ABWP Phase I Decommissioning

Commercial Fisheries and Aquaculture Technical Report

Volume 3, Appendix 6.1



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Project name ABWP Phase I Decommissioning

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Statement of Authority

Author	Qualifications	Relevant Experience
Fiona Nimmo	BSc Marine Biology (First Class Hons), University of Newcastle (UK) BEng Chemical Engineering (2:1 Hons), Edinburgh University (UK)	Marine environmental consultant with over 20 years of expertise in commercial fisheries, aquaculture, EIAs and offshore wind consenting. Extensive experience leading commercial fisheries inputs to major offshore wind projects in UK and Irish waters, including Hornsea, Neart na Gaoithe, Rampion 2, Awel y Môr, Arklow Bank Wind Park 2, Dublin Array, Codling Wind Park and North Irish Sea Array. Experience includes scoping, fisheries liaison, consultation, technical reporting, Statements of Common Ground, expert witness support, fisheries mitigation and management plans, commercial negotiations and fisheries monitoring.
Frank Fortune	BSc Marine Biology and Applied Microbiology, University of Portsmouth (UK) MSc Marine Resource Development and Protection, Herriot-Watt University (UK)	Marine biologist and EIA specialist, with over 32 years of experience of marine energy, coastal development and marine environmental management. Expertise spans projects including world leading renewable energy projects (offshore wind, tidal energy, wave energy, onshore wind, renewable heating / cooling), port and harbour developments, offshore decommissioning, major dredging and marine reclamation projects, coastal management and the provision of technical and expert advice to commercial clients, government and statutory government agencies.
Sara Méndez Roldán	BSc Environmental Sciences, University of Salamanca (Spain) MSc Coastal and Marine Resources Management, University of Portsmouth (UK)	Over 11 years' international experience in permitting and environmental impact assessment for a wide range of coastal and marine developments, including offshore wind farms and subsea cables across a number of geographies, including Spain, the UK, Ireland, Poland and Denmark, among others.
Matt Royall	BSc (Hons) Natural Environmental Science (Earth Sciences), University of Sheffield (UK) MSc Environmental Pollution Control, University of Leeds (UK) Chartered Environmentalist (CEnv)	Over 25 years' experience of environmental impact assessment for a wide range of sectors, including windfarms. Experience is across a number of geographies including Ireland, UK, Poland, Lithuania and Romania.

Glossary

Term	Meaning
Arklow Bank Wind Park (ABWP) Phase I	Arklow Bank Wind Park (ABWP) Phase I comprises: • Offshore infrastructure seaward of High Water Mark (HWM), including: – Seven Wind Turbine Generators (WTG) with a combined capacity of 25.2 MW; – One meteorological (met) mast; – Inter-array cables connecting the WTGs and met mast; and – One offshore export cable connecting WTG T4 with landfall at HWM; • Onshore infrastructure landward of HWM including: – One onshore cable connecting landfall at HWM with the onshore substation; and • One onshore substation compound, where the onshore substation and ancillary infrastructure are located.
ABWP Phase II	ABWP Phase II comprises:

Term	Meaning
	• Offshore Infrastructure, including: – 53 or 47 WTGs and two Offshore Substation Platforms (OSPs) located within the "Array Area"; – Inter-array cables connecting WTGs with the OSPs; and – Two offshore export cables; • Onshore grid connection infrastructure, including a 220 kV substation at Shelton Abbey with an associated connection to the existing National Electricity Transmission Network; • Operations and Maintenance Facility (OMF) at South Dock, Arklow Harbour; and • EirGrid Upgrade Works.
Arklow Energy	Arklow Energy Limited, the entity seeking planning permission for the Proposed Works, i.e. the applicant.
Automatic Identification System (AIS)	A system by which vessels automatically broadcast their identity and key statistics including location, destination, length, speed and current status. Most commercial vessels and European Union fishing vessels over 15 metres (m) in length are required to carry AIS.
Baseline	A description of the relevant aspects of the current state of the environment (baseline scenario) (EIA Directive 2014/52/EU).
Beam trawl	A towed fishing gear held open by a rigid beam and used mainly to target demersal species such as flatfish.
Brown crab / edible crab	Commercially exploited shellfish species (*Cancer pagurus*) commonly targeted by potting vessels.
Commercial Fishing	Any form of fishing activity legally undertaken where the catch is sold for taxable profit.
Commercial fisheries Study Area	Area covered in the characterisation of the baseline environment and considered in the assessment of potential environmental effects relevant to commercial fisheries and aquaculture, defined as the area covered by ICES rectangles 34E3 and 34E4, see **Section 2.2** and **Figure 2.1** in this document.
Competent authority	Are those authorities that are entitled to give authorisation or consent to a plan or project. In the planning system, this means planning authorities and An Coimisiún Pleanála. There are, however, a wide range of other competent authorities in respect of other consent regimes e.g. EPA (environmental licencing), Minister for Agriculture, Food and the Marine (forestry, aquaculture and foreshore management), and various state bodies that have authority to undertake development under Part 9 of the Planning and Development Regulations (e.g. An Garda Síochána, defence forces, the courts service). The competent authority for this planning application is An Coimisiún Pleanála (ACP).
Consent	This shall include any licence, permission, permit, approval or other such authorisation granted by a public authority for any activity, or project where the authority is obliged to have regard to the requirements of the Environmental Impact Assessment (EIA) and/or Habitats Directive(s) (MDB, 2017).
Decommissioning	The final closing down and putting into a state of safety of a development, project or process when it has come to the end of its useful life (EPA, 2022).
Demersal otter trawl	A towed net held open by water pressure on two otter boards and fished along the seabed to target species such as nephrops and mixed demersal fish.
Demersal species	Demersal fish are species that live and feed on or near the seabed. Includes species such as haddock, cod, whiting and flatfish.
Dredge	Metal-framed basket or scoop that fishing vessels tow along the seabed for the purpose of catching molluscs (e.g. clams, oysters, scallops, mussels). Dredges are made of a robust steel frame, often with a toothed bar across the lower edge, and a heavily reinforced or chain link bag.

Term	Meaning
Effect	The consequence of an impact on a receptor. For example, in the offshore environment, vessel activity (activity) results in increased levels of underwater noise (impact), with the potential to disturb marine mammals (effect).
Environmental Impact Assessment (EIA)	Process of assessment of the effects of a project or development proposal on the environment. In the planning area, it is undertaken by a planning authority or An Coimisiún Pleanála during the consideration of applications for planning permission, taking account of an Environmental Impact Assessment Report (EIAR). The projects which require EIA are listed in Annex I and Annex II of the EIA Directive, as amended (Office of the Planning Regulator, n.d.).
Environmental Impact Assessment Report (EIAR)	A report or statement of the effects, if any, that Proposed Works, if carried out, would have on the environment. It is prepared by the developer to inform the EIA process (Office of the Planning Regulator, n.d.).
Exclusive Economic Zone (EEZ)	Area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part (UNCLOS, 1982). The EEZ in Ireland extends up to 200 nautical miles (nm) from the outer edge of the territorial sea.
First sales value	The value obtained when fish or shellfish are first sold after landing, typically used as an indicator of economic importance.
Fisheries liaison	Communication and engagement between Arklow Energy and the fishing industry to exchange information and address fisheries issues.
Fisheries Liaison Officer (FLO)	An individual (or individuals) identified with the responsibility of liaising with the fishing industry to provide communication associated with the Proposed Works Offshore. Liaison duties are undertaken while at sea or from an onshore location.
Fishery	A group of vessel voyages which target the same species or use the same gear.
Fishing effort	A measure of fishing activity, often described in terms of time spent fishing, gear deployed, or spatial intensity of activity.
Fishing Ground	An area of water or seabed targeted by fishing activity.
Fleet	A physical group of vessels sharing similar characteristics (e.g. nationality).
Foreshore	The bed and shore, below the line of high water of ordinary or medium tides, of the sea and of every tidal river and tidal estuary and of every channel, creek, and bay of the sea or of any such river or estuary. Its outer limit is coterminous with the seaward limit of the territorial sea (Foreshore Act 1933 (as amended)), which is at a distance of 12 nm from the nearest point of the baseline or otherwise prescribed (Maritime Jurisdiction Act 2021 (as amended)).
Gear Type	The method/equipment used for fishing.
Geographic Information System (GIS)	An array of technological tools for the management, analysis and display of spatial data that can provide evidence-based information to support biodiversity impact assessment and natural resource management (Office of the Planning Regulator, n.d.).
High Water Mark (HWM)	Level reached by the sea at high tide, measured as the mean of high tides.
Impact	A change brought about by the Proposed Works.
Inshore fishery	Fishing activity undertaken close to the coast, typically by smaller vessels and often focused on shellfish species.
Inter-array cables	Subsea power lines that link individual wind turbine generators (WTGs) together in an offshore wind farm, forming an electrical network. In ABWP Phase I, inter-array cables connect WTGs and the met mast to each other and have an overall length of 7.4 km.
International Council for the Exploration of the Seas (ICES) statistical rectangles	ICES standardise the division of sea areas to enable statistical analysis of data. Each ICES statistical rectangle is '30 min latitude by 1 degree

Term	Meaning
	longitude' in size (approximately 30 nm x 30 nm). A number of rectangles are amalgamated to create ICES statistical areas.
Landfall	The point where the offshore export cable transitions from the offshore marine environment to the onshore terrestrial environment.
Landings	Quantitative description of the amount of fish returned to port for sale, in terms of value or weight.
Meteorological (Met) mast	A mast with a number of meteorological sensors located at different heights to record meteorological and sea condition data
Monitoring	The periodic or continuous observation of biodiversity indicators and of other parameters that may affect biodiversity for any changes that may occur over time, so as to confirm predictions made with respect to likely effects and identify adverse changes that may require remedial action (Office of the Planning Regulator, n.d.).
Monopile (MP)	Hollow steel cylinder driven into the seabed typically used to anchor an offshore wind turbine generator (WTG). In ABWP Phase I, MPs support the seven WTGs as well as the meteorological (met) mast.
Nautical mile (nm)	Measurement used for distances at sea. 1 nm equates to 1.852 km.
Offshore export cable	Subsea power cable that transports the total generated power from an offshore wind farm to the onshore power grid. In ABWP Phase I, the offshore export cable connects the wind turbine generator (WTG) T4 to landfall with an approximate overall length of 15.6 km. At landfall, the offshore export cable transitions to the onshore cable connecting to the onshore substation.
Offshore Site	Part of the Site where Proposed Works Offshore are proposed to take place. In this application for planning permission, the Offshore Site comprises the Sub Lease Area, where the ABWP Phase I wind turbine generators (WTGs), met mast and inter-array cables are located, and the offshore export cable 10 m corridor connecting WTG T4 to the landfall at high water mark (HWM) near Arklow Harbour.
Onshore cable	Land-based portion of the power cable that transports the total generated power from an offshore wind farm to the onshore power grid. In ABWP Phase I, the onshore cable connects the landfall point at HWM to the onshore substation building.
Onshore substation compound	Fenced compound that hosts the onshore substation building and ancillary facilities, including the 38 kV transformer.
Pelagic species	Pelagic fish are species which live and feed within the water column. Includes species such as herring, sprat and mackerel.
Pelagic trawl	Mid-water trawl gear used to target shoaling pelagic species such as sprat and herring.
Planning permission	Formal, legal approval required from a local planning authority or An Coimisiún Pleanála (ACP) to carry out development. The Proposed Works require planning permission submitted from ACP under Section 291 of the Planning and Development Act 2000, as amended.
Pots	A general term to describe traps used to catch crabs, lobster, larger species of prawns (e.g. Nephrops) and some molluscs (e.g. whelks and octopus).
Potting	Static gear fishery using baited pots or creels to target shellfish species such as whelk, lobster and brown crab.
Proposed Works	The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).
Receptor	Any element in the environment which is subject to impacts (EPA, 2022).
Scallop dredge	A rigid dredging gear towed along the seabed to target king scallop or queen scallop.
Sensitivity	The potential of a receptor to be significantly affected (EPA, 2022).
Scour protection	Engineered barrier typically placed on the seabed around WTG foundations and subsea cables to prevents sediment erosion caused by

Term	Meaning
	accelerated water currents and waves, safeguarding the WTG's stability and protecting subsea cables. In ABWP Phase I, scour protection was originally introduced in the form of rock armour, however, this proved ineffective, and was removed in 2005. Since then, scour protection has been introduced through sandbags.
Shellfish	Within the context of commercial fisheries and aquaculture, shellfish is considered a generic term to define molluscs and crustaceans; fish with a hard outer case or shell.
Significance	The importance of the outcome of the impact (or the consequence of change) for the receiving environment (EPA, 2022).
Sound	The terms noise and sound are often used interchangeably. Sound is a broad term that refers to any auditory experience created by vibrations that travel through a medium such as air, water, or solids to the ear.
Static gear	Any form of fishing gear that operates without being towed or moved through the water (i.e. crustaceans pots, long lines, set nets, traps).
Sub Lease Area	Area where the ABWP Phase I WTGs, met mast and inter-array cables are located, as defined in the Sub Lease granted by Sure Partners Limited (SPL) to Arklow Energy Limited (Arklow Energy) to construct and operate ABWP Phase I.
Territorial sea	Belt of sea adjacent to a coastal State's land territory and internal waters, over which the State has sovereignty. A coastal State may claim up to 12 nautical miles from its baseline (usually the low-water line along the coast) (UNCLOS, 1982).
Transition Piece	The steel connection structure between the tower and the monopile (MP) foundation.
Vessel Monitoring System (VMS)	A satellite-based monitoring system used to track the activity of larger vessels and assess spatial fishing effort.
Whelk	The common whelk (*Buccinum undatum*), the principal shellfish species identified as commercially important within the Commercial Fisheries and Aquaculture Study Area.
Wind Turbine Generator (WTG)	Structure that converts the kinetic energy of ocean winds into electrical energy. ABWP Phase I includes seven GE Energy 3.6s WTGs with a rated capacity of 3.6 megawatts (MW) per WTG.

Acronyms

Acronym	Meaning
ABWP	Arklow Bank Wind Park
ABWP Phase I	Arklow Bank Wind Park Phase I
AIS	Automatic Identification System
BIM	Bord Iascaigh Mhara
CFP	Common Fisheries Policy
DAFM	Department of Agriculture, Food and the Marine
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMSA	European Maritime Safety Agency
EPA	Environmental Protection Agency
EU	European Union
EU DCF	European Union Data Collection Framework
FLO	Fisheries Liaison Officer
GIS	Geographic Information System

Acronym	Meaning
HWM	High Water Mark
ICES	International Council for the Exploration of the Sea
IEMA	Institute of Environmental Management and Assessment
MCRS	Minimum Conservation Reference Size
MI	Marine Institute
MLS	Minimum Landing Size
MMO	Marine Management Organisation
OMF	Operations and Maintenance Facility
OSP	Offshore Substation Platform
SFPA	Sea-Fisheries Protection Authority
SMEFF	Sustainable Management of External Fishing Fleets
TAC	Total Allowable Catch
TCA	Trade and Cooperation Agreement
UK	United Kingdom
UNCLOS	United Nations Convention on the Law of the Sea
VMS	Vessel Monitoring System
WTG	Wind Turbine Generator

Units

Unit	Meaning
%	Per cent
°C	Degrees Celsius
€	Euro
h	Hour
hp	Horsepower
kg	Kilogram
km	Kilometre
km²	Square kilometre
kWdays	Kilowatt-days
m	Metre
m²	Square metre
mm	Millimetre
MW	Megawatt
nm	Nautical mile
t	Tonne
yr	Year

EXECUTIVE SUMMARY

Arklow Energy Limited (Arklow Energy) is seeking planning permission to decommission Arklow Bank Wind Park Phase I (ABWP Phase I) (referred to hereafter as 'the Proposed Works'). The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).

This Commercial Fisheries and Aquaculture Technical Report has been prepared to inform the Environmental Impact Assessment Report (EIAR) by characterising the existing commercial fisheries and aquaculture environment relevant to the Proposed Works Offshore and identifying the fisheries receptors that may need to be considered in the EIAR.

The assessment is based on a desk-based review of quantitative and qualitative information. Data sources include fisheries landings statistics, Vessel Monitoring System (VMS) data, automatic identification system (AIS) route density data, Marine Institute mapping of inshore fishing grounds, published literature and project-specific consultation information provided through the active Fisheries Liaison Officer (FLO). The Commercial Fisheries and Aquaculture Study Area focuses on the local commercial fisheries area represented by International Council for the Exploration of the Seas (ICES) rectangles 34E3 and 34E4, supported by wider regional information for the Irish Sea where relevant.

The baseline review shows that the most important local fishery is potting, particularly for whelk. Inshore potting grounds are extensive along the Wicklow and Arklow coast, with overlap identified mainly in relation to the offshore export cable route rather than the Sub Lease Area (where wind turbine generators (WTGs), met mast, scour protection and inter-array cables are located). Lobster and brown crab fisheries are also present but are more spatially limited than the whelk fishery.

Other fisheries occur in the wider region with varying intensity. Dredging is relevant regionally, particularly for king scallop grounds further south and for inshore seed mussel activity closer to the coast. Demersal otter trawl, beam trawl and pelagic trawl activity are present within the wider Irish Sea, but the area within and around the Proposed Works Offshore do not appear to represent a core fishing ground for these metiers. Instead, the evidence suggests that the inshore area between the Sub Lease Area and the coast is more important as a transit route for fishing vessels, particularly in relation to the offshore export cable route and access to local ports such as Wicklow and Arklow.

Landings data for the period 2020 to 2024 indicate that fishing activity relevant to the local area supports a number of ports, notably Arklow, Wicklow, Courtown, Dún Laoghaire, Howth, Wexford and Kilmore Quay. Trends vary between ports, with some showing declining landed weight or first sales value and others remaining more stable. These differences reflect not only changes in fishing activity but also market conditions, species composition and vessel landing behaviour. Whelk remains a key commercial species in the local Commercial Fisheries and Aquaculture Study Area, with the report identifying it as the principal fishing activity within rectangles ICES 34E3 and 34E4.

The report also identifies one aquaculture receptor of relevance: a licensed mussel seed farm off Arklow, approximately 4.5 km from the closest point of the offshore export cable route. This site is therefore part of the receiving environment for the commercial fisheries and aquaculture assessment.

A number of data limitations are acknowledged. In particular, official datasets under-represent smaller vessels, especially those under 10 m or 12 m in length, and spatial datasets such as VMS and AIS do not fully capture inshore activity. Confidentiality screening also limits the granularity of some landings datasets. However, when the range of available datasets is considered together with consultation evidence and professional judgement, the report concludes that the available evidence is sufficient to characterise the baseline environment for the purposes of the EIAR.

Overall, the baseline indicates that the receptors of greatest relevance to the Proposed Works Offshore are local Irish potting vessels targeting whelk, crab and lobster; inshore dredging associated with mussel seed activity; and the nearby licensed mussel seed aquaculture site. It is noted that fishing vessels transiting through the coastal corridor are considered within **Volume 2,**

Chapter 7: Shipping and Navigation. The Sub Lease Area itself appears to be of lower importance than the inshore corridor in fisheries terms, while the offshore export cable route has greater relevance because of overlap with inshore fisheries, notably whelk potting.

1 INTRODUCTION

1.1 Overview

1.1.1.1 Arklow Energy Limited (Arklow Energy) is seeking planning permission to decommission Arklow Bank Wind Park (ABWP) Phase I (referred to hereafter as 'the Proposed Works'). The Proposed Works include decommissioning of ABWP Phase I offshore infrastructure (Proposed Works Offshore) and decommissioning of ABWP Phase I onshore infrastructure (Proposed Works Onshore).

1.1.1.2 The information on commercial fisheries activity presented in this report is intended to inform the Environmental Impact Assessment Report (EIAR) for the Proposed Works, by providing a detailed understanding of the commercial fisheries baseline, against which the potential impacts of the Proposed Works can be assessed. An overview of the information presented in this technical report is provided in **Volume 2, Chapter 6: Commercial Fisheries and Aquaculture** of the EIAR.

1.1.1.3 Commercial fisheries activity described in this report, is defined as fishing activity legally undertaken where the catch is sold for taxable profit.

1.2 Report Structure

1.2.1.1 This report is structured as follows:

- Section 1 (Introduction) introduces the report and outlines its purpose;
- Section 2 (Methodology) presents the methodology and data sources applied to characterise the baseline environment;
- Section 3 (Baseline environment for commercial fisheries) presents the characterisation of the existing environment for the commercial fisheries assessment;
- Section 4 (Baseline environment for aquaculture) presents the characterisation of the existing environment for aquaculture;
- Section 5 (Future baseline environment) presents the characterisation of the future baseline environment;
- Section 6 (Data limitations and uncertainties) describes the limitations of each data source analysed, ranking the level of uncertainty;
- Section 7 (Summary) summarises the findings of this report; and,
- Section 8 (References) provides a detailed bibliography for the data sources, scientific papers and information reviewed within this report.

1.3 Experience

1.3.1 Nima Consultants Ltd

1.3.1.1 NiMa Consultants Ltd are marine environmental consultants working globally to provide advice in support of sustainable fisheries and aquaculture, marine planning and offshore renewable energy. NiMa provides high quality outputs and solutions across a range of fisheries and marine environmental projects, delivered by a core team of two experts: Fiona Nimmo and Sarah MacNab, who together combine expert knowledge in commercial fisheries, environmental impact assessments (EIAs) and the energy consenting process.

1.3.1.2 Fiona's qualifications include a B.Sc. Marine Biology (First Class Hons), University of Newcastle, United Kingdom (UK) and a B.Eng. Chemical Engineering (2:1 Hons), Edinburgh University, UK. Sarah's qualifications include a Pg Cert Environmental Management, Chartered Institution of Water and Environmental Management, UK; MSc Tropical Coastal Management (Distinction), Newcastle University, UK; and BA Geography (First Class Honours), University of Nottingham, UK.

1.3.1.3 The NiMa team bring a full understanding of the methodology and best practice for undertaking commercial fisheries impact assessments globally. This includes a keen

knowledge of guidance related to undertaking impact assessment for commercial fisheries, including leading the development of "Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments" for the UK Fisheries Economic Network (UKFEN) and Seafish.

1.3.1.4 In Irish waters, the NiMa team are currently providing commercial fisheries expertise to Arklow Bank Wind Park 2 EIAR (SSE Renewables), Dublin Array Offshore Wind Farm Project (RWE and Saorgus Energy), Codling Wind Park (Fred Olsen Seawind and EDF power solutions) and North Irish Sea Array (NISA Ltd), as well as the Proposed Works.

1.3.1.5 The NiMa team have extensive experience in leading every stage for the commercial fisheries elements of consent applications for nationally significant offshore wind farm projects in the UK. This includes projects in the North Sea (Neart na Gaoithe, Hornsea One, Two, Three and Four; Dudgeon and Sheringham Shoal Extension Projects), the English Channel (Rampion 2) and the Irish Sea (Awel y Môr Offshore Wind Farm). Since 2010, NiMa staff member Fiona has been engaged on Hornsea projects on the east coast of England, where our expertise was brought to every stage of the consenting process involving scoping, fisheries liaison plan production, UK and European wide fishing industry consultation, Environmental Statement chapter and technical appendix preparation, development of Statements of Common Ground and acting as expert witness during examination process. NiMa are also engaged in providing equivalent services to a number of other newly identified and extension offshore wind farm projects in UK and Irish waters.

1.3.1.6 NiMa also supports developers in meeting post-consent compliance requirements; for example, for the Neart na Gaoithe Offshore Wind Farm in Scottish territorial waters we prepared a fisheries mitigation and management plan, inputted to commercial negotiations with fishermen, and are undertaking an ongoing programme of commercial fisheries monitoring. Our work requires sound understanding of fish and shellfish ecology, the status of commercial stocks and patterns of fishing activity.

2 METHODOLOGY

2.1 Approach

2.1.1.1 This technical report has been developed following a desk-based assessment of data and literature. Landings statistics have been analysed using Excel; and Vessel Monitoring System (VMS) data have been evaluated using ArcPro Geographic Information System (GIS) software.

2.1.1.2 This quantitative data has been supplemented with qualitative information gained through direct consultation with the fishing industry facilitated through the active Fisheries Liaison Officer (FLO), see **Stakeholder Consultation and Engagement Report** submitted in support of the application for planning permission.

2.1.1.3 The qualitative information referred to within this report also includes evidence collated through consultation undertaken as part of the ABWP Phase II application, as presented in the ABWP Phase II EIAR, with continuity provided through the appointment of the same FLO for both projects.

2.2 Study Area

2.2.1.1 The Offshore Site, where the Proposed Works Offshore will take place, is located within the south-western portion of the International Council for the Exploration of the Sea (ICES) Division 7a (Irish Sea) statistical area, which is located within Irish Exclusive Economic Zone (EEZ) waters. The Offshore Site is located inside the 12 nautical mile (nm) territorial seas limit. For the purpose of recording fisheries landings, ICES Division 7a is divided into statistical rectangles which are consistent across all European Union (EU) member states operating in the Irish Sea.

2.2.1.2 The Offshore Site is located within ICES rectangles 34E3 and 34E4, which represents the Commercial Fisheries and Aquaculture Study Area (**Figure 2.1**); note that the Offshore Site occupy only a portion of these ICES rectangles.

2.2.1.3 While landings statistics data analysis has focused on the Commercial Fisheries and Aquaculture Study Area, a wider scale has been presented for spatial activity, including VMS and automatic identification system (AIS) dataset.

2.2.1.4 In relation to key fishing ports, it is noted that Arklow, Wicklow and Courtown are located within the Commercial Fisheries and Aquaculture Study Area; Dún Laoghaire and Howth are north of the Commercial Fisheries and Aquaculture Study Area; and Wexford and Kilmore Quay are south.

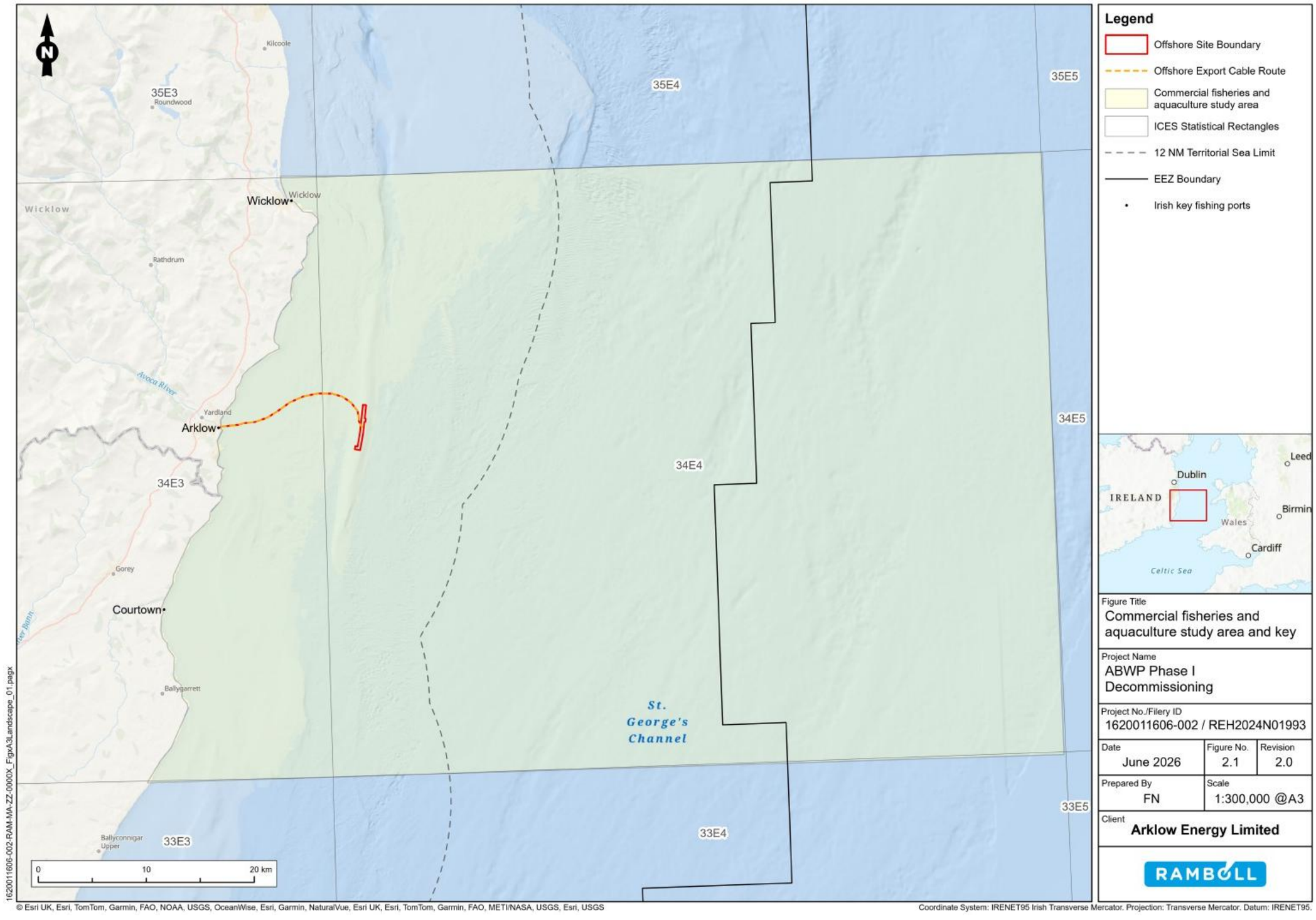


Figure 2.1: Commercial Fisheries and Aquaculture Study Area, indicating key Irish ports

2.3 Data Sources

2.3.1.1 A range of data sources has been analysed and presented within this report, and these are listed in **Table 2.1**. Each data source provides information for a specific set of parameters dependant on the geographic scope, target species and method of recording the data.

2.3.1.2 Data has been sourced from the Irish Sea Fisheries Protection Agency (SFPA), Bord Iascaigh Mhara (BIM; Ireland's Seafood Development Agency), the Marine Institute and the European Maritime Safety Agency (EMSA).

2.3.1.3 Where data sources allow, a five-year trend analysis has been undertaken, using the most recent annual datasets available at the time of writing (April 2026).

2.3.1.4 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. Of particular note is the Marine Institute (2017) Shellfish Atlas, the Marine Institute and BIM (2019) Shellfish Stocks and Fisheries Review and the Marine Institute (2020 and 2022) Stock Book. Information on fishing activity across the Offshore Site has also been provided by the onshore FLO.

2.3.1.5 A full description of the associated data limitations is provided within **Section 6**.

Table 2.1: Data sources used to inform this report

Country	Data	Time period	Source
Landing statistics			
Ireland	Landing statistics data for Irish-registered vessels, with datasets for: year (2020-2024), weight of landing (tonnes) and first sales value (€) and either: Port of landing; or Species	2020-2024	SFPA
Ireland	Landings statistics data for Irish-registered vessels, with data query attributes for: species, weight of landing (kg) and first sales value (€) at the following geographic scales: All ICES divisions Irish Sea (7a) indicating port of landing Irish Sea (7a) indicating ICES rectangle of catches	2015 to 2021	SFPA
Spatial data and Vessel Monitoring System (VMS) data			
All Europe	Fishing vessel effort data indicating annual average MW fishing hours for EU vessels ≥12 m length by gear type.	2021 to 2024	ICES
All Europe	Fishing vessel route density, based on vessel AIS positional data. AIS is required to be fitted on fishing vessels ≥15 m length.	2019 to 2022	EMSA
Ireland	Fishing vessel effort data indicating high and low fishing effort. The data are available for all EU vessels of 12m and larger, operating inside the Irish EEZ; outside this zone only Irish VMS data are routinely available within the data sets.	2014 to 2018	Marine Institute
Ireland	Polygon data indicating fishing grounds for Irish vessels operating inshore.	Undefined	Marine Institute

3 BASELINE ENVIRONMENT FOR COMMERCIAL FISHERIES

3.1 Fishing Access

3.1.1.1 Commercial fishing in Irish waters is subject to a range of controls and regulations at European, national and regional levels.

3.1.1.2 At the European level, fishing is regulated through the Common Fisheries Policy (CFP). In Ireland, the SFPA is the competent authority for seafood safety and fisheries protection and is responsible for the implementation and enforcement of national fisheries management actions as well as EU fisheries legislation.

3.1.1.3 In general terms, within the Irish 12 nm limit, only Irish registered vessels have access to fishing. However, vessels from specific foreign nations are allowed access to the 6 to 12 nm zone dependent on historic rights relating to specific fisheries. In the vicinity of the Offshore Site, access to the 6 to 12 nm limit by foreign vessels is restricted to vessels from France (for all species except shellfish). The UK historically had access (for demersal finfish, pelagic finfish and shellfish species); however, due to the UK exit from the EU, additional authorisation is required for reciprocal access for each vessel. Specifically, the Voisinage Arrangements between Ireland and Northern Ireland (currently provided for by the Sea-Fisheries (Amendment) Act 2019) has provided reciprocal fishing access for fishing vessels owned and operated in Northern Ireland to fish in the Irish 0-6 nm zone (Revenue, 2020). The Arrangements are preserved in the EU-UK Trade and Cooperation Agreement by Article FISH.19: Relationship with other agreements. However, access to fish in the 0-6 nm zones requires prior authorisation. Northern Irish registered sea-fishing boats must meet the requirements set out in the UK Fisheries Acts and the EU sustainable management of external fishing fleets (SMEFF) Regulation (2017/2403) and seek authorisation to operate within the Irish 0-6 nm zone.

3.2 Spatial Footprint of Fishing Activity

3.2.1.1 This section presents the spatial mapping data and information available to inform the location and intensity of fishing across the Commercial Fisheries and Aquaculture Study Area, and, where available, at a wider spatial scale. The key Irish fishing ports in the Commercial Fisheries and Aquaculture Study Area are shown in **Figure 2.1**. VMS data were obtained from three different sources with varying levels of detail:

- Marine Institute Irish vessel VMS data, indicating fishery effort by gear type amalgamated across the period 2014 to 2018 (which is the latest data available from the Marine Atlas), and available for all EU vessels of 12 m and over operating within the Irish EEZ, while outside this zone only Irish VMS data are routinely available;
- Marine Institute inshore fishery mapping for vessels under 15 m in length targeting various shellfish species; and
- ICES EU fishing vessel effort data indicating annual average MW fishing hours for EU vessels ≥12 m length by gear type, providing annual average data for 2021 to 2024.

3.2.2 Potting

3.2.2.1 The potting activity shown in **Figure 3.1** and **Figure 3.2** indicate that potting is the most important inshore fishery in the local area, with the spatial footprint dominated by whelk grounds. The inshore mapping shows extensive whelk grounds along the coast from north of Wicklow south past Arklow and into the wider nearshore area, while lobster and crab grounds appear much more limited and concentrated in a small area off Wicklow. In relation to the Offshore Site, these mapped grounds show that potting activity is focused inshore and that there is overlap of whelk fishing grounds with the offshore export cable route, whereas the Sub Lease Area lies largely outside the core inshore potting grounds.

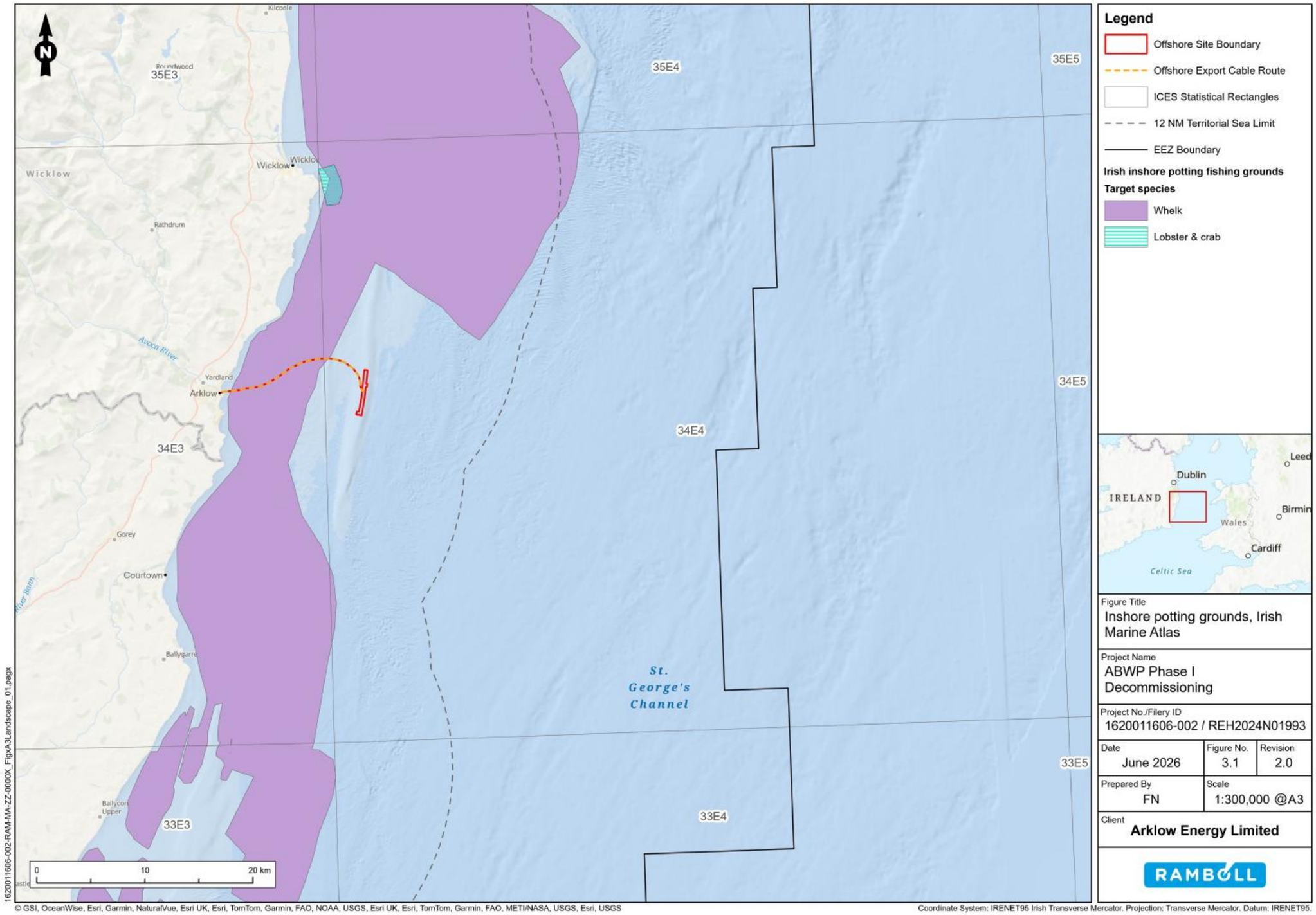


Figure 3.1: Inshore potting grounds, Irish Marine Atlas

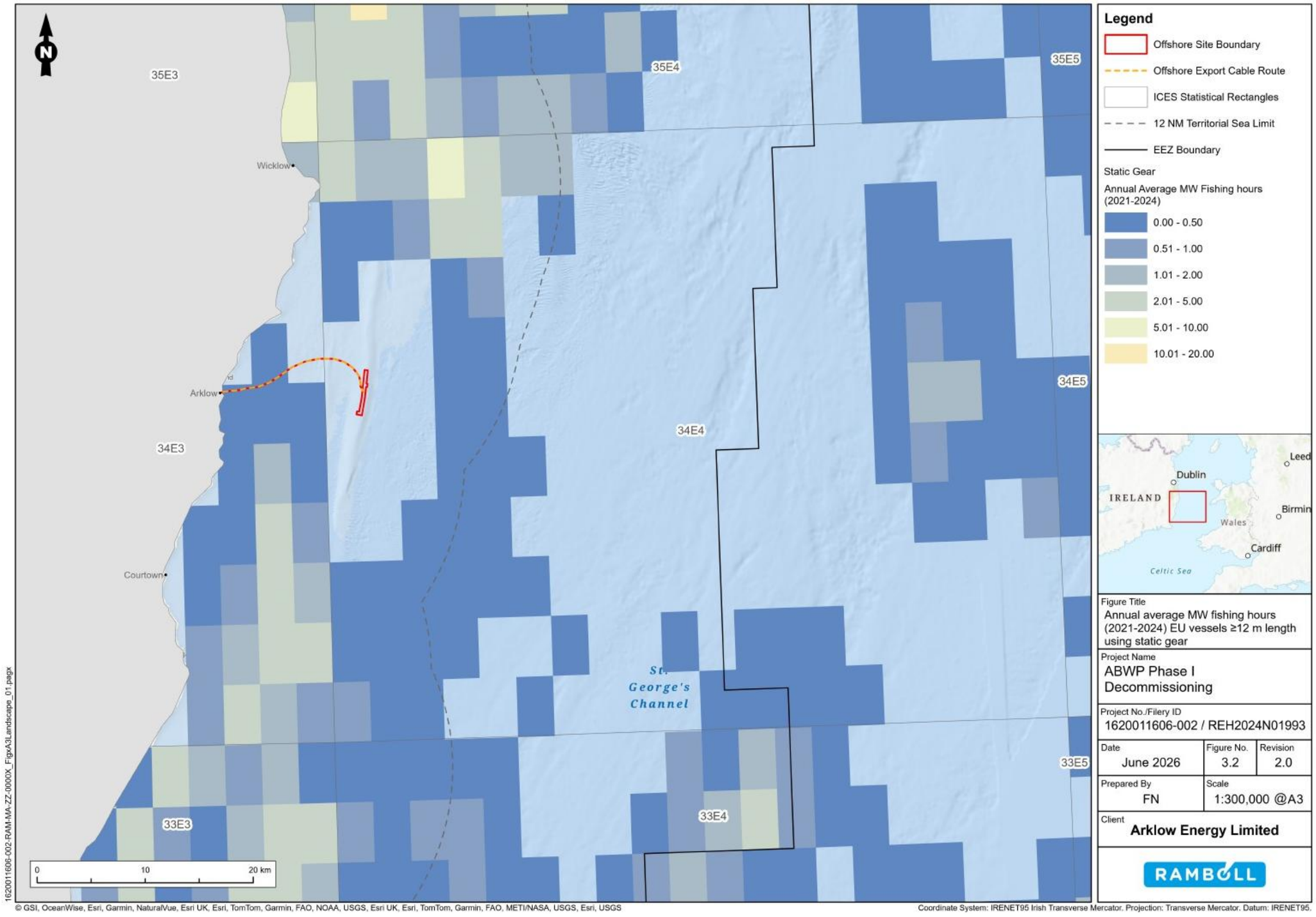


Figure 3.2: Static gear fishing effort indicating average annual fishing hours from 2021 to 2024 for EU vessels 12 m and over in length (ICES, 2026)

3.2.2.2 The VMS potting (**Figure 3.3**) for vessels 12 m and over shows only limited activity in the immediate vicinity of the Offshore Site, with the more pronounced clusters located to the north off Wicklow and further south in St George's Channel. It is noted that VMS data tend to under-represent the local potting fleet because most vessels active in the area are under 12 m, and therefore the inshore mapping is more representative. Overall, **Figure** 3.1**, Figure 3.2** and **Figure 3.3** indicate that potting activity is primarily an inshore receptor, particularly relevant to the offshore export cable route.

3.2.3 Inshore Netting

3.2.3.1 The inshore netting **Figure 3.4** indicates a very limited spatial footprint in the local area. Only a small discrete area of mixed demersal static netting grounds is mapped off Wicklow, approximately 14 km north of the Offshore Site, with no mapped netting grounds shown across the Sub Lease Area or the offshore export cable route. This suggests that inshore netting is a minor activity in the context of the Commercial Fisheries and Aquaculture Study Area when compared with potting and some mobile gear fisheries.

3.2.3.2 In spatial terms, **Figure 3.4** suggests that inshore netting is locally confined and does not form a key component of fishing activity across the Offshore Site footprint itself. The absence of mapped netting grounds within the Offshore Site and along the offshore export cable route area indicates that this métier (see **Section 3.5.1**) is unlikely to be a defining feature of the baseline fishing footprint in the same way as potting or vessel transit activity.

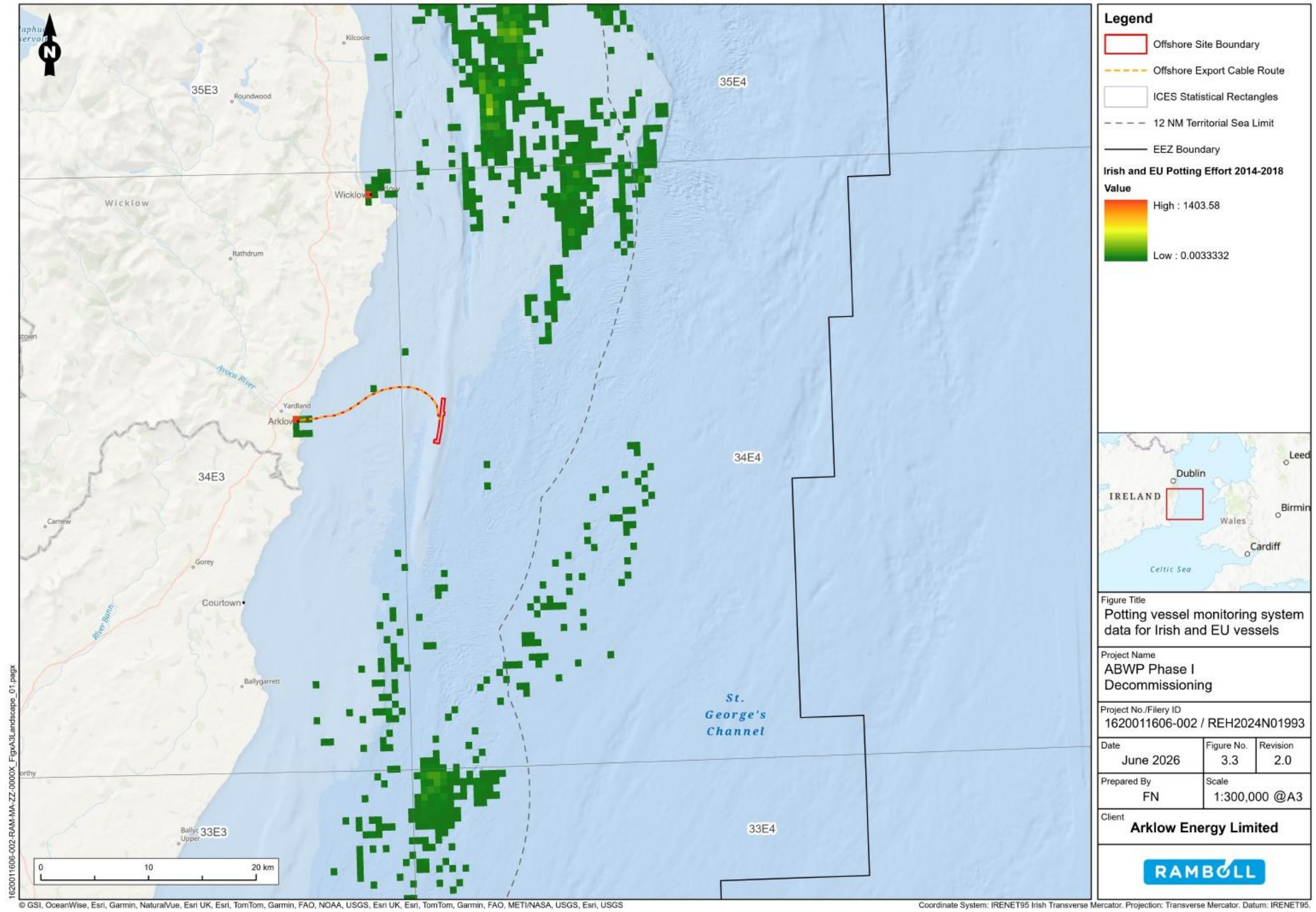


Figure 3.3: Potting vessel monitoring system data for Irish and EU vessels

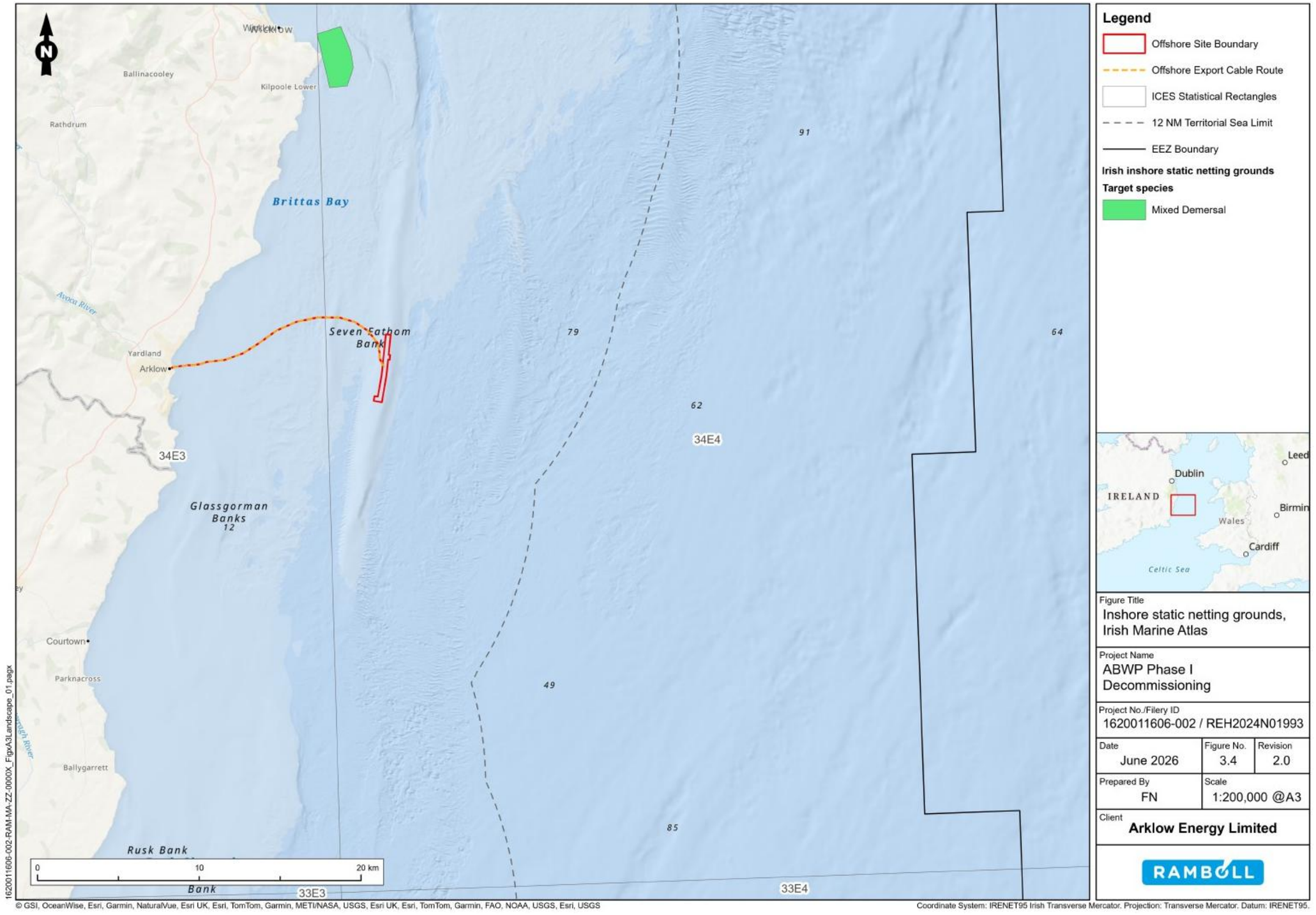


Figure 3.4: Inshore static netting grounds

3.2.4 Dredge

3.2.4.1 The dredge activity in **Figure 3.5** and **Figure 3.6** shows a clear distinction between local inshore dredging and the wider offshore dredge fishery. Inshore dredging includes the mussel seed fishery, with grounds and activity located inshore from the Sub Lease Area and with some overlap with the offshore export cable route. By contrast, the wider VMS dredge data show that the more substantial dredge effort is concentrated further offshore, particularly to the south and southeast of Offshore Site in St George's Channel, rather than within the Sub Lease Area itself.

3.2.4.2 The VMS data shown in **Figure 3.7** and **Figure 3.8** reinforces this pattern, showing established scallop grounds well to the south of the Sub Lease Area and outside the footprint of the Offshore Site.

3.2.4.3 Taken together, the figures indicate that dredging is relevant to the regional baseline but that the main offshore scallop dredge grounds are displaced from the Offshore Site. The more locally relevant dredging interaction is therefore associated with inshore mussel seed activity and the nearshore offshore export cable route, rather than the Sub Lease Area.

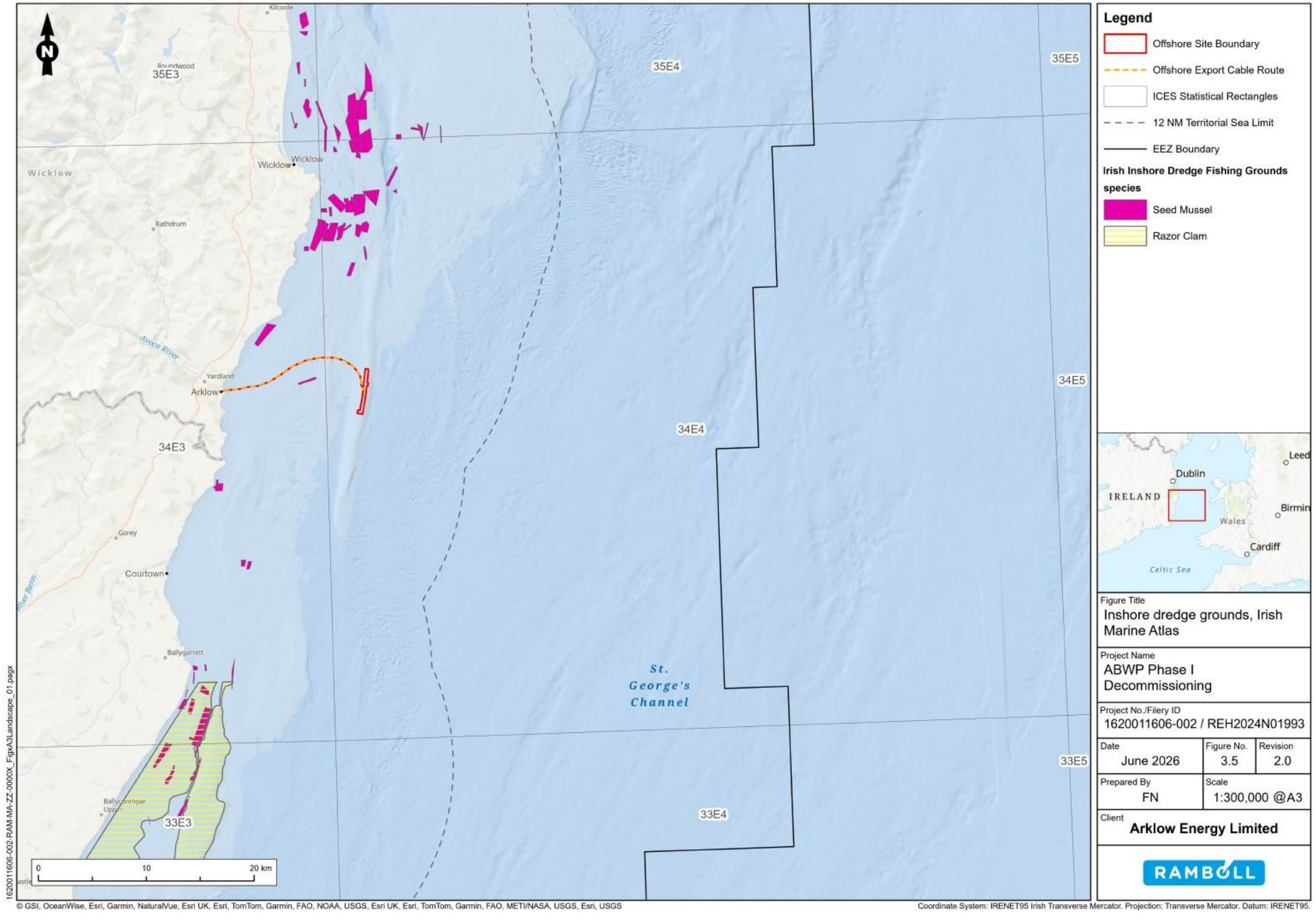


Figure 3.5: Inshore dredge grounds, Irish Marine Atlas

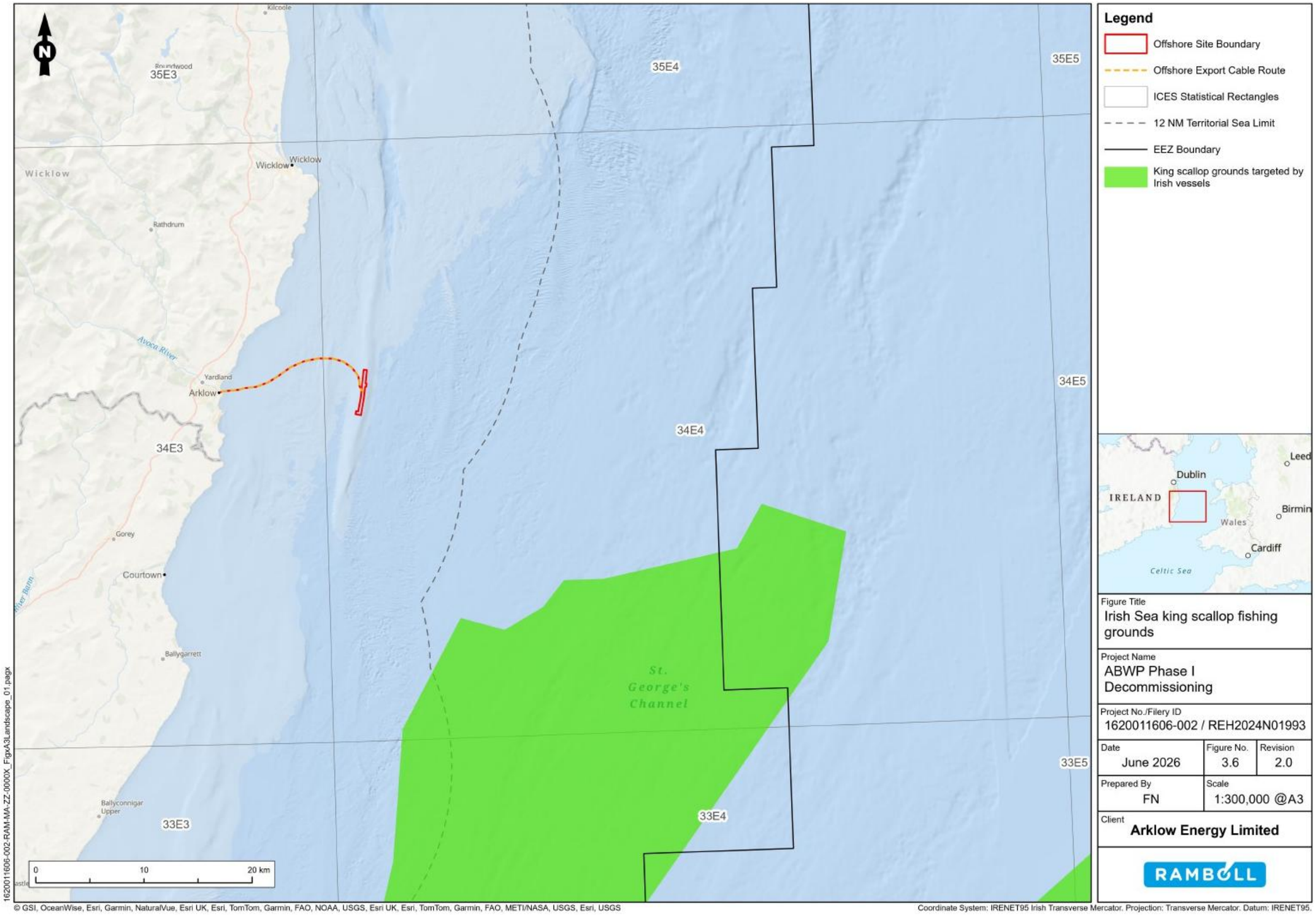


Figure 3.6: Irish Sea king scallop fishing grounds

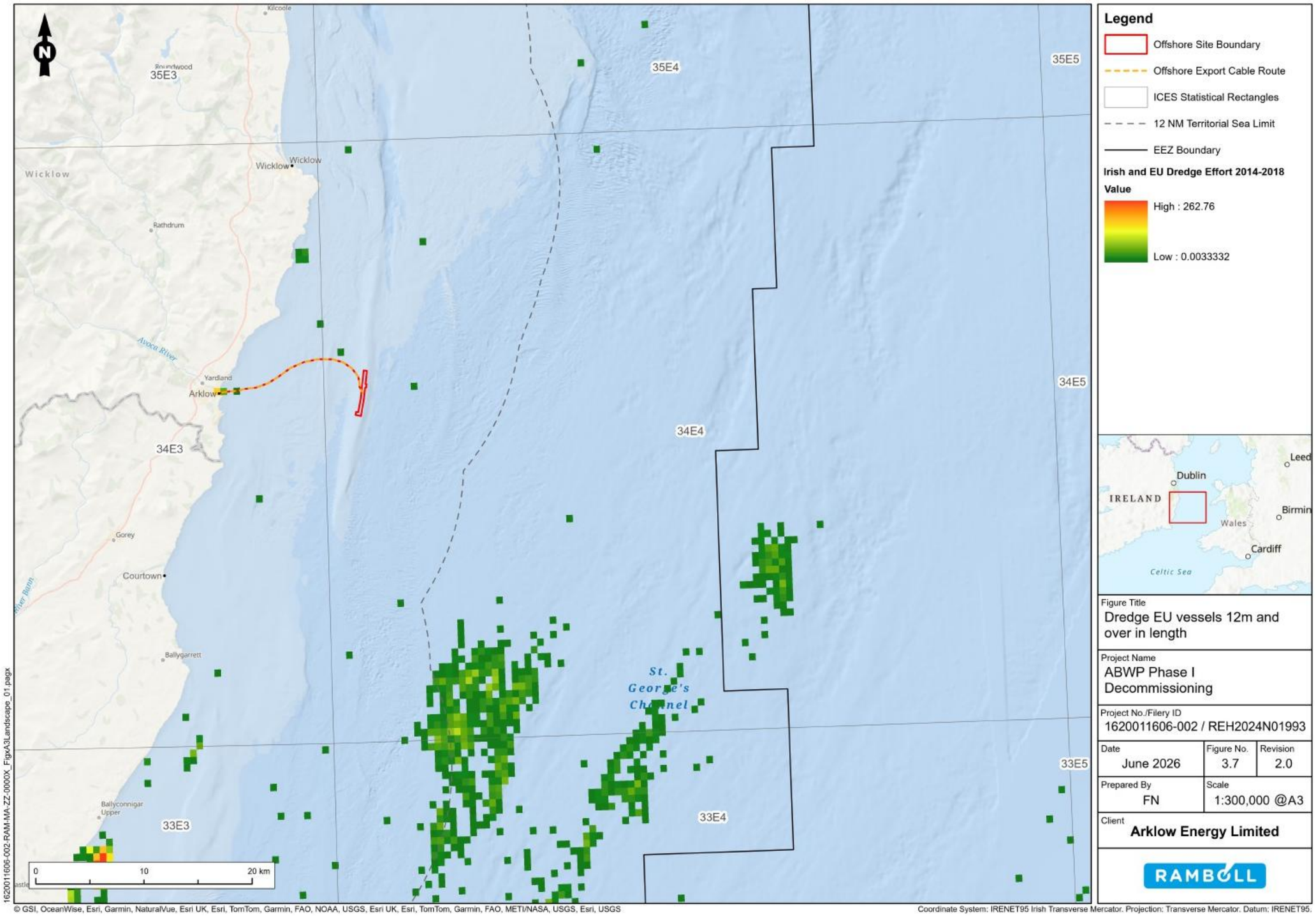


Figure 3.7: Dredge EU vessels 12m and over in length

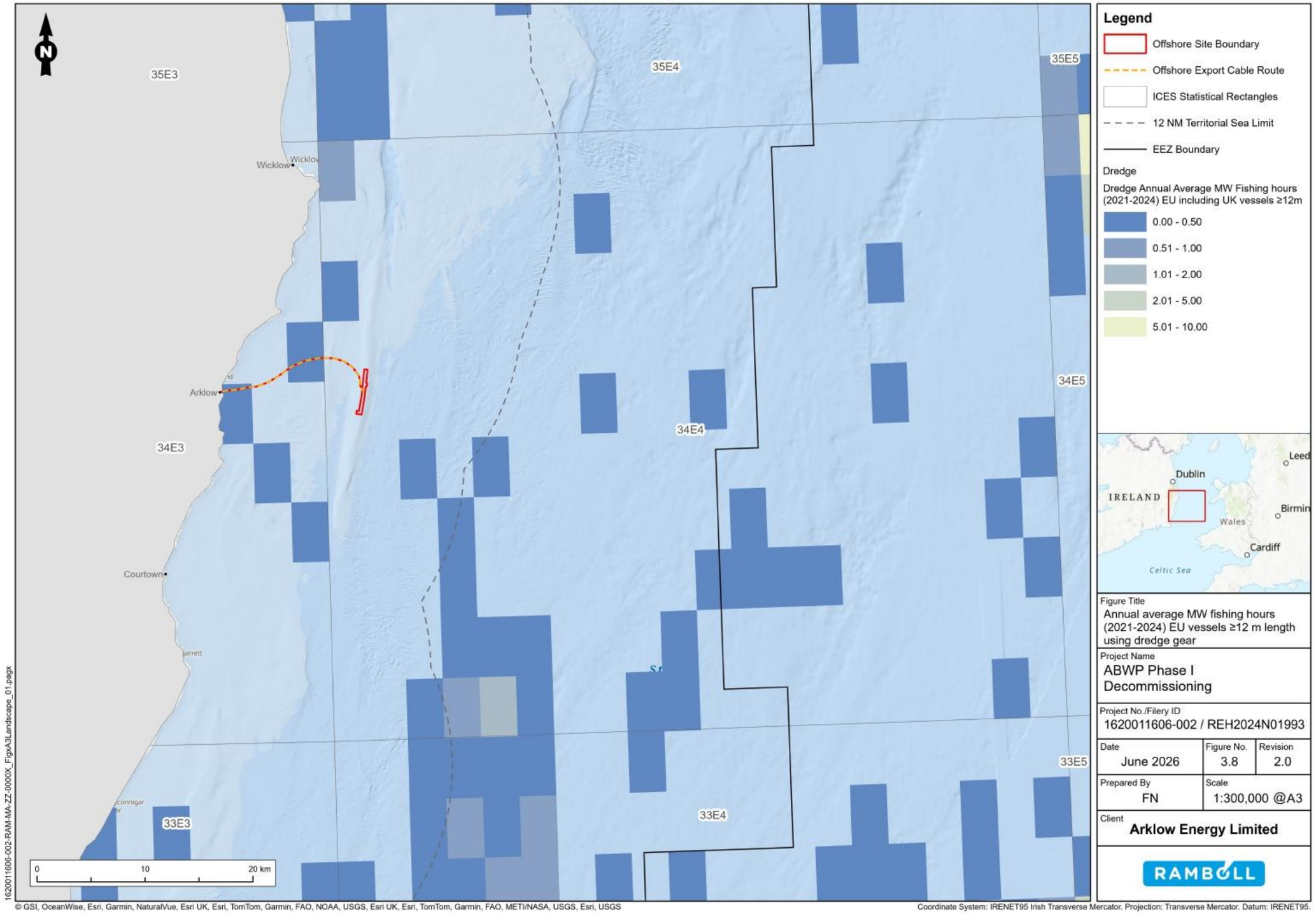


Figure 3.8: Dredge fishing effort indicating average annual fishing hours from 2021 to 2024 for EU vessels 12 m and over in length (ICES, 2026)

3.2.5 Demersal Otter Trawl

3.2.5.1 The demersal otter trawl activity in **Figure 3.9** and **Figure 3.10** shows a scattered pattern of activity across the wider region, with the more distinct concentrations occurring to the northeast and east of the Offshore Site and the wider offshore area. Within and immediately adjacent to the Proposed Works, activity appears relatively limited, with only sparse cells shown near the Offshore Site compared with the more concentrated grounds elsewhere. This may be due to vessel transiting at speeds normally in the range for active fishing, or it could be exploratory fishing activity.

3.2.5.2 The limited inshore activity shown by VMS for mobile gears is likely to reflect vessels transiting through the area at fishing speed rather than actively towing gear. Overall, there is a low to moderate regional presence of demersal otter trawling, but limited evidence that the Offshore Site itself forms a core trawling ground. The main interaction appears to be with vessels operating in the wider offshore area or transiting inshore of the Sub Lease Area.

3.2.6 Beam Trawl

3.2.6.1 Beam trawl activity in

3.2.6.2 **Figure** 3.11 and **Figure 3.12** shows that beam trawling is primarily a regional activity rather than one focused on the Offshore Site. The most prominent concentrations of beam trawl effort occur to the east and northeast of the Sub Lease Area, with particularly notable grounds further offshore and outside the immediate Offshore Site boundary. By comparison, only very limited activity is shown across or close to the Offshore Site itself. The higher levels of activity shown in the VMS data close to port may also be linked to vessels slowing to speeds that are indicative of fishing activity, in VMS terms, as they approach port.

3.2.6.3 Overall, beam trawl vessels form part of the wider regional fishing baseline, but the Offshore Site is not beam trawl fishing ground.

3.2.7 Pelagic Trawl

3.2.7.1 Pelagic trawl activity in **Figure 3.13** and **Figure 3.14** indicates that pelagic trawling is largely associated with the inshore coastal corridor rather than the Arklow Bank sand bank itself. Activity is shown in a narrow band running along the coast between the Wicklow and Arklow area, with some overlap around the offshore export cable landfall and nearshore waters, while very little activity is shown across the Sub Lease Area. This pattern is consistent with a seasonal local fishery for pelagic species such as sprat and herring operating in nearshore waters.

3.2.7.2 The shallow nature of Arklow Bank limits the suitability of the Sub Lease Area for towed fishing gears, particularly for larger vessels. Where pelagic trawling occurs locally it is mainly concentrated inshore and close to the coast, rather than over the bank itself. Accordingly, any interaction with this fleet is more likely to relate to the nearshore section of the offshore export cable corridor than to the Sub Lease Area.

3.2.8 Fishing Vessels Fishing and In Transit

3.2.8.1 The AIS data shown in **Figure 3.15** presents data for fishing vessels both actively fishing and transiting. A strong north to south route corridor for fishing vessels running inshore of the Sub Lease Area and broadly parallel to the coast is evidenced. Route density is highest within this coastal corridor, including around the offshore export cable route, whereas density over the Sub Lease Area itself is much lower. This pattern suggests that the area inshore of the Sub Lease Area functions as an important movement corridor for fishing vessels, particularly those travelling to and from ports such as Wicklow and Arklow, rather than as a core fishing ground in its own right.

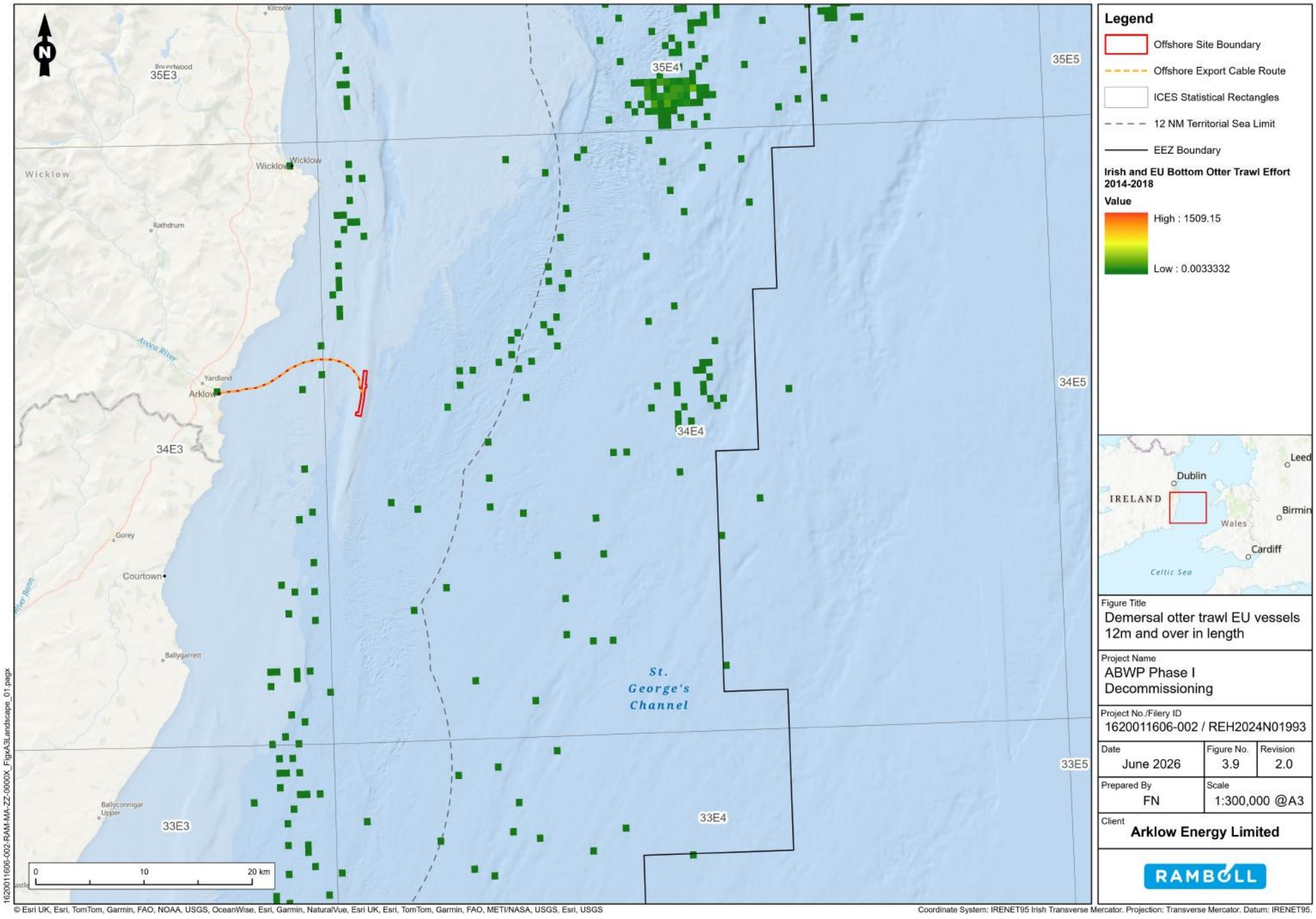


Figure 3.9: Demersal otter trawl EU vessels 12m and over in length

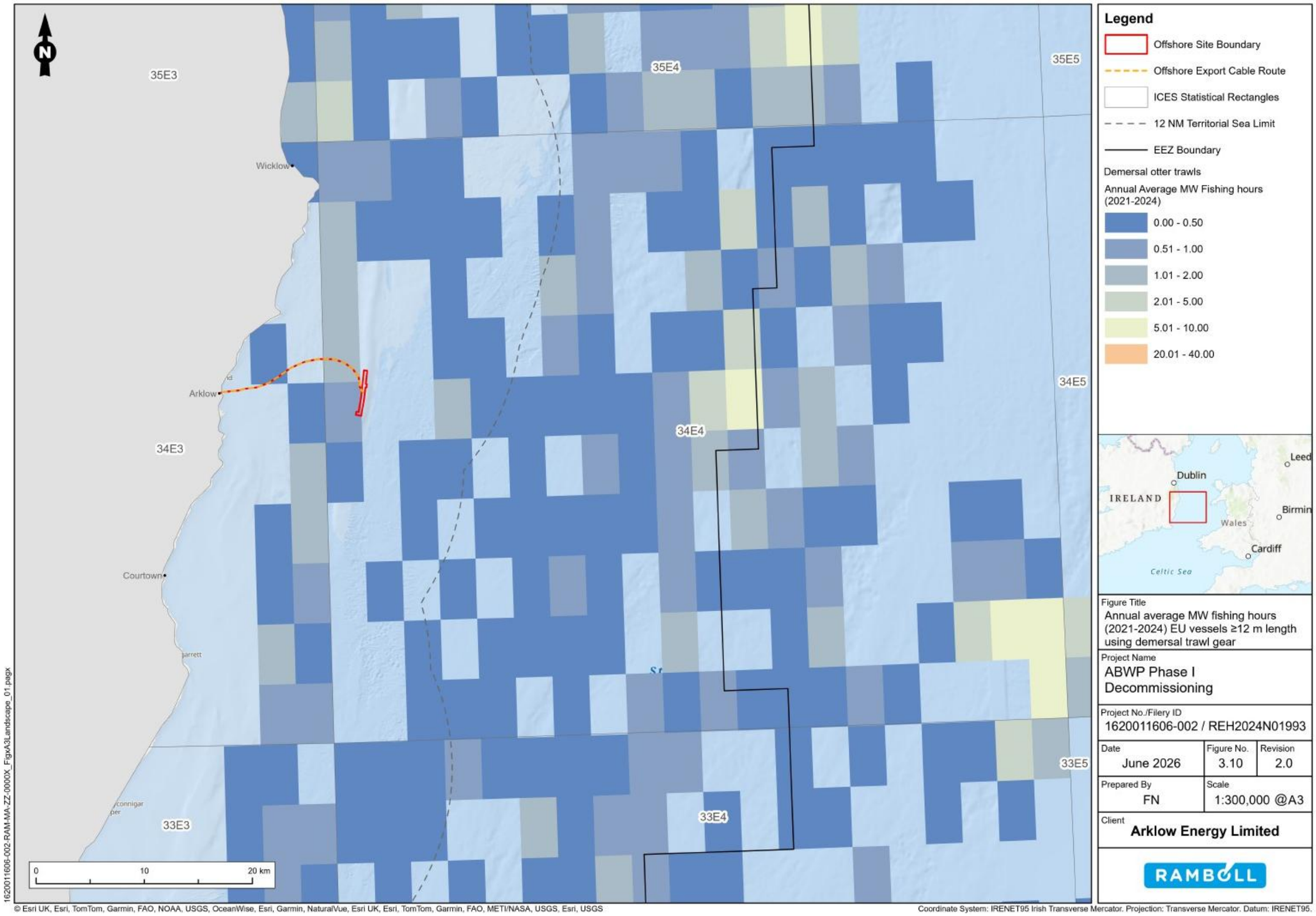


Figure 3.10: Demersal otter trawl fishing effort indicating average annual fishing hours from 2021 to 2024 for EU vessels 12 m and over in length (ICES, 2026)

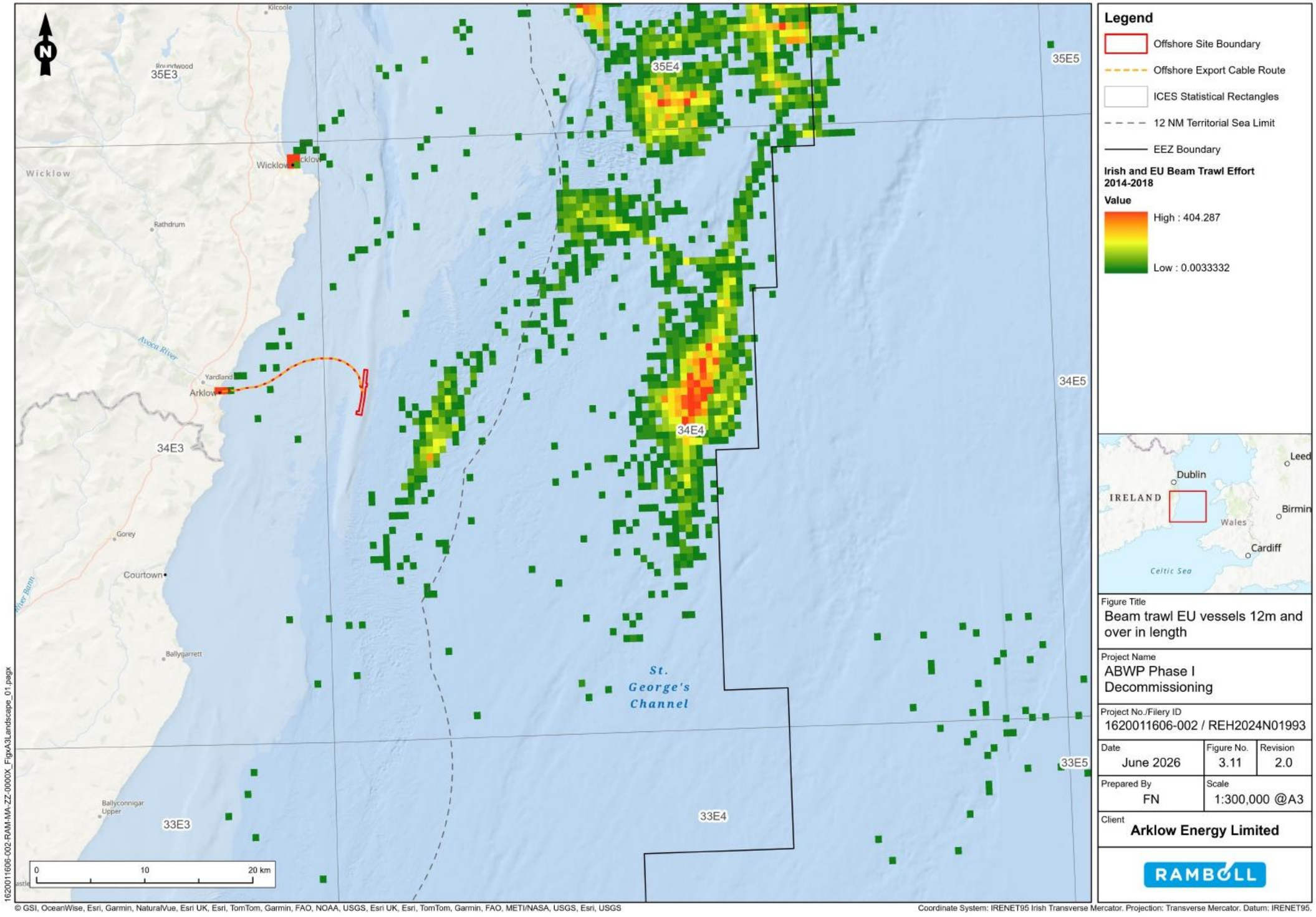


Figure 3.11: Beam trawl EU vessels 12m and over in length

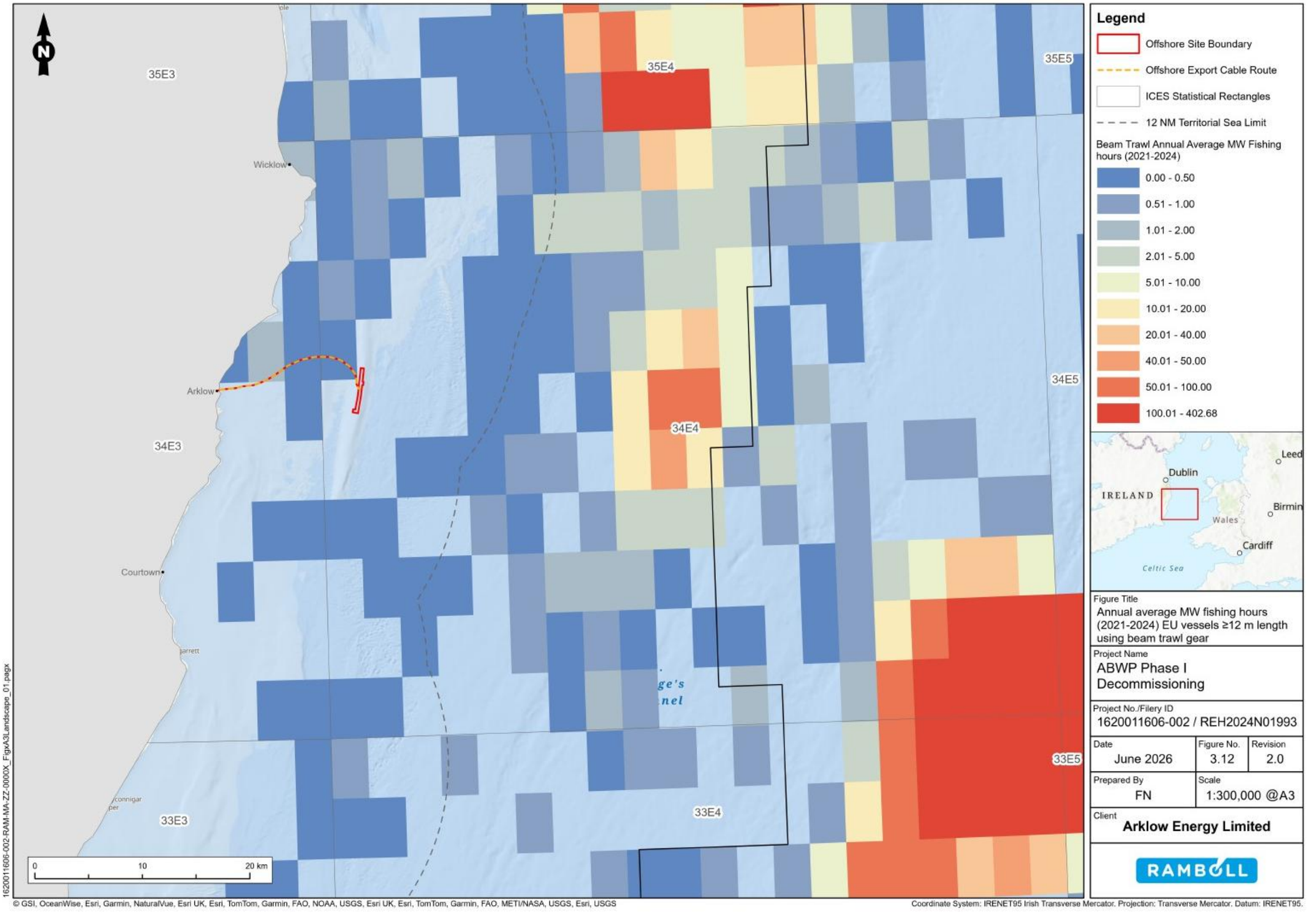


Figure 3.12: Beam trawl fishing effort indicating average annual fishing hours from 2021 to 2024 for EU vessels 12 m and over in length (ICES, 2026)

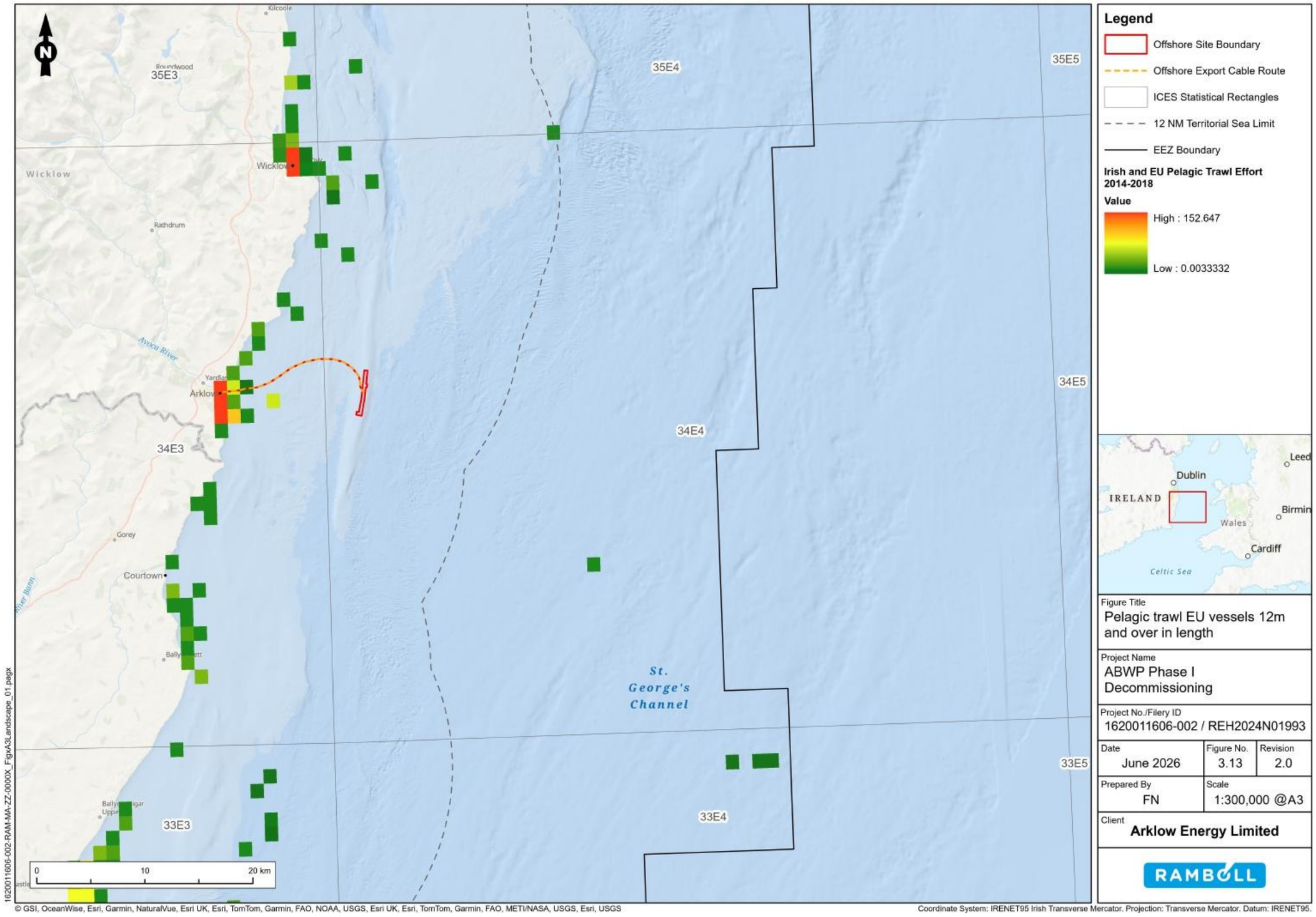


Figure 3.13: Pelagic trawl EU vessels 12m and over in length

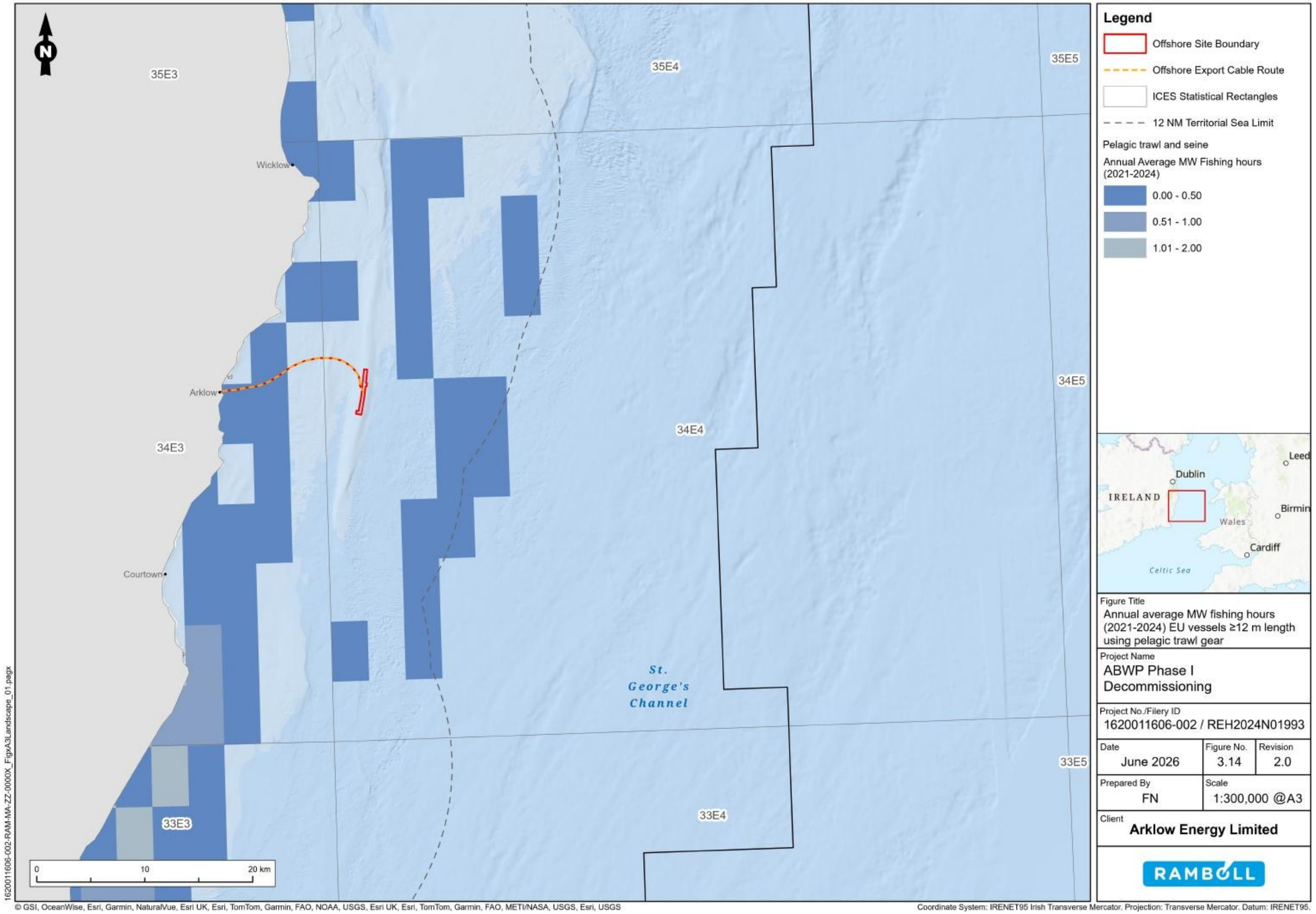


Figure 3.14: Pelagic trawl fishing effort indicating average annual fishing hours from 2021 to 2024 for EU vessels 12 m and over in length (ICES, 2026)

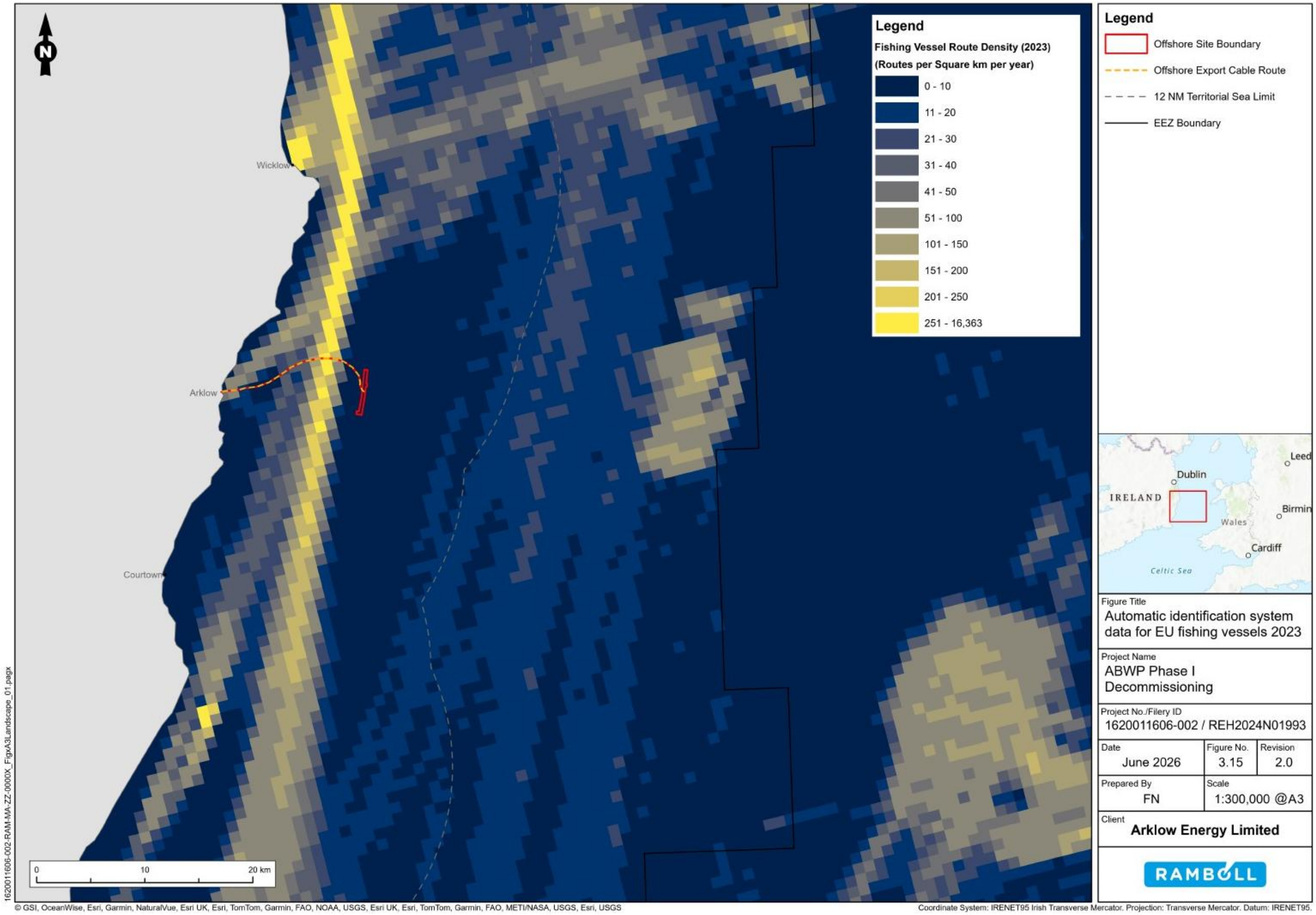


Figure 3.15: Automatic identification system data for EU fishing vessels 2023

3.3 Analysis of Fisheries Landings (2020-2024)

3.3.1 Overview

3.3.1.1 The Sea-Fisheries Protection Authority (SFPA) publishes annual statistics comprising downloadable annual reports/spreadsheets on commercial fishing activity, including statistics relating to landings in Irish ports and landings by Irish sea-fishing vessels (including Irish vessels landing both domestically and abroad, and non-Irish vessels landing into Irish ports). These annual publications provide port-level summaries (e.g. landed weight and first sales value) and are released as part of the SFPA's wider suite of official fisheries statistics.

3.3.1.2 This section provides an overview of the data for the period 2020–2024, which represents the most recently available five-year dataset.

3.3.2 Landings by Port

3.3.2.1 The key ports that vessels operating within the Offshore Site and Commercial Fisheries and Aquaculture Study Area land into are (in alphabetical order) Arklow, Courtown, Dún Laoghaire, Greystones, Howth, Kilmore Quay, Wexford and Wicklow. Details of landings into these ports, from all sea areas are discussed below for the time period 2020 to 2024. For the purposes of this assessment, "all sea areas" refers to landings by Irish vessels into the identified ports from any area in which those vessels operate, including but not limited to the Irish Sea, elsewhere in the Celtic Seas, or more distant fishing grounds, and is therefore not necessarily limited to the Commercial Fisheries and Aquaculture Study Area.

3.3.2.2 Landings at Arklow (**Figure 3.16**, based on data from declarations and sales notes for all vessels landing into Ireland (SFPA, 2025)) show moderate interannual variability over the period 2020–2023, remaining broadly stable at between approximately 500 and 610 tonnes (t). A notable increase is evident in 2024, when landed weight rises sharply to around 850 t, representing the highest level recorded over the five-year period. This increase follows a dip in landings in 2022 and a partial recovery in 2023, indicating a recent change in either fishing activity, stock availability, or reporting patterns.

3.3.2.3 In contrast, first sales value at Arklow displays a consistent downward trend across the same period. Values decline from approximately €1.45 million in 2020 and €1.40 million in 2021 to around €1.15 million in 2022, before falling further to approximately €0.84 million in 2023 and 2024. The divergence observed in 2024, where landed weight increases substantially while first sales value remains low, suggests a reduction in average price per tonne, potentially reflecting changes in market conditions, species composition of landings, or wider economic factors affecting the sector.

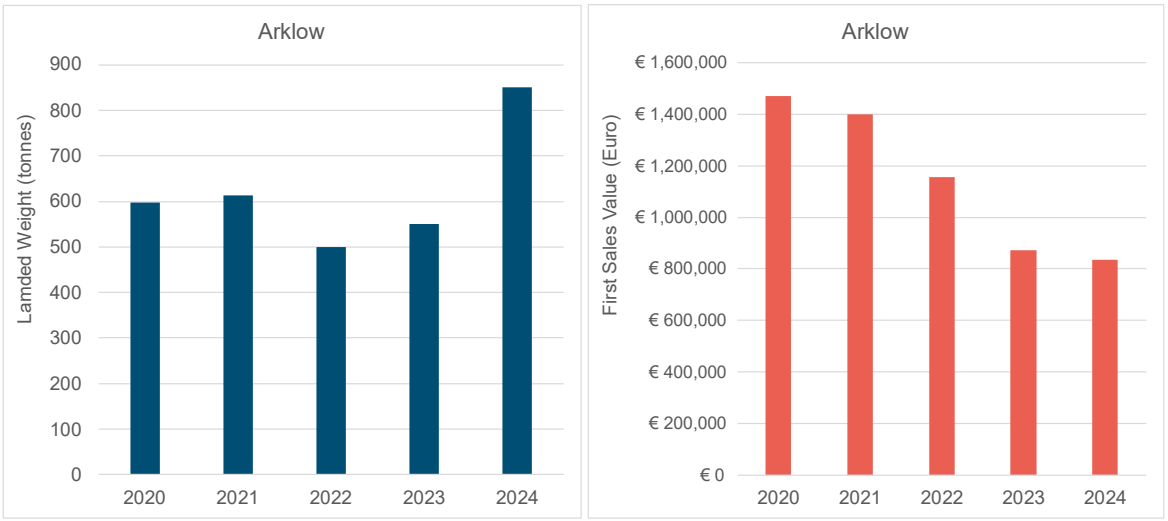


Figure 3.16: Arklow landings (tonnes) and first sales value (€) by year, 2020–2024

3.3.2.4 Landings at Courtown (**Figure 3.17**, based on data from declarations and sales notes for all vessels landing into Ireland (SFPA, 2025)) show increases from approximately 255 t in 2020 to around 275 t in 2021, peaking at roughly 360–365 t in 2022. Landings then decline to approximately 265–270 t in 2023 and fall further to around 190 t in 2024, the lowest level in the period. Overall, the pattern indicates a mid-period peak in 2022 followed by a sustained reduction in landings to 2024.

3.3.2.5 First sales value shows a broadly similar trajectory. Value rises from approximately €400,000 in 2020 to around €415,000 in 2021, reaching a peak of roughly €550,000 in 2022. This is followed by a decrease to approximately €465,000 in 2023 and a further decline to around €320,000 in 2024. The close alignment between weight and value trends suggests that changes in landed volume are a key driver of annual value at Courtown over this period, with 2022 representing the strongest year for both landings and first sales returns.

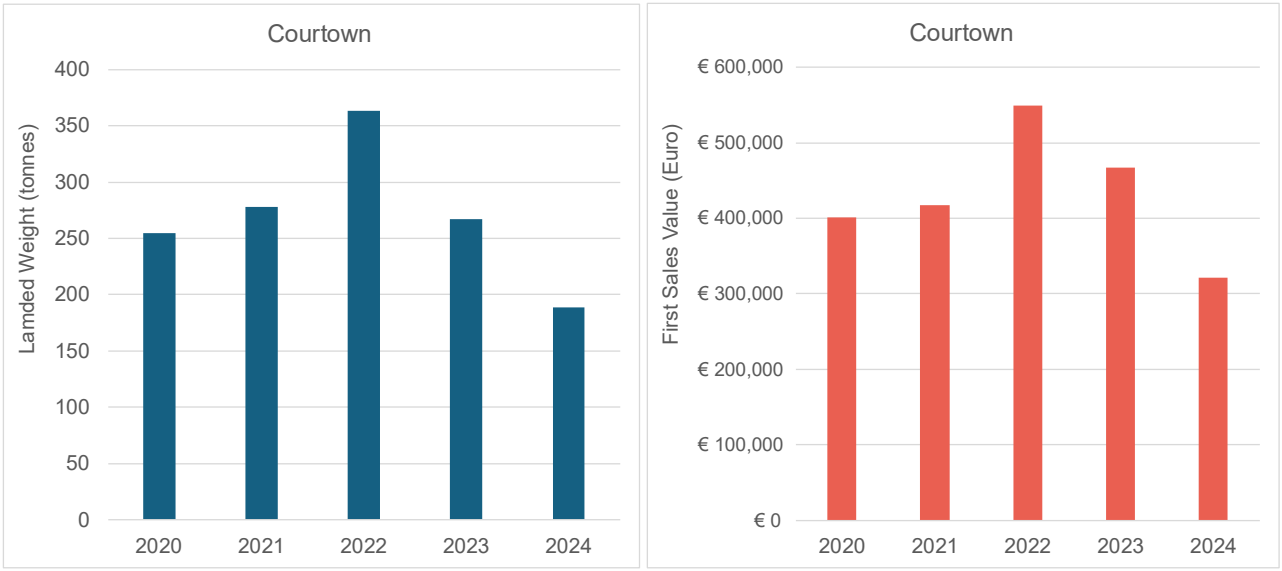


Figure 3.17: Courtown landings (tonnes) and first sales value (€) by year, 2020–2024

3.3.2.6 Landings at Dún Laoghaire (**Figure 3.18**, based on data from declarations and sales notes for all vessels landing into Ireland (SFPA, 2025)) show pronounced variability over the period 2020–2024. Landed weight increases markedly from approximately 550 t in 2020 to around 950 t in 2021, peaking at just over 1,000 t in 2022. This is followed by a substantial reduction in 2023 (around 500 t), before partially recovering in 2024 to approximately 670 t. Overall, the series indicates a strong mid-period peak in activity, followed by a sharp contraction and subsequent partial rebound.

3.3.2.7 First sales value at Dún Laoghaire mirrors this pattern but with even greater magnitude of change. Value rises sharply from approximately €0.9 million in 2020 to around €4.5 million in 2021, reaching a peak of roughly €7.5 million in 2022. Values then decline considerably in 2023 (approximately €2.5 million) before increasing again in 2024 to around €3.0 million. The coincidence of peak landed weight and peak value in 2022 suggests that both volume and either unit price and/or species composition contributed to the highest first sales returns in that year, with subsequent reductions indicating a notable shift in landings and/or market conditions thereafter.

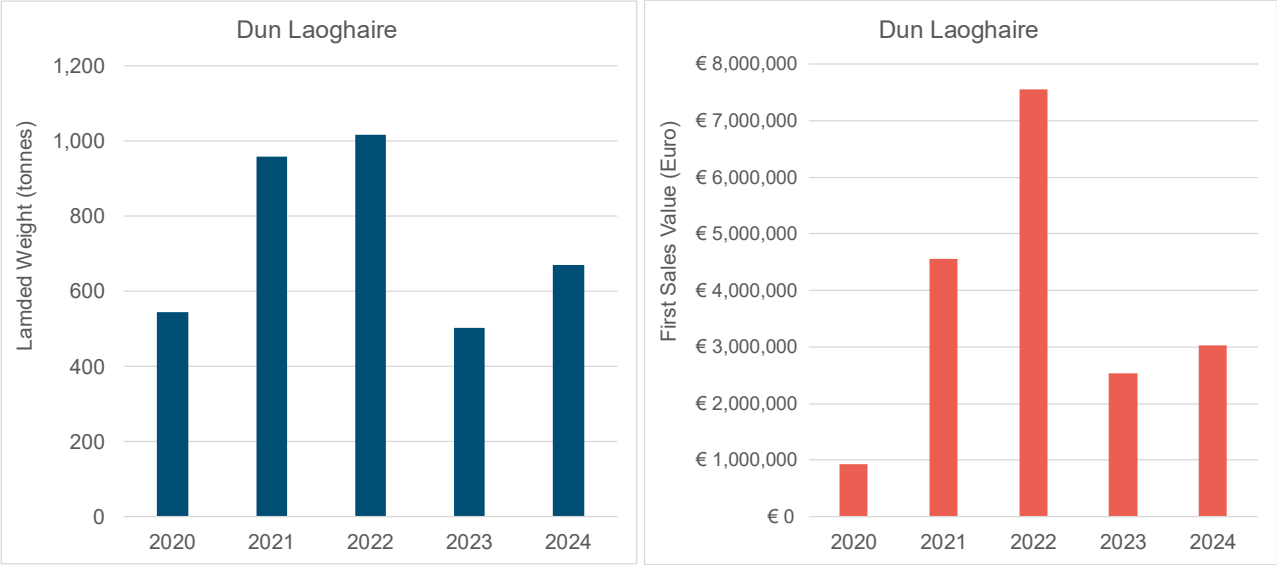


Figure 3.18: Dún Laoghaire landings (tonnes) and first sales value (€) by year, 2020–2024

3.3.2.8 Landings at Greystones (**Figure 3.19,** based on data from declarations and sales notes for all vessels landing into Ireland (SFPA, 2025)) are only reported for two years within the 2020 to 2024 period. Available data indicate landed weight of approximately 220 t in 2022, increasing to around 290 t in 2023. First sales value is similarly only available for 2022 and 2023, increasing from approximately €440,000 in 2022 to around €530,000 in 2023, with no values reported for the other years.

3.3.2.9 No landings are recorded for 2020, 2021 or 2024 in the figure. The limited availability of data (two years only) is likely attributable to data screening and suppression rules applied by the SFPA, whereby figures are removed where the number of vessels making landings falls below the threshold required for release. As a result, the figures presented should be interpreted as partial, with apparent gaps reflecting confidentiality controls rather than an absence of fishing activity.

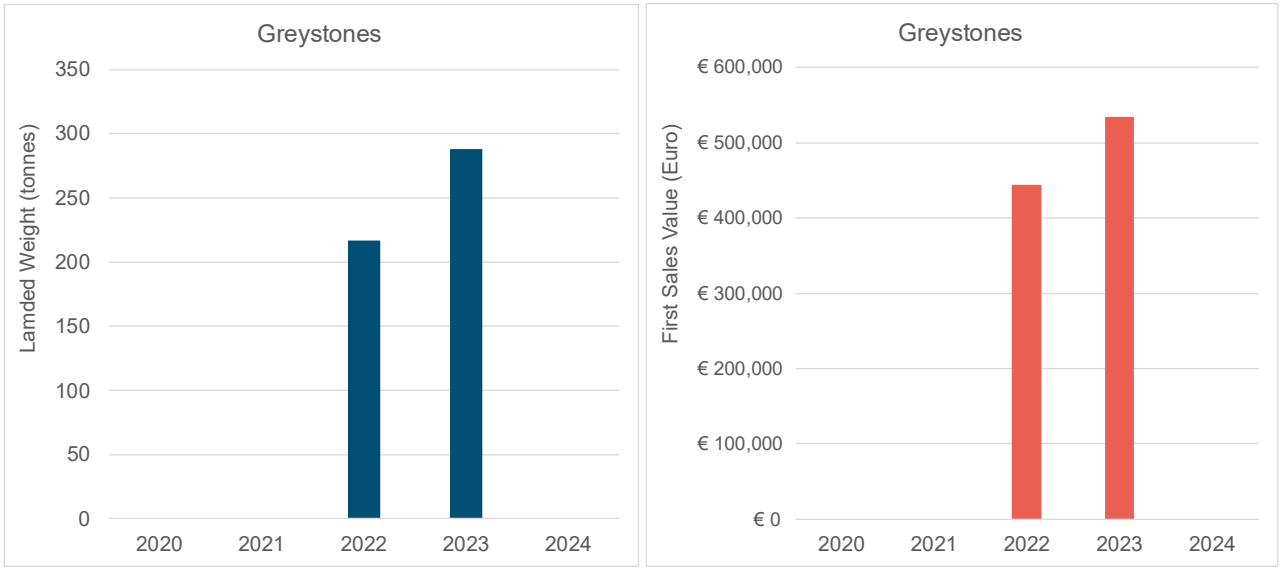


Figure 3.19: Greystones landings (tonnes) and first sales value (€) by year, 2020–2024

3.3.2.10 Landings at Howth (**Figure 3.20,** based on data from declarations and sales notes for all vessels landing into Ireland (SFPA, 2025)) show a marked reduction from 2020 to 2021, followed by relative stability through to 2024. Landed weight is highest in 2020 at approximately 5,000 t, before falling to around 3,100 t in 2021. Landings then remain broadly consistent at approximately 3,300 t in 2022 and 2023, before declining slightly again in 2024 to around 2,900 t. Overall, the period is characterised by a substantial initial drop after 2020 and a gradual downward trend thereafter.

3.3.2.11 First sales value at Howth follows a different pattern, increasing through to 2022 before declining in the final two years. Value rises from approximately €10.6 million in 2020 to around €12.9 million in 2021, peaking at roughly €14.2 million in 2022. This is followed by a decrease to approximately €13.3 million in 2023 and further to around €11.7 million in 2024. The combination of reduced landed weight relative to 2020 but higher first sales values in 2021 to 2023 suggests an increase in average price per tonne and/or a shift towards higher value species during those years, with a softening in 2024.



Figure 3.20: Howth landings (tonnes) and first sales value (€) by year, 2020–2024

3.3.2.12 Landings at Kilmore Quay (**Figure 3.21**, based on data from declarations and sales notes for all vessels landing into Ireland (SFPA, 2025)) remain relatively high and generally stable over the period 2020 to 2024, fluctuating within a narrower range than several other ports. Landed weight is approximately 3,800 t in 2020, increases to around 4,150 t

in 2021, then dips to roughly 3,650 t in 2022. Landings rise again to a peak of approximately 4,300 t in 2023, before decreasing slightly in 2024 to around 4,140 t. Overall, the series indicates interannual variability but no sustained upward or downward trend across the five-year period.

3.3.2.13 First sales value at Kilmore Quay shows greater year-to-year variability than landed weight, with a general pattern of an initial decline followed by partial recovery. Value is highest in 2020 at approximately €16.8 million, falling to around €13.2 million in 2021. It then increases again in 2022 to roughly €14.0 million, before decreasing to approximately €13.0 million in 2023 and rising slightly in 2024 to around €13.6 million. The comparatively modest changes in landed weight alongside more pronounced changes in first sales value suggest that market price and/or the composition of landings (species and grades) are key drivers of annual value in this port.

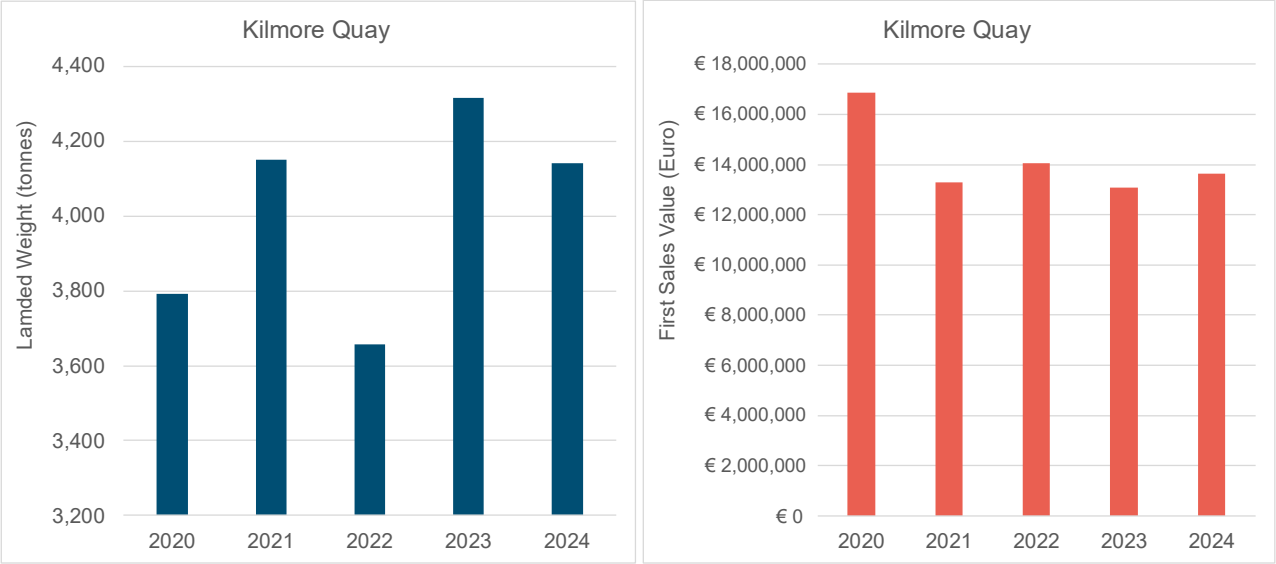


Figure 3.21: Kilmore Quay landings (tonnes) and first sales value (€) by year, 2020–2024

3.3.2.14 Landings at Wexford (**Figure 3.22,** based on data from declarations and sales notes for all vessels landing into Ireland (SFPA, 2025)) increases from approximately 670 t in 2020 to around 730 t in 2021 and ~735 t in 2022, peaking at roughly 775 t in 2023. Landings then decline in 2024 to approximately 680 t, returning to a level similar to 2020. Overall, the pattern indicates moderate interannual variability with the highest landings occurring in 2023.

3.3.2.15 First sales value shows greater variability than landed weight. Value is approximately €1.3 million in 2020, decreases slightly to around €1.15 million in 2021, then increases sharply to a peak of roughly €2.1 million in 2022. Values subsequently decline to approximately €1.3 million in 2023 and €1.2 million in 2024. The peak in value in 2022, despite only a modest increase in landed weight relative to 2021, suggests that price and/or species composition played an important role in driving first sales returns in that year.

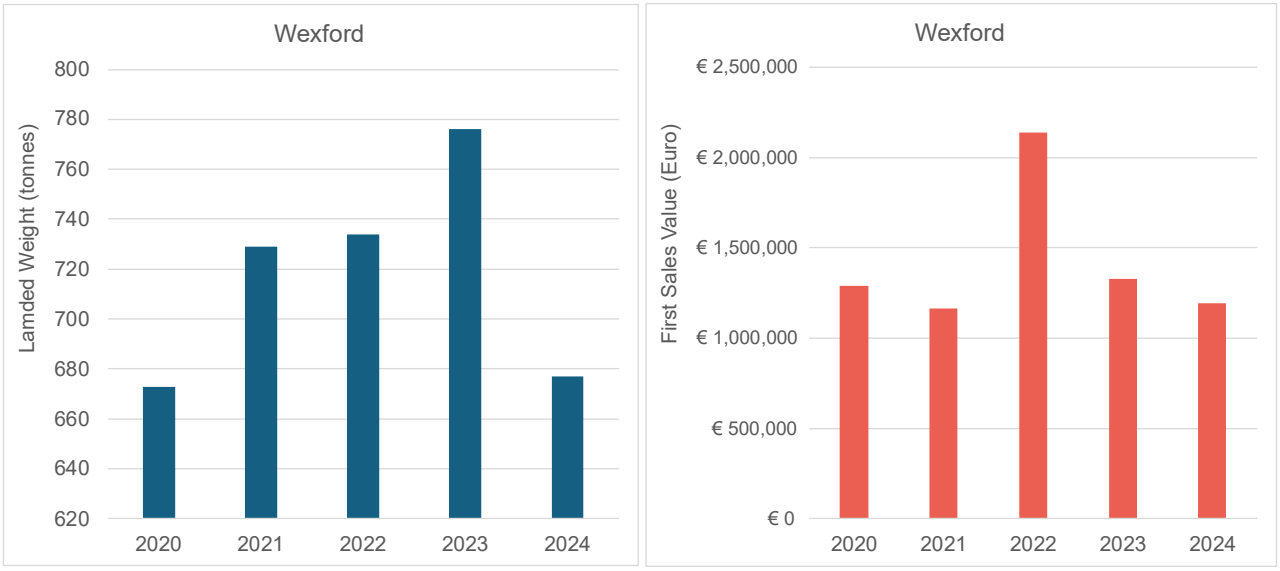


Figure 3.22: Wexford landings (tonnes) and first sales value (€) by year, 2020–2024

3.3.2.16 Landings at Wicklow (**Figure 3.23,** based on data from declarations and sales notes for all vessels landing into Ireland (SFPA, 2025)) show an overall decline over the period 2020 to 2024, with some year-to-year fluctuation. Landed weight is approximately 2,000 t in 2020 and increases slightly to around 2,100 t in 2021, before falling to roughly 1,700 t in 2022. Landings recover modestly in 2023 (around 1,750 t) but decrease again in 2024 to approximately 1,400 t, the lowest level observed in the period. Overall, this indicates a reduction in landed volumes at Wicklow since 2021.

3.3.2.17 In interpreting these trends, it should be noted that annual landings recorded for a given port can be influenced not only by changes in fishing effort or stock availability, but also by vessel landing behaviour. Vessel owners are not restricted to landing into their 'home' port and may choose to land catches at alternative ports for operational, logistical, or market-related reasons. As such, part of the decline observed at Wicklow over the period may reflect redistribution of landings to neighbouring ports (for example, increased landings at Arklow), rather than an equivalent reduction in underlying fishing activity.

3.3.2.18 First sales value at Wicklow follows a broadly similar pattern of reduction towards 2024, although with a notable increase in 2023. Value is highest in 2020 at approximately €3.6 million, falls in 2021 (no bar shown in the figure), and is around €3.0 million in 2022. Values rise again in 2023 to approximately €3.4 million before declining to roughly €2.3 million in 2024. The increase in value in 2023 despite only a modest change in landed weight suggests higher average prices and/or a shift toward higher value species or grades in that year, followed by a decline in both volume and value in 2024.

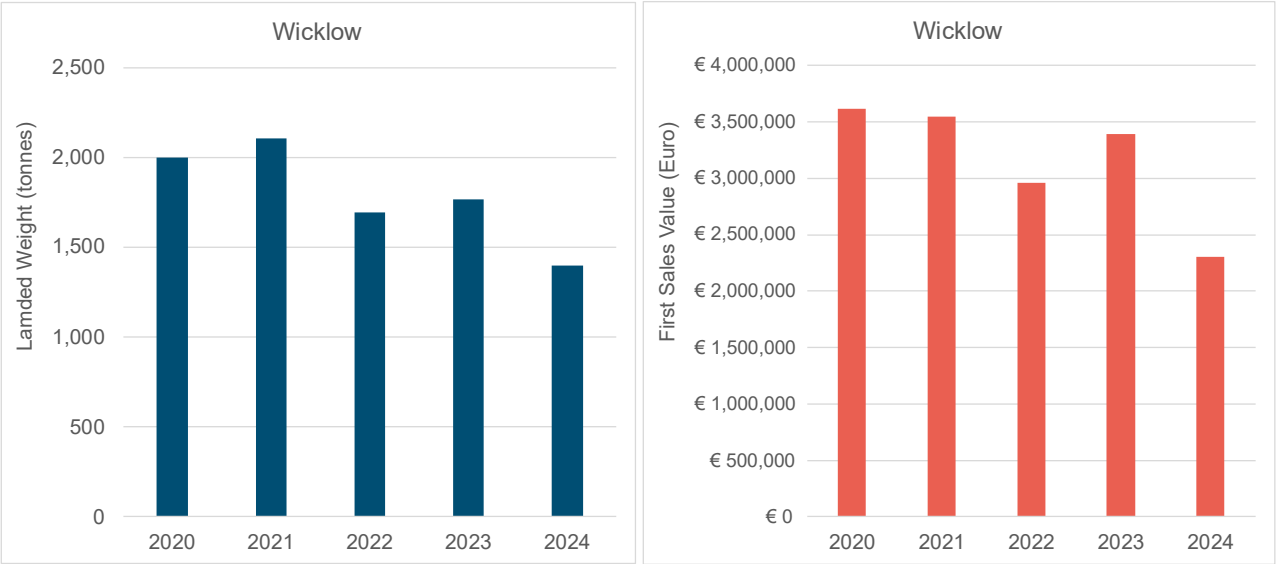


Figure 3.23: Wicklow landings (tonnes) and first sales value (€) by year, 2020–2024

3.3.2.19 Across the eight ports, landed weight and first sales value show variable and, in several cases, contrasting trends over 2020 – 2024. Howth and Wicklow show an overall reduction in landed volumes relative to 2020 – 2021, while Kilmore Quay remains broadly stable at a consistently high level, and Dún Laoghaire exhibits a pronounced peak in both landings and value in 2022 followed by a decline and partial recovery. Arklow is notable for a substantial increase in landed weight in 2024 compared with earlier years, while first sales value continues to trend downward. Overall, these patterns indicate that changes in value do not consistently track changes in landed weight across ports and years.

3.3.2.20 Interpreting the relationship between landed weight and first sales value is, however, constrained by the absence of species-level information in the data presented. Changes in the mix of landings (e.g., a greater proportion of higher value, lower weight species) could result in relatively stable values year-to-year despite declining landed weight, or conversely, higher landings with lower overall value where the catch comprises lower value species. In addition, first sales values may be influenced by changes in market prices for key higher value species and export-linked products, meaning that price movements, rather than changes in volume alone, could drive interannual variability in value.

3.3.3 Landings by Species

3.3.3.1 SFPA landings data are also available by species; however, these totals represent landings into all Irish ports from all sea areas by all vessels, and they do not distinguish the sea area in which the species was caught.

3.3.3.2 **Figure 3.24** presents the average annual first sales value (2020–2024) of landings by Irish vessels into Irish ports, disaggregated by species, as presented in SFPA (2025). The distribution is strongly skewed, with a small number of species accounting for the majority of value. Atlantic mackerel (*Scomber scombrus*) is the highest value species (c. €76.2 million per annum), followed by Norway lobster (*Nephrops norvegicus*) (€60.3 million) and anglerfish (*Lophius* spp.) (€48.8 million). Together, these three species account for approximately 45% of the total average annual first sales value across all species shown.

3.3.3.3 A second tier of high-value species includes European hake (*Merluccius merluccius*) (€36.9 million), blue whiting (*Micromesistius poutassou*) (€29.0 million) and edible crab (*Cancer pagurus)* (€21.5 million). Several additional species contribute materially but at lower levels (e.g. megrims (*Lepidorhombus* spp.), common sole (Solea solea), European lobster (*Homarus gammarus*), haddock (*Melanogrammus aeglefinus*), jack/horse mackerels (*Trachurus* spp.), and Great Atlantic scallop (*Pecten maximus*), each broadly in

the €10 to 15 million range). Beyond these, there is a range of approximately seven species, each contributing less than c. €10 million per annum (including a range of demersal fish, squid, shellfish and minor pelagic species), including whelk (*Buccinum undatum*), which is one of the key target species in the local Commercial Fisheries and Aquaculture Study Area.

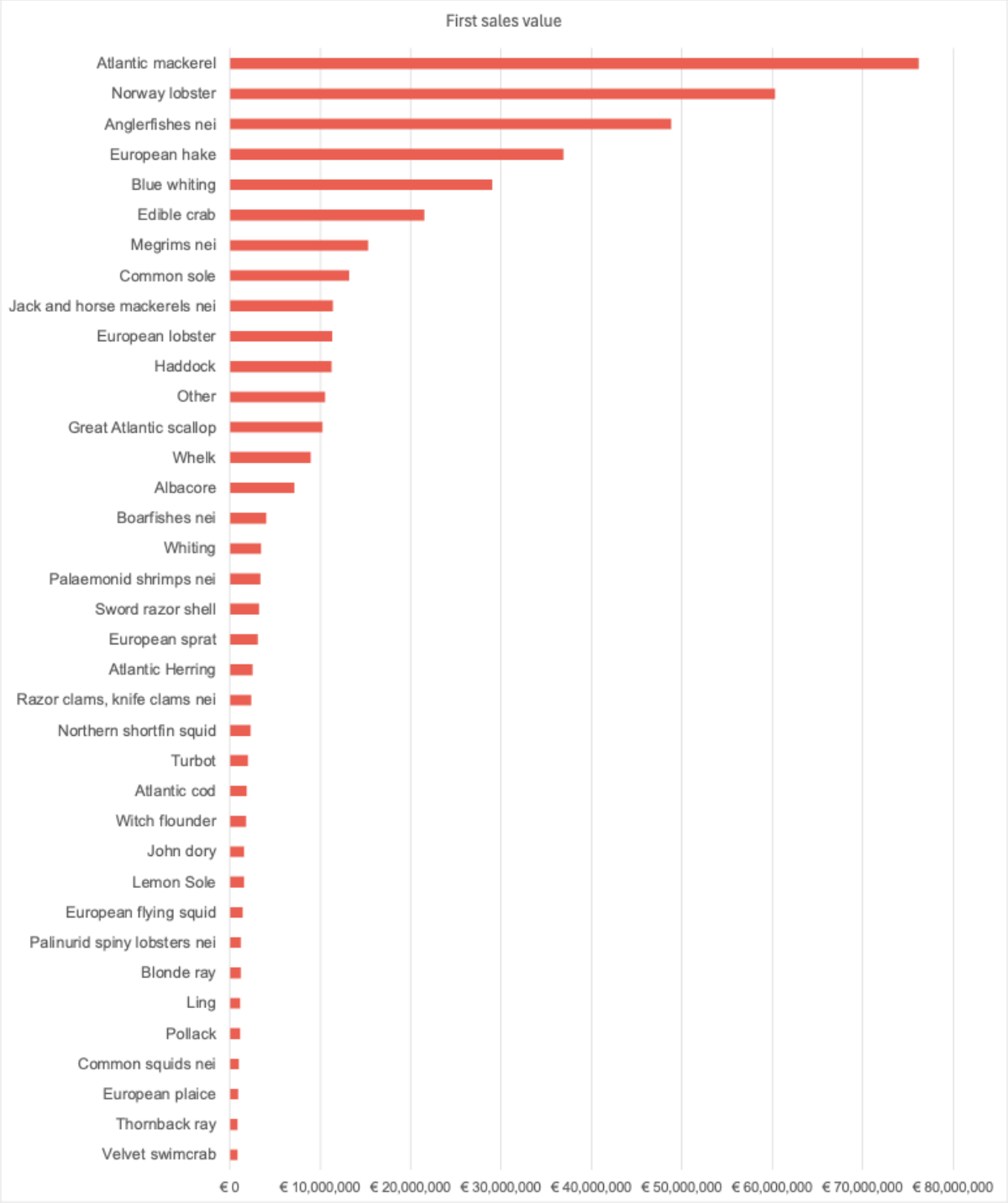


Figure 3.24: Average annual first sales value (€) of landings by Irish vessels into Irish ports, by species (2020–2024).

3.3.3.1 **Figure 3.25** shows that average annual landed weight (2020–2024), as presented in SFPA (2025), by all vessels into Irish ports is dominated by a small number of pelagic and mixed-species categories, with blue whiting the largest by volume (c. 95,000 t) followed by Atlantic mackerel (c. 60,000 t). Other comparatively high-volume species include

boarfish (*Capros aper*), European hake, European sprat (*Sprattus sprattus*), and anglerfish, while most remaining species contribute relatively small landed weights.

3.3.3.2 In comparison with first sales value, the highest-volume species are not always the highest-value species. For example, blue whiting contributes the greatest tonnage but ranks below several species in value, whereas Norway lobster, edible crab, and common sole generate relatively high value despite much lower landed weights. This highlights how overall landings value is strongly influenced by species composition and unit price, rather than volume alone.

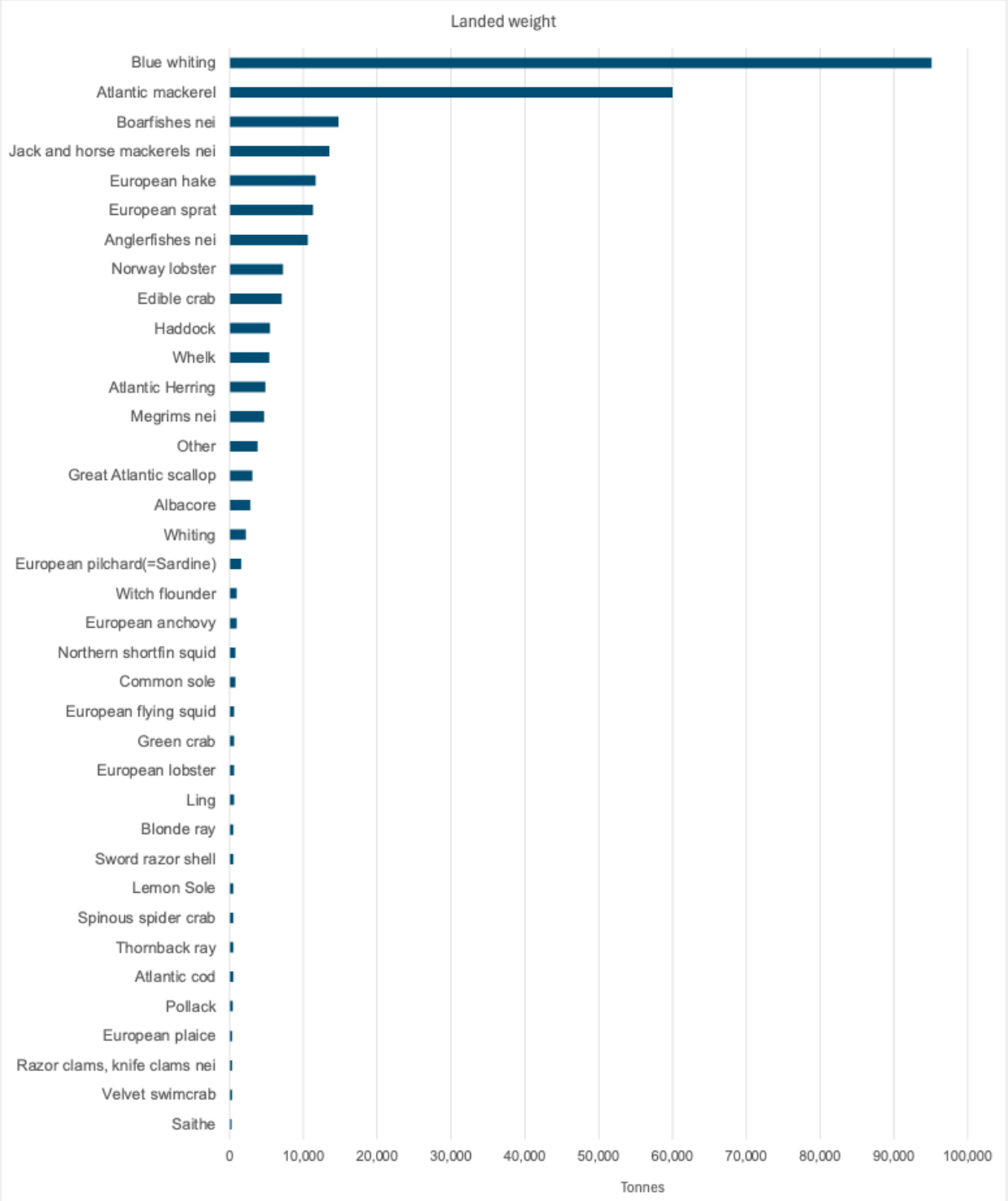


Figure 3.25: Average annual weight (tonnes) of landings by Irish vessels into Irish ports, by species (2020–2024).

3.3.3.3 **Figure 3.26** shows that whelk landed weight (t), as presented in SFPA (2025), remains broadly stable over 2020 to 2024, fluctuating within a relatively narrow range. Landings

are approximately 5,500 to 5,900 t in 2020 to 2021, reduce to around 4,900 t in 2022, increase again to approximately 5,700 t in 2023, and then decline to about 4,700 t in 2024. Overall, landings exhibit interannual variability but no clear sustained upward trend across the period, with 2024 representing the lowest landed weight shown.

3.3.3.4 In contrast, first sales value (€) is consistently high and shows a modest increase through to 2023 before declining in 2024. Value rises from approximately €8.6 million in 2020 to around €8.9 to €9.1 million in 2021 to 2022, peaking at roughly €10.1 million in 2023, before decreasing to approximately €8.0 million in 2024. The divergence between relatively stable landings and variable value suggests that year-to-year changes in price and market conditions (including demand and export dynamics) are important drivers of first sales value in addition to landings volume.

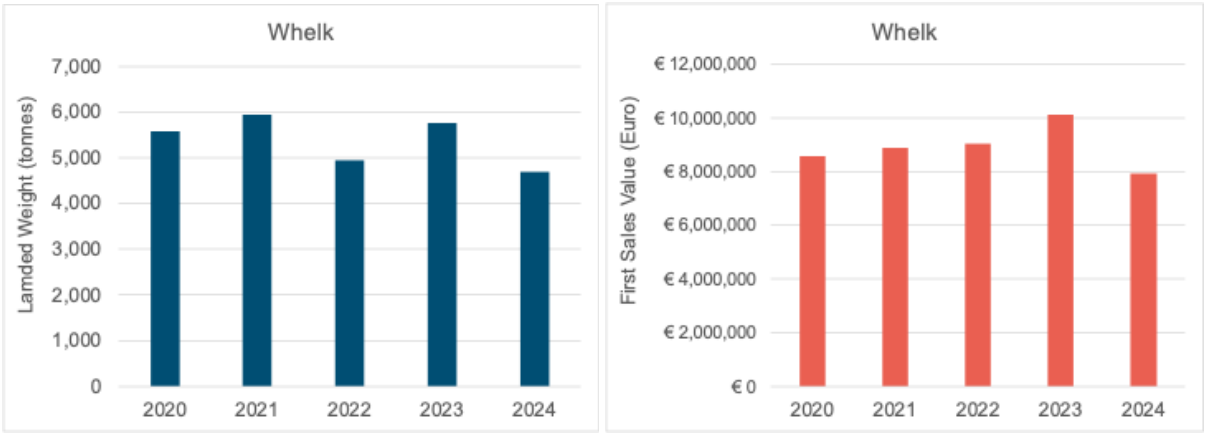


Figure 3.26: Whelk landings by all vessels into Irish ports (2020–2024): landed weight (tonnes) and first sales value (€).

3.3.3.5 **Figure 3.27** show trends in edible crab landings (t) and first sales value (€) for 2020 to 2024, as presented in SFPA (2025). Landed weight increases substantially from approximately 4,600 t in 2020 to around 7,900 t in 2021, remaining relatively stable thereafter at roughly 7,300 - 7,700 t over 2022 to 2024. First sales value follows a similar pattern but with greater variability, rising from approximately €8.5 million in 2020 to around €23 million in 2021, peaking at roughly €33 million in 2022, before declining to approximately €20 - 22 million in 2023 to 2024. The divergence between broadly stable landed weight from 2021 onwards and the more pronounced fluctuations in value indicates that market price and/or grading/species mix are important drivers of annual value, in addition to changes in landings volume.

3.3.3.6 Edible crab is primarily caught using pots in inshore waters, and the relevant potting grounds are understood to be mainly inshore of the array area.

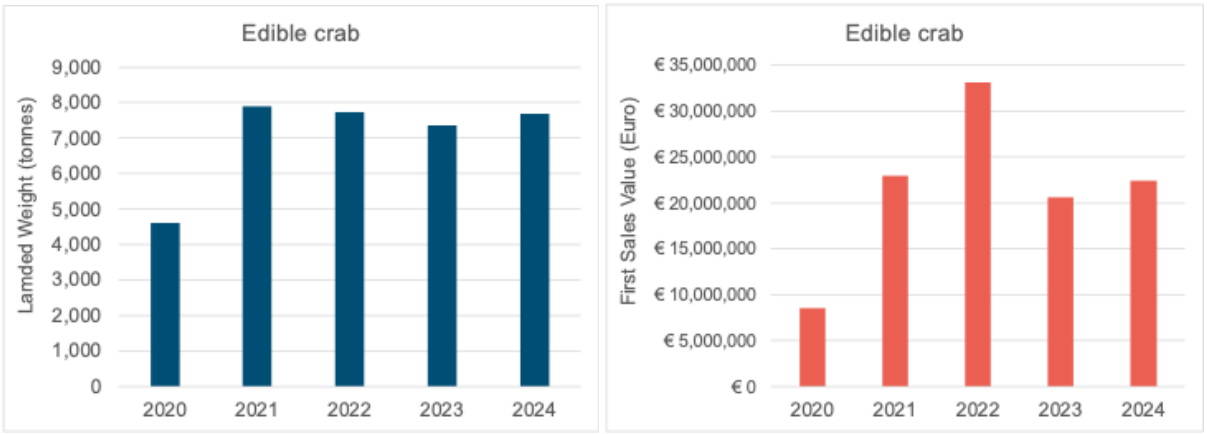


Figure 3.27: Edible crab landings by all vessels into Irish ports (2020–2024): landed weight (tonnes) and first sales value (€).

3.3.3.7 **Figure 3.28** shows trends in European lobster landings (t) and first sales value (€) over 2020 to 2024, as presented in SFPA (2025). Landed weight increases steadily across the period, rising from approximately 390 t in 2020 to around 590 T in 2021, remaining broadly stable at ~620 t in 2022 to 2023, and then increasing further to approximately 690 t in 2024. Overall, this indicates sustained growth in lobster landings compared with the 2020 baseline, with the highest landed weight recorded in 2024.

3.3.3.8 First sales value follows a broadly similar upward pattern, but with greater year-to-year variability. Value increases from approximately €5.3 million in 2020 to around €10.9 million in 2021, peaking at roughly €16.1 million in 2022. Values then decline to approximately €11.4 million in 2023 before increasing again to around €12.6 million in 2024. The contrast between relatively stable or increasing landed weight and the fluctuation in value suggests that changes in market price, size/grade, and/or sales conditions are influencing annual value in addition to landings volume.

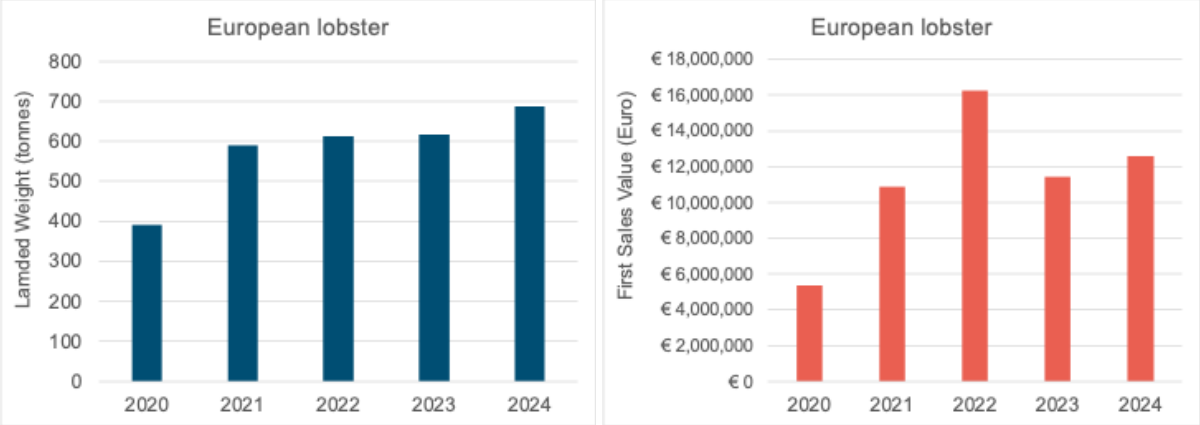


Figure 3.28: Lobster landings by all vessels into Irish ports (2020–2024): landed weight (tonnes) and first sales value (€)

3.3.4 Stock Information

3.3.4.1 The Shellfish Stocks and Fisheries Review has been updated in 2024 (Marine Institute and BIM, 2024) and provides an overview of selected shellfish stock assessments, alongside supporting information on landings and the relevant legislative and regulatory context. While whelk is referenced in the review's regulatory discussion, it is not included as an assessed stock. A summary of key points for edible crab and lobster relevant to the east coast (defined here as Dublin to Wexford) is provided below.

- Edible crab: Management of the edible crab fishery is principally through a minimum landing size (140 mm carapace width) and kilowatt-day effort limits for larger vessels. For assessment purposes, ICES (WG Crab) identifies stock units, which on the Irish coast are delineated using tagging data, the distribution of fishing activity and larval distribution; crab stocks off the southwest and southeast coasts are noted as being exploited mainly by Irish vessels under 13 m inside 12 nm, reflecting a predominantly inshore fishery. In terms of status, standardised indices of stock abundance declined during 2015–2019 and were stable at low levels during 2020–2024, with advice indicating the need to reduce fishing mortality. Catch-rate indicators also show a decline in targeted trips, with landings per unit effort (LPUE) decreasing from around 2.3 kg/pot (2015) to around 1 kg/pot (2023).
- Lobster: Management of the lobster fishery is principally through a minimum landing size (87 mm), a maximum landing size (127 mm) and a prohibition on landing v-notched lobsters, supported by an active v-notching programme. The Shellfish Review finds that these measures collectively protect approximately 25–47% of lobster reproductive potential (varying by region and year), and that nominal stock-

status indicators (including LPUE and discard-related indicators) were stable during 2013–2023 in most coastal areas. Management advice is to maintain existing conservation measures and to target v-notching (preferably on lobsters over 95 mm) in areas where the prevalence of v-notched and/or over-127 mm lobsters is low, supported by continued monitoring through sampling programmes.

3.4 Irish Fisheries Activity Assessment (2017-2021)

3.4.1 Landing Statistics – Potting Fleet

3.4.1.1 Data has been obtained from the SFPA (2025) for landings of edible crab *C. pagurus* (also known as brown crab), lobster *H. gammarus* and whelk *B. undatum* for the period 2017 to 2021 (representing the most recent data made available at the time of writing) indicating the first sales value (**Figure 3.29**) and landed weight of commercial species by port of landing (**Figure 3.30**). The data is provided for landings by vessels registered in Ireland, including vessels of all lengths, and landing catches from the Irish Sea (7a).

3.4.1.2 The highest value of whelk is landed into Wicklow with €2.4 million in first sales value landed annually. Howth, Dun Laoghaire, Wexford and Arklow also have high value landings of whelk annually (ranging from €600,000 to €1 million per port).

3.4.1.3 Key ports for lobster and brown crab landings are Kilmore Quay (€1.4 million of brown crab and €800,000 of lobster) and Dunmore East (€432,000 of brown crab and €206,000 of lobster).

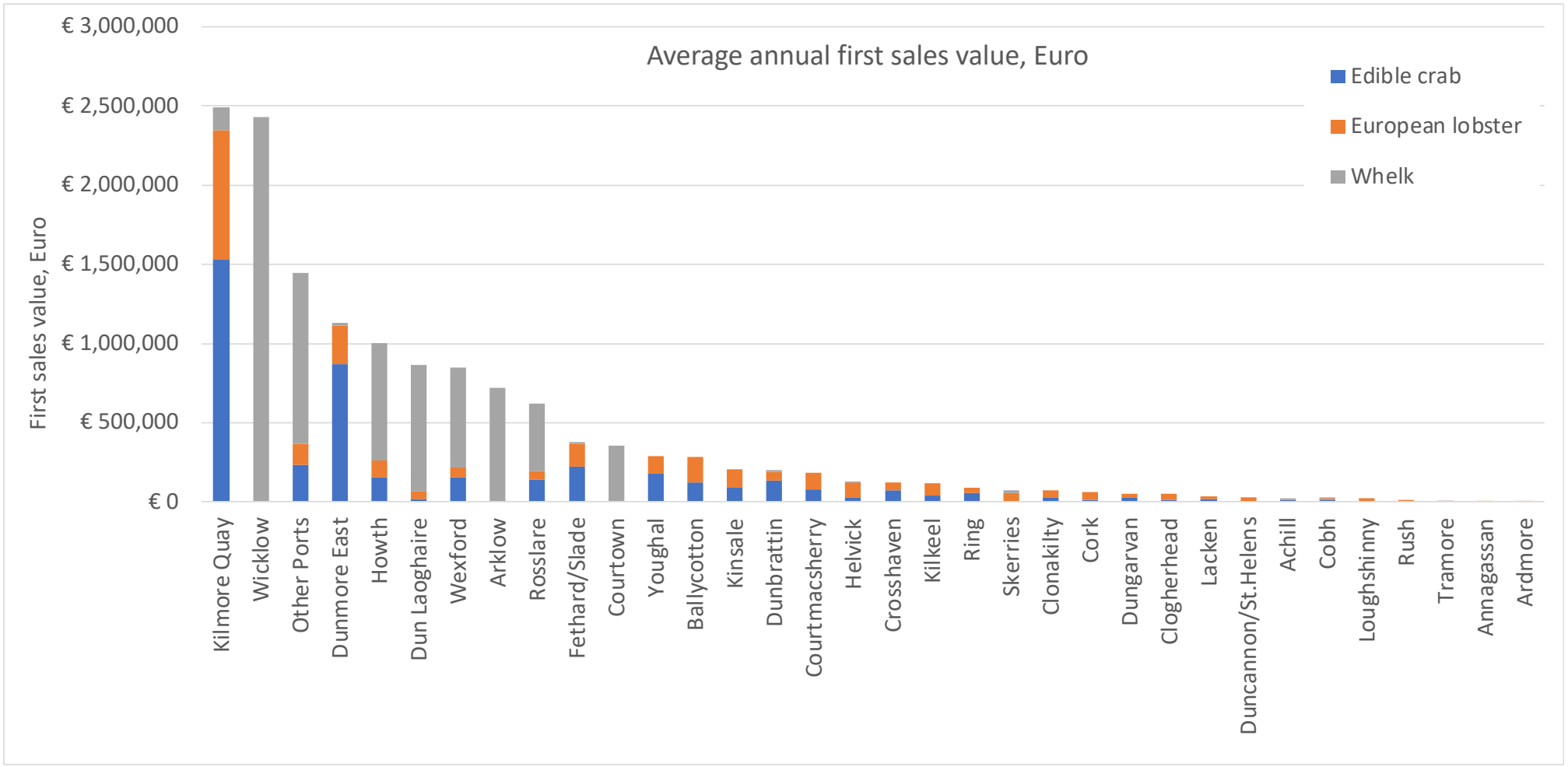


Figure 3.29: Average annual landings of brown crab, lobster and whelk into Irish ports from 2017 to 2021 indicating first sales value (Euro).

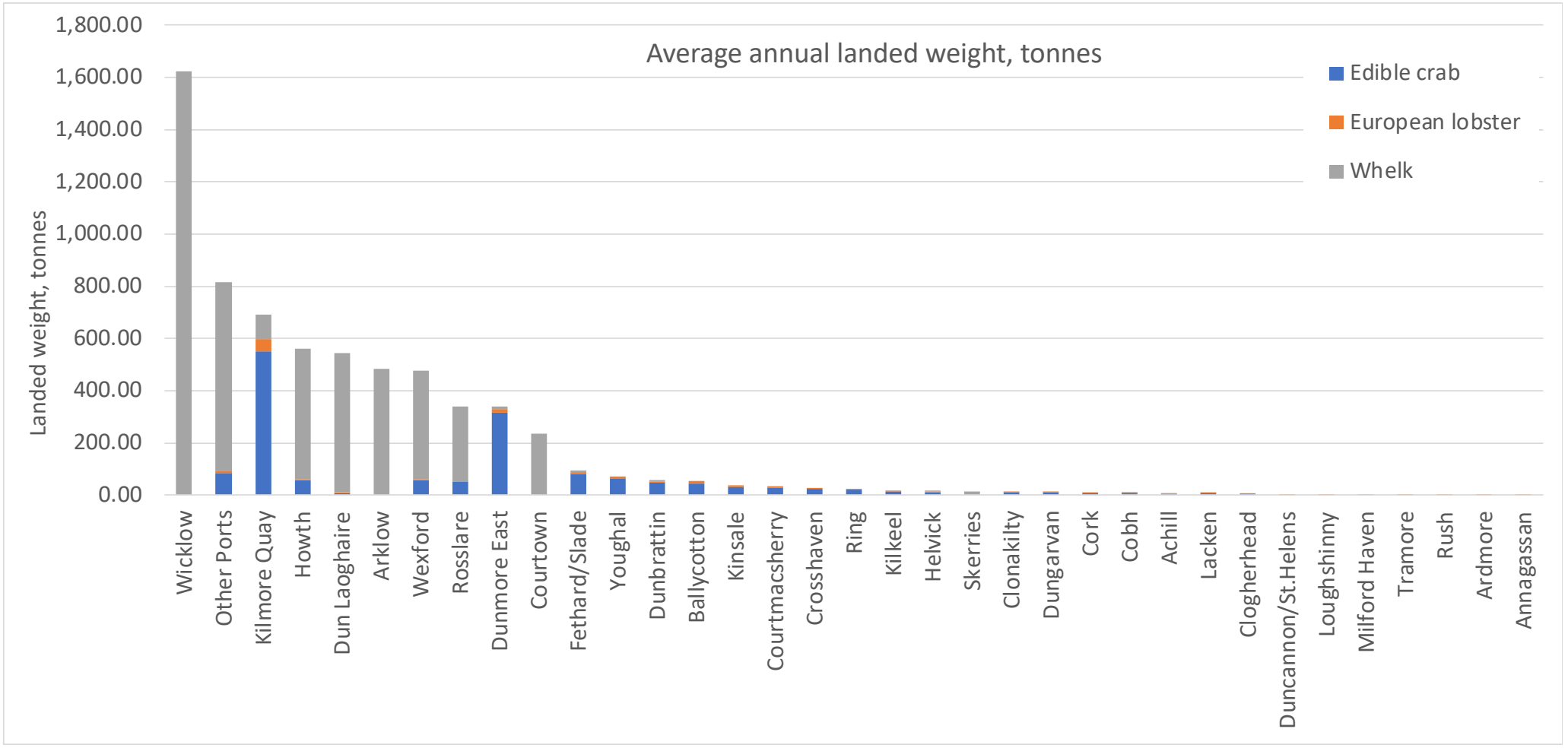


Figure 3.30: Average annual landings of brown crab, lobster and whelk into Irish ports from 2017 to 2021 indicating weight (tonnes).

3.4.1.4 An estimate of the value of the whelk fishery in the Commercial Fisheries and Aquaculture Study Area is given in **Table 3.1** based on information on average value at first sale and landings weights data recorded for this species from rectangles 34E3 and 34E4. As shown, whelk landings from the Commercial Fisheries and Aquaculture Study Area account for over €2.1 million annually. The majority of these landings are into the ports of Wicklow and Arklow and to a lesser extent Courtown (**Table 3.2**).

Table 3.1: Estimated value (€) of whelk *B. undatum* landings from the Commercial Fisheries and Aquaculture Study Area (annual average 2015 to 2020).

Rectangle 34E3	Rectangle 34E4	Total
€650,000	€1,506,000	€2,156,000

Table 3.2: Landings of whelk *B. undatum* (tonnes) and first sales value by port (annual average 2015 to 2020).

Port	Landed weight, tonnes	First sales value
Wicklow	1,629	€2,817,926
Dun Laoghaire	550	€951,130
Arklow	509	€880,497
Howth	506	€874,862
Wexford	418	€723,051
Rosslare	308	€532,410
Courtown	204	€352,865
Other	132	€228,958

3.4.1.5 Annual trends in edible crab, lobster and whelk landings are shown in **Figure 3.31**, as presented in SFPA (2022), indicating an overall growth in whelk landings, a slight decline in edible crab landings and stable lobster landings across the period from 2017 to 2021.

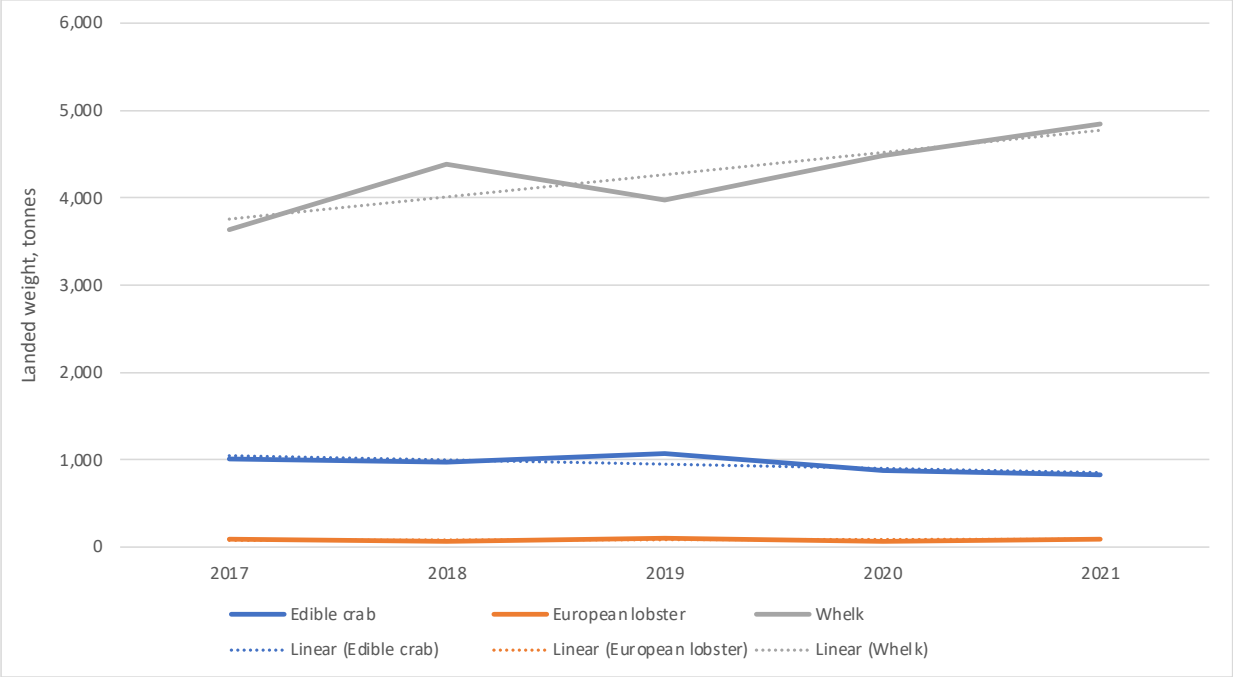


Figure 3.31: Five year annual landings of edible crab *C. pagurus*, lobster *H. gammarus*, whelk *B. undatum* by Irish vessels from the Irish Sea, landings into Irish ports from 2017 to 2021 indicating landed weight, tonnes

3.4.2 Landing Statistics – by ICES rectangle for the Commercial Fisheries and Aquaculture Study Area

3.4.2.1 Data has been obtained from the SFPA for landings of all species for the period 2016 to 2020 indicating the landed weight from ICES rectangles 34E4 and 34E3, as presented in SFPA (2022) (**Figure 3.32**). This represents the latest data available for Irish vessels by ICES rectangle. The data is provided for landings by vessels registered in Ireland, including vessels of all lengths, although it is anticipated that landings by vessels ≤10m in length are underrepresented due to confidentiality issues in amalgamating the dataset (as evidenced by data cells marked as confidential for species that are typically landed by this fleet segment, including lobster and brown crab).

3.4.2.2 The Sub Lease Area overlaps with ICES rectangle 34E4, which is almost entirely dominated by landings of whelk. Landings peaked in 2017 at 1,100 tonnes.

3.4.2.3 The offshore export cable route overlaps with ICES rectangles 34E4 and 34E3. Landed weight from 34E3 is also dominated by whelk. One notable catch of sprat is recorded in 2017. The data by ICES rectangles does not show significant landings of edible crab and lobster, which is unexpected and linked to the underrepresentation of vessels 10 m and under within the dataset.

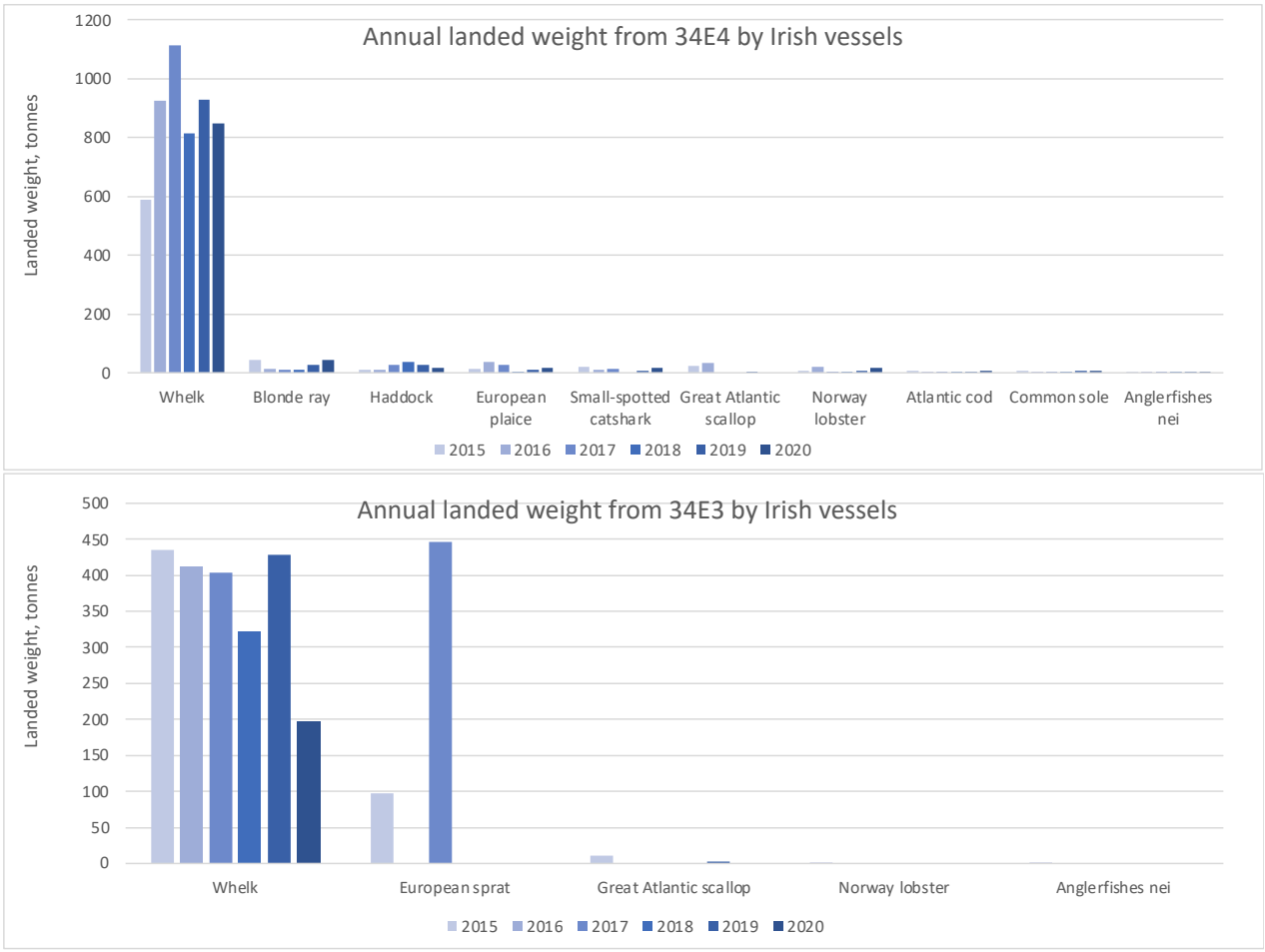


Figure 3.32: Weight of landings by Irish vessels from ICES rectangles 34E4 and 34E3 indicating species from 2016-2020

3.5 Key Fishing Fleets and Target Species

3.5.1 Context

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

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

3.5.1.2 Vessel and gear types within the key fleets and fisheries that operate across the local and regional study areas are described within this section. The sequence is presented in no particular order, starting with static gear (potting) and followed by mobile gear (beam trawl, pelagic trawl, scallop dredge and demersal otter trawl).

3.5.2 Pots and Traps

3.5.2.1 **Figure 3.33** (sourced from Seafish (2022)) and **Figure 3.34** show typical potting vessels, gear and the configuration of set pots and **Table 3.3** describes the profile of potting vessels active across the Commercial Fisheries and Aquaculture Study Area.

3.5.2.2 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.

3.5.2.3 The whelk fishery represents one of Ireland's most important inshore fisheries (Fahy *et al.*, 2006). From the analysis of landings data, it is apparent that potting for whelks is the principal fishing activity in the Commercial Fisheries and Aquaculture Study Area.

3.5.2.4 The inshore fishery for whelk has been in existence in the southwest Irish Sea irregularly from the 1960s. Initially the fishery was developed to supply a small niche market in the UK. However, in the 1990s, as a result of high demand from the Far East, the fishery expanded rapidly (Fahy, 2005).

3.5.2.5 Historically, landings of whelk in Ireland were up to 10,000 tonnes (Tully, 2017). In recent years, landings have been around 6,000 and 5,000 tonnes (2016 and 2017) with previous years (2005 to 2015) recording lower landings (2,000 to 4,000 t).

3.5.2.6 Landings from the Commercial Fisheries and Aquaculture Study Area (rectangle 34E3 and 34E4 combined) have remained relatively consistent over the last five years (at approximately 1,500 to 2,000 t/year).

3.5.2.7 The whelk fishery is pursued by a variety of vessels; initially these were small half-decked vessels (less than 6 m in length), although larger vessels (over 10 m in length) have become involved in the recent past (Fahy, 1995).

3.5.2.8 From the information gathered during consultation with fisheries stakeholders via the FLO in relation to ABWP Phase II, it is understood that, at present, the majority of local vessels engaged in the whelk fishery in areas relevant to the Proposed Works are under 12 m in length (only three vessels engaged in potting activities were reported to be above 12 m in length during consultation. In all cases these were under 15 m in length). Potting for whelks in the Commercial Fisheries and Aquaculture Study Area takes place all year round.

3.5.2.9 To a lesser extent across the Commercial Fisheries and Aquaculture Study Area, creels or pots may also be 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.

3.5.2.10 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 3.3: Profile of typical potting vessels active across the Commercial Fisheries and Aquaculture Study Area

Parameter	Indicative details
Main target species	Whelk *B. undatum*, edible crab *C. pagurus*, lobster *H. gammarus*
Nationality	Irish
Vessel length	Over 10 m (primarily whelk) and under 10 m

Parameter	Indicative details
Horsepower	60 hp to 350 hp
Typical speed when shooting and hauling gear	0 to 9 knots
Typical soak time	one to two 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.

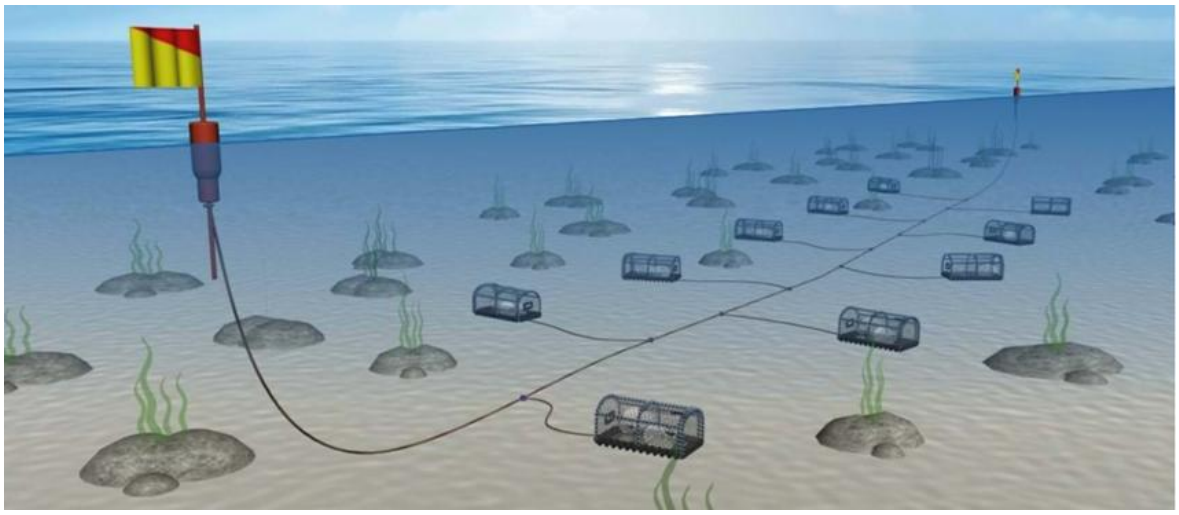


Figure 3.33: Typical potting gear configuration



Figure 3.34: Example of potting vessels and potting gear-

Key Species Caught by Vessels Operating Potting Gear

Whelk *Buccinum undatum*

3.5.2.11 Common whelk is 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 two to three 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 three to five months. The life cycle therefore has no pelagic phase, leading to limited dispersal between populations.

3.5.2.12 Whelk fisheries have typically been expanding on the east coast of Ireland in recent years as prices have increased and export to non-EU countries has grown.

3.5.2.13 Whelk are caught using plastic pots, which may be deployed by the same potting vessels that target crab and lobster. Whelk are cleaned and exported to the far east and Europe in a variety of product types, including cooked whole in-shell or meat only, in fresh or frozen forms. The fishery is very dependent on market conditions and prices. Whelk

landed by Irish vessels are processed in Ireland at three main processing companies, including Sofrimar in Kilmore Quay Co. Wexford, Errigal Bay in Carrick Co. Donegal and Connemara in Kilmeena Co. Mayo.

3.5.2.14 No Total Allowable Catch (TAC) or quotas are in place for whelk. A size limit of 50 mm length was introduced in 1994 (current regulation is S.I. No. 237/2006), which is based on the specified dimension of maximum shell width of 25 mm, which is approximately half the total length. This compares to an EU Minimum Conservation Reference Size (MCRS) of 45 mm for whelk. Based on size at maturity (70-85 mm) being higher than MCRS (50 mm), there is a high chance of juveniles being removed before they can contribute to the spawning stock, which leads to potential for increased risk of recruitment overfishing (Skerritt and Durrance, 2018).

3.5.2.15 Whelk landings from the Commercial Fisheries and Aquaculture Study Area indicate a seasonal peak across spring and summer months, though they are landed year-round.

Edible crab *Cancer pagurus*

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

3.5.2.17 As with lobster, Edible crab is caught by pots and have no TACs or quotas in place. Primary management is by the technical measure of an MLS of 140 mm carapace width inside 6 nm and 130 mm outside 6 nm (Council Regulation 850/98).

3.5.2.18 Fishing activity typically increases through late summer months, peaking in autumn and winter in the Commercial Fisheries and Aquaculture Study Area.

European Lobster *Homarus gammarus*

3.5.2.19 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. Movements of *H. gammarus* are related to foraging, with animals moving over a limited spatial scale (Thatcher *et al.*, 2023). Lobsters are more active during the nighttime with a tendency to reside in shallower water during nighttime versus daytime (Moland *et al.*, 2011). 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).

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

3.5.2.21 Lobster is one of the highest value per kilogram, commercially exploited shellfish species found in Irish waters. Fishing activity typically peaks across summer months in the Commercial Fisheries and Aquaculture Study Area, with a second peak in December associated with supplying the Christmas-time market.

3.5.3 Beam Trawl

3.5.3.1 Beam trawl nets (**Figure 3.35** sourced from Seafish (2022)) 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 trawlers tows two beam trawls at a time from derricks on either side of the vessel.

Table 3.4: Profile of typical beam trawl vessel active across the Commercial Fisheries and Aquaculture Study Area

Parameter	Indicative details
Main target species	Sole *S. solea*, plaice *P. platessa*, thornback ray *R. clavata*
Nationality	Irish and Belgian
Vessel length	15 m to 45 m
Horsepower	500 hp to 2,000 hp
Typical towing speed	3.5 to 8 knots
Typical duration of tow / dredge	one to two 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 t. Chain matting or individual chains attached to underside.

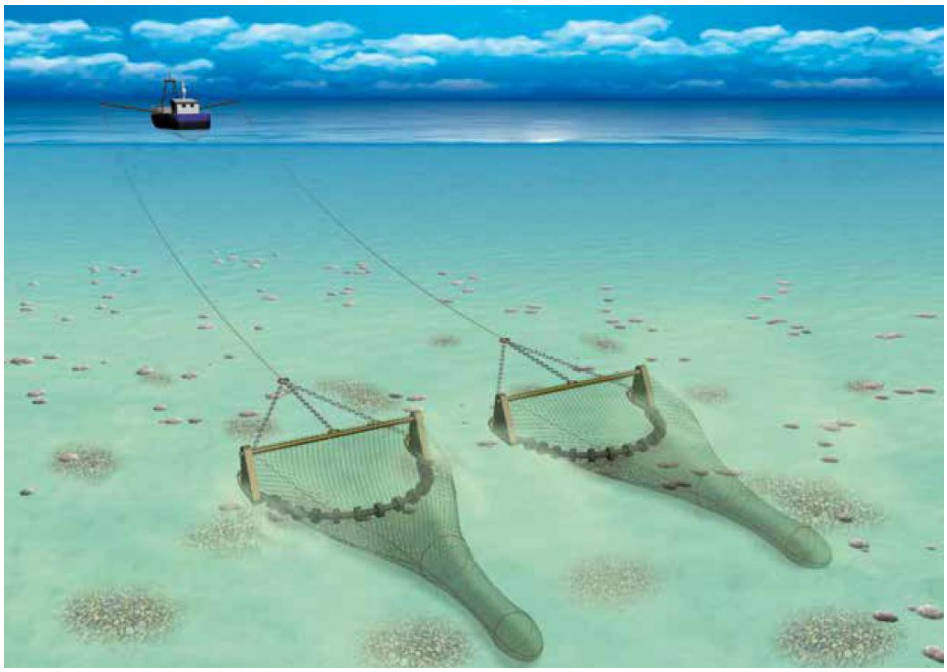


Figure 3.35: Typical beam trawl gear configuration

Key Species Caught by Vessels Operating Beam Trawl

Plaice *Pleuronectes platessa*

3.5.3.2 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 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 sedentary during the day, usually buried within the sediment leaving only the eyes protruding. They have been recorded from between 0 and 200 m depth, but are mostly between 10 and 50 m.

3.5.3.3 The Irish Sea plaice stock is in a very healthy state and fishing pressure is low (ICES, 2022a), 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 has been set in line with advice, and catches are usually below TACs, owing to limited market demand.

3.5.3.4 In the Commercial Fisheries and Aquaculture Study Area, plaice are taken year-round with landings peaking in summer months. Across the period 2016 to 2020, landings of plaice from the Commercial Fisheries and Aquaculture Study Area averaged ~ 9 tonnes annually.

Sole *Solea solea*

3.5.3.5 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 two to three years old. Adults are usually found at a depth range of between 10 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 and 40 cm.

3.5.3.6 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 is subject to a TAC (set at 40 t annually in the Irish Sea from 2016 to 2018, increasing more recently to 768 t 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.

3.5.3.7 Sole is caught in a mixed fishery with other flatfish as well as gadoids. In the Commercial Fisheries and Aquaculture Study Area, they are targeted using nets and demersal otter trawls, with landings peaking in summer months. Across the period between 2016 and 2020, landings of sole were less than 1 t per year between 2016 and 2018 reflecting the low TAC, increasing to 22 t in 2020.

Thornback ray *Raja clavata*

3.5.3.8 Thornback rays or roker belong to the Rajidae family of skates and rays. Thornback rays 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 and 60 m. They move offshore to deeper waters in the autumn and winter, and back to shallower inshore waters in spring.

3.5.3.9 Information on the status of the stock is limited but there is currently no concern over fishing 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.

3.5.3.10 Thornback rays are targeted seasonally or as bycatch in beam and otter trawl fisheries. Across the period 2015 to 2020, landings of thornback ray from the Commercial Fisheries and Aquaculture Study Area were recorded in 2016 reaching 3,500 t.

3.5.4 Pelagic Trawl

3.5.4.1 **Figure 3.36** (sourced from Poseidon; and Seafish (2022)) shows a typical pelagic trawler and associated gear and **Table 3.5** describes the profile of pelagic trawling vessels active across the wider Irish Sea.

3.5.4.2 Pelagic trawling is a method of towing a trawl in mid-water i.e. at any point in the water column between the surface and seabed. It is, generally, used to target shoaling species such as sprat and herring.

3.5.4.3 All classes of trawler can use pelagic trawls. From 10 m inshore vessels targeting shoals of pelagic fish in shallow water, up to the specialist pelagic vessels, over 40 m long.

3.5.4.4 Within the Commercial Fisheries and Aquaculture Study Area, landings data indicates that pelagic trawling is primarily undertaken by Irish registered vessels.

Table 3.5: Profile of typical pelagic trawl vessel active across the Commercial Fisheries and Aquaculture Study Area

Parameter	Indicative details
Main target species	Sprat *S. sprattus*, herring *C. harengus*
Nationality	Irish
Vessel length	Up to 50 m
Horsepower	500 hp to 1,200 hp
Typical towing speed	2 to 5 knots
Typical duration of tow	1-2 hours
Seasonality of activity	Peak activity in spring months
Typical gear	Pair or single trawls Net depth changed by altering either warp (rope) length or towing speed



Figure 3.36: Typical pelagic trawling vessel and gear configuration.

Key Species Caught by Vessels Operating Pelagic Trawl

Sprat *Sprattus sprattus*

3.5.4.5 Sprat is a pelagic schooling fish usually found in inshore waters, sometimes entering estuaries. It can also be found down to depths of 150 m. Sprat is short-lived, with a maximum age of six and average age at maturity of one - two years. Catches are therefore dominated by young fish.

3.5.4.6 Sprat show strong migrations between winter feeding and summer spawning grounds. They also undertake vertical migrations, moving to the surface at night.

3.5.4.7 Sprat stock size is mostly driven by the recruiting year class and therefore annual catches of sprat is highly variable, meaning that fisheries targeting this species must be highly

adaptive to change. There is no TAC for sprat in Irish waters, with main management being technical gear restrictions with mesh sizes of 16 mm and above when sprat is the target species.

3.5.4.8 On average, 25 Irish vessels over 10m in length participate in the sprat fishery annually. The majority of the catch is taken in ICES area 7j, as well as 7a, in an area off Dunmore East (Marine Institute, 2020).

3.5.4.9 While this is a seasonal fishery, fishers are requested (by the Minister) to avoid fishing for sprat in the Dunmore Box during September to March, to avoid bycatch of Celtic Sea herring. Dunmore East and the Dunmore Box are located on the south east coast of Ireland in the Celtic sea to the west of the ports Kilmore Quay and Wexford Harbour.

Herring *Clupea harengus*

3.5.4.10 Herring is a pelagic species widely distributed throughout the North-East Atlantic. Herring spawn in coastal waters in areas where the substrate consists of gravel and small stones. The eggs are attached to the substrate and hatch after about three weeks depending on temperature. The requirement for a gravel substrate means that the spawning grounds are relatively small and well defined. Herring spawning grounds are located to the south west of the Offshore Site and are presented within **Volume 2, Chapter 5: Marine Ecology**.

3.5.4.11 Herring in the Irish Sea is considered to be at full reproductive capacity and harvested sustainably (ICES, 2020a). A TAC is set for herring in the Irish Sea annually and there is an EU MCRS of 20 cm.

3.5.5 Scallop Dredge

3.5.5.1 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 3.37** (sourced from Seafish (2022)), **Figure 3.38** (sourced from Fishing News) and **Table 3.6** describes the profile of scallop dredging vessels active across the Commercial Fisheries and Aquaculture Study Area.

3.5.5.2 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 *A. opercularis* is targeted using skid dredges. Skid dredges operate in much the same way as toothed dredges which target king scallop P. maximus, 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.

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

addition to the Irish fleet, visiting vessels from Scotland, England and Northern Ireland periodically fish scallop grounds in the Irish Sea.

3.5.5.4 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.

3.5.5.5 Not all scallops in the path of the dredge are retained by the dredges and efficiency of the Newhaven dredge 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 3.6: Profile of typical dredging vessels active across the Commercial Fisheries and Aquaculture Study Area

Parameter	Indicative details
Main target species	King scallop *P. maximus* and queen scallop *A. opercularis*
Nationality	Irish and UK
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	one to two 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.

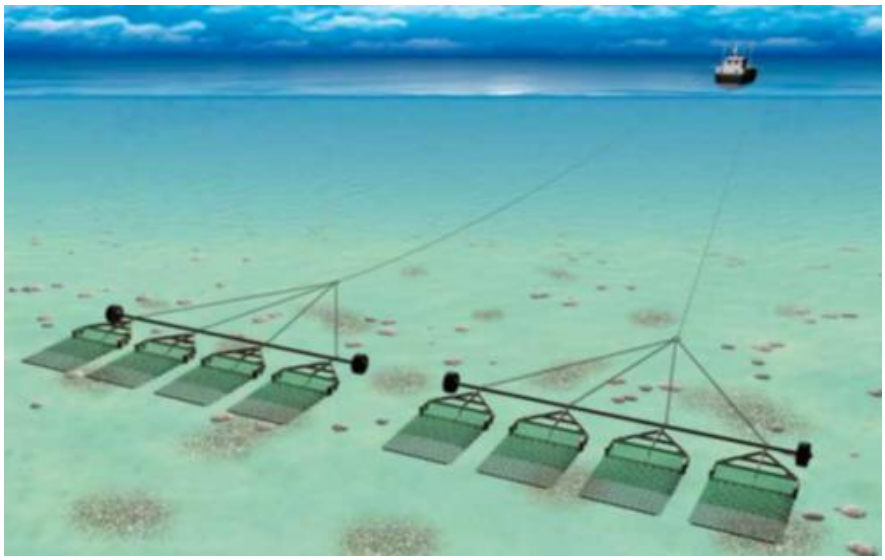


Figure 3.37: Typical dredge gear configuration



Figure 3.38: Example of dredge vessel

Key Species Caught by Vessels Operating Scallop Dredge

King scallop *Pecten maximus*

3.5.5.6 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 three to five years, at a size of 60 mm; the average maximum size is 160 mm. Recruitment is usually unpredictable as it depends not only on successful spawning and larval production but also on retention of larvae or transport of larvae into areas suitable for settlement. Larvae are pelagic with settlement in a particular area somewhat unpredictable leading 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.

3.5.5.7 There is no analytical assessment of king scallop stock status in this area. However, several administrations have responsibilities for this area and dredge surveys within the Irish Sea have been undertaken by Ireland, the Isle of Man and Wales.

3.5.5.8 There are no total allowable catches (TACs) (i.e. catch limits) or quotas in place for this species; instead, Irish 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).

3.5.5.9 Landings of king scallop from the Commercial Fisheries and Aquaculture Study Area typically peak from winter through to late spring.

Queen scallop *Aequipecten opercularis*

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

3.5.5.11 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).

3.5.5.12 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 (MLS) 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).

3.5.5.13 In general, landings of queen scallop are more variable and less valuable than king scallops. Queen scallop landings trends tend to have a cyclical nature with peaks and troughs on a seven to nine year cycle.

Key Species Caught by Vessels Operating Mussel Dredge

Blue Mussel *Mytilus edulis*

3.5.5.14 During consultation by the FLO as part of the ABWP Phase II EIAR, it was also noted that areas in the vicinity of the Offshore Site support a seed mussel fishery. Seed mussel beds that are actively dredged vary from year to year. The location of seed mussel beds local to Arklow Bank sand bank are primarily located in inshore areas off Wicklow town, to the northwest of the Sub Lease Area.

3.5.5.15 Blue mussel is a sessile bivalve attached to the substratum by a byssus. Mussels can withstand wide variation in salinity, desiccation, temperature and oxygen concentration, resulting in the ability to occupy a large variety of microhabitats. Mussels can be found on any substratum providing a secure anchorage such as rocks, stones, gravel, shingle, dead shells, and even mud and sand. In soft bottom areas the mussels form stabilised mussel beds of interconnected mussels and dead shells. Mussels can live to five years and recruit to the fishery age 0. Spawning occurs in early summer, with a pelagic larval dispersal phase (Marine Institute, 2017). Settlement of seed varies annually.

3.5.5.16 The mussel fishery targets seed, which are re-laid for on growing of bottom cultured mussel in aquaculture licence areas. This differs from the rope grown mussel aquaculture farms which collect seed from the water column in situ. The mussel beds targeted by Irish vessels for re-laying are considered ephemeral, and therefore harvest rates can vary by up to 100% of a mussel bed, as seed is not required to be maintained for reproductive capacity (Marine Institute, 2017). An ephemeral mussel bed occurs when mussel seed settles, but after a short period of time, is dispersed due to hydrographic or storm conditions, and therefore the aim of the fishery is to harvest the seed before it is lost.

3.5.5.17 A fishing vessel requires authorisation to harvest mussel seed and a quota is allocated on an individual vessel basis. Vessels are typically over 18 m in length, using dredges to harvest the mussel seed during autumn months for onward growing in specified aquaculture licenced areas.

3.5.6 Demersal Otter Trawl

3.5.6.1 Otter trawling uses a cone-shaped net which is held open by water pressure on two otter boards (**Figure 3.39**, sourced from Seafish (2022)). The net is towed either across the seabed (demersal otter trawl) or within the water column (pelagic otter trawl). Fish are captured 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 and shellfish species. Light otter trawling can be conducted by smaller boats using small doors. Demersal otter trawlers are highly active in the Commercial Fisheries and Aquaculture Study Area targeting nephrops, also taking haddock, monkfish, cod, plaice, thornback ray, lesser spotted dogfish and other demersal species.

3.5.6.2 Nephrops trawlers from Ireland and Northern Ireland are active in the Commercial Fisheries and Aquaculture 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 to 1.2 metres. The net is designed to be very low to target the nephrops on the seabed and to minimise 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 3.7: Profile of typical otter trawl vessel active across the Commercial Fisheries and Aquaculture Study Area

Parameter	Indicative details
Main target species	Nephrops N. norvegicus, haddock M. aeglefinus, monkfish (L. budegassa and L. piscatorius), cod G. morhua, plaice P. platessa, thornback ray R. clavata, lesser spotted dogfish S. canicula
Nationality	Irish and Northern Irish
Vessel length	Under and over 10 m, majority of nephrops trawlers over 10 m
Horsepower	50 hp to 300 hp
Typical towing speed	2 to 6 knots
Typical duration of tow	one to two hours, two to four 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

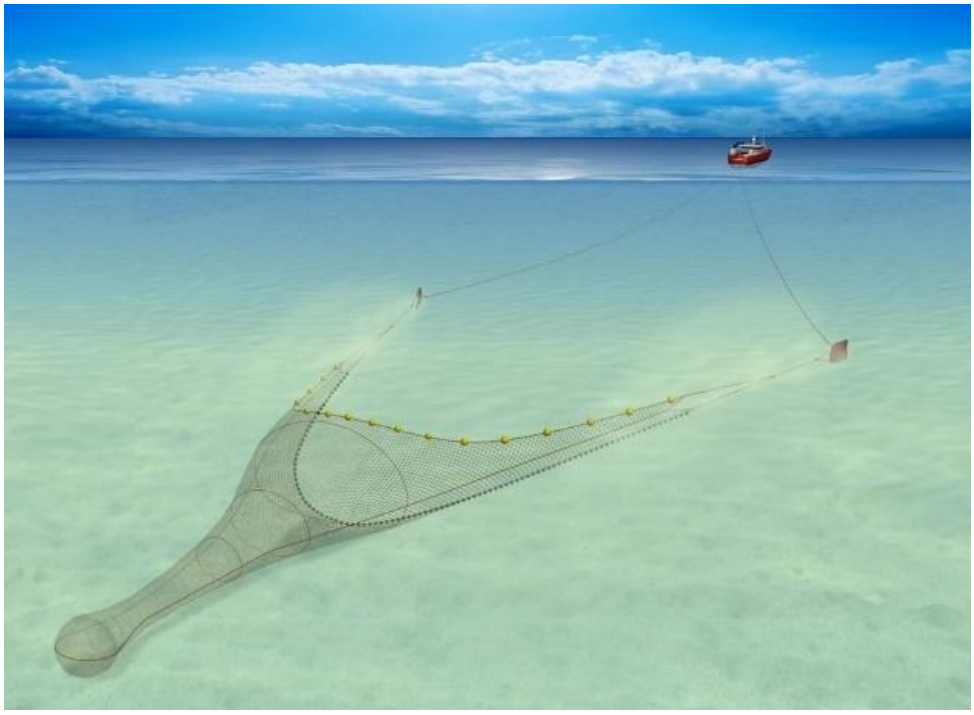


Figure 3.39: Typical otter trawl gear configuration

Key Species Caught by Vessels Operating Demersal Otter Trawl

Nephrops *Nephrops norvegicus*

3.5.6.3 Nephrops are a small lobster-like crustacean, 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 to 20 cm. Nephrops do not reach sexual maturity until two to three years. Life span in the Irish Sea is understood to be eight to nine years.

3.5.6.4 They are found in soft sediment, commonly at depths of between 200 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.

3.5.6.5 Nephrops stocks are delineated into Functional Units (FUs) that are assessed annually for stock status by ICES. There are two FUs in the Irish Sea: FU14 Irish Sea East and FU15 Irish Sea West. The Proposed Worksis located within FU15.

3.5.6.6 TACs are in place, but these are not specific to the stock in FU15. 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 West have been somewhat below the advised limits, with total catches (landings plus discards) averaging approximately 70% of the advised limits between 2017 and 2021 (ICES, 2022c).

3.5.6.7 There is a MCRS of 20 mm for Irish and UK trawlers in the Irish Sea. The EU Landing Obligation requires target species to be landed, and therefore prohibits the discarding of quota species. 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.

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

3.5.6.9 Fishing activity typically increases through late spring and summer months, dropping in the late autumn and winter months.

3.5.6.10 Annual underwater TV surveys are undertaken between Agri-Food and Biosciences Institute (AFBI) and Marine Institute to count the number burrows within the muddy habitat. These surveys inform the annual stock assessments undertaken by ICES for each nephrops FU, which are published annually in late October. The most recent stock assessment for FU15 indicates that the spawning stock biomass is above biological reference points and the fishing mortality is below exploitation reference points; indicating that the stock status is currently sustainable.

Haddock *Melanogrammus aeglefinus*

3.5.6.11 Haddock are a demersal bottom feeding round fish that occur mainly in waters from 40–200 m deep. Haddock matures at around two to three years of age and feed mainly on small bottom-living organisms including crustaceans, molluscs, echinoderms, worms and fishes.

3.5.6.12 In the Irish Sea, haddock are principally caught as part of a mixed fishery with cod and whiting (equating to 66% of landings of haddock), but are also taken as bycatch in the *Nephrops* trawl fishery (equating to 8% of landings of haddock). The spawning stock biomass of haddock is currently well above biological limits and fishing pressure is low; indicating that the species is currently harvested sustainably.

3.5.6.13 Landings occur throughout the year and on average peak during autumn. Ireland had a 43% share of the Irish Sea (7a) EU TAC in 2022. Landings of haddock from the Irish Sea by Irish vessels are mainly taken as part of a targeted fishery, with 70% of haddock

landings coming from trips where haddock was the dominant species landed. The majority of these trips are in the south of Division 7a in ICES rectangles 33E2 and 33E3 (Marine Institute, 2020).

Anglerfish / monkfish *Lophius piscatorius* and *L. budegassa*

3.5.6.14 Commercially targeted anglerfish in the Irish sea are comprised of two separate species; white anglerfish (*L. piscatorius*) and black anglerfish (*L. budegassa*). White anglerfish occur throughout the north-east Atlantic and are more abundant than black anglerfish in northern areas. It is a very distinctive fish, recognisable by having its head and body depressed, a wide mouth, broad head and a fleshy 'lure' at the end of its first dorsal spine, which is used to attract prey. They can live up to 24 years and reach 200 cm in length, reaching maturity at four to five years at a length of 35 cm.

3.5.6.15 Both species are most abundant from 200-500 m, with white anglerfish also occurring down to 800 m (the maximum depth in the Irish Sea is 315 m). It is found mostly on sandy or muddy bottoms but is also present on shell, gravel and occasionally rocky areas.

3.5.6.16 A minimum marketing weight is in place (EC 2406/96) of 500 g gutted or 200 g tail per individual. A single TAC applies to both species of anglerfish as they are often not separated in the landings. Ireland had a 7.6% share of the ICES area 7 EU TAC in 2020.

3.5.6.17 Anglerfish are a highly valuable demersal fish species, caught almost exclusively by demersal otter trawls. Catches in the Irish Sea are relatively low, compared to the Celtic Seas and West of Ireland.

Cod *Gadus morhua*

3.5.6.18 Atlantic cod is a demersal species, distributed across the continental shelves and in the coastal waters of the northern North Atlantic. Cod prefers water temperatures from 2 °C to 8 °C and water depth from 10 m to 200 m. Within its geographical range cod is a generalist, both in terms of habitat use and diet.

3.5.6.19 Cod around Ireland are very fast growing, reaching at least 35 cm in the first year and over 90 cm as adults. They can live up to 25 years and occasionally grow to lengths of 200 cm, reaching maturity at two to three years at a length of 41 cm.

3.5.6.20 A TAC is set for cod in the Irish Sea exclusively for by-catches, with no directed fishery permitted due to the state of the stock. Ireland had a 66% share of the Irish Sea (7a) EU TAC in 2022.

3.5.6.21 The majority of landings by the Irish fleet are from the Celtic Sea, with a small patch of activity within the west Irish Sea. Landings of cod are associated mainly with the Nephrops targeted fishery.

Lesser spotted dogfish *Scyliorhinus canicular*

3.5.6.22 Lesser spotted dogfish is a small shark species that has a slender body profile 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 Irish Sea. Maximum age has been estimated at 20 years.

3.5.6.23 Information on the status of the stock is limited but there is currently no concern over fishing pressure.

3.5.6.24 Lesser spotted dogfish are typically not part of a targeted fishery, but taken as bycatch in trawl 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.

4 AQUACULTURE ACTIVITY ASSESSMENT

4.1.1.1 An aquaculture site is located off the coast of Arklow, Co. Wicklow, approximately 4.5 km from the closest point of the offshore export cable. This aquaculture site is owned by the Irish Mussel Seed Company and is a mussel farm focused on harvesting mussel seed. The farm was granted a license from the Department of Agriculture, Food and Marine (license number T32/027) which is valid up to June 2029. The mussel farm is made up of semi-permanent structures marked by eight navigation buoys which are fixed to the seabed via screw in anchors (Wicklow County Council, 2022).

4.1.1.2 The location of the mussel farm is presented in **Figure 4.1**. The site has an approximate surface area of 0.64 km^2 and a perimeter of 3.3 km.

4.1.1.3 The mussel farm uses suspended structures to collect mussel seed, which is grown for approximately five to six months before being harvested and sold for further growth.

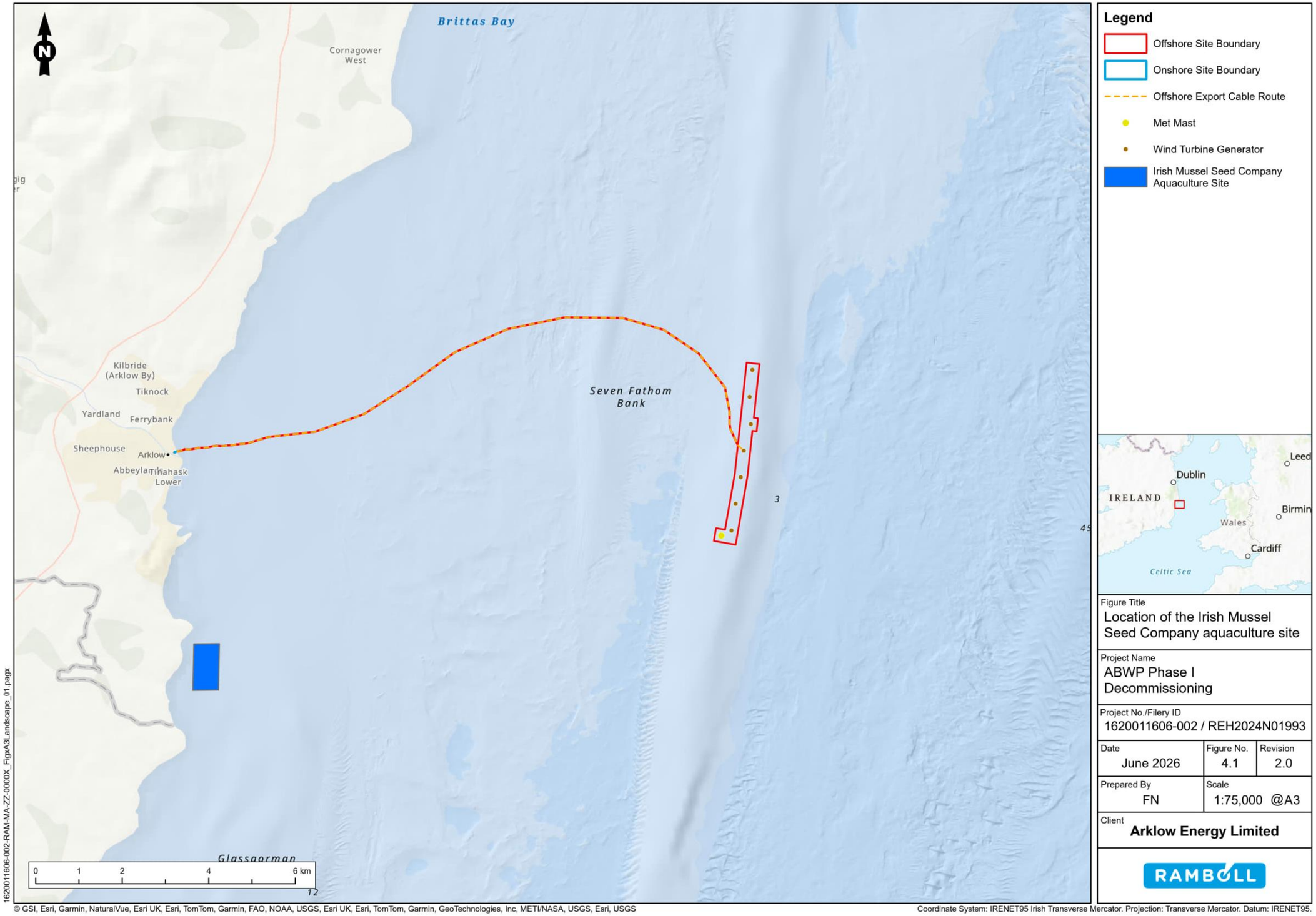


Figure 4.1: Location of Irish Mussel Seed Company mussel farm

5 FUTURE BASELINE ENVIRONMENT

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

- Brexit: there have been two schemes to support the Irish fishing industry due to the reduction in the TACs and quotas as a result of Brexit:
  - Tie up scheme: for one month in 2021 and for two months in 2022; and
  - Decommissioning scheme: in 2023 which saw approximately 40-42 vessels enter decommissioning, equating to 20% of the offshore fleet. This included Irish vessels that fished in the Irish Sea.
- 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.

5.1.1.2 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 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. However, in this case, existing baseline data do not capture any potential changes in commercial fisheries activity resulting from the withdrawal of the UK from the EU.

5.1.1.3 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 EEZs (12 to 200 nm) to fish. In this period, UK vessels will not have reciprocal access to the Irish territorial waters, between 0 to 12 nm.

5.1.1.4 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.

5.1.1.5 Market changes have the potential to impact fishing activity in the Commercial Fisheries and Aquaculture Study Area. The key species landed by potters in the area, is whelk, which is primarily exported to non-EU countries, including Korea, Taiwan and Singapore. Market price fluctuations in whelk and also in shipping fuel costs may impact the first sales value of whelk, which may influence fishers decision on target species.

5.1.1.6 In addition, non-fishery related factors are also driving change including climatic factors and warming sea temperatures that are influencing the range and distribution of commercially targeted species as well as species diversity and behavioural changes.

6 DATA LIMITATIONS AND UNCERTAINTIES

6.1.1.1 A range of different data limitations and uncertainty exist for all the commercial fisheries datasets assessed within this technical report. The level of uncertainty and confidence of each dataset is defined in **Table 6.1** based on the professional judgement, intended to inform the appropriateness of data used to inform the EIAR.

6.1.1.2 The principal limitation is that reliable, verifiable landings statistics are not formally reported for the under 10 m vessel fleets, as formal logbooks are not required to be maintained and submitted. This leads to incomplete landing statistics datasets, where data for under 10 m vessels is either included (i.e. through sales notes), estimated or completely omitted. This limitation of data for the under 10 m fleet is also noted for the AIS and VMS datasets, as discussed further below.

6.1.1.3 In addition, limitations of landings data include the spatial size of ICES rectangles which can misrepresent actual activity across the Proposed Works and care is therefore required when interpreting these data.

6.1.1.4 Lack of recent landings statistics for EU (non-Irish) fleets is also recognised as a data limitation; based on the most recent European Commission data call, more recent landings data (2017-2019) is no longer available by ICES rectangle (34E4 and 34E3). 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 area overlapping the Offshore Site.

6.1.1.5 Limitations of VMS data are primarily focused on the coverage being limited to vessels 12 m and over. 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 <12 m in length). This is particularly important when assessing the activity across the offshore export cable route infrastructure boundary for the potting fleet.

6.1.1.6 Despite the data limitations and uncertainties, a good range of fisheries data has been available from a range of sources including:

- Fisheries dependant data from SFPA, EU DCF, ICES and MMO;
- Scientific stock assessments from Marine Institute and BIM and ICES;
- Officially amalgamated datasets covering logbook declarations, sales notes for vessels under 10 m, gatherer dockets and co-op data as assessed by Marine Institute and BIM.

6.1.1.7 Overall, the range of data sources available, coupled with industry consultation and expert judgement provide sufficient knowledge to characterise the receiving environment for the purpose of undertaking the EIAR for commercial fisheries.

Table 6.1: Data limitations and uncertainty.

Data source	Type of data	Limitations and uncertainty
Landing statistics		
SFPA	Landing statistics (2020-2024) data for Irish-registered vessels, with data on year, port, species, landed weight and first sales value.	The data is for all Irish landings from all sea areas. Some data is likely to have been suppressed based on number of vessels at smaller ports. It is also not known whether data has full coverage of under 10 m vessels. Data assessed with: medium uncertainty and medium confidence
SFPA	Landings statistics (2011-2021) data for Irish-registered vessels, with data on year, species, landed weight, ICES division;, port of landing; and ICES rectangle.	The data has undergone a degree of suppression to ensure confidentiality of data, however, it is unknown which records are suppressed (i.e. for which species or fleets). Data for whelk is not consistent with other datasets analysed for the same period and area. Data assessed with: medium-high uncertainty and medium-low confidence
Marine Institute and BIM	Estimates of annual Irish landings of shellfish into Ireland (2004-2019).	The data is based on a wide range of sources to provide an accurate landing estimation for all vessel lengths, including logbook declarations and sales notes for vessels under 10 m, gatherer dockets, and co-op data. Data assessed with: low uncertainty and medium-high confidence.
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 34E4 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. This data source stopped being reported at ICES rectangle scale after 2016, which is the reason for the 2012-2016 period. The historic data remains useful to assess landings by Irish and non-Irish vessels at ICES rectangle scale. 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.
Spatial data		
Marine Institute	Whelk and lobster and brown crab fishing grounds for Irish potting vessels <15 m in length.	The data is based on interviews with the fishing industry undertaken by the Marine Institute, as well as expert knowledge. Data assessed with: low uncertainty and medium-high confidence.

Data source	Type of data	Limitations and uncertainty
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.

7 CONCLUSIONS

7.1.1.1 This technical report provides a robust characterisation of the commercial fisheries and aquaculture baseline relevant to the Proposed Works Offshore. Drawing on landings data, spatial fishing activity datasets, published literature and consultation evidence, it identifies the principal fisheries receptors and the spatial distribution of activity within the Commercial Fisheries and Aquaculture Study Area and the wider Irish Sea.

7.1.1.2 The fleet métiers operating with varying intensity across the Commercial Fisheries and Aquaculture Study Area include:

- Irish potting vessels targeting whelk, brown crab and lobster;
- Irish scallop dredgers targeting king scallop;
- Irish dredgers harvesting mussel seed;
- Irish pelagic trawlers targeting sprat and herring;
- Irish and Belgian beam trawlers targeting plaice, sole and mixed demersal species; and
- Irish demersal otter trawlers targeting nephrops, haddock and mixed demersal species.

7.1.1.3 It is also noted that a proportion of vessels in the potting métiers may interchange gear, between plastic pots and creels, to target a range of shellfish species in response to seasonal patterns and market demand.

7.1.1.4 In addition, the licensed mussel seed farm off Arklow represents a relevant aquaculture receptor that should be considered in the wider assessment of effects from Proposed Works Offshore.

7.1.1.5 The evidence indicates that the most relevant local fishery is the inshore potting fleet, particularly vessels targeting whelk, with additional potting activity for brown crab and lobster. These fisheries are concentrated primarily inshore and are of greatest relevance to the offshore export cable route and nearshore areas. By comparison, the Sub Lease Area itself is not identified as a core fishing ground for the main mobile gear fisheries assessed. Scallop dredging, beam trawling, demersal otter trawling and pelagic trawling are all relevant components of the wider regional fisheries baseline, but their strongest spatial concentrations generally occur outside the immediate footprint of the Offshore Site.

7.1.1.6 The report also shows that the inshore corridor between the Sub Lease Area and the coast is important for fishing vessel transit. This is a notable baseline characteristic because it highlights that interactions with navigation and access (which is considered in **Volume 2, Chapter 7: Shipping and Navigation**) may be as important as interactions with active fishing grounds.

7.1.1.7 Although some uncertainty remains, particularly in relation to smaller inshore vessels that are not fully represented in official VMS, AIS and some landings datasets, this technical report has reviewed all datasets available to characterise commercial fisheries activity across the Commercial Fisheries and Aquaculture Study Area. The use of multiple complementary datasets, together with fisheries liaison and expert interpretation, provides an adequate understanding of the receiving environment and allows the key fisheries and aquaculture receptors to be identified with appropriate confidence.

7.1.1.8 Overall, given the range of datasets assessed and the comprehensive analysis undertaken, the report is considered adequate for the purposes of the EIAR assessment. It supports the conclusion that the principal fisheries sensitivities associated with the Proposed Works Offshore relate to inshore potting activity, vessel transit routes and localised aquaculture interests, within the vicinity of the Offshore Export Cable. The baseline established in this technical report is therefore suitable to inform the subsequent assessment of likely effects and the development of any fisheries mitigation, management or liaison measures required as part of the Proposed Works Offshore.

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