



# Scotland England Green Link 1 / Eastern Link 1 - Marine Scheme

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Environmental Appraisal Report  
Volume 2

Chapter 14 - Commercial Fisheries

**nationalgrid**  **SP TRANSMISSION**

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## Executive Summary

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

The principal fishing activities of relevance to the Marine Scheme have been identified through analysis of available fisheries data and from information gathered during consultation with fisheries stakeholders and include the following:

- Potting / creeling for lobster and crab;
- Demersal trawling (predominantly for *Nephrops* and to a lesser extent squid); and
- Scallop dredging.

The commercial fisheries baseline is presented in Section 14.5 of this EAR chapter. In the study area, potting / creeling is predominantly undertaken by vessels under 10 m in length. These vessels tend to concentrate their activity in inshore areas within the 6 Nautical Miles (NM) limit, although some vessels target areas further offshore. During consultation, potting grounds were identified by fisheries stakeholders along various areas that overlap with the marine installation corridor, including in the following sections: KP 1 to KP 95; KP 97 to KP 117; KP 145 to 159 and KP 166 to KP 176.

The marine installation corridor also overlaps with a small section of the Firth of Forth and Farn Deep's *Nephrops* grounds (from KP 8 to KP 25 and from KP 120 to KP 167, respectively) which are targeted by demersal trawlers. Some of the Scottish demersal trawlers consulted reported squid as a secondary target species. Squid grounds were identified in areas between KP 1 and KP 63.

The analysis of fisheries data and information collected during consultation indicates that scallop dredging activity is undertaken at relatively low levels in areas of relevance to the Marine Scheme and that is predominantly carried out by nomadic vessels in transit between more productive fishing grounds. Albeit limited, some activity by scallop dredgers has been recorded in the areas of the cable installation corridor that overlap with International Council for the Exploration of the Sea (ICES) rectangles 40E7, 40E8 and 39E8 (between KP 1 and KP 119).

The appraisal presented in Section 14.6 of this EAR chapter includes consideration of the following potential effects on fishing as a result of the Marine Scheme:

- Loss or restricted access to fishing grounds (installation, operational and decommissioning phase);
- Displacement of fishing activity into other areas (installation, operational and decommissioning phase);
- Interference with fishing activities (installation and decommissioning phase);
- Snagging risk – loss or damage to fishing gear (installation, operational and decommissioning phase); and
- Impacts on fishing as a result of impacts on commercial species (installation, operational and decommissioning phase).

The appraisal takes account of the sensitivity of the fisheries receptors and the magnitude of each potential impact and considers embedded mitigation measures proposed and, where appropriate, project specific mitigation to minimise impacts on commercial fishing.

The appraisal concludes that residual effects during the installation, operation (including maintenance and repair) and decommissioning phases identified on commercial fisheries receptors are **negligible to minor** which is **not significant**.

The potential for interaction between the Project and other plans / projects to result in significant cumulative effects, is considered in Chapter 16: Cumulative and In-Combination Effects. No interaction is anticipated with the Scottish and English Onshore Schemes because there are no project activities associated in the marine environment due to the use of Horizontal Directional Drill (HDD) at the landfalls.

## 14. Commercial Fisheries

### 14.1 Introduction

This chapter of this Environmental Appraisal Report (EAR) presents the appraisal of the potential interaction of the Marine Scheme with commercial fisheries.

The Marine Scheme comprises the marine component of the Scotland England Green Link 1 (SEGL1) / Eastern Link 1 (EL1) and extends from Mean High Water Springs (MHWS) at the Scottish landfall on Thorntonloch beach, to MHWS at the English landfall near Seaham. It is located within both English and Scottish territorial waters, within the 12 NM limit from the coast. The Marine Scheme comprises an installation corridor of approximately 176 km length and 500 m maximum width within which cables will be installed (hereinafter referred to as the 'marine installation corridor'). The marine installation corridor extends from kilometre point (KP) 0, at its landfall in Scotland, to KP 176, at its landfall in England (See Figure 1-3). The Marine Scheme activities cover the following phases: installation, operation (including maintenance and repair), and decommissioning. Detailed descriptions of each of the Marine Scheme phases can be found in Chapter 2: Project Description.

The commercial fisheries baseline is presented in Section 14.5 of this EAR chapter.

The potential effects of the Marine Scheme on commercial fisheries have been appraised in Section 14.6. Where appropriate, proportionate measures to avoid, mitigate or compensate for any identified adverse effects are identified.

The potential for interaction between the Project and other plans/projects, which may result in significant cumulative effects, is considered in Chapter 16: Cumulative and In-Combination Effects.

This chapter should be read in conjunction with Chapter 9: Fish and Shellfish Ecology and Chapter 13: Shipping and Navigation.

This chapter is supported by Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders.

### 14.2 Legislative Context

This section outlines legislation, policy and guidance relevant to the appraisal of the potential effects on commercial fisheries associated with installation, operation (including maintenance and repair) and decommissioning of the Marine Scheme. For further information regarding the legislative context refer to Chapter 3: Legislative and Policy Framework.

A number of policies and regulations aim to assure that commercial fisheries are taken into account during the planning and execution of projects within UK waters. For the Marine Scheme these include the UK Marine Policy Statement (MPS) and the UK Marine Plans, specifically Scotland's National Marine Plan (Scottish Government, 2015), and the North East Inshore and North East Offshore Marine Plan<sup>1</sup> (HM Government, 2021) have a number of relevant policies specific to commercial fisheries which are presented in EAR Volume 3 Appendix 3.1: Marine Plan Compliance Checklist.

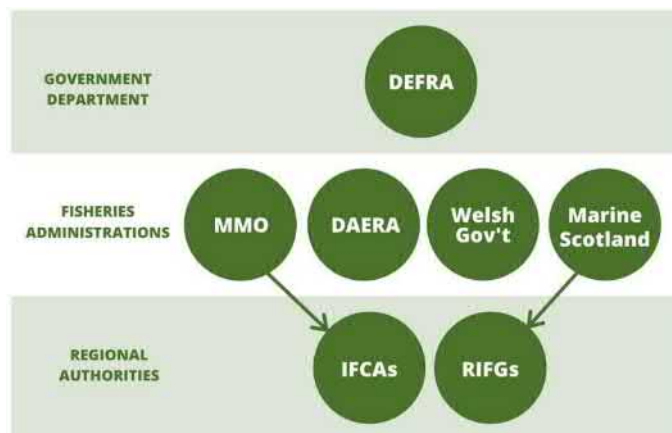
A number of policies and laws require decision makers to consider the environmental impacts of a project. Legislation and policy relevant to the appraisal of Marine Scheme's effects on commercial fisheries is presented in EAR Volume 3 Appendix 3.2: Topic Specific Legislation.

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<sup>1</sup> The Marine Scheme falls entirely within the UK territorial waters (i.e. 12 NM), therefore within the Inshore portion of the North East marine area. The marine plan for the North East area has combined both inshore and offshore portions.

## 14.2.1 Fisheries Management

As shown in Figure 14-1 a range of authorities and organisations are involved in fisheries management around the 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 Parliamentary Group on Fisheries, 2020)**

### 14.2.1.1 Territorial Waters (12 NM limit)

The whole extent of the Marine Scheme is located within territorial waters (within the 12 NM limit).

Fisheries management across all Scottish territorial waters (within 12 NM) is the responsibility of Marine Scotland.

In English waters within the 6 NM limit, fisheries are managed by Inshore Fisheries and Conservation Authorities (IFCAs) (see Section 14.2.1.3) whilst in waters between 6 NM and 12 NM, fisheries management is the responsibility of the Marine Management Organisation (MMO).

### 14.2.1.2 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 (N&EC RIFG). This extends from Durness on the north coast, down to Burnmouth on the east coast, by the border with England.

RIFGs are non-statutory bodies established in 2016 to improve the management of Scottish inshore fisheries out to the 6 NM limit. They replaced the earlier Inshore Fisheries Groups (IFGs). Marine Scotland 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 are key consultative groups for Scottish fisheries out to 6 NM (All Party Parliamentary Group on Fisheries, 2020).

### 14.2.1.3 English Inshore Waters

In English inshore waters, the Marine Scheme falls within the management areas of the following IFCAs:

- Northumberland IFCA (NIFCA), covering inshore waters out to 6 NM between the border with Scotland and the River Tyne; and
- North Eastern IFCA (NEIFCA), covering inshore waters out to 6 NM 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.

### 14.2.2 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 the 1 January 2021, the UK Single Issuing Authority (UKSIA) (as part of the MMO) manages fishing vessel licencing for foreign vessel access to UK waters 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 Exclusive Economic Zone (EEZ) (UK Government, 2021).

### 14.2.3 Guidance

The following best practice guidance has been considered throughout the appraisal insofar as relevant to the installation and operation of subsea 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);
- European Subsea Cables Association (ESCA) Position Statement on Vessels Operating in the Vicinity of Subsea Cables (European Subsea Cable Association, 2022); and
- National Planning Practice Guidance: Environmental Impact Assessment (HM Government, 2020).

## 14.3 Approach to Appraisal and Data Sources

### 14.3.1 Appraisal Methodology

This chapter applies the environmental appraisal methodology as detailed in Chapter 4: Approach to Environmental Appraisal. The identification and assessment of effects and mitigation are based on expert judgment and following relevant available guidance (Section 14.2.3).

The potential magnitude of environmental feature sensitivity and potential impacts have been appraised using similar terminology outlined in Chapter 4, and tailored with specific reference to aspects of relevance to commercial fishing, as set out 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.
  - Liaison and management: Range of fisheries liaison and management measures that are implemented.
- 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.
- Importance: The value of the fishery in areas around the Marine Scheme.

The determination of significance has been based on expert judgement, taking into account the factors listed above and guided by a standard impact assessment matrix (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 scoping report<sup>2</sup> identified aspects of the Marine Scheme that have the potential to impact commercial fisheries during the installation, operation, and decommissioning phases.

## 14.3.2 Data Sources and Consultations

### 14.3.2.1 Key Fisheries Data Sources

Baseline conditions have been established through a desktop review of published information and 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.

Landings statistics for 2020 are now available, however, data for this year is not considered representative of normal fishing activities due to the effect of the Covid-19 pandemic, particularly in the case of shellfisheries. As such, 2020 data has not been included within this appraisal.

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 over 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.

**Table 14-2: Key Fisheries Data Sources**

| Dataset   | Year        | Coverage   | Notes/Limitations   |
|---|-------------|--|---|
| Landings Data by International Council for the Exploration of the Sea (ICES) Rectangle, Marine Management | 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); live weight (value (£)). | Landings data have been analysed by value (£) and presented as an annual average for the period 2015-2019 by ICES rectangle.<br><br>In the case of scallops, to provide an indication of the cyclical nature of the |

<sup>2</sup> The non-statutory Scoping Report is publicly available on [https://marine.gov.scot/sites/default/files/segl\\_el1\\_marine\\_scoping\\_report\\_-\\_base\\_report\\_rev\\_2.0.pdf](https://marine.gov.scot/sites/default/files/segl_el1_marine_scoping_report_-_base_report_rev_2.0.pdf)

| Dataset  | Year                          | Coverage   | Notes/Limitations   |
|--|-------------------------------|--|---|
| Organisation (MMO)   |                               |  | fishery, data for a longer period (2000 to 2019) has been analysed.<br><br>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.  |
| 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.<br><br>Dataset available for all UK waters from the MMO up to 2018.<br><br>From 2018 onwards, data within Scottish waters is held by Marine Scotland. The data provides a good indication of key methods and nationalities potentially active in a given area. It should be noted, however 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 m and over Data layers (MMO)                                  | 2015 - 2019                   | Satellite tracking data (Vessel Monitoring System (VMS)) pings recorded in 0.05° by 0.05° grids from UK vessels in UK and European waters.<br><br>VMS data is combined with logbook 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.<br><br>Data has been analysed by value (£) and presented as an annual average for the period 2015-2019.<br><br>Fishing gear categories used in the dataset do not allow to distinguish activity between some fisheries. Data is provided by broad gear category regardless of target species.                                  |
| 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.<br><br>Key fisheries datasets used in the report include: VMS, AIS, ScotMap data (Kafas, et al., 2014), Creel effort study (Marine Scotland Science, 2017) | The Shelmerdine and Mouat (2021) study reviews a number of available fisheries data for areas of relevance to the N&EC RIFG (landings data, Automatic Identification System (AIS) data, VMS, ScotMap data, Creel Fishing Effort Study data, etc).<br>Fishing activity charts presented in Shelmerdine and Mouat (2021) have been included for fisheries of relevance to the Project, namely demersal trawling, creeling and scallop dredging.   |
| ScotMap – Inshore Fisheries Mapping Project in Scotland  | 2007 – 2011                   | Spatial information on the fishing activity of Scottish-registered commercial fishing vessels under 15 m in length.  | Monetary value (£) maps have been used to inform this report.<br>The information provided in this dataset is based on information gathered via interviews with a sample of fisheries stakeholders and therefore is not  |

| Dataset  | Year        | Coverage   | Notes/Limitations  |
|--|-------------|--|--|
| (Kafas, et al., 2014)  |             | The data were collected during face-to-face interviews with individual vessel owners and operators and relate to fishing activity for the period 2007 to 2011. Interviewees were asked to identify the areas in which they fish, and to provide associated information on their fishing vessel, species targeted, fishing gear used and income from fishing. | necessarily representative of the views of all stakeholders.<br>In addition, the data was collected between 2007 and 2011 and may therefore not be fully representative of current activities.   |
| 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 4km <sup>2</sup> .<br><br>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.<br><br>In addition, the data was collected between 2015 and 2017 and may therefore not be fully representative of current activities.  |
| Distribution of Potting / Creeling and Demersal Trawling Fishing Grounds                 | 2022        | Information on fishing rounds collected during consultation with local fisheries stakeholders (see Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).<br><br>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.<br><br>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.   |
| Northumberland Inshore Fisheries Conservation Authority (NIFCA) Vessel Sightings         | 2019        | Data collected by NIFCA sea patrol officers of sighted vessels in and in proximity to the NIFCA district during 2019.<br><br>Separated by gear type.   | The NIFCA patrol vessel is stationed in the south of the district and therefore the northern part of the district is not patrolled as frequently. The lack of sightings in the north of the district is not necessarily indicative of reduced fishing activity.<br><br>The NIFCA district extends out to the 6 NM limit and observations of fishing vessels by NIFCA patrol vessels are predominantly concentrated within the boundaries of the district. The lack of records in offshore areas is not necessarily indicative of a lack of fishing activity. |
| 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.<br><br>Fishing density data from 2011 – 2015 provided by gear type using a 1 km <sup>2</sup> grid.   | The NEIFCA district extends out to the 6 NM 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.  |

### 14.3.2.2 Summary of Consultations

Following submission of a non-statutory scoping report for consultation in 2021, 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 and is presented in Table 14-3.

Further details of the consultation process and associated responses are presented in Chapter 6: Consultation and Stakeholder Engagement.

In addition, engagement with developments in proximity of the marine installation corridor, including those which require crossing agreements or proximity agreements, was undertaken by the project team during design stage.

Detailed consultation was additionally undertaken with fisheries stakeholders to improve the understanding of the fisheries baseline in areas relevant to the Marine Scheme. The information gathered as part of this process is presented in detail in Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders.

**Table 14-3: Scoping Report Consultation**

| Consultee | Consultee response/comment summary  | How and where addressed   |
|-----------|---|---|
| MS-LOT    | Marine Scotland Science (MSS) note that the marine installation corridor runs through ICES rectangles 41E7 and 40E8 which are predominately <i>Nephrops</i> and scallop grounds. The peak spawning season for <i>Nephrops</i> is April to June (Coull et al. 1998). MSS recommend using landings data by ICES rectangle for the last five years to add strength to the assessment and identify any trends in the activity.                    | ICES rectangles 41E7 and 40E8 are both included within the study area used to describe commercial fishing activities, including the <i>Nephrops</i> fishery. Aspects relating to the ecology of fish and shellfish species, including spawning are addressed in Chapter 9: Fish and Shellfish Ecology. Landings data for a five-year period (2015 to 2019) have been used to form the basis of the commercial fisheries baseline. For scallop dredging, a longer period of data has been analysed (2010 -2019) to describe the cyclical nature of the fishery (generally 7-8 year cycles).  |
| MS-LOT    | MSS notes that Table 13-1 mentions that overtrawl-ability will be given consideration within the Environmental Appraisal. Over-trawl surveys will be important to test that the areas where there are cable protection measures (e.g. rock protection) in place are deemed as safe as possible for fishing to continue over. Over-trawl surveys should be carried out using local fishing vessels and the typical gear type used in the area. | As described in Section 14.6.1, a range of embedded mitigation measures will be implemented to minimise potential negative interactions between cables and fishing. Cables will be buried to a minimum depth of 0.6 m and a target depth of 1.5 m. Cable protection will only be installed at locations where sufficient burial cannot be achieved and at up to five cable crossings. Areas where cable protection is used will be charted and information on their location, extent and nature shared with fisheries stakeholders. In addition, where rock placement is used for cable protection this will be designed in line with recommendations from the fishing industry to minimise potential gear snagging risk (i.e. use of graded rock and 1:3 berm profiles). Furthermore, post-lay and cable burial inspection surveys to confirm the burial status of the cables and identify potential seabed hazards associated with installation will be carried out, and, where appropriate and practicable, rectification works would be undertaken, if required. In the event that cable exposures are identified during the operational 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. surface marker buoys, use of guard vessels, etc). |



| Consultee | Consultee response/comment summary  | How and where addressed   |
|-----------|---|---|
| MS-LOT    | MSS recommend including a decommissioning plan for the cable that includes a risk analysis and monitoring programme if cables are to be left in situ. Any cables left in situ have the potential to become exposed and cause a snagging risk for commercial fisheries.  | Approach to decommissioning is discussed in Chapter 2: Project Description.   |
| MS-LOT    | There are also a few typo errors to highlight. In section 13.4.2, the Scottish Fishing Industry representatives are Scottish Fishermen's Federation (SFF) not SFO and Scottish Whitefish Producers Association (SWFPA) not SWFP. Also Table 13-1 should be 'Potential impacts of the Project Marine Scheme to Commercial Fisheries' not Shipping and Navigation.  | Noted.  |
| SFF       | <p>Chapter 13 gets off to a very poor start by ignoring the place of the Inshore Fishery Group in the Scottish 37 km, which should have been a priority for the project.</p> <p>Then P69 describes the fleet in terms of AIS, which is quite unlikely to give a real picture of fishing activity in the area, as it is only recently that it has become mandatory for the smaller class of vessels, and there is no mention of Cockenzie &amp; Port Seton, which is bound to have activity in the area? The method in 13.4 is good, but given the amount of cables planned for the area, the CFLO should have access to all the necessary information for displacement to be scoped in. This seems to be covered in table 13-1. However the final section in the first part of the table about the possibility of employment is disingenuous to say the least, giving the impression that there will be work available, without clarifying the requirements that vessels have to match.</p> <p>The statements in the Cable operation and Maintenance about the potential effects of the cable on commercial fisheries should be scoped in and provision should be made for overtrawl trials to ensure fishing can safely resume, with a licence condition to ensure it.</p> | <p>As described in Section 14.6.1, a range of embedded mitigation measures will be implemented to minimise potential negative interactions between cables and fishing.</p> <p>Cables will be buried to a minimum depth of 0.6 m and a target depth of 1.5 m. Cable protection will only be installed at location where sufficient burial cannot be achieved and additionally at up to five cable crossings.</p> <p>Areas where cable protection is used will be charted and information on their location, extent and nature shared with fisheries stakeholders.</p> <p>Where rock placement is used for cable protection this will be designed in line with recommendations from the fishing industry to minimise potential gear snagging risk (i.e. use of graded rock and 1:3 berm profiles).</p> <p>Post-lay and cable burial inspection surveys to confirm the burial status of the cables and identify potential seabed hazards associated with installation will be carried out, and, where appropriate and practicable, rectification works will be undertaken.</p> <p>In the event that cable exposures are identified during the operational 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. surface marker buoys, use of guard vessels, etc.).</p> <p>Substantial embedded mitigation measures for rock placement design, survey and management are described above. Over trawl trials are not required and are not proposed.</p> |
| MMO       | 10.1. The report has identified that the works may lead to the following impacts on the commercial fisheries fleet: some temporary safety exclusion areas around installation vessels, there may be a potential requirement to move static gear, a direct loss or damage to fishing grounds from cable burial, loss or damage to habitat as a result of sediment disturbance and the potential for the commercial fishing fleet to be involved in guard boat work during cable installation. The report has identified that once in-situ, the project has the potential to permanently lead to change, or loss of, commercial fish habitat due to cable protection measures (rock protection), and cable protection measures may also alter   | Noted.  |

| Consultee | Consultee response/comment summary  | How and where addressed  |
|-----------|---|--|
|           | the seabed profile and trawlability. The MMO is content that the appropriate impact pathways have been identified in the scoping report and will be discussed in more detail in the Environmental Appraisal.  |  |
| MMO       | The limitations in the use of VMS data should be recognised when assessing the potential impacts to the inshore commercial fishing fleet. Inshore waters (inside the 6-nautical mile limit) are largely utilised by fishing vessels under 10m in length. Only vessels of 15m or over are required by law to have a VMS installed, which transmits data on vessel identification, position, course and speed. Therefore, VMS data will not necessarily provide an accurate account of fishing activity in inshore waters. It should also be recognised that for vessels of 10m and under, there is no statutory requirement for fishermen to declare their catches, although their landings must be recorded on sales notes provided by the registered buyers. Additional information such as gear type and areas fished may be added to the sales notes through knowledge of the vessel, discussions with the skipper, or it may be acquired using satellite position reports, sea surveillance work and enforcement inspections. The MMO recommend liaison with the North Eastern IFCA (NEIFCA) and Northumberland IFCA (NIFCA) for local information and data on fishing activity and landings in inshore waters relevant to the project. | <p>The limitation of available fisheries data, including in relation to VMS data and the under 10 m fleets, are fully acknowledged.</p> <p>Consultation has been undertaken with a broad range of fisheries stakeholders of relevance to the marine installation corridor. This has included direct consultation with the NEIFCA and NIFCA, amongst other organisations, as well as individual fishermen (see Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).</p> |
| MMO       | The report has identified that a number of commercially significant fish and shellfish species are present within the proposed site but has not provided specific details of these species at this stage. A list of species of commercial importance will need to be provided.  | The analysis of fisheries information provided in Section 14.5, includes information on key species of commercial importance in the study area. Aspects relating to the ecology of fish and shellfish species, including those commercially targeted, are covered in Chapter 9: Fish and Shellfish Ecology.  |
| MMO       | Consideration should be given to whether a Fisheries Liaison Officer (FLO) will be appointed for the project.   | <p>Engagement with the fishing industry is on-going and will continue throughout all phases of the Marine Scheme as appropriate.</p> <p>Significant engagement with the fishing industry through the FLO has already been undertaken to facilitate survey work in the past. FLO services will continue to be appointed during surveys and, cable installation work as appropriate.</p>   |
| MMO       | 10.5. Section 13.5 Identification of Potential Effects. There will need to be consideration of the potential impacts of cable exposure on commercial fishing activities   | Consideration has been given to potential impacts associated with cable exposures under the appraisal of loss of grounds and snagging risk during the operational phase (Sections 14.6.3.1 and 14.6.3.3).  |
| MS-LOT    | MSS agree with the potential impacts on fish and shellfish that have been scoped in and scoped out; however, MSS recommend that EMF is scoped in for both benthic invertebrates, in particular lobster, <i>Nephrops</i> and crab which are important commercial species for local fisheries, as well as for marine fish and elasmobranch species. MSS recommend that the applicant provides expected EMF emission levels for the cable  | <p>Chapter 9: Fish and Shellfish Ecology gives due consideration to the potential impact of EMFs associated with the Marine Scheme on fish and shellfish species, including invertebrates such as lobster, <i>Nephrops</i> and crab.</p> <p>Information on expected EMF levels is provided in Chapter 2: Project Description.</p>  |

| Consultee | Consultee response/comment summary  | How and where addressed  |
|-----------|---|--|
|           | and includes this in a model of EMF levels which will aid the assessment of potential EMF impacts on marine species. MSS agree with NatureScot in welcoming further consideration of this topic within the environmental appraisal and strategic monitoring.  |  |
| MS-LOT    | We are in broad agreement with the proposed approach for this chapter providing EMF (described in table 8-1 as a potential impact) is scoped back in at this stage as suggested above   | The potential impact of EMFs associated with the Marine Scheme on fish and shellfish species, including invertebrates such as lobster <i>Nephrops</i> and crab is assessed in Chapter 9: Fish and Shellfish Ecology.   |
| SFF       | Starting @ 2.1, in the description of the Marine Cable Route, the 5 bullet points from The Ground preparation through to decommissioning all have the potential to create huge impacts affecting particularly <i>Nephrops</i> & Scallop grounds so should be assessed.<br>Along the same lines, ref Chapter 6, the SFF remains concerned about any suspended sediment being around in <i>Nephrops</i> & Scallop grounds, particularly at spawning time. This is also referred to in Appendix B, but is obviously not considered as essential, but the SFF would expect to see it scoped in. | The potential impact of the Marine Scheme on fish and shellfish species, including consideration of spawning grounds, is assessed in detail in Chapter 9: Fish and Shellfish Ecology. Amongst other aspects this includes consideration of the potential impact of suspended sediment concentration and deposition associated with the installation of the cables. |
| MMO       | Fisheries:<br><br>8.1. Generally, the report has identified appropriate sources of evidence related to fisheries for use in the Environmental Appraisal.<br><br>8.2. The report has indicated the key fish species of importance in the vicinity of the cable route.<br><br>8.3. The report has indicated the fish spawning and nursery areas for a number of fish species along the cable route.<br><br>8.5. No fish species or groups of fish have been scoped out of the Environmental Appraisal, which the MMO support."  | Noted.   |
| MMO       | Shellfish:<br><br>9.1. All expected potential impacts in relation to shellfish have been identified in the report.<br><br>9.2. Evidence from previous surveys and existing data will be used to inform baseline characteristics. This is appropriate in instances where sufficient existing timely data are available. Landing statistics provide a reliable current baseline for commercial species present.<br><br>9.3. The MMO agree with the decision to scope out thermal emissions from   | Noted.   |

| Consultee | Consultee response/comment summary   | How and where addressed  |
|-----------|--|--|
|           | operational cables in relation to shellfish for subsequent assessments.  |  |
| MMO       | Shellfish:<br>9.4. It should be noted that the proposed cable route does run through known grounds where <i>Nephrops</i> are often targeted.                       | Consideration has been given in this chapter to the commercial importance of <i>Nephrops</i> and to the location of known <i>Nephrops</i> grounds in respect of the marine installation corridor.                                      |
| SFF       | In 14.2.2 regarding the other cables, there needs to be included Inchcape and Seagreen 1A, or there is no complete picture of the potentially compromised grounds. | Plans and projects included for cumulative appraisal in respect of commercial fishing are outlined in Chapter 16: Cumulative and In-Combination Effects. This includes reference to Inch Cape and Seagreen 1A, amongst other projects. |

## 14.4 The Study Area

The Marine Scheme is located within the 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.

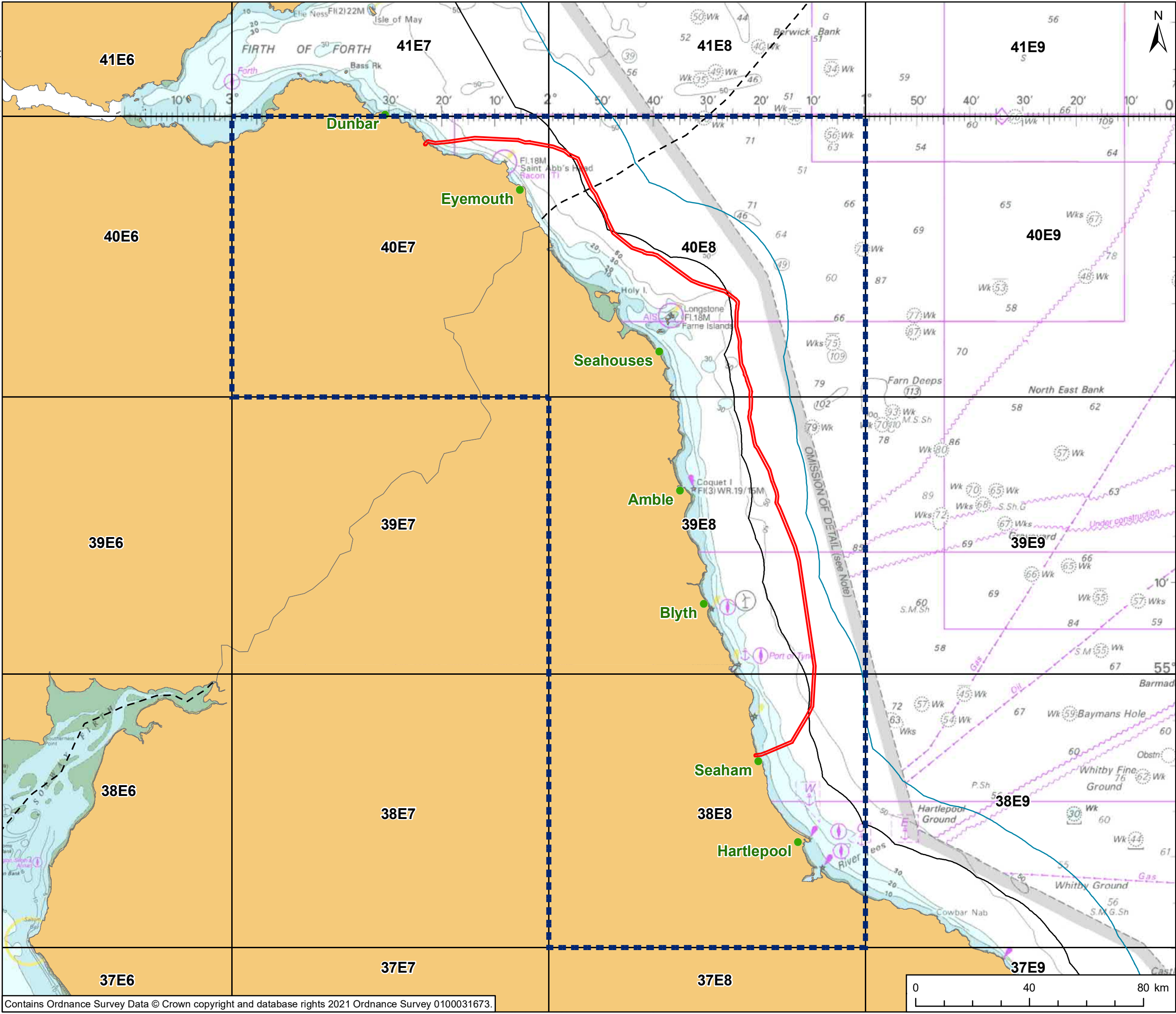
As shown in Figure 14-2, these are as follows:

- ICES rectangle 40E7: located in Scottish waters, encompasses the northern section of the marine installation corridor including the area around the Scottish landfall.
- ICES rectangle 40E8: encompasses a small section of the marine installation corridor in Scottish waters and part of the cable installation corridor in English waters; and
- ICES rectangles 39E8 and 38E8: located in English waters, cover the southern part of the marine installation corridor. ICES rectangle 38E8 includes the area around the English landfall.

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

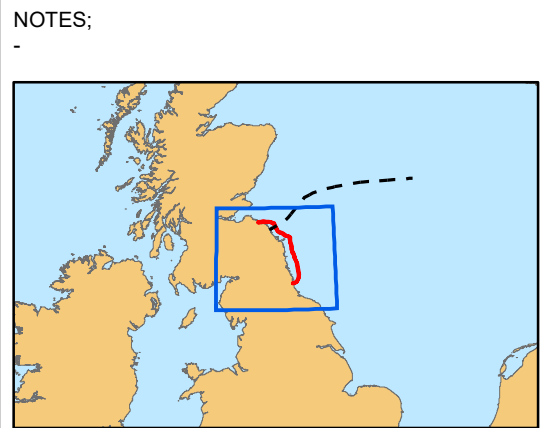


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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

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



TITLE  
**Figure 14-2 Study Area**

REFERENCE  
AEC\_SEGL1-02-EA-001

SHEET NUMBER  
1 of 1

DATE  
23/05/2022

## 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 and Figure 14-4, respectively, 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 14-4.

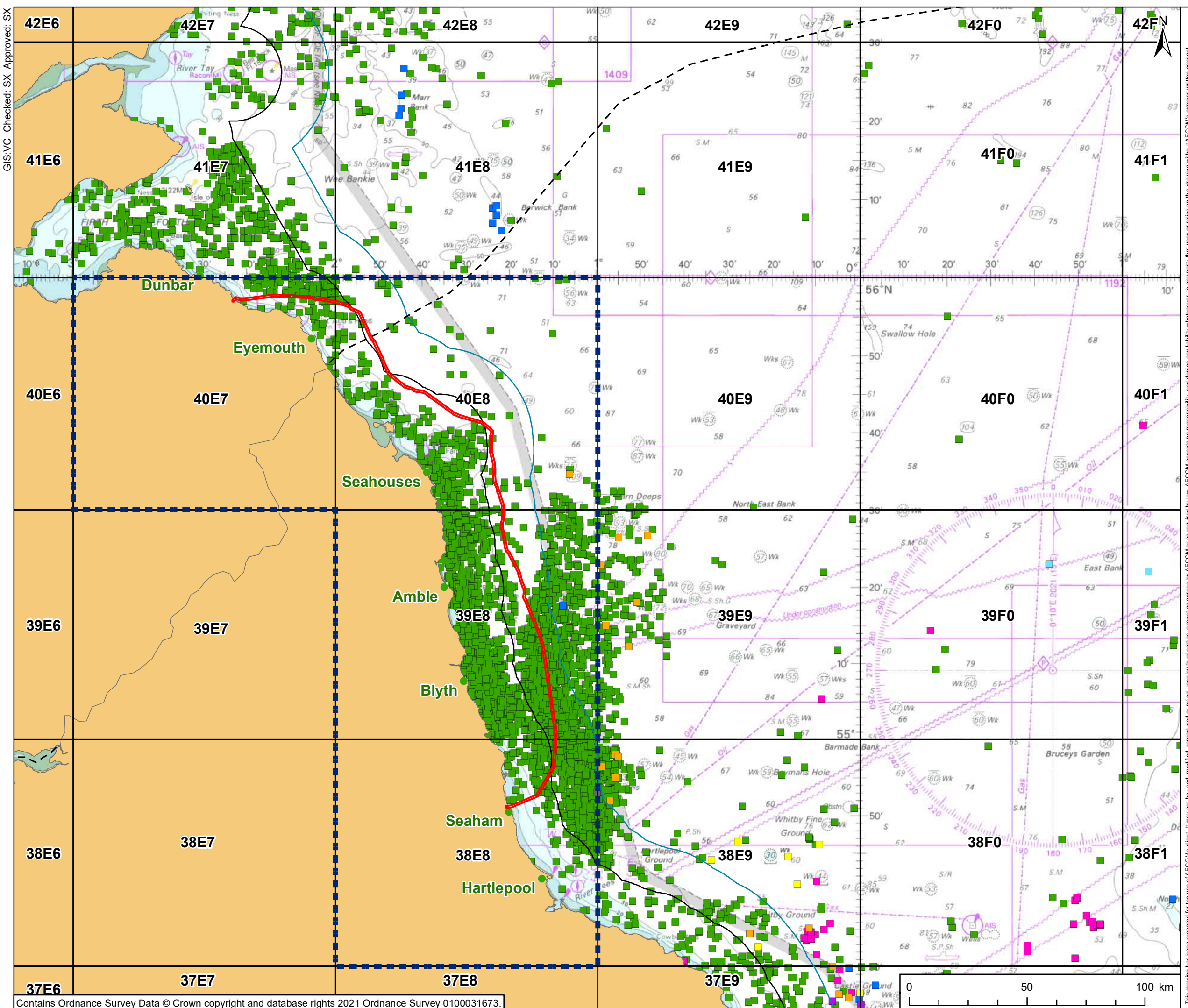
The majority of observations of vessels fishing within the study area (99.9%) are of UK vessels (Figure 14-3 and Table 14-4). These are predominantly potters / creelers, demersal trawlers, and, to a lesser extent, scallop dredgers. Sightings of drift netters and gill netters have also been recorded in relatively high numbers within the study area. As shown in Figure 14-4, however, these are concentrated in nearshore areas within rectangle 39E8, with limited potential overlap with the marine installation corridor. The nearshore nature of the netting fishery was noted during consultation with fisheries stakeholders (Consultation Meeting, 1/12/2021). As shown in Figure 14-5, various non-UK countries, including Denmark, Netherlands, France, and Belgium, have historic rights to fish for herring between the UK's 6 and 12 NM limit within the study area. Sightings of non-UK vessels have, however, been recorded in very low numbers within the study area with a total of three observations between 2011 and 2020 (Figure 14-3 and Table 14-4). It is understood that these records relate to Dutch and Danish vessels engaged in the herring fishery. As suggested by sightings data, significant activity by these vessels is not expected in the immediate proximity of the marine installation corridor. Non-UK vessels engaged in the herring fishery tend to concentrate south of the study area around Flamborough Head.

**Table 14-4: Surveillance Sightings within the Study Area (2011 – 2020)**

| Nationality    |                     | Vessel type                      | No. of Sightings within the Study Area | % of Total Sightings within the Study Area |
|----------------|---------------------|----------------------------------|--|--|
| United Kingdom |                     | Potter/whelkers                  | 1457                                   | 38.7%                                      |
|                |                     | Trawler (all)                    | 1356                                   | 36.0%                                      |
|                |                     | Demersal stern trawler           | 431                                    | 11.5%                                      |
|                |                     | Stern trawler (pelagic/demersal) | 231                                    | 6.1%                                       |
|                |                     | Drift netter                     | 149                                    | 4.0%                                       |
|                |                     | Scallop dredger                  | 49                                     | 1.3%                                       |
|                |                     | Gill netter                      | 32                                     | 0.9%                                       |
|                |                     | Unknown                          | 28                                     | 0.7%                                       |
|                |                     | Rod and line                     | 12                                     | 0.3%                                       |
|                |                     | Beam trawler                     | 6                                      | 0.2%                                       |
|                |                     | Shrimper                         | 4                                      | 0.1%                                       |
|                |                     | Null                             | 3                                      | 0.1%                                       |
|                |                     | Demersal side trawler            | 2                                      | 0.1%                                       |
|                |                     | Side trawler (pelagic/demersal)  | 1                                      | 0.0%                                       |
|                |                     | <b>UK Total</b>                  | <b>3761</b>                            | <b>99.9%</b>                               |
| Non-UK         | Denmark             | Trawler (all)                    | 1                                      | 0.0%                                       |
|                | Netherlands         | Trawler (all)                    | 1                                      | 0.0%                                       |
|                | Unknown             | Unknown                          | 1                                      | 0.0%                                       |
|                | <b>Non-UK Total</b> |                                  | <b>3</b>                               | <b>0.1%</b>                                |

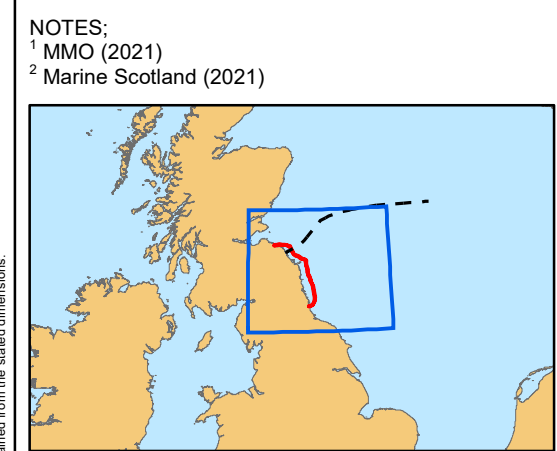


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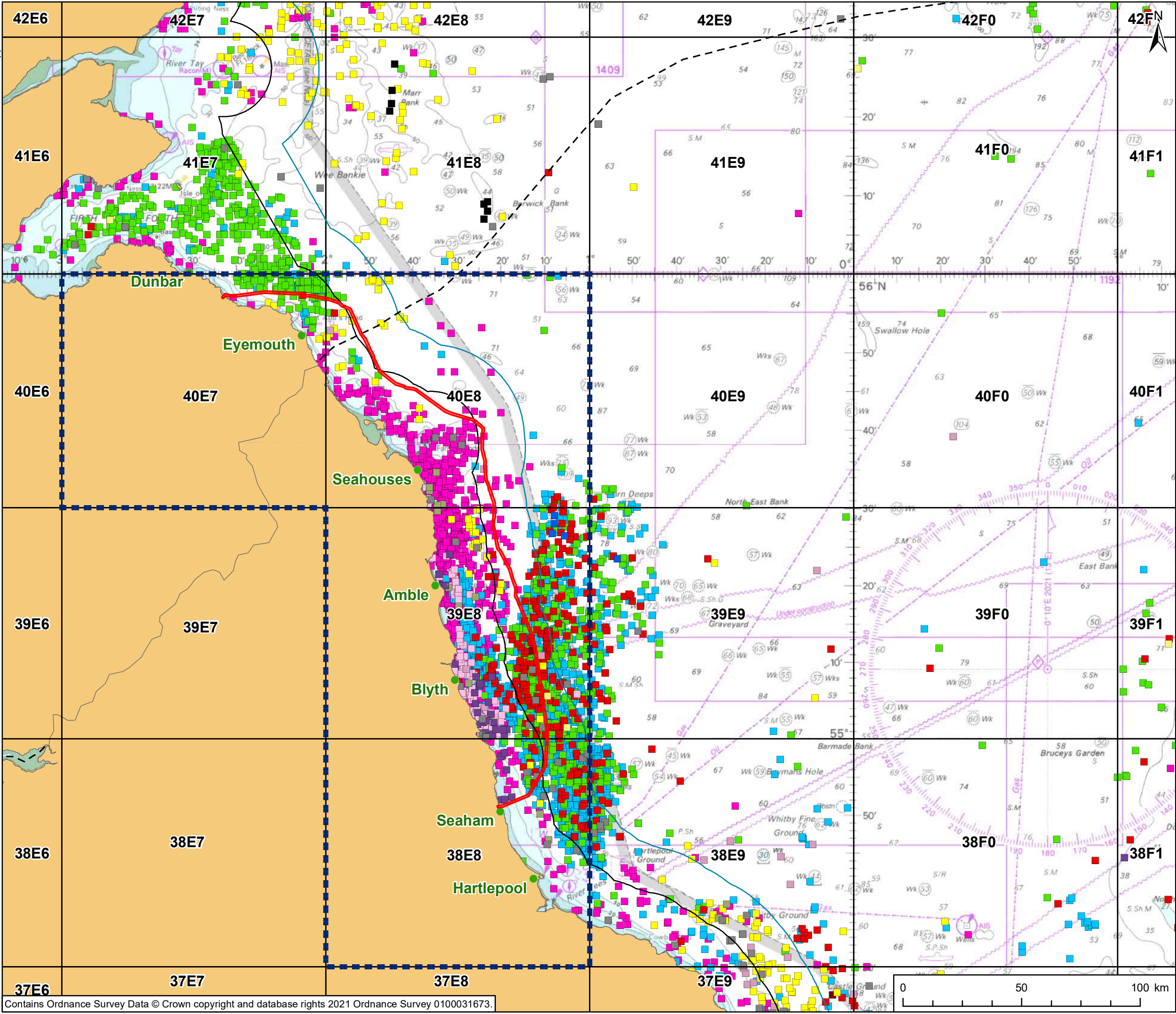
PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
- Nationality<sup>1,2</sup>
- United Kingdom
  - Netherlands
  - France
  - Denmark
  - Germany
  - Sweden
  - Belgium
  - Unknown





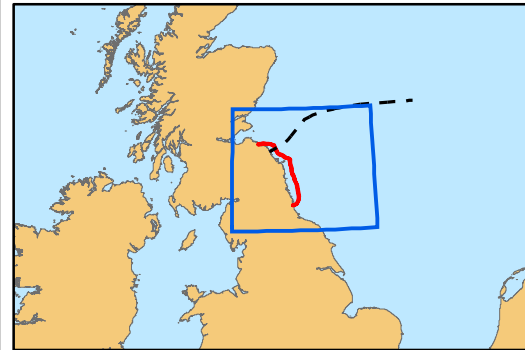
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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
- Method<sup>1,2</sup>
- Potter/ Whelker
  - Trawler (All)
  - Demersal stern trawler
  - Stern trawler (Pelagic/ Demersal)
  - Drift netter
  - Scallop dredger (French/ Newhaven)
  - Gill netter
  - Rod and line
  - Beam trawler
  - Shrimper
  - Demersal side trawler
  - Side trawler (Pelagic/ Demersal)
  - Industrial trawler (Sandeeler)
  - Other

NOTES;  
<sup>1</sup> MMO (2021)  
<sup>2</sup> Marine Scotland (2021)

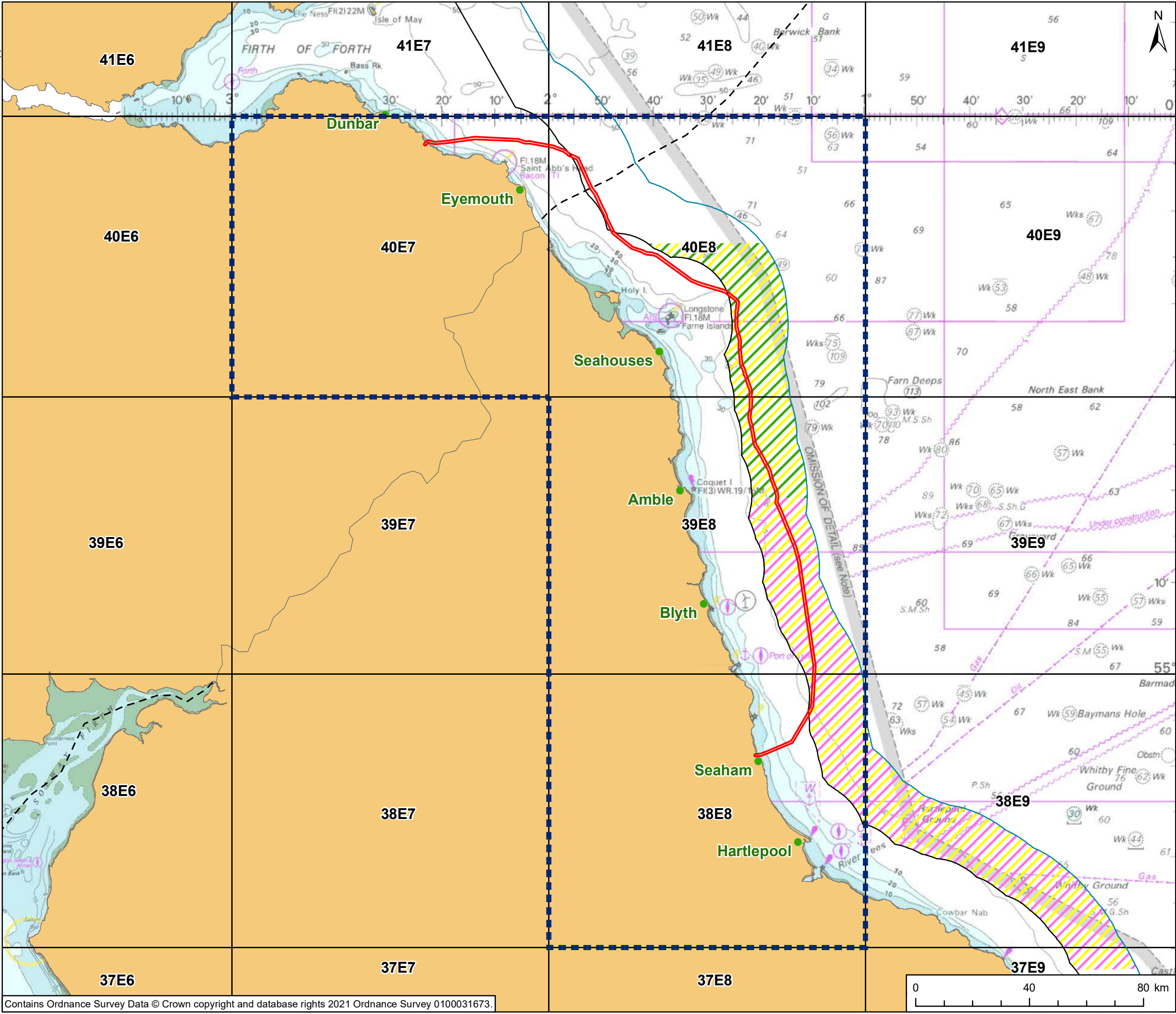


TITLE  
**Figure 14-4  
Surveillance Sightings  
By Method  
2011-2020**

REFERENCE  
AEC\_SEGL1-02-EA-005

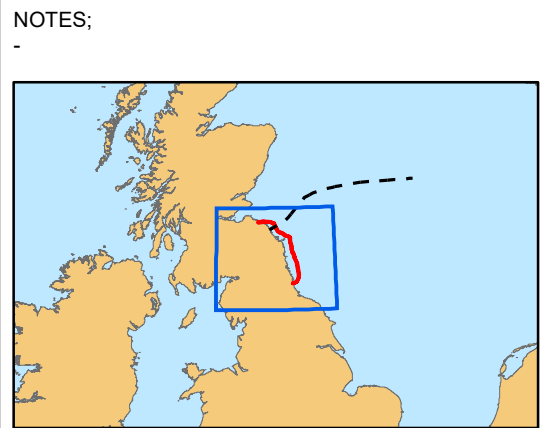


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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Historic Fishing Rights - Germany and Netherlands for Herring
  - Historic Fishing Rights - Germany, France, Belgium and Netherlands for Herring



TITLE  
**Figure 14-5  
Historic Fishing Rights**

REFERENCE  
AEC\_SEGL1-02-EA-016

SHEET NUMBER  
1 of 1

DATE  
23/05/2022

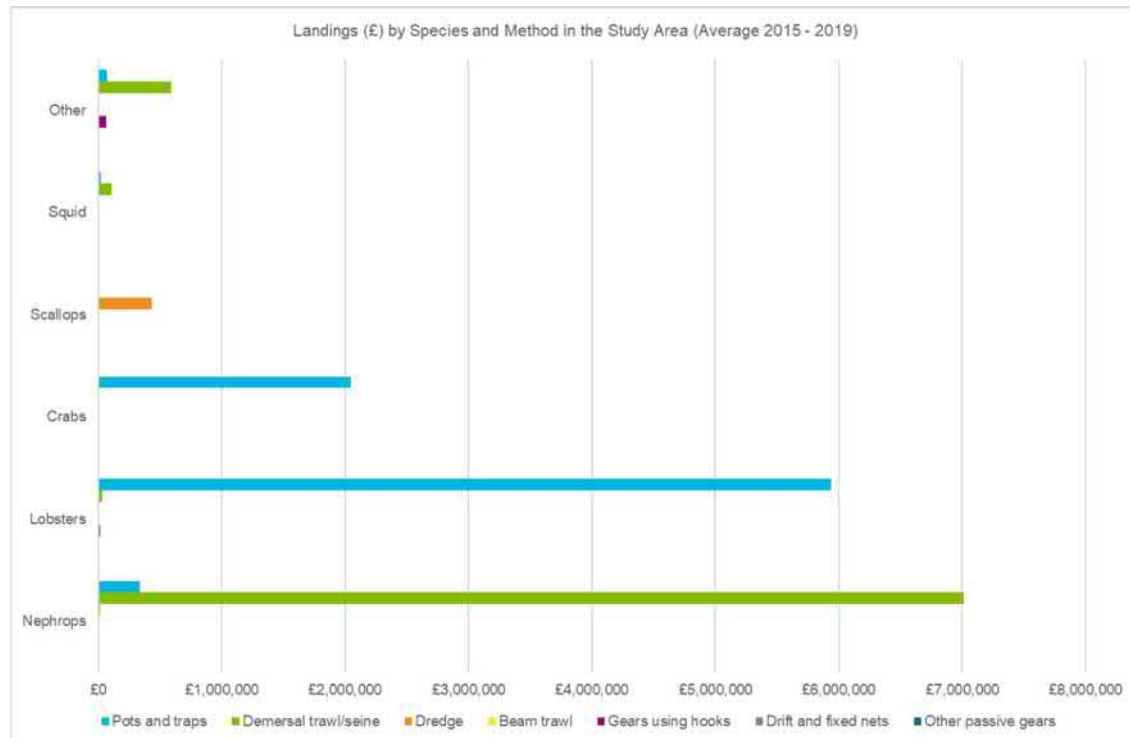
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An indication of the value of the commercial fishing activities undertaken in the study area is provided in Figure 14-6, based on analysis of UK landing values (£) by species and method. Data are presented as an annual average for the period 2015 to 2019.

The analysis of landings data indicates that trawling for *Nephrops* and potting / creeling for crab and lobster, account for the majority of the overall value of landings across the study area (Figure 14-6). *Nephrops* landings represent approximately £7 Million per year on average, whilst landings of lobster and crab combined represent approximately £8 Million. Although at lower levels, scallop dredging also contributes significantly to the overall landings from the study area (approx. £0.5 Million per year).

Landings by demersal trawlers of species other than *Nephrops* are also of significance in the study area. It is understood that this relates primarily to landings of demersal fish caught as by-catch in the *Nephrops* mixed fishery in the Farn Deep (see Section 14.5.3) In addition, during consultation with fisheries stakeholders, some demersal trawlers, particularly Scottish vessels, reported to target squid on a seasonal basis in areas of relevance to the Marine Scheme (Volume 3 Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).

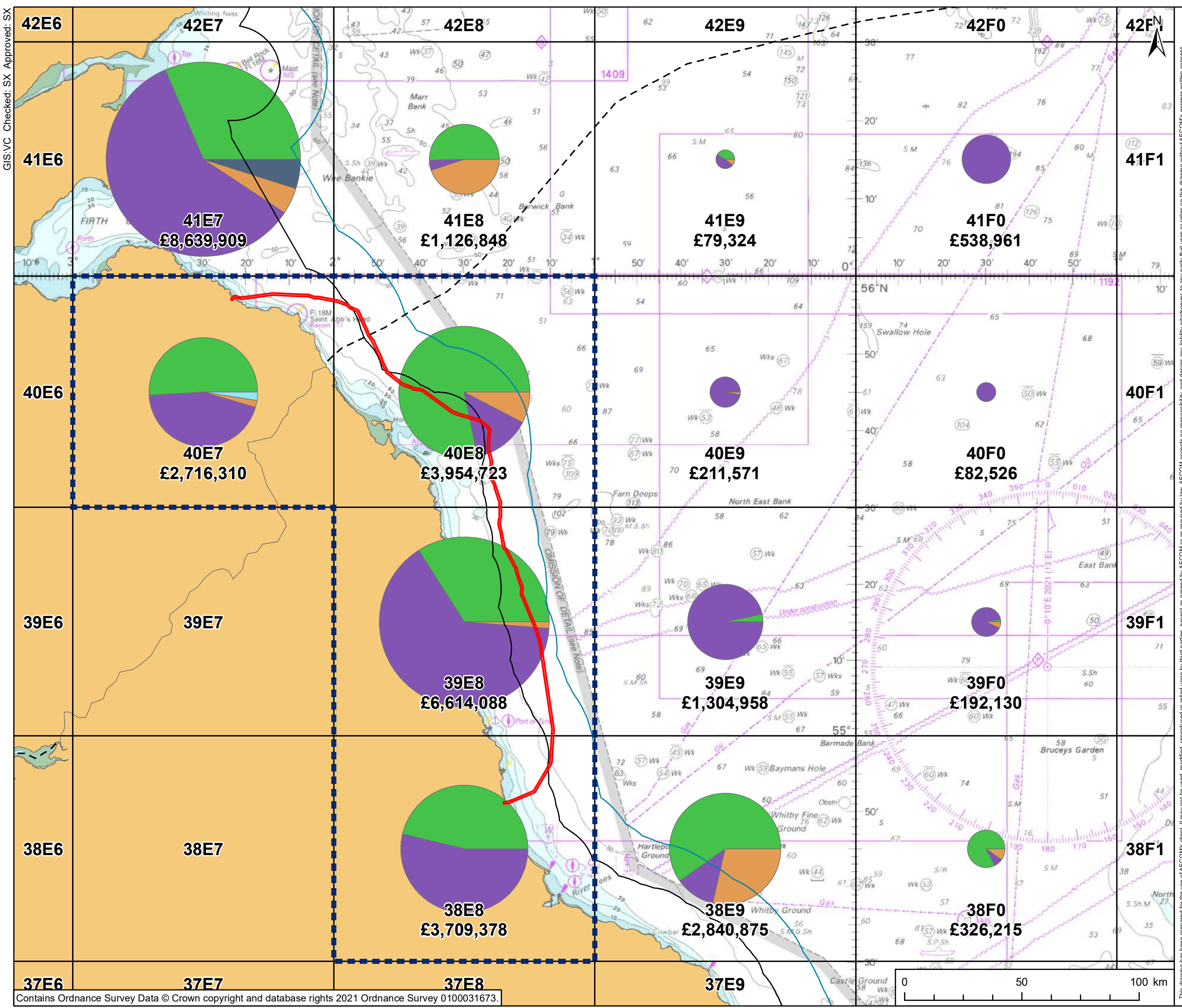
A breakdown of the value of the landings by ICES rectangle is provided in Figure 14-7 and Figure 14-8 by fishing method and species, respectively. Demersal trawling for *Nephrops* and potting / creeling for crab and lobster are activities of importance across all the ICES rectangles within the study area. In the case of scallop dredging, ICES rectangle 40E8 records the majority of landings of this species within the study area, followed by rectangles 40E7 and 39E8 to a much lesser extent.



**Figure 14-6: Landings (£) by Species and Method in the Study Area (Annual Average 2015 - 2019) (Source: MMO)**

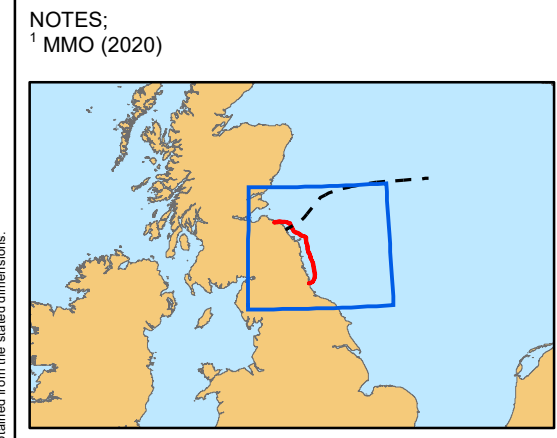


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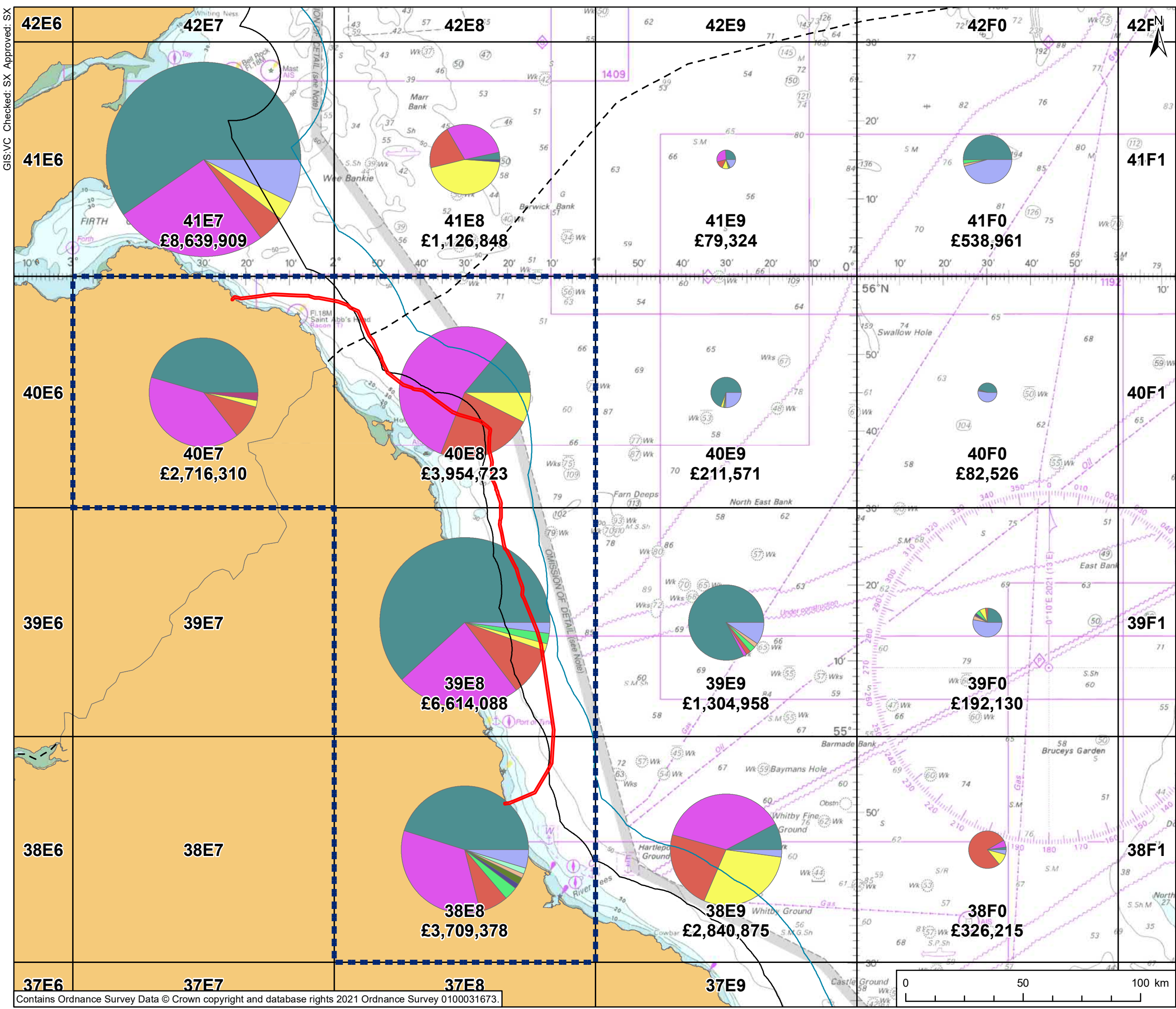
PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
- Method<sup>1</sup>
- Pots and traps
  - Demersal trawl/seine
  - Dredge
  - Gears using hooks
  - Beam trawl
  - Drift and fixed nets
  - Other passive gears
  - Other mobile gears





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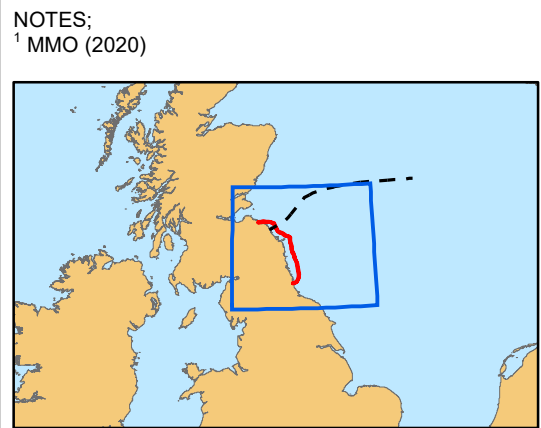
PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

KEY

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

Species<sup>1</sup>

- Nephrops
- Lobsters
- Crabs
- Scallops
- Whiting
- Squid
- Cod
- Mackerel
- Monks or Anglers
- Turbot
- Other



## 14.5.2 Lobster and Crab Fishery

### 14.5.2.1 Fishing Gear, Methods, and Operating Practices

Lobster and crabs are typically caught in pots (also known as creels in Scotland and North Eastern England) (Figure 14-9). 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 (Figure 14-10). The number of pots in a fleet can range from a few to over 100 in offshore crab fisheries. The pots are baited and left on the seabed to fish "soak" for a period of usually 24 hours (Seafish, 2021a). In inshore areas there is generally overlap between brown crab, velvet crab and lobster fishing grounds and activity in these areas is predominantly undertaken by the inshore fleet. Larger vessels predominantly focus on brown crab in grounds further offshore (Shelmerdine & Mouat, 2021).

The majority of vessels active in the study area are under 10 m in length. During consultation with local Scottish and English fisheries stakeholders the typical duration of a fishing trip was reported to be between 10 and 12 hours long. The number of fleets and overall number of pots/creels that local vessels operate varies significantly on a case-by-case basis, with fleet numbers ranging from 5-10 fleets to up to 40, and the total number of pots/creels from 105 to 1,200 (Volume 3 Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).



Figure 14-9: Pots in Blyth (Brown & May Marine, 2021)





**Figure 14-10: A Fleet of Pots on the Seabed (Seafish, 2021a)**

Monthly lobster and crab landings in the study area are illustrated in Figure 14-13 (annual average between 2015 – 2019). As shown, landings are recorded throughout the year. Landings of lobster appear to be higher towards the summer and in early autumn, with peak landings recorded in August. Landings of crab peak in June/July with a second peak during October / November (Figure 14-13).

During consultation with fisheries stakeholders the majority of potters / creelers noted that they work all year round with a few Scottish vessels indicating that their main fishing takes place between March and December (Volume 3 Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).

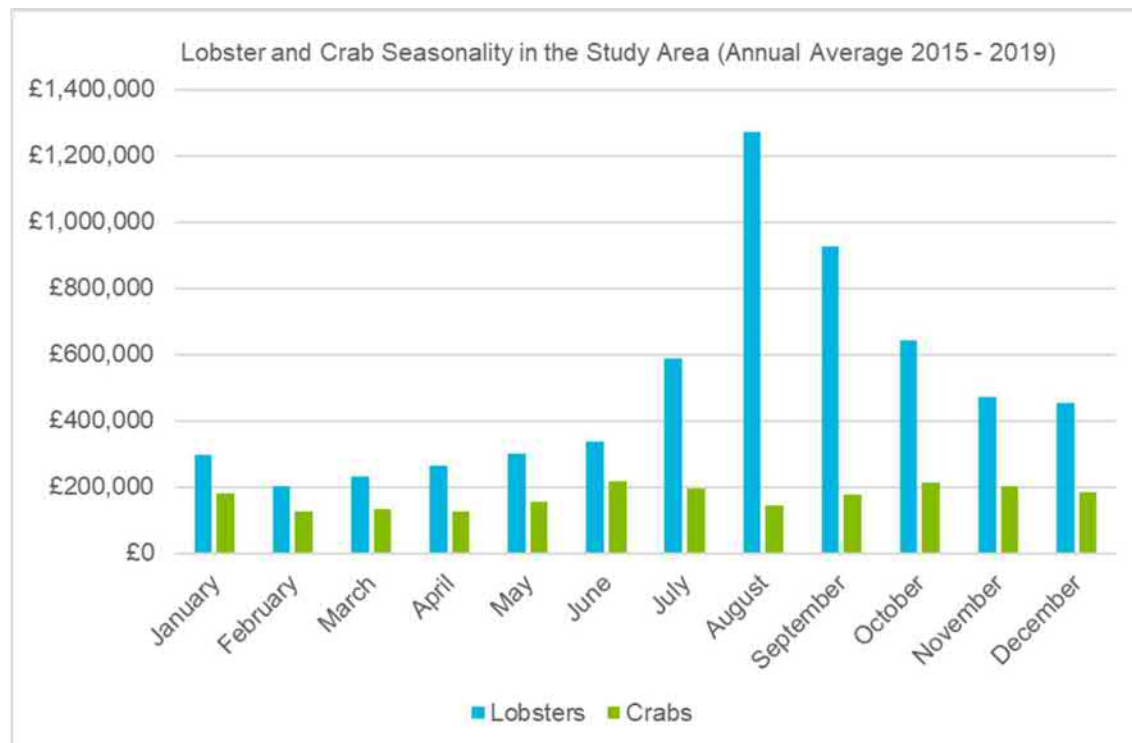




Figure 14-11: Potting Vessels in Dunbar (Brown & May Marine, 2021)



Figure 14-12: Potting Vessels in Sunderland (Brown & May Marine, 2021)



**Figure 14-13: 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 given in Figure 14-14 to Figure 14-22, based on analysis of the following sources of data and information:

- Lobster and crab landings by ICES rectangle (Figure 14-14);
- Surveillance sightings of potters / creelers (Figure 14-15);
- VMS (£) data for pots/traps (Figure 14-16);
- ScotMap data – Crab and Lobster Pots (monetary value) (Kafas, et al., 2014) (Figure 14-17);
- Marine Scotland creel fishing effort data (Marine Scotland Science, 2017) (Figure 14-18);
- Combined fishing activity for creels (Shelmerdine & Mouat, 2021) (Figure 14-19);
- Potting grounds identified by Scottish and English fisheries stakeholders during consultation (Figure 14-20 and Figure 14-21); and
- NIFCA and NEIFCA sightings data for potters / creelers (Figure 14-22).

The analysis of landings of crab and lobster by ICES rectangle presented in Figure 14-14, indicates that significant potting / creeling activity takes place across the whole study area, however, the highest landings values are recorded in rectangles 40E8 and 39E8.

Similarly, surveillance sightings of potters / creelers are found across all rectangles within the study area but the observations of these vessels are highest within rectangles 40E8 and 39E8. As shown in Figure 14-15, sightings are for the most part confined to areas within the 6 NM limit.

A movement towards offshore grounds during the winter months was however reported by some of the Scottish and English potters / creelers consulted with (Volume 3 Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders). It was also noted during consultation that lobster fishing occurs close inshore during the summer months and that potting for crab tends to move further offshore during the winter, particularly in the area between the Farne Islands and Holy Island (Consultation Meeting, 4/11/2021).

As previously mentioned, the majority of vessels engaged in potting / creeling activity within the study area are under 15 m in length (and predominantly under 10 m) (Section 14.5.2.1). This is apparent from the distribution of VMS data illustrated in Figure 14-16, which indicates that vessels operating pots/creels in the 15 m and over length category are not active within the study area.

Additional detailed data on the distribution of activity by potters / creelers within the study area is available from ScotMap (Kafas, et al., 2014) (Figure 14-17), from a creeling effort study recently undertaken by Marine Scotland (Marine Scotland Science, 2017) (Figure 14-18) and from information presented in Shelmerdine & Mouat (2021) (Figure 14-19). 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 creeling activity by Scottish vessels is undertaken at relatively high levels in the section of the marine installation corridor, which is located in Scottish waters, particularly in nearshore areas around the Scottish landfall.

The distribution of potting / creeling activity by Scottish and English vessels in areas of relevance to the marine installation corridor is illustrated in Figure 14-20 and Figure 14-21 based on grounds depicted by fishermen on paper charts and on information from plotter shots gathered during consultation.

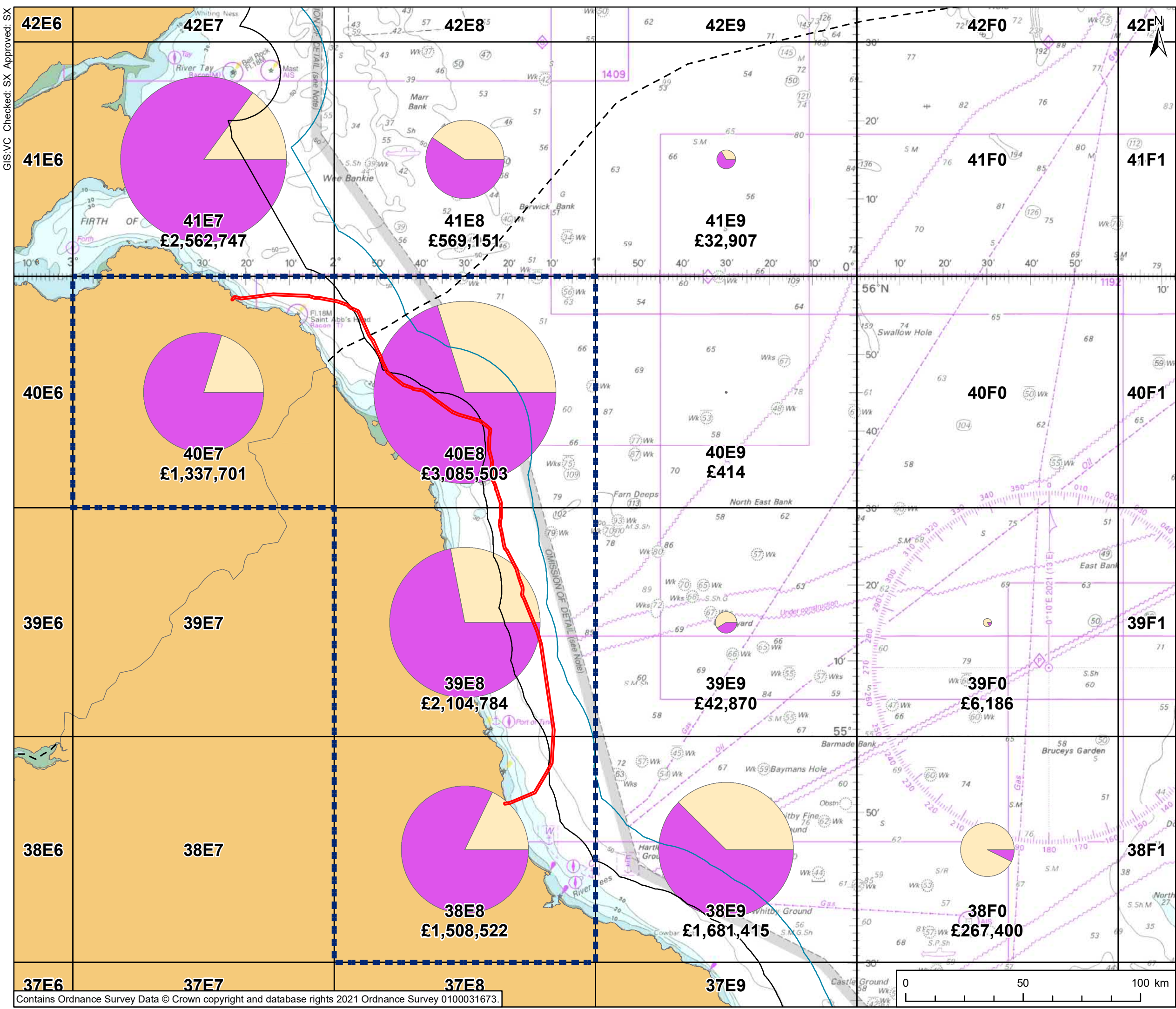
Figure 14-20 shows that potting / creeling grounds provided by Scottish vessels concentrate predominantly within the 6 NM limit, although some of the fishing grounds reported extend further offshore. The grounds provided by Scottish vessels primarily overlap with the section of the marine installation corridor that is located within Scottish waters (between KP 1 and KP 38), however some vessels extend their activity to adjacent English waters (from KP 38 to KP 61), in ICES rectangle 40E8.

As shown in Figure 14-21 the potting grounds provided by English vessels also concentrate for the most part within the 6 NM limit, although some grounds extend out to 12 nm and further offshore. The majority of grounds are within English waters, although some grounds extend into adjacent Scottish waters. The overlap between the grounds reported and the marine installation corridor is more intense in ICES rectangle 40E8, in the area around the Farne Islands (from KP 45 to KP 78), however there is also overlap between potting / creeling grounds over various other discrete sections of the marine installation corridor, including around the landfall. The principal areas of overlap of potting / creeling grounds and the marine installation corridor reported by English vessels during consultation include the following sections: KP 36 to 95; KP 97 to 117; KP 145 to 159; and KP 166 to KP 176.

As shown in Figure 14-22, sightings of potters / creelers available from NIFCA (2019) and NEIFCA (2011 – 2015) the majority of potters / creelers are recorded along the inshore areas of the study area, concentrating within 3 NM. Sightings in areas of relevance to the marine installation corridor are predominantly focused on the area around the English landfall. In this context, it is important to note that both NEIFCA and NIFCA patrols concentrate within their districts (out to the 6 NM limit). Therefore, the lack of sightings in offshore areas does not necessarily indicate a lack of activity (see Table 14-2:).

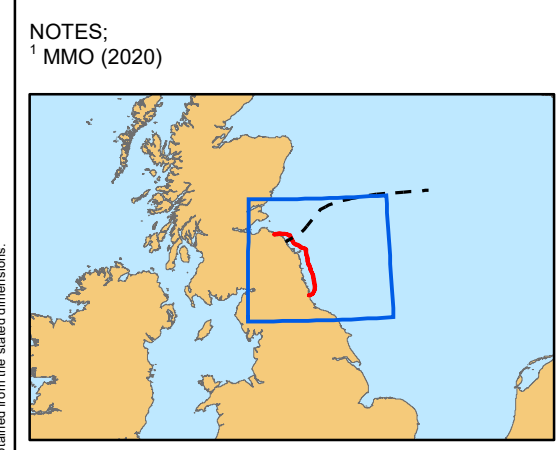


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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
- Species<sup>1</sup>
- Crabs
  - Lobsters



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

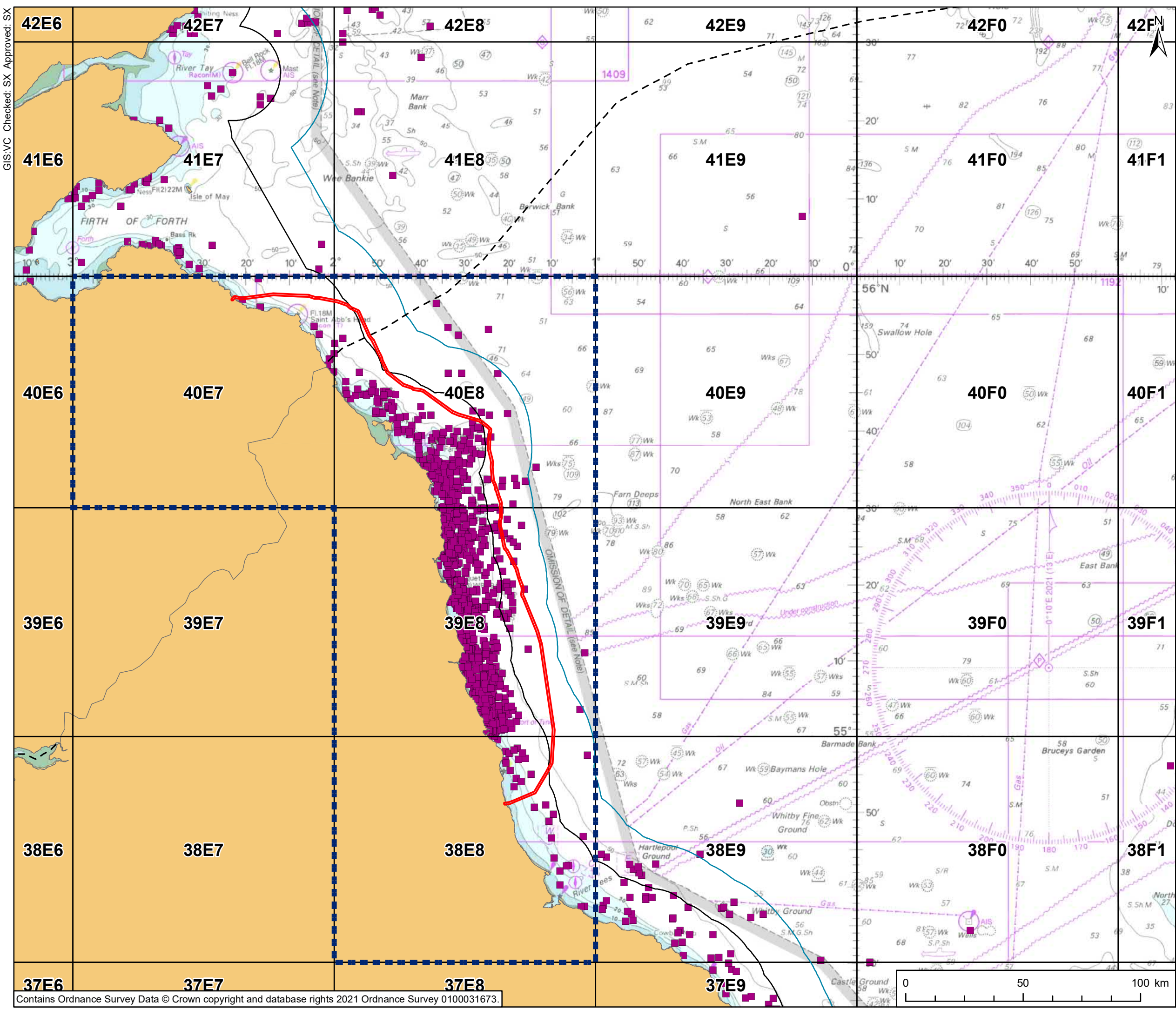
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23/05/2022



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PROJECT  
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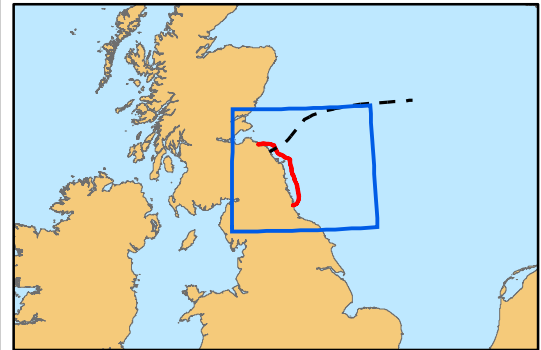
KEY

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

Method

- Potter/ Whelker

NOTES;  
<sup>1</sup> MMO (2021)  
<sup>2</sup> Marine Scotland (2021)










TITLE  
**Figure 14-15  
Surveillance Sightings  
Potters  
2011-2020**

REFERENCE  
AEC\_SEGL1-02-EA-023

SHEET NUMBER  
1 of 1

DATE  
23/05/2022

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

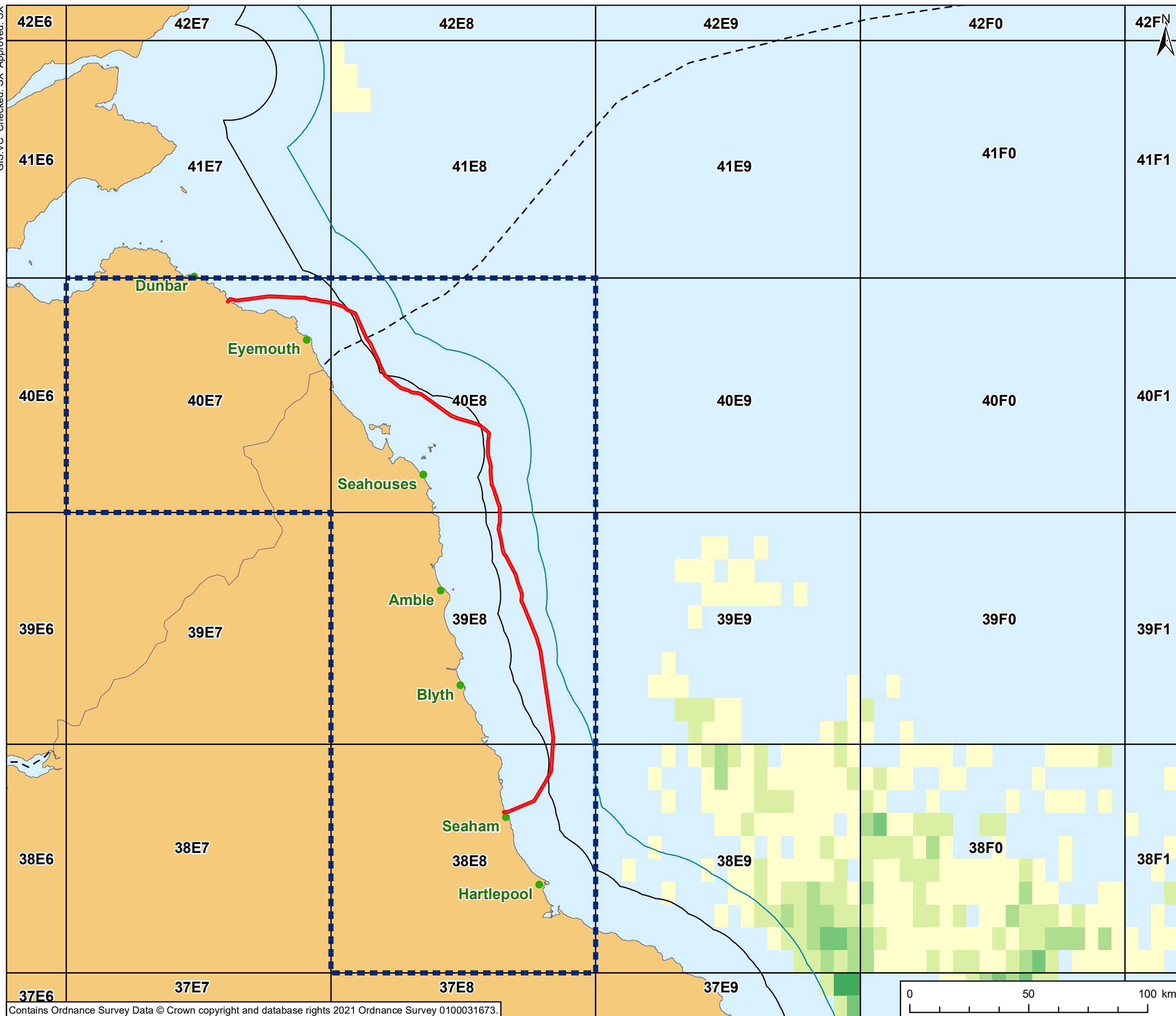
Less than £1,000  
 £1,000 - £3,000  
 £3,000 - £6,000  
 £6,000 - £10,000  
 £10,000 - £20,000

Map of Europe showing the North Sea region highlighted by a blue box. A red line indicates the coastline of the British Isles, and a dashed line indicates the coastline of the North Sea.

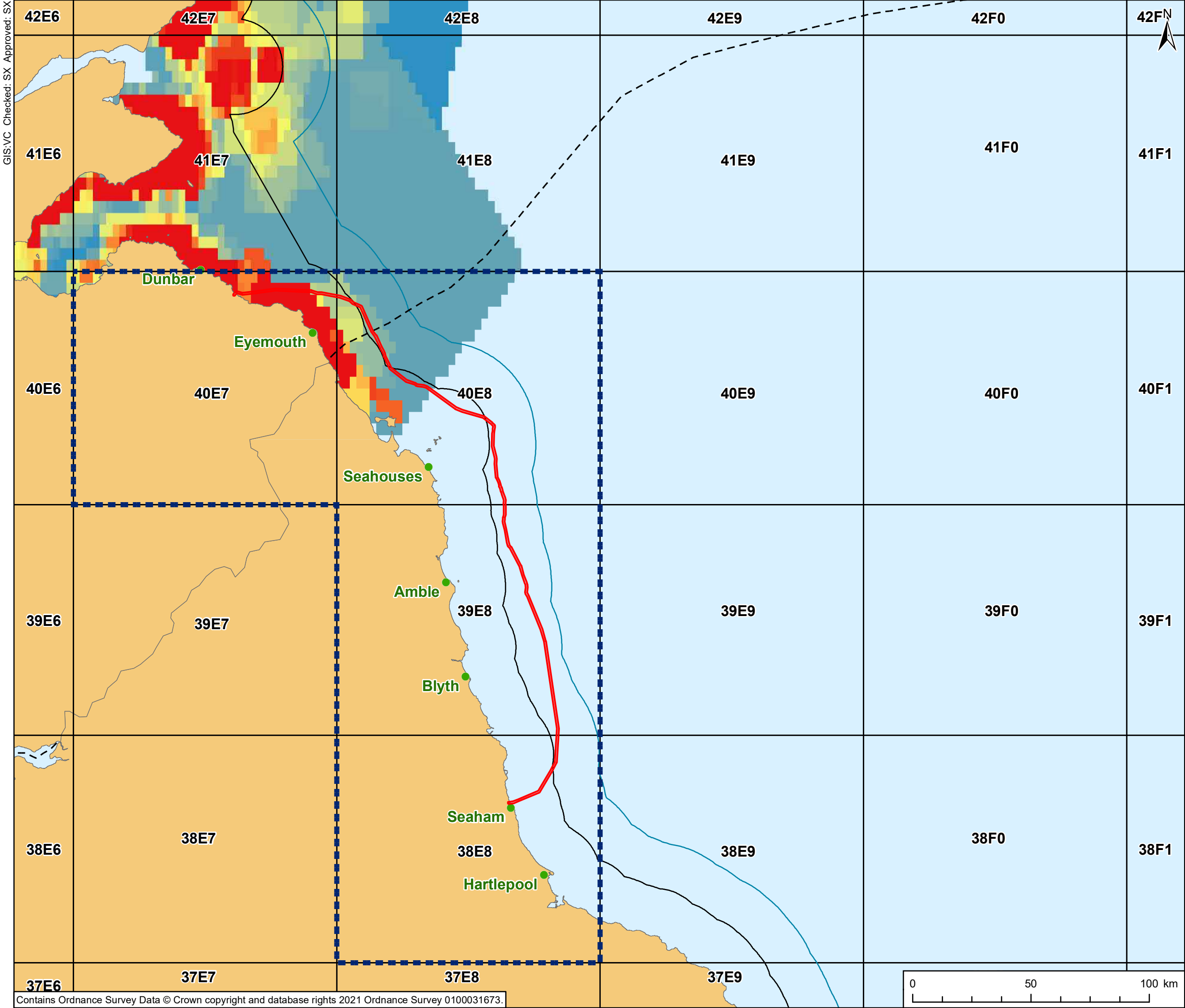
**Figure 14-16**  
**UK VMS Value (£)**  
**Pots or traps**  
**Average 2015-2019**

SHEET NUMBER 1 of 1 DATE 23/05/2022

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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

KEY

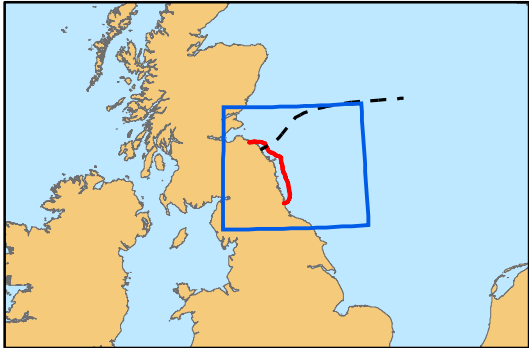
- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles
- Main ports

**Crab and Lobster Pots - Monetary Value<sup>1</sup>**

High : 34708.4

Low : 0

NOTES:  
<sup>1</sup>Kafas, A., McLay, A., Chimiento, M., Gubbins, M. (2014) Scotmap Inshore Fisheries Mapping in Scotland: Recording Fishermen's use of the Sea. Scottish Marine and Freshwater Science Volumen 5 Number 17. Edinburgh: Scottish Government, 32p.



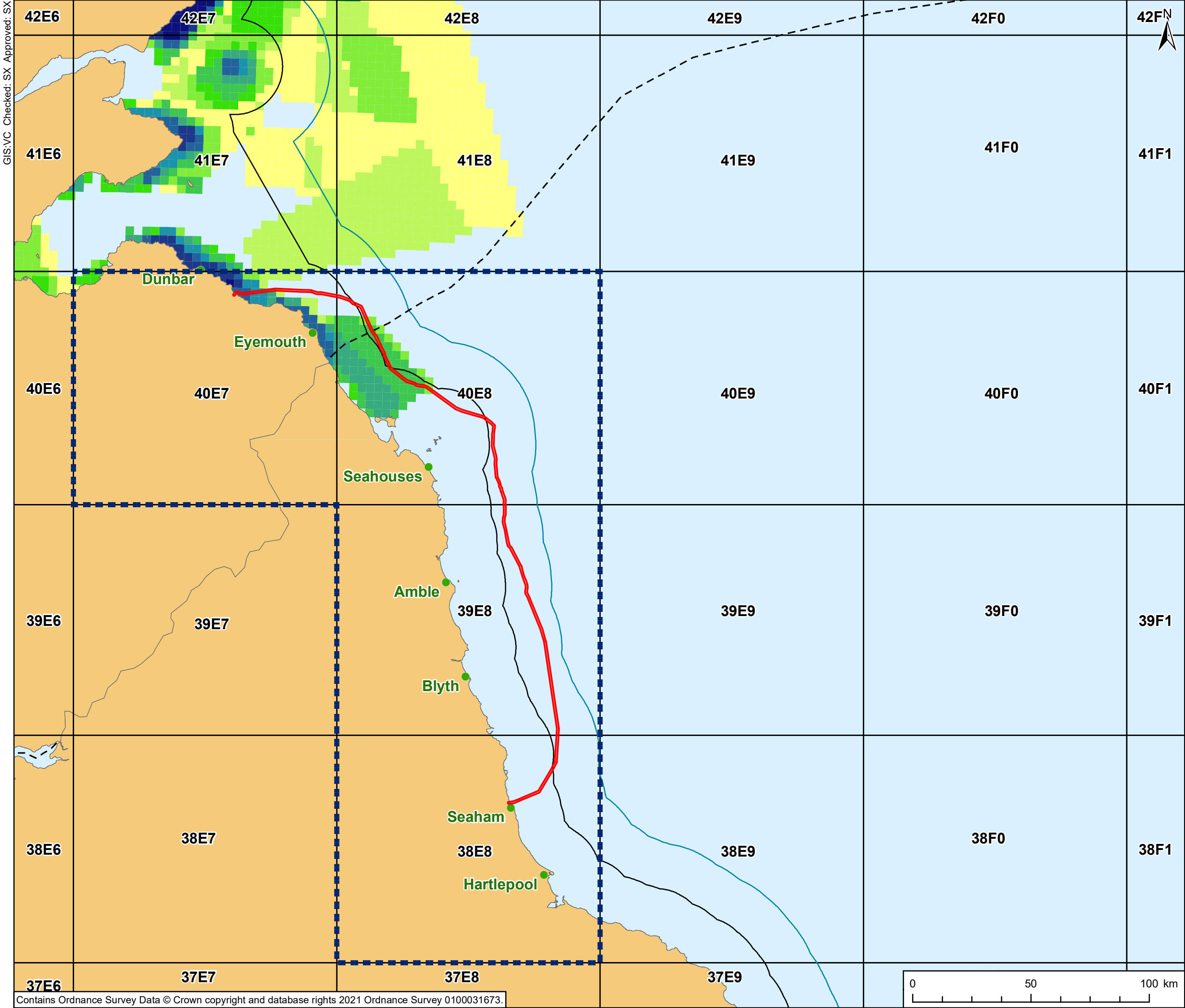
TITLE  
**Figure 14-17  
Inshore fishing  
Crabs and Lobster Pots  
Monetary Value (£)**

REFERENCE  
AEC\_SEGL1-02-EA-014

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1 of 1

DATE  
23/05/2022

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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

KEY

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

Average number of crab and lobster hauls per day<sup>1</sup>

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

NOTES;  
<sup>1</sup> Marine Scotland (2010)

TITLE  
**Figure 14-18  
Creel Fishing Effort Study  
Average Number of Crab and Lobster  
Hauls Per Day**

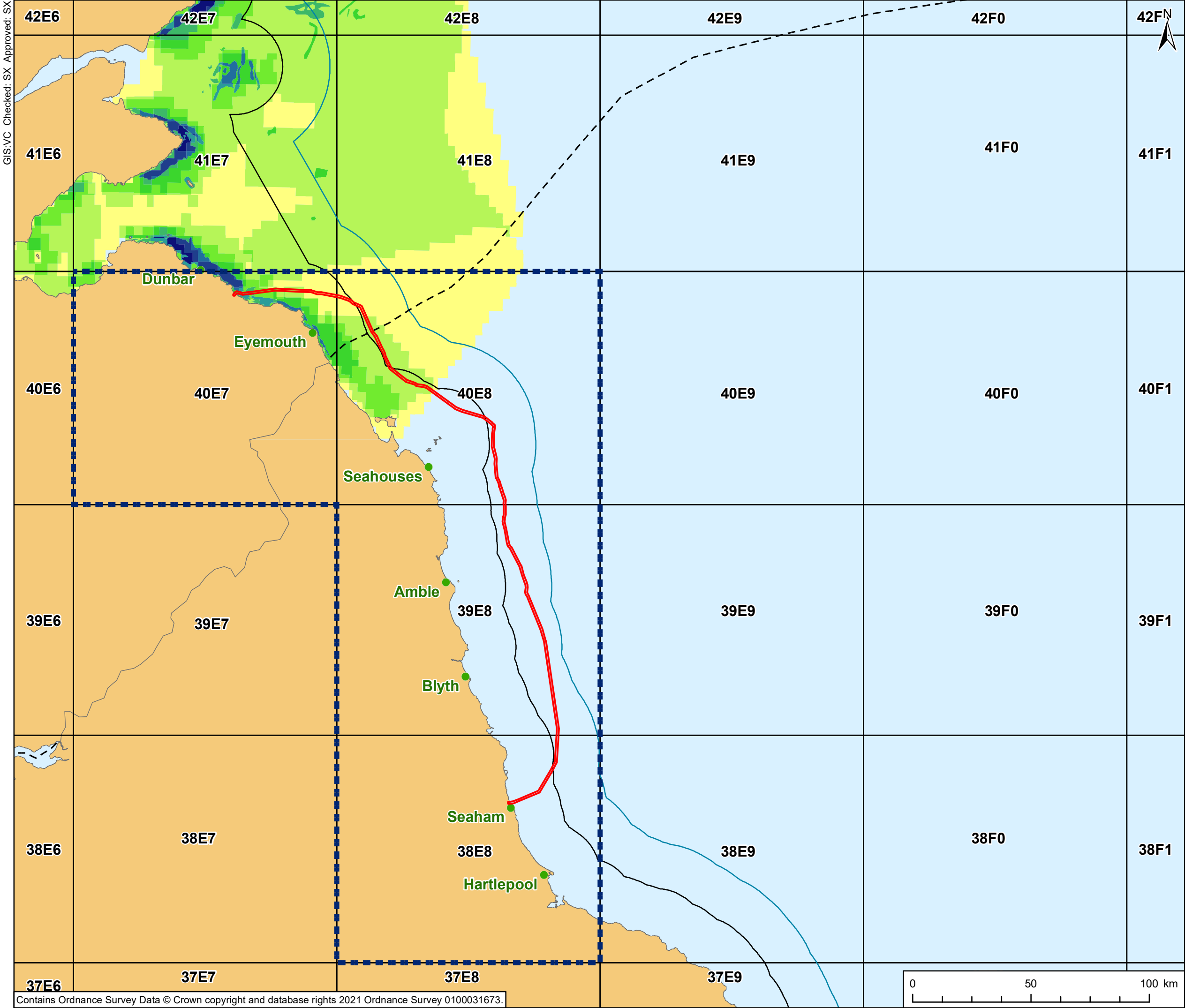
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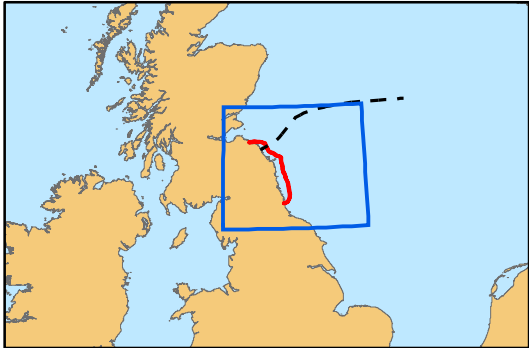
KEY

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

**Likelihood/Occurrence<sup>1</sup>**

High  
Low

NOTES;  
<sup>1</sup> 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.

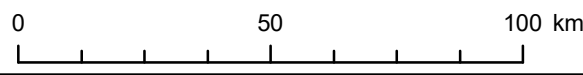


TITLE  
**Figure 14-19  
Likelihood/Occurrence of  
Combined Fishing Activity  
for Creels**

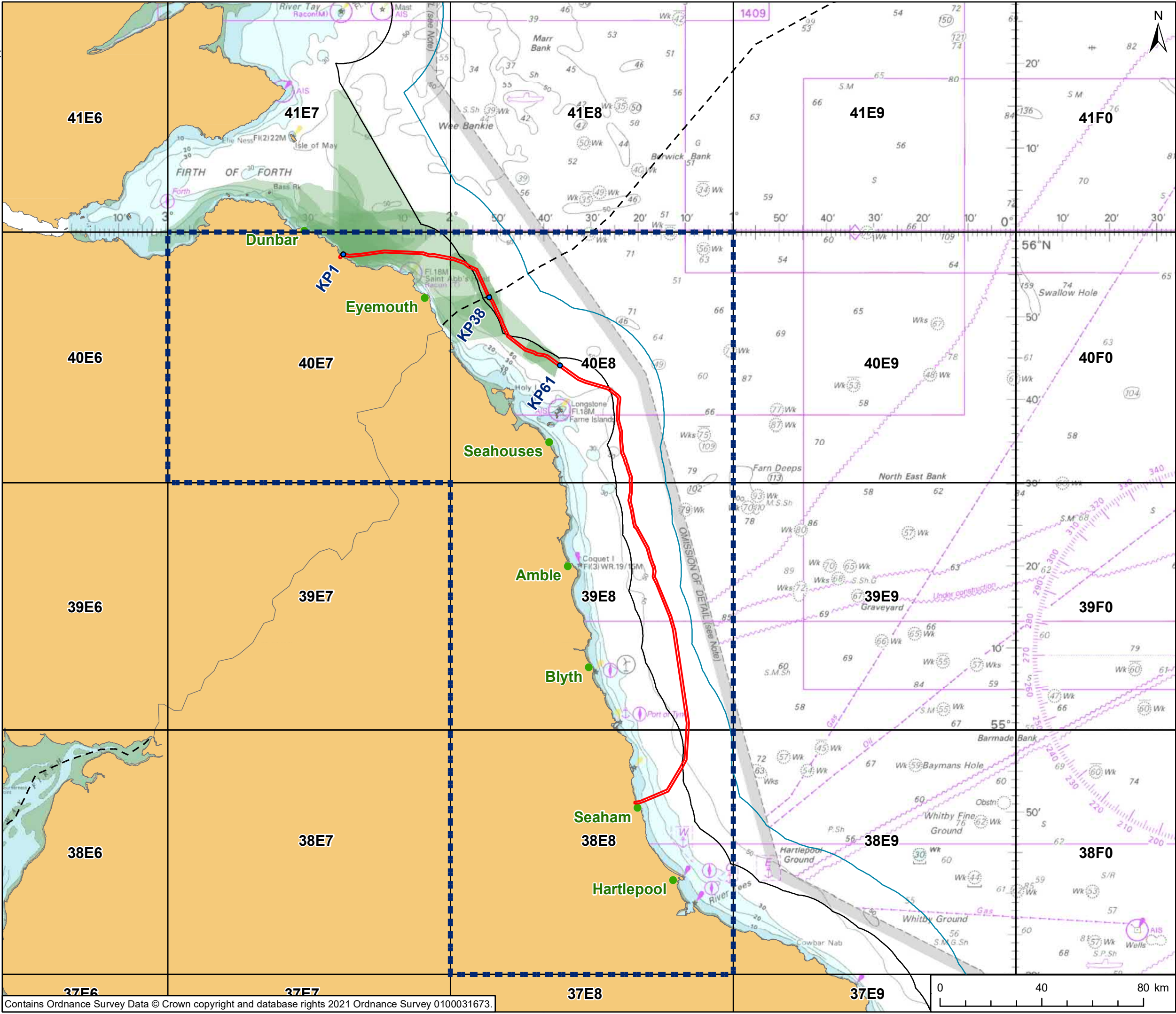
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SHEET NUMBER  
1 of 1

DATE  
23/05/2022

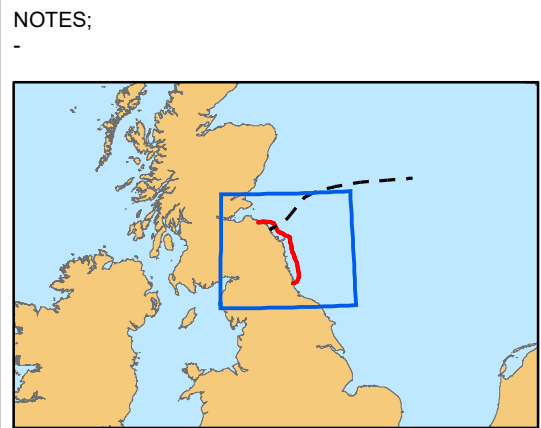






PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Scottish Potting Fishing Grounds

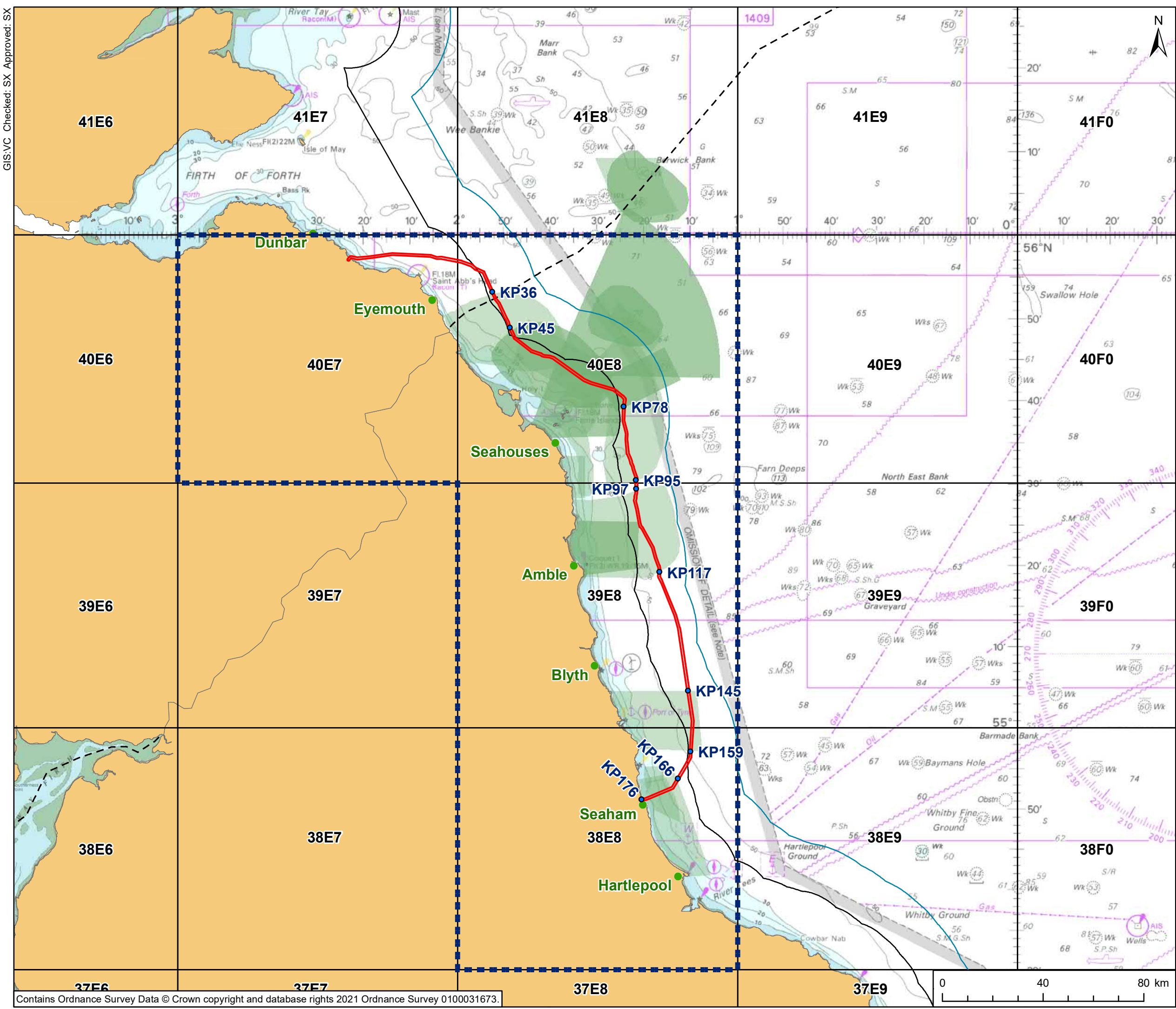


TITLE  
**Figure 14-20  
Potting Grounds Identified  
by Scottish Fisheries Stakeholders  
During Consultation**

REFERENCE  
AEC\_SEGL1-02-EA-030

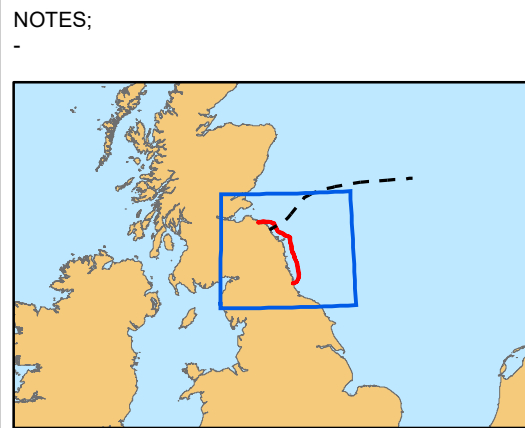
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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - English Potting Fishing Grounds

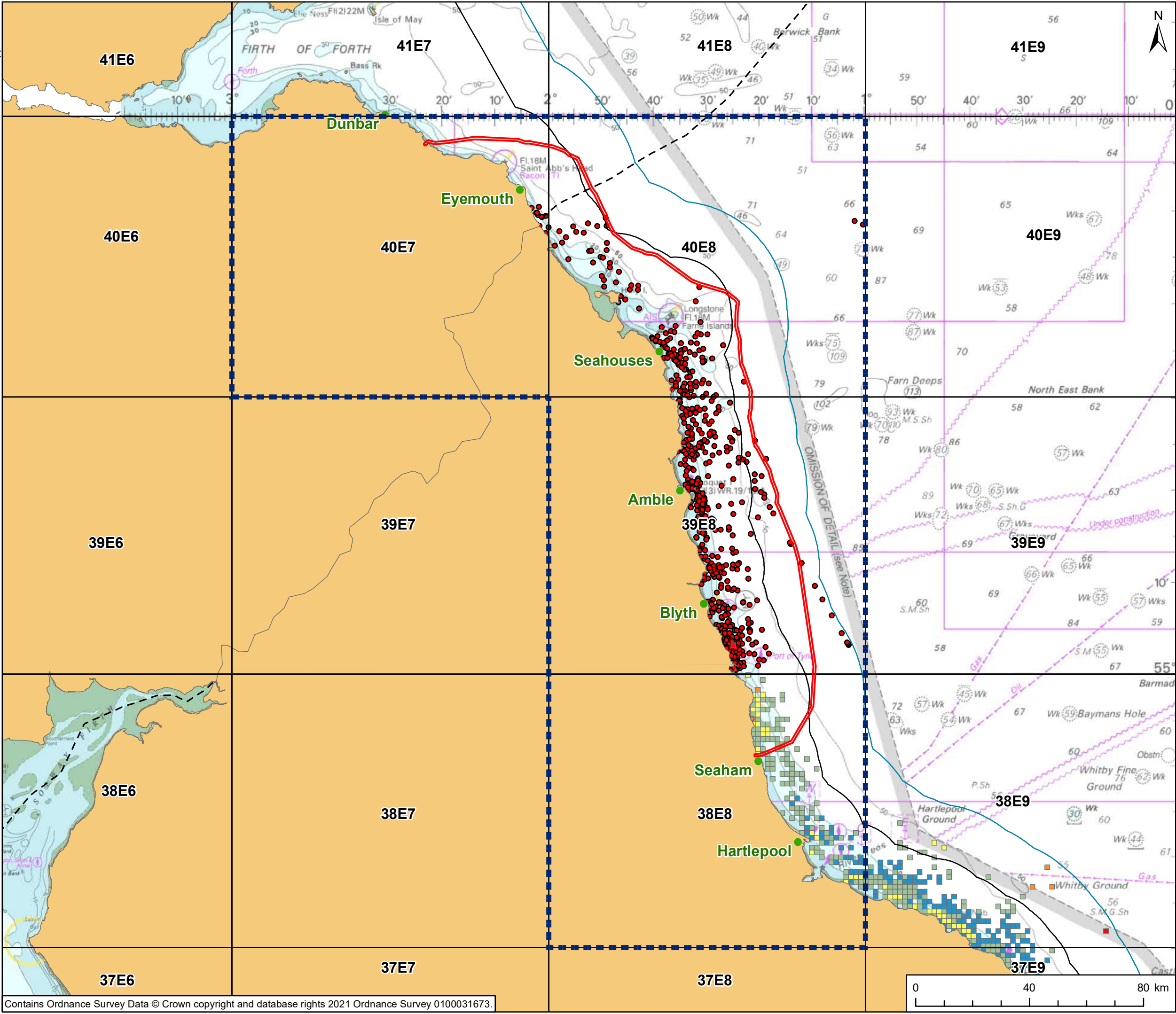


TITLE  
**Figure 14-21  
Potting Grounds Identified  
by English Fisheries Stakeholders  
During Consultation**

REFERENCE  
AEC\_SEGL1-02-EA-032

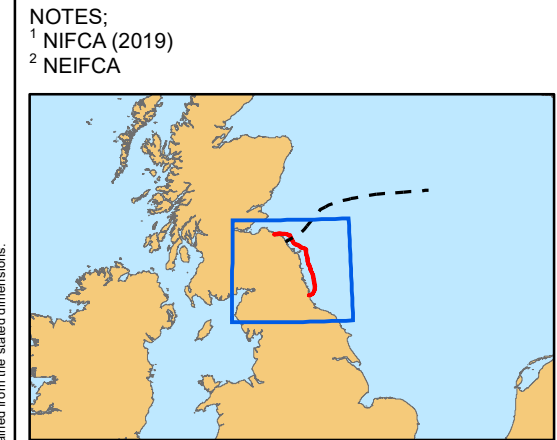


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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Potting vessels sightings (2019)<sup>1</sup>
- Potting Density (2011 - 2015)<sup>2</sup>
- 0.0 - 0.01
  - 0.01 - 0.04
  - 0.04 - 0.11
  - 0.11 - 0.33
  - 0.33 - 1



TITLE  
**Figure 14-22  
NIFCA Sightings of Potters and  
NEIFCA Potting Density**



### 14.5.3 *Nephrops* Fishery

#### 14.5.3.1 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 appraisal, *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 14-23, together with the spatial distribution of suitable habitat within each FU. As shown, the marine installation corridor overlaps with two FUs:

- FU8 (Firth of Forth): Located in the Firth of Forth Area, in Scottish waters; and
- FU6 (Farn Deepes): Located in English waters, off the North East coast.

Both FUs support significant fishing activity. It is understood that the Firth of Forth grounds are for the most part exploited by local Scottish vessels based at the ports of Eyemouth, Pittenweem, Port Seton, Anstruther, and Dunbar.

The Farn Deepes grounds are primarily targeted by local English vessels, based in the ports of Seahouses, Amble, Blyth, North Shields, and Hartlepool (Bailey, et al., 2012; Consultation Meeting, 1/12/2021; Consultation Meeting, 4/11/2021). 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 Farn Deepes grounds at times. The presence of visiting vessels in this area was confirmed during consultation with fisheries stakeholders (Consultation Meeting, 1/12/2021; Consultation Meeting, 4/11/2021).

The *Nephrops* fishery in the Farn Deepes is mixed (i.e. there is significant by-catch of marketable demersal fish species) whilst in the Firth of Forth the *Nephrops* fishery is more selective (i.e. there is limited fish by-catch).

Vessels engaged in the *Nephrops* fishery in the study area use demersal trawls (Figure 14-24). Twin-rigged trawls are predominant amongst Scottish vessels (Figure 14-25 and Figure 14-27), whilst English vessels tend to favour the use of single trawl nets (Figure 14-26 and Figure 14-28) (Bailey, et al., 2012) (Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).

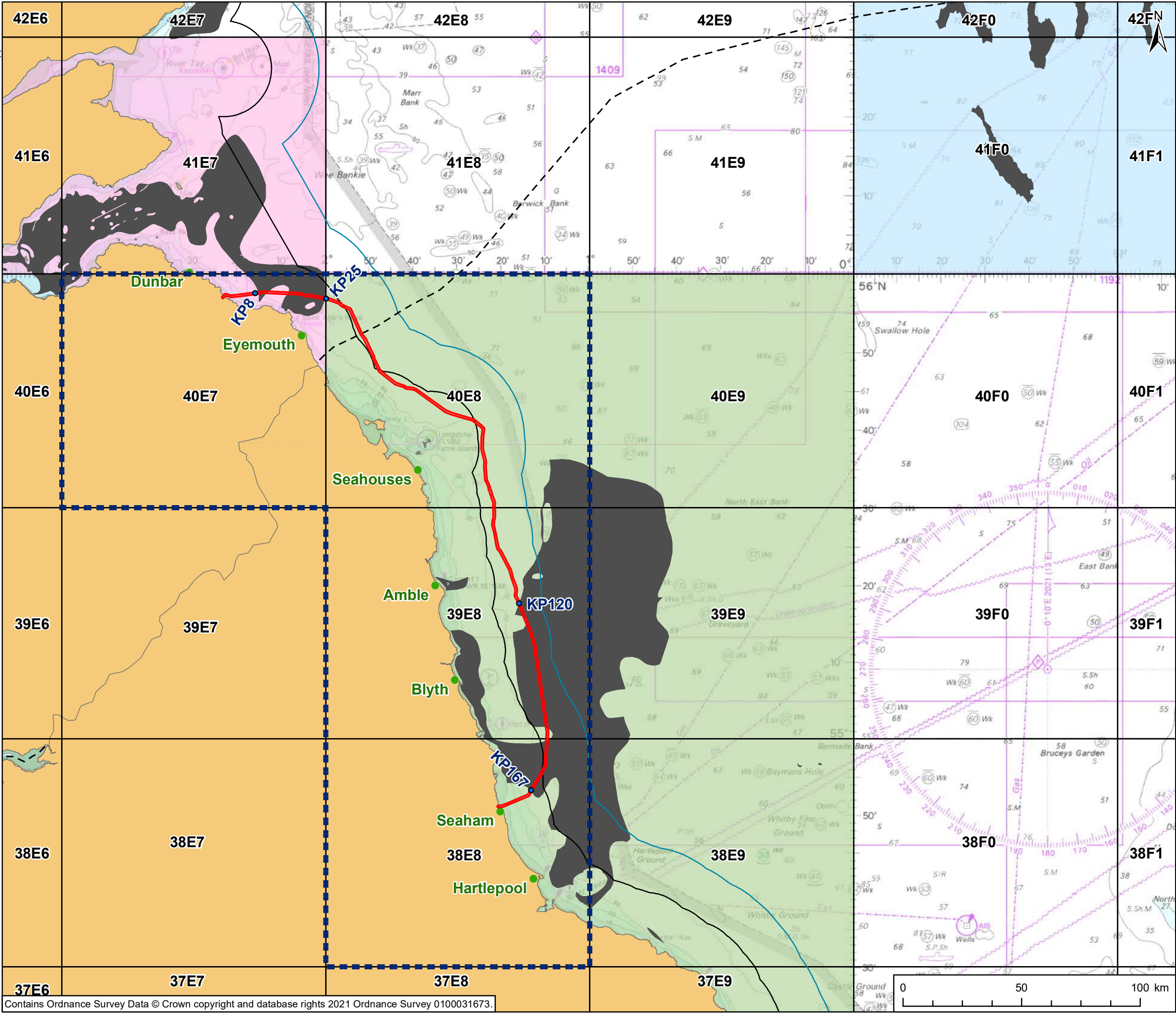
Vessel length varies on a case-by-case basis. Information collected during consultation indicates that vessels active in the study are generally between 10 and 18 m in length. Trip durations were generally reported to range between 18 to 24 hours to up to four days in some cases and steaming distances from few km to up to 60 NM. (Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).

Monthly landings of *Nephrops* in the Firth of Forth and Farn Deepes FUs from ICES rectangles of relevance to the study area are provided in Figure 14-29 (annual average 2015- 2019).

Activity by vessels engaged in the *Nephrops* fishery takes place all year round; however, the Farn Deepes fishery is predominantly a winter fishery, whilst the Firth of Forth fishery tends to peak in summer months. Scottish vessels consulted identified the period between May and July as the main season in the Firth of Forth, and between October and January in the Farn Deepes grounds. In addition, some of the Scottish vessels reported grounds off Dunbar being targeted between September and January (Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).

English stakeholders noted that the Farn Deepes *Nephrops* grounds support a winter fishery which attracts both local and visiting vessels. It is understood, however, that there is also a smaller summer/autumn fishery with local vessels, predominantly from Northumberland, targeting *Nephrops* at this time (Consultation Meeting, 4/11/2021).

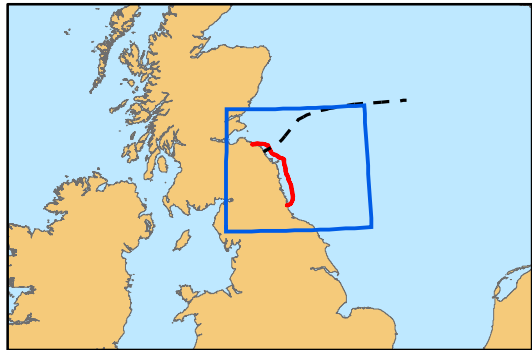
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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Nephrops Functional Unit - Firth of Forth (FU8)<sup>1</sup>
  - Nephrops Functional Unit - Farn Deeps (FU6)<sup>1</sup>
  - Nephrops Functional Unit - Devil's Hole (FU34)<sup>1</sup>
  - Suitable Nephrops habitat<sup>1</sup>

NOTES;  
<sup>1</sup> Marine Scotland (2020)



TITLE  
**Figure 14-23  
Nephrops Functional Units  
Suitable Nephrops Habitat**

REFERENCE  
AEC\_SEGL1-02-EA-015

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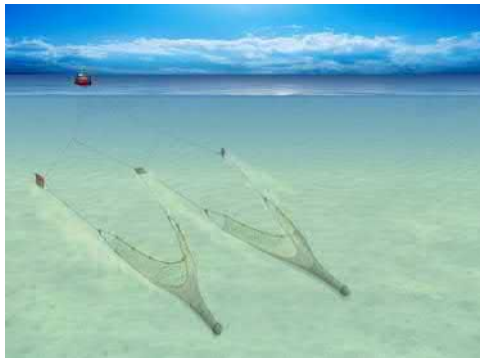
Figure 14-24: Trawl Net (Brown & May Marine, 2021)



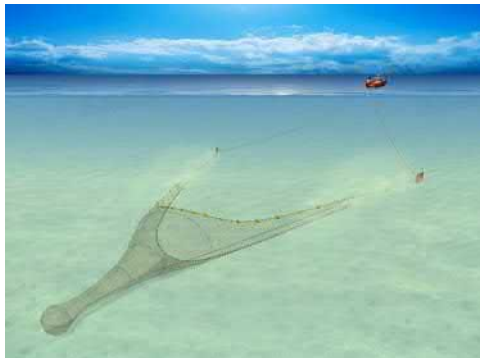
Figure 14-25: Two Twin-Rig Trawlers in Port Seton, Scotland (Brown & May Marine, 2021)



**Figure 14-26: Trawlers in North Shields, England (Brown & May Marine, 2021)**



**Figure 14-27: Twin-rig Trawl (Seafish, 2021b)**



**Figure 14-28: Single-rig Trawl (Seafish, 2021c)**





**Figure 14-29: Monthly *Nephrops* Landings from the Study Area Separated for Rectangles part of the Firth of Forth FU and the Farn Deeps FU (Annual Average 2015 – 2019) (Source: MMO)**

### 14.5.3.2 Distribution of Fishing Activity

An indication of the spatial distribution of the *Nephrops* fishery across the study area is given in Figure 14-30 to Figure 14-37, based on analysis of the following sources of data and information:

- *Nephrops* landings by ICES rectangle (Figure 14-30);
- Surveillance sightings of trawlers (Figure 14-31);
- VMS (£) data for demersal trawlers (Figure 14-32);
- Combined fishing activity for trawls (Shelmerdine & Mouat, 2021) (Figure 14-33);
- ScotMap data – *Nephrops* trawlers (monetary value) (Kafas, et al., 2014) (Figure 14-34);
- Trawling grounds identified by Scottish/English fisheries stakeholders during consultation (Figure 14-35 and Figure 14-36); and
- NIFCA and NEIFCA sightings data for trawlers (Figure 14-37).

The highest annual landings values of *Nephrops* are recorded in rectangle 39E8 (nearly £4 Million), followed by rectangles 38E8 and 40E7 (approx. £1.7 Million and £1.2 Million, respectively). Although at comparatively lower levels, rectangle 40E8 also records significant *Nephrops* landings (approx. £0.5 Million) (Figure 14-30).

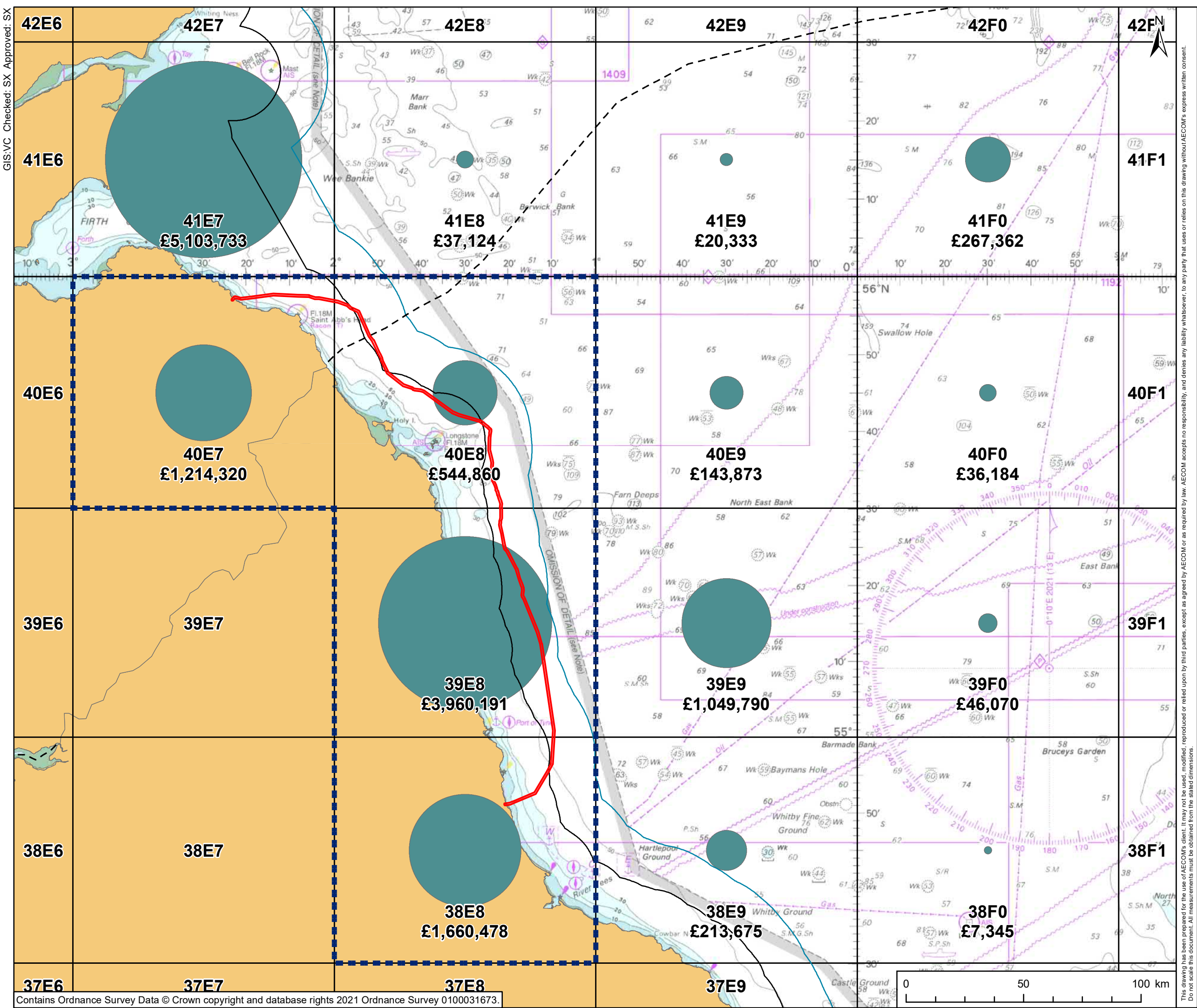
As shown in Figure 14-31 to Figure 14-33, within the study area, the distribution of surveillance sightings, VMS data for trawlers and information presented in Shelmerdine & Mouat (2021) indicates that activity concentrates in the areas of suitable *Nephrops* habitat found within in ICES rectangle 40E7 (part of FU8 – Firth of Forth) (KP 8 to KP 25) and within rectangles 39E8, 38E8 and 40E8 (part of FU6 – Farn Deeps) (approximately from KP 120 to KP 167).

Additional available information on the distribution of activity by Scottish *Nephrops* trawlers (under 15 m in length) from ScotMap data (Figure 14-34) indicates that within the study area these smaller vessels for the most part concentrate their activity in the Firth of Forth grounds, with comparatively lower activity in the Farn Deeps grounds.

The distribution of demersal trawling activity by Scottish and English vessels in areas of relevance to the marine installation corridor is illustrated in Figure 14-35 and Figure 14-36 based on grounds depicted by fishermen on paper charts and on information from plotter shots gathered during consultation (Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders). As shown in Figure 14-35, the majority of Scottish demersal trawlers consulted predominantly concentrate their activity within the Firth of Forth, off Dunbar and down to Holy Island, overlapping the marine installation corridor between KP 1 and KP 55. In these areas they generally work grounds within the 12 NM limit. Additionally, some Scottish vessels also target *Nephrops* in the Farn Deeps grounds, including in areas which overlap with the marine installation corridor between KP 76 and KP 163.

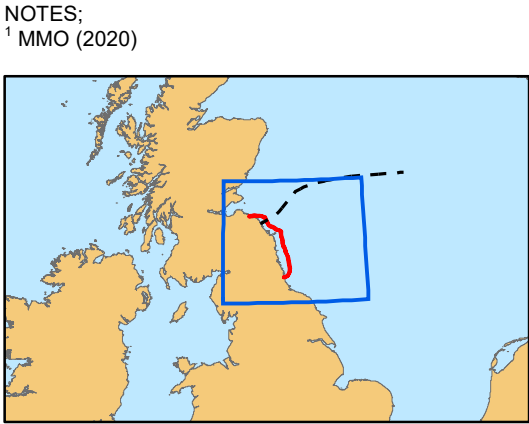
The English demersal trawlers consulted appear to concentrate their activity in the Farn Deeps, including within the section of the marine installation corridor that overlaps with these grounds (Figure 14-36) (between KP 80 and KP 176).

Similarly, sightings of trawlers recorded by NIFCA and NEIFCA (Figure 14-37) suggest that these vessels concentrate their activity in areas that overlap with suitable *Nephrops* habitat in the Farn Deeps within their districts (out to the 6 NM).



PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - - - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Species<sup>1</sup>**
    - Nephrops



TITLE  
**Figure 14-30  
UK Landings Value (£)  
Nephrops  
Average 2015-2019**

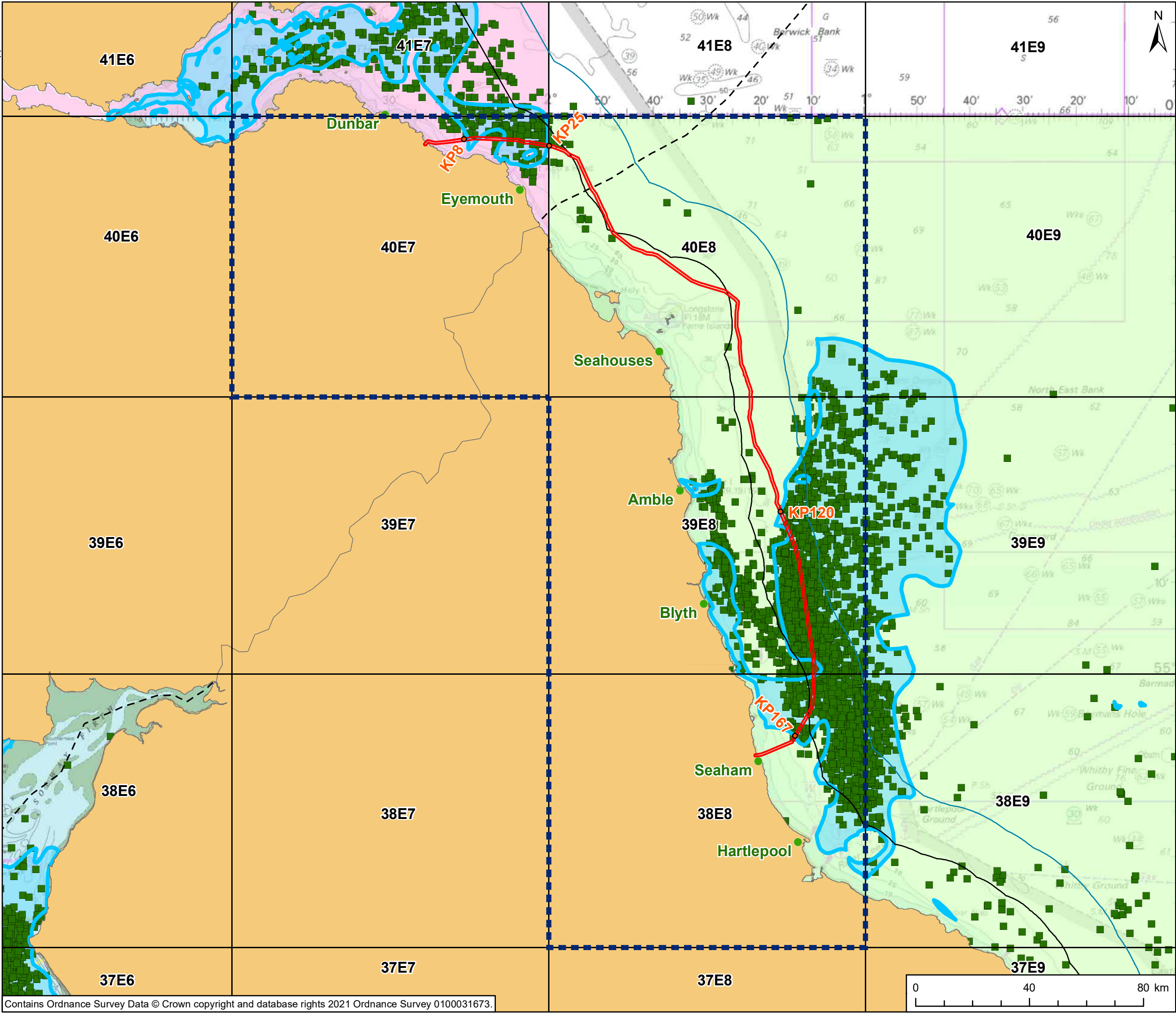
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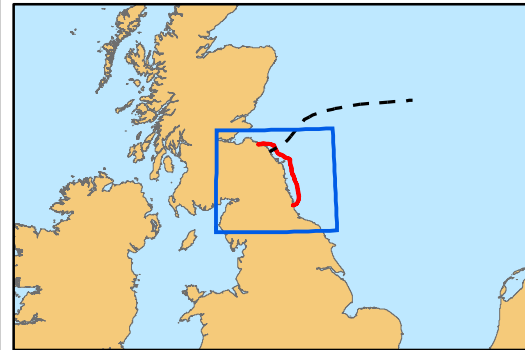


PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Nephrops Functional Unit - Firth of Forth (FU8)<sup>1</sup>
  - Nephrops Functional Unit - Farn Deepes (FU6)<sup>1</sup>
  - Suitable Nephrops habitat<sup>1</sup>
- Method
- Trawlers Combined \*

NOTES;  
<sup>1</sup> Marine Scotland (2020)  
<sup>2</sup> MMO (2021)  
<sup>3</sup> Marine Scotland (2021)

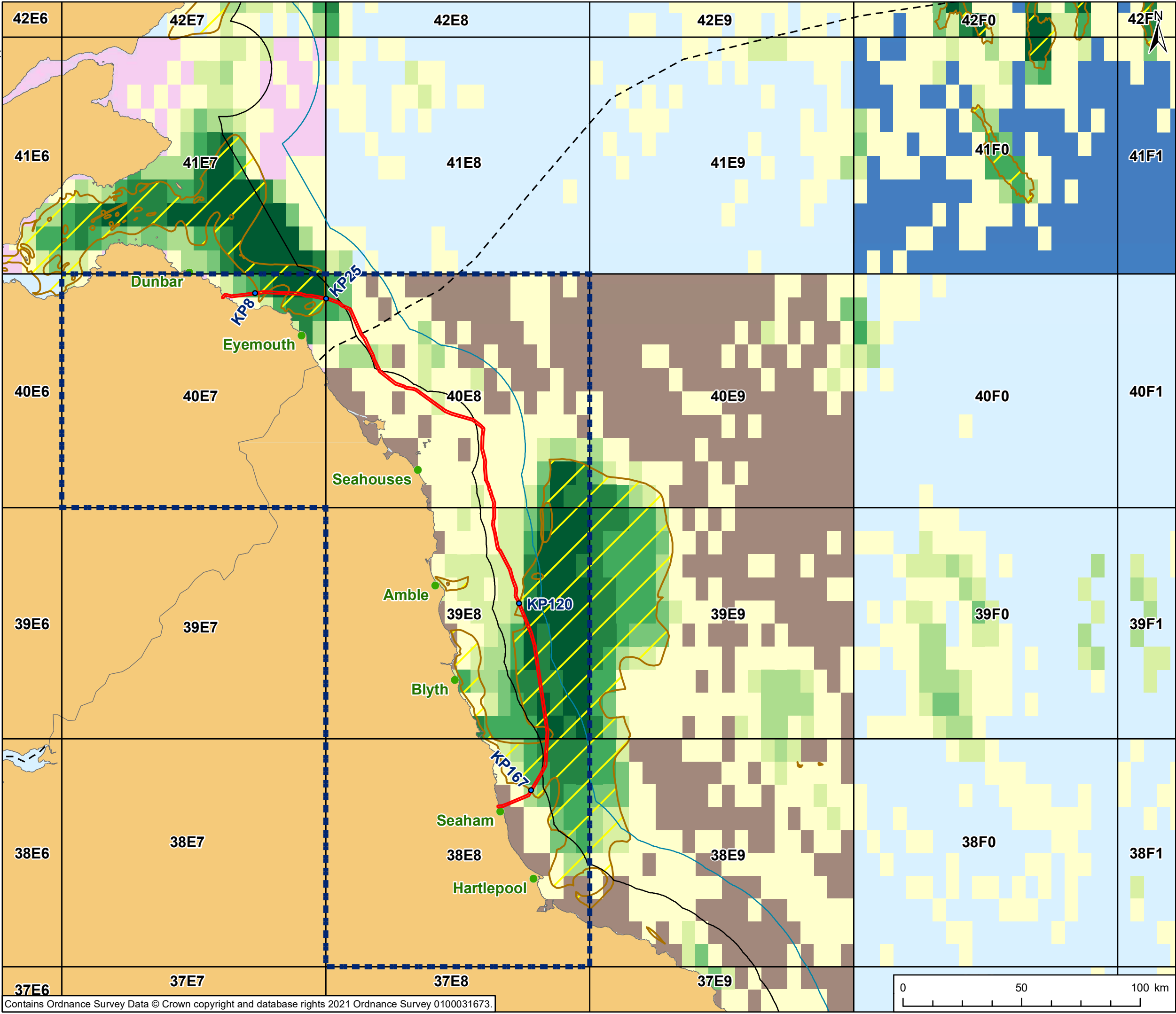
\*This method includes:  
-Trawler (All)  
- Stern trawler (Pelagic/ Demersal)  
- Demersal side trawler  
- Side trawler (Pelagic/ Demersal)



TITLE  
**Figure 14-31  
Surveillance Sightings  
Trawlers Combined (2011-2020)  
Nephrops Functional Units  
Suitable Nephrops Habitat**

REFERENCE  
AEC\_SEGL1-02-EA-027

GIS:VC Checked: SX Approved: SX



PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

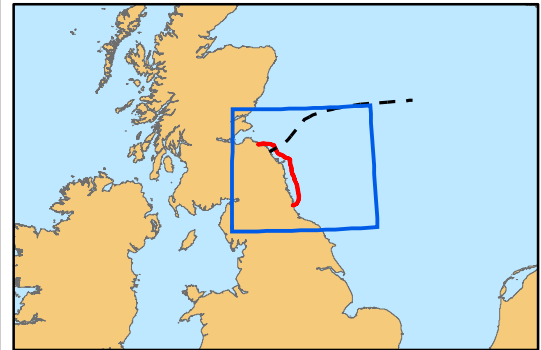
KEY

- Marine Installation Corridor
- Study Area
- - - Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles
- Main ports
- Nephrops Functional Unit - Firth of Forth (FU8)<sup>1</sup>
- Nephrops Functional Unit - Farn Deepes (FU6)<sup>1</sup>
- Nephrops Functional Unit - Devil's Hole (FU34)<sup>1</sup>
- Suitable Nephrops habitat<sup>1</sup>

**Demersal trawl or seine<sup>2</sup>**

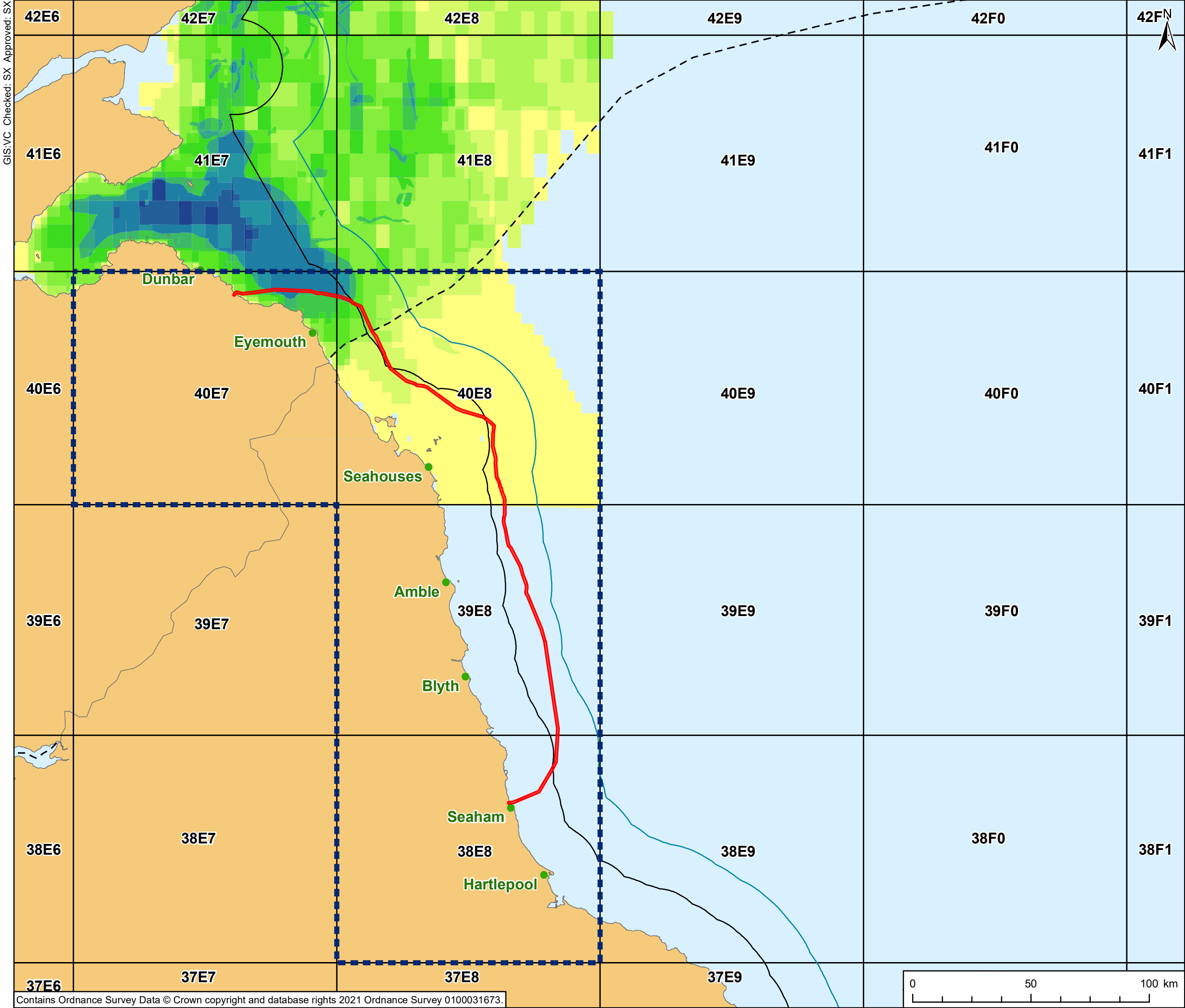
- Less than £1,000
- £1,000 - £3,000
- £3,000 - £6,000
- £6,000 - £10,000
- £10,000 - £20,000
- £20,000 - £35,000
- More than £35,000

NOTES;  
<sup>1</sup>Marine Scotland (2020)  
<sup>2</sup>MMO (2020)



TITLE  
**Figure 14-32  
Nephrops Functional Units  
Suitable Nephrops Habitat  
UK VMS Value (£) - Demersal trawl or seine  
Average 2015-2019**

REFERENCE  
AEC\_SEGL1-02-EA-026



PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

KEY

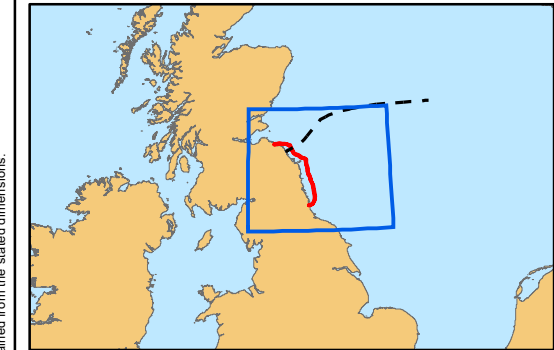
- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles
- Main ports

Likelihood/Occurrence<sup>1</sup>

High

Low

NOTES;  
<sup>1</sup> 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.

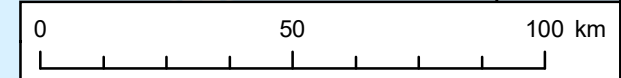


TITLE  
**Figure 14-33  
Likelihood/Occurrence of  
Combined Fishing Activity  
for Trawls**

REFERENCE  
AEC\_SEGL1-02-EA-041

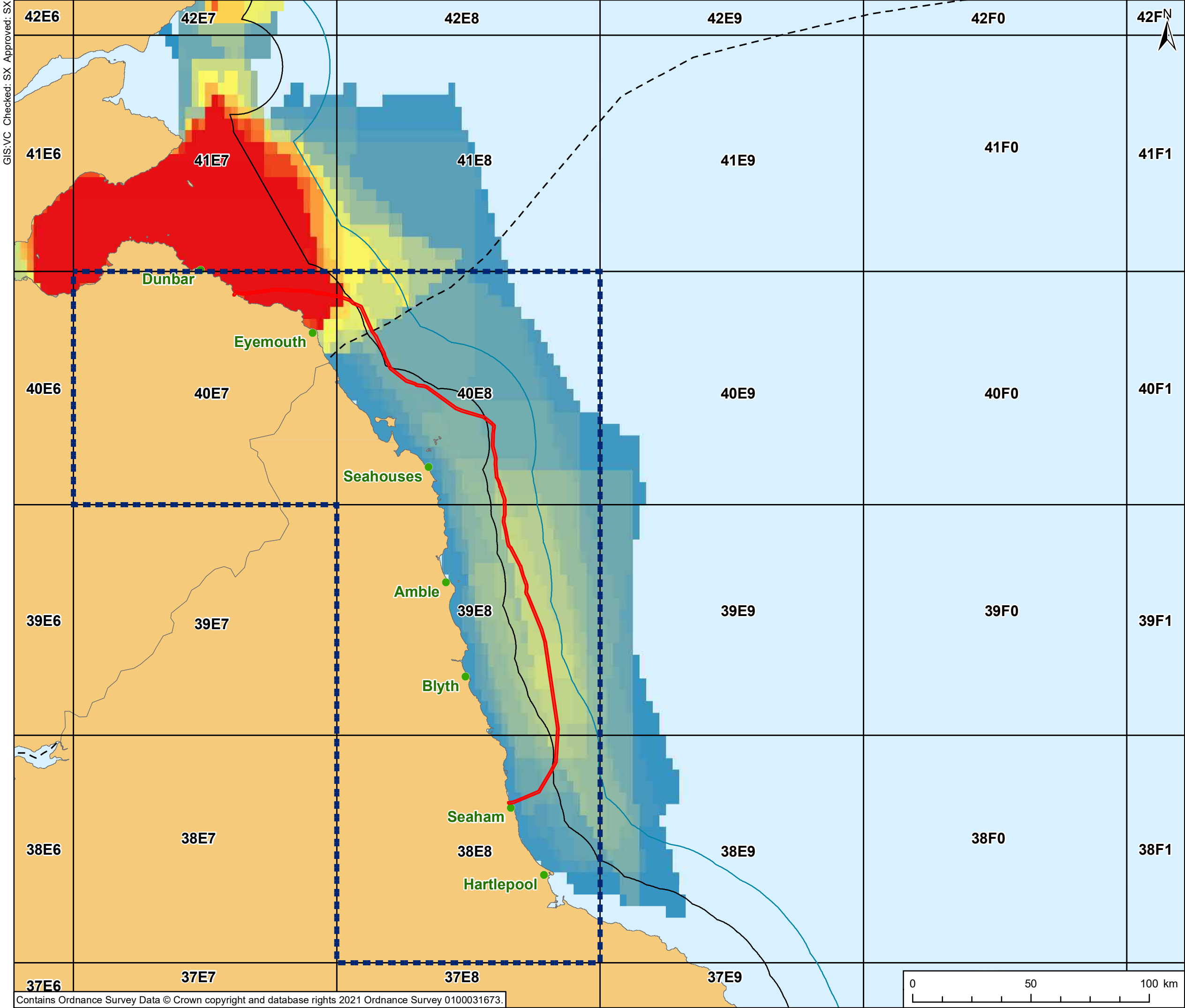
SHEET NUMBER  
1 of 1

DATE  
23/05/2022





GIS:VC Checked: SX Approved: SX



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Coordinate System: WGS 1984 World Mercator

PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

KEY

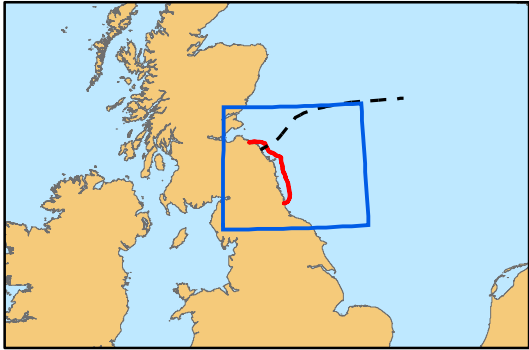
- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles
- Main ports

**Nephrops Trawls - Monetary Value<sup>1</sup>**

High : 12813.8

Low : 0

NOTES;  
<sup>1</sup>Marine Scotland (2020)  
<sup>2</sup>MMO (2020)



TITLE  
**Figure 14-34  
Inshore fishing  
Nephrops Trawls  
Monetary Value (£)**

REFERENCE  
AEC\_SEGL1-02-EA-012

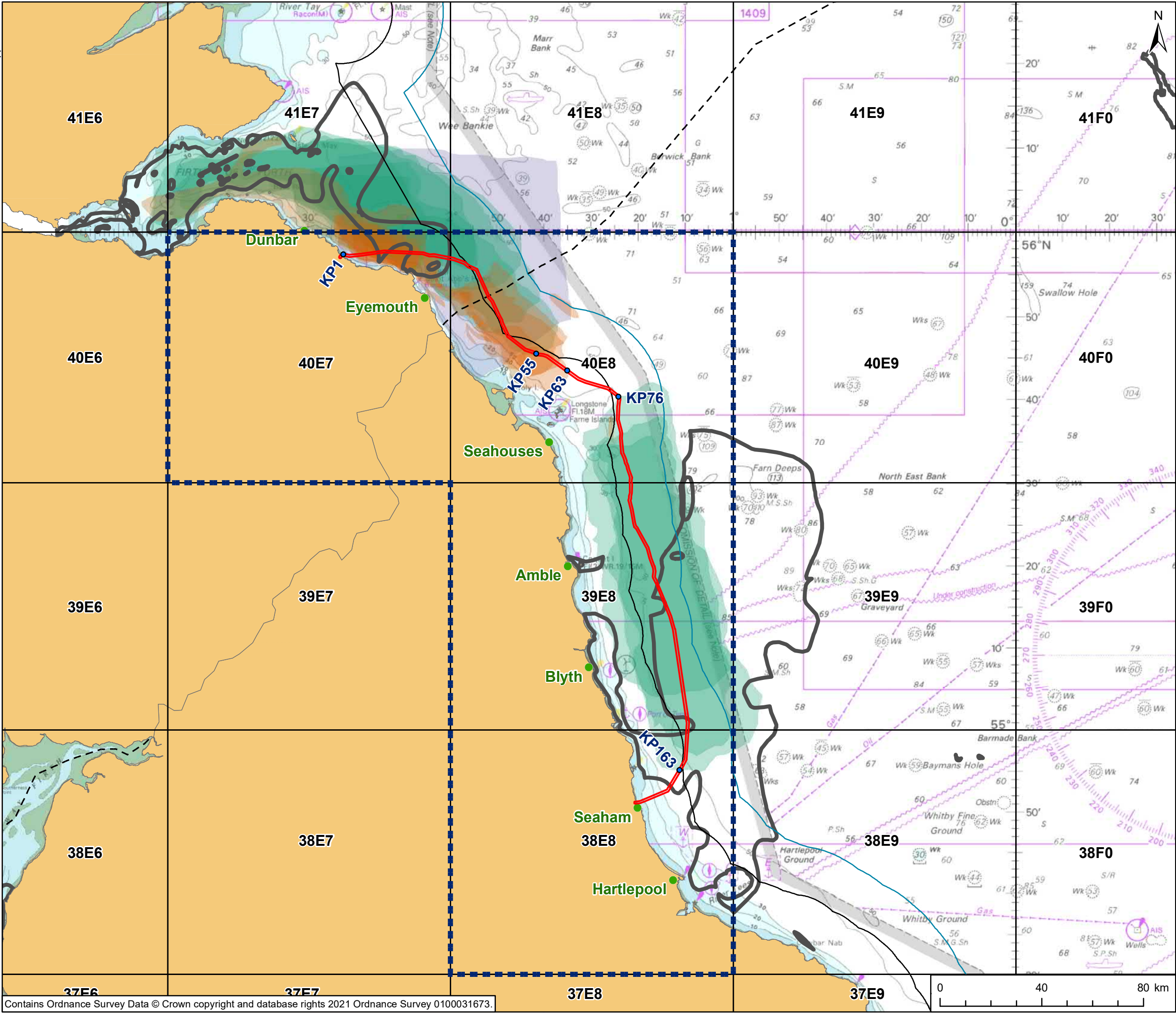
SHEET NUMBER  
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DATE  
23/05/2022

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Scale @ A3 1:1,500,000

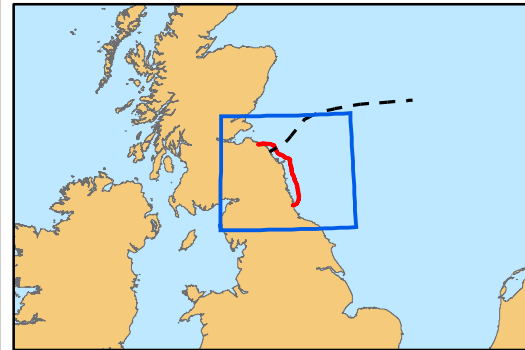
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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Suitable Nephrops habitat<sup>1</sup>
  - Scottish Trawling (Nephrops) Fishing Grounds
  - Scottish Trawling (Squid) Fishing Grounds\*
  - Scottish Trawling (Nephrops and Squid) Fishing Grounds

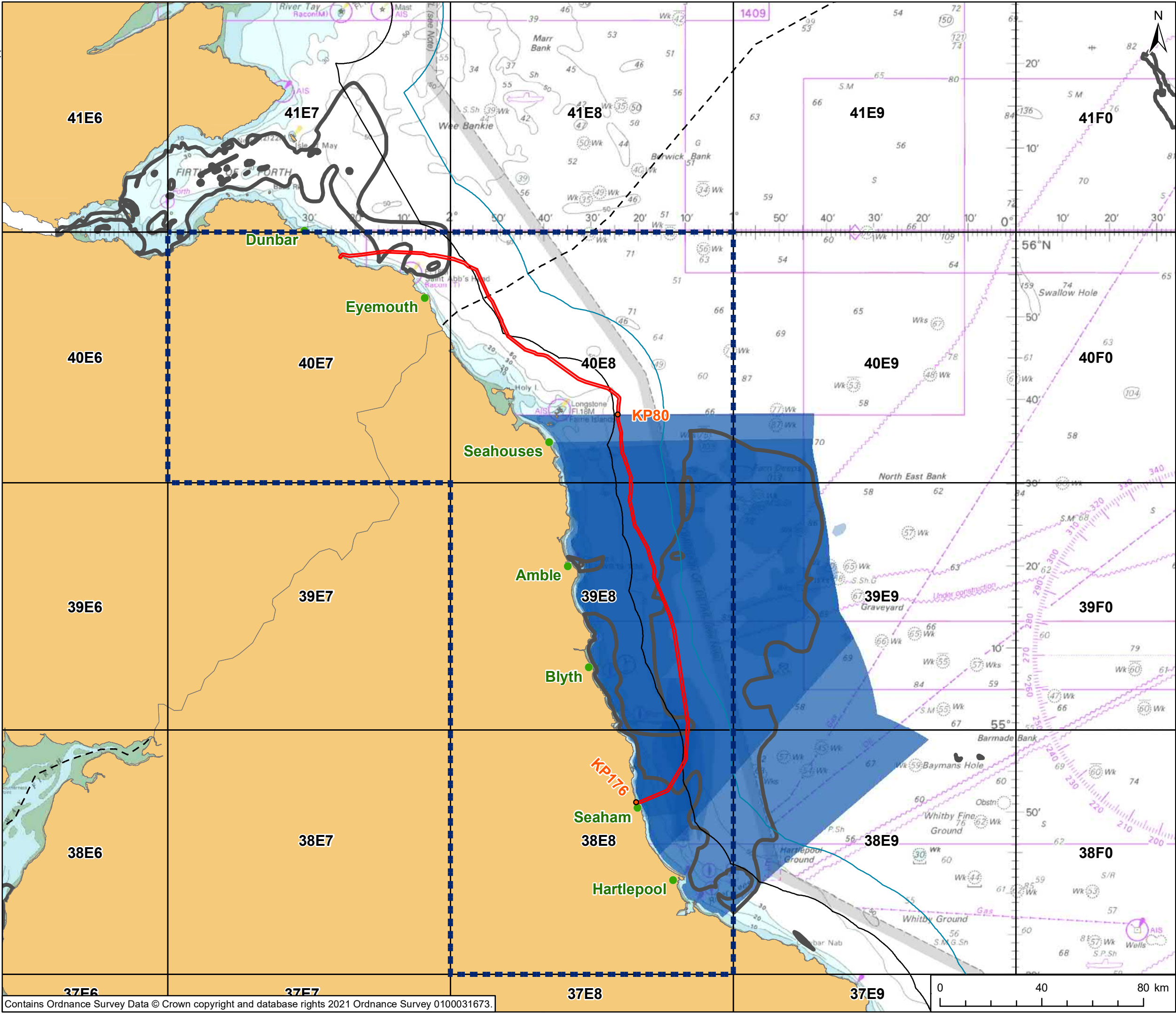
NOTES;  
<sup>1</sup> Marine Scotland (2020)  
\* Some of the fishing grounds showing squid fishing activity also include scallop fishing.



TITLE  
**Figure 14-35  
Trawling Grounds Identified  
by Scottish Fisheries Stakeholders  
During Consultation**

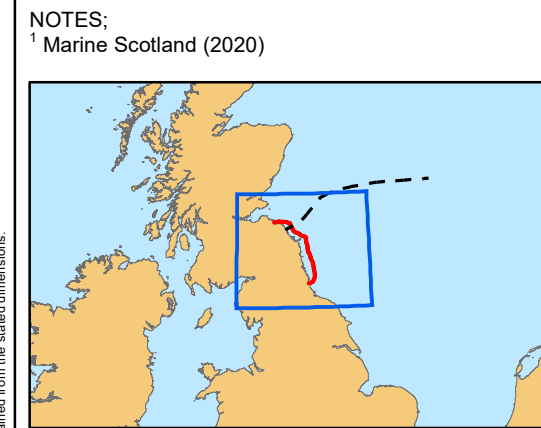
REFERENCE  
AEC\_SEGL1-02-EA-029





PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Suitable Nephrops habitat<sup>1</sup>
  - English Trawling Fishing

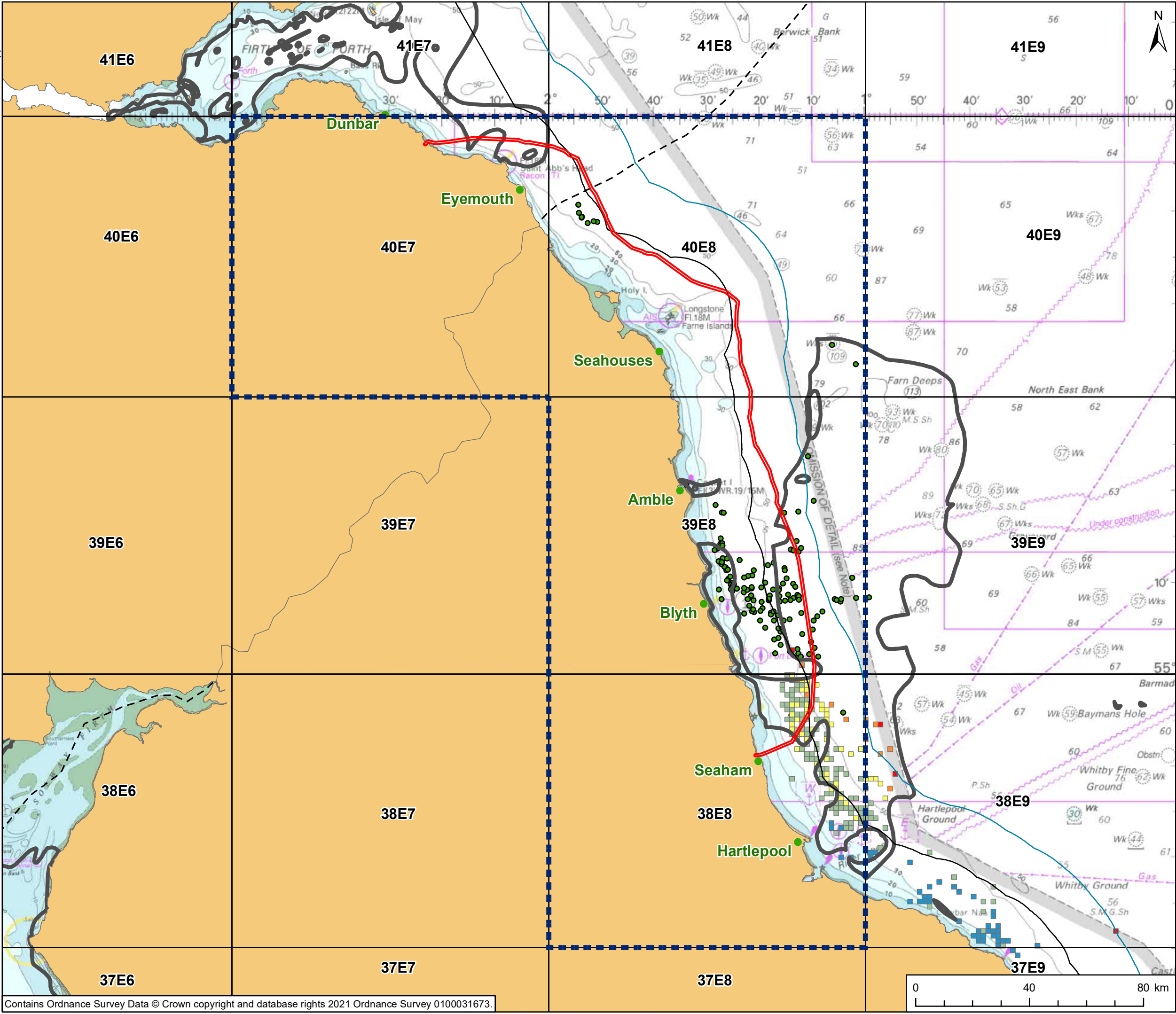


TITLE  
**Figure 14-36  
Trawling Grounds Identified  
by English Fisheries Stakeholders  
During Consultation**

REFERENCE  
AEC\_SEGL1-02-EA-031



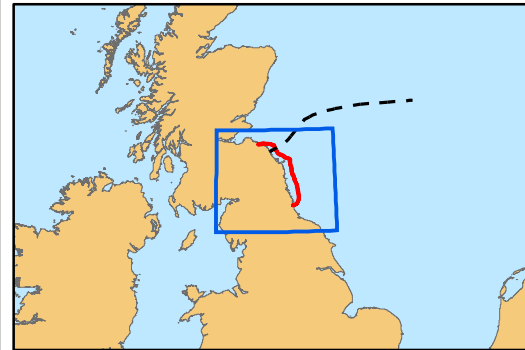
GIS:VC Checked: SX Approved: SX



PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Suitable Nephrops habitat<sup>1</sup>
  - Trawling vessels sightings (2019)<sup>2</sup>
- Trawling Density (2011 - 2015)<sup>3</sup>**
- 0.0 - 0.01
  - 0.01 - 0.04
  - 0.04 - 0.11
  - 0.11 - 0.33
  - 0.33 - 1

NOTES;  
<sup>1</sup> Marine Scotland (2020)  
<sup>2</sup> NIFCA (2019)  
<sup>3</sup> NEIFCA



TITLE  
**Figure 14-37  
NIFCA Sightings of Trawlers and  
NEIFCA Trawling Density**

REFERENCE  
AEC\_SEGL1-02-EA-035

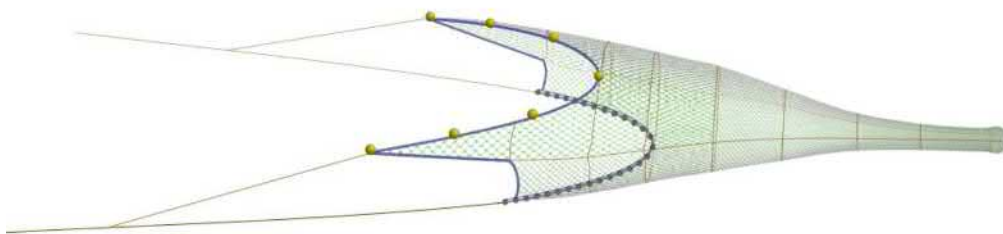
### 14.5.4 Squid Fishery

As mentioned in Section 14.5.1, various of the Scottish demersal trawlers consulted noted squid as target species, in addition to *Nephrops*, their main target species.

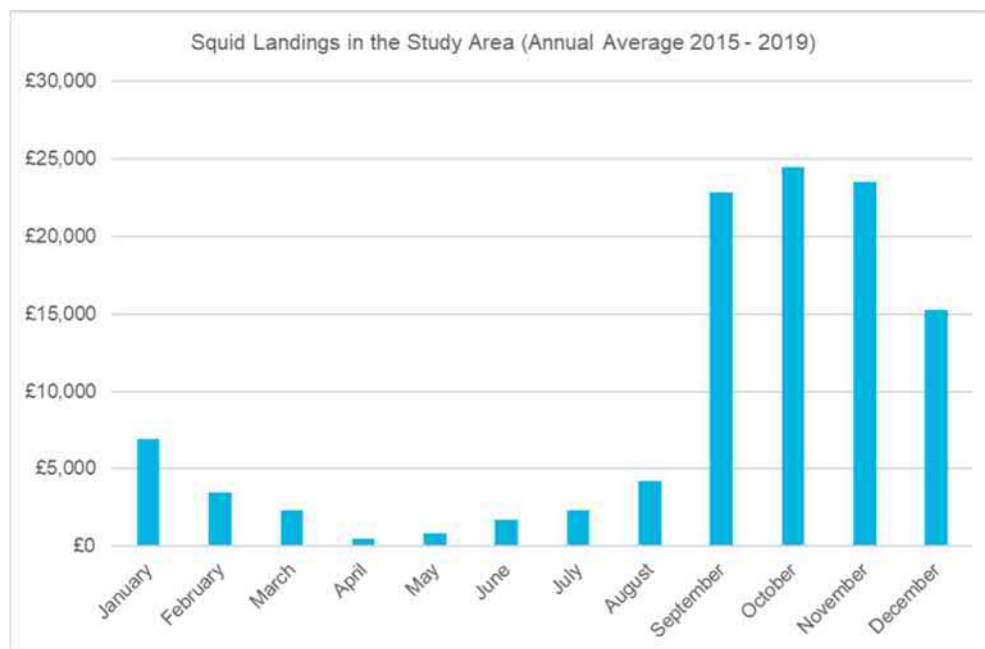
Vessels engaged in this fishery typically use single rig trawls with rockhoppers (Figure 14-38). As shown in Figure 14-40, landings of squid in the study area are however comparatively low, with total annual values per ICES rectangle under £50,000.

The distribution of squid fishing grounds in areas of relevance to the marine installation corridor reported by Scottish fishermen are illustrated in Figure 14-35, together with *Nephrops* grounds. As shown, there is some overlap between squid grounds and the marine installation corridor. These concentrate in inshore areas within the 6 NM within ICES rectangle 40E7 and the northern section of rectangle 40E8 (from KP 1 to KP 63).

An indication of the seasonality of the squid fishery in the study area is provided in Figure 14-39, based on analysis of monthly landings (average 2015 and 2019). As shown, landings of squid peak during the autumn months. In line with this, demersal trawlers consulted with that target squid indicated that the main squid season runs between August and December (Volume 3 Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).



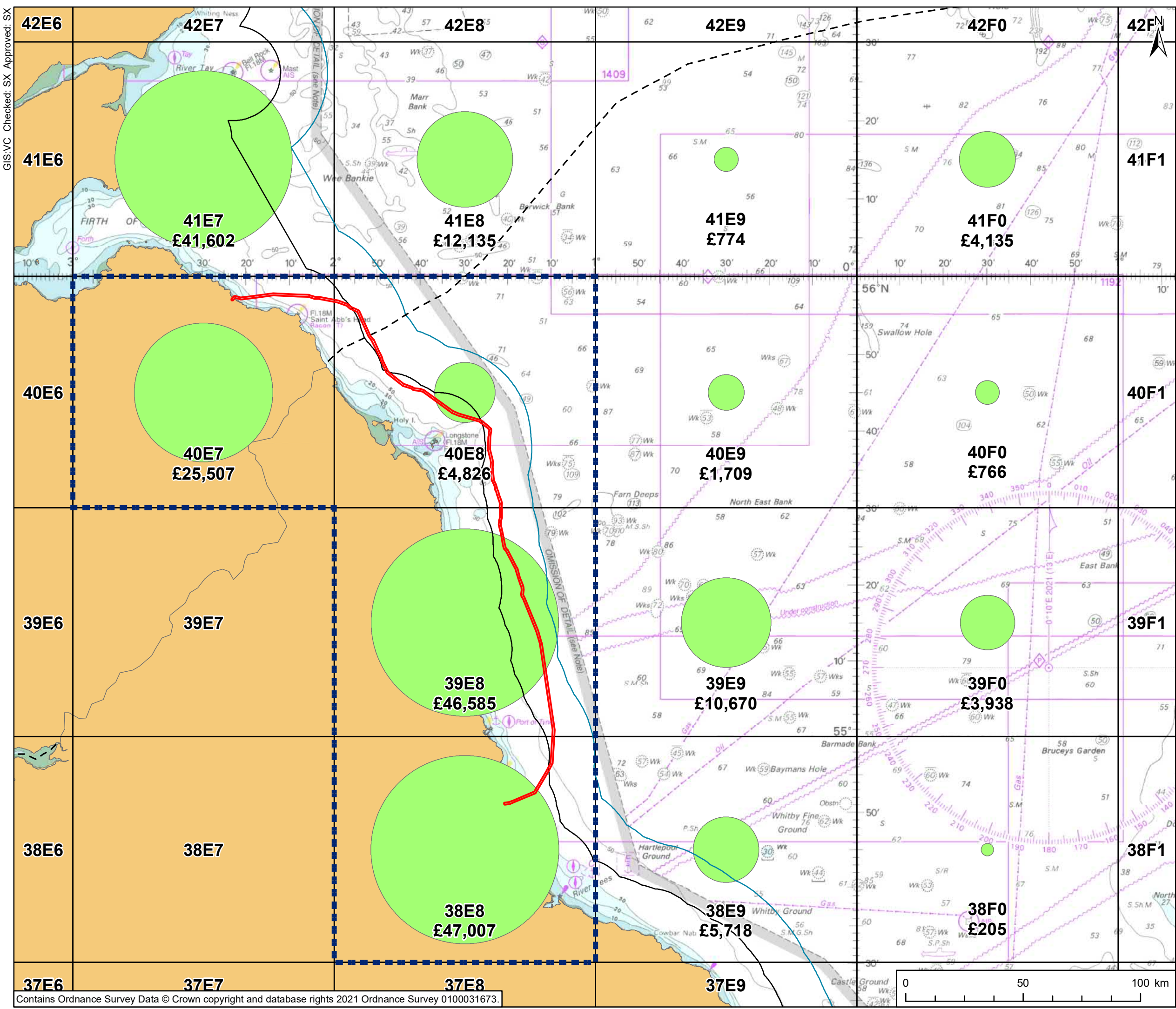
**Figure 14-38: Single Demersal Rockhopper Trawl (Seafish, 2021e)**



**Figure 14-39: Monthly Squid Landings in the Study Area (Average 2015 – 2019) (Source: MMO)**



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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

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

NOTES;  
<sup>1</sup> MMO (2020)

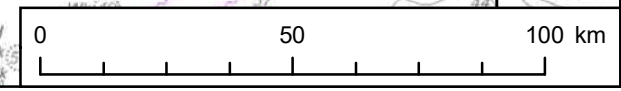


TITLE  
**Figure 14-40  
UK Landings Value (£)  
Squid  
Average 2015-2019**

REFERENCE  
AEC\_SEGL1-02-EA-028

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23/05/2022





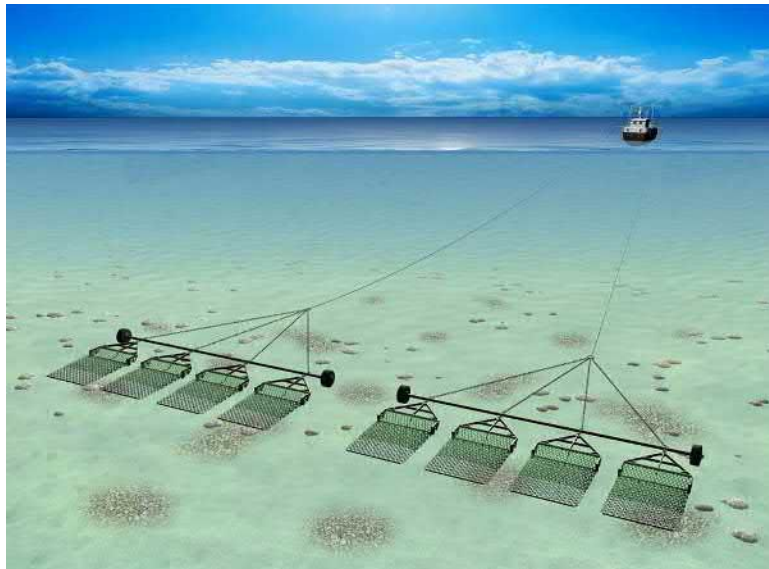
## 14.5.5 Scallop Dredge Fishery

### 14.5.5.1 Fishing Gear, Methods, and Operating Practices

The dredges used to target scallops consist of 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. Several dredges are towed behind a heavy spreading bar, normally from each side of the vessels (Seafish, 2021d) (Figure 14-41).

The number of dredges that a vessel can operate increases with distance from the coast, varying depending on whether a vessel operates within the 6 NM, between the 6-12 NM or beyond the 12 NM limit. These differing restrictions on scallop fishing activity have effectively split the UK scallop fishing fleet into two main components: smaller vessels (8-15 m in length) with 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 large vessels (greater than 15 m in length) operate large numbers of dredges and may fish for 4 to 5 days at a time. This fleet is often highly nomadic, with some boats fishing grounds around the UK (Howarth & Stewart, 2014).

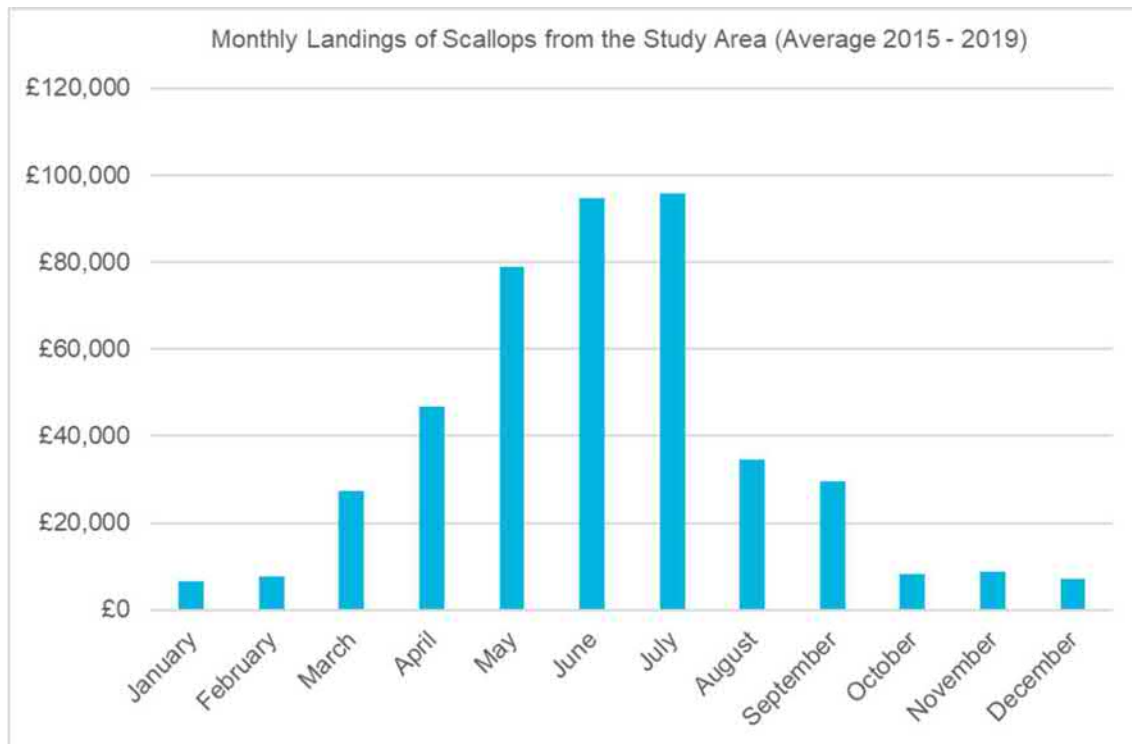
It is understood that scallop dredging activity is undertaken in the study area at relatively low levels and is predominantly by nomadic vessels in transit between more productive fishing grounds (Consultation Meeting, 4/11/2021; Consultation Meeting, 2/11/2021) (see Section 14.5.5.2).



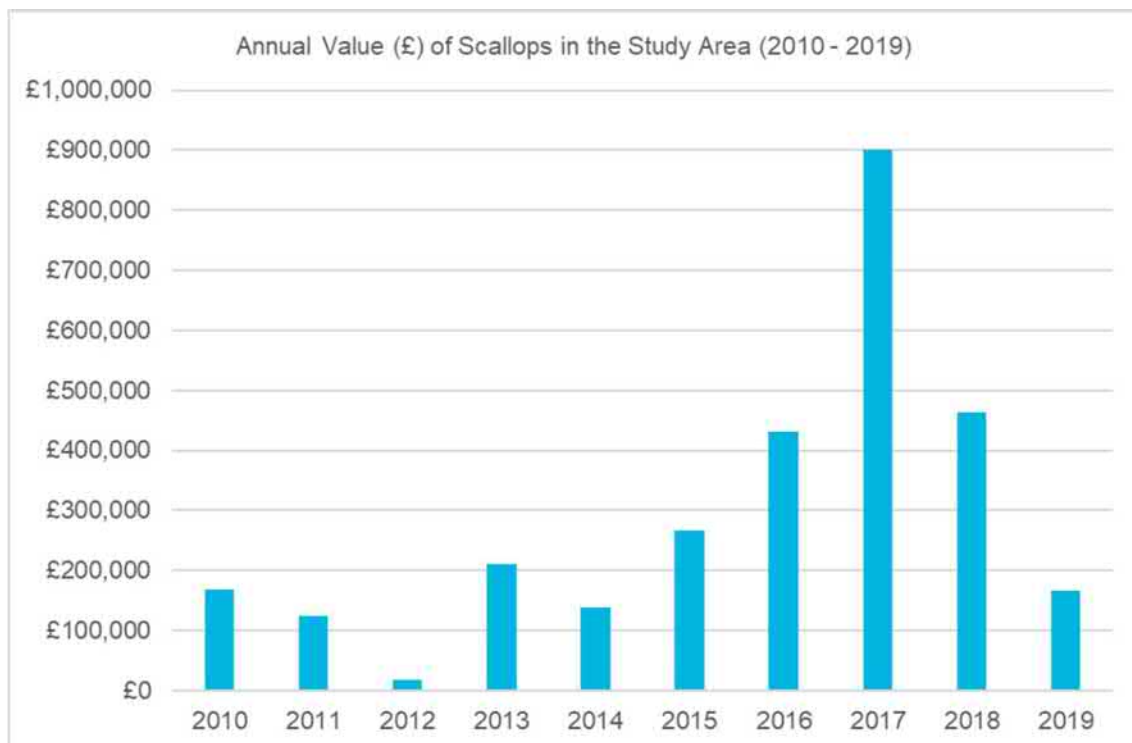
**Figure 14-41: Scallop dredger (Seafish, 2021d)**

An indication of the seasonality of the scallop fishery in the study area is provided in Figure 14-42, based on analysis of monthly landings between 2015 and 2019. As shown, landings of scallops peak during the spring and summer months.

It is also important to note that the scallop fishery is cyclical in nature and productive grounds rotate around the UK on a 7–8-year cycle (Cappell, et al., 2018). An indication of the annual variation/cycle of the scallop fishery in the commercial fisheries study area is given in Figure 14-43, based on analysis of scallop landings. As shown, the value of scallop landings increased from 2012 onwards, peaking in 2017 to then decrease in 2018 and 2019.



**Figure 14-42: Monthly Scallops Landings in the Study Area (Average 2015 – 2019) (Source: MMO)**



**Figure 14-43: Annual Landings of Scallops in the Study Area (2010 to 2019) (Source: MMO)**

### 14.5.5.2 Distribution of Fishing Activity

An indication of the spatial distribution of the scallop fishery across the study area is given in Figure 14-44 to Figure 14-49 based on analysis of the following sources of data and information:

- Scallop landings by ICES rectangle (Figure 14-44);
- Surveillance sightings of scallop dredgers (Figure 14-45);
- VMS (£) data for dredgers (Figure 14-46 and Figure 14-50);
- ScotMap data – dredgers (monetary value) (Kafas, et al., 2014) (Figure 14-47);
- Combined fishing activity for scallop dredgers (Shelmerdine & Mouat, 2021) (Figure 14-48); and
- NIFCA and NEIFCA sightings data for dredgers (Figure 14-49).

Within the study area, the highest annual landings values for scallops are recorded in rectangle 40E8 (at nearly £300,000). The rest of rectangles in the study area, particularly 40E7 and 39E8, also record scallop landings however at lower levels (Figure 14-44).

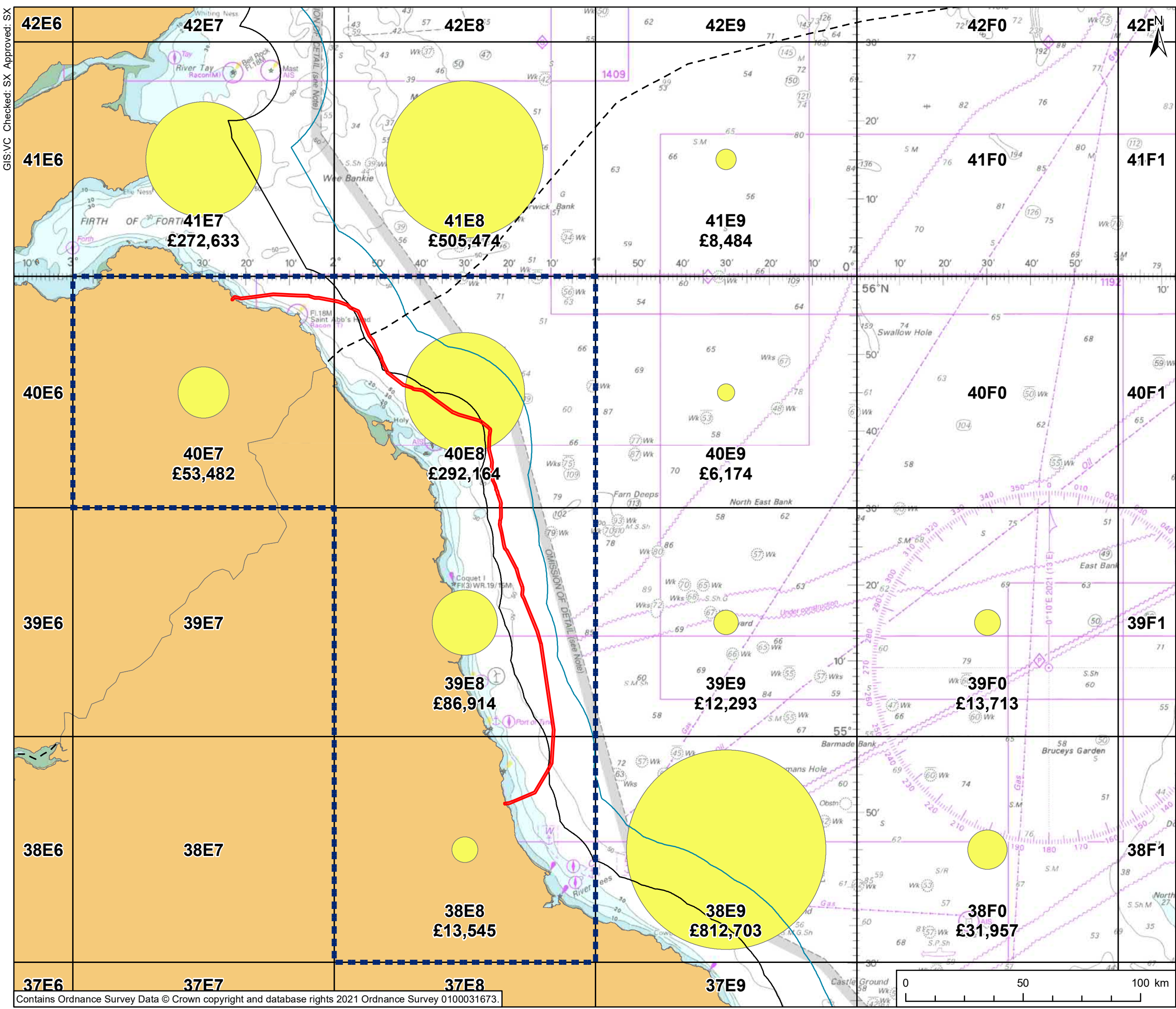
In line with this, the distribution of surveillance sightings, VMS data by value and information available from Shelmerdine & Mouat (2021) for dredgers (Figure 14-45, Figure 14-46 and Figure 14-48) also suggest that within the study area scallop dredging activity is undertaken predominantly in rectangles 40E7, 40E8 and 39E8 (from KP 1 to KP 119). From these figures, it is evident that scallop dredging activity occurs in the immediate area of the marine installation corridor within these three rectangles and more significantly within rectangle 40E8 (KP 25 to KP 95). It is noted, however, that activity levels in this area are comparatively lower than those recorded in more productive grounds around the UK (Figure 14-50). During consultation with fisheries stakeholders, it was noted that these grounds support limited activity at present due to gear conflicts with static gear (Consultation Meeting, 2/11/2021). In line with this, fishing grounds identified by potters during consultation (Figure 14-21) suggest significant static gear fishing takes place in the area, particularly around rectangle 40E8. In addition, fisheries stakeholders noted that that scallop grounds of relevance to the marine installation corridor are presently viewed as unprofitable in comparison to grounds in Scarborough and Flamborough Head (Consultation Meeting, 4/11/2021; Consultation Meeting, 2/11/2021).

Additional available information on the distribution of activity by Scottish scallop dredgers (under 15 m in length) from ScotMap data (Figure 14-47), indicates that there is limited activity by these vessels in the study area.

Similarly, data collected by NEIFCA and NIFCA within their districts (Figure 14-49) suggests negligible activity by small English dredgers in inshore areas in the proximity of the marine installation corridor. As previously mentioned, the majority of fishing activity in the scallop grounds that overlap with the marine installation corridor is expected to be undertaken by nomadic vessels and therefore by vessels typically larger in size (over 15 m).

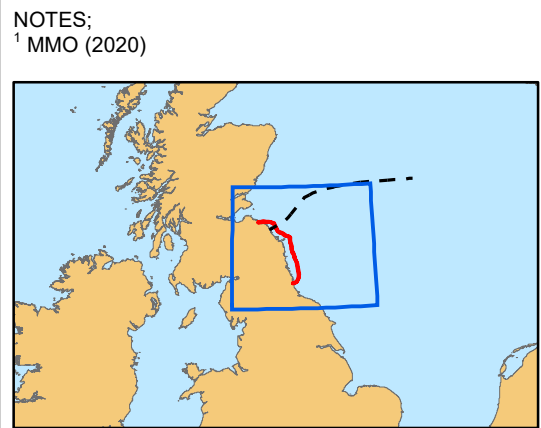


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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - - - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Species<sup>1</sup>**
  - Scallops



TITLE  
**Figure 14-44  
UK Landings Value (£)  
Scallops  
Average 2015-2019**

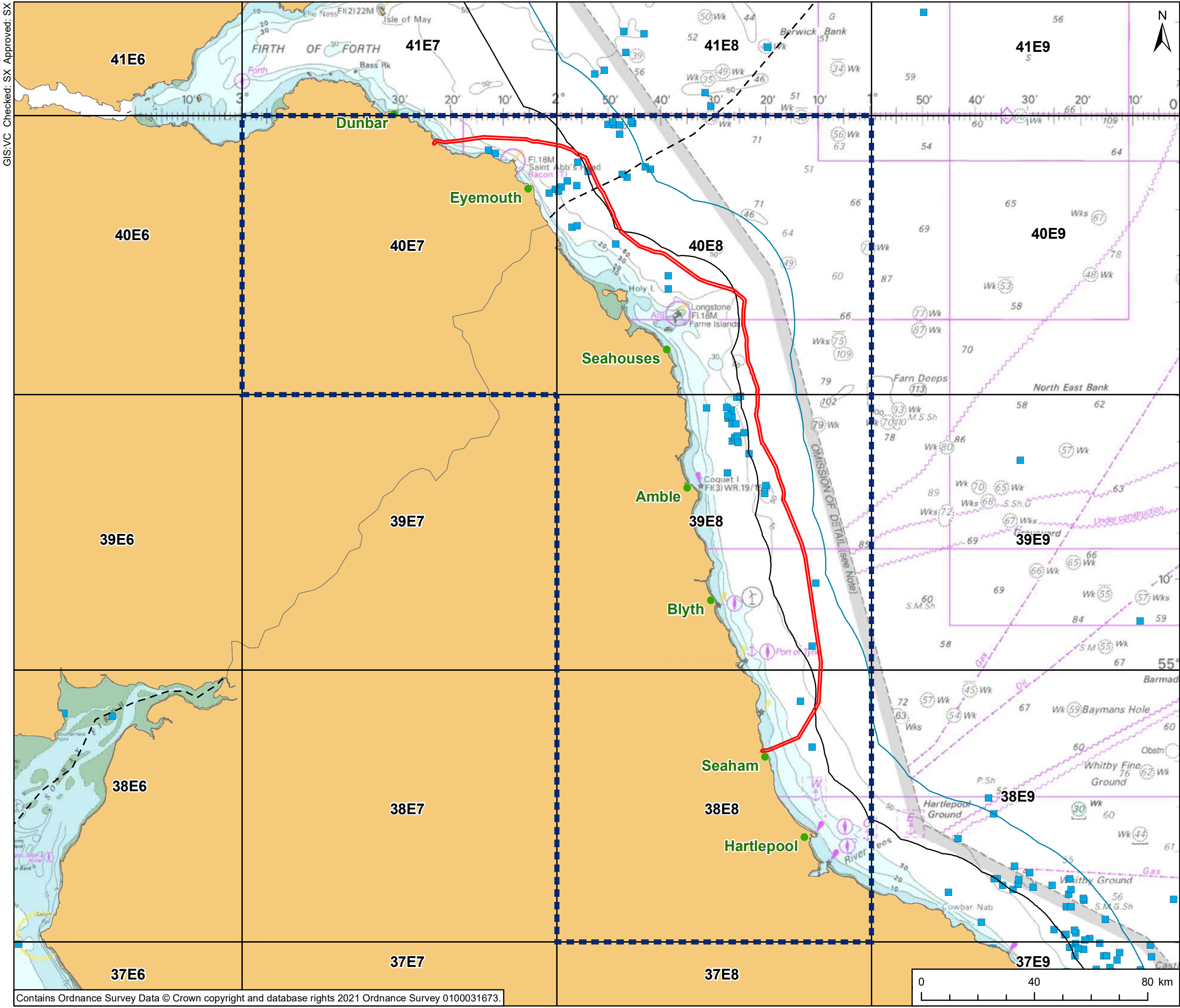
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PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

KEY

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

Method

- Scallop dredger (French/ Newhaven)

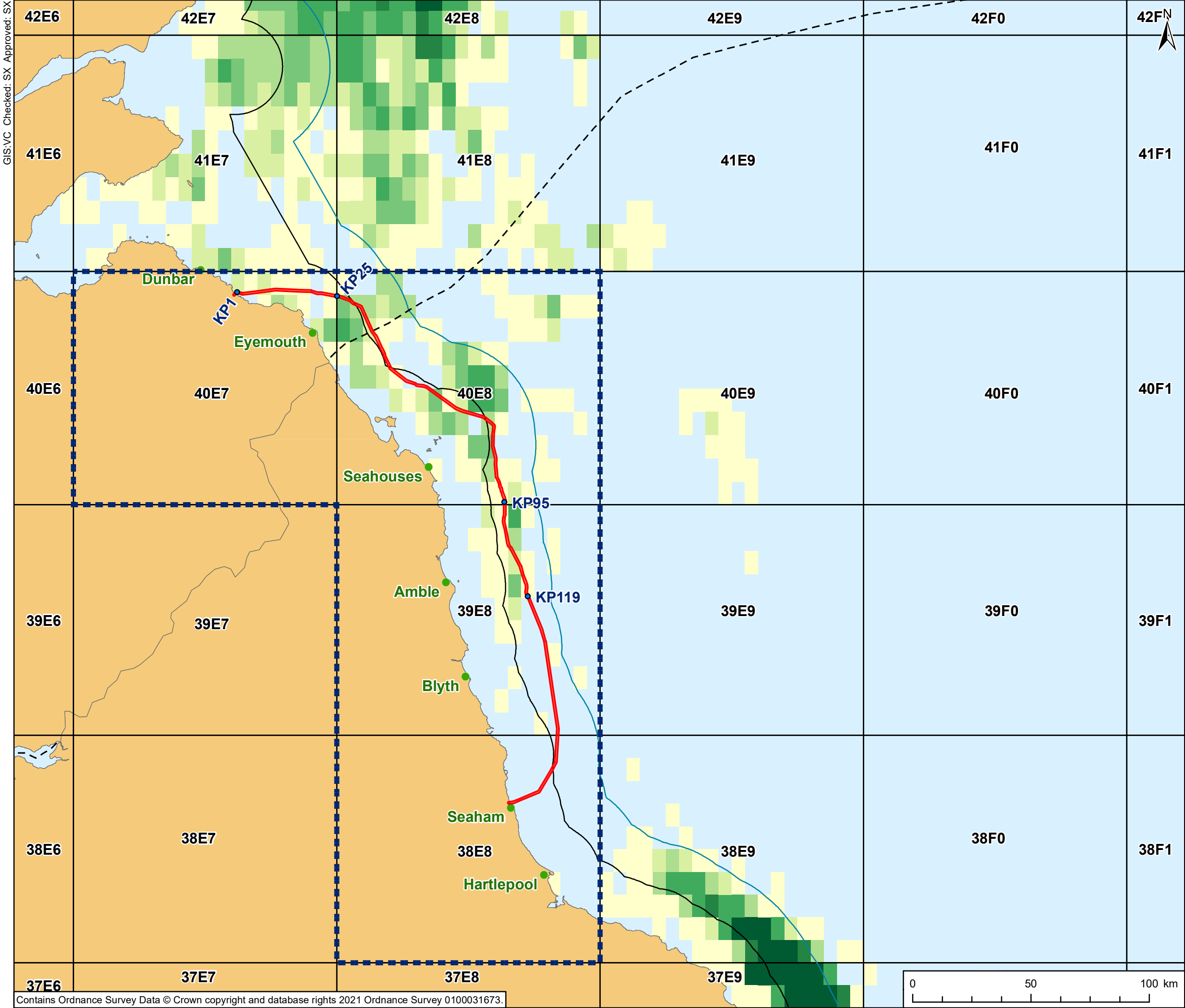
NOTES;  
<sup>1</sup> MMO (2021)  
<sup>2</sup> Marine Scotland (2021)

TITLE  
**Figure 14-45  
Surveillance Sightings  
Scallop Dredgers  
2011-2020**

REFERENCE  
AEC\_SEGL1-02-EA-024

SHEET NUMBER  
1 of 1

DATE  
23/05/2022



PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

KEY

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

**Dredges<sup>1</sup>**

- 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;  
<sup>1</sup> MMO (2020)

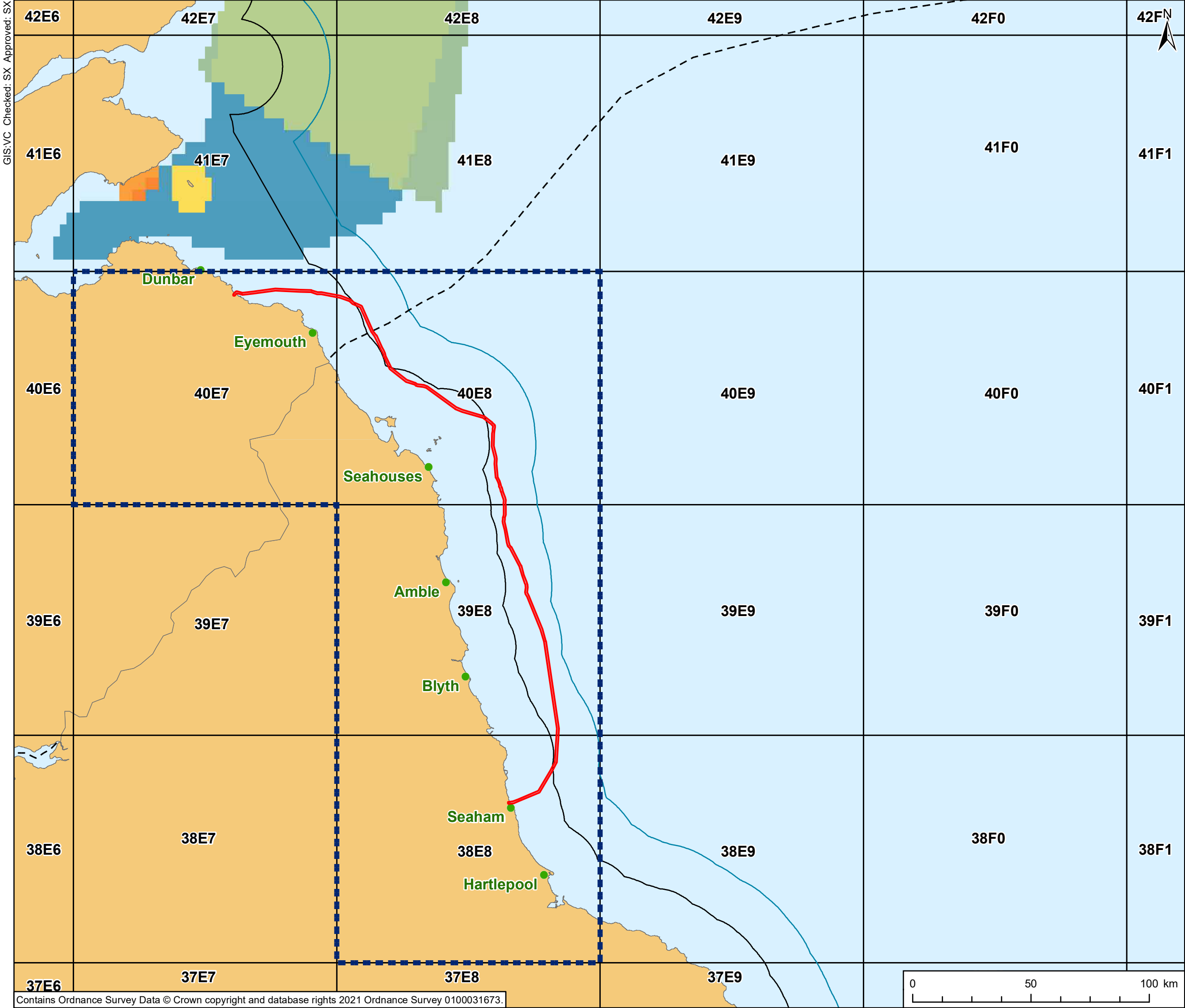
TITLE  
**Figure 14-46  
UK VMS Value (£)  
Dredges  
Average 2015-2019**

REFERENCE  
AEC\_SEGL1-02-EA-006

SHEET NUMBER  
1 of 1

DATE  
23/05/2022





PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

KEY

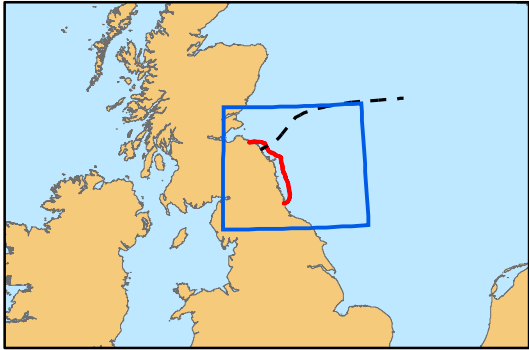
- Marine Installation Corridor
- Study Area
- Scottish/English Water Border
- 6 NM Limit
- 12 NM Limit
- ICES Rectangles
- Main ports

**Scallop Towed Dredges - Monetary Value<sup>1</sup>**

High : 6443.33

Low : 0

NOTES:  
<sup>1</sup>Kafas, A., McLay, A., Chimiento, M., Gubbins, M. (2014) Scotmap Inshore Fisheries Mapping in Scotland: Recording Fishermen's use of the Sea. Scottish Marine and Freshwater Science Volumen 5 Number 17. Edinburgh: Scottish Government, 32p.

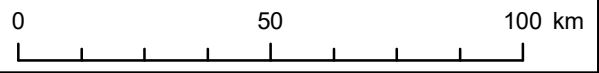


TITLE  
**Figure 14-47  
Inshore fishing  
Scallop Towed Dredges  
Monetary Value (£)**

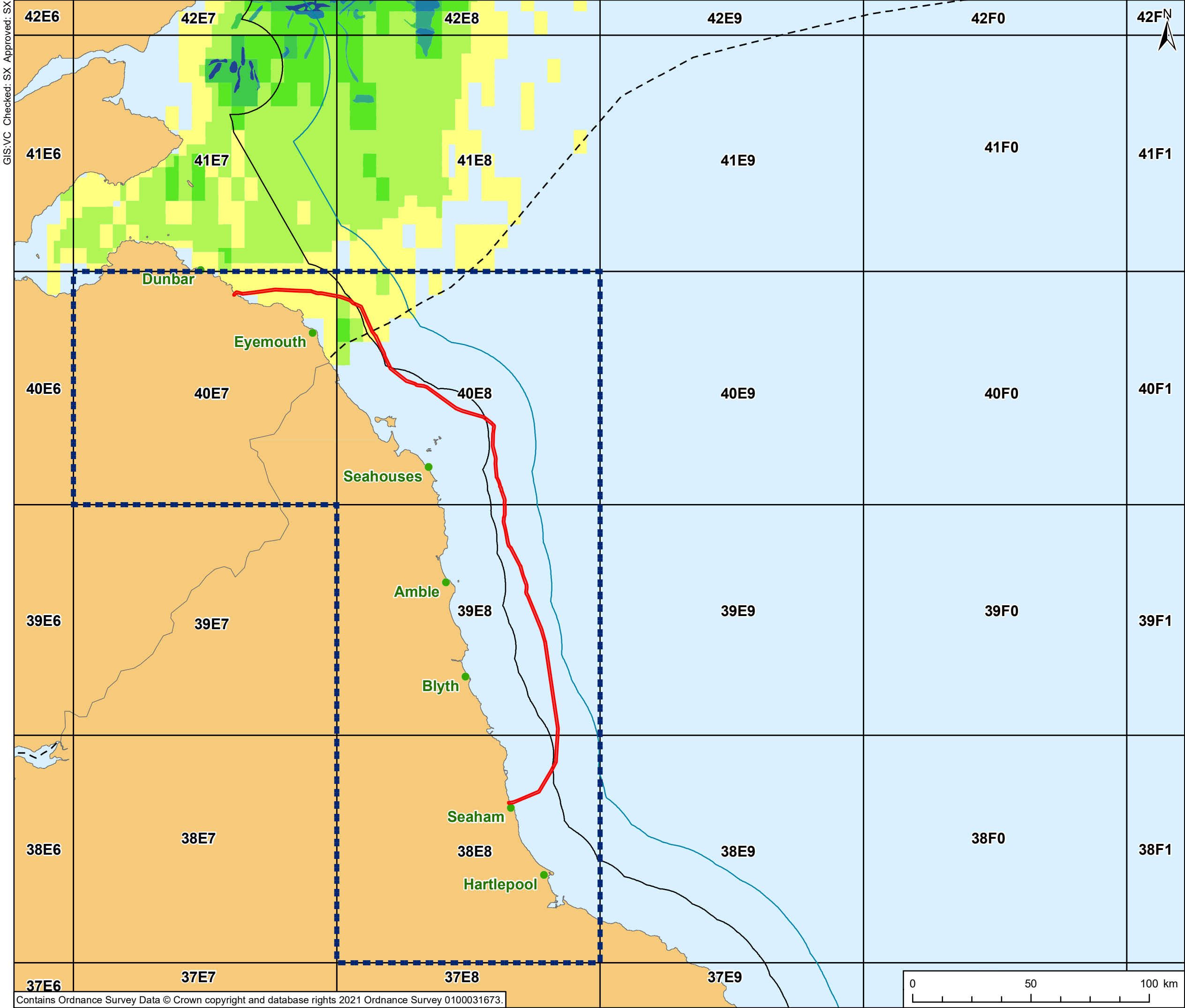
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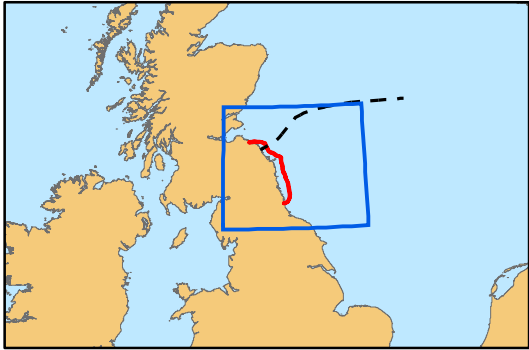
KEY

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

**Likelihood/Occurrence<sup>1</sup>**

High  
Low

NOTES;  
<sup>1</sup> 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.

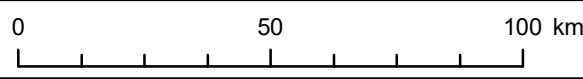










TITLE  
**Figure 14-48  
Likelihood/Occurrence of  
Combined Fishing Activity  
for Scallop Dredging**

REFERENCE  
AEC\_SEGL1-02-EA-039

SHEET NUMBER  
1 of 1

DATE  
23/05/2022

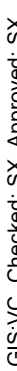


-  Marine Installation Corridor
-  Study Area
-  Scottish/English Water Border
-  6 NM Limit
-  12 NM Limit
-  ICES Rectangles
-  Main ports
-  Dredging vessels sighting (2019)<sup>1</sup>

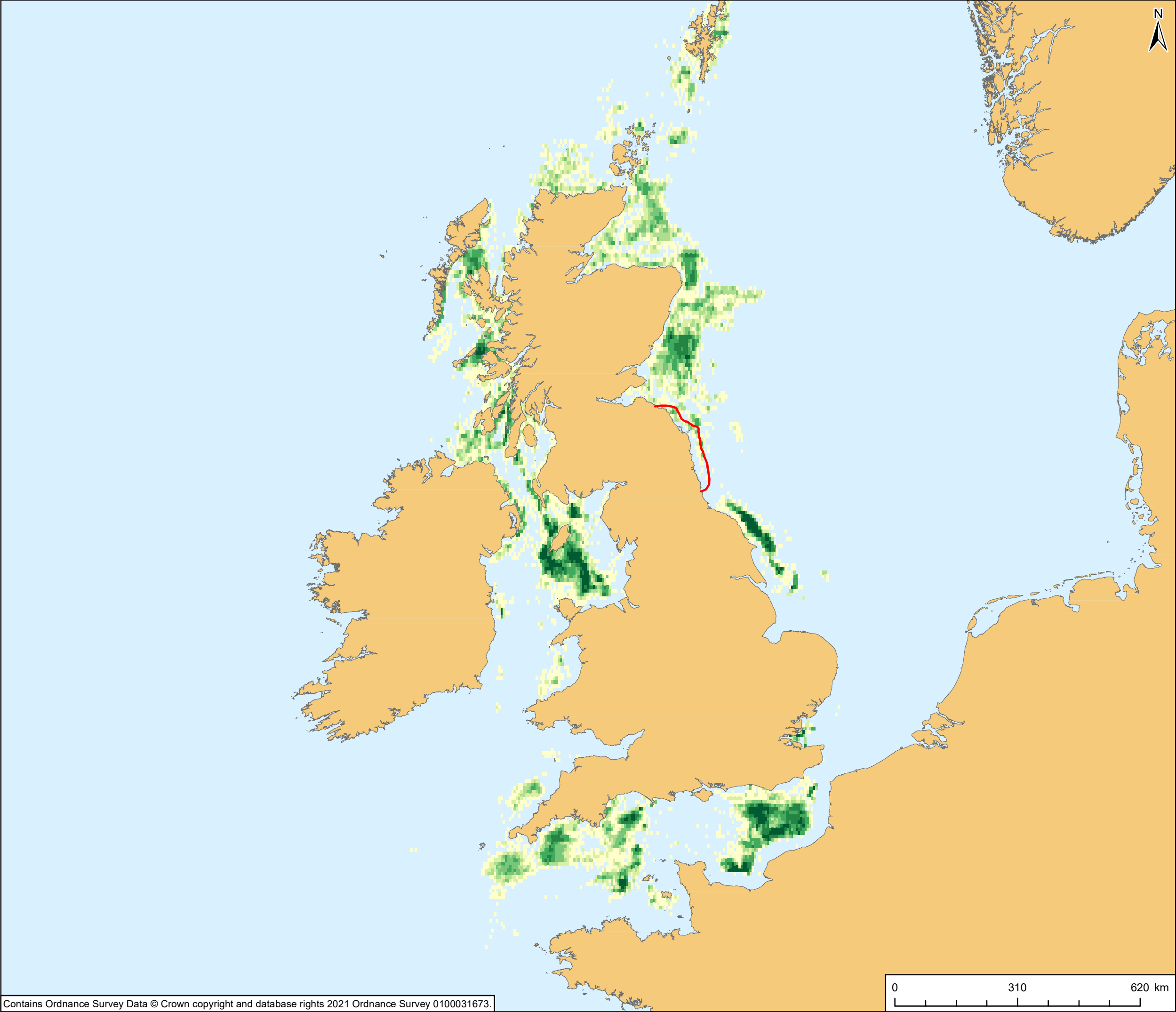
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|---|-------------|
|  | 0.0 - 0.01  |
|  | 0.01 - 0.04 |
|  | 0.04 - 0.11 |
|  | 0.11 - 0.33 |
|  | 0.33 - 1    |

REFERENCE  
AEC SEGL1-02-EA-038

|              |            |
|--------------|------------|
| SHEET NUMBER | DATE       |
| 1 of 1       | 23/05/2022 |







PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

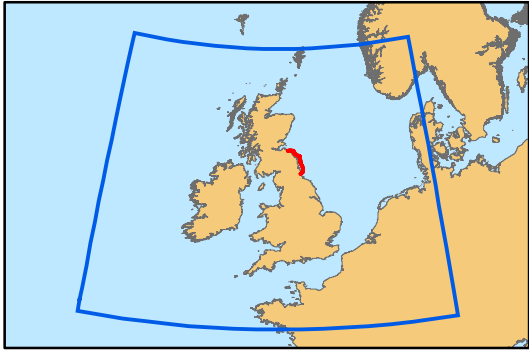
KEY

Marine Installation Corridor

**Dredges<sup>1</sup>**

|   |                   |
|---|-------------------|
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| <span style="display: inline-block; width: 15px; height: 10px; background-color: #d9ead3; border: 1px solid black; vertical-align: middle;"></span> | £1,000 - £3,000   |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #c4e9a5; border: 1px solid black; vertical-align: middle;"></span> | £3,000 - £6,000   |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #a6d898; border: 1px solid black; vertical-align: middle;"></span> | £6,000 - £10,000  |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #74c476; border: 1px solid black; vertical-align: middle;"></span> | £10,000 - £20,000 |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #41ab5d; border: 1px solid black; vertical-align: middle;"></span> | £20,000 - £35,000 |
| <span style="display: inline-block; width: 15px; height: 10px; background-color: #238b45; border: 1px solid black; vertical-align: middle;"></span> | More than £35,000 |

NOTES;  
<sup>1</sup> MMO (2020)



TITLE  
**Figure 14-50  
UK VMS Value (£)  
Dredges  
Average 2015-2019  
UK-wide**

REFERENCE  
AEC\_SEGL1-02-EA-039

SHEET NUMBER  
1 of 1

DATE  
23/05/2022

## 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: Project Description. The appraisal has been undertaken in accordance with the methodology presented in Chapter 4: Approach to Environmental Appraisal.

### 14.6.1 Embedded Mitigation

A range of embedded mitigation measures have been proposed to minimise the potential interactions of the Marine Scheme with commercial fisheries. These include the following presented in Table 14-5.

**Table 14-5: Commercial Fisheries Embedded Mitigation**

| Measure  | Description  |
|--|--|
| <b>Pre-installation</b>                                      |  |
| CEMP   | A CEMP, including an Emergency Spill Response Plan, Waste Management Plan, Marine Mammal Protection Plan, Fisheries Liaison and Co-existence Plan and Fisheries Management and Mitigation Strategy will be developed prior to commencement of works  |
| Fisheries Liaison Officer                                    | A Fisheries Liaison Officer (FLO) will be appointed for the Installation Phase and as required during the Operation (including maintenance and repair) Phase. Requirements for Decommissioning Phase will be determined following economic and environmental appraisals. Adherence to good practice guidance on the approach to fisheries liaison and mitigation (e.g. FLOWW, 2014; 2015). |
| Notifications  | Notice(s) to Mariners' (including Kingfisher), Radio Navigational Warnings, NAVTEX and/or broadcast warnings will be issued prior to the commencement of installation works.   |
| Claim of loss of/or damage                                   | Development of a procedure for the claim of loss of/or damage to fishing gear.   |
| Code of Practice   | Development of a Code of Good Practice for contracted vessels.   |
| Cable burial   | Minimum cable burial depth of 0.6 m, with a target cable burial depth of 1.5 m. The use of cable burial will also prevent snagging with fishing gear.  |
| Cable protection   | The use of cable protection will be limited to areas where cables cannot be buried to a sufficient depth and at crossings with 3rd party infrastructure.   |
| Cable protection chartering and dissemination of information | Information on the areas where cable protection is used will be provided to relevant organisations for inclusion in charts and information bulletins.  |
| Rock placement   | Where rock placement is used for cable protection this will be designed to minimise potential snagging risk (i.e. use of graded rock and 1:3 berm profiles).<br>A vessel able to undertake a targeted placement method will be used, such as one fitted with a flexible fall pipe.   |
| <b>Installation</b>  |  |
| Cable exposures  | In the event that cable exposures are identified during the operational phase of the Marine Scheme, the location of these will be shared with stakeholders and where appropriate, additional temporary measures put in place (e.g. surface marker buoys, use of guard vessels, etc).   |
| 24-hour cable installation                                   | Installation will normally be a 24-hour operation where viable, minimising overall installation time and, maximising use of fair weather windows, and take advantage of vessel and equipment availability.   |
| <b>Post-installation</b>                                     |  |
| Post-lay and cable burial inspection                         | Undertaking of post-lay and cable burial inspection to confirm the burial status of the cables, identify potential seabed hazards associated with installation, and, where appropriate and practicable, undertaking of rectification works.  |

## 14.6.2 Installation Phase

Cable installation for the majority of the marine installation corridor (excluding the landfalls) will be carried out in a number of campaigns and the campaigns are likely to be timed to avoid winter months. It is anticipated that between two and four campaigns will be required and that there will be circa 2-3 months between each of the campaigns determined by technical factors, such as cable availability, vessel mobilisation and location of supplying factory. This is anticipated to result in a period of approximately two years for installation. As set out within Chapter 2: Project Description, installation vessels are estimated to install the cable at a speed of between 0.5 and 5 km per day, depending on seabed conditions and the vessels used. Assuming a precautionary installation speed of 1 km per day then a total of 176 days over a 2 year period may be required to complete installation.

At each of the two landfalls an anchored barge or jack up rig may be required for three periods of up to 1 week each (three weeks for 2 x HVDC cables and 1 x fibre optic)), to complete cable installation.

The cables will be installed in up to two trenches (spaced a maximum of 30 m apart). Installation methodologies which may be used include simultaneous cable lay and burial, and surface cable lay followed by post lay burial. Cable burial methods currently being considered, include jetting machines, mechanical trenchers and ploughs (both displacement and non-displacement ploughs). Overall, displacement ploughs would result in the greatest seabed disturbance. This method will however only be required within discrete sections of the marine installation corridor associated with the presence of boulders (Figure 14-51). Additional information on burial methods is provided in Chapter 2: Project Description.

### 14.6.2.1 Temporary loss of grounds or access to fishing grounds

During cable installation fishing activity will be temporarily excluded from discrete areas due to the need to implement rolling advisory safety zones around installation vessels. In deep waters, advisory safety zones of 500 m will be recommended around cable laying vessels, guard vessels and/or other specialised support vessels which may be active in the area. 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 resulting in the need of larger advisory safety zones (i.e. of up to 1,500 m radius from installation vessels depending on the spread of the mooring system).

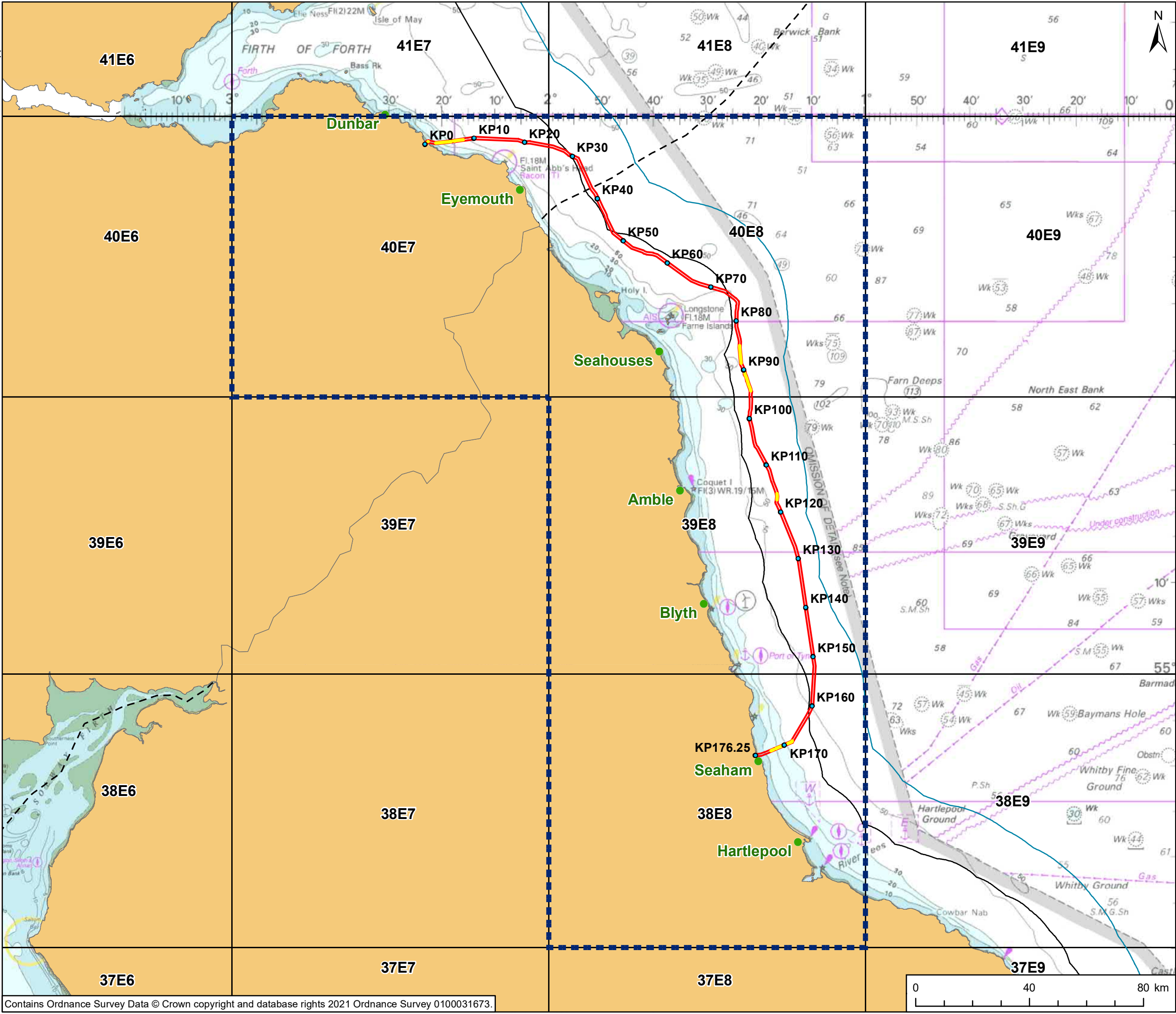
In addition, during the installation phase, fishing vessels may be required to avoid sections of the marine installation corridor where the installed cables may be temporarily vulnerable (e.g. surface laid cables awaiting burial or protection). In these areas, it will be requested via NtMs that fishing vessels avoid fishing within a 500 m radius advisory safety zone.

As described in Section 14.6.1, however, a number of embedded mitigation measures have been proposed. The following are of specific relevance to minimising disturbance to fishing during the installation phase:

- Appointment of an FLO during cable installation to ensure appropriate communication of Project activities and of any relevant updates to the fishing industry;
- Distribution of NtM to the fishing industry through appropriate channels in a timely and efficient manner, to enable fishermen to plan their activities around the proposed works; and
- Cable installation on a 24-hour basis to reduce the overall installation period.

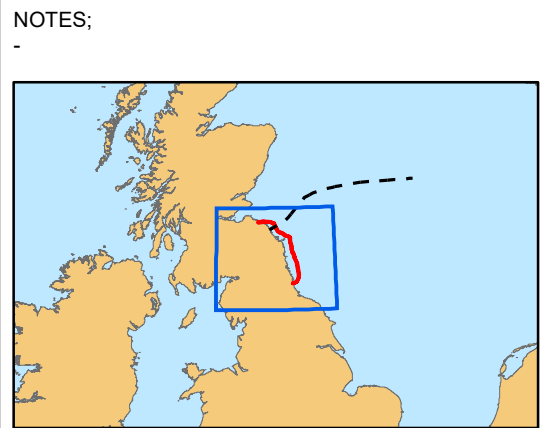


GIS:VC Checked: SX Approved: SX



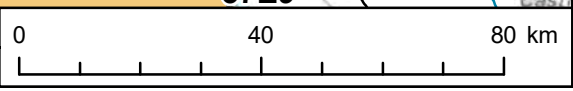
PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Displacement plough



TITLE  
**Figure 14-51  
Sections of the marine installation corridor  
within which the use of displacement  
ploughs may be required due to the  
presence of boulders**

REFERENCE  
AEC\_SEGL1-02-EA-046



### **Demersal Trawlers -Nephrops and Squid fishery**

Local demersal trawlers active in areas of relevance to the marine installation corridor are generally between approximately 10 and 18 m in length, with reported operational ranges of few NM up to 60 NM. It is understood that in addition to local demersal trawlers, visiting Scottish, English and Northern Irish vessels fish in areas of relevance to the marine installation corridor, particularly in the Farn Deeps.

*Nephrops* constitute the main target species for the majority of these vessels in the study area, although some vessels, predominantly Scottish vessels, have also identified seasonal squid grounds in the study area and many vessels targeting *Nephrops*, catch whitefish as by-catch and/or as a secondary target species when *Nephrops* catches are low, particularly around the Farn Deeps area.

As illustrated in Figure 14-23, part of the nearshore section of the marine installation corridor that is located in Scottish waters (within ICES rectangle 48E7), overlaps with the southern edge of the Firth of Forth FU *Nephrops* grounds. In addition, a section of the Farn Deeps FU *Nephrops* grounds overlaps with part of the marine installation corridor which is located in English waters.

Activity by demersal trawlers engaged in *Nephrops* fishing is expected within the areas of the marine installation corridor that overlap with the southern edge of the Firth of Forth FU (KP 8 to 25) and the section that crosses the Farn Deeps grounds (KP 120 to 167) (Figure 14-31 and Figure 14-32). As shown in Figure 14-6 and Figure 14-30, *Nephrops* represent a highly valuable fishery within the study area, with highest landings values recorded in rectangle 39E8, located in the area of the Farn Deeps grounds. The landings of demersal trawlers are further complemented with squid and whitefish catches (predominantly in Scottish and English waters, respectively).

Given the small to medium size of the vessels involved in demersal trawling in the study area, their operational range and fishing opportunities and the overall value of the fishery, they are considered receptors of medium sensitivity.

Access restrictions to fishing associated with the installation phase will be short term (up to 176 days over the two year installation period) and localised around locations where advisory safety zones may be in place at a given time. In addition, 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 demersal trawlers is therefore considered to be of low magnitude.

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

### **Potters / creelers -Lobster and Crab Fishery**

The majority of potters / creelers active in areas of relevance to the marine installation corridor are under 10 m in length and have relatively small operational ranges typically ranging from the nearshore ~<500 m area out to 12-30 NM in some cases. As a result, these vessels typically concentrate their activity within a limited number of grounds. Potters / creelers are primarily dependent on their catches of lobster and crab, although some of these vessels may have multi-purpose capabilities being able to deploy other methods (i.e. nets, trawls) and/or target other species at times (Appendix 14.1: Report on Baseline Consultation with Fisheries Stakeholders).

As illustrated in Figure 14-6 and Figure 14-14, the lobster and crab fishery accounts for high landings values across the study area. In addition, fishing grounds that overlap with the marine installation corridor have been identified during consultation with fisheries stakeholders (Figure 14-20 and Figure 14-21), from surveillance sightings (Figure 14-15) and existing studies (Figure 14-17 to Figure 14-19) (KP1 to KP 117, KP 145 to KP 159 and KP 166 to KP 176).

Areas of highest activity within the marine installation corridor are expected to concentrate in the sections that are located within the 6 NM limit. As noted during consultation, however, some vessels move further offshore at times, particularly in the winter months and the presence of offshore fishing grounds overlapping with the marine installation corridor has been reported during consultation (Figure 14-21).

Given the small size, operational range and relatively limited fishing opportunities of local potters / creelers and the overall value of the lobster and crab fishery in the study area, potters / creelers are considered receptors of medium sensitivity.

Access restrictions to fishing associated with the installation phase will be short term (up to 176 days over the 2 year installation period) and localised around discrete locations where advisory safety zones will be in place at a given time. In addition, a number of management measures will be implemented to minimise potential loss of access to fishing grounds during installation. It is recognised, however, that on some occasions, the removal or relocation of static fishing gear may be required. With this in mind the impact of temporary loss or restricted access on potters / creelers is considered to be of medium magnitude.

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

### **Dredgers – Scallop Fishery**

Scallop dredgers active in areas of relevance to the marine installation corridor are predominantly large (over 15 m in length) nomadic vessels. These vessels have very wide operational ranges and target grounds throughout the UK (Figure 14-50).

As illustrated in Figure 14-46, there is some overlap between discrete areas fished by scallop dredgers and the marine installation corridor between KP 1 to KP 136, particularly in grounds within rectangle 40E8 (KP 25 to 95,). This area is however not currently considered a major scallop ground but an area fished on an occasional basis by vessels in transit between more productive scallop grounds elsewhere. In line with this, scallops represent a relatively small proportion of the overall value of the landings in the study area (Figure 14-8 and Figure 14-44).

Given the large size, operational range and fishing opportunities of scallop dredgers and the relatively low value of the fishery within the study area, they are considered receptors of low sensitivity.

Access restrictions to fishing associated with the installation phase will be short term (up to 176 days over the 2 year installation period) and localised around locations where advisory safety zones may be in place at a given time. In addition, 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 (low) and impact magnitude (low) identified above the impact significance on scallop dredgers 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, during cable installation, fishing activity will be temporarily excluded from discrete areas due to the need to implement rolling advisory safety zones around installation vessels (up to 500 m in offshore waters and potentially up to 1-2 km in shallow waters in the event that anchors are used to maintain the position of installation vessels). 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 burial or protection). In these areas, it will be requested that fishing vessels avoid a 500 m advisory safety zone around relevant sections of the cables.

The temporary lack of access to certain areas for fishing described above could in turn result in a 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 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.

As such, it is considered that the findings of the appraisal with regards 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 14-6.

**Table 14-6: Appraisal of the Impact of Displacement of Fishing Activities into other Areas During Installation**

| Receptor           | Magnitude of Impact | Sensitivity of Receptor | Impact Significance |
|--------------------|---------------------|-------------------------|---------------------|
| Demersal trawlers  | Low                 | Medium                  | Minor               |
| Potters / creelers | Medium              | Medium                  | Moderate            |
| Scallop Dredgers   | Low                 | Low                     | Negligible          |

### 14.6.2.3 Interference with fishing activities

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

- Shallow waters (<10 m): shallow draft cable laying vessels, cable laying barge and jack up barge;
- Offshore waters: cable laying vessel, guard 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 cable installation 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. In addition, a procedure for the claim of loss or damage to fishing gear will be developed.

Provisions for the measures above will be included in the FLCP/FMMS which will be produced 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 impact significance 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 installation vessels operations. In addition, transiting installation 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.

Provisions for the measures above will be included in the FLCP / FMMS which will be produced for the Marine Scheme.

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 impact significance on mobile gear fisheries in respect of interference with fishing activities is considered to be **minor** and therefore **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 cable installation activities (i.e. accidentally dropped objects, sediment berms).

##### *All Fisheries*

During cable installation, the potential presence of sections of offshore cables temporarily awaiting burial or protection as well as seabed obstacles (e.g. accidentally dropped objects, sediment berms) 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 appropriate information with regard to cable installation works, including on the location of advisory safety zones. In addition, guard vessels will be used during cable installation as appropriate.

All contractors undertaking works will be contractually obliged to ensure compliance with standard offshore policies, including those that prohibit the discarding of objects or material overboard and that require the rapid recovery of accidentally dropped objects.

Provisions for the measures above will be included in the FLCP/FMMS 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-term duration (limited to the installation phase) 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 impact significance 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 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 habitats and species during cable lay;
- Permanent physical disturbance to and/or loss of fish and shellfish habitats and species due to placement of hard substrates on the seabed;
- Temporary increased suspended sediment concentrations, and subsequent settlement of sediment causing smothering of fish habitat;
- Underwater sound effects on fish and shellfish; and
- Changes to marine water quality from the use of HDD drilling fluids and the release of waste from vessels.

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, which is **not significant**.

### 14.6.3 Operation Phase

The worst-case scenario with regard to the operational phase is represented by an operational life of the Marine Scheme of approximately 40 years. Cables will be buried to a minimum depth of 0.6 m and a target depth of 1.5 m. Cable protection will only be used where sufficient burial is not possible due to ground conditions and at up to five cable crossings.

Rock placement for cable protection across the two cables is anticipated to be required for an approximate total length of 63 km in areas of boulders and coarse/hard substrate with a further 7 km estimated for all cable and pipeline crossings.

Sections of the marine installation corridor within which the use of rock placement may be required are illustrated in Figure 14-52.

#### 14.6.3.1 Long-term Loss of Fishing Grounds

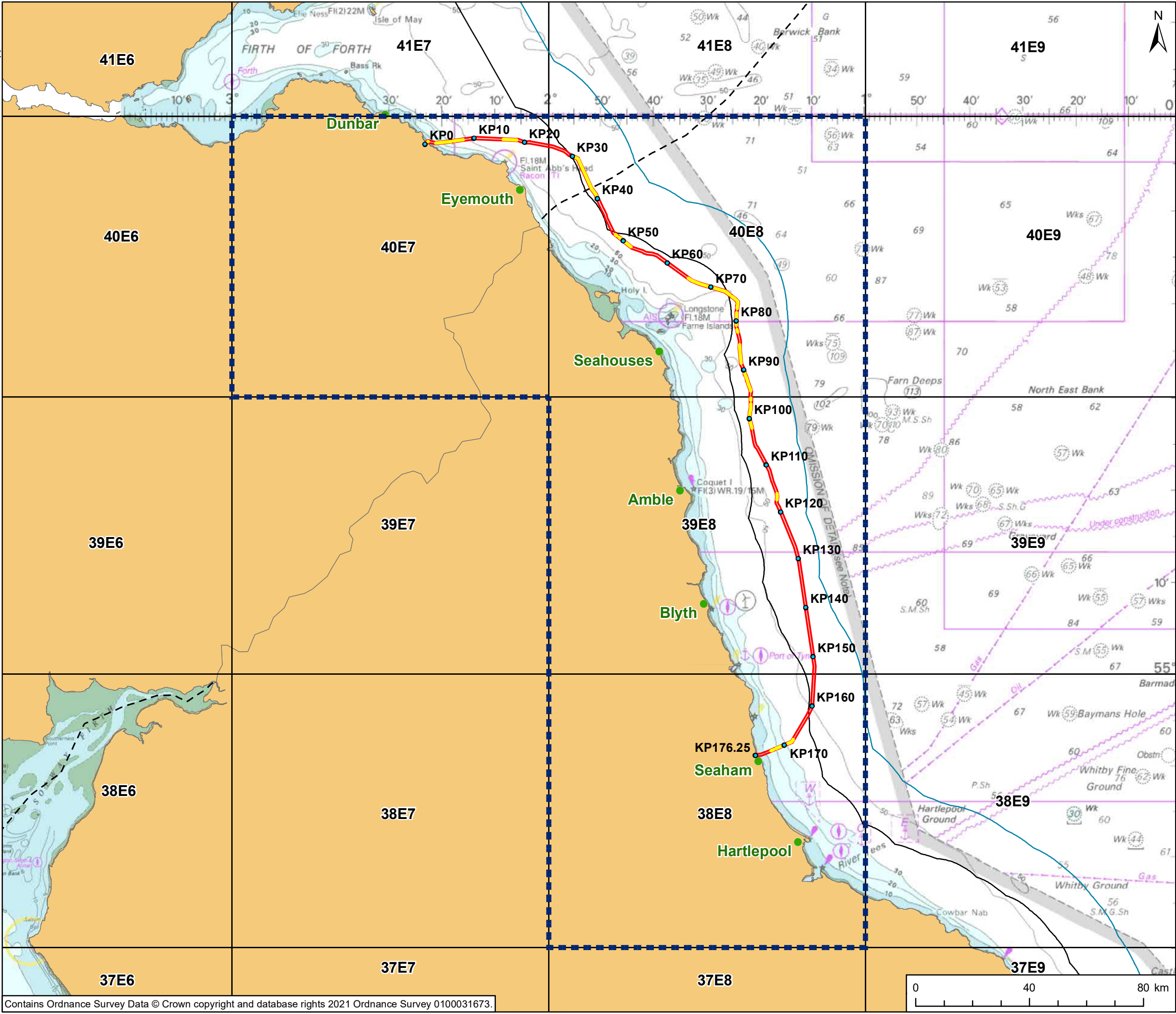
NGET and SPT cannot condone demersal fishing taking place over the proposed subsea cables, due to the potential risks posed to both vessel operators and the cables. It is therefore advised that vessel operators follow the longstanding maritime guidance regarding the avoidance of demersal trawling (and 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 subsea cable 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 subsea 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 operational phase, the introduction of hard substrate associated with the installation of cable protection will result in a long-term loss of fishing grounds. Although limited, localised maintenance activities which may be required during the operational phase could also result in short-term discrete losses of access to fishing grounds as a result of the need to implement 500 m advisory safety zones around vessels. Similarly, there may be potential for additional temporary loss of fishing grounds at discrete locations where cables may be vulnerable at given time (i.e. in the event that discrete sections of cables become exposed).

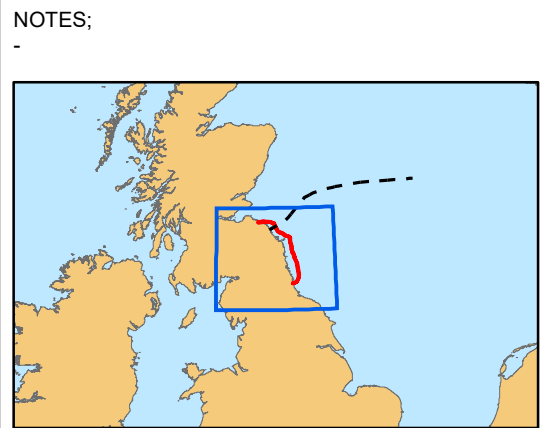


GIS:VC Checked: SX Approved: SX



PROJECT  
**Scotland England Green Link 1 / Eastern Link 1**

- KEY
- Marine Installation Corridor
  - Study Area
  - Scottish/English Water Border
  - 6 NM Limit
  - 12 NM Limit
  - ICES Rectangles
  - Main ports
  - Rock Placement



TITLE  
**Figure 14-52**  
**Sections of the marine installation corridor within which there is potential for rock placement being required**

REFERENCE  
AEC\_SEGL1-02-EA-045

As described in Section 14.6.1, 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 operational phase and are given consideration in the assessment of long-term loss of fishing grounds presented below:

- Timely and efficient distribution of Notice to Mariners (NtM) and navigational warning as appropriate.
- Cables will be buried to a target depth of 1.5 m and a minimum depth of 0.6 m. The use of cable protection will be limited to areas where cables cannot be buried to a sufficient depth and at crossings with 3<sup>rd</sup> party infrastructure.
- Areas where cable protection is used will be charted and information on their location, extent and nature 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); and
- Undertaking of post-lay and cable burial inspection to confirm the burial status of the cables, identify potential seabed hazards associated with installation, and, where appropriate and practicable, undertaking of rectification works.

#### **Demersal Trawlers - Nephrops and Squid fishery**

The sensitivity of demersal trawlers to loss of fishing grounds during the operational phase is as previously described for the installation phase “medium” (Section 14.6.2).

Loss of grounds to demersal trawlers 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 advisory safety zones around vessels undertaking maintenance work or around vulnerable sections of the cables would be short term and intermittent at a given location. In the affected areas the loss of grounds would be localised, being limited to discrete areas around cable protection and/or advisory safety zones. With regard to demersal trawlers engaged in the *Nephrops* fishery it is important to note that given the muddy nature of *Nephrops* habitat, requirements for rock protection within the main *Nephrops* grounds (KP 8 to KP 25 and KP120 to KP 167) would be expected to be very limited (see Figure 14-52). As previously mentioned, rock placement would only be necessary in areas of boulders and coarse/hard substrate.)

The impact will be long term but will occur over a small area in the context of the grounds available to demersal trawlers. In addition, a range of fisheries liaison and management measures as stated in Table 14-5 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 impact significance on demersal trawlers in respect of long-term loss or access to fishing grounds is considered to be **minor** and therefore **not significant**.

#### **Potters / Creelers - Lobster and Crab Fishery**

The sensitivity of potters / creelers to loss of fishing grounds during the operational 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 operational phase would be very small being limited to potential loss of access to fishing areas associated with the presence of advisory safety zones 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 operational phase but it would be short term and intermittent at given locations where advisory safety zones are in place at a given time. In addition, 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 impact significance on creelers / potters in respect of long-term loss of fishing grounds is considered to be **negligible** and therefore **not significant**.

### **Dredgers – Scallop Fishery**

The sensitivity of scallop dredgers to loss of fishing grounds during the operational phase is as previously described for the installation phase “low” (Section 14.6.2.1).

As described for demersal trawlers, 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 advisory safety zones 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 (see Figure 14-52) and/or advisory safety zones.

The impact will be long term but will occur over a small area in the context of the grounds available to scallop dredgers. In addition, 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 (low) and impact magnitude (low) identified above the effect on scallop dredgers 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**

The operation 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 advisory safety zones 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.

As such, it is considered that 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 14-7.

**Table 14-7: Appraisal of the Impact of Displacement of Fishing Activities into other Areas During Installation**

| Receptor           | Magnitude of Impact | Sensitivity of Receptor | Impact Significance |
|--------------------|---------------------|-------------------------|---------------------|
| Demersal trawlers  | Low                 | Medium                  | Minor               |
| Potters / creelers | Low                 | Medium                  | Minor               |
| Scallop Dredgers   | Low                 | Low                     | Minor               |

### **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 of the Marine Scheme.



### All Fisheries

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

During the operational phase the presence of cable protection and of vulnerable sections of cable (i.e. in the event that discrete areas of buried 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, areas where cable protection is used will be marked and information on their location, extent and nature 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). In addition, post-lay and cable burial inspection surveys will be undertaken to confirm the burial status of the cables, identify potential seabed hazards associated with installation, and, where appropriate and practicable, rectification works will be undertaken. Furthermore, in the event that cable exposures are identified during the operational phase of the Marine Scheme, the location of these will be shared with fisheries stakeholders and where appropriate, additional temporary measures will be put in place (e.g. surface marker buoys, use of guard vessels, etc).

Provisions for the measures above will be included in the FLCP/FMMS 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 operational 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:

- Effects of Electromagnetic field (EMF) emissions from buried cable; and
- Effects of thermal emissions from buried cable.

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

#### 14.6.4 Decommissioning Phase

Impacts relating to the decommissioning phase are, in the worst case, considered to be equivalent to the effects associated with installation although they may be less depending on the decommissioning activities that are finally undertaken, for instance where cables are left in situ.

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

## 14.7 Mitigation and Monitoring

The appraisal of the impact of the Marine Scheme on commercial fisheries receptors identified effects not exceeding **minor** significance, which is **not significant**, 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** effect was identified, which is **significant**. As noted in Section 14.6.2.1, this was identified in recognition that in some instances the removal or relocation of static gear may be required during the installation phase. Where this is the case, Project Specific Mitigation will be implemented for affected vessels following an evidence-based approach, in line with FLOWW guidance, via the establishment of co-operation agreements. With the implementation of this, the magnitude of the impact would be reduced to low and the residual significance of the effect reduced to **minor** which is **not significant**.

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

## 14.8 Residual Impacts

The appraisal of the impact of the Marine Scheme on commercial fisheries receptors identified no residual impacts exceeding **minor**, which is **not significant**, for the installation, operation (including maintenance and repair) and decommissioning phases.

## 14.9 Cumulative and In-Combination Effects

The full cumulative and in-combination effects appraisal is presented in Chapter 16: Cumulative and In-Combination Effects.

This includes a matrix (Table 16-13 in Chapter 16) to identify potential commercial fisheries impact pathway interactions between the Marine Scheme and the English and Scottish Onshore Schemes. No interaction is anticipated because there are no project activities associated with the English and Scottish Onshore Schemes in the marine environment due to the use of HDD at the landfall.

In-combination effects are where receptors could be affected by more than one environmental impact. Where a receptor has been identified as only experiencing one effect or where only one topic has identified effects on that receptor, there is no potential for in-combination effects. The receptor groups within this chapter do not interact between chapters, therefore receptors have been wholly appraised within this respective topic chapter.

## 14.10 Summary of Appraisal

A summary of the findings of the appraisal is provided in Table 14-8.

**Table 14-8: Summary of environmental appraisal**

| Project Phase | Potential Impact                                       | Receptor              | Sensitivity | Magnitude | Significance      | Project Specific Mitigation  | Significance of Residual Effect                   |
|---------------|--|-----------------------|-------------|-----------|-------------------|--|---|
| Installation  | Temporary loss or restricted access to fishing grounds | Demersal trawlers     | Medium      | Low       | <b>Minor</b>      | None required  | <b>Minor</b> which is <b>not significant</b>      |
|               |  | Potter / creelers     | Medium      | Medium    | <b>Moderate</b>   | 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. | <b>Minor</b> which is <b>not significant</b>      |
|               |  | Scallop dredgers      | Low         | Low       | <b>Negligible</b> | None required  | <b>Negligible</b> which is <b>not significant</b> |
|               | Displacement of fishing activity into other areas      | Demersal trawlers     | Medium      | Low       | <b>Minor</b>      | None required  | <b>Minor</b> which is <b>not significant</b>      |
|               |  | Potter / creelers     | Medium      | Medium    | <b>Moderate</b>   | 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. | <b>Minor</b> which is <b>not significant</b>      |
|               |  | Scallop dredgers      | Low         | Low       | <b>Negligible</b> | None required  | <b>Negligible</b> which is <b>not significant</b> |
|               | Interference with fishing activities                   | Static gear fisheries | Medium      | Low       | <b>Minor</b>      | None required  | <b>Minor</b> which is <b>not significant</b>      |
|               |  | Mobile fisheries      | Low         | Low       | <b>Negligible</b> | None required  | <b>Negligible</b> which is <b>not significant</b> |



| Project Phase | Potential Impact   | Receptor              | Sensitivity                                    | Magnitude  | Significance      | Project Specific Mitigation | Significance of Residual Effect                            |
|---------------|--|-----------------------|--|------------|-------------------|-----------------------------|--|
|               | Snagging risk – loss or damage to fishing gears                                  | All fisheries         | Medium   | Low        | <b>Minor</b>      | None required               | <b>Minor</b> which is <b>not significant</b>               |
|               | Potential impacts on commercial fishing as a result of impacts on target species | All fisheries         | Refer to Chapter 9: Fish and Shellfish Ecology |            |                   |                             | Not exceeding <b>Minor</b> which is <b>not significant</b> |
| Operation     | Temporary loss or restricted access to fishing grounds                           | Demersal trawlers     | Medium   | Low        | <b>Minor</b>      | None required               | <b>Minor</b> which is <b>not significant</b>               |
|               |  | Potter/creelers       | Medium   | Negligible | <b>Negligible</b> | None required               | <b>Negligible</b> which is <b>not significant</b>          |
|               |  | Scallop dredgers      | Low  | Low        | <b>Negligible</b> | None required               | <b>Negligible</b> which is <b>not significant</b>          |
|               | Displacement of fishing activity into other areas                                | Demersal trawlers     | Medium   | Low        | <b>Minor</b>      | None required               | <b>Minor</b> which is <b>not significant</b>               |
|               |  | Potter/creelers       | Medium   | Negligible | <b>Negligible</b> | None required               | <b>Negligible</b> which is <b>not significant</b>          |
|               |  | Scallop dredgers      | Low  | Low        | <b>Negligible</b> | None required               | <b>Negligible</b> which is <b>not significant</b>          |
|               | Interference with fishing activities   | Static gear fisheries | Medium   | Low        | <b>Minor</b>      | None required               | <b>Minor</b> which is <b>not significant</b>               |
|               |  | Mobile fisheries      | Low  | Low        | <b>Negligible</b> | None required               | <b>Negligible</b> which is <b>not significant</b>          |
|               | Snagging risk – loss or damage to fishing gears                                  | All fisheries         | Medium   | Low        | <b>Minor</b>      | None required               | <b>Minor</b> which is <b>not significant</b>               |

| Project Phase   | Potential Impact   | Receptor      | Sensitivity                                    | Magnitude | Significance | Project Specific Mitigation | Significance of Residual Effect                            |
|-----------------|--|---------------|--|-----------|--------------|-----------------------------|--|
|                 | Potential impacts on commercial fishing as a result of impacts on target species | All fisheries | Refer to Chapter 9: Fish and Shellfish Ecology |           |              |                             | Not exceeding <b>Minor</b> which is <b>not significant</b> |
| Decommissioning | Potential effects of decommissioning the same as installation.                   |               |  |           |              |                             |  |

## 14.11 References

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