Arklow Bank Wind Park 2

Environmental Impact Assessment Report

Volume III, Appendix 14.1: Commercial Fisheries and Aquaculture Technical Report

sse Renewables

ARKLOW BANK WIND PARK **2**

Appendix 14.1: Commercial Fisheries Technical Report

nimo CONSULTANTS

Report Information

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1.0	07/05/2024	Final (External)	NiMa	GoBe Consultants	Sure Partners Limited

Statement of Authority

Name	Qualifications	Experience
Fiona Nimmo	BSc (Hons) in Marine Biology (First Class Honours) from Newcastle University, 2003. BEng (Hons) in Chemical Engineering (2:1 Hons) from Edinburgh University, 2000.	Fiona has over 15 years experience in commercial fisheries EIAs, including renewable energy developments for offshore wind and tidal developments in waters off Scotland, England, Wales and Ireland. Fiona regularly develops post-consent fisheries liaison and mitigation plans, and commercial fisheries monitoring strategies as required by condition of consent. Fiona is currently providing consultant support to Fisheries Improvement Projects (FIP) for UK wide nephrops and scallop fisheries, including the Irish Sea. This work involves a collaborative approach working with industry associations and organisations, including regular quarterly meetings with the Steering Groups of industry, NGOs and fisheries administrators.

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Acronyms

Term	Definition
AFBI	Agri-Food and Biosciences Institute
AIS	Automatic Identification System
BIM	Bord Iascaigh Mhara
CFP	Common Fisheries Policy
DCF	Data Collection Framework
EC	European Commission
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMSA	European Maritime Safety Agency
ES	Environmental Statement
EU	European Union
FIP	Fishery Improvement Project
FLO	Fisheries Liaison Officer
FU	Functional Unit
GIS	Geographic Information System
ICES	International Council for the Exploration of the Sea
IFPO	Irish Fish Producers Organisation
IOM	Isle of Man
ISEFPO	Irish South and East Fish Producer's Organisation
MAP	Multi Annual management Plan
MCRS	Minimum Conservation Reference Size
MI	Marine Institute
MLS	Minimum Landing Size
MMO	Marine Management Organisation
NIFA	National Inshore Fishermen's Association
NIFO	National Inshore Fishermen's Organisation
NISA	North Irish Sea Array
NRA	Navigational Risk Assessment
PEIR	Preliminary Environmental Information Report
RWE	Renewables Ireland

SAR	Swept Area Ratio
SFPA	Sea Fisheries Protection Authority
SMEFF	Sustainable management of external fishing fleets
STECF	Scientific, Technical and Economic Committee for Fisheries
TAC	Total Allowable Catch
TCA	Trade and Cooperation Agreement
TV	Television
UK	United Kingdom
UKFEN	UK Fisheries Economic Network
VMS	Vessel Monitoring System

Units

Term	Definition
€	Euros
£	Pound sterling
°C	Degrees Celsius
cm	Centimetres
hp	Horsepower
kg	Kilograms
km	Kilometres
knots	Nautical mile per hour
kW	Kilowatts
m	Metres
mm	Millimetres
NM	Nautical Mile
t	Tonne

1. Introduction

1.1 Overview and purpose of this report

1 This report has been prepared by NiMa Consultants Limited (NiMa) to support the Environmental Impact Assessment Report (EIAR) of the Arklow Bank Wind Park 2 Offshore Infrastructure (herein referred to as the Proposed Development).

2 The information on commercial fisheries activity presented in this report is intended to inform the EIAR for the Proposed Development, by providing a detailed understanding of the commercial fisheries baseline, against which the potential impacts of the Proposed Development can be assessed. An overview of the information presented in this technical report is provided in Volume II, Chapter 14: Commercial Fisheries and Aquaculture of the EIAR.

3 Commercial fisheries activity described in this report, is defined as fishing activity legally undertaken where the catch is sold for taxable profit. The ecology of the fish and shellfish species targeted by commercial fishing activity is described in, Volume II, Chapter 10: Fish and Shellfish Ecology.

1.2 Report structure

4 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) presents the characterisation of the existing environment for the commercial fisheries assessment;
- Section 4 (Fisheries activity assessments) presents the characterisation of the existing environment for the commercial fisheries assessment by country, gear type and fishery;
- 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

5 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.

6 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.

7 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.

8 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.

9 In Irish waters, the NiMa team are currently providing commercial fisheries expertise to Dublin Array Offshore Wind Farm Project (RWE and Saorgus Energy) and North Irish Sea Array (NISA Ltd), as well as the Proposed Development.

10 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

11 This technical report has been developed following a detailed and rigorous desk-based assessment of data and literature, as well as marine scouting surveys that have been conducted monthly since 2019. Publicly available data sets, data results from specific requests, and scouting survey data have been analysed. Landings statistics have been analysed using Excel; and Vessel Monitoring System (VMS) data have been evaluated using ArcMap Geographic Information System (GIS) software.

12 This quantitative data has been supplemented with qualitative information gained through direct consultation with the fishing industry; and communication and discussion between the onshore Fisheries Liaison Officer (FLO) and the fishing industry.

2.2 Study area

13 The Proposed Development is located within the south-western portion of the International Council for the Exploration of the Sea (ICES) Division 7a (Irish Sea) statistical area; within Irish Exclusive Economic Zone (EEZ) waters. The Proposed Development 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 Member States operating in the Irish Sea.

14 The Proposed Development is located within ICES rectangles 34E3 and 34E4, which represents the commercial fisheries study area (Figure 14.1.1); note that the Proposed Development occupies only a portion of these ICES rectangles.

15 While landings statistics data analysis has focused on the commercial fisheries study area, a wider scale has been presented for spatial activity, including VMS and automatic identification system (AIS) datasets.

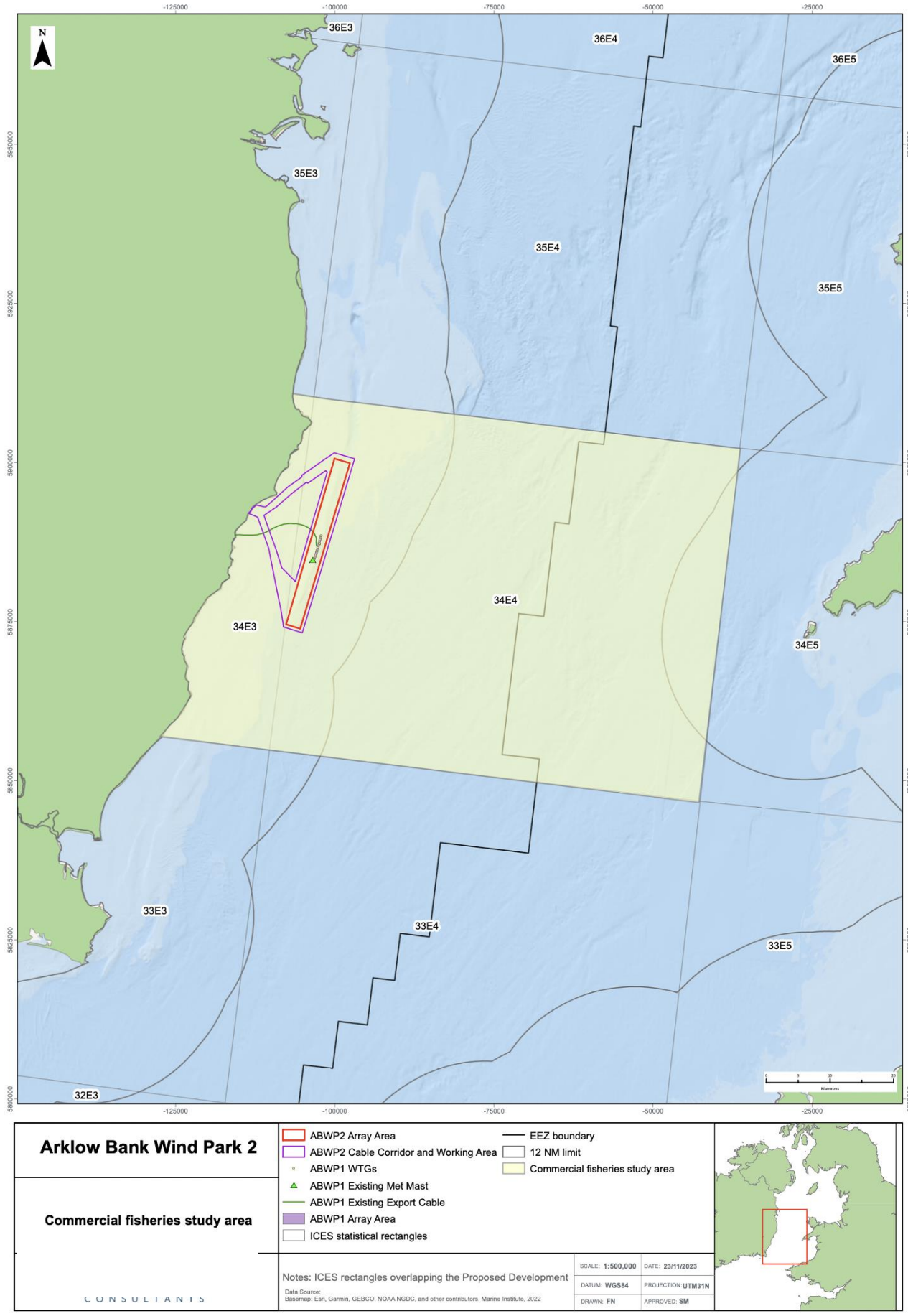

Figure 14.1.1: Commercial fisheries study areas

2.3 Data sources

16 A range of data sources have been analysed and presented within this report and these are listed in Table 14.1.1. Each data source provides information for a specific set of parameters dependant on the geographic scope, target species and method of recording the data (e.g., logbook records, landing declarations, sales notes, questionnaire etc.). Due to this range and variation in the scope of data sets, each has been presented in a separate section, thereby avoiding inappropriate comparisons across data.

17 Data has been sourced from the Scientific, Technical and Economic Committee for Fisheries (STECF), ICES, the Irish Sea Fisheries Protection Agency (SFPA), Bord Iascaigh Mhara (BIM; Ireland's Seafood Development Agency), the Irish Marine Institute, the European Union (EU) Data Collection Framework (DCF), the UK Marine Management Organisation (MMO) and the European Maritime Safety Agency (EMSA).

18 Where data sources allow, a five to six-year trend analysis has been undertaken, using the most recent annual datasets available at the time of writing. The temporal extent of this analysis is dependent on each data source analysed, e.g. 2012 to 2016 or 2016 to 2021, as annotated in Table 14.1.1. This presents a wide temporal range of data sources that have been analysed within the baseline characterisation, ensuring that long term trends in fisheries can be identified.

19 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 windfarm site has also been provided by the ABWP2 FLO.

20 A full description of the associated data limitations is provided within Section 5.

Table 14.1.1: Data sources used to inform this report

Country	Data	Time period	Source
Landing statistics			
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
All Europe	Landings statistics for EU registered vessels with data query attributes for: landing year; landing quarter; ICES rectangle; vessel length; gear type; species; and, landed weight (tonnes).	2012 to 2016	EU DCF database
Ireland	Estimates of annual landings (tonnes) and value (€) of crustacean and bivalve shellfish (excl. prawns and mussels) into Ireland 2004-2019 (source: Logbook declarations and sales notes for vessels under 10 m, gatherer dockets, co-op data).	2004 to 2019	Marine Institute and BIM
UK	Landings statistics data for UK-registered vessels, with data query attributes for: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type; port of landing; species; live weight (tonnes); and value. These landings statistics are published annually by the MMO and include vessels registered to the following UK administrations and British crown dependencies: England, Wales, Scotland, Northern Ireland, Isle of Man	2016 to 2021	MMO

Country	Data	Time period	Source
	(IOM), Guernsey and Jersey. Commercial fishing vessels that are registered to the IOM are required to hold both IOM and UK fishing licences.		
Spatial data and Vessel Monitoring System (VMS) data			
All Europe	VMS data for EU registered vessels ≥12 m length. VMS data sourced from ICES displays the surface Swept Area Ratio (SAR) of catches by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear makes contact with (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity.	2017 to 2020	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
UK	VMS data for UK registered vessels ≥15 m length. Note that UK vessels ≥12 m in length have VMS on board, however, to date, the MMO provide amalgamated VMS datasets for ≥15 m vessels only. VMS data sourced from MMO displays the first sales value (£) of catches.	2016 to 2020	MMO

2.4 Site specific surveys

21 Other surveys carried out across the Proposed Development that are relevant to commercial fisheries include:

- Benthic ecology surveys;
- Geophysical surveys; and
- Automatic Identification System (AIS) and radar surveys capturing non AIS vessel activity.

2.5 Consultation

22 Consultation with commercial fisheries stakeholders undertaken to inform the EIAR is detailed in Volume II Chapter 14 Commercial Fisheries and Aquaculture.

23 NiMa have worked closely with the FLO who has led on fisheries communications related to the Proposed Development.

3. Fishing spatial activity mapping

3.1 Fishing access

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

25 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.

26 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 Proposed Development, 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 Arrangement is 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 Fishing vessel activity surveys

27 Regular fishing vessel activity surveys of the Proposed Development, including Array Area and Cable Corridor and Working Area, have been undertaken since 2019 to monitor fishing activity and vessel movements. These surveys have been completed by Alpha Marine Limited and commissioned by the Developer. The objective of the surveys was to identify and record all activity by fishing vessels within and around the Proposed Development. In total 49 surveys have been undertaken from 2019 to 2023, with results presented in Figure 14.1.2. The observations were recorded to occur in three areas as defined in Figure 14.1.3 within the Array Area; within the Cable Corridor and Working Area; or within other fishing areas.

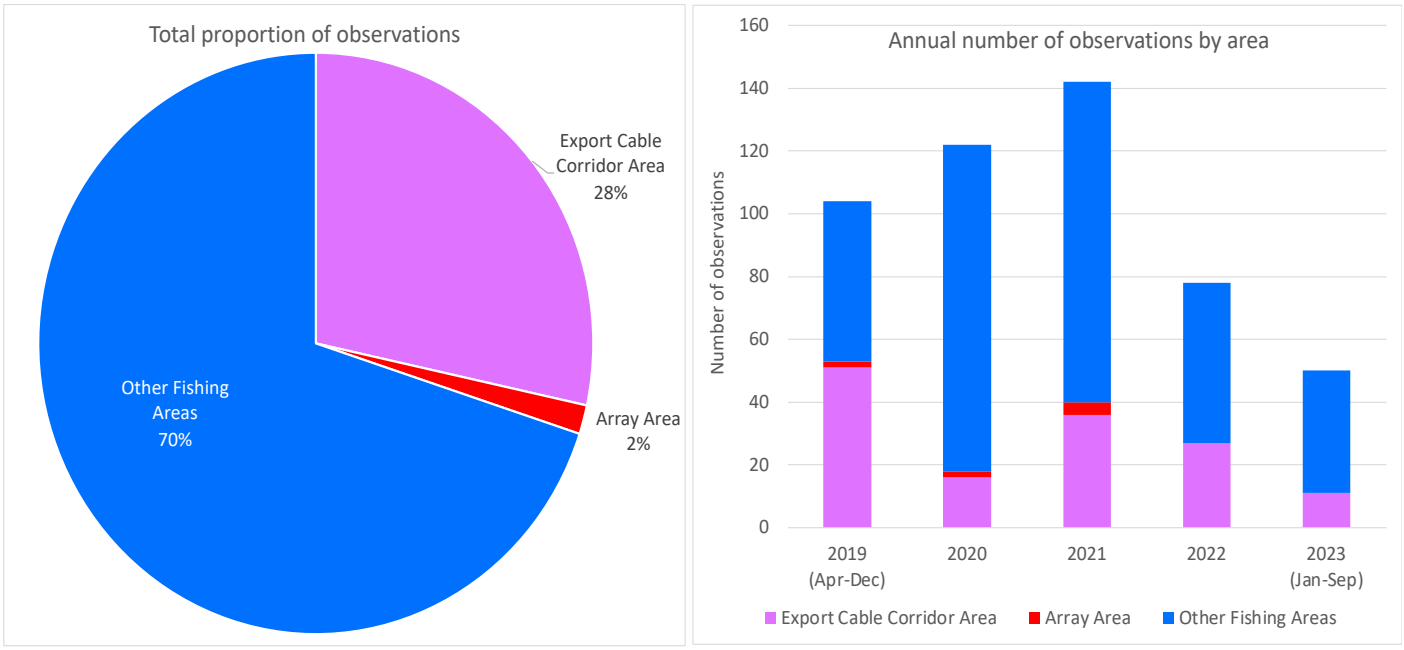

Figure 14.1.2: Fishing vessel activity survey observations for 2019 to 2023

28 In total, over the period 2019 to 2023, 28% of the observations occurred within the Cable Corridor and Working Area and only 2% occurred within the Array Area; the remainder (70%) occurred in the other fishing areas, inshore from the Array Area and outside the Cable Corridor and Working Area.

29 The fishing vessel activity surveys observed whelk fishing in the nearshore area, evidenced by potting gear markers. Based on gear marking and observed fishing vessels, these inshore areas are targeted by a small number of vessels based at Arklow, Wicklow and Courtown. Activity was specifically noted in shallow water areas from Arklow to Wicklow Head and between the Arklow Bank and the shore.

30 Whelk pots were observed in the inshore areas including overlapping the Cable Corridor and Working Area. Very limited activity was observed within the Array Area for any form of active fishing.

31 Throughout the surveys being undertaken, strong currents and at times challenging sea conditions were observed, particularly on and adjacent to the Arklow Bank. Alpha Marine surveys postulate that such conditions would make operation of fishing gear challenging.

32 Fishing vessels engaged in trawling were occasionally observed working outside the Arklow Bank. Dredging for seed mussel was noted to be undertaken in the area bounded by the North Arklow Bank, the shore and Wicklow Head.

33 Overall, the fishing activity observed was primarily potting gear targeting whelk in the inshore areas, with some overlap of activity across the Cable Corridor and Working Area.

3.3 Fishing intensity based on VMS data

34 This section presents the spatial mapping data and information available to inform the location and intensity of fishing across the regional study area, and at a wider spatial scale as available. The key Irish fishing ports in the region are depicted in Figure 14.1.4.

35 VMS data has been obtained from two different sources, with varying details as follows:

- ICES VMS data displays the surface SAR of catches by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear makes contact with (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity and has been analysed to determine an average annual SAR based on data from 2016 to 2020;
- Marine Institute Irish vessel VMS data sourced from the Marine Institute data catalogue indicating fishery effort data by gear type amalgamated across 2014 to 2018. 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; and
- Marine Institute inshore fishery mapping for vessels under 15m in length for various shellfish species.

36 Potting VMS data for potting vessels 15m and over is shown in Figure 14.1.6. Potters in the study area target edible crab *Cancer pagurus*, lobster *Homarus gammarus* and whelk *Buccinum undatum*. VMS data typically does not represent activity for potters due to these vessels being under 15m in length, however, Figure 14.1.6 displays whelk potting activity to the south of the Proposed Development. Activity mapping for the inshore fleet including vessels under 15m in length is available by target species (Figure 14.1.10). Potting activity is understood to have altered significantly since the time period of these activity maps, with wider grounds targeted. Further data on potting activity has been collated through the regular marine activity surveys undertaken by the Developer.

37 Beam trawl activity is depicted in Figure 14.1.7 and Figure 14.1.8. Negligible beam trawl activity occurs across the Proposed Development, with notable grounds located approximately 50 km south east of the Array Area. The beam trawl fleet target sole *Solea solea*, plaice *Pleuronectes platessa* and thornback ray *Raja clavata*.

38 Pelagic trawl activity is depicted in Figure 14.1.9, indicating some fishing activity takes place in inshore areas by this method. From the information gathered during consultation with fisheries stakeholders it is understood that some local vessels target a seasonal fishery for pelagic species such as sprat *Sprattus sprattus*. Another species targeted by pelagic trawl in the Irish Sea is herring *Clupea harengus.* In the context of the Array Area, it is important to note the very shallow

nature of the Arklow Bank, and therefore the limited potential for the site to support fishing activity, particularly in the case of large vessels operating towed gear.

39 Dredge activity is depicted in Figure 14.1.10, Figure 14.1.11, Figure 14.1.12, and Figure 14.1.13. Dredge vessels target two scallop species: king scallop *Pecten maximus* and queen scallop *Aequipipecten opercularis.* In addition, there is a blue mussel *Mytilus edulis* seed dredge fishery, as shown in Figure 14.1.10, with a number of sites inshore from the Array Area and some overlapping with the Cable Corridor and Working Area.

40 Demersal seine activity is depicted in Figure 14.1.14, indicating negligible activity across the Proposed Development.

41 Demersal otter trawl activity is depicted in Figure 14.1.15 and Figure 14.1.16, with limited activity targeting a range of demersal species including: Nephrops *Nephrops norvegicus* (also known as Dublin Bay prawn, Norway lobster or scampi, hereon referred to as nephrops), haddock *Melanogrammus aeglefinus,* monkfish (*Lophius budegassa* and *L. piscatorius*), cod *Gadus morhua*, thornback ray *R. clavata*, lesser spotted dogfish *Scyliorhinus canicula* and other demersal species.

42 Small levels of fishing activity are noted to occur inshore from the Array Area for some mobile gear types, including: demersal otter trawl, demersal seine and beam trawl vessels. While VMS data is analysed by speed to determine active fishing (rather than transiting), there may be times when a vessel at fishing speed is indeed in transit. There is a defined fishing vessel transit route inshore from the Array Area, which is evidenced by AIS data described below in section 3.5. These mobile fishing fleets are understood to be in transit through the area inshore from the Array Area, rather than engaged in active fishing.

3.4 Inshore fishing grounds

43 Inshore fishing ground mapping is available for Irish vessels from Ireland's Marine Atlas for Irish vessels utilising potting and dredge. This data is for vessels less than 15m in length targeting inshore waters.

44 Potting inshore mapping is depicted in Figure 14.1.5 for vessels less than 15m in length targeting shrimp, brown crab and lobster and whelk.

45 Dredge inshore mapping is shown in Figure 14.1.10 for all inshore dredging, including mussel seed.

3.5 Fishing intensity based on AIS data

46 Fishing vessel route density, based on vessel AIS positional data is shown in Figure 14.1.17 for 2021, Figure 14.1.18 for 2022 and presented seasonally for 2022 in Figure 14.1.19 depicting activity in spring, summer, autumn and winter. AIS is required to be fitted on fishing vessels ≥15 m length. The data is specific to fishing vessels and indicated the route density per square km per year. This data does not distinguish between transiting vessels and active fishing, but does provide a useful source to corroborate fishing grounds.

47 High levels of activity by fishing vessels are noted across the Cable Corridor and Working Area, running parallel to the Array Area. The seasonal data indicates that the array infrastructure boundary is targeted throughout the year, with no obvious peaks seasonally.

3.6 Fishing intensity based on marine traffic survey data

48 Project-specific marine traffic surveys were undertaken in July 2019, September 2022 and August 2023, using AIS and radar tracking and visual observations to record vessel activity across the Proposed Development.

49 Fishing vessels were mainly recorded transiting either to/from Wicklow or north/south inshore of the Array Area. Potential active fishing activity was observed to the southwest of the Array Area as well approximately 8 to 10 NM from the Array Area.

50 An average of three to four unique fishing vessels per day was recorded within the Study Area during the survey period. A single intersection through the Array Area was recorded, on Radar.

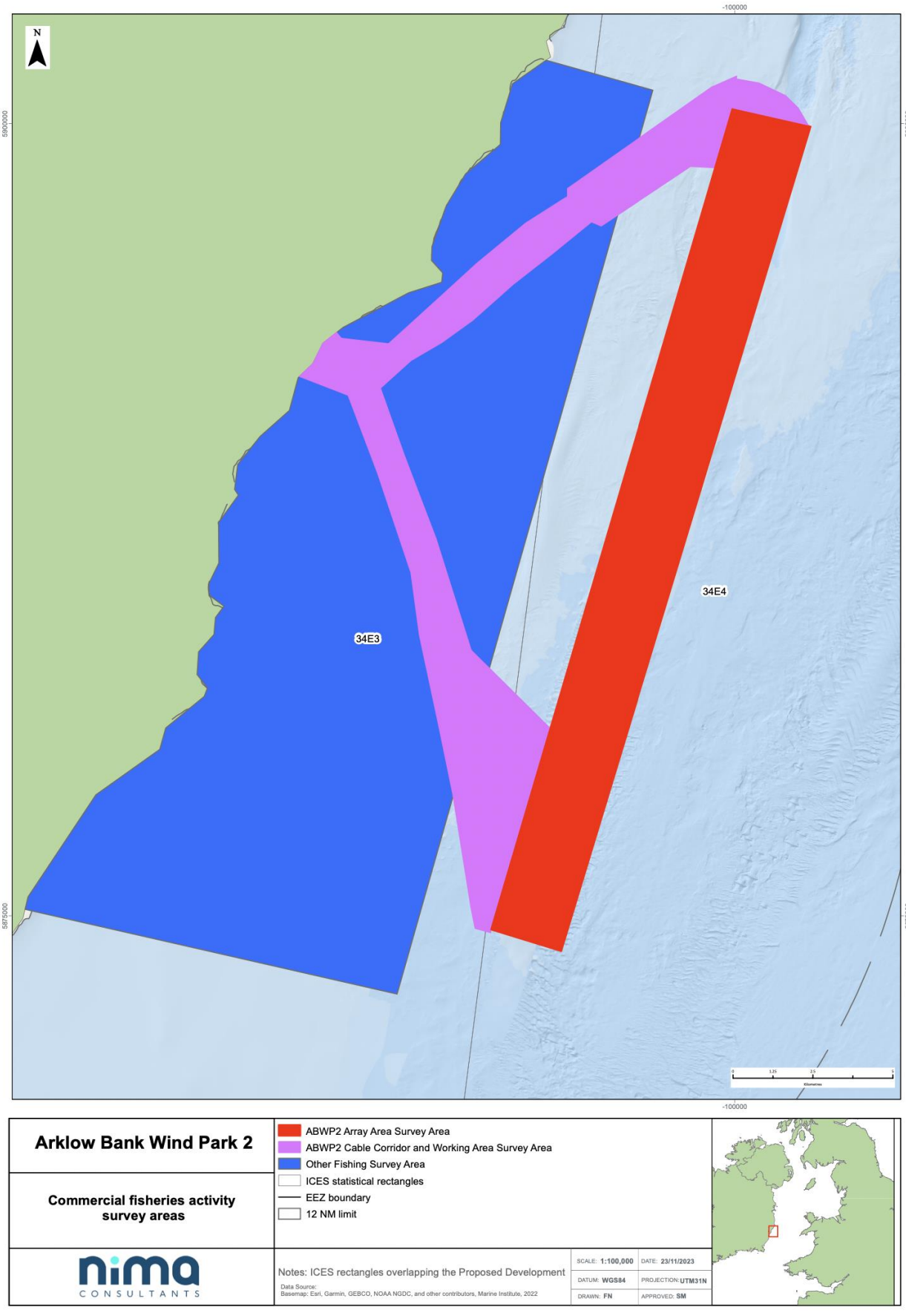

Figure 14.1.3: Areas defined for the fishing vessel activity surveys undertaken from 2019 to 2023 (Source: Alpha Marine, 2018-2023)

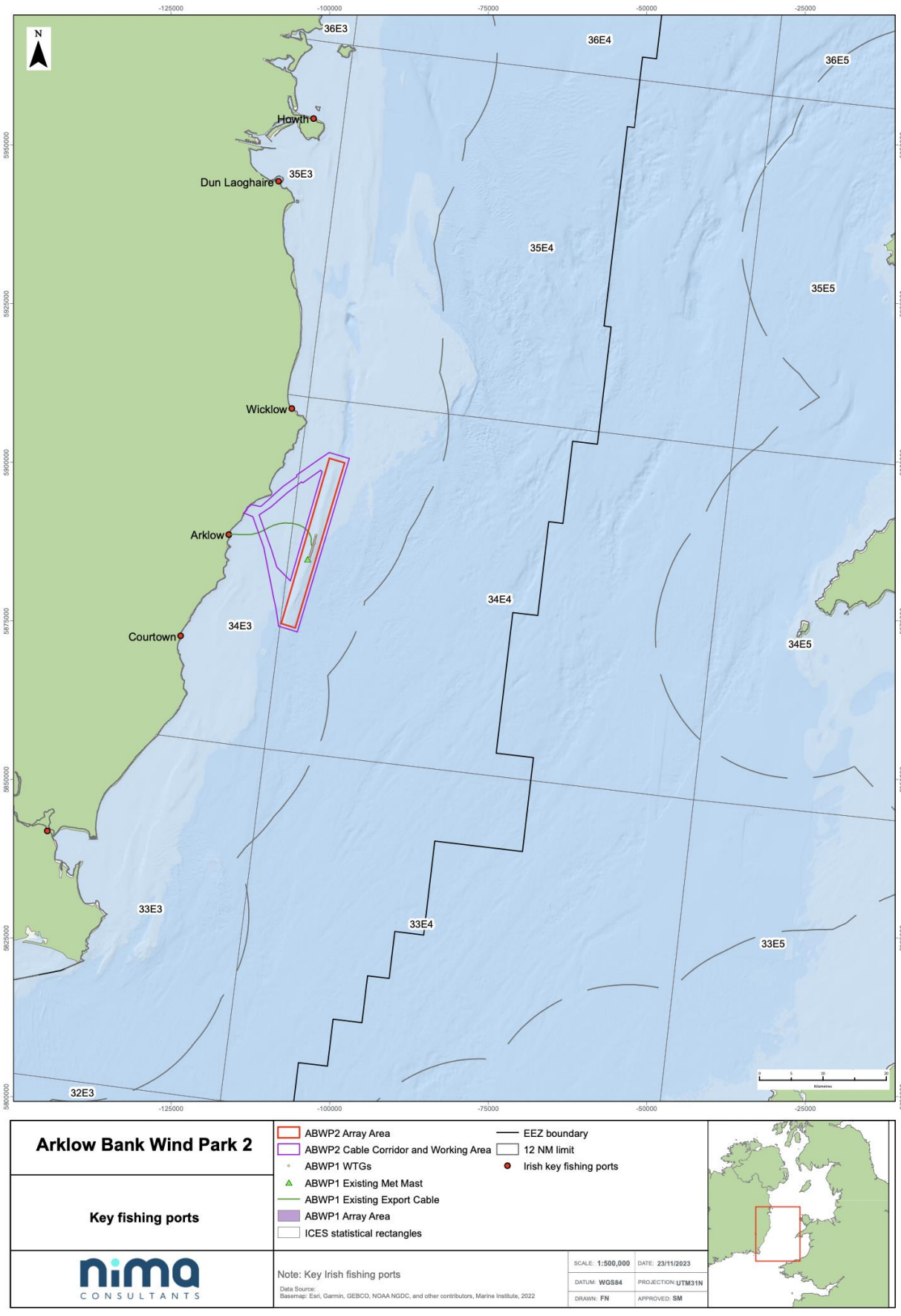

Figure 14.1.4: Key Irish ports in the region (Source: Marine Institute, 2021)

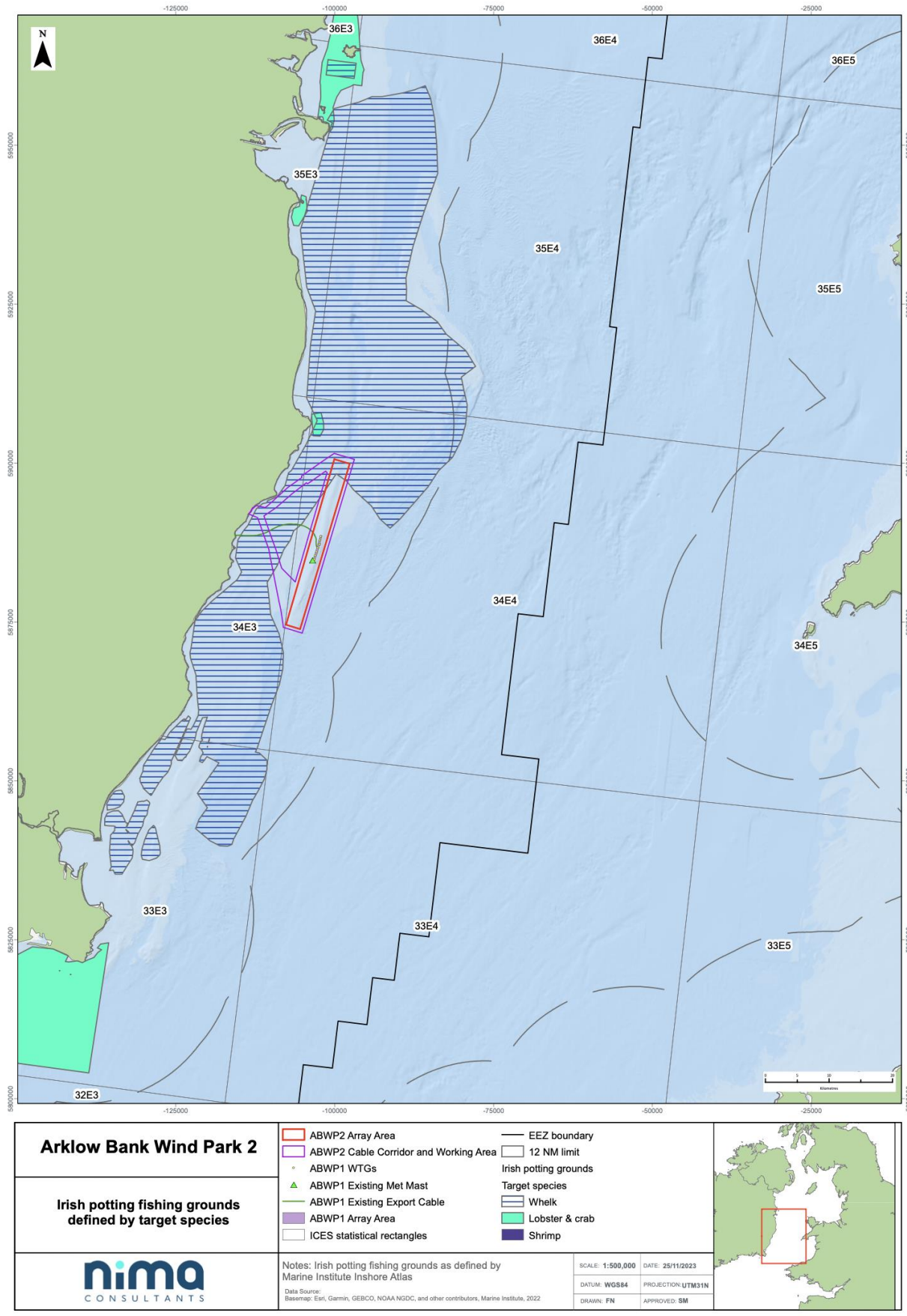

Figure 14.1.5: Irish inshore fishing marine atlas indicating grounds targeted by potting (Source: Marine Institute, 2021)

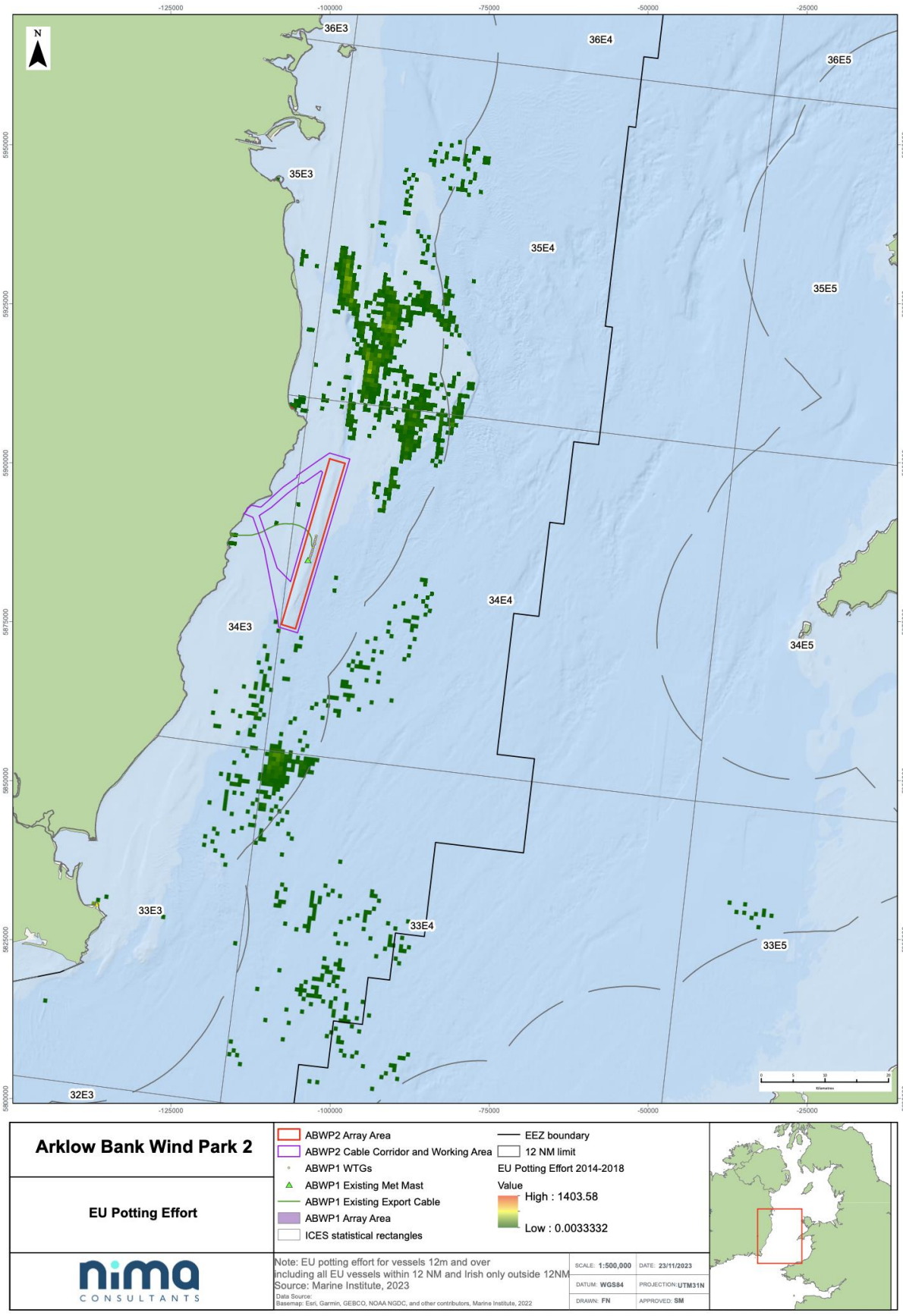

Figure 14.1.6: VMS effort data for EU vessels ≥ 12 m length actively fishing using pots (note that outside the Irish EEZ records are only routinely available for vessels registered in Ireland) (Source: Marine Institute, 2023)

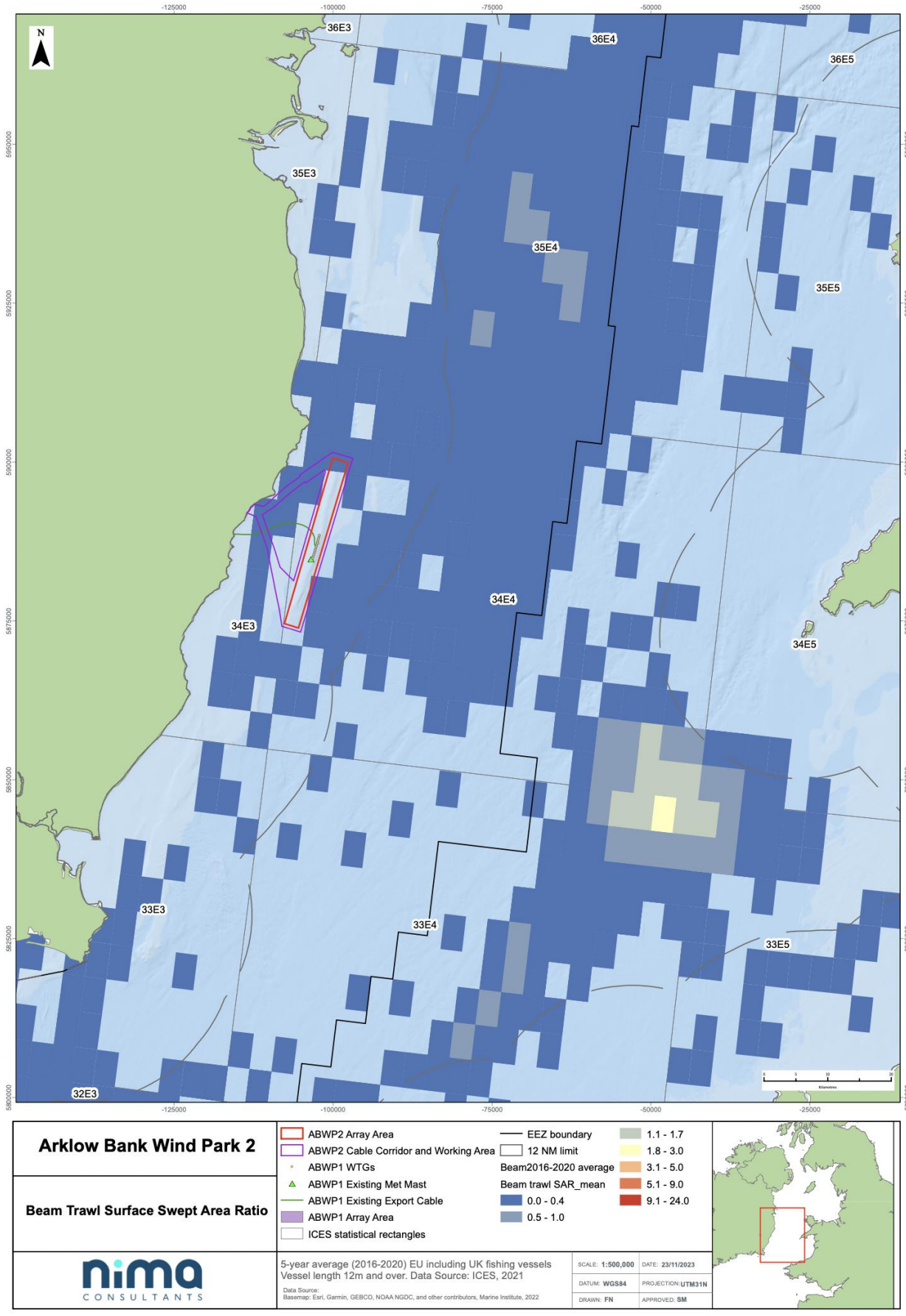

Figure 14.1.7: Surface Swept Area Ratio 2016 to 2020 for EU (including UK) vessels ≥ 12 m length using beam trawl gear (Source: ICES, 2021)

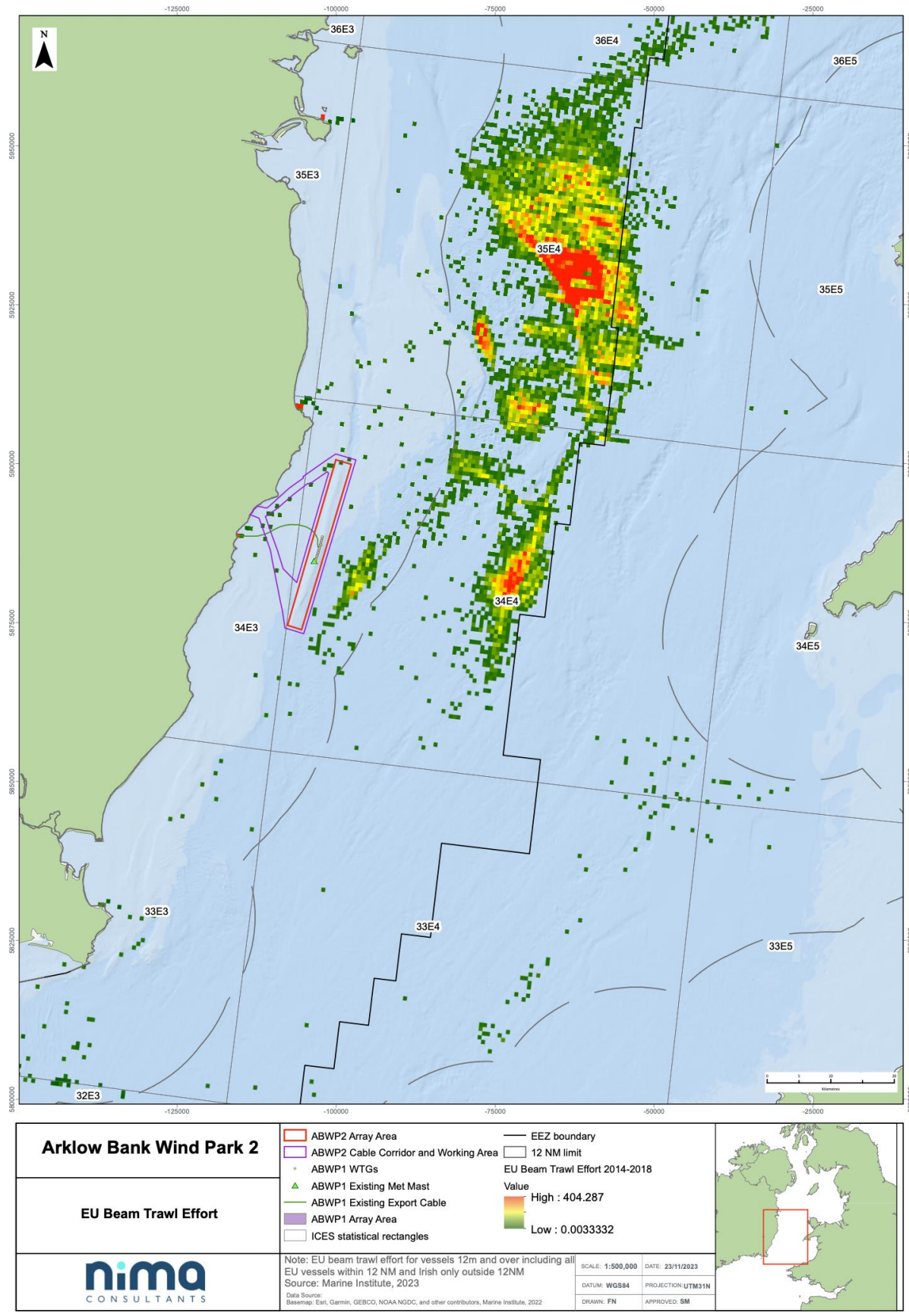

Figure 14.1.8: VMS effort data for EU vessels ≥ 12 m length actively fishing using beam trawl (note that outside the Irish EEZ records are only routinely available for vessels registered in Ireland) (Source: Marine Institute, 2023)

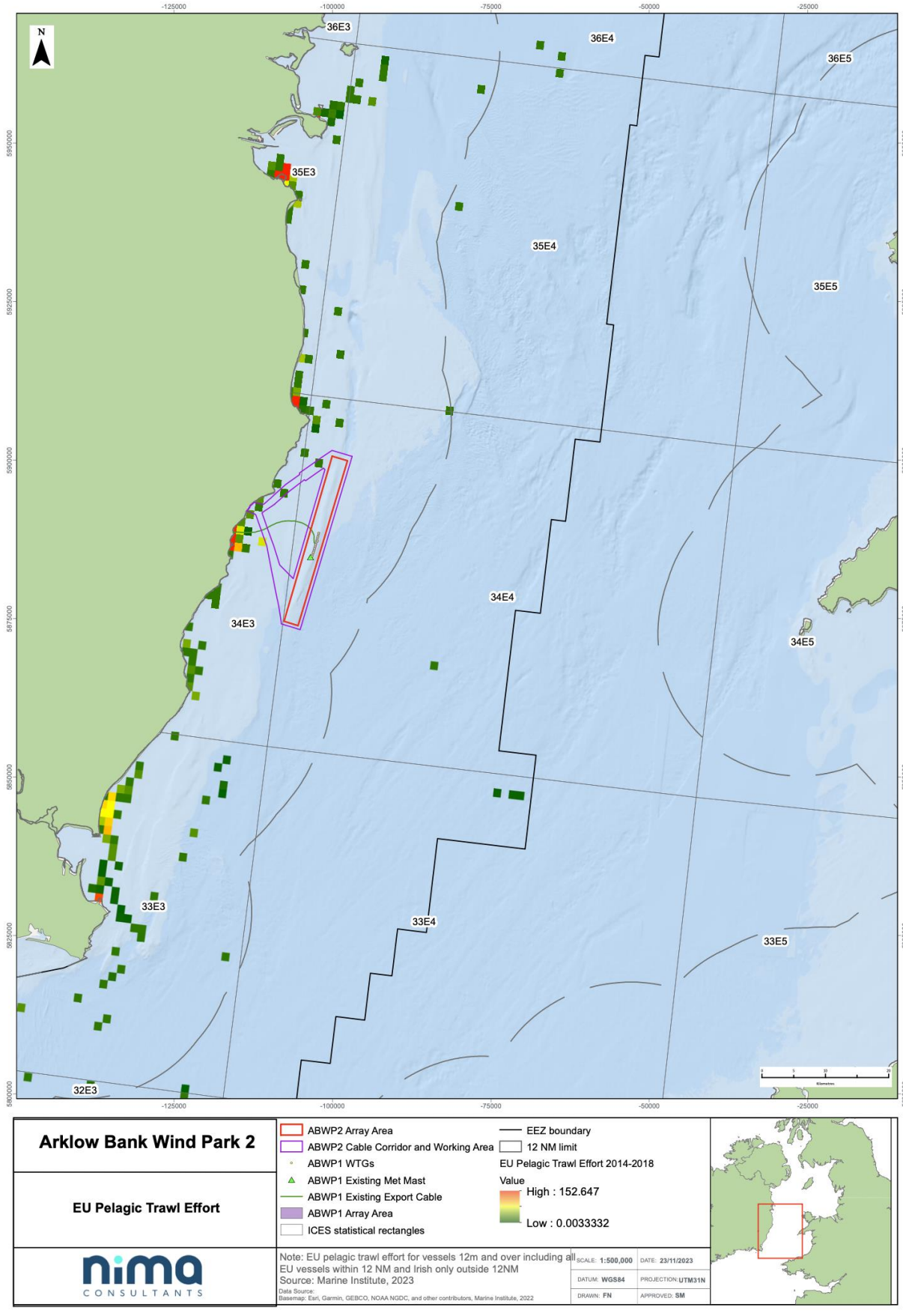

Figure 14.1.9: VMS effort data for EU vessels ≥ 12 m length actively fishing using pelagic trawl (note that outside the Irish EEZ records are only routinely available for vessels registered in Ireland) (Source: Marine Institute, 2023)

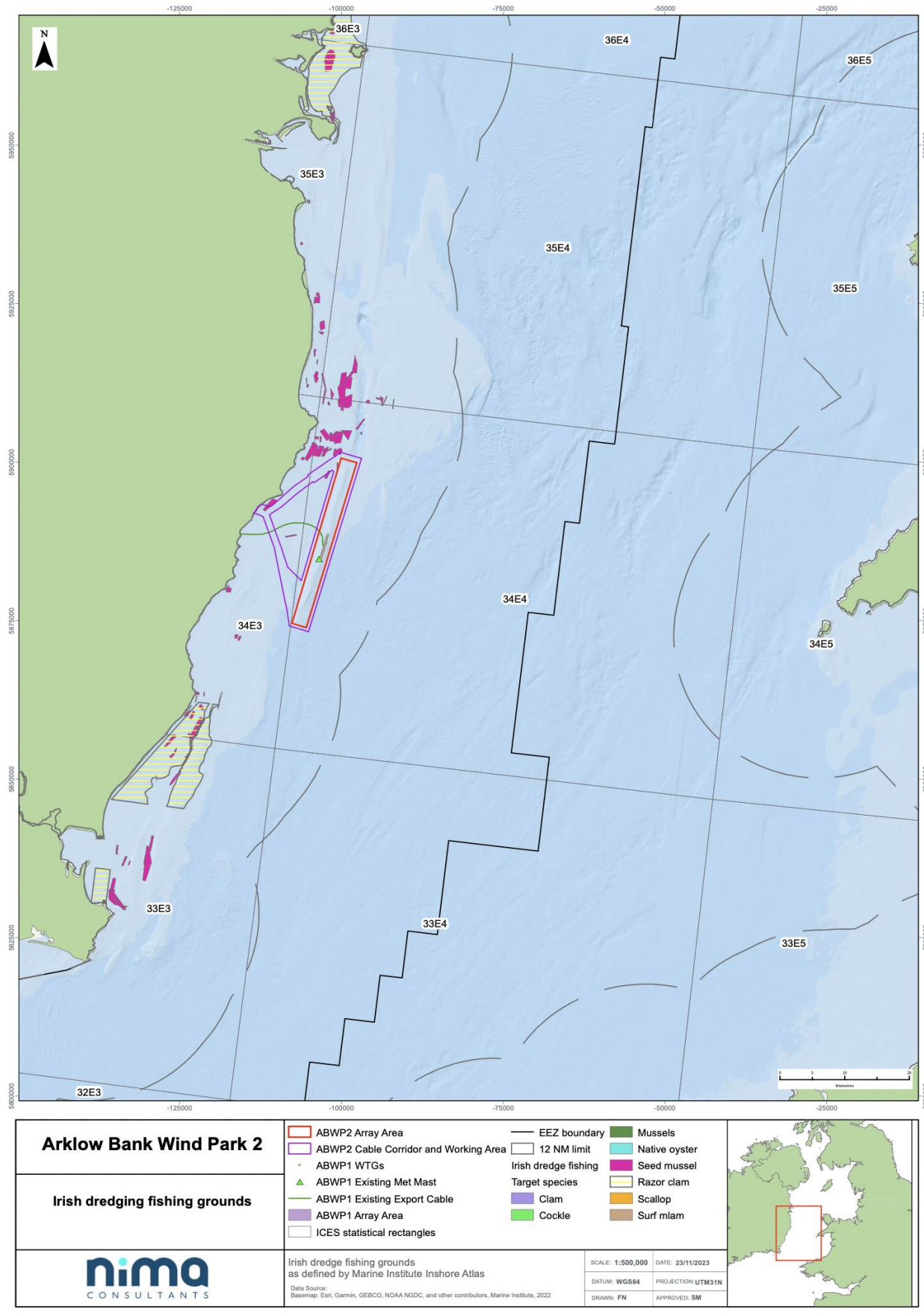

Figure 14.1.10: Irish inshore fishing marine atlas indicating grounds targeted by dredges (Source: Marine Institute, 2021)

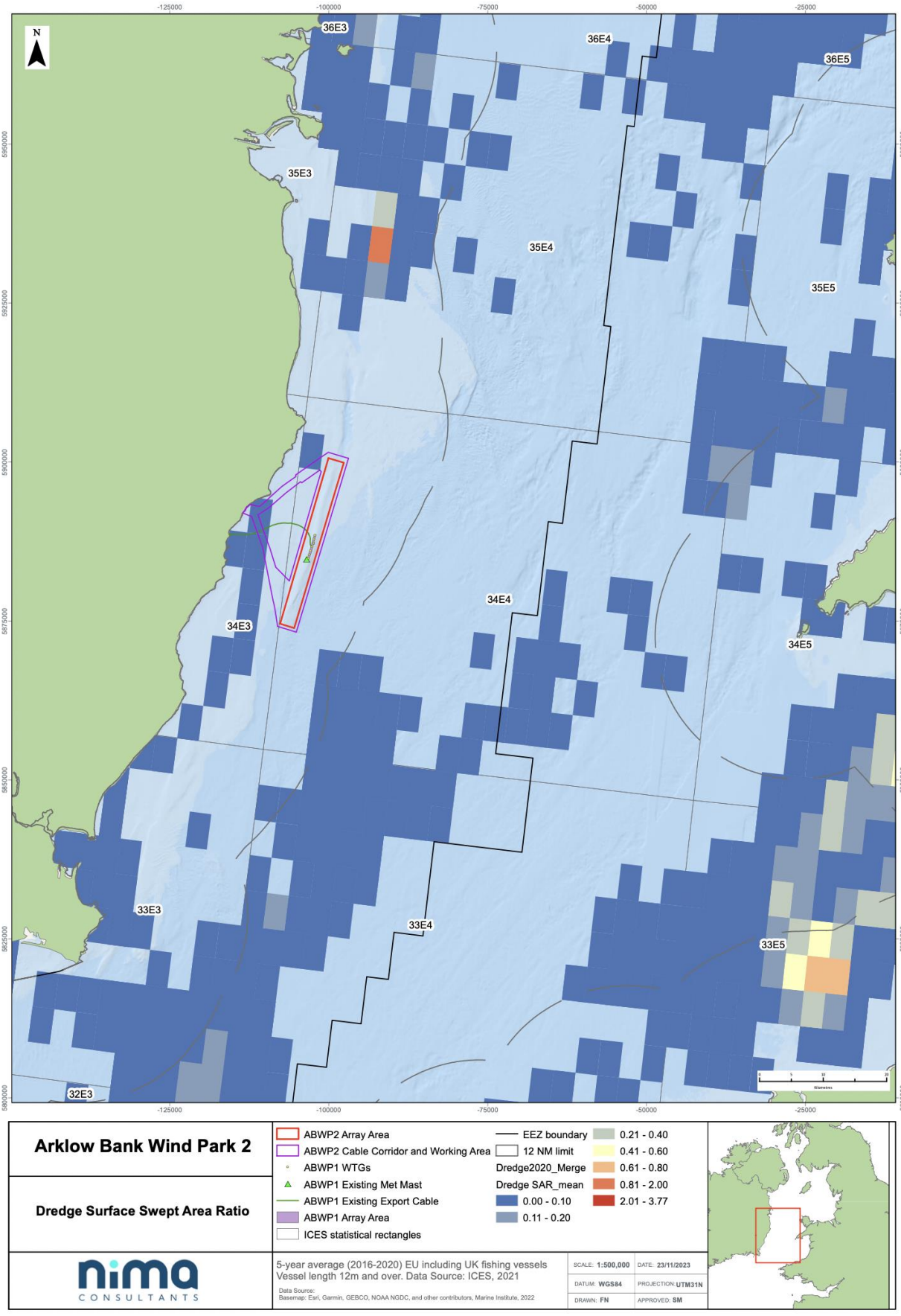

Figure 14.1.11: Surface Swept Area Ratio 2016 to 2020 for EU (including Irish and UK) vessels ≥ 12 m length using dredge gear (Source: ICES, 2021)

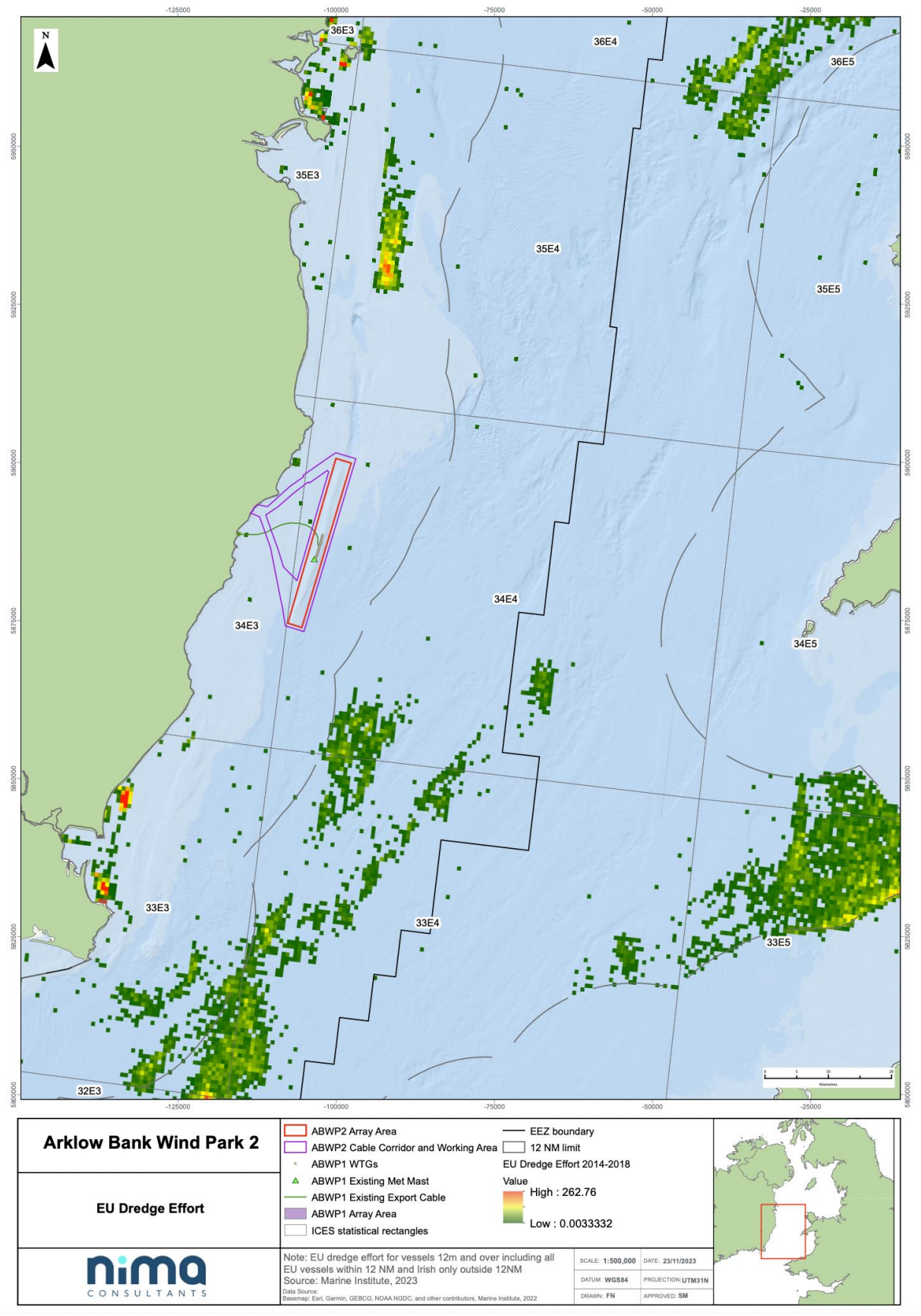

Figure 14.1.12: VMS effort data for EU vessels ≥ 12 m length actively fishing using dredge (note that outside the Irish EEZ records are only routinely available for vessels registered in Ireland) (Source: Marine Institute, 2023)

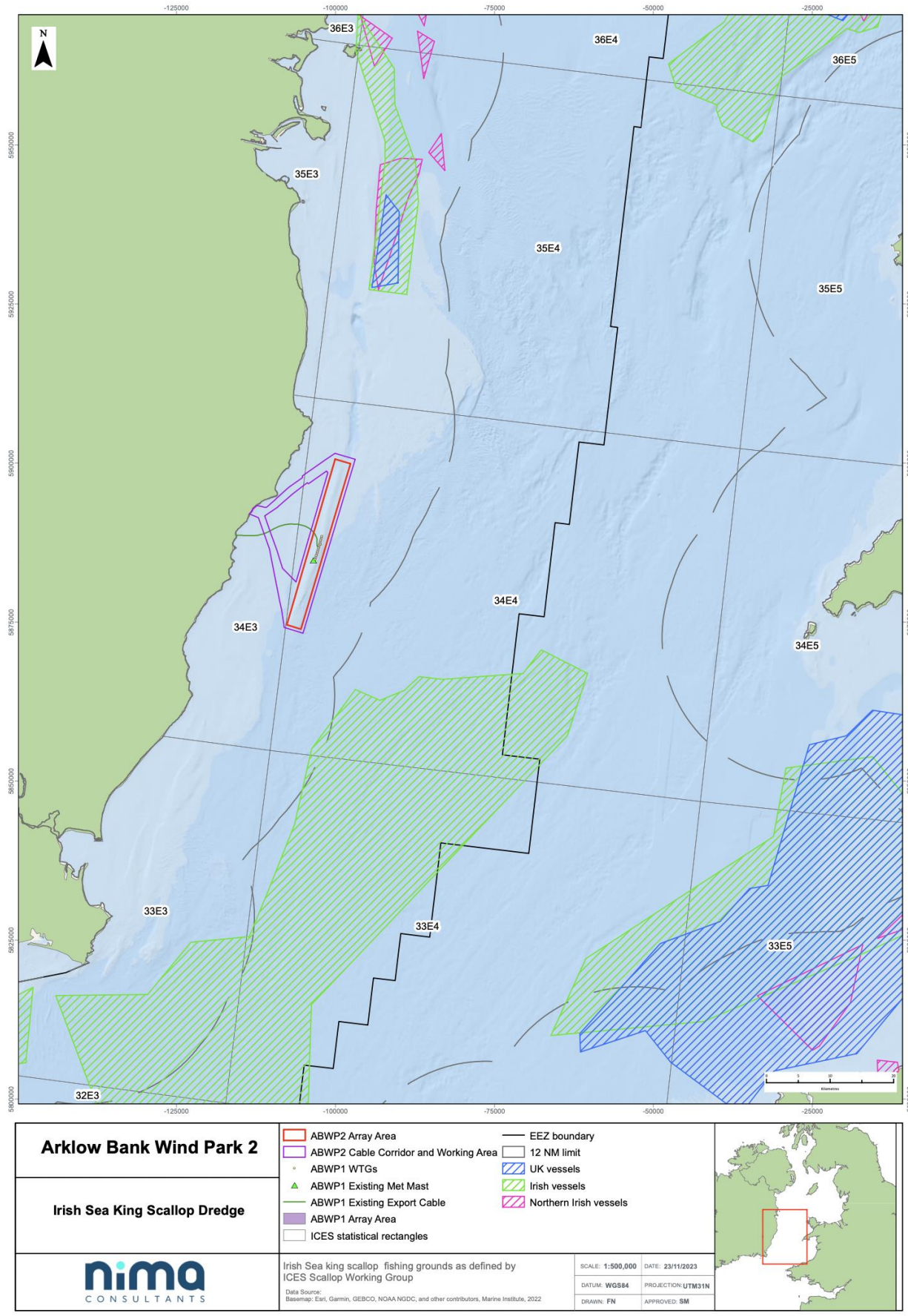

Figure 14.1.13: Irish Sea king scallop fishing grounds targeted by Irish, Northern Irish and other UK vessels (Source: ICES, 2021)

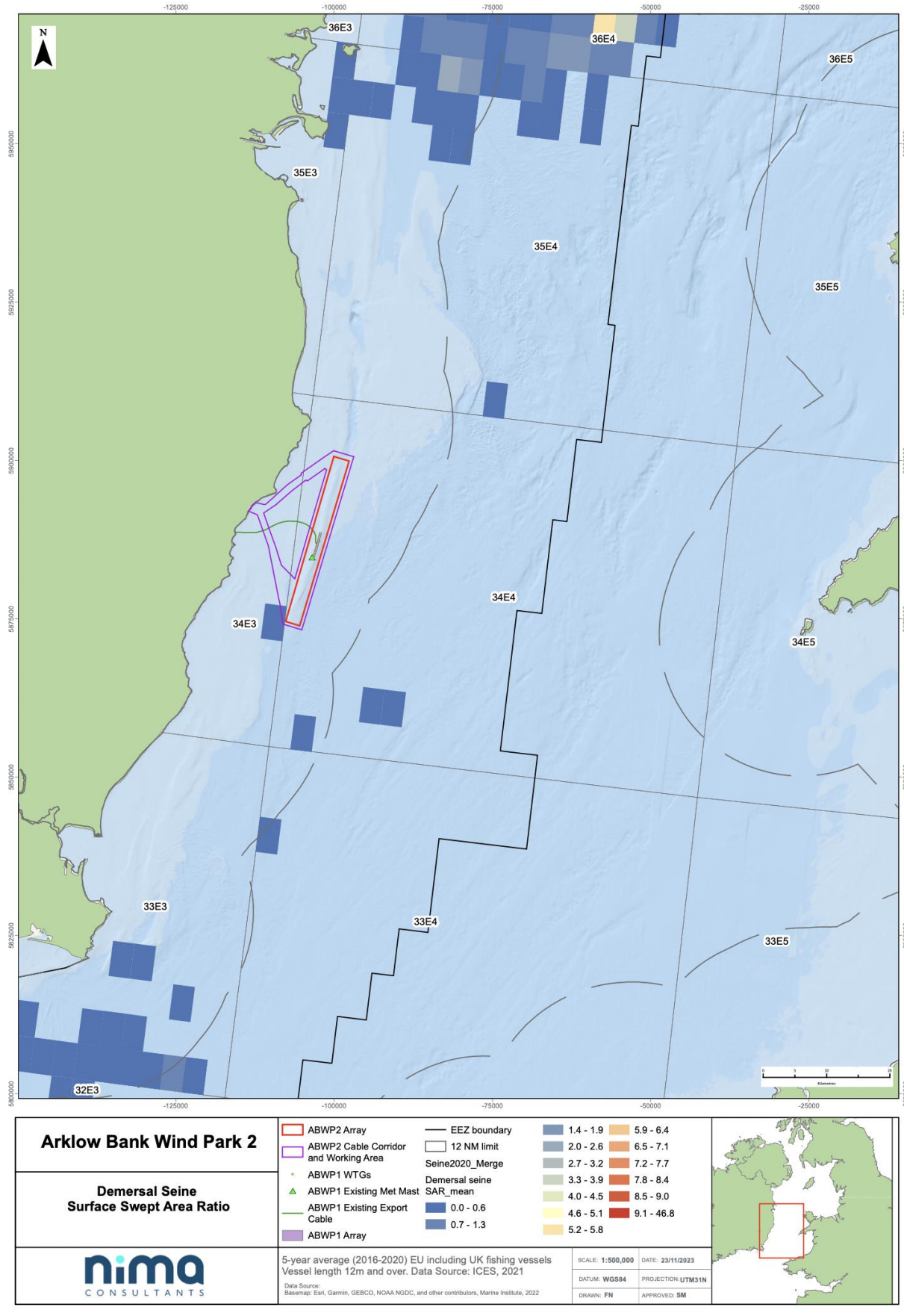

Figure 14.1.14: Surface Swept Area Ratio 2016 to 2020 for EU (including UK) vessels ≥ 12 m length using demersal seine (Source: ICES, 2021)

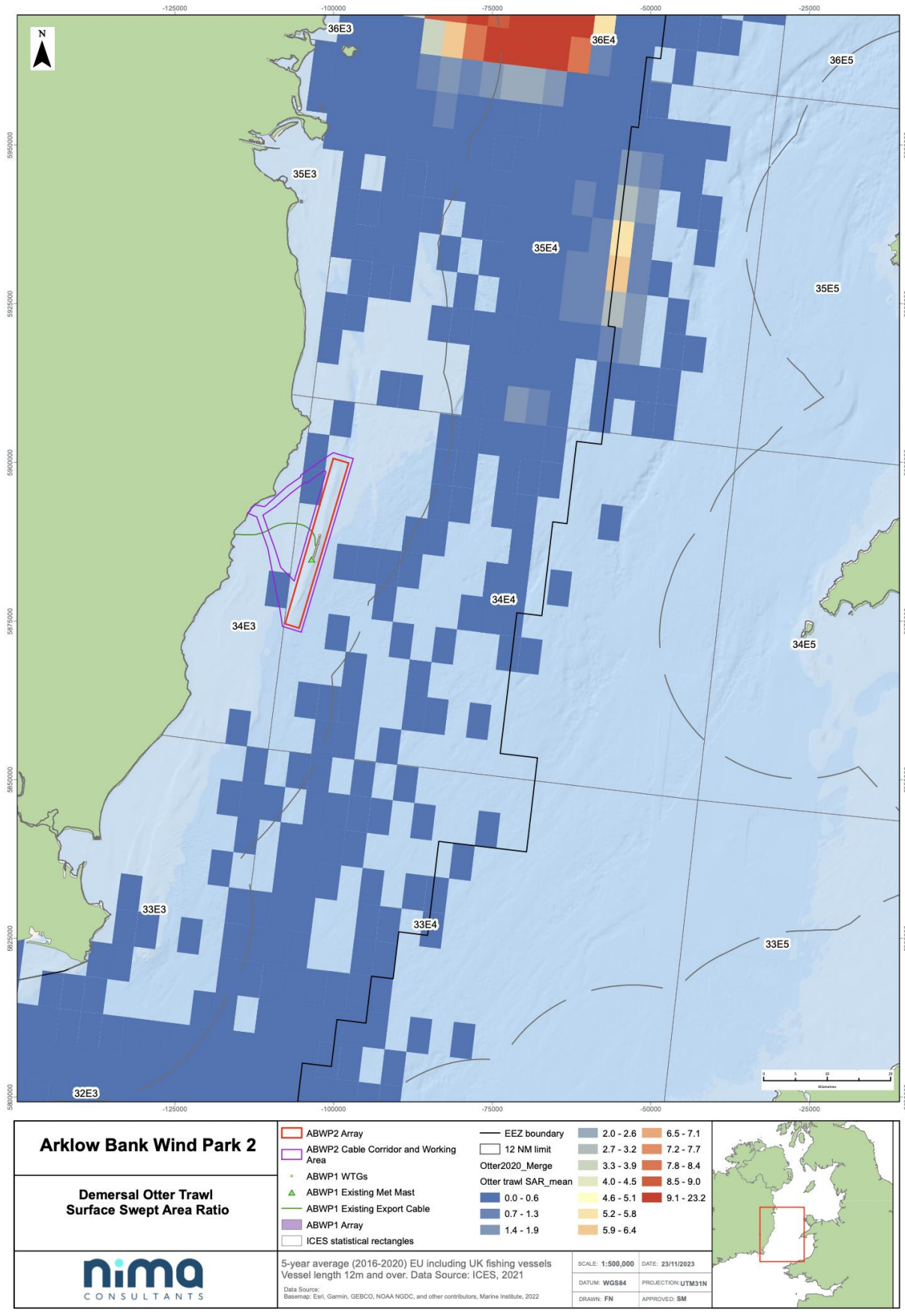

Figure 14.1.15: Surface Swept Area Ratio 2016 to 2020 for EU (including UK) vessels ≥ 12 m length using demersal otter trawl gear (Source: ICES, 2021)

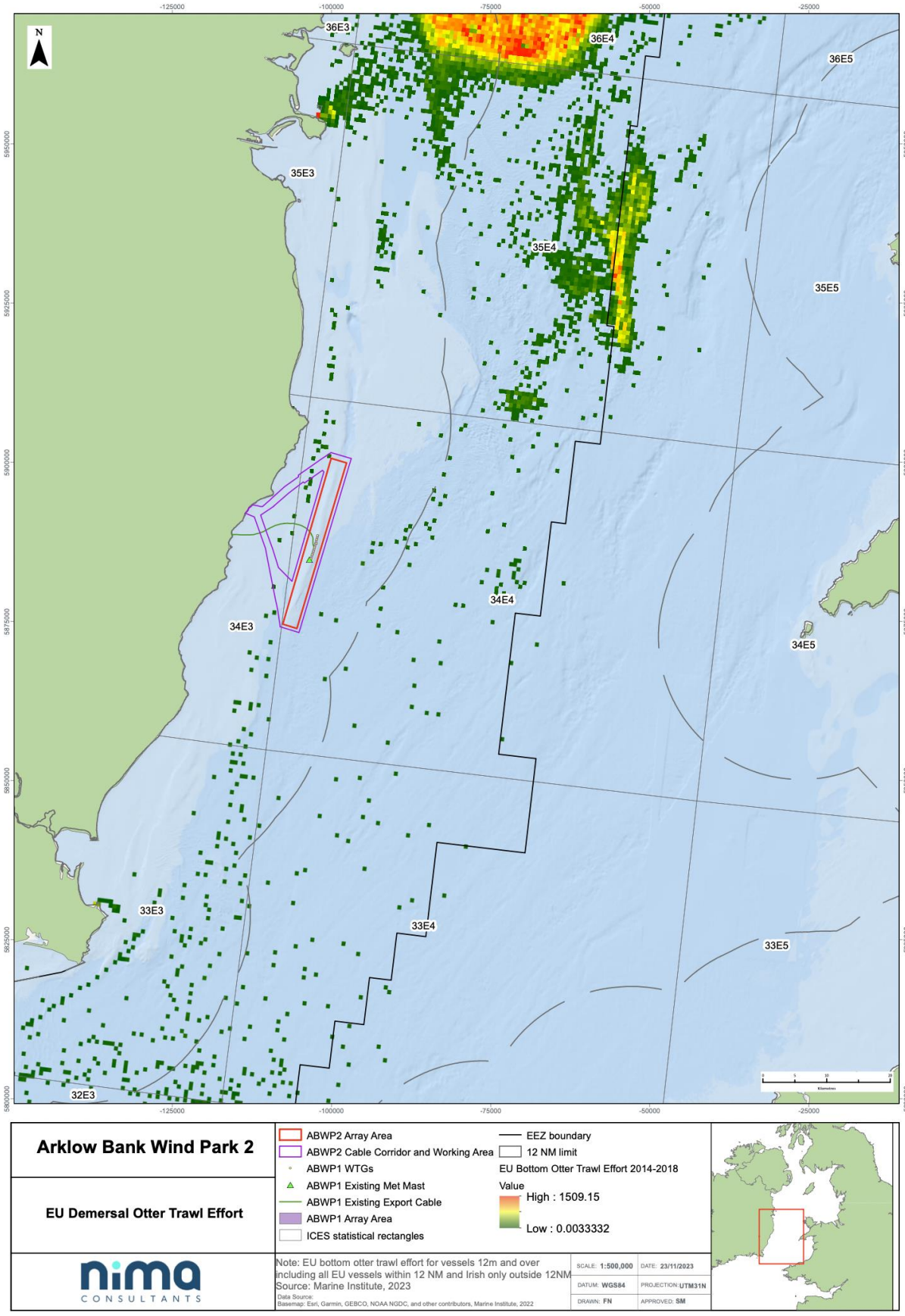

Figure 14.1.16: VMS effort data for EU vessels ≥ 12 m length actively fishing using demersal otter trawls (note that outside the Irish EEZ records are only routinely available for vessels registered in Ireland) (Source: Marine Institute, 2023)

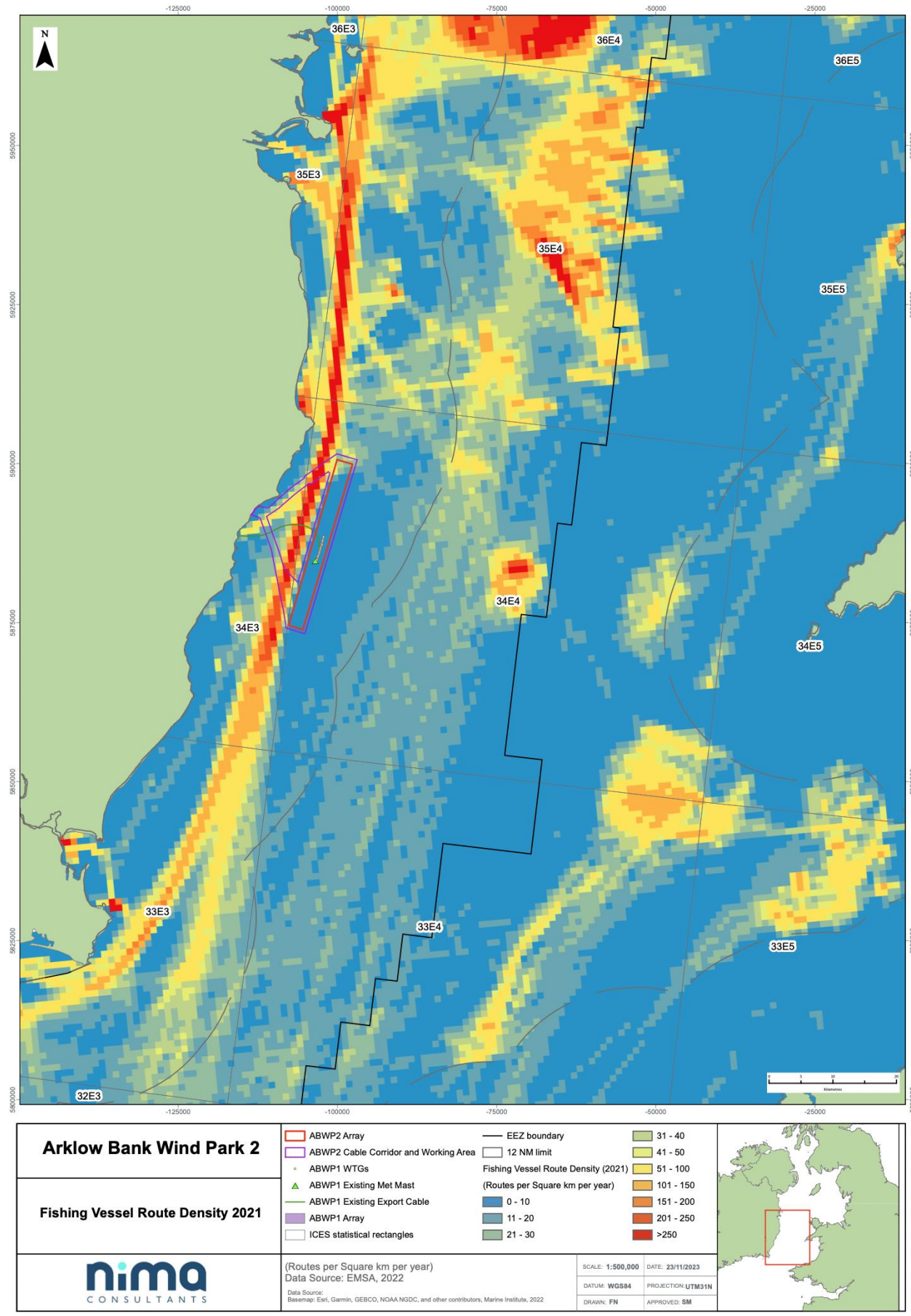

Figure 14.1.17: AIS fishing vessel route density in 2021 (Source: EMSA, 2023)

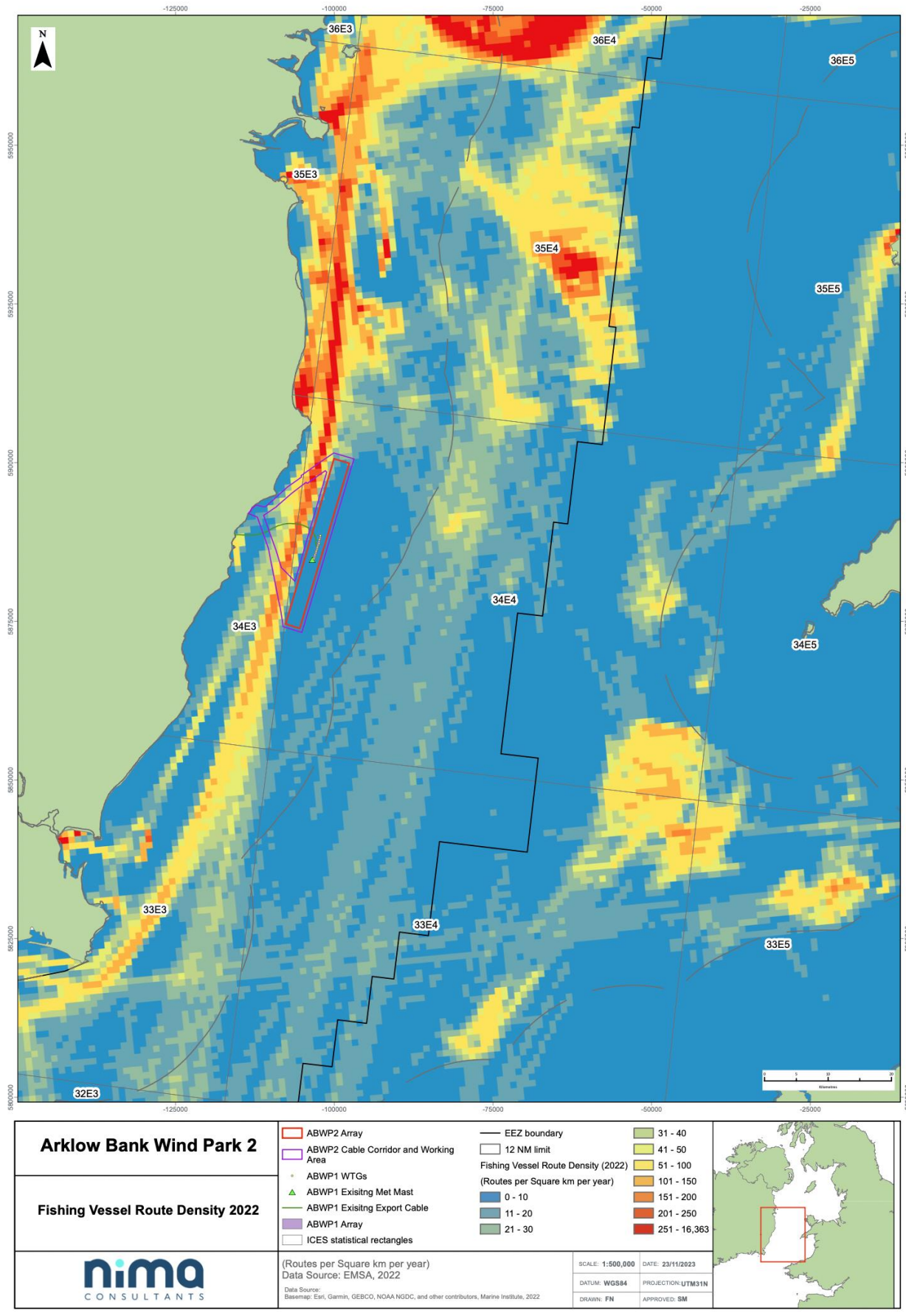

Figure 14.1.18: AIS fishing vessel route density in 2022 (Source: EMSA, 2023)

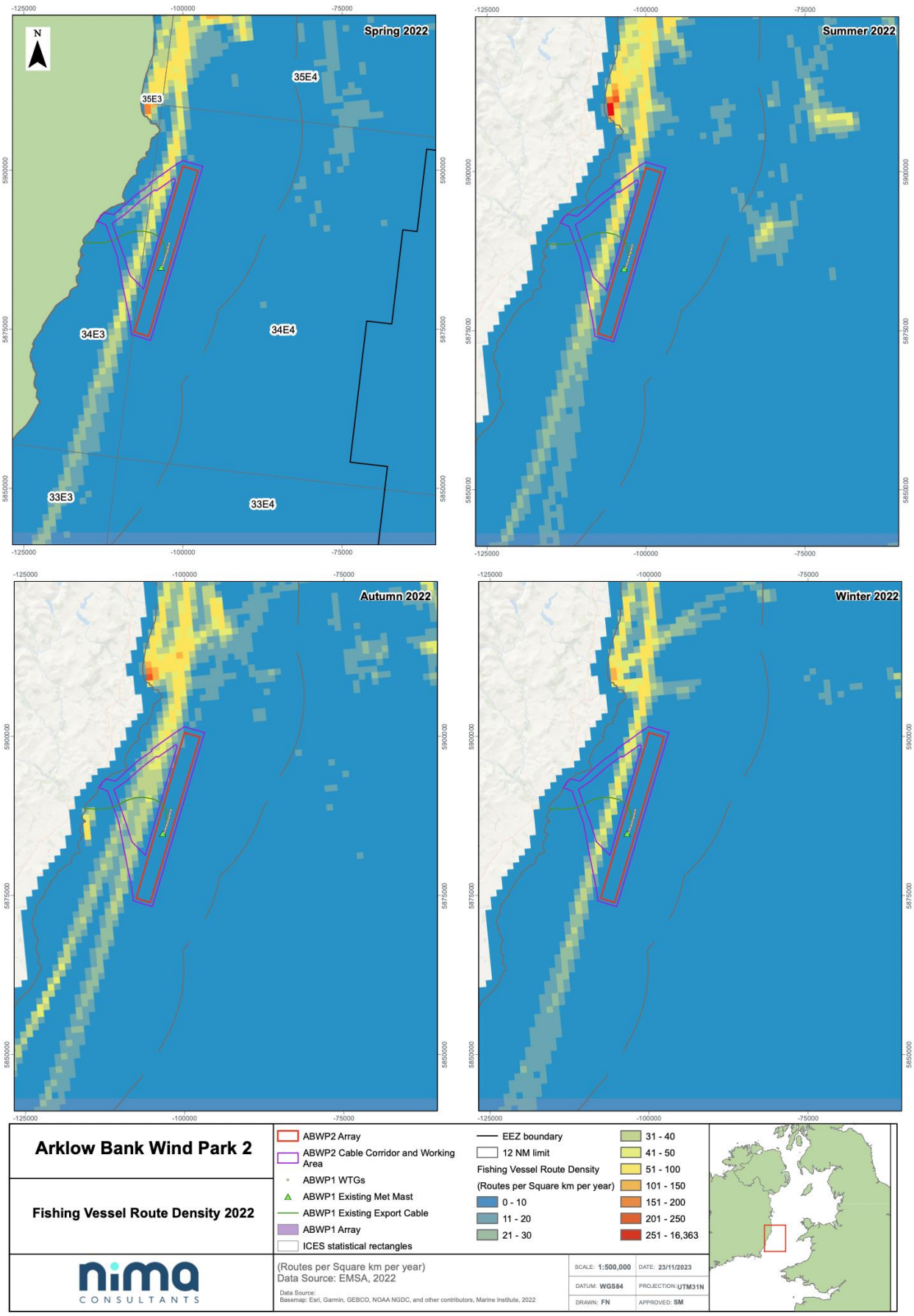

Figure 14.1.19: AIS fishing vessel route density presented seasonally for 2022 (Source: EMSA, 2023)

4. Fisheries activity assessments

4.1 Irish fisheries activity assessment

4.1.1 Landing statistics – Potting fleet

51 Data has been obtained from the SFPA 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 indicating the first sales value (Figure 14.1.20) and landed weight of commercial species by port of landing (Figure 14.1.21). The data is provided for landings by vessels registered in Ireland, including vessels of all lengths, and landing catches from the Irish Sea (7a).

52 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).

53 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).

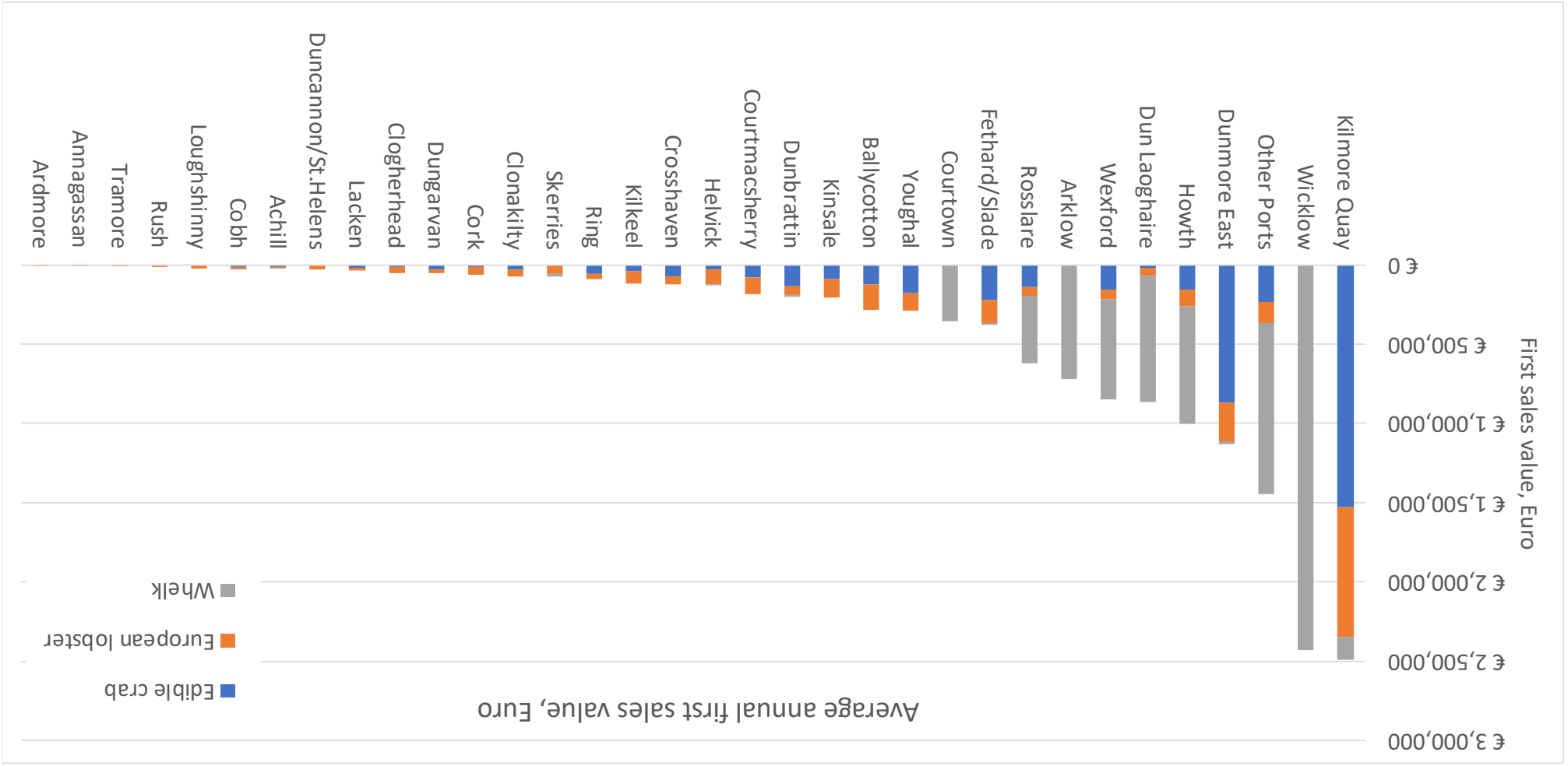

Figure 14.1.20: Average annual landings of brown crab, lobster and whelk into Irish ports from 2017 to 2021 indicating first sales value (Euro) (Source: SFPA, 2022)

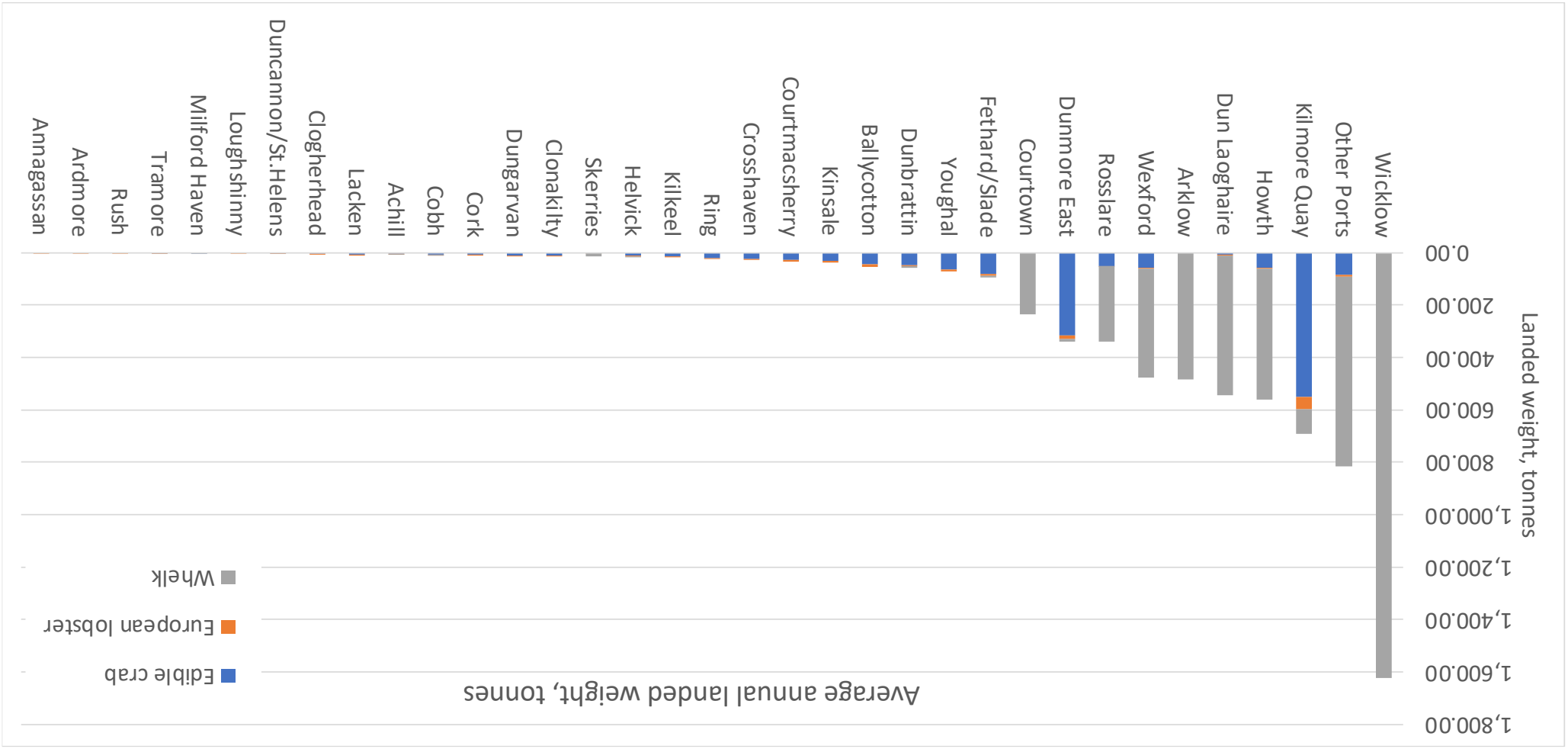

Figure 14.1.21: Average annual landings of brown crab, lobster and whelk into Irish ports from 2017 to 2021 indicating weight (tonnes) (Source: SFPA, 2022)

54 An estimate of the value of the whelk fishery in the commercial fisheries study area is given in Table 14.1.2 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 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 14.1.2: Estimated value (€) of whelk *B. undatum* landings from the commercial fisheries study area (annual average 2015 to 2020).

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

Table 14.1.3: 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

55 Annual trends in edible crab, lobster and whelk landings are shown in Figure 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.

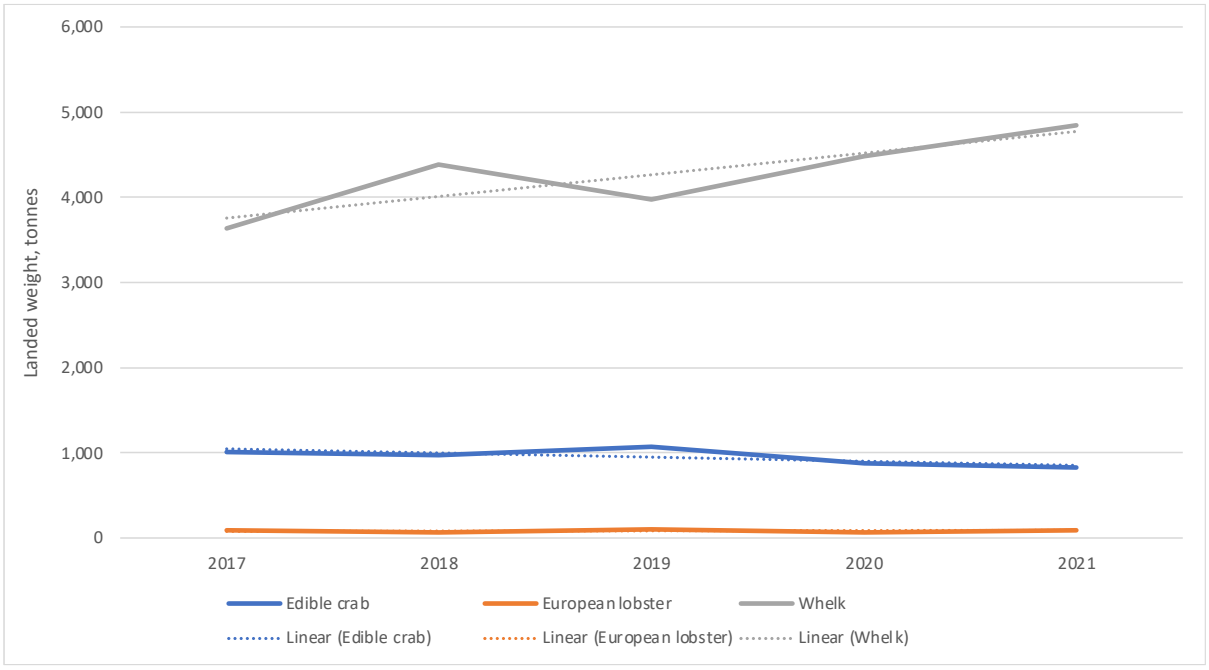

Figure 14.1.22: Five year annual landings of edible crab *C. pagurus*, lobster *H. gammarus*, whelk *B. undatum* by Irish vessels from the Irish Sea, landings into Irish ports from 2017 to 2021 indicating landed weight, tonnes (Source: SFPA, 2022)

4.1.2 Landing statistics – by ICES rectangle for the commercial fisheries study area

56 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 (Figure 14.1.23). 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).

57 The Array Area of the Proposed Development overlaps with ICES rectangle 34E4, which is almost entirely dominated by landings of whelk. Landings peaked in 2017 at 1,100 tonnes.

58 The Cable Corridor and Working Area boundaries of the Proposed Development 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 10m and under within the dataset.

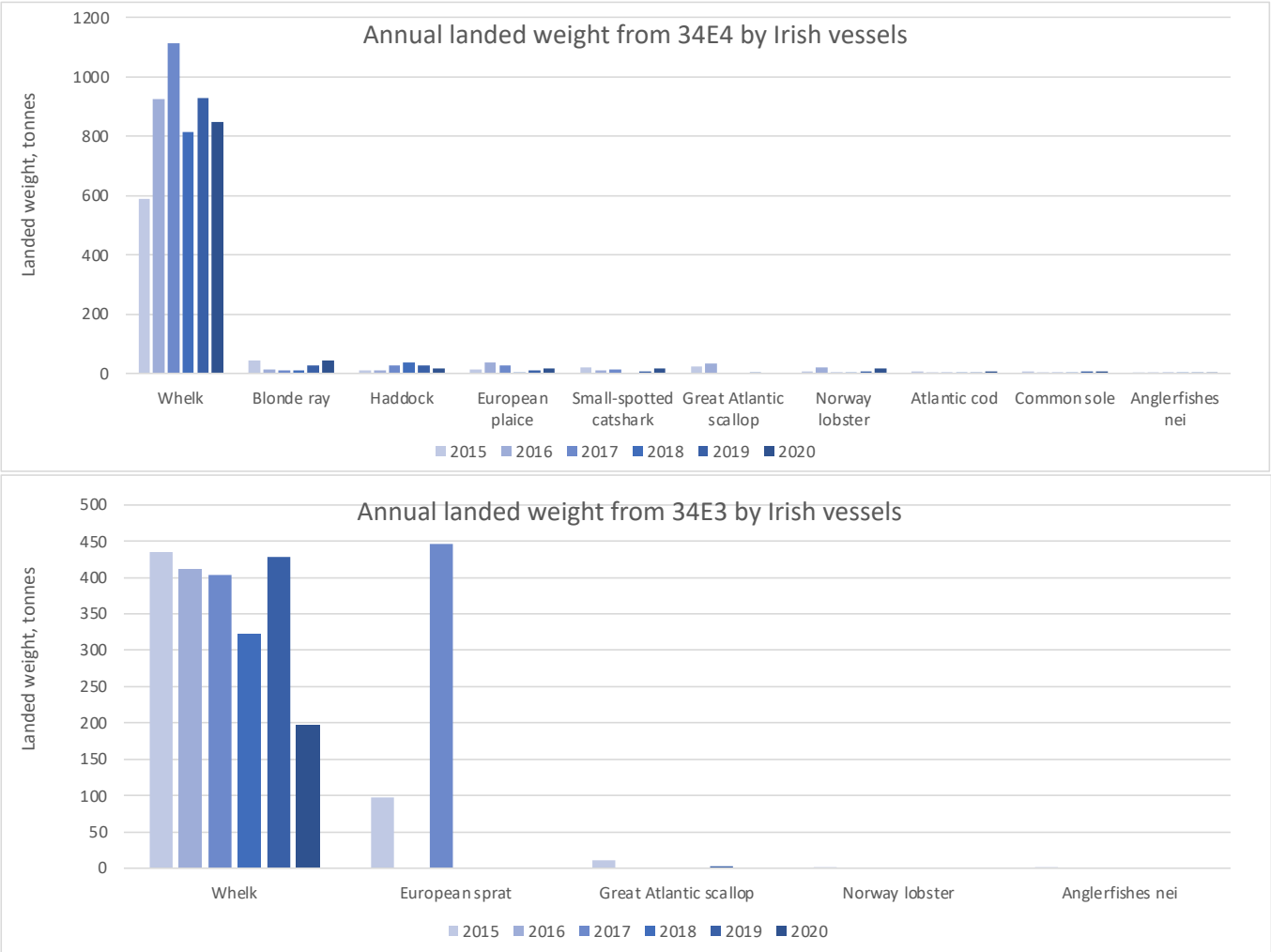

Figure 14.1.23: Weight of landings by Irish vessels from ICES rectangles 34E4 and 34E3 indicating species from 2016-2020 (Source: SFPA, 2022)

4.2 UK fisheries activity assessment

4.2.1 Landing statistics – by ICES rectangle

59 Data has been obtained from the UK MMO for landings of all species indicating the first sales value and landed weight from ICES rectangles 34E4 and 34E3 from 2016 to 2021 (Figure 14.1.24). The data is provided for landings by vessels registered in the UK, including vessels of all lengths. No landings were recorded from ICES rectangle 34E3.

60 Key species landed by UK vessels from ICES rectangle 34E4 (which overlaps the array infrastructure boundary) are whelks, nephrops and haddock, as well as king scallop and edible crab. Peak landings occurred in 2016 with whelk first sales value of £150,000. Landings from 34E4 have dropped in recent years to almost minimal levels in 2021 (when only £2,000 of king scallop landings are recorded for UK vessels from 34E4).

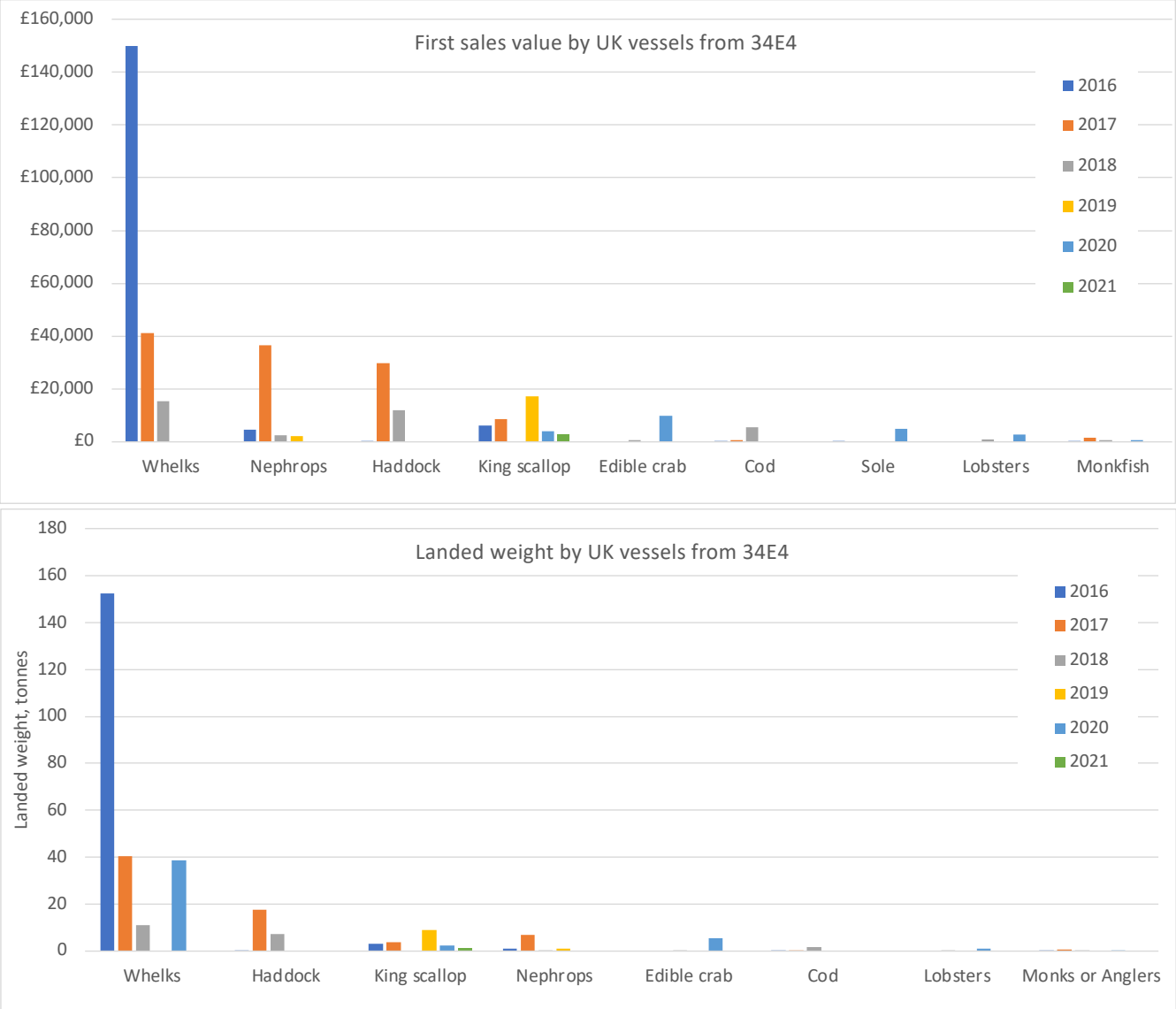

Figure 14.1.24: First sales value (top) and landed weight (bottom) of landings by UK vessels from ICES rectangles 34E4 and 34E3 indicating species in 2021 (Source: MMO, 2022)

4.3 Key Fishing Fleets and Target Species

61 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.

62 A range of fleets target different fisheries across the local and regional study areas, as indicated by landings statistics for registered vessel nationality and gear type (Figure 14.1.25). Across the study area, the highest proportion of landings by weight are caught by vessels deploying demersal otter trawling gear, including single rig, twin-rigged and quad-rigged gear, as well as vessels operating mechanical and suction dredge gear and vessels deploying pots. Beam trawl, pelagic trawl and gill netting are also noted, to a lesser extent.

63 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).

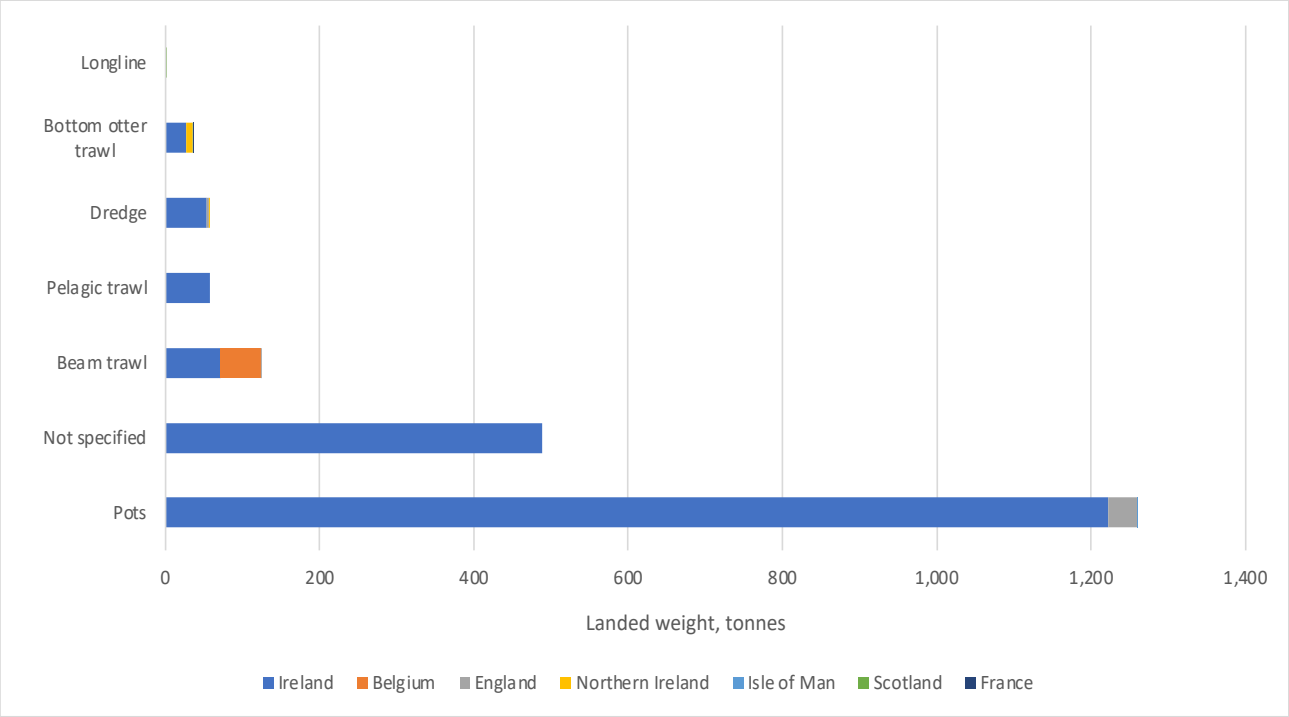

Figure 14.1.25: Annual average landed weight (2012 to 2016) by gear type and vessel origin for the study area, 34E4 and 34E3 (Data source: EU DCF, 2022)

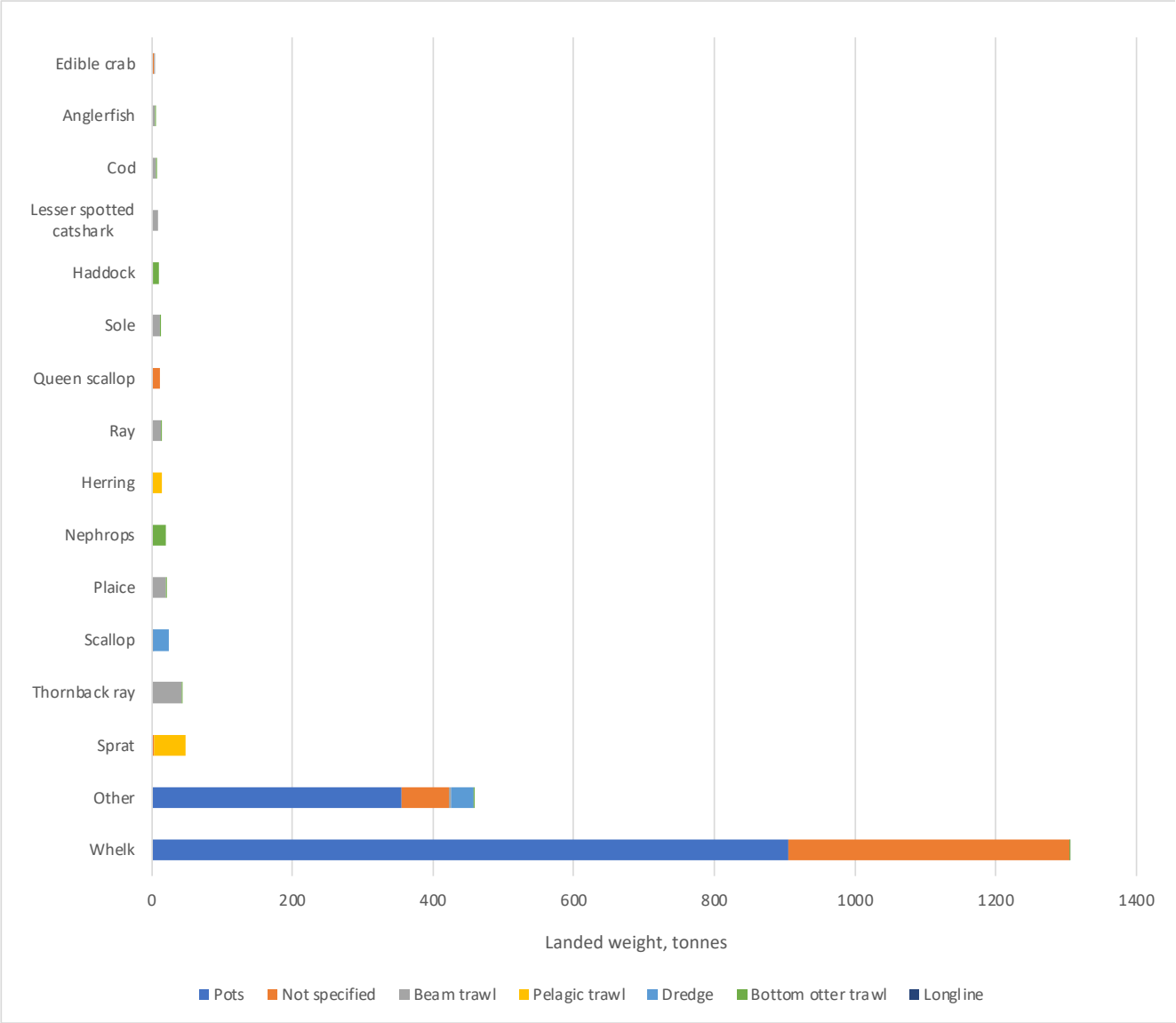

Figure 14.1.26 Annual average landed weight (2012 to 2016) by gear type and species for the study area, 34E4 and 34E3 (Data source: EU DCF, 2022)

4.3.1 Pots and Traps

64 Figure 14.1.27 and Figure 14.1.28 show typical potting vessels, gear and the configuration of set pots and Table 14.1.4 describes the profile of potting vessels active across the study area.

65 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.

66 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 study area.

67 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).

68 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 tonnes).

69 Landings from the commercial fisheries study area (rectangle 34E3 and 34E4 combined) have remained relatively consistent over the last five years (at approximately 1,500 to 2,000 tonnes/year).

70 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).

71 From the information gathered during consultation with fisheries stakeholders, it is understood that, at present, the majority of local vessels engaged in the whelk fishery in areas relevant to the Proposed Development 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 study area takes place all year round.

72 To a lesser extent across the 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.

73 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 14.1.4: Profile of typical potting vessels active across the 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
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.

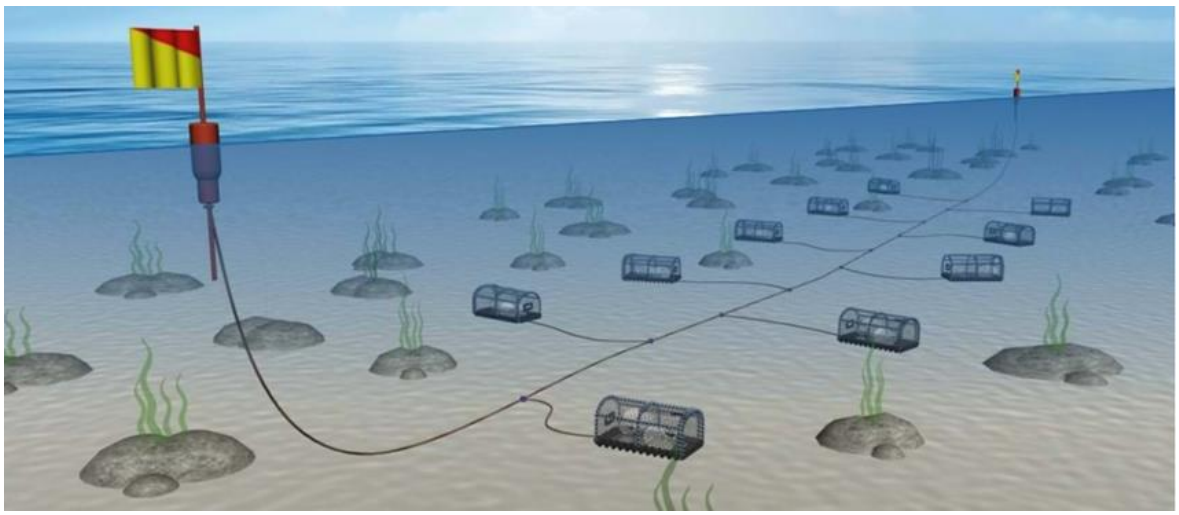

Figure 14.1.27: Typical potting gear configuration (Source: Seafish, 2015)

Figure 14.1.28: Example of potting vessels (Source: Brown and May Marine)

Key species caught by vessels operating potting gear

Whelk Buccinum undatum

74 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.

75 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.

76 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.

77 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).

78 Whelk landings from the study area indicate a seasonal peak across spring and summer months, though they are landed year-round.

Edible crab Cancer pagurus

79 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.

80 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).

81 Fishing activity typically increases through late summer months, peaking in autumn and winter in the study area.

European Lobster Homarus gammarus

82 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).

83 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).

84 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 study area, with a second peak in December associated with supplying the Christmas-time market.

4.3.2 Beam Trawl

85 Beam trawl nets are held open by a heavy steel beam which is towed along the seabed on a line approximately three times the depth of the water. Some beam trawls include tickler chains, which drag along the seabed in front of the net, disturbing fish in its path and encouraging them to rise into the net. Beam trawls can range in length from 4 m to 14 m and each trawlers tows two beam trawls at a time from derricks on either side of the vessel.

Table 14.1.5: Profile of typical beam trawl vessel active across the study area

Parameter	Indicative details
Main target species	Sole *S. solea*, plaice *P. platessa*, thornback ray *R. clavata*
Nationality	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 tonnes. Chain matting or individual chains attached to underside.

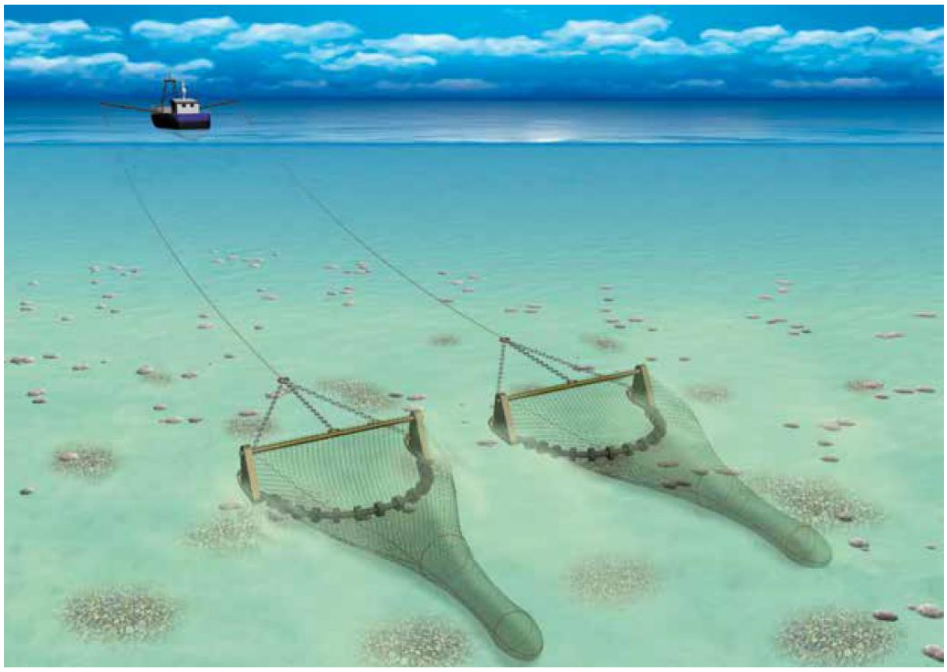

Figure 14.1.29: Typical beam trawl gear configuration (Source: Seafish, 2015)

Key species caught by vessels operating beam trawl

Plaice Pleuronectes platessa

86 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.

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

88 In the study area, plaice are taken year-round with landings peaking in summer months. Across the period 2016 to 2020, landings of plaice from the study area averaged ~ 9 tonnes annually.

Sole Solea solea

89 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.

90 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 tonnes annually in the Irish Sea from 2016 to 2018, increasing more recently to 768 tonnes in 2021) and technical measures are applicable to the mixed demersal beam-trawl fishery (relevant to both sole and plaice), namely a minimum mesh size of 80 mm. A MCRS of 24 cm is in place.

91 Sole is caught in a mixed fishery with other flatfish as well as gadoids. In the 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 tonne per year between 2016 and 2018 reflecting the low TAC, increasing to 22 tonnes in 2020.

Thornback ray Raja clavata

92 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.

93 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.

94 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 study area were recorded in 2016 reaching 3,500 tonnes.

4.3.3 Pelagic trawl

95 Figure 14.1.30 shows a typical pelagic trawler and associated gear and Table 14.1.6 describes the profile of pelagic trawling vessels active across the wider Irish Sea.

96 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.

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

98 Within the study area, landings data indicates that pelagic trawling is primarily undertaken by Irish registered vessels.

Table 14.1.6: Profile of typical pelagic trawl vessel active across the 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 14.1.30: Typical pelagic trawling vessel and gear configuration (Source: Poseidon; and Seafish, 2015)

Key species caught by vessels operating pelagic trawl

Sprat Sprattus sprattus

99 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.

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

101 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.

102 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).

103 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

104 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 proposed development and are presented within **Volume II, Chapter 10: Fish and Shellfish Ecology**.

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

4.3.4 Scallop dredge

106 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 14.1.31, Figure 14.1.32 and Table 14.1.7 describes the profile of scallop dredging vessels active across the study area.

107 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.

108 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.

109 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.

110 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 14.1.7: Profile of typical dredging vessels active across the 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.

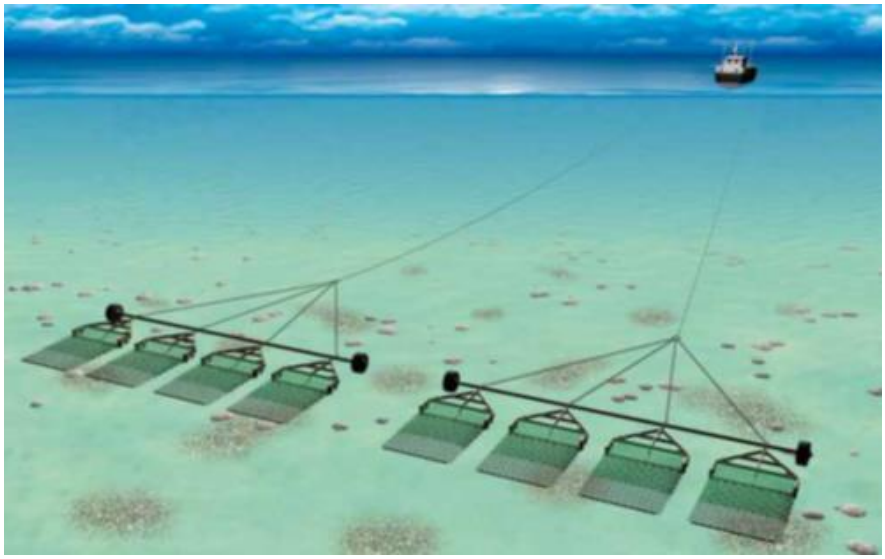

Figure 14.1.31: Typical dredge gear configuration (Source: Seafish, 2015)

Figure 14.1.32: Example of dredge vessel (Source: Fishing News)

Key species caught by vessels operating scallop dredge

King scallop Pecten maximus

111 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.

112 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.

113 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).

114 Landings of king scallop from the study area typically peak from winter through to late spring.

Queen scallop Aequipecten opercularis

115 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.

116 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).

117 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).

118 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

119 During consultation it was also noted that areas in the vicinity of the Proposed Development 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 are primarily located in inshore areas off Wicklow town, to the northwest of the Array Area.

120 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.

121 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 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.

122 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.

4.3.5 Demersal otter trawl

123 Otter trawling uses a cone-shaped net which is held open by water pressure on two otter boards. The net is towed either across the seabed (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 local study area targeting nephrops, also taking haddock, monkfish, cod, plaice, thornback ray, lesser spotted dogfish and other demersal species.

124 Nephrops trawlers from Ireland and Northern Ireland are active in the local 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 14.1.8: Profile of typical otter trawl vessel active across the 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

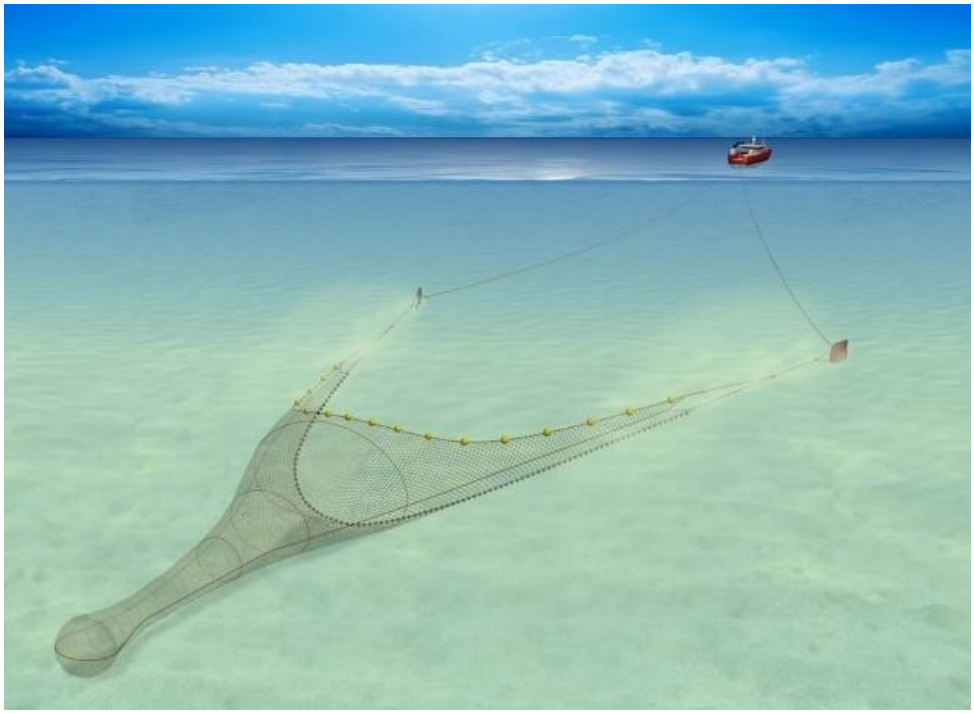

Figure 14.1.33: Typical otter trawl gear configuration (Source: Seafish, 2015)

Key species caught by vessels operating demersal otter trawl

Nephrops Nephrops norvegicus

125 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.

126 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.

127 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 development is located within FU15.

128 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).

129 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.

130 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.

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

132 Annual underwater TV surveys are undertaken between Agri-Food and Biosciences Institute (AFBI) and MI 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

133 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.

134 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.

135 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

136 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.

137 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.

138 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.

139 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

140 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.

141 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.

142 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.

143 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

144 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.

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

146 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.

5. Aquaculture activity assessment

147 An aquaculture site is located off the coast of Arklow, Co. Wicklow, approximately 5.5 km from the closest point of the Cable Corridor and Working Area. 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).

148 The location of the mussel farm is presented in Figure 14.1.34. The site has an approximate surface area of 0.64 km^2 and a perimeter of 3.3 km.

149 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.

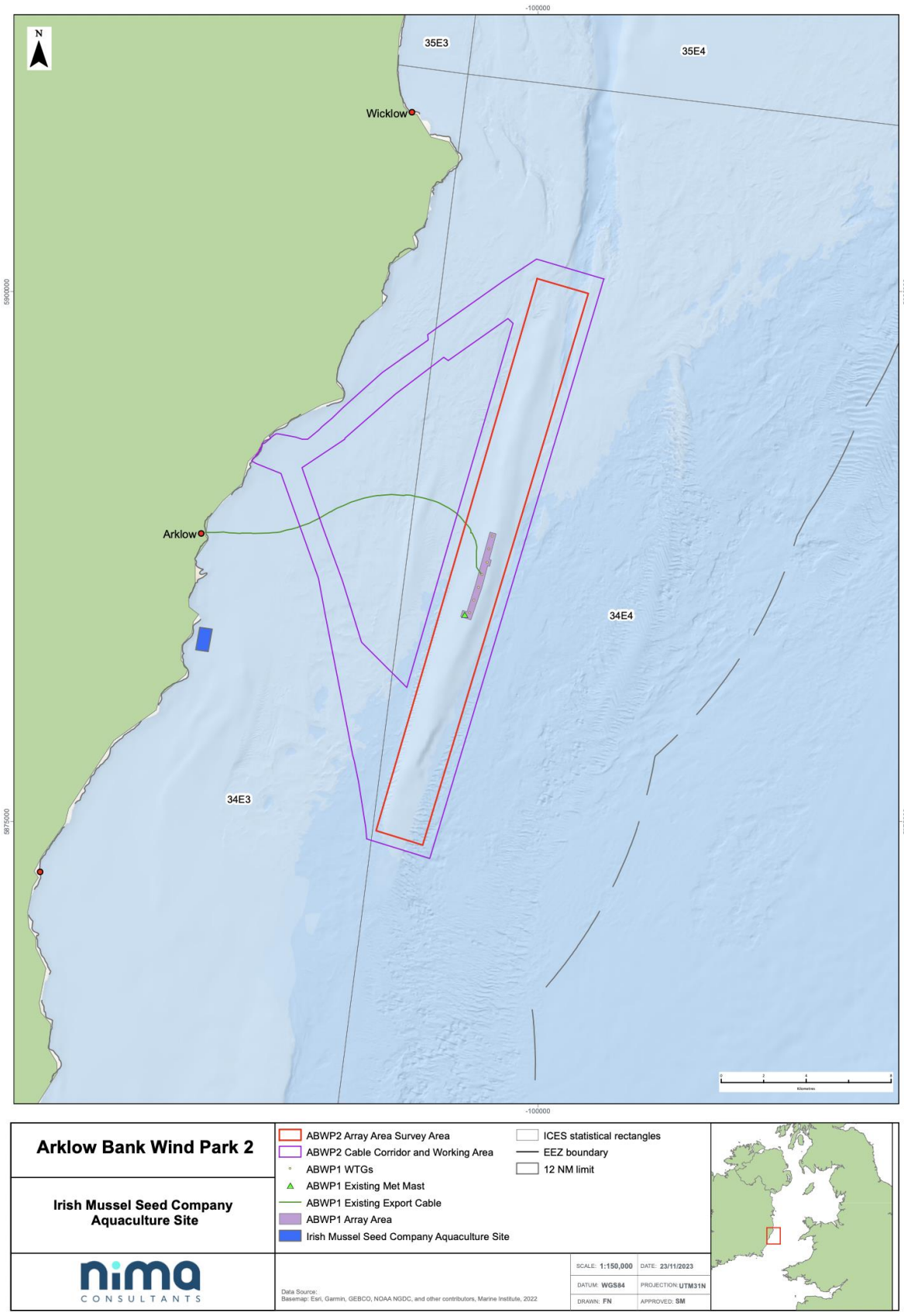

Figure 14.1.34: Location of Irish Mussel Seed Company mussel farm

6. Future Baseline Environment

150 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.

151 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.

152 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.

153 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.

154 Market changes have the potential to impact fishing activity in the 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.

155 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.

7. Data Limitations and Uncertainties

156 A range of different data limitations and uncertainty exist for all of the commercial fisheries datasets assessed within this technical report. The level of uncertainty and confidence of each dataset is defined in Table 14.1.9 based on the professional judgement of the assessment team.

157 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.

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

159 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 Proposed Development.

160 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 Cable Corridor and Working Area infrastructure boundary for the potting fleet.

161 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.

162 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 14.1.9: Data limitations and uncertainty (the uncertainty and confidence levels are defined based on judgement and are intended to inform the appropriateness of data used to inform the EIAR)

Data source	Type of data	Limitations and uncertainty
Landing statistics		
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. Accuracy is likely to be greater for landings rom 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.
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.

8. Summary

163 This technical report has presented commercial fisheries activity data for the following countries: Ireland; UK; and other EU countries. Based on quota allocations and landing statistics it is understood that vessels registered to other countries do not operate across the commercial fisheries study area.

164 The fleet metiers that operate with varying intensity across the commercial fisheries study area include (in no particular order):

- Irish potting vessels targeting whelk;
- Irish potting vessels targeting 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.

165 It is noted that a portion of vessels in the potting metiers listed above will inter-change gear (between plastic pots and creel) to target a mixture of shellfish species to adapt to seasonal variations in fisheries and market demands.

166 This technical report reviewed all datasets available to characterise the commercial fisheries activity across the local and regional study areas and wider Irish Sea.

167 Given the range of datasets assessed and the comprehensive analysis undertaken, it is considered that this technical report is adequate for the purposes of an EIAR assessment.

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