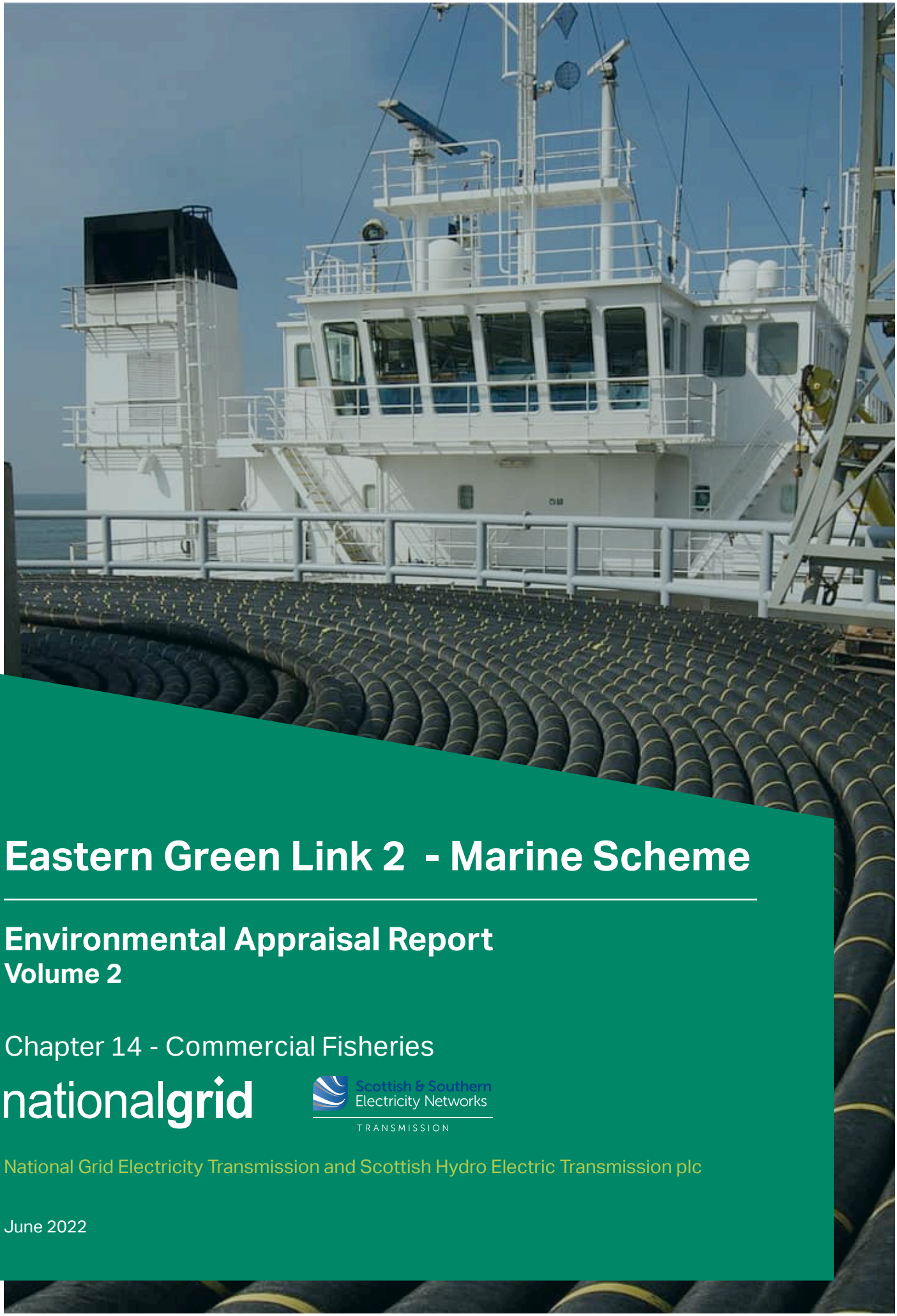


Eastern Green Link 2 - Marine Scheme

Environmental Appraisal Report
Volume 2

Chapter 14 - Commercial Fisheries

nationalgrid

Scottish & Southern Electricity Networks
TRANSMISSION

National Grid Electricity Transmission and Scottish Hydro Electric Transmission plc

June 2022

Prepared for:

National Grid Electricity Transmission and
Scottish Hydro Electric Transmission plc

Prepared by:

AECOM UK Limited
1 Tanfield
Edinburgh EH3 5DA
United Kingdom

T: +44 131 301 8600
aecom.com

In association with:

Xodus Group (Shipping and Navigation);

Wessex Archaeology (Marine Archaeology); and

Brown and May Marine Ltd (Commercial Fisheries).

Table of Contents

Figures

Tables

14. Commercial Fisheries

14.1 Introduction

This chapter of the Environmental Appraisal Report (EAR) provides an appraisal of the potential interactions of the Marine Scheme with commercial fisheries.

A description of the commercial fisheries baseline, as understood through desk-based research and consultation undertaken to support the Marine Scheme, is presented in Section 14.5 of this chapter. Potential impacts of the Marine Scheme on commercial fisheries receptors are appraised in Section 14.6 for the Installation, Operation and Maintenance, and Decommissioning Phases as described in Chapter 2: Project Description. Where appropriate, the chapter goes on to identify proportionate measures to avoid or mitigate for any identified significant adverse effects are identified (Section 14.7).

This chapter should be read in conjunction with Chapter 9: Fish and Shellfish; Chapter 13: Shipping and Navigation and Chapter 15: Other Sea Users. The potential for interaction between the Marine Scheme and other plans/projects, which may result in significant cumulative effects, is considered in Chapter 17: Cumulative and In-Combination Effects.

This chapter is supported by Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders.

14.2 Legislation, Policy and Guidance

This section outlines legislation, policy and guidance relevant to the appraisal of the potential effects on commercial fisheries associated with Installation, Operation and Maintenance, and Decommissioning Phases of the Marine Scheme. For further information see Chapter 3: Legislative and Policy Framework.

14.2.1 Guidance

The following best practice guidance from a range of industry sectors has been considered throughout the appraisal insofar as relevant to the installation and operation of submarine cables, noting that specific fisheries guidance for the cable sector is limited:

- Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (Seafish, 2012);
- Options and Opportunities for Marine Fisheries Mitigation associated with windfarms (Blythe-Skyrme, 2010);
- Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewable Developments: Recommendations for Fisheries Liaison (FLOWW, 2014);
- FLOWW Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds (FLOWW, 2015);
- MGN 661 (M+F) Navigation - safe and responsible anchoring and fishing practices (Maritime & Coastguard Agency, 2021);
- The Mariner's Handbook (NP100) (UKHO, 2020) – Section 9.45 Submarine Cables; and
- National Planning Practice Guidance: Environmental Impact Assessment (HM Government, 2020).

It is noted that 'Good practice guidance for assessing fisheries displacement by other licensed marine activities' is currently under preparation by Marine Scotland Science (MSS). This has however not been published at the time of writing.

14.2.2 Policy

The following marine plans were taken into consideration as part of the appraisal:

- Scotland's National Marine Plan (The Scottish Government, 2015);

- North East Inshore and North East Offshore Marine Plan (Department for Environment, Food and Rural Affairs (DEFRA), 2021); and
- East Inshore and East Offshore Marine Plans (Department for Environment, Food and Rural Affrairs, 2014).

14.2.3 Fisheries Management

As shown in Figure 14-1, a range of authorities and organisations are involved in fisheries management around the United Kingdom (UK). Specific information with regard to key organisations of relevance to the Marine Scheme in Scottish and English waters is provided in the following sections.

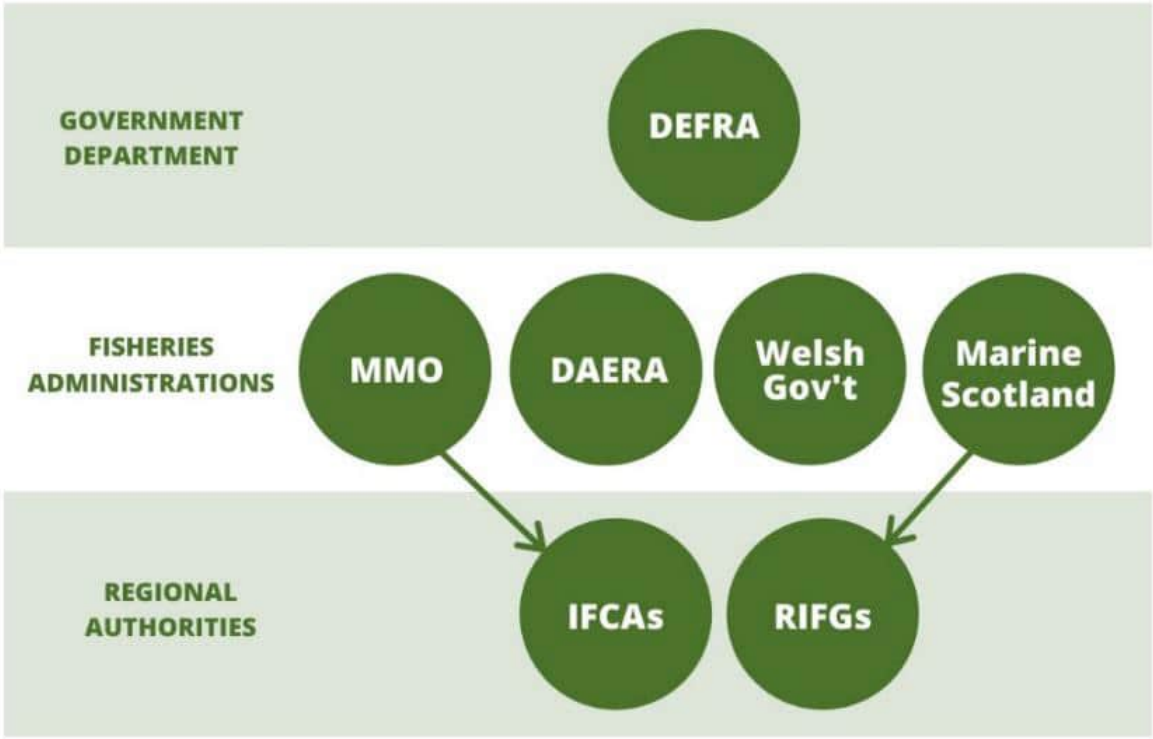


Figure 14-1: 'Who's Who in UK Fisheries Management' (All Party Parlamentary Group on Fisheries, 2020)[1]

14.2.3.1 Territorial Waters (12 Nautical Mile Limit)

Fisheries management in Scottish territorial waters out to 12 nautical miles (NM) is the responsibility of Marine Scotland (MS).

In English waters out to the 6 NM limit fisheries are managed by Inshore Fisheries and Conservation Authorities (IFCAs) whilst in waters between 6 NM and 12 NM, fisheries management is the responsibility of the Marine Management Organisation (MMO)

14.2.3.2 Scottish Inshore Waters

In Scottish inshore waters out to 6 NM from the coast, the Marine Scheme falls within the area covered by the North and East Coast Regional Inshore Fisheries Group (RIFG). This extends from Durness on the north coast to Burnmouth on the east coast at the border with England.

RIFGs are non-statutory bodies established in 2016 to replace the previous Inshore Fisheries Groups (IFGs) structure and work to improve the management of Scottish inshore fisheries out to the 6 NM limit. MS retains oversight of operations and legislation in this area and while RIFGs have no management authority (with the exception of the Shetland Shellfish Management Organisation), they

[1] Acronyms as follows: DEFRA (Department for Environment, Food and Rural Affairs); MMO (Marine Management Organisation); DAERA (Department of Agriculture, Environment and Rural Affairs Northern Ireland); IFCA (Inshore Fisheries and Conservation Authorities); and RIFG (Regional Inshore Fisheries Groups).

are key consultative groups for Scottish fisheries out to 6 NM (All Party Parlamentary Group on Fisheries, 2020).

14.2.3.3 UK Offshore Waters

UK offshore waters extend from the 12 NM limit out to 200 NM, encompassing the UK's Exclusive Economic Zone (EEZ). In English offshore waters the MMO is responsible for fisheries management whilst Scottish offshore waters are managed by MS.

14.2.3.4 English Inshore Waters

In English inshore waters out to the 6 NM limit, the Marine Scheme falls within the management area of the North Eastern IFCA (NEIFCA), covering waters between the River Tyne and North East Lincolnshire (Cleethorpes).

IFCAs are either committees or collaborative (joint) committees of the local authorities that fall within a given Inshore Fisheries Conservation district. IFCAs are primarily tasked with the sustainable management of inshore fisheries resources in their district. IFCAs have a number of different specific roles including fisheries management inside of 6 NM, marine conservation and management of protected areas, sustainable management of fisheries and 'good regulation' implemented through a range of measures, including local bylaws.

14.2.3.5 UK Fisheries Management Following UK Exit from EU

Whilst part of the European Union (EU), fisheries within UK waters were managed as part of the EU Common Fisheries Policy (CFP). Following the UK's exit from the EU and the end of the associated transitional arrangement period on 21 January 2021, the UK Single Issuing Authority (UKSIA) (as part of the MMO) now manages fishing vessel licencing for foreign vessel access to UK waters. The UKSIA is responsible for areas within the British Fishery Limits on behalf of the UK sea fish licensing authorities of England and Scotland. The UK fisheries authorities remain responsible for the administration and management of UK vessel licensing within the UK EEZ (MMO, 2021)

14.3 The Study Area

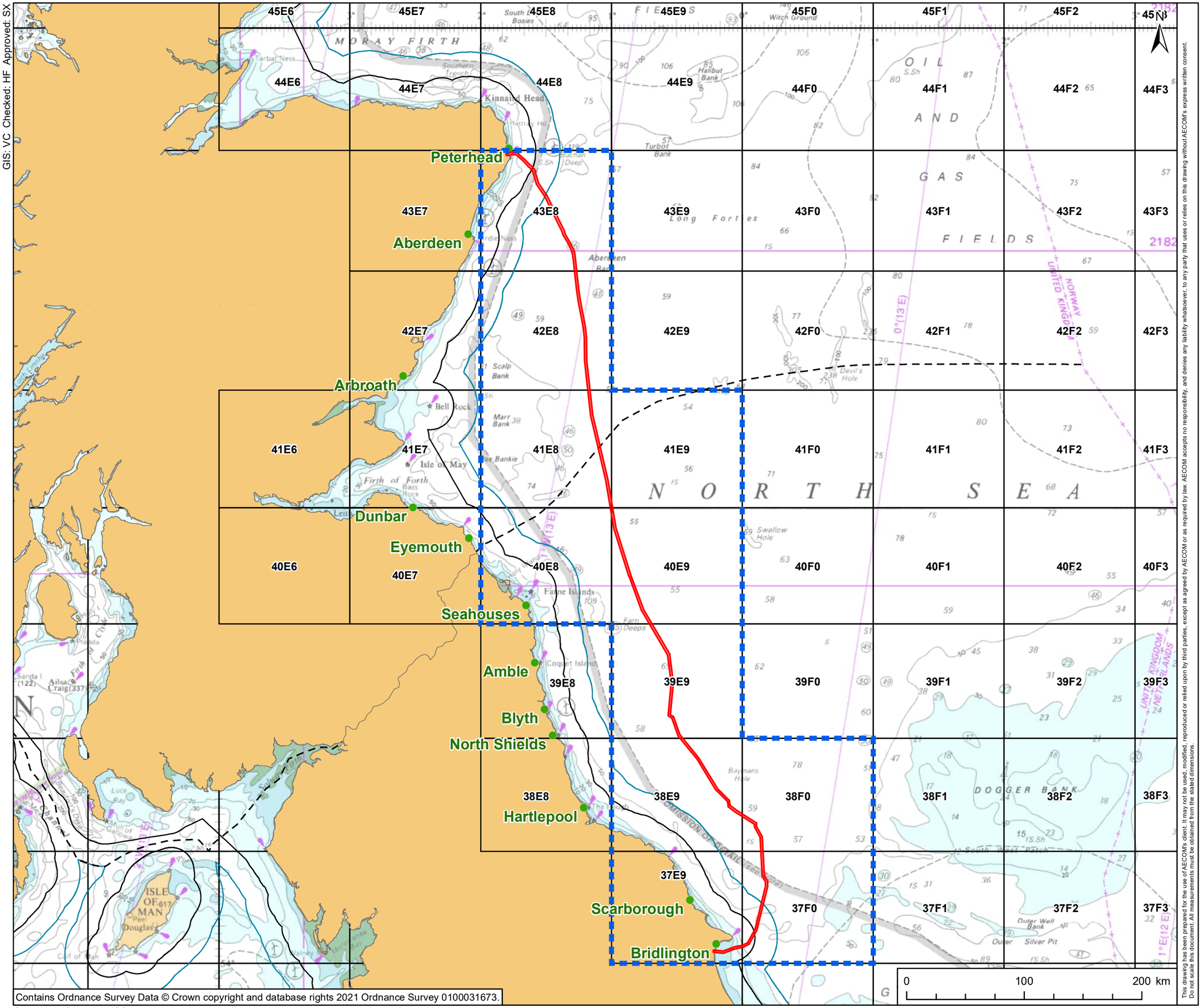
The Marine Scheme is located within the International Council for the Exploration of the Sea (ICES) Division IVb (Central North Sea). Fisheries data are recorded and collated by statistical rectangles within each ICES Division. The commercial fisheries study area has therefore been defined with reference to the ICES rectangles within which the Marine Scheme is located.

As shown in Figure 14-2, these are as follows:

- ICES rectangles 42E8 and 43E8: located in Scottish waters, encompass the northern part of the Marine Installation Corridor (rectangle 43E8 includes the area around the Scottish landfall);
- ICES rectangles 40E8, 41E8 and 41E9: partly located in both Scottish and English waters, include the middle sections of the Marine Installation Corridor; and
- ICES rectangles 37E9, 37F0, 38E9, 38F0, 39E9, 40E9: located in English waters, encompass the southern section of the Marine Installation Corridor including the area around the English landfall (rectangle 37E9).

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

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

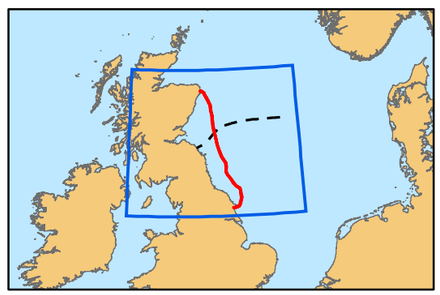
PROJECT

Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles

NOTES;
-



TITLE

Figure 14-2
Study Area

REFERENCE

AEC_SEGL2-02-EA-001

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

14.4 Approach to Appraisal and Data Sources

14.4.1 Appraisal Methodology

This chapter applies the environmental appraisal methodology as detailed in Chapter 4: Approach to Environmental Appraisal. The identification and appraisal of effects and mitigation are based on expert judgment and following relevant available guidance (refer to Section 14.2.1).

The potential magnitude of environmental feature sensitivity and potential effects have been appraised using similar terminology outlined in Chapter 4, and tailored with specific reference to aspects of relevance to commercial fishing as outlined below:

- Magnitude:
  - Area affected: extent of area affected in the context of available grounds and level of fishing activity that the area affected sustains;
  - Duration and frequency: time and frequency of the effect; and
  - Liaison and management: range of fisheries liaison and management measures that are implemented as part of the Marine Scheme.
- Sensitivity:
  - Operational range: extent of the area over which vessels normally operate;
  - Operational versatility: ability to deploy different fishing methods/target different species;
  - Adaptability: ability of vessels to adapt to the potential impact. Degree to which fishing vessels are able to avoid or adapt to changing circumstances, including their capacity to accommodate change; and
  - Importance: value of the fishery in the area around the Project.

The determination of significance was based on expert judgement, taking into account the factors listed above and guided by the standard impact appraisal matrix presented in Table 14-1..

Table 14-1: Significance Matrix

		Magnitude of Change			
		Negligible	**Low**	**Medium**	**High**
Receptor Sensitivity	**High**	Negligible/Minor	Moderate	Major	Major
	Medium	Negligible	Minor	Moderate	Major
	Low	Negligible	Negligible	Minor	Moderate
	Negligible	Negligible	Negligible	Negligible	Negligible/Minor

The non-statutory scoping report[2] identified aspects of the Marine Scheme that have the potential to impact commercial fisheries during the Installation, Operation and Maintenance, and Decommissioning Phases.

[2] The non-statutory Scoping Report is publicly available on https://marine.gov.scot/sites/default/files/segl2_el2_marine_scheme_non-statutory_scoping_report_eastern_link_2_marine_scoping_report_v5.0_finalcombined_ifi_-_issued_for_information_01_1_redacted.pdf

14.4.2 Data Sources and Consultations

14.4.2.1 Key Fisheries Data Sources

Baseline conditions have been established through a desktop review of published information and through consultation with relevant organisations. The principal data sources used to inform the baseline description and appraisal, including their limitations, are outlined in Table 14-2.

14.4.2.2 Summary of Consultations

Following submission of a non-statutory scoping report earlier in the year, the MMO, Marine Scotland Licensing and Operations Team (MS-LOT) and respective consultees and advisers had the opportunity to express their opinions and provide feedback on the proposal and EAR scope, which has been considered in this Chapter.

In addition, detailed consultation was undertaken with fisheries stakeholders to improve understanding of the fisheries baseline in areas relevant to the Marine Scheme. The information gathered as part of this process is presented in Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders and referenced where relevant in this Chapter.

Details of the wider consultation process and associated responses are presented in Chapter 6: Consultations and Stakeholder Engagement and its associated appendices.

14.4.3 Data Gaps and Limitations

In addition to the various dataset specific limitations identified in Table 14-2, it is important to note that in general terms the level of spatial fisheries data available varies greatly depending on vessel size. Detailed up to date spatial data currently available (see Table 14-2) only includes vessels 15 m and over in length and therefore is not representative of the activities carried out by small fishing vessels.

In order to address this gap and help inform the appraisal, particularly with regard to vessels in the smaller size category (under 15 m), detailed consultation has been carried out with the fishing industry, including with local fisheries stakeholders (see Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders).

As described in the UK Sea Fisheries Statistics 2020 Report (MMO, 2021), the ongoing Covid-19 pandemic where effects were felt from March 2020 onwards resulted in significant impacts on commercial fishing during 2020. Like all parts of the UK economy, the pandemic had differential impacts on different sectors in the fishing industry. Overall, shellfish fisheries were hit most severely as shellfish species tend to be landed and sold fresh for use in the hospitality sector and demand from this sector in the UK and abroad dropped dramatically as lockdowns were being imposed across the UK and EU. Whilst landings statistics for 2020 are currently available, data for this year is not considered representative of normal fishing activities and have therefore not been included within this chapter.

Table 14-2: Key Fisheries Data Sources

Dataset	Year	Coverage	Notes / Limitations
Landings Data by ICES Rectangle, Marine Management Organisation (MMO)	2010 - 2019	Landings statistics data for UK-registered vessels including: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type; species; live weight (tonnes) and live weight (value (£)).	Landings data have been analysed by value (£) and presented as an annual average for the period 2015-2019 by ICES rectangle. In the case of scallops, to provide an indication of the cyclical nature of the fishery, data for a longer period (2000 to 2019) has been analysed. It should be noted that fishing is normally not equally distributed across the whole area of an ICES rectangle and therefore overall activities identified for a given rectangle may not be necessarily representative of the activity that the specific area of the Marine Installation Corridor sustains. In addition, fishing methods are grouped into gear categories which in some cases may include different fisheries. For instance, data is collected under a single category (demersal trawls/seines) for demersal trawling, demersal seine netting and pelagic trawling. This gear category does not allow differentiation between activity by vessels engaged in demersal trawling for Nephrops, squid and whitefish and midwater trawling for pelagic fish. Where appropriate, landings statistics have been analysed by species to address this. It should also be noted that small catches in some instances do not require reporting. Under the Registration of Fish Buyers and Sellers and Designation of Fish Auction Sites Regulations, for catches of less than 30 kg that are sold directly to the public for personal consumption, the buyer does not need to submit a sales note.
Fisheries Surveillance Sightings (MMO and Marine Scotland)	2011 – 2020	Surveillance sightings of vessels by gear type (all nationalities) recorded in UK waters by surveillance patrols.	Only sightings of vessels recorded as “fishing” have been included in the analysis. Dataset available for all UK waters from the MMO up to 2018. From 2018 onwards, data within Scottish waters is held by Marine Scotland. While the data provides a good indication of key methods and nationalities potentially active in a given area, it should be noted that surveillance patrols are not carried out at constant time intervals and that the level of surveillance effort has been reduced in recent years.
Fishing Activity for UK Vessels 15 meters and over Data layers (MMO)	2015 - 2019	Satellite tracking data (Vessel Monitoring System (VMS) recorded in 0.05° by 0.05° grids from UK vessels in UK and European waters. VMS data is combined with log book data with values assigned to each cell in the grid in terms of effort and value (£).	This dataset is only available for vessels over 15 m in length and therefore is not representative of fishing activity undertaken by smaller local vessels which normally operate in inshore waters. Data has been analysed by value (£) and presented as an annual average for the period 2015 - 2019. Fishing gear categories used in the dataset do not allow to distinguish activity between some fisheries. As for landings data, VMS data is provided by broad gear category regardless of target species.

Dataset	Year	Coverage	Notes / Limitations
Mapping fisheries and habitats in the North and East Coast RIFG area (Shelmerdine & Mouat, 2021)	Various datasets (2009 -2019)	Study aimed at gathering available information on fishing activity (location, landings, and value) and important habitat information for key species of relevance to the N&EC RIFG. Key fisheries datasets used in the report include: VMS, AIS, ScotMap data (Kafas et al, 2014), Creel effort study (Marine Scotland, 2017).	The report has been reviewed to inform the baseline.
Creel Fishing Effort Study (Marine Scotland Science, 2017)	2015 – 2017	The data presented in the study were obtained from two sources, interviews with static creel fishers and feedback from stakeholder workshops. The interviews with creel fishers were undertaken on the west coast in October to November 2015 and, after requests by industry, extended to the east coast in June to September 2016.	The maps produced as part of the study provide information on the average number of crab and lobster hauls per day per 4 km2. Only a sample of fisheries stakeholders participated in the study area therefore the data outputs are not necessarily representative of the views of all fisheries stakeholders. In addition, the data was collected between 2015 and 2017 and may therefore not be fully representative of current activities.
Fisheries Dependent Information (EU Scientific, Technical and Economic Committee for Fisheries (STECF))	2012 - 2016	Landings (tonnes) by ICES rectangle based on data submitted to the European Commission's STECF by EU member states.	Maps have been produced with information on landings by ICES rectangle for French, Dutch and Danish vessels. The same limitations noted above in relation to UK landings data by ICES rectangle also apply here.
Distribution of Potting/Creeling and Scallop Dredging Fishing Grounds	2021 -2022	Information on fishing rounds collected during consultation with local fisheries stakeholders (see Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders). The spatial information provided by fishermen was georeferenced where possible and amalgamated separately by fishing method for Scottish and English vessels.	Charts compiled using these data generally provide information on areas targeted by fishermen in the proximity of the Marine Scheme but in some cases may not be representative of the full extent of grounds targeted by a given vessel. Charts with fishing grounds have been compiled from information provided by a sample of local fishermen and may therefore not be representative of the activity of all vessels.
North Eastern Inshore Fisheries Conservation Authority (NEIFCA) Vessel Sightings Density	2011 - 2015	Data collected by NEIFCA sea patrol officers of sighted vessels in and in proximity to the NEIFCA district. Fishing density data from 2011 – 2015 provided by gear type using a 1 km^2 grid.	The NEIFCA district extends out to the 6NM limit and observations of fishing vessels by NEIFCA patrol vessels are predominantly concentrated within the boundaries of the district. The lack of records in offshore areas is not indicative of a lack of fishing activity.

Dataset	Year	Coverage	Notes / Limitations
Automatic Identification System (AIS) data (Marine Traffic)	2019 - 2021	AIS records include the following parameters: longitude, latitude, vessel Maritime Mobile Service Identity (MMSI) number, status, speed, course, heading and timestamp, deadweight tonnage, vessel length, vessel draught and vessel type. AIS point-based data has been converted into vessel tracks, clipped to 10 NM around the Marine Installation Corridor. Vessel density grids for the wider area were produced by overlaying a 5 square kilometres (km^2) hexagonal grid and determining the density of tracks within each cell. Vessel tracks were assumed to be wholly in the season or month in which the track started. Vessel speeds were calculated from the length of the track and the start and end times of that track.	To avoid possible abnormalities in in vessel activity arising from COVID-19 or Brexit, the data spans the following time periods only: • 01/05/2019 to 31/07/2019 (summer 2019); • 01/11/2019 to 31/01/2020 (winter 2019 – 2020 season); and • 01/05/2021 to 31/07/2021 (summer 2021 season). All European Union registered fishing vessels of 15 m in length and above are required to carry AIS equipment. Smaller fishing vessels below 15 in length are not required to carry AIS, although a small proportion does voluntarily. Smaller fishing vessels are likely to be underrepresented in the AIS data. AIS tracks of fishing vessels were filtered by speed (<6 knots) to provide an indication of vessels which may be actively engaged in fishing.
Scottish White Fish Producers Association Gear Locations (SWFPA, 2022)	2019 - 2022	Locations of static gear provided voluntarily by fishermen to help avoid conflict with towed gear fisheries.	Provides an indication of areas where creels are deployed. The lack of data in a given area, however, does not imply absence of creeling activity.

14.5 Baseline Conditions

This section covers the commercial fisheries baseline for the Marine Scheme, with regard to commercial fishing.

14.5.1 Overview of Principal Fishing Activities in the Study Area

An indication of the principal national fleets and fishing methods active in the study area is provided in Figure 14-3, based on surveillance sightings data for the period 2011 to 2020. A detailed breakdown of the sightings recorded within the study area is provided in Table 14-3.

As indicated by Figure 14-3, surveillance sightings have been recorded in relatively high numbers in the northern and southern sections of the study area (e.g., ICES rectangles 43E8, 42E8, 37E9 and 37F0). Although in comparatively lower numbers, the central sections of the study area also record surveillance sightings in some numbers. AIS data of fishing vessels also suggests that the majority of activity concentrates around the northern and southern sections of the Marine Installation Corridor, with more limited activity in the central sections (Figure 14-4). It is understood, however, that activity recorded in AIS data in the central sections of the Marine Installation Corridor for the most part represents vessels in transit rather than fishing.

The majority of observations of vessels fishing in the study area (91.16%) are of UK vessels (Figure 14-3 and Table 14-3). These are predominantly scallop dredgers, potters/creelers and trawlers (Figure 14-3).

Although at much lower levels than UK vessels, foreign vessels of various nationalities have also been recorded within the study area, particularly in the vicinity of the English landfall (ICES rectangles 37E9 and 37F0). Overall, sightings of non-UK vessels only represent 8.8% of the total sightings within the study area and are predominantly French and to a lesser extent Dutch and Danish vessels. It is understood that these are for the most part pelagic trawlers engaged in the seasonal herring fishery, off Flamborough Head (Figure 14-3 and Table 14-3). As shown in Figure 14-3, in the area around the English landfall, French and Dutch vessels have historic fishing rights to target herring. In addition, it is understood that some French trawlers target whitefish species around this area, predominantly whiting (see Section 14.5.5.2).

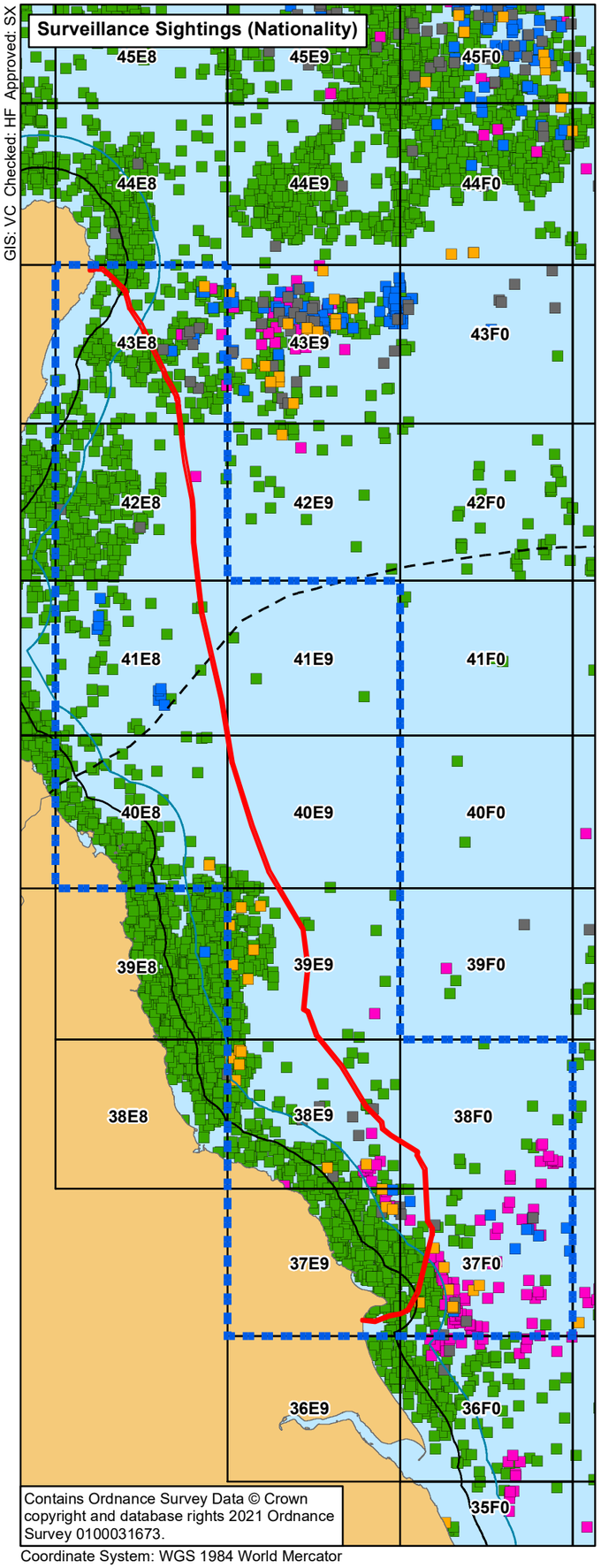
Table 14-3: Surveillance Sightings by Nationality (2011 - 2020)

Nationality	Vessel Type	No. of Sightings within Study Area	% of Total Sightings within the Study Area
UK	Scallop Dredger (French/Newhaven)	630	32.76%
	Potter/Whelker	465	24.18%
	Trawler (All)	333	17.32%
	Demersal Stern Trawler	166	8.63%
	Stern Trawler (Pelagic/Demersal)	60	3.12%
	Pair Trawler (All)	31	1.61%
	Beam Trawler	18	0.94%
	Other Dredges (Including Mussel)	15	0.78%
	Unknown	15	0.78%
	Rod and Line	8	0.42%
	Long Liner	3	0.16%
	Bottom Seiner (Anchor/Danish/Fly/Scots)	2	0.10%
	Drift Netter	2	0.10%
	Freezer Trawler (Pelagic/Demersal)	2	0.10%
	Pelagic Stern Trawler	1	0.05%

Nationality		Vessel Type	No. of Sightings within Study Area	% of Total Sightings within the Study Area
		Shrimper	1	0.05%
		Demersal Side Trawler	1	0.05%
		UK Total	**1,753**	**91.16%**
Non-UK	France	Trawler (All)	83	4.32%
		Stern Trawler (Pelagic/Demersal)	7	0.36%
		Pelagic Stern Trawler	2	0.10%
		Scallop Dredger (French/Newhaven)	1	0.05%
		France Total	93	4.84%
	Denmark	Industrial Trawler (Sandeeler)	11	0.57%
		Pelagic Stern Trawler	8	0.42%
		Stern Trawler (Pelagic/Demersal)	5	0.26%
		Trawler (All)	2	0.10%
		Purse Seiner	1	0.05%
		Denmark Total	27	1.40%
	Netherlands	Trawler (All)	9	0.47%
		Stern Trawler (Pelagic/Demersal)	6	0.31%
		Bottom Seiner (Anchor/Danish/Fly/Scots)	5	0.26%
		Beam Trawler	2	0.10%
		Demersal Stern Trawler	2	0.10%
		Side Trawler (Pelagic/Demersal)	1	0.05%
		Pelagic Stern Trawler	1	0.05%
		Netherlands Total	26	1.35%
	Other	Beam Trawler	8	0.42%
		Scallop Dredger (French/Newhaven)	6	0.31%
		Trawler (All)	3	0.16%
		Bottom Seiner (Anchor/Danish/Fly/Scots)	2	0.10%
		Stern Trawler (Pelagic/Demersal)	2	0.10%
		Pelagic Stern Trawler	1	0.05%
		Unknown	1	0.05%
		Purse Seiner	1	0.05%
		Other Total	24	1.25%
	Non-UK Total		**170**	**8.84%**

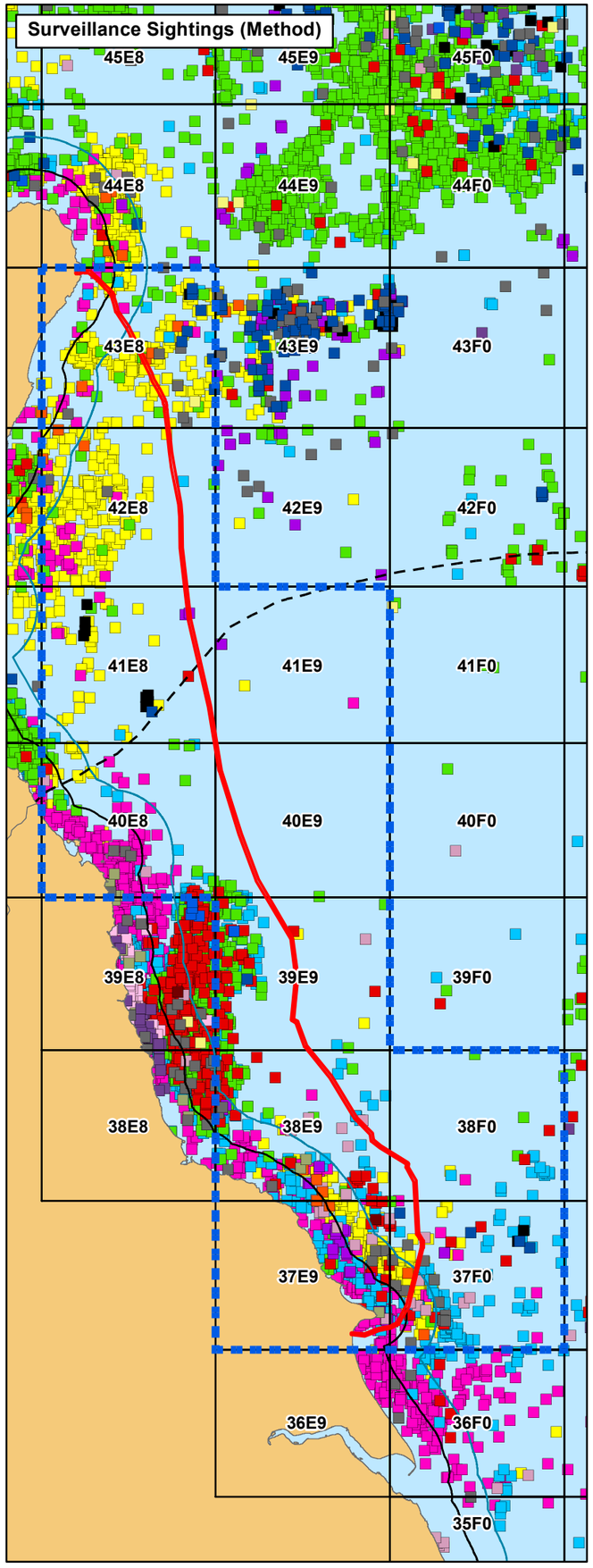
GIS: VC Checked: HF Approved: SX

Surveillance Sightings (Nationality)

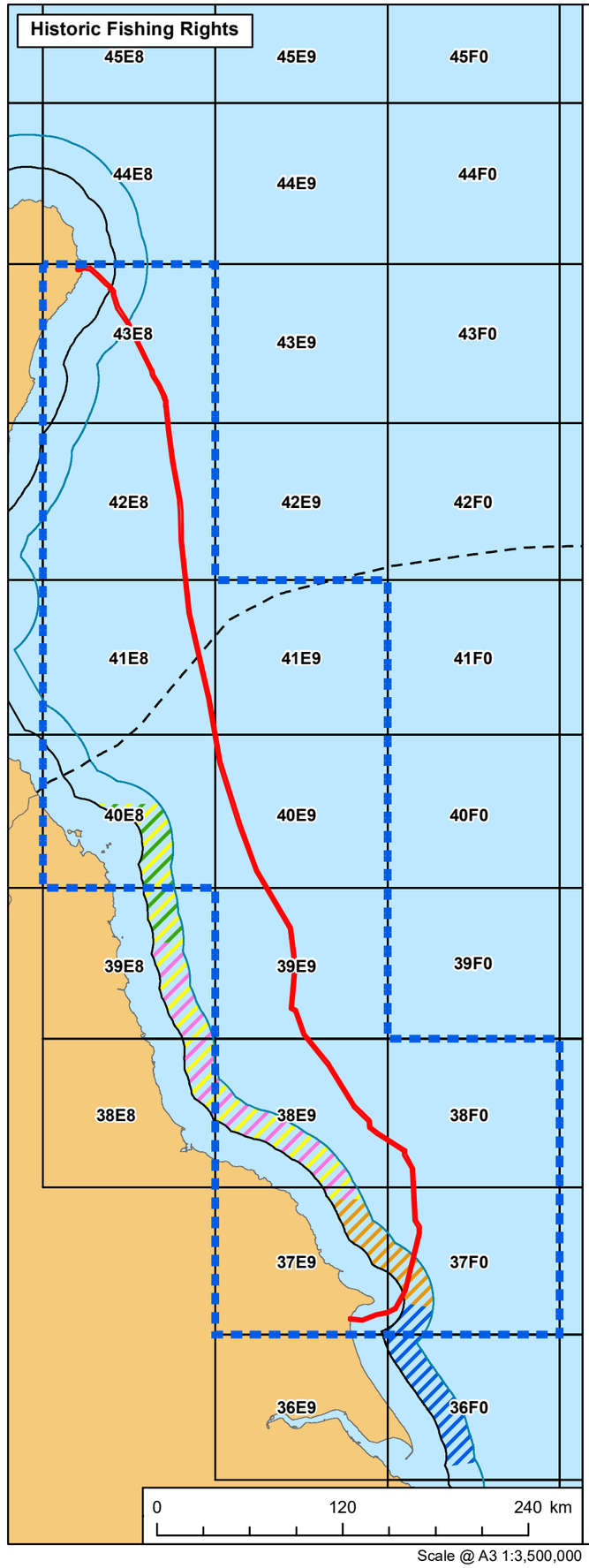


Coordinate System: WGS 1984 World Mercator

Surveillance Sightings (Method)



Historic Fishing Rights



Scale @ A3 1:3,500,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

Surveillance Sightings - Nationality[1,2]

- United Kingdom
- France
- Denmark
- Netherlands
- Other/ Unknown

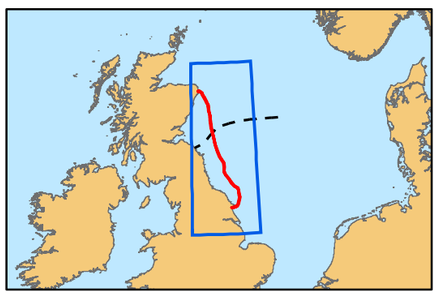
Surveillance Sightings - Method[1,2]

- Scallop dredger (French/ Newhaven)
- Potter/ Whelker
- Trawler (All)
- Demersal stern trawler
- Stern trawler (Pelagic/ Demersal)
- Pair trawler (All)
- Beam trawler
- Other dredges (Including mussel)
- Pelagic stern trawler
- Industrial trawler (Sandeleer)
- Rod and line
- Drift netter
- Gill netter
- Shrimper
- Demersal side trawler
- Side trawler (Pelagic/ Demersal)
- Other/ Unknown

Historic Fishing Rights

- Germany and Netherlands for Herring
- Germany, France, Belgium and Netherlands for Herring
- Netherlands for Herring
- France for Herring

NOTES;
[1] MMO (2021)
[2] Marine Scotland (2021)



TITLE

Figure 14-3
Surveillance Sightings (2011-2020)
Nationality & Method
Historic Fishing Rights

REFERENCE

AEC_SEGL2-02-EA-045

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

GIS: VC Checked: HF Approved: SX

Peterhead
Aberdeen
Arbroath
Dunbar
Eyemouth
Seahouses
Amble
Blyth
North Shields
Hartlepool
Scarborough
Bridlington

45E6 45E7 45E8 45E9 45F0 45F1 45F2 45F3
44E6 44E7 44E8 44E9 44F0 44F1 44F2 44F3
43E7 43E8 43E9 43F0 43F1 43F2 43F3
42E7 42E8 42E9 42F0 42F1 42F2 42F3
41E6 41E7 41E8 41E9 41F0 41F1 41F2 41F3
40E6 40E7 40E8 40E9 40F0 40F1 40F2 40F3
39E8 39E9 39F0 39F1 39F2 39F3
38E8 38E9 38F0 38F1 38F2 38F3
37E9 37F0 37F1 37F2 37F3

MORAY FIRTH
NORTH SEA
OIL AND GAS FIELDS
DOGGER BANK
UNITED KINGDOM / NORWAY
UNITED KINGDOM / NETHERLANDS
EXCLUSION OF TRAFFIC

Coordinate System: WGS 1984 World Mercator

0 100 200 km

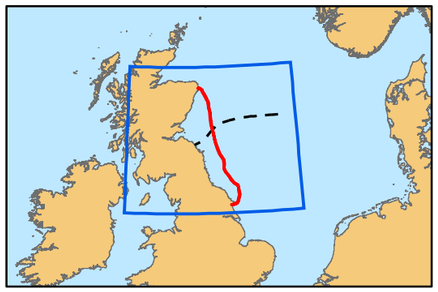
Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

KEY
- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary
- AIS Fishing (<6 knots)[1]

NOTES;
[1] Xodus (2021)



TITLE
Figure 14-4
Spatial Distribution of Fishing Vessels AIS Records 2019-2021

REFERENCE
AEC_SEGL2-02-EA-044

SHEET NUMBER
1 of 1

DATE
19/05/2022

An indication of the value of the commercial fishing activities undertaken in the study area is provided in Figure 14-5 based on analysis of UK landing values (£) by species and method. Data is presented as an annual average for the period 2015 to 2019.

The analysis of landings data (Figure 14-5) indicates that potting/creeling for crab and lobster, dredging for scallops and trawling for *Nephrops* account for the majority of the overall value of landings across the study area. Landings of lobster and crab combined represent approximately £12.1 Million per year on average, whilst scallop dredging contributes approximately £7.9 Million. Although at lower levels, *Nephrops* contribute significantly to the overall landings in the study area (approximately £2.1 Million).

Landings by demersal trawlers of species other than *Nephrops* are also of relevance in the study area (accounting for over £1.1 Million annually). It is understood that this primarily relates to landings of demersal fish caught as by-catch in the *Nephrops* mixed fishery in the Farne Deeps grounds. However, squid and some pelagic fish species (predominantly herring) are also landed from the study area (see Figure 14-5).

A breakdown of UK landings by ICES rectangle is provided in Figure 14-6 by fishing method and species and is summarised below:

- Potting/creeling for crab and lobster are activities of importance across the majority of the study area, particularly in inshore ICES rectangles;
- Landings of *Nephrops* trawlers concentrate predominantly in ICES rectangles 40E8, 40E9 and 39E9 around the Farne Deeps grounds;
- Landings of other species caught by demersal trawlers including whitefish (cod, haddock, whiting) and squid are in general terms comparatively low;
- The majority of scallop dredging is recorded in ICES rectangles 41E8, 42E8 and 43E8 (in the northern section of the study area) and ICES rectangles 38E9, 37E9 and 37F0 in the south; and
- Trawling (pelagic) for herring, is predominantly recorded in ICES rectangles 37E9 and 37F0 and to a lesser extent in rectangle 43E8.

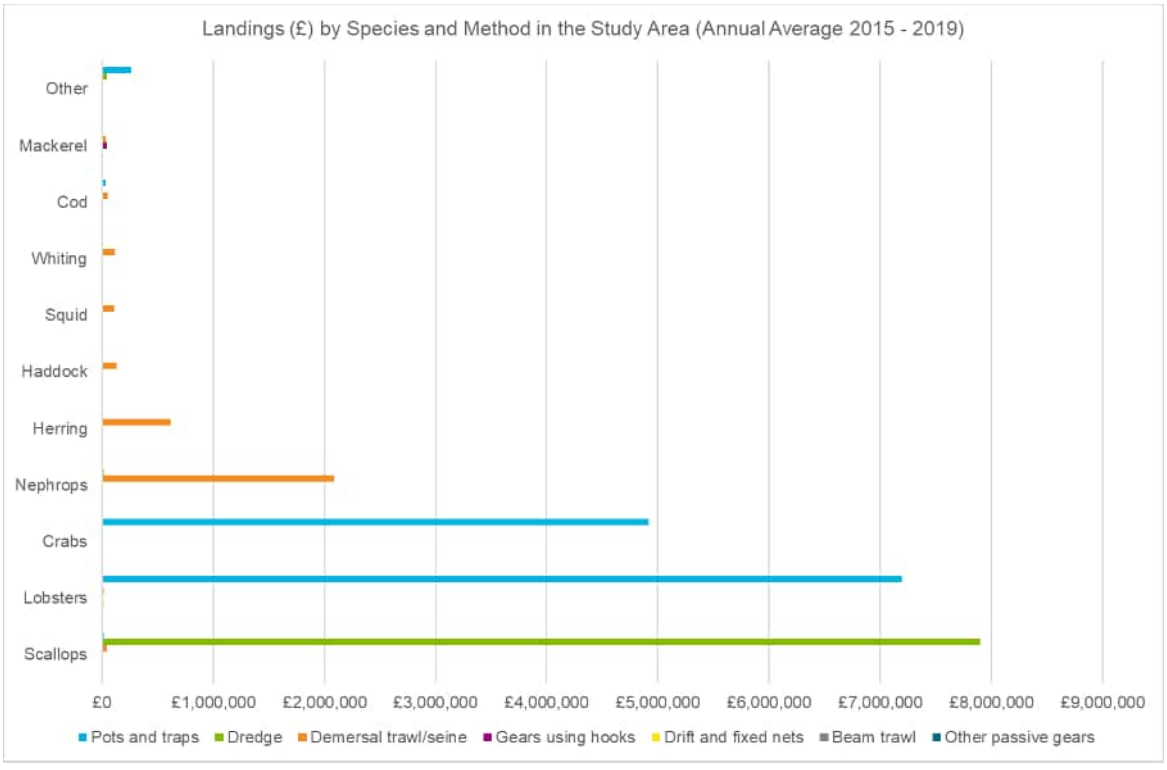


Figure 14-5: Landings (£) by Species and Method in the Study Area (Annual Average 2015 - 2019) (Source: MMO)

GIS: VC Checked: HF Approved: SX

UK Landings Value (Method)

44E7 £6,195,811 | 44E8 £4,655,443 | 44E9 £5,085,969 | 44F0 £5,184,984

43E7 £187,062 | 43E8 £1,356,043 | 43E9 £1,983,380 | 43F0 £921,601

42E7 £4,406,713 | 42E8 £1,957,663 | 42E9 £155,714 | 42F0 £1,708,444

41E7 £8,639,909 | 41E8 £1,126,848 | 41E9 £79,324 | 41F0 £538,961

40E7 £2,716,310 | 40E8 £3,954,723 | 40E9 £211,571 | 40F0 £82,526

39E8 £6,614,088 | 39E9 £1,304,958 | 39F0 £192,130

38E8 £3,709,378 | 38E9 £2,840,875 | 38F0 £326,215

37E9 £6,725,652 | 37F0 £3,850,887

0 100 200 km

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

UK Landings Value (Species)

44E7 £6,195,811 | 44E8 £4,655,443 | 44E9 £5,085,969 | 44F0 £5,184,984

43E7 £187,062 | 43E8 £1,356,043 | 43E9 £1,983,380 | 43F0 £921,601

42E7 £4,406,713 | 42E8 £1,957,663 | 42E9 £155,714 | 42F0 £1,708,444

41E7 £8,639,909 | 41E8 £1,126,848 | 41E9 £79,324 | 41F0 £538,961

40E7 £2,716,310 | 40E8 £3,954,723 | 40E9 £211,571 | 40F0 £82,526

39E8 £6,614,088 | 39E9 £1,304,958 | 39F0 £192,130

38E8 £3,709,378 | 38E9 £2,840,875 | 38F0 £326,215

37E9 £6,725,652 | 37F0 £3,850,887

0 100 200 km

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

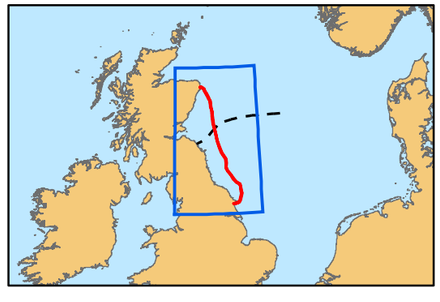
Method

- Pots and traps
- Dredge
- Demersal trawl seine
- Gears using hooks
- Drift and fixed nets
- Beam trawl
- Other passive geras
- Other mobile gears

Species

- Scallops
- Lobsters
- Crabs
- Nephrops
- Herring
- Haddock
- Squid
- Whiting
- Cod
- Mackerel
- Other

NOTES;
[1] MMO (2021)



TITLE
Figure 14-6
UK Landings Value (£)
Method & Species
Average 2015-2019

REFERENCE
AEC_SEGL2-02-EA-044

SHEET NUMBER
1 of 1

DATE
19/05/2022

14.5.2 Potting/Creeling - Lobster and Crab Fishery

14.5.2.1 Fishing Gear Methods and Operating Practices

Lobster and crabs are typically caught in pots (referred to as creels in Scotland and northeast England)). Pots are more commonly shot in strings ("fleets"), where a number of pots are attached to one long rope and laid on the seabed with a dhan or buoy marking their location[3]. The pots are baited and left on the seabed to fish "soak" for a period of usually 24 hours or more (Seafish, 2021e). See Figure 14-7 for an example of pots stacked at Bridlington Harbour.

Figure 14-7: Pots/Creels Stacked at Bridlington Harbour (Brown & May Marine, 2021)

The number of fleets and overall number of pots/creels that local vessels operate in the study area varies significantly on a case-by-case basis. During consultation, the Scottish vessels consulted, reported fleet numbers ranging from seven to 32, and total number of pots/creels from 70 to 1,280. English vessels reported fleet numbers ranging from 60 to 75, generally working over 2,000 pots (Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders).

The size of the English vessels consulted ranged from 6 m to 17 m, while Scottish vessels ranged from 6 m to 12 m in length (Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders).

During consultation, it was noted that the size of potting vessels operating in English waters in areas of relevance to the Marine Installation Corridor is increasing, and that vessels of 12 m and above may venture up to 40 NM offshore (Consultation Meeting, 11/11/2021). An example of larger potting vessels is shown in Figure 14-8.

Monthly landings of crab and lobster from the study area are provided in Figure 14-9 (annual average 2015 – 2019). As shown, landings of lobster appear to be higher towards the summer and in early autumn, with peak landings recorded in August. Landings of crab are highest in September, with landings remaining at high levels throughout the autumn.

The majority of English potter/creelers consulted with noted that they work all year round. Some of the Scottish vessels that returned consultation questionnaires identified their main season to run between March and October/November (Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders).

[3] It should be noted that despite the 2020 Marine Scotland guidance regarding creel marking (https://www.gov.scot/publications/creel-marking/) it is acknowledged that many vessels still do not mark gear appropriately.

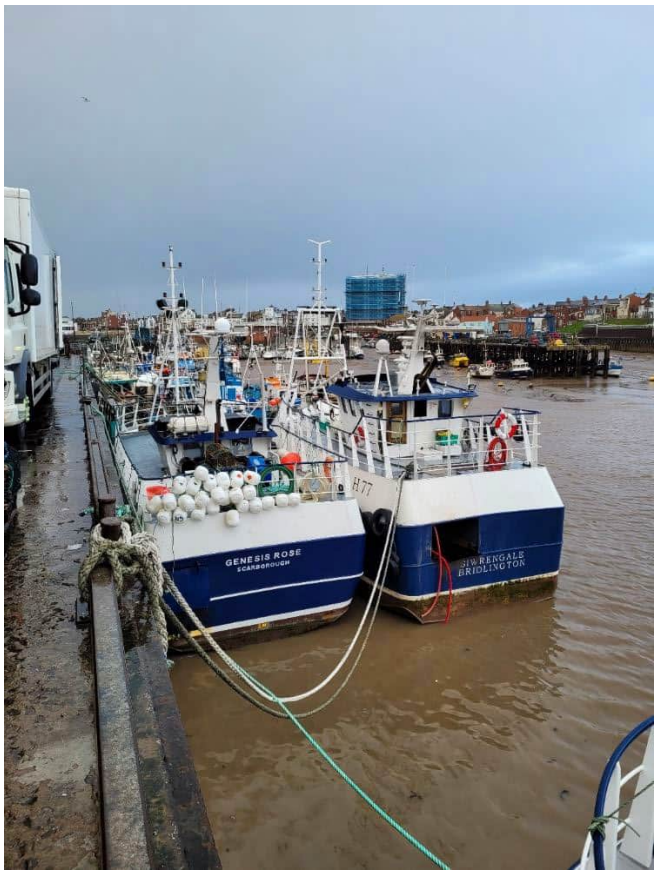


Figure 14-8: Two Potters/Creelers in Bridlington (Brown & May Marine, 2021)

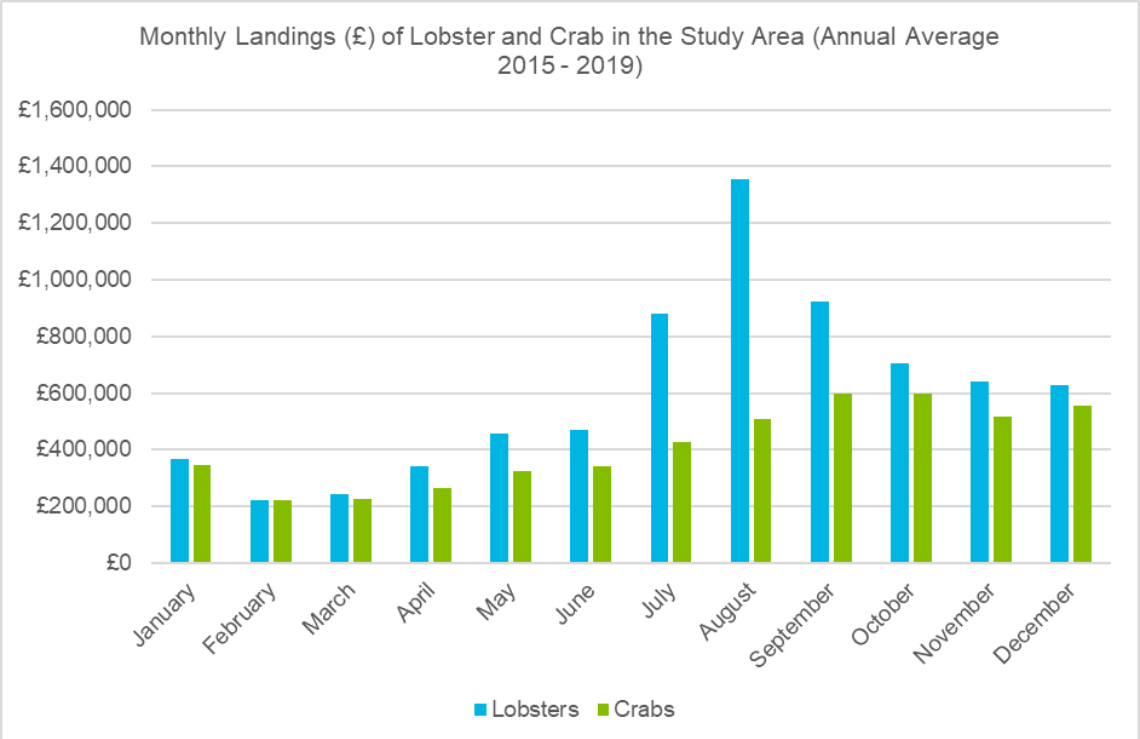


Figure 14-9: Monthly Landings (£) of Lobster and Crab in the Study Area (Annual Average 2015 - 2019) (Source: MMO)

14.5.2.2 Distribution of Fishing Activity

An indication of the spatial distribution of potting/creeling activity in the study area is provided in Figure 14-10 to Figure 14-18 based on analysis of the following sources of data and information:

- Lobster and crab landings by ICES rectangle (Figure 14-10);
- Surveillance sightings of potters (Figure 14-11);
- VMS (£) data for pot/traps (Figure 14-12);
- Creel fishing effort study (Marine Scotland Science, 2017) (Figure 14-13);
- Combined fishing activity for creels (Shelmerdine & Mouat, 2021) (Figure 14-14);
- Potting grounds identified by Scottish and English fisheries stakeholders during consultation (Brown & May Marine, 2022) (Figure 14-15 and Figure 14-16); and
- SWFPA Creel Positions (February 2019 to February 2022) (Figure 14-17); and
- NEIFCA potting/creeling vessel density data (Figure 14-18).

It is shown that crab and lobster are targeted across the study area. ICES rectangles 37E9, 37F0, 38E9 and 40E8 record the highest landings for these species (Figure 14-10).

Surveillance sightings indicate that potters/creelers concentrate for the most part within the 6 NM limit (Figure 14-11). Given the predominant inshore distribution of these vessels, potential interactions with the Marine Installation Corridor are expected to be limited to areas around the landfalls.

Whilst in general terms potting/creeling tends to be undertaken by small local vessels, as shown in Figure 14-12, some potters/creelers in the larger size category (over 15 m) are active around the English landfall, ICES rectangles 37E9, 37F0 and 38E9; overlapping with the Marine Installation Corridor approximately between KP251 to KP264, and between 286 and 435) and to a lesser extent around the Scottish landfall (ICES rectangle 43E8; KP15 to KP24).

Additional detailed data on the distribution of activity by potters/creelers within the study area is available from a creeling effort study undertaken by Marine Scotland (Marine Scotland Science, 2017) (Figure 14-13) and from information presented in Shelmerdine & Mouat, 2021 (Figure 14-14). It should be noted, however, that these studies are Scottish specific and are therefore not representative of the overall level of creeling/potting across the whole study area. The results of these studies indicate that inshore areas around the Scottish landfall, particularly between KP 0 and KP 19, support significant potting/creeling activity.

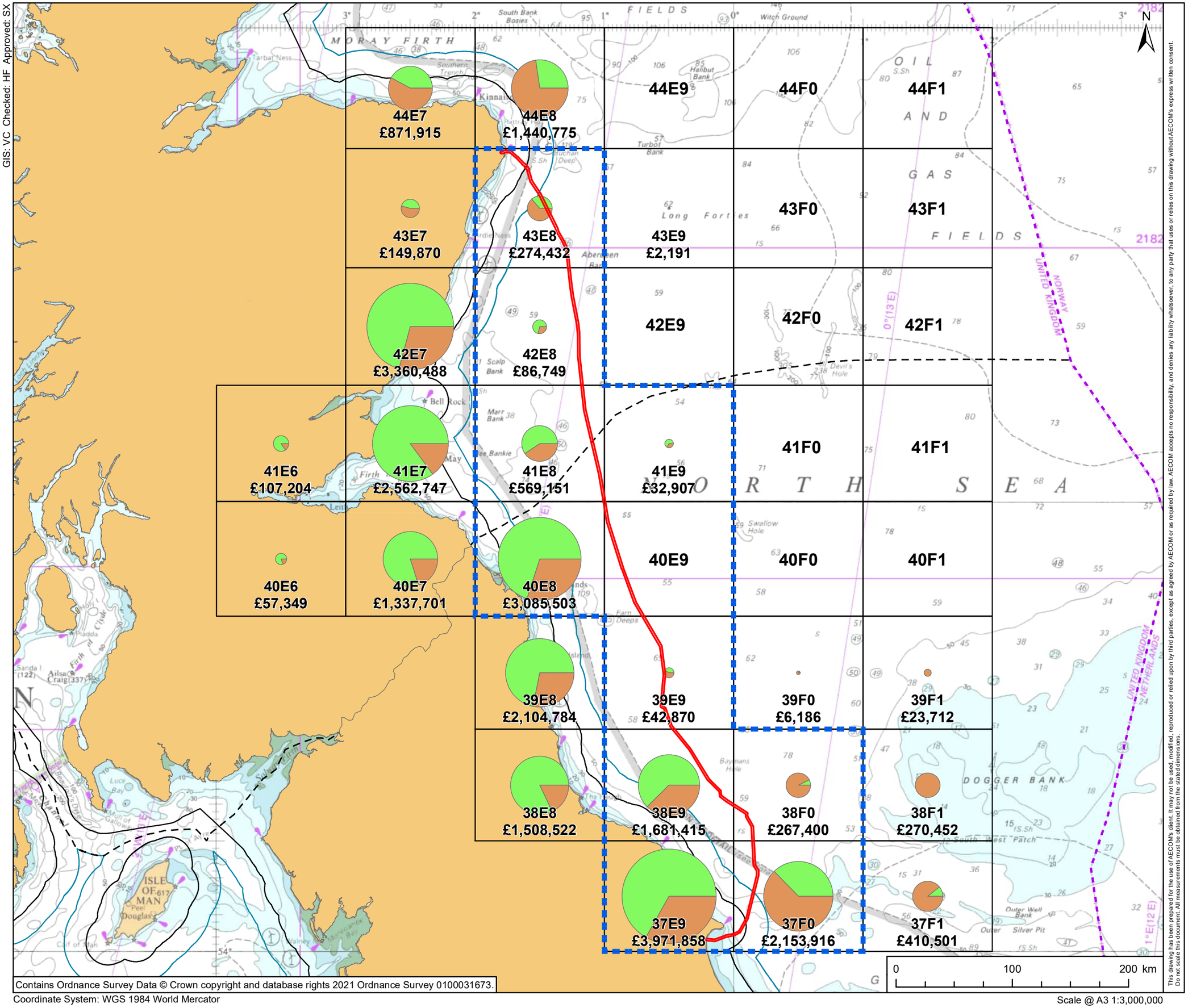
The distribution of potting/creeling activity by Scottish and English vessels in areas of relevance to the Marine Installation Corridor is illustrated in Figure 14-15 and Figure 14-16 based on grounds depicted by fishermen on paper charts and on information from plotter shots gathered during consultation.

As shown in Figure 14-15 potting/creeling grounds reported by Scottish vessels during consultation concentrate in nearshore areas around the Scottish landfall, particularly between KP0 and KP3. Scottish creelers in this area tend to move gear inshore of 1°40'W from 01 April to avoid gear conflict with scallop dredgers as part of an agreement between vessels engaged in these two fisheries. Potting/creeling grounds reported by English vessels also concentrate in inshore areas around the landfall, for the most part within the 12 NM limit (KP381 to KP434) (Figure 14-16).

During consultation it was noted that potting/creeling activity occurs at high levels south of Head End around Bridlington, where crab spawning grounds and productive lobster grounds are found (Consultation Meeting, 1/12/2021). Activity in nearshore areas around Bridlington is also apparent from available surveillance data from NEIFCA (2011 -2015) (Figure 14-18).

Although at lower levels, it is understood that some Scottish vessels target offshore grounds which may overlap with other sections of the Marine Installation Corridor. As illustrated in Figure 14-17, the presence of static gear has been reported to the SWFPA in areas that overlap with the Marine Installation Corridor within rectangle 43E8 (KP 0 to 18; KP 52 to 68; KP 120 to 140 and 167 to 187). An increasing trend to target offshore grounds both in Scottish and English grounds was also reported during consultation (Consultation Meeting, 2/11/2021; Consultation Meeting, 11/11/2021).

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

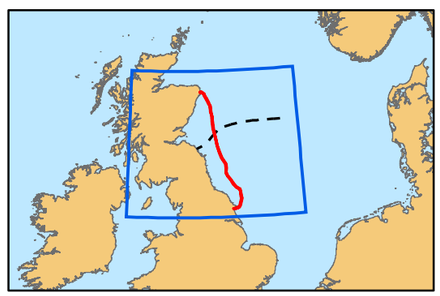
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary

Species[1,*]

- Lobsters
- Crabs

NOTES;
[1] MMO (2020)
* For visual purposes, all landings values below £1,000 have been removed from the chart.



TITLE

Figure 14-10
UK Landings Value (£)
Crabs and Lobsters
Average 2015-2019

REFERENCE

AEC_SEGL2-02-EA-015

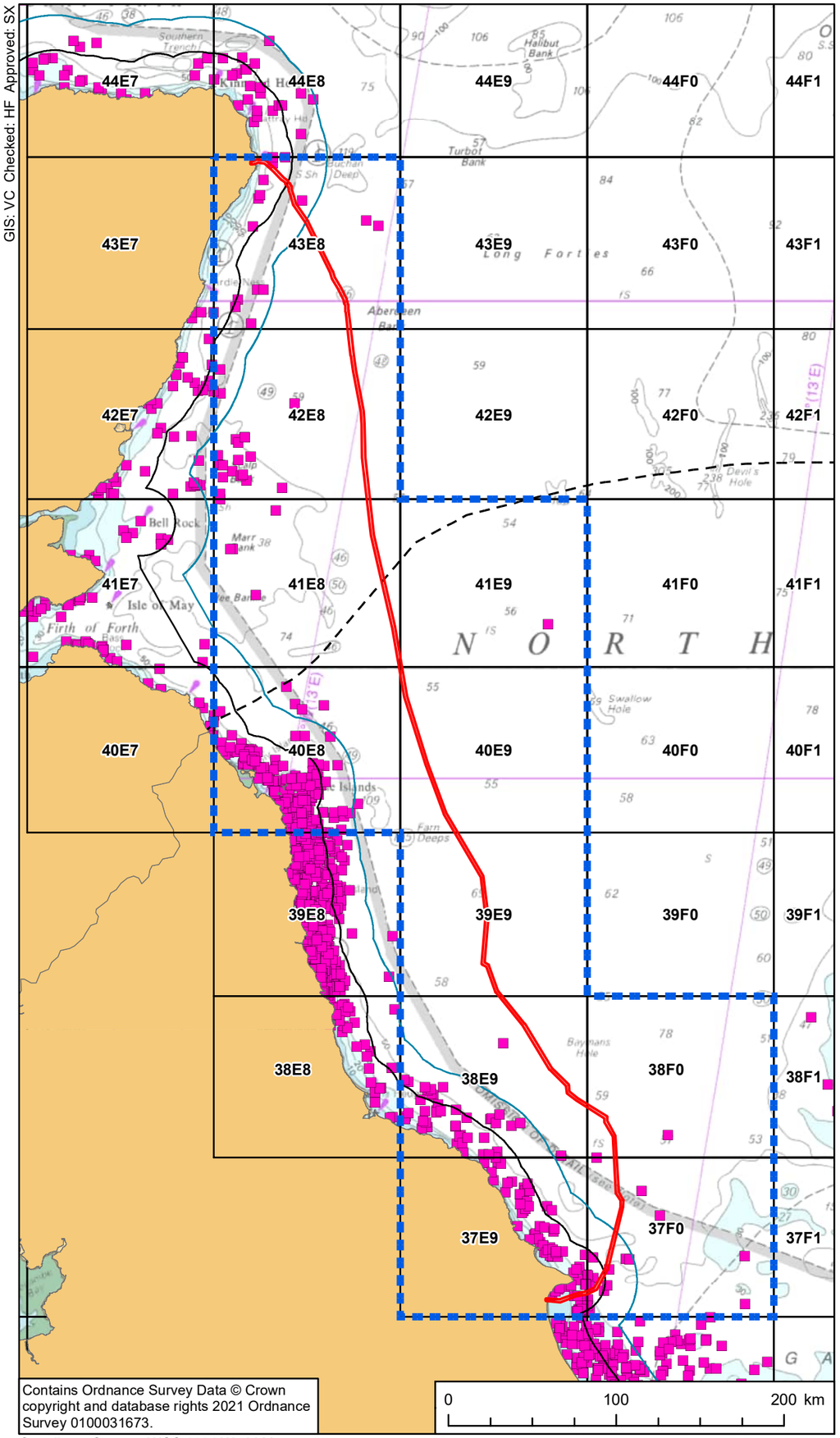
SHEET NUMBER

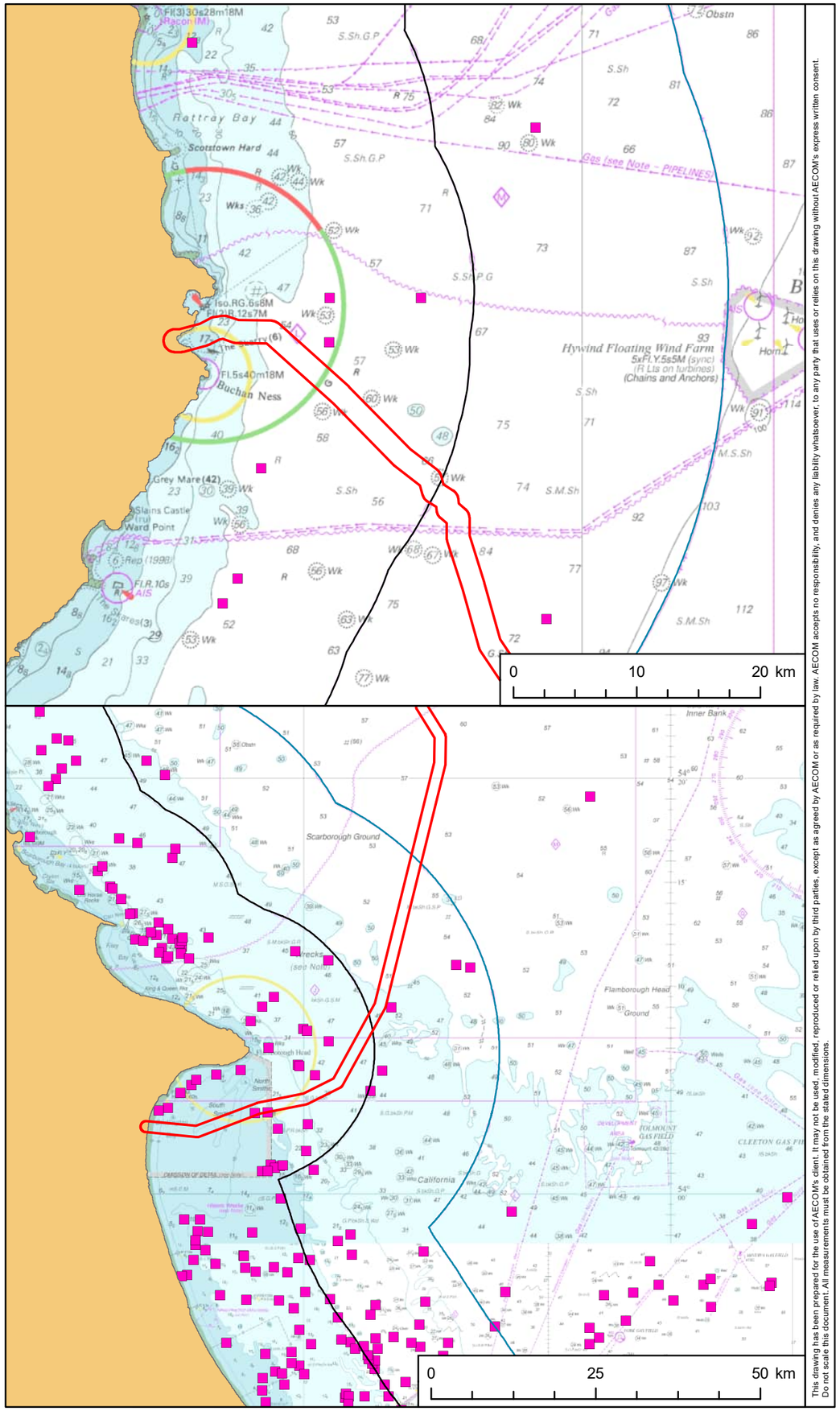
1 of 1

DATE

19/05/2022

GIS: VC Checked: HF Approved: SX





Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

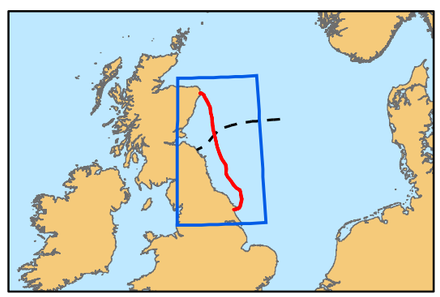
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

Method[1,2]

- Potter/ Whelker

NOTES;
[1] MMO (2021)
[2] Marine Scotland (2021)



TITLE

Figure 14-11
Surveillance Sightings
Potter/ Whelker
2011-2020

REFERENCE

AEC_SEGL2-02-EA-019

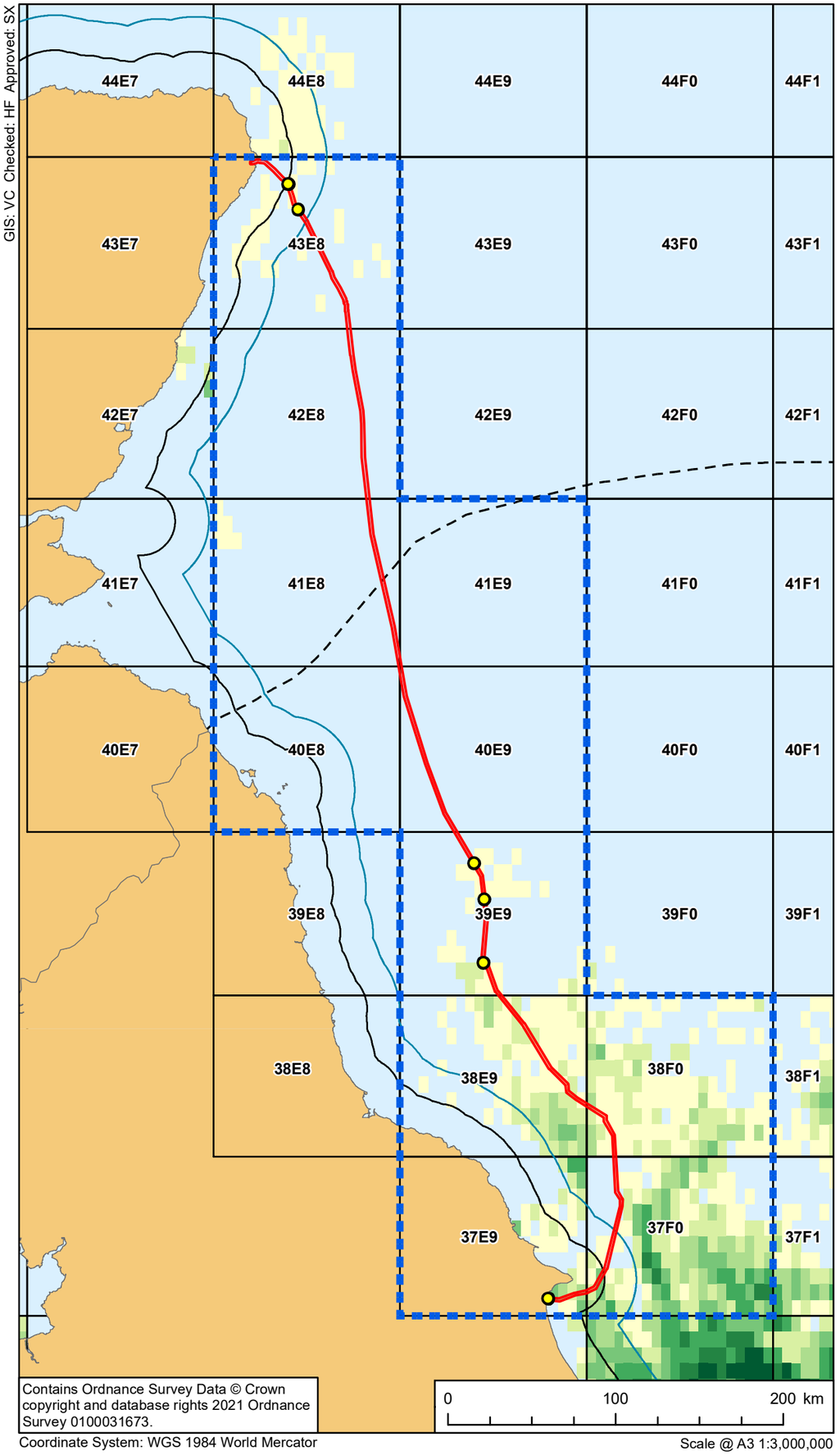
SHEET NUMBER

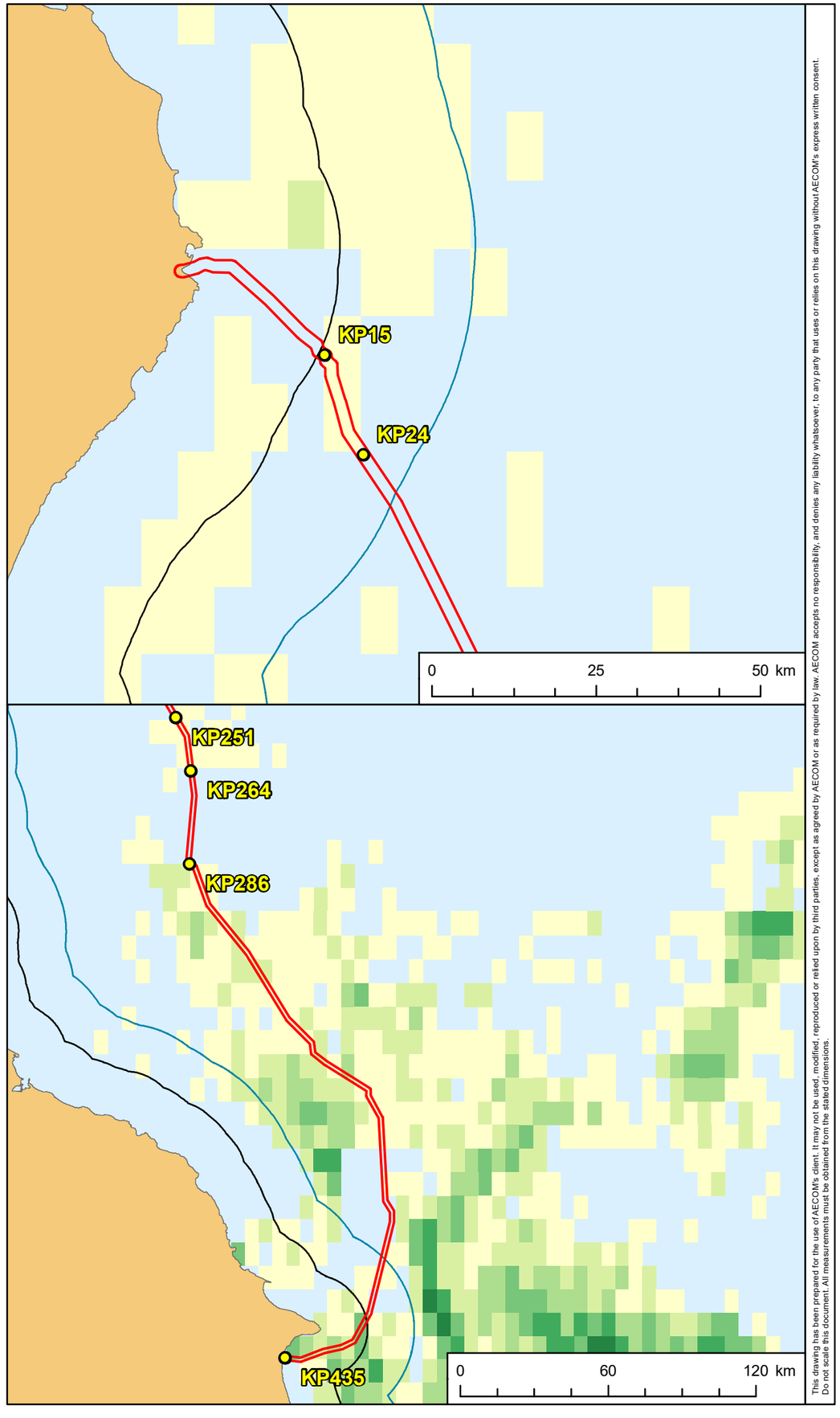
1 of 1

DATE

19/05/2022

GIS: VC Checked: HF Approved: SX





Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

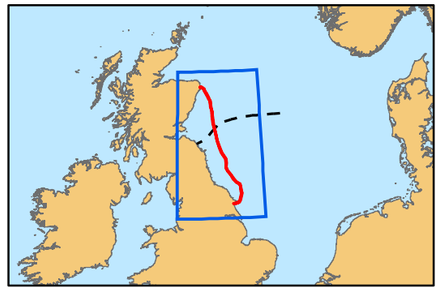
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

Pots or traps[1]

- Less than £1,000
- £1,000 - £3,000
- £3,000 - £6,000
- £6,000 - £10,000
- £10,000 - £20,000
- £20,000 - £35,000
- More than £35,000

NOTES;
[1] MMO (2020)



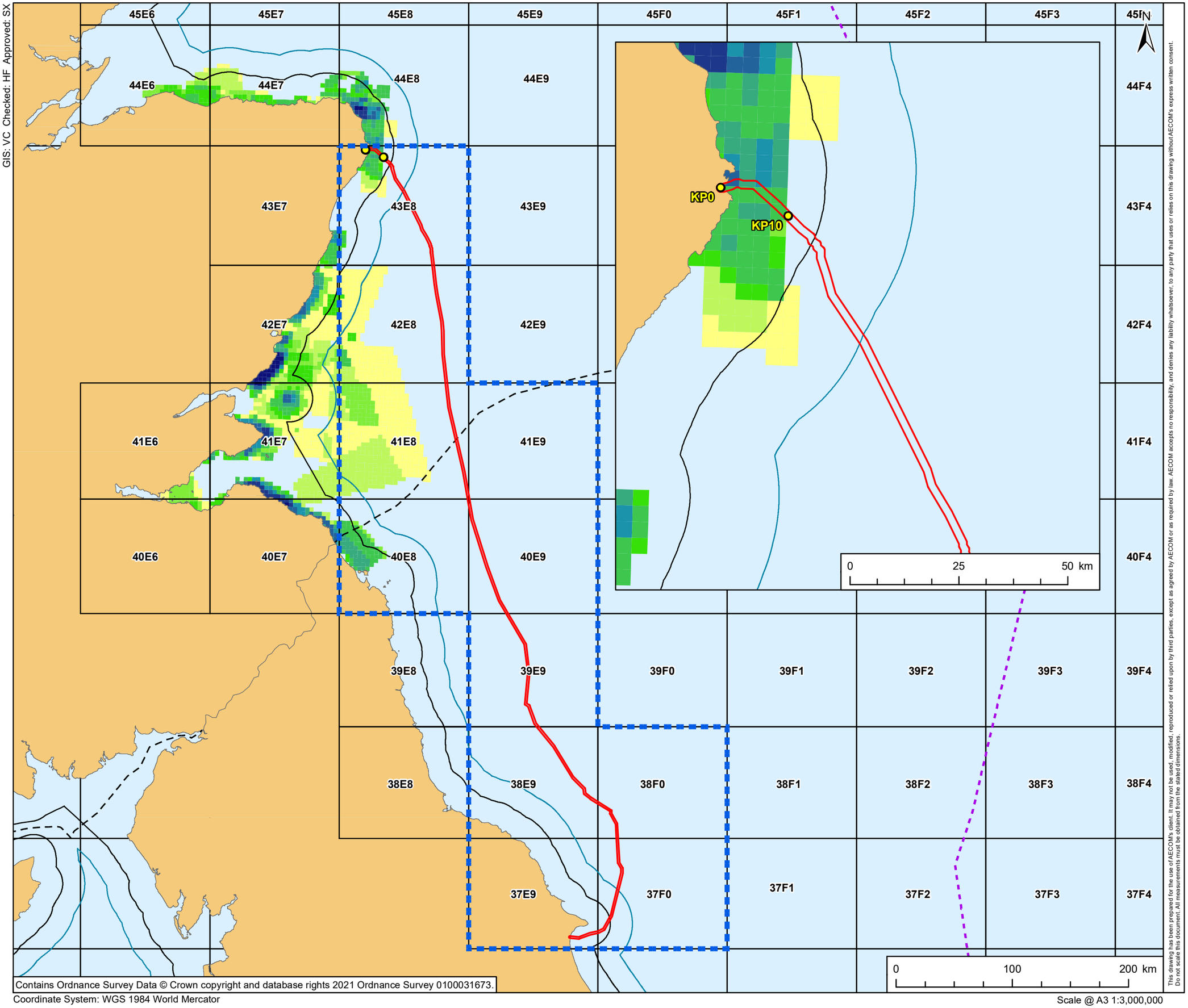
TITLE
Figure 14-12
UK VMS Value (£)
Pots or traps
Average 2015-2019

REFERENCE
AEC_SEGL2-02-EA-006

SHEET NUMBER
1 of 1

DATE
19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

KEY

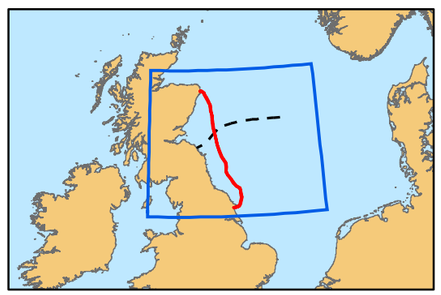
- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary

Average number of crab and lobster hauls per day[1]

- Less than 3
- 3 - 5
- 5 - 8
- 8 - 13
- 13 - 24
- 24 - 40
- 40 - 58
- 58 - 90
- 90 - 140
- 140 - 235

NOTES;

[1] Marine Scotland (2010)



TITLE

Figure 14-13
Creel Fishing Effort Study
Average Number of Crab and Lobster Hauls per Day

REFERENCE

AEC_SEGL2-02-EA-014

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

GIS: VC Checked: HF Approved: SX

45E6 45E7 45E8 45E9 45F0 45F1 45F2 45F3 45F4

44E6 44E7 44E8 44E9 44F4

43E7 43E8 43E9 43F4

42E7 42E8 42E9 42F4

41E6 41E7 41E8 41E9 41F4

40E6 40E7 40E8 40E9 40F4

39E8 39E9 39F0 39F1 39F2 39F3 39F4

38E8 38E9 38F0 38F1 38F2 38F3 38F4

37E9 37F0 37F1 37F2 37F3 37F4

KP0

KP19

N

0 25 50 km

0 100 200 km

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid

Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary

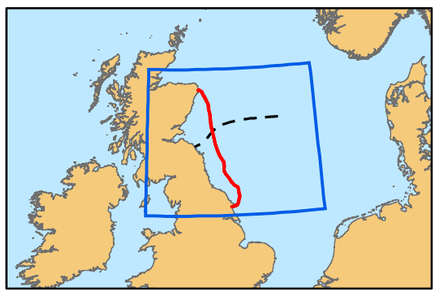
Likelihood/Occurrence[1]

High

Low

NOTES;

[1] Shelmerdine R.L. and Mouat B. (2021): Mapping fisheries and habitats in the North and East Coast RIFG area. NAFC Marine Centre UHI report. pp70.



TITLE

Figure 14-14 Likelihood/Occurrence of Combined Fishing Activity for Creels

REFERENCE

AEC_SEGL2-02-EA-038

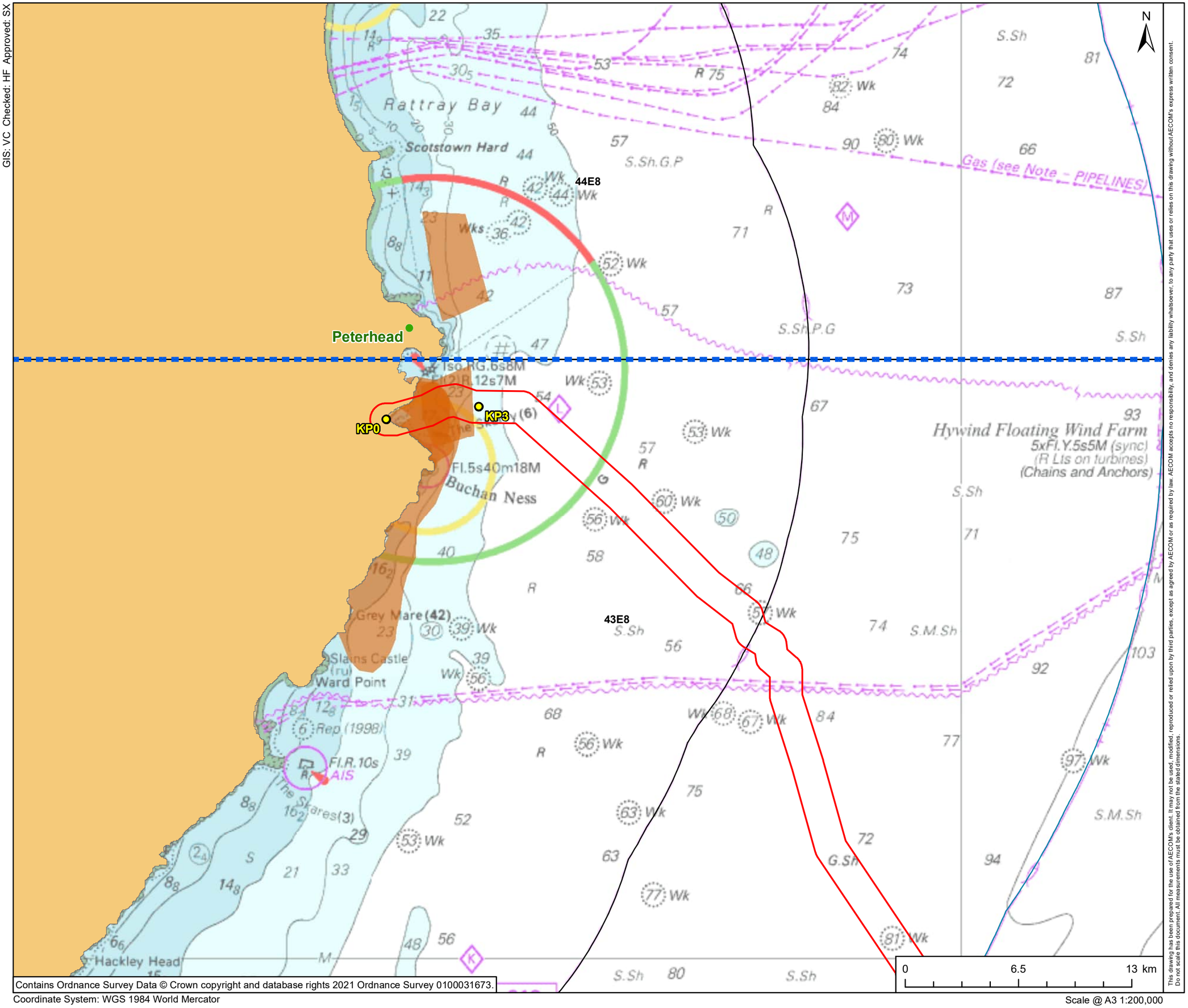
SHEET NUMBER

1 of 1

DATE

19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:200,000

nationalgrid
Scottish & Southern Electricity Networks

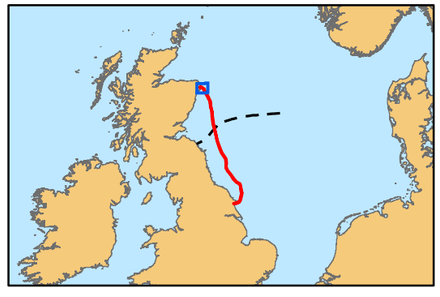
PROJECT

Eastern Green Link 2

KEY

- Marine Installation
- Study Area
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles
- Scottish Potting Fishing Grounds

NOTES;
-



TITLE

Figure 14-15
Potting/creeling grounds identified by Scottish Fisheries Stakeholders During Consultation
Peterhead

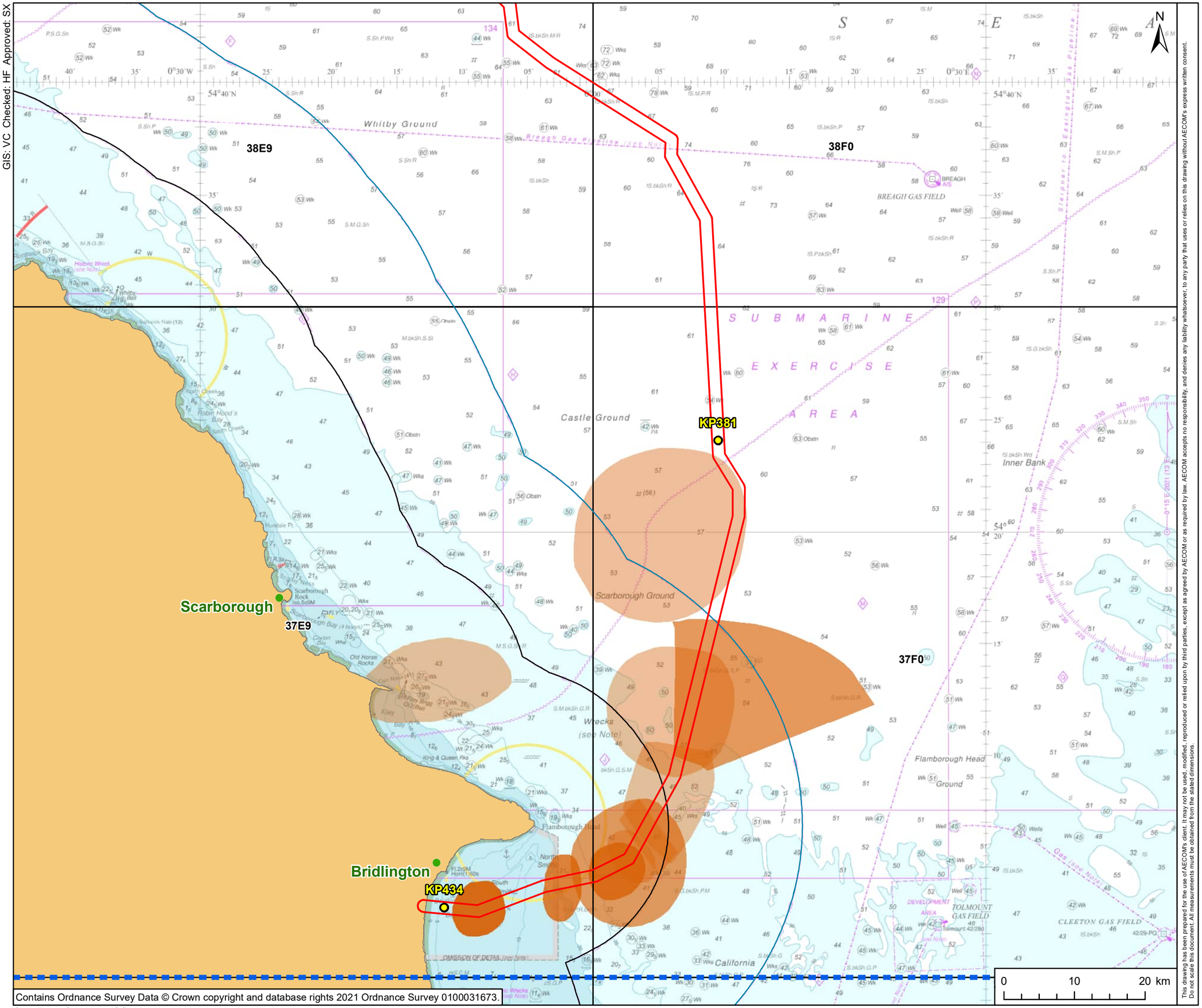
REFERENCE

AEC_SEGL2-02-EA-034

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:500,000

nationalgrid
Scottish & Southern Electricity Networks

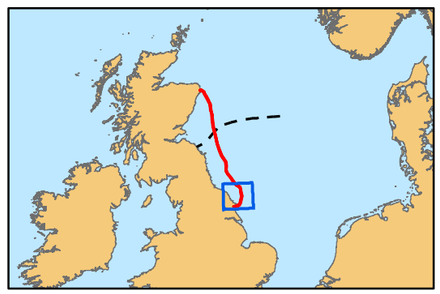
PROJECT

Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles
- English Potting Fishing Grounds

NOTES;
-



TITLE

Figure 14-16
Potting/creeling grounds identified by English Fisheries Stakeholders During Consultation

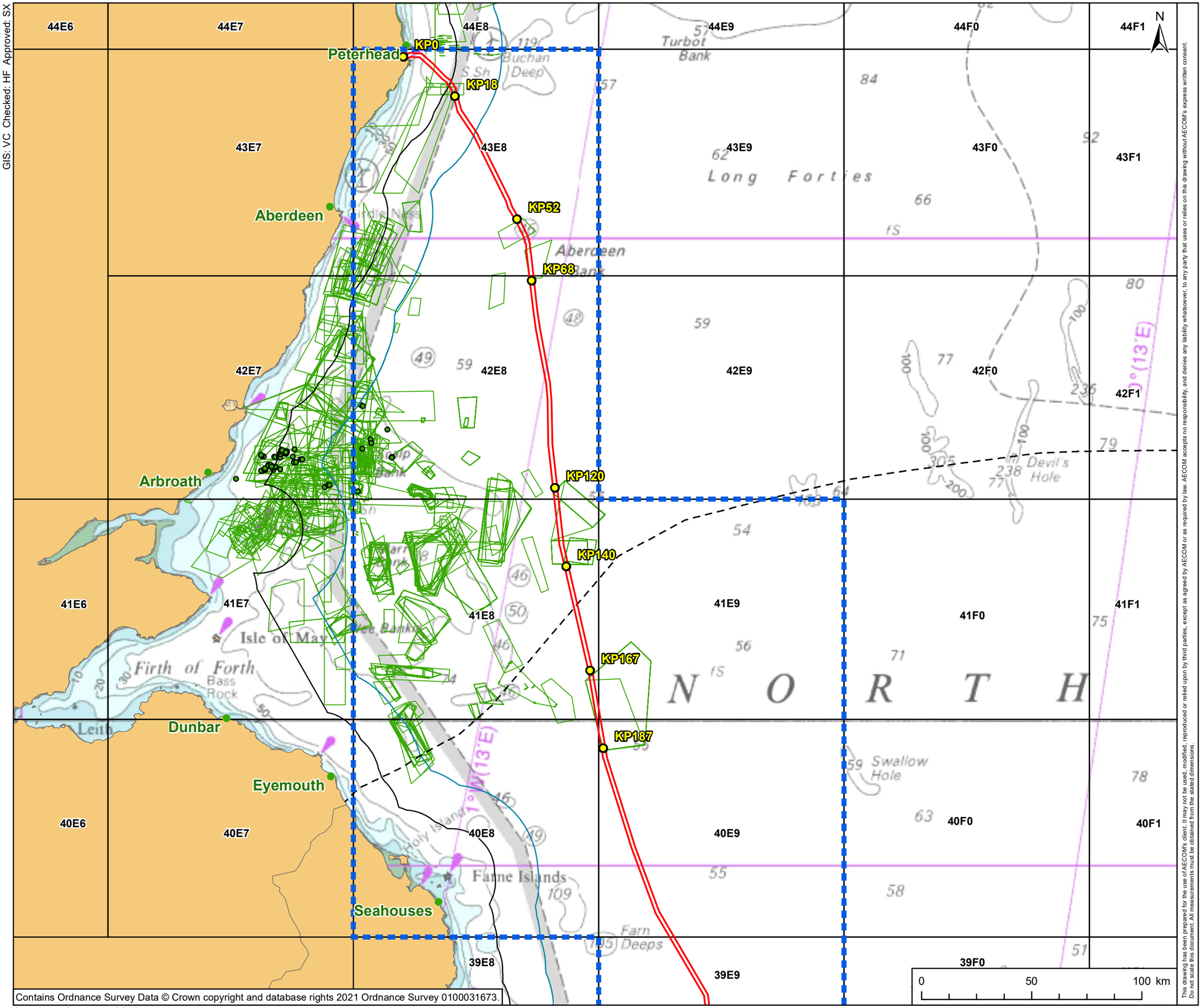
REFERENCE

AEC_SEGL2-02-EA-033

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:1,600,000

nationalgrid
Scottish & Southern Electricity Networks

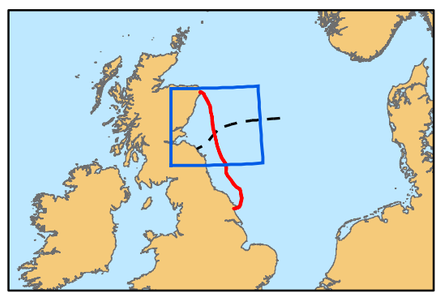
PROJECT

Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles
- SWFPA Creel Locations January 2019 to February 2022
- SWFPA Creel Locations January 2019 to February 2022
- SWFPA Creel Locations January 2019 to February 2022

NOTES;
-



TITLE

Figure 14-17
Scottish White Fish Producers Association Creel Positions Janunary 2019 to February 2022

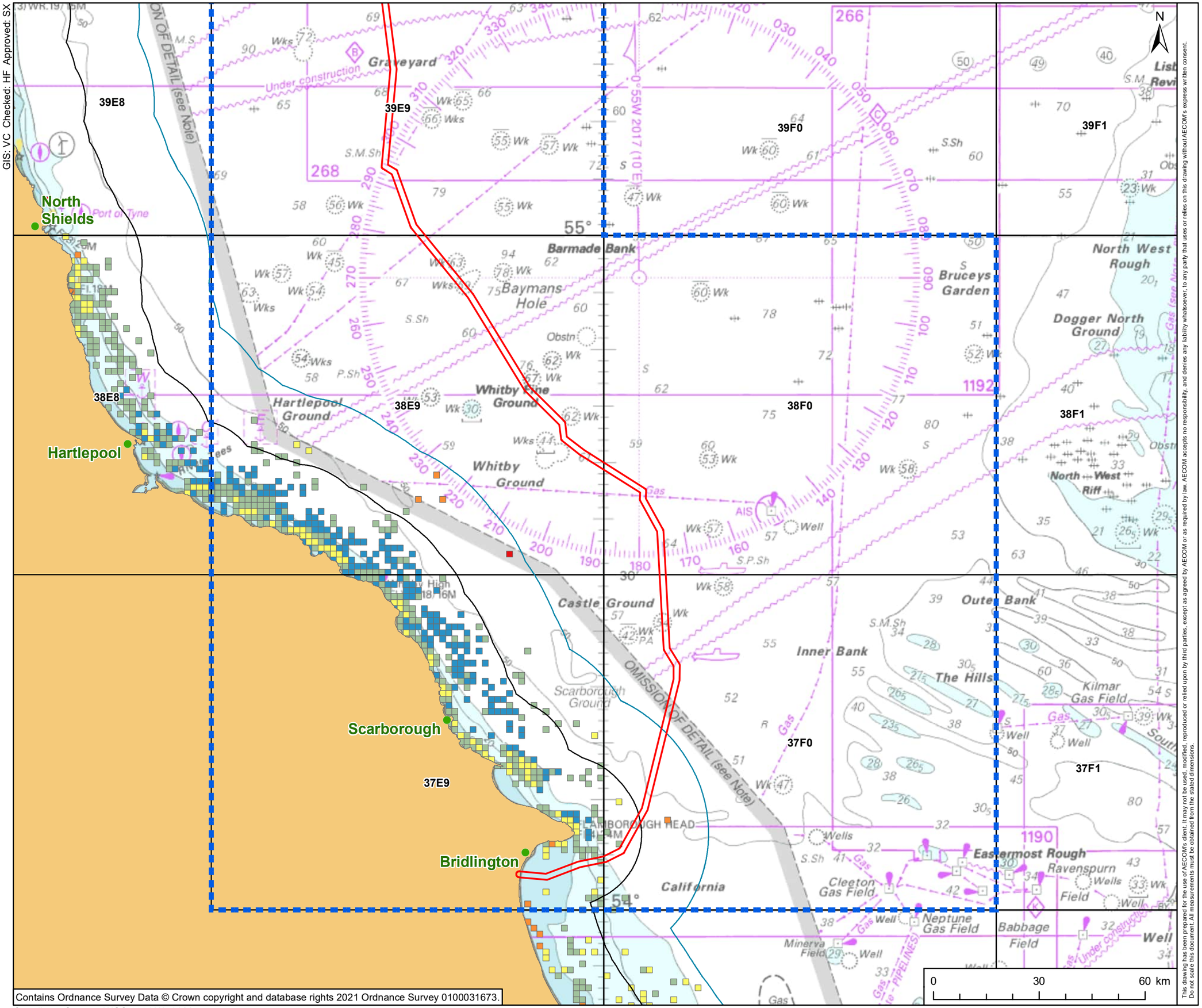
REFERENCE

AEC_SEGL2-02-EA-036

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:1,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

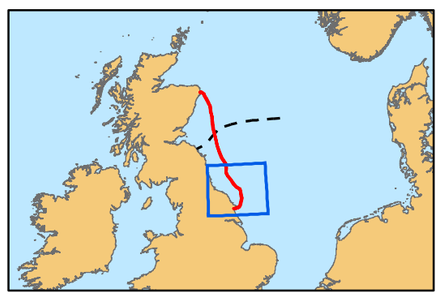
KEY

- Marine Installation Corridor
- Study Area
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles

Potting Density (2011 - 2015) [1]

- 0.0 - 0.01
- 0.01 - 0.04
- 0.04 - 0.11
- 0.11 - 0.33
- 0.33 - 1

NOTES;
[1] NEIFCA



TITLE

Figure 14-18
NEIFCA Potting Density

REFERENCE

AEC_SEGL2-02-EA-041

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

14.5.3 Scallop Dredge Fishery

14.5.3.1 Fishing Gear, Methods and Operating Practices

The dredges used to target scallops comprise a rigid triangular frame with a toothed bar at the front that flips the scallops out of the seabed into a collecting bag behind it (Figure 14-19). Several dredges are towed behind a heavy spreading bar, normally from each side of the vessels (Seafish, 2021c). An example of a scallop dredger is given in Figure 14-20.

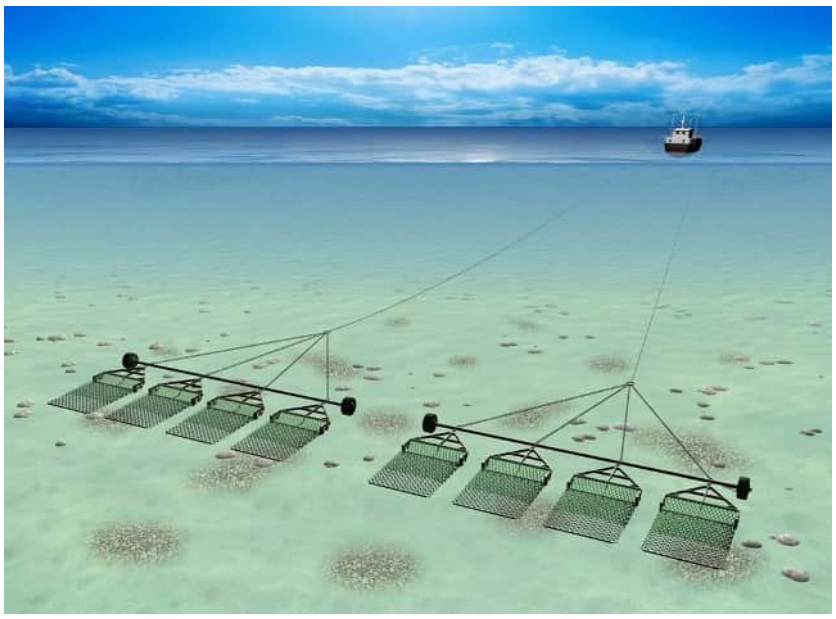


Figure 14-19: Scallop Dredger (Seafish, 2021c)

Figure 14-20: Scallop Dredger in Scarborough (Brown & May Marine, 2021)

The number of dredges that a vessel is permitted to operate increases with distance from the coast, depending on whether a vessel operates within the 6 NM, between the 6 NM and 12 NM or beyond the 12 NM limit. These differing restrictions on scallop fishing activity in relation to distance from shore have effectively split the UK scallop fishing fleet into two main components (Howarth & Stewart, 2014). Smaller vessels (8 m to 15 m in length) fishing fewer dredges tend to dominate the inshore sector (within 6 NM) and generally land their catch locally on a daily basis. In comparison, the offshore fleet of larger vessels (greater than 15 m in length) operate large numbers of dredges and may fish for up to five days per trip. This fleet is often highly nomadic, with some boats fishing around the UK coastline in response to changing stock availability and regulations (Consultation Meeting, 1/12/2021).

Information collected during consultation with scallop dredgers indicates that activity in the study area is predominantly by nomadic vessels, ranging in length from 21 m to 40 m, with fishing trips reported to typically last between five and seven days. These vessels operate from 8 to up to 18 dredges per side, depending on restrictions on the dredge numbers associated with the areas where they may be fishing at a given time (Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders).

An indication of the seasonality of the scallop fishery in the study area is provided in Figure 14-21, based on analysis of monthly landings for the period 2015 to 2019. It is shown that landings of scallops tend to peak during spring (March to April). As noted, during consultation, however, fishing for scallops takes place all year round (Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders).

It is also important to note the scallop fishery is cyclical in nature and productive grounds rotate around the UK on a seven to eight year cycle (Cappell, et al., 2018). Annual scallop landings from the study area for the period 2010 to 2019 are illustrated in Figure 14-22. During consultation it was noted that activity in the scallop grounds off Flamborough Head has been relatively low in recent years compared to activity levels in 2015/2016 (Consultation Meeting, 1/12/2021).

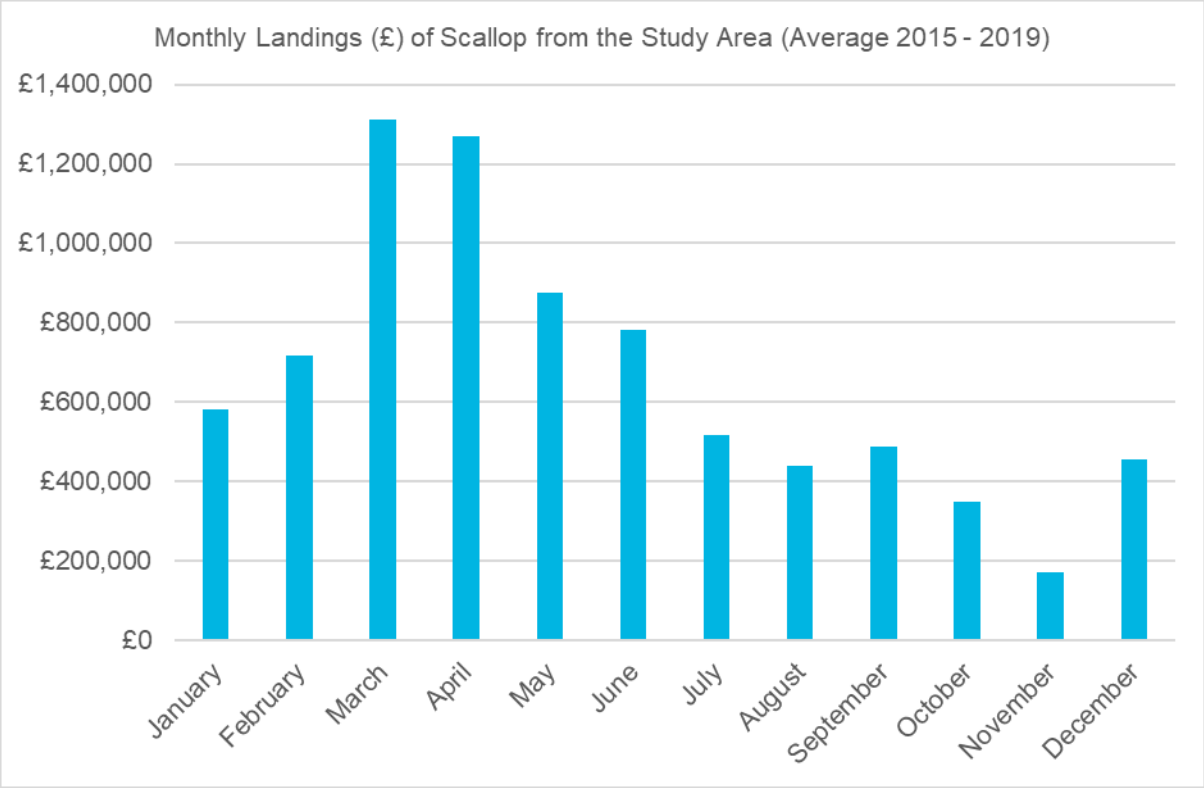


Figure 14-21: Monthly Landings (£) of Scallop from the Study Area (Average 2015 - 2019) (Source: MMO)

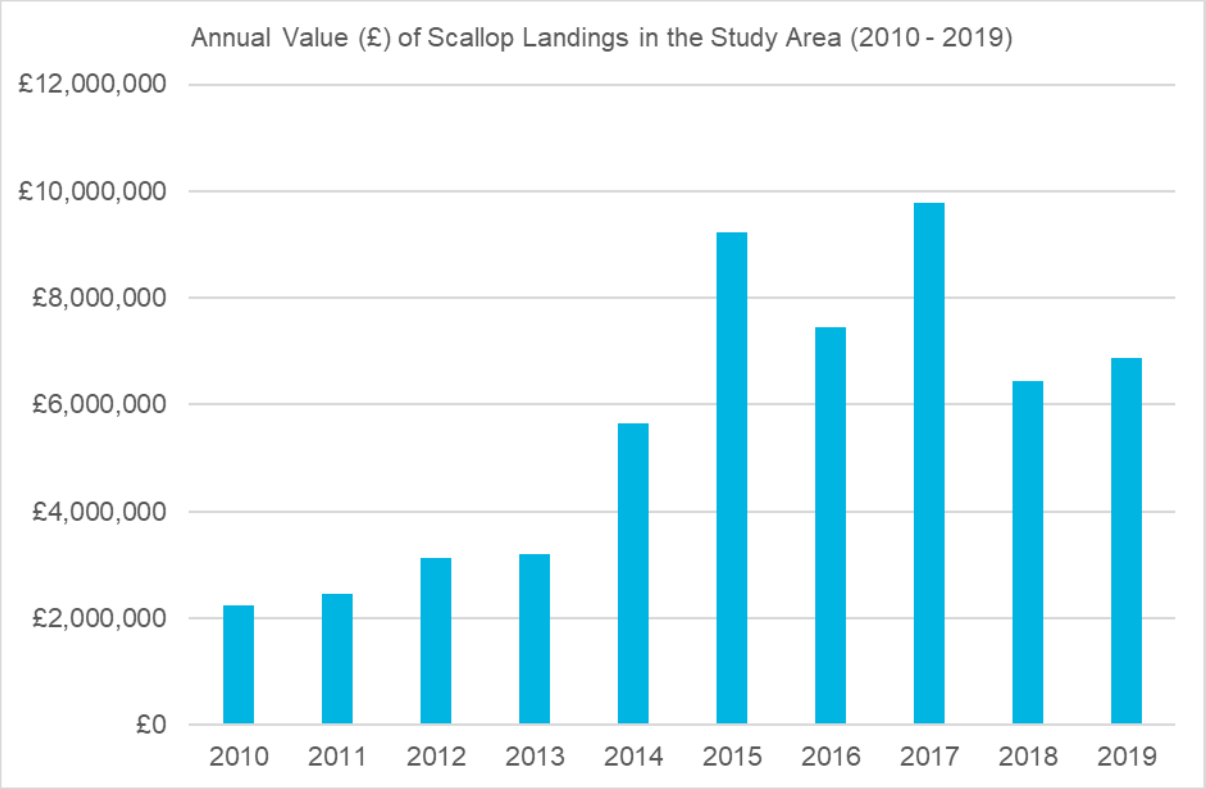


Figure 14-22: Annual Landings (£) of Scallop in the Study Area (2010 - 2019) (Source: MMO)

14.5.3.2 Distribution of Fishing Activity

An indication of the spatial distribution of scallop dredging activity in the study area is provided in Figure 14-23 to Figure 14-29 based on analysis of the following sources of data and information:

- Scallop landings by ICES rectangle (Figure 14-23);
- Surveillance sightings of scallop dredgers (Figure 14-24);
- VMS (£) data for dredgers (Figure 14-25 and Figure 14-26);
- Combined fishing activity for scallop dredgers (Shelmerdine & Mouat, 2021) (Figure 14-27);
- NEIFCA dredging vessel density data (Figure 14-28); and
- Scallop dredging grounds identified by Scottish fisheries stakeholders during consultation (Brown & May Marine, 2022) (Figure 14-29).

The highest landings values for scallops in the study area are recorded in ICES rectangles 37E9, 42E8 and 37F0 (at nearly £2.4 Million, £1.7 Million and £1.3 Million, respectively). Other rectangles in the study area, particularly 38E9, 43E8 and 41E8, also record scallop landings however at comparatively lower levels (Figure 14-23).

The analysis of landings of scallops by ICES rectangle presented in Figure 14-23 indicates that within the study area scallop dredging activity concentrates around two main areas:

- In Scottish waters around the northern section of the study area (ICES rectangles 43E8, 42E8 and 41E8) and;
- In English waters around the southern landfall (ICES rectangles 38E9, 37E9 and 37F0).

Surveillance sightings, VMS data by value, information presented in Shelmerdine & Mouat (2021) and NEIFCA data for dredgers presented in Figure 14-24 to Figure 14-28, further indicates these are the two main scallop dredging areas within the study area. As it is apparent from these figures, however,

scallop dredging activity in the immediate area of the Marine Installation Corridor is for the most part concentrated in ICES rectangles 43E8 (KP0 to KP73) and 37F0 (KP381 to KP417).

In line with the above, areas off Peterhead and around Flamborough Head were highlighted as areas of high activity by scallop dredgers during consultation (Consultation Meeting, 2/11/2021; Consultation Meeting, 9/11/2021).

Scallop fishing grounds reported during consultation with fishermen are illustrated in Figure 14-29 (Appendix 6.2: Report on Baseline Consultation with Fisheries Stakeholders). As shown, dredging grounds were identified at various locations along the Marine Installation Corridor including around the Scottish landfall, in areas between the 6 NM to 12 NM limit (KP7 to KP15), and larger grounds in areas that overlap with the Marine Installation Corridor around ICES rectangles 43E8, 42E8 and 41E8 (KP57 to KP148). In addition, grounds overlapping with the Marine Installation Corridor were reported off the coast of Scarborough, in areas beyond the 12 NM limit (KP337 to KP397). It should be noted that the area highlighted during consultation between KP73 and KP148 and between KP337 to KP397 does not appear to correlate with any of the other data sources, which show the dredging activity in this region to be concentrated to the west of the Marine Installation Corridor.

GIS: VC Checked: HF Approved: SX

44E7 £218,392
44E8 £843,439
44E9 £7,558
44F0
44F1
43E7 £16,550
43E8 £779,725
43E9 £219,526
43F0 £4,745
43F1
42E7 £563,821
42E8 £1,777,739
42E9 £26,118
42F0
42F1
41E6 £1,396
41E7 £272,633
41E8 £505,474
41E9 £8,484
41F0
41F1
40E6
40E7 £53,482
40E8 £292,164
40E9 £6,174
40F0
40F1
39E8 £86,914
39E9 £12,293
39F0 £13,713
39F1
38E8 £13,545
38E9 £812,703
38F0 £31,957
38F1
37E9 £2,374,225
37F0 £1,356,280
37F1

MORAY FIRTH
FIELDS
OIL AND GAS FIELDS
NORTH SEA
DOGGER BANK
UNITED KINGDOM
NORWAY
NETHERLANDS
ISLE OF MAN

Coordinate System: WGS 1984 World Mercator

0 100 200 km

Scale @ A3 1:3,000,000

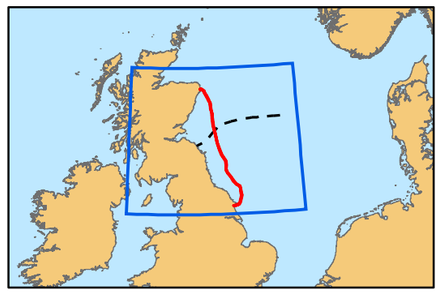
nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

KEY
- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary

Species[1]
- Scallops

NOTES;
[1]Marine Scotland (2010)
* For visual purposes, all landings values below £1,000 have been removed from the chart.



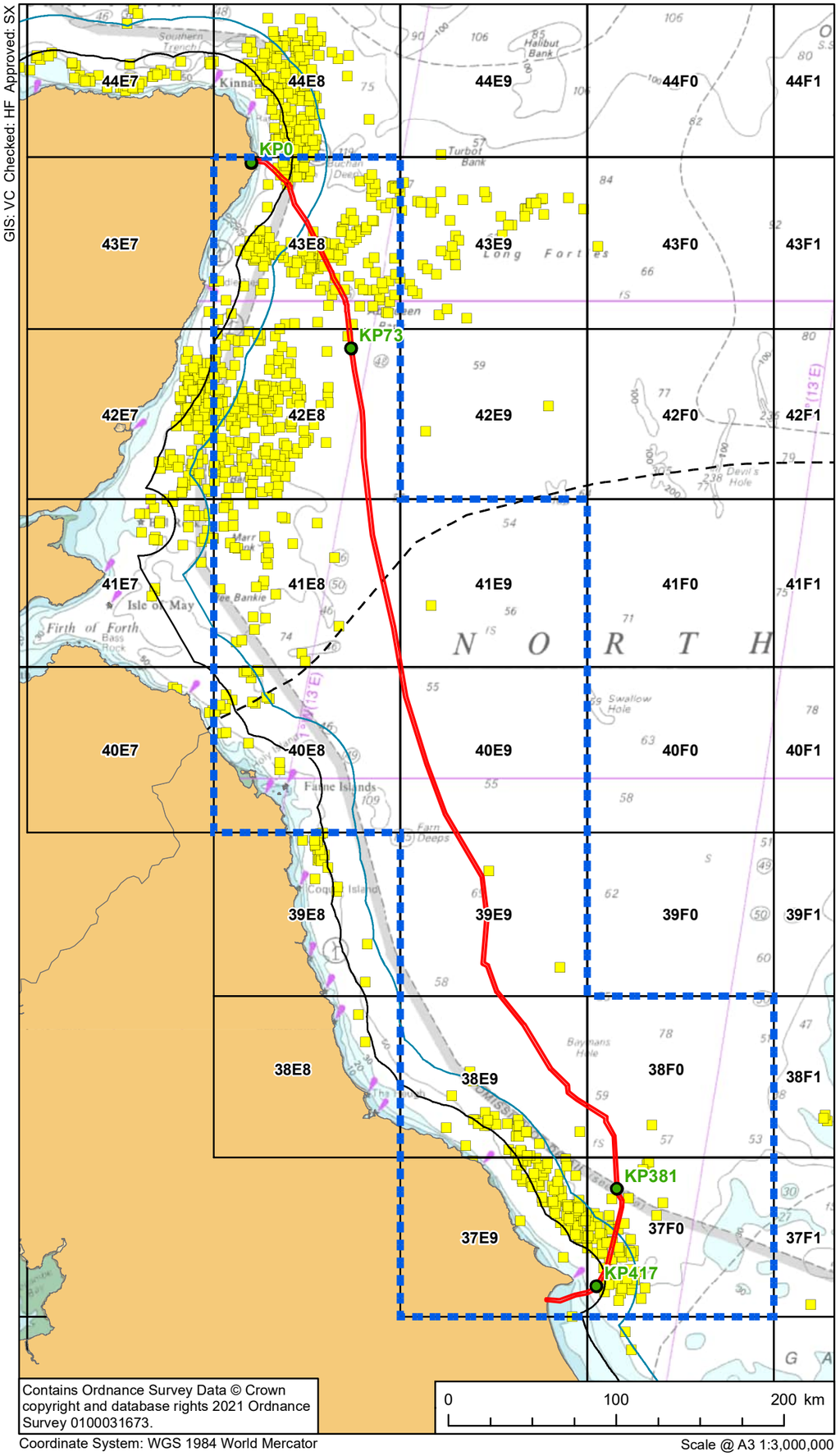
TITLE
Figure 14-23
UK Landings Value (£)
Scallops
Average 2015-2019

REFERENCE
AEC_SEGL2-02-EA-016

SHEET NUMBER
1 of 1

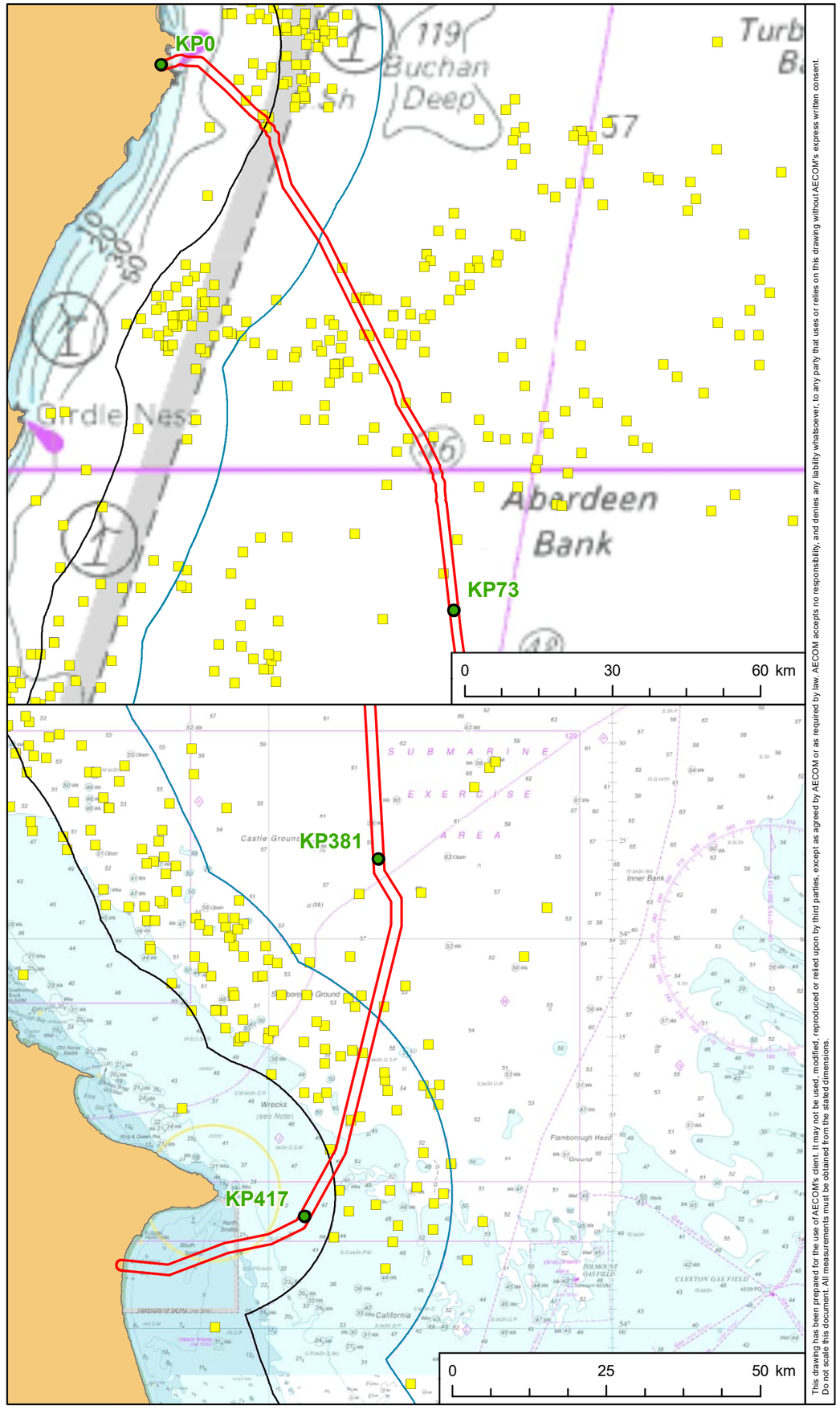
DATE
19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000



nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

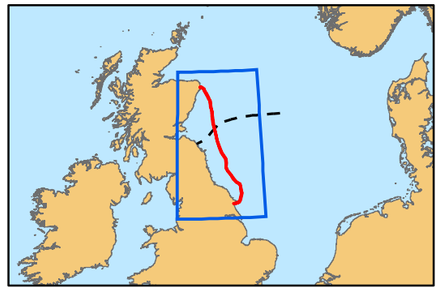
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

Method[1,2]

- Scallop dredger (French/

NOTES;
[1] MMO (2021)
[2] Marine Scotland (2021)



TITLE

Figure 14-24
Surveilance Sightings
Dredgers
2011-2020

REFERENCE

AEC_SEGL2-02-EA-020

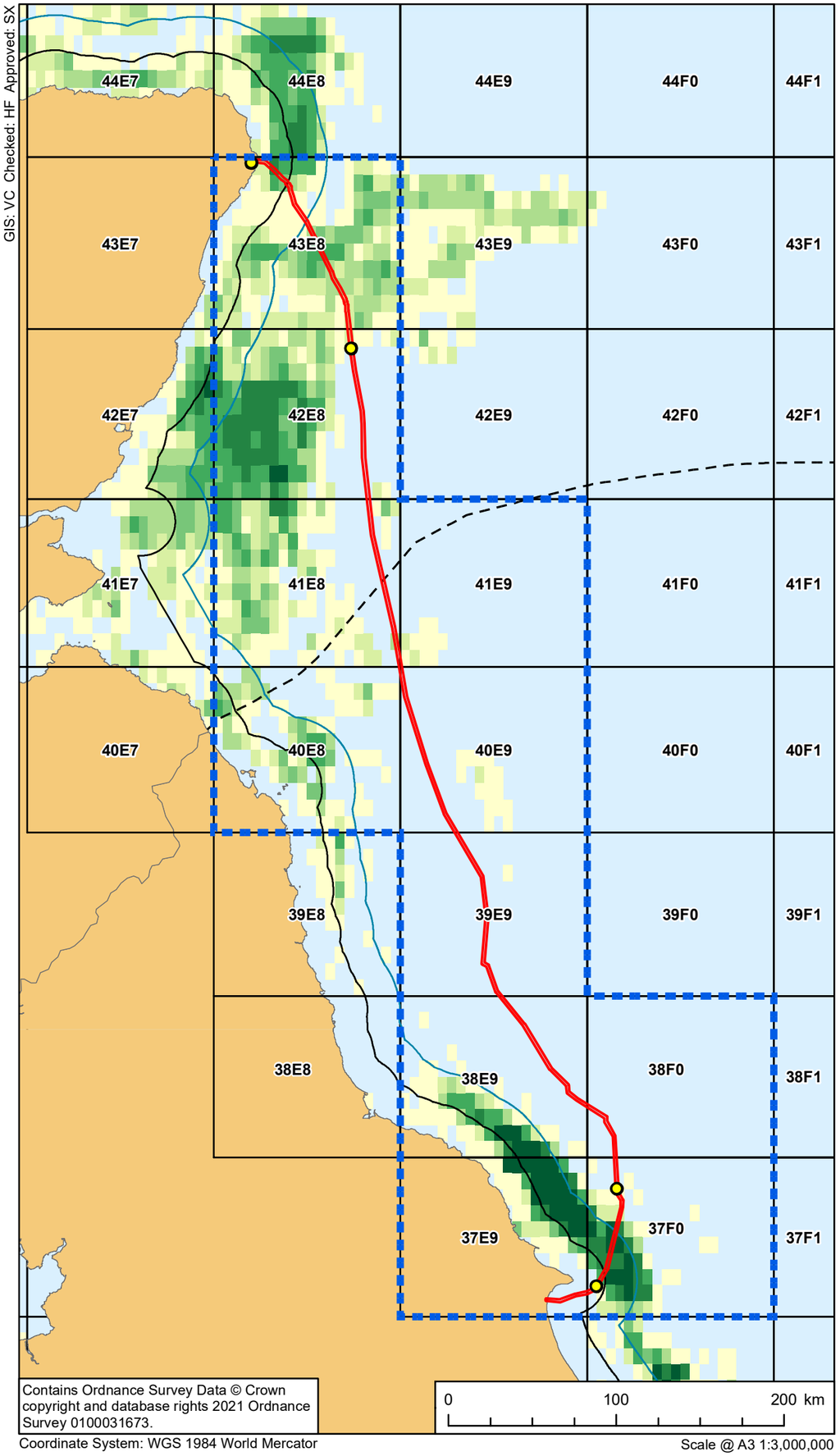
SHEET NUMBER

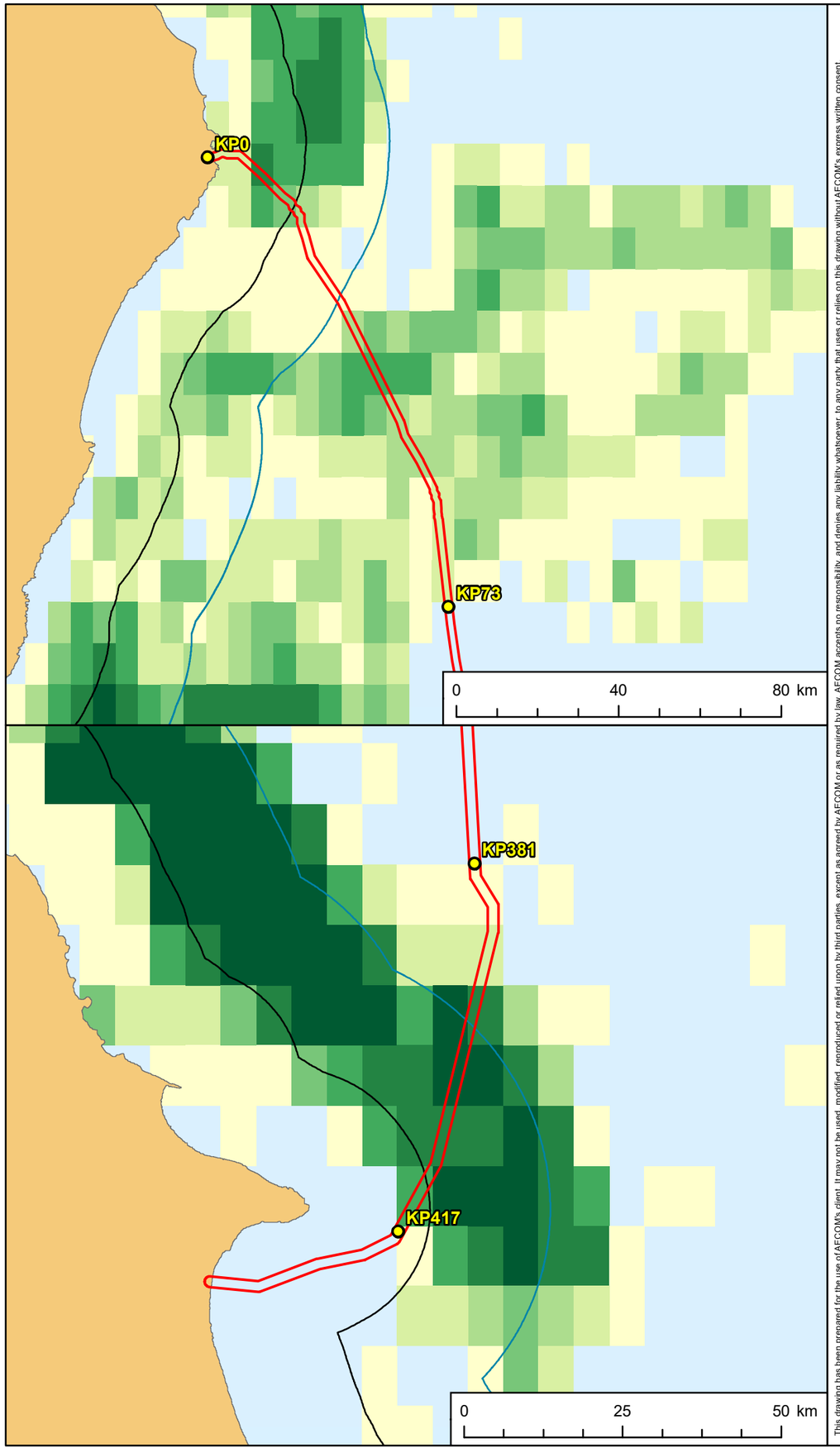
1 of 1

DATE

19/05/2022

GIS: VC Checked: HF Approved: SX





Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

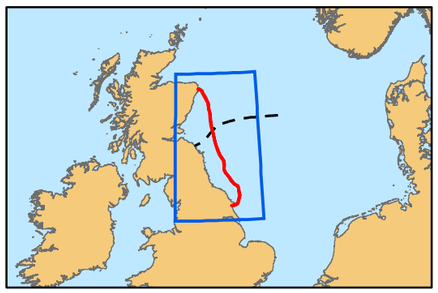
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

Dredges[1]

- Less than £1,000
- £1,000 - £3,000
- £3,000 - £6,000
- £6,000 - £10,000
- £10,000 - £20,000
- £20,000 - £35,000
- More than £35,000

NOTES;
[1] MMO (2021)



TITLE
Figure 14-25
UK VMS Value (£)
Dredges
Average 2015-2019

REFERENCE
AEC_SEGL2-02-EA-005

SHEET NUMBER
1 of 1

DATE
19/05/2022

GIS: VC Checked: HF Approved: SX

N

0 250 500 km

Contains Ordnance Survey Data © Crown copyright and database rights 2021 Ordnance Survey 0100031673.

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:7,500,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

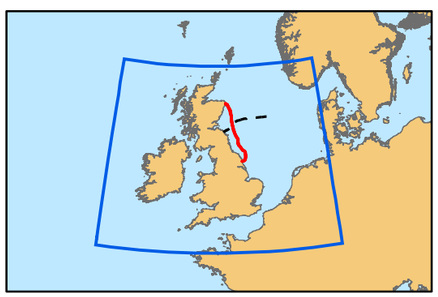
KEY

- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- EEZ boundary

Dredges[1]

- Less than £1,000
- £1,000 - £3,000
- £3,000 - £6,000
- £6,000 - £10,000
- £10,000 - £20,000
- £20,000 - £35,000
- More than £35,000

NOTES;
[1] MMO (2020)



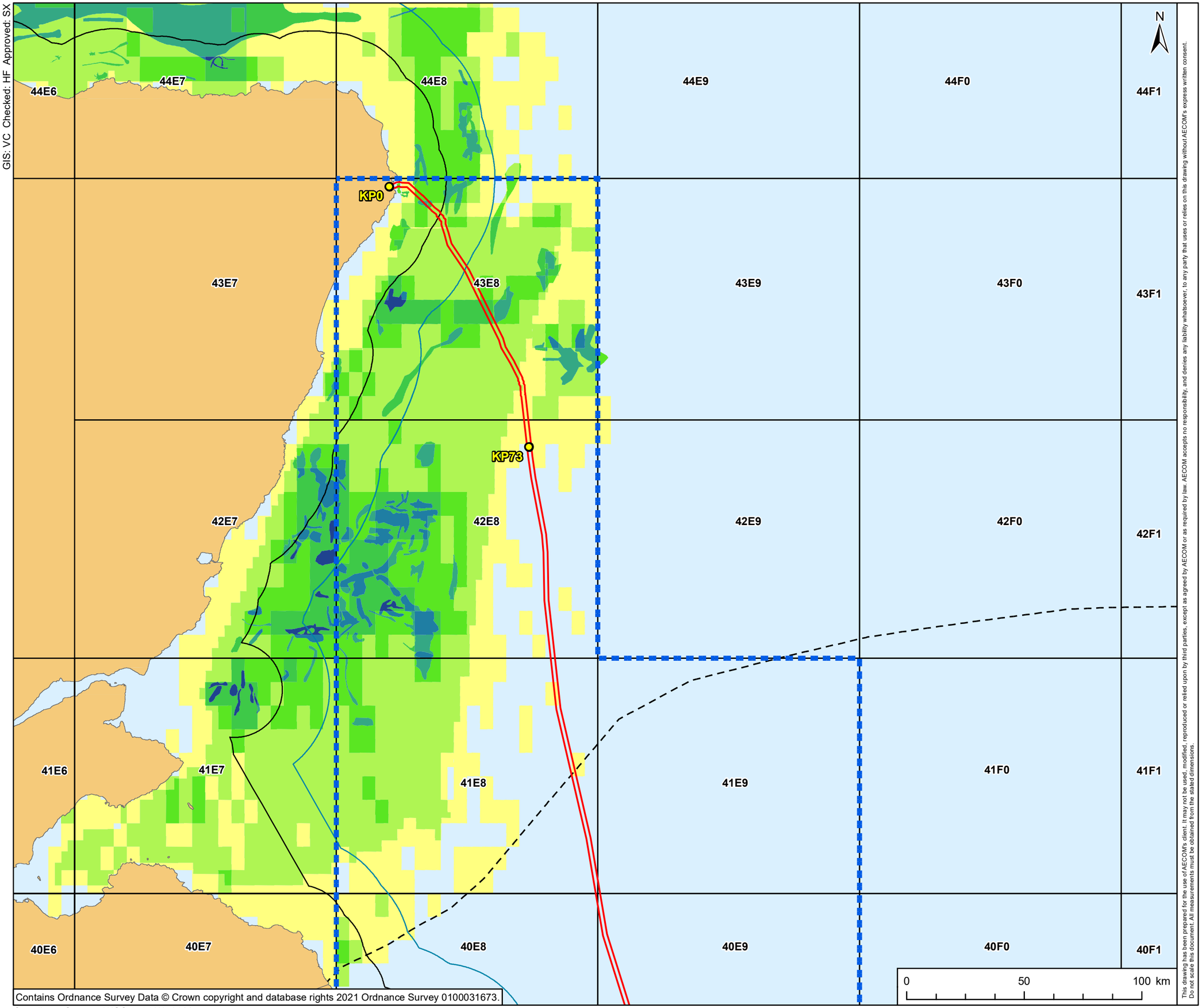
TITLE
Figure 14-26
UK VMS Value (£)
Dredgers
Average 2015-2019
UK wide

REFERENCE
AEC_SEGL2-02-EA-044

SHEET NUMBER
1 of 1

DATE
19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:1,500,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles

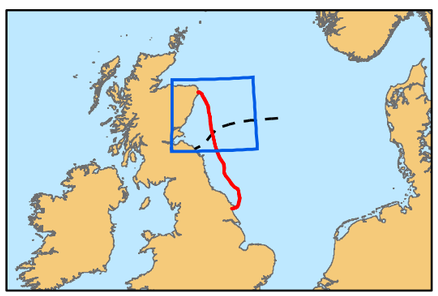
Likelihood/Occurrence[1]

High

Low

NOTES;

[1] Shelmerdine R.L. and Mouat B. (2021): Mapping fisheries and habitats in the North and East Coast RIFG area. NAFC Marine Centre UHI report. pp70.



TITLE

Figure 14-27
Likelihood/Occurrence of Combined Fishing Activity for Scallop Dredgers

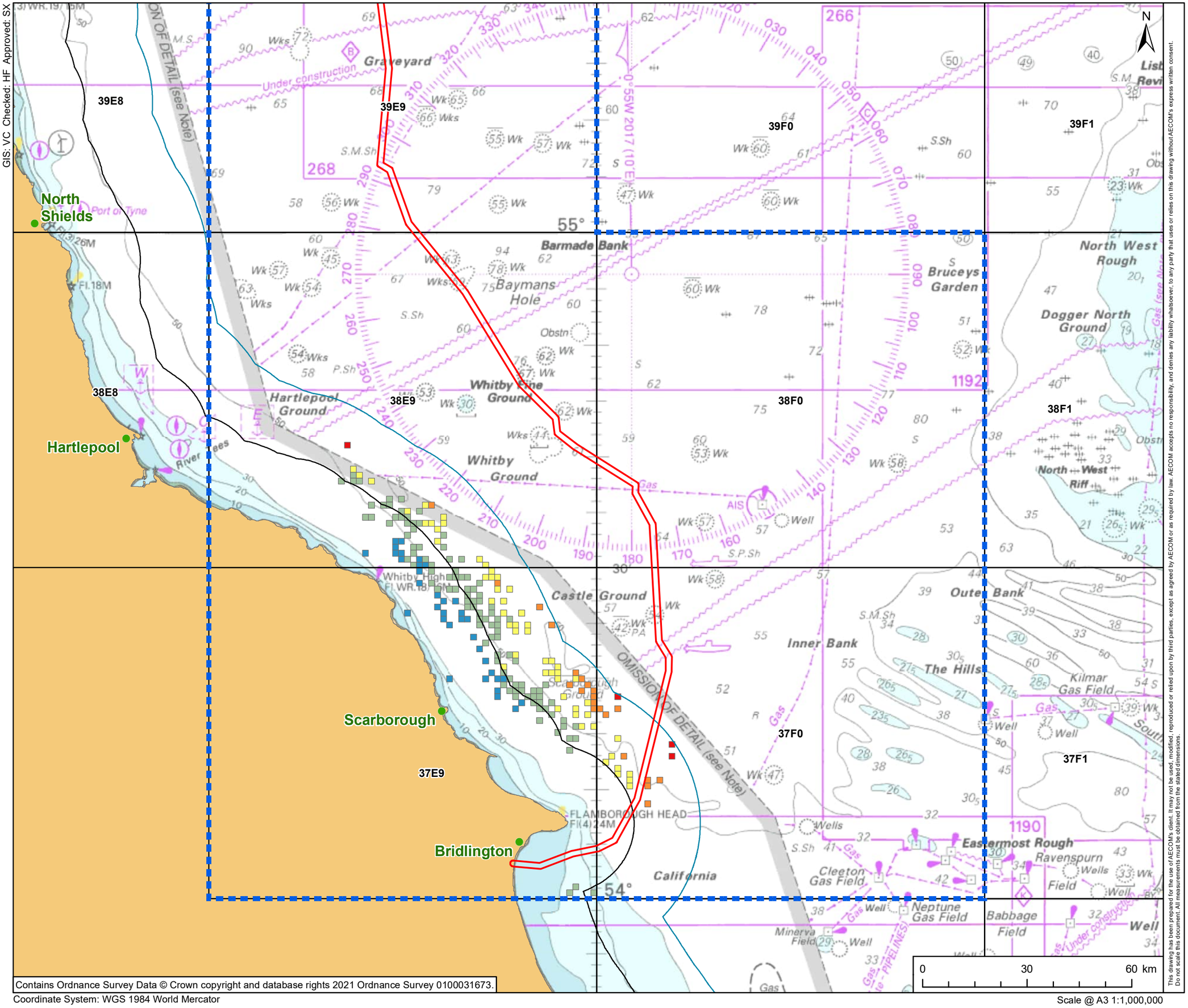
REFERENCE

AEC_SEGL2-02-EA-039

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:1,000,000

0 30 60 km

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

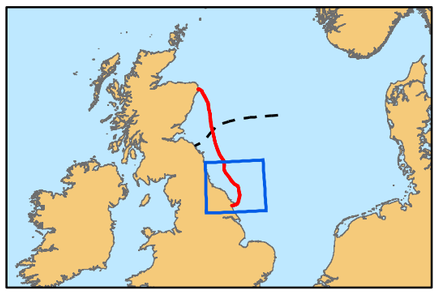
KEY

- Marine Installation Corridor
- Study Area
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles

Dredging Density (2011 - 2015)[1]

- 0.0 - 0.01
- 0.01 - 0.04
- 0.04 - 0.11
- 0.11 - 0.33
- 0.33 - 1

NOTES;
[1] NEIFCA



TITLE

Figure 14-28
NEIFCA Dredging Density

REFERENCE

AEC_SEGL2-02-EA-043

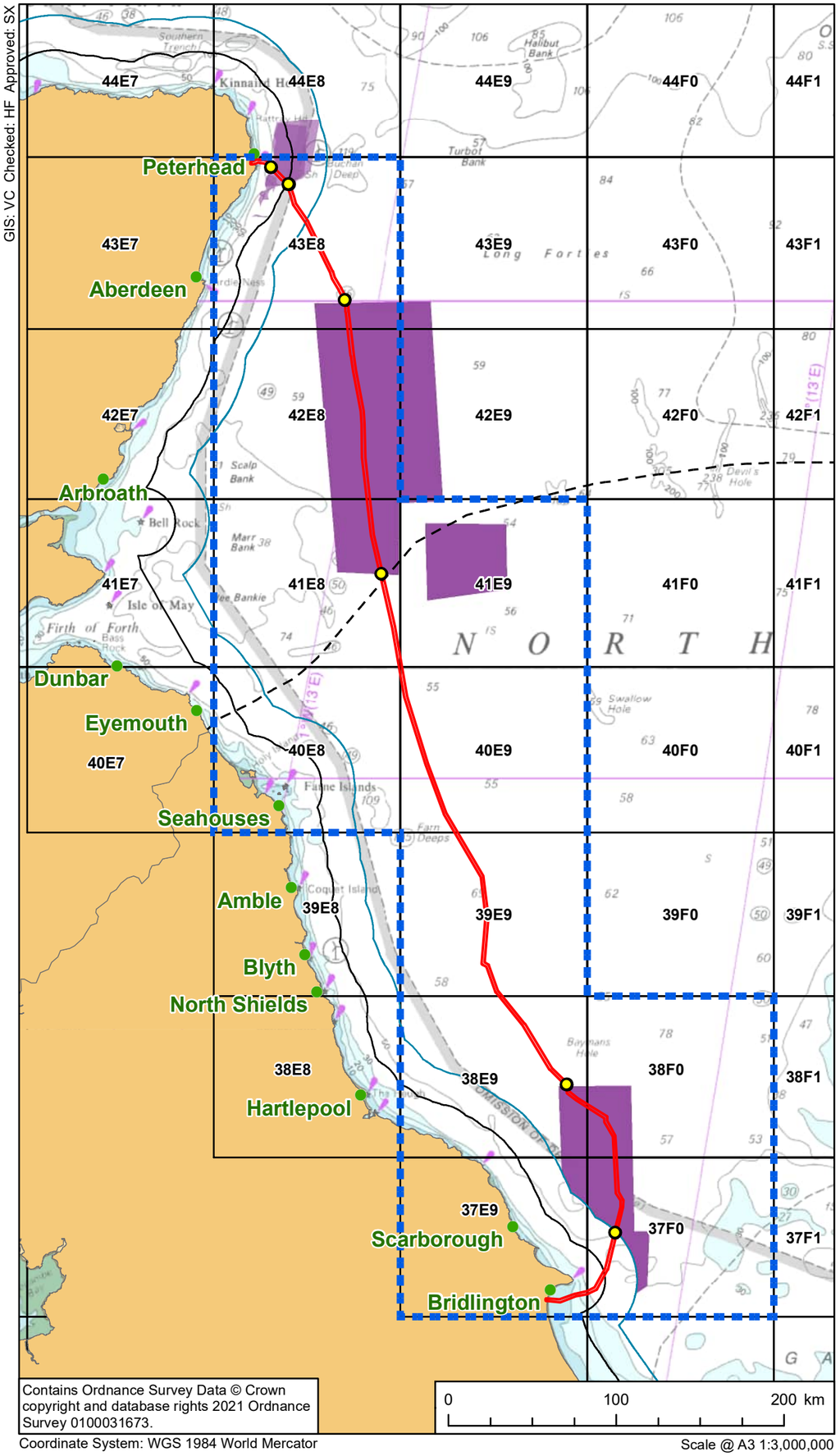
SHEET NUMBER

1 of 1

DATE

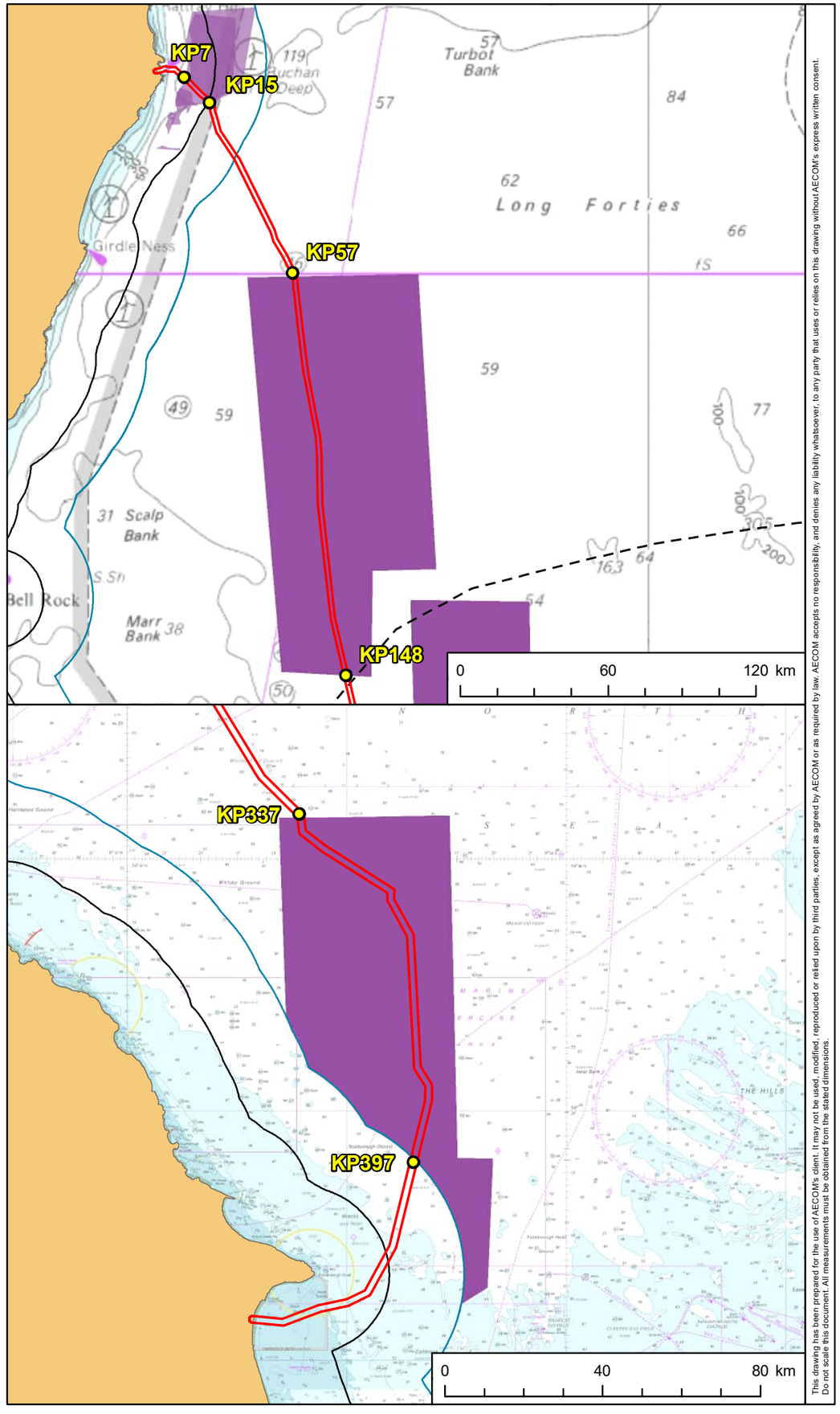
19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000



nationalgrid
Scottish & Southern Electricity Networks

PROJECT

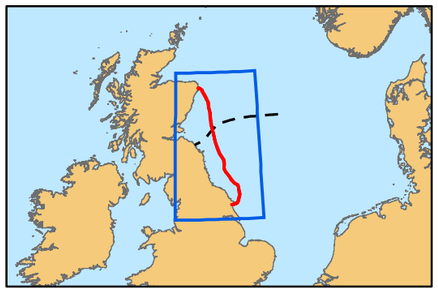
Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- Scottish Scallop Dredging Fishing Grounds

NOTES;

-



TITLE

Figure 14-29
Scallop Dredging Grounds Identified by Scottish Fisheries Stakeholders During Consultation

REFERENCE

AEC_SEGL2-02-EA-044

SHEET NUMBER

1 of 1

DATE

19/05/2022

14.5.4 Demersal Trawling - *Nephrops* Fishery

14.5.4.1 Fishing Gear, Methods and Operating Practices

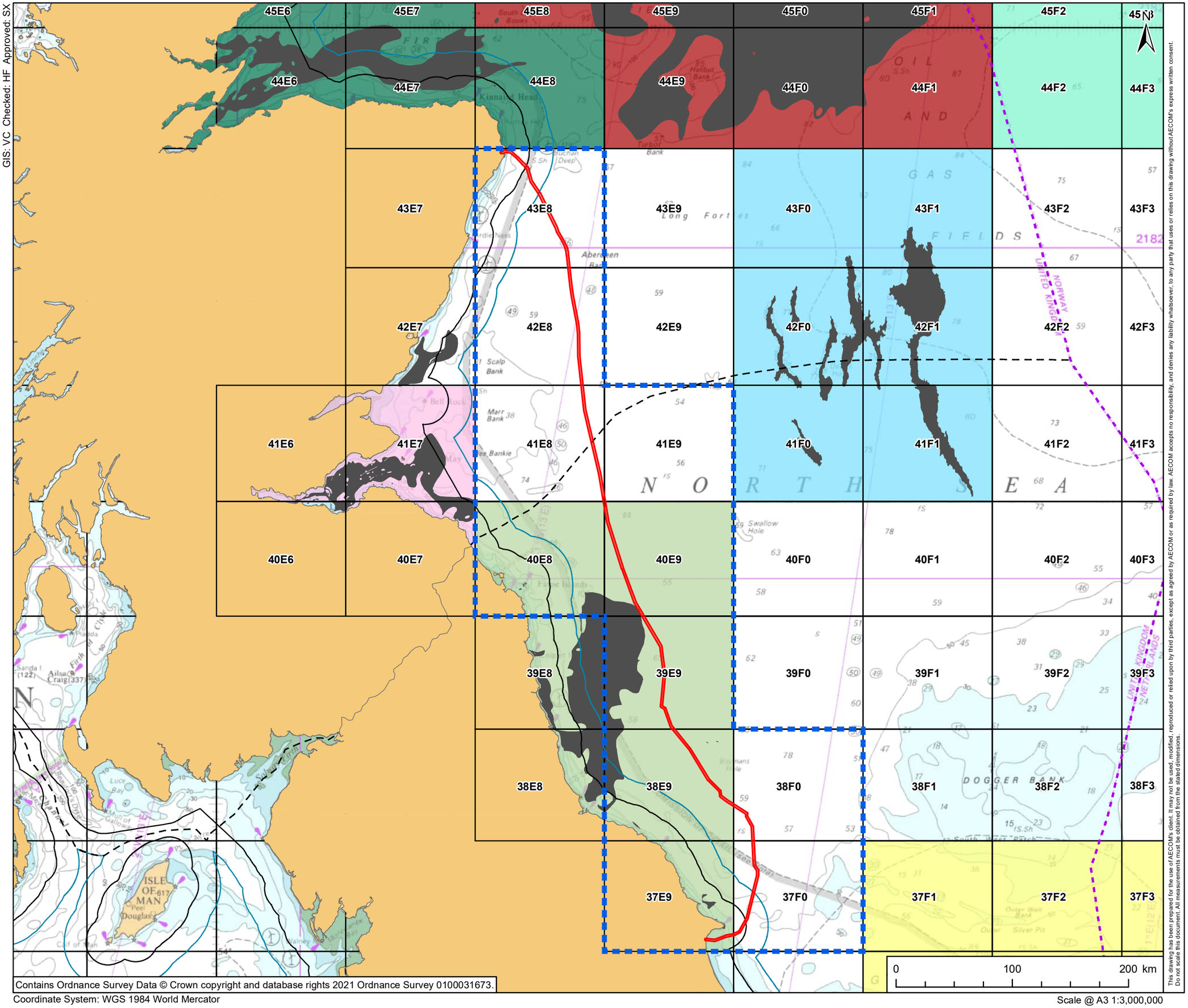
Nephrops live in shallow burrows in areas of soft stable mud with the presence of suitable seabed habitat defining the distribution of the species (Bailey, et al., 2012). For the purposes of management and stock assessment, *Nephrops* populations are split into "Functional Units" (FU). The boundaries of the *Nephrops* FUs which are of relevance to the study area are illustrated in Figure 14-30 together with the spatial distribution of suitable habitat within each FU. As shown, the section of the Marine Installation Corridor located in English waters falls within FU6 (Farne Deeps) however it does not overlap with the *Nephrops* habitat identified within this FU (Figure 14-30). In line with this, as reported in Chapter 9: Fish and Shellfish Ecology, only a single *Nephrops* was observed during the camera survey carried out as part of the dedicated benthic characterisation programme undertaken along the marine installation corridor (Benthic Solutions, 2022).

It is understood that the Farne Deeps grounds are primarily targeted by local English vessels, based at the main ports of Seahouses, Amble, Blyth, North Shields and Hartlepool (Bailey, et al., 2012). However, some visiting English, Scottish and Northern Irish vessels particularly those in larger size category (e.g., over 15 m) may also be active in the Farne Deeps grounds at times.

Vessels engaged in the *Nephrops* fishery in the study area use demersal trawls , both single-rig (Figure 14-31) and twin rigged (Figure 14-32 and Figure 14-33). A demersal trawl is a cone-shaped net which is towed along the seabed (Seafish, 2021b). The net is held open by two trawl doors (also called otter boards), which when towed behind the vessel at an angle maintain the spread of the net. The trawl doors are heavy enough to ensure that the net maintains contact with the seabed.

The Farne Deeps fishery is predominantly a winter fishery. As shown in Figure 14-34, in the study area higher landings tend to be recorded from to October and March.

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

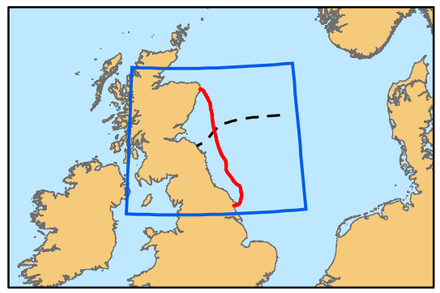
PROJECT

Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary
- Nephrops Functional Unit - Botney Gut (FU5)[1]
- Nephorps Functional Unit - Farn Deeps (FU6)[1]
- Nephrops Functional Unit - Fladen (FU7)[1]
- Nephrops Functional Unit - Firth of Forth (FU8)[1]
- Nephrops Functional Unit - Moray Firth (FU9)[1]
- Nephrops Functional Unit - Norwegian Deep (FU32)[1]
- Nephrops Functional Unit - Devil's Hole (FU34)[1]
- Suitable Nephrops habitat[1]

NOTES;
[1]Marine Scotland (2020)



TITLE

Figure 14-30
Nephrops Functional Units in the North Sea
Suitable Nephrops Habitat

REFERENCE

AEC_SEGL2-02-EA-013

SHEET NUMBER

1 of 1

DATE

19/05/2022

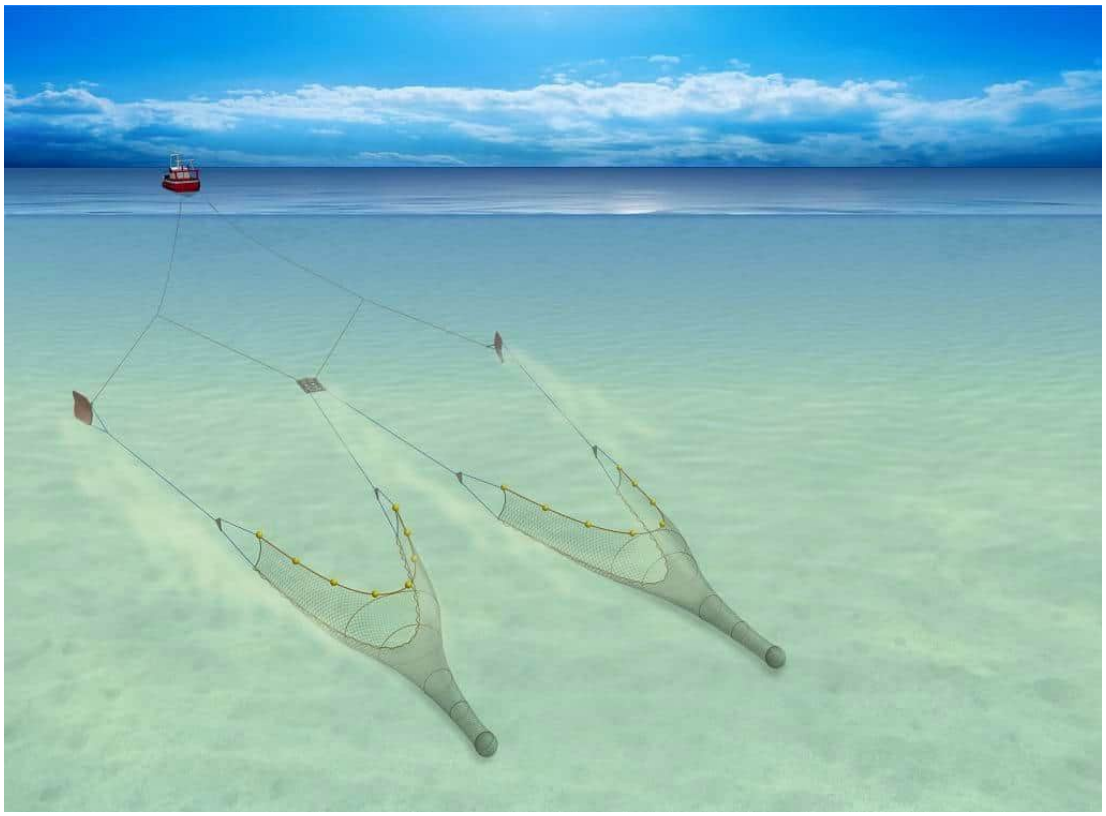


Figure 14-31: Twin-rig Trawl (Seafish, 2021f)

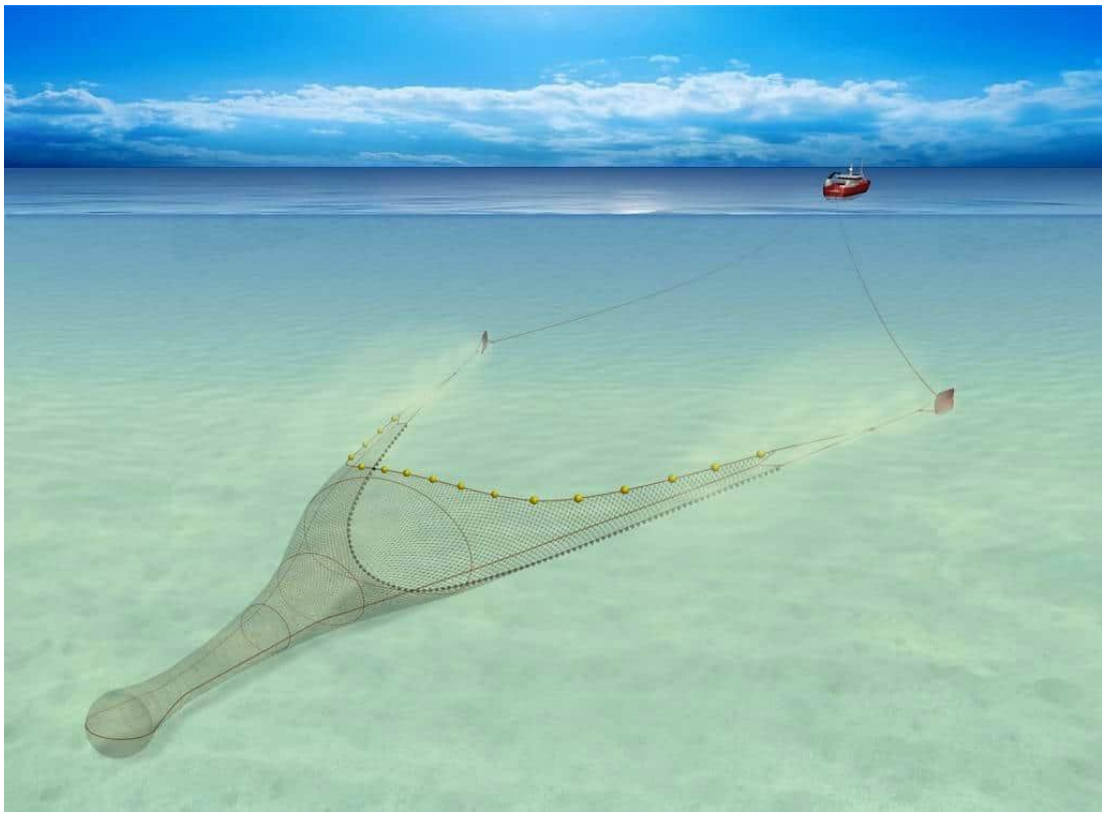


Figure 14-32: Single-rig Trawl (Seafish, 2021b)

Figure 14-33: Twin-Rig Trawler in Whitby (Brown & May Marine, 2021)

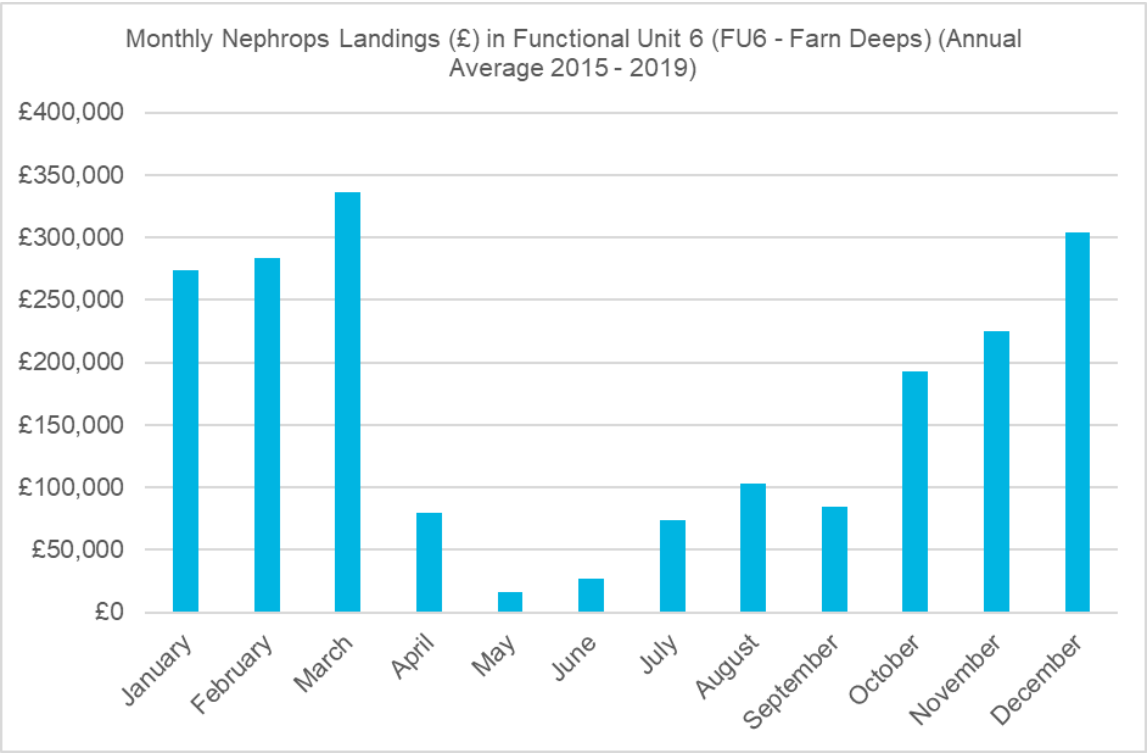


Figure 14-34: Monthly *Nephrops* Landings (£) from Rectangles in the Study Area that Overlap with FU6 (Annual Average 2015 - 2019) (Source: MMO)

14.5.4.2 Distribution of Fishing Activity

An indication of the spatial distribution of the *Nephrops* fishery across the study area, is given in Figure 14-35 to Figure 14-39 based on analysis of the following sources of data and information:

- *Nephrops* landings by ICES rectangle (Figure 14-35);
- Surveillance sightings of trawlers (Figure 14-36);
- VMS (£) data for demersal trawlers (Figure 14-37);
- Combined fishing activity for trawls (Shelmerdine & Mouat, 2021) (Figure 14-38); and
- NEIFCA trawling vessel density data (2011 – 2015) (Figure 14-39).

In general terms, *Nephrops* are landed from the study area at relatively low levels with the exception of areas around the Farne Deeps grounds, particularly ICES rectangle 39E9. In this rectangle alone *Nephrops* landings account for approximately £1 Million annually (Figure 14-35). Similarly, during consultation it was noted that the *Nephrops* fishery is focused on the Farne Deeps *Nephrops* grounds with limited levels of trawling for *Nephrops* occurring to the south around Flamborough Head (Consultation Meeting, 1/12/2021). The limited level of *Nephrops* trawling activity expected around Flamborough Head is also evident from available data from the NEIFCA (Figure 14-39).

As shown in Figure 14-36, Figure 14-37 and Figure 14-38 surveillance sightings, VMS data for trawlers and data presented in Shelmerdine & Mouat (2021) there is no overlap between the main Farne Deeps *Nephrops* grounds or other defined *Nephrops* grounds, and the Marine Installation Corridor. Therefore, andings of *Nephrops* recorded in the study area (primarily from ICES rectangle 39E9), correspond with fishing areas that do not overlap with the Marine Installation Corridor.

GIS: VC Checked: HF Approved: SX

44E7 £1,784,703
44E8 £649,309
44E9 £2,645,458
44F0 £2,815,489
44F1 £458,314
43E7
43E8 £30,977
43E9 £25,672
43F0 £47,689
43F1 £201,523
42E7 £297,167
42E8 £14,108
42E9 £9,244
42F0 £1,054,860
42F1 £656,166
41E6 £423,126
41E7 £5,103,733
41E8 £37,124
41E9 £20,333
41F0 £267,362
41F1 £478,531
40E6 £3,216
40E7 £1,214,320
40E8 £544,860
40E9 £143,873
40F0 £36,184
40F1 £14,886
39E8 £3,960,191
39E9 £1,049,790
39F0 £46,070
39F1 £17,934
38E8 £1,660,478
38E9 £213,675
38F0 £7,345
38F1 £2,345
37E9 £46,690
37F0 £6,327
37F1 £180,549

Coordinate System: WGS 1984 World Mercator

0 100 200 km

Scale @ A3 1:3,000,000

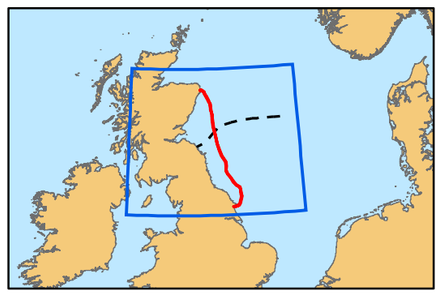
nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

KEY
- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary

Species[1,]
- Nephrops

NOTES;
[1]MMO (2020)
* For visual purposes, all landings values below £1,000 have been removed from the chart.



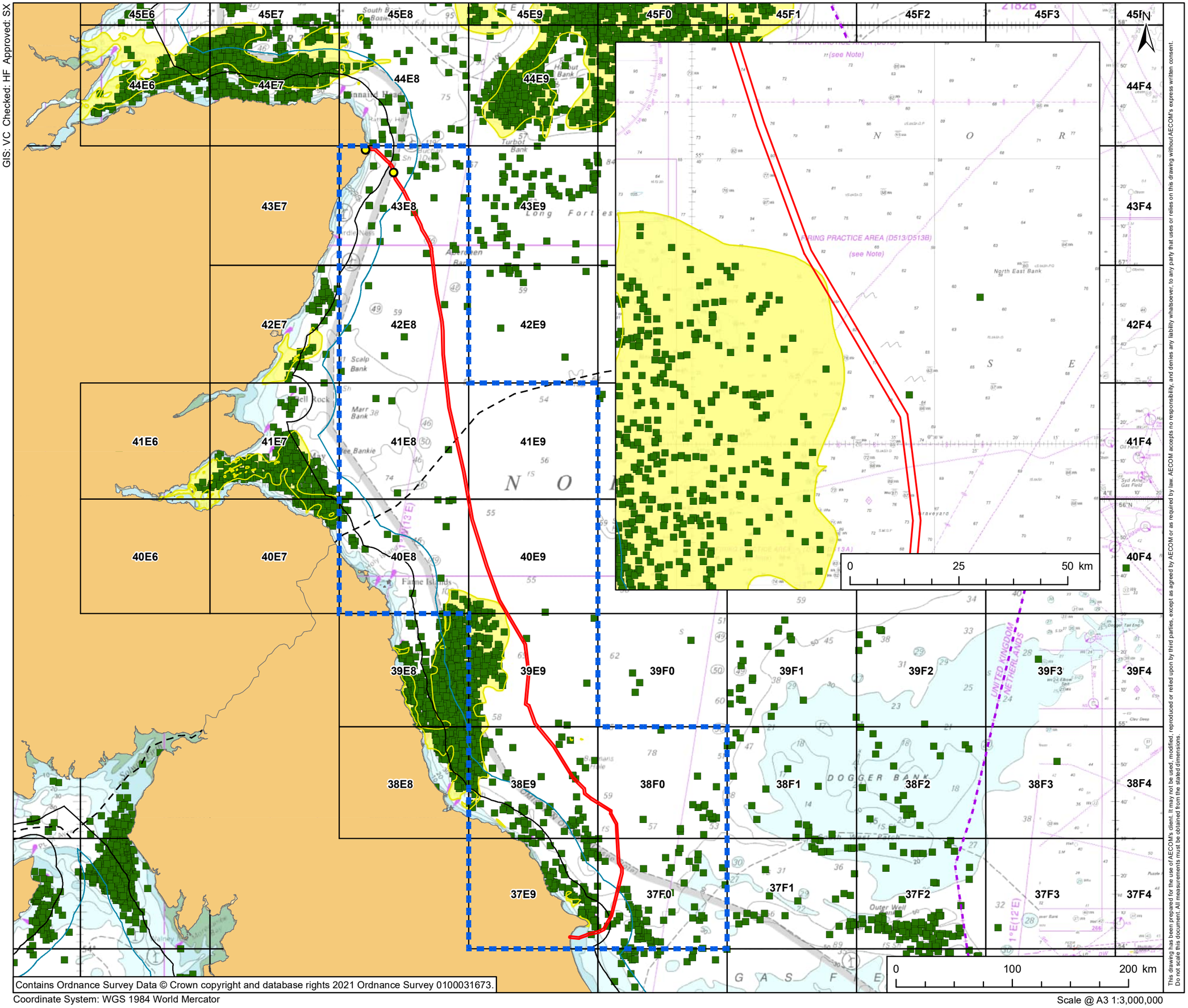
TITLE
Figure 14-35
UK Landings Value (£)
Nephrops
Average 2015-2019

REFERENCE
AEC_SEGL2-02-EA-017

SHEET NUMBER
1 of 1

DATE
19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

KEY

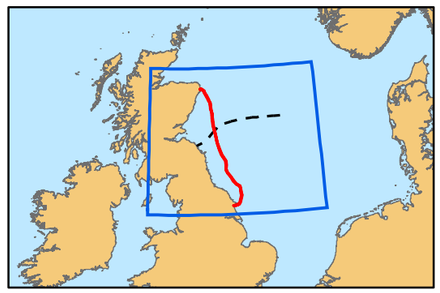
- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary
- Suitable Nephrops habitat[1]

Method[2,3]

- Trawlers Combined *

NOTES;
[1] Marine Scotland (2020)
[2] MMO (2021)
[3] Marine Scotland (2021)

* This method includes:
- Trawler (All)
- Stern trawler (Pelagic/ Demersal)
- Demersal side trawler
- Side trawler (Pelagic/ Demersal)



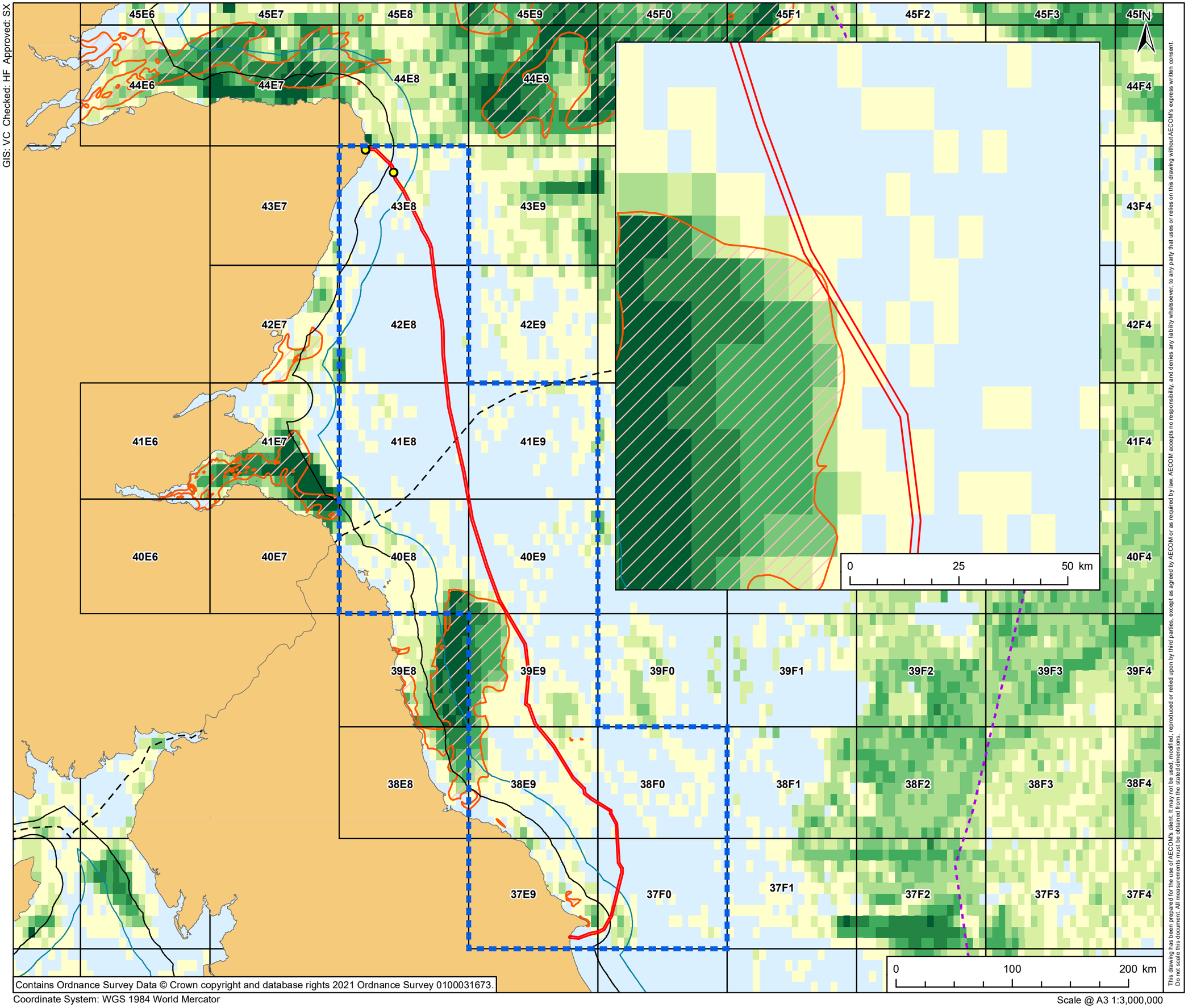
TITLE
Figure 14-36
Suitable Nephrops Habitat Surveillance Sightings Trawlers Combined (2011-2020)

REFERENCE
AEC_SEGL2-02-EA-029

SHEET NUMBER
1 of 1

DATE
19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

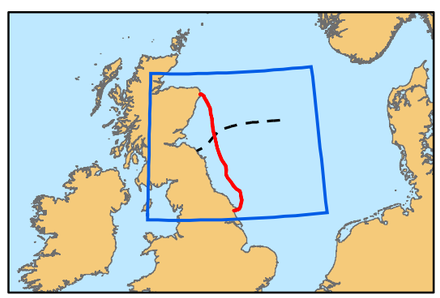
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary
- Suitable Nephrops habitat[1]

Demersal trawl or seine[2]

- Less than £1,000
- £1,000 - £3,000
- £3,000 - £6,000
- £6,000 - £10,000
- £10,000 - £20,000
- £20,000 - £35,000
- More than £35,000

NOTES;
[1] Marine Scotland (2020)
[2] MMO (2020)



TITLE

Figure 14-37
Suitable Nephrops Habitat
UK VMS Value (£)
Demersal trawl or seine
Average 2015-2019

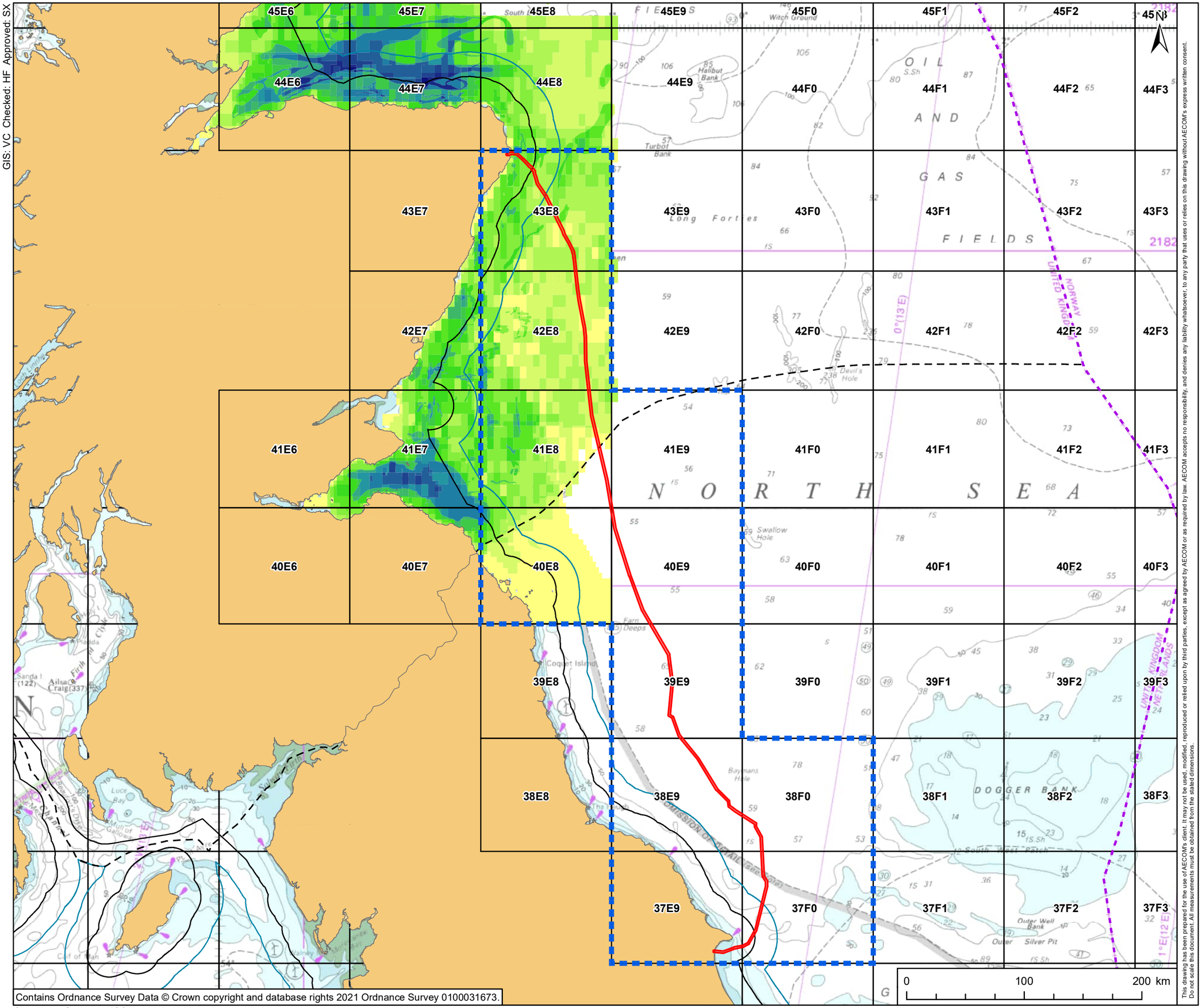
REFERENCE

AEC_SEGL2-02-EA-026

SHEET NUMBER: 1 of 1

DATE: 19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary
- ICES Rectangles

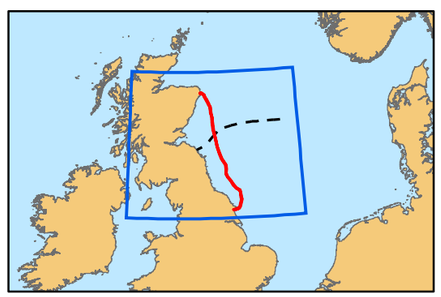
Likelihood/Occurrence[1]

High

Low

NOTES;

[1] Shelmerdine R.L. and Mouat B. (2021): Mapping fisheries and habitats in the North and East Coast RIFG area. NAFC Marine Centre UHI report. pp70.



TITLE

Figure 14-38
Likelihood/Occurrence of Combined Fishing Activity for Trawls

REFERENCE

AEC_SEGL2-02-EA-040

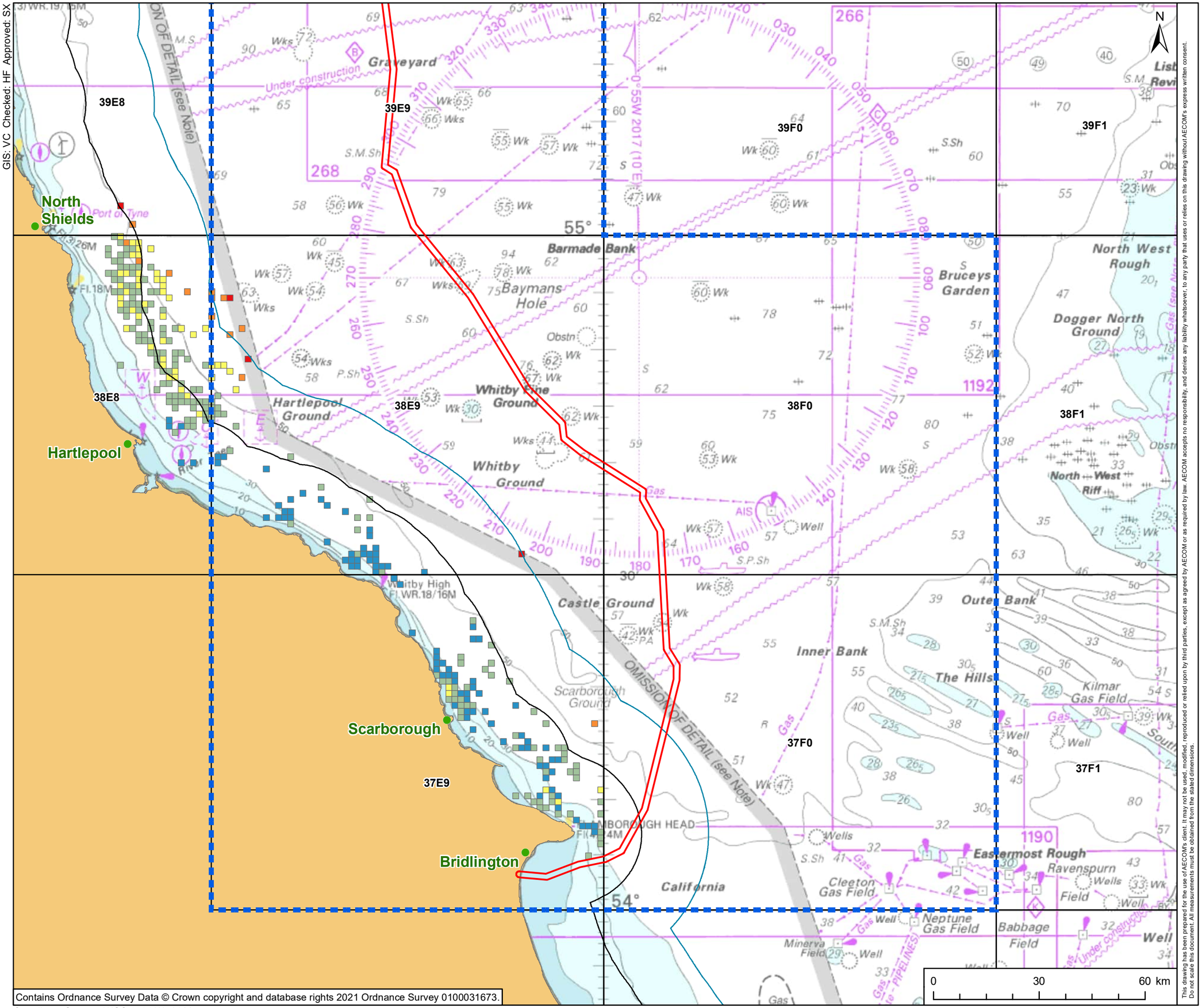
SHEET NUMBER

1 of 1

DATE

19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:1,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

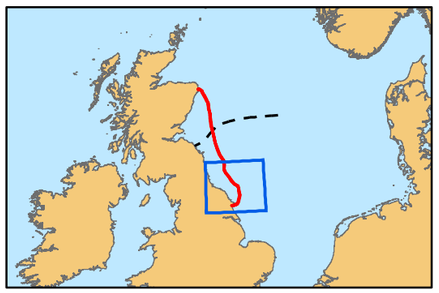
KEY

- Marine Installation Corridor
- Study Area
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles

Trawling Density (2011 - 2015) [1]

- 0.0 - 0.01
- 0.01 - 0.04
- 0.04 - 0.11
- 0.11 - 0.33
- 0.33 - 1

NOTES;
[1] NEIFCA



TITLE

Figure 14-39
NEIFCA Trawling Density

REFERENCE

AEC_SEGL2-02-EA-042

SHEET NUMBER

1 of 1

DATE

19/05/2022

14.5.5 Other Demersal Trawling Fisheries – Squid and Whitefish Fisheries

As previously noted in Section 14.5.1, *Nephrops* is the main species targeted by demersal trawlers in the study area (Figure 14-5), however, some vessels may target other demersal species at times in some areas, particularly squid and whitefish.

14.5.5.1 Squid Fishery

There is a seasonal directed fishery for squid *Loligo spp*. off the east coast of Scotland. Vessels engaged in this fishery typically use single demersal trawl nets with rockhoppers and are generally between 10 m and 30 m in length.

MMO landings data for the period 2015 to 2019 from the study area indicate that squid is primarily fished between August and October. As shown in Figure 14-40, in general terms, demersal trawling for squid in areas of relevance to the Marine Installation Corridor is expected to occur at very low levels. The majority of squid landings concentrate in rectangles outside of the study area, predominantly around the Moray Firth and in inshore areas along the east Scottish coast. Within the study area the majority of activity is recorded in ICES rectangle 42E8 in Scottish waters (approx. £60,000/year). Landings in the remaining rectangles of the study area are comparatively low, ranging from approximately £2,000 to just over £12,000 annually.

14.5.5.2 Whitefish Fishery

As shown in Figure 14-40, some rectangles within the study area, particularly those around the English landfall, record UK landings of whitefish species such as cod, whiting and haddock. It is understood, however, that these species in the study area are predominantly caught as by-catch in the *Nephrops* fishery (see Section 14.5.4) rather than as part of major directed whitefish fisheries. The distribution of activity of vessels engaged in the *Nephrops* fishery is described in detail in Section 14.5.4 and therefore is not discussed further here.

French demersal trawlers, however, are known to have traditionally fished whitefish in the southern section of the study area, predominantly whiting. As shown, in Figure 14-41, landings from these vessels concentrate in the southern section of the study area in English waters, , particularly in rectangle 37F0. Similarly, surveillance sightings of French vessels in this area (Figure 14-3), also suggest that the majority of activity concentrates around rectangle 37F0. Sightings are predominantly recorded in areas beyond the 12 NM limit within this rectangle with no overlap with the Marine Scheme.

GIS: VC Checked: HF Approved: SX

Squid Landings Value

44E7 £2,343,513
44E8 £187,310
44E9 £91,125
44F0 £74,132
43E7 £15,140
43E8 £11,032
43E9 £10,083
43F0 £11,857
42E7 £97,798
42E8 £60,247
42E9 £1,712
42F0 £16,831
41E7 £41,602
41E8 £12,135
41E9
41F0 £4,135
40E7 £25,507
40E8 £4,826
40E9 £1,709
40F0
39E8 £46,585
39E9 £10,670
39F0 £3,938
38E8 £47,007
38E9 £5,718
38F0
37E9 £1,721
37F0 £10,371

0 100 200 km

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

Haddock, Whiting and Cod Landings Value

44E7 £421,528
44E8 £705,005
44E9 £1,407,674
44F0 £1,239,030
43E7
43E8 £37,388
43E9 £699,062
43F0 £654,453
42E7 £2,236
42E8 £2,667
42E9 £68,436
42F0 £243,367
41E7 £2,296
41E8
41E9 £14,181
41F0 £46,820
40E7 £1,704
40E8 £11,276
40E9 £7,526
40F0 £3,205
39E8 £186,728
39E9 £99,974
39F0 £44,098
38E8 £200,487
38E9 £60,063
38F0 £7,442
37E9 £80,069
37F0 £24,369

0 100 200 km

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

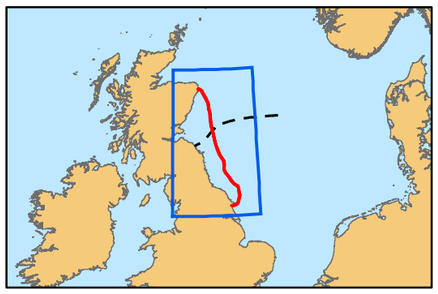
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

Species[1,*]

- Squid
- Haddock
- Whiting
- Cod

NOTES;
[1] MMO (2021)
* For visual purposes, all landings value below £1,000 have been removed from the chart.



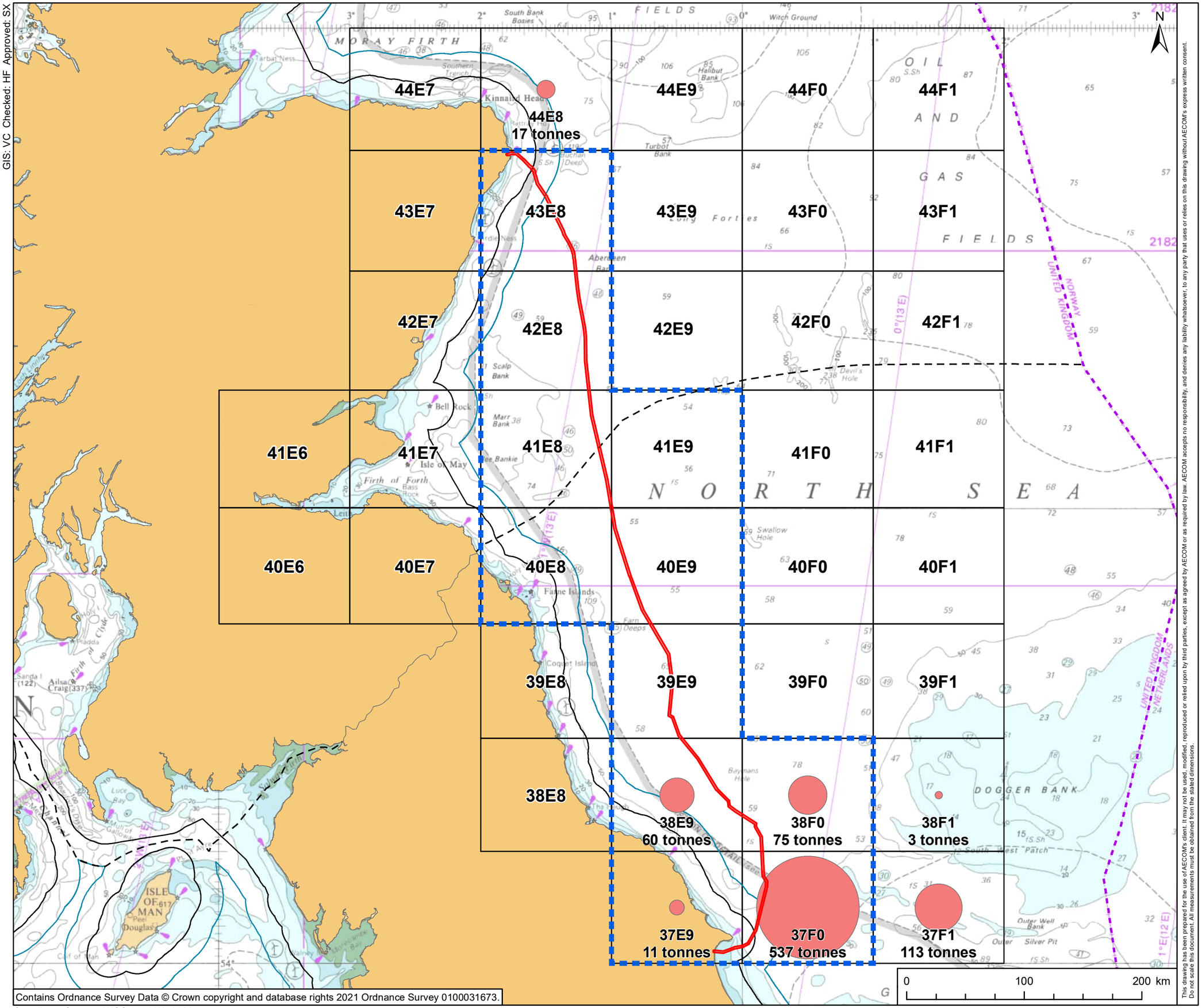
TITLE
Figure 14-40
UK Landings Value (£)
Squid
Haddock, Whiting & Cod
Average 2015-2019

REFERENCE
AEC_SEGL2-02-EA-044

SHEET NUMBER
1 of 1

DATE
19/05/2022

GIS: VC Checked: HF Approved: SX



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

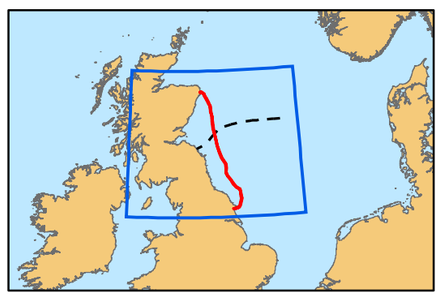
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary

Method[1]

- Bottom trawls and seines

NOTES;
[1] Scientific, Technical and Economic Committee for Fisheries (STECF) - Fisheries Dependent Information - Classic (STECF-17-09). Publications Office of the European Union, Luxembourg 2017, ISBN 978-92-79-67481-5, DOI:10.2760/561459, JRC107598.



TITLE

Figure 14-41
French Landings Weight (tonnes)
Bottom Trawls and Seines
Average 2012-2016

REFERENCE
AEC_SEGL2-02-EA-028

SHEET NUMBER
1 of 1

DATE
19/05/2022

14.5.6 Pelagic Trawling - Herring Fishery

Fishing Gear Methods and Operating Practices

In the study area, herring is predominantly targeted using pelagic trawls. Pelagic trawlers tow a single pelagic net, which is held open by trawl doors and sweep weights in the water column with no contact with the seabed (Figure 14-42). The mouth of pelagic nets typically range from 100 m to 200 m.

The North Sea herring fishery is a seasonal autumn fishery. UK landings data indicate that in areas of relevance to the Marine Scheme, herring is predominantly fished during September (Figure 14-43).

In the study area vessels from various nationalities target this species, including UK, Dutch, Danish and French vessels. As previously discussed, (Section 14.5.1), vessels from these nationalities have been recorded in surveillance sightings in the area. In addition, Dutch and French vessels hold historic fishing rights between the 6 NM and 12 NM limit to fish for herring in the area around the English landfall (Figure 14-3). Fisheries stakeholders noted during consultation that activity by UK vessels targeting herring in this area has been minimal in recent years, with the foreign fleet being more active (Consultation Meeting, 1/12/2021).

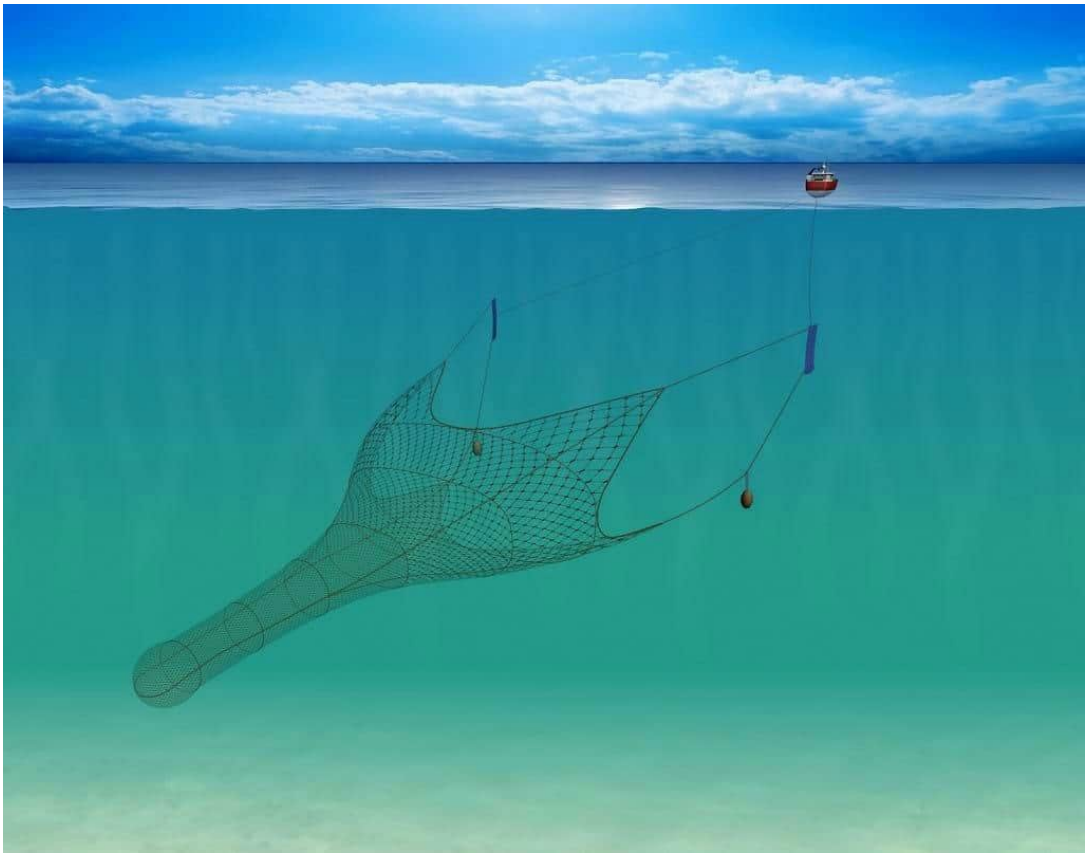


Figure 14-42: Pelagic Trawl (Seafish, 2021d)

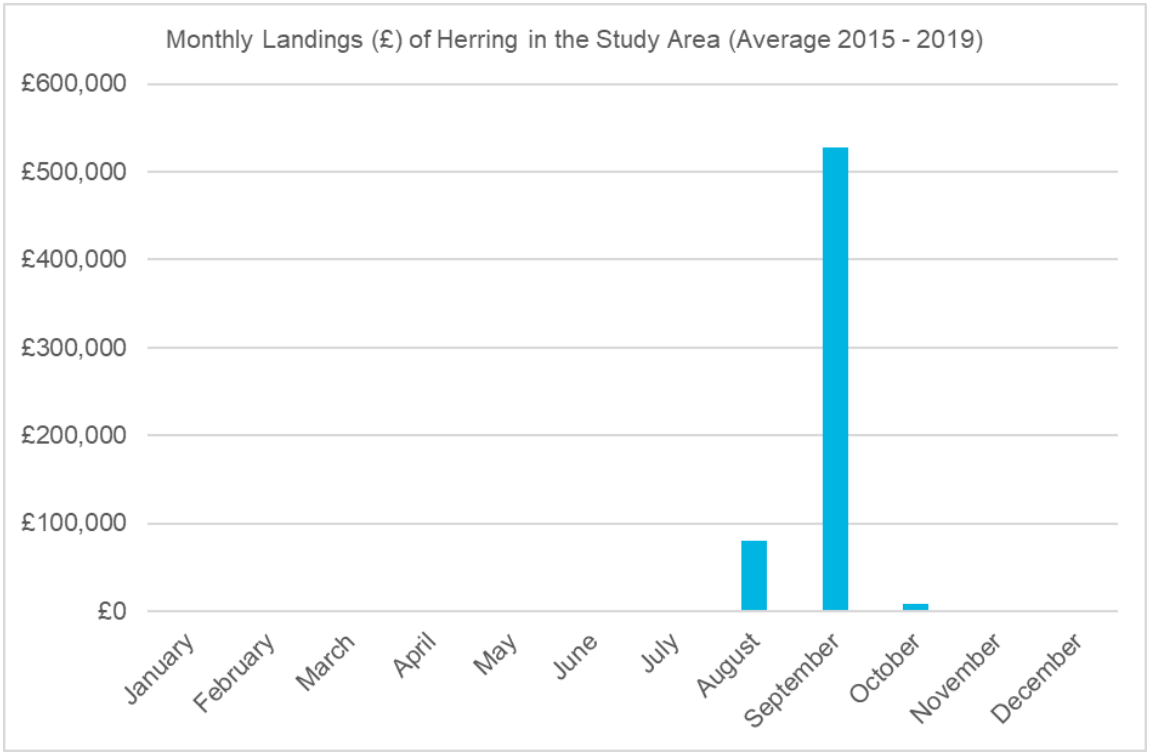


Figure 14-43: Monthly Landings (£) of Herring in the Study Area (Average 2015 - 2019) (Source: MMO)

Distribution of Fishing Activity

An indication of the spatial distribution of the herring fishery across the study area is given in Figure 14-44 to Figure 14-46, based on analysis of the following sources of data and information:

- UK landings of herring by ICES rectangle (Figure 14-44);
- UK VMS (£) data for pelagic trawlers (Figure 14-45); and
- Danish, French and Dutch herring landings data (Figure 14-46);

UK pelagic trawlers targeting herring within the study area concentrate their activity in two discrete areas:

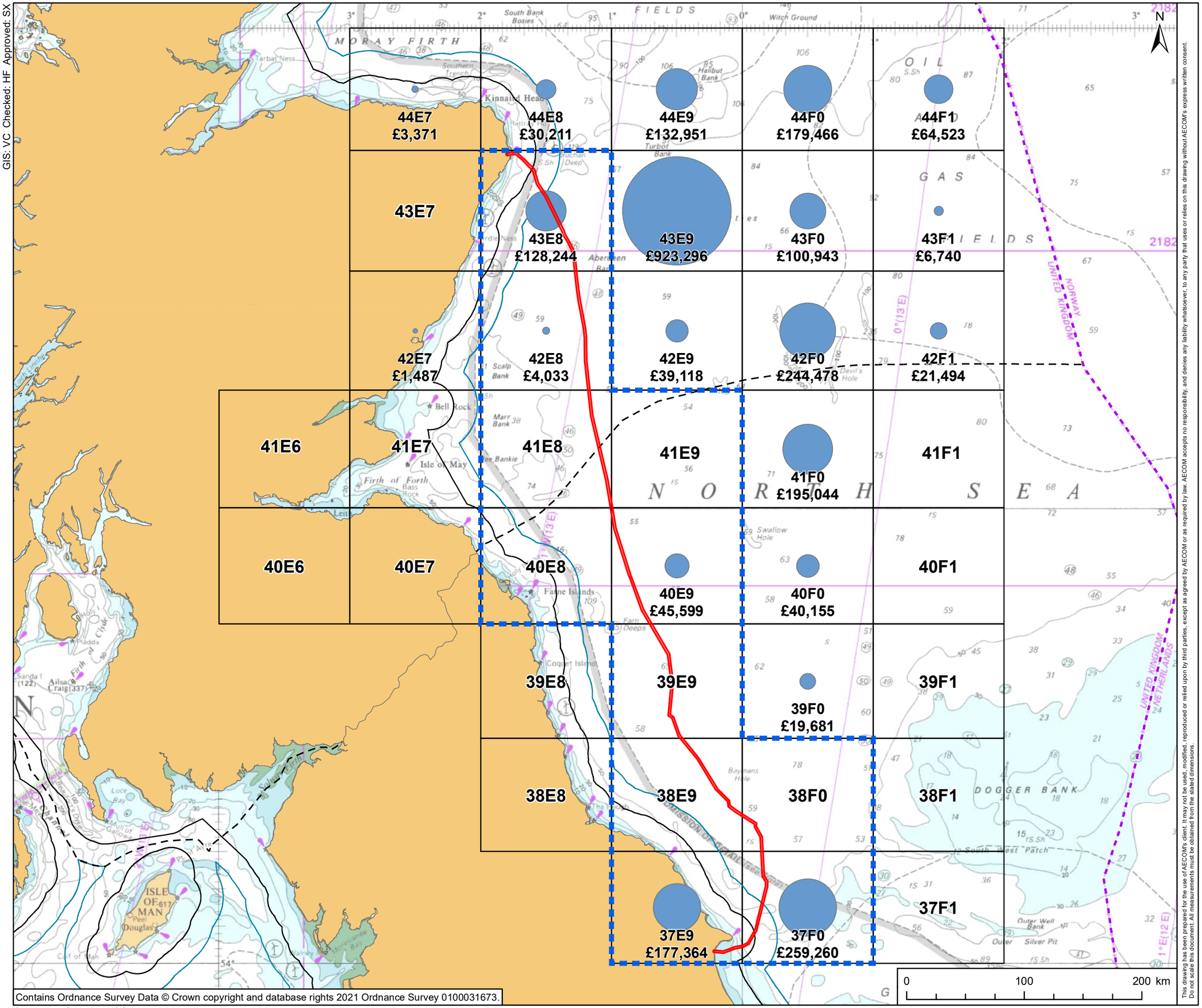
- In the northern section of the study area close to the Scottish landfall (ICES rectangle 43E8) overlapping with the Marine Installation Corridor around KP10 to KP11; and
- In the southern section of the study area around the English landfall (ICES rectangles 37E9 and 37F0), overlapping with the Marine Installation Corridor between KP381 and KP399.

Although at lower levels, rectangle 40E9, located in English waters around the central section of the study area, also records some herring landings by UK vessels.

Analysis of Danish, Dutch and French herring landings data indicates that vessels from these nationalities (predominantly Danish and Dutch) are also active in the grounds around the Scottish and English landfalls. The highest landings of herring for these three nationalities combined are however recorded in ICES rectangle 40E9 rather than around the landfalls (Figure 14-46).

During consultation, it was noted that foreign vessels targeting herring tend to concentrate their effort around the 12 NM limit, with only a small number of vessels working in the 6 NM to 12 NM limit (Consultation Meeting, 1/12/2021). As previously mentioned, only French and Dutch vessels have historic rights to fish herring in the 6 NM to 12 NM limit in areas around the English landfall.

GIS: VC Checked: HF Approved: SX



Contains Ordnance Survey Data © Crown copyright and database rights 2021 Ordnance Survey 0100031673.

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

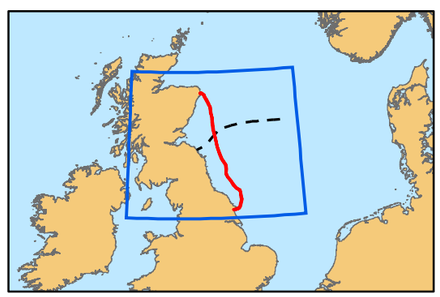
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary

Species[1,]

- Herring

NOTES;
[1]MMO (2020)
* For visual purposes, all landings values below £1,000 have been removed from the chart.



TITLE

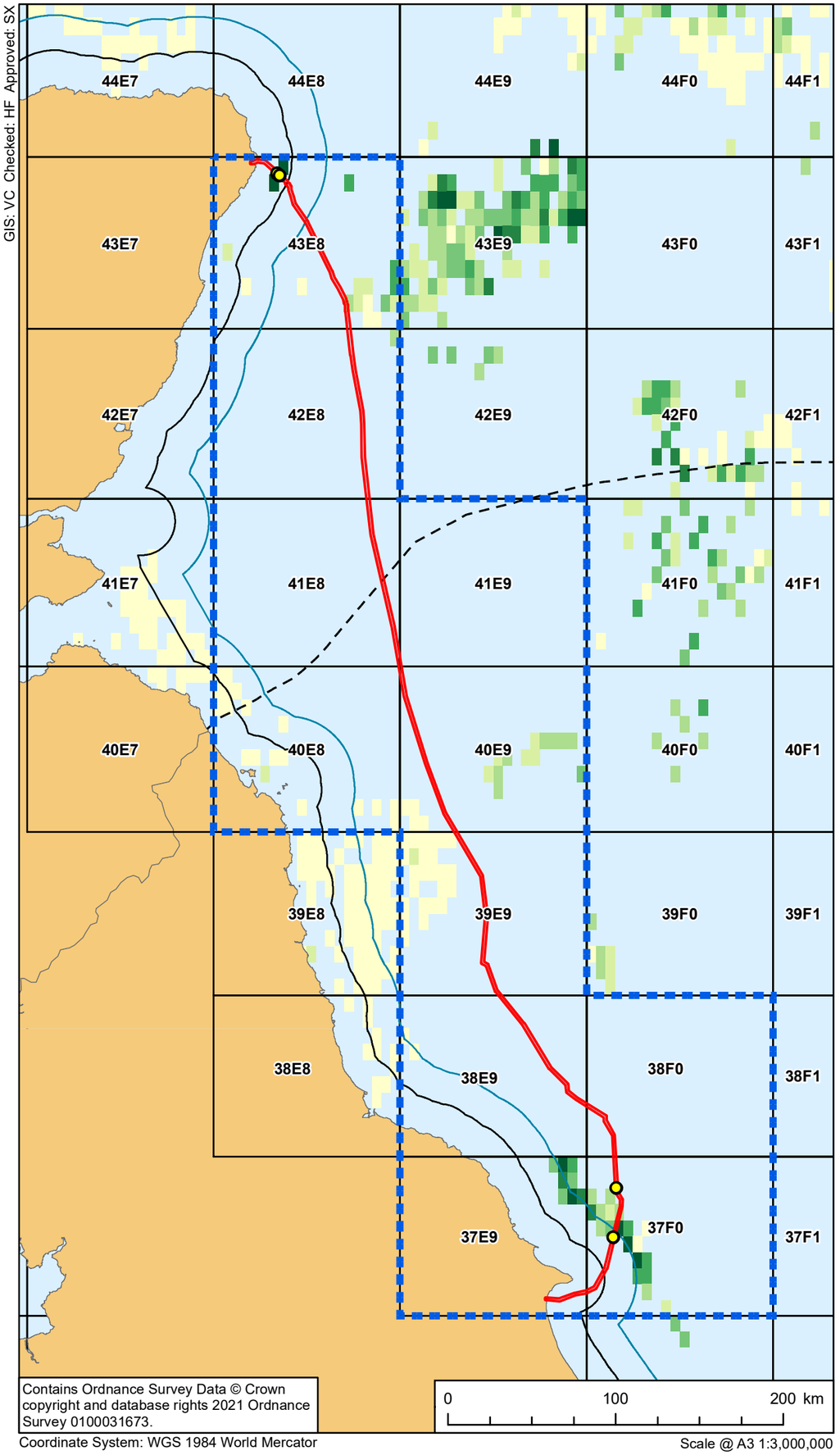
Figure 14-44
UK Landings Value (£)
Herring
Average 2015-2019

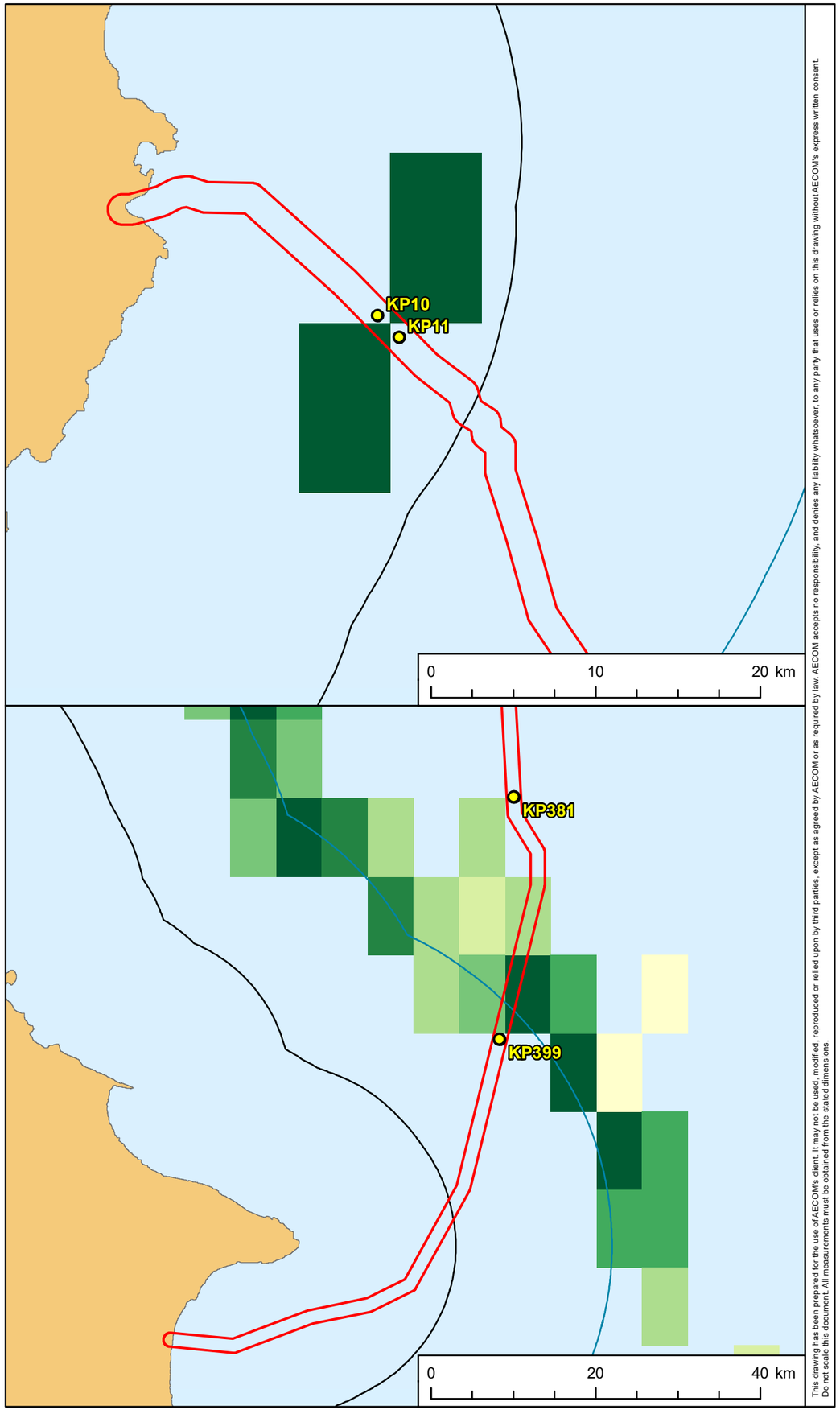
REFERENCE
AEC_SEGL2-02-EA-031

SHEET NUMBER
1 of 1

DATE
19/05/2022

GIS: VC Checked: HF Approved: SX





nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

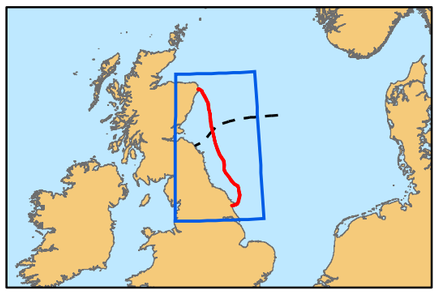
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

Pelagic trawl or seine[1]

- Less than £1,000
- £1,000 - £3,000
- £3,000 - £6,000
- £6,000 - £10,000
- £10,000 - £20,000
- £20,000 - £35,000
- More than £35,000

NOTES;
[1] MMO (2021)



TITLE
Figure 14-45
UK VMS Value (£)
Pelagic trawl or seine
Average 2015-2019

REFERENCE
AEC_SEGL2-02-EA-030

SHEET NUMBER
1 of 1

DATE
19/05/2022

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:3,000,000

GIS: VC Checked: HF Approved: SX

44E7
44E8
463 tonnes
44E9
2,157 tonnes
44F0
4,504 tonnes
44F1
3,217 tonnes
43E7
43E8
6,686 tonnes
43E9
30,193 tonnes
43F0
3,864 tonnes
43F1
1,445 tonnes
42E7
42E8
147 tonnes
42E9
1,060 tonnes
42F0
2,446 tonnes
42F1
1,992 tonnes
41E6
41E7
41E8
123 tonnes
41E9
513 tonnes
41F0
1,663 tonnes
41F1
1,173 tonnes
40E6
40E7
40E8
40E9
15,747 tonnes
40F0
3,520 tonnes
40F1
783 tonnes
39E8
39E9
1,594 tonnes
39F0
5,243 tonnes
39F1
916 tonnes
38E8
38E9
1,564 tonnes
38F0
3,594 tonnes
38F1
202 tonnes
37E9
273 tonnes
37F0
10,092 tonnes
37F1
1,941 tonnes

Coordinate System: WGS 1984 World Mercator

0 100 200 km

Scale @ A3 1:3,000,000

nationalgrid
Scottish & Southern Electricity Networks

PROJECT
Eastern Green Link 2

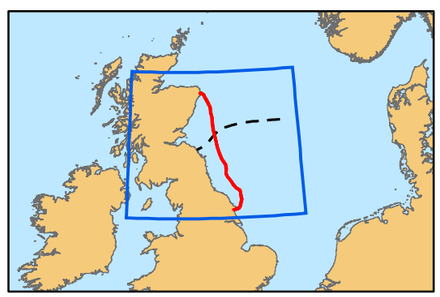
KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- EEZ boundary

Nationality[1]

- Denmark
- France
- Netherlands

NOTES;
[1] Scientific, Technical and Economic Committee for Fisheries (STECF) - Fisheries Dependent Information - Classic (STECF-17-09). Publications Office of the European Union, Luxembourg 2017, ISBN 978-92-79-67481-5, DOI:10.2760/561459, JRC107598.
* For visual purposes, all landings values under 100 tonnes have been removed from the chart.



TITLE
Figure 14-46
Danish, French and Dutch Landings
Weight (tonnes)
Herring
Average 2012-2016

REFERENCE
AEC_SEGL2-02-EA-027

SHEET NUMBER
1 of 1

DATE
19/05/2022

14.6 Appraisal of Potential Impacts

This section discusses the potential impacts on commercial fisheries receptors during Installation, Operation and Maintenance, and Decommissioning Phases of the Marine Scheme as presented in Chapter 2: Marine Scheme Description. The appraisal has been undertaken in accordance with the methodology presented in Chapter 4: Approach to Environmental Appraisal, tailored with specific reference to aspects of relevance to commercial fishing, as detailed in Section 14.4.1.

Table 14-4: Potential impacts of the Marine Scheme on Commercial Fisheries

Phase	Potential Impacts
Installation	Temporary loss of fishing grounds or access to fishing grounds
	Displacement of fishing activity into other areas
	Interference with fishing activities
	Snagging risk – loss or damage to fishing gear
	Impacts on commercial fishing as a result of impacts on the ecology of commercial species
Operation and Maintenance	Temporary loss of fishing grounds or access to fishing grounds
	Displacement of fishing activity into other areas
	Snagging risk – loss or damage to fishing gear
	Impacts on commercial fishing as a result of impacts on the ecology of commercial species
Decommissioning	As above for installation

14.6.1 Embedded Mitigation

A range of embedded mitigation measures have been proposed to minimise and where possible remove the potential interactions of the Marine Scheme with commercial fisheries. These include the following:

- The Marine Installation Corridor has been selected to optimise the balance of environmental, technical, commercial and financial considerations, including avoidance of key fishing grounds insofar as practicable;
- All vessels will follow the International Regulations for Preventing Collisions at Sea 1972 (COLREGS) and International Convention for the Safety of Life at Sea 1974 (SOLAS);
- A temporary 500 m Recommended Clearance Zones (RCZs) will be established around all vessels associated with the works;
- Guard vessels will use RADAR with Automatic RADAR Plotting Aid (ARPA) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during installation and maintenance work;
- A Fisheries Liaison Officer (FLO) will be appointed for the Installation Phase. Good practice guidance on the approach to fisheries liaison and mitigation (e.g., FLOWW, 2014; 2015 as relevant to cable projects) shall be implemented as far as possible;
- Prior to cable installation activities commencing, a CEMP, including a Fisheries Liaison and Co-existence Plan (FLCP)[4] will be developed and agreed with relevant stakeholders in accordance with the coastal and marine environment site guide;

[4] Note that this will be a single document that will perform the role of other fisheries liaison plans, for instance, a Fisheries Management and Mitigation Strategy.

- Notice(s) to Mariners (including Kingfisher Bulletins), Radio Navigational Warnings, NAVTEX and/or broadcast warnings as appropriate will be issued prior to the commencement of and during installation works;
- Cables will be trenched to a target depth of lowering of 1.5 m and a minimum depth of lowering of 0.6 m. The use of external cable protection will be limited to areas where cables cannot be trenched to a sufficient depth and at crossings with third-party infrastructure;
- Berms will be designed to reduce snagging risk in so far as is practicable, with 1:3 slopes and flat crests in line with industry guidance;
- Undertaking of interim and as-built surveys to confirm the trenching status of the cables, identify potential seabed hazards associated with installation, and, where appropriate and practicable, undertaking of rectification works;
- As-built locations of cables and associated external protection will be supplied to UKHO and Kingfisher for inclusion in Admiralty and KIS-ORCA charts, respectively ;
- As built details, including the locations, nature and extent of rock berms shall also be shared with relevant fisheries stakeholders;
- Routine surveys and inspections of the subsea cables and associated protection measures will be conducted through the lifetime of the project, to ensure they remain in good condition, and adequately protected;
- In the event that cable exposures are identified during the Operation and Maintenance Phase of the Marine Scheme, the location of these will be shared with fisheries stakeholders and where appropriate, additional temporary measures put in place (e.g., marker buoys, use of guard vessels, etc), until a repair or remediation can be implemented; and
- Development of a procedure for the claim of loss of/or damage to fishing gear.

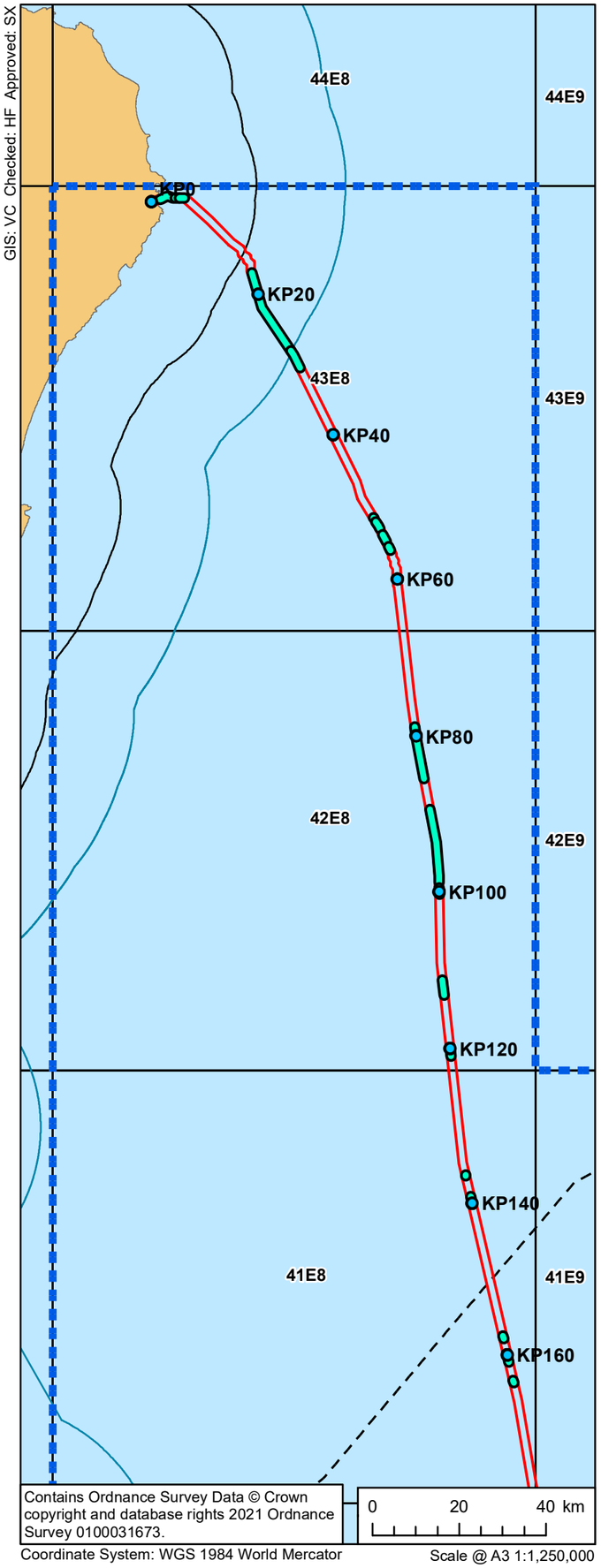
14.6.2 Installation Phase

It is anticipated that the cable installation will be carried out over five to ten campaigns, with two to three months between each campaign, depending on technical factors, such as cables availability, vessel capacity, vessel mobilisation and location of supplying factory. Installation Phase activities, such as surveys, route preparation, boulder clearance, trenching and rock placement, are expected to take two to three years (and up to five years as worst case) to complete. Cable laying will be timed to avoid the winter seasons within the Installation Phase. As set out in Chapter 2: Project Description, installation vessels are estimated to install the cable at a speed of between 0.5 km and 7 km per day, depending on seabed conditions and the vessels used.

The cables will be installed in up to two trenches (spaced up to a maximum of 30 m apart), with installation methodologies including simultaneous cable lay and trenching, and surface cable lay followed by post lay trenching. Cable trenching methods which may be used include: include jet trenching machines, mechanical trenchers, mass flow excavators and ploughs (both displacement and non-displacement ploughs). Overall, displacement ploughs/boulder clearance ploughs would result in the greatest seabed disturbance, however this method will only be required within discrete sections of the Marine Installation Corridor associated with the presence of boulders (up to 14 km in Scottish territorial waters, 25 km in Scottish offshore waters, 30 km in English offshore waters and 47 km in English territorial waters). Sections of the Marine Installation Corridor within which displacement ploughs/boulder clearance ploughs may need to be used are illustrated in Figure 14-47.

Additional information on trenching methods is provided in Chapter 2: Project Description.

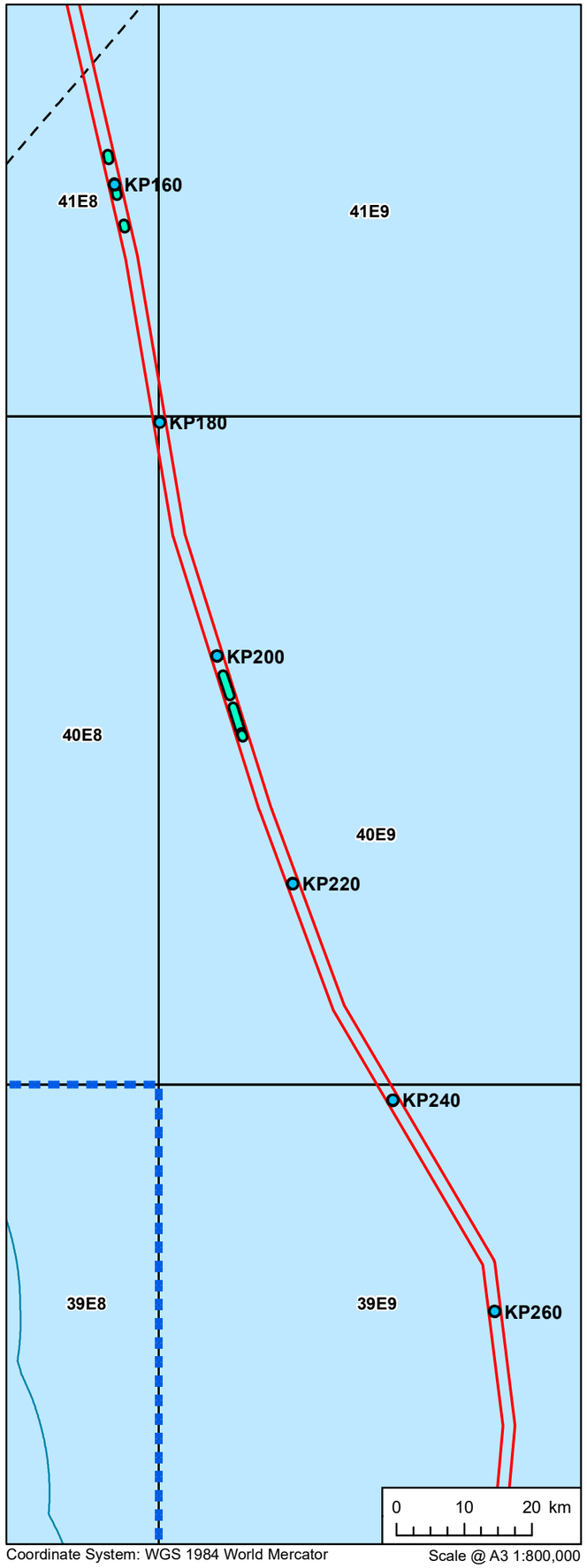
GIS: VC Checked: HF Approved: SX



0 20 40 km

Coordinate System: WGS 1984 World Mercator

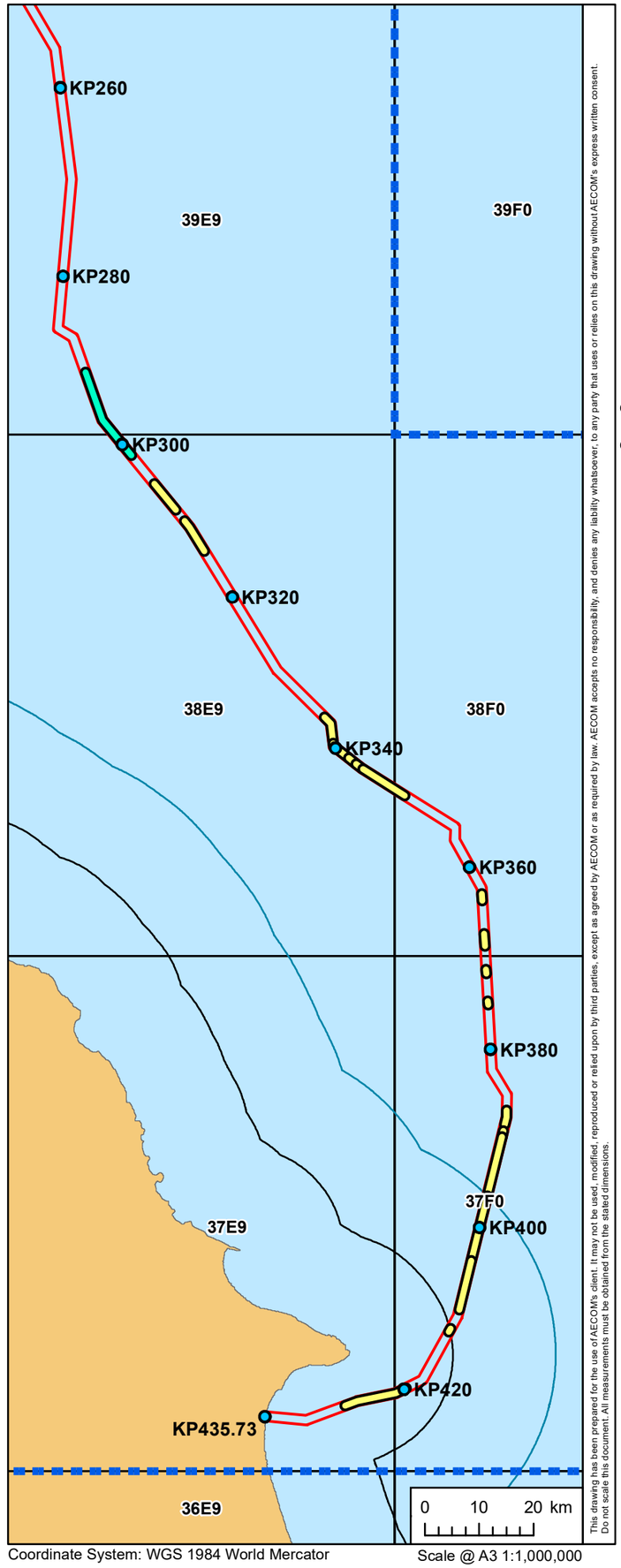
Scale @ A3 1:1,250,000



0 10 20 km

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:800,000



0 10 20 km

Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:1,000,000

nationalgrid

Scottish & Southern Electricity Networks

PROJECT

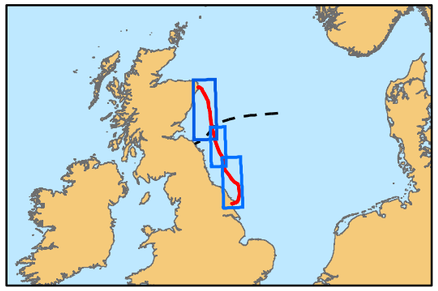
Eastern Green Link 2

KEY

- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- Boulders clearance plough may be used
- Displacement/Boulders clearance plough may be used

NOTES;

-



TITLE

Figure 14-47
Displacement/Boulder Clearane Ploughs

REFERENCE

AEC_SEGL2-02-EA-045

SHEET NUMBER

1 of 1

DATE

19/05/2022

14.6.2.1 Temporary loss of grounds or access to fishing grounds

During Installation Phase activities, fishing activity will be temporarily excluded from discrete areas due to the need to implement rolling RCZ around installation vessels. In deep waters, a temporary 500 m RCZ will be recommended around cable laying vessels, guard vessels and/or other specialised support vessels which may be active in the area. In addition, the marine installation corridor will have to remain clear of static gear to allow installation works.

In shallow waters (<10 m depth) anchors may be used to maintain the position of installation vessels. Where this is the case, fishing vessels will be advised to remain at a minimum safe distance of 500 m from the anchoring systems. This would result in the need of larger RCZs (i.e., of up to 1.5 km radius from installation vessels depending on the spread of the anchoring system as this may be placed between 500 m to 1,000 m from the installation vessel).

In addition, during the installation phase, fishing vessels may be required to avoid sections of the Marine Installation Corridor where the installed cables may be temporarily vulnerable (e.g., surface laid cables awaiting trenching or protection). In these areas, it will be requested via NtMs and engagement with fisheries stakeholders that fishing vessels avoid fishing within a temporary 500 m RCZ.

As described in Section 14.6.1, a number of embedded mitigation measures will be implemented. The following are of specific relevance to minimising disturbance to fishing during the installation phase:

- A Fisheries Liaison Officer (FLO) will be appointed for the Installation Phase. Good practice guidance on the approach to fisheries liaison and mitigation (e.g., FLOWW, 2014; 2015 as relevant to cable projects) shall be implemented as far as possible;
- Notice(s) to Mariners (including Kingfisher Bulletins), Radio Navigational Warnings, NAVTEX and/or broadcast warnings as appropriate will be issued prior to the commencement of and during installation works; and
- Guard vessels will use RADAR with Automatic RADAR Plotting Aid (ARPA) to monitor vessel activity and predict possible interactions, will be employed to work alongside the installation vessel(s) during installation and maintenance work (which will also minimise anchor disturbance on the seabed).

Potting/Creeling - Lobster and Crab Fishery

As described in Section 14.5.2, potters/creelers are active across the study area, including in some sections of the Marine Installation Corridor and activity by these vessels accounts for the highest landings values across the study area.

Potting/creeling tends to be undertaken by small (under 15 m) local vessels with activity in the study area predominantly concentrated within the 6 NM limit (Figure 14-10 and Figure 14-11). Interactions by these vessels with the Marine Installation Corridor are expected to be limited for the most part to areas around the Scottish and English landfalls (KP0 to KP19; and KP381 to KP434) (Figure 14-15, Figure 14-16), although some vessels may target offshore areas of the Marine Installation Corridor (Figure 14-12 and Figure 14-17).

As potters/creelers are small in size and have limited operational ranges and fishing opportunities, they are considered to be of medium sensitivity.

Access restrictions to fishing associated with the installation phase will be short term to medium term (over an overall installation period of up to five years) and localised around areas where RCZs may be in place at a given time. In addition, as outlined above (Section 14.6.1) a number of management measures will be implemented to minimise potential loss of access to fishing grounds during installation. As previously mentioned, the Marine Installation Corridor will have to remain clear of static gear to allow installation works. This may result in non-placement, removal or relocation of static fishing gear being required at some locations during specific periods of time. With this in mind the impact of temporary loss or restricted access to fishing grounds on potters/creelers is considered to be of medium magnitude.

Taking account of the receptor sensitivity (medium) and impact magnitude (medium) identified above, the effect on potters/creelers in respect of temporary loss or access to fishing grounds is considered to be **moderate** and therefore **significant**.

Dredgers – Scallop Fishery

As described in Section 14.5.3, landings of scallops contribute considerably to the overall landings values in the study area. Relatively high levels of scallop dredging activity are recorded across the northern and southern section of the Marine Installation Corridor, particularly in areas that overlap with ICES rectangles 43E8 (KP0 to KP73) in Scottish waters and with ICES rectangles 38E9, 37E9 and 37F0 (KP381 to KP417) in English waters (Figure 14-24 and Figure 14-25).

The majority of scallop dredgers active in the study area belong to the larger size category (over 15 m in length). These vessels are generally nomadic and therefore have very wide operational ranges targeting grounds throughout Scotland and beyond (Figure 14-26).

Whilst scallop dredgers are generally over 15 m in length and have wide operational ranges and fishing opportunities, taking account of the overall value of the fishery within the study area, they are considered receptors of medium sensitivity.

Access restrictions to fishing associated with the installation phase will be short to medium term (over five to ten campaigns within an overall installation period of up to five years) and localised around the location of installation works at any given time, RCZs are in place and also overlap with scallop grounds. In addition, as outlined above (Section 14.6.2.1). a number of management measures will be implemented to minimise potential loss of access to fishing grounds during installation. The impact of temporary loss or restricted access on scallop dredgers is therefore considered to be of low magnitude.

Taking account of the receptor sensitivity (medium) and impact magnitude (low) identified above, the effect on scallop dredgers in respect of temporary loss or access to fishing grounds is considered to be **minor** and therefore **not significant**.

Demersal Trawlers – Nephrops, Squid and Whitefish Fisheries

Nephrops constitutes the main target species for demersal trawlers in the study area, however, some vessels target other demersal species at times in some areas, particularly squid and whitefish.

As illustrated in Figure 14-30, the Marine Installation Corridor runs through the Farne Deeps *Nephrops* FU but avoids areas of suitable *Nephrops* habitat. As shown in (Figure 14-36 and Figure 14-37) *Nephrops* trawling is expected to occur at very limited levels in the Marine Installation Corridor.

Demersal trawling for squid in the immediate area of the Marine Installation Corridor is expected to occur at very low levels, with this species accounting for very low landings values in the study area (Figure 14-40). Similarly, demersal trawling for whitefish is also expected at very low levels in the Marine Installation Corridor (Figure 14-40 and Figure 14-41).

Considering the relatively low value of demersal trawling fisheries in the study area and the operational ranges and fishing opportunities of the vessels involved demersal trawlers are considered receptors of low sensitivity.

Access restrictions to fishing associated with the installation phase will be short to medium term (over five to ten campaigns within an overall installation period of up to five years) and localised around discrete areas which may overlap with trawling grounds, where RCZs may be in place at a given time. In addition, as outlined above (Section 14.6.2.1), a number of management measures will be implemented to minimise potential loss of access to fishing grounds during installation. The impact of temporary loss or restricted access to fishing grounds for demersal trawlers is therefore considered to be of low magnitude.

Taking account of the receptor sensitivity (low) and impact magnitude (low) identified above, the effect on demersal trawlers in respect of temporary loss or access to fishing grounds is considered to be **negligible** and therefore **not significant**.

Pelagic Trawlers - Herring Fishery

As described in Section 14.5.6, although at relatively low levels (Figure 14-5 and Figure 14-46), large pelagic trawlers from various nationalities, predominantly UK, Dutch, Danish and French, target herring in the study area.

These vessels concentrate their activity in the northern and southern section of the study area (ICES rectangles 43E8 and 37F0), overlapping the Marine Installation Corridor from KP10 to KP11 and from KP381 to KP399, respectively (Figure 14-44, Figure 14-45 and Figure 14-46).

Given the large size, operational range and fishing opportunities of pelagic trawlers and the relatively low value of the herring fishery within the study area, pelagic trawlers are considered receptors of low sensitivity.

Access restrictions to fishing associated with the installation phase will be short to medium term (over five to ten campaigns within an overall installation period of up to five years) and localised around discrete areas which may overlap with herring grounds, where RCZs may be in place at a given time. In addition, as outlined above (Section 14.6.2.1) a number of management measures will be implemented to minimise potential loss of access to fishing grounds during installation. The impact of temporary loss or restricted access on pelagic trawlers is therefore considered to be of low magnitude.

Taking account of the receptor sensitivity (low) and impact magnitude (low) identified above, the effect on pelagic trawlers in respect of temporary loss or access to fishing grounds is considered to be **negligible** and therefore **not significant**.

14.6.2.2 Displacement of fishing activity into other areas

As described in Section 14.6.2.1, during the Installation Phase, fishing activity will be temporarily excluded from discrete areas due to the need to implement rolling RCZs around installation vessels (up to 500 m in offshore waters and potentially up to 1.5 km in shallow waters in the event that anchors are used to maintain the position of installation vessels). The Marine Installation Corridor will have to remain clear of static gear to allow installation works to be undertaken. In addition, during the Installation Phase, fishing vessels will be advised to avoid fishing around sections of the Marine Installation Corridor where the installed cables may be temporarily vulnerable (e.g., surface laid cables awaiting trenching or protection). In these areas, it will be requested that fishing vessels avoid a temporary 500 m RCZ around relevant sections of the cables and installation vessels.

The temporary lack of access to certain areas for fishing described above, could, in turn, result in limited and short-term displacement of fishing activity into other areas.

For vessels that deploy static gear, there could be potential for conflicts associated with displacement effects to arise where gear has been temporarily relocated into grounds where other static gear vessels or mobile gear vessels operate. Similarly, vessels which operate mobile gears may be displaced to grounds where other mobile gear vessels operate, also increasing conflict and competition for fishing grounds.

Whilst it is difficult to predict where fishing activity may be displaced to and how this may affect individual vessels, in all cases the level of displacement will be a function of the extent of loss or restricted access to fishing grounds. The magnitude of impact, sensitivity of the receptor and resulting significance of effect in respect of displacement would, at worst, be as identified in relation to loss of grounds or restricted access to fishing grounds.

The findings of the appraisal with regard to loss or restricted access to fishing grounds during installation also apply in relation to displacement of fishing activity and are as summarised in Table 14-5. As shown, with the exception of potters/creelers, the impact is considered to be **not significant** (**negligible** for demersal trawlers and pelagic trawlers and **minor** for scallop dredgers). For potters/creelers the impact is **moderate** and therefore **significant**.

Table 14-5: Appraisal of the Impact of Displacement of Fishing Activities into other Areas During Installation

Receptor	Magnitude of Impact	Sensitivity of Receptor	Impact Significance
Potters/creelers	Medium	Medium	Moderate
Scallop dredgers	Low	Medium	Minor
Demersal trawlers	Low	Low	Negligible
Pelagic trawlers	Low	Low	Negligible

14.6.2.3 Interference with fishing activities

The transiting and presence of vessels associated with the Installation Phase of the Marine Scheme has potential to cause interference with fishing activities during the Installation Phase. Vessels required during installation activities are anticipated to include the following:

- Shallow waters (<10 m): shallow draft cable laying vessels, cable laying barge and jack up barge, dive support vessel, anchor handling vessels; and
- Offshore waters: cable laying vessel, guard vessels, rock placement vessels and specialised support vessels.

Static Gear Fisheries

In the case of fishing vessels that use static gear such as potters/creelers, the main potential cause of interference would be the fouling of static gear surface marker lines by transiting installation vessels.

Considering the static nature of the gear used by potters/creelers, these vessels would have limited capability to avoid interactions between gear and transiting installation vessels. The sensitivity of the receptor is, therefore, considered to be medium.

Appropriate liaison would be undertaken with fisheries stakeholders to ensure that they are informed of the nature, timing and location of Installation Phase activities. This will include provisions for enabling awareness of installation vessel crews of the location of static gears and fishermen's awareness of installation vessels operations. In addition, as noted in Section 14.6.1, a Code of Good Practice for contracted vessels will be produced and a procedure for the claim of loss or damage to fishing gear will be developed, as part of the FLCP developed for the Marine Scheme.

The impact will be localised, short term and intermittent in nature. A range of fisheries liaison and management measures will be implemented to minimise potential interference between installation vessels and static gear fisheries. The magnitude of the impact is therefore considered to be low.

Taking account of the receptor sensitivity (medium) and impact magnitude (low) identified above, the effect on static gear fisheries in respect of interference with fishing activities is considered to be **minor** and therefore **not significant**.

Mobile Gear Fisheries

Appropriate liaison would be undertaken with fisheries stakeholders to ensure that they are informed of the nature, timing and location of installation activities associated with the Marine Scheme. This will include provisions for enabling fishermen's awareness of project vessels operations. In addition, transiting project vessels will fully comply as required under the International Regulations for Preventing Collisions at Sea (COLREGS). Such compliance would negate the requirement for fishing vessels engaged in fishing to alter course or pose any risk to gear being towed. In addition, as noted in Section 14.6.1, a Code of Good Practice for contracted vessels will be produced, as part of the FLCP developed for the Marine Scheme. The sensitivity of the receptor is therefore considered to be low.

The impact will be localised, short term and intermitted in nature and a range of fisheries liaison and management measures will be implemented. The magnitude of the impact is therefore, considered to be low.

Taking account of the receptor sensitivity (low) and impact magnitude (low) identified above the effect on mobile gear fisheries in respect of interference with fishing activities is considered to be of **negligible** significance, which is considered to be **not significant**.

14.6.2.4 Snagging risk – loss or damage to fishing gear

Given below is an appraisal of snagging risk and potential associated damage or loss of fishing gear as a result of the Marine Scheme and seabed obstacles which may arise during the Installation Phase activities (e.g., accidentally dropped objects). This could have economic implications for fishermen as a result of the cost of gear repairs/replacement and of loss of fishing time. Safety implications associated with snagging risk are assessed separately under Chapter 15; Shipping and Navigation.

All Fisheries

During Installation Phase activities, the potential presence of sections of offshore cables temporarily awaiting trenching or protection as well as seabed obstacles, which may arise as a result of installation works may pose a snagging risk.

In the event that fishing gear snags with a cable or a seabed obstacle, it is likely for the gear to be damaged or lost. As such, all fisheries are considered to have limited adaptability to the potential impact. The sensitivity of the receptor is therefore considered to be medium.

A number of liaison and management measures will be implemented to ensure that snagging risk and loss or damage to fishing gear is minimised and mitigated appropriately. This will include the circulation of Notice(s) to Mariners (including Kingfisher Bulletins), Radio Navigational Warnings, NAVTEX and/or broadcast warnings and direct engagement via FLO as appropriate prior to the commencement of and during installation works, including on the location of RCZs. In addition, guard vessels will be used during Installation Phase activities, as appropriate. A procedure for the claim of loss of/or damage to fishing gear will also be developed, as part of the FLCP developed for the Marine Scheme.

Additionally, the duration between cable laying and associated trenching and protection works will be minimised insofar as is practicable, in order to minimise the period when exposed cables are present on the seabed (see Chapter 13: Shipping and Navigation). All contractors undertaking works will comply with offshore policies and legislation, including those that prohibit the discarding of objects or material overboard and that require the recovery of accidentally dropped objects, where possible. Provisions for the measures above will be included in the FLCP which will be produced for the Marine Scheme.

The impact is predicted to be small in extent (being localised around the immediate footprint of cables and seabed obstacles) and of short to medium term duration (limited to the Installation Phase). In addition, a range of fisheries liaison and management measures will be implemented. The magnitude of the impact is therefore considered to be low.

Taking account of the receptor sensitivity (medium) and impact magnitude (low) identified above, the effect on all fisheries in respect of snagging risk and associated loss or damage to fishing gear is considered to be **minor** and therefore **not significant**.

14.6.2.5 Impacts on commercial fishing as a result of impacts on the ecology of commercial species

There is potential for the installation phase of the Marine Scheme to result in impacts on commercially exploited fish and shellfish species. This could in turn indirectly affect the productivity of the fisheries that depend on them.

The potential impacts of the Installation Phase on fish and shellfish species, including those of commercial importance, are appraised in Chapter 9: Fish and Shellfish Ecology including consideration of the following:

- Temporary physical disturbance to fish and shellfish habitat
- Permanent loss of fish and shellfish due to placement of hard substrates on the seabed
- Temporary increase in suspended sediment concentrations (SSC) and sediment deposition leading to contaminant mobilisation, turbidity and smothering effects on fish and shellfish.
- Reduction in marine water quality

- Underwater sound effects on fish and shellfish; and
- Accidental leaks and spills from vessels, including loss of fuel oils.

The appraisal presented in Chapter 9: Fish and Shellfish Ecology did not identify any impacts above minor significance on fish and shellfish species. Consequently, any impacts associated with this on the commercial fisheries that target them are also expected to not exceed minor significance.

14.6.3 Operation and Maintenance Phase

The worst-case scenario with regard to the Operation and Maintenance Phase is represented by an operational life of the Marine Scheme of approximately 40 years, although this may be extended depending on the condition of the subsea infrastructure (discussed further in Chapter 2: Project Description). Cables will be trenched to a minimum Depth of Lowering (DOL) of approximately 0.6 m and a target DOL of approximately 1.5 m. External cable protection such as rock berms will be used where the minimum DOL cannot be achieved, for instance as a result of ground conditions (shallow sediments) or at crossings with third-party infrastructure. Up to approximately 154 km of rock berm is anticipated to be required for the protection of cables, including crossings.

Sections of the Marine Installation Corridor within which the use of rock placement may be required are illustrated in Figure 14-48.

14.6.3.1 Long-term loss of grounds or restricted access to fishing grounds

NGET and SHE Transmission cannot condone demersal fishing taking place over the proposed submarine cables, due to the potential risks posed to both vessel operators and the cables. It is therefore advised that vessel operators follow the longstanding maritime guidance regarding the avoidance of demersal trawling (and anchoring) in the vicinity of subsea cables. Specifically, this guidance includes the Mariner's Handbook (P100) 12th Edition (UKHO, 2020), all Admiralty charts, and the recent Marine Guidance Note (MGN) 661 published by the Maritime and Coastguard Agency (MCA).

It is however recognised that some fishing may still occur over our assets, either inadvertently or at the discretion of individual vessel operators, acknowledging that there is not a statutory exclusion zone. As such, and as detailed in Chapter 2: Project Description, the submarine cables will be suitably designed and protected to reduce the risk of them being damaged by fishing activity, as far as is practicable. This shall be through trenching in the first instance, or where the minimum target DOL cannot be achieved, additional external protection, including rock placement. Where it is necessary to apply rock berms or other external protection, these shall be designed in accordance with best-practice and industry guidance to minimise snagging risks in so far as practicable.

As built surveys of the cables will be conducted, and their positions (including locations of external protection) will be reported to the UKHO and Kingfisher for inclusion on Admiralty and KIS-ORCA charts. These details, including the locations, nature and extent of rock berms shall also be shared with relevant fisheries stakeholders. As such vessel operators will be informed as to the locations of the subsea assets.

During the Operation and Maintenance Phase, the introduction of hard substrate associated with the installation of cable protection may result in a long-term loss of fishing grounds. Although limited, localised maintenance activities which may be required during the Operation and Maintenance Phase could also result in a short-term discrete loss of access to fishing grounds, as a result of the need to implement temporary 500 m RCZs around vessels. Similarly, there may be additional temporary loss of fishing grounds at discrete locations where cables may be vulnerable at a given time (i.e., in the event that discrete sections of cables become exposed during the Operation and Maintenance Phase).

As described in Section14.6.1, a number of embedded mitigation measures have been proposed to minimise impacts on commercial fishing. The following are of specific relevance to minimising disturbance to fishing during the Operation and Maintenance Phase and are given consideration in the assessment of long-term loss of fishing grounds presented below:

- Timely and efficient distribution of Notice(s) to Mariners (including Kingfisher Bulletins), Radio Navigational Warning, NAVTEX and/or broadcast warning as appropriate;

- Cables will be trenched to a target depth of lowering of 1.5 m and a minimum depth of lowering of 0.6 m. The use of external cable protection will be limited to areas where cables cannot be trenched to a sufficient depth and at crossings with third-party infrastructure;
- As-built locations of cables and associated external protection will be supplied to UKHO and Kingfisher for inclusion in Admiralty and KIS-ORCA charts;
- As built details, including the locations, nature and extent of rock berms shall also be shared with relevant fisheries stakeholders;
- Berms will be designed to reduce snagging risk in so far as is practicable, with 1:3 slopes and flat crests in line with industry guidance; and
- Undertaking of interim and as-built surveys to confirm the trenching status of the cables, identify potential seabed hazards associated with installation, and, where appropriate and practicable, undertaking of rectification works.

Potters/Creelers -Lobster and Crab Fishery

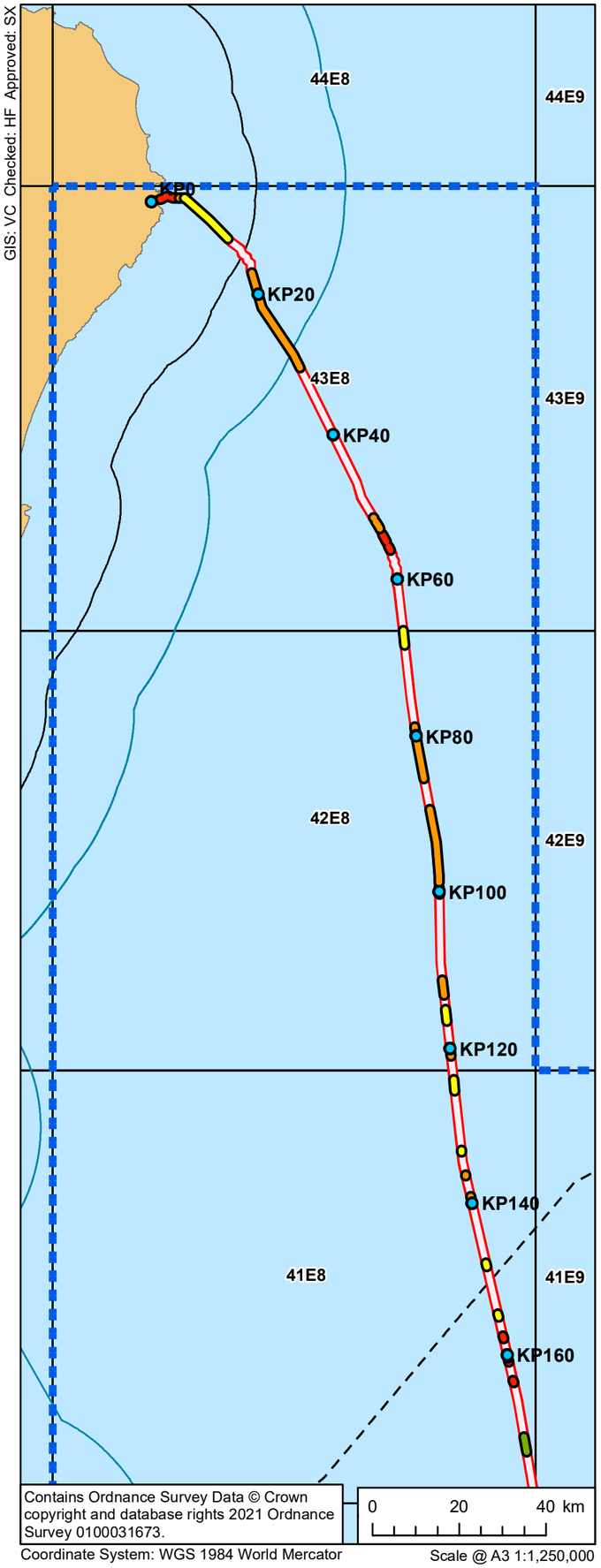
The sensitivity of potters/creelers to loss of fishing grounds during the Operation and Maintenance Phase is as previously described for the Installation Phase, medium (Section 14.6.2.1).

Any potential loss of grounds to creelers/potters during the Operation and Maintenance Phase would be very small, being limited to potential loss of access to fishing areas associated with the presence of RCZ around vessels undertaking maintenance work or around vulnerable sections of cables. Given the static nature of the gear used by potters/creelers, the presence of cable protection would not result in a material loss of grounds to this fishery.

The impact may occur over the Operation and Maintenance Phase, but it would be short term and intermittent at given locations where RCZs are in place at a given time. In addition, as outlined above (Section 14.6.3.1), a range of fisheries liaison and management measures will be implemented. The impact is therefore considered to be of negligible magnitude.

Taking account of the receptor sensitivity (medium) and impact magnitude (negligible) identified above the effect on creelers/potters in respect of long-term loss of fishing grounds is considered to be **negligible** and therefore **not significant**.

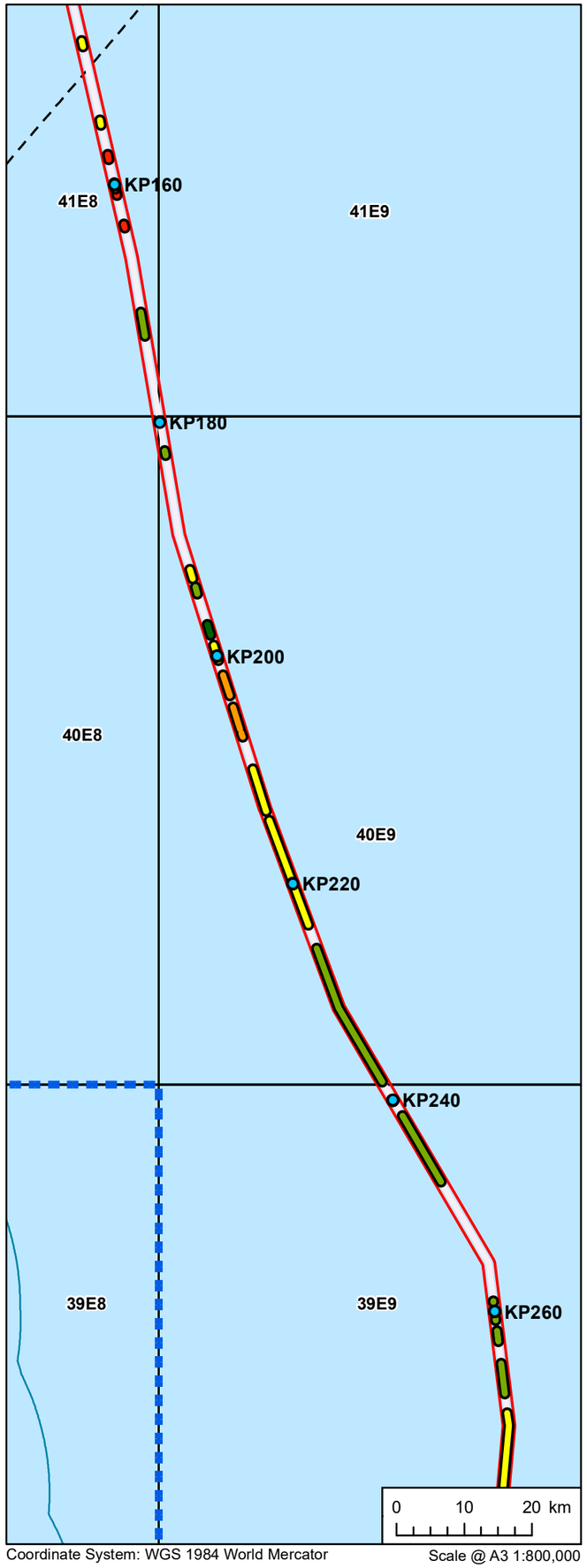
GIS: VC Checked: HF Approved: SX



Contains Ordnance Survey Data © Crown copyright and database rights 2021 Ordnance Survey 0100031673.

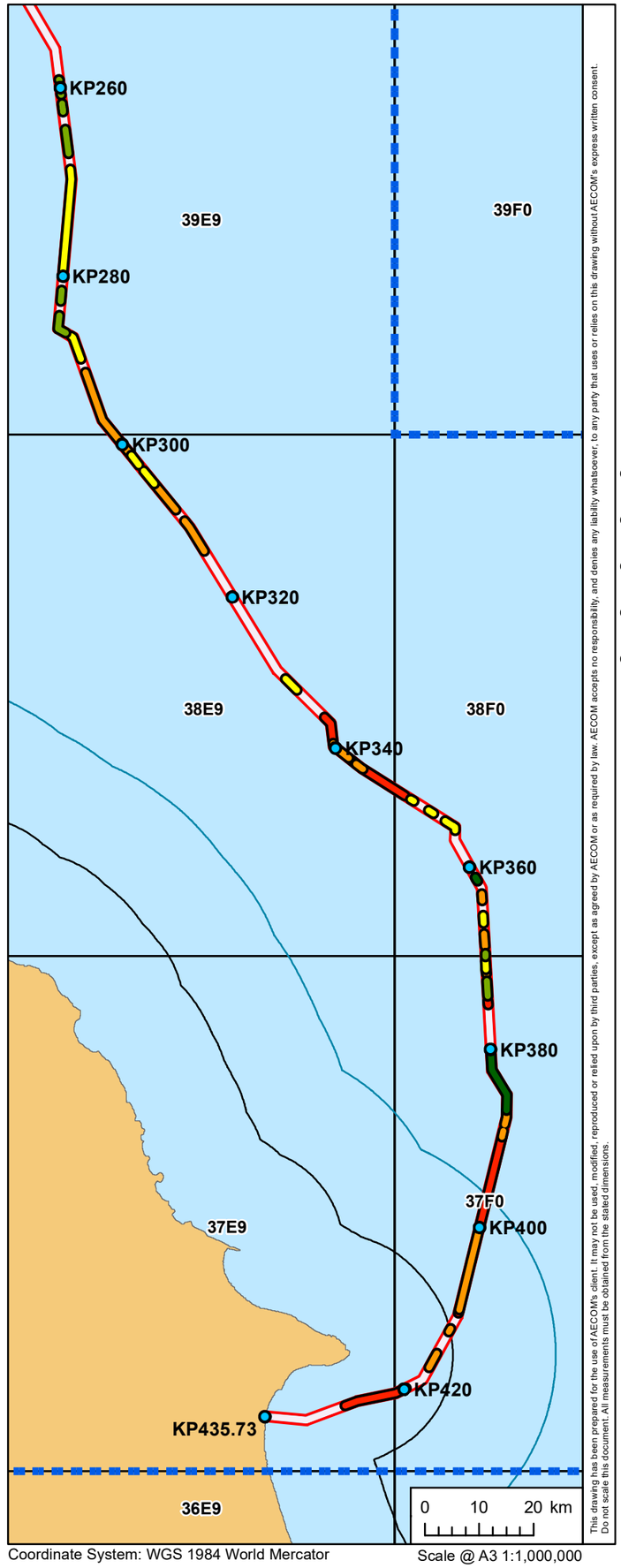
Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:1,250,000



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:800,000



Coordinate System: WGS 1984 World Mercator

Scale @ A3 1:1,000,000

nationalgrid

Scottish & Southern Electricity Networks

PROJECT

Eastern Green Link 2

KEY

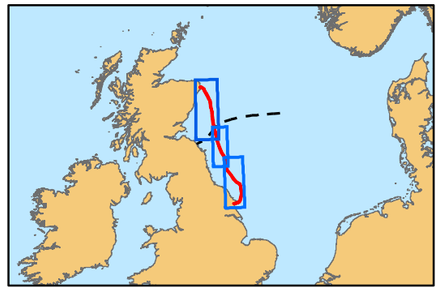
- Marine Installation Corridor
- Study Area
- ICES Rectangles
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit

Rock placement categories

- Contingency
- Cat 1: rock placement may be required for 3% of the length of this zone
- Cat 2: rock placement may be required for 25% of the length of this zone
- Cat 3: rock placement may be required for 50% of the length of this zone
- Cat 4: rock placement may be required for 75% of the length of this zone
- Cat 5: rock placement may be required for 100% of the length of this zone

NOTES;

-



TITLE

Figure 14-48
Rock Placement

REFERENCE

AEC_SEGL2-02-EA-045

SHEET NUMBER

1 of 1

DATE

19/05/2022

Dredgers – Scallop Fishery

The sensitivity of scallop dredgers to loss of fishing grounds during the Operation and Maintenance Phase is as previously described for the Installation Phase is medium (Section 14.6.2.1).

Loss of grounds to scallop dredgers associated with the presence of cable protection will be long term (over the operational life of the project) whilst loss of access associated with the presence of RCZ around vessels undertaking maintenance work or around vulnerable sections of the cables would be short term and intermittent at a given location. In all cases, however, the loss of grounds would be localised, being limited to discrete areas around the immediate vicinity of the cables (see Figure 14-48) and/or advisory safety zones. In addition, a number of management measures will be implemented to minimise potential loss of access to fishing grounds during operation (Section 14.6.1).

The impact will be long term but will occur over a relatively small area in the context of the overall grounds available to scallop dredgers. In addition, as outlined above (Section 14.6.3.1), a range of fisheries liaison and management measures will be implemented. The impact is therefore considered to be of low magnitude.

Taking account of the receptor sensitivity (medium) and impact magnitude (low) identified above the effect on scallop dredgers in respect of long-term loss of fishing grounds is considered to be **minor** and therefore **not significant**.

Demersal Trawlers – Nephrops, Squid and Whitefish Fisheries

The sensitivity of demersal trawlers to loss of fishing grounds during the Operation and Maintenance Phase is as previously described for the Installation Phase is low (Section 14.6.2.1).

Loss of grounds to demersal trawlers associated with the presence of cable protection will be long term (over the operational life of the Marine Scheme) whilst loss of access associated with the presence of RCZs around vessels undertaking maintenance work or around vulnerable sections of the cables would be short term and intermittent at a given location. In all cases, however, the loss of grounds would be localised, being limited to discrete areas around cable protection and/or advisory safety zones.

The impact will be long term but will occur over a small area in the context of the extent and distribution grounds available to demersal trawlers. In addition, a range of fisheries liaison and management measures will be implemented, as outlined above (Section 14.6.3.1). The impact is therefore considered to be of low magnitude.

Taking account of the receptor sensitivity (low) and impact magnitude (low) identified above the effect on demersal trawlers in respect of long-term loss or access to fishing grounds is considered to be **negligible** and therefore **not significant**.

Pelagic Trawlers – Herring Fishery

The sensitivity of pelagic trawlers to loss of fishing grounds during the Operation and Maintenance Phase is as previously described for the Installation Phase is low (Section 14.6.2.1).

Any potential loss of grounds to pelagic trawlers during the Operation and Maintenance Phase would be very small being limited to potential loss of access to fishing areas associated with the presence of RCZs around vessels undertaking maintenance work or around vulnerable sections of cables. Given that pelagic gear is towed mid-water with no seabed contact, the presence of cables and associated protection would not result in a material loss of grounds to this fishery.

The impact may occur over the Operation and Maintenance Phase but it would be short term and intermittent at given locations where RCZs are in place at a given time. In addition, as outlined above (Section 14.6.3.1), a range of management measures will be implemented to minimise potential loss of access to fishing grounds during operation. The impact is therefore considered to be of negligible magnitude.

Taking account of the receptor sensitivity (low) and impact magnitude (negligible) identified above the effect on pelagic trawlers in respect of long-term loss of fishing grounds is considered to be **negligible** and therefore **not significant**.

14.6.3.2 Displacement of fishing activity into other areas

The Operation and Maintenance Phase of the Marine Scheme has potential to result in a long-term loss of fishing grounds as a result of the presence of cable protection and the potential need to implement discrete temporary RCZs around maintenance works or around section of cables that may be vulnerable. This could in turn result in a displacement of fishing activity into other areas.

As previously mentioned in respect of the Installation Phase (Section 14.6.2.2), for vessels that deploy static gear, there could be potential for conflicts associated with displacement effects to arise whereby gear that has to be temporarily removed, is relocated into grounds where other static gear vessels or mobile gear vessels operate. Similarly, vessels which operate mobile gears may be displaced to grounds where other mobile gear vessels operate, also increasing conflict and competition for fishing grounds.

Whilst it is difficult to predict where fishing activity may be displaced to and how this may affect individual vessels, in all cases, the level of displacement would be a function of the extent of loss or restricted access to fishing grounds. It is therefore considered that the magnitude of impact, sensitivity of the receptor and resulting significance of effect in respect of displacement would, at worst, be as identified in relation to loss of grounds or restricted access to fishing grounds.

The findings of the appraisal with regards to loss or restricted access to fishing grounds during operation and maintenance also apply in relation to displacement of fishing activity and are as summarised in Table 14-6.

Table 14-6: Appraisal of the Impact of Displacement of Fishing Activities into Other Areas During Operation

Receptor	Magnitude of Impact	Sensitivity of Receptor	Impact Significance
Potters/creelers	Negligible	Medium	Negligible
Scallop dredgers	Low	Medium	Minor
Demersal trawlers	Low	Low	Negligible
Pelagic trawlers	Negligible	Low	Negligible

14.6.3.3 Snagging risk – loss or damage to fishing gear

Given below is an appraisal of snagging risk and potential associated damage or loss of fishing gear as a result of the Operation and Maintenance Phase of the Marine Scheme. This could have economic implications for fishermen as a result of the cost of gear repairs/replacement and of loss of fishing time. Safety implications associated with snagging risk are assessed separately under Chapter 15: Shipping and Navigation.

All Fisheries

The sensitivity of all fisheries to snagging risk and associated loss or damage to fishing gear is considered to be as described above for the Installation Phase (Section 14.6.2.4) as medium.

During the Operation and Maintenance Phase the presence of cable protection and of vulnerable sections of cable (i.e., in the event that discrete areas of trenched cable become exposed during operation) may pose a snagging risk to fishing gear.

A number of liaison and management measures will be implemented to ensure that snagging risk and loss or damage to fishing gear is minimised and mitigated appropriately. As described in Section 14.6.1, information on the areas where cable protection is used, location, extent and nature will be shared with fisheries stakeholders. Where rock placement is used for cable protection this will be designed to minimise potential gear snagging risk (i.e., use of graded rock and 1:3 berm profiles with flat crests). In addition, post-lay and cable trenching inspection surveys will be undertaken to confirm the trenching status of the cables, identify potential seabed hazards associated with installation, and, where appropriate and practicable, remediation works will be undertaken. In the event that cable exposures

are identified during the Operation and Maintenance Phase of the Marine Scheme, the location of these will be shared with fisheries stakeholders and where appropriate, additional temporary measures put in place (e.g., marker buoys, use of guard vessels, etc), until a repair or remediation can be implemented. Additionally, the Marine Scheme will implement a procedure for the claim of loss of/or damage to fishing gear. Provisions for the measures above will be included in the FLCP which will be produced for the Marine Scheme.

The impact will be long-term in duration but is predicted to be small in extent (being localised around the immediate footprint of cable protection and discrete areas where cables may become exposed) and a range of fisheries liaison and management measures will be implemented. The magnitude is therefore considered to be low.

Taking account of the receptor sensitivity (medium) and impact magnitude (low) identified above the effect in respect of snagging risk and associated loss or damage to fishing gear is considered to be **minor** and therefore **not significant**.

14.6.3.4 Impacts on fishing as a result of impacts on the ecology of commercial species

There is potential for the Operation and Maintenance Phase of the Marine Scheme to result in impacts on commercially exploited fish and shellfish species. This could in turn indirectly affect the productivity of the fisheries that depend on them.

The potential impacts of the Installation Phase on fish and shellfish species, including those of commercial importance, are appraised in Chapter 9: Fish and Shellfish Ecology including consideration of the following:

- Potential effects on fish and shellfish due to subsea cable electromagnetic (EMF) emissions;
- Potential effects on fish and shellfish due to subsea cable thermal emissions; and
- Maintenance and cable repair effects.

The appraisal presented in Chapter 9: Fish and Shellfish Ecology did not identify any impacts above minor significance on fish and shellfish species. Consequently, any impacts associated with this on the commercial fisheries that target them are also expected to not exceed minor significance.

14.6.4 Decommissioning Phase

At the end of the operational life of the cable the options for decommissioning will be evaluated and taking into consideration other Project constraints (e.g., safety and liability), the least environmentally damaging option would be chosen if possible.

Should full removal from the seabed be required, this would have the potential to cause similar impacts to the Installation Phase of the Marine Scheme (Section 14.6.2).

As such, the impacts identified in the appraisal undertaken in respect of the Installation Phase are considered to also apply to decommissioning activities.

As described in Chapter 2: Project Description, prior to decommissioning, a contingency plan will be developed for resolving the potential issue of cables becoming exposed post-decommissioning should it be determined for the sections of the cables to remain *in-situ*. Once operations are complete, the route would be surveyed to ensure that all cable had been removed, it is considered likely that any concrete mattresses or rock placement materials would be left in situ.

If cables are left in situ, this would result in a permanent loss of fishing grounds, associated displacement and a snagging risk similar to that identified for the Operation and Maintenance Phase. Therefore, the impacts identified in the appraisal undertaken in respect of the Operation and Maintenance Phase with regard to loss of fishing grounds, associated displacement and snagging risk are considered to also apply in the event that cables are left *in situ*.

14.7 Mitigation and Monitoring

In general terms the appraisal of the impact of the Marine Scheme on commercial fisheries receptors identified impacts not exceeding minor significance and therefore additional mitigation, beyond the embedded mitigation proposed in Section 14.6.1, is not considered necessary.

An exception to this is the impact of temporary loss of fishing grounds and associated displacement during the Installation Phase for potters/creelers for which a medium receptor sensitivity and medium impact magnitude, and therefore a moderate impact significance, was identified. As noted in Section 14.6.2.1, it is recognised that in some instances the removal or relocation of static gear may be required during the Installation Phase.

Where this is the case, appropriate mitigation will be implemented for affected vessels following an evidence-based approach, in line with FLOWW guidance, via the establishment of co-operation agreements, which will reduce the significance of the effect to **minor**, which is considered to be **not significant**.

No specific monitoring with regard to commercial fishing has been proposed.

14.8 Residual Impacts

The appraisal of the impacts of the Marine Scheme on commercial fisheries receptors identified residual effects not exceeding “minor” significance for the Installation, Operation and Maintenance and Decommissioning Phases.

14.9 Summary of Appraisal

Table 14-7: Summary of Environmental Appraisal

Project Phase	Potential Impact	Receptor	Sensitivity	Magnitude	Significance	Project Specific Mitigation	Magnitude after Mitigation	Significance of Residual Effect
Installation	Temporary loss or restricted access to fishing grounds	Potters/Creelers	Medium	Medium	Moderate	Where the removal or relocation of static gear may be required during the installation phase, appropriate mitigation will be implemented for affected vessels following an evidence-based approach, in line with FLOWW guidance, via the establishment of co-operation agreements.	Low	Not significant
		Scallop dredgers	Medium	Low	Medium	No additional project specific mitigation is required.	Low	Not significant
		Demersal trawlers	Low	Low	Negligible	No additional project specific mitigation is required.	Low	Not significant
		Pelagic trawlers	Low	Low	Negligible	No additional project specific mitigation is required.	Low	Not significant
	Displacement of fishing activity into other areas	Potters/Creelers	Medium	Medium	Moderate	Where the removal or relocation of static gear may be required during the installation phase, appropriate mitigation will be implemented for affected vessels following an evidence-based approach, in line with FLOWW guidance, via the establishment of co-operation agreements.	Low	Not significant
		Scallop dredgers	Medium	Low	Minor	No additional project specific mitigation is required.	Low	Not significant
		Demersal trawlers	Low	Low	Negligible	No additional project specific mitigation is required.	Low	Not significant
		Pelagic trawlers	Low	Low	Negligible	No additional project specific mitigation is required.	Low	Not significant
	Interference with fishing activities	Static gear	Medium	Low	Minor	No additional project specific mitigation is required.	Low	Not significant

Project Phase	Potential Impact	Receptor	Sensitivity	Magnitude	Significance	Project Specific Mitigation	Magnitude after Mitigation	Significance of Residual Effect
		Mobile gear	Low	Low	Negligible	No additional project specific mitigation is required.	Low	Not significant
	Snagging risk – loss or damage to fishing gears	All fisheries	Medium	Low	Minor	No additional project specific mitigation is required.	Low	Not significant
	Potential impacts on commercial fishing as a result of impacts on target species	All fisheries	See Chapter 9: Fish and Shellfish Ecology					
Operation and Maintenance	Long-term loss of grounds or restricted access to fishing grounds	Potters/Creelers	Medium	Negligible	Negligible	No additional project specific mitigation is required.	Negligible	Not significant
		Scallop dredgers	Medium	Low	Minor	No additional project specific mitigation is required.	Low	Not significant
		Demersal trawlers	Low	Low	Negligible	No additional project specific mitigation is required.	Low	Not significant
		Pelagic trawlers	Low	Low	Negligible	No additional project specific mitigation is required.	Low	Not significant
	Displacement of fishing activity into other areas	Potters/Creelers	Medium	Negligible	Negligible	No additional project specific mitigation is required.	Negligible	Not significant
		Scallop dredgers	Medium	Low	Minor	No additional project specific mitigation is required.	Low	Not significant
		Demersal trawlers	Low	Low	Negligible	No additional project specific mitigation is required.	Low	Not significant
		Pelagic trawlers	Low	Negligible	Negligible	No additional project specific mitigation is required.	Negligible	Not significant
	Snagging risk – loss or damage to fishing gears	All fisheries	Medium	Low	Minor	No additional project specific mitigation is required.	Low	Not significant

Project Phase	Potential Impact	Receptor	Sensitivity	Magnitude	Significance	Project Specific Mitigation	Magnitude after Mitigation	Significance of Residual Effect
	Potential impacts on commercial fishing as a result of impacts on target species	All fisheries	See Chapter 9: Fish and Shellfish Ecology					
Decommissioning	Full removal: As above for the Installation Phase Cables left in situ: As above for the Operation and Maintenance Phase							

14.10 References

All Party Parlamentary Group on Fisheries, 2020. *Who's Who in UK Fisheries Management..* [Online]
Available at: https://www.fisheriesappg.org/blog/2020/8/11/whos-who-in-uk-fisheries-management
[Accessed Aug 2021].
Bailey, M. C., Polunin, N. C. & Hawkins, A. D., 2012. *A sustainable Fishing Plan for the Farn Deeps Nephrops fishery,* s.l.: Marine Management Organisation.
Benthic Solutions, 2022. *Eastern Link Marine Survey - Lot2. Final Environmental Baseline & Habitat Assessment Survey Report (Volume 5)..* s.l.:s.n.
Blythe-Skyrme, R. E., 2010. *Options and opportunities for marine fisheries mitigation associated with windfarms,* London: Final report for COWRIE. Env contract FISHMITIG09.
Brown & May Marine Ltd, 2021. *An overview of Scottish fisheries prepared for the floating offshore wind industry,* s.l.: ORE Catapult.
Cappell, R., Huntington, T., Nimmo, F. & McNab, S., 2018. *UK scallop fishery: current trends, future management options and recommendations,* s.l.: Poseidon Aquatic Resource Management Ltd.
CIEEM, 2018. *Guidelines for Ecological Impact Assessment in UK annd Ireland: Terrestrial, Freshwater, Coastal and Marine,* s.l.: UK Charter Institute of Ecology and Environmental Management.
Consultation Meeting, 1/12/2021. *Consultation Meeting with NEIFCA.* s.l.:s.n.
Consultation Meeting, 11/11/2021. *Consultation meeting with NFFO.* s.l.:s.n.
Consultation Meeting, 2/11/2021. *Consultation Meeting with SFF and SWFPA.* s.l.:s.n.
Consultation Meeting, 9/11/2021. *Consultation Meeting with N&EC RIFG.* s.l.:s.n.
Coull, K. A., Johnstone, R. & Rogers, S. I., 1998. *Fisheries Sensitivity Maps in British Waters,* s.l.: UKOOA.
Department for Environment, Food and Rural Affairs (DEFRA), 2021. *North East Inshore and North East Offshore Marine Plan,* London: s.n.
Department for Environment, Food and Rural Affrairs, 2014. *East Inshore and East Offshore Marine Plans ,* s.l.: s.n.
Ellis, J. R. et al., 2012. *Spawning and nursery grounds of selected fish species in UK waters,* s.l.: CEFAS.
FLOWW, 2014. *Best Practice Guidance for Offshore Renewable Developments: Recommendations for Fisheries Liaison,* s.l.: s.n.
FLOWW, 2015. *Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Disruption Settlements and Community Funds ,* s.l.: s.n.
HM Government, 2020. *National Planning Practice Guidance: Environmental Impact Assessment.* [Online]
Available at: https://www.gov.uk/guidance/environmental-impact-assessment
[Accessed January 2021].
Howarth, L. M. & Stewart, D. B., 2014. *The Dredge Fishery for Scallops in the United Kingdom (UK); Effects on Marine Ecosystems and Proposals for Future Management.,* s.l.: University of York.
International Council for the Exploration of the Sea, 2021. *Greater North Sea Ecoregion - Fisheries overview, including mixed-fisheries considerations.* [Online]
Available at:
https://www.ices.dk/sites/pub/Publication%20Reports/Advice/2020/2020/FisheriesOverview_GreaterNorthSea_2020.pdf.
Kafas, A., McLay, A., Chimienti, M. & Gubbins, M., 2014. ScotMap Inshore Fisheries Mapping in Scotland: Recording Fishermen's Use of the Sea. *Scottish Marine and Freshwater Science,* 5(17), p. 32.
Marine Scotland Science, 2017. *Creel Fishing Effort Study,* s.l.: Scottish Government.
Maritime & Coastguard Agency, 2021. *MGN 661 (M+F) Navigation - safe and responsible anchoring and fishing practices.* [Online]
Available at: https://www.gov.uk/government/publications/mgn-661-mf-navigation-safe-and-responsible-anchoring-and-fishing-practices/mgn-661-mf-navigation-safe-and-responsible-anchoring-and-fishing-practices
MMO and Marine Scotland, 2011 - 2020. *Surveillance Sightings data,* s.l.: s.n.
MMO, 2010 - 2019. *UK Sea Fisheries Annual Statistics,* s.l.: s.n.
MMO, 2015 - 2019. *Fishing Activity for UK Vessels 15m and over,* s.l.: s.n.
MMO, 2015 - 2019. *Fishing Activity for UK Vessels 15m and over,* s.l.: s.n.

MMO, 2015 - 2019. *UK Sea Fisheries Annual Statistics,* s.l.: s.n.
MMO, 2020. *UK Sea Fisheries Statistics.* [Online]
Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1020837/UK_Sea_Fisheries_Statistics_2020_-_AC_checked.pdf
MMO, 2021. *UK Sea Fisheries Statistics Report 2020.* [Online]
Available at:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1020837/UK_Sea_Fisheries_Statistics_2020_-_AC_checked.pdf
MMO, 2021. *United Kindon Single Issuing Authority (UKSIA).* [Online]
Available at: https://www.gov.uk/guidance/united-kingdom-single-issuing-authority-uksia
Seafish, 2012. *Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments,* Lymington: Poseidon Aquatic Resource Management Ltd, Seafish, UKFEN.
Seafish, 2021a. *Demersal Rockhopper Trawl.* [Online]
Available at: https://www.seafish.org/responsible-sourcing/fishing-gear-database/gear/demersal-trawl-rockhopper-trawl/
Seafish, 2021b. *Demersal Trawl - General.* [Online]
Available at: https://www.seafish.org/responsible-sourcing/fishing-gear-database/gear/demersal-trawl-general/
Seafish, 2021c. *DRB - Scallop Dredge.* [Online]
Available at: https://www.seafish.org/responsible-sourcing/fishing-gear-database/gear/drb-scallop-dredge/.
Seafish, 2021d. *Pelagic Trawl.* [Online]
Available at: https://www.seafish.org/responsible-sourcing/fishing-gear-database/gear/pelagic-trawl/
Seafish, 2021e. *Pots and Traps - General.* [Online]
Available at: https://www.seafish.org/responsible-sourcing/fishing-gear-database/gear/pots-and-traps-general/
Seafish, 2021f. *Twin Rig Trawl - Nephrops.* [Online]
Available at: https://www.seafish.org/responsible-sourcing/fishing-gear-database/gear/twin-rig-trawl-nephrops/
Shelmerdine, R. L. & Mouat, B., 2021. *Mapping fisheries and habitats in the North and East Coast RIFG area,* s.l.: NAFC Marine Centre.
STECF, 2012 - 2016. *Fisheries-Dependent Information Data,* s.l.: s.n.
The Scottish Government, 2015. *Scotland's National Marine Plan - A Single Framework for Managing Our Seas,* Edinburgh: The Scottish Government.
UK Government, 2020. *New Plans to Make UK World Leader in Green Energy.* [Online]
Available at: https://www.gov.uk/government/news/new-plans-to-make-uk-world-leader-in-green-energy