

ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION



November 2025

Appendix 5.5 Estimated Greenhouse Gas (GHG)
Emissions Assessment and Carbon Management

Appendix 5.5: Estimated Greenhouse Gas (GHG) Emissions Assessment and Carbon Management

1. Introduction and Project Description

1.1 Purpose of this Appendix

This appendix presents an assessment of the GHG emissions associated with the Ardersier Port extension outlined throughout this document. The calculations have been undertaken in accordance with the requirements of PAS 2080:2023 - *Carbon Management in Infrastructure*. It supports the Environmental Impact Assessment (EIA) by quantifying and reporting estimated GHG emissions over the project lifecycle.

1.2 Project Overview

The proposal involves the development of the land to the south of the existing port to create a single planning unit. The extension area will accommodate uses that are compatible with and complement the existing port permission. The principal purpose is to deliver additional land that will provide an extended area to accommodate energy related activities, particularly those relating to the manufacture, storage and assembly of wind energy components (floating jackets, blades, nacelles, towers etc.).

The proposed development comprises the following key activities and be an extension of consented port activities:

- Site clearance involving the felling of the existing stand of commercial Scots Pine woodland
- Demolition of existing buildings (Pinetrees and Juniper Cottage)
- Land raising of the site area with dredged sand to the levels of the existing port area
- Formation of a working platform capped with a crushed rock/stone placement
- Erection of security fence to the outer edge of the extended site
- Biodiversity enhancements
- Surface water and new perimeter drainage upgrades

- Landscaped buffer (minimum 20m wide) to the outer boundary of the site including retention of the boundary trees
- Noise attenuation bund at the south outer boundary

As an application seeking planning in principle only, there are no details of possible buildings, but it is anticipated that warehousing, storage and office facilities will be required to support the development. These would be dealt with as future applications, where necessary, as 'Matters Specified'.

The proposed development would also require the following marine infrastructure, and construction works.

- Additional quay construction through the existing platform (mainly on land and already consented under the Harbour Revision Order (HRO)) by a combination of diaphragm wall (same method as the already constructed quay walls) and vibropiling and conventional sheet piling.
- Removal of old sheet piles to the north of the new quay wall which may involve temporary sand bunds.
- A small area of infilling behind the new quay wall.
- Selected deepening of the inner harbour by dredging (approximately 2,000,000m³).
- Sea disposal, Whiteness Sands nourishment and possible beneficial re-use on land or at remote site.
- Maintenance dredge to west of Tern Island.
- Rock armour for erosion control and rock mattress on seabed in -6mCD area
- Localised crushed rock mattress for east of harbour.
- Mooring dolphins for erosion control.

2. Scope of Assessment

2.1 Boundaries and Life Cycle Stages

In accordance with PAS 2080, this GHG assessment considers emissions across the relevant lifecycle stages, outlined below:

- **Land Preparation & LUC (A0):** Energy consumption from land preparation and associated Land Use Change (LUC) emissions.
- **Upstream (A1-A3):** Raw material extraction, processing, and manufacturing.
- **Construction (A4-A5):** Transport of materials and on-site activities.
- **Beyond the System Boundary (D):** Benefits and load beyond the system boundary. Replanting of Scotts Pine and Broadleaf at an offsite location.

The use stage of this project's lifecycle both operational and end of life stages, have been excluded from this calculation. Reasoning behind these exclusions is outlined in section 2.3 below.

2.2 Emissions Sources Included

Listed below are the GHG emissions sources captured at each of the previously outlined life cycle stages;

Upstream:

- Embodied GHG emissions of quarried stone for use in the platform construction.
- Fuel and energy use from channel dredge, sand by product will be used in the construction process.
- Land Use Change (LUC), CO₂ from biomass removal, soil carbon loss, foregone sequestration.*

Construction:

- Energy and fuel used to transport quarried stone to site.
- Energy and fuel used to transport dredge sand from location at the port to the construction site.
- Energy and fuel usage of machinery onsite throughout the construction process.
- Energy and fuel usage of machinery during the tree clearing phase of the construction.

Beyond the System Boundary:

- Replanting of 120 acres of Scott's Pine woodland and 12 acres of broadleaf woodland at an off-site location.

** GHG emissions associated with LUC have been included within the capital carbon assessment boundary, in accordance with the principles of PAS 2080:2023 and EN 15978:2011. LUC emissions arise from the clearance of existing vegetation and disturbance of soils required to establish the project footprint.*

2.3 Emission Sources Excluded

In accordance with the principles of PAS 2080:2023, which allow for the exclusion of life cycle stages where emissions are demonstrably negligible or cannot be reasonably quantified, the following life cycle stages have been omitted from this calculation.

In this calculation the embodied GHG emissions from the sand will be excluded. This is because the sand is a waste product produced from other activities at the Ardersier port site, not linked with the extension proposed in this document. The dredge was conducted in another

construction phase of the project not related to the platform outlined in this EIA. However, fuel usage from dredging activities has been included in this calculation.

Operational life cycle stages (B1-7) have also not been calculated. The completed platform will not generate any direct greenhouse gas emissions during its operational phase and is not expected to require maintenance over its design life. Furthermore, as the future use of the platform and any potential developments above it have not yet been defined, it is not possible to accurately estimate associated operational emissions. For these reasons, operational stage GHG emissions have been excluded from this assessment.

End of Life (EOL) stage emissions have not been assessed for this project. As outlined in Chapter 3 Section 3.1.2 of the EIA, the proposed extension areas will form a permanent part of the existing Port infrastructure, which is considered Critical National Infrastructure (CNI) and is anticipated to remain in operational use for the foreseeable future. Decommissioning of port facilities of this nature is not typically undertaken in the UK, and no such plans or timeframes exist for the Ardersier Port. Consequently, EOL impacts cannot be reasonably defined or quantified within the current regulatory or policy context.

3. Methodology

3.1 Approach

GHG emissions were estimated using a bottom-up inventory approach consistent with the international standards outlined in section 3.3. Where supplier data is available it has been used for this calculation, for example the dredging fuel consumption. As work is yet to happen some other categories are estimated and again outlined further in section 3.3.

3.2 Calculation Method

The total GHG emissions are calculated as:

$$\text{Total Emissions (tCO}_2\text{e)} = \sum(\text{Activity Data} \times \text{Emission Factor})$$

Where:

- Activity Data = quantity of material, fuel, or energy used
- Emission Factor = conversion factor to CO₂ equivalent (Tonnes of Carbon Dioxide Equivalent (tCO₂e) will be the standardised metric for this calculation)

Emission factors are selected in line with the principles set out in PAS 2080:2023, Clause 6.2.3, factors need to be appropriate, transparent, up to date, and sourced from credible data sets or suppliers.

3.3 Data Sources and Guidance

Sources of Usage Data:

- Tree clearing fuel usage: equipment and construction phase time were used to estimate total fuel consumption by using industry standard fuel consumption rates. Consumption rates were taken from the “Industrial Non-Road (Fuel Consumption and Emission Factors Database”, for the Department for Energy Security and Net Zero (formerly Beis).
- Raw material supply, sources and quantities of the raw materials to be used in the project are known and includes the following; 200,000 m³ of quarried stone, 800,000 m² of Geogrid textile and lastly 2,000,000 m³ of site-won sand.
- Fuel generated from dredging was calculated using data provided by Demes who conducted the dredging. This is the same methodology used for the plant fuel, where sand is unloaded from the dredging vessel to on-site storage.
- Lastly fuel usage by machinery during the construction phase of this project was calculated using the same method as the tree clearing phase, as project run times and machinery used is known at this stage.

Carbon Factor & Guidance Sources:

- DEFRA *Greenhouse gas reporting: conversion factors 2024* (UK GOV).
- Intergovernmental Panel on Climate Change (IPCC), *2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories*.
- Institute of Environmental Management & Assessment (IEMA, Now ISEP), *Assessing Greenhouse Gas Emissions and Evaluating their Significance in Environmental Impact Assessment (EIA): Guidance for Practitioners*.
- British Standards Institution (BSI), *PAS 2080:2023 Carbon Management in Buildings and Infrastructure*.
- Product carbon Footprint for Geogrid, OneClick LCA. Third-party verified as per ISO 14025. Available here: [EPD: Geogrid from polypropylene \(PP\) \(EPD-Naue-069-DE\)](#)

4. Results

4.1 Summary of Estimated GHG Emissions.

The estimated GHG emissions of the construction project are displayed in the table below. The results are split by lifecycle stage and include the source of GHG emissions, tCO₂e, and percentage contribution of each lifecycle stage to total GHG emissions. As outlined in PAS2080 impacts that fall outside of the system boundary will be disclosed in section 5 of this appendix.

Life Cycle Stage	GHG Emission Source	Estimated Emissions (tCO ₂ e)	% of Total GHG Emissions
A0	Land preparation	570.19	3.1%
A1-3	Material Production	11,212.21	61.8%
A4-5	Transport & Construction Activities	6372.28	35.1%
Total		18,154.68	

Table 1. Estimated GHG emissions of the construction of the proposed platform, including all phases outlined in section 2.2 except any emissions/savings occurring beyond the system boundary (life cycle stage D).

4.2 Estimated GHG Emission Calculations

Below is a description of the calculations used to quantify the GHG impacts at each stage listed in table 1. It will include the usage data used and also the carbon conversion factor.

A0: Land Preparation

Fuel consumption for land preparation: Total volume of diesel consumed (56,296.80 litres) x 2024 conversion factor for average biofuel diesel (2.51 kgCO₂e/litres) = **175.86 tCO₂e**

LUC from tree clearing: Total area cleared of coniferous woodland (120 acres/48.56 Ha) x LUC Factor (8.12 tCO₂e/Ha) = **394.33 tCO₂e**

A1-3: Material Production

Stone Material Production: Total weight of stone to be used in construction (540,000 tonnes) x 2024 aggregates conversion factor (7.75 kgCO₂e/tonne) = **4,185.69 tCO₂e**

Geogrid: Total area of Geogrid to be used in construction (800,000 m²) x Geogrid conversion factor from supplier EPD (0.94 kgCO₂e/m²) = **752.80 tCO₂e**

Marine Dredge Fuel: Total litres of fuel used for marine dredge (1,709,816.41 litres) x 2024 Marine Gas Oil conversion factor (2.77 kgCO₂e/litre) = **5,810.02 tCO₂e**

Plant Machinery Fuel: Total litres of fuel used for plant machinery to transport sand to storage location (148,439.49 litres) x 2024 conversion factor for average biofuel diesel (2.51 kgCO₂e/litres) = **463.70 tCO₂e**

A4-5: Transport & Construction Activities

Stone T&D: Stone to be supplied by two quarries, the weight was split 50/50 between each supplier. Total weight of stone to be supplied (540,000 tonnes) x Distance from supplier (Quarry 1: 25.6 km, Quarry 2: 30.1 km) = 15,039,000 Tonne.km. Final calculation is 15,039,000.00 Tonne.km x 2024 Conversion factor for average laden, diesel HGV (0.18 kgCO₂e/tonne.km) = **3,336.40 tCO₂e**

Geogrid T&D: Total weight of Geogrid to be supplied (192.00 tonnes) x Distance from supplier (20.4 km) = 3916.80 Tonne.km. Final calculation is 3,916.80 Tonne.km x 2024 Conversion factor for average laden, diesel HGV (0.18 kgCO₂e/tonne.km) = **0.87 tCO₂e**

Sand T&D: Total weight of Sand to be used in construction (3,345,000.00 tonnes) x Distance from storage location to site of construction (2.00 km) = 6,690,000.00 Tonne.km. Final calculation is 6,690,000.00 Tonne.km x 2024 Conversion factor for average laden, diesel HGV (0.18 kgCO₂e/tonne.km) = **1,484.18 tCO₂e**

Construction Machinery Fuel: Total litres of fuel used by machinery in construction stage (496,456.80 litres) x 2024 conversion factor for average biofuel diesel (2.51 kgCO₂e/litres) = **1,550.83 tCO₂e**

4.3 Key findings

The total GHG emissions for stages A0-5 are 18,734.74 tCO₂e. The largest contributor is the Marine Gas Oil (MGO) used by the dredging vessel, which accounts for 5810.02 tCO₂e. The highest source of GHG emissions is the material production of the quarried stone (4185.69 tCO₂e). These two categories account for 55.8% of the total project footprint.

Land Use Change (LUC) was calculated for both life cycle stage A0 and D. The LUC within A0 contributes 394.33 tCO₂e, and the replanting off site (falling within stage D, outside of project boundary) accounts for a total removal of 240.38 tCO₂e.

Another key finding to highlight was that the transport of stone to the site was the third largest source of GHG emissions, producing 3,336.40 tCO₂e. Despite each quarry being within 30km of the port the significant weight purchased led to intensive GHG emissions from the transport. This highlights the selection of local suppliers to be of great importance.

As all work has been/will be carried out by contractors at the site, all GHG emissions fall into Scope 3.

5. Carbon Reduction and Mitigation Measures

5.1 Design Stage Reductions

The main consideration made during the design phase of this project was to use the site-won sand as one of the primary materials for the site capping. As this material was a by-product from previous dredging occurring on the site it is considered out of scope. If Ardersier were to purchase the same volume of sand from a virgin source it would have produced 25,927 tCO₂e.

5.2 Construction Stage Reductions

Due to the nature of the construction there were minimal opportunities to reduce the GHG emission impact of the construction phase. However, suppliers within 30km of Ardersier for the quarried stone and geogrid used in construction were selected to reduce GHG emissions from lifecycle stage A4.

5.3 Estimated Carbon Savings

Other than the aforementioned carbon saving by using the site-won sand Ardersier have also committed to replant the 120 acres of Scotts Pine plantation that was cleared for this construction project. This will be replanted within 30 km of the port. This will lead to total carbon removals of 290.80 tCO₂e. This figure was calculated assuming LUC from managed non-degraded grassland to the land use type mixed broadleaf and conifer woodland, this results in 4.50 tCO₂e of removals per hectare.

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November 2025

Appendix 5.6 Travel Plan Framework

TRAVEL PLAN FRAMEWORK



ARDERSIER PORT

TRAVEL PLAN FRAMEWORK

IDENTIFICATION TABLE

Client/Project owner	Ardersier Port Ltd
Project	Ardersier Port
Study	Travel Plan Framework
Type of document	Report
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APPROVAL

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1. INTRODUCTION

1.1 General

1.1.1 SYSTRA Ltd (SYSTRA) has been appointed by Ardersier Port Ltd (APL), to prepare an updated Travel Plan related to the next phase of the redevelopment of Ardersier Port, which is located 16km to the north-east of Inverness, in the Highland Council (THC) area.

1.1.2 The site location is located ~4km to the north-east of Ardersier itself, and ~7.5km to the west of Nairn, as shown in **Figure 1**.



Figure 1. Ardersier Port Site Location

1.1.3 A Travel Plan (TP) is a site-specific management tool designed to encourage people to rethink their travel choices and requirements in order to minimise and manage the impacts of travel on the environment.

1.1.4 An initial TP was prepared in February 2024. This updated TP has been produced to support the proposed ‘Ardersier Port Extension’, which would see the total development expanded from c.350 acres to c.500 acres. The TP takes into account the latest proposals on site, and sets out how the development is expected to progress.

1.1.5 Given the scale of the development, the Travel Plan will be delivered over a long period (potentially up to ten years), and will be updated prior to each major phase.

1.1.6 APL is committed to ensuring that staff, suppliers and visitors can access the Port safely and sustainably, and supports the proposals set out in this Plan.

1.1.7 A separate Construction Traffic Management Plan (CTMP) will be put in place to control, manage and mitigate the effects of construction traffic throughout the various future phases

of the development. The TP considers only long-term operational travel to and from the development, rather than typically shorter and more intensive periods of construction on site.

1.2 The Consented Development

- 1.2.1 The original 'Planning in Principle' consent for the development was obtained in 2013, and renewed in 2018 (18/04552/PIP), subject to Matters Specified in Conditions.
- 1.2.2 The development description is *“Establish a port and port related services for energy related uses, including marine channel dredging, quay realignment, repair and maintenance, erection of offices, industrial and storage buildings, delivery and export of port related cargo and associated new road access, parking, infrastructure, services, temporary stockpiling of dredged material, re-grading and upfilling of landward areas and landscaping”*

1.3 Completed Phase 1A Development

- 1.3.1 Phase 1A of the development, which proposed the establishment of a security gatehouse and access point on site, has been completed. As part of this works, a new site access roundabout on the B9092 was constructed in December 2024, and a roundabout on the A96 will be constructed as soon as practicable (expected to commence in Q4 2025).
- 1.3.2 Following completion of dredging in summer 2025, it is expected that the Port will be open and operational in Q4 2025.

1.4 Proposed Extension

- 1.4.1 The proposed Extension would see the total development area expanded from c.350 acres to c.500 acres. Consent is being sought for the following elements:

“Continued port development and expansion of port related services for energy related uses, including marine dredging within the inner harbour, sea disposal of dredged sands, possible temporary stockpiling of dredged material, quay construction, erection of offices, industrial and storage buildings and associated infrastructure including manufacturing, assembly, storage, delivery and export of port related cargo, parking, infrastructure, services, upfilling and re-grading/surfacing of new landward areas and landscaping.”



Figure 2. Proposed Extension

1.4.2 Essentially, the additional land is to be brought into use for the same purposes as across the existing consented site. Although the overall site area will be larger than consented, the proposed numbers of workers during construction and operation associated with the proposed extension are broadly similar to that which is already consented.

1.5 Approach to the Ardersier Port Travel Plan

1.5.1 Given the scale of the overall development, the TP is expected to be implemented over the long term (possibly as much as a 10-year period).

1.5.2 The constructed Phase 1A employs only small number of people on site, and it is not practical to apply most of the measures typically proposed as part of TPs at this very early stage of the development.

1.5.3 The TP therefore focuses on the provision of a comprehensive 'Framework' for later phases of development.

1.5.4 **Table 1** presents the number of predicted employees on site over the next ten years. These predicted numbers will be influenced by tenant occupancy and activity, so are subject to change.

Table 1. Predicted Employee Numbers

Group	Year										
	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034	2035
Hventus Staff	30	30	70	70	70	70	70	90	90	90	90
Consultants and Contractors	10	10	35	135	185	735	835	1060	1620	2220	2420
TOTAL	40	40	105	205	255	805	905	1150	1710	2310	2510

1.5.5 **Table 1** shows that there are predicted to be approximately 2,510 permanent employees on site by 2035, with a steep rise from 2029 onwards.

2. SITE ACCESSIBILITY

2.1 Transport Overview

2.1.1 An overview of the transport links in the vicinity of the site is shown in **Figure 3** overleaf.

2.2 Site Entrance

2.2.1 All access into the site, during both the construction and operational phases, will be taken from the new roundabout on the B9092, which is shown in **Figure 3**. The gated access point leads to a private road, which provides direct access into the site.

2.2.2 Access on foot and by bicycle will also be taken via the main vehicle access. It is expected that given the site's location, there will only ever be a small number of walking trips into the site, even when fully operational. Cycle travel, particularly from Ardersier and Nairn, or when combined with a rail journey, is a viable option.

2.2.3 Vehicles heading to and from Inverness will use the direct route south to the soon-to-be constructed roundabout on the A96 (currently a priority junction). Work on the new roundabout is due to commence on site imminently.

2.2.4 Vehicles heading to and from the direction of Nairn, with the exception of HGVs, will use the A96 / B9092 junction to the east of the site access point. The approved construction route for HGVs to and from the site is via the new roundabout junction further to the west.



Figure 3. Transport Overview

Ardersier Port	
Travel Plan Framework	GB01T24ARD14ARD1
Report	03/11/2025

2.3 Road Network

2.3.1 Further details on the local road network are provided below:

Unclassified Road to south of Site Access point

2.3.2 An unclassified local road, which forms a crossroads with the B9092 and site access, provides the most direct access between the site and the A96, which is 3.5km to the south. Between the B9092 and the A96(T) this minor road is a single carriageway with a speed limit of 60mph.

B9092

2.3.3 The B9092 is a single carriageway rural route, and is predominantly subject to a 60mph speed limit. It runs from Ardersier past the site to join the A96 to the west of Nairn. the A96(T) and Nairn. In the vicinity of the site access junction, a 30mph speed limit is in place, and street lighting is in place. Both measures have been implemented to improve road safety.

2.3.4 There are no footways in the vicinity of the site.

A96(T)

2.3.5 The A96(T) provides the strategic road link between Inverness and Aberdeen. In the vicinity of the site, it is a single-carriageway road with a speed limit of 60mph.

2.3.6 Transport Scotland intend to dual the section of the A96 between Inverness and Nairn, which will also include construction of the Nairn Bypass. The scheme has been consented, but no timetable has yet been set for its construction.

2.4 Pedestrian and Cycling Facilities

2.4.1 The distance to the site from the nearest settlements of Ardersier (4km) and Nairn (7.5km), combined with the lack of pedestrian facilities such as street lighting and footways, limit the propensity for walking trips to and from the site.

2.4.2 There are however reasonable opportunities for accessing the site by bike. Ardersier is a 13-minute cycle journey, while Nairn town centre is a 16-minute cycle journey, using the local road network. Cycle and rail interchange opportunities are available at Nairn and Inverness Airport Railway Stations, with Nairn being closest to the site.

2.5 Bus

Current Services

2.5.1 Stagecoach Service 10/10A/M96 runs between Inverness and Nairn every 30 minutes during the week, as well as hourly on both Saturday and Sunday. The route follows the B9092, and passes the site access point.

2.5.2 A summary of bus services that serve the bus stops in Ardersier and Nairn are detailed in **Table 2** below.

Table 2. Bus Timetable

OPERATOR	BUS NO.	ROUTE	FREQUENCY		
			Mon-Fri	Sat	Sun
Stagecoach in the Highlands	10/10A/M96	Inverness Bus Station–Inverness Airport–Ardersier–Nairn–Forres–Elgin	30 mins	60 mins	60 mins

2.5.3 Two new bus stops on either side of the B9092, close to the site entrance, have been recently constructed as part of Phase 1A.

Future possibilities

2.5.4 An employee bus service is being considered for later phases, which would run to coincide with the main shift start and end times. The exact route of this service is still to be developed; however, it is envisaged that stops may include the nearest rail stations and both Ardersier and Nairn. APL will work closely with bus operators (Stagecoach, and potentially Ember) to identify what services can be provided in each phase.

2.6 Rail Services

2.6.1 Nairn Rail Station is ~6km to the east of the site entrance, which is approximately a 7-minute journey by road. Inverness Airport Rail Station, which opened in 2023, is 9km to the south-west of the site, which is approximately a 9-minute journey by road.

2.6.2 Both stations on the Inverness-Aberdeen line which includes stations at Forres, Elgin, Keith, Huntly, Inverurie and Kintore. There are currently ~18 trains a day in each direction, running at frequencies of between 60-120 minutes.

2.6.3 Cycle time to the Ardersier Port site from the station is approximately 16 minutes via the most direct route (which involves a section on the A96), or 25 minutes via the B9091 which avoids the A96.

2.7 Air Travel

2.7.1 Inverness Airport is located 13km west of the site. UK and international destinations are accessible from the airport. Bus, rail and taxi interchange opportunities are available at the Airport for onward travel to Inverness, Ardersier and Nairn.

3. TRAVEL PLAN MEASURES

3.1 Existing Measures

3.1.1 Given the small number of employees currently on site in Phase 1A, no specific TP measures are currently in place.

3.1.2 A Travel Plan Coordinator (TPC) has been appointed, to ensure that a named person is in place who will have responsibility for the Travel Plan, and who will develop it for later stages.

3.1.3 The TPC is:

Gregor Ogilvie
Project Director
Haventus
Ardersier Port Approach
Inverness
IV2 7QX

3.1.4 The remit of the TPC will include, but is not limited to the following:

- Providing a point of contact for all travel related enquiries;
- Promoting and implementing the measures as recommended in this TP;
- Establishing and coordinating links with transport operators and key stakeholders, including the local authority;
- Processing comments and suggestions from staff and visitors;
- Reviewing and updating the TP periodically, and in advance of future phases.
- Reporting the outcomes of the TP process to Haventus' Senior Management Team.
- Eventually chairing a Transport Working Group (TWG), comprising of TPCs from each of the different businesses located on the site.

3.1.5 Ahead of the next phase of development, the TPC will begin to liaise with the potential future operators of different parts of the site, and make contact with relevant organisations (e.g. bus operators, Scotrail and Transport Scotland) to investigate future measures, and establish the progress of other transport schemes in the area which may affect the Travel Plan, such as the A96 Dualling.

3.1.6 The Zoned nature of the site means that it is likely to be occupied by a number of different companies. It is recommended that each of these companies signs up to the overall site Travel Plan, which will contain 'collective' site-wide initiatives (such as a bus service), as well as measures which will need to be delivered by each specific company (e.g. changing facilities for cyclists). The Haventus TPC will coordinate this arrangement, which is summarised in **Figure 4**.

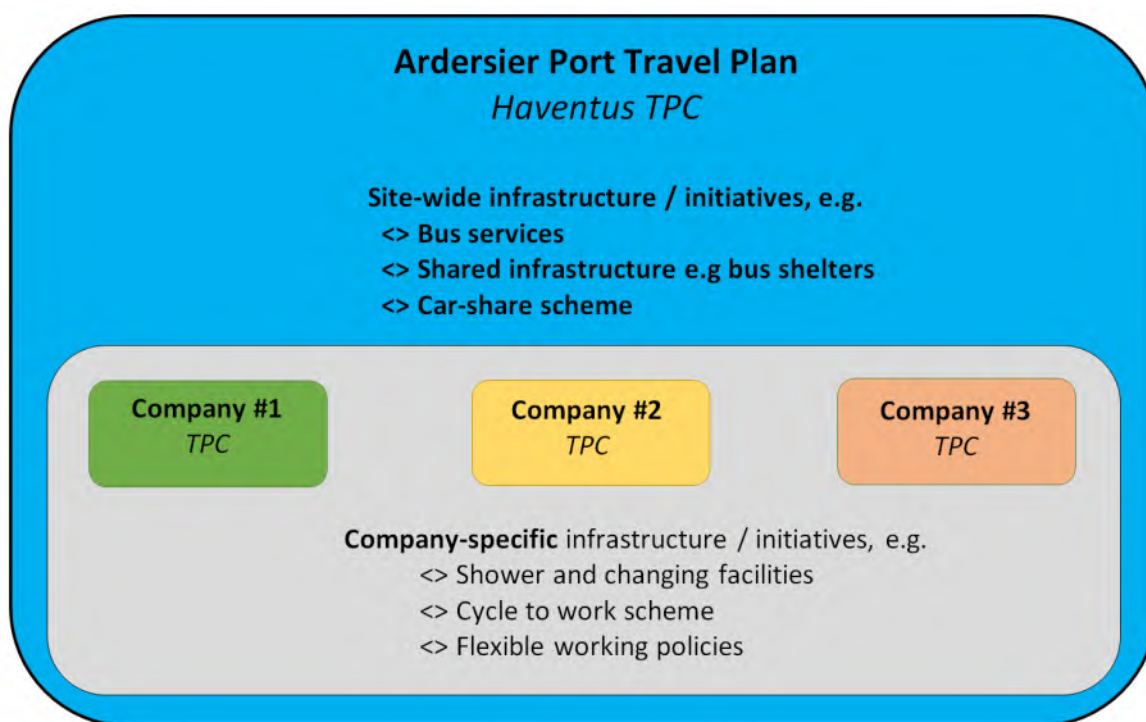


Figure 4. Travel Plan Structure

3.2 Future Phases

Overall Approach

- 3.2.1 The site is located in a rural area between Ardersier and Inverness, and therefore there are likely to be very few walking trips to and from the development.
- 3.2.2 The potential for a substantial number of cycling trips is reasonably limited, although this is a viable option for future employees who live in Ardersier or Nairn, or who may bring their bike on the train from further afield. The TP should promote measures that make it as appealing as possible to cycle to the site, such as promotion of the ‘Bike to Work’ scheme, and the provision of high-quality cycle parking facilities, and well-maintained shower and changing facilities.
- 3.2.3 It is anticipated that most employees will live within Inverness, Ardersier, Nairn, Forres or Elgin, and the Travel Plan should focus on promoting sustainable travel from these destinations.
- 3.2.4 Promoting bus travel to the site has the most potential to remove private vehicle trips from the road network. Existing services from Inverness, and the towns along the A96 corridor to the east and west of the site, operate every hour, and pass the site access point on the B9092.
- 3.2.5 These existing services could be enhanced, either by providing more frequent services, by timetabling buses to coincide with shift patterns, or by extending the operating hours of the existing service.

- 3.2.6 The bus stops near the site access are still some distance from the Port itself, so Haventus is considering a shuttle bus between the Port and the B9092, which would be put in place when staff numbers on site increase.
- 3.2.7 Alternatively, dedicated bus services could be provided by particular tenants (or groups of tenants) for their own staff, which could pick up shift workers from key settlements, and link into both the Airport and Nairn rail stations.
- 3.2.8 Rail travel to the site could be encouraged by providing a local shuttle bus service from Nairn railway station. Again, this should be considered as part of later phases of development.
- 3.2.9 If some future employees cannot be tempted out of their cars, the Travel Plan should also consider a dedicated car-sharing scheme on-site, which would match employees according to their shift pattern and home address.
- 3.2.10 Each phase of the development will provide suitable Electric Vehicle (EV) charging facilities on site, which will be considered on a site-wide basis, as well as for the specific needs of individual tenants.

Travel Plan Measures

- 3.2.11 It is recommended that the Travel Plan measures set out below are considered as part of the next phase of development which will result in a significant number of permanent employees on the site, which SYSTRA suggest is around 100 people. Based upon the employee projections in **Table 1**, this may occur in 2027.
- 3.2.12 The measures set out below have been broken down into the following categories.
 - Information and Promotion;
 - Cycling;
 - Public transport; and
 - Managing car use.
- 3.2.13 Some measures will be collective (site-wide) measures which will be delivered and managed on a site-wide basis by the overall TPC, others will be individual measures, which will need to be delivered in-house by each company.

3.3 Information and Promotion

- 3.3.1 Travel information for staff and visitors is essential to achieve an awareness of sustainable travel options which are available in the local area. This will be particularly effective if provided during the recruitment process, and when staff are about to start on site.
- 3.3.2 As a starting point, the Ardersier website, and individual company websites, should have a “how to get here” section, that provides visitors with information on how they can get to the site by a range of transport modes.
- 3.3.3 The TP will be promoted to employees via dedicated Travel Notice Boards in each business, which will be located in prominent areas within the ‘backroom’ area of each premises. The notice boards will display general information relating to the TP, information relating to sustainable travel, and any current promotions.

3.3.4 This information should include:

- Recommended cycling routes to the Ardersier Port site from Nairn, Ardersier and the nearest rail stations.;
- Location of cycle parking facilities on-site;
- Location of showers, lockers and changing facilities;
- Bus and rail timetable information and stops locations;
- Information on any staff bus services;
- Local taxi information; and
- Posters highlighting health benefits and cost benefits of travelling sustainably.

3.3.5 The TPC’s contact details will be permanently displayed on the board, allowing staff members to contact them directly if required.

3.3.6 Reception and building management staff should be made aware of the importance of understanding the range of travel options available to / from the site so that they can then advise others.

3.4 Walking

3.4.1 It is recognised that there is limited scope for encouraging walking as a viable mode of transport to and from the Ardersier Port site due to the distance / journey time from the nearest settlements, and the lack of adequate footway provision along the routes to the site.

3.5 Cycling

3.5.1 In order to encourage cycling to the site, a range of measures should be offered which include information and incentive-based measures, as well as physical improvements. Potential measures are set out below.

Information / Incentive-based Measures

- Where available, the provision of local cycling maps, routes and cycling times to key destinations (to be displayed on notice boards; as discussed above);
- The provision of basic on-site cycle tools and equipment (e.g. hand pump, puncture repair kit etc.) in addition to the facilities already available;
- Setting up a bicycle users’ group (BUG) to encourage regular cyclists, should demand prove sufficient. This could include cycle training and road safety training;
- Explore the possibility of introducing a “cycle to work” scheme for staff (further details provided below);
- Provide a guaranteed lift home should the cyclist become ill or in the event of an emergency; and
- Investigate the provision of “free breakfasts” for cyclists or other incentive schemes such as recording the miles covered by commuting cyclists.

Physical Improvements

- Providing sheltered and secure cycle parking at the premises (as part of the development proposals);
- Providing lockers, showers and changing facilities at the site;

- Explore the possibility of providing workplace “pool bikes” for staff to commute with in the local area (for example to Nairn or Ardersier). This can be an effective way to introduce staff to cycling and a way to progress into encouraging cycling for commuting purposes. Safety equipment would also need to be provided (helmets etc); and
- Improved signage of cycle-friendly routes / core paths to notify cyclists that they are permitted to use these routes.

Cycle-to-Work-Scheme

- 3.5.2 To promote healthier journeys to work and to reduce environmental pollution, the 1999 Finance Act introduced an annual tax exemption, which allows employers to loan cycles and cyclists' safety equipment to employees as a tax-free benefit.
- 3.5.3 The provision of bicycles and bicycle safety equipment are entirely exempt, with no ceiling on their value. Tax law does not define the meaning of ‘cyclists' safety equipment’, which can include a wide range of cycle accessories, security equipment and clothing.
- 3.5.4 It is noted that there are many third-party providers who administer cycle to work schemes, but the salary sacrifice part of the scheme must be run by the employer’s payroll department. More information on setting up a scheme can be obtained from the HMRC website¹.

3.6 Public Transport

- 3.6.1 The measures to increase public transport use should focus on either improving existing services, or providing new, dedicated services to transport employees to and from the site.

Improving Existing Services

- 3.6.2 Existing services can be improved by either:
- Enhancing the frequency of existing services;
 - Re-timetabling existing services, or providing new services, to coincide with future shift patterns; and / or
 - Extending the operating hours of existing services.
- 3.6.3 Given the distance from the site access point to the B9092, it will be necessary for services to divert into and out of the site from the B9092, or for a separate shuttle service to be provided.
- 3.6.4 The delivery of these services will need to be discussed and agreed with Stagecoach, or another operator. Depending upon whether they are immediately commercially viable to Stagecoach, it may be that individual (or collective tenants) initially contribute to these improvements.
- 3.6.5 Employers can pay subsidies to finance public transport that provides a service to them e.g. where more direct access is provided to the workplace. In such circumstances, there is

¹

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/845725/cycle-to-work-guidance.pdf

normally no tax or National Insurance Contribution's (NIC) to pay, as long as the service is available to all employees.

New Bus Services

- 3.6.6 There is likely to be an imbalance between shift patterns on the site, and 'traditional' bus services. Site tenants may therefore wish to provide dedicated bus services themselves, using private operators. These services could take the following forms:
- Dedicated bus services from major settlements along the A96 (likely between Inverness and Forres), which would be timed according to shift patterns.
 - Shorter shuttle services running between the site and Nairn railway station, providing employees with the opportunity to 'rail and ride' to the site.
- 3.6.7 The enhancement / introduction of bus services will need to be phased in line with phases of development on the site, with improvements keeping pace as the number of employees increases.
- 3.6.8 As part of the current phase, TPC will make initial enquiries with Stagecoach, and within Haventus, to map out how these improvements might be delivered.

Season Tickets

- 3.6.9 The TPC will investigate the potential for interest free season ticket loans, to enable employees to benefit from longer-term ticket discounts.
- 3.6.10 Employers can also offer a free or low-interest season ticket loan up to a value of £10,000 per year. Where such assistance is offered, there are no tax or NICs implications provided the full amount of the loan is repaid to the employer and total loans outstanding do not exceed £10,000 at any time. The loan is administered through payroll and effectively allows the purchase of an annual travel pass which usually offers a significant saving over buying individual weekly or monthly passes. The employee pays back the loan through salary deductions on a monthly basis

PT information

- 3.6.11 The TPC will ensure that staff are well informed and can access relevant public transport service information. Bus timetable information and free public transport journey planners can be obtained from the Traveline Scotland website www.travelinescotland.com.

3.7 Managing Car Use

- 3.7.1 Car-sharing is perhaps the most attractive alternative to single occupancy vehicle travel. It provides a convenient and direct means of travel for employees, and allows travel costs to be shared. From an employer's perspective, it also reduces the parking demand on site.
- 3.7.2 Car-sharing can be implemented by most organisations, although there are certain factors which determine the uptake of schemes. These include:
- Consistent work hours across the site. In this instance shift patterns are helpful;

- Residential concentrations of employees. Again, employees are likely to be concentrated in the main towns on the Moray coast;
- High percentage of employees with commutes longer than 10 miles, or 20 minutes; and / or
- Constrained parking supply.

3.7.3 Measures to encourage car-sharing at the Ardersier Port Site could include:

- ‘Matching’ staff through an employee database of staff willing to car-share, and their home location; and
- Providing priority parking spaces for those who car-share.

3.7.4 Two options for delivering the car-share scheme would be:

- Using an existing service provider (such as Liftshare.com) that provides a free-to-use web service.
- Developing an in-house system, ‘matching’ employees using a simple spreadsheet.

3.8 Reducing the Need to Travel

3.8.1 The most effective way of reducing the transport impact of a development is to reduce, or remove the need to travel at all.

3.8.2 The TPC should work with companies to promote flexible working, home working and hot-desking for staff where possible.

3.8.3 Related actions include:

- Reducing the need for unnecessary business trips by promoting video and teleconferencing;
- Promoting ‘agile’ working;
- Promoting shared business travel trips;
- Reviewing business travel procedures and policies; and
- Promoting sustainable travel modes for business trips.

4. ACTION PLAN

4.1.1 Table 3 presents the TP Action Plan.

Table 3. TP Action Plan

TIME	ACTION / MEASURE
<p>Prior to occupation of Phase 2 (or first subsequent phase to employ >100 people on site)</p>	<ul style="list-style-type: none"> • TPC to investigate potential public transport season ticket loans, and Cycle to Work schemes. • TPC to review proposed EV charging requirements on a site-wide basis, and the requirements of individual tenants, and develop an EV strategy to support future provision. • TPC to update Travel Plan. • Issue travel information to employees prior to them starting on site, including details of bus services. • Ensure website and staff intranet include up-to-date travel information • Ensure Travel Notice Boards are in place in communal areas, and populate with first tranche of information. • Ensure that cycle parking, and changing facilities are in place.
<p>Within 3 months of first 'significant' occupation</p>	<ul style="list-style-type: none"> • Undertake staff travel surveys. • Following receipt of surveys results, set TP mode share targets, and confirm initiatives for Year 1. • Investigate Liftshare scheme, or similar, or set up in-house matching service for employees.
<p>15 months after opening</p>	<ul style="list-style-type: none"> • Undertake first refresh of staff and travel surveys. • Provide update to THC and refresh TP. • Undertake above steps every 12 months for first 5 years of development.
<p>Continuous actions</p>	<ul style="list-style-type: none"> • TPC to work with new organizations on site, under the umbrella of the site-wide TP. • TPC to liaise with transport operators, THC, TS and businesses across the site.

5. TARGETS, MONITORING AND REVIEW

5.1 Baseline Mode Share

- 5.1.1 Establishing the existing mode share is the starting point for any TP. In this case, as the development is not yet operational, travel surveys of staff will need to be carried out when there is the first 'significant' presence on site.
- 5.1.2 Given the very small number of employees currently on site, it is recommended that these are undertaken within three months of occupation of the next significant phase of the development, e.g. when there are >100 employees on site.
- 5.1.3 It is likely that the employee survey will be issued online. For each person surveyed, the staff travel survey will need to establish:
- Home postcode
 - Staff members - Typical working patterns (day / night, full / part time)
 - Usual mode of travel to the site
 - How long the journey takes.
 - Reasons for choice of mode
 - Initiatives / factors that could influence the person to change mode.
 - Willingness to consider car-sharing.
- 5.1.4 The above information will allow the baseline employee modal split to be calculated. Based on this, suitable targets can be set for the TP to aim towards.

5.2 Targets

- 5.2.1 Targets are important as they give the TP direction from its inception, providing measurable goals.
- 5.2.2 When setting site-specific targets, it is important that they are 'SMART' (**S**pecific, **M**easurable, **A**chievable, **R**ealistic and **T**imebound).
- 5.2.3 The main objectives of the TP are:
- To reduce the dependence of employees on single occupancy private car travel; and
 - To encourage staff members and employees to make more sustainable travel choices when travelling to and from the site.
- 5.2.4 The main target of the MMP will therefore be:
- A decrease in the percentage of employees travelling by single occupancy private car to and from the store. This will result in a related increase in the frequency of walking, cycling, public transport and car sharing trips.

5.3 Monitoring and Review

- 5.3.1 Mode share targets over one, three and five-years period will be set once the post-occupation baseline mode share is known. Progress towards these targets will be monitored through repeat annual travel surveys at the store.
- 5.3.2 This monitoring is an opportunity to measure TP achievements on an annual basis. This will then inform the ongoing development of the TP, ensuring its targets and measures remain relevant to the needs of the residents, is site-specific and fit for purpose. Results will be analysed to enable the following:
- Measurement of the success of the TP, enabling focused improvement on areas that have not achieved the desired modal shift via appropriate revisions to the TP measures;
 - Identification of early success stories of the TP, which can help to encourage further participation and build momentum for sustainable travel;
 - Ensures that changing travel patterns are considered, ensuring that the TP measures can be updated to reflect the needs of residents; and
 - Allows targets which have been set too low or unrealistically high to be readjusted.
- 5.3.3 Annual survey results will be submitted to THC, which will set out the current MMP initiatives, and what is proposed over the coming year.
- 5.3.4 In the event that initial targets set out in the TP are not met, this will present an opportunity for a calibration exercise for future target setting and Action Plan refresh and review.
- 5.3.5 The roll-out of Electric Vehicles (EV) across the UK, both privately and within company fleets, is a rapidly evolving area. The TP should help to develop an EV Strategy to ensure that the EV infrastructure provided on site, both across the full site and for individual tenants, is suitable to encourage and support future EV use.

6. SUMMARY & CONCLUSIONS

- 6.1.1 SYSTRA Ltd (SYSTRA) has been appointed by Ness Planning on behalf of APL, to prepare a Travel Plan (TP) Plan related to the redevelopment of Ardersier Port, which is located 16km to the north-east of Inverness.
- 6.1.2 The Travel Plan was initially produced in February 2024, prior to commencement of Phase 1A on site, which has since been completed.
- 6.1.3 As part of this works, a new site access roundabout on the B9092 was constructed in December 2024, and a roundabout on the A96 will be constructed as soon as practicable (expected to commence imminently).
- 6.1.4 The TP has been updated to reflect the Proposed Extension to the Port, which would see the total development expanded from c.350 acres to c.500 acres. The additional land is to be brought into use for the same purposes as across the existing consented site. Although the overall site area will be larger than consented, the proposed numbers of workers during construction and operation associated with the proposed extension are broadly similar to that which is already consented.
- 6.1.5 The constructed Phase 1A employs only small number of people on site, and it is not practical to apply most of the measures typically proposed as part of TPs at this very early stage of the development. The TP therefore focuses on the provision of a comprehensive 'Framework' for later phases of development.
- 6.1.6 The Zoned nature of the site means that it is likely to be occupied by a number of different companies. It is recommended that each of these companies signs up to the overall site Travel Plan, which will contain 'collective' site-wide initiatives (such as a bus service), as well as measures which will need to be delivered by each specific company (e.g. changing facilities for cyclists).

Existing Measures

- 6.1.7 Given the small number of employees currently on site in Phase 1A, no specific TP measures are currently in place.
- 6.1.8 A Travel Plan Coordinator (TPC) has been appointed, to ensure that a named person is in place who will have responsibility for the Travel Plan, and who will develop it for later stages.

Future Phases

- 6.1.9 It is recommended that the Travel Plan measures set out below are considered as part of the any phase of development which will result in a significant number of permanent employees on the site, which SYSTRA suggest is around 100 people. Based upon the latest employee projections, this may occur in 2027.
- 6.1.10 Later iterations of the TP should focus on:
 - Promoting cycle trips to the site from Ardersier or Nairn, or from cyclists who arrive by train at Nairn Station, or the Airport Rail Station.

- Enhancing existing bus services, or providing new, dedicated bus services from Inverness, and the towns along the A96 corridor to the east.
- Investigating a shuttle-bus service from Nairn Rail Station, to promote ‘Rail and Ride’.
- Developing an EV strategy to support site-wide EV roll-out, and the needs of prospective tenants.
- Promoting interest-free loans for the purchase of public transport season tickets, and promoting the ‘Cycle to Work’ scheme amongst employees.
- Promoting a car-share scheme, administered either by a third-party provider, or ‘in-house’.

Action Plan

- 6.1.11 The TP sets out an Action Plan, with Actions being identified up to 15 months following first occupation. These Actions include undertaking an employee Travel Survey within three months of ‘significant’ occupation of the site, and using this to set TP targets.

Monitoring and Review

- 6.1.12 The TP will be reviewed on an annual basis (through refreshed travel surveys), and ahead of each major phase of development.

SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.

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ARDERSIER PORT ENERGY TRANSITION FACILITY PORT EXTENSION



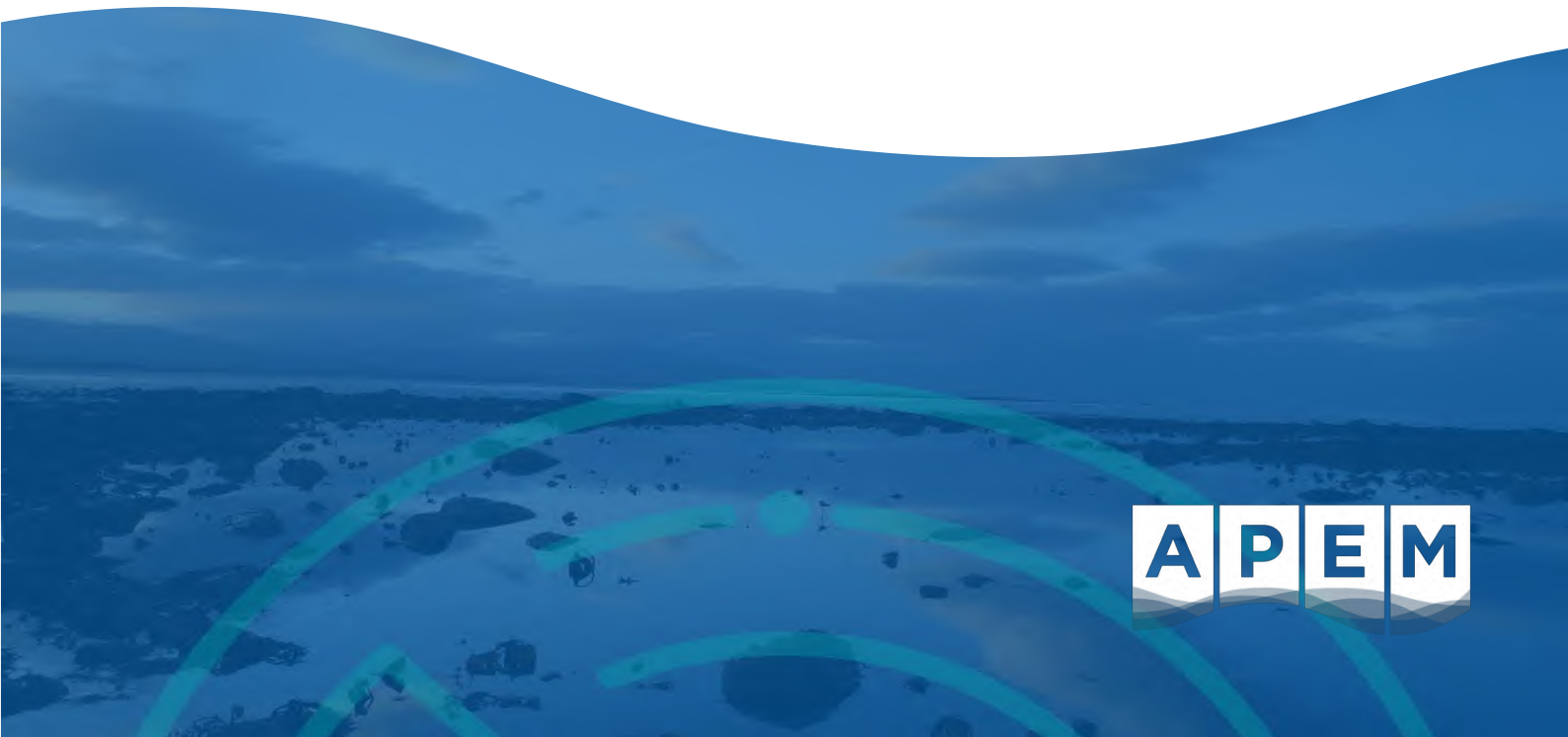
November 2025

Appendix 5.7 Commercial Fisheries

Hventus

Commercial Fisheries

APEM Group Ltd.



Client: Haventus
Address: Ardersier Port
Ardersier Port Approach
Inverness
IV2 7QX
Project reference: P00019141
Date of issue: October 2025

APEM Ltd
Riverview
A17 Embankment Business Park
Heaton Mersey
Stockport
SK4 3GN

Tel: 0161 442 8938
Fax: 0161 432 6083

Registered in England No. 02530851

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Competent Expert Evidence

Name	Role	Years of Experience	Professional Memberships	Qualifications
Tom Bridges CSci CMarSci MIMarEST	Author	11	Institute of Marine Engineering, Science and Technology (IMarEST)	BSc (Hons), MSc
Angie de Burgh	Technical Reviewer	16	Marine Biological Association (mem.MBA)	BSc (Hons), MSc

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Acronyms and Abbreviations

Term	Definition
AIS	Automatic Identification System
BERR	Department for Business, Enterprise and Regulatory Reform
CEA	Cumulative Effects Assessment
CEFAS	Centre for Environment Fisheries and Aquaculture Science

CIEEM	Chartered Institute of Ecology and Environmental Management
CPA	Coastal Protection Act
CSD	Cutter Suction Dredger
EEZ	Exclusive Economic Zone
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
EMODnet	European Marine Observatory Data Network
EMSA	European Maritime Safety Agency
EU	European Union
FEPA	Food Environmental Protection Act
FiSMaDiM	Fisheries Sensitivity Mapping and Displacement Modelling
FLO	Fisheries Liaison Officer
FLOWW	Fisheries Liaison with Offshore Wind and Wet Renewables group
FMMCP	Fisheries Mitigation, Monitoring and Communication Plan
ICES	International Council for the Exploration of the Sea
JNCC	Joint Nature Conservation Committee
MD-LOT	Marine Directorate – Licensing Operations Team
MDS	Maximum Design Scenario
MD-SEDD	Marine Directorate - Science, Environment, Digital and Data
MMO	Marine Management Organisation
NMPi	National Marine Plan interactive
NSP	Navigational Safety Plan
NtM	Notice to Mariners
O&M	Operation and Maintenance
OWM	Offshore Wind Farm
PEMP	Project Environmental Monitoring Plan
RBS	Register of Buyers and Sellers
SAR	Swept Area Ratio
SFF	Scottish Fishermen’s Federation
TSHD	Trailer Suction Hopper Dredger
UK	United Kingdom
VMS	Vessel Monitoring System
ZoI	Zone of Influence

Units

Unit	Definition
km ²	Kilometre squared
Km	Kilometre
kW/h	Kilowatt-hour
m	Meter
nm	Nautical mile
£	Pound Sterling
t	Tonnes

1. Introduction

The aim of this technical appendix is to assess the potential impacts to commercial fisheries arising from the proposed development, with the objective of identifying potential impacts arising from the proposed development, both alone and cumulatively, on matters raised during the scoping opinion process (see Section **Error! Reference source not found.**), across both the construction and operation and maintenance (O&M) phases.

The project description is provided in Chapter 3: Project Description of the EIAR. An Environmental Constraints Plan is provided in Chapter 1: Introduction.

2. Legislative Context

Overarching legislation, policy, and guidance in relation to the Environmental Impact Assessment Report (EIAR) for the proposed development is provided in Chapter 2: Methodology of the EIAR. While there are no specific legislative controls that provide provisions for commercial fisheries within the context of Environmental Impact Assessment (EIA), The Marine Works (Environmental Impact Assessment) (Scotland) Regulations (2017) establish the requirement for EIA in relation to marine licensing in Scotland and strategic policy frameworks such as the Scottish National Marine Plan (Scottish Government, 2015) and the UK Marine Policy Statement (HM Government, 2011) provide relevant guidance for managing fisheries within marine planning.

3. Consultation

A request for an EIA scoping opinion was sought from the Marine Directorate - Licencing Operations Team (MD-LOT) and The Highlands Council in January 2025 as part of the EIA Scoping Process. A formal consultation period was held between February and March 2025, during which, statutory consultees were consulted and invited to provide feedback.

During this period, concerns were raised by MD-LOT, the Marine Directorate - Science, Environment, Digital and Data (MD-SEDD) and the Scottish Fishermen's Federation (SFF) regarding the potential impact of the proposed development on commercial fisheries. MD-SEDD identified that the proposed works overlap with high-value whelk landing areas within the North & East Regional Inshore Fisheries Group, with additional landings of blue mussel, brown crab, lobster, and velvet crab nearby, indicating active creel fisheries in the area. The SFF reported feedback from local inshore fishers and recommended direct engagement by the Applicant. Scottish Ministers further advised that the Applicant must consult with fisheries representatives and local fishermen to identify fishing grounds in the vicinity and

ensure that smaller vessels not represented in Vessel Monitoring System (VMS) data are adequately considered in the assessment.

A summary of the relevant consultation responses received during scoping opinion, and how these concerns have been addressed within this report, are outlined in Table 5.1Error! Reference source not found..

Table 5.1. Consultation relevant to commercial fisheries

Consultee	Date and Nature of Consultation	Summary of response	How and where addressed
MD-SEDD	Scoping opinion June 2025	<p>The Ardersier development overlaps with ICES rectangles 44E5 and 44E6. MD-SEDD advise that landings data suggest an important whelk fishery within the ICES rectangle 44E5, which covers the waters to the west of the development. According to the NAFC report (Shelmerdine & Mouat, 2021), between 2013-2017 the average value of whelk landings in 44E5 were £118,353, despite this rectangle only containing a small portion of sea area. This is the highest value for whelk for all ICES rectangles within the North & East Regional Inshore Fisheries Group area. There were also landings in 44E5 of blue mussel (average £41,026), as well as brown crab (average £8,590), lobster (average £1,995) and velvet crab (average £615), suggesting a potential creel fishery in the area. MD-SEDD advise that commercial fisheries are scoped into the assessment.</p> <p>It is likely that any inshore vessels fishing in this area will not be represented in VMS data as they may be under 12 m in length, however they may have Automatic Identification Systems (AIS) present on their vessels which can be used to understand where fishing vessels are active. MD-SEDD advise consultation with fisheries representatives and local fishermen to determine the presence of fishing grounds in the vicinity of the development, to ensure smaller fishing vessels are not excluded from the assessment.</p>	<p>Study area for this technical appendix defined as ICES rectangles 44E5 and 44E6. Most up to date available fisheries statistics (2019 – 2023) analysed to inform Section 4 – Baseline, supported by VMS / ScotMap spatial data. No further consultation has been undertaken with fisheries stakeholders.</p>
MD-LOT	Scoping opinion June 2025	<p>The Scottish Ministers direct the Applicant to the MD-SEDD advice and advise that it is fully addressed within the EIA Report.</p> <p>In its advice, MD-SEDD noted that the site of the Proposed Works overlap with highest value areas for whelk landings within the North & East Regional Inshore Fisheries Group. There were also landings within the vicinity of the Proposed Works of significant value for blue mussel, brown crab, lobster and velvet crab, suggesting the potential for creel</p>	<p>'See response above for MD-SEDD.'</p>

Consultee	Date and Nature of Consultation	Summary of response	How and where addressed
		<p>fishery in the area. Additionally, in its response, the SFF noted that it has had some concerns raised from local inshore fishers and advised the Applicant should engage directly with the fishers. On this basis, the Scottish Ministers advise that commercial fisheries must be scoped in for further assessment in the EIA for both phases. The Scottish Ministers advise that the Applicant must consult with fisheries representatives and local fishermen to determine the presence of fishing grounds in the vicinity of the Proposed Works and to ensure that smaller fishing vessels, not captured in Vessel Monitoring System data, are not excluded from the assessment.</p>	
<p>Scottish Fishermen's Federation (SFF)</p>	<p>Scoping opinion June 2025</p>	<p>This response to the above scoping request is presented by the Scottish Fishermen's Federation on behalf of the 450 plus fishing vessels in membership of its constituent associations, the Anglo Scottish Fishermen's Association, Fife Fishermen's Association, Fishing Vessel Agents and Owners Association, Mallaig & Northwest Fishermen's Association, Orkney Fisheries Association, Scottish Pelagic Fishermen's Association, the Scottish White Fish Producer's Association and Shetland Fishermen's Association.</p> <p>As we have had some concern from local inshore fishers in this area recently, we propose that it would require input from them directly impacted to feed into this.</p>	<p>No further consultation has been undertaken with fisheries stakeholders.</p>

4. Baseline

The overall aim of this technical appendix is to assess the potential impacts arising from the proposed development, on key issues raised within the scoping opinion relating to commercial fisheries.

4.1 Study Area

The project is located in the inner Moray Firth, on the northeast coast of Scotland within the United Kingdom (UK) Exclusive Economic Zone (EEZ) and UK territorial waters, inside the 12 nautical mile (nm) limit. For statistical and fisheries management purposes, the Moray Firth region falls within the International Council for the Exploration of the Sea (ICES) Division IVa (northern North Sea), which is subdivided into standardised statistical rectangles measuring 30 nm², or 103 km² per rectangle. These divisions facilitate consistent data collection and reporting across Member States operating in the region.

The proposed development overlaps with ICES rectangles 44E5 and 44E6. ICES rectangle 44E5 and 44E6 both cover an area of approximately 3,316 km² respectively, therefore the overlap of the total footprint of the proposed development equates to a minimal proportion of each rectangle. For the purposes of this commercial fisheries technical appendix, ICES rectangles 44E5 and 44E6 delimit the commercial fisheries study area. The study area is presented in Figure 5.1.

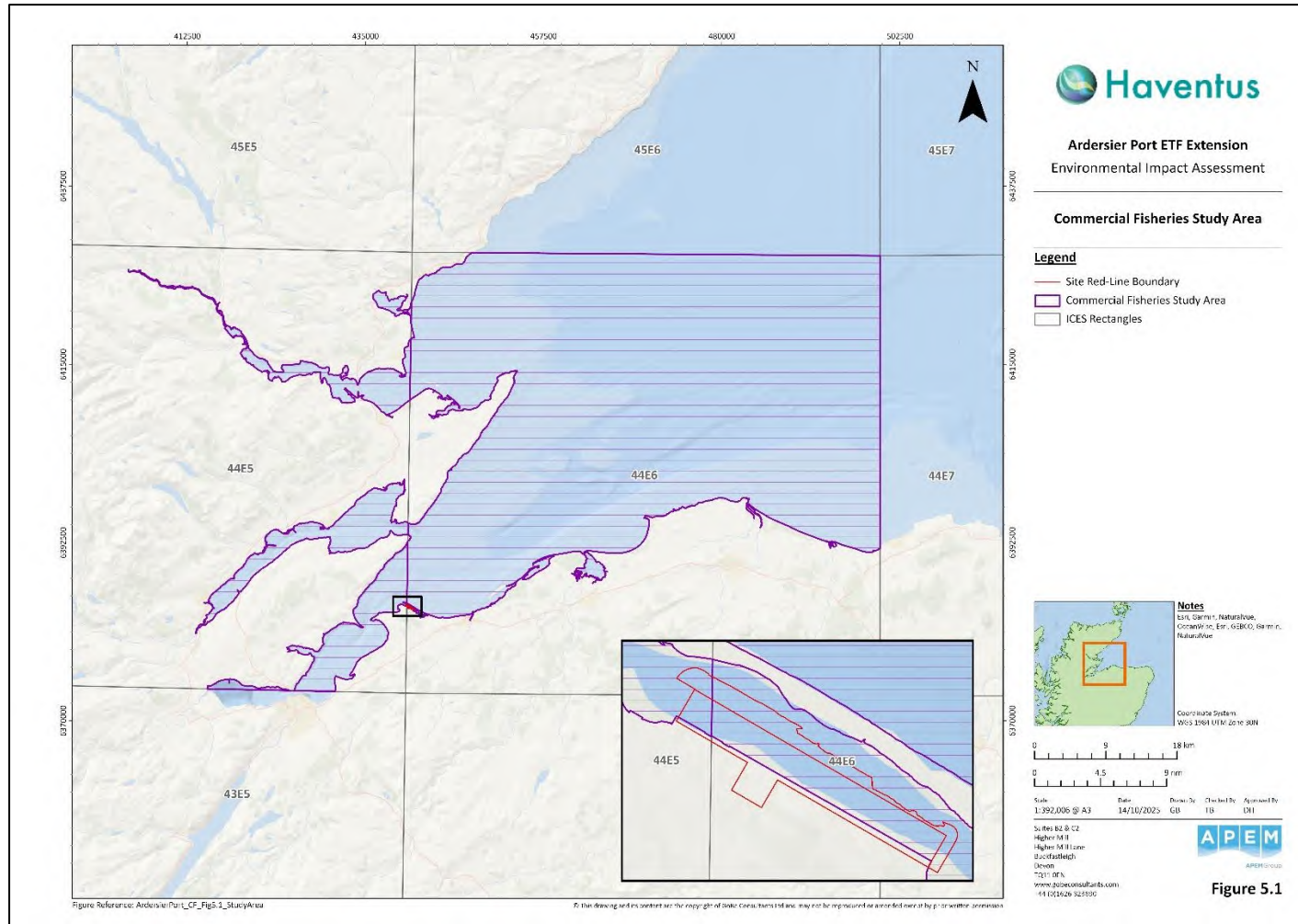


Figure 5.1: Commercial Fisheries Study Area

4.2 Desktop Study

To inform the assessment on commercial fisheries, a high-level desk-based review has been undertaken using a range of existing spatial and scientific data sources (Table 5.2. Reference source not found.). The findings of this research are presented below to provide an understanding of the proposed development environment in relation to key issues raised within the scoping opinion relating to commercial fisheries. The commercial fisheries baseline has been mainly characterised by publicly available MMO fisheries statistics data for ICES rectangles 44E5 and 44E6 (MMO, 2023), cross referenced with Scottish Sea Fisheries Statistics (Marine Directorate, 2025) to ensure a comprehensive analysis. These data are presented in the following paragraphs and provide a sufficient representation of the UK fishery within ICES rectangles 44E5 and 44E6 as they include information on various parameters, for example, first sales value, landed weight, vessel length group and gear type. These MMO data are for UK vessels only, however, VMS data from European Union (EU) vessels (including the UK) 12 m and over in length in terms of average total fishing effort and average Swept Area Ratio (SAR) between 2019 and 2022 has also been analysed.

Variations and trends in commercial fisheries activity are an important aspect of the baseline assessment and are the principal reason for considering up to five years of key baseline data. Given the data reporting period considered in this assessment (2019 to 2023), existing baseline data may to some extent capture potential changes in commercial fisheries activity resulting from the COVID-19 pandemic, which is understood to have temporarily affected market demand and supply chains and changes in fishing patterns resulting from the withdrawal of the UK from the EU.

Table 5.2. Summary of desk-based review sources.

Title	Purpose	Reference
UK Sea Fisheries Statistics (2019-2023)	Landings statistics data for UK-registered vessels, with data query attributes for: landing year; landing month; vessel length category; ICES rectangle; vessel/gear type; port of landing; species; live weight (tonnes); and value (£).	Marine Management Organisation, (2023)
Vessel Monitoring System (VMS) data	VMS data for UK registered vessels 15 m and over in length. Note that UK vessels 12 m and over in length have VMS on board, however, to date, the MMO provides amalgamated VMS datasets for 15 m and over vessels only. VMS data sourced from MMO displays the first sales value (£) of catches.	Defra Data Services Platform, Marine management Organisation, (2020-2022)
Swept Area Ratio (SAR) data for EU registered vessels ≥12 m	VMS data for EU registered vessels 12 m and over in length. VMS data sourced from ICES and available through EMODnet displays the surface SAR of catches	European Marine Observation and Data Network (EMODnet)

Title	Purpose	Reference
	by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear contacts (or sweeps) the seabed surface. Surface SAR provides a proxy for fishing intensity.	Human Activities (fishing effort) in collaboration with International Council for the Exploration of the Sea (ICES), (2019-2022)
Marine Scotland National Marine Plan interactive (NMPi) portal (ScotMap Inshore Fisheries Data)	ScotMap, accessed via Marine Scotland’s NMPi portal, provides spatial data on fishing activity from vessels under 15 m, based on interviews conducted between 2011 and 2013. It maps key features such as fishing effort, gear types, and vessel activity across Scottish waters, including designated fishing grounds. This data has been used to supplement and cross-reference MMO landings and spatial datasets to ensure comprehensive coverage of commercial fishing activity within the study area.	Marine Scotland, Scottish Government, (2014)
FiSMaDiM (Fisheries Sensitivity Mapping and Displacement Modelling) data	These datasets are used to model and understand how fishing activities might be affected by marine developments and how fishing effort could be redistributed as a result.	CEFAS data hub, Centre for Environment, Fisheries and Aquaculture Science (CEFAS), (2023)
Fishing vessel route density data	Fishing vessel route density, based on vessel AIS positional data. AIS is required to be fitted on fishing vessels 15 m and over in length.	European Maritime Safety Agency (EMSA), via European Marine Observation and Data Network (EMODnet), (2024)
Key commercial fisheries stock assessments (where available)	While stock assessments are typically conducted at broader regional scales, for example North Sea or West of Scotland, several key commercial species relevant to the Moray Firth are regularly assessed by ICES and reported in Scottish marine assessments.	ICES and Marine Scotland, (2019-2023)

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4.2.1 Key Target Species and Socioeconomic Importance

Commercial fisheries contribute significantly to the local economy, supporting employment, landings value, and supply chains in northeast Scotland. Ports such as Fraserburgh and Buckie rely on shellfish and demersal landings from vessels operating within the study area. Displacement or disruption could have downstream effects on processors, transport, and community resilience, particularly for small-scale operators.

On average, landed weight equating to 75 tonnes with a first sales value of £148,228 was landed from ICES rectangle 44E5, based on 5-years landings data between 2019 to 2023. Peak landings occurred in 2019 with 117 tonnes landed at a first sales value of £208,210. The lowest landings in the 5-year reporting period were recorded in 2023 with 64 tonnes landed at a first sales value of £85,093.

Trends in landings from ICES rectangle 44E5 show an appreciable drop from 2019 (117 tonnes at a first sales value of £208,210) to 2020 (72 tonnes at a first sales value of £118,486), through to 2021 (42 tonnes at a first sales value of £109,828). Landing statistics indicate initial recovery in 2022 (79 tonnes at a first sales value of £219,518), however in 2023 landings dropped to the lowest point in the data 5-year data reporting period with 64 tonnes landed at a first sales value of £85,093. It is noted that the period of the baseline data analysis includes years impacted by COVID-19, specifically 2020 and 2021 when restrictions affected normal business operations and market trade. Landings at a national level were seen to decline over this period. For example, the total first sales value of commercial landings by Scottish vessels decreased from £735 million in 2016, to £520 million in 2020 due to the impacts of COVID-19.

In ICES rectangle 44E5, whelk dominated landed weight and first sales value between 2019 and 2020, and in 2023. Landed weight values range from 102.3 tonnes with a first sales value of £120,656 in 2019, 66.1 tonnes with a first sales value of £76,205 in 2020 and 61.1 tonnes with a first sales value of £68,475 in 2023. Landed weight of whelks dropped significantly in 2021 and 2022 to 12.9 tonnes at a first sales value of £12,999 and 36.3 tonnes at a first sales value of £35,409 in 2022. Brown crabs dominated landed weight and first sales value in 2021 with 13.8 tonnes landed at a first sales value of £33,226 and continued to dominate first sales value in 2022 at £72,272 although landed weight was below that of whelks at 27.4 tonnes.

Nephrops are consistently landed year-on-year across the reporting period, however landings and first sales value fluctuate from a peak in landings in 2022 of 10.96 tonnes with a first sales value of £66,601 to a low of 1.1 tonnes in 2021 with a first sales value of £12,525. Ballan wrasse were only landed in 2019 to 2021, and although represent a small proportion of average landed weight by species in the rectangle (0.04 tonnes), had an average first sales value of £3,113 in the reporting period. Lobsters (0.59 tonnes at a first sales value of £9,221), velvet crabs (1.4 tonnes at a first sales value of £4,752) and scallops (4 tonnes at a first sales value of £8,538) are consistently landed year-on-year across the 5-year reporting period and alongside the species discussed above, comprise the majority of landed weight and first sales value within ICES rectangle 44E5.

Finfish and other species, although targeted within this rectangle, represent a small proportion individually overall of average landed weight and first sales value. Fisheries

Statistics indicate that shellfish species were caught using dredges, demersal trawls, and creels, pots and traps. Figure 5.2 and Figure 5.3 present the results of this analysis.

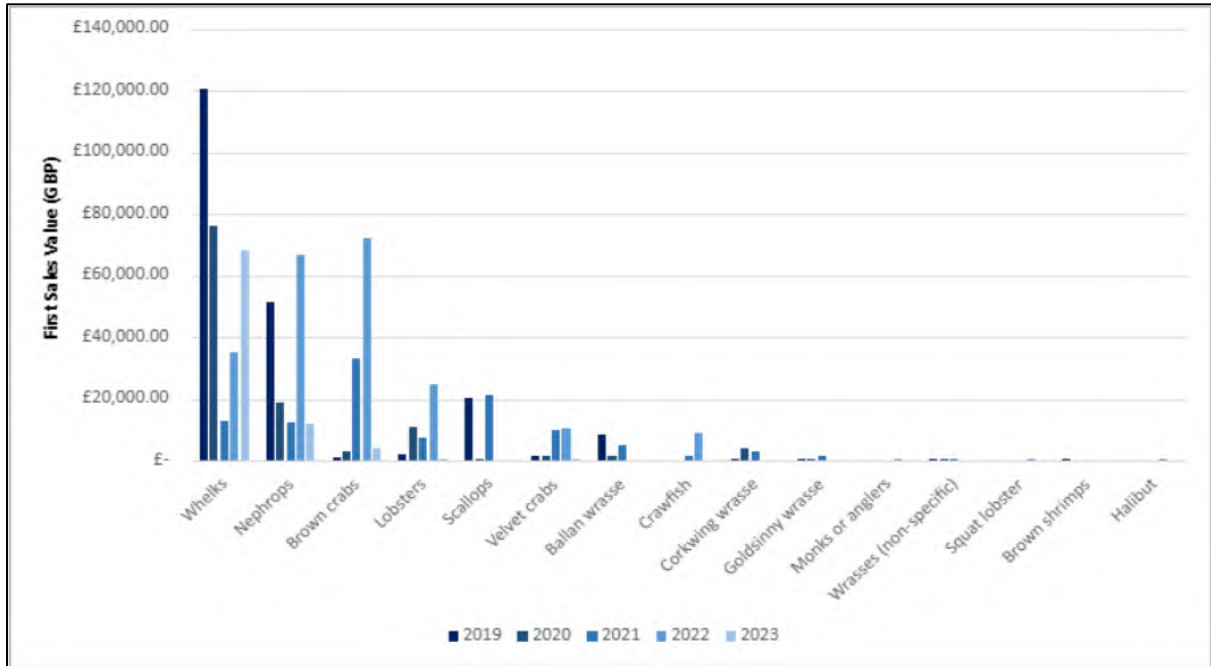


Figure 5.2: Average annual landed value of species from ICES rectangle 44E5, based on 5-year average from 2019 to 2023 (MMO, 2023a).

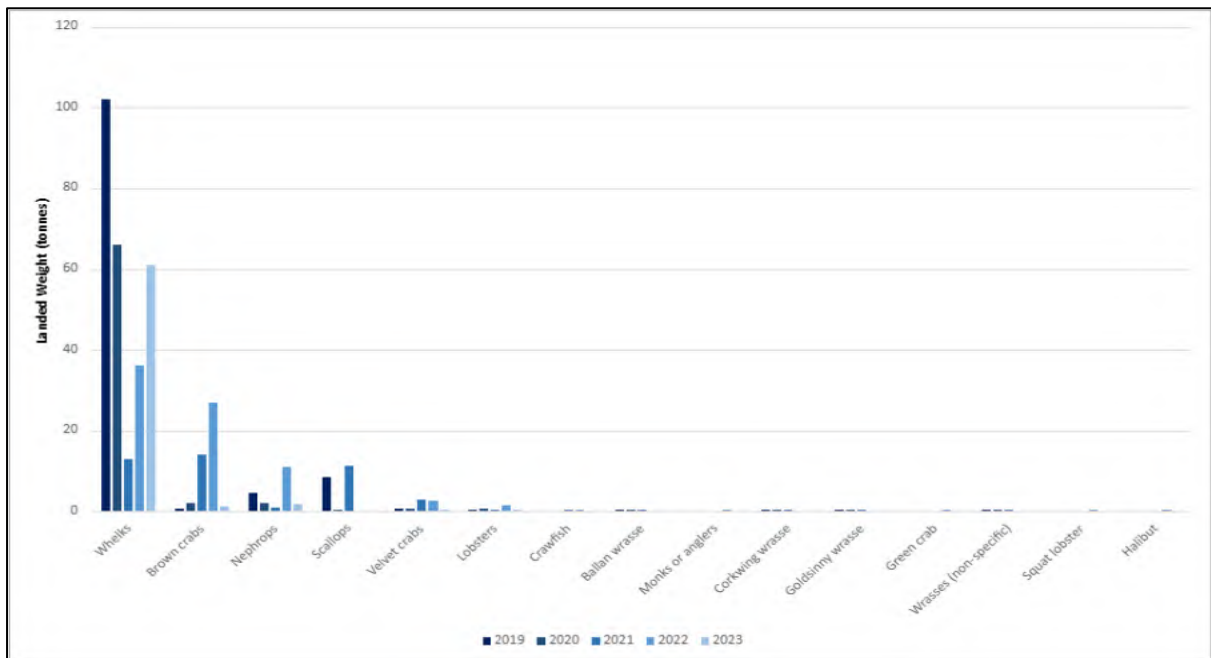


Figure 5.3: Average annual landed weight of species from ICES rectangle 44E5, based on 5-year average from 2019 to 2023 (MMO, 2023a).

On average, landed weight equating to 662 tonnes with a first sales value of £2.65 million was landed from ICES rectangle 44E6, based on 5-years landings data between 2019 to 2023. Peak landings occurred in 2019 with 1015 tonnes landed at a first sales value of £ 3.85 million. The lowest landings in the 5-year reporting period were recorded in 2020 with 467 tonnes landed at a first sales value of £1.5 million.

Trends in landings from ICES rectangle 44E6 show an appreciable drop from 2019 (1015 tonnes landed at a first sales value of £ 3.85 million) to 2020 (467 tonnes landed at a first sales value of £1.5 million) and remain lower in 2021 (476 tonnes landed at a first sales value of £1.7 million), however landings steadily rise through 2022 into 2023 with 763 tonnes landed at a first sales value of £ 3.5 million. As described for ICES rectangle 44E5, this includes years impacted by COVID-19, specifically 2020 and 2021 when restrictions affected normal business operations and market trade and aligns with declines in landings at a national level during this period.

In ICES rectangle 44E6, *Nephrops* dominated landed weight and first sales value between 2019 and 2023, except in 2019 where landed weight of squid was 354 tonnes. Landed weight values for *Nephrops* range from 158 tonnes with a first sales value of £629,521 in 2020 to 372 tonnes with a first sales value of £2.03 million in 2023 and a 5-year average of 241.2 tonnes at a value of £1.22 million. Squid had the highest landed weight in 2019 with a first sales value of £882,673, however landings dropped significantly in 2020 to 153 tonnes with a first sales value of £382,766 and continued to drop to a low of 86 tonnes in 2021, remaining stable in the remainder of the reporting period. Lobsters represent the next highest first sales value with an increasing trend in landings and first sales value observed ranging from a low of 18.1 tonnes at a first sales value of £239,732 in 2020 to a peak of 47.3 tonnes in 2023 at a first sales value of £707,413.

Landed weight and first sales value of mixed squid and octopi peaked in 2019 at 91.4 tonnes at a value of £654,389, however dropped significantly in 2020 to 14.4 tonnes, continuing to a low of 2.4 tonnes in 2022 with a slight increase observed in 2023 to 5.24 tonnes. Brown crabs (40.24 tonnes at a first sales value of £102,590), whelks (76 tonnes at a first sales value of £84,446), velvet crabs (22.03 tonnes at a first sales value of £54,347) and scallops (21.4 tonnes at a first sales value of £43,831) are consistently landed year-on-year across the 5-year reporting period and alongside the species discussed in paragraph 1.4.1.15, comprise the majority of landed weight and first sales value within ICES rectangle 44E6.

Haddock represents the fifth highest landed weight in the rectangle, ranging from 8.4 tonnes with a first sales value of £11,124 in 2020 to 59.1 tonnes with a first sales value of £46,620 in 2022 and an average first sales value of £25,547 across the data reporting period. Although significantly lower in landed weight than Haddock, corkwing wrasse (0.2 tonnes with a first

sales value of £33,727), monks or anglers (3.85 tonnes at a first sales value of £13,208), mackerel (6.7 tonnes at a first sales value of £8,843), Plaice (1.64 tonnes at a first sales value of £950), Dabs (1.95 tonnes at a first sales value of £417) and green crab (0.91 tonnes at a first sales value of £812) are important target species within ICES rectangle 44E6. Finfish and other species, although targeted within this rectangle, represent a small proportion individually overall of average landed weight and first sales value within ICES rectangle 44E6. Fisheries Statistics indicate that the majority of demersal and pelagic fish landed by UK vessels were caught using demersal trawls. Shellfish species were caught using beam trawls, dredges, demersal trawls, and pots and traps. Figure 5.4 and Figure 5.5 present the results of this analysis.

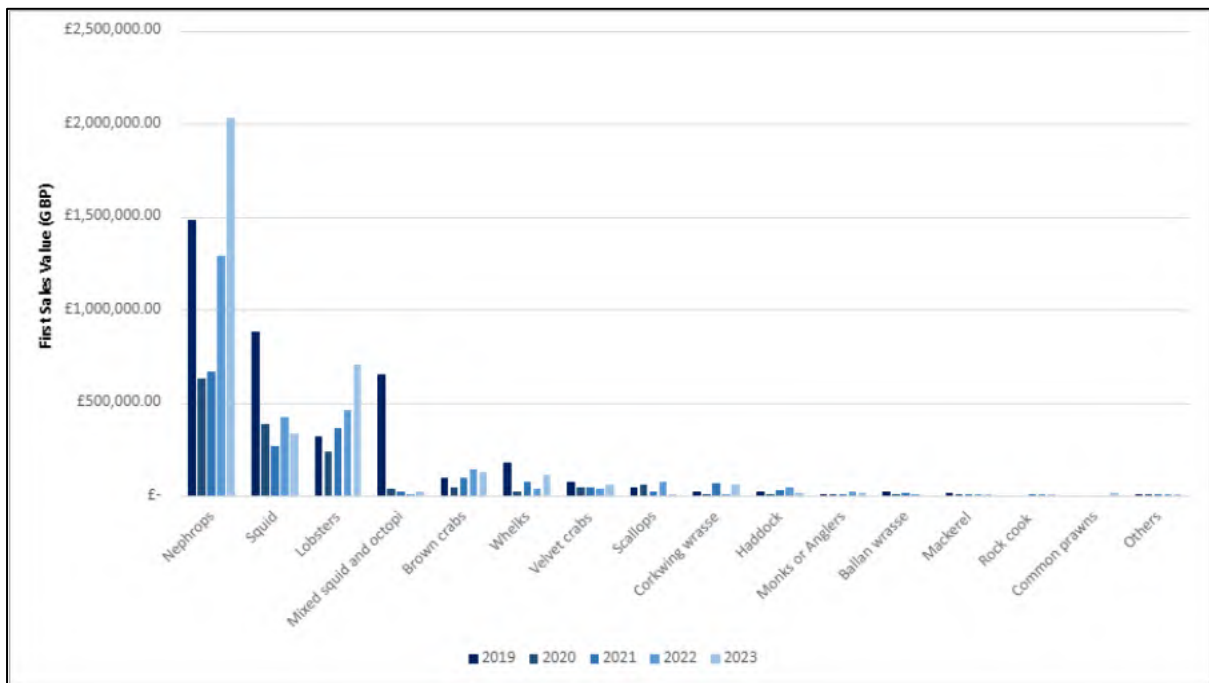


Figure 5.4: Average annual landed value of species from ICES rectangle 44E6, based on 5-year average from 2019 to 2023 (MMO, 2023a).

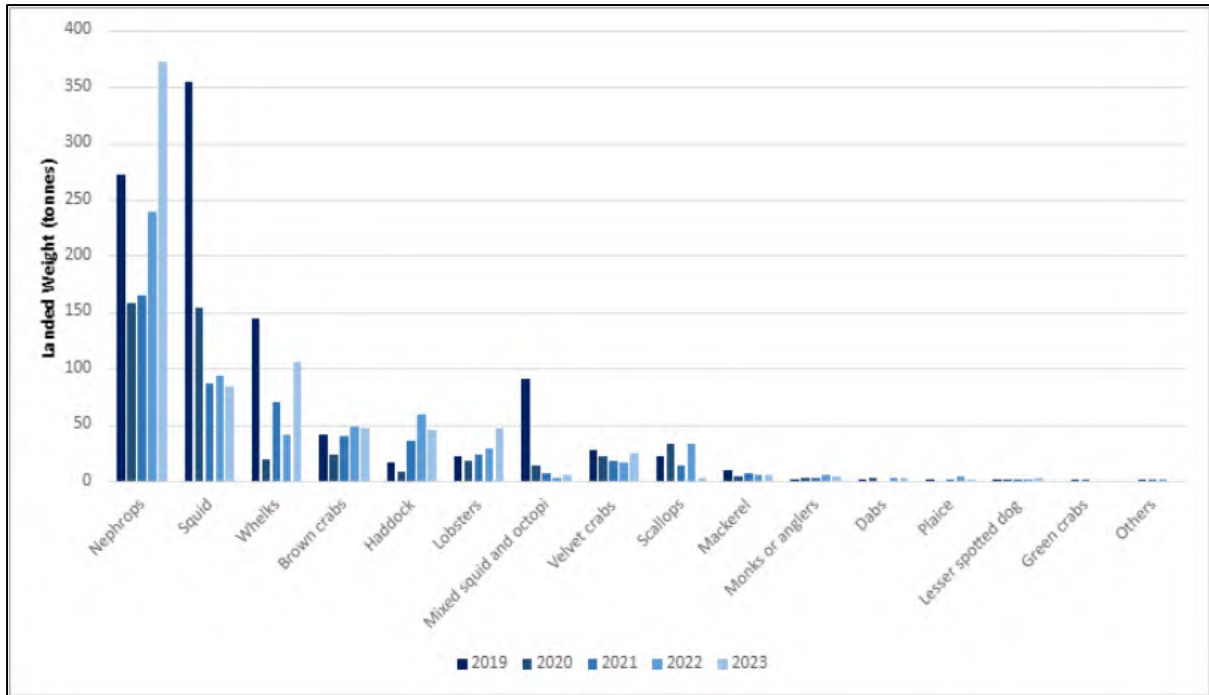


Figure 5.5: Average annual landed weight of species from ICES rectangle 44E6, based on 5-year average from 2019 to 2023 (MMO, 2023a).

4.2.2 Fleet Composition and Vessel Size

The Moray Firth exhibits a varied depth profile that influences both ecological dynamics and fishing activity. In its inner reaches, depths typically range from 10 to 50 m, with shallower areas around estuaries and river mouths. As the firth opens eastward into the North Sea, depths increase significantly, reaching up to 100 to 200 m in offshore areas. The firths funnel-like bathymetry, from narrow and shallow in the west to broader and deeper in the east, shapes tidal flow, sediment transport, and species distribution, and plays a key role in determining the types of fishing gear and vessels that operate within different zones of the Firth (Marine Scotland, 2020; Moray Offshore Renewables Ltd, 2018).

ICES rectangles 44E5 and 44E6 cover a portion of the inner reaches of the Firth, however 44E6 extends into deeper waters at its furthest boundary extents. Fisheries statistics indicate that the study area comprises productive shellfish grounds, supporting a predominantly shellfish-oriented fishery shaped by the region’s sheltered waters and relatively shallow depths. Landings are predominantly comprised of *Nephrops*, whelks, brown crabs, lobsters, velvet crabs and squid, targeted by a mixed inshore fleet of vessels 10 m and under and over 10 m in length deploying demersal trawls and static gear such as creels and pots with the majority of landings by value being made by vessels 10 m and under in length. Vessels operate from nearby ports including Fraserburgh, Buckie, Lossiemouth, Burghead and Nairn.

In ICES rectangle 44E5, the highest level of activity is undertaken by vessels 10 m and under in length deploying pots and traps targeting *Nephrops*, brown crabs, velvet crabs, lobsters and whelks. Significantly lower levels of demersal trawling targeting demersal finfish, squid and other species is undertaken by vessels 10 m and under. Low levels of dredge activity has been identified for vessels over 10 m. Fishing activity trends reflect the shallow, inshore nature of this portion of the study area. Fishing activity trends in ICES rectangle 44E6 reflect access for vessels to deeper waters. Pots and traps are almost exclusively deployed by vessels 10 m and under, however vessels 10 m and under and over 10 m share a near equal proportion of demersal trawl activity within the rectangle targeting demersal finfish, squid and other species. Vessels over 10 m in length are also deploying demersal seines and pelagic trawls, targeting mobile pelagic species such as mackerel, however this activity predominantly occurs further offshore.

The fleet operating in this area is dominated by vessels 10 m and under in length. These vessels typically conduct short trips within the firth and adjacent coastal waters, with fishing effort concentrated in spring and summer months when shellfish activity peaks. Seasonal patterns are influenced by water temperature, breeding cycles, and market demand with crab and lobster often landed together, while whelk fishing tends to peak in the off-season for crustaceans. Pelagic species are not a major component of the catch in these rectangles, though mackerel may be landed seasonally in small volumes. Landings of the species detailed above vary seasonally, with inshore vessels often equipped to move from species to species throughout seasons. Figure 5.6 and Figure 5.7 present the results of this analysis.

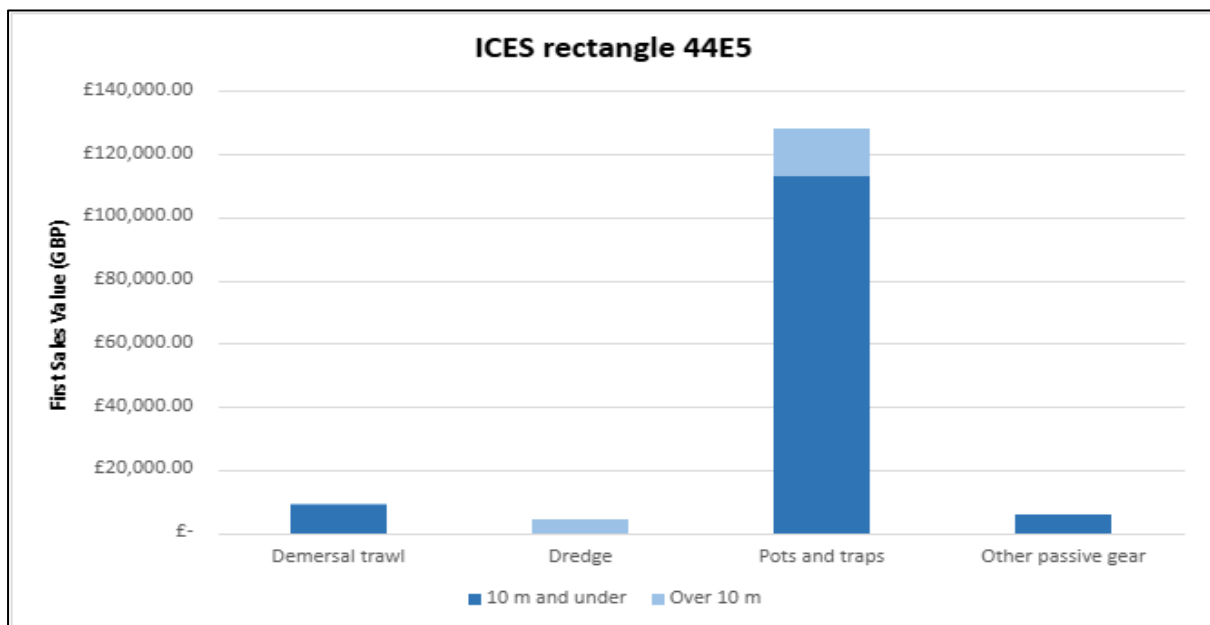


Figure 5.6: Comparative effort by gear type for vessels 10 m and under and over 10 m operating in the ICES rectangle 44E5.

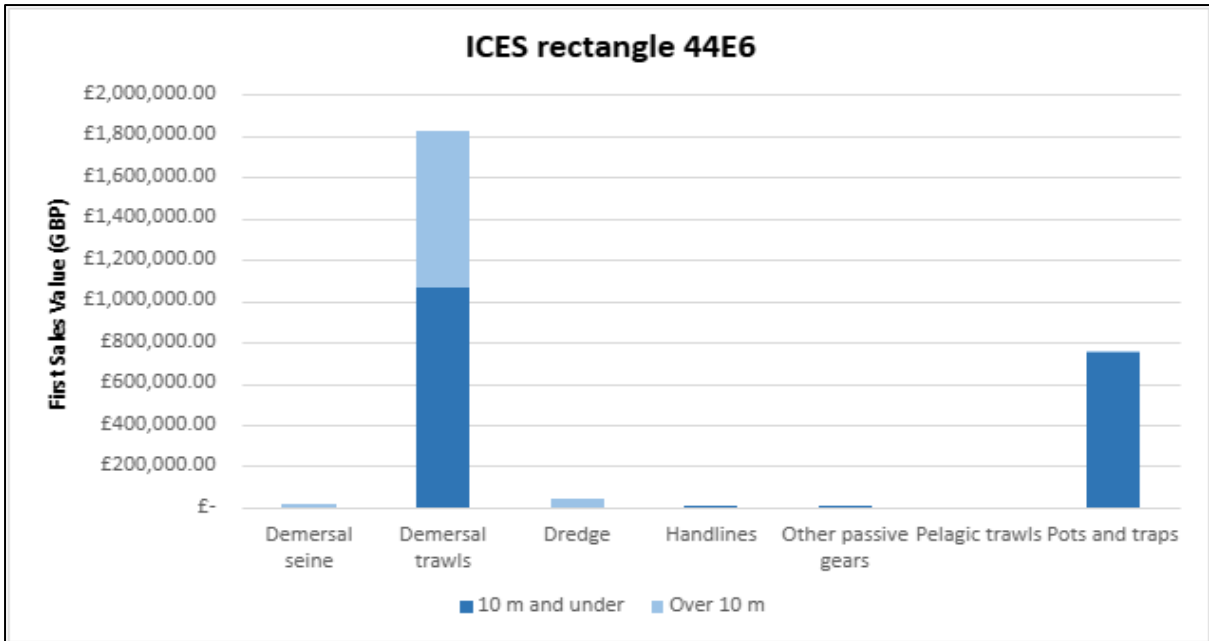


Figure 5.7: Comparative effort by gear type for vessels 10 m and under and over 10 m operating in the ICES rectangle 44E6.

EU-27 landings statistics indicate that the study area is almost exclusively fished by UK vessels operating from Scotland, England and Northern Ireland, however very low levels of activity by a French vessel targeting hake as a quota species (0.1 tonne landed into Ullapool with a first sales value of £254) was identified in 2020. Records indicate that no fishing activity has been undertaken by French vessels or vessels of any other nation since 2020, therefore this assessment focuses on UK fleets operating within the study area.

4.2.3 Fishing Grounds and Intensity of Use

In addition to fisheries statistics data, VMS and spatial data to map fishing activity is available for UK and EU fleets. VMS data expressed as fishing intensity sourced from ICES and available through EMODnet (EMODnet, 2025) displays the surface SAR of catches by different gear types and covers EU (including UK) registered vessels 12 m and over in length. Surface SAR indicates the number of times in an annual period that a demersal fishing gear sweeps the seabed surface compared to the total area of the seabed in a defined grid cell (typically 0.05° × 0.05°). Surface SAR provides a proxy for fishing intensity and has been analysed to determine an average annual SAR based on data from 2019-2022.

Figure 5.8 indicates that fishing intensity by EU (including UK) registered vessels 12 m and over in length ranges throughout the study area. Intensity ranged from inshore areas overlapping the approaches to Ardersier Port of low to moderate fishing intensity by vessels deploying demersal bottom towed gear, with less than 0.1 (or 10%) of those grid cells being

swept by fishing gear on average over the course of a year. This indicates minimal bottom-contact gear disturbance across the seabed by vessels 12 m and over within the inshore portion of the study area and suggests the predominance of static fishing methods such as creels, which exert negligible pressure on benthic habitats. Areas further offshore within the study area are subject to higher fishing intensity, increasing as waters get deeper, ranging from 0.2 up to 10. Higher SAR values (more than 1.0) indicate repeated trawling, often associated with degraded benthic habitats and reduced biodiversity, therefore 10 represents an area of very high bottom towed gear intensity.

In 2020, UK vessels over 15 metres in length recorded notable fishing effort across ICES rectangles 44E5 and 44E6. Effort was measured in kilowatt-hours (kW/h), derived from VMS data that combines engine power with time spent fishing. These rectangles exhibited a mix of gear types, with otter trawls (bottom and midwater), *Nephrops* trawls, and Scottish seines being predominant in offshore zones, while static gear such as creels were more common in nearshore areas. Fishing effort intensity varied spatially, with 44E6 covering deeper offshore waters showing higher kW/h totals compared to the more sheltered 44E5. This distribution reflects both ecological gradients and operational preferences, with mobile gear concentrated in deeper, less structurally complex habitats. Low levels of fishing effort are indicated in areas overlapping the approaches to Ardersier Port (Figure 5.9).

It should be noted that the quantitative datasets identified may not capture all commercial fisheries activity within the study area. For example, the ICES and MMO VMS datasets only cover vessels ≥ 12 m or ≥ 15 m in length respectively and although UK vessels ≥ 12 m in length have VMS on board, the MMO only provides amalgamated VMS datasets for ≥ 15 m vessels currently.

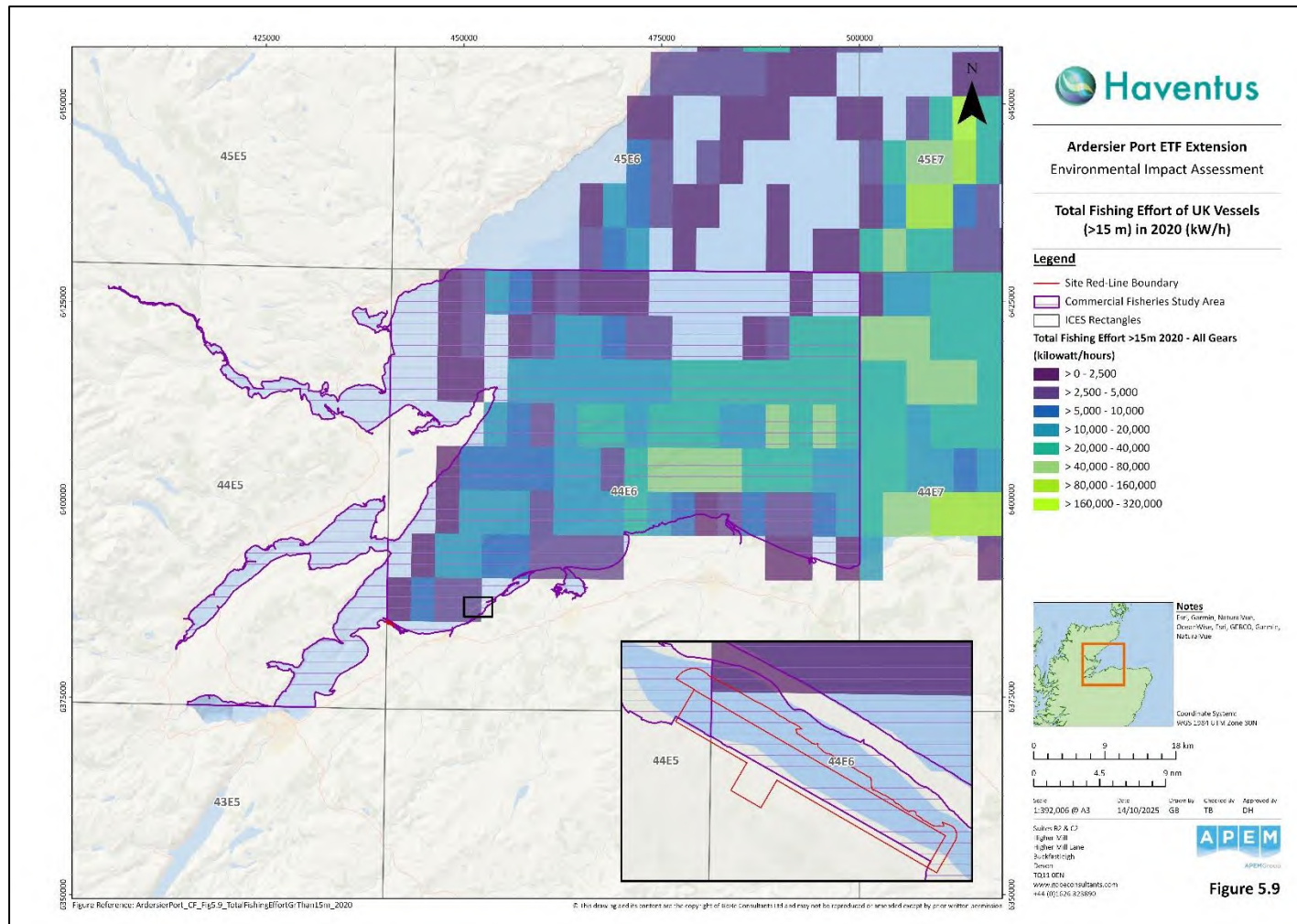


Figure 5.9: Total Fishing Effort of UK Vessels (>15 m) in 2020 (kW/h) (Source MMO, 2025).

VMS data on the average SAR for EU vessels, including those from the UK, measuring 12 metres and over, was analysed for six gear types operating within the study area. This analysis focused on the average total fishing effort between 2019 and 2022 for beam trawls, bottom otter trawls, bottom seines, dredges, pelagic trawls and seines, and static gear, providing a spatially resolved understanding of commercial fishing activity within the defined commercial fisheries study area. Beam trawls, bottom seines, pelagic trawls and seines, and static gear were shown to have no spatial overlap with indicative areas overlapping the approaches to Ardersier Port. Figure 5.10 and Figure 5.11 show that bottom otter trawls and dredges (respectively) had persistently low average SAR values in the inshore areas that overlap with the approaches to Ardersier Port with higher levels of effort being exerted in offshore sections of the study area and elsewhere in the North Sea.

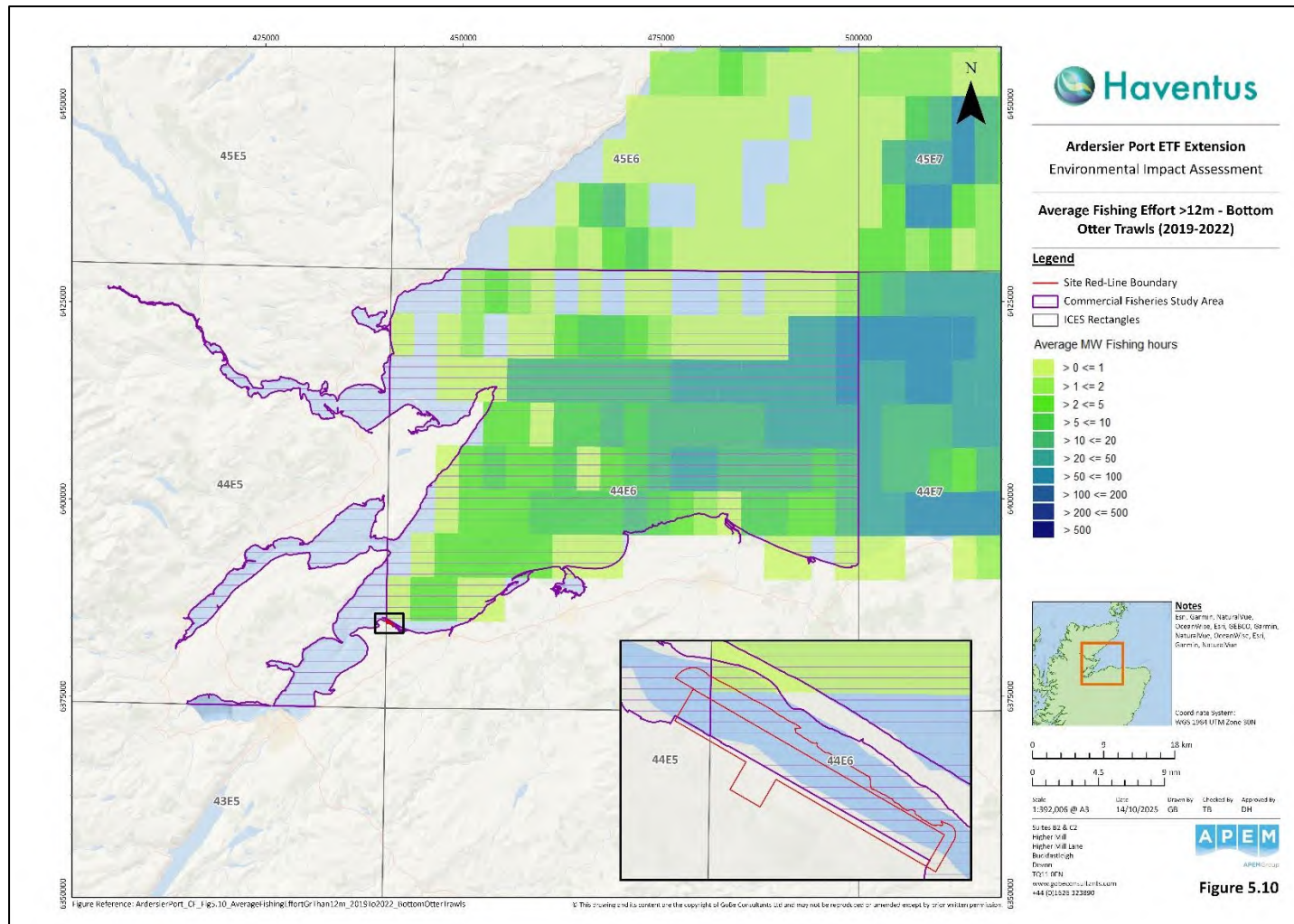


Figure 5.10: Average Fishing Effort >12 m - Bottom Otter Trawls 2019 – 2022 (Source: EMODnet, 2025).

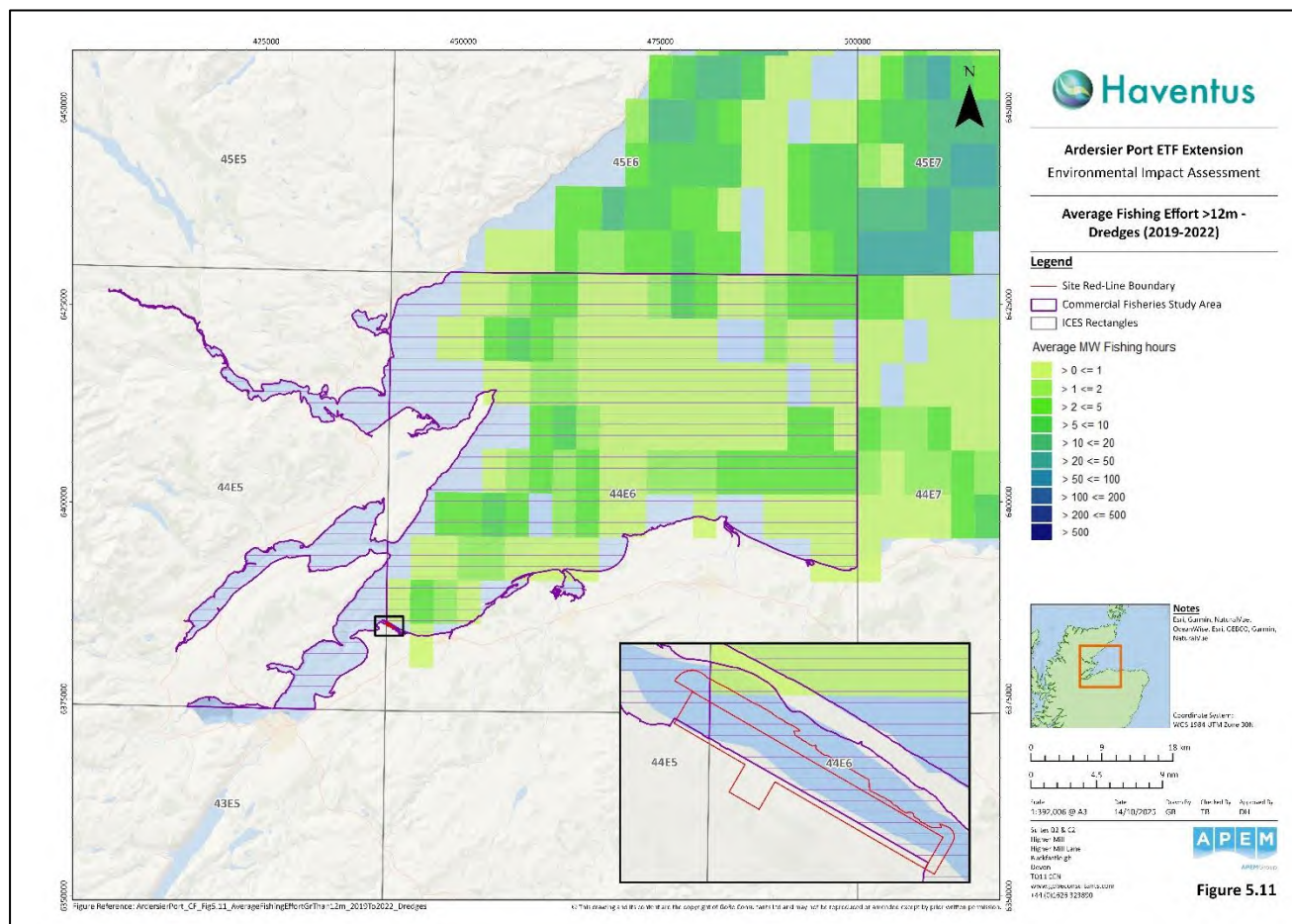


Figure 5.11: Average Fishing Effort >12 m - Dredges 2019 – 2022 (Source: EMODnet, 2025).

4.2.4 ScotMap Fishing Activity

ScotMap data (Scottish Government, 2014) captures the distribution and economic importance of inshore commercial fisheries around Scotland based on interviews conducted with over 700 fishers operating vessels under 15 m in length (Figure 5.12 and Figure 5.13). Within the Moray Firth, ICES statistical rectangles 44E5 and 44E6 encompass inshore fishing grounds used by small-scale vessels, particularly those deploying static gear such as creels for shellfish targeting brown crab, lobster and *Nephrops*. ScotMap data for these rectangles indicates low to moderate levels of fishing activity along the coastal margins. These areas are economically important for small-scale local fishers who may be disproportionately sensitive to disturbance to fishing activities from marine development or dredging operations. The ScotMap dataset also highlights the presence of other gear types in the region, including occasional use of mobile gear such as demersal trawls and dredges. While fishing intensity varies seasonally, the data provides a baseline for assessing potential spatial overlap between proposed marine works such as capital dredging and established fishing grounds.

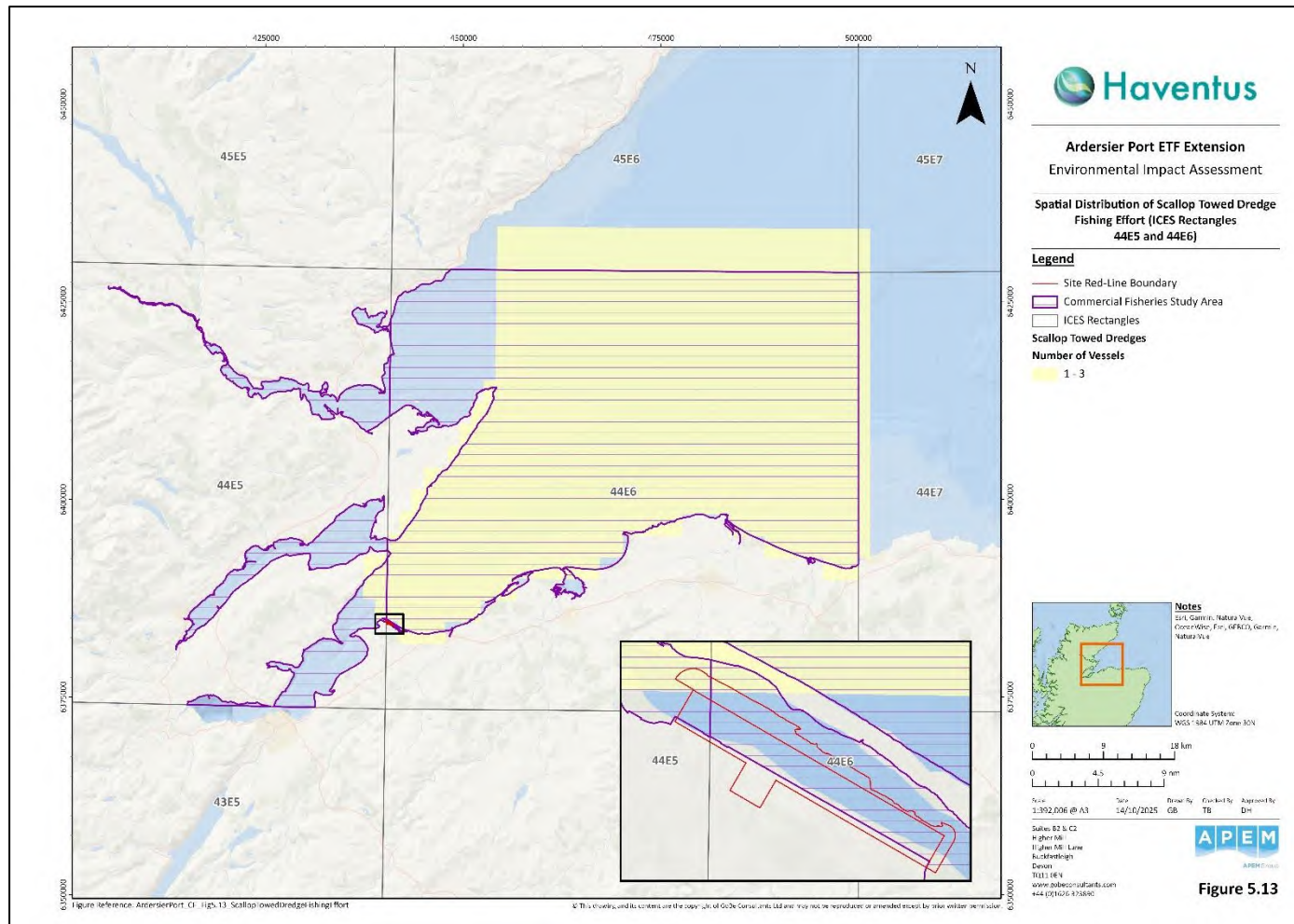


Figure 5.13: Spatial Distribution of Scallop Towed Dredge Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data.

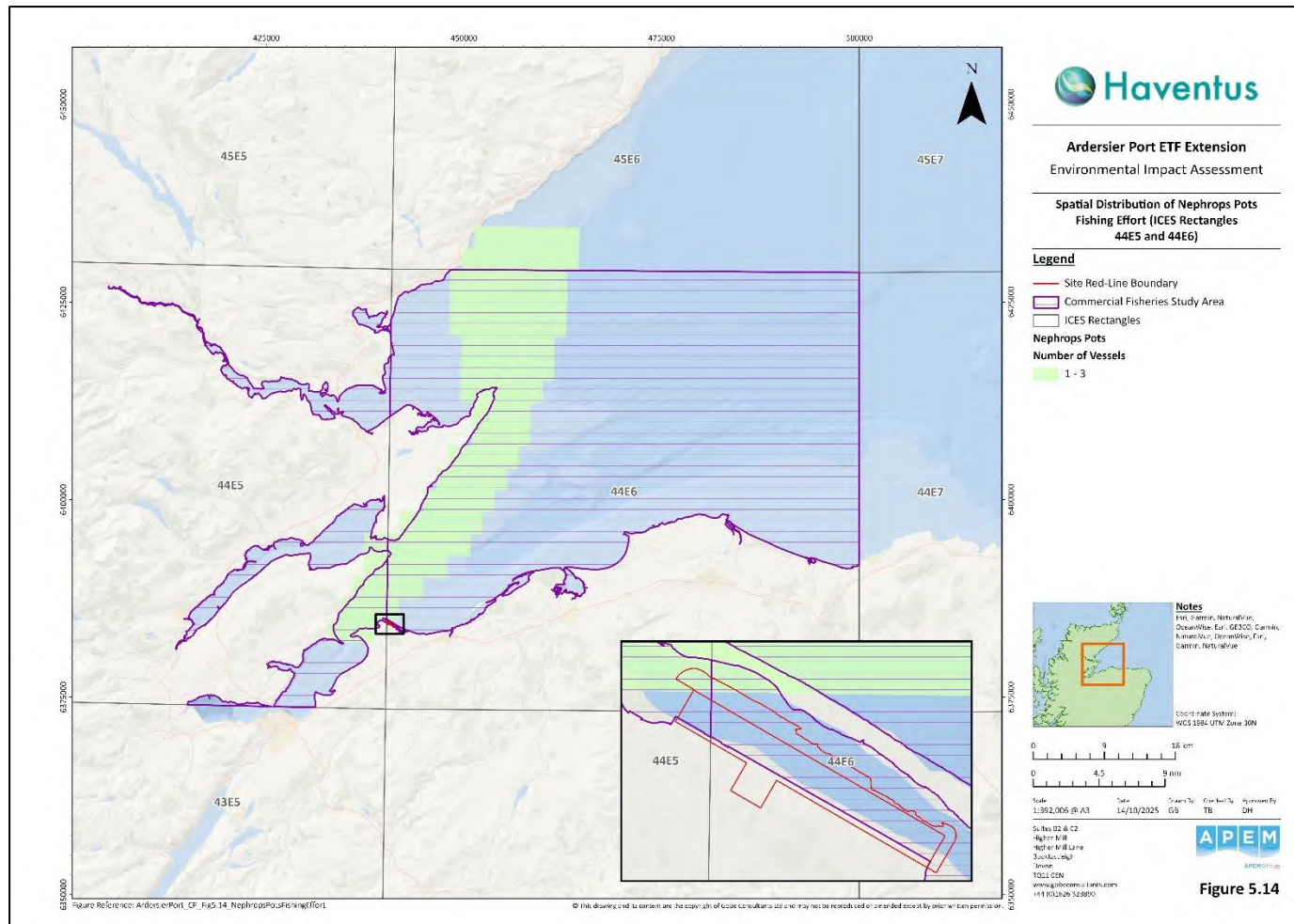


Figure 5.14: Spatial Distribution of Nephrops pots Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data.

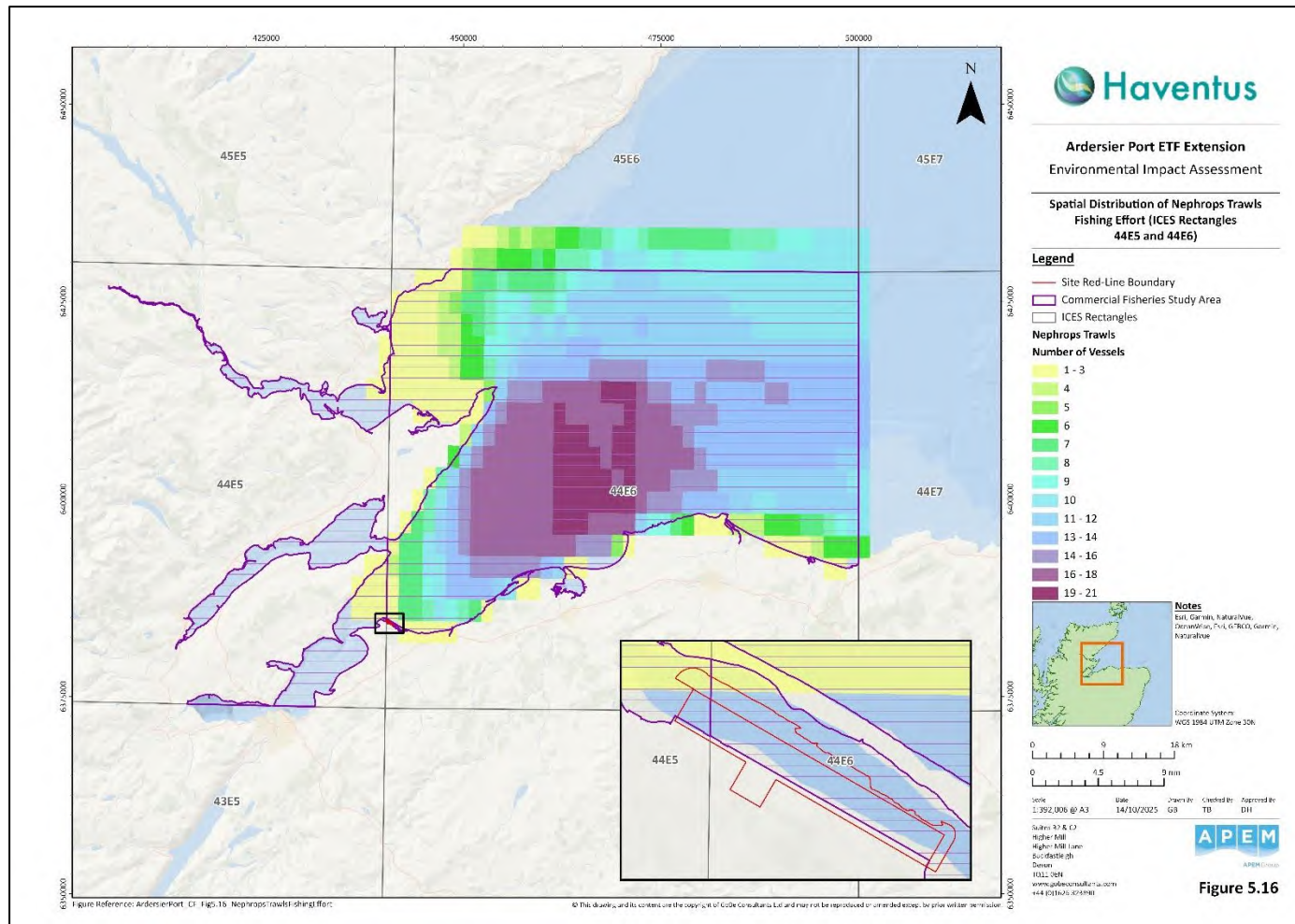


Figure 5.16: Spatial Distribution of *Nephrops* Trawls Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data.

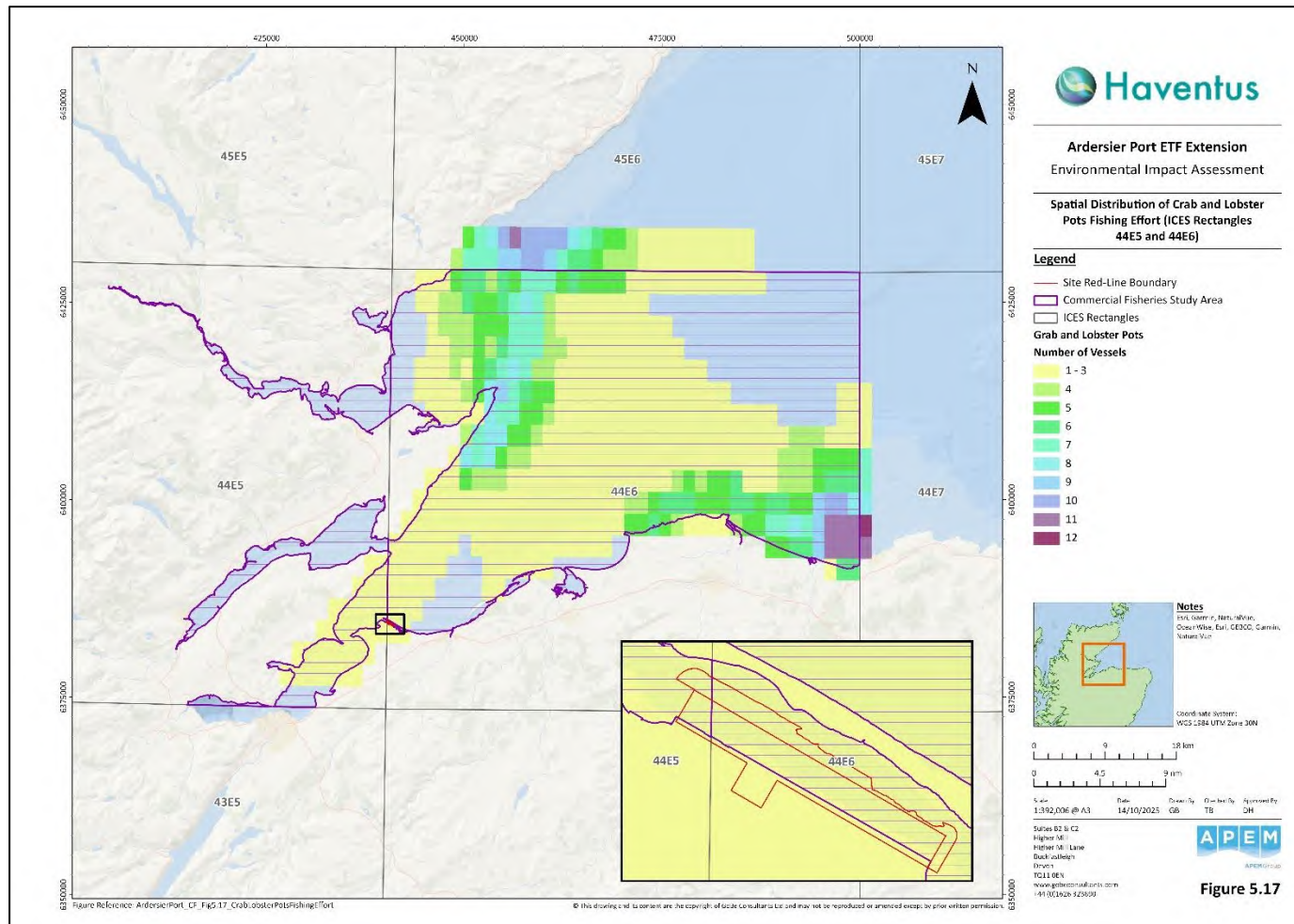


Figure 5.17: Spatial Distribution of Crab and Lobster Pots Fishing Effort in ICES Rectangles 44E5 and 44E6 Based on ScotMap Data.

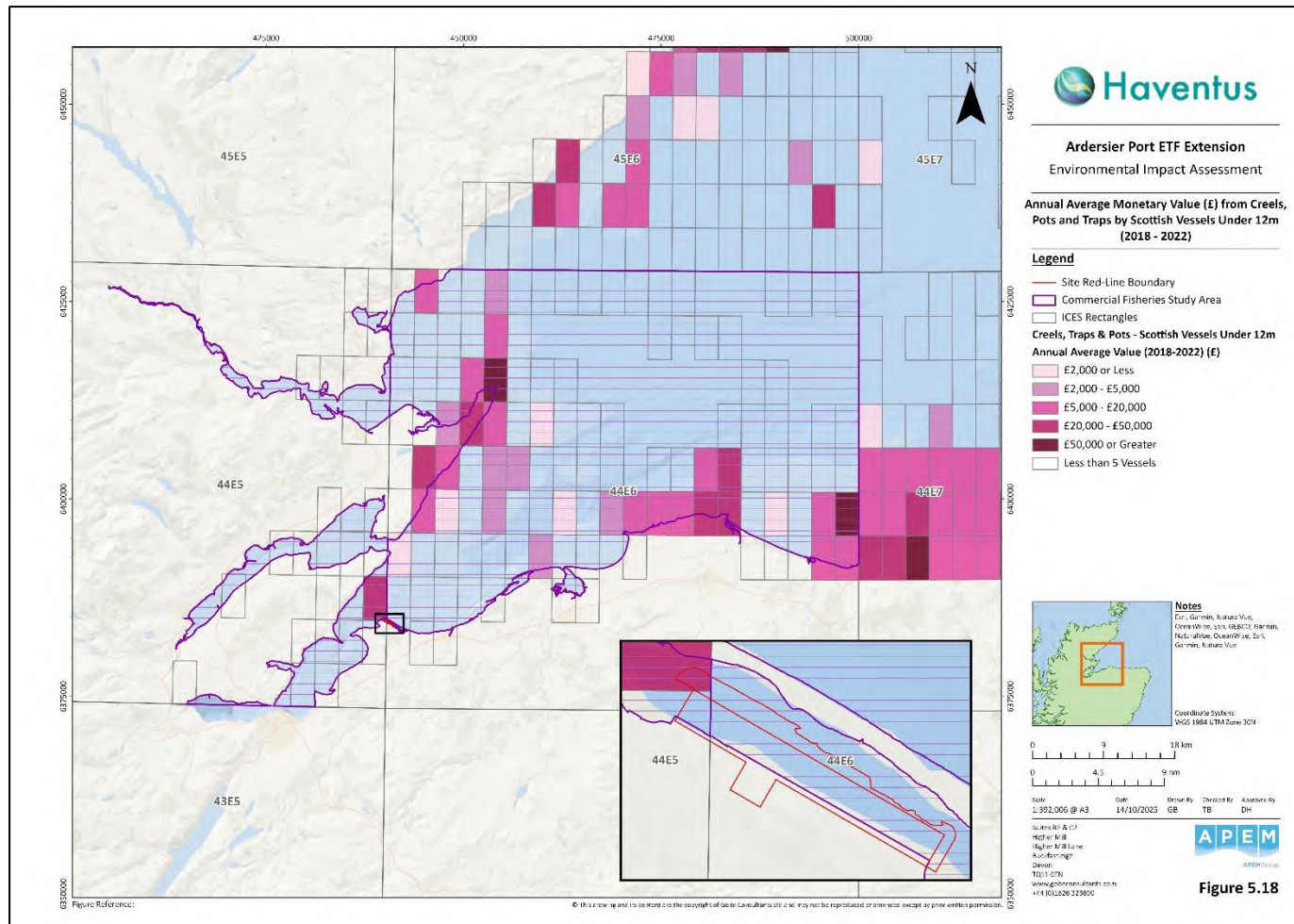


Figure 5.18: Average Annual Monetary Value (£) from Creels, Pots, and Traps by Scottish Vessels Under 12 m (2018–2022).

4.2.5 Access and Navigational Safety

The proposed port extension and associated dredging activities in the Moray Firth may disrupt established transit routes and gear deployment zones for commercial fishing vessels. Potential risks include restricted access to preferred fishing grounds, increased steaming distances, and heightened likelihood of gear conflict. Navigational safety considerations must account for vessel manoeuvrability, visibility of dredging infrastructure, and anchoring spread, particularly under adverse weather or low-light conditions. These factors are critical for ensuring safe and efficient operations within an already active marine environment.

EMSA fishing vessel density track data illustrates the movement patterns and concentration of fishing vessels across European waters over time. By aggregating satellite and AIS signals, it reveals hotspots of fishing activity and identifies frequently used routes. Fishing vessel route density data indicates low - medium levels of activity by fishing vessels (including both steaming and active fishing) in the vicinity of the proposed development, particularly within 6 nm.

4.2.6 Key Fleet Metiers

In summary, based on the data gathered to inform this baseline characterisation, the key fleet metiers operating across the inshore portion of the study area include (in no particular order):

- Local inshore Scottish creel fleet (vessels typically <15 m) targeting brown crab, lobster, velvet crab and whelk operating year-round;
- Local inshore Scottish otter trawl fleet (vessels typically <15 m) targeting *Nephrops* focused on muddy substrates with seasonal peaks in spring and autumn;
- Local inshore Scottish dredge fleet (vessels typically <15 m) targeting scallops operating year-round; and
- Local inshore Scottish demersal trawl fleet (vessels typically <15 m) targeting finfish and other demersal species operating year-round.

5. Assessment Methodology

The overall aim of this technical appendix is to assess the potential impacts arising from the proposed development, on key issues raised within the scoping opinion relating to commercial fisheries.

5.1 Guidance

The evaluation of potential impacts on commercial fisheries, specifically sensitivity, magnitude, and significance, falls outwith the scope of guidance provided by the Chartered Institute of Ecology and Environmental Management (CIEEM), which addresses ecological receptors. Commercial fisheries are treated as socio-economic receptors, assessed through, empirical data, sector-specific policy guidance and professional judgement. This includes the Scottish Government's Good Practice Guidance for Assessing Fisheries Displacement by Other Licensed Marine Activities (2022), the Marine Policy Statement (HM Government, 2011), relevant Scottish Marine Plans, and advice from Marine Scotland and the Marine Management Organisation (MMO). Key considerations include spatial and temporal overlap with fishing activity, economic dependency and cumulative pressures. This methodology ensures a robust, transparent, and context-specific approach aligned with the commercial and socio-economic nature of fisheries within the marine environment.

In addition to the general approach and guidance outlined in Chapter 2: Methodology, the assessment of commercial fisheries receptors will also be informed by the following guidance documents where they are specific to this topic:

- Developing guidance on fisheries Cumulative Impact Assessment for wind farm developers (Blyth-Skyrme, 2010b);
- Options and opportunities for marine fisheries mitigation associated with wind farms (Blyth-Skyrme, 2010a);
- Fisheries Liaison with Offshore Wind and Wet Renewables group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison (FLOWW, 2014);
- Draft Guidance on preparing a Fisheries Management and Mitigation Strategy (Marine Scotland, 2020);
- Assessing fisheries displacement by other licensed marine activities: good practice guidance Marine Scotland Science (2022);
- Mapping fishing activities in the UK EEZ: a brief overview of data, methods, and tools. Report produced for The Crown (Mendo *et al.* 2023);
- Best Practice Guidance for Fishing Industry Financial and Economic Impact Assessments (Seafish, 2022);
- Centre for Environment Fisheries and Aquaculture Science (CEFAS), (2004). Offshore Windfarms: Guidance note for Environmental Impact Assessment in Respect of FEPA and CPA requirements; and
- Cumulative impact assessment guidelines, guiding principles for cumulative impacts assessments in offshore wind farms (Renewable UK, 2013).

5.2 Criteria for Assessment

The EIA technical appendix will follow the general approach outlined in Chapter 2: Methodology of this EIAR. Whilst this has informed the approach that has been used for commercial fisheries, the following section describes how this methodology will be applied, and adapted as appropriate, to address the specific needs of the commercial fisheries assessment.

The criteria for determining the significance of effects will be a two-stage process involving defining the magnitude of the impacts and the sensitivity of the receptors. The magnitude of potential impacts is defined by factors including the spatial extent of any interaction, and the likelihood, duration, frequency and reversibility of a potential impact. The sensitivity of commercial fisheries receptors is defined by both their potential vulnerability to an impact (the ability of the receptor to accommodate a temporary or permanent change) and their recoverability (the extent to which a receptor will recover following an impact). Where required, secondary mitigation measures above those embedded in the proposed development design as primary measures, will be proposed to avoid or minimise significant adverse effects.

5.2.1 Sensitivity

Sensitivity has been carefully considered in the assessment of effects, with receptor sensitivity to potential impacts clearly articulated within the narrative where relevant, including consideration of recoverability. The criteria for defining sensitivity in this chapter are outlined in Table 5

Table 5.3. Sensitivity criteria

Value	Criteria
High	Receptor is highly vulnerable to impacts that may arise from the project and recoverability is long term or not possible. And/or: No alternative fishing grounds are available.
Medium	Receptor is somewhat vulnerable to impacts that may arise from the project and has moderate levels of recoverability. And/or: Moderate levels of alternative fishing grounds are available and/or fishing fleet has moderate operational range.
Low	Receptor is not generally vulnerable to impacts that may arise from the project and/or has high recoverability. And/or: High levels of alternative fishing grounds are available and/or fishing fleet has large to extensive operational range; fishing fleet is adaptive and resilient to change.
Negligible	Receptor is not vulnerable to impacts that may arise from the project and/or has high recoverability.

Value	Criteria
	And/or: Extensive alternative fishing grounds available and/or fishing fleet is highly adaptive and resilient to change.

5.2.2 Magnitude

The magnitude of an impact is determined based on its extent, duration and frequency. Magnitude of impact has been assessed taking into account primary mitigation measures designed into the proposed development to avoid or minimise environmental effects. Where an impact could reasonably be assigned to more than one level of magnitude, professional judgement has been used to determine which level is applicable. The magnitude criteria for commercial fisheries receptors are defined in Table 5.

Table 5.4. Magnitude criteria

Magnitude	Criteria
High	<p>Impact is of long-term duration (e.g., greater than 12 years duration) and/or is of extended physical extent.</p> <p>And: Impact is expected to result in one or more of the following:</p> <ul style="list-style-type: none"> • Substantial loss of target fish or shellfish biological resource (e.g., loss of substantial proportion of resource within project Area); and • Substantial loss of ability to carry on fishing activities (e.g., substantial proportion of effort within project Area). <p>Substantial loss of economic value of commercial landings, that are nationally or regionally significant.</p>
Medium	<p>Impact is of medium-term duration (e.g., less than 12 years) and/or is of moderate physical extent.</p> <p>And: Impact is expected to result in one or more of the following:</p> <ul style="list-style-type: none"> • Partial loss of target fish or shellfish biological resource (e.g., moderate loss of resource within project Area); and • Partial loss of ability to carry on fishing activities (e.g., moderate reduction of fishing effort within project Area). <p>Partial loss of economic value of commercial landings that is locally significant.</p>
Low	<p>Impact is of short-term duration (e.g., less than 2 years) and/or is of limited physical extent. The short-term duration is based on professional judgement and is not definitive dependant on the nature of the impact.</p> <p>And: Impact is expected to result in one or more of the following:</p> <ul style="list-style-type: none"> • Minor loss of target fish or shellfish biological resource (e.g., minor loss of resource within project Area); and

Magnitude	Criteria
	<ul style="list-style-type: none"> Minor loss of ability to carry on fishing activities (e.g., minor reduction of fishing effort within project Area). <p>Minor loss of economic value of commercial landings that is not locally significant.</p>
Negligible	<p>Impact is expected to be undetectable compared to pre-project baseline conditions.</p> <p>Minimal loss of economic value of commercial landings.</p>

5.2.3 Significance

Assessment of the significance of effect on commercial fisheries receptors has been determined by considering the sensitivity of the receptor and the magnitude of the impact. The method employed for this assessment is presented in Table 5. In all cases, the evaluation of receptor sensitivity, impact magnitude and significance of effect has been informed by professional judgement and is underpinned by narrative to explain the conclusions reached. The magnitude of the impact is correlated against the sensitivity of the receptor to provide a level of significance. On this basis, potential impacts are assessed as Negligible, Minor, Moderate or Major.

For the purposes of this assessment, any effects with a significance level of major and/or moderate have been deemed significant in EIA terms, while those of minor or negligible are deemed non-significant.

Table 5.5. Significance of effect matrix

Significance of Effect		Sensitivity of Receptor			
		Negligible	Low	Medium	High
Magnitude of Effect	Negligible	Negligible	Negligible	Negligible	Negligible
	Low	Negligible	Negligible	Minor	Moderate
	Medium	Negligible	Minor	Moderate	Major
	High	Negligible	Moderate	Major	Major

5.3 Embedded Mitigation

As the design of the proposed development has evolved, a number of measures have been considered and proposed in relation to commercial fisheries to reduce the potential for impacts on environmental and socio-economic receptors. These measures are presented below in Table 5 and in the Mitigation Register and will likely further evolve over the development process as the EIA progresses and in response to stakeholder consultation.

Table 5.6. Embedded mitigation measures

Embedded Mitigation	Rationale
<p>Advance warning and accurate location details of construction and operation and maintenance (O&M) operations and any associated Temporary Exclusion Zones will be disseminated to fishers via Notices to Mariners (NtMs) and Kingfisher Bulletins.</p>	<p>NtMs and Kingfisher Bulletins serve as essential communication tools, helping commercial fishers and vessel operators avoid hazardous areas, prevent gear loss, and coordinate movements around active worksites throughout the construction and operation and maintenance (O&M) phases.</p>
<p>Development of and adherence to a Navigational Safety Plan (NSP)</p>	<p>A NSP is vital during capital dredging within port limits to safeguard all sea users. It sets out measures including Safety Zones, accurate charting, construction buoyage, and temporary lighting of assets (if applicable). The NSP also ensures mariners are kept informed through NtMs, helping prevent navigational hazards and maintain safe passage throughout the works.</p>
<p>Development of and adherence to a Construction Environmental Management Plan (CEMP), which will set out how environmental impacts will be controlled and mitigated during the construction phase of the project.</p>	<p>The development and implementation of a CEMP ensures that environmental risks are proactively identified and mitigated throughout the construction phase of a project. By detailing procedures for pollution control, waste management, noise reduction, and ecological protection, the CEMP promotes regulatory compliance, safeguards sensitive habitats, and supports responsible construction practices that minimise disruption to surrounding environments and communities. The CEMP will also set out commitments to environmental monitoring in pre-, during and post-construction phases of the project.</p>
<p>Dropped objects reporting procedure</p>	<p>Any objects accidentally dropped on the seabed will be promptly reported and assessed for potential hazards to other marine users. Where recovery is feasible and the object poses a risk, such as obstruction to navigation or interference with fishing gear, appropriate retrieval measures will be undertaken. This commitment supports safe marine operations, protects commercial fisheries, and aligns with best practice in environmental stewardship.</p>
<p>Adherence to best practice guidance with regards to fisheries liaison and procedures in the event of interactions between the project and fishing activities (e.g., FLOWW, 2014; 2015).</p>	<p>These standards provide a framework for effective communication, conflict resolution, and incident response in the event of interactions between construction activities and fishing activities. By following established procedures, the project ensures transparency, promotes mutual understanding, and upholds industry-recognised protocols that safeguard both operational integrity and the interests of the fishing community.</p>

5.4 Assumptions and Limitations

- Limitations of fisheries statistics data include the spatial size of ICES rectangles, which can misrepresent actual activity across the proposed development and any associated sediment plume, therefore care is required when interpreting these data;
- All commercial landings by UK-registered vessels are subject to the Register of Buyers and Sellers (RBS) legislation, meaning landings from vessels of all lengths are recorded in the MMO's iFish database. While vessels under 10 m are not legally required to declare catches, registered buyers must submit sales notes for all first-sale fish and shellfish. These notes include vessel details (name, port letters, and number), and for the under 10 m sector, coastal staff supplement missing data such as gear type and fishing area using local knowledge, inspections, surveillance, and discussions with vessel operators;
- VMS data from the MMO only covers vessels ≥ 15 m, so inshore activity by smaller vessels (< 15 m) is often underrepresented. Apparent gaps in inshore fishing on VMS maps may reflect this limitation rather than actual absence of activity. To address this, fisheries statistics and ScotMap spatial data have been analysed to help capture data from smaller inshore vessels;
- Fishing vessel route density data from the EMSA is based on AIS data, representing activity for vessels with AIS (≥ 15 m in length). A limitation of AIS data is that it does not distinguish between steaming and actively fishing; nevertheless, it provides corroboration for key fishing grounds and insight into transit routes to alternative fishing grounds;
- The ScotMap data accessed via the NMPi portal reflects spatial fishing activity reported by operators of vessels < 15 m, based on interviews conducted between 2011 and 2013. As such, the dataset is over a decade old and may not accurately represent current fishing patterns, fleet composition or regulatory context. It excludes vessels over 15 metres and relies on self-reported information, which may introduce spatial or effort-related bias;
- No dredge plume modelling has been undertaken in relation to potential impacts on commercial fisheries. As such, any assessment of effects on sensitive receptors is based on qualitative analysis and available baseline information, without predictive modelling of sediment dispersion or turbidity; and
- Limited engagement has been undertaken with the local fishing industry during the data collection and consultation phases. While available datasets and secondary sources provide valuable insights into commercial fishing activity, they may not fully capture the nuanced spatial and seasonal patterns, gear-specific practices or socio-economic dependencies unique to local fleets. This lack of direct input could result in

an incomplete representation of fishing effort and stakeholder concerns, potentially affecting the accuracy and relevance of impact predictions.

Data limitations have been managed by ensuring accurate interpretation of the data and clear understanding of its scope, together with cross-referencing between data sources. As such, the limitations identified are not considered to significantly affect the certainty, or reliability, of the impact assessments presented in Section 7.