Liverpool Bay CCS Ltd

HYNET CARBON DIOXIDE TRANSPORTATION AND STORAGE PROJECT - OFFSHORE

Environmental Statement
Volume 3, appendix M: Commercial Fisheries Technical Report

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Liverpool Bay CCS Limited
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Commercial Fisheries
Technical Report

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Liverpool Bay CCS Limited

Glossary

Term	Meaning
Beam trawler	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.
Demersal	Living on or near the seabed.
Demersal trawl	A fishing net used by towing the trawl along or close to the seabed.
European Union Data Collection Framework	An EU framework for the collection and management of fisheries data.
First sales value	The value obtained for fish or shellfish when it is sold for the first time.
Fish stock	Any natural population of fish, which is 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).
Gear type	The method/equipment used for fishing.
ICES statistical rectangles	Defined areas, 1 degree longitude x 0.5 degree latitude equalling approximately 30 x 30 nautical miles (nm) used for fisheries statistics.
Landings	Quantitative description of amount of fish returned to port for sale, in terms of value or weight.
Marine Management Organisation	A UK government department that licence, regulate, and plan commercial fisheries activities in the seas around England, with jurisdiction from 0 to 12nm.
Métier	A homogenous subdivision, either of a fishery by vessel type or a fleet by voyage type.
Otter trawl	A net with large rectangular boards (otter boards) which are used to keep the mouth of the trawl net open. Otter boards are made of timber or steel and are positioned in such a way that the hydrodynamic forces, acting on them when the net is towed along the seabed, pushes them outwards and prevents the mouth of the net from closing.
Pelagic	Of or relating to the open sea, species living in the water column.
Pelagic trawl	A net used to target fish species in the mid water column.
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 matt 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.
Spawning	The act of releasing or depositing eggs (fish).
String	A series of static fishing gear (pots) joined together to form a single deployable line of pots.
Study area	This is an area which is defined for each EIA topic which includes the Proposed Development as well as potential spatial and temporal considerations of the impacts on relevant receptors.
Total Allowable Catches	Total Allowable Catches (TACs) are catch limits, expressed in tonnes or numbers that are set for some commercial fish stocks.
Vessel Monitoring System	A system used in commercial fishing to allow environmental and fisheries regulatory organizations to monitor, minimally, the position, time at a position, and course and speed of fishing vessels.

Acronyms and Initialisations

Acronyms/Initialisation	Description
AIS	Automatic Identification System
DCF	Data Collection Framework
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
ES	Environmental Statement
EU	European Union
FLO	Fisheries Liaison Officer
GIS	Geographic Information System
ICES	International Council for the Exploration of the Sea
IOM	Isle of Man
MAP	Multi Annual management Plan
MCRS	Minimum Conservation Reference Size
MMO	Marine Management Organisation
NRA	Navigational Risk Assessment
PEIR	Preliminary Environmental Information Report
SAR	Swept Area Ratio
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
UK	United Kingdom
UKFEN	UK Fisheries Economic Network
VMS	Vessel Monitoring System

Units

Unit	Description
€	Euros (currency)
£	Pound sterling (currency)
cm	Centimetre (distance)
hp	Horsepower (power)
kg	Kilograms (weight)
km	Kilometres (distance)
knots	Nautical mile per hour (speed)
kW	Kilowatts (power)
m	Metres (distance)
mm	Millimetres (distance)
NM	Nautical Mile (distance; equal to 1.852 km)
t	Tonne (weight)

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1 COMMERCIAL FISHERIES TECHNICAL REPORT

1.1 Introduction

This Commercial Fisheries Technical Report provides a baseline characterisation of the commercial fisheries active in and around the offshore components of the HyNet Carbon Dioxide Transportation and Storage Project (hereafter referred to as "the Project"). The offshore components of the Project are referred to as the 'Proposed Development' within the offshore reporting.

This report has been prepared by Poseidon Aquatic Resource Management Ltd (Poseidon) on behalf of RPS to support the Offshore Environmental Impact Assessment (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 Technical Report is provided in volume 2, chapter 10.

Commercial fisheries activity described in this report, is defined as fishing activity legally undertaken where the catch is sold for taxable profit. A description of charter angling activity, defined as fishing for marine species where the purpose is recreation and not sale or trade, is provided in volume 2, chapter 12. The ecology of the fish and shellfish species targeted by commercial fishing activity is described in, volume 2, chapter 7.

1.2 Study area

The Proposed Development is located within the eastern portion of the International Council for the Exploration of the Sea (ICES) Division 7a (Irish Sea) statistical area; within the United Kingdom (UK) Exclusive Economic Zone (EEZ) waters. For the purpose of recording fisheries landings, ICES Division 7a is divided into statistical rectangles which are consistent across all Member States operating in the Irish Sea.

The Proposed Development is located within ICES rectangles 35E6 and 36E6, which represent the commercial fisheries study area for the EIA, as shown in Figure 1.1. Note that the development area, area of project physical work and proposed infrastructure occupy only a portion of these ICES rectangles in terms of surface area overlap.

In total, the Eni Development Area (shown as red line boundary in Figure 1.1) overlaps with 12.5% of the commercial fisheries study area, and the Area of Project Physical Work (shown as the black dashed line) overlaps with 1.43% of the commercial fisheries study area.

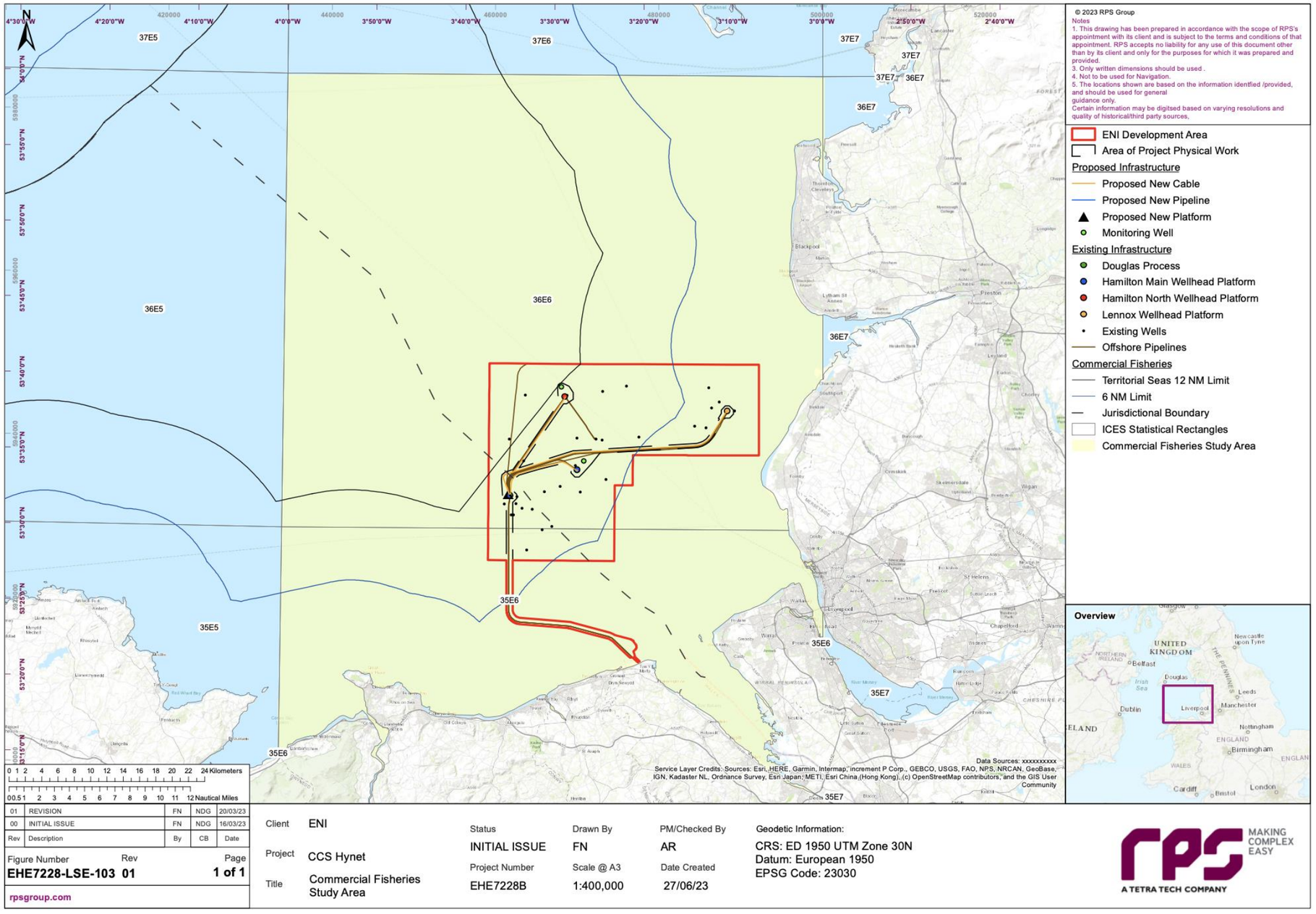


Figure 1.1: Commercial Fisheries Study Area (ICES Rectangles 35E6 And 36E6)

1.3 Consultation

A summary of the key issues raised during consultation activities undertaken to date specific to commercial fisheries is presented in Table 1.1 below.

Table 1.1: Summary Of Key Consultation Issues Raised During Consultation Activities Undertaken For The Proposed Development Relevant To Commercial Fisheries

Date of Engagement	Engagement Activity	Contact	Organisation	Contact Details	Question Raised	Response Provided	Follow Up required?	Action	Assignee	Status
4.03.2021	Prep for Stakeholder Consultation Event 1	Helen Croxson	MCA	+44 (0) 203 8172426 +44 (0) 7468353062 Helen.Croxson@mcga.gov.uk	Unable to attend the meeting on Friday, but would welcome any documents on your plans in advance of any formal marine licence application or exemption submission. Can provide some initial feedback including aspects to ensure are addressed in any formal submissions.		Yes	Provide documents in advance of formal application	J. Grando	Ongoing
11.03.2021	Prep for Stakeholder Consultation Event 1	Matthew Frow	Kingfisher	01472 252 336 07876 035 744 Matthew.Frow@seafish.co.uk	Unable attend workshop tomorrow, but interested in proposals for inclusion on www.kingfisherbulletin.org and www.fishsafe.org. Please keep kingfisher@seafish.co.uk informed.		Yes	Kingfisher Notified via online System submission	V Morrell	Ongoing
12.03.2021	Stakeholder Consultation Event 1	Thomas Watson	Independent Fisheries Consultant	tomwatsonfleetwood@btinternet.com	Will it be possible to use local fishing boats as the guard boats required during the acquisition activity. NB: They have better relationships and awareness of the issues prevalent in the area.	This will be addressed as we develop the most appropriate way forward. Acknowledged as best practice with benefits as stated (i.e. they have the respect of other fishing boats in the area, established relationships and good knowledge of the location).	Yes	Further engagement with fishing industry required	V. Morrell - FLO	Internal Progress meeting scheduled 1/4/21
12.03.2021	Stakeholder Consultation Event 1	Ian Rowe	NFFO	ian@nffo.org.uk	The area includes static gear for whelks and crabs, owners will want to be part of the consultation as there will be a high potential for entanglement.	Our intent will be to approach all users to fully understand the issues as part of this consultation.	Yes	Further engagement with fishing industry required	V. Morrell - FLO	internal Progress meeting scheduled 1/4/21
12.03.2021	Stakeholder Consultation Event 1	Ian Rowe	NFFO	ian@nffo.org.uk	Can any turning circles be clearly identified on the survey plan. There are regular issues where coordinates have been issued but vessels go outside of these areas when turning.	The seismic feasibility report is almost concluded and accurate maps for turning areas will be clearly identified within it.	Yes	Further engagement with fishing industry required	V. Morrell - FLO	internal Progress meeting scheduled 1/4/21
12.03.2021	Stakeholder Consultation Event 1	Thomas Watson	Independent Fisheries Consultant	tomwatsonfleetwood@btinternet.com	The area is divided into two seasons during summer/autumn and winter/spring. Fishing processes differ between each season when static gear will be used more frequently (Oct – May). The operators will need to be kept closely informed.	An FLO has been appointed and will be looking to engage with users on these issues.	Yes	Further engagement with fishing industry required	V. Morrell - FLO	internal Progress meeting scheduled 1/4/21
12.03.2021	Stakeholder Consultation Event 1	Sarah Canning	JNCC	Sarah.Canning@jncc.gov.uk	With regards the Geophysical survey application – will this be for a single or two survey areas?	The intended approach is for a single permit.	No			
12.03.2021	Stakeholder Consultation Event 1	Jack Richards	Spirit Energy	jack.richards@spirit-energy.com	Can an overview of the timeline for activity be provided?	The activity is not yet finalised, but we expect it to take place between late summer 2021 or spring 2022. This is currently under discussion and will depend on the results of the environmental studies and the stakeholder consultation activity.	Yes	Further stakeholder feedback during consultation phase	D. Smith / J Grando	Ongoing
12.03.2021	Stakeholder Consultation Event 1	Raj Lal	Tailwind	r.lal@tailwind.co.uk	Can a survey route and the extent of the route (area being covered) be provided to understand any impacts to Conwy Field location?	Consideration is being given to other infrastructure such as wind farms etc. The detailed track for the vessel will be provided in advance including details on how interaction will be minimised.	Yes	Further stakeholder feedback during consultation phase	D. Smith / J Grando	Ongoing

Date of Engagement	Engagement Activity	Contact	Organisation	Contact Details	Question Raised	Response Provided	Follow Up required?	Action	Assignee	Status
12.03.2021	Stakeholder Consultation Event 1	Thomas Watson	Independent Fisheries Consultant	tomwatsonfleetwood@btinternet.com	Assume that Eni will be prepared to compensate the static gear fisherman?	This will follow the normal process adopted by the industry including the required evaluation and compensation. More detailed discussions will follow on this issue.	Yes	Further engagement with fishing industry required	V. Morrell - FLO	Internal Progress meeting scheduled 1/4/21
12.03.2021	Stakeholder Consultation Event 1	Anna Buckingham	BEIS (OPRED)	Environmental Manager Offshore Petroleum Regulator for Environment and Decommissioning Department for Business, Energy and Industrial Strategy AB1 Building, Crimon Place, Aberdeen. AB10 1BJ T: 01224 254149 E: anna.buckingham@beis.gov.uk	Commended Eni for its transparency in the project to help everyone move forward.	There will be more opportunities to meet with us and discuss the seismic activity as well as the wider CCS project.	No			
12.03.2021	Stakeholder Consultation Event 1 - Follow Up	Hannah Hood	JNCC	Offshore Industry Adviser BSc (Hons), MSc JNCC, Inverdee House, Baxter Street, Aberdeen, AB11 9QA (Tel: 01224 083520 * Email: Hannah.Hood@jncc.gov.uk	We advise that the UK Territorial Limit is included on maps within the application. As these operations are close to shore, both JNCC and Natural England will likely respond, and this will help us determine what parts of the operations are within our remit.	Included in ES	Yes	Include maps as advised	D. Smith / J Grando	Ongoing
12.03.2021	Stakeholder Consultation Event 1 - Follow Up	Hannah Hood	JNCC	Offshore Industry Adviser BSc (Hons), MSc JNCC, Inverdee House, Baxter Street, Aberdeen, AB11 9QA (Tel: 01224 083520 * Email: Hannah.Hood@jncc.gov.uk	It would be beneficial to include a breakdown of survey and transit days. We advise you clarify how long the surveys will take at each field and also the duration of the gap in surveys due to transit/delays during works in the fields.	Agree	Yes	Include advice in application	D. Smith / J Grando	Ongoing
12.03.2021	Stakeholder Consultation Event 1 - Follow Up	Raj Lal	Tailwind	r.lal@tailwind.co.uk	Can the slides be shared for internal Tailwind use only	Will share shortly	Yes	Agree sharing of presentation material	D. Smith	Ongoing
11.08.2021	Email Update 2 - Consultation Document	Tom Watson	Independent Fisheries Consultant	tmwatsonfleetwood@btinternet.com	Note no mention of the Commercial Anglers that operate out of Liverpool and Rhyl in the Commercial Fisheries section (3.6) of the report issued	Included in this report	Yes	Presentation and NM sent to fishermen (Kingfisher notification uploaded on Online System)	V.Morrell	Ongoing
06.10.2021	Stakeholder Consultation Event - Fisheries, Trinity House, MCA	Helen Croxson (MCA)	MCA	Helen.Croxson@mcga.gov.uk	Suggested Eni got in touch with the local MCA office to discuss towage plans	Vic to follow up	yes		V.Morrell	Ongoing
06.10.2021	Stakeholder Consultation Event - Fisheries, Trinity House, MCA	Helen Croxson (MCA)	MCA	Helen.Croxson@mcga.gov.uk	MCA's main concern would be to ensure that all relevant notifications were made, fisheries organisations, UKHO and HMCG etc	No response required	no		V.Morrell	Ongoing
06.10.2021	Stakeholder Consultation Event - Fisheries, Trinity House, MCA	Helen Croxson (MCA)	MCA	Helen.Croxson@mcga.gov.uk	Asked for an image showing the survey areas overlaid on a nautical chart	Exploration to follow up	yes		V.Morrell	Ongoing
04.02.22	Meeting with OPRED, JNCC, NRW	Julie Cook, Sarah Dacre	OPRED, JNCC, NRW	Various	Meeting to discuss changes in methodology for seismic acquisition	Requested to OPRED for permit to be approved by 5th March	yes	Juliana to update the permit		

Date of Engagement	Engagement Activity	Contact	Organisation	Contact Details	Question Raised	Response Provided	Follow Up required?	Action	Assignee	Status
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Tom Watson	Independent Fisheries Consultant	tmwatsonfleetwood@btinternet.com	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Ian Rowe	NFFO	ian@nffo.org.uk	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Mr Harry Wick	Northern Irish Fish Producers' Organisation Limited	harry.wick@nifpo.co.uk	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Mr Steve Alexander	Scottish Fishermen's Federation	s.alexander@sff.co.uk; sff@sff.co.uk	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Mr Alex Riddell	Global Marine Systems	Alex.Riddell@globalmarine.group	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Mark Roberts	Commercial fisher	mr7harmoni@gmail.com	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Andy Bynam (shows Anne in email address)	Commercial fisher	bynam@hotmail.co.uk	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Carl Davies	Commercial fisher	carl@sea-fishing-trips.co.uk	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Maldwyn Griffith	Harbour Master	maldwyngriffith@ynysmon.gov.uk	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Steven Jones	Commercial fisher	jongojones@icloud.com	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Gary Thomas	Commercial fisher	gazathomas_1991@yahoo.com	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Jim Evans	Welsh Fishermen's Association	jim@wfa-cpc.co.uk	Awaiting response (14.08.23)					

Date of Engagement	Engagement Activity	Contact	Organisation	Contact Details	Question Raised	Response Provided	Follow Up required?	Action	Assignee	Status
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Paul Turner	Commercial fisher	turner20109@googlemail.com	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Brian McGuirk	Commercial fisher	bmcguirk@live.com	Awaiting response (14.08.23)					
11.08.23	Document overview of the project description and commercial fisheries assessment sent via email	Andy Hunt	Commercial fisher	r.hunt231@sky.com	Awaiting response (14.08.23)					

1.4 Methodology

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.

1.5 Desktop study

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 1.2 below.

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).

Where data sources allow, a five to six-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 2016 to 2021), as annotated in Table 1.2.

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 Eni Development Area has also been provided by the project Fisheries Liaison Officer.

Table 1.2: Summary Of Key Desktop Data Sources And Reports

Title	Source	Year	Author	Vessel coverage
Landings statistics data for UK-registered vessels, with data query attributes for: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type; port of landing; species; live weight (tonnes); and value. These landings statistics are published annually by the MMO and include vessels registered to the following UK administrations and British Crown dependencies: England, Wales, Scotland, Northern Ireland, Isle of Man (IOM), Guernsey and Jersey. Commercial fishing vessels that are registered to the IOM are required to hold both IOM and UK fishing licences.	Marine Management Organisation (MMO)	2016 to 2021	N/A	UK and Crown Dependencies
Landings statistics for EU registered vessels with data query attributes for: landing year; landing quarter; ICES rectangle; vessel length; gear type; species; and, landed weight (tonnes).	European Union (EU) Data Collection Framework (DCF) database	2012 to 2016	N/A	All Europe including UK and Crown Dependencies
VMS data for UK registered vessels ≥15 m length. Note that UK vessels ≥12 m in length have VMS on board, however, to date, the MMO provide amalgamated VMS datasets for ≥15 m vessels only. VMS data sourced from MMO displays the first sales value (£) of catches.	MMO	2016 to 2020	N/A	UK and Crown Dependencies
VMS data for EU registered vessels ≥12 m length. VMS data sourced from ICES displays the surface Swept Area Ratio (SAR) of catches by different gear types and	ICES	2017 to 2020	N/A	All Europe including UK and Crown Dependencies

Title	Source	Year	Author	Vessel coverage
covers EU (including UK) 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.				
Fishing vessel route density, based on vessel Automatic Information System (AIS) positional data. AIS is required to be fitted on fishing vessels ≥15 m length.	European Maritime Safety Agency (EMSA)	2019 to 2022	N/A	All Europe including UK and Crown Dependencies

1.5.1 Data limitations and uncertainties

A range of different data limitations and uncertainty exist for all the commercial fisheries datasets assessed within this report. The level of uncertainty and confidence of each data set is defined in Table 1.3 based on expert judgement of the assessment team.

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.

It is noted that all commercial landings by UK registered vessels are subject to the Register of Buyers and Sellers legislation and therefore landings by UK vessels of all lengths are recorded within the MMO iFISH database. Registered buyers are legally required to provide sales notes of all commercially sold fish and shellfish due to the 2005 Registration of Buyers and Sellers of First-Sale Fish Scheme (RBS legislation) (MMO, 2022). The RBS legislation is applicable to licenced fishing vessels of all lengths and requires name and PLN of the vessel which landed the fish to be recorded in relation to each purchase. For the 10m and under sector, landing statistics are recorded on sales notes provided by the registered buyers (MMO, 2022). 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, 2022).

In addition to RBS sales notes data, the Catch App was implemented in early 2022 for under 10m vessels registered in England and Wales. The Catch App requires vessel owners/skippers to submit catch records for under 10m vessels operating in UK waters. Data from 2022 onwards is being incorporated into the MMO iFISH database to form a more robust and verified record of landings by the under 10m fleet. This data is expected to be incorporated into the 2022 annual fisheries statistics, published in autumn 2023.

Lack of recent landings statistics for EU (non-UK) fleets is also recognised as a data limitation; based on the most recent European Commission data call, more recent landings data (2017 to 2019) is no longer available by ICES rectangle. Data at a scale of ICES division (i.e. the whole of the Irish Sea) is less useful to understand fishing activity specific to the Eni Development Area.

Limitations of VMS data are primarily focused on the coverage being limited to larger vessels 15 m and over for UK fishing vessels. It is important to be aware that where mapped VMS data may appear to show inshore areas as having lower (or no) fishing activity compared with offshore areas, this is not necessarily the case because VMS data do not include vessels typically operating in inshore area (i.e. which typically comprises of vessels <15 m in length). To assist in mitigating the risk of under-representing smaller inshore vessels, site-specific marine traffic survey data comprising information on vessel movements gathered by both Automatic Identification System (AIS) and radar has been analysed alongside publicly sourced VMS and AIS data.

Table 1.3: Data Limitations And Uncertainty (The Uncertainty And Confidence Levels Are Defined Based On Judgement And Are Intended To Inform The Appropriateness Of Data Used To Inform The EIA)

Data source	Type of data	Limitations and uncertainty
MMO	Landings statistics (2016 to 2021) data for UK-registered vessels.	The data is recorded from sales notes and landing declarations for all vessel lengths. Due to the UK legislation of Registration of Buyers and Sellers data is considered accurate and verifiable. Data assessed with low uncertainty and high confidence.
EU DCF	Landings statistics (2012 to 2016) data for EU landings from ICES rectangle 36E6 by country, species and gear type.	The data is submitted by individual member states and therefore limitations vary per country. Vessels under 10 m may be omitted or mis-represented by the data. Accuracy is likely to be greater for landings from larger vessels. For UK vessels under 10 m length data is assessed with high uncertainty and low confidence. For all other EU vessels data is assessed with low uncertainty and high confidence.
MMO	UK VMS data for vessels ≥15 m length.	The data is only available for 15 m and over vessels, so is not representative of <15 m vessels. Data assessed with medium uncertainty and medium confidence.
ICES	EU SAR data for vessels ≥12 m length.	The data is only available for 12 m and over vessels, so is not representative of <12 m vessels. Data assessed with medium uncertainty and medium confidence.
EMSA	AIS data for fishing vessels ≥15 m length.	The data is only available for 15 m and over vessels, so is not representative of <15 m vessels. Data assessed with medium uncertainty and medium confidence.

1.6 Baseline environment

1.6.1 Overview of landings

Commercial fisheries statistics presenting data for the annual (2016 to 2021) landed weight and first sales value landed by UK vessels from the commercial fisheries study area (35E6 and 36E6) are shown in Figure 1.2 and Figure 1.3 respectively. These data indicate that landings are dominated by shellfish species, notably queen scallop *Aequipecten opercularis*, whelk *Buccinum undatum*, and king scallop *Pecten maximus*. The majority of landings by UK fishing vessels are made by vessels registered in Scotland, England and Wales (Figure 1.4). Low levels of landings are noted for UK vessels registered to Northern Ireland, Jersey and Isle of Man. Notably, Isle of Man registered vessels are very active in the wider region, but have low catches from the commercial fisheries study area of 35E6 and 36E6.

An annual average value of almost £3 million was landed by all UK vessels for the years 2016 to 2021 from the commercial fisheries study area (35E6 and 36E6). Whelk represents the highest value species commercially landed from the study area (average £1 million per annum), with significant growth from 2016 to 2021. Queen scallop represents the second highest value species commercially landed from the study area (average £879,000 per annum), although landings are highly variable across the time series, peaking in 2016 with significant drops since. King scallop landings have remained more consistent with an average of £609,000 per annum. The trend seen in queen scallop landings is expected for this species, with higher production at specific grounds on a seven-to-ten-year cycle; while king scallop tend to peak every 2-3 years which is also notable within the dataset, with a peak of £915,000 in 2018. For queen scallop, the lower level of landings noted from 2018 to 2020 is not necessarily signifying a move away from targeting this species, but represents the long term catch trends, which is typical for queen scallop in the Irish Sea region. Notably, landings of queen scallop in 2021 have increased from 2020 levels.

Relatively small quantities of other species are landed from the study area, including lobster *Homarus gammarus* (£167,000 annual value), bass *Dicentrarchus labrax* (£74,000) and sole *Solea solea* (£47,000).

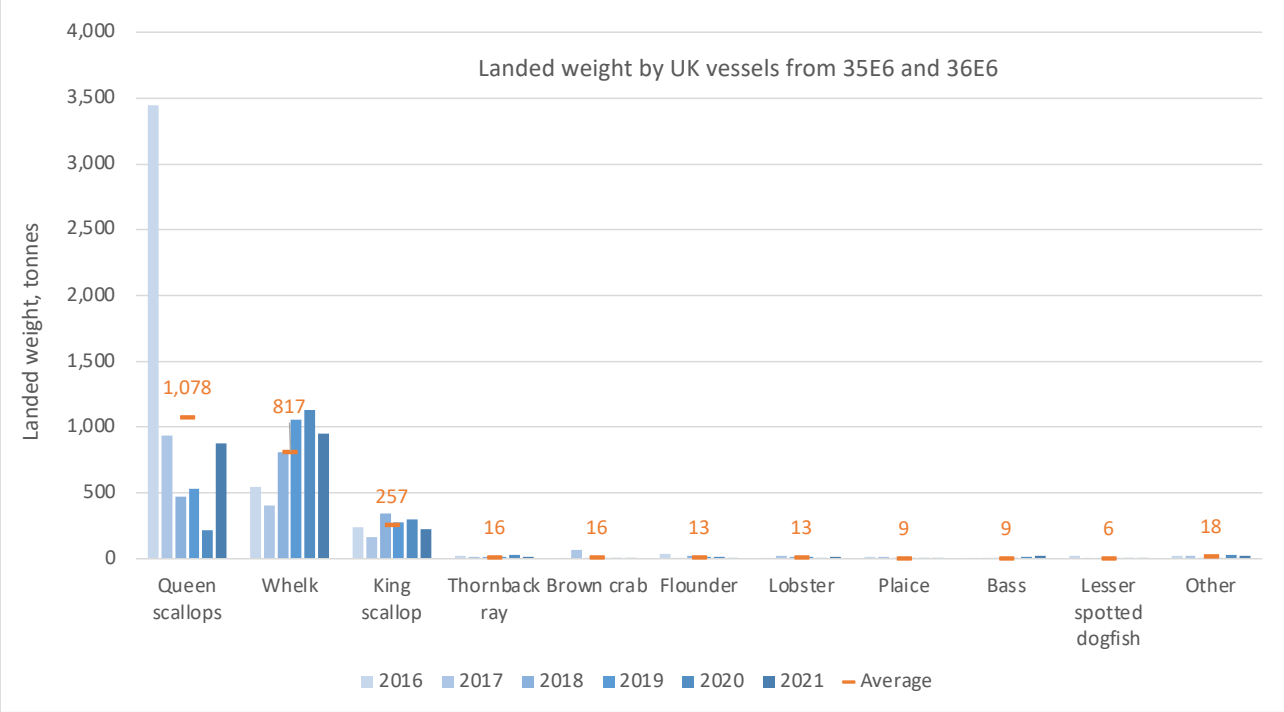


Figure 1.2: Key Species By Annual Landed Weight (Tonnes) (2016 To 2021) From The Commercial Fisheries Study Area (ICES Rectangles 35E6 And 36E6) (Data Source: MMO, 2022)

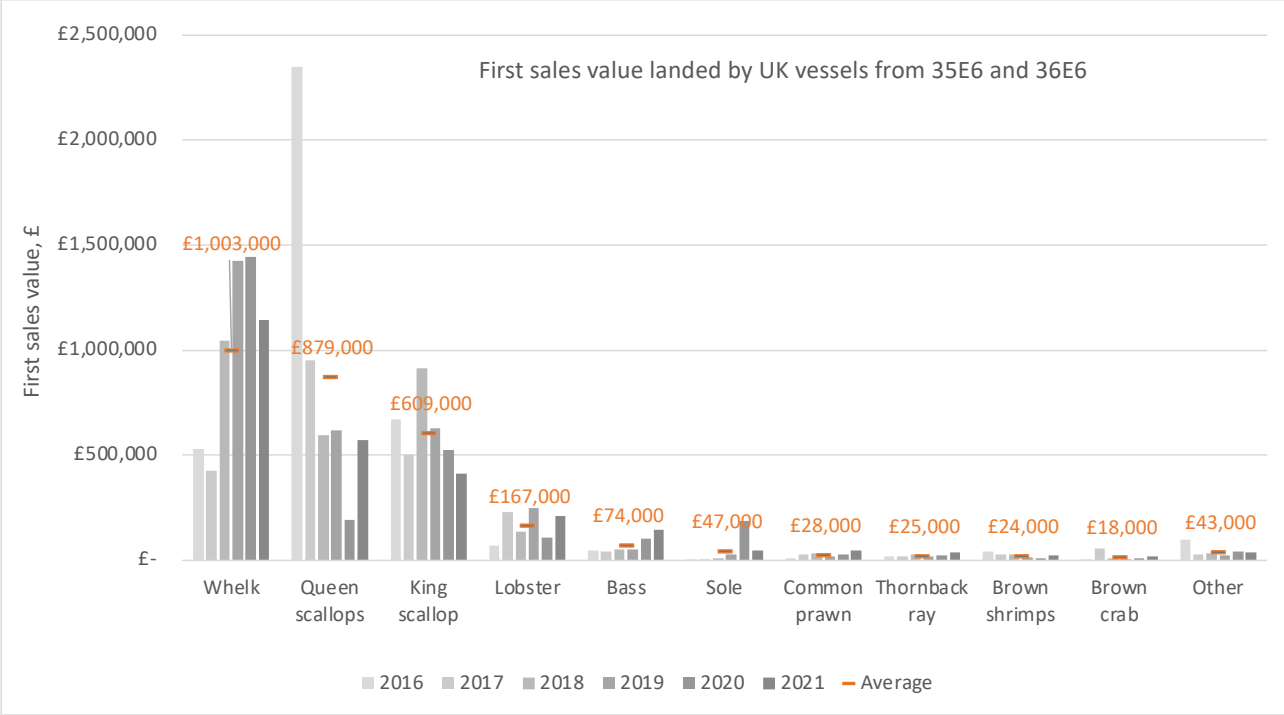


Figure 1.3: Key Species By Annual Landed Value (GBP) (2016 To 2021) From The Commercial Fisheries Study Area (ICES Rectangles 35E6 And 36E6) (Data Source: MMO, 2022).

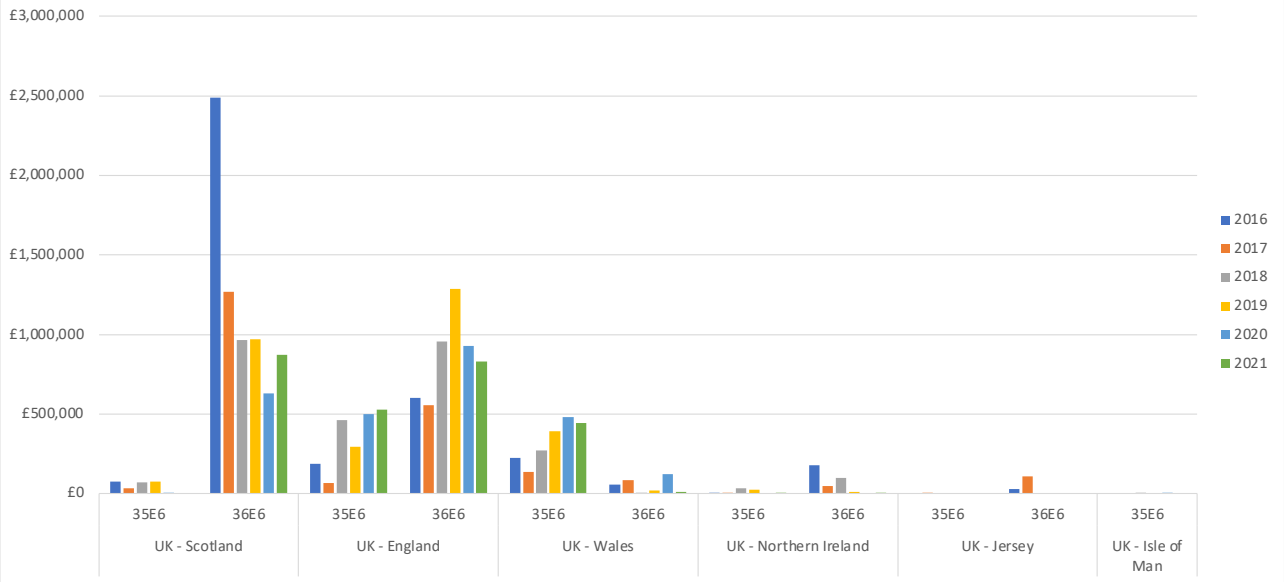


Figure 1.4: Annual Landed Value (GBP) (2016 To 2021) From The Commercial Fisheries Study Area By Vessel Nationality And ICES Rectangle (Data Source: MMO, 2022)

1.6.2 Key fishing fleets and target species

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

- fishery – a group of vessel voyages which target the same species or use the same gear;
- fleet – a physical group of vessels sharing similar characteristics (e.g. nationality); and
- métier – a homogenous subdivision, either of a fishery by vessel type or a fleet by voyage type.

For the purposes of EIA, 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 and queen scallop).

A range of fleets target different fisheries across the study area, as indicated by landings statistics for registered vessel nationality and gear type (Figure 1.5). Across the study area, the highest proportion of landings by weight are caught by vessels deploying dredge gear and registered to Scotland, as well as (to a lesser extent) England, Northern Ireland and Wales. The Scottish dredgers operate from a range of ports, including locally to the Irish Sea at Kirkcudbright, and nomadically from all around the Scottish coast. Dredge gear targets queen scallop and king scallop in the study area (Figure 1.6).

The second highest value of landings is taken by potting vessels that are predominately registered to England, with a smaller proportion registered to Wales. Potting vessels target whelk with plastic pots and lobster and brown crab with creels. Landings of common prawn are also noted from the potting fleet.

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.

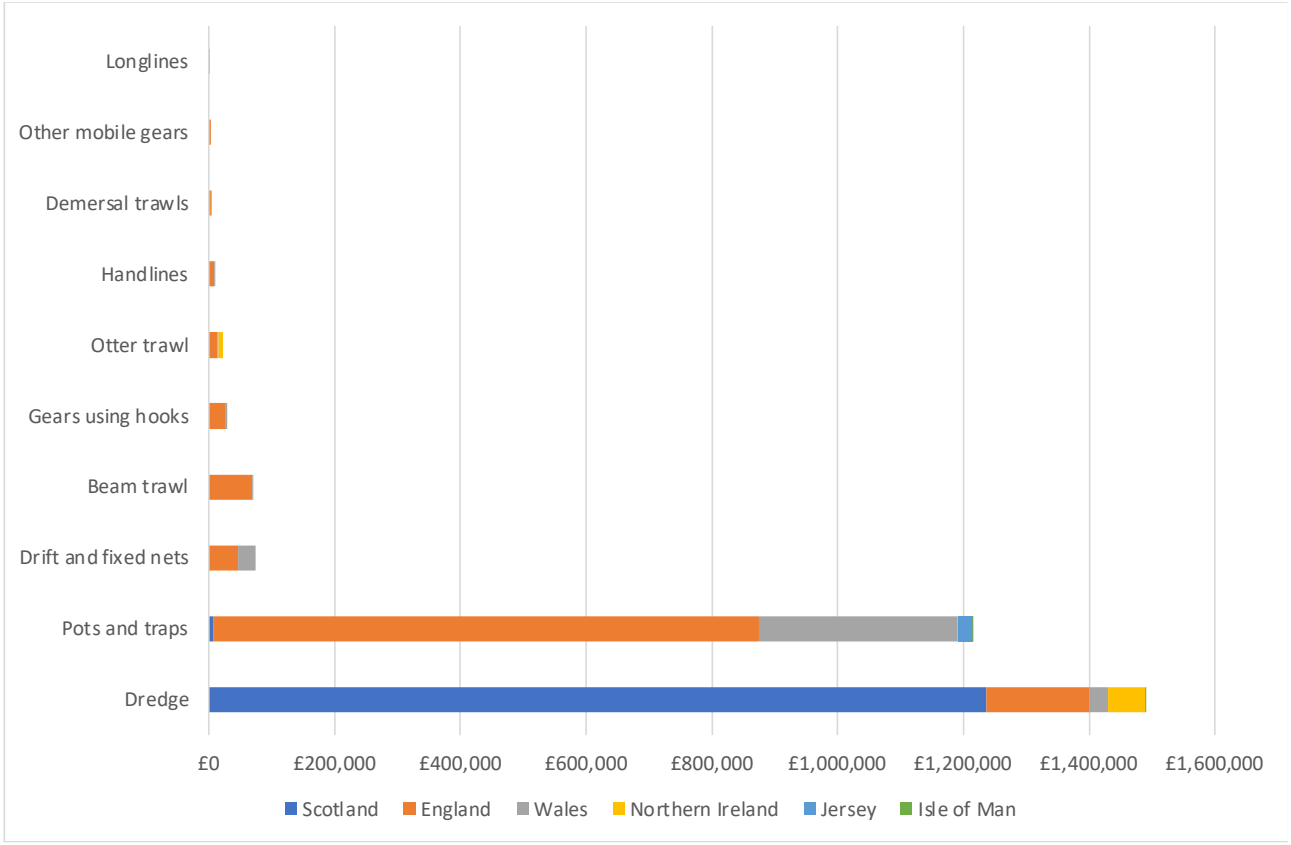


Figure 1.5: Annual Average Landings Value 2016 To 2021 By Gear Type And Vessel Origin For The Study Area, 35E6 And 36E6 (Data Source: MMO, 2022)

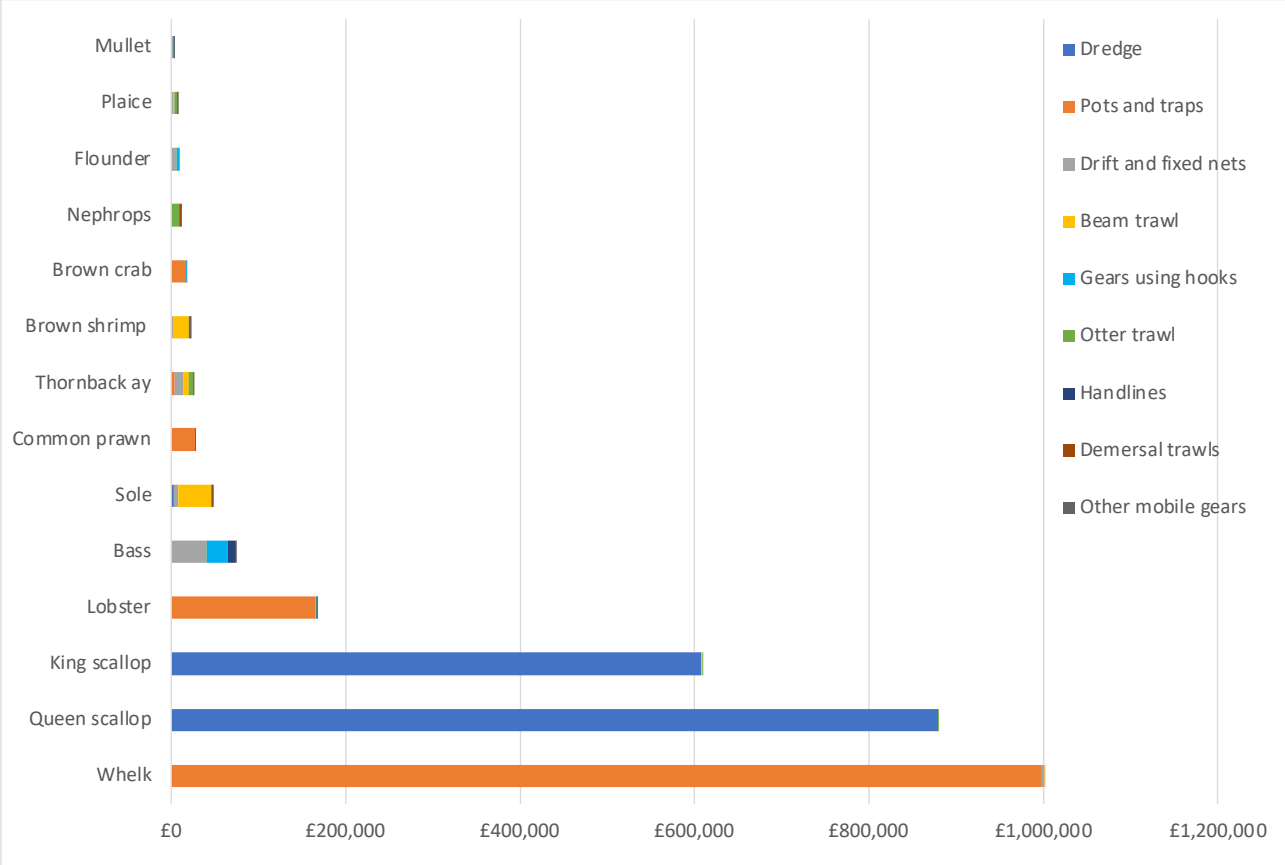


Figure 1.6: Annual Average Landings Value 2016 To 2021 By Gear Type And Key Species For The Study Area, 35E6 And 36E6 (Data Source: MMO, 2022)

1.6.2.1 Scallop dredge

Dredges are rigid structures that are towed along the seabed to target various species of shellfish. A typical scallop dredging vessel is shown in Figure 1.7 and Figure 1.8 describes the profile of scallop dredging vessels active across the study area.

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. Generally, queen scallop are targeted using skid dredges. Skid dredges operate in much the same way as toothed dredges which target king scallop, but the tooth bar is replaced with a “tickler chain” which disturb queen scallops resting on the seafloor, causing them to swim upwards into the water column where they can be caught by the dredge.

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

likely to dredge for scallops only in their local area. The catching capacity of these vessels is significantly lower than the large vessels due to the lower number of dredges they can tow. Vessels from Scotland, England and Northern Ireland periodically fish scallop grounds in the Irish Sea, and in addition there are a small number of Welsh dredgers based out of Holyhead.

Scallop dredging 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.

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

Table 1.4: Profile Of Typical Dredging Vessels

Parameter	Indicative details
Main target species	King scallop and queen scallop
Nationality	Scottish, English and Northern Irish, some Welsh, Irish
Vessel length	10 m to 25 m
Horsepower	200 hp to 400 hp
Typical speed when shooting and hauling gear	2 to 6 knots
Typical duration of tow/dredge	1 to 2 hours
Seasonality of activity	King scallop targeted primarily in winter months (November to February). Queen scallop targeted year-round with spring/summer peak, noting current seasonal Irish Sea closure April to June
Typical gear	Up to 16 dredges per side of vessel. Each dredge consists of a triangular frame leading to an opening, a tooth bar with spring-loaded teeth, and a bag of steel rings and netting back.

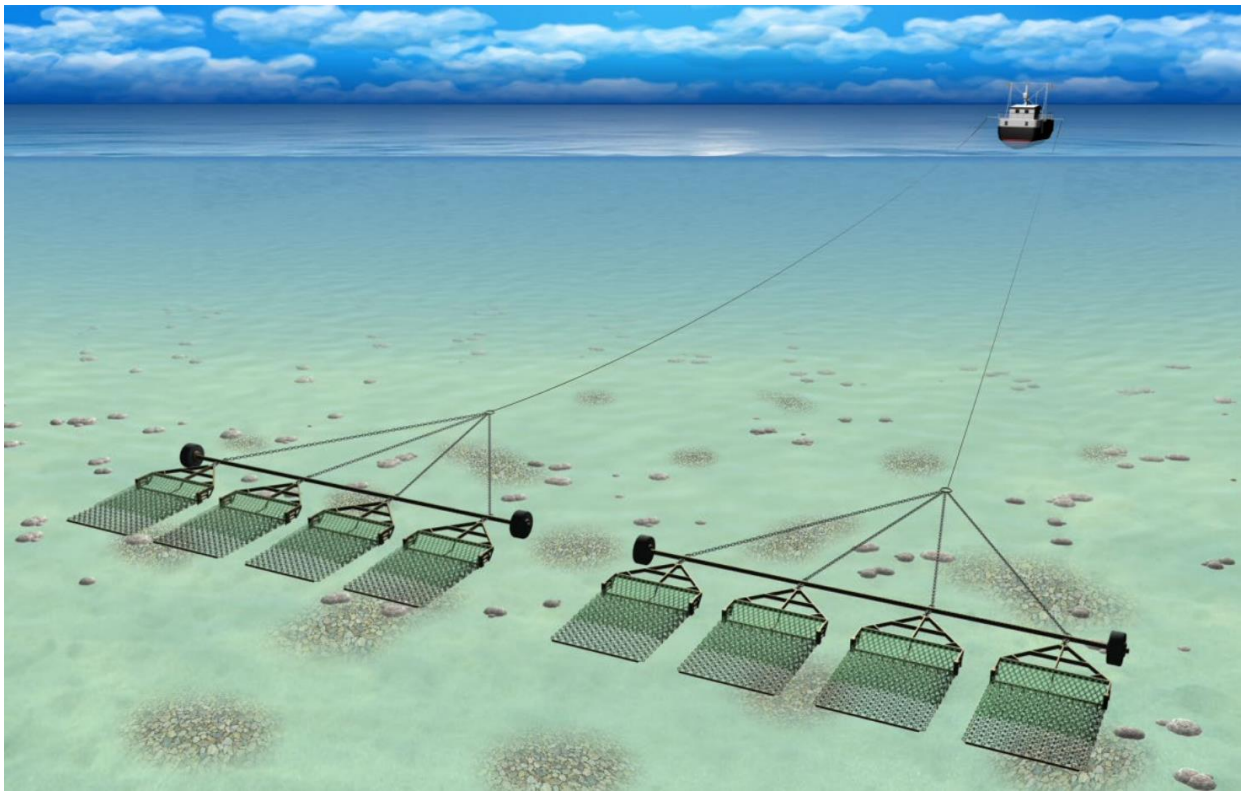


Figure 1.7: Typical Dredge Gear Configuration (Source: Seafish, 2022)

Figure 1.8: Example Of Dredge Vessel (Source: Fishing News)

Key species caught by vessels operating scallop dredge

Queen scallop

Queen scallop is found down to depths of 100 m, on sand or gravel habitats. It is fished commercially around the UK, with particularly important commercial grounds in the central Irish Sea, including around the Isle of Man. It can grow up to 90 mm in diameter.

Queen scallop differ from king scallop in that they are smaller, and both shells (valves) are curved (convex), whereas for the king scallop the lower valve on which it lies is deeply convex and the upper valve is almost flat (Carter, 2008).

Most information available about the stock status of queen scallops in the Irish Sea is from research and stock assessments from Isle of Man territorial waters. The Isle of Man queen scallop stock could be an indicator of scallop stock status in the rest of the Irish Sea. Isle of Man queen scallop stock peaked at around 25,000 tonnes in 2010, and subsequently declined to around 1,200 tonnes in 2019, the lowest on record. Estimated biomass in 2021 is 2,004 tonnes: an improvement but still below the long-term average. Therefore, there remains concern for the status of the stock. There are few management measures in place for Irish Sea queen scallop fisheries outside of territorial waters; a minimum landing size (MCRS) of 45 mm is in place for queen scallop; however, it is generally uneconomic to process queen scallops less than 55 mm. The queen scallop fishery in the Irish Sea is currently subject to closure between April and June each year (MMO, 2018).

In general, landings of queen scallop are more variable and less valuable than king scallops. Landings of queen scallops from the study area occur year-round, though typically peak in the summer months. Landings from the study area have declined substantially in recent years from over 3,400 tonnes in 2016 to approximately 210 tonnes in 2020, increasing to 880 tonnes in 2021.

It is understood that the trends in queen scallop landings are cyclical in nature, with peaks and troughs occurring in an approximate 7-to-9-year cycle. A long-term trend in landings has therefore been analysed for queen scallop, for the period 2011 to 2021 (i.e.11 years). The data presented in Figure 1.9 illustrate this long-term trend relative to landed weight by ICES rectangle for all UK vessels including Isle of Man.

The long-term data trend in queen scallop landings indicates a clear pattern of higher landings from 2011 to 2016 compared to 2017 to 2021.

The average annual landed weight for the periods 2011 to 2016 and 2017 to 2021 is shown in Figure 1.9, indicating significantly higher landings from 2011 to 2016, with an overall drop of 78% for the period 2017 to 2021. The confirms the importance of considering long term trends in specific circumstances and highlights the potential for queen scallop landings to increase in the near future.

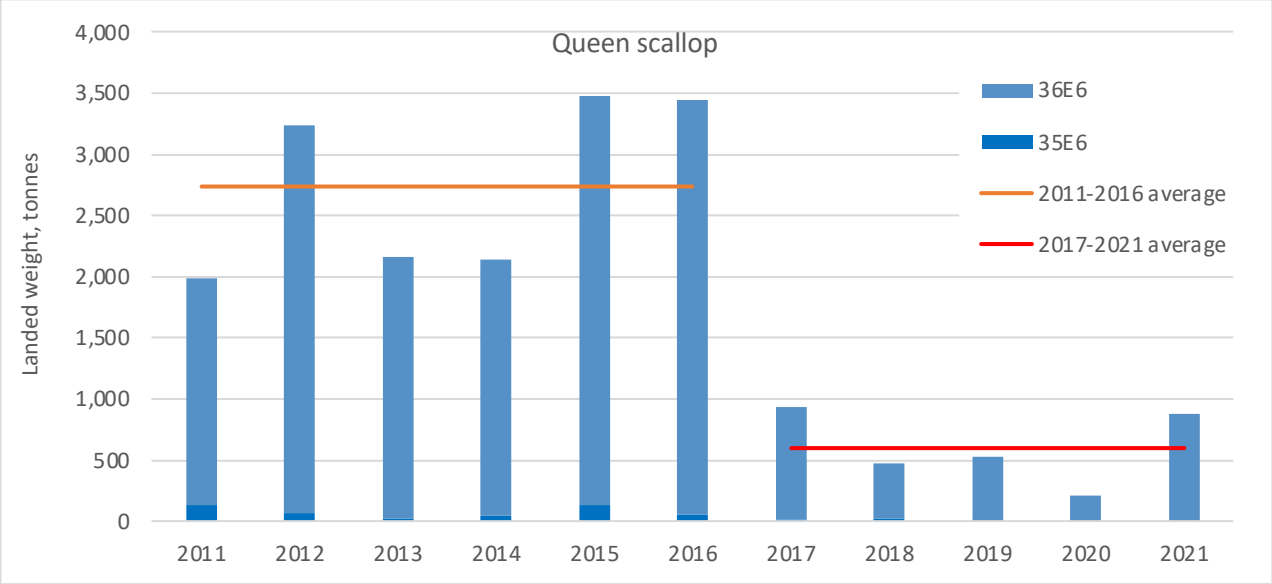


Figure 1.9: Long Term Trend In Queen Scallop Landed Value (2011 To 2021) By UK Vessels From The Commercial Fisheries Study Area (Data Source: MMO, 2016, 2022)

King scallop

King scallop are most common in water depths of 20 to 70 m, in areas of clean firm sand and fine gravel exposed to water currents, which provide good feeding conditions for this bivalve mollusc. Adults are largely sedentary and usually found recessed in sediment. King scallop live to 10 to 15 years and reach reproductive maturity between 3 to 5 years, at a size of 60 mm; the average maximum size is 160 mm. Recruitment is usually unpredictable as it depends not only on successful spawning and larval production but also on if larvae are retained or transported to areas suitable for larval settlement. Larvae are pelagic making settlement in a particular area somewhat unpredictable, which leads to an unstable age structure within stocks. As a consequence of this, scallop beds frequently show a regional separation of year classes and spatial variability in age structure.

Whilst annual assessments of king scallop stock status in UK English waters are undertaken by Cefas, there is no analytical assessment of stock status in this area. However, several administrations have responsibilities for this area and dredge surveys within the Irish Sea have been undertaken by the Isle of Man, Ireland and Wales.

There are no total allowable catches (TACs) (i.e. catch limits) or quotas in place for this species; instead, UK scallop fisheries are controlled predominantly through the use of minimum legal landing sizes, gear restrictions, seasonal closures and some effort controls on the largest boats. An EU Minimum Conservation Reference Size (MCRS) exists of 110 mm in the south Irish Sea and there is a cap on the level of effort (kWdays) that vessels ≥15 m can utilise in ICES area 7 by the Western Waters agreement (EC 1415/2004). It is noted that the Western Waters multi annual management plan no longer applies directly to the UK, but an amended version has been retained in UK domestic legislation.

A King Scallop Fisheries Management Plan is currently being development for English and Welsh waters as per the UK Fisheries Act (2020) and Joint Fisheries Statement, with implementation expected in 2024.

Landings of king scallop from the study area typically peak from winter through to late spring, and have fluctuated slightly around 200 tonnes per annum in recent years.

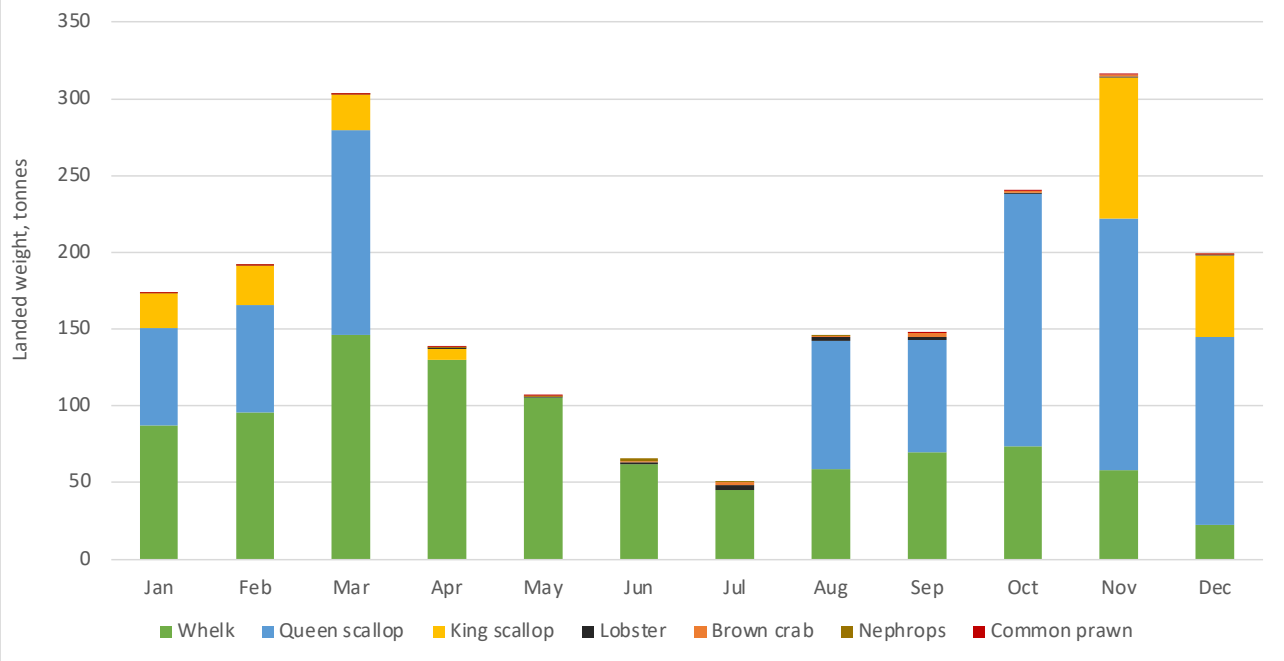


Figure 1.10: Seasonality Of Landings Of Shellfish Species Based On Landed Weight (Tonnes) In 2021 From The Commercial Fisheries Study Area (Data Source: MMO, 2022)

1.6.2.2 Pots and traps

Figure 1.11 and Figure 1.12 show typical potting vessels, gear and the configuration of set pots and Table 1.5 describes the profile of potting vessels active across the study area.

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, depending upon vessel size and area fished. Hundreds of pots can be deployed across a fishing location. Lengths of fleets may range from 100 m to over 1 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. Large vessels, 'super whelkers', fish year-round offshore.

Creels or pots used for the capture of lobsters and crabs, and 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.

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.

Table 1.5: Profile Of Typical Potting Vessels

Parameter	Indicative details
Main target species	Whelk, brown crab, lobster
Nationality	Majority English, some Welsh
Vessel length	Over 10 m (primarily whelk) and under 10 m
Horsepower	60 hp to 350 hp
Typical speed when shooting and hauling gear	0 to 9 knots
Typical duration of tow/dredge	1 to 2 days
Seasonality of activity	Whelk landings peak through summer and spring. Brown crab landings peak through late autumn and winter. Lobster landings peak in summer months and in December.
Typical gear	Fleets of baited pots placed on the seabed. Pots typically hauled daily but may be left a number of days. Generally, day boats that return to port daily.

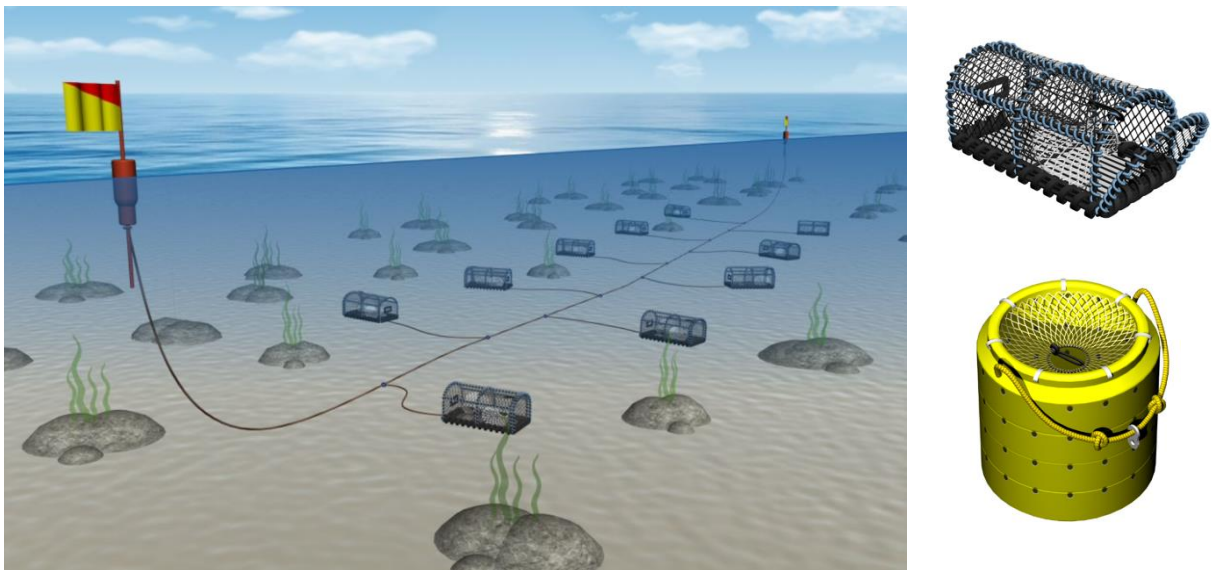


Figure 1.11: Typical Potting Gear Configuration (Left), Lobster Creel (Top Right) And Whelk Pot (Bottom Right) (Source: Seafish, 2022)

Figure 1.12: Example Of Potting Vessels (Source: The Bosun's Watch; Poseidon)

Key species caught by vessels operating potting gear

Whelk

Common whelk are a gastropod mollusc that inhabits mixed sediment from the low water mark down to 1,200 m, being most common in water depths between 0 and 50 m. Whelk reach reproductive maturity at different sizes depending on their geographical location and environmental conditions. Whelks grow to 150 mm and live for up to 15 years, reaching maturity at 2 to 3 years. European populations are understood to breed from autumn to winter (Kideys *et al*., 1993). Eggs are fertilised internally and laid on hard benthic substrata, with juveniles emerging after approximately 3 to 5 months. The life cycle therefore has no pelagic phase, leading to limited dispersal between populations.

Whelk fisheries have typically been expanding around the UK in recent years as prices have increased and export to non-EU countries has grown. No TAC or quotas are in place for whelk. The current EU-wide MCRS for whelks is 45 mm, noting that around the UK, whelks typically reach maturity between 45 mm and 78 mm.

Whelk landings from the study area indicate a seasonal peak across spring and summer months, though they are landed year-round. In recent years, approximately 817 tonnes whelk has been landed from the study area annually.

A Whelk Fisheries Management Plan is currently being development for English and Welsh waters as per the UK Fisheries Act (2020) and Joint Fisheries Statement, with implementation expected in 2024.

Lobster

Lobster is a long-lived decapod crustacean. Lobster breed once per year in the summer and newly berried females begin to appear from September to December. Lobsters do not undertake any significant migrations and juveniles in the first three to four years of life may be particularly sedentary. From hatching it takes approximately five years for a lobster to recruit to the fishery. Lobsters typically inhabit rocky reef and rough ground, sheltering in crevices between rocks and boulders. The availability of suitable habitat is considered to influence the carrying capacity and size structure of lobster populations (Seitz et al., 2014).

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

Lobster is one of the highest value per kilogram, commercially exploited shellfish species found in UK waters. Fishing activity typically peaks across summer months in the study area, with a second peak in December associated with supplying the Christmas-time market. Landings from the study area fluctuated across 2016 to 2021, peaking at ~22 tonnes in 2017 and was 13 tonnes in 2021.

A Lobster and Crab Fisheries Management Plan is currently being development for English and Welsh waters as per the UK Fisheries Act (2020) and Joint Fisheries Statement, with implementation expected in 2024.

Brown crab

Brown crab is a long-lived, large decapod crustacean. Brown crabs are very productive animals, and each female can hatch between 1 and 4 million eggs. Post larvae are known to settle inshore and juvenile crabs are more common in shallow waters. Adult crabs undertake extensive migrations, which may be associated with their reproductive cycle. Brown crab is found across a wide range of habitat types, ranging from rocky reefs to soft mud and sand.

As with lobster, brown crab are caught by pots and have no TACs or quotas in place. Primary management is by the technical measure of a MCRS of 140 mm carapace width inside 6 NM and 130 mm outside 6 NM (Council Regulation 850/98).

Fishing activity typically increases through late summer months, peaking in autumn and winter in the study area. Landings from the study area fluctuated across 2016 to 2021, peaking at ~67 tonnes in 2017 and being ~9 tonnes in 2021.

A Lobster and Crab Fisheries Management Plan is currently being development for English and Welsh waters as per the UK Fisheries Act (2020) and Joint Fisheries Statement, with implementation expected in 2024.

1.6.2.3 Beam trawl

There are various forms of trawling in which one or two vessels (pair trawling) may be used to tow a net along to catch fish. The trawl net used is funnel-shaped and can be towed along the seabed, in mid-water or close to the surface of the water. Demersal trawls are designed to catch species above the seabed, whilst beam trawls target species that are found on and within the seabed.

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. Beam trawls can range in length from 4 m to 14 m and each trawler tows two beam trawls at a time from derricks on either side of the vessel.

Shrimp trawls used in inshore waters are a very lightweight version of a lightweight beam trawl but have a smaller cod end mesh and a sorting grid/veil attached.

Table 1.6: Profile Of Typical Beam Trawl Vessels

Parameter	Indicative details
Main target species	Sole, plaice, thornback ray, brown shrimp (lightweight trawling in coastal waters)
Nationality	English, Belgian
Vessel length	15 m to 45 m
Horsepower	500 hp to 2,000 hp
Typical speed when shooting and hauling gear	3.5 to 8 knots
Typical duration of tow/dredge	1 to 2 hours
Seasonality of activity	Peak activity in spring 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.

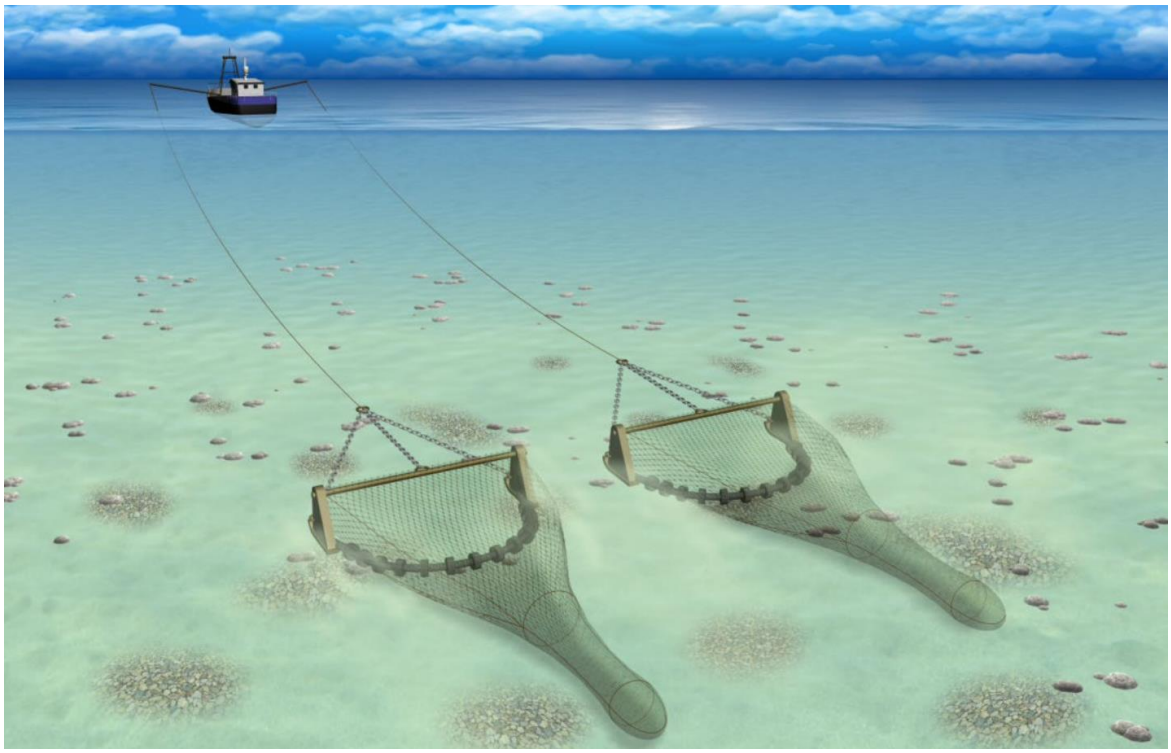


Figure 1.13: Typical Beam Trawl Gear Configuration (Source: Seafish, 2022)

Key species caught by vessels operating beam trawl

Plaice

Plaice is a bottom-dwelling flatfish. It spawns in the early months of the year (January to March) and sometimes makes long spawning migrations. They grow to around 50 cm to 60 cm in length but have been recorded up to 90 cm. Plaice are most commonly found on sandy bottoms but can live on gravel or mud. They are active at night and remain stationary during the day, usually buried within the sediment leaving only the eyes protruding. They have been recorded from between 0 m and 200 m depth, but are mostly between 10 cm and 50 m.

The Irish Sea plaice stock is in a very healthy state and fishing pressure is low (ICES, 2022), although the amount of fish discarded at sea is high. This stock is covered by the EU's Western Waters Multi Annual management Plan (MAP), in which it is considered bycatch. The TAC in recent years have been set in line with advice, and catches are usually below TACs, owing to limited market demand.

In the study area, plaice are taken year-round with landings peaking in summer months. Across the period 2016 to 2021, landings of plaice from the study area averaged ~ 9 tonnes annually.

Sole

Sole is a flatfish and belongs to the family of flatfishes known as Soleidae. It spawns in spring and early summer in shallow coastal water, from April to June in the southern North Sea and from May to June off the coast of Ireland and southern England. The larvae remain in shallow inshore nursery areas such as estuaries, tidal inlets and shallow sandy bays, moving to join the spawning adult population at 2 to 3 years old. Adults are usually found at a depth range of between 10 m and 60 m; in winter adults move further offshore and can reach depths of up to 120 m. The juveniles can undertake extensive migrations, although once they reach maturity, will only carry out seasonal migrations from deeper water to shallower spawning habitat. They can reach 70 cm in length but are commonly between 30 cm and 40 cm.

Catches of sole have declined since the mid-1990s. After a record low spawning stock biomass in 2014, the latest ICES stock assessment observes that spawning stock biomass is estimated to be above the maximum sustainable yield trigger point (ICES, 2022b). Sole are subject to a TAC (set at 40 tonnes annually in the Irish Sea from 2016 to 2018, increasing more recently to 768 tonnes in 2021) and technical measures are applicable to the mixed demersal beam-trawl fishery (relevant to both sole and plaice), namely a minimum mesh size of 80 mm. A MCRS of 24 cm is in place. Sole is caught in a mixed fishery with other flatfish as well as gadoids, with low levels of catch from the study area.

Flounder

Flounder *Platichthys flesus* is a widespread coastal European fish species that divides its life cycle between brackish and freshwater habitats. It moves offshore into deeper water of higher salinity in winter where it spawns in the spring. Spawning takes place at depths of between 20 m and 50 m from February to May. After spawning they migrate to inshore and sometimes brackish waters. Like plaice, they spend most of the day buried in the sand, but become very active at night and move into shallower water to feed. Flounder attains a length of 50 to 60 cm and can live up to 15 years.

Flounder is mainly taken as a bycatch species in fisheries for plaice and sole (though also caught in shore-based fixed nets in inshore waters) and data on the status of the stock is limited. ICES have noted that so long as the species in the targeted fisheries for which flounder is a bycatch species are exploited sustainably, there should be a low risk of flounder becoming overexploited. There is currently no total allowable catch for this species and there is no minimum conservation reference size, though in inshore waters within 6 nautical miles of the coast, a MCRS of 25 cm is applicable between the Welsh border in the Dee Estuary to Haverigg Point in Cumbria (i.e. the former North Western Sea Fisheries Committee District). Across the period 2016 to 2021 landings of flounder from the study area averaged ~ 13 tonnes per annum.

Brown shrimp

Crangon crangon, the common or brown shrimp, is found in mainly shallow water. It grows to about 8 cm, with length at maturity between 35 mm and 50 mm. Lifespan is 4-5 years, with females living longer.

Brown shrimp populations exhibit rapid growth, and high natural mortality. There has been no stock assessment undertaken for brown shrimp in this region, and assessing such species is difficult as populations can widely fluctuate depending on environmental conditions and predation.

Fisheries occur mainly over sandy/muddy habitats within bays and estuaries including the Solway Firth, Morecambe Bay, the Ribble Estuary and the Dee Estuary. They are seasonal fisheries, historically the season starting in spring as the water temperature increases, with a lull in summer and ending in late autumn as the temperature decreases again. Across the period 2016 to 2021, landings of brown shrimp from the study area peaked in 2017 at ~ 6 tonnes.

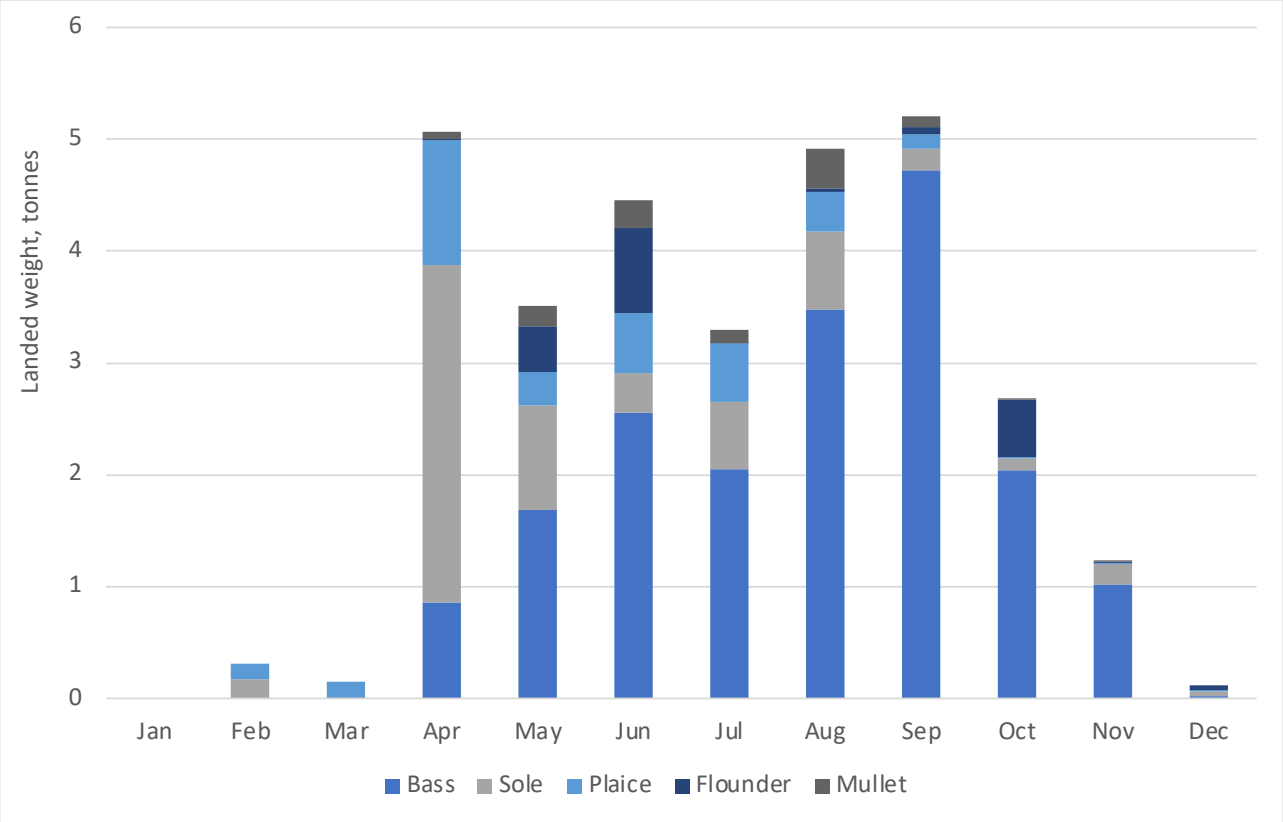


Figure 1.14: Seasonality Of Landings Of Demersal Species Based On Landed Weight (Tonnes) In 2021 From The Commercial Fisheries Study Area (Data Source: MMO, 2022)

1.6.2.4 Drift and fixed nets

Fixed nets include gill, tangle and trammel nets. They are typically used by small inshore vessels which target bass, flounder and rays.

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 m 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, depending on the locations targeted, ground conditions and seabed obstacles, such as wrecks, as well as the gear and equipment configuration of individual vessels).

Smaller vessels under 10 m length are typically engaged in netting and may work both pots and nets, alternating between gears seasonally. Net catches can provide bait for pots.

Table 1.7: Profile Of Typical Netting Vessels

Parameter	Indicative details
Main target species	Flounder, bass, thornback ray, lesser spotted dogfish, sole and plaice
Nationality	English
Vessel length	Under 10 m
Seasonality of activity	Year-round
Typical gear	Monofilament nylon net. Set on seabed with each end anchored and left to fish

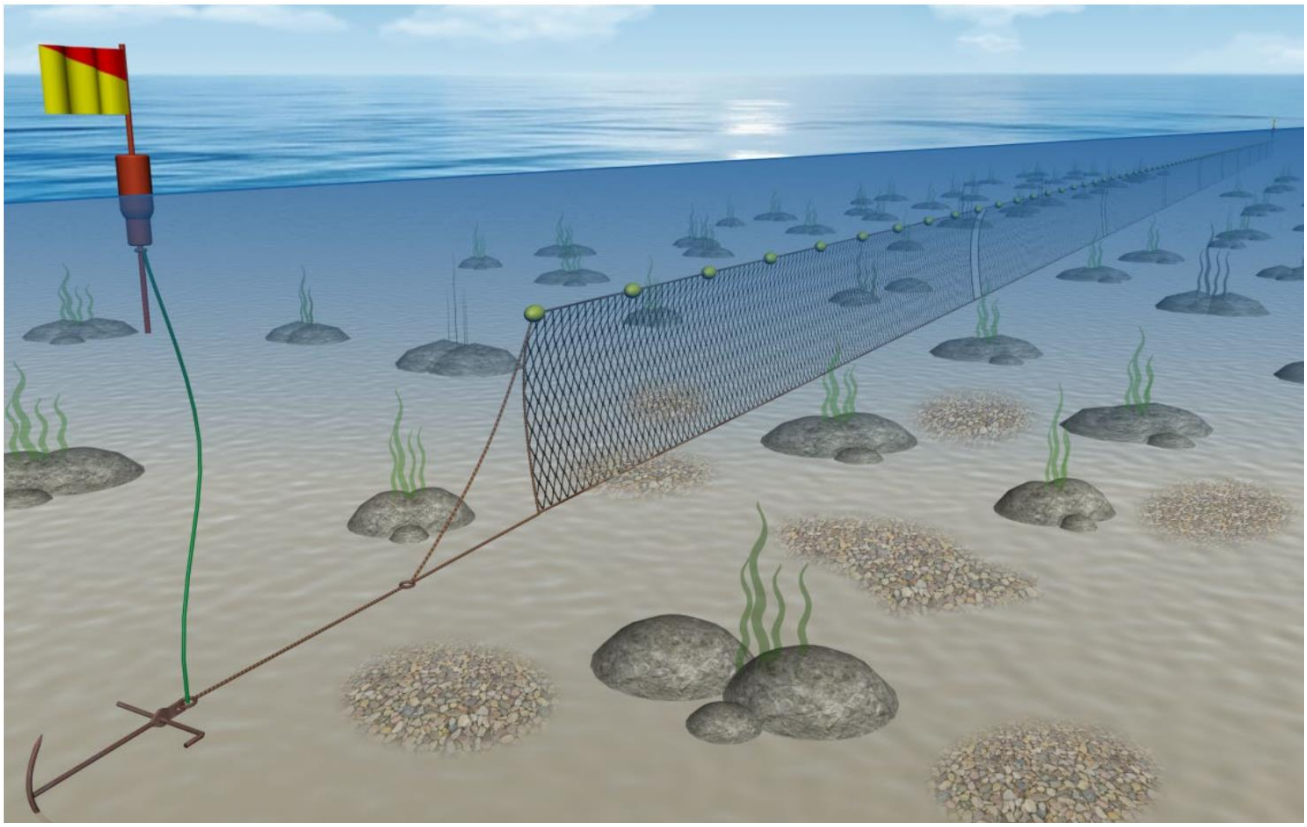


Figure 1.15: Typical Fixed Netting Gear Configuration (Source: Seafish, 2022)

Key species caught by vessels operating drift and fixed nets

Bass

Bass breed from February to May in the English Channel and eastern Celtic Sea. Juveniles use inshore sheltered areas as nursery grounds, particularly for their first few years. Once mature, bass may migrate within UK coastal waters and occasionally further offshore. It is a long-lived and slow growing species - up to 30 years of age - and can achieve a length of up to 1 m with a weight of 12 kg.

Bass spawning stock biomass has historically declined since 2005, showing signs of slow increase in recent years (ICES, 2021a), and fishing pressure has been reduced by a series of management measures, developed since 2015 when emergency measures were brought into force (e.g. increasing the MCRS to 42 cm from 36 cm, stopping the offshore pelagic trawl fishery on spawning aggregations in 2015). Further measures were

introduced in 2020, and commercial fishermen are prohibited from catching, retaining, transhipping or landing bass caught in a number of areas in UK waters, including in the Irish or Celtic Seas outside of the 12 nautical mile limit. Bass are not subject to EU TACs or quotas.

Inshore of the study area, an area around Heysham Nuclear Power Station has been designated as a bass nursery area. All fishing activity for any species has been prohibited within this site to protect juvenile bass.

Bass fisheries often have two distinctive components: an offshore fishery on pre-spawning and spawning seabass during winter months, and small-scale inshore fisheries catching mature fish returning to coastal areas following spawning and, in some cases, immature seabass. The inshore fisheries include small (10 m and under) vessels using a variety of fishing methods (e.g. trawl, handline, nets, rod and line). The fishery may either target seabass or take them as a bycatch with other species. Across the period 2016 to 2021, landings of bass from the study area averaged ~ 9 tonnes annually.

A Bass Fisheries Management Plan is currently being development for English and Welsh waters as per the UK Fisheries Act (2020) and Joint Fisheries Statement, with implementation expected in 2024.

1.6.2.5 Gears using hooks

Small inshore vessels of under 10 m length (with a specification broadly aligned with that provided immediately above for inshore netting vessels) use hook and line methods to primarily target bass and flounder, though a variety of other species may be taken.

A basic longline consists of a long length of line, with multiple branch lines with hooks on (snoods) attached at regular intervals. On smaller inshore vessels, where baiting and handling the gear is done by hand, they may use lines that are only a few hundred metres long with a few hundred hooks attached. Rod-and-line fisheries may encompass several different methods of fishing such as jigging and bait fishing, usually done by one or two people on board a small vessel. Fish are landed daily.

Table 1.8: Profile Of Typical Hook And Line Fishing Vessel

Parameter	Indicative details
Main target species	Bass
Nationality	English
Vessel length	Majority under 10 m
Seasonality of activity	Summer/autumn peak
Typical gear	Baited monofilament nylon lines. Set and left to fish or attached to rod

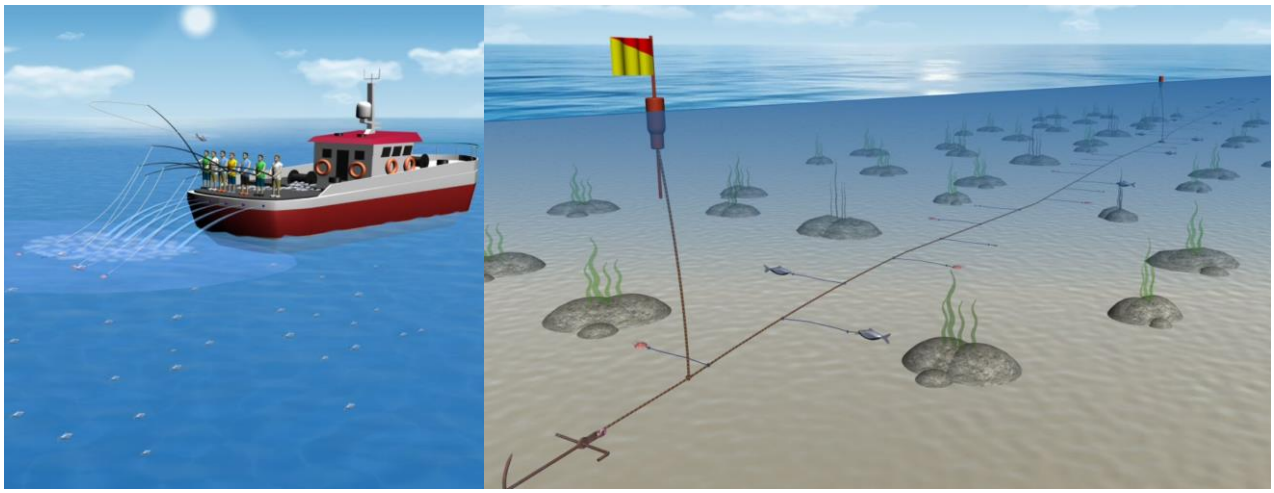


Figure 1.16: Typical Line-Fishing Gear Depicting Rod & Line (Left) And Set Long Lines (Right) (Source: Seafish, 2022)

1.6.2.6 Demersal otter trawl

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. Net mesh sizes can be altered to target different fish species. Light otter trawling can be conducted by smaller boats using small doors. Otter trawlers active in the study area target plaice, also taking thornback ray, lesser spotted dogfish and other demersal species.

Nephrops trawlers from Northern Ireland are also active in the study area. The prawn net used by these trawlers is a long winged low net with lightweight ground gear for towing over the soft muddy areas where nephrops are found. Generally, a traditional prawn net will have a headline height (the height of the trawl) in the region of 1 m to 1.2 m. The net is designed to be very low to target the nephrops on the seabed with minimal round fish bycatch that usually swim higher off the seabed. In some areas over time the traditional prawn net design has evolved to have longer wings to make the net more efficient for targeting bottom fish/a mixed fishery.

Table 1.9: Profile Of Typical Demersal Otter Trawl Vessels

Parameter	Indicative details
Main target species	Plaice, thornback ray, lesser spotted dogfish, Nephrops
Nationality	English, Northern Irish (Nephrops)
Vessel length	Under and over 10 m, majority of Nephrops trawlers over 10 m
Horsepower	50 hp to 300 hp
Typical speed when shooting and hauling gear	2 to 6 knots
Typical duration of tow/dredge	1 to 2 hours, 2 to 4 hours for Nephrops
Seasonality of activity	Summer/autumn peak
Typical gear	Demersal otter trawl. Two trawl doors hold the net open horizontally. Various forms of ground gear depending on target species

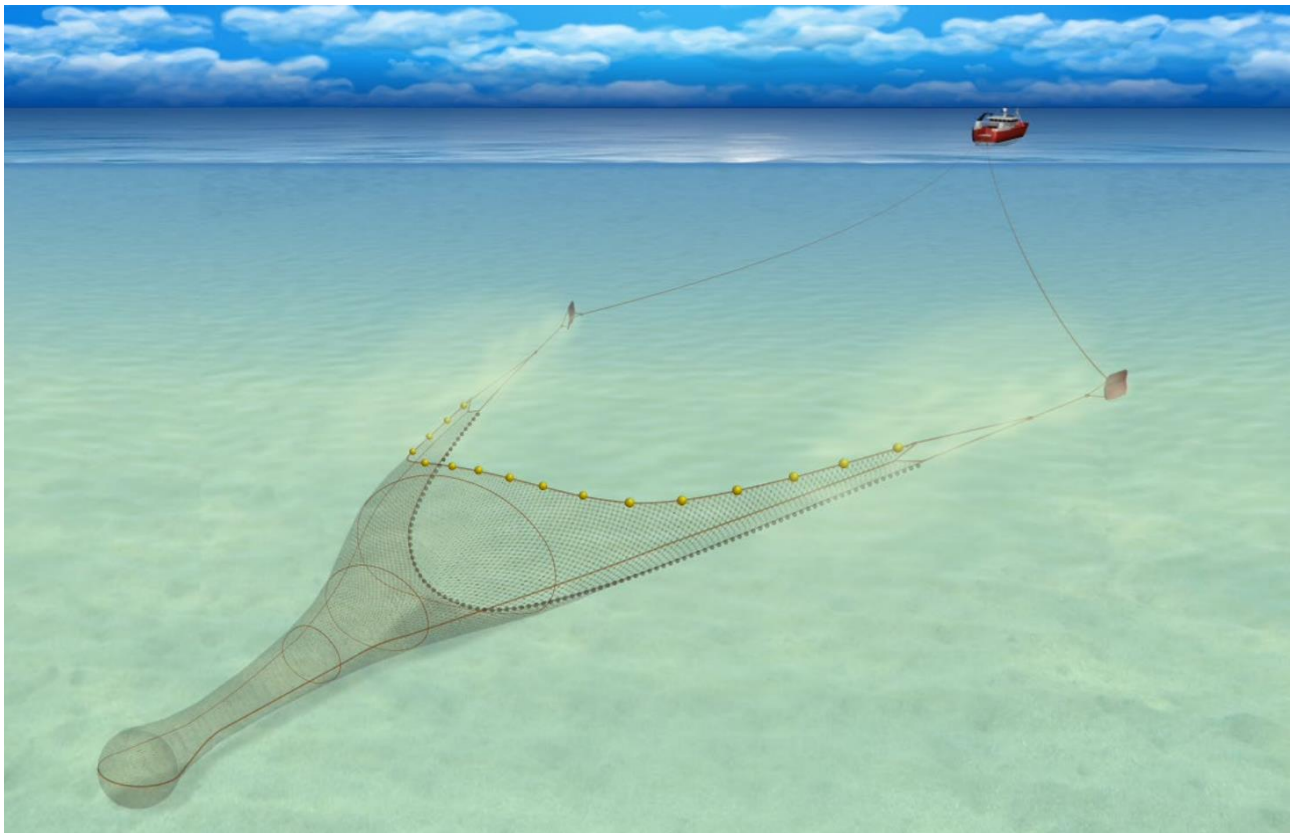


Figure 1.17: Typical Demersal Otter Trawl Gear Configuration (Source: Seafish, 2022)

Key species caught by vessels operating demersal otter trawl

Nephrops

Nephrops norvegicus is a small lobster, pale orange in colour. It grows to a maximum total length of 25 cm (including the tail and clawed legs), although individuals are normally between 18 cm to 20 cm. Nephrops do not reach sexual maturity until 2 to 3 years. Life span in the Irish Sea is understood to be 8 to 9 years.

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

Nephrops stock assessments are conducted by ICES. Stock assessments are produced for 33 areas across the Northeast Atlantic, called Functional Units (FUs). However, management is applied to 18 areas, called management units. The study area is located within FU14 (Irish Sea East). The density of Norway lobster in FU 14 is considered medium (~0.46 burrow m^2, average 2012–2021) compared with other FUs (ICES, 2021). Stock abundance in FU14 was estimated to be 393 million individuals in 2021, lower than that estimated for the previous year (496 million). However, the stock remains above target levels and not considered to be overfished.

TACs are in place, but these are not specific to the stock in FU14. One TAC covers the whole of the Celtic Seas surrounding Ireland and southwest England (ICES Subarea 7), encompassing eight different stocks. However, catches in Subarea 7 overall have been less than the TAC in recent years, as there has been a general decline in trawling fishing effort for nephrops. Total catches for Irish Sea East have been somewhat below the advised limits, averaging just 27% of the advised limits between 2016 and 2020 (ICES, 2021).

There is a MCRS of 20 mm for UK and Irish trawlers in the Irish Sea. The Landing Obligation requires target species to be landed, and therefore prohibits the discarding of quota species. In UK waters the landing obligation is implemented via the Fisheries Act 2020 UK Statutory Instrument 2020 No.1542. For the nephrops trawl fishery in the Irish Sea, there is a de minimis exemption from the landing obligation consisting of a 6% discard rate by weight.

Two Fishery Improvement Projects are operating relevant to the eastern Irish Sea: Project UK (running until 2024), and the Irish Prawn FIP (running until 2025). Both are looking to reduce bycatch and implement better management in their respective fleets.

Fishing activity typically increases through late spring and summer months. Landings from the study area decreased substantially across 2016 to 2021, peaking at ~10 tonnes in 2016, reducing to 0.04 tonnes in 2020 and climbing to 4 tonnes in 2021.

Thornback ray

Thornback ray *Raja clavata* belong to the Rajidae family of skates and rays. Thornback ray have been described as showing philopatric behaviour (tendency of a migrating animal to return to a specific location in order to breed or feed). Females can grow to 118 cm in length and 18 kg in weight, while males can reach 98 cm in length. Thornback ray frequent a wide variety of grounds from mud, sand, shingle to gravel. It may be found to a depth of 300 m but is most common between 10 m and 60 m. They move offshore to deeper waters in the autumn and winter, and back to shallower inshore waters in spring.

Information on the status of the stock is limited but there is currently no concern overfishing pressure. Skates and rays are managed under five regional TACs which are applied to a group of species, rather than individual skate and ray species. There are no official minimum landing sizes, though in inshore waters within 6 nautical miles of the coast, a MCRS of 45 cm is applicable from Haverigg Point in Cumbria to the Scottish border in the Solway Firth (i.e. the former Cumbria Sea Fisheries Committee District).

Thornback ray are targeted seasonally or as bycatch in trawl and gillnet fisheries. Across the period 2016 to 2021, landings of thornback ray from the study area averaged 16 tonnes per annum, reaching 24 tonnes in 2020, dropping to 16 tonnes in 2021.

Lesser spotted dogfish

Scyliorhinus canicular is a small shark has a slender shark-shaped body with a blunt head, rounded snout and small dorsal fin. The species is known by several names including small spotted catshark, rough hound, rock salmon, small spotted dog fish and sandy dog. Lesser spotted dogfish are bottom-living sharks that occur in depths of 3 to 400 m but are usually found no deeper than 100 m on sandy, gravelly or muddy seabeds. Lesser spotted dogfish grow to a maximum length of 85 cm in the British Isles and North Sea. Maximum age has been estimated at 20 years.

Information on the status of the stock is limited but there is currently no concern overfishing pressure.

Lesser spotted dogfish are typically not part of a targeted fishery, but taken as bycatch in trawl and gillnet fisheries. They are often returned to the sea because of their low market value but those that are landed are utilised as bait for pot fisheries. Across the period 2016 to 2021, landings of lesser spotted dogfish from the study area have declined substantially, from 24 tonnes in 2016 to <1 tonnes in 2021.

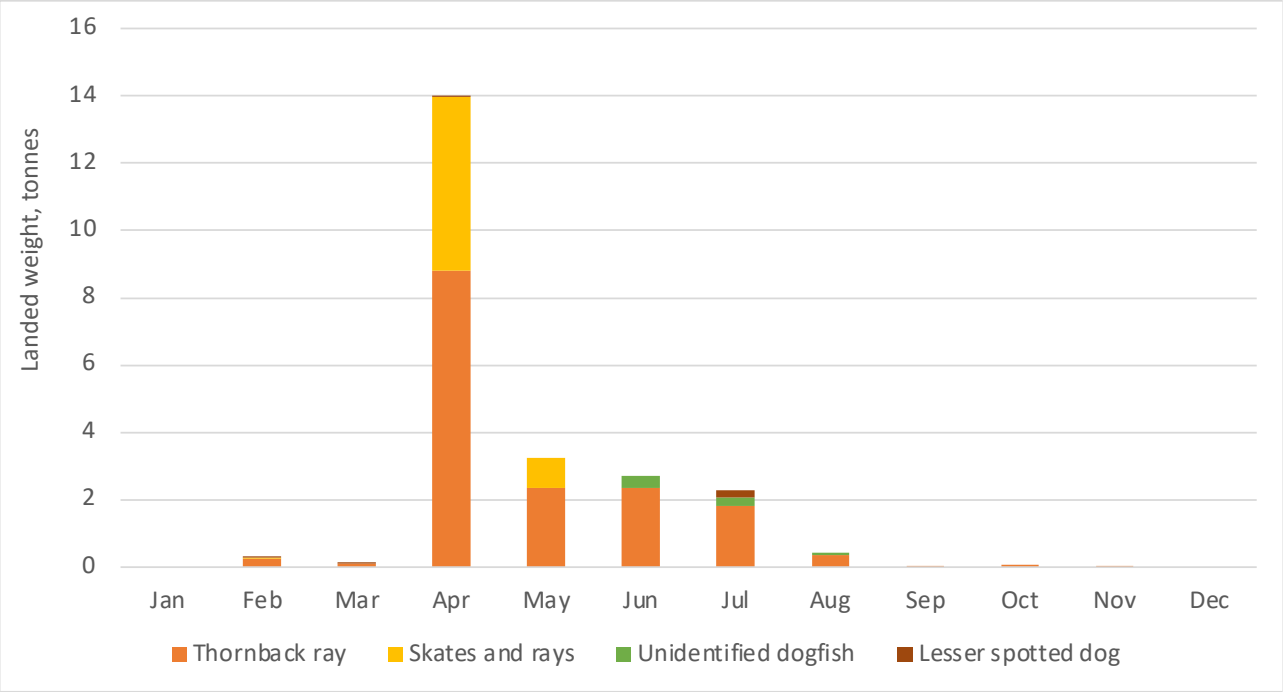


Figure 1.18: Seasonality Of Landings Of Elasmobranch Species Based On Landed Weight (Tonnes) In 2021 From The Commercial Fisheries Study Area (Data Source: MMO, 2022)

1.6.3 Fishing activity assessment

1.6.3.1 Fishing intensity based on VMS data

VMS data sourced from ICES[1] 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 and demersal trawl. Note that SAR data for static gear is not available, including for potting, netting and gears with hooks. SAR data for demersal seine were also analysed, but no evidence of activity was found across the study area.

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, and beam trawl. UK VMS data for demersal seine, demersal trawl, pelagic trawl and gill netting were also analysed, but no evidence of activity was found across the study area for the study period assessed.

The data presented in these figures indicates that potting activity takes place across the north and south portions of the Eni Development Area and throughout the study area. The VMS data is not representative of all potting activity because a portion of potting vessels are under 15 m in length and are not captured in the data, but the data does indicate the presence of larger vessels in the Eni Development Area, expected to be targeting whelk, lobster and brown crab.

Dredge activity is widespread across the Irish Sea. The data indicates that important scallop grounds (for king and queen scallop) are located across the west half of the Eni Development Area.

Beam trawl activity undertaken by UK vessels is limited across the study area, with some activity located in the central north portion of the Eni Development Area. SAR data capturing wider EU-vessel activity indicates that non-UK, understood to be primarily Belgian, beam trawlers are active within the study area, although primarily north and outside of the Eni Development Area. Similarly, data indicates some demersal otter trawl activity within the study area by non-UK vessels, understood to be Irish vessels targeting Nephrops on the eastern Irish mud belt. This demersal trawl activity is north of and outside the Eni Development Area.

1.6.3.2 Fishing intensity based on AIS data

Fishing vessel route density, based on vessel AIS positional data is shown in Figure 1.27, Figure 1.28 and Figure 1.29. 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.

Activity by fishing vessels within the Eni Development Area increased significantly in 2022. Further seasonal data has been analysed to demonstrate this activity occurred during the spring period and is therefore most likely to be associated with potting and dredge vessels.

[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.

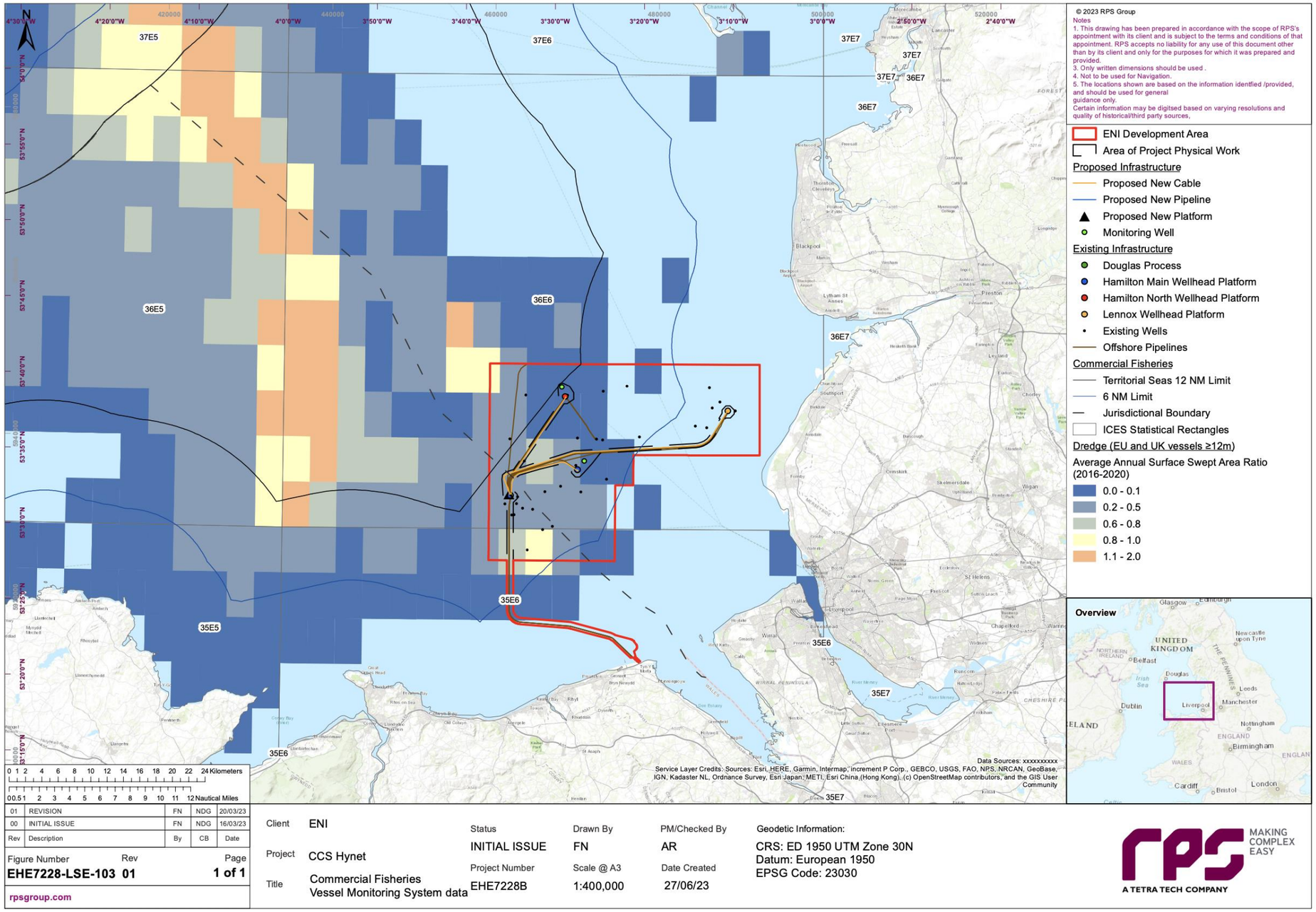


Figure 1.19: Surface Swept Area Ratio 2016 To 2020 For EU (Including UK) Vessels ≥ 12 M Length Using Dredge Gear (Data Source: ICES, 2021)

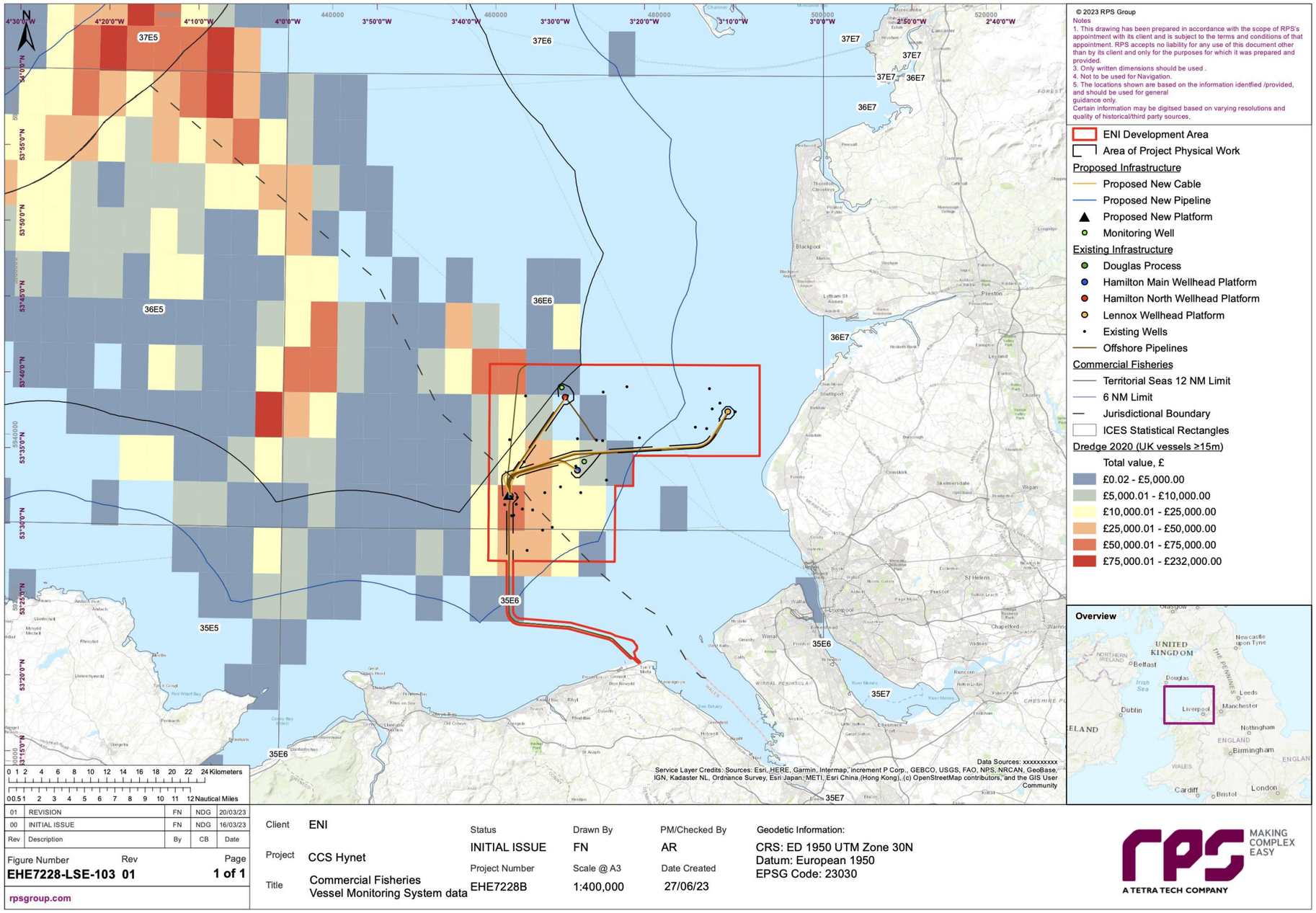
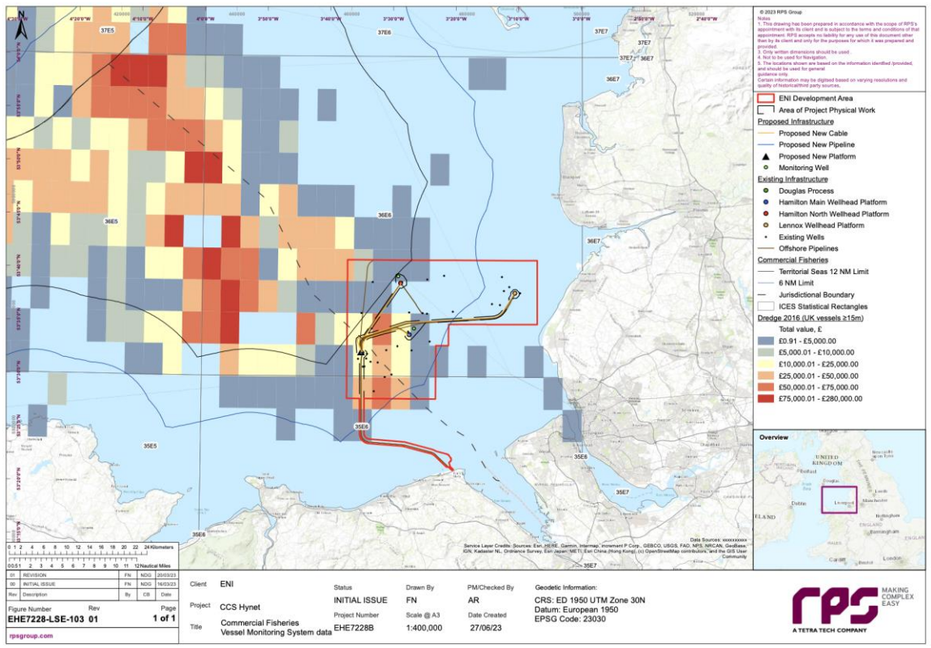
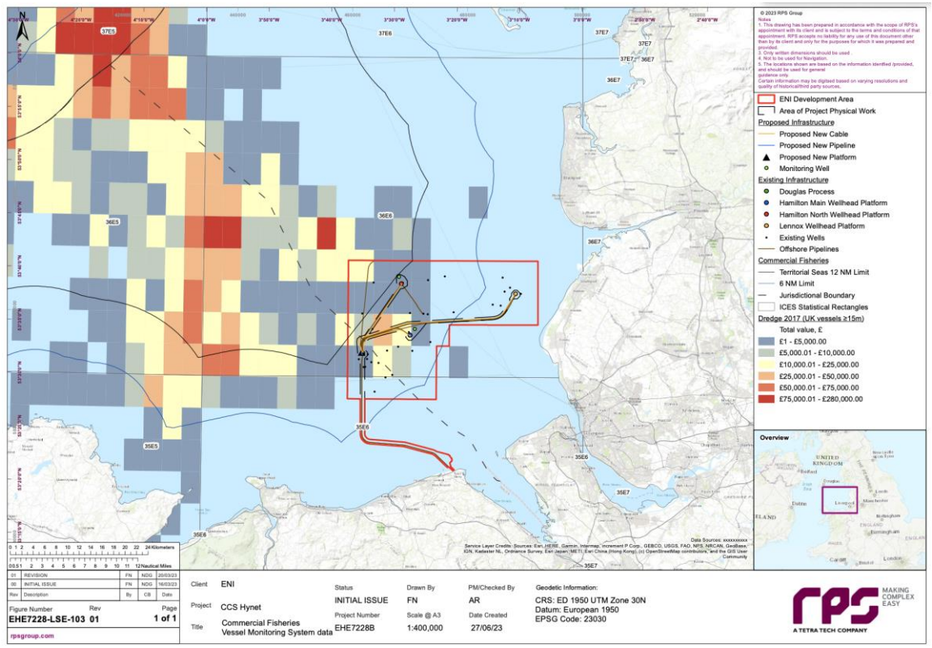
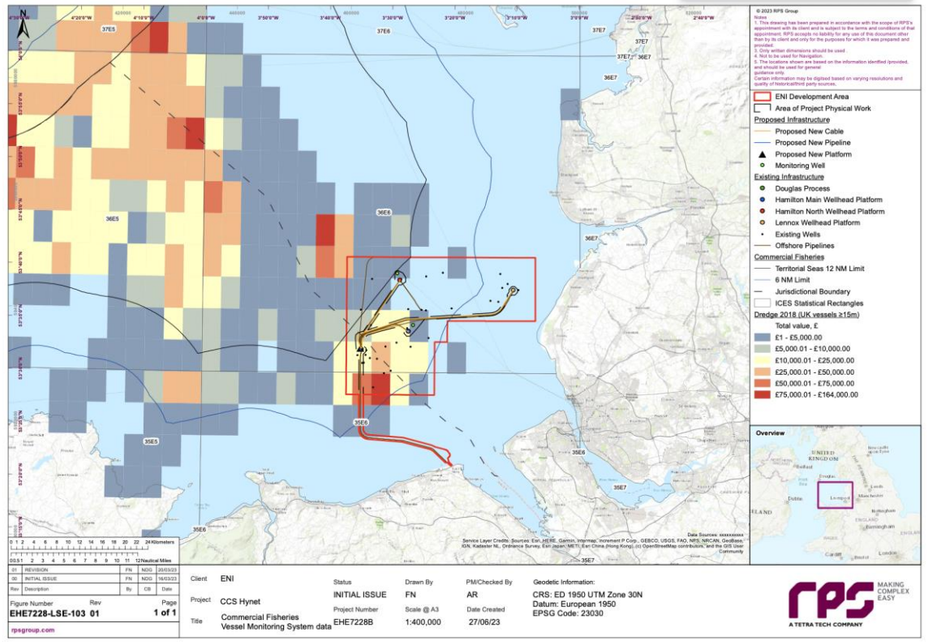


Figure 1.20: UK Vessels ≥ 15 M Length Actively Fishing Using Dredges In 2020 (Data Source: MMO, 2022)







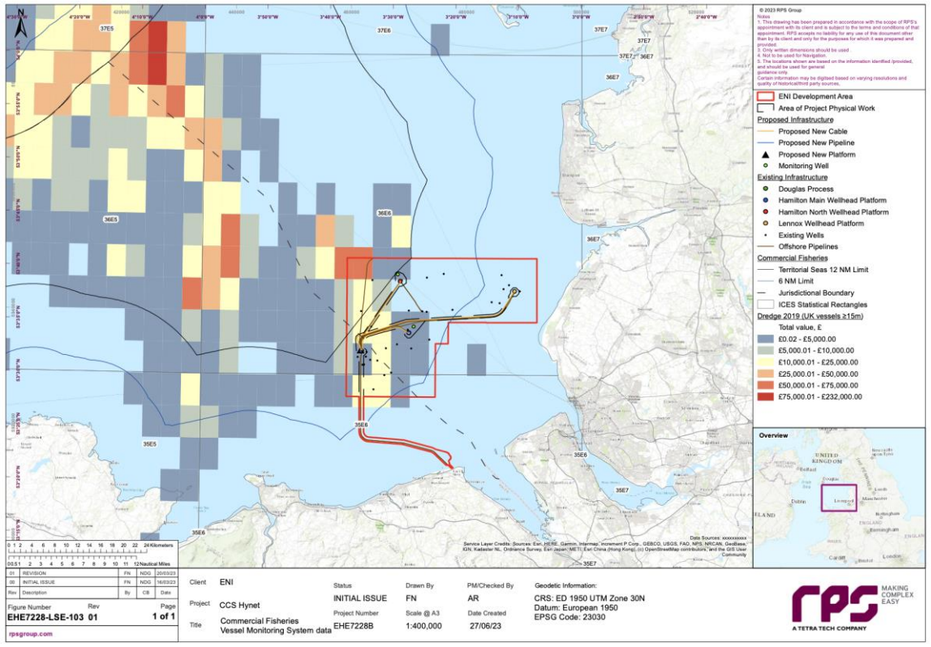


Figure 1.21: UK Vessels ≥ 15 M Length Actively Fishing Using Dredges 2016 To 2019 (Data Source: MMO, 2021)

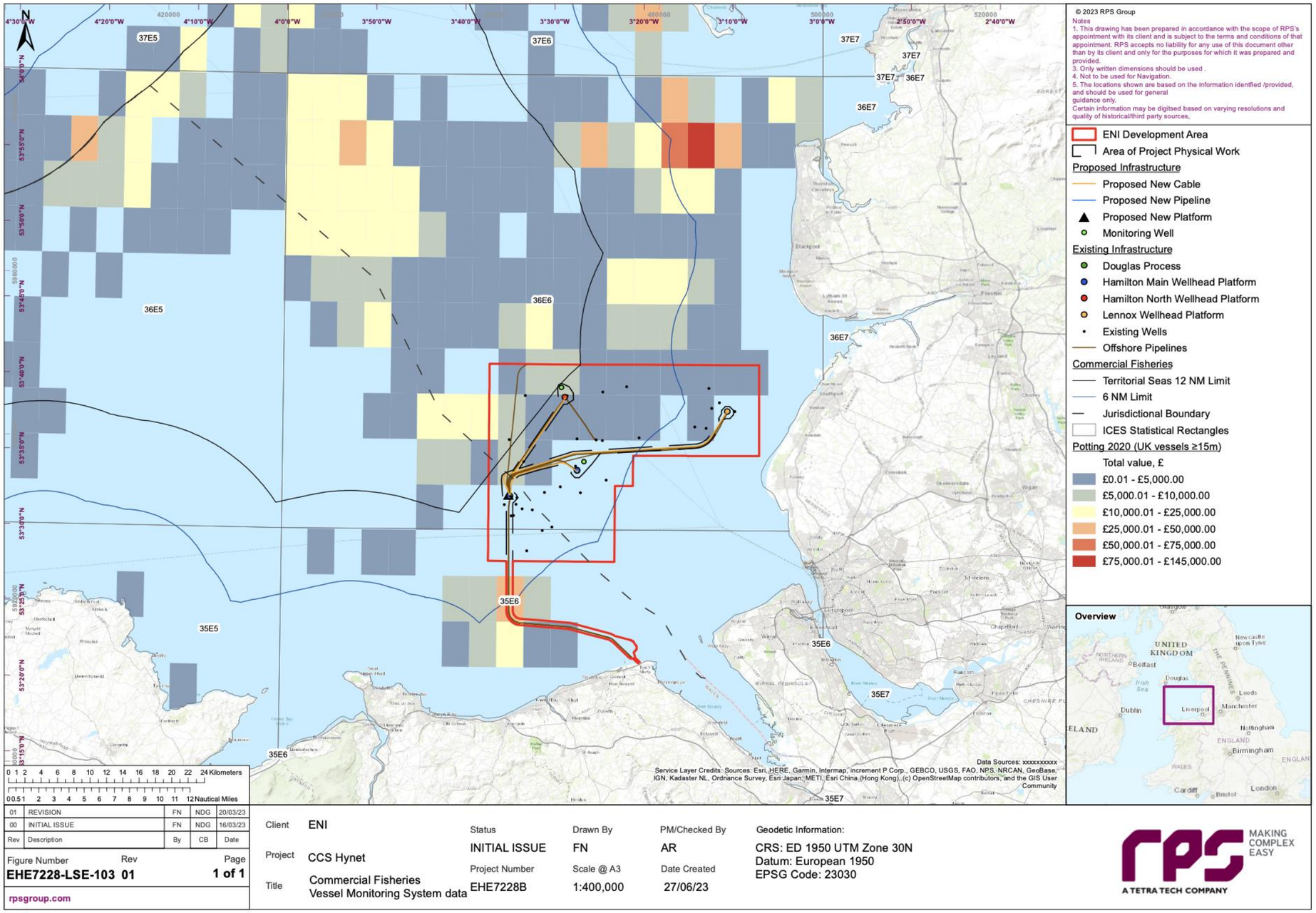
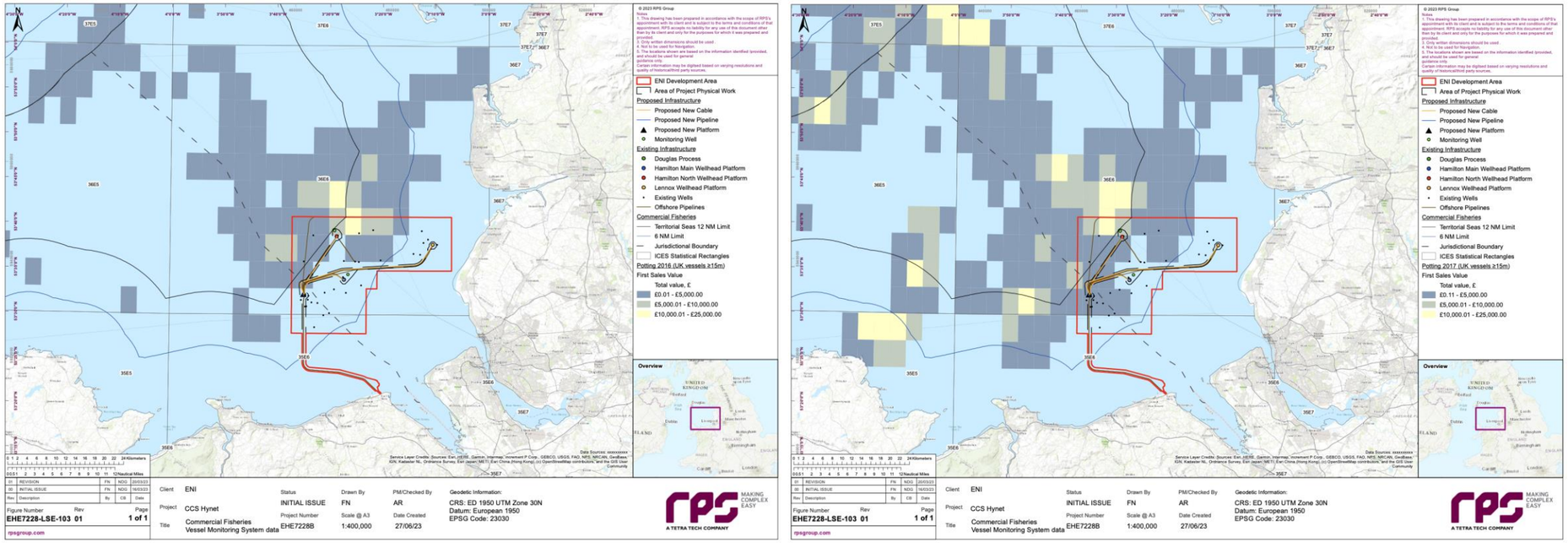


Figure 1.22: UK Vessels ≥ 15 M Length Actively Fishing Using Pots Or Traps In 2020 (Data Source: MMO, 2022)



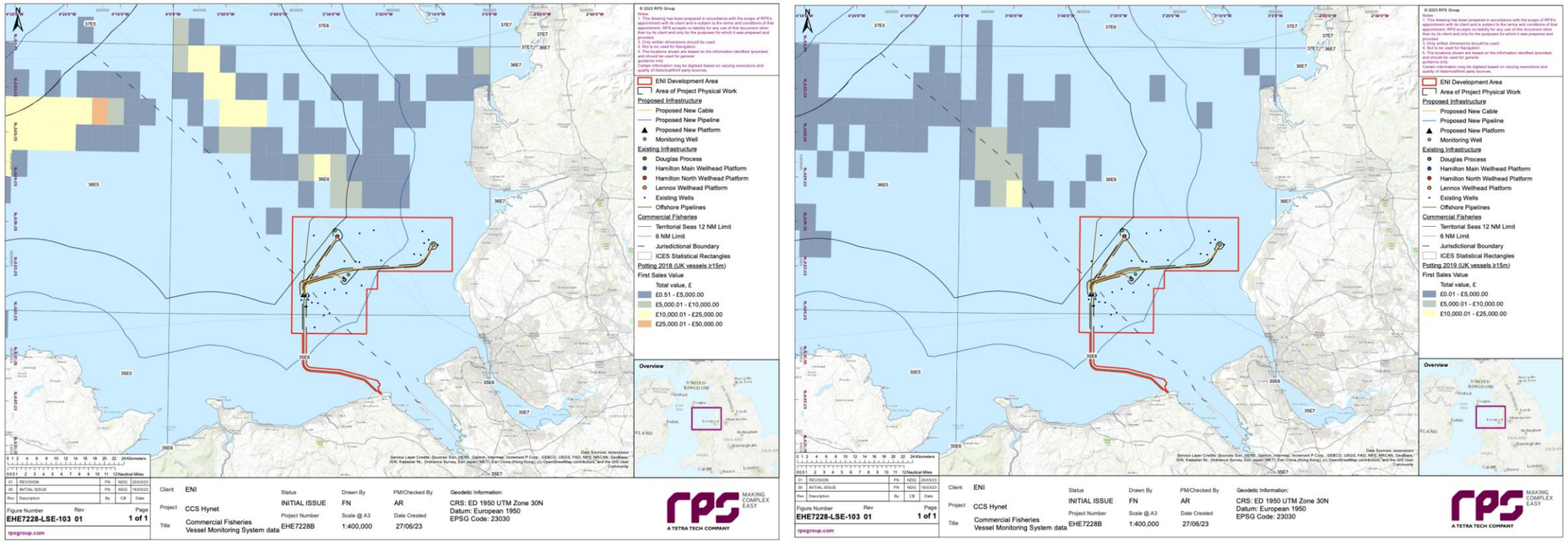


Figure 1.23: UK Vessels ≥ 15 M Length Actively Fishing Using Pots Or Traps 2016 To 2019 (Data Source: MMO, 2021)

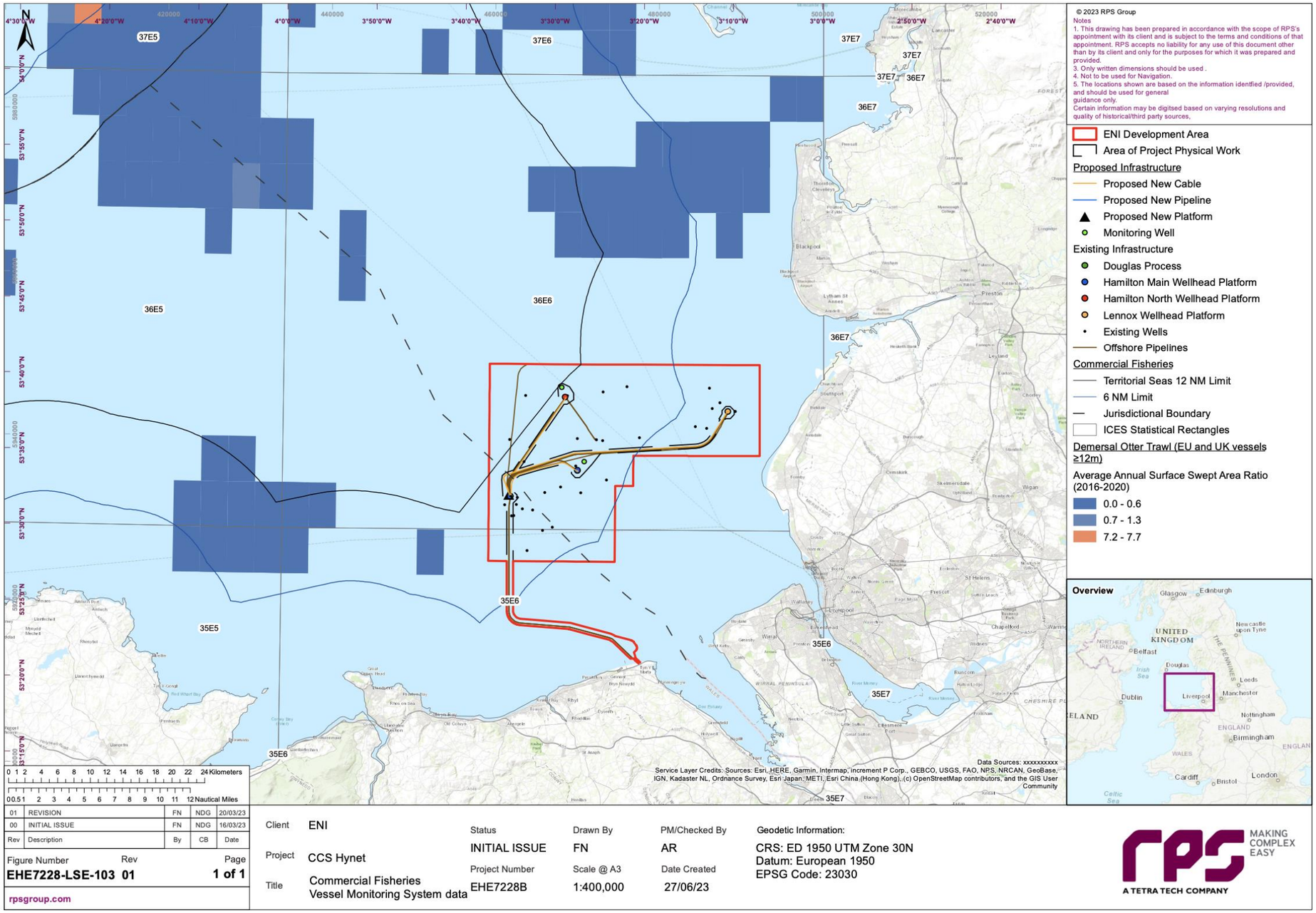


Figure 1.24: Surface Swept Area Ratio 2016 To 2020 For EU (Including UK) Vessels ≥ 12 M Length Using Demersal Trawl Gear (Data Source: ICES, 2021)

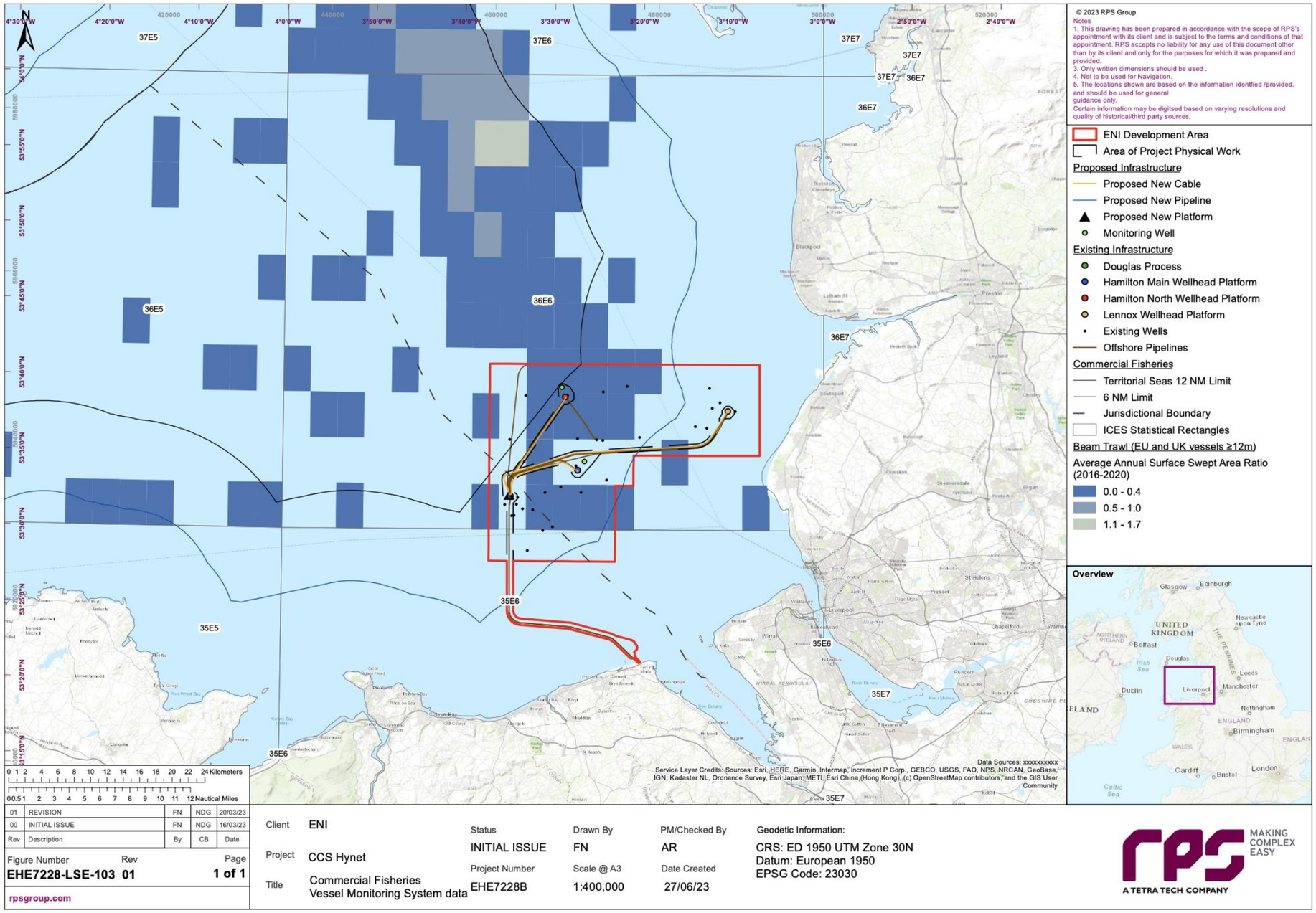


Figure 1.25: Surface Swept Area Ratio 2016 To 2020 For EU (Including UK) Vessels ≥ 12 M Length Using Beam Trawl Gear (Data Source: ICES, 2021)

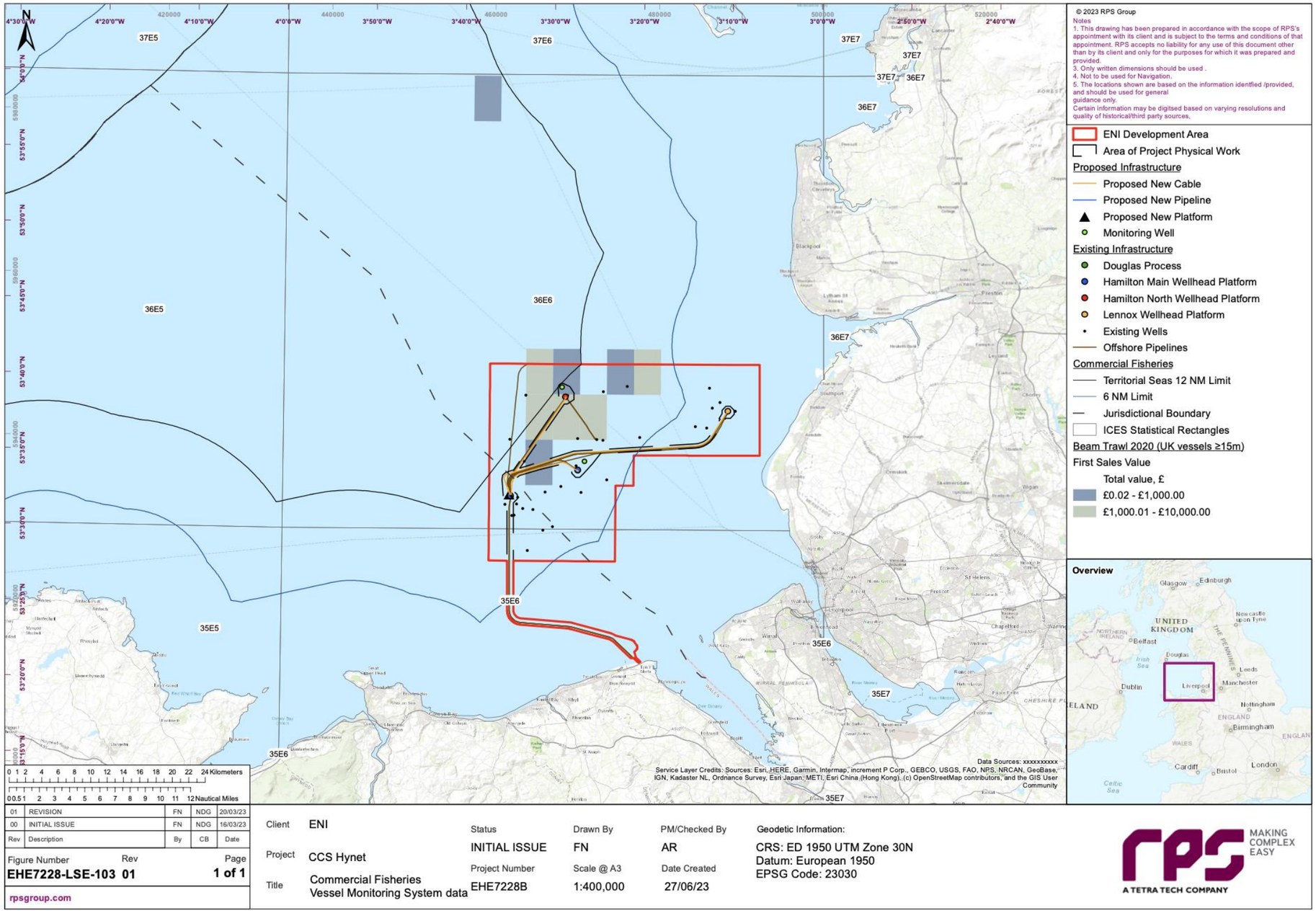


Figure 1.26: UK Vessels ≥ 15 M Length Actively Fishing Using Beam Trawl In 2020 (Data Source: MMO, 2022)

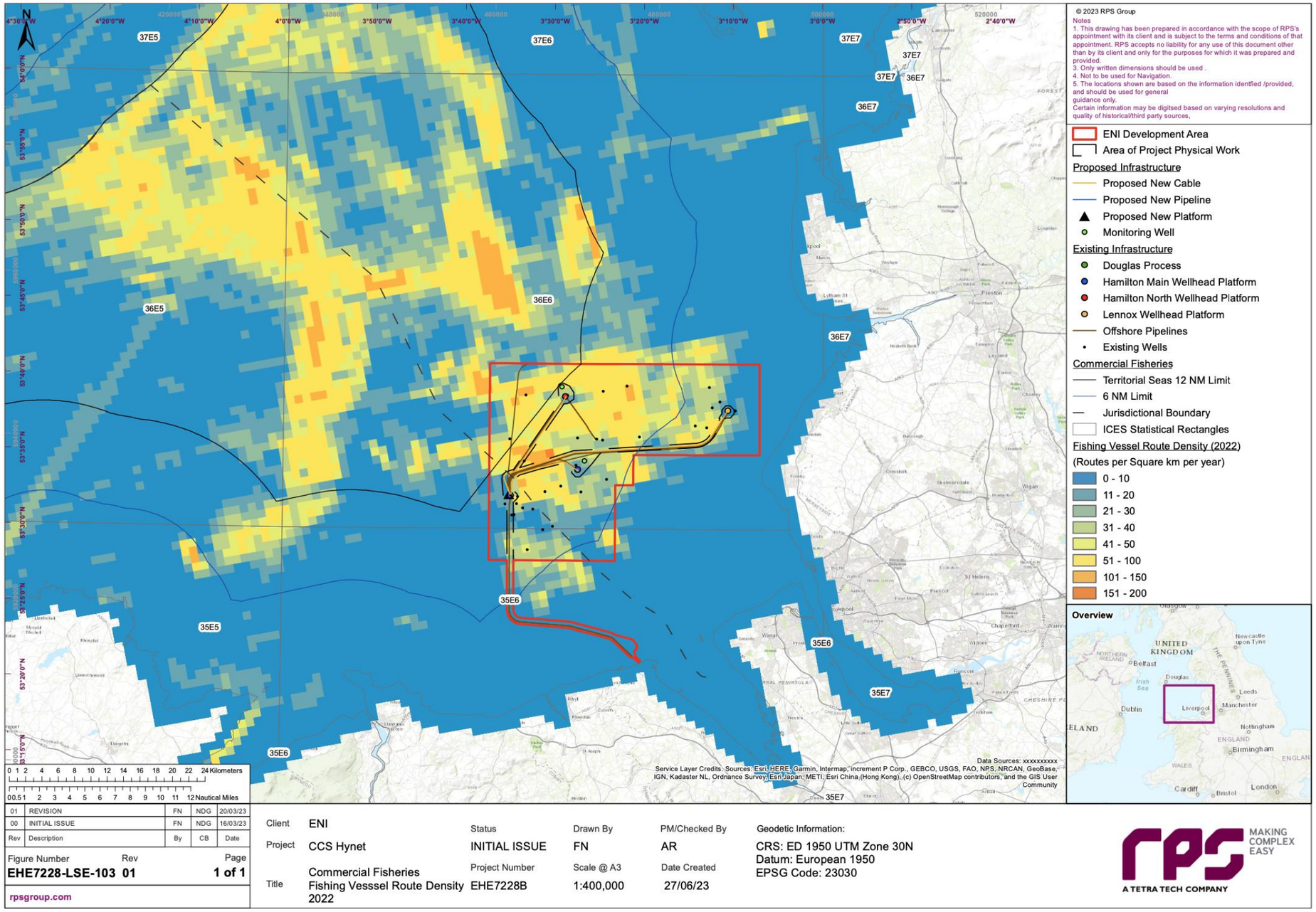
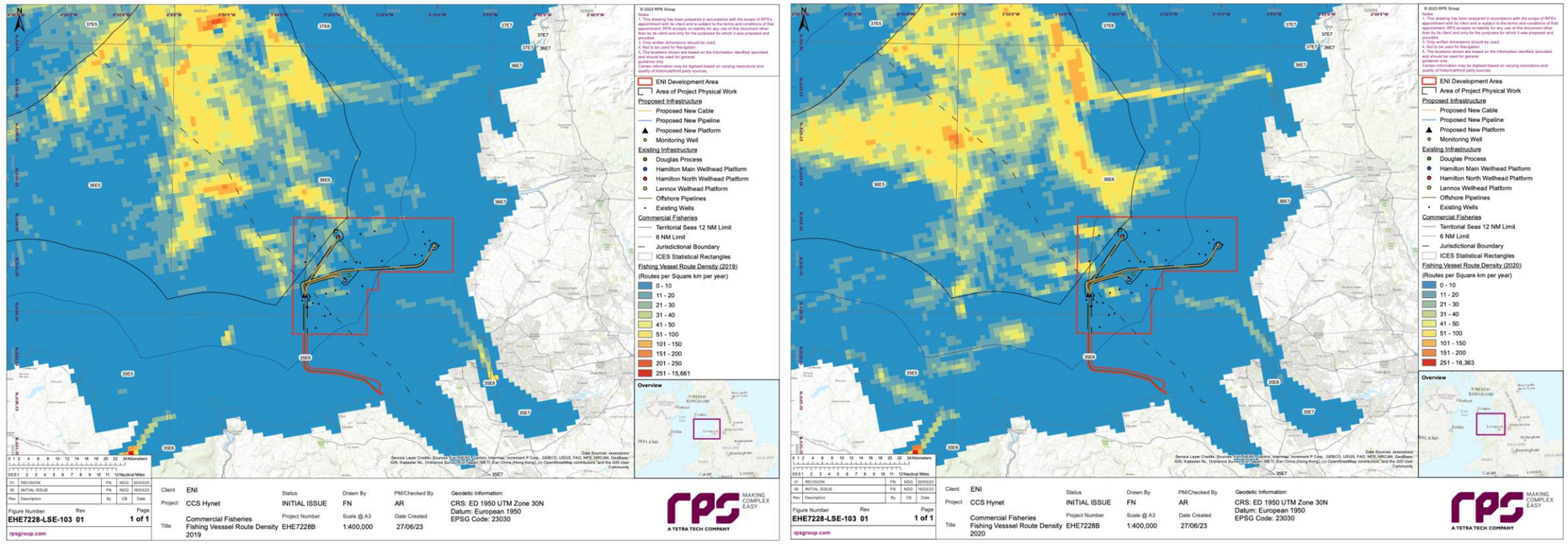


Figure 1.27: AIS Fishing Vessel Route Density In 2022 For EU (Including UK) Vessels ≥ 15 M Length (Data Source: EMSA, 2023)



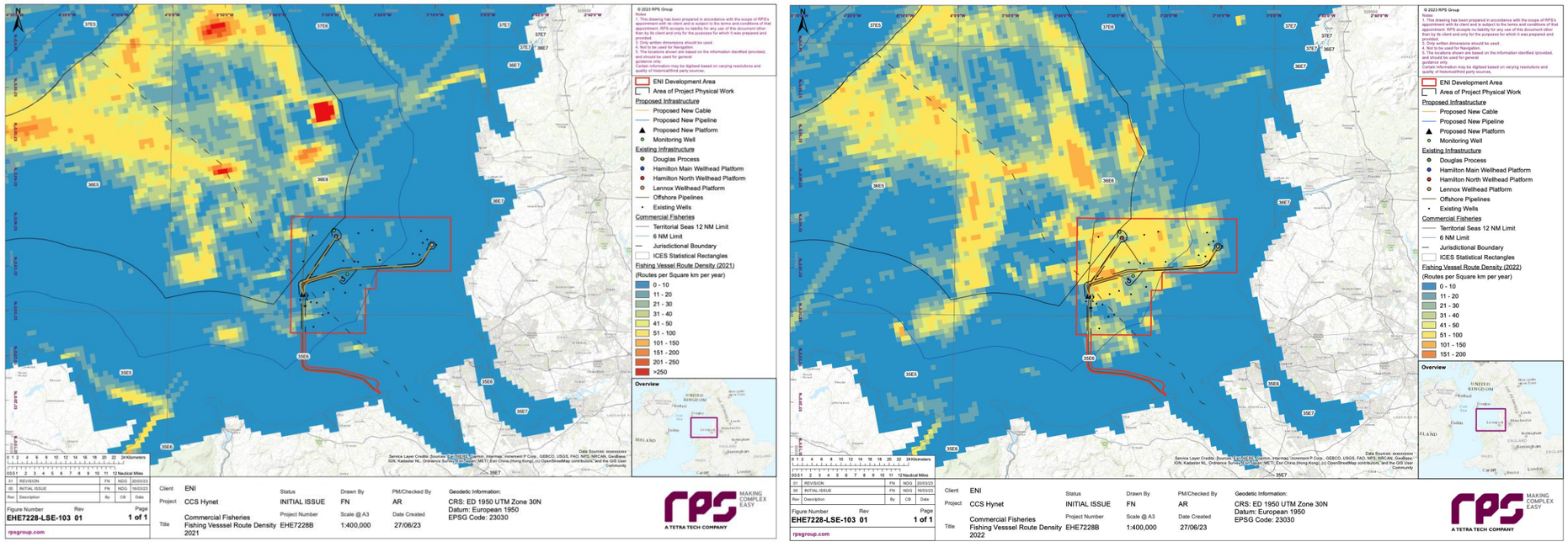
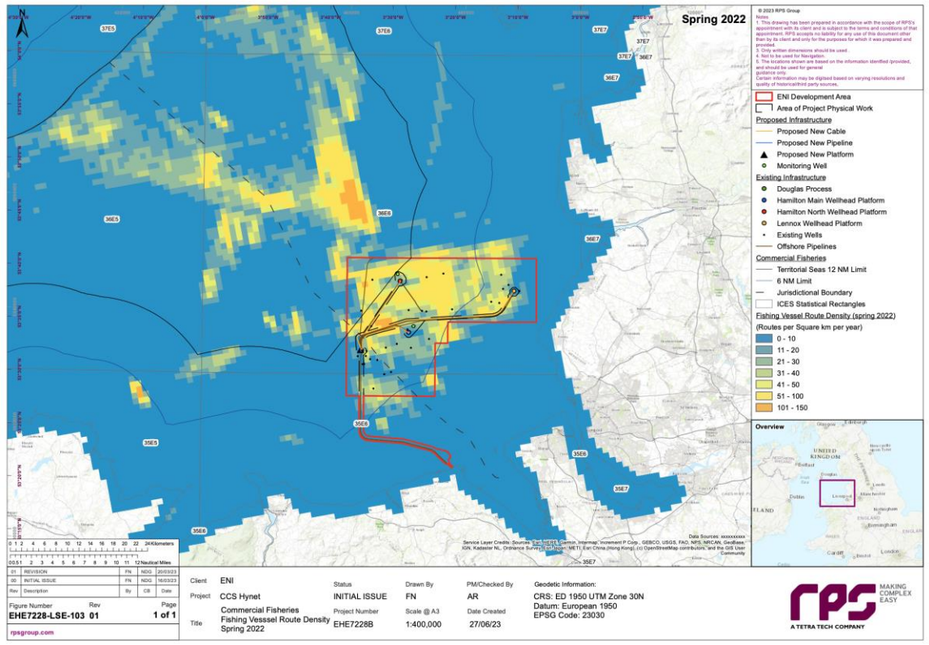
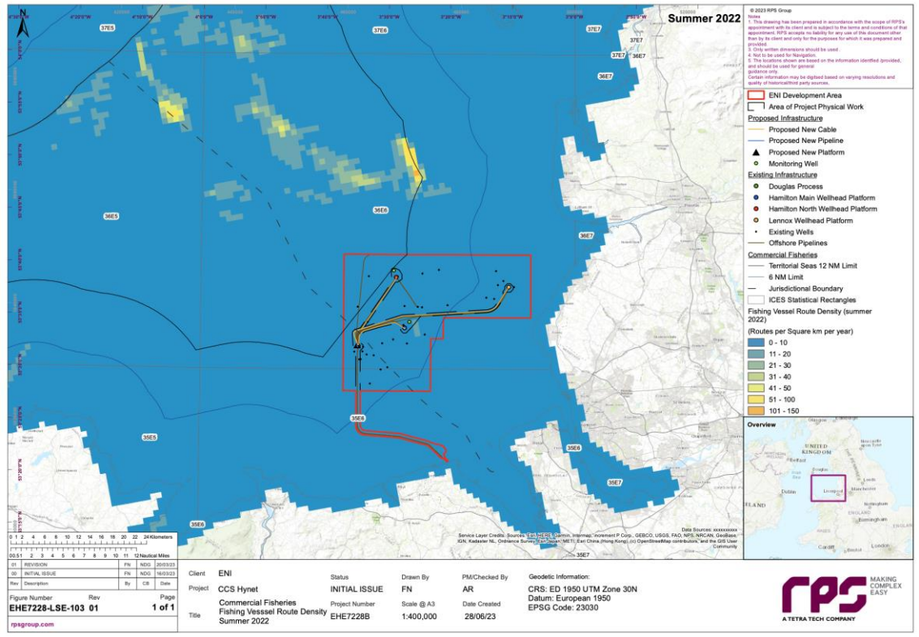
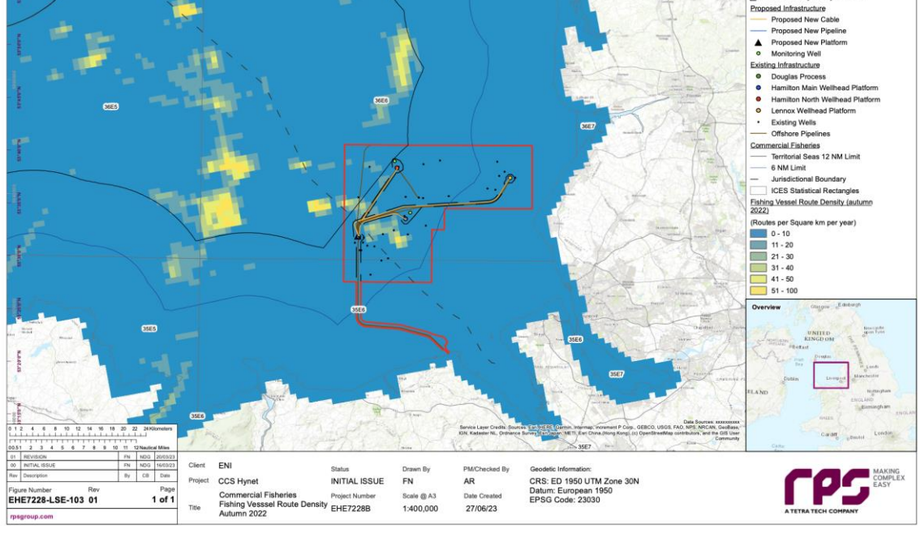


Figure 1.28: AIS Fishing Vessel Route Density From 2019 To 2022 For EU (Including UK) Vessels ≥ 15 M Length (Data Source: EMSA, 2023)







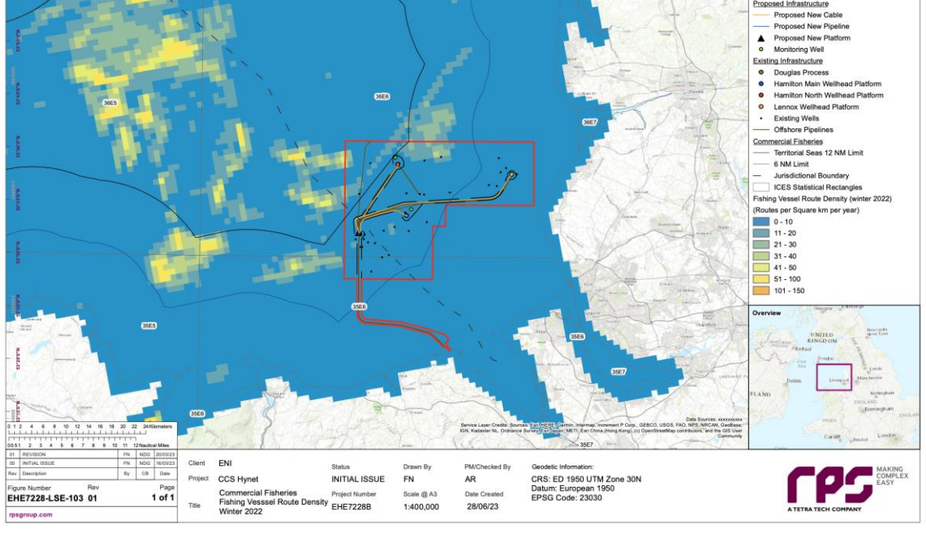


Figure 1.29: AIS Fishing Vessel Route Density By Season In 2022 For EU (Including UK) Vessels ≥ 15 M Length (Data Source: EMSA, 2023)

1.6.3.3 English Fisheries Activity Assessment

Landings trends, fishing grounds and key species

The trends in landed value by English-registered vessels from the study area are presented in Figure 1.30 for gear type and Figure 1.31 for species.

English landings from the study area are dominated by vessels targeting whelk with pots. To a lesser extent, English vessels target other shellfish species with static gear and dredges, and a variety of demersal species primarily using trawls, nets and hooks.

Landings of whelk peaked in 2019. Landings of lobster, brown crab and shrimp have fluctuated, showing a general downward trend. Landings of sole showed a sharp spike in 2020 and landings of bass have increased substantially in 2020 and 2021.

The average annual first sales value of English landings from the study area between 2016 and 2021 was approximately £1.2 million, including whelk at £800,000 and king scallop at £162,000. The value of landings from the study area has increased by over £570,000 between 2016 and 2021.

Based on the landings data presented here and spatial data presented in the previous section, English-registered vessels active in the Eni Development Area are primarily targeting whelk with pots on grounds that extend across the study area into the wider eastern Irish Sea. English-registered scallop dredgers are active within the Eni Development Area, particularly the western portion. Scallop dredge activity is high in the surrounding areas, with focused effort consistently to the west and north-west of the Eni Development Area. 2020 saw a significant peak in landings of sole by English beam trawlers and it is possible that some of this fishing activity occurred within the Eni Development Area, particularly outside the 12 NM boundary. The English beam trawl fleet are understood to travel from south west ports to target this area.

In the inshore waters, fishing activity includes potting for whelk and lobster, netting and handline for bass.

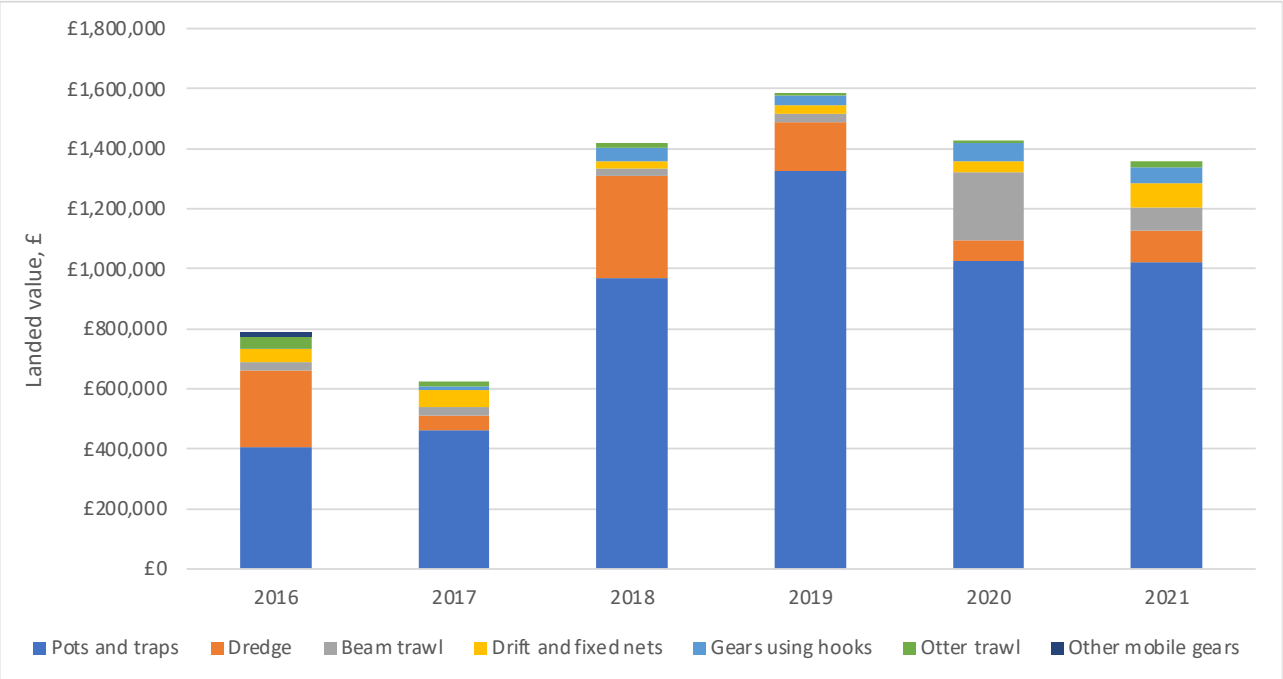


Figure 1.30: Landed Value Of All Landings By English Registered Vessels From The Study Area (35E6 And 36E6) Indicating Gear Type (Data Source: MMO, 2022)

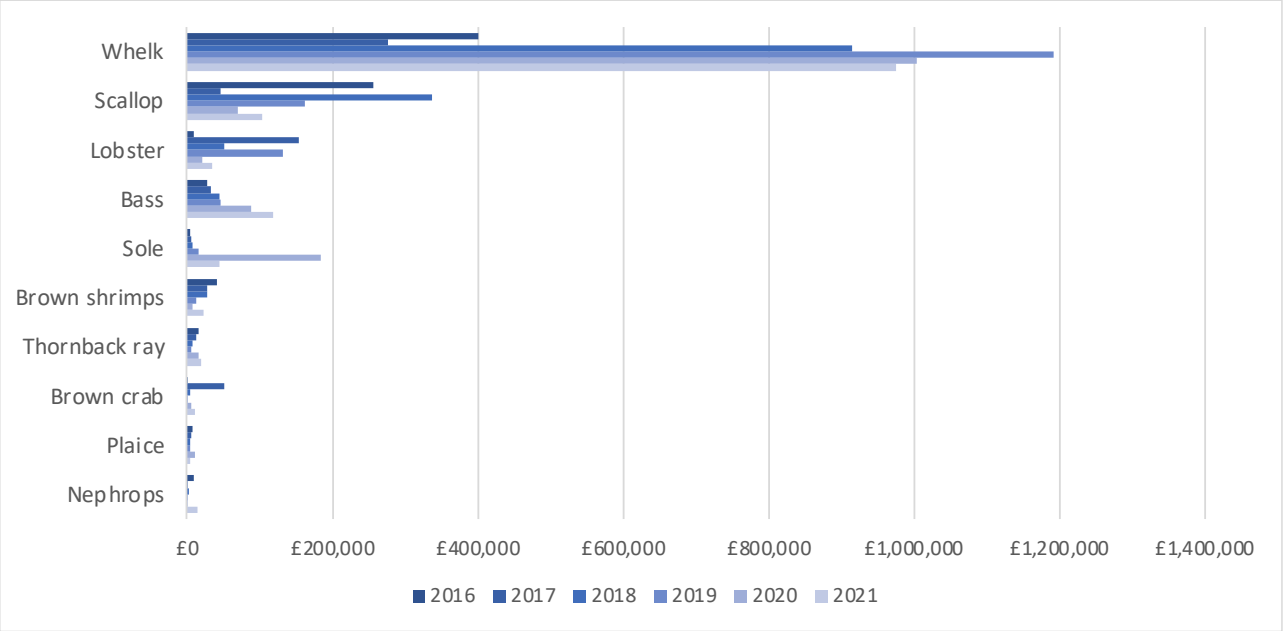


Figure 1.31: Landed Value Of All Landings By English Registered Vessels From The Study Area (35E6 And 36E6) Indicating Species (Data Source: MMO, 2022)

Ports and vessel fleets

Vessels of 10 m or more in length accounted for approximately 82% of landings by English vessels from the study area by value across 2016 to 2021.

Smaller vessels operating further inshore deploy pots to target whelk, lobster and brown crab and nets and hooked gear to target a variety of species, including bass, flounder and thornback ray. Relatively lightweight trawlers of less than 10 m length target mixed demersal species in small volumes and are active in the localised brown shrimp fishery.

The MMO provides 2021 landings statistics by port of landing attributed to specific ICES rectangles, allowing linkage of the location of fishing to the specific port the catch is landed into, as shown in Figure 1.32. Key ports and fleets targeting fisheries within the study area (35E6 and 36E6) include:

- whelk landed into Fleetwood, Whitehaven and Holyhead;
- bass landed into Fleetwood, Liverpool, Barrow and Lytham St Annes;
- king scallop landed into Bangor; and
- sole landed into Holyhead.

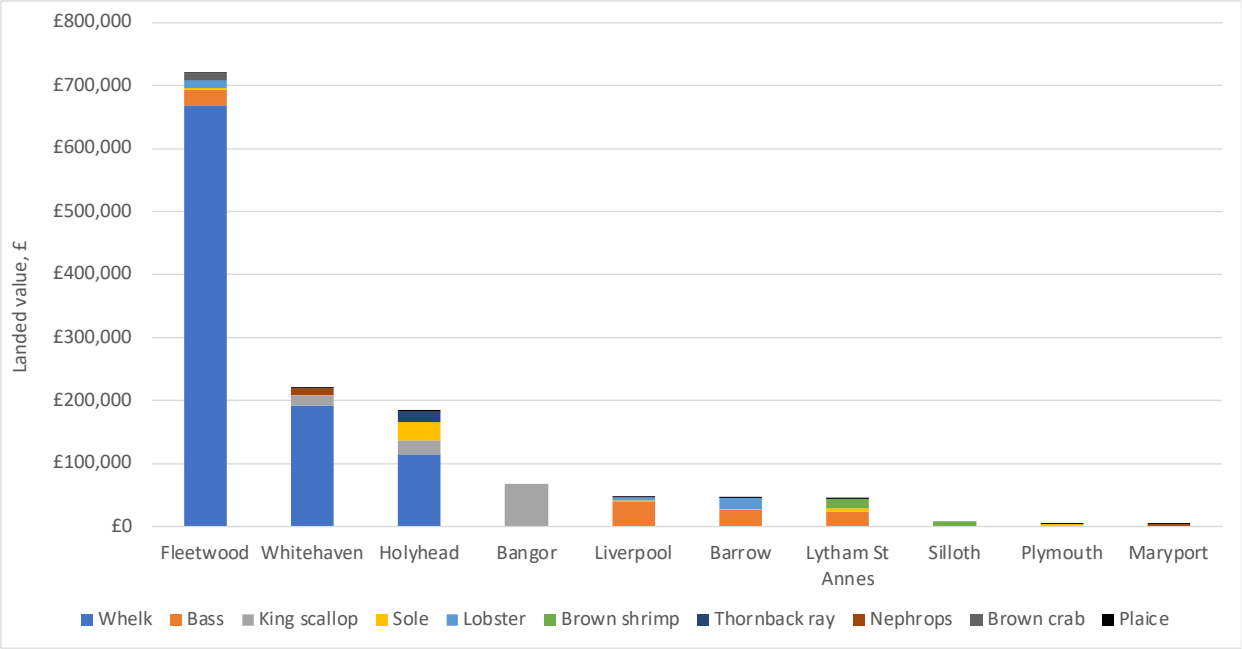


Figure 1.32: Landed Value Of All Landings By English Registered Vessels From The Study Area (35E6 And 36E6) Indicating Port Of Landing In 2021 (Data Source: MMO, 2022)

1.6.3.4 Welsh Fisheries Activity Assessment

Landings trends, fishing grounds and key species

The trends in landed value by Welsh-registered vessels from the study area are presented in Figure 1.33 for gear type and Figure 1.34 for key species.

Welsh landings are dominated by potting for whelk and lobster, and vessels targeting queen scallops with dredges. Landings by Welsh vessels from the area have averaged £378,000 annually over the 2016 to 2021 period, peaking in 2020 at over £600,000, related to landings of whelk.

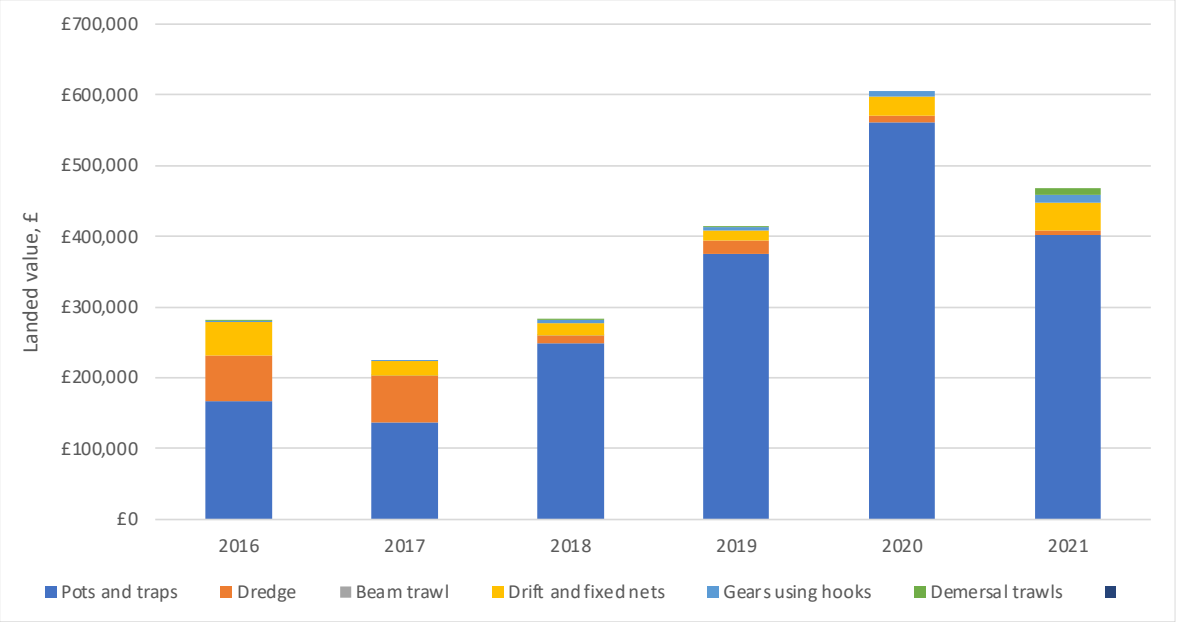


Figure 1.33: Landed Value Of All Landings By Welsh Registered Vessels From The Study Area (35E6 And 36E6) Indicating Gear Type (Data Source: MMO, 2022)

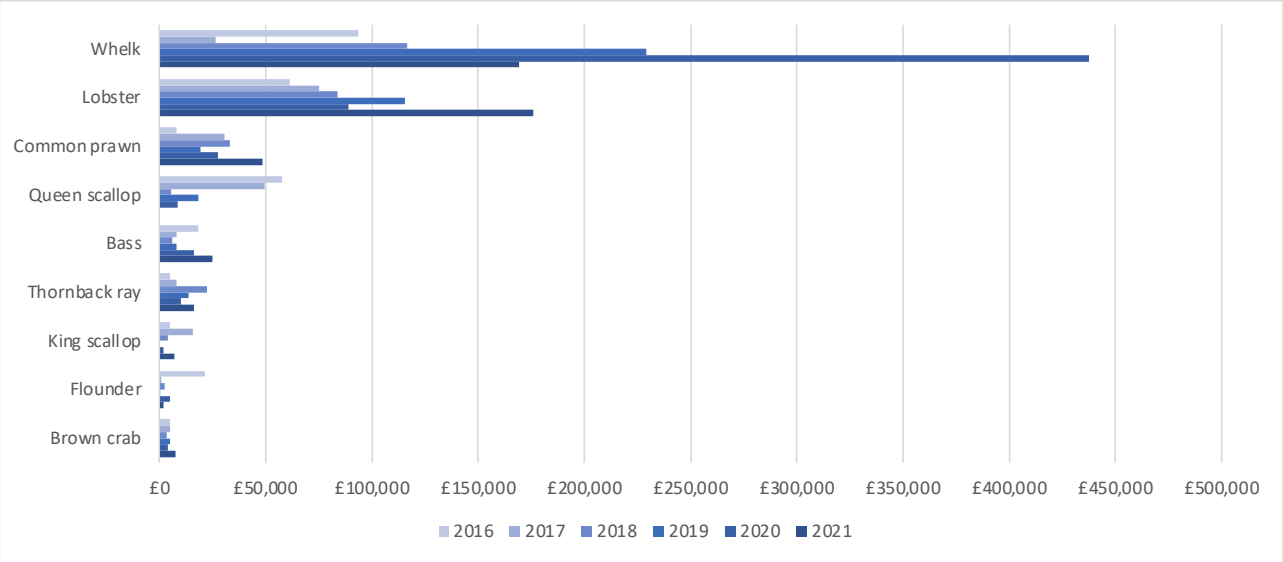


Figure 1.34: Landed Value Of All Landings By Welsh Registered Vessels From The Study Area (35E6 And 36E6) Indicating Species (Data Source: MMO, 2022)

Ports and vessel fleets

Key ports and fleets targeting Welsh fisheries within the study area (35E6 and 36E6) include (Figure 1.35):

- lobster landed into Conwy and Pwlheli;
- whelk landed into Conway and Bangor;
- common prawn landed into Conwy; and
- bass landed in to Mostyn and Rhyl;

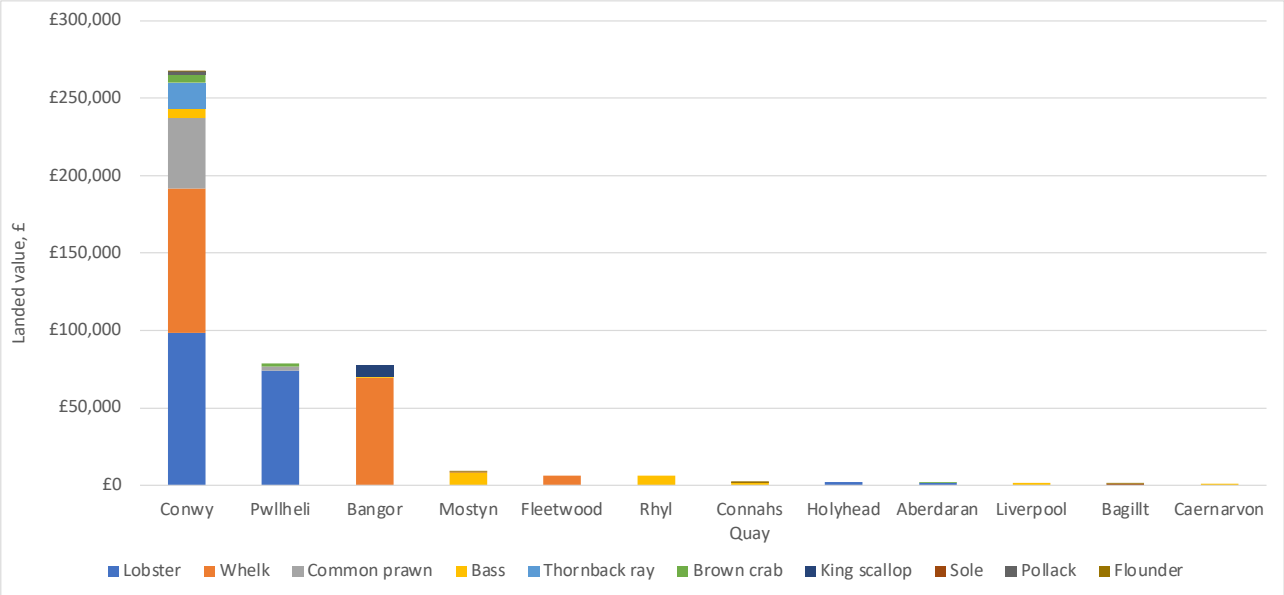


Figure 1.35: Landed Value Of All Landings By Welsh Registered Vessels From The Study Area (35E6 And 36E6) Indicating Port Of Landing In 2021 (Data Source: MMO, 2022)

1.6.3.5 Scottish Fisheries Activity Assessment

Landings trends, fishing grounds and key species

The trends in landed value by Scottish-registered vessels from the study area are presented in Figure 1.36 for gear type and Figure 1.37 for key species.

Scottish landings are dominated by vessels targeting king and queen scallops with dredges. Across the 2016 to 2021 period, landings have declined; this decline is associated with a reduction in landings of queen scallops (from an annual value of £2.1 million in 2016 to £180,000 in 2020, increasing to £570,000 in 2021), whilst landings of king scallops have remained relatively consistent across the same period (with an average annual value of £430,000 across 2016 to 2021). The decline in queen scallop landings is consistent with the broad cyclical pattern seen in queen scallop landings over a seven-to-ten-year period. The introduction of a closed fishing season in the Irish Sea for dredge fisheries running between 1st April and 30th June from 2018 is also noted.

Based on the landings data presented in this section together with the spatial activity data, Scottish-registered vessels are understood to be active across the wider Irish Sea region. Key targeted dredge grounds are located outside of the Eni Development Area, but spatial data indicates some dredge activity in the western portion of the Eni Development Area.

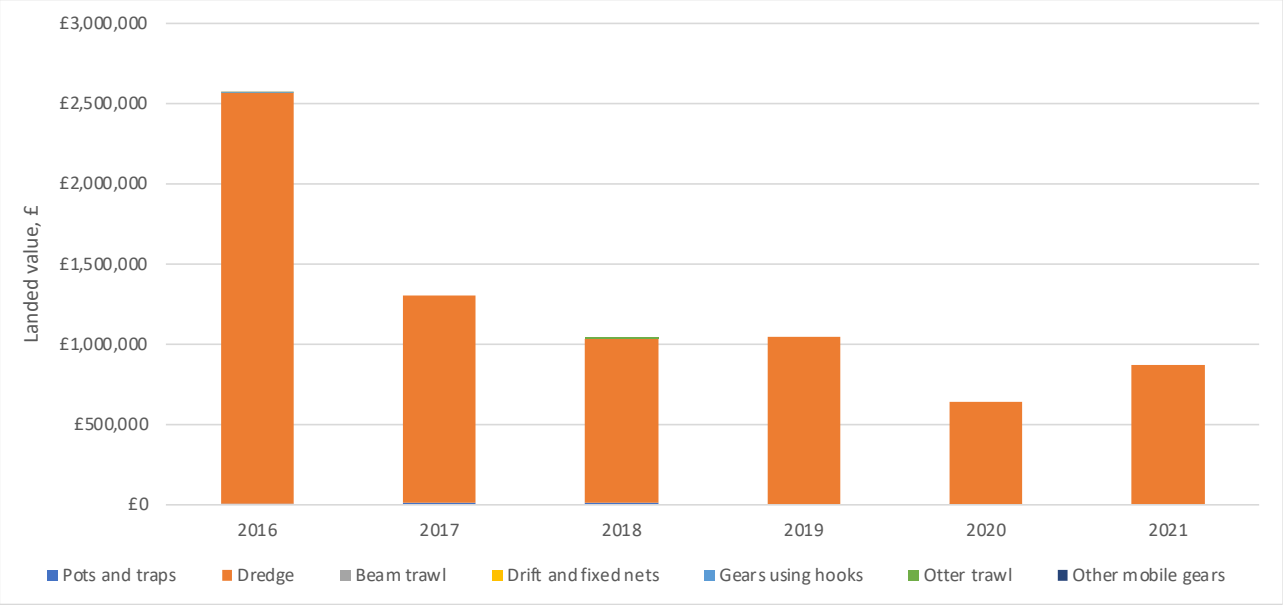


Figure 1.36: Landed Value Of All Landings By Scottish Registered Vessels From The Study Area (35E6 And 36E6) Indicating Gear Type (Data Source: MMO, 2022)

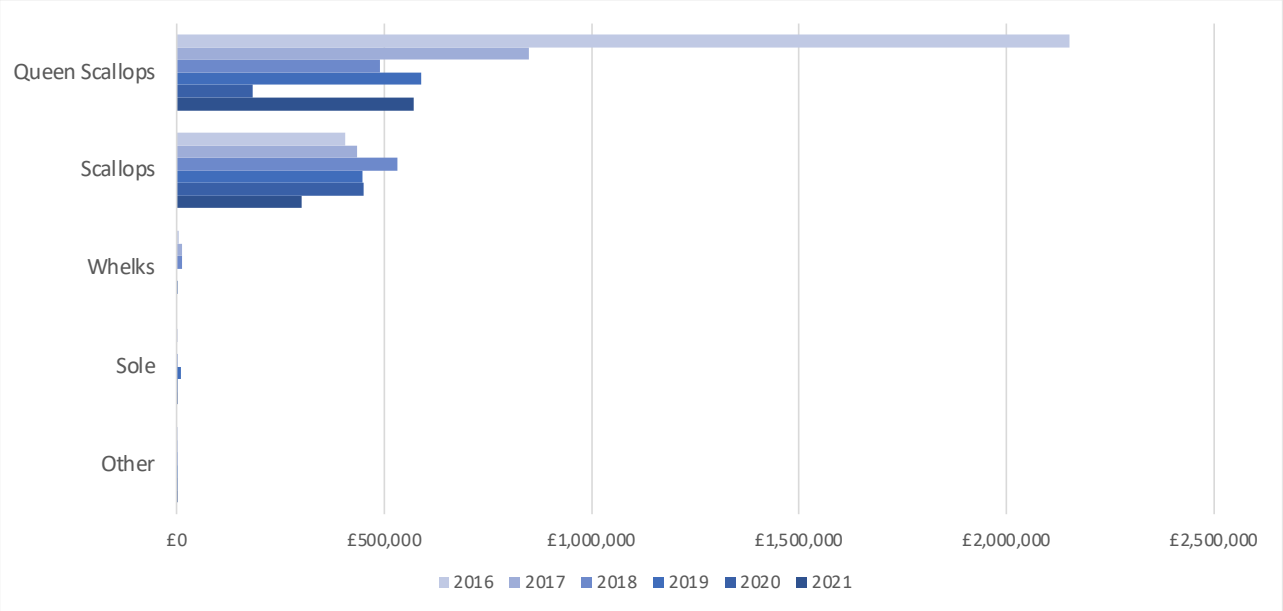


Figure 1.37: Landed Value Of All Landings By Scottish Registered Vessels From The Study Area (35E6 And 36E6) Indicating Species (Data Source: MMO, 2022)

Ports and vessel fleets

Key ports and fleets targeting fisheries within the study area (35E6 and 36E6) include (Figure 1.38):

- queen scallop landed into Kirkcudbright and Whitehaven; and
- king scallop landed into Silloth, Whitehaven and Holyhead.

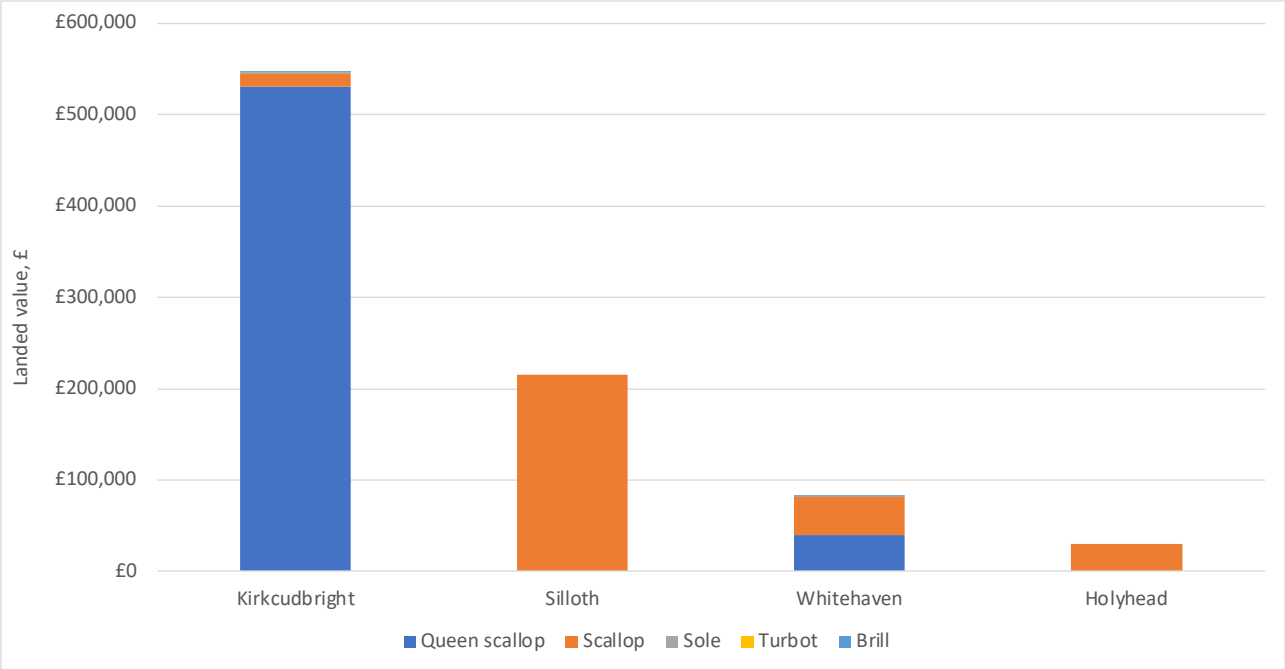


Figure 1.38: Landed Value Of All Landings By Scottish Registered Vessels From The Study Area (35E6 And 36E6) Indicating Port Of Landing In 2021 (Data Source: MMO, 2022)

1.6.3.6 Northern Irish Fisheries Activity Assessment

The trends in landed value by Northern Irish-registered vessels from the study area are presented in Figure 1.39 for gear type and Figure 1.40 for key species.

Northern Irish landings are dominated by vessels targeting queen scallop and king scallop with dredges and, to a lesser extent, nephrops with demersal otter trawl. Landings by Northern Irish vessels from the study area have averaged £102,000 annually over the 2016 to 2019 period, though peaked in 2016 and have declined substantially since, with negligible landings in 2020 and 2021. Vessels are understood to operate primarily out of Kilkeel, Ardglass and Portavogie.

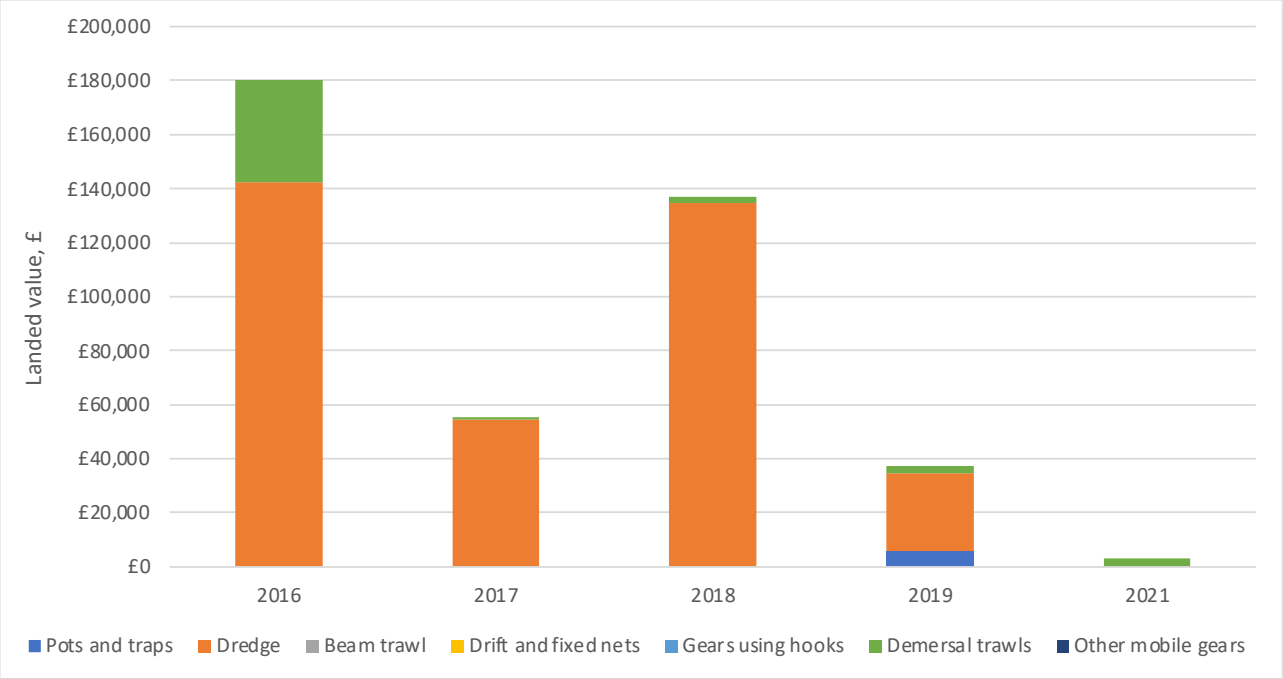


Figure 1.39: Landed Value Of All Landings By Northern Irish Registered Vessels From The Study Area (35E6 And 36E6) Indicating Gear Type (Data Source: MMO, 2022)

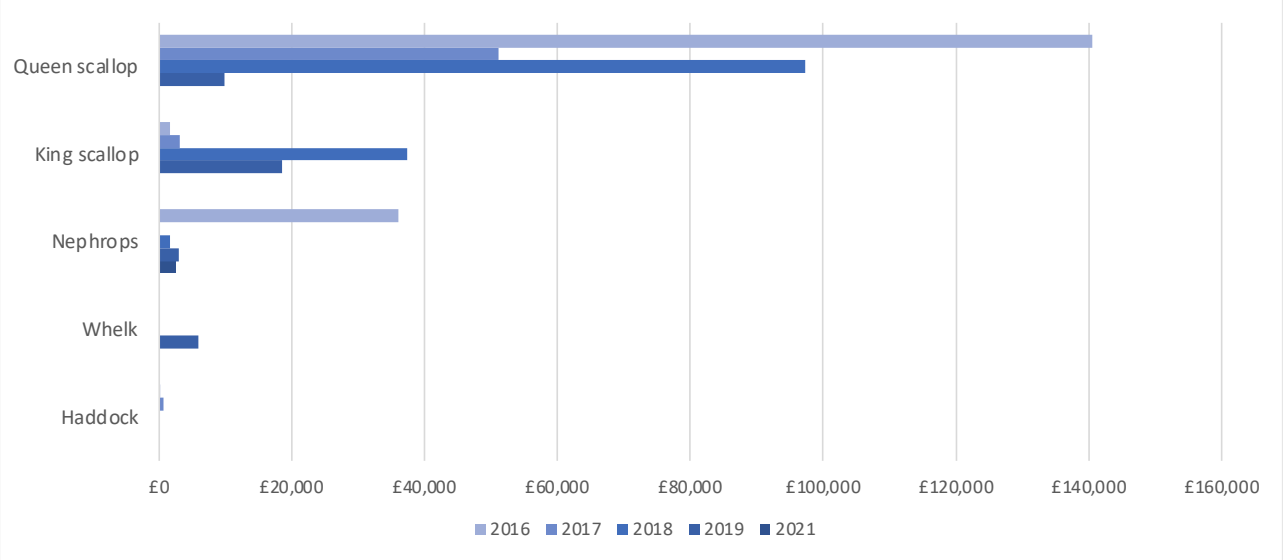


Figure 1.40: Landed Value Of All Landings By Northern Irish Registered Vessels From The Study Area (35E6 and 36E6) Indicating Species (Data source: MMO, 2022)

1.6.3.7 Isle of Man Fisheries Activity Assessment

Low levels of landings are recorded by vessels registered in Isle of Man operating in the study area, with approximately £3-£5,000 of king scallop landed in 2018 and 2020 and just under £1,00 of brown crab landed in 2018. All landings were recorded from 35E6, with no catches recorded from 36E6.

1.6.3.8 Jersey Fisheries Activity Assessment

Low levels of landings are recorded by vessels registered in Jersey operating in the study area, with approximately £30,000 of whelk landed in 2016 and £110,00 of whelk landed in 2017, and no landings from 2019 to 2021. 5,000 of king scallop landed in 2018 and 2020 and just under £1,000 of brown crab landed in 2018. All landings were recorded from 36E6, with no catches recorded from 35E6.

1.6.3.9 Non-UK Fisheries Activity Assessment

EU landings data and ICES spatial data, indicate the likely presence of other European-registered vessels in the study area. These vessels are understood to include Irish vessels dredging for scallop and Belgian beam trawlers targeting sole and plaice.

The landings data presented in Figure 1.41 is available only up to 2016 and indicates that over the 2012 to 2016 period, landings by Belgian vessels substantially declined whilst landings by Irish vessel showed smaller fluctuation, averaging 40 tonnes per year. Overall, in the study area, there are low levels of activity by non-UK vessels. Any activity by non-UK vessels is likely to be focused outside the 12 NM boundary and therefore out with the Area of Physical Project Work.

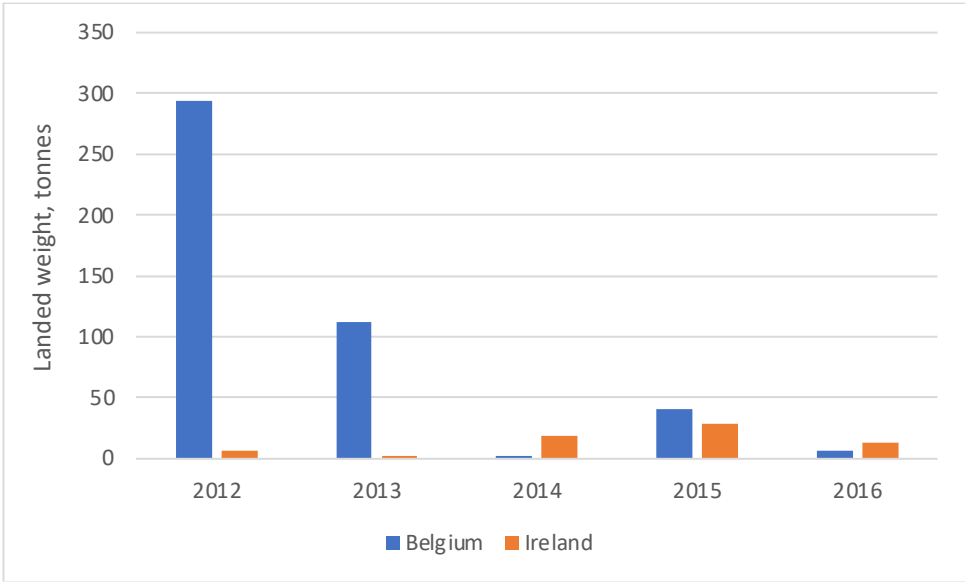


Figure 1.41: Landings From The Study Area By Non-UK Vessels 2012 To 2016 (Data source: EU DCF, 2022)

1.6.4 Aquaculture activity assessment

Strategic areas of sustainable aquaculture production which have been identified for potential future aquaculture development overlap with the Commercial Fisheries Study Area, as shown in Figure 1.42. These strategic areas have been defined to take into account existing infrastructure and therefore avoid the infrastructure already in situ within the Proposed Development.

The strategic areas of sustainable aquaculture production support the implementation of the AQ-1 policies in the North West Inshore and North West Offshore Marine Plan and have been selected based on consideration of:

- biological constraints; environmental conditions that influence growth of key species;
- technical constraints; physical conditions that act as constraints on siting of aquaculture infrastructure;
- planning constraints; other uses of the marine area; and
- additional considerations such as distance from shore.

The sustainable aquaculture production areas have been defined through consideration of the above criteria with the intention to identify areas in which conditions are most suitable for aquaculture, while minimising the potential for conflicts with other uses of the marine area.

Studying Figure 1.42, it is clear that the strategic aquaculture areas are adjacent to, but do not overlap any of the Proposed Development infrastructure. Indeed, it appears that the strategic areas have been designed around the existing infrastructure ensuring co-existence with development already in the area.

Shellfish classification zones and bivalve classification areas are shown in Figure 1.43 and Figure 1.44 respectively and do not overlap with the Proposed Development infrastructure. Furthermore, areas identified for Pacific oyster and native oyster production are shown in Figure 1.45, and in Figure 1.46 for blue mussel. These areas do not overlap the Proposed Development.

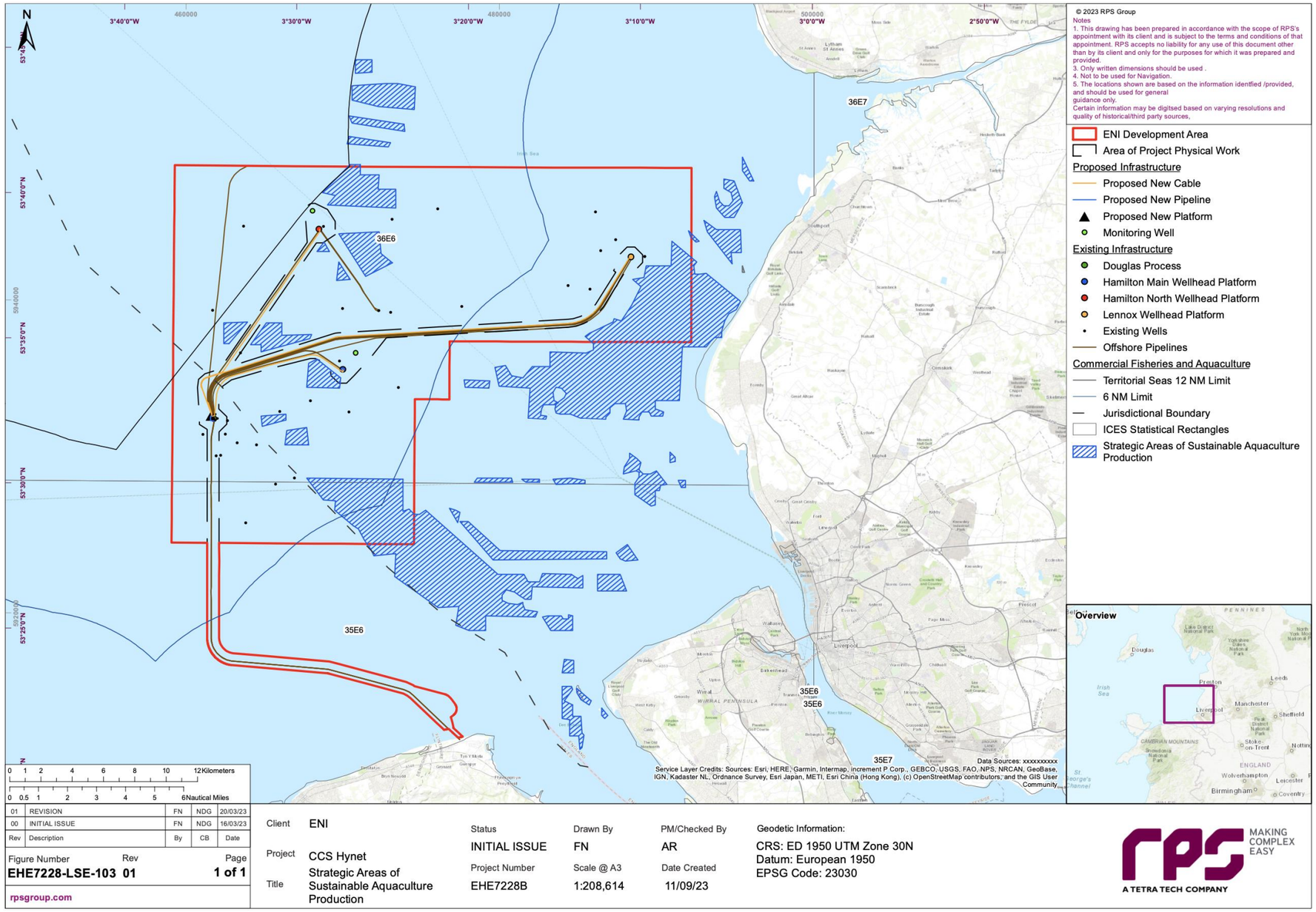


Figure 1.42: Strategic Areas For Sustainable Aquaculture Production (Data Source: Defra, 2023)

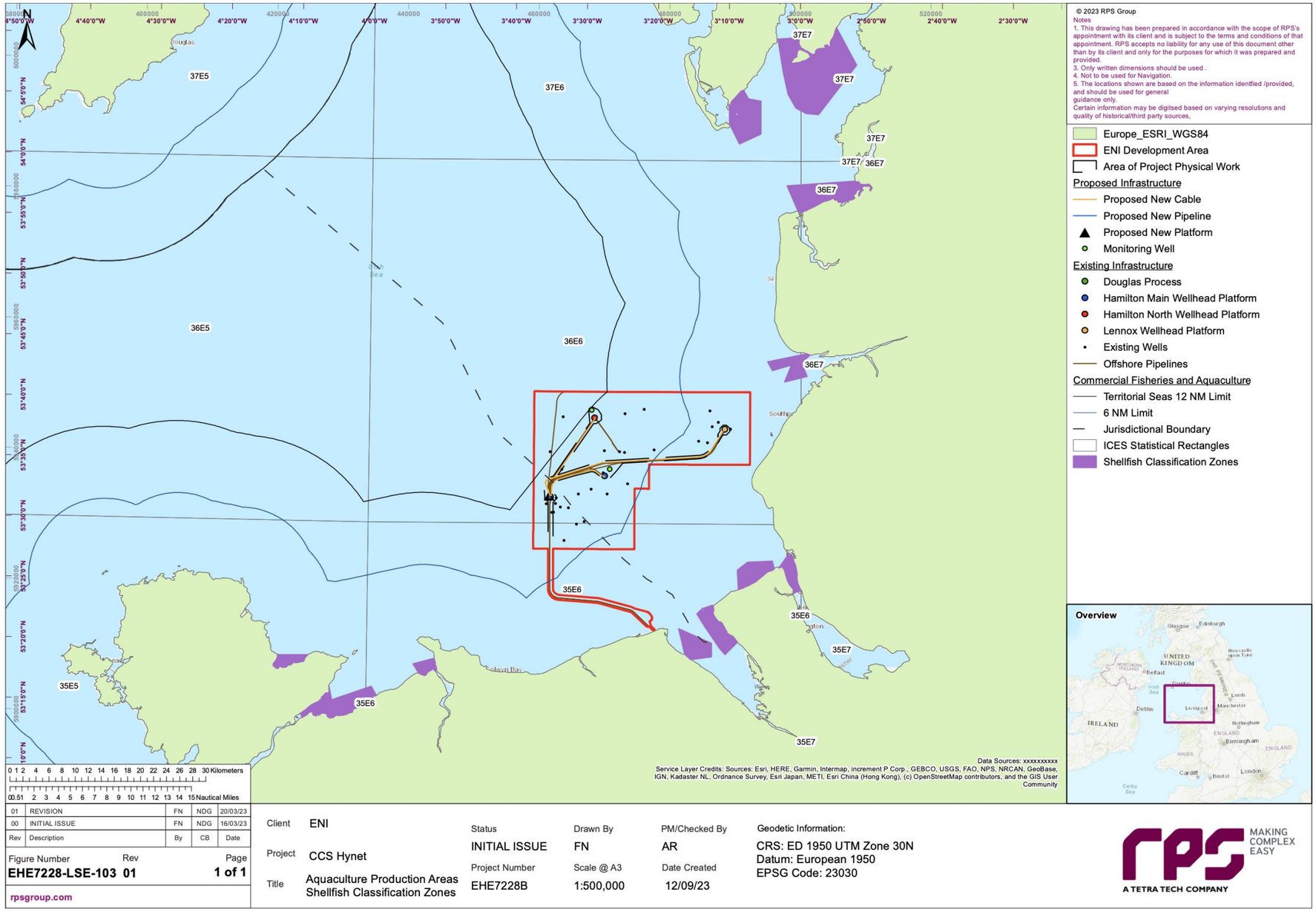


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Figure 1.43: Shellfish Classification Zones (Data Source: Defra, 2023)

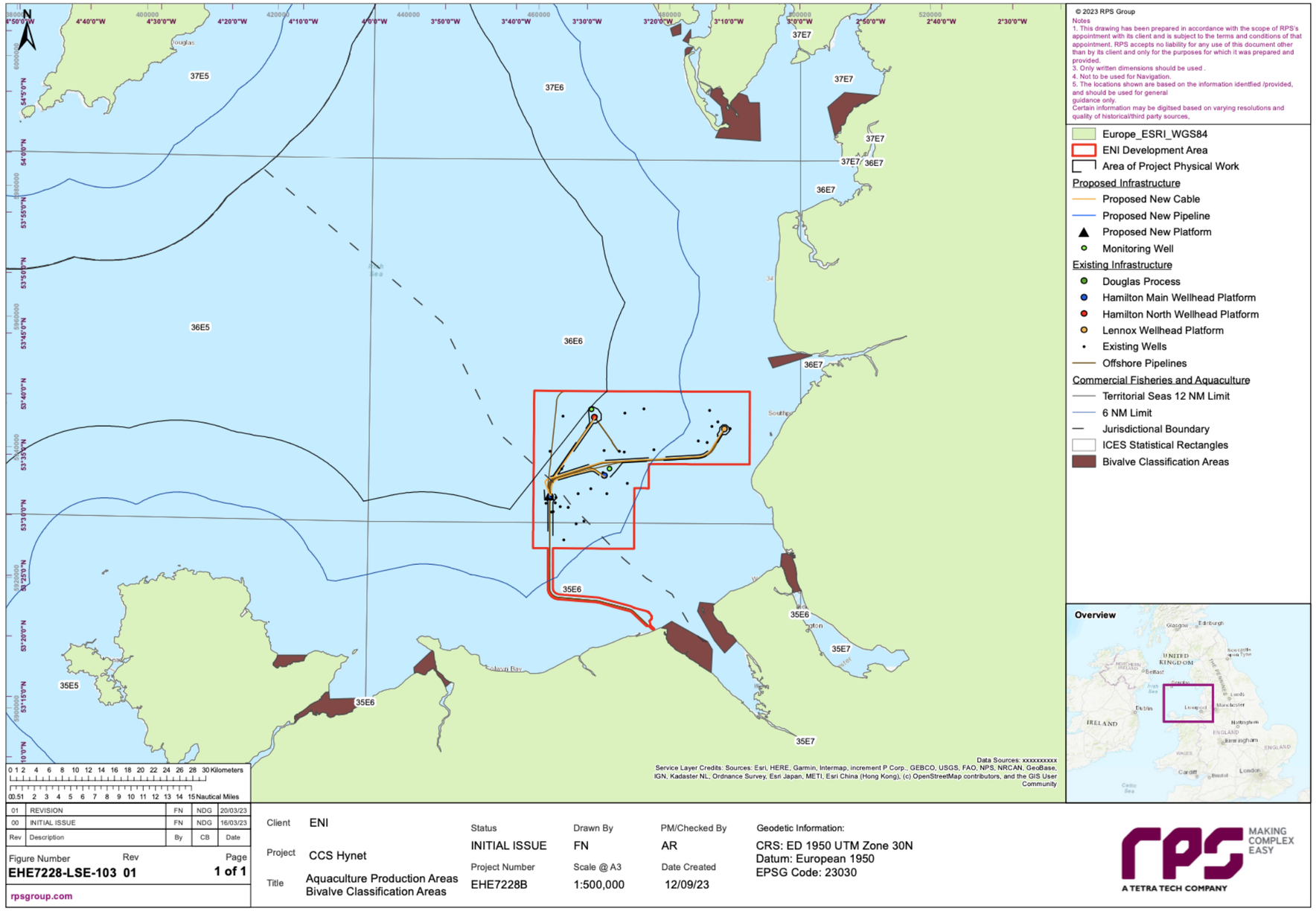

Figure 1.44: Bivalve Classification Areas (Data Source: Defra, 2023)

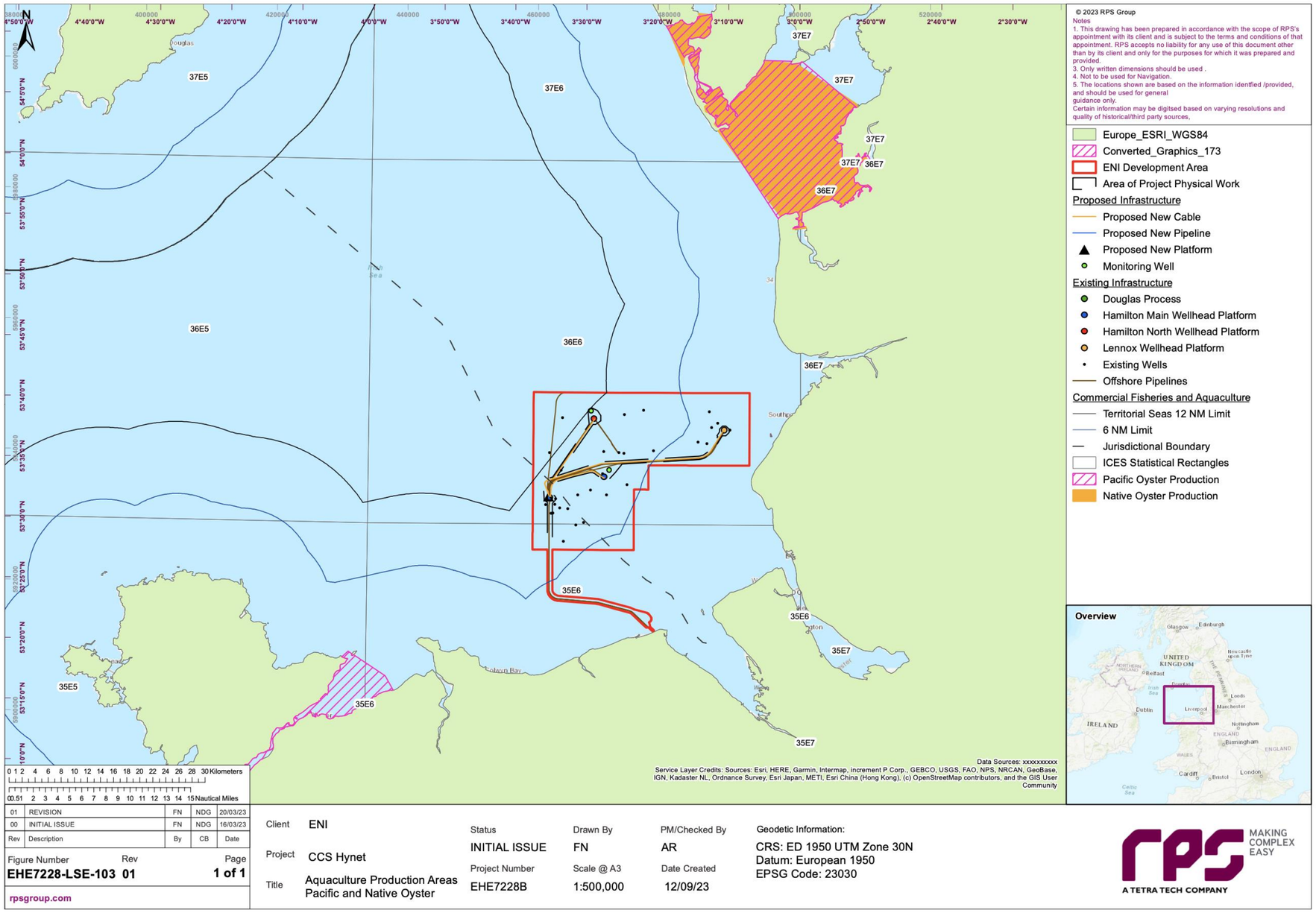

Figure 1.45: Pacific Oyster and Native Oyster Aquaculture Production Areas (Data Source: Defra, 2023)

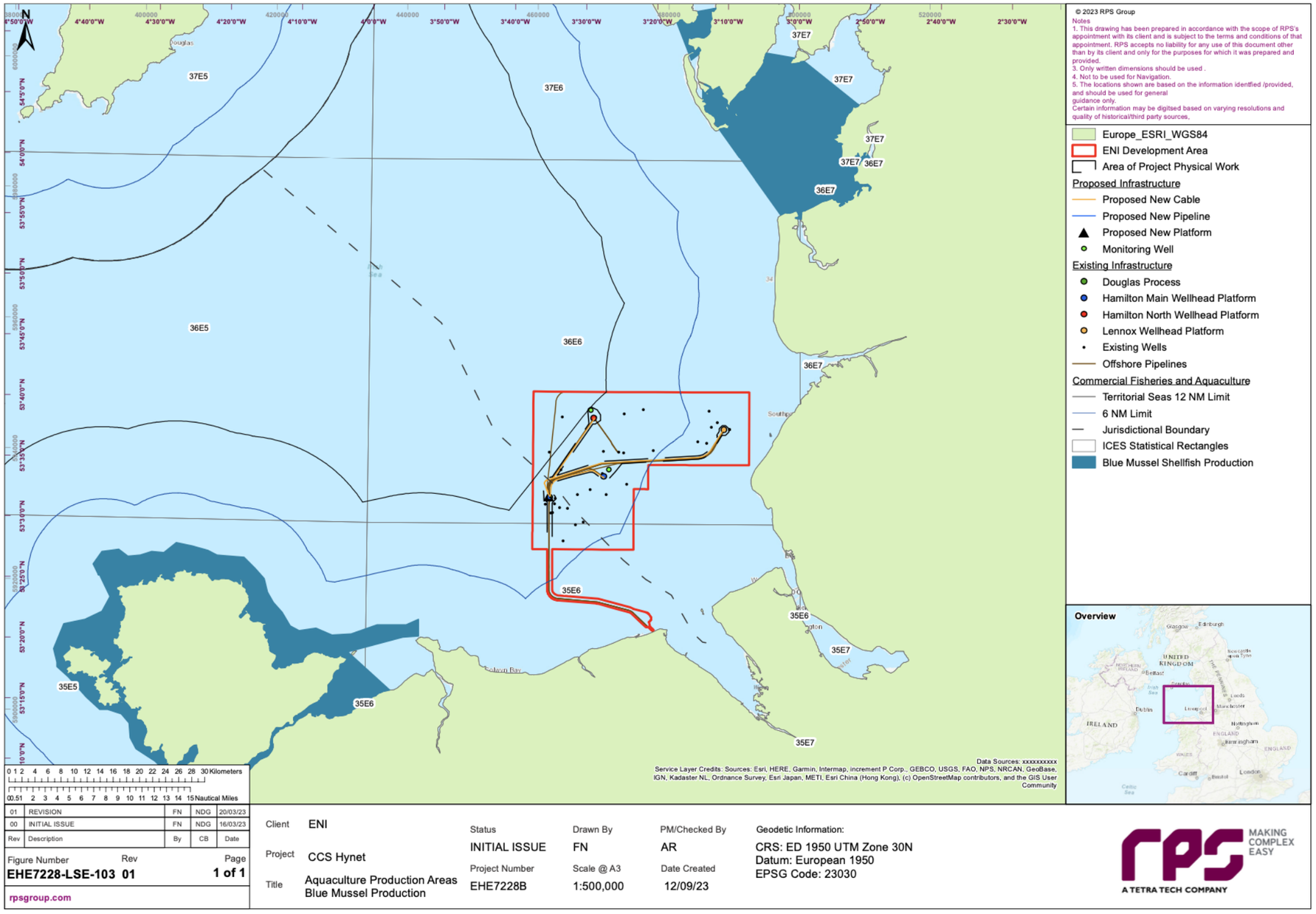

Figure 1.46: Blue Mussel Aquaculture Production Areas (Data Source: Defra, 2023)

1.6.5 Future baseline environment

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

- Market demand: commercial fishing fleets respond to market demand, which is impacted by a range of factors, including the 2020 to 2021 COVID pandemic:
- Market prices: commercial fishing fleets respond to market prices by focusing effort on higher value target species when prices are high and markets in demand:
- Stock abundance: fluctuation in the biomass of individual species stocks in response to status of the stock, recruitment, natural disturbances (e.g. due to storms, sea temperature etc.), changes in fishing pressure etc.:
- Fisheries management: including new management for specific species where overexploitation has been identified, or changes in TACs leading to the relocation of effort, and/or an overall increase/decrease of effort and catches from specific areas;
- Environmental management: including the potential restriction of certain fisheries within protected areas;
- Improved efficiency and gear technology: with fishing fleets constantly evolving to reduce operational costs (e.g. by moving from beam trawl to demersal seine); and
- Sustainability: with seafood buyers more frequently requesting certification of the sustainably of fish and shellfish products, such as the Marine Stewardship Council certification, industry is adapting to improve fisheries management and wider environmental impacts.

The variations and trends in commercial fisheries activity are an important aspect of the baseline assessment and forms the principal reason for considering up to five to six years of key baseline data. Given the time periods assessed, the future baseline scenario would typically be reflected within the current baseline assessment undertaken. In addition, the existing baseline data will capture any potential changes in commercial fisheries activity resulting from the withdrawal of the UK from the EU for landings in 2021.

Following withdrawal, the UK and the EU have agreed to a Trade and Cooperation Agreement (TCA), applicable on a provisional basis from 1 January 2021. The TCA sets out fisheries rights and confirms that from 1 January 2021 and during a transition period until 30 June 2026, UK and EU vessels will continue to access respective Excusive Economic Zones (EEZs, 12 to 200 NM) to fish. In this period, EU vessels will also be able to fish in specified parts of UK waters between 6 to 12 NM.

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

Market changes have the potential to impact fishing activity in the study area; some of the catch landed by UK vessels is exported to EU markets (e.g. brown crab) and potential tariff/non-tariff barriers could affect which species are targeted and to what extent. The key species landed by potters in the area is whelk, which is primarily exported to non-EU countries, including Korea, Taiwan and Singapore. The trade in UK landed whelk has therefore not been as affected by the Brexit process and associated implications on shellfish exports in comparison to other species. In terms of future baseline scenarios, it is therefore possible, for example, that the UK fleet will more heavily target whelk given that prices have increased in recent years, and they are exported to non-EU countries.

1.7 Summary

The key fleet métiers operating across the study area include (in no particular order):

- UK (primarily Scottish, but also some Northern Irish, English and Welsh) and Irish dredgers targeting king and queen scallops;
- UK (primarily English and Welsh) potters targeting shellfish, primarily whelk offshore, but also lobster and brown crab;
- UK (primarily English) and Belgian beam trawlers targeting sole, plaice and other demersal species, with localised inshore trawling targeting brown shrimp;
- UK inshore vessels (English) under 10 m length targeting a variety of demersal species (e.g. bass) using nets and hooked gear.

Based on analysis of landings and spatial data, fishing activity across the Eni Development Area is expected to be dominated by larger vessels potting for whelk, smaller inshore potting vessels targeting lobster and larger vessels dredging for king and queen scallops, with potential for occasional beam trawl activity.

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