

XLINKS' MOROCCO-UK POWER PROJECT Environmental Statement

Volume 3, Appendix 3.1: Commercial Fisheries Baseline – Part 1

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Glossary

Term	Definition	
Beam trawl	A method of bottom trawling with a net that is held open by a beam, which is generally a heavy steel tube supported by steel trawl heads at each end. Tickler chains or chain mats, attached between the beam and the ground rope of the net, are used to disturb fish and crustaceans that rise up and fall back into the attached net.	
Bycatch	Catch which is retained and sold but is not the target species for the fishery.	
Demersal	Living on or near the seabed.	
Fish stock	Any natural population of fish which an isolated and self-perpetuating group of the same species.	
Fishery	A group of vessel voyages which target the same species or use the same gear.	
Fishing ground	An area of water or seabed targeted by fishing activity.	
Fishing mortality	Mortality due to fishing; death or removal of fish from a population due to fishing.	
Fleet	A physical group of vessels sharing similar characteristics (e.g., nationality).	
Flyseine (demersal seine)	Flyseining, also known as flyshooting or demersal seining, is a fishing method involving use of long weighted ropes to herd fish into the mouth of the trawl net to target demersal species which live or feed on or near the seabed.	
Gadoid	A bony fish of an order (Gadiformes) that comprises the cods, hakes, and their relatives.	
Gear type	The method / equipment used for fishing.	
ICES statistical rectangles	ICES standardise the division of sea areas to enable statistical analysis of data. Each ICES statistical rectangle is '30 min latitude by 1 degree longitude' in size (approximately 30 x 30 nautical miles). A number of rectangles are amalgamated to create ICES statistical areas.	
Landings	Quantitative description of amount of fish returned to port for sale, in terms of value or weight.	
Maximum Sustainable Yield	Maximum sustainable yield (MSY) is the largest yield (catch, in tonnes) that can be taken from a specific fish stock over an indefinite period under constant environmental conditions. Fishing at MSY levels should ensure the capacity of the stock to continue to produce this level in the long term.	
Metier	A homogenous subdivision, either of a fishery by vessel type or a fleet by voyage type.	
Minimum Landing Size (MLS)	Is a technical measure that limits the size of fish or shellfish species that can be legally landed and sold. The MLS varies per species. With the implementation of the Landings Obligation, the existing MLS are changed into minimum conservation reference sizes (MCRS), but they will remain largely the same.	
Nets	Nets refers to a wall of netting that hangs in the water column, typically made of monofilament or multifilament nylon. Net mesh size and position in the water column vary depending upon the target species. Nets are deployed and left to soak before being hauled. In the context of this document, 'nets' includes both anchored (fixed to seabed) and suspended (drift, moves with tide or current) nets.	
Otter trawl	A net with large rectangular boards (otter boards) which are used to keep the mouth of the trawl net open. Otter boards are made of timber or steel and are positioned in such a way that the hydrodynamic forces, acting on	

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Term	Definition		
	them when the net is towed along the seabed, pushes them outwards and prevents the mouth of the net from closing.		
Pelagic	Of or relating to the open sea.		
Pelagic trawl	A net used to target fish species in the mid water column.		
Pots	Pots and traps are generally rigid structures into which fish or shellfish are guided or enticed through funnels that make entry easy but from which escape is difficult. There are many different styles and designs, each one has been designed to suit the behaviour of its target species.		
Quota	A proportion of the Total Allowable Catch for a fish stock.		
Recruitment	Recruitment can be defined as the number of fish surviving to enter the fishery or to some life history stage such as settlement or maturity.		
Scallop dredge	A method to catch scallop using steel dredges with a leading bar fitted with a set of spring loaded, downward pointing teeth. Behind this toothed bar (sword), a mat of steel rings is fitted. A heavy net cover (back) is laced to the frame, sides and after end of the mat to form a bag.		
Shellfish	Exoskeleton-bearing aquatic invertebrates including molluscs and crustaceans.		
Spawning	The act of releasing or depositing eggs (fish).		
Spawning stock biomass	The combined weight (in tonnes) of all the fish of one specific stock that are old enough to spawn. It provides an indication of the status of the stock and the reproductive capacity of the stock.		
Stock assessment	An assessment of the biological stock of a species and its status in relation to defined references points for biomass and fishing mortality.		
String	A series of static fishing gear (pots) joined together to form a single deployable linear line of pots.		
The Project	UK marine elements of Q&E North.		
Total Allowable Catch (TAC)	TACs are catch limits, expressed in tonnes or numbers, that are set for some commercial fish stocks.		
Vessel Monitoring System (VMS)	A system used in commercial fishing to allow environmental and fisheries regulatory organizations to monitor, minimally, the position, time at a position, and course and speed of fishing vessels.		

Acronyms

Acronym	Meaning	
AIS	Automatic Identification System	
DCF	Data Collection Framework	
EEZ	Exclusive Economic Zone	
EIA	Environmental Impact Assessment	
EMSA	European Maritime Safety Agency	
ES	Environmental Statement	
EU	European Union	
FLO	Fisheries Liaison Officer	
GIS	Geographic Information System	
ICES	International Council for the Exploration of the Sea	
IFCA	Inshore Fisheries and Conservation Authority	

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Acronym	Meaning	
ММО	Marine Management Organisation	
PLN	Port Letter and Number	
RBS	Registration of Buyers and Sellers	
SAR	Swept Area Ratio	
STECF	Scientific, Technical and Economic Committee for Fisheries	
TAC	Total Allowable Catch	
TCA	Trade and Cooperation Agreement	
UK	United Kingdom	
VMS	Vessel Monitoring System	

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1 APPENDIX 3.1: COMMERCIAL FISHERIES BASELINE

1.1 Introduction

- 1.1.1 This document forms Volume 3, Appendix 3.1 of the Environmental Statement (ES) prepared for the UK elements of Xlinks' Morocco-UK Power Project (the 'Project'). For ease of reference, the UK elements of the Project are referred to in this report as the 'Proposed Development'. The ES presents the findings of the Environmental Impact Assessment (EIA) process for the Proposed Development.
- 1.1.2 This document provides a baseline characterisation of the commercial fisheries active in and around the Proposed Development.
- 1.1.3 This report has been prepared by NiMa Consultants Ltd (NiMa) in conjunction with APEM Ltd to support the EIA of the Proposed Development. The information on commercial fisheries activity presented in this report is intended to provide a detailed understanding of the commercial fisheries baseline, against which the potential impacts of the Proposed Development can be assessed. An overview of the information presented in this report is provided in Volume 3, Chapter 3: Commercial Fisheries of the ES.
- 1.1.4 Commercial fisheries activity described in this report, is defined as fishing activity legally undertaken where the catch is sold for taxable profit.

1.2 Methodology

Approach

1.2.1 This report has been developed following a detailed and rigorous desk-based assessment of data and literature. Both publicly available data sets, and data results from specific requests, have been analysed. Landings statistics have been analysed using Excel, and Vessel Monitoring System (VMS) data have been evaluated using ArcMap Geographic Information System (GIS) software.

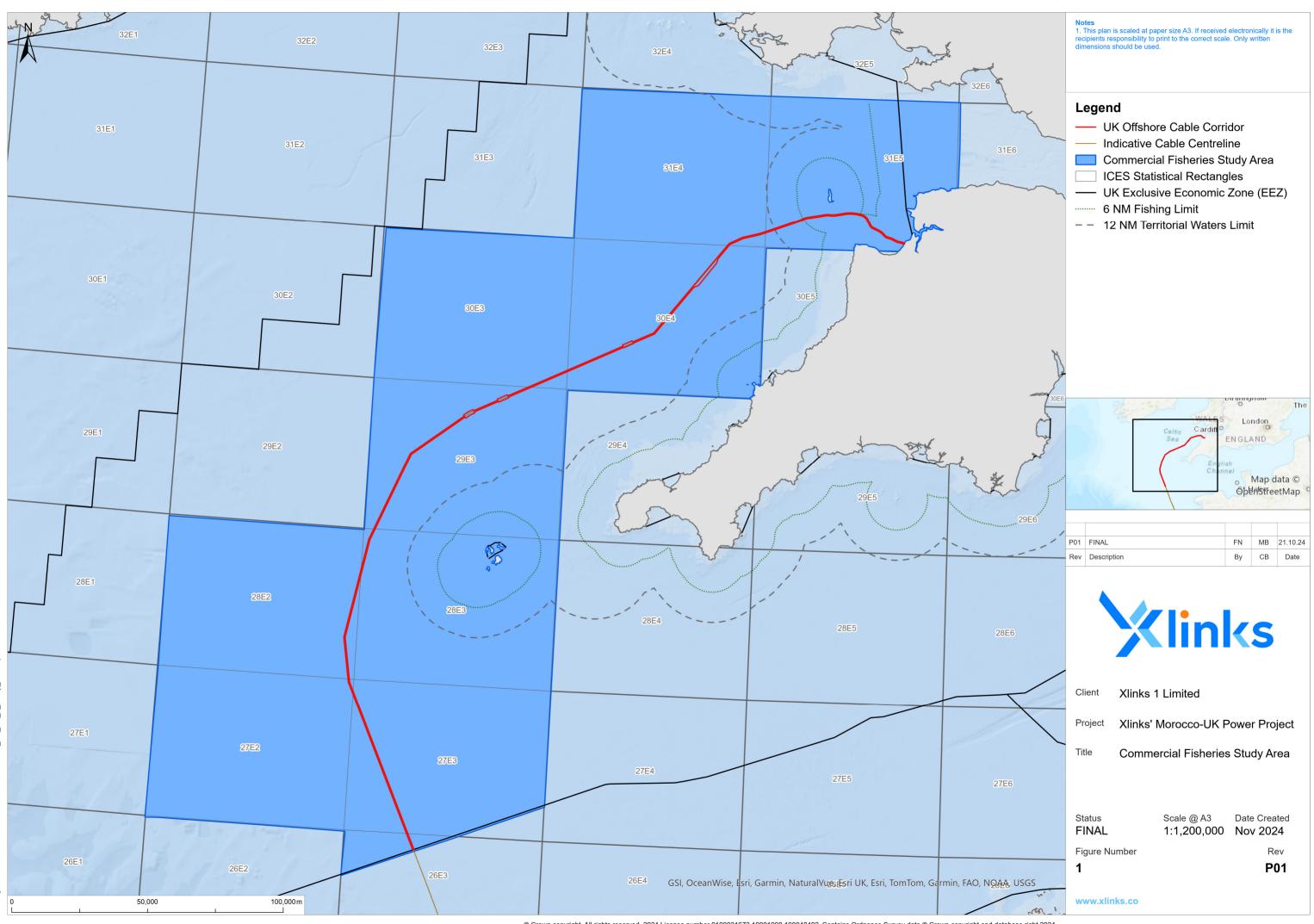
Study Area

- 1.2.2 The Proposed Development is located within the International Council for the Exploration of the Sea (ICES) Division 7f (Bristol Channel) and Division 7e (western English Channel) statistical areas, within the UK Exclusive Economic Zone (EEZ).
- 1.2.3 This report, and the Commercial Fisheries ES chapter, considers commercial fisheries within the UK EEZ; equivalent activity in non-UK waters will be fully considered in separate in-country consent applications for the Project.
- 1.2.4 For the purpose of recording fisheries landings, ICES Divisions 7f and 7e are divided into statistical rectangles which are consistent across all Member States operating in the Bristol Channel and English Channel.

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1.2.5 The Proposed Development is located within ICES rectangles 26E3, 27E2, 27E3, 28E2, 28E3, 29E3, 30E3, 30E4, 31E4 and 31E5, as shown in **Figure 1**. The commercial fisheries study area has been defined as these ten ICES rectangles, noting however that rectangles 26E3 and 27E3 are partially located outside the UK EEZ.

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Desktop Study

- 1.2.6 Information on commercial fisheries within the commercial fisheries study area was collected through a detailed desktop review of existing studies and datasets. These are summarised at **Table 1.1** below.
- 1.2.7 Data has been sourced from ICES, the EU Data Collection Framework (DCF), the UK Marine Management Organisation (MMO) and the European Maritime Safety Agency (EMSA).
- 1.2.8 Where data sources allow, a five-year trend analysis has been undertaken, using the most recent annual datasets available at the time of writing. The temporal extent of this five-year period is dependent on each data source analysed, (e.g. 2012 to 2016 or 2018 to 2022), as annotated in **Table 1.1**.
- 1.2.9 Relevant literature from a number of sources has also been reviewed in the preparation of this report. A full list of references is provided at the end of this report and are cited within the text where appropriate. Information on fishing activity across the Proposed Development has also been provided by the project Fisheries Liaison Officer (FLO).

Title	Source	Year	Author
UK annual fisheries landings statistics	ММО	2018 to 2022	ММО
UK Vessel Monitoring System (VMS) data	ММО	2016 to 2020	ММО
European Union (EU) annual fisheries landings statistics	Scientific, Technical and Economic Committee for Fisheries (STECF)	2012 to 2016 (by ICES rectangle)	STECF
		2018 to 2022 (by ICES division)	
EU VMS data	ICES	2016 to 2020	ICES
Fishing vessel route density data	European Maritime Safety Agency (EMSA)	2022	EMSA
Fishing vessel surveillance sightings	ММО	2018 to 2023	ММО
Key species stock assessments and management plans	Various (as cited)	Various (as cited)	ICES, Cefas, Inshore Fisheries and Conservation Authorities (IFCAs)

Table 1.1: Key sources of commercial fisheries data

Data Limitations and Uncertainties

- 1.2.10 A range of different data limitations and uncertainty exist for all of the commercial fisheries datasets assessed within this Report. The level of uncertainty and confidence of each data set is defined in **Table 1.2** based on professional judgement of the assessment team.
- 1.2.11 Limitations of landings data include the spatial size of ICES rectangles which can misrepresent actual activity across the Proposed Development and care is therefore required when interpreting these data.

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- It is noted that all commercial landings by UK registered vessels are subject to the 1.2.12 Register of Buyers and Sellers legislation and therefore landings by UK vessels of all lengths are recorded within the MMO iFISH database. While it is recognised that there is no statutory requirement for owners of vessels 10 m and under to declare their catches, registered buyers are legally required to provide sales notes of all commercially sold fish and shellfish under the Registration of Fish Buyers and Sellers and Designation of Fish Auction Sites Regulations 2005 due to the 2005 Registration of Buyers and Sellers of First-Sale Fish Scheme (RBS legislation). The RBS legislation is applicable to licenced fishing vessels of all lengths and requires name and PLN (port letter and number) of the vessel which landed the fish to be recorded in relation to each purchase. For the 10 m and under sector, landing statistics are recorded on sales notes provided by the registered buyers (MMO, 2021). Information that may not be formally recorded on the sales note, such as gear and fishing area, is added by coastal staff based on local knowledge of the vessels they administer - for example, from observations of the vessel during inspections at ports or from air and sea surveillance activities as well as discussions with the owner and/or operator of the vessel (MMO, 2021). There are occasions when fish are not subject to the RBS legislation and therefore are not represented within the MMO landings statistics database, for instance when purchases of first sale fish direct from a fishing vessel are wholly for private consumption, and less than 25 kg is bought per day.
- 1.2.13 Lack of recent landings statistics for EU (non-UK) fleets is also recognised as a data limitation; based on the most recent European Commission data call, more recent landings data (2017-2019) is no longer available by ICES rectangle. Data at a scale of ICES division (e.g., the whole of the Irish Sea) is less useful to understand fishing activity specific to the area overlapping the Proposed Development.
- 1.2.14 All UK and EU fishing vessels (i.e., fishing vessels flying the flag of the UK or an EU Member State), and third-party fishing vessels operating in UK and EU waters that are ≥ 12 m in length are required to have a Vessel Monitoring System on board. This reports the vessels' position to fisheries management authorities, which in the case of EU fishing vessels, is every two hours. Since 1st January 2012, this obligation has applied to vessels that are ≥ 12 m in length. Limitations of publicly available VMS data are primarily focused on the coverage being limited to larger vessels 15 m and over for UK fishing vessels. It is important to be aware that where mapped VMS data may appear to show inshore areas as having lower (or no) fishing activity compared with offshore areas, this is not necessarily the case because VMS data do not include vessels typically operating in inshore area (i.e., which typically comprises of vessels <15 m in length).</p>
- 1.2.15 To assist in mitigating the risk of under-representing smaller inshore vessels, engagement with fishermen active in the study area has been helpful in determining the extent and distribution of activity by the <12 m fleet. Additionally, MMO surveillance data has been analysed, which records vessels of all lengths, though it is acknowledged that surveillance data are only indicative of areas where fishing activities occur given there is no continuous monitoring of activities and it cannot be assumed that if no vessels have been sighted then no fishing takes place.

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Table 1.2: Data limitations and uncertainty (the uncertainty and confidence levels are defined based on judgement and are intended to inform the appropriateness of data used to inform the EIA)

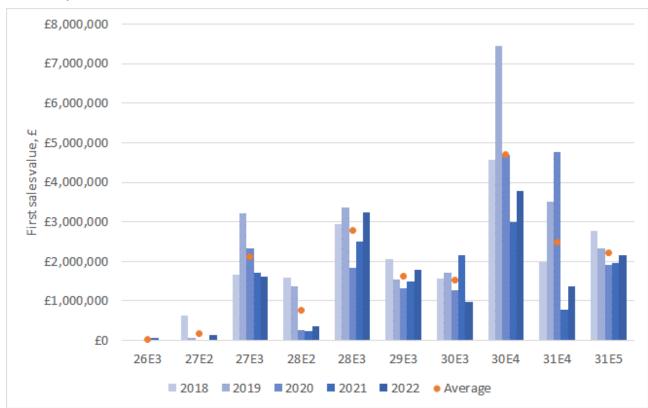
Title	Source	Limitations and Uncertainty	
UK annual fisheries landings statistics	ММО	The data is recorded from sales notes and landing declarations for all vessel lengths. Due to the UK legislation, Registration of Buyers and Sellers data is considered accurate and verifiable.	
		 Data assessed with: low uncertainty and high confidence. 	
UK Vessel Monitoring System (VMS) data	ММО	The data is only available for 15m and over vessels, so is not representative of <15m vessels.	
		 Data assessed with: medium uncertainty and medium confidence. 	
European Union (EU) annual fisheries landings statistics	Scientific, Technical and Economic Committee for Fisheries (STECF)	The data are submitted by individual member states and therefore limitations vary per country. Vessels under 10m may be omitted or mis-represented by the data. Accuracy is likely to be greater for landings from larger vessels.	
		 For UK vessels under 10m length data is assessed with: high uncertainty and low confidence. For all other EU vessels data is assessed with: low uncertainty and high confidence. 	
EU VMS data	ICES	 The data is only available for 12m and over vessels, so is not representative of <12m vessels. Data assessed with: medium uncertainty and medium confidence. 	
Fishing vessel route density data	European Maritime Safety Agency (EMSA)	 The data is only available for 15m and over vessels, so is not representative of <15m vessels. Data assessed with: medium uncertainty and medium confidence. 	
Fishing vessel surveillance sightings	ММО	 The data shows surveillance observations gathered to inform MMO fisheries compliance and enforcement activity. Data is subject to survey effort (typically weekly and during daylight hours). There are also temporal gaps in sightings. Fishing method and nationality is assigned by sight only. Data assessed with: medium uncertainty and medium confidence. 	

1.3 Baseline Environment

Overview of Landings

UK Fishing Activity

1.3.1 Landings from the commercial fisheries study area by UK-registered vessels had an average value of £14.2 million across the period of 2018 to 2022 (MMO, 2023). Figure 2 shows landings values across this time period for each ICES rectangle within the study area, highlighting relatively high landings values in rectangles 30E4 (accounting for over 25% of landings from the study area by value), off the

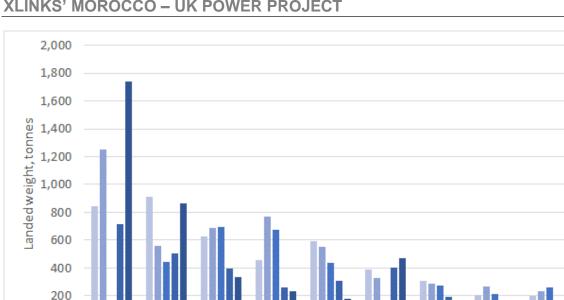


Cornish coast. Across the 2018 to 2022 time period, UK landings show a relative peak in 2019 and were at their lowest in 2021.

Figure 2: Annual landings value (pound sterling) by UK-registered vessels from the study area, by ICES rectangle, between 2018 and 2022 (MMO, 2023)

- 1.3.2 **Figure 3** shows the top ten species landed from the study area by landed weight. Whereas, **Figure 4** shows equivalent landings data but based on value.
- 1.3.3 Approximately 75% of landings by value (and 58% by weight) are of demersal fish species. Key species are sole *Microstomus kitt*, hake *Merluccius merluccius*, monks and anglers *Lophius piscatorius* and megrim *Lepidorhombus whiffiagonis*. Landings of demersal species across the 2018 to 2022 period show a relative peak in 2019 and have been relatively constant across 2021 and 2022.
- 1.3.4 Key shellfish species are brown crabs *Cancer pagurus*, lobster *Homarus* gammarus, whelks *Buccinum undatum* and nephrops *Nephrops norvegicus*. Shellfish landings have remained relatively consistent across the five-year period.
- 1.3.5 Pelagic fisheries primarily target horse mackerel *Trachurus trachurus*. Landings of pelagic species have fluctuated across the time series, with more notable catches in 2019 and 2022.

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Sole

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Whelks

Hake

Figure 3: Annual landings weight (tonnes) by UK-registered vessels from the study area, by key species, between 2018 and 2022 (MMO, 2023).

2018 2019 2020 2021 2022

Megrim

Brown

Crabs

Monks

0

Anglers Spotted

ASSA

Dog

Blonde

Ray

Haddock

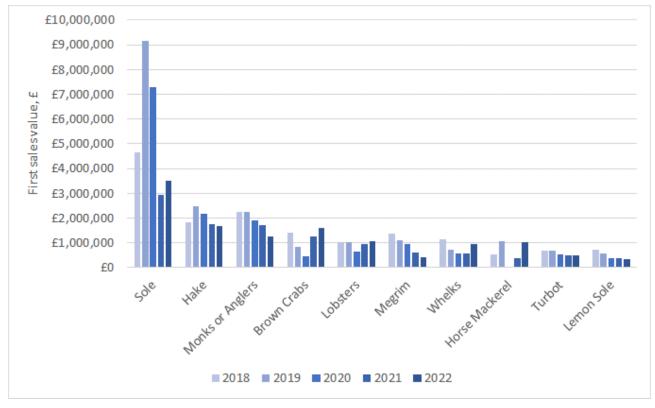


Figure 4: Annual landings value (pound sterling) by UK-registered vessels from the study area, by key species, between 2018 and 2022 (MMO, 2023).

1.3.6 Figure 5 shows the key fishing gear types utilised across the study area. The largest proportion of landings are attributed to beam trawl gear, with landings from

0

Horse

Mackerel

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this gear type showing relative decline across 2021 and 2022. Drift and fixed nets, pots and traps and demersal trawls are also routinely deployed across the study area, with pelagic trawl activity being more sporadic reflecting the wide-ranging nomadic nature of pelagic trawl fisheries.

1.3.7 Landings data indicates that across the 2018 to 2022 period, and across the study area, English-registered fishing vessels accounted for approximately 70% of total landings, with relatively limited landings attributed to Scottish and Welsh-registered vessels. Key UK landings port utilised by UK vessels fishing in the study area include Newlyn and Milford Haven, Ilfracombe and Padstow. Vessels accounting for the majority of landings by value were within the following vessel length categories: 24 to 40 m, 18 to 24 m and under 12 m.

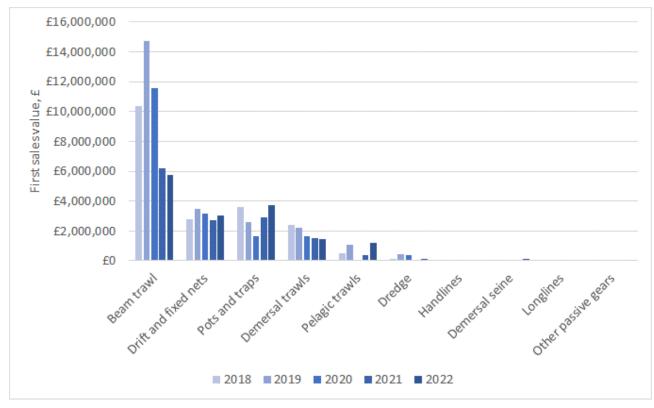


Figure 5: Annual landings value (pound sterling) by UK-registered vessels from the study area, by key fishing gear, between 2018 and 2022 (MMO, 2023).

Non-UK Fishing Activity

- 1.3.8 Landings from the commercial fisheries study area by EU-registered vessels have been analysed using data sourced from the EU DCF database covering two different time periods. The first source covers the period 2012 to 2016 and is usefully disaggregated at the level of individual ICES rectangle. The second source provides landings data up to 2021 but is available only at ICES division level (i.e., the Bristol Channel, and the western English Channel) and so whilst more recent, is less helpful in terms of understanding EU fishing activity across the study area.
- 1.3.9 **Figure 6** presents landings by both UK and non-UK fishing vessels from the study area (at ICES rectangle scale) between 2012 and 2016. The data indicates activity by French, Belgian and Irish vessels within the study area, with notable landings from French-registered vessels in particular. **Figure 7** presents landings

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by EU fishing vessels from ICES divisions 7f and 7e, operating in the UK EEZ (i.e., an area of significantly greater extent than the study area) from 2018 to 2022. The data again indicates the presence of French vessels targeting mixed demersal species, with potential for activity associated with Belgian, Dutch and Irish fleets.

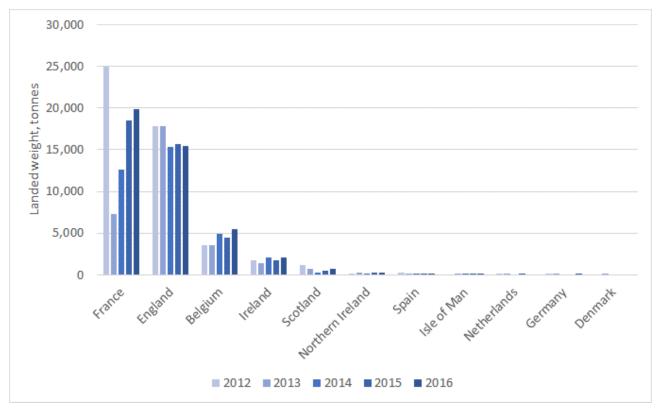


Figure 6: Landed weight (tonnes) by UK and non-UK vessels from the study area, by ICES rectangle, between 2012 and 2016 (EU DCF, 2023).

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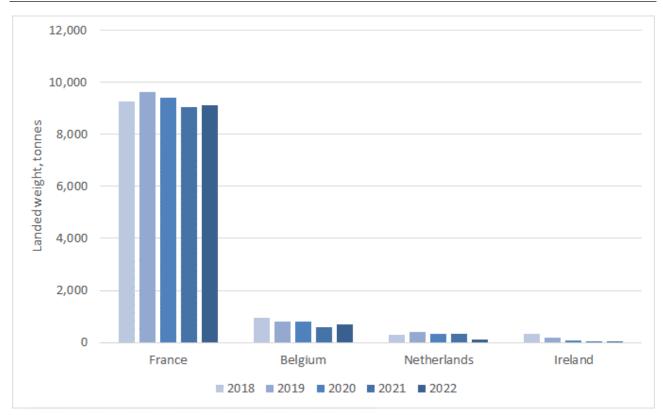


Figure 7: Landed weight (tonnes) by EU vessels in ICES Divisions 7e and 7f in the UK EEZ 2018 to 2022, by country (EU DCF, 2023).

Key Fishing Fleets

- 1.3.10 For the purposes of the EIA assessment, commercial fisheries receptors are divided into fleets to allow assessment of a group of vessels using the same gear, targeting the same species and registered to the same country (e.g. UK potting fleet targeting whelk, or UK dredge fleet targeting king scallop).
- 1.3.11 A range of fleets target different fisheries across the commercial fisheries study area, as indicated by landings statistics for registered vessel nationality and gear type (Figure 8 and Figure 10 below). Fleets are comprised of vessels of a variety of lengths (Figure 9).
- 1.3.12 Further details on vessel and gear types within the key fleets and fisheries that operate across the study area are described within this section, including an overview of the species targeted by each fleet.

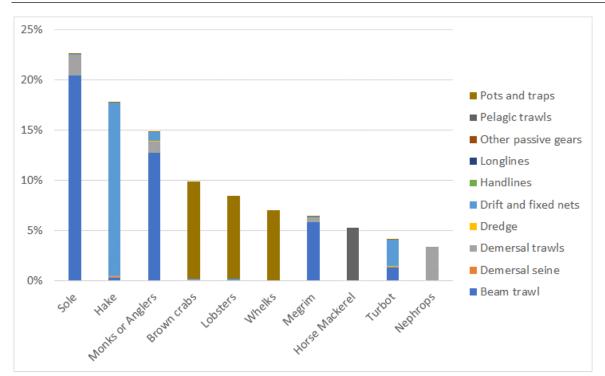


Figure 8: Percentage of annual average landings value 2018 to 2022 for UK fishing vessels by gear type and key species for the study area (Data source: MMO, 2023)

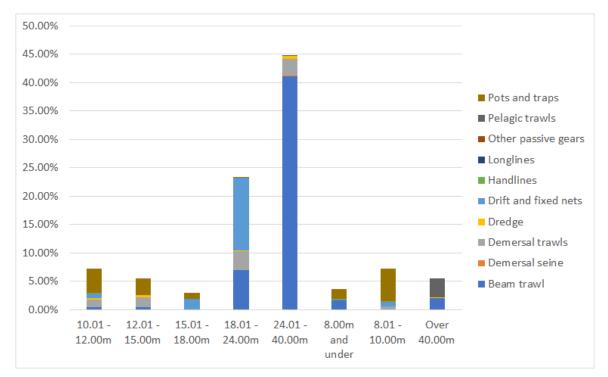
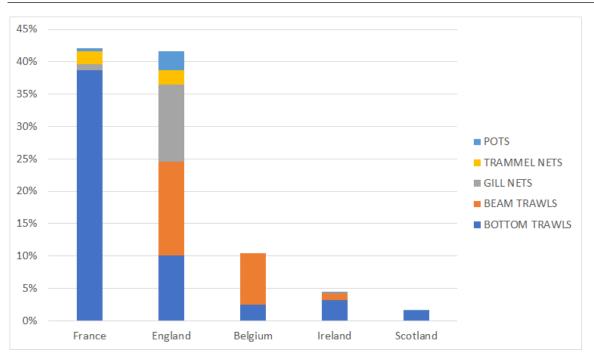


Figure 9: Percentage of annual average landings value 2018 to 2022 for UK fishing vessels by gear type and vessel length for the study area (Data source: MMO, 2023)

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Figure 10: Percentage of annual average landings weight 2012 to 2016 by gear type and country of vessel registration for the study area (Data source: EU DCF)

Beam trawl

- 1.3.13 **Figure 11** and **Figure 12** show a typical beam trawler and associated gear and **Table 1.3** describes the profile of beam trawling vessels active across the study area.
- 1.3.14 Beam trawlers operate on sandy grounds in the Irish and Celtic seas and in the western English Channel. Beam trawl gear is used to target flatfish such as sole and plaice, which are often somewhat buried in the seabed. Beam trawls are towed either astern of the vessel on the smaller boats, or, more commonly, from derricks (one from the port side and one from the starboard side) forward of amidships on the larger boats.
- 1.3.15 Beam trawl nets are held open by a heavy steel beam which is towed along the seabed on a line approximately three times the depth of the water. Some beam trawls include tickler chains, which drag along the seabed in front of the net, disturbing fish in its path and encouraging them to rise into the net.
- 1.3.16 Beam trawling is an activity which is generally engaged by larger (>10 m vessel length) vessels due to the engine capacity required to tow this heavy fishing gear. The largest class of beam trawlers are around 25 m to 40 m long, generally having in the region of 1,000 hp, towing two beam trawls 12 m wide. This size of beam trawl can weigh up to nine tonnes each, enabling the trawler to tow at speeds up to seven knots. The medium class of beamers, from 12 m to 18 m, usually have between 300 hp to 500 hp to tow 4 m to 7 m beams.

Parameter	Indicative details			
Main target species	Sole, plaice, monkfish, rays			
Nationality	English, Belgian			
Vessel length	15 m to 45 m			
Horsepower	500 hp to 2,000 hp			
Typical towing speed	3.5 to 8 knots			
Typical duration of tow / dredge	1 to 2 hours			
Seasonality of activity	Peak activity in spring and summer months			
Typical gear	Twin beam, occasionally single beams; beam length up to 12 m. Each beam weighing <10 tonnes. Chain matting or individual chains attached to underside.			

Table 1.3: Profile of typical beam trawl vessel active across the study area

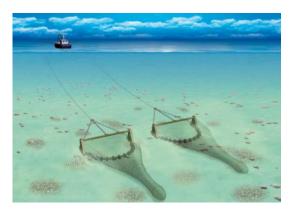


Figure 11: Typical beam trawler gear diagram (Source: Seafish, 2015; MarineTraffic)



Figure 12: Typical beam trawler (Source: Seafish, 2015; MarineTraffic)

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Drift and fixed nets

- 1.3.17 Netting in the study area involves deploying gill nets (also known as tangle nets) and trammel nets. The main gill net fishery in the region targets hake along the continental slope, operating in water depths of 150–600 m. In the shallower Celtic Sea, target species include anglerfish, flatfish, and gadoids.
- 1.3.18 Gill nets consist of a single layer of fine netting that is weighted at the bottom and supported at the top by floats attached to a rope headline so that the net hangs vertically in the water column. Trammel nets are similar to a gill net but are made up of three layers of netting. Two outer layers of large mesh with a sheet of fine small mesh sandwiched between them.
- 1.3.19 The nets are usually fished in groups (or fleets) with the end of each fleet attached by bridles to a heavy weight, or anchor, on the seabed. Each weight, or anchor, is attached to a marker buoy or dhan flag, on the surface, by a length of rope equal to about twice the depth of water. Net lengths can vary significantly; individual nets can vary from 50 to 200 m. The soak times, the time that a fleet is left fishing for, can range from a six-hour tidal soak up to 72 hours. The nets are shot over the stern of the vessel whilst steaming with the tide and are fished along the direction of the tidal stream, rather than across it (there are some exceptions to this).
- 1.3.20 Smaller vessels under 10 m length are also engaged in netting and may work both pots and nets, alternating between gears seasonally. Net catches can provide bait for pots.

Parameter	Indicative details			
Main target species	Hake, turbot, pollack and haddock			
Nationality	English			
Vessel length	15 m to 24 m, some under 10 m vessels working inshore			
Horsepower	250 hp to 450 hp			
Typical speed when shooting and hauling gear	0 to 9 knots			
Typical soak time	6 to 72 hours			
Seasonality of activity	Year-round			
	Monofilament nylon net Set on seabed with each end anchored and left to fish			

Table 1.4: Profile of typical netting vessels active across the study area

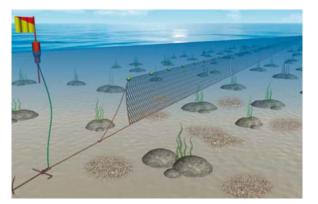


Figure 13: Typical netter gear diagram (Source: Seafish, 2015; MarineTraffic)



Figure 14: Typical netter (Source: Seafish, 2015; MarineTraffic)

Pots and traps

- 1.3.21 For the capture of whelks, modified, weighted 25 litre plastic drum, purpose designed pots are often used. Pots are typically rigged in 'fleets' or 'strings' of between 15 to 60 pots (up to 80 for whelk), depending upon vessel size and area fished. Hundreds of pots can be deployed across a fishing location. Lengths of fleets may range from 100 m to over a mile, anchored at each end with anchors or chain clump weights. A variety of surface markers are used, including flagged dhans, buoys and cans. Soak times, the time between emptying and re-baiting the pots, can vary between six and 72 hours, but would typically be 24 hours. All pots are worked on a rotational basis; after hauling and emptying, pots are baited and re-set. Bait for the whelk fishery is often crab or dogfish.
- 1.3.22 Creels or pots are used for the capture of lobsters and crabs and are set in a similar configuration as described for whelk pots. Creel design is typically D-shaped in section and made from steel rods covered in netting and protected or "bumpered" with rope or rubber strips. The number of pots fished in a location can range from 20 through to hundreds and soak times are typically between 24 and 168 hours. Pots are usually deployed in fleets of 10 to 60 on rocky substrate, though may less frequently be found on other softer substrates.
- 1.3.23 Larger potters, working further offshore, make fishing trips lasting around two days. Smaller potters, under 10 m in length, operate as day boats, returning to port after hauling, emptying, baiting and re-setting fleets of pots. Potting vessels may target a single or multiple shellfish species and the inshore fleet can also be multi-purpose, switching between gear types (e.g. pots and nets) in response to

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various factors such as market demand and fishing restrictions. **Table 1.5** describes the profile of typical potting vessels active across the study area.

Parameter	Indicative details			
Main target species	Brown crab, lobster, whelk			
Nationality	English, Welsh			
Vessel length	Majority under 15 m			
Horsepower	60 hp to 350 hp			
Typical speed when shooting and hauling gear	0 to 9 knots			
Typical soak time	1 to 2 days			
Seasonality of activity	Year-round but with summer peak			
	Fleets of baited pots placed on the seabed Pots typically hauled daily but may be left a number of days Generally, day boats that return to port daily			

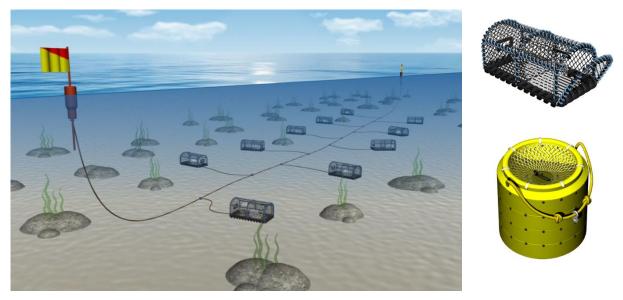


Figure 15: Typical potting gear configuration (Left), lobster creel (Top Right) And whelk pot (Bottom Right) (Source: Seafish, 2022)



Figure 16: Example of potting vessel (1) (Source: Marine Traffic)



Figure 17: Example of potting vessel (2) (Source: Marine Traffic)

Demersal otter trawl

- 1.3.24 Otter trawling uses a cone-shaped net which is held open by water pressure on two otter boards. The net is towed either across the seabed or within the water column. Fish are herded between the boards into the mouth of the trawl and then forced along a funnel into the end of the net.
- 1.3.25 The species composition of the catch depends on the area and depth fished and the gear design. For example, the rock hopper otter trawl is normally used in conjunction with steel otter boards and wire bridles to target whiting, sole and squid. This gear can be worked on grounds with harder substrates. Alternatively, a small footrope otter trawl uses wooden otter boards, and the main species targeted with this method are plaice, sole and other demersal species. This trawl cuts through the top layer of the soft sea bottom and the tickler chain digs the fish out. Trawls can also be specifically designed to target nephrops, using lightweight gear over muddy ground.
- 1.3.26 The pair trawl is made from similar gear, but instead of the otter boards it is the two vessels that open the trawl. This method allows the net to be towed at a greater speed than if operated by a single boat and means that faster moving fish can be caught.
- 1.3.27 Landings data also indicates that French, and to a lesser extent Belgian and Irish vessels operating bottom trawls are active in the study area.

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1.3.28 **Figure 18** show a typical demersal trawler and associated gear and **Table 1.6** describes the profile of demersal otter trawling vessels active across the study area.

Parameter	Indicative details			
Main target species	Nephrops and mixed demersal fish species			
Nationality	English, Scottish, Welsh, French, Belgian, Irish			
Vessel length	Up to 50 m			
Horsepower	500 hp to 1,200 hp			
Typical towing speed	2.5 to 5 knots			
Typical duration of tow / dredge	1 to 2 hours			
Seasonality of activity	Year-round with spring peak			
Typical gear	Pair or single trawls Net depth changed by altering either warp (rope) length or towing speed			



Figure 18: Typical demersal otter gear diagram (Source: Seafish, 2015, MarineTraffic, 2023)



Figure 19: Typical demersal otter trawler (Source: Seafish, 2015, MarineTraffic, 2023)

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Pelagic trawl

- 1.3.29 **Figure 20** shows typical pelagic trawl gear and **Table 1.7** describes the profile of pelagic trawling vessels active across the study area.
- 1.3.30 Pelagic trawling is a method of towing a trawl in mid-water for instance, at any point in the water column between the surface and seabed. In general, this gear is used to target shoaling species such as mackerel and herring.
- 1.3.31 All classes of trawler can use pelagic trawls. From 10 m inshore vessels targeting shoals of pelagic fish in shallow water, up to the specialist pelagic vessels, over 40 m long.

Parameter	Indicative details
Main target species	Horse mackerel, mackerel, herring
Nationality	English, French
Vessel length	Up to 50 m
Horsepower	500 hp to 1,200 hp
Typical towing speed	2.5 to 5 knots
Typical duration of tow / dredge	1 to 2 hours
Seasonality of activity	Typically distinct seasonal peaks
Typical gear	Pair or single trawls Net depth changed by altering either warp (rope) length or towing speed

Table 1.7: Profile of typical pelagic trawl vessel active across the study area

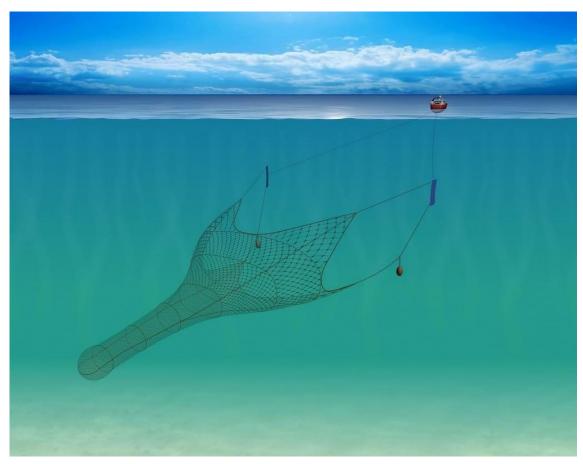


Figure 20: Typical pelagic trawl gear configuration (Source: Seafish, 2015)

Dredge

- 1.3.32 Dredges are rigid structures that are towed along the seabed to target various species of shellfish. The scallop fishery typically uses a specific dredge called the 'spring-loaded Newhaven dredge'. A typical scallop dredging vessel is shown in Figure 21 and Table 1.8 describes the profile of scallop dredging vessels active across the study area.
- 1.3.33 Scallop dredgers fish as the tooth bar of each dredge rakes through the sediment lifting out scallops and the spring-loaded tooth bar swings back, allowing the dredge to clear obstacles on the seabed. The dredges are held in a series on two beams, which are fished on each side of the vessel.
- 1.3.34 Scallop dredging is an activity which is generally engaged by larger (>10m vessel length) vessels due to the engine capacity required to tow this heavy fishing gear. Smaller vessels may tow up to 8 dredges a side whilst larger vessels, which are either purpose built of converted beam trawlers, can tow up to 20 dredges each side of the vessel. Under the Scallop Fishing (England) Order 2012, vessels with more than 8 dredges per side can only operate beyond the 12 nautical mile limit.

Parameter	Indicative details
Main target species	King scallop
Nationality	Scottish, English (scope for some French)
Vessel length	Majority over 15 m
Horsepower	200 hp to 400 hp
Typical towing speed	2 to 6 knots
Typical duration of tow / dredge	1 to 2 hours
Seasonality of activity	King scallop targeted primarily in early spring and winter months
Typical gear	Varying number of dredges per vessel depending on fishing ground
	Each dredge consists of a triangular frame leading to an opening, a tooth bar with spring-loaded teeth, and a bag of steel rings and netting back

Table 1.8: Profile of typical scallop dredge vessel active across the study area

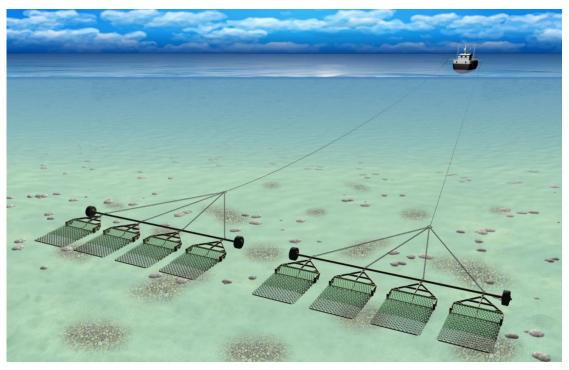


Figure 21: Typical scallop dredge gear configuration (Source: Seafish, 2015)

Other Gear Types

- 1.3.35 Landings data indicates the potential for relatively low levels of fishing activity by other fleets within the study area. These include:
 - The UK handline and longline fleet, targeting pollack, hake and bass. On average across 2018 to 2022, these fleets made 11 tonnes of landings with an average value of £50,000.
 - The UK demersal seine fleet, which recorded landings only in 2022 of 60 tonnes with a value of £113,000 (no landings are recorded in the study area between 2018 and 2021). Landings were primarily of haddock and hake.

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Fishing Restrictions

Total Allowable Catch and quota

1.3.36 TACs and quotas are in place for many commercial fish species based on their stock distribution across ICES Divisions. The TACs set for a species across ICES Division 7 (Celtic Seas) for example, allow countries that have been allocated a quota from this TAC to fish within ICES Divisions 7 a to k. TACs and quotas per country are presented in **Table 1.9** for key species landed from the commercial fisheries study area for which a TAC exists.

Table 1.9: Total allowable catch (TAC) and quotas in tonnes by country for the key species landed in the study area in 2023 (EU, 2023)

Species	ICES Division	TAC (tonnes)	UK	Netherlands	Belgium	France	Ireland
Anglerfishes	7	45,724	10,196	518	4,003	25,687	3,283
Haddock	7b-k, 8, 9 and 10	11,901	2,142	-	114	6,823	2,275
Whiting	7b, 7c, 7d, 7e, 7f, 7g, 7h, 7j and 7k		1,077	36	72	4,459	3,877
Nephrops	7	18,353	7,371	-	-	3,974	6,027
Plaice	7f and 7g	402	103	-	44	79	147
Pollack	7	6,410	1,506	-	185	4,255	453
Skates and rays	6a, 6b, 7a-c and 7e-k	9,797	2,937	4	835	3,749	1,207
Sole	7f and 7g	1,138	421	-	777	78	39

Byelaws, technical measures and spatial closures

- 1.3.37 In addition to limits on catch volumes, a number of restrictions are in place based primarily on fisheries byelaws, intended to protect fish stocks and their habitats. These restrictions include limits on minimum landings sizes, technical measures relating to fishing gear design and use, limits on fishing effort, and temporary and permanent fishery closures.
- 1.3.38 Within the study area several spatial restrictions are in place that are relevant to the Proposed Development. These include:
 - MMO Land's End and Cape Bank European Marine Site (Specified Areas) Bottom Towed Gear Byelaw 2009, prohibiting the use of bottom towed fishing gear in the specified area;
 - MMO closed area for the conservation of cod in ICES divisions 7f and 7g whereby from 1 February to 31 March each year, it shall be prohibited to

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conduct any fishing activity in the following ICES statistical rectangles: 30E4, 31E4, 32E3; and

 Devon and Severn, Cornish and Isles of Scilly IFCA byelaws which include a number of byelaws that seek to manage fishing activity within IFCA waters (i.e., inside of the 6 nm limit).

Fishing Activity Assessment

Fishing intensity based on VMS data

- 1.3.39 VMS data sourced from ICES¹ displays the surface Swept Area Ratio (SAR) of catches by different gear types and covers EU (including UK and Isle of Man) registered vessels 12 m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear makes contact with (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity and has been analysed to determine an average annual SAR based on data from 2016 to 2020 for the following gear types: dredge, beam trawl, demersal seine and demersal trawl. Note that SAR data for static gear is not available, including for potting, netting and gears with hooks.
- 1.3.40 VMS data sourced from the MMO displays the value of catches for UK registered vessels 15 m and over in length. VMS data sourced from the MMO displays the first sales value (£) of catches and covers UK registered vessels 15 m and over in length from 2016 to 2020 for the following gear types: potting, dredge, demersal otter trawl, pelagic trawl and beam trawl.
- 1.3.41 VMS data from both sources is presented below in **Figure 23** to **Figure 36**.
- 1.3.42 VMS data indicates intense beam trawl activity in the English Channel to the east of the Proposed Development and generally low levels of activity along the Offshore Cable Corridor with the exception of a relative hotspot of activity in ICES rectangles 29E4 and 30E4, northwest of the Cornish coast. This activity is expected to be attributable to UK beam trawlers.
- 1.3.43 Potting activity by over 15 m length vessels captured in the VMS data is limited along the cable corridor, with some activity overlapping the Proposed Development in ICES rectangles 31E4 and 31E5 off the Cornwall and Devon coast.
- 1.3.44 VMS data for demersal otter trawling indicates that the most heavily targeted fishing grounds do not overlap the Proposed Development. Two relative hotspots of demersal trawl activity are noted along the Offshore Cable Corridor, to the northwest of the Cornish coast associated with landings of flatfish by UK vessels and to the south west of the Isles of Scilly, where activity is expected to be attributable primarily to EU trawlers.
- 1.3.45 VMS data indicates no UK pelagic trawl activity in the vicinity of the Proposed Development, with activity focused to the east in the English Channel.
- 1.3.46 VMS data for dredge vessels indicates that the most heavily targeted fishing grounds do not overlap the Proposed Development and that limited dredge

¹ Note that UK VMS data presents information on fishery value, whereas ICES VMS data presents 'swept-area ratio', which is the cumulative area contacted by a fishing gear within a grid cell over an annual period.

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activity is expected along the Offshore Cable Corridor with the exception of across ICES rectangle 30E4 northwest of the Cornish coast where data indicates the presence of a targeted scallop bed immediately to the east of the Offshore Cable Corridor.

Fishing intensity based on AIS data

- 1.3.47 Fishing vessel route density (EMSA, 2022), based on vessel AIS positional data is shown in Figure 37. AIS is required to be fitted on fishing vessels ≥15 m length. The data is filtered to show only fishing vessels (with no other commercial or recreational vessels included) and indicates the route density per square km per year. This data does not distinguish between transiting vessels and active fishing but does provide a useful source to corroborate fishing grounds.
- 1.3.48 The data indicates sustained fishing vessel presence across the commercial fisheries study area, and the presence of important fishing grounds along discrete sections of the cable corridor, particularly in ICES rectangle 30E4, corresponding to beam and demersal trawl grounds. The data indicates the presence of important fishing grounds across the wider region and in particular in the English Channel.

Fishing activity based on ICES landings mapping

- 1.3.49 ICES publish fisheries overviews for a number of 'ecoregions'. One of these ecoregions in the Celtic Sea and within their latest publication (ICES, 2022), the spatial distribution of landings for the main pelagic, benthic, gadoid and shellfish species across the Celtic Sea is mapped, as shown in **Figure 22**.
- 1.3.50 Pelagic species are primarily targeted close to the shelf edge, with relatively limited landings taken within the study area. Hake and anglerfish catches are recorded in the study area but gill netting for these species is also focused along the shelf edge, outside of the study area. Whiting, cod and haddock are taken in the study area using demersal trawls. Nephrops fishing activity is focused on distinct nehprops grounds, with the closest to the study area being the 'Smalls', located immediately to the northwest of the study area. Scallops are taken from the study area, with scallop grounds (referred to as beds 7.f.1 and 7.e.1 by Cefas (Cefas, 2023 and 2024) located both to the north and south of the Cornish peninsula. Brown crab catches are notable in coastal waters off Cornwall.



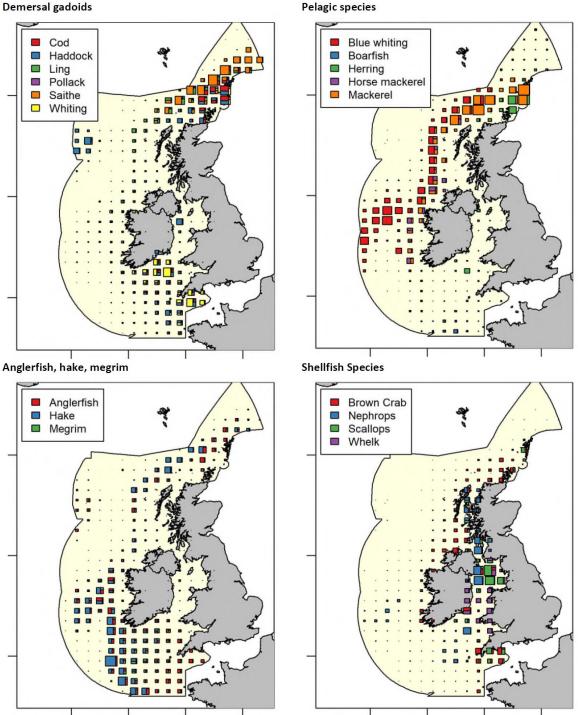


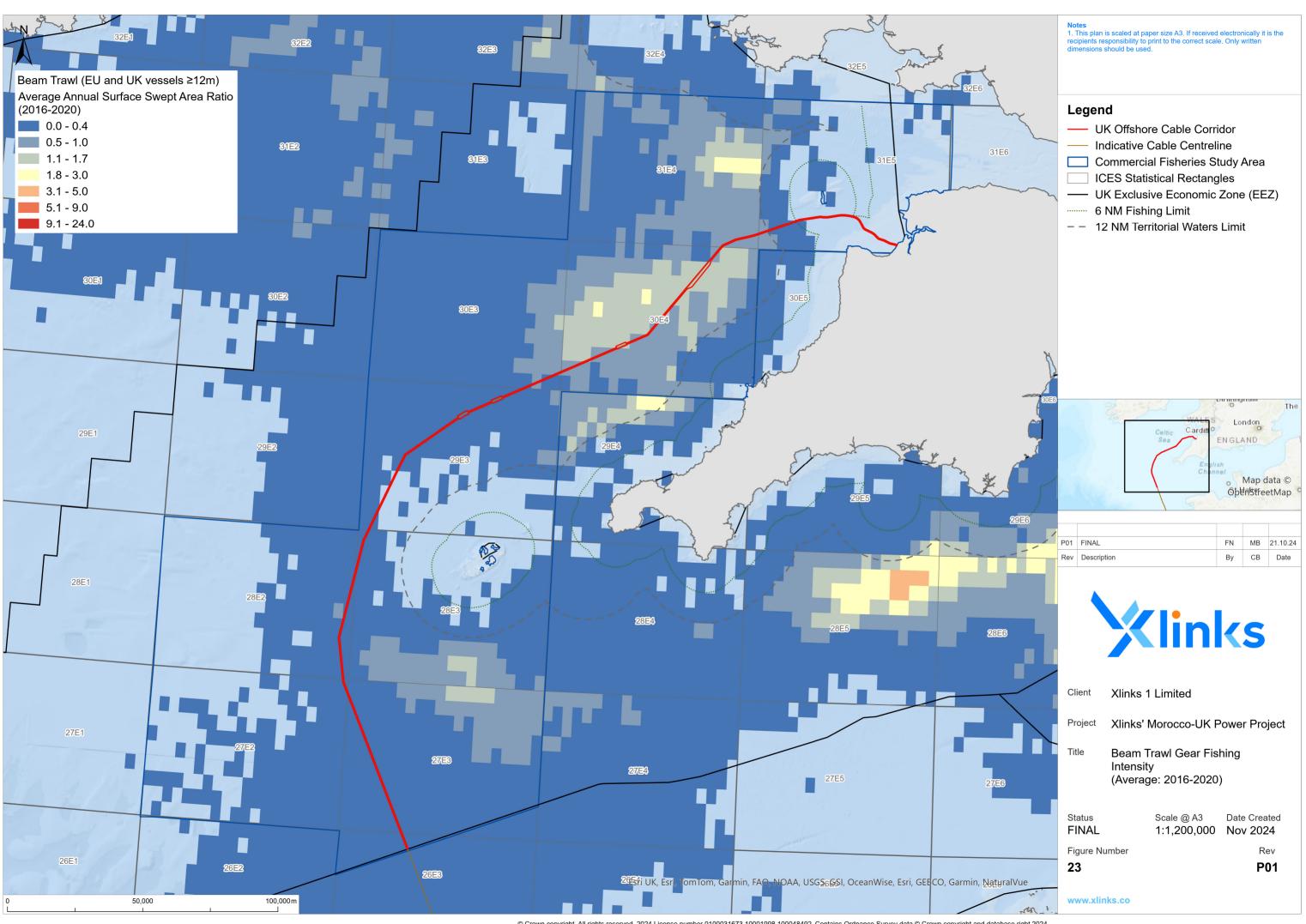
Figure 22: Spatial distribution of landings for main species in the Celtic Seas ecoregion. Landings (tonnes) are represented proportionally. Based on data for >10 m length vessels, 2015 to 2019. (Source: ICES, 2022).

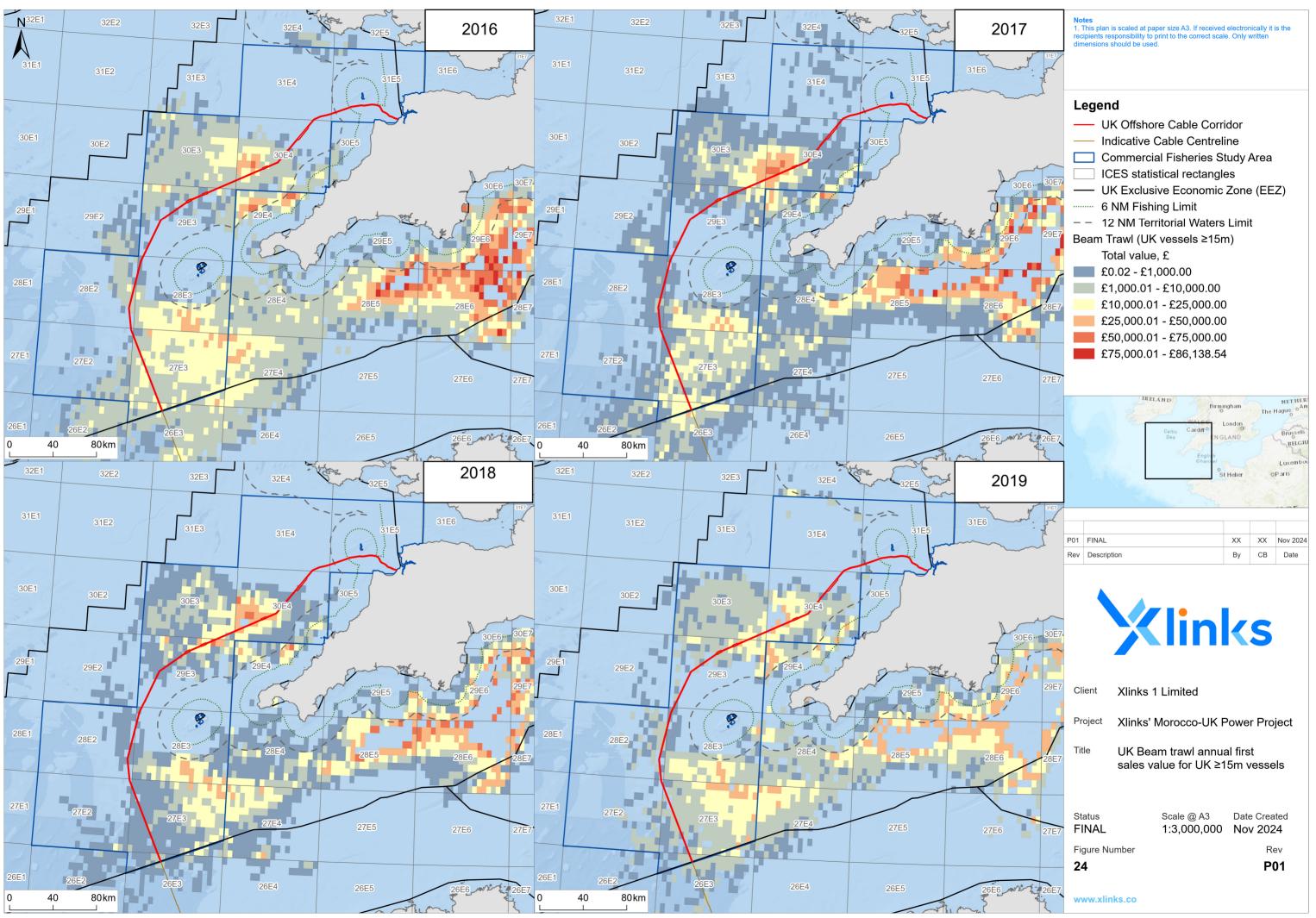
Fishing activity based on MMO surveillance data

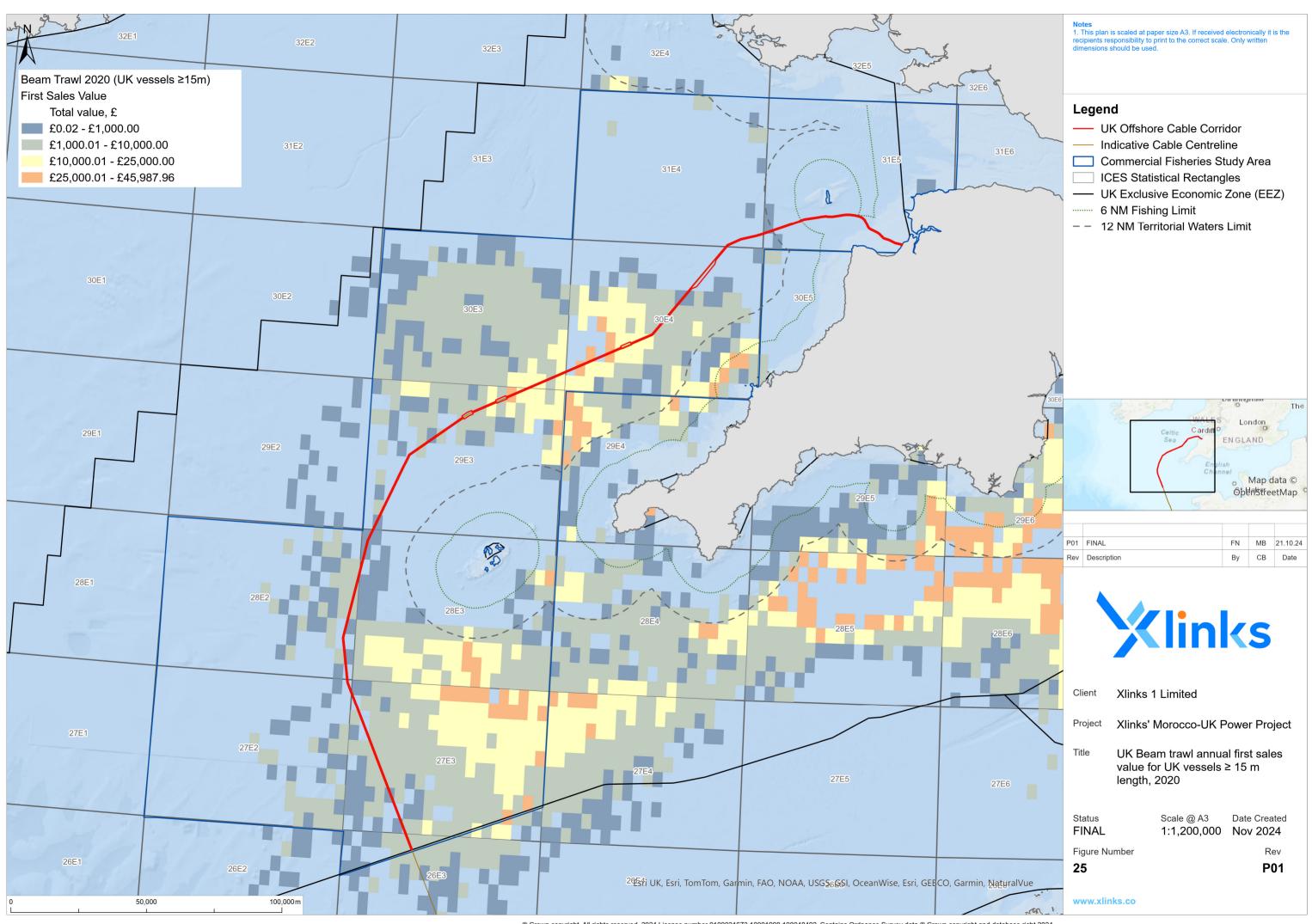
MMO surveillance data covering the period 2018 to 2022 has been mapped. The 1.3.51 data shows observations of fishing vessels by vessel nationality (Figure 39) and by fishing gear type (Figure 38). Overall, within the study area, the greatest number of vessel observations were made in ICES rectangle 30E4, with a number of observations overlapping the cable corridor. Observations overlapping and

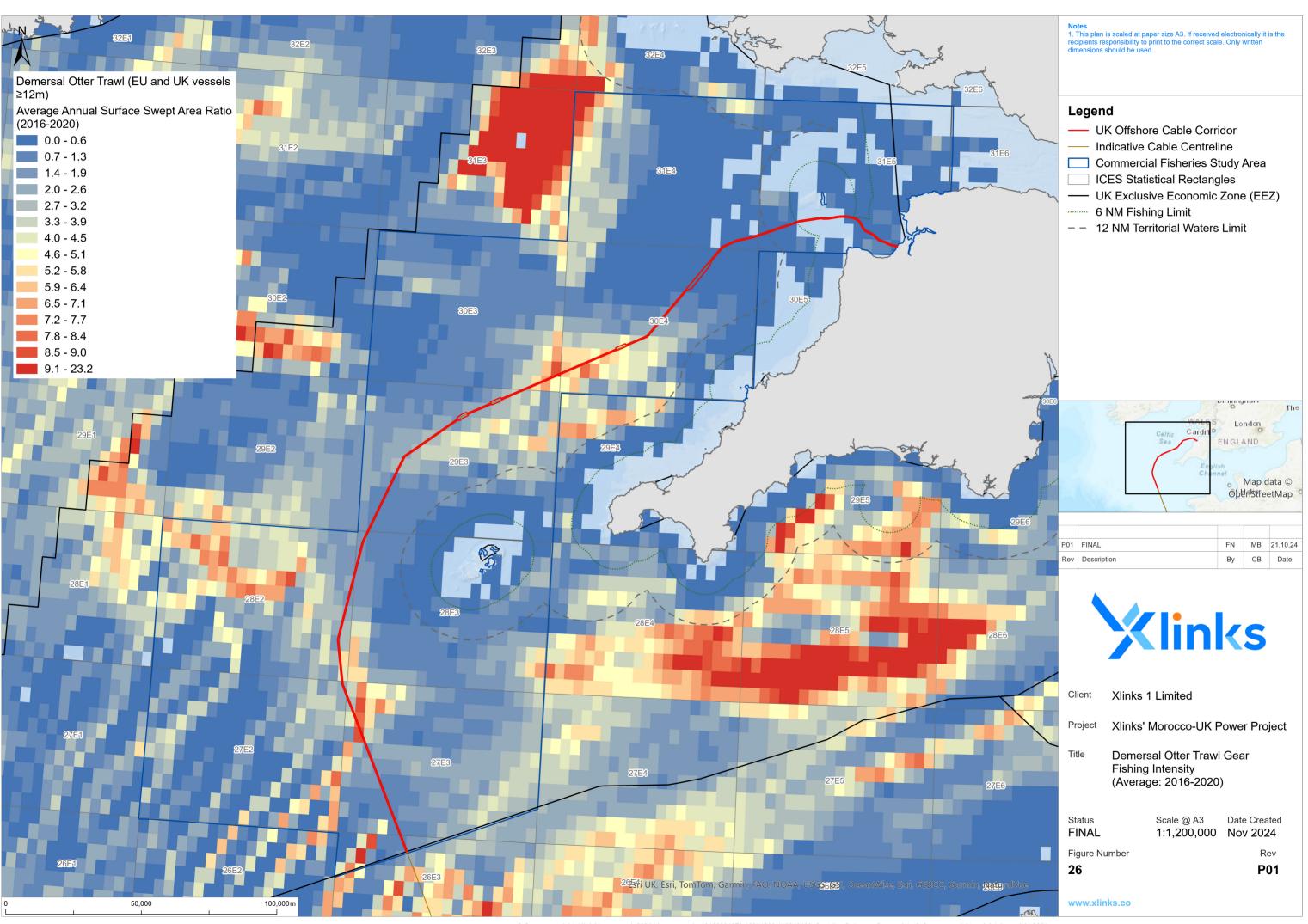
proximate to the cable corridor were primarily of Belgian, UK and French fishing vessels. The majority of observations were of beam trawlers and then of demersal trawlers, though other gear types are recorded in proximity to the cable corridor including gill nets and pots. The surveillance data broadly aligns with the spatial distribution of fishing activity depicted in other data sources presented in this document.

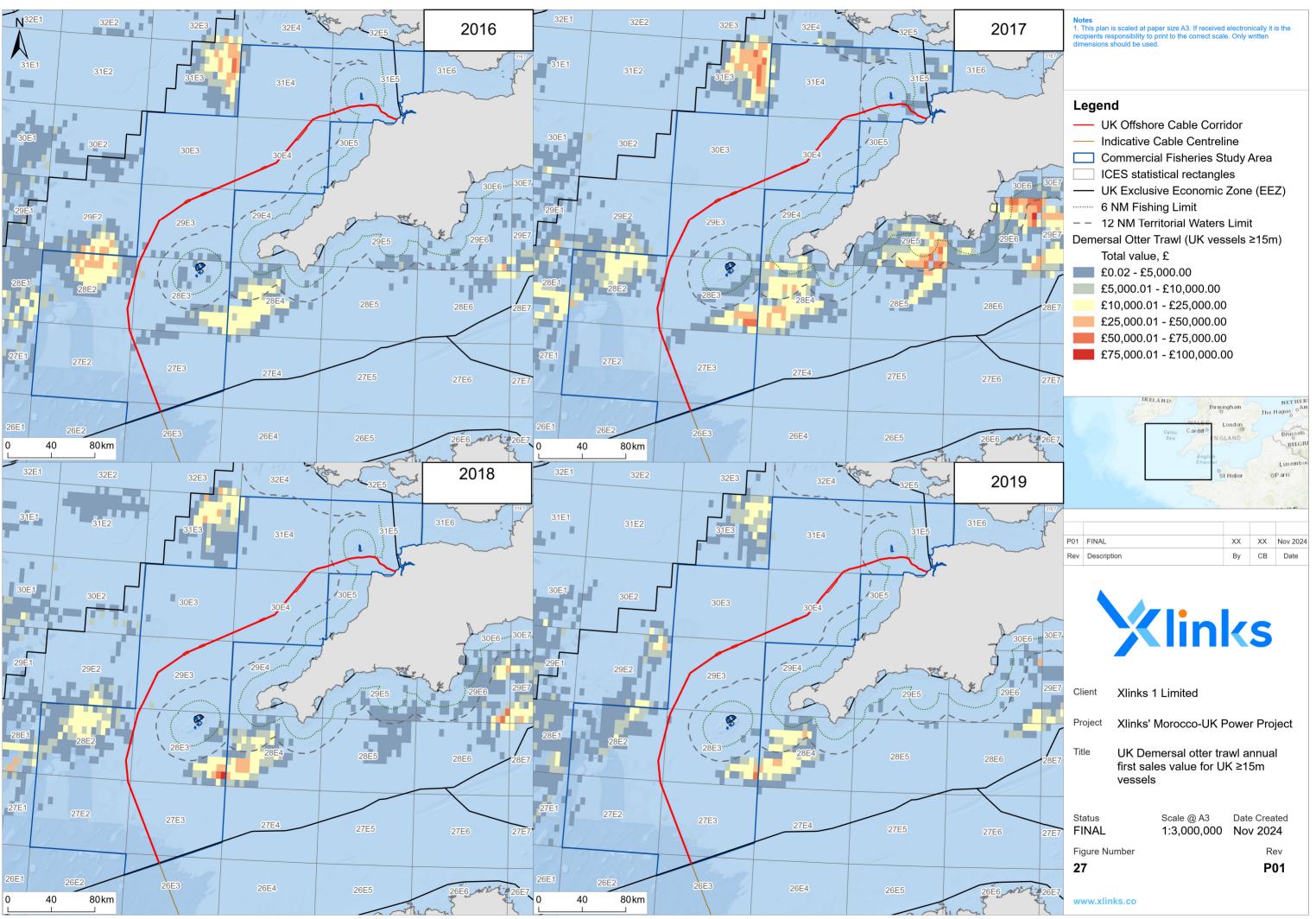
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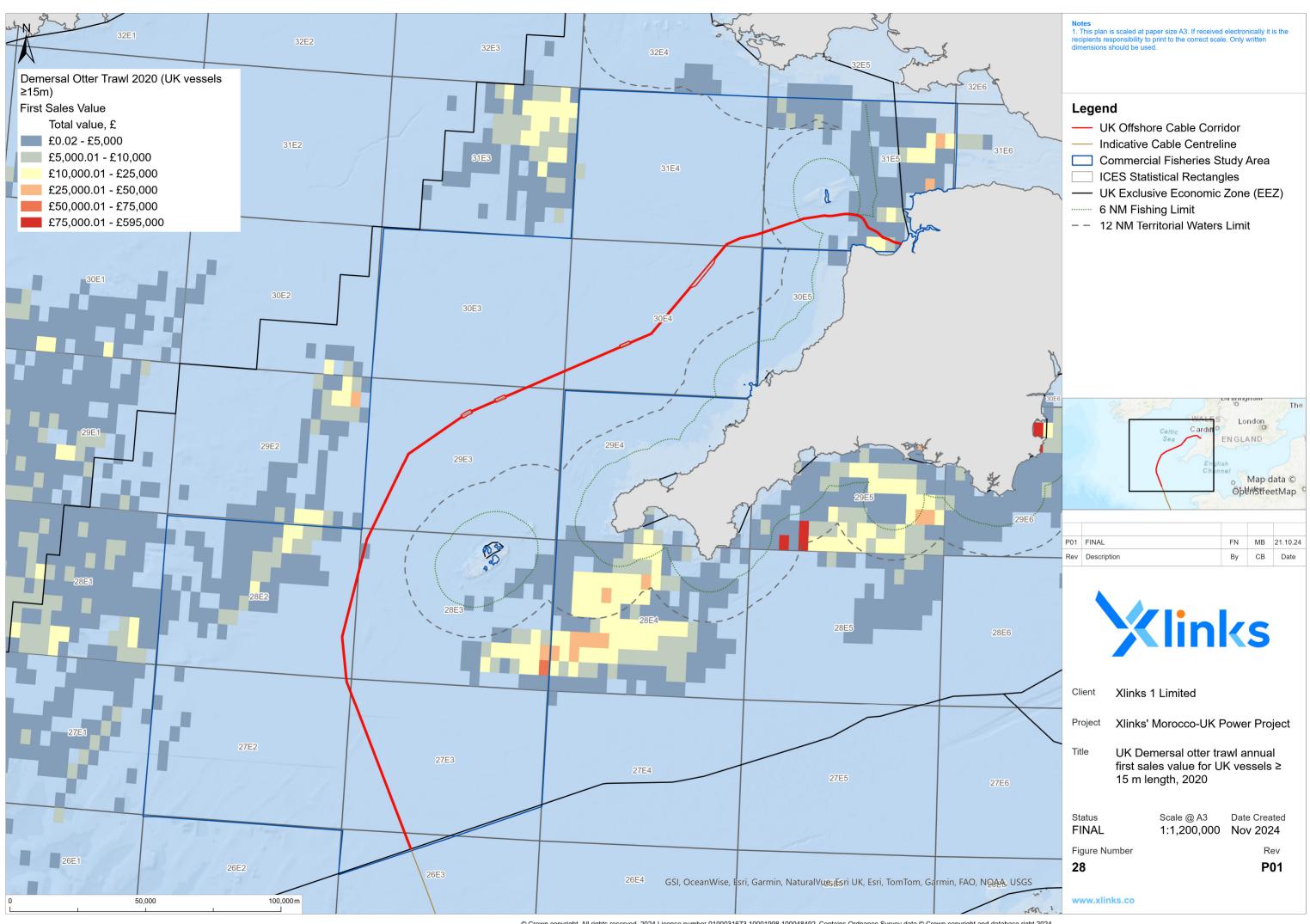


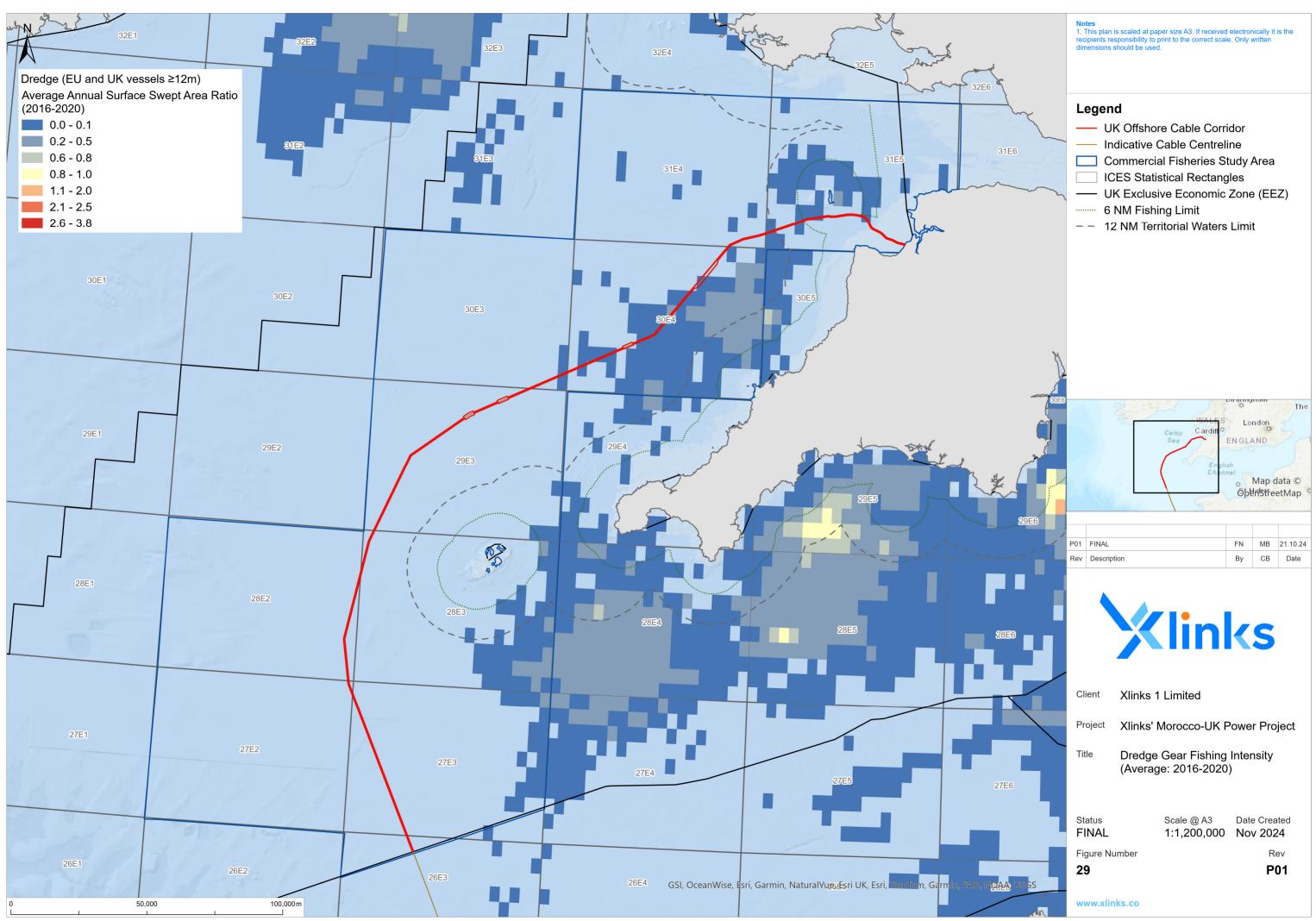


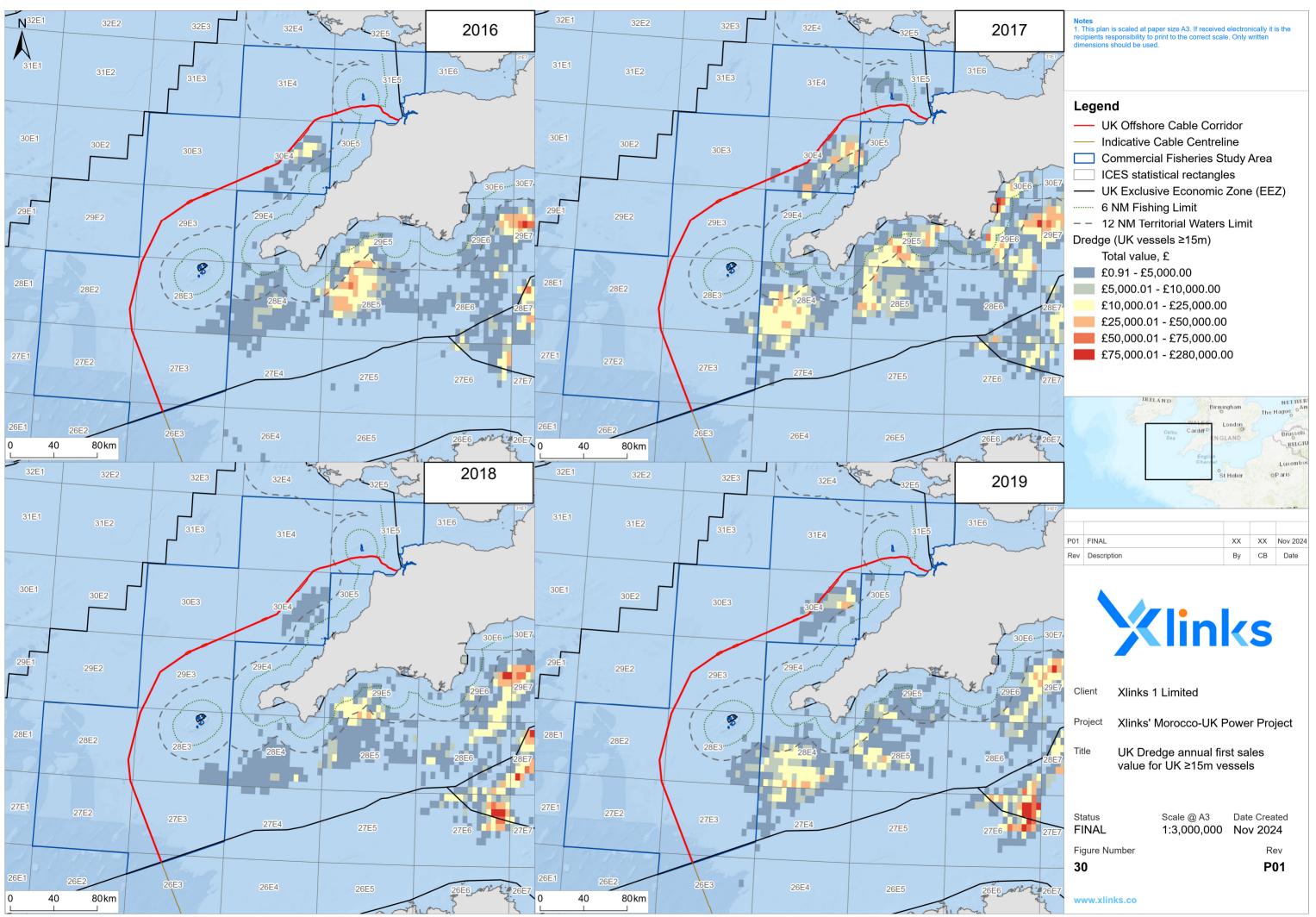




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