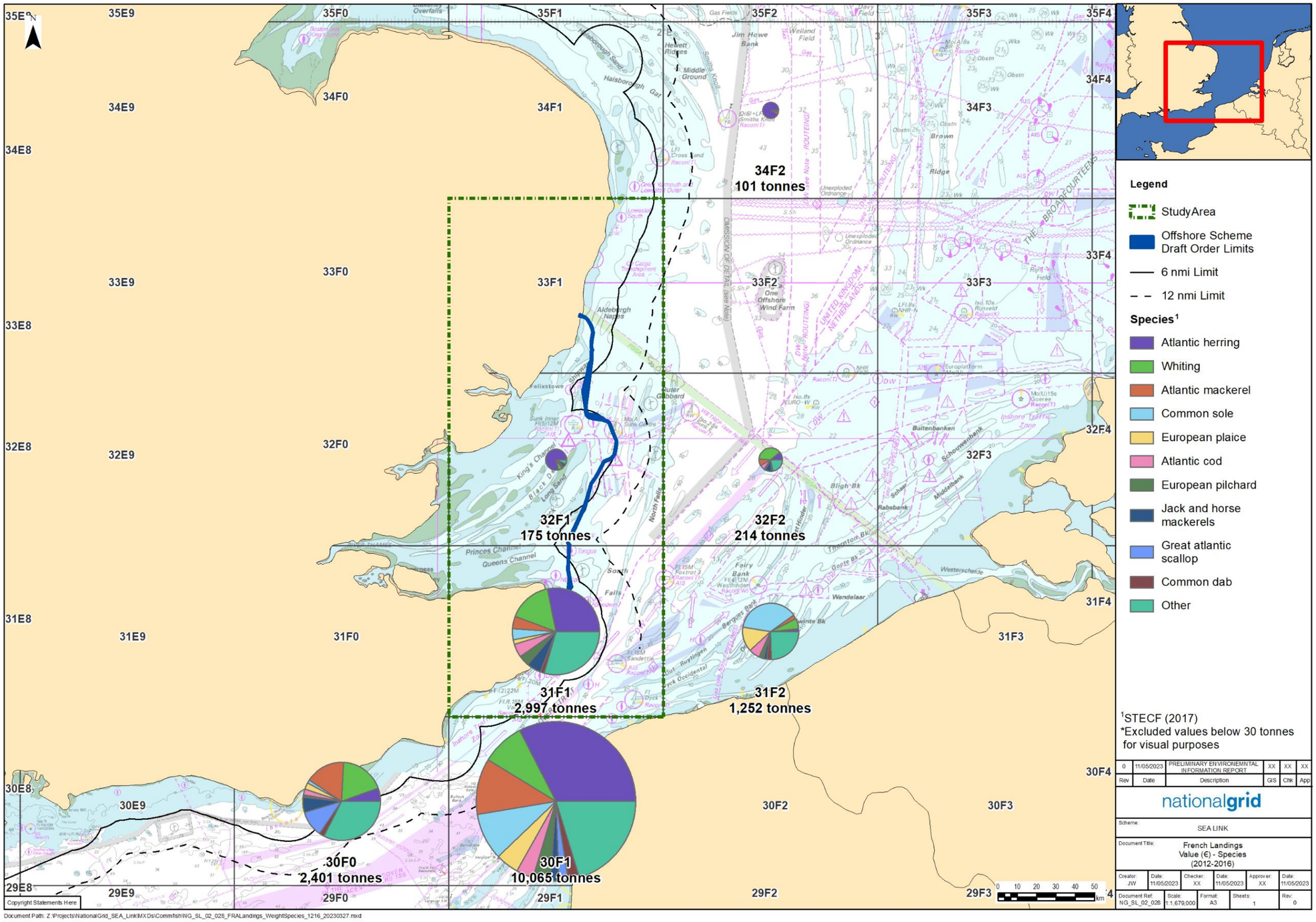


Figure 4.9.A.6.32: French landings (tonnes) by species (Annual average 2012 - 2016) (Source: STECF, 2017)

Vessels, gears and operating patterns

4.9.A.6.64 As shown in the sections above, the principal methods deployed by French vessels in the study area and beyond 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.

4.9.A.6.65 The pelagic fishery is fished by three active vessels catching herring, mackerel, and horse-mackerel (Ref. 9.3). An example of a French trawler is given in Image 4.9.A.13.

Image 4.9.A.13 French trawlers in Boulogne port (Source: BMM, 2017)

4.9.A.7 Summary

4.9.A.7.1 This report provides a description of the commercial fisheries baseline in relation to the Offshore Scheme The principal fishing activities of relevance to the Offshore Scheme have been identified through analysis of available fisheries data and from information gathered during consultation with fisheries stakeholders.

4.9.A.7.2 Fishing activity in the study area (ICES rectangles 33F1, 32F1 and 31F1) is undertaken by vessels from a range of nationalities, including UK, Belgian, Dutch and French vessels. Of these, the highest values of activity are by UK vessels, predominantly potters and dredgers targeting whelks and cockles respectively.

4.9.A.7.3 Landings from ICES rectangle 33F1, which contains the northern section of the Offshore Scheme, are predominantly from UK potting vessels targeting whelks, as well as a low amount of beam trawling by Belgian vessels in proximity to the Offshore Scheme.

4.9.A.7.4 In ICES rectangle 32F1, the Offshore Scheme is mostly targeted by local UK vessels under 15m in length that operate a range of fishing gears 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 Belgian beam trawling and demersal trawling recorded in proximity to the Offshore Scheme, as well as a small area of high value Dutch beam trawling and some French pelagic trawling.

4.9.A.7.5 ICES rectangle 31F1 appears to be the rectangle in the study area that records the highest level of activity. It is predominantly targeted by UK dredgers targeting cockles in area 17, as well as Belgian and Dutch beam trawlers targeting Dover sole.

4.9.A.7.6 As previously mentioned, the UK has the highest value fishery in the study area, with most of this value recorded in ICES rectangle 31F1 and attributed to cockle dredgers. Belgian and Dutch vessels in the study area are predominantly beam trawlers targeting sole. 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.

4.9.A.8 References

Ref 9.1: MMO (2021). UK Sea Fisheries Statistics 2020. Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1020837/UK_Sea_Fisheries_Statistics_2020_-_AC_checked.pdf. Accessed 26/05/2022.

Ref 9.2: Haupt, P. (2022a). 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 27/03/2023.

Ref 9.3: ICES (2022). Greater North Sea Ecoregion – Fisheries Overview. Available at: https://ices-library.figshare.com/ndownloader/articles/21641360/versions/1. Accessed 27/03/2023.

Ref 9.4: DEFRA (2019). EU vessels prevented from electric shock fishing post Brexit. Available at: https://ices-library.figshare.com/articles/report/Greater_North_Sea_ecoregion_fisheries_overview/21641360#:~:text=Around%206600%20fishing%20vessels%20are,to%20about%202%20million%20tonnes. Accessed: 26/03/2023.

Ref 9.5: 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: 26/03/2023.

Ref 9.6: 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 28/03/2023.

Ref 9.7: 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 25/03/2023.

Ref 9.8: Grieve, C., Brady, D. and Polet, H., 2014. Review of habitat dependent impacts of mobile and static fishing gears that interact with the seabed. Mar Steward Counc Sci Ser, 2, pp.18-88.

Ref 9.9: Haupt, P., 2022b. Review of environmental impacts of hydraulic suction dredging for cockles-Kent and Essex ICFA district.

Annex 4.9.A.1 – Fishing Methods

Beam trawling

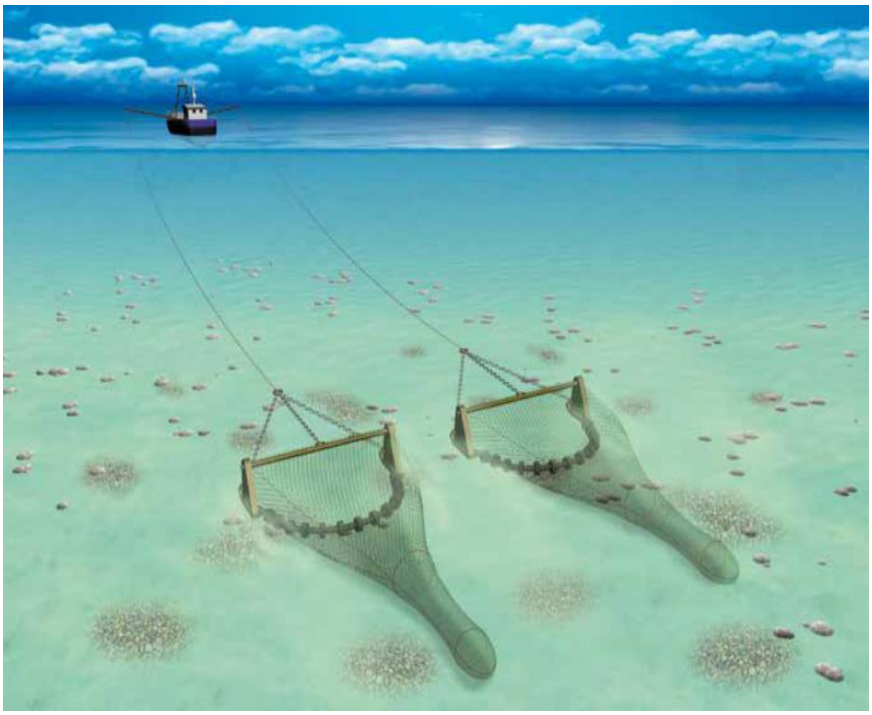
1.1.1. Beam trawling targets flatfish species, predominantly sole and plaice. Other species are also caught but to a lesser extent.

1.1.2. 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.

1.1.3. 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.

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

1.1.5. The penetration depth for beam trawls is approximately 15cm.



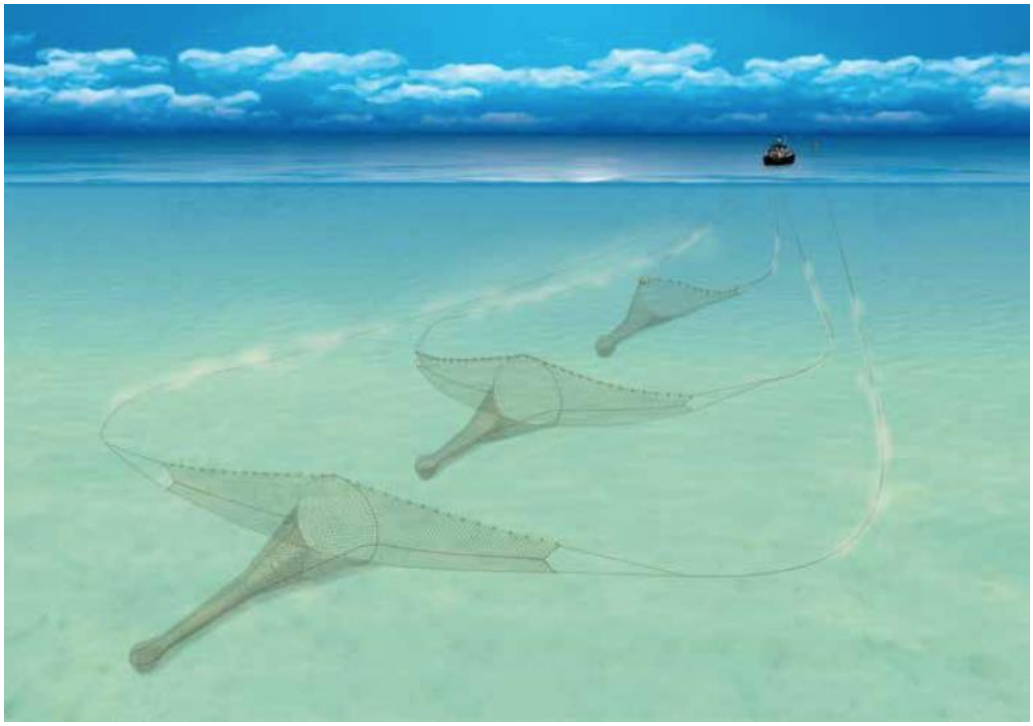
Annex 1, Image A.4.9.A.1 Illustration of beam trawls

Seines

1.1.6. 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).

1.1.7. The penetration depth for this gear is generally around 0.11cm (Ref 9.8)



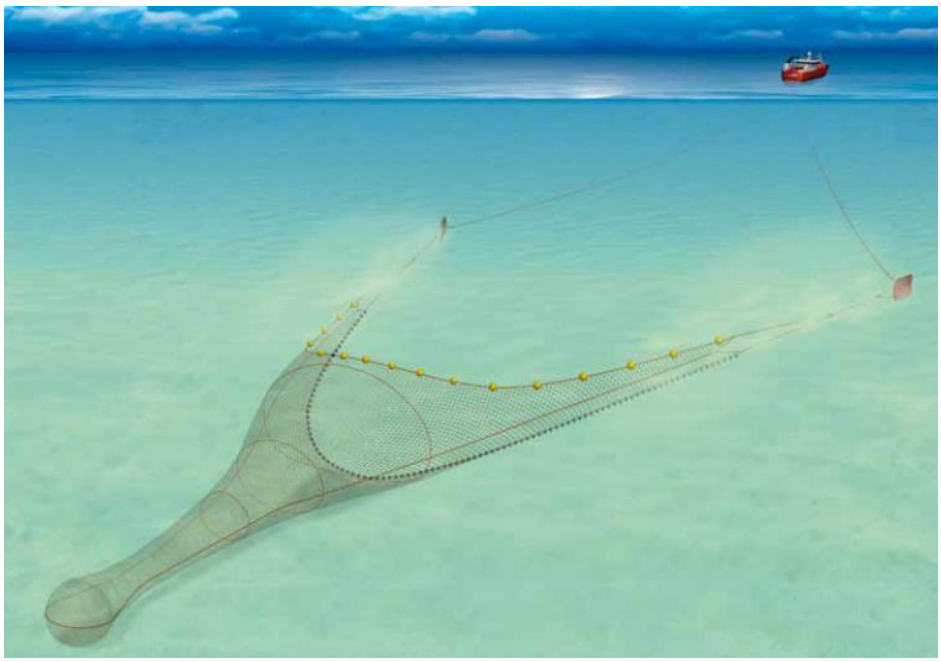
Annex 1, Image A.4.9.A.2 Illustration of seine nets

Bottom trawling (otter)

Single rig

1.1.8. The otter trawls as used by French and 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.

1.1.9. The penetration depth of this gear is approximately 15cm.

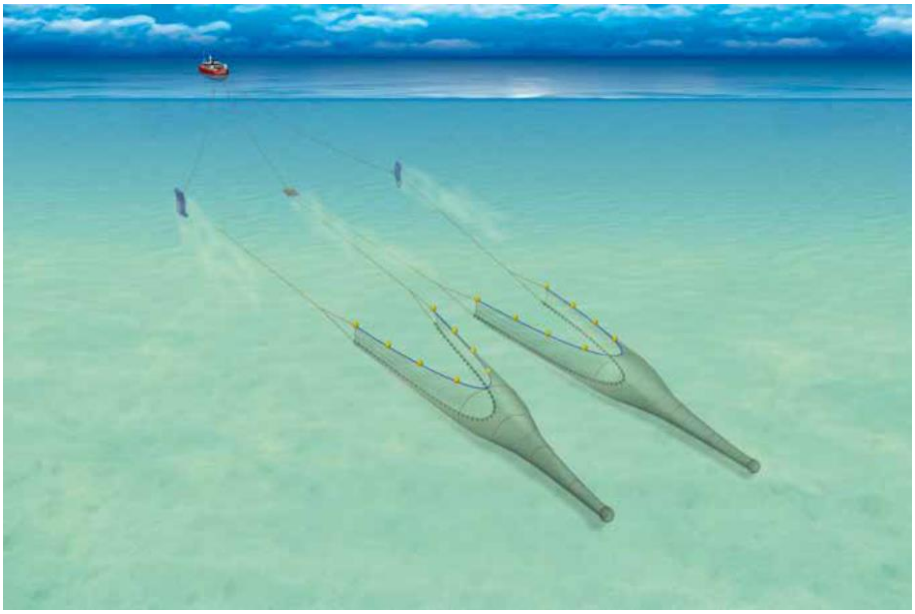


Annex 1, Image A.4.9.A.3 Illustration of a single rig otter trawl

Twin-rig

1.1.10. 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.

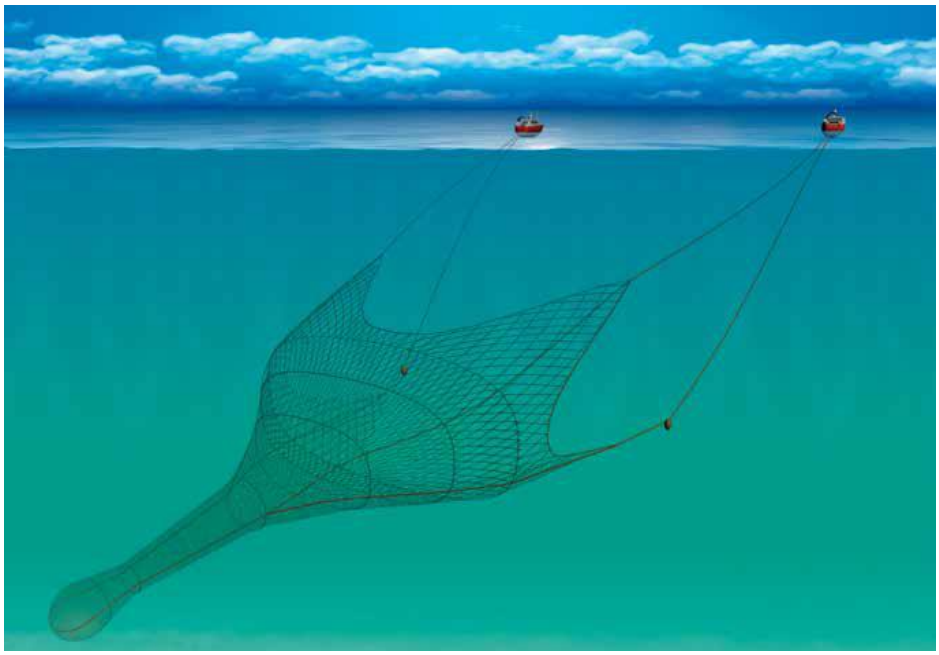
1.1.11. The penetration depth for this gear is approximately 15cm.



Annex 1, Image A.4.9.A.4 Illustration of a twin-rig bottom trawl

Pelagic/midwater trawling

1.1.12. 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.



Annex 1, Image A.4.9.A.5 Illustration of a pelagic trawl

Potting

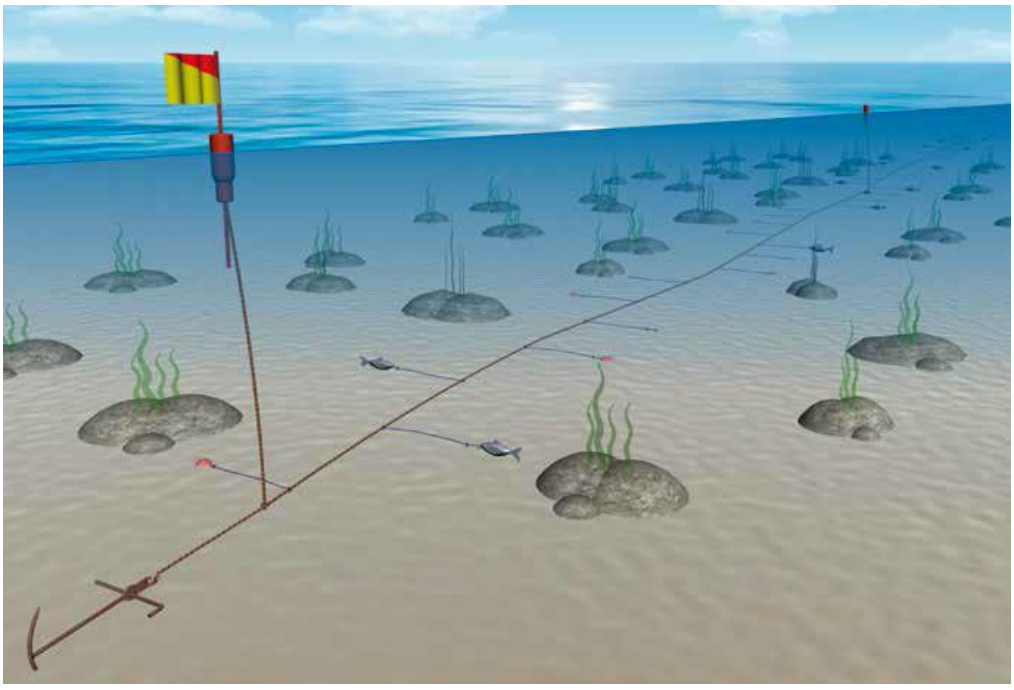
1.1.13. Potting for crab, lobsters and whelks occurs throughout the southern North Sea. In general, crab and lobster pots have one or more “funnel” shaped entrances. Pot designs can however vary depending on region and target species. Pots can be rigged in fleets of between 10 and 50 pots per fleet, 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.

1.1.14. 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.

Annex 1, Image A.4.9.A.6 Whelk pots (left) and crab/lobster pots (right)

Longlining

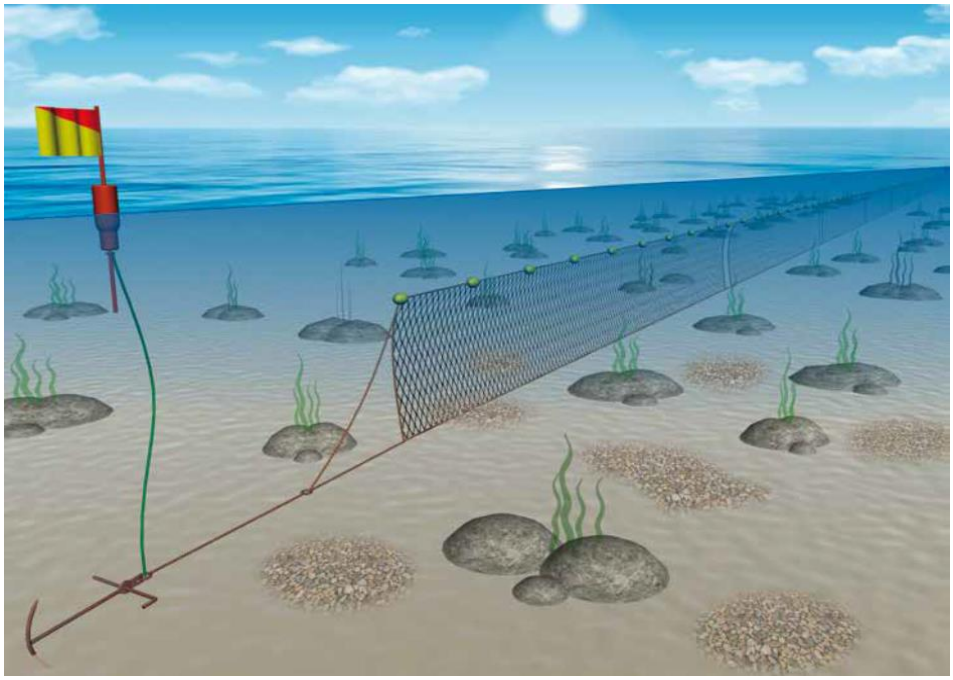
1.1.15. Longlining involves a main line on to which a series of shorter lengths of line (snoods) are attached with baited hooks. Longlines can be up to several miles in length with anchors at regular intervals and at each end. This method can be used to catch both demersal and pelagic fish species but 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.



Annex 1, Image A.4.9.A.7 Illustration of a longline

Gillnetting

1.1.16. 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.



Annex 1, Image A.4.9.A.8 Illustration of a gillnet

Suction dredge

1.1.17. Suction dredging is one method used to fish for cockles. Most commonly, boats use a hydraulic dredge with solid handling pumps. A jet of water liquifies the sand, and pumps on the boat create suction that draws cockles up through pipes onto the fishing boat. The cockles pass through a riddle, which allows undersized animals to be returned to the sea. The retained cockles collect in large tonne bags.

1.1.18. The penetration depth of this gear is approximately 5cm (Ref 9.9).

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National Grid plc
National Grid House,
Warwick Technology Park,
Gallows Hill, Warwick.
CV34 6DA United Kingdom

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