

# **Scottish Hydro Electric Power Distribution Plc**

## **Fishing Liaison Mitigation Action Plan** **(covering all sea users)**

### **North Coast and Orkney**



	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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## 1 Introduction

1.1 Scottish Hydro Electric Power Distribution Plc (SHEPD) would like to make it easy for all stakeholders who have interests in the submarine electricity cable planning process to have a strong voice in helping us determine our installation and protection practices but also inform our inspection and maintenance works. We are committed to open, honest and transparent communication and engagement.

1.2 This Fishing Liaison Mitigation Action Plan (FLMAP) outlines how SHEPD will interact with all legitimate sea users, prior to and during any works relating to 21 submarine cables at the following locations:

- Sanday-North Ronaldsay
- Stronsay-Sanday
- Sanday-Eday
- Eday-Westray
- Westray-Papa Westray
- Rousay-Egilsay
- Rousay-Wyre
- Mainland Orkney-Rousay
- Mainland Orkney-Holm of Grimbister
- North Ness-South Ness
- Mainland Orkney-Graemsay
- Hoy-Flotta
- Mainland Orkney-Hoy North
- Mainland Orkney-Hoy Centre
- Mainland Orkney-Hoy South
- Mainland Orkney-Shapinsay
- Pentland Firth East
- Pentland Firth West
- Rousay-Westray
- Shapinsay-Stronsay North
- Shapinsay-Stronsay South

1.3 The purpose of this FLMAP is to:

- Illustrate the associated risks to the commercial fisheries industry and other sea users and address the potential effects (highlighted in the marine licensed evidence).
- Identify how to minimise and mitigate potential impacts on local communities.

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- 1.4 SHEPD aim to facilitate co-existence between all parties as recommended in the FLOWW<sup>1</sup> and ESCA<sup>2</sup> (previously SCUK) guidelines. SHEPD has also developed the policy document *How Scottish Hydro Electric Power Distribution co-exists with other marine users*<sup>3</sup> which should be used in conjunction with this FLMAP.
- 1.5 To help us understand the impacts that our cable installation decisions have, we work proactively with our regulators, customers and stakeholders. This helps our collaborators to better understand the impacts our engineering decisions can have on the safety of mariners, energy costs for communities we serve, on local and national economic activity and on the natural environment<sup>4</sup>.
- 1.6 Cable works that will be covered by this FLMAP include cable inspections, surveys and cable installations. This FLMAP operates in conjunction with the North Coast and Orkney FLMAP Delivery Programme, which outlines the programme of communication for the identified stakeholders during the cable works activities and sets out the register of commitments for disseminating this information. The FLMAP Delivery Programme also forms an audit trail, documenting communication and agreed mitigation between SHEPD and sea users during specific cable works. This will advise SHEPD's approach to continuous improvement on mitigating cable activities throughout the region and will be developed and updated accordingly.
- 1.7 A summary table of potential interactions for each cable outlines key potential interactions with the fisheries industry and other sea users. These are given in *Appendix E Cable-Specific Interactions*.
- 1.8 This FLMAP identifies the respective responsibilities of the Company Fishing Liaison Officer (CFLO) and the Fishing Industry Representative (FIR), and how the FIR and CFLO will operate. The FLMAP has been constructed to facilitate co-existence between SHEPD and other legitimate sea users.
- 1.9 The potential marine activities relevant to the area of cable works are listed below. A more detailed summary of activities is provided in Chapters 6 and 7 and visual representations of relevant activities are provided in Appendix C and Appendix D:
- The Pentland Firth and Orkney coasts are popular areas for marine recreation.
  - There are low activity levels of the following activities: rowing and sculling, canoeing/kayaking, motor cruising, power boating, yacht racing, (wild fowling, bird and

<sup>1</sup> Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fishing Liaison, 2014

<sup>2</sup> European Subsea Cables Association

<sup>3</sup> Scottish and Southern Electricity Networks: *How we co-exist with other marine users*, available: <https://www.ssen.co.uk/SubmarineCables/AboutUs/>

<sup>4</sup> For further details see Scottish and Southern Electricity Networks: *Submarine Electricity Cable Cost Benefit Analysis Method Statement*: <https://www.ssen.co.uk/CBAFULL/> and *Method Statement Executive Summary*: <http://news.ssen.co.uk/media/266234/CBA-Model-Statement-Executive-Summary.pdf>

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wildlife watching), personal water craft (jet skis), long distance sea swimming, sailing and cruising, sea angling and surfing and paddle boarding, and general marine and coastal recreation.

- There are some hot spots of more intensive scuba diving and coastering activity.
- There are local ferry routes from Kirkwall on mainland Orkney to 13 other islands and these routes cross the submarine electricity cable routes. In terms of ferry routes connecting the Scottish mainland to the Orkney Islands, another regular ferry route runs from Scrabster to Stromness, mainland Orkney.
- There are a number of shellfish and finfish aquaculture sites in the vicinity of the cable works.
- The EMEC wave and tidal power testing sites Fall of Warness, Stronsay Firth and Shapinsay Sound and Bilia Croo are in the vicinity of Rousay-Westray, Eday-Westray, Shapinsay Stronsay, Mainland Orkney-Shapinsay, Mainland Orkney-Graemsay and Mainland Orkney-Hoy.
- The Orbital Marine Power tidal testing site Lashy Sound lies north of the Sanday-Eday cable.
- The Westray South tidal testing site (operated by Westray South Tidal Development Ltd) overlaps with Rousay-Westray.
- Conservation designations within the vicinity of the cable locations include:
  - The National Scenic Area (NSA) Hoy and West Mainland.
  - The Nature Conservation Marine Protected Area (MPA) Wyre and Rousay Sounds.
  - The Special Protection Areas (SPAs) with marine components East Sanday Coast, Papa Westray (North Hill and Holm of Papay), Rousay, Hoy, North Caithness Cliffs.
  - The Proposed Special Protection Areas (pSPA) with marine components Scapa Flow and North Orkney
  - The Special Areas of Conservation (SAC) Sanday and Faray and Holm of Faray.
  - The RSPB reserves Hoy, Onziebust and Trumland.
- There are a number of wreck sites in the vicinity of the cable locations.
- A number of cables fall within the following Harbour Authority boundaries:
  - Scrabster<sup>5</sup> – covers Pentland landfall of Pentland Firth cables
  - Scapa Flow, Orkney<sup>6</sup> – covers Mainland Orkney-Hoy, Mainland Orkney-Graemsay, Hoy-Flotta and North Ness-South Ness cables
  - Shapinsay Sound, Orkney<sup>7</sup> – covers Mainland Orkney-Shapinsay cable
  - Rousay, Trumland and Wyre<sup>8</sup> – covers Rousay-Wyre cable
  - Egilsay<sup>9</sup> – covers Egilsay landfall of Rousay-Egilsay cable
  - Papa Westray, Moclett<sup>10</sup> – covers Papa Westray landfall of Westray-Papa Westray cable

<sup>5</sup> <http://www.scrabster.co.uk/>

<sup>6</sup> <http://www.orkneyharbours.com/>

<sup>7</sup> <http://www.orkneyharbours.com/>

<sup>8</sup> <http://www.orkneyharbours.com/>

<sup>9</sup> <http://www.orkneyharbours.com/>

<sup>10</sup> <http://www.orkneyharbours.com/>

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- North Ronaldsay, Nouster<sup>11</sup> – covers North Ronaldsay landfall of Sanday-North Ronaldsay cable
- The cables Mainland Orkney-Rousay, Rousay-Westray, Eday-Westray, Sanday-Eday, Stronsay-Sanday and Shapinsay-Stronsay do not fall within any harbour authority boundaries.

1.10 The predominant fishing activities in areas relevant to the identified North Coast and Orkney cables are creeling (potting), followed by otter trawling and scallop dredging. Creeling is the primary fishing method present for the majority of the Orkney cables, though there are higher levels of bottom otter trawling towards the north coast of Mainland Orkney.

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<sup>11</sup> <http://www.orkneyharbours.com/>

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## 2 Communications

- 2.1 Information regarding any cable survey or construction works (referred to as works hereafter) will be issued to all fishing and other relevant statutory and non-statutory stakeholders to ensure effective co-existence during the works (this includes inspection surveys and any subsequent requirement for cable installation).
- 2.2 Survey contractors shall provide details of all vessel movements, works and co-ordinates to the CFLO and the FIR who will disseminate this information.
- 2.3 Relevant stakeholders will be contacted before planned works which have the potential to impact them and, depending on the progress of this activity; it would also be common practice for there to be regular contact throughout the works.
- 2.4 In addition to statutory stakeholder engagement, SHEPD also has a number of obligations where it is necessary to engage with non-statutory stakeholders prior to, during and/or upon completion of certain work activities.
- 2.5 In the event that the date or duration of works deviates from the notification timings (e.g. Notice to Mariners - NtM) outlined in the *North Coast and Orkney FLMAP Delivery Programme*<sup>12</sup>, an update will be issued to the relevant stakeholders. Similarly, if the scope or methodology of the planned works activity changes, then any stakeholder likely to be affected, including any relevant licensing authority, would be consulted. Any change to associated timelines would be agreed prior to the works commencing.

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<sup>12</sup> The Delivery Programme is to cover the entire period to April 2023.

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### 3 Scheduling of liaison and information distribution

3.1 The proposed schedule for dissemination of information to the fishing industry and other legitimate sea users is given in Table 1.

**Table 1 Schedule for dissemination of information**

Activity	Timescale for distribution
<b>Construction Programme</b>	<ul style="list-style-type: none"> <li>▪ Notices and information to be distributed at the earliest opportunity once information is available.</li> <li>▪ Regular liaison and updates by Fishing Industry Representative (FIR) with local fishermen of proposed timings with confirmations of when works are finalised.</li> <li>▪ Regular liaison and updates by the Company Fishing Liaison Officer (CFLO) with other legitimate sea users of proposed timings with confirmations when operations are finalised.</li> </ul>
<b>Surveys (including any requirement for Pre-construction surveys) that have the potential to require gear relocation</b>	<ul style="list-style-type: none"> <li>▪ Regular liaison and updates by FIR with local fishermen, well in advance of disruption, defining who might be affected, where and when. Liaison to take into account weather, number of creels to be moved, bait ordering etc.</li> <li>▪ Notice to Mariners and information distribution not less than 20 days prior to survey mobilisation, if possible, to allow inclusion in the Kingfisher Fortnightly Bulletin.</li> </ul>
<b>Specific construction activities i.e. installation works</b>	<ul style="list-style-type: none"> <li>▪ Notice to Mariners and information distribution not less than 20 days, if possible, for individual construction vessels mobilisations.</li> <li>▪ Regular liaison and updates by FIR with local fishermen of proposed timings with confirmations when operations are finalised.</li> <li>▪ Regular liaison and updates by CFLO with other legitimate sea users of proposed timings with confirmations provided when planned works are finalised.</li> </ul>
<b>Meetings with fishery stakeholders</b>	<ul style="list-style-type: none"> <li>▪ Meetings as required during all works i.e. the inspection surveys and any subsequent requirements for pre-construction and construction phases</li> </ul>
<b>Meetings with other legitimate sea users</b>	<ul style="list-style-type: none"> <li>▪ Meetings as required during all works i.e. the inspection surveys and any subsequent requirements for pre-construction and construction phases.</li> </ul>
<b>Ongoing Liaison</b>	<ul style="list-style-type: none"> <li>▪ Additional unscheduled liaison and consultation will be undertaken by either the CFLO or the FIR as required to address issues or fishermen’s concerns as they arise.</li> </ul>



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## 4 Formal Notifications

4.1 Details of the works will be distributed to all appropriate sea users. The anticipated formal communications are provided in Table 2.

**Table 2 Formal notifications**

Type	Function	Distribution
<b>Submarine electricity cable flyer</b>	<ul style="list-style-type: none"> <li>▪ Flyers may be issued for each cable.</li> <li>▪ This is not a requirement set out in the marine licences</li> <li>▪ It is a proactive initiative taken by SHEPD to provide as much advance warning of the forthcoming works as possible.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Flyers<sup>13</sup> will be published through Kingfisher Information Service Offshore Renewables and Cable Awareness (KIS-ORCA) and Fishing News.</li> <li>▪ Flyers will be issued nominally at least 4 weeks, if possible, prior to commencing the works to which they relate</li> </ul>
<b>Notices to Mariners (NtM)</b>	<ul style="list-style-type: none"> <li>▪ NtM and/or radio navigational warnings and publication in appropriate bulletins to comply with the conditions in the marine licences.</li> <li>▪ Each NtM will contain full details of the vessel, location, activities, contact details etc.</li> <li>▪ In the case of incidents or emergencies requiring notification, the NtM will be issued as soon as reasonably possible. Any actions required to notify an incident or emergency will go ahead even if there is not sufficient time for it to appear in the Kingfisher Fortnightly Bulletin.</li> </ul>	<ul style="list-style-type: none"> <li>▪ All NtMs<sup>14</sup> will be issued by the CFLO</li> <li>▪ NtMs will be published through KIS-ORCA</li> <li>▪ Details of the works will be promulgated to all appropriate sea users</li> <li>▪ NtMs will be issued at least 20 days prior to works' start date, if possible, to allow inclusion in the Kingfisher Fortnightly Bulletin.</li> <li>▪ NtMs will be issued using the example NtM document at relevant stages of cable surveys and works.</li> </ul>
<b>NtM updates</b>	It is intended that the issued NtMs will comprehensively describe the planned activities. However, in the unlikely event that a significant change to these activities becomes apparent, an update will be issued.	If required, the NtM update to be issued by email to the Source Data Receipt at the UK Hydrographic Office, and copied to the distribution list set out in the NtMs.

<sup>13</sup> The flyer will contain the following information: submarine electricity cable specific information; useful contacts; working area; national and regional charts; site specific charts.

<sup>14</sup>For details see Appendix A: *Notice to Mariners* example template.

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Type	Function	Distribution
<b>Notices to static gear fishermen</b>	Further specific liaison will take place between SHEPD's FIR and the fishermen who have static fishing gear in the works areas to agree the detailed arrangements for removal of static gear. This will include details of dates and numbers of creels.	The static gear fishermen will receive the NtMs.
<b>Notices to mobile gear fishermen</b>	Specific liaison between SHEPD's FIR and the fishermen who will be affected by the survey and installation operations will take place to ensure that they are given a minimum of 24 hours' notice that vessels of restricted mobility will be in the area.	The mobile gear fishermen will receive the NtMs.
<b>Notices to other legitimate sea users</b>	Specific liaison between SHEPD's CFLO and the legitimate sea users who will be affected by operations will take place to ensure that they are given a minimum of 24 hours' notice that vessels of restricted mobility will be in the area.	Other sea users identified through consultation will receive the NtM (the distribution lists are given in Table 3, and Table 4).

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## 5 Communication Distribution List

- 5.1 A key aim is to co-exist with sea users in the marine environment. Coexistence is assisted by actively engaging with users and those with consented development rights. The way we approach engagement is specific to each cable although there is a generic set of *Standard Operating Procedures*<sup>15</sup> to ensure our approach is consistent and fair to all sea users in the area.
- 5.2 The North Coast and Orkney submarine electricity cables have a discrete footprint in a small regional area. For simplicity, the communication distribution list has been separated into regional stakeholders, given in Table 3, and cable specific stakeholders in Table 4.
- 5.3 The communication distribution list provides the following information on each stakeholder:
- Stakeholder name
  - SHEPD point of contact
  - Role of the stakeholder in the consent procedure
  - Details of specific contact to be made by SHEPD with a given stakeholder.

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<sup>15</sup> Scottish and Southern Electricity Networks: *Standard Operating Procedures*, available: <https://www.ssen.co.uk/SubmarineCables/AboutUs/>

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**Table 3 Regional stakeholders' roles and duties**

Regional Stakeholder	SHEPD point of contact	Role	Details
<b>Marine Scotland (MS)</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager	MS is the licensing authority for all works and as such all consent conditions that require to be met must be demonstrated to them either upon request or as agreed in the licence.	<p>Specific contact with MS will be made</p> <ul style="list-style-type: none"> <li>▪ <b>Prior to commencement of the works:</b> <ul style="list-style-type: none"> <li>· Marine Scotland is responsible for the integrated management of Scotland's seas. This includes consultation on the proposed FLMAP and delivery plan; and inclusion of compliance with it as a licence condition.</li> </ul> </li> <li>▪ <b>During the works:</b> <ul style="list-style-type: none"> <li>· to allow access for an authorised Enforcement Officer to inspect the works</li> <li>· to notify any changes to the works that may affect the validity of the licence</li> <li>· to submit and seek approval of plans to mitigate navigational dangers or risks, where required</li> </ul> </li> <li>▪ <b>On completion of the works:</b> <ul style="list-style-type: none"> <li>· to notify the completion of the works</li> <li>· to submit an assessment of any risks posed by the installed cable</li> </ul> </li> </ul>

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Regional Stakeholder	SHEPD point of contact	Role	Details
<b>NatureScot</b>	Subsea Project Liaison Manager  Subsea Project Environmental Manager	NatureScot is the Scottish public body responsible for natural heritage. They advise the Scottish Government in the consideration of nature conservation requirements when deciding whether to consent activities. NatureScot is a consultee to Marine Scotland and as such they can influence conditions on the consent.	SHEPD will engage on matters related to the project as required.
<b>Maritime and Coastguard Agency (MCA)</b>	Up to work starting: Subsea Project Liaison Manager  During Works: Project Manager	The MCA is an executive agency of the United Kingdom and is responsible for implementing British and international maritime law and safety policy. The MCA are a consultee to Marine Scotland and as such they can influence conditions within the consent.	SHEPD will engage on matters related to the project as required.
<b>Northern Lighthouse Board (NLB)</b>	Up to work starting: Subsea Project Liaison Manager  Lead Marine Consents Manager  During Works: Project Manager	The NLB is a consultee to Marine Scotland and as such they can influence conditions within the consent.	SHEPD will engage on matters related to the project as required.

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Regional Stakeholder	SHEPD point of contact	Role	Details
<b>Scottish Environmental Protection Agency (SEPA)</b>	Up to work starting: Subsea Project Liaison Manager  Subsea Project Environmental Manager  During Works: Project Manager	SEPA is Scotland’s environmental regulator. SEPA is a consultee to Marine Scotland and as such they can influence conditions within the consent.	SHEPD will engage on matters related to the project as required.
<b>Royal Society for the Protection of Birds (RSPB)</b>	Subsea Project Liaison Manager  Subsea Project Environmental Manager	RSPB is a consultee to Marine Scotland and as such they can influence conditions on the consent.	SHEPD will engage on matters related to the project as required.
<b>Scottish Fishermen’s Federation (SFF)</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager  Company Fishing Liaison Officer (CFLO)	The SFF represents the Orkney Fishermen’s Association (OFA) and predominantly the mobile commercial fishing fleet that operate in deeper waters outside of where the cables will be replaced.	Specific contact will be made with the SFF and the associations that are represented by the SFF. Regular liaison and updates by CFLO will be undertaken with meetings as required. As part of ongoing regular liaison with the SFF, SHEPD will keep the SFF apprised of the installation as it proceeds, specifically in relation to the presence of support vessels.

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Regional Stakeholder	SHEPD point of contact	Role	Details
<b>North and East Coast Regional Inshore Fisheries Group (N&amp;ECRIFG)</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager  Company Fishing Liaison Officer (CFLO)	The N&ECRIFG covers inshore waters for up to six nautical miles offshore in the area between Durness on the north coast and all the east coast down to Burnmouth by the border with England. The organisation is legally authorised to impose restrictions and regulations, to issue licences and the right to set tolls.	Specific contact will be made with the N&ECRIFG. Regular dialogue between the CFLO and the RIFG will be maintained prior to and during the installation work, noting that both mobile and static gear commercial fishing operations are present in the area.
<b>Scottish Creel Fishermen's Federation (SCFF)</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager  Company Fisheries Liaison Officer (CFLO)	SCFF is the national trade association for the creel fishing industry. It is comprised of ten fishermen's associations including the Scottish Scallop Divers Association and Scottish Creelers and Divers relevant to Orkney waters.	Specific contact will be made with the SCFF. Regular dialogue between the CFLO and the SCFF will be maintained prior to and during the installation work.
<b>Unaffiliated commercial fishermen</b>	Company Fishing Liaison Officer (CFLO)	There are independent commercial fishing operators who are not affiliated with the RIFG.	Specific contact will be made with relevant unaffiliated commercial fishermen. The CFLO and FIR will identify these individuals and maintain liaison with them, particularly in relation to the requirement to remove creels to allow the works to be carried out.

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Regional Stakeholder	SHEPD point of contact	Role	Details
<b>Crown Estate Scotland (CES)</b>	Subsea Project Liaison Manager  Wayleaves Project Manager	CES manage property belonging to the Sovereign. Part of the HDD installation (seaward of MHWS) is located within Sovereign territory and, as such, SHEPD is required to obtain permission via survey licences and wayleave consent in terms of the Master Wayleave Agreement from CES.	We will engage on matters related to the project as required.
<b>United Kingdom Hydrographic Office (UKHO)</b>	Project Manager and Company Fishing Liaison Officer (CFLO)	The UKHO is the UK's agency providing hydrographic and geospatial data to mariners and maritime organisations across the world.	SHEPD will maintain contact with the UKHO to provide regular updates on progress of the works provide a copy of the marine licence and provide as-built details upon completion.  The CFLO will maintain contact with the UKHO via NtMs or Hydrographic notes.
<b>Kingfisher Information Service Offshore Renewables and Cable Awareness (KIS-ORCA)</b>	Company Fishing Liaison Officer (CFLO)	Kingfisher works with all the offshore industries, including oil & gas, subsea cable, renewable energy and marine aggregates to provide the latest news and most accurate information to the fishing industry. Information is in relation to the latest hazards, planned developments, new structures being installed and zones created.	SHEPD will maintain contact with KIS-ORCA to provide regular updates on progress of the works and provide as-built details upon completion.  The CFLO will maintain contact with KIS-ORCA via NtMs for the Kingfisher bulletin.



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Regional Stakeholder	SHEPD point of contact	Role	Details
<b>Ministry of Defence (MoD)</b>	Subsea Project Liaison Manager  Company Fishing Liaison Officer (CFLO)	The MoD is the British government department responsible for implementing the defence policy set by Her Majesty's Government and is the headquarters of the British Armed Forces. The MoD has access to training areas and ranges in marine areas.	CFLO will engage on matters related to the project as required.
<b>Royal Yacht Association (RYA)</b>	Company Fishing Liaison Officer (CFLO)	The RYA is the national governing body for certain water sports in the United Kingdom. Activities it covers include Sailing, Windsurfing, Motor cruising, Powerboating and Personal watercraft.	Specific contact will be made with the RYA. Regular dialogue between the CFLO and the RYA will be maintained prior to and during the installation work that may affect recreational activities in the area.
<b>Community Councils; Graemsay, Hoy and Walls; Shapinsay; Firth and Stenness; Stronsay; Flotta; Kirkwall and St Ola; Papa Westray; Eday; Rousay, Egilsay, Wyre and Gairsay; Westray; Sanday; Evie and Rendall; North Ronaldsay; Castletown; Orphir</b>	Subsea Project Liaison Manager	Community Councils are voluntary organisations set up by statute by the Local Authority and run by local residents to act on behalf of their areas. These form part of Orkney Island Council.	SHEPD will engage on matters related to the project as required.

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Regional Stakeholder	SHEPD point of contact	Role	Details
<b>NAFC Marine Centre</b>	Company Fishing Liaison Officer (CFLO)	The NAFC marine centre is an educational and scientific institute. Research and development in subjects relevant to the fishing and aquaculture industries and marine spatial planning.	CFLO will engage on matters related to the project as required.
<b>Orkney Marinas</b>	Company Fishing Liaison Officer (CFLO)	Orkney Marinas manages the marinas at Kirkwall, Stromness and Westray.	CFLO will engage on matters related to the project as required.
<b>Orkney Harbour Master and Head of Marine Services</b>	Company Fishing Liaison Officer (CFLO)	The Harbour Master is an official responsible for enforcing the regulations of a particular harbour or port, in order to ensure the safety of navigation, the security of the harbour and the correct operation of the port facilities.	CFLO will engage on matters related to the project as required.
<b>Scottish Coastal Forum</b>	Company Fishing Liaison Officer (CFLO)	The Scottish Coastal Forum was formed in 1996 to encourage debate at national level on coastal issues. Its members advise Marine Scotland, from an operational perspective, on the development of policy relating to marine planning and licensing within a sustainable marine environment.	CFLO will engage on matters related to the project as required.

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**Table 4 Cable specific stakeholders**

Cable specific stakeholder	SHEPD point of contact	Role	Details
<b>Orkney Islands Council Harbour Authority</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager	The Orkney Islands Council Port Authority is the authority for Scapa Flow, harbours of Kirkwall and Stromness and Westray.	SHEPD will engage with the Harbour authority to keep them informed of cable works.
<b>Orkney Islands Council Marine Services (Orkney Harbour Authority)</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager	The management of Orkney ports and harbours is centralised under Orkney Islands Council Marine Services.	Specific contact will be made with the Orkney Islands Council Marine Services. Regular dialogue between the CFLO and the SCFF will be maintained prior to and during the installation work. The ports and harbours given in section 8 will be considered for the distribution of information in reference to the proposed cable works <sup>16</sup> .
<b>Orkney Islands Council Planning Services</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager	Orkney Islands Council Development and Marine Planning Team covers a range of responsibilities associated with policy and project development for the use and development of land in Orkney.	SHEPD will engage on matters related to the project as required.
<b>The Highland Council</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager	The Highland Council is the local authority for mainland Scotland for the landfall of the Pentland cable.	Specific contact will be made with the Highland Council.

<sup>16</sup> Ports Handbook for Orkney (2015) Orkney Islands Council Marine Services, 6<sup>th</sup> edition.  
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Cable specific stakeholder	SHEPD point of contact	Role	Details
<b>Orkney Fisheries Association (OFA)</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager	The OFA represents 51 vessel owners and 2 Shellfish processors. This association's membership covers vessels in the whitefish, prawn, scallop and creel sectors. The OFA are also affiliated to the SFF.	Specific contact will be made with the OFA. Regular dialogue between the CFLO and the OFA will be maintained prior to and during the installation work, noting that both mobile and static gear commercial fishing operations are present in the area.
<b>Orkney Fishermen's Society (OFS)</b>	Company Fisheries Liaison Officer (CFLO)	The OFS is a co-operative owned largely by inshore fishermen and is considered one of the foremost processors in brown crab in the UK. The co-operative is a key supporter of Orkney Sustainable Fisheries Ltd.	Feedback from communications during the PAC events stated that the OFS was represented by the OFA. Specific contact will be made with the OFS if requested.
<b>Orkney Islands Sea Angling Association</b>	Company Fisheries Liaison Officer (CFLO)	Orkney Islands Sea Angling Association, is a local group of anglers offering charter boats for sea angling across Orkney.	Contact will be made as required with the association who can be contacted through their website <sup>17</sup> .
<b>The European Marine Energy Centre Ltd (EMEC Ltd)</b>	Company Fisheries Liaison Officer (CFLO)	The European Marine Energy Centre Ltd (EMEC Ltd) has testing facilities for wave and tidal energy devices, with 4 sites in the vicinity of the Orkney cables <sup>18</sup> .	Specific contact will be made with EMEC. Regular dialogue will be undertaken with EMEC throughout the lifetime of the local cable works to mitigate possible interactions.
<b>Orbital Marine Power</b>	Company Fisheries Liaison Officer (CFLO)	Orbital Marine Power (formerly known as Scotrenewables Tidal Power Ltd) has one tidal energy facility, Lashy Sound, in the vicinity of the cables.	CFLO will engage on matters related to the project as required.

<sup>17</sup> <http://www.orkneycommunities.co.uk/ANGLINGORKNEY/>

<sup>18</sup> Available from: <http://www.emec.org.uk/facilities/>

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Cable specific stakeholder	SHEPD point of contact	Role	Details
<b>Westray South Tidal Development Ltd</b>	Company Fisheries Liaison Officer (CFLO)	The Westray South tidal testing facility interacts with the Rousay-Westray and Eday-Westray cables.	CFLO will engage on matters related to the project as required.
<b>Scuba diving operators</b>	Company Fisheries Liaison Officer (CFLO)	There are 2 dive operators operating in Orkney; Scapa Scuba and Orkney and Shetland Dive Charters with some hot spots of activity in the vicinity of the cable locations.	CFLO will engage on matters related to the project as required.
<b>Orkney and Shetland Dive Charters – Lerwick</b>	Company Fisheries Liaison Officer (CFLO)	Dive charter based in Lerwick.	CFLO will engage on matters related to the project as required.
<b>Diving – Scapa Scuba</b>	Company Fisheries Liaison Officer (CFLO)	This is Orkney’s dive centre. The area around Hoy is a very popular diving site. Scapa Flow is a popular dive site as illustrated in the SMRTS survey data, and is recognised as being in the top 5 dive sites in the world.	CFLO will engage on matters related to the project as required.
<b>Orkney Sub-aqua</b>	Company Fisheries Liaison Officer (CFLO)	Dive club operating on Orkney.	CFLO will engage on matters related to the project as required.
<b>Caithness Diving Club</b>	Company Fisheries Liaison Officer (CFLO)	This dive club dives across Scotland in the nearshore waters. Dive sites include around Stromness.	CFLO will engage on matters related to the project as required.

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Cable specific stakeholder	SHEPD point of contact	Role	Details
<b>North Shore Surf Club (Caithness coast)</b>	Company Fisheries Liaison Officer (CFLO)	This surf club operates along the Caithness coast (mainly out of Thurso). Surfing generally occurs along the west coast of Orkney and north facing coasts of the Caithness.	CFLO will engage on matters related to the project as required.
<b>Scottish Surfing Federation (SSF)</b>	Company Fisheries Liaison Officer (CFLO)	SSF is the recognised governing body for the sport of surfing with Scotland. It represents the interests of Scottish surfers and protects Scottish waves.	CFLO will engage on matters related to the project as required.
<b>Orkney Sea Kayaking</b>	Company Fisheries Liaison Officer (CFLO)	Orkney Sea Kayaking Association encourages safe sea kayaking around Orkney islands for paddlers of all levels. It is affiliated to the Scottish Canoe Association (SCA).	CFLO will engage on matters related to the project as required.
<b>Pentland Canoe Club</b>	Company Fisheries Liaison Officer (CFLO)	A canoe club based in Thurso, on the north coast of Scotland. Members of the canoe club along much of the Caithness coastline.	CFLO will engage on matters related to the project as required.
<b>Orkney Rowing Club</b>	Company Fisheries Liaison Officer (CFLO)	Orkney Rowing Club traditional skiffs around Orkney and are members of the Scottish Coastal Rowing Association.	CFLO will engage on matters related to the project as required.
<b>Stromness Sailing Club</b>	Company Fisheries Liaison Officer (CFLO)	This is a sailing club based at the Ness Point End of Stromness Harbour. They undertake dinghy racing during the summer season.	CFLO will engage on matters related to the project as required.
<b>Orkney Sailing Club</b>	Company Fisheries Liaison Officer (CFLO)	The sailing club is based in Kirkwall on Orkney and sails around the Orkney islands, welcoming visiting vessels en route from Shetland or Orkney.	CFLO will engage on matters related to the project as required.

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Cable specific stakeholder	SHEPD point of contact	Role	Details
<b>Orkney Yoal Association</b>	Company Fisheries Liaison Officer (CFLO)	A local sailing club sailing a small fleet of yoal sailing boats around Orkney.	CFLO will engage on matters related to the project as required.
<b>Holm Sailing Club</b>	Company Fisheries Liaison Officer (CFLO)	The sailing club is based in the village of St Mary's. Points racing is held during summer in snipe dinghies.	CFLO will engage on matters related to the project as required.
<b>Pentland Firth Yacht Club</b>	Company Fisheries Liaison Officer (CFLO)	The club is located in Scrabster Harbour. The club sails in Thurso Bay, between the two headlands Holburn Head and Dunnet Head.	CFLO will engage on matters related to the project as required.
<b>Scrabster Harbour Trust</b>	Company Fisheries Liaison Officer (CFLO)	The Trust operates the busy fishing port of Scrabster. The harbour has a range of sectors which use this base; from cargo, cruise, ferries, fishing, oil and gas marine renewables. It is also one of the UK's top whitefish and shellfish landing ports.	Specific contact will be made with Scrabster Harbour Trust.
<b>Cruise ships (operating from Kirkwall)</b>	Company Fisheries Liaison Officer (CFLO)	Orkney is the most popular cruise location in the UK. The Orkney Islands Council has a timetable of cruise liner arrivals in 2019 available on their website .	CFLO will engage on matters related to the project as required.
<b>Orkney Ferries</b>	Subsea Project Liaison Manager  Lead Marine Consents Manager	Orkney Ferries operate dedicated inter-island ferry services from Orkney's mainland to 13 island destinations.	CFLO will engage on matters related to the project as required.

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Cable specific stakeholder	SHEPD point of contact	Role	Details
<b>Aquaculture</b>	Company Fisheries Liaison Officer (CFLO)	Aquaculture is a growing and important food production industry to Scotland. The following operators have aquaculture developments in Orkney: Cooke Aquaculture, Orkney Salmon Co. Ltd, Sinclair Mussels and Scottish Sea Farms Ltd.	Specific contact will be made with aquaculture developers through the provision of Notices to Mariners.
<b>Scottish Sea Farms</b>	Company Fisheries Liaison Officer (CFLO)	Farmed salmon producer with a number of farms in Orkney as well as the Shetland Islands and the west coast of mainland Scotland.	CFLO will engage on matters related to the project as required.
<b>Cooke Aquaculture Scotland</b>	Company Fisheries Liaison Officer (CFLO)	Farmed salmon producer with a number of farms in Orkney as well as the Shetland Islands and several freshwater sites on mainland Scotland.	CFLO will engage on matters related to the project as required.
<b>Orkney Oysters Ltd</b>	Company Fisheries Liaison Officer (CFLO)	Farmed oyster producer based on Hoy.	CFLO will engage on matters related to the project as required.
<b>Rysa Salmon Farm</b>	Company Fisheries Liaison Officer (CFLO)	Freshwater Atlantic Salmon hatchery.	CFLO will engage on matters related to the project as required.



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## 6 Commercial Fishing

- 6.1 This section summarises the existing commercial fishing activity in relation to the subsea submarine electricity cable assets. For the purposes of these interaction tables, named cables with multiple components (e.g. Pentland Firth East and Pentland Firth West) are treated as one. Commercial fishing activity is defined as the activity undertaken by licensed fishing vessels for the legitimate capture and sale of finfish and shellfish. The commercial fishing overview will focus specifically on those fleets which are active in areas relevant to the identified cables. The commercial fisheries charts are given in Appendix C (Figure 2 to Figure 15).
- 6.2 Commercial fishing in European Union (EU) waters was subject to numerous controls and regulations at European, national and local levels under the Common Fisheries Policy (CFP). In 2021, the UK left the EU and the CFP, with fisheries in the UK now governed by the Fisheries Act (2020). Relations with the EU, including TACs and quotas are governed under the EU – UK Trade and Cooperation Agreement (24/12/2020). Controls and regulations remain in place under the Fisheries Act, with direct impacts on fishing effort, landings weights and values. The main bodies regulating fishing in sea areas in which the cable is located is Marine Scotland (MS) and the Inshore Fisheries Management and Conservation (IFMAC) through national and regional regulations, and regional Inshore Fisheries Groups (rIFGs).
- 6.3 The 21 North Coast and Orkney cables are located within International Council for the Exploration of the Sea (ICES) rectangles 47E6, 47E7, and 46E6. Pressure stocks are managed by ICES Division and quota is also allocated at this scale. Fishing data are recorded, collated and analysed by ICES rectangles within each division. ICES rectangles are the smallest spatial unit available for the collation of fishing data and have therefore been used to define the analysis areas for the proposed cable replacements.
- 6.4 The North Coast and Orkney submarine electricity cables are sited within the 6nm limit, within which the UK has exclusive fishing rights. The territorial fishing limits of the UK extend out to 12nm, within which only the vessels of the UK or vessels from other states with historical rights are entitled to legally fish.
- 6.5 There is no single data source or recognised model for establishing a baseline of commercial fishing activity within discrete sea areas such as those encompassed by the footprint of submarine electricity cables. The overview has therefore been derived using data and information from a number of sources. In addition to analysis of fisheries statistical datasets, emphasis has been placed on undertaking direct consultation with the relevant national fishermen’s federations, local associations and skippers whose fishing grounds are located within the vicinity of the cable corridor.
- 6.6 The key data sources used to characterise the baseline of the commercial fishing receptors are summarised in Table 5. It should be noted that Vessel Monitoring Systems (VMS) datasets show activity for the over-15m fleet only and will therefore underrepresent total fishing activity. It is considered that the surveillance sightings and effort data will be more representative as vessels working in the vicinity of the cable corridors will often be under 10m vessels.

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**Table 5 Commercial fishing key data sources**

<b>Data</b>	<b>Year</b>	<b>Coverage</b>	<b>Confidence</b>	<b>Notes</b>
UK Marine Management Organisation (MMO) Fishing Statistics (landings values data)	2015 to 2019	UK vessels landing into UK and European ports. Non-UK vessels landing into UK ports.	High	Landings data provided by value (£).
UK MMO Surveillance Sightings	2016 to 2020	Sightings of vessels by gear type (all nationalities) recorded in UK waters on weekly surveillance fly overs during daylight hours.	Medium to high	May underestimate total extent of fishing activity due to flyover frequency and timing. Data for 2016-2017 is provided by the MMO, whilst data for 2018-2020 is from Marine Scotland.
UK MMO Satellite Tracking (VMS) Data	2015 to 2019	Aggregated VMS pings recorded in 0.05° by 0.05° grids from UK vessels only in European waters. Only vessels over 15m.	High	VMS provided by value (£). As dataset limited to vessels over 15m this will not be indicative of the inshore fleet.
European Marine Observation and Data Network (EMODnet)	2019	The maps are based on AIS data purchased by CLS and show shipping density in 1km*1km cells of a grid covering all EU waters (and some neighbouring areas). Density is expressed as hours per square kilometre per month. The following ship types have been covered in this dataset: other, fishing, service, dredging or underwater ops, sailing, pleasure craft, high speed craft, tug and towing, passenger, cargo, tanker, military and law enforcement, unknown and all ship types.	Low - High	EMODnet Vessel Density Maps were created by COGEA in 2020 in the framework of EMODnet Human Activities, an initiative funded by the EU Commission.

- 6.7 The potential fishing activity methods in the vicinity of the North Coast and Orkney cables are reviewed in order to assess possible interaction scenarios. A brief characterisation of the fishing methods identified in the area around the Hoy and Pentland East cable corridors, with a description of the gear and photographic examples of the types of vessels is given in Table 11.
- 6.8 Surveillance sightings by method (Figure 2) have recorded predominantly potting/whelking vessels in the vicinity of the submarine cables north of Orkney mainland, followed by trawlers and some scallop dredgers. In the Pentland Firth, the three main methods sighted are potters/whelkers, unspecified trawlers and demersal trawlers. A summary of these sightings

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and possible interactions is provided in Table 6. A number of international trawlers – from the Faroe Islands and the Netherlands – have been recorded in the vicinity of the Pentland cables. Surveillance sightings by nationality (Figure 3) show that these vessels are almost entirely UK-registered.

**Table 6 MMO Surveillance Sightings, 2016-2020**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	No	
Mainland Orkney - Holm of Grimbister	No	Within 10km radius there are low levels of activity from potters/whelkers.
Mainland Orkney - Shapinsay	No	Within 10km radius there are low levels of activity from potters/whelkers.
Mainland Orkney - Hoy (North, Centre and South)	No	
North Ness - South Ness	No	
Pentland Firth (East and West)	Yes	The cable overlaps with low levels of activity by trawlers (both demersal and unspecified) in the centre of the cable route. The cable also overlaps with a sighting of a single long liner, and low levels of potting activity. Scallop dredgers are sighted within 5km radius of the cable toward the Pentland landfall.
Rousay - Egilsay	No	
Rousay - Westray	No	
Rousay - Wyre	No	
Sanday - Eday	No	
Sanday - North Ronaldsay	No	Within 10km radius there are low levels of activity from scallop dredgers (French/Newhaven type) and a single potter/whelker sighting.
Shapinsay - Stronsay (North and South)	No	Within 10km radius there are very low levels of activity from potters/whelkers.
Stronsay - Sanday	No	
Westray - Papa Westray	No	Within 10km radius there are low levels of activity from scallop dredger (French/Newhaven type) and a single Faroe Islands trawler sighting.
Mainland Orkney - Rousay	No	
Eday - Westray	No	
Hoy - Flotta	No	

6.9 The greatest landing values by gear are derived from demersal trawls/seines across the North Coast and Orkney cables, followed by pots and traps (Figure 4). The proportions of these differ by ICES rectangle however, with demersal trawls/seines representing the highest landings of all methods in 47E6 and 47E7, pots and traps the highest in 46E6, with a roughly even split between demersal trawls/seines (40%) and pots and traps (39%) in 46E7. Lower levels of

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landings from dredges, other passive gears and other mobile gears can be observed across the ICES rectangles as well. The species providing the greatest landing value across the North Coast and Orkney are herring, followed by crabs, haddock and scallops (Figure 5). Similarly, the proportions of these differ by ICES rectangle, with crabs representing the greatest landings value from 46E6, 46E7 and 47E6, and herring the highest in ICES 47E7.

- 6.10 In each of the ICES rectangles across the North Coast and Orkney region, the vast majority of landings are derived from the over 10m fleet (Figure 6).
- 6.11 A summary of these data for each individual cable or group of cables is provided in Table 7, ordered according to ICES rectangle.

**Table 7 MMO Landings Value (£) 2015-2019 by species, gear type and vessel length**

ICES Rectangle	Cable Name	Interaction on chart	Notes
46E6	Mainland Orkney - Graemsay	Yes	Average of £4,900,953 landings value per year, with demersal trawl/seines constituting the majority of landings, followed by pots and traps. Landings are primarily constituted by crabs and haddock, with smaller amounts of haddock, scallop and lobster caught. The majority of vessels are over 10m in length.
	Mainland Orkney - Hoy (North, Centre and South)	Yes	
	North Ness - South Ness	Yes	
	Pentland Firth (East and West)	Yes	
	Hoy - Flotta	Yes	
47E6	Mainland Orkney - Rousay	Yes	Average of £5,607,097 landings value per year, with demersal trawls/seines constituting the highest proportion of landings followed by pots and traps. The majority of landings come from crab, cod and monks/anglers, with lower amounts from haddock and herring. The majority of vessels are over 10m in length.
	Mainland Orkney - Holm of Grimbister	Yes	
47E7	Mainland Orkney - Shapinsay	Yes	Average of £9,641,084 landings value per year, with demersal trawl/seines constitution the majority of landings, followed by pots and traps. The majority of landings are from herring and crabs, with smaller amounts of scallop and lobster landed. The majority of vessels are over 10m in length.
	Rousay - Egilsay	Yes	
	Rousay - Westray	Yes	
	Rousay - Wyre	Yes	
	Sanday - Eday	Yes	
	Sanday - North Ronaldsay	Yes	
	Shapinsay - Stronsay (North and South)	Yes	
	Stronsay - Sanday	Yes	
	Westray - Papa Westray	Yes	
Eday - Westray	Yes		

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- 6.12 VMS data from the MMO shows that much of the fishing activity is outside of the main Orkney Islands, and that the highest levels of activity over the cables themselves is across the central portion of the Pentland Firth cables (average of 50-100 hours fished per year). This is followed by values the vicinity of the cables around Papa Westray (20-50 hours), North Ronaldsay (10-20 hours) and around Eday (5-10 hours) (Figure 7).
- 6.13 The highest dredging effort is seen southeast of Orkney (50-100 hours), with the lower central portion of the Pentland Firth cables having the highest average dredging effort (20-50 hours) over the cables themselves (Figure 8). The VMS effort by mobile gear shows that north west of Orkney (over 100 hours) has the highest recorded levels of effort and similar to the patterns of effort shown by the dredging activity, the highest levels of activity over the cables themselves is across the lower central portion of the Pentland Firth cables (20-50 hours) (Figure 9). The highest potting activity over the cables is across the Pentland Firth cables (up to 50-100 hours) and adjacent to the east of North Ronaldsay (50-100 hours), followed by north of Westray (20-50 hours) and south of Eday peaking at 10-20 hours of effort (Figure 10). A summary of VMS effort is provided in Table 8.

**Table 8 MMO VMS effort (hours) 2015-2019**

Cable Name	Interaction on chart	Notes
Mainland Orkney - Graemsay	Yes	Average fishing effort <1 hour for mobile gear and pots and traps.
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	Yes	Average fishing effort between 1-5 hours for all gears, and <1 hour for dredging.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Average fishing effort between 0-5 hours for mobile gear and pots and traps.
North Ness - South Ness	Yes	Average fishing effort of <1 hour for mobile gear and pots and traps.
Pentland Firth (East and West)	Yes	Fishing effort ranges from 0 – 100 hours for all gears across the cable. Effort is lower at both landfalls (0-5 hours), with effort moderate to high in the centre of the cable. Dredging effort is 20-50 hours in centre of cable. Activity is predominantly by potters.
Rousay - Egilsay	Yes	Average fishing effort of 1-5 hours for mobile gear and pots and traps over the Egilsay cable landfall.
Rousay - Westray	Yes	Average fishing effort between 0-5 hours for mobile gear and pots and traps.
Rousay - Wyre	Yes	Average fishing effort <1 hour for mobile gear.
Sanday - Eday	Yes	Average fishing effort between 1-10 hours for mobile gear and pots and traps.
Sanday - North Ronaldsay	Yes	Along the majority of the cable, fishing effort ranges up to 5 hours. At landfall on Ronaldsay, effort increases to 10-20 hours for all gears, compromised by potters.
Shapinsay - Stronsay (North and South)	Yes	Up to 5 hours of mobile gear activity, with a peak at the Shapinsay landfall of the cables.

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Stronsay - Sanday	Yes	Average fishing effort up to 5 hours for mobile gear and pots and traps.
Westray - Papa Westray	Yes	Majority of the cable overlaps with low fishing effort (up to five hours). At landfall on Papa Westray fishing effort is higher at 20-50 hours (dredging).
Mainland Orkney - Rousay	No	
Eday - Westray	Yes	Fishing effort varies across the cable, from 1-10 hours for pots and traps and mobile gear.
Hoy - Flotta	Yes	Up to 10 hours of fishing activity for mobile gear over the cable and less than 1 hour for dredging and pots and traps.

6.14 The highest VMS value areas are seen north of Orkney and to the west of Pentland Firth West (more than £35,000), with the highest values directly over the cable works peaking with the Pentland Firth cables (£20,000-£35,000) and £3,000-£6,000 over Hoy Flotta, Eday-Westray and the Ronaldsay landfall of the Sanday-North Ronaldsay cable (Figure 11). Most of the dredging values are derived southeast of Orkney, with the peak of dredge values in the vicinity of the cable works, over Pentland Firth East and West (£3,000-£6,000) (Figure 12). The highest values by mobile gears are over £35,000, north of Orkney and to the west of Pentland Firth West (Figure 13). The peak over the cable works themselves is £10,000-£20,000 in the central portion of Pentland Firth cables. The highest value of potting activity within the vicinity of the cable works is over Pentland Firth, peaking at £20,000-£35,000 (Figure 14). A summary of VMS landings value is given in Table 9.

**Table 9 MMO VMS landings value (£) 2015 - 2019**

Cable Name	Interaction on chart	Notes
Mainland Orkney - Graemsay	Yes	Average landings value of less than £1,000 per year for mobile gear and pots and traps.
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	Yes	Average landings value of less than £1,000 per year for mobile gear and pots and traps.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Average landings value of less than £1,000 per year for pots and traps.
North Ness - South Ness	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
Pentland Firth (East and West)	Yes	Average landings value ranged from £1,000 to £35,000 per year for all gears. Dredging landings value from the southern cable route range up to £6,000. Potting values increase to £35,000 per year in the centre of the cable.
Rousay - Egilsay	Yes	Average landings value of less than £1,000 per year for mobile gear and pots and traps.
Rousay - Westray	Yes	Average landings value of less than £1,000 per year for mobile gear and pots and traps.
Rousay - Wyre	Yes	Average landings value of less than £1,000 per year for mobile gear and pots and traps.

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Sanday - Eday	Yes	Average landings value of <£1,000 per year for mobile gears, pots and traps and dredges.
Sanday - North Ronaldsay	Yes	Average landings value of less than £1,000 per year for all gears for the majority of cable. Small area at landfall on Ronaldsay with average landings between £3,000 - £6,000 for pots and traps.
Shapinsay - Stronsay (North and South)	Yes	Average landings value of less than £1,000 per year for mobile gears and pots and traps for some areas of the cable. Other areas no overlap.
Stronsay - Sanday	Yes	Average landings value of less than £1,000 per year for mobile gear and pots and traps.
Westray - Papa Westray	Yes	Average landings value of £1,000 - £3,000 per year for pots and traps, mobile gear and dredging.
Mainland Orkney - Rousay	No	
Eday - Westray	Yes	Average landings value of less than £1,000 - £3,000 per year for pots and traps and mobile gear. <£1,000 for dredging.
Hoy - Flotta	Yes	Average landings value of £1,000 per year for mobile gear and pots and traps.

6.15 EMODnet fishing vessel AIS density (Figure 15) shows generally low to medium levels of activity (< 5 hours per km<sup>2</sup> per month), with areas of high activity across Rousay-Egilsay (70 hours), and moderate levels of activity over the Mainland Orkney-Shapinsay cable landfall on Mainland (10 hours per km<sup>2</sup> per month). A summary of fishing vessel density is in Table 10.

**Table 10 EMODnet AIS vessel density (fishing) 2019**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Average of <0.5 hours of AIS activity per square km per month.
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	Yes	At landfall on Mainland Orkney records 2-10 hours of AIS activity per square km per month. There is no activity recorded in the northern cable route.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Half the cable route, closest to Mainland Orkney averages <2 hours of AIS activity per square km per month. The remainder of the route sees no activity.
North Ness - South Ness	Yes	Average of <1 hours of AIS activity per square km per month.
Pentland Firth (East and West)		Average of up to 2 hours of AIS activity per square km per month, concentrated in the centre of the cable route.
Rousay - Egilsay	Yes	Average of 70 hours of AIS activity per square km per month close to landfall on Rousay. No activity recorded elsewhere along the cable.
Rousay - Westray	Yes	Most of the cable does not record AIS activity. There is a small area which records an average of <0.5 hours of AIS activity per square km per month.


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Rousay - Wyre		Average of <0.5 hours of AIS activity per square km per month.
Sanday - Eday	Yes	Average of <0.5 hours of AIS activity per square km per month.
Sanday - North Ronaldsay	No	
Shapinsay - Stronsay (North and South)	Yes	Most of the cable does not record AIS activity. There is a small area which records an average of <0.5 hours of AIS activity per square km per month.
Stronsay - Sanday	No	
Westray - Papa Westray	Yes	Average of 2 hours of AIS activity per square km per month.
Mainland Orkney - Rousay	No	Does not overlap with any recorded activity, but is directly adjacent to average of <0.5 hours AIS activity per square km per month.
Eday - Westray	Yes	<0.5 hours of AIS activity per square km per month.
Hoy - Flotta	No	



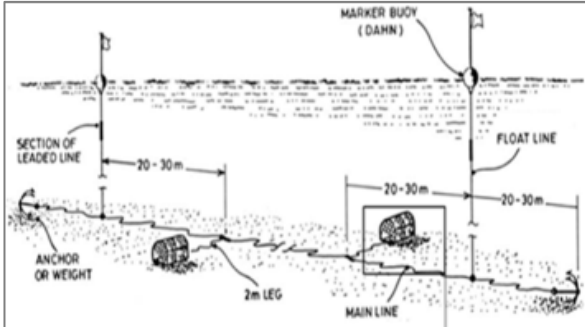
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**Table 11 Characterisation of the fishing methods in the area**

Fishing gear	Description	Pictorial representation
<b>Creeling (potting)</b>	<p>One of the largest Orkney fisheries is the shellfish sector. Creels (pots) are static traps commonly baited with low value fish such as mackerel, herring, and dogfish. Creels are the principal method used to target active scavenging crustaceans such as brown crab, velvet crab, lobster, Nephrops, green crab and whelks. A number of pots are set on a main line anchored to the seabed and marked with a buoy or a 'dhan' (flag and buff) at either end.</p> <p>Approximately 107 vessels are registered with licences in Orkney; 80 &lt; 10m and 27 vessels &gt;10m, with around 80 vessels regularly active (<sup>19</sup>OSF, 2014). Vessels are predominantly &lt;12m but range from 6m single-handed day boats to 19m viviers.</p> <p>The number of pots per string can vary from 5-50. Vessels generally work between 200-500 pots at sea, which are fished on a continuous cycle to maintain cover of the ground.</p>	 <p>©Tommy Kirkpatrick</p> <p>Source: (above) Marine Traffic; Tommy Kirkpatrick</p>


<sup>19</sup> Orkney Sustainable Fisheries Ltd (2014) Draft proposal for an Orkney Scallop Regulating Order. 124 pp  
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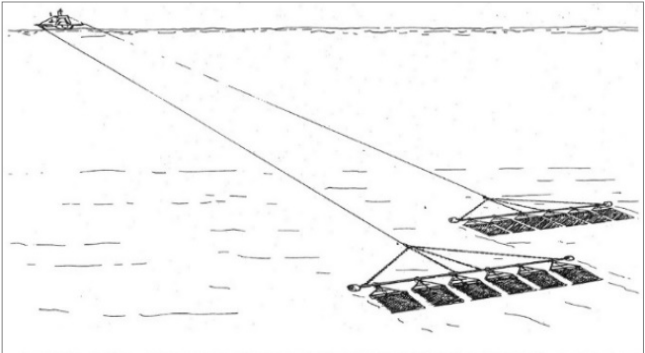
Fishing gear	Description	Pictorial representation
	<p>Fishing effort follows a seasonal pattern with activity varying to shelter from adverse weather conditions, react to seasonal changes and exploit target species<sup>20</sup>.</p> <p>Whelking can occur all year round but higher density of whelk gear is likely to be found January- July.</p>	 <p>The diagram illustrates the components of whelk gear. It shows a horizontal float line supported by two marker buoys (labeled 'MARKER BUOY (DAHN)'). Below the float line, a main line runs parallel, with vertical '2m LEG' sections connecting them. A 'SECTION OF LEADED LINE' is shown extending from the main line, ending in an 'ANCHOR OR WEIGHT'. Dimensions of 20-30m are indicated for the spacing between marker buoys and the length of the leaded line section.</p> <p>Source: Galbraith &amp; Rice, 2004</p>

<sup>20</sup> Coleman M T., & Rodrigues E. (2016) Orkney Shellfish Project End of Year Report: January – December 2015. Orkney Sustainable Fisheries Ltd. No.13, Pp 86  
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Fishing gear	Description	Pictorial representation
		 <p>Source: BMM</p>

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Fishing gear	Description	Pictorial representation
<b>Scallop dredging</b>	<p>A small local fleet, and nomadic vessels (vessels that fish all around the UK, whose movements are influenced by season, management restrictions and spawning times) target scallops in Orkney waters, and potentially fish in the vicinity of submarine cables. There are approximately 5 dredge vessels based in Orkney.<sup>21</sup></p> <p>Each dredge consists of a ruggedly constructed triangular steel frame and a tooth bar, behind which a mat of linked steel rings is secured. Heavy netting is laced into the frame to form a bag into which the catch is retained. As scallops usually lie recessed in sand and fine gravel, they are raked out by the teeth and swept into the bag.</p> <p>A number of dredges are attached to a bar fitted with bridles and is towed using a single warp. The dredges are usually deployed from outrigger booms. The number of dredges deployed varies with the size of the vessel, with the maximum number permitted being eight aside (16 in total).</p>	 <p style="text-align: center;">Source: BMM</p>  <p style="text-align: center;">Source: Galbraith &amp; Rice, 2004</p>

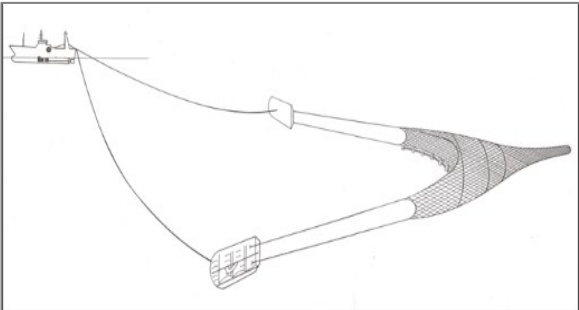
<sup>21</sup> <https://www.gov.uk/government/statistical-data-sets/vessel-lists-over-10-metres> (accessed 22nd June 2021)

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Fishing gear	Description	Pictorial representation
<b>Hand diving for scallops</b>	A significant fishery for king scallops, <i>Pecten maximus</i> , in Orkney waters is hand collection by divers. The local fleet comprises approximately 14 dive vessels. Divers typically target areas at a relatively small spatial scale (tens of m <sup>2</sup> ).	 <p style="text-align: center;">Source: Orkney Sustainable Fisheries Ltd<sup>22</sup></p>
<b>Demersal otter trawling</b>	<p>The trawling conducted by local vessels in the area is for whitefish (cod, haddock, whiting, monkfish, megrim, plaice and squid).</p> <p>Otter trawls are a basic funnel shaped net tapering towards the cod-end, with the sides of the net extended to form wings which herd the fish into the net. The net is held open by trawl doors which are designed to flow through the water at an angle causing them to spread away from each other and therefore opening the net horizontally. The net is held open vertically by the ballooning effect of the net and by a series of floats attached to the headline. The ground lines of nets are weighted to</p>	 <p style="text-align: center;">Source: Marine Traffic</p>

<sup>22</sup> Orkney Sustainable Fisheries Ltd (2014) Draft proposal for an Orkney Scallop Regulating Order. 124 pp.

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Fishing gear	Description	Pictorial representation
	maintain contact with the seabed and can vary in design depending on the type of ground fished.	 <p style="text-align: center;">Source: Galbraith &amp; Rice, 2004</p>

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## 7 Other Sea Users

7.1 This section of the report provides a brief overview of other sea users in relation to the submarine electricity cable assets. For the purposes of these interaction tables, named cables with multiple components (e.g. Pentland Firth East and Pentland Firth West) are treated as one. Other sea users that may be affected by cable replacement works include:

- Aquaculture
- Marine Archaeology
- Wave and Tidal developments
- Ferries
- Shipping
- Sailing
- Recreational: sailing, diving, boating, angling, canoeing/kayaking, surfing, swimming, rowing/sculling, water skiing/wakeboarding, wild fowling and coastering
- MoD
- Conservation sites/areas
- Telecommunications

7.2 There is no single data source or recognised model for determining the activity of all other legitimate sea users within discrete sea areas such as those encompassed by the footprint of sub-sea cables. It is beyond the scope of this report to produce a complete baseline overview for all other legitimate sea users therefore data and information are derived from assessments utilised by regional marine spatial plans and the PAC report.

7.3 AIS vessel density data for all vessels in 2019 has been published by EMODnet, showing hours of activity per km<sup>2</sup> per month (Figure 16). The highest activity (average of 100+ hours of AIS activity per km<sup>2</sup> per month) can be seen over Rousay-Egilsay, North Ness-South Ness and Mainland Orkney-Shapinsay, with an average of 20-100 hours per month over Rousay-Wyre, Westray-Papa Westray, Mainland Orkney-Graemsay, Mainland Orkney-Hoy, Pentland Firth and adjacent to Mainland Orkney-Rousay. Lower levels (2-15 hours) can be seen elsewhere along all of the cables. This data has been further separated into the categories of fishing vessels (as detailed in the previous chapter), cargo vessels, high speed vessels, passenger vessels, sailing vessels, tankers and tugs, shown in Figure 15, and Figure 17-Figure 22.

7.4 The Scottish Marine Recreation and Tourism Survey (SMRTS) 2015<sup>23</sup> and the Marine Scotland interactive Marine Plan<sup>24</sup> have been the main sources of reference for legitimate sea users listed in Table 12. Additional data on conversation sites has been sourced from the Scottish Government SpatialData.gov.scot website, Royal Society for the Protection of Birds (RSPB) Reserves web map service, European Marine Observation and Data Network (EMODnet) and

<sup>23</sup> Scottish Marine Recreation and Tourism Survey (SMRTS) 2015; <http://www.gov.scot/Resource/0049/00497904.pdf>

<sup>24</sup> Marine Scotland National Marine Plan Interactive; <https://marinescotland.atkinsgeospatial.com/nmpi/>

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the website Ports and Harbours of the UK<sup>25</sup>. Where information is available, charts of spatial activity are provided for each of the sea users defined above.

**Table 12 Other legitimate sea users data sources**

Data	Year	Coverage	Confidence	Notes
Marine Scotland National Marine Plan Interactive	Varied	Overall Assessment Physical Characteristics Clean and Safe Healthy and Biologically Diverse Productive Climate Change Administrative Regions National Marine Plan Aerial Photography Base Layers	Low - High	National Marine Plan interactive (NMPi) allows you to view different types of information and, where appropriate, links have been provided to the related parts of Scotland's Marine Atlas and will also be provided to the National Marine Plan in due course.
Scottish Marine Recreation and Tourism Survey (SMRTS) 2015	2015	The SMRTS survey was carried out between August and October 2015. The survey provides baseline information to inform marine planning in Scotland. More than 2100 individuals, 137 clubs and 279 businesses completed the survey, indicating areas where people conducted different activities.	Low-High	Commissioned by the Scottish Government, the Firth of Clyde Forum, Crown Estate Scotland and Scottish Coastal Forum. Aim to gather robust information on marine recreation and tourism activity around Scotland.
Scottish Government SpatialData.gov.scot	2018	National Scenic Areas (NSAs) are Scotland's only national landscape designation, and defined as areas "of outstanding scenic value in a national context" for which special protection measures are required. NSAs are broadly equivalent to the Areas of Outstanding Natural Beauty found in England, Wales and Northern Ireland. There are 40 NSAs in total covering roughly 1 million hectares (13% of Scotland).	High	The designation's purpose is both to identify our finest scenery and to ensure its protection from inappropriate development.
Joint Nature Conservation Committee (JNCC) Marine Protected Area (MPA) mapper	2021	The JNCC Marine Protected Area (MPA) mapper is an interactive resource containing information on the MPAs designated in UK and Crown Dependency waters.	High	This includes certain Special Areas of Conservation (SACs) for habitats and non-avian species and Special Protection Areas (SPAs) for birds. The JNCC MPA mapper only displays SACs and SPAs that protect the marine environment - so called SACs

<sup>25</sup> Ports and Harbours of the UK; <http://ports.org.uk/>



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Data	Year	Coverage	Confidence	Notes
				and SPAs with 'marine components'.
Royal Society for the Protection of Birds (RSPB)	2021	All RSPB reserve boundaries.	High	The dataset contains the boundaries of all land managed, leased or owned as part of publicly accessible RSPB reserves.
European Marine Observation and Data Network (EMODnet)	2019	The maps are based on AIS data purchased by CLS and show shipping density in 1km*1km cells of a grid covering all EU waters (and some neighbouring areas). Density is expressed as hours per square kilometre per month. The following ship types have been covered in this dataset: other, fishing, service, dredging or underwater ops, sailing, pleasure craft, high speed craft, tug and towing, passenger, cargo, tanker, military and law enforcement, unknown and all ship types.	Low - High	EMODnet Vessel Density Maps were created by COGEA in 2020 in the framework of EMODnet Human Activities, an initiative funded by the EU Commission.
Ports and Harbours of the UK	2019	Online resource containing information on over 950 ports, harbours, jetties and piers around the coastline of the UK.	Low-High	The site has been compiled by a volunteer and is not an official list.

7.5 The main water sports undertaken in the Pentland Firth and Orkney are scuba diving, surfing and paddle boarding, canoeing and kayaking, motor cruising, rowing and sculling, sailing and cruising and sea angling. A heat map using the data collated from the Scottish Marine Recreation and Tourism Survey (SMRTS) is used to summarise all recreational activity around the cables. The recreational activities recorded in the vicinity of the submarine electricity cable assets are:

- Rowing and sculling
- Canoeing
- Coasteering
- Motor cruising
- Dinghy racing
- Sailing and cruising
- Scuba diving
- Sea angling from a private boat

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- Surfing and paddle boarding
- Power boating
- Long distance swimming
- Bird and wildlife watching
- Yacht racing
- Sea angling from shore
- Personal water craft (jet skis)
- Wild fowling
- Visits to historic sites or to attractions

7.6 Recreational activity has been assessed using regional datasets as there is little information on discrete sea areas such as those encompassed by the footprint of the submarine electricity cables.

7.7 The charts showing recreational activity are given in Appendix D (Figure 23 to Figure 39).

7.8 The SMRTS 2015 survey results for bird and wildlife watching show activity levels ranging from very low to moderate in the immediate vicinity of the cables, depending on cable location (944 people provided spatial information). This activity and possible interaction is summarised in Table 13 below and shown in Figure 23.

**Table 13 Bird and wildlife watching**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Low to moderate levels of activity over the cables.
Mainland Orkney - Holm of Grimbister	Yes	Low to moderate levels of activity over the cables.
Mainland Orkney - Shapinsay	Yes	Low to moderate levels of activity over the cables.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Low to moderate levels of activity over the cables.
North Ness - South Ness	Yes	Low levels of activity over the cables.
Pentland Firth (East and West)	Yes	Moderate levels of activity at the Pentland landfall of the cables, with low levels of activity elsewhere over the cables.
Rousay - Egilsay	Yes	Low levels of activity over the cables.
Rousay - Westray	Yes	Very low to low levels of activity over the cables.
Rousay - Wyre	Yes	Low levels of activity over the cables.
Sanday - Eday	Yes	Very low levels of activity over the cables.
Sanday - North Ronaldsay	Yes	Very low to low levels of activity over the cables.
Shapinsay - Stronsay (North and South)	Yes	Low levels of activity over the cables.
Stronsay - Sanday	Yes	Low levels of activity over the cables.
Westray - Papa Westray	Yes	Very low levels of activity over the cables.

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Mainland Orkney - Rousay	Yes	Low levels of activity over the cables.
Eday - Westray	Yes	Very low levels of activity over the cables.
Hoy - Flotta	Yes	Low levels of activity over the cables.

7.9 The SMRTS 2015 survey results for visits to historic sites or to attractions show activity in the vicinity of all cable locations, with areas of high activity adjacent to Mainland Orkney-Rousay, Rousay-Wyre, Hoy-Flotta and Mainland Orkney-Shapinsay (924 people provided spatial information). This activity and possible interaction is summarised in Table 14 below and shown in Figure 24.

**Table 14 Visits to historic sites or to attractions**

Cable Name	Interaction on chart	Notes
Mainland Orkney - Graemsay	Yes	Very low levels of activity over the cable, though there is an area of high activity approximately 1.8km north of the cable.
Mainland Orkney - Holm of Grimbister	Yes	Low levels of activity over the cable, but there is an area of high activity approximately 1.2km east of the cable.
Mainland Orkney - Shapinsay	Yes	Very low to low levels of activity over the cable, though there is an area of high activity approximately 1.9km west of the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Low levels of activity over the cables. There are hotspots of activity approximately 2.3km north and 2.8km east of the cables.
North Ness - South Ness	No	No activity over the cable, though there are areas of low activity approximately 1.3km and 1.6km east and west of the cable respectively, and an area of high activity 5km north.
Pentland Firth (East and West)	Yes	Low to moderate activity over the cables, though there are hotspots of high activity on the Pentland coast in Thurso Bay and Dunnet Bay.
Rousay - Egilsay	No	No activity directly over the cable, but there are low levels of activity adjacent to the cable, and a hotspot of high activity approximately 1.9km west.
Rousay - Westray	Yes	Low to moderate levels of activity over the cable.
Rousay - Wyre	Yes	Moderate to high levels of activity over the cable.
Sanday - Eday	Yes	Very low to low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Very low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Very low to low levels of activity over the cable. Area of moderate activity approximately 3.7km to the south west.
Stronsay - Sanday	Yes	Very low levels of activity over the cable.
Westray - Papa Westray	Yes	Very low levels of activity over the cable. There is a hotspot of high activity approximately 4.5km north of the cable.
Mainland Orkney - Rousay	Yes	Moderate to high levels of activity over the cable
Eday - Westray	Yes	Very low levels of activity over the cable.

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Hoy - Flotta	Yes	Low to moderate levels of activity directly over the cable, though there is an area of high activity adjacent to the cable.
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7.10 The SMRTS 2015 survey results for power boating show very low levels of activity only in the landfall area of the Pentland Firth cables (204 people provided spatial information). This activity and possible interaction is summarised in Table 15 below and shown in Figure 25.

**Table 15 Power boating**

Cable Name	Interaction on chart	Notes
Mainland Orkney - Graemsay	No	
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	No	
Mainland Orkney - Hoy (North, Centre and South)	No	
North Ness - South Ness	No	
Pentland Firth (East and West)	Yes	Very low levels of activity over the nearshore Pentland side of the cables.
Rousay - Egilsay	No	
Rousay - Westray	No	
Rousay - Wyre	No	
Sanday - Eday	No	
Sanday - North Ronaldsay	No	
Shapinsay - Stronsay (North and South)	No	
Stronsay - Sanday	No	
Westray - Papa Westray	No	
Mainland Orkney - Rousay	No	
Eday - Westray	No	
Hoy - Flotta	No	

7.11 The SMRTS 2015 survey results for canoeing and kayaking show activity levels ranging from very low to high in the immediate vicinity of the cables, depending on cable location (418 people provided spatial information). This activity and possible interaction is summarised in Table 16 below and shown in Figure 26.

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**Table 16 Canoeing and kayaking**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Low levels of activity directly over the cable, though there is an area of moderate activity approximately 2km north of the cable.
Mainland Orkney - Holm of Grimbister	Yes	Low to moderate levels of activity over the cables.
Mainland Orkney - Shapinsay	Yes	Very low levels of activity over the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Low levels of activity over the cables, though there is an area of moderate activity approximately 3.3km north of the cables.
North Ness - South Ness	Yes	Very low levels of activity over the cable.
Pentland Firth (East and West)	Yes	Very low to moderate levels of activity over the cables, with a hotspot of high activity approximately 3.5km south of the cables.
Rousay - Egilsay	Yes	Very low levels of activity over the cable.
Rousay - Westray	Yes	Very low to low levels of activity over the cable.
Rousay - Wyre	Yes	Very low levels of activity over the cable.
Sanday - Eday	Yes	Low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Very low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Very low to low levels of activity over the cables.
Stronsay - Sanday	Yes	Very low levels of activity over the cable.
Westray - Papa Westray	Yes	Low levels of activity over the cable.
Mainland Orkney - Rousay	Yes	Low levels of activity over the cable.
Eday - Westray	Yes	Low levels of activity over the cable.
Hoy - Flotta	Yes	Very low levels of activity over the cable.

7.12 The SMRTS 2015 survey results for long distance sea swimming show very low levels of activity in the immediate vicinity of all cable locations (79 people provided spatial information). This activity and possible interaction is summarised in Table 17 below and shown in Figure 27.

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**Table 17 Long distance swimming**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Very low levels of activity over the cables.
Mainland Orkney - Holm of Grimbister	Yes	Very low levels of activity over the cables.
Mainland Orkney - Shapinsay	Yes	Very low levels of activity over the cables.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Very low levels of activity over the cables.
North Ness - South Ness	Yes	Very low levels of activity over the cables.
Pentland Firth (East and West)	Yes	Very low levels of activity over the cables.
Rousay - Egilsay	Yes	Very low levels of activity over the cables.
Rousay - Westray	Yes	Very low levels of activity over the cables.
Rousay - Wyre	Yes	Very low levels of activity over the cables.
Sanday - Eday	Yes	Very low levels of activity over the cables.
Sanday - North Ronaldsay	Yes	Very low levels of activity over the cables.
Shapinsay - Stronsay (North and South)	Yes	Very low levels of activity over the cables.
Stronsay - Sanday	Yes	Very low levels of activity over the cables.
Westray - Papa Westray	Yes	Very low levels of activity over the cables.
Mainland Orkney - Rousay	Yes	Very low levels of activity over the cables.
Eday - Westray	Yes	Very low levels of activity over the cables.
Hoy - Flotta	Yes	Very low levels of activity over the cables.

7.13 The SMRTS 2015 survey results for motor cruising show activity levels ranging from very low to moderate levels in the immediate vicinity of the cables, depending on cable location (163 people provided spatial information). This activity and possible interaction is summarised in Table 18 below and shown in Figure 28.

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**Table 18 Motor cruising**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Low to moderate levels of activity over the cable.
Mainland Orkney - Holm of Grimbister	Yes	Very low levels of activity directly over the cable, though there is an area of moderate activity approximately 6km to the east.
Mainland Orkney - Shapinsay	Yes	Low to moderate levels of activity over the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Low to moderate levels of activity over the cables.
North Ness - South Ness	Yes	Very low levels of activity over the cable.
Pentland Firth (East and West)	Yes	Moderate levels of activity over the central portion of the cables, with very low levels of activity elsewhere along the routes.
Rousay - Egilsay	Yes	Very low levels of activity over the cable.
Rousay - Westray	Yes	Very low levels of activity over the cable.
Rousay - Wyre	Yes	Low levels of activity over the cable.
Sanday - Eday	Yes	Very low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Very low to low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Very low to low levels of activity over the cables, though there is an area of moderate activity approximately 5km south.
Stronsay - Sanday	Yes	Very low levels of activity over the cable.
Westray - Papa Westray	Yes	Very low levels of activity over the cable.
Mainland Orkney - Rousay	Yes	Low levels of activity over the cable.
Eday - Westray	Yes	Very low levels of activity over the cable.
Hoy - Flotta	Yes	Low levels of activity over the cable.

7.14 The SMRTS 2015 survey results for sailing and cruising show activity levels ranging from low to high in the immediate vicinity of the cables, depending on cable location (542 people provided spatial information). This activity and possible interactions is summarised in Table 19 below and shown in Figure 29.

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**Table 19 Sailing and cruising**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Low levels of activity over the cable.
Mainland Orkney - Holm of Grimbister	Yes	Very low levels of activity over the cable.
Mainland Orkney - Shapinsay	Yes	Low levels of activity over the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Low to moderate levels of activity over the cables.
North Ness - South Ness	Yes	Low levels of activity over the cable.
Pentland Firth (East and West)	Yes	Very low to low levels of activity over the cables.
Rousay - Egilsay	Yes	Very low to low levels of activity over the cable.
Rousay - Westray	Yes	Low levels of activity over the cable.
Rousay - Wyre	Yes	Low levels of activity over the cable.
Sanday - Eday	Yes	Very low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Very low to low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Very low to low levels of activity over the cables.
Stronsay - Sanday	Yes	Very low to low levels of activity over the cable.
Westray - Papa Westray	Yes	Very low to low levels of activity over the cable.
Mainland Orkney - Rousay	Yes	Low levels of activity over the cable.
Eday - Westray	Yes	Very low to low levels of activity over the cable.
Hoy - Flotta	Yes	Low levels of activity over the cable.

7.15 The SMRTS 2015 survey results for chartered angling show activity levels ranging from very low to low in the immediate vicinity of the cables, depending on cable location (353 people provided spatial information). This activity and possible interactions is summarised in Table 20 below and shown in Figure 30.



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**Table 20 Chartered angling**

Cable Name	Interaction on chart	Notes
Mainland Orkney - Graemsay	No	
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	Yes	Very low levels of activity over the cable.
Mainland Orkney - Hoy (North, Centre and South)	No	
North Ness - South Ness	No	
Pentland Firth (East and West)	Yes	Small pocket of low activity in the Pentland Coast nearshore area of the cables, with very low levels of activity elsewhere along the routes. There is an area of low activity directly to the east of Pentland Firth East.
Rousay - Egilsay	Yes	Very low levels of activity over the cable.
Rousay - Westray	Yes	Very low levels of activity over the cable.
Rousay - Wyre	No	No activity directly over the cable, though there is an area of very low activity 1.1km west of the cable.
Sanday - Eday	Yes	Very low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Very low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Very low levels of activity over the cable.
Stronsay - Sanday	Yes	Very low levels of activity over the cable.
Westray - Papa Westray	Yes	Very low levels of activity over the cable.
Mainland Orkney - Rousay	Yes	Very low levels of activity over the cable.
Eday - Westray	Yes	Very low levels of activity over the cable.
Hoy - Flotta	No	No activity directly over the cable, though there is an area of very low activity approximately 4.8km west of the cable.

7.16 The SMRTS 2015 survey results for sea angling from shore show activity levels ranging from very low to low levels in the immediate vicinity of the cables, depending on cable location (368 people provided spatial information). This activity and possible interactions is summarised in Table 21 below and shown in Figure 31.

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**Table 21 Sea angling from shore**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Very low levels of activity over the cable.
Mainland Orkney - Holm of Grimbister	Yes	Very low levels of activity over the cable.
Mainland Orkney - Shapinsay	Yes	Very low levels of activity over the cable, with an area of low activity approximately 1.4km to the south east.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Very low levels of activity over the cables.
North Ness - South Ness	Yes	Very low levels of activity over the cable.
Pentland Firth (East and West)	Yes	Very low to low levels of activity in the nearshore areas at Hoy and the Pentland Coast. No activity elsewhere along the routes. Hotspots of high activity nearby at Thurso Bay and Dunnet Bay.
Rousay - Egilsay	Yes	Very low levels of activity over the cable.
Rousay - Westray	Yes	Very low levels of activity over the cable.
Rousay - Wyre	Yes	Very low levels of activity over the cable.
Sanday - Eday	Yes	Very low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Very low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Very low levels of activity over the cables, with an area of low activity approximately 5.8km south.
Stronsay - Sanday	Yes	Very low levels of activity over the cable.
Westray - Papa Westray	Yes	Very low levels of activity over the cable.
Mainland Orkney - Rousay	Yes	Very low levels of activity over the cable.
Eday - Westray	Yes	Very low levels of activity over the cable.
Hoy - Flotta	Yes	Very low levels of activity over the cable.

7.17 The SMRTS 2015 survey results for surfing/paddle boarding show low levels of activity in the immediate vicinity of the Orkney cables, and high levels of activity at the Pentland landfall of the

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Pentland Firth cables (201 people provided spatial information). This activity and possible interactions is summarised in Table 22 below and shown in Figure 32.

**Table 22 Surfing and paddle boarding**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Low levels of activity over the cable.
Mainland Orkney - Holm of Grimbister	Yes	Low levels of activity over the cable.
Mainland Orkney - Shapinsay	Yes	Low levels of activity over the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Low levels of activity over the cable.
North Ness - South Ness	Yes	Low levels of activity over the cable.
Pentland Firth (East and West)	Yes	Moderate to high levels of activity across the nearshore Pentland side of the cables, and low levels towards the centre and Hoy landfall of the cables.
Rousay - Egilsay	Yes	Low levels of activity over the cable.
Rousay - Westray	Yes	Low levels of activity over the cable.
Rousay - Wyre	Yes	Low levels of activity over the cable.
Sanday - Eday	Yes	Low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Low levels of activity over the cables.
Stronsay - Sanday	Yes	Low levels of activity over the cable.
Westray - Papa Westray	No	
Mainland Orkney - Rousay	Yes	Low levels of activity over the cable.
Eday - Westray	Yes	Low levels of activity over the cable.
Hoy - Flotta	Yes	Low levels of activity over the cable.

7.18 The SMRTS 2015 survey results for yacht racing show activity levels ranging from very low to low in the immediate vicinity of all cables, depending on cable location (26 people provided

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spatial information). This activity and possible interactions is summarised in Table 23 below and shown in Figure 33.

**Table 23 Yacht racing**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	No	No activity directly over the cable route, though there is an area of very low activity approximately 3.1km south of the cable.
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	Yes	Very low levels of activity over the cable.
Mainland Orkney - Hoy (North, Centre and South)	No	No activity directly over the cable, though there is an area of very low activity adjacent to the cable.
North Ness - South Ness	Yes	Very low levels of activity over the cable.
Pentland Firth (East and West)	Yes	Low levels of activity towards the Pentland Coast, with very low levels towards Hoy portion of the routes.
Rousay - Egilsay	Yes	Very low levels of activity over the cable.
Rousay - Westray	Yes	Very low levels of activity over the cable.
Rousay - Wyre	No	No activity directly over the cable route, though there is an area of very low activity 1.8km east of the cable.
Sanday - Eday	No	
Sanday - North Ronaldsay	No	
Shapinsay - Stronsay (North and South)	Yes	Very low levels of activity over the Shapinsay landfall of the cables, though there is no activity elsewhere along the routes.
Stronsay - Sanday	No	
Westray - Papa Westray	Yes	Very low levels of activity over the cable.
Mainland Orkney - Rousay	No	No activity directly over the cable route, though there is an area of very low activity 2.8km east of the cable.
Eday - Westray	Yes	Very low levels of activity over the cable.
Hoy - Flotta	Yes	Very low levels of activity over the cable.

- 7.19 The SMRTS 2015 survey results for dinghy racing show no dinghy racing activity over the cables, though there is a small spot of very low activity in Thurso Bay, 3.1km west of the Pentland Firth cables (88 people provided spatial information). This activity is shown in Figure 34.
- 7.20 The SMRTS 2015 survey results for coastering show a hotspot of activity directly over Rousay-Egilsay, with very low levels of activity over all other cables (238 people provided spatial

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information). This activity and possible interactions is summarised in Table 24 below and shown in Figure 35.

**Table 24 Coasteering**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Very low levels of activity over the cable.
Mainland Orkney - Holm of Grimbister	Yes	Very low levels of activity over the cable.
Mainland Orkney - Shapinsay	Yes	Very low levels of activity over the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Very low levels of activity over the cables.
North Ness - South Ness	Yes	Very low levels of activity over the cable.
Pentland Firth (East and West)	Yes	Very low to no levels of activity over the cables, though there is a hotspot of activity approximately 1.4km to the east.
Rousay - Egilsay	Yes	Moderate to high levels of activity over the cable.
Rousay - Westray	Yes	Very low levels of activity over the cable.
Rousay - Wyre	Yes	Very low levels of activity over the cable, though there is an area of moderate/high activity approximately 2.5km east of the cable.
Sanday - Eday	Yes	Very low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Very low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Very low levels of activity over the cables.
Stronsay - Sanday	Yes	Very low levels of activity over the cable.
Westray - Papa Westray	Yes	Very low levels of activity over the cable.
Mainland Orkney - Rousay	Yes	Very low levels of activity over the cable.
Eday - Westray	Yes	Very low levels of activity over the cable.
Hoy - Flotta	Yes	Very low levels of activity over the cable.

7.21 The SMRTS 2015 survey results for jet skiing show a small amount of activity in Thurso Bay, west of the Pentland Firth cables, and in the Bay of Weyland, west of Mainland Orkney-Shapinsay (9 people provided spatial information). This activity and possible interactions is summarised in Table 25 below and shown in Figure 36.

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**Table 25 Personal water craft (jet skis)**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	No	
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	No	No activity directly over the cable, though there is an area of low activity approximately 3.3km to the south of the cable.
Mainland Orkney - Hoy (North, Centre and South)	No	
North Ness - South Ness	No	
Pentland Firth (East and West)	No	No activity directly over the cables, though there is an area of low activity approximately 2.9km to the west of the cables in Thurso Bay.
Rousay - Egilsay	No	
Rousay - Westray	No	
Rousay - Wyre	No	
Sanday - Eday	No	
Sanday - North Ronaldsay	No	
Shapinsay - Stronsay (North and South)	No	
Stronsay - Sanday	No	
Westray - Papa Westray	No	
Mainland Orkney - Rousay	No	
Eday - Westray	No	
Hoy - Flotta	No	

7.22 The SMRTS 2015 survey results for wild fowling show very low levels of activity over all cables (59 people provided spatial information). This activity and possible interactions is summarised in Table 26 below and shown in Figure 37.

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**Table 26 Wild fowling**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Very low levels of activity over the cables.
Mainland Orkney - Holm of Grimbister	Yes	Very low levels of activity over the cables.
Mainland Orkney - Shapinsay	Yes	Very low levels of activity over the cables.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Very low levels of activity over the cables.
North Ness - South Ness	Yes	Very low levels of activity over the cables.
Pentland Firth (East and West)	Yes	Very low to no levels of activity over the cables.
Rousay - Egilsay	Yes	Very low levels of activity over the cables.
Rousay - Westray	Yes	Very low levels of activity over the cables.
Rousay - Wyre	Yes	Very low levels of activity over the cables.
Sanday - Eday	Yes	Very low levels of activity over the cables.
Sanday - North Ronaldsay	Yes	Very low levels of activity over the cables.
Shapinsay - Stronsay (North and South)	Yes	Very low levels of activity over the cables.
Stronsay - Sanday	Yes	Very low levels of activity over the cables.
Westray - Papa Westray	Yes	Very low levels of activity over the cables.
Mainland Orkney - Rousay	Yes	Very low levels of activity over the cables.
Eday - Westray	Yes	Very low levels of activity over the cables.
Hoy - Flotta	Yes	Very low levels of activity over the cables.

7.23 Scapa Flow, the body of water between Mainland Orkney, Graemsay, Hoy, Burray and South Ronaldsay, is in the top 5 diving destinations in the world. As a result, the activity levels seen across the Mainland-Hoy, Mainland-Graemsay and Hoy-Flotta cable corridors are very high. Orkney’s Dive Centre is located at Scapa Flow. There are also dive sites near the Stromness to Orkney Ferry line. In addition to this there are hotspots of activity along the Pentland coast, and near the Mainland-Shapinsay, Mainland-Rousay, Rousay-Westray and Eday- Westray corridors. There are two local scuba diving clubs; Orkney Sub Aqua and Caithness Diving Club. A total of 168 people provided spatial information on scuba diving and in the SMRTS 2015 survey around Scotland. This activity and possible interactions is summarised in Table 27 below and shown in Figure 38.

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**Table 27 Scuba diving**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	High levels of activity over the cable.
Mainland Orkney - Holm of Grimbister	Yes	Very low levels of activity over the cables.
Mainland Orkney - Shapinsay	Yes	Very low to low levels of activity over the cables, though there is an area of high activity approximately 2.7km east of the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	High levels of activity over the cables.
North Ness - South Ness	Yes	Very low levels of activity over the cables, though there is an area of high activity 3.2km to the north east of the cable.
Pentland Firth (East and West)	Yes	Very low levels of activity over the cables, though there are hotspots of high activity at Thurso Bay and Dunnet Bay, approximately 4.2km and 2.5km away respectively.
Rousay - Egilsay	Yes	Very low levels of activity over the cables, though there is a hotspot of moderate activity approximately 3.2km south west of the cable.
Rousay - Westray	Yes	There is a hotspot of moderate activity over the Westray landfall of the cable, with very low levels of activity elsewhere along the route.
Rousay - Wyre	Yes	Moderate levels of activity over the cable.
Sanday - Eday	Yes	Very low levels of activity over the cable.
Sanday - North Ronaldsay	Yes	Very low levels of activity over the cable.
Shapinsay - Stronsay (North and South)	Yes	Very low levels of activity over the cable, though there is a hotspot of moderate activity approximately 2.1km south of the cables.
Stronsay - Sanday	Yes	Very low levels of activity over the cable.
Westray - Papa Westray	Yes	Very low levels of activity over the cable.
Mainland Orkney - Rousay	Yes	Though there is no activity directly over the cable, there are hotspots of moderate and high activity directly adjacent to the east of the cable.
Eday - Westray	Yes	There is a hotspot of moderate activity over the Westray landfall of the cable, with very low levels of activity elsewhere along the route.
Hoy - Flotta	Yes	High levels of activity over the cable.

7.24 The SMRTS 2015 survey results for rowing and sculling show very low levels of activity over Mainland Orkney-Shapinsay, and very low levels in the vicinity of the Mainland Orkney-Holm of Grimbister and Pentland Firth cables (237 people provided spatial information). This activity and possible interactions is summarised in Table 28 below and shown in Figure 39.



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**Table 28 Rowing and sculling**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	No	
Mainland Orkney - Holm of Grimbister	No	No activity directly over the cable, though there is an area of very low activity approximately 600m east of the cable.
Mainland Orkney - Shapinsay	Yes	Very low levels of activity towards the Mainland Orkney landfall of the cable.
Mainland Orkney - Hoy (North, Centre and South)	No	
North Ness - South Ness	No	
Pentland Firth (East and West)	No	No activity directly over the cables, though there are areas of very low activity approximately 1.4km east and 1.7km west of the cable respectively.
Rousay - Egilsay	No	
Rousay - Westray	No	
Rousay - Wyre	No	
Sanday - Eday	No	
Sanday - North Ronaldsay	No	
Shapinsay - Stronsay (North and South)	No	
Stronsay - Sanday	No	
Westray - Papa Westray	No	
Mainland Orkney - Rousay	No	
Eday - Westray	No	
Hoy - Flotta	No	

7.25 There are potential wreck sites within the cable corridors as indicated in Figure 40 and summarised in Table 29. An online database of historical wreck sites, Canmore, has been used to assess the potential for interaction between wreck sites and submarine electricity cables. It includes a record of Scotland’s maritime heritage and any current or scheduled archaeological sites of national importance, legally protected under the Ancient Monuments and Archaeological Areas Act 1979. This database has been compiled and managed by Historic Environment Scotland, and is available as part of Marine Scotland’s NMPI.

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**Table 29 Marine archaeology**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	No	No wrecks directly over the cable, though there is a wreck approximately 3.2km south of the route.
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	Yes	Possible interaction with wreck sites.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Possible interaction with wreck sites.
North Ness - South Ness	No	No wrecks directly over the cable, though there is a wreck approximately 2.5km east of the route.
Pentland Firth (East and West)	Yes	Possible interaction with wreck site, at Pentland nearshore area. There is a protected wreck approximately 2km north of the Hoy nearshore area.
Rousay - Egilsay	No	No wrecks directly over the cable, though there is a wreck approximately 3.4km north of the route.
Rousay - Westray	Yes	Possible interaction with wreck site.
Rousay - Wyre	No	
Sanday - Eday	No	No wrecks directly over the cable, though there is a wreck approximately 1.5km north of the route.
Sanday - North Ronaldsay	No	No wrecks directly over the cable, though there are three within a 5km radius of the cable.
Shapinsay - Stronsay (North and South)	No	No wrecks directly over the cable, though there are four within a 5km radius of the cable.
Stronsay - Sanday	No	No wrecks directly over the cable, though there are two within a 5km radius of the cable.
Westray - Papa Westray	Yes	Possible interaction with wreck site, at Papa Westray landfall. There are two further wrecks approximately 4.7km west of the cable.
Mainland Orkney - Rousay	No	
Eday - Westray	No	
Hoy - Flotta	Yes	Possible interaction with wreck sites.

7.26 The nature conservation designations in the vicinity of the cable corridors are shown in Figure 41, Figure 42 and Figure 43 and summarised in Table 30. The National Scenic Area (NSA) Hoy and West Mainland overlaps directly with the cable routes Mainland Orkney-Graemsay, Mainland Orkney-Hoy, Pentland Firth. The Marine Protected Area (MPA) Wyre and Rousay Sounds overlap directly with the cable routes Rousay-Egilsay, Rousay-Westray, Rousay-Wyre, Mainland Orkney-Rousay. The Special Protection Areas (SPA) with marine components Hoy and North Caithness Cliffs both intersect with Pentland Firth cables, East Sanday Coast SPA overlaps with Sanday-North Ronaldsay, Hoy SPA with Mainland Orkney-Hoy, and Rousay SPA overlaps with Rousay-Westray, with others in the vicinity. The Proposed Special Protection Area (pSPA) with marine components Scapa Flow overlaps with cables Mainland Orkney-Hoy, Mainland Orkney-Graemsay, Hoy-Flotta and North Ness-South Ness. Another pSPA, North Orkney

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overlaps with Mainland Orkney-Holm of Grimbister, Mainland Orkney-Shapinsay, Mainland Orkney-Rousay, Rousay-Wyre, Rousay-Egilsay and Rousay-Westray.<sup>26</sup> The Special Areas of Conservation (SAC) Sanday and Faray and Holm of Faray overlap with Sanday-North Ronaldsay and Eday-Westray respectively, with others in the vicinity. There are RSPB reserves on Hoy, Egilsay and Rousay which are in the vicinity of the cables.

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<sup>26</sup> Please note that as this is a Proposed SPA, it has not yet been officially designated.

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**Table 30 Conservation designations**

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<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Yes	Hoy and West Mainland NSA covers the cable. Scapa Flow pSPA covers the cable. There is an SPA, Hoy, approximately 1.5km southwest of the cable.
Mainland Orkney - Holm of Grimbister	Yes	North Orkney pSPA covers the cable.
Mainland Orkney - Shapinsay	Yes	North Orkney pSPA covers the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	Hoy SPA covers half of the cables (Hoy side). Scapa Flow pSPA covers the cables. Hoy and West Mainland NSA covers the entirety of the cables.
North Ness - South Ness	Yes	Scapa Flow pSPA covers the cable.
Pentland Firth (East and West)	Yes	North Caithness Cliffs SPA overlaps with Pentland Firth East at Pentland landfall. Hoy SPA covers Hoy landfall of cables. Hoy and West Mainland NSA – around landfall at Hoy end of cable corridor. Hoy RSPB Reserve located at the Hoy landfall of the cables.
Rousay - Egilsay	Yes	Wyre and Rousay Sounds Nature Conservation MPA covers the cable. North Orkney pSPA covers the cable. Rousay SPA located approximately 1.3km north of the cable. Onziebust RSPB Reserve is located on Egilsay, approximately 220m east of the cable landfall.
Rousay - Westray	Yes	Wyre and Rousay Sounds Nature Conservation MPA, and Rousay SPA, cover the nearshore Rousay section of the cable. North Orkney pSPA covers the cable.
Rousay - Wyre	Yes	Wyre and Rousay Sounds Nature Conservation MPA covers the cable. North Orkney pSPA covers the cable. Rousay SPA located approximately 4.5km north of the cable. Trumland RSPB Reserve is located on Rousay, approximately 640m north of the cable landfall.
Sanday - Eday	No	None directly over the cable, though Calf of Eday SPA is approximately 700m north of the cable.
Sanday - North Ronaldsay	Yes	Sanday SAC covers half of the cables (Sanday side). East Sanday Coast SPA covers the inshore Sanday section of the cable.
Shapinsay - Stronsay (North and South)	No	
Stronsay - Sanday	No	None directly over the cables, though Sanday SAC is approximately 4.2km north of the cable.
Westray - Papa Westray	No	None directly over the cables, though Papa Westray MPA is approximately 1.4km north of the cable.
Mainland Orkney - Rousay	Yes	North Orkney pSPA covers the cable. Wyre and Rousay Sounds MPA directly adjacent to the cable (near Rousay landfall). Rousay SPA approximately 3.7km north of the cable.
Eday - Westray	Yes	Faray and Holm of Faray SAC intersects the cable. Calf of Eday SPA is approximately 3.8km east of the cable.
Hoy - Flotta	Yes	Scapa Flow pSPA covers the cable.

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7.27 There are four European Marine Energy Centre (EMEC) wave/tidal test sites within the vicinity of the North Coast and Orkney cables; Fall of Warness, Stronsay Firth and Shapinsay Sound tidal power test facilities and Billia Croo wave power test facility. The Westray South tidal testing site (operated by Westray South Tidal Development Ltd) directly interacts with Rousay-Westray. Another tidal facility, Lashy Sound, operated by Orbital Marine Power lies north of the Sanday-Eday cable. The aim of the centre is to reduce the time, cost and risk associated with the development of marine energy technologies. It is the only centre of its kind in the world to provide both wave and tidal energy converters and purpose-built sea testing facilities. A summary of the potential interaction is summarised in Table 31 and shown in Figure 44.

**Table 31 Wave and Tidal**

Cable Name	Interaction on chart	Notes
Mainland Orkney - Graemsay	Unlikely	EMEC Billia Croo wave testing site is located approximately 7.7km north west of the cables.
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	Possible	EMEC Shapinsay Sound tidal testing site is located 1.8km east of the cable.
Mainland Orkney - Hoy (North, Centre and South)	Unlikely	EMEC Billia Croo wave testing site is located approximately 9km north west of the cables.
North Ness - South Ness	No	
Pentland Firth (East and West)	No	
Rousay - Egilsay	No	
Rousay - Westray	Yes	Westray South tidal testing site (operated by Westray South Tidal Development Ltd) overlaps with the cable. Fall of Warness tidal power testing site is located approximately 4.4km southeast of the cable.
Rousay - Wyre	No	
Sanday - Eday	Yes	Orbital Marine Power Lashy Sound tidal testing site is located directly north of the cable.
Sanday - North Ronaldsay	No	
Shapinsay - Stronsay (North and South)	Yes	EMEC Stronsay Firth tidal testing site is located directly north of the cables.
Stronsay - Sanday	No	
Westray - Papa Westray	No	
Mainland Orkney - Rousay	No	
Eday - Westray	Possible	Westray South tidal testing site (operated by Westray South Tidal Development Ltd) is located 1.9km west of the cable. EMEC Fall of Warness tidal power testing site is located approximately 5.8km south of the cable.

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Hoy - Flotta	No	
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7.28 There are a number of recorded aquaculture farms within the vicinity of the cables, all of which are operated either by Scottish Sea Farms, Cooke Aquaculture or Orkney Oysters (Hoy) Ltd. The potential interaction is summarised in Table 32 and shown in Figure 45.

**Table 32 Aquaculture sites**

<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Mainland Orkney - Graemsay	Possible	Two finfish aquaculture farms, Bring Head (run by Scottish Sea Farms Ltd.) and Chalmers Hope (run by Cooke Aquaculture Scotland Ltd.), are within 5km of the cable. There may be transiting vessels from Stromness to the finfish site South Cava (run by Cooke Aquaculture Scotland Ltd.), intersecting the cable route. South Cava itself is approximately 8.5km south of the cable. There may also be transiting vessels intersecting the cable route between Stromness and the shellfish aquaculture site, Head of Banks, Orphir, which lies approximately 5.5km east.
Mainland Orkney - Holm of Grimbister	Possible	One finfish farm within 5km of the cable, Quanterness (run by Cooke Aquaculture Scotland Ltd.).
Mainland Orkney - Shapinsay	Yes	One finfish aquaculture site, Carness Bay (run by Cooke Aquaculture Scotland Ltd.), directly adjacent to the cable. Two further sites within a 5km radius, Quanterness and Meil Bay (run by Cooke Aquaculture Scotland Ltd.).
Mainland Orkney - Hoy (North, Centre and South)	Yes	Bring Head finfish farm is adjacent to the cables. Chalmers Hope finfish farm is approximately 2.3km south of the cables. There may be transiting vessels from Stromness to the finfish site South Cava, intersecting with the cable route. South Cava itself is approximately 7km south of the cable.
North Ness - South Ness	Possible	One shellfish farm within 5km of the cable, North Bay West (run by Orkney Oysters (Hoy) Ltd.).
Pentland Firth (East and West)	No	
Rousay - Egilsay	Yes	Kirk Noust finfish aquaculture site (run by Cooke Aquaculture Scotland Ltd.) is adjacent to the Rousay landfall of the cable. Another, Bay of Vady (run by Cooke Aquaculture Scotland Ltd.), lies 1.9km south of the cable.
Rousay - Westray	Possible	Bay of Ham finfish aquaculture site (run by Cooke Aquaculture Scotland Ltd.) is approximately 1km south west of the cable.
Rousay - Wyre	Possible	Bay of Vady finfish farm is approximately 3.2km east of the cable.
Sanday - Eday	Possible	Noust Geo finfish farm (run by Scottish Sea Farms Ltd.) lies approximately 3.5km south of the cable, from which there is a high density of vessel traffic to Port Loth on Sanday.
Sanday - North Ronaldsay	No	

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Cable Name	Interaction on chart	Notes
Shapinsay - Stronsay (North and South)	Yes	The finfish aquaculture site, Bay of Holland (operated by Cooke Aquaculture Scotland Ltd), lies 750m to the east of the cables.
Stronsay - Sanday	Possible	No aquaculture sites in the immediate vicinity of the cables, though Noust Geo finfish farm lies approximately 4.8km west of the cable, from which there appears to be high density of vessel traffic towards Whitehall on Stronsay, which intersects the cable. <sup>27</sup>
Westray - Papa Westray	Yes	There are three finfish aquaculture sites within 1km of the cable; Vestness (970m away), Bay of Cleat North (1km away) and Bay of Cleat South (1.2km away). All of these are run by Cooke Aquaculture Scotland Ltd.
Mainland Orkney - Rousay	Possible	None within 5km of the cable, however there may be transiting vessels from mainland Orkney to the finfish site Wyre intersecting with the cable route. Wyre itself is approximately 5.8km east of the cable.
Eday - Westray	No	
Hoy - Flotta	Possible	Fara West finfish farm (run by Cooke Aquaculture Scotland Ltd.) is within 1.5km of the cable.

7.29 There are ferries connecting all of the Orkney Islands and another across the Pentland Firth that overlap with the cables. The proximity of these ferry routes to the cable works is summarised in Table 33. There is an average of 50 or greater vessel transits per week undertaken in the immediate vicinity of the cables Mainland Orkney-Rousay, Rousay-Wyre, Mainland Orkney-Shapinsay and Hoy-Flotta, and 20-50 transits undertaken in the immediate vicinity of Pentland Firth, Rousay-Egilsay, Sanday-Eday, Stronsay-Sanday, Eday-Westray and Rousay-Westray. There are 20 or fewer transits over North Ness-South Ness, Mainland Orkney-Hoy, Mainland Orkney-Graemsay, Westray-Papa Westray and Sanday-North Ronaldsay, shown in AIS density data for passenger vessels, Figure 46.

**Table 33 Ferry routes**

Cable Name	Interaction on chart	Notes
Mainland Orkney - Graemsay	Yes	The cable route intersects the Scrabster-Stromness (alternate route, run by Northlink Ferries) and Graemsay-Stromness (run by Orkney Ferries). Another route, Hoy (Moaness)-Graemsay, does not intersect with the cable but departs from Graemsay Ferry Terminal, approximately 200m south of the cable landfall at Graemsay.
Mainland Orkney - Holm of Grimbister	No	
Mainland Orkney - Shapinsay	Yes	There are ferry routes from Kirkwall (Shapinsay Pier)-Shapinsay and Aberdeen-Kirkwall (Hatston) that intersect the cable route. These services are run by Orkney Ferries

<sup>27</sup> As seen on MarineTraffic vessel density charts. Source: <https://www.marinetraffic.com/en/ais/home/centerx:-5.8/centery:55.8/zoom:11>



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Cable Name	Interaction on chart	Notes
		and Northlink Ferries respectively. Another route, from Kirkwall-Sanday (run by Orkney Ferries), is 2.3km to the west of the cable.
Mainland Orkney - Hoy (North, Centre and South)	Yes	The ferry route Scrabster-Stromness (alternate route) intersects the cables. Another route, from Hoy (Moaness)-Graemsay, is at its nearest point passes typically 90m north of the cables, so there may be the possibility for interaction with this route as well.
North Ness - South Ness	Possible	There is a ferry route, South Walls (Longhope)-Flotta, which departs Longhope approximately 240m east of the nearshore South Walls section of the cable. This service is run by Orkney Ferries.
Pentland Firth (East and West)	Yes	The Scrabster-Stromness ferry route (run by Northlink Ferries) intersects the Pentland cable corridors. The alternate Scrabster-Stromness route also intersects the cables.
Rousay - Egilsay	Yes	The ferry route Rousay-Egilsay (run by Orkney Ferries) intersects the cable.
Rousay - Westray	No	
Rousay - Wyre	Yes	The ferry route Tingwall-Rousay (run by Orkney Ferries) intersects the cable. Another, Rousay-Wyre (also run by Orkney Ferries), runs less than 500m east of the cable route, and therefore there may be the possibility for interaction with this service as well.
Sanday - Eday	Possible	There are no ferry routes intersecting directly with the cable, however there are a collection of ferry routes across the Eday Sound all within 4km of the cable that may represent the possibility for interaction with cable works. These are Kirkwall-Sanday, Sanday-Eday, Eday-Kirkwall, Eday-Stromsay, Sanday-Stromsay and Kirkwall-Stromsay. These are all run by Orkney Ferries.
Sanday - North Ronaldsay	Possible	There are no ferry routes intersecting directly with the cable, however there are routes from Kirkwall-North Ronaldsay and North Ronaldsay-Papa Westray (Moclett) running approximately 270m west of the North Ronaldsay cable landfall. These are both run by Orkney Ferries.
Shapinsay - Stromsay (North and South)	No	
Stromsay - Sanday	Yes	There are ferry routes from Sanday-Stromsay and Kirkwall-Stromsay that intersect the cable.
Westray - Papa Westray	Yes	The ferry route Westray (Pierowall)-Papa Westray (Moclett) intersects the cable. Two other routes, Westray (Rapness)-Papa Westray (Moclett) and North Ronaldsay-Papa Westray (Moclett) depart from Moclett, approximately 360m east of the cable at its nearest point. These are all operated by Orkney Ferries.
Mainland Orkney - Rousay	Possible	There is a ferry route, Mainland Orkney-Rousay, which runs approximately 1.4km south east of the cable. This service is run by Orkney Ferries.

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Cable Name	Interaction on chart	Notes
Eday - Westray	Yes	There are ferry routes from Kirkwall-Westray (Rapness) and Papa Westray (Moclett)-Kirkwall that intersect the cable. These are both operated by Orkney Ferries.
Hoy - Flotta	Yes	There are ferry routes from South Walls (Longhope)-Flotta, Scrabster-Stromness, and Hoy (Lyness)-South Walls (Longhope, run by Orkney Ferries) that intersect the cable. Another, Hoy (Lyness)-Flotta at its nearest point passes typically 40m north of the cable, so there may be the possibility for interaction with this route as well.

7.30 The main ports on the Orkney Islands are Hatston, Lyness, Kirkwall and Stromness. The nearest port on mainland Scotland is Scrabster. The proximity of the ports nearest to each of the cable works is summarised in Table 34. Information on these ports is gathered from the website, Ports and Harbours of the UK.<sup>28</sup> A summary of vessel movements (by AIS) is shown in Figure 47 (all vessels), broken down into the categories of cargo vessels (Figure 48), port service craft (Figure 49), tankers (Figure 50) and passenger vessels (previously shown in Figure 46).

**Table 34 Local ports**

Cable Name	Interaction on chart	Notes
Mainland Orkney - Graemsay	Yes	Nearest port is Graemsay, which is used as a passenger ferry terminal. Approximately 380m south of the cable landfall at Graemsay. Other ports, Stromness (7.4km north), and the ferry terminal Moaness (7.5km west) have vessel traffic departing from them that intersect with the cable route.
Mainland Orkney - Holm of Grimbister	No	Nearest port is Hatston, 13.3km away.
Mainland Orkney - Shapinsay	Yes	Nearest port is Balfour, 830m east of the cable landfall on Shapinsay. This is used by fishing and leisure vessels, and as a ferry terminal for the Balfour-Kirkwall service, which intersects the cable route.
Mainland Orkney - Hoy (North, Centre and South)	Possible	Nearest ports are Moaness (4.1km) and Graemsay (3.6km north), which are used as passenger ferry terminals. A service between Graemsay and Hoy that passes very closely to the cable route (160m). The major port of Stromness, from which a high level of vessel traffic departs which crosses the cables, is 10.8km away.
North Ness - South Ness	Yes	Nearest port is Longhope, 640m east of the South Walls cable landfall. This is used by fishing and leisure vessels, and as a ferry terminal for the South Walls (Longhope)-Flotta service.
Pentland Firth (East and West)	Possible	Scrabster Port is located 9.6km the west of the landfall of the Pentland cable corridors.

<sup>28</sup> <http://ports.org.uk/> (accessed 10<sup>th</sup> January 2020).

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<b>Cable Name</b>	<b>Interaction on chart</b>	<b>Notes</b>
Rousay - Egilsay	Possible	Nearest port is Skaill, approximately 1.2km north of the cable landfall at Egilsay. It is a small pier from which the Rousay-Egilsay ferry line departs, which intersects the cable route.
Rousay - Westray	Possible	Nearest port is Rapness, approximately 2.8km north of the cable landfall at Westray. It is a small pier from which the Kirkwall-Westray (Rapness) ferry line departs, which intersects the cable route.
Rousay - Wyre	Yes	Nearest port is Rousay, approximately 970m east of the cable landfall on Rousay. This is used by fishing vessels, and as a ferry terminal for the Tingwall-Rousay service, which intersects the cable route.
Sanday - Eday	Possible	Nearest port is Loth, approximately 2.9km south of the cable landfall on Sanday. This is used by fishing vessels, and as a ferry terminal for the Kirkwall-Sanday, Sanday-Eday and Sanday-Stronsay services.
Sanday - North Ronaldsay	Yes	Nearest port is Nouster Pier, approximately 660m south of the cable landfall on North Ronaldsay. This is used by fishing vessels, and as a ferry terminal for the North Ronaldsay-Papa Westray (Moclett) and Kirkwall-North Ronaldsay services.
Shapinsay - Stronsay (North and South)	No	Nearest port is Balfour, 16.5km away.
Stronsay - Sanday	Possible	Nearest port is Loth, approximately 3.2km west of the cable route. This is used by fishing vessels, and as a ferry terminal for the Sanday-Stronsay service, which intersects the cable route.
Westray - Papa Westray	Yes	Nearest port is Moclett, approximately 700m south east of the cable. This is used as a ferry terminal for, amongst others, the Westray (Pierowall)-Papa Westray (Moclett) service, which intersects the cable route.
Mainland Orkney - Rousay	No	Nearest ports are Tingwall (5.1km away) and Rousay 5.8km away.
Eday - Westray	Possible	Nearest port is Rapness, approximately 2.6km north of the cable route. It is a small pier from which the Kirkwall-Westray (Rapness) ferry line departs, which intersects the cable route.
Hoy - Flotta	Possible	Nearest ports are Lyness (2.6km away) and Flotta, 2.5km away.

- 7.31 There has been no activity recorded for water skiing and wakeboarding in the location of the cables.
- 7.32 A summary of the potential interactions between the North Coast and Orkney submarine electricity cables and other legitimate sea users is given in Table 35.
- 7.33 The key points of contact for these legitimate sea users are identified in Appendix B: *Communication Strategy*.

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**Table 35 Summary of other legitimate sea users' interactions**

Activity		Interaction on chart	Notes
Recreational	Bird and wildlife watching	Yes	Very low to moderate levels of activity over the cables.
	Visits to historic sites or to attractions	Yes	Very low to moderate levels of activity over the cables.
	Power boating	Yes	Very low levels of activity over Pentland Firth cables. No activity elsewhere.
	Canoeing/kayaking	Yes	Very low to moderate levels of activity over the cables.
	Long distance swimming	Yes	Very low levels of activity over the cables.
	Motor cruising	Yes	Very low to moderate levels of activity over the cables.
	Sailing and cruising	Yes	Very low to low levels of activity over the cables.
	Chartered angling	Yes	Very low levels of activity over the cables.
	Sea angling from shore	Yes	Very low to low levels of activity over the cables.
	Surfing and paddle boarding	Yes	High levels of activity over Pentland Firth cables. Low levels of activity elsewhere.
	Yacht racing	Yes	Very low to low levels of activity over the cables.
	Dinghy racing	No	
	Coasteering	Yes	Moderate-high levels of activity over Rousay-Egilsay and Rousay-Wyre cables. Very low to low levels of activity elsewhere.
	Personal water craft (jet skis)	No	
	Wild fowling	Yes	Very low levels of activity over the cables.
	Scuba diving	Yes	Very low to high levels of activity over the cables.
Rowing and sculling	Yes	Very low levels of activity over Mainland Orkney-Shapinsay. No activity elsewhere.	
Marine Archaeology	Possible	Possible interaction with wreck sites, including protected wrecks.	

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Activity	Interaction on chart	Notes
Conservation sites	Yes	The NSA Hoy and West Mainland overlaps directly with the cable routes Mainland Orkney-Graemsay, Mainland Orkney-Hoy, Pentland Firth. The Marine Protected Area (MPA) Wyre and Rousay Sounds overlap directly with the cable routes Rousay-Egilsay, Rousay-Westray, Rousay-Wyre, Mainland Orkney-Rousay. The Special Protection Areas (SPA) with marine components Hoy and North Caithness Cliffs both intersect with Pentland Firth cables, East Sanday Coast SPA overlaps with Sanday-North Ronaldsay, Hoy SPA with Mainland Orkney-Hoy, and Rousay SPA overlaps with Rousay-Westray, with others in the vicinity. The Proposed Special Protection Area (pSPA) with marine components Scapa Flow overlaps with cables Mainland Orkney-Hoy, Mainland Orkney-Graemsay, Hoy-Flotta and North Ness-South Ness, and the pSPA North Orkney overlaps with Mainland Orkney-Holm of Grimbister, Mainland Orkney-Shapinsay, Mainland Orkney-Rousay, Rousay-Wyre, Rousay-Egilsay and Rousay-Westray. The Special Areas of Conservation (SAC) Sanday and Faray and Holm of Faray overlap with Sanday-North Ronaldsay and Eday-Westray respectively, with others in the vicinity. There are RSPB reserves on Hoy, Egilsay and Rousay which are in the vicinity of the cables.
Wave/Tidal	Possible	There are four European Marine Energy Centre (EMEC) wave/tidal test sites within the vicinity of the North Coast and Orkney cables; Fall of Warness, Stronsay Firth and Shapinsay Sound tidal power test facilities and Bilia Croo wave power test facility. The Westray South tidal testing site (operated by Westray South Tidal Development Limited) directly interacts with Rousay-Westray. Another tidal facility, Lashy Sound, operated by Scotrenewables Limited lies north of the Sanday-Eday cable.
Aquaculture (finfish and shellfish)	Yes	Some local finfish and shellfish sites in the vicinity of the cable locations.
Ferries	Yes	There are ferry routes which intersect all cable routes except Mainland Orkney-Holm of Grimbister, Rousay-Westray and Shapinsay-Stronsay. Another is in the vicinity of one cable, Mainland Orkney-Rousay.
Shipping	Yes	AIS indicates that there are moderate levels of cargo vessel transits (20-50 transits) across the Pentland Firth and Mainland Orkney-Hoy cables. There are lower levels of activity (<20 transits) over the Mainland Orkney-Shapinsay, Stronsay-Sanday, Shapinsay-Stronsay, Rousay-Egilsay, Rousay-Westray, Rousay-Wyre, Sanday-Eday, Westray-Papa Westray, Mainland Orkney-Graemsay and Hoy-Flotta cable routes.

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## 8 Cable Asset Interactions: Commercial Fishing and Other Sea Users

- 8.1 The potential interactions to fishing stakeholders and other sea users, based on the site specific proposed construction methods, are specified in the Cefas and MCEU (2004)<sup>29</sup> guidelines and summarised in the Cost Benefit Analysis Model<sup>30</sup>. It should be noted that stakeholders will vary in their sensitivity to socio-economic pressures depending on:
- Spatial adaptability based on operational range and
  - Spatial tolerance based on dependency on fishing grounds and specific sea areas
- 8.2 Creel (potting) is shown to have the highest levels of activity around Orkney. Creeling conducted by vessels under the length of 10m, working nearshore between the islands will most likely be the primary source of conflict during any cable works as creeling activity by this size of vessel is typically confined to the nearshore area.
- 8.3 While fishermen will be kept up to date with construction areas by Notices to Mariners (NTMs), Weekly Notice of Operations (WNO) and update emails from the developer and their subcontractors, there is scope for conflicting demands on the same area of sea. Construction schedules are fluid and dependent upon many factors and fishermen may not regularly read emails, if they have access to the internet at all and therefore may not be aware of recent updates.
- 8.4 In most cases the presence of a FIR on board the survey boats should prevent fishing gear interactions by survey/construction vessels. However, it may not be feasible for all vessels to have an offshore FIR on board therefore a standard operating procedure (SOP) has been created for the FIR and crew of the survey and construction vessels to follow (Fishing Gear Interaction SOP)<sup>31</sup>.
- 8.5 The potential interactions between fishing stakeholders and other sea users with survey vessels (and construction vessels if cable installation is required following inspection surveys) are dependent on the survey and installation methods to be used.
- 8.6 Inspections will be carried out on SHEPD's submarine electricity cables to identify the behaviour and integrity of the cable. This will inform the ongoing maintenance plan and influence cable replacement decisions. Survey information obtained along the cable route will include ROV mountable magnetometer, MBES and SSS, and a gradiometer array for a minimum corridor

<sup>29</sup> Cefas, Marine Consents and Environment Unit (MCEU), Department for Environment, Food and Rural Affairs (DEFRA) and Department of Trade and Industry (DTI) (2004) Offshore Wind Farms - Guidance note for Environmental Impact Assessment In respect of FEPA and CPA requirements, Version 2

<sup>30</sup> Please refer to Scottish and Southern Electricity Networks: *Submarine Electricity Cable Cost Benefit Analysis Method Statement*: <https://www.ssen.co.uk/CBAFULL/> and *Method Statement Executive Summary*: <http://news.ssen.co.uk/media/266234/CBA-Model-Statement-Executive-Summary.pdf>

<sup>31</sup> Scottish and Southern Electricity Networks: *Standard Operating Procedures*, available: <https://www.ssen.co.uk/SubmarineCables/AboutUs/>

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width of +/-7.5m, centred on the existing cable route. Please refer to the *Construction Method Statement* for full details where cable installation is identified, following the inspection surveys.

- 8.7 Due to the range in levels of activity for all other sea users there is scope for conflicting demands on the same area of sea. It is anticipated that the formal notifications such as NtMs, COLREGS and the code of good practise for all vessels will provide sufficient mitigation for potential interactions.



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## 9 Safety

9.1 Safety management is a key aspect of the FLMAP. SHEPD’s approach to safety and to ensuring co-existence has been outlined in the document *How Scottish Hydro Electric Power Distribution co-exists with other marine users*<sup>32</sup>. With regards to commercial fishing, Safety Management Plans produced by SHEPD for submarine cable works will include reference to the following elements:

- Code of Good Practice for all Vessels
- Procedures in Relation to Gear Fastening or Loss
- Safety Zones (500m) around Active Construction Areas
- *Appendix B: Communication Strategy*

9.2 When we employ contractors for the surveys and construction required for the North Coast and Orkney cables, we will outline certain obligations to which the contractors must follow in order to ensure external communication is accurate and to aid coexistence with legitimate sea users. These may include ensuring:

- Any debris accidentally dropped during construction and maintenance activities is removed if practicably feasible and safe to do so
- All vessels under contract with us adhere to COLREGS and SOLAS requirements
- All vessels under contract with us do not engage in any commercial or recreational fishing activities whatsoever
- All vessels under contract with us will maintain polite, proactive and professional communications with fishing vessels and other legitimate sea users during offshore operations
- All vessels under contract with us will monitor the required VHF channels at all times so as to receive communications directly from fishing vessels and other legitimate sea users
- All vessels contracted to undertake project specific work will have undertaken appropriate risk assessments in respect of potential interactions with commercial fishing vessels and their gears
- Where appropriate, for vessels using anchored positioning, contractors will be obliged wherever possible to adopt anchor release procedures to minimise the size of anchor mounds and where necessary undertake remedial actions to level any significant anchor mounds
- All vessels contracted with us will have on board approved fishing liaison/interaction manuals
- Where appropriate, suitably qualified and certified offshore FIRs will be on board certain project vessels
- Standard transit routes for vessels engaged by us will be discussed with fishing stakeholders prior to operations commencing and vessels transiting to the site shall follow these where possible.

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<sup>32</sup> Scottish and Southern Electricity Networks: *How we co-exist with other marine users*, available: <https://www.ssen.co.uk/SubmarineCables/AboutUs/>

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- 9.3 In the event of fishing gear becoming fastened on or in the vicinity of a submarine electricity cable fishermen should follow the emergency procedures outlined in the Safety section of the Kingfisher Information Services-Offshore Renewable and Cable Awareness (KIS-ORCA) webpage<sup>33</sup>.
- 9.4 The purpose of a safety zone is to ensure the safety of other legitimate sea users by communicating a safe distance between other users and the construction, operation and maintenance activities related to the submarine electricity cables.
- 9.5 Whilst 500m is the maximum permissible size for a safety zone, it could be that during the construction phase, the safety of other users is better served through an additional precautionary area communicated by Notice to Mariners in which it is recommended other legitimate sea users do not enter. If entry is unavoidable, then navigation with extreme caution is advised.
- 9.6 We will aim to organise construction schedules as far as is practicably possible with the aim of reducing potential combined loss of fishing area during the construction phase.
- 9.7 Fishing stakeholders will be informed of all works throughout pre construction, construction and operational phases.
- 9.8 SHEPD will, in consultation with commercial fishing stakeholders, work towards identifying acceptable and feasible mitigation options with the aim of minimising any potential effects on commercial fishing associated with the replacement of submarine electricity cables. There are various options available to mitigate the risks describe previously, including:
- Continuing effective positive liaison with commercial fishing stakeholders through the pre-construction, construction and operational phases of the cable replacement
  - Continued employment of CFLO/FIR services until the completion of the replacement works
  - Ensuring contractors comply with the contractor’s obligations outlined above so as to minimise any interference to commercial fishing activities
  - Managing the cable replacement works so as to minimise any potential effects on the marine environment, habitats and commercial fishing
  - Raising awareness of the danger of fishing in the vicinity of submarine cables
  - Adopting a hierarchical approach to submarine cable protection, taking account of legitimate sea users concerns
  - Organising a construction phasing workshop to inform commercial fishermen of planned activities
  - Organising construction schedules as far as is practicably possible in order to reduce the combined loss of fishing area associated with safety zones during the surveys and construction phase of the submarine cable replacement
  - Distributing weekly notice of operations
  - Providing information in plotter format to enable fishermen to easily interpret the information

<sup>33</sup> <https://kis-orca.org/safety/emergency-procedures/>

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- Scouting surveys to identify potting areas and any other relevant static gear areas.

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## 10 UK Legislation, References and Guidance

- 10.1 Damage to submarine cables is expensive to repair and can cause disruption to power distribution to often sparsely populated islands. There is applicable legislation in respect to safety zones (Energy Act 2004), navigation (International Regulations for Preventing Collisions at Sea 1972; COLREGS) and submarine cable protection (United Nations Convention on the Law of the Sea (UNCLOS) Article 113, 1982, and UK 1964 Continental Shelf Act)). It is an offence to wilfully damage submarine cables (UNCLOS, 1982; UK 1964 Continental Shelf Act).
- 10.2 In regards to navigation, in normal circumstances, the provisions laid down by COLREGs are sufficient to ensure that actions taken by fishing vessels and those restricted in their ability to manoeuvre when two vessels are approaching allow both to continue operating with minimum disruption.
- 10.3 Further information on UK and international legislation for subsea cables, safety zones and navigation is provided in the document *How Scottish Hydro Electric Power Distribution co-exists with other marine users*<sup>34</sup>.

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<sup>34</sup> Scottish and Southern Electricity Networks: *How we co-exist with other marine users*, available: <https://www.ssen.co.uk/SubmarineCables/AboutUs/>

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## Appendix A Notice to Mariners Example Template

# Notice to Mariners

**Scottish Hydro Electric Power Distribution (SHEPD) – Notice to Mariners [Month Year].**

**Issued [Date].**

Please be advised that [Contractor] (on behalf of SHEPD) will be undertaking a [description of works, e.g.: survey across the CABLE ROUTE submarine electricity cable corridor]. The survey will utilise four different vessels to complete survey operations:

- Vessel 1
- Vessel 2
- Vessel 3
- Vessel 4

The survey operations will commence during an appropriate weather window following [date] and will continue over a planned minimum period of [16 weeks], weather permitting.

The survey operations will be concentrated across the cable corridor within the boundary defined by the following coordinates.

[Chart of survey area]

[Coordinates of survey area boundary]

The survey operations will be undertaken by the [vessel 1, vessel 2, vessel 3.....] pictured below. The vessels may not commence their activities at the same time but may operate simultaneously at times over the survey duration. The vessels may operate primarily from [Kirkwall] but may use other ports along the [island] coastlines, such as [port 1] or [port 2].

Vessel Photo	Vessel Description
[Photo of vessel 1]	[Description, contact details and call sign of vessel 1, e.g.: The M.V. [vessel name] is a multi-purpose survey vessel, 65.2 m in length with a beam of 14m and a draft of 5.3 m; transit speed of 12 kts and a survey speed of ~5 kts (geophysical survey). Operating on a 24-hour basis]
[Photo of vessel 2]	[Description, contact details and call sign of vessel 2]
[Photo of vessel 3]	[Description, contact details and call sign of vessel 3]
[Photo of vessel 4]	[Description, contact details and call sign of vessel 4]

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## Survey Description

The [survey/installation] will involve [the coverage of dedicated survey lines by the vessel(s) with a full suite of geophysical survey systems (Multi beam Echo Sounder, Side Scan Sonar and Magnetometer)] mounted on the vessel or towed from the stern of the vessel.

Other vessels should maintain an appropriate and safe distance of 500m when passing the [survey] vessel(s) whilst undertaking survey operations and should pass at the lowest possible speed to avoid vessel wash effects. The vessel(s) will be working [24-hour operations] and will display appropriate day shapes and lights during reduced visibility and night operations. The vessel(s) will also monitor VHF Channels 16 and 12.

## Primary Survey Equipment

Primary equipment	Towed / Hull mounted / Sampling	Approximate tow length (if applicable)	Vessel
Multibeam Echosounder	Hull mounted	N/A	Vessel 1, Vessel 2
Sidescan Sonar	Towed	50-350m	Vessel 1, Vessel 2
Magnetometer Array	Towed	50-350m	Vessel 1, Vessel 2
Remotely Operated Vehicle (ROV)	Tether Management System	N/A	Vessel 1
Subsea Crane Operations	Crane	WD 140 max	Vessel 1

## Contact Details

The vessel contact details are given in the tables below

VESSEL 1	
Call sign	
Bridge	
Offshore manager / Party Chief	
Email	
Onshore Site Manager	

VESSEL 2	
Call sign	
Bridge	
Offshore manager / Party Chief	
Email	
Onshore Site Manager	

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### Fishing Liaison Officers

Fishing liaison for the [survey] will be co-ordinated by Brown and May Marine (BMM). For any commercial fishery queries please contact the Company Fishing Liaison Officer (CLFO) Alex Winrow-Giffin on [Redacted] / 01379 872144, or [Redacted] and the local Fishing Industries Representative (FIR) Chris Davidson on [Redacted] or [Redacted] will also be in place to liaise with the vessel and fishing operations in the area. The vessel master will issue regular broadcasts whilst the survey vessel is operating to ensure minimal disruption and that vessels maintain an appropriate and safe distance.

### Further Details

Further enquiries should be addressed to the following people in the following order:

Name	Contact Number	Email

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## Appendix B      Communication Strategy

An example standardised high level cable replacement communication plan is given in Table 36. (This is in the event that cable replacement is identified following inspection surveys). A programme of actions to be undertaken in the event of an unplanned outage is given in Table 37. Please note that the communication plan will need to be applied for each cable.

**Table 36 Example of a communication programme for cable replacement**

Stage	What's happening	What we want to communicate	Who we are speaking to and frequency
<b>1</b>	<p><u>Cable inspection list created for [year]</u></p> <p>We have developed a list based on a number of factors and previous cable history. This allows us to forecast future health, where the most vulnerable cables will be and their importance on the network. This includes roughly 150% of the cable projects we intend to deliver, so we make sure we capture the right projects.</p>	<ul style="list-style-type: none"> <li>Advance warning of high level plans to inspect cables.</li> </ul>	<ul style="list-style-type: none"> <li>Primarily stakeholders with shipping and navigation interests.</li> <li>Engagement carried out as part of scheduled regular meetings</li> </ul>
<b>2</b>	<p><u>Mobilisation of inspection vessels for [year] programme of cable replacement</u></p> <p>Sending out inspection vessel, divers and/or ROV to closely follow cables to inspect cable condition and record video footage. This is then used to inform our health assessment of the cable.</p>	<ul style="list-style-type: none"> <li>Notice to Mariners issued. Essentially a safety message to let mariners know that we will have vessels in the area.</li> </ul>	<ul style="list-style-type: none"> <li>Mariners: the number of vessels, routes they are taking and activities they will be completing (daily)</li> </ul>



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Stage	What's happening	What we want to communicate	Who we are speaking to and frequency
<b>3</b>	<p><u>Review inspections from 2 years ahead to create 1 year ahead survey list</u></p> <p>From Inspection data we refine our project list to 125% of projects to make sure we survey as much as possible without wasting these works on cables which are healthy.</p>	<ul style="list-style-type: none"> <li>No communications at this stage, unless there has been engagement with stakeholders who have experienced wet outages.</li> </ul>	<ul style="list-style-type: none"> <li>Domestic and generation SHEPD customers to advise them that we will be replacing the cable (one off).</li> </ul>
<b>4</b>	<p><u>Survey [year] Cable routes</u></p> <p>With our 125% list we then issue instruction to survey the cable routes.</p> <p>This uses a vessel towing a sonar device across a wide area multiple times to build up an image of the sea bed. It may also include carrying out intrusive geotechnical investigations.</p>	<ul style="list-style-type: none"> <li>Notice to Mariners issued. Essentially a safety message to let mariners know that we will have vessels in the area.</li> <li>Messaging to highlight any environmental mitigation measures we have implemented to safeguard marine life (e.g. checking for cetaceans before beginning certain geophysical survey operations)</li> </ul>	<ul style="list-style-type: none"> <li>Mariners: the number of vessels, routes they are taking and activities they will be completing (daily).</li> <li>Environmental groups: to highlight any mitigation measures (one off).</li> </ul>
<b>5</b>	<p><u>Select [year] cable routes and advise Marine Scotland (licensing)</u></p> <p>From our survey we will then define the project which is to be delivered.</p> <p>Reducing our project list to 100% of what we are able to deliver.</p>	<ul style="list-style-type: none"> <li>Regular stakeholder meetings to provide updates on project development activities.</li> </ul>	<ul style="list-style-type: none"> <li>Regulators and wider stakeholder groups.</li> </ul>

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Stage	What's happening	What we want to communicate	Who we are speaking to and frequency
<b>6</b>	<u>PAC events and licence application</u>  Pre-application consultation events are advertised and held. Comments received are noted and addressed as part of the licence application.	<ul style="list-style-type: none"> <li>▪ The proposed project including location and route along with possible protections methods.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Statutory and non-statutory stakeholders as well as communities and mariners (one off).</li> </ul>
<b>7</b>	<u>Mobilisation of vessels for cable installation</u>  With all cable projects now consented and licences approved, cable laying vessels are in the water. The boats(s) will collect all cables and fittings from our storage depot.	<ul style="list-style-type: none"> <li>▪ Notice to Mariners issued. Essentially a safety message to let mariners know that we will have vessels in the area.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily).</li> </ul>
<b>8</b>	<u>Start to completion of installation works</u> <ul style="list-style-type: none"> <li>▪ From there the vessel will transit to the cable installation location and begin works. Dependant on the projects the vessel(s) might do one of more than one cable installation during one voyage.</li> <li>▪ Dependant on physical protection levels of cables there may be a number of extra vessels dispatched to complete the works.</li> <li>▪ In parallel there will be onshore works which will be connecting the cable from the sea/shore end into the existing electrical network.</li> <li>▪ All vessel(s) return to port(s)</li> </ul>	<ul style="list-style-type: none"> <li>▪ Notice to Mariners updates as required.</li> <li>▪ Community Council meetings in advance to advise of forthcoming works</li> <li>▪ Stakeholder updates to advise of forthcoming works</li> <li>▪ Press release to be issued to advise community of forthcoming works</li> <li>▪ Additional communication channels to advise community &amp; stakeholders of forthcoming works</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily).</li> <li>▪ Community to be advised of any potential disruption (roads &amp; noise)</li> <li>▪ Domestic and business customers to be advised of any planned outages to allow us to carry out works (as required).</li> </ul>
<b>18 months after installation</b>	<u>Post installation cable inspections</u>	<ul style="list-style-type: none"> <li>▪ Notice to Mariners to let mariners know that we will have vessels in the area</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily)</li> </ul>

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Stage	What's happening	What we want to communicate	Who we are speaking to and frequency
	<ul style="list-style-type: none"> <li>▪ Sending out inspection vessel, divers and/or ROV to inspect the cables most recently installed. This will allow us to decide if any remedial works are required.</li> <li>▪ The cable is inspected by closely following cable to inspect cable condition and record it on film. This is then used to inform our assessment.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Update community to advise of works and reason for presence</li> </ul>	<ul style="list-style-type: none"> <li>▪ Communities, local stakeholders and customers</li> </ul>
<b>Remedial works following cable inspection (if required)</b>	<p><u>Remedial works</u></p> <p>If required, we will send more vessels to complete any works which are required (from protection to complete cable replacement).</p>	<ul style="list-style-type: none"> <li>▪ Notice to Mariners to let mariners know that we will have vessels in the area</li> <li>▪ Update community to advise of works and reason for presence</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily).</li> <li>▪ Communities, local stakeholders and customers</li> </ul>

**Table 37 Example of unplanned outage due to wet fault in a cable**

Stage	What's happening	What we want to communicate	Who we are speaking to
<b>1</b>	<ul style="list-style-type: none"> <li>▪ Declared a wet fault following testing at termination poles at both shore ends. This will give the estimated distance to the fault location within the sea.</li> <li>▪ Depending on the severity of the fault and the demand of the network we may be able to restore power whilst still investigating the fault.</li> <li>▪ Embedded generation team will be deployed to operate the generators on .</li> <li>▪ We formally notify Marine Scotland, Northern Lighthouse Board and Fishing Liaison Officer at this point.</li> </ul>	<ul style="list-style-type: none"> <li>▪ We are aware of a submarine electricity cable fault.</li> <li>▪ Our engineers are on site and are connecting generators to restore your power.</li> <li>▪ Open and consistent communication with local stakeholders and community to inform them of issue and actions</li> </ul>	<ul style="list-style-type: none"> <li>▪ Domestic and business demand and generation customers.</li> <li>▪ Work with Corporate Communications team to keep local stakeholders and community informed through press release, website and social media channels</li> </ul>

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Stage	What's happening	What we want to communicate	Who we are speaking to
		being carried out to address the issue and restore normal service	
<b>2</b>	We are mobilising our marine contractors (divers, vessels and crew).	<ul style="list-style-type: none"> <li>▪ Power will have been restored from the customers' perspective.</li> <li>▪ Generation customers may be assisting islands in maintaining supply stability.</li> <li>▪ Open and consistent communication with local stakeholders and community to update them on actions being carried out to address the issue and restore normal service</li> </ul>	<ul style="list-style-type: none"> <li>▪ Domestic and business demand customers</li> <li>▪ Work with Corporate Communications team to keep local stakeholders and community informed through press release, website and social media channels</li> </ul>
<b>3</b>	<u>Locating the fault</u> <ul style="list-style-type: none"> <li>▪ If the cable is less than 30m deep then divers may visually inspect the cable fault location.</li> <li>▪ If it is deeper than this Remote Operated Vehicles are deployed to do the same job.</li> <li>▪ Visibility can be very poor so this will impact on how long this takes.</li> </ul>	<ul style="list-style-type: none"> <li>▪ We need to be sharing safety message with the marine community to be aware that we have vessels operating in the area.</li> <li>▪ This should highlight how many there are in the water and what they are doing.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mariners: We will have vessels operating in and around the cables.</li> <li>▪ This should advise of specific movements.</li> </ul>
<b>4</b>	<u>Fault zone found</u>  Fault zone may be found. There is still work to be done in actually pin pointing the fault.	<ul style="list-style-type: none"> <li>▪ We need to be sharing safety message with the marine community to beware that we have vessels operating in the area.</li> <li>▪ This should highlight how many there are in the water and what they are doing.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mariners: We will have vessels operating in and around the cables.</li> </ul>
<b>5</b>	<u>Fault finding</u>	<ul style="list-style-type: none"> <li>▪ We need to be sharing safety message(s) with the marine community to beware that we have</li> </ul>	<ul style="list-style-type: none"> <li>▪ Mariners: We will have vessels operating in and around the cables.</li> </ul>

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Stage	What's happening	What we want to communicate	Who we are speaking to
	<ul style="list-style-type: none"> <li>▪ Cable recovered onto the cable vessel and cut. Jointers strip the cable ready for testing. Cable is cut until the tests show that the remaining cable is healthy. Once it is known the cable is healthy it is made waterproof and returned to seabed.</li> <li>▪ Options for repair or replacement have to be considered.</li> </ul>	<p>vessels operating in the area. This should highlight how many there are in the water and what they are doing. Especially since there may be a number of anchors temporarily in the area whilst we are looking for the fault and fixing it.</p> <ul style="list-style-type: none"> <li>▪ Open and consistent communication with local stakeholders and community to update them on actions being carried out to address the issue and restore normal service</li> </ul>	<ul style="list-style-type: none"> <li>▪ This should tell mariners where the buoys are and that the cable is at this location</li> <li>▪ Work with Corporate Communications team to keep local stakeholders and community informed through press release, website and social media channels</li> </ul>
<b>6</b>	<p><u>Option A</u></p> <p>We call this a piece in where we are able to re-join the cable with a new section of cable.</p> <p><u>Option B</u></p> <p>Depending on the distance from shore, we may take a new section of cable from the shore end to the existing cable (only needing one joint).</p> <p><u>Option C</u></p> <p>If the cable is too deep (greater than 50 metres) we may not be able to repair the cable so entire end to end replacement may be necessary.</p> <p><u>Option D</u></p>	<ul style="list-style-type: none"> <li>▪ We need to be sharing safety message(s) with the marine community to beware that we still have vessels operating in the area.</li> <li>▪ This should highlight how many there are in the water and what they are doing.</li> </ul> <p><u>Option A and B</u> Estimate how long we will be in the area mending the cable for and advise of vessel movements.</p> <p><u>Option C and D</u> We need to apply for a marine licence.</p> <p>Please refer to other communication plan from here on.</p>	<p><u>Option A and B</u></p> <ul style="list-style-type: none"> <li>▪ Mariners: We will have vessels operating in and around the cables and estimate when we will be away.</li> </ul> <p><u>Option C and D</u></p> <p>Mariners and statutory consultees: We need to do a full cable replacement and so need to apply for a marine licence which gives us consent to carry out the work</p> <p>When appropriate, work with Corporate Communications team to keep local stakeholders and</p>

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Stage	What's happening	What we want to communicate	Who we are speaking to
	If cable has faulted and is planned for replacement due to health of cable we will replace entire cable end to end.		community informed through press release, website and social media channels
<b>7</b>	<p><u>Option A</u></p> <p>Take cable vessel to fault location and joint new piece in between the two ends. The cable is tested to make sure it is healthy and then lowered back onto the sea bed. We will then re-energise cable when safe to restore power.</p> <p><u>Option B</u></p> <p>Position the cable vessel close to the shore in line with the point of termination in land. We float the cable from the cable vessel to connection point on shore. The floats are removed when cable is in position and install the cable to the jointing location where it meets the cable which we left in the sea attached to a buoy (the original fault location) and joint the cable. We test the cable to make sure it is clear of all faults. We will then re-energise cable when safe to restore power.</p>	<ul style="list-style-type: none"> <li>▪ We need to be sharing safety message with the marine community to beware that we still have vessels operating in the area.</li> <li>▪ This should highlight how many there are in the water and what they are doing</li> <li>▪ Keep stakeholders informed throughout</li> <li>▪ Update local stakeholders, media and community with open, clear and consistent communication</li> </ul>	<ul style="list-style-type: none"> <li>▪ Domestic and business demand and generation customers: The submarine electricity cable has been repaired and mobile generators have been removed from the island.</li> <li>▪ Mariners: We will have vessels operating in and around the cables and estimate when we will be away</li> <li>▪ Work with Corporate Communications team to keep local stakeholders and community informed through press release, website and social media channels</li> </ul>

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## Appendix C Commercial Fishing Charts

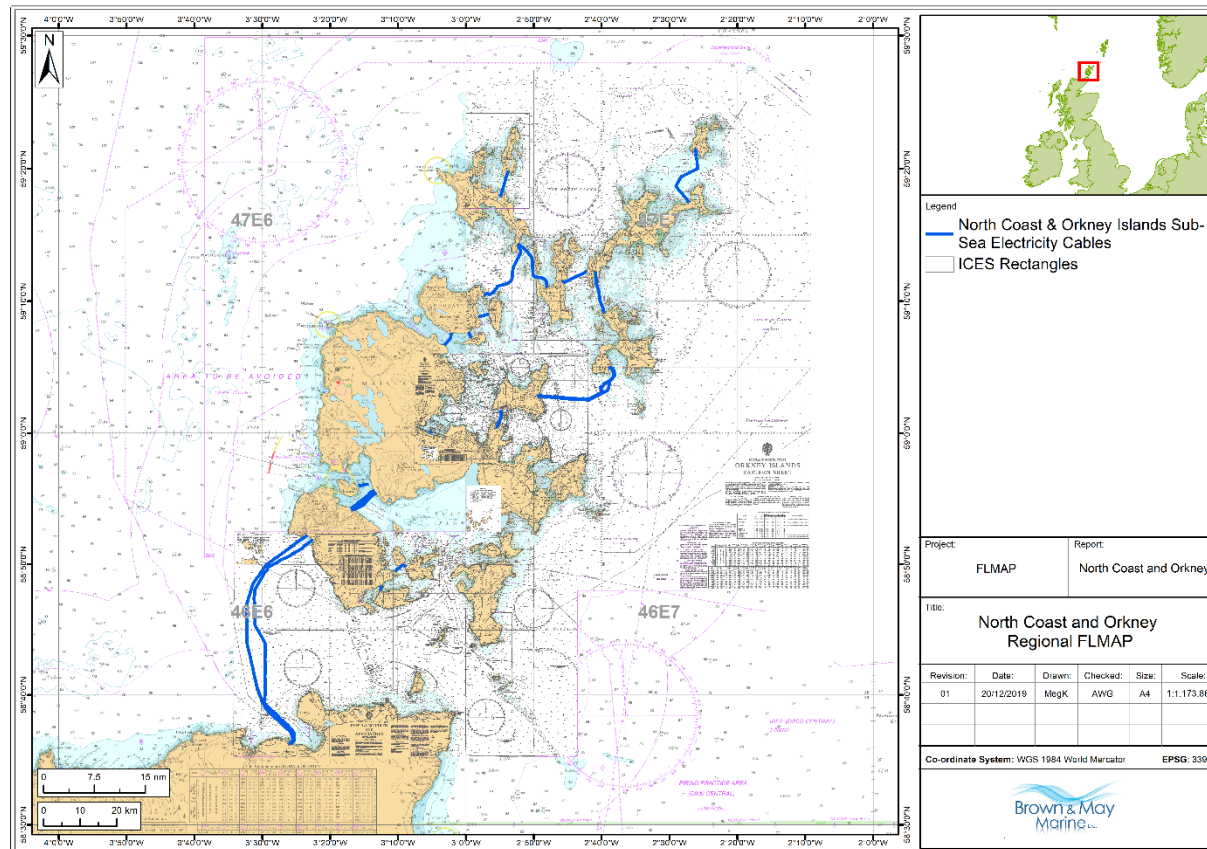


Figure 1 North Coast and Orkney study area

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			Distribution ✓	Transmission ✗
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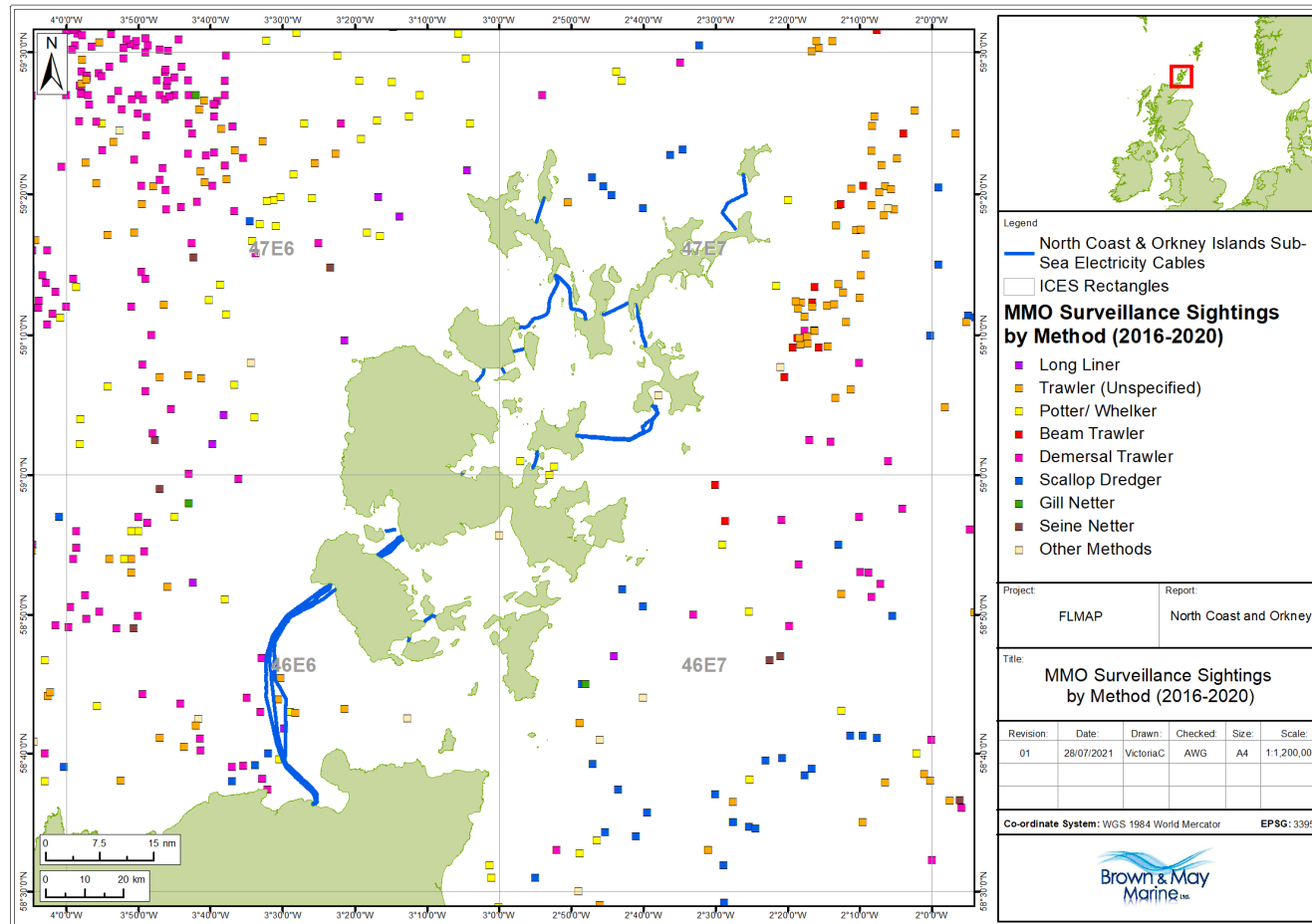


Figure 2 MMO surveillance sightings by method (2016-2020)



	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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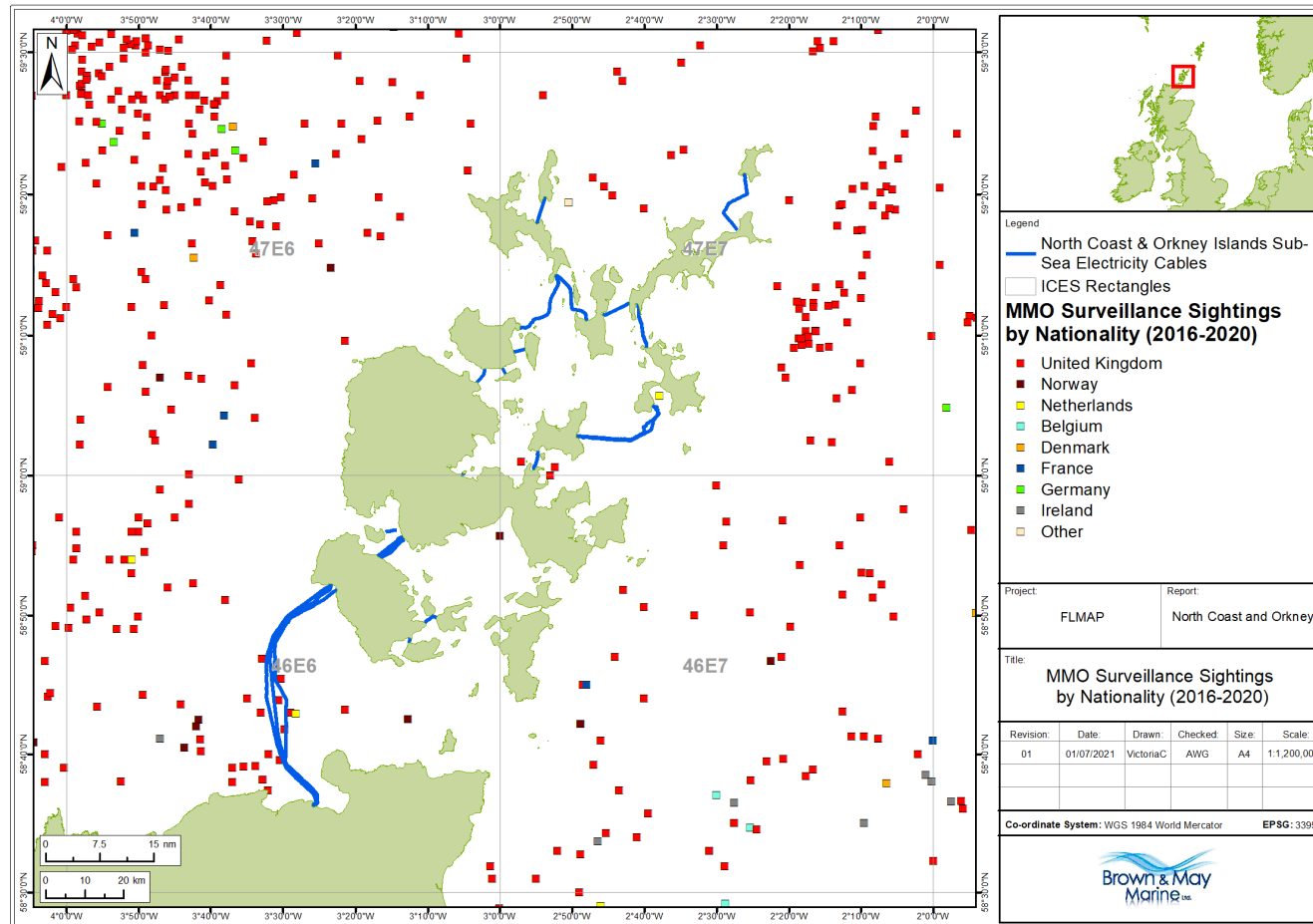


Figure 3 MMO surveillance sightings by nationality (2016-2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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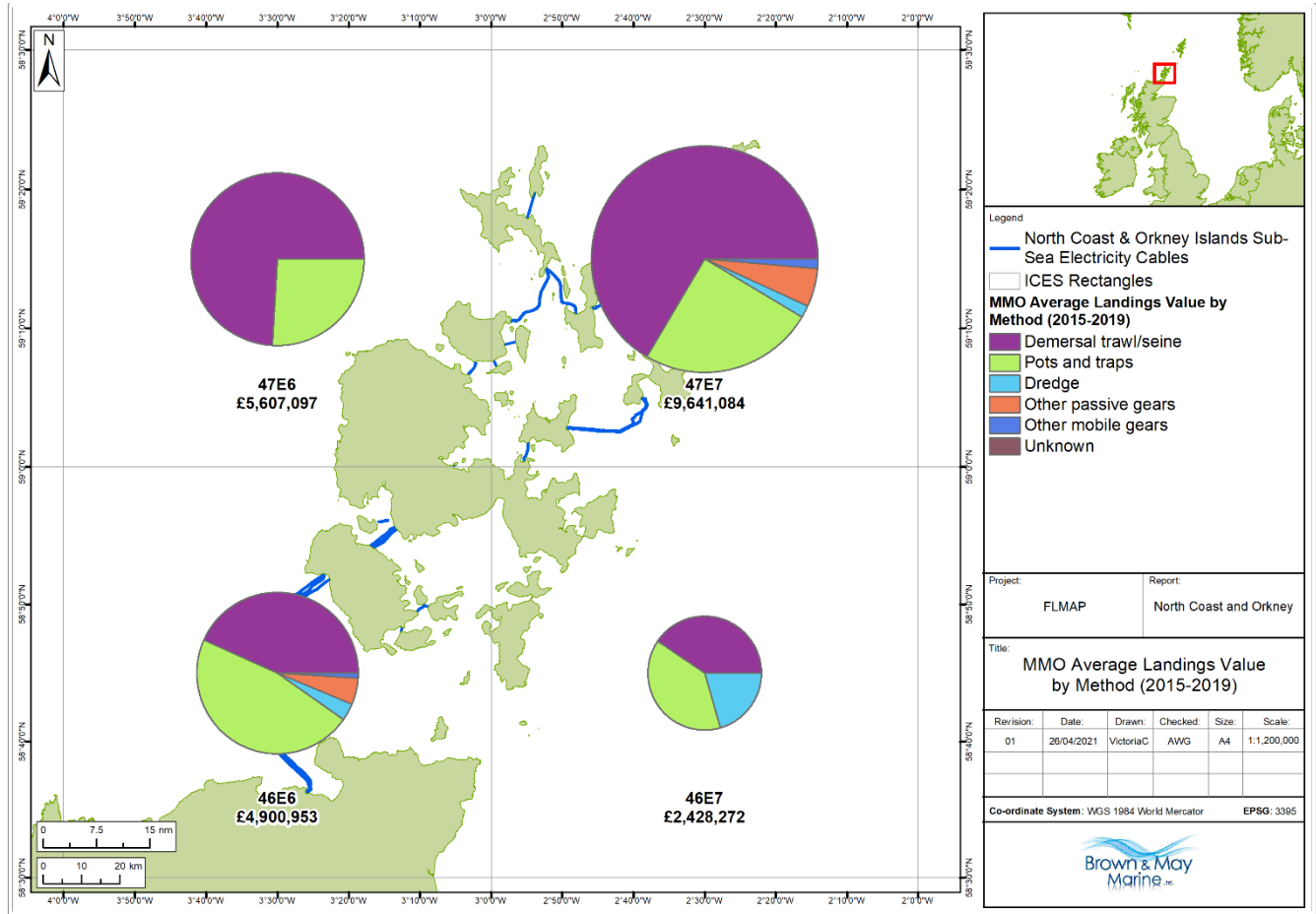


Figure 4 Average MMO landings value by method (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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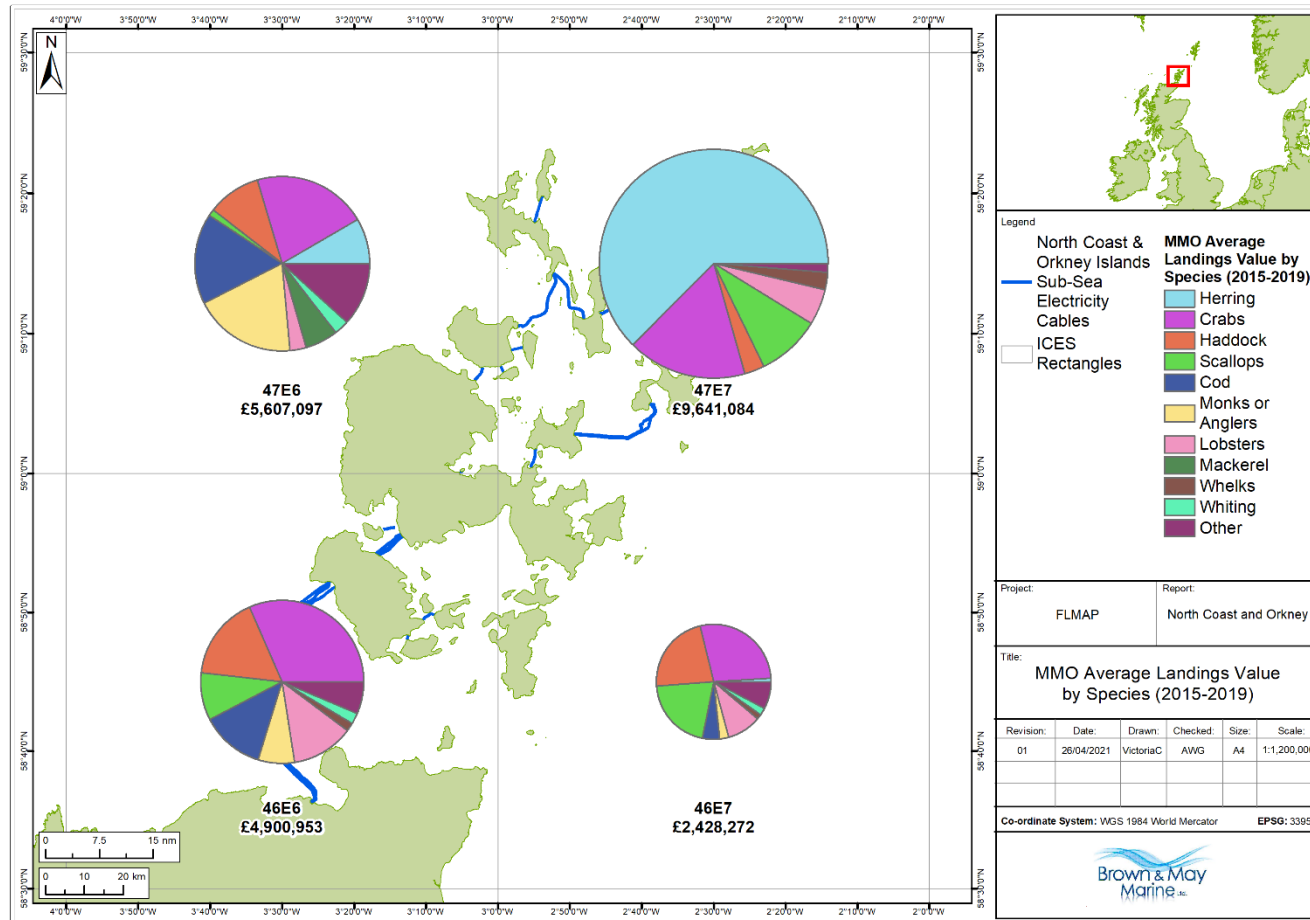


Figure 5 Average MMO landings value by species (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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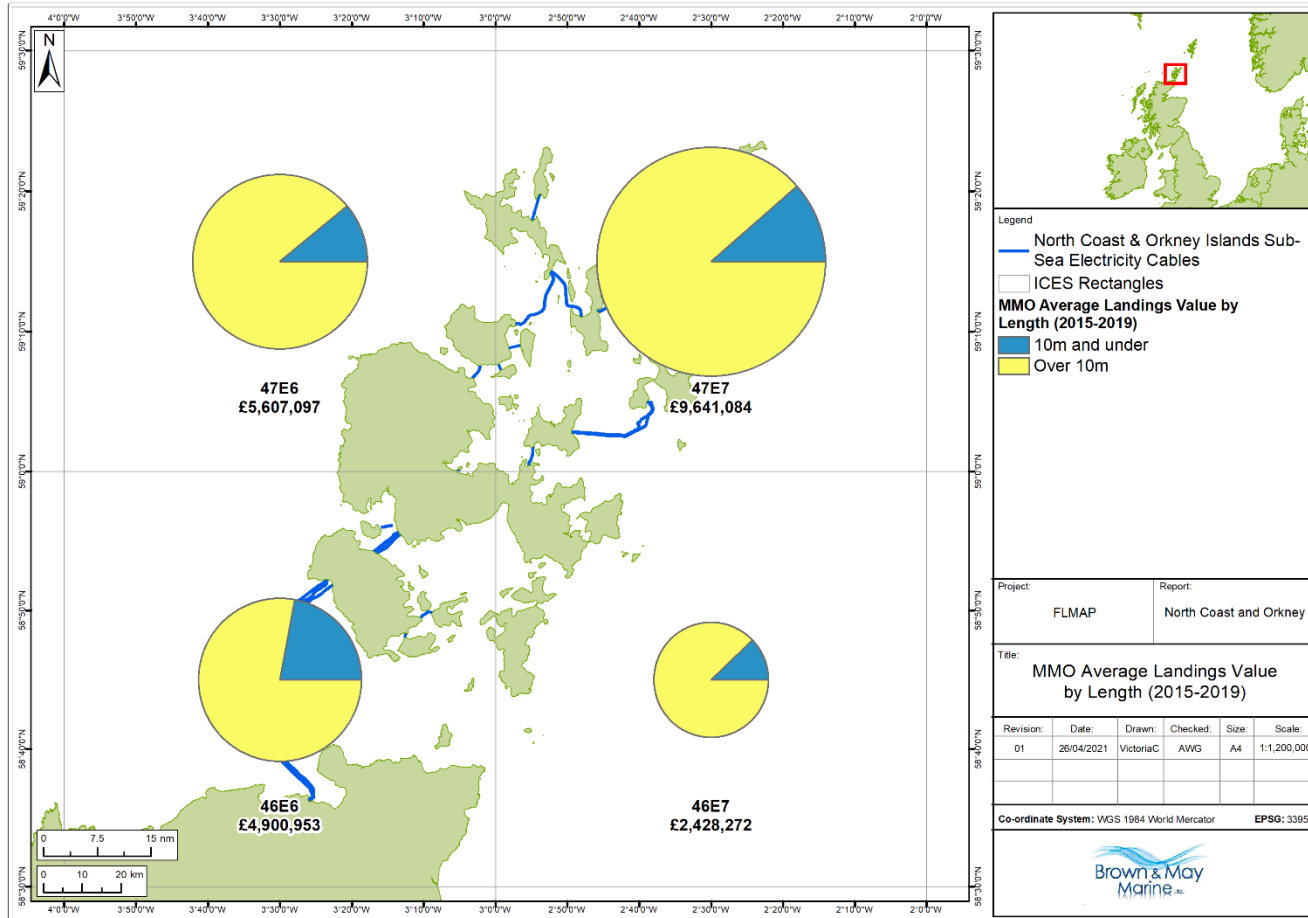


Figure 6 Average MMO landings value by vessel length (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

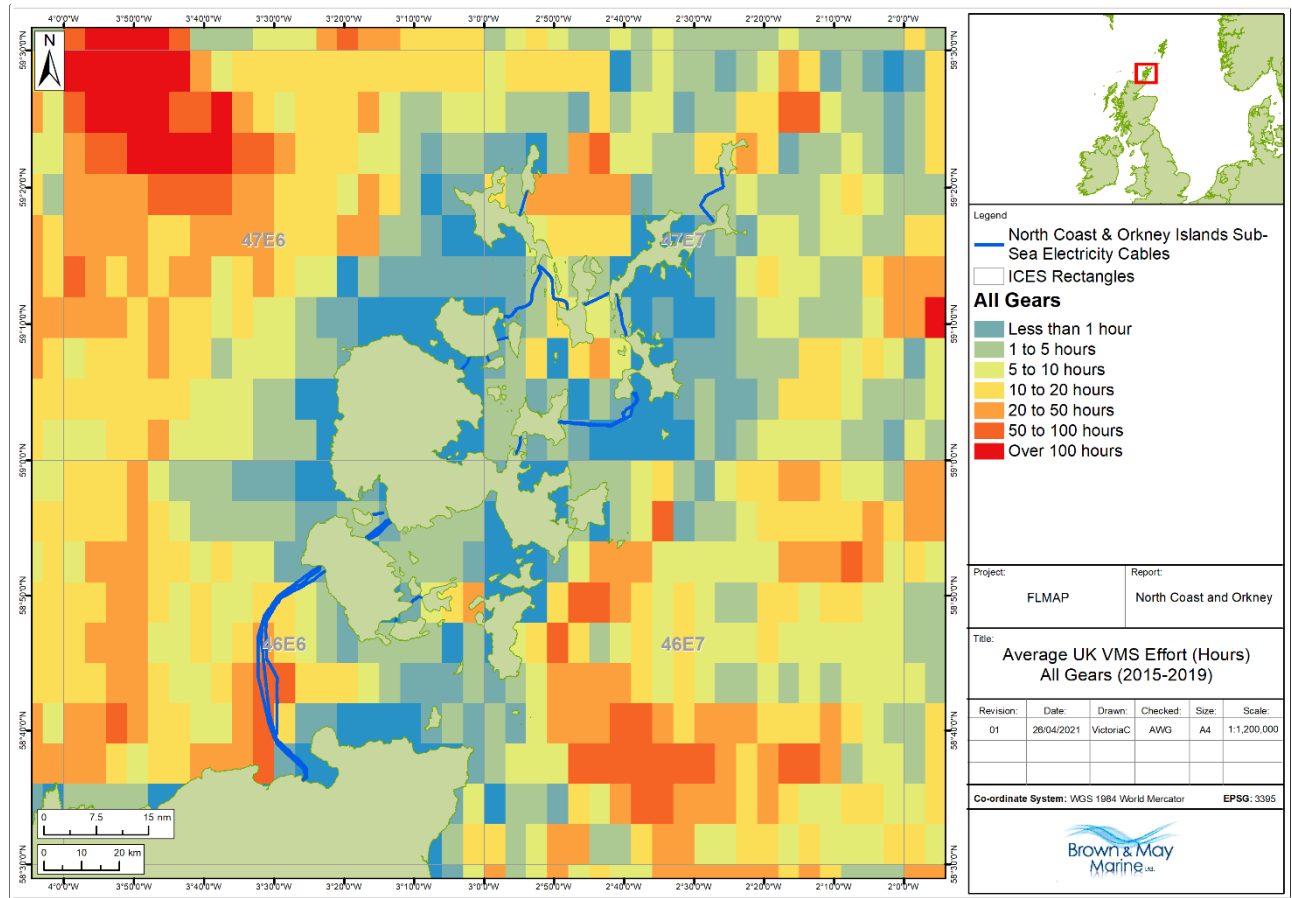


Figure 7 Average UK MMO VMS effort (hours) all gears (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

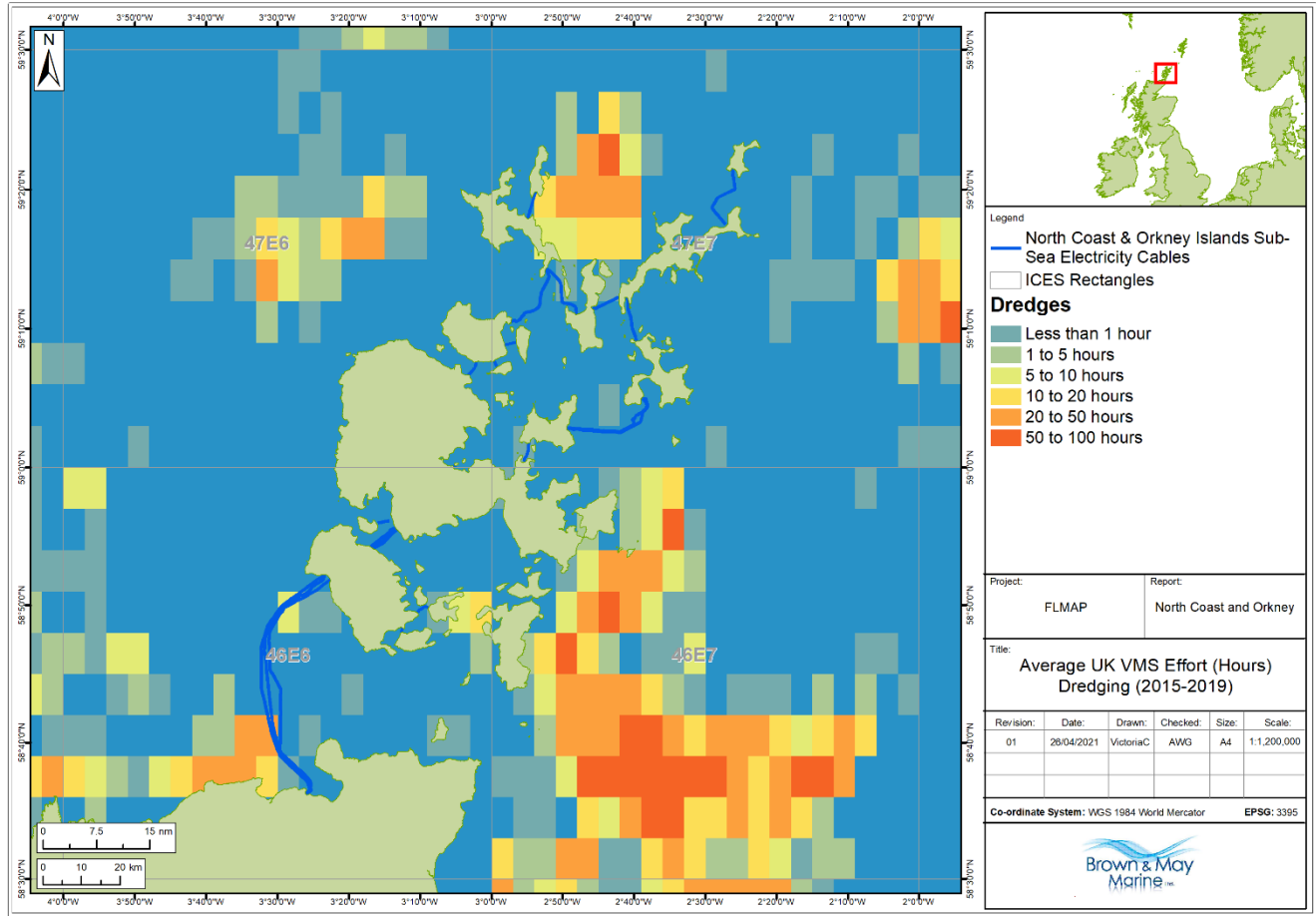


Figure 8 Average UK MMO VMS effort (hours) for dredges (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

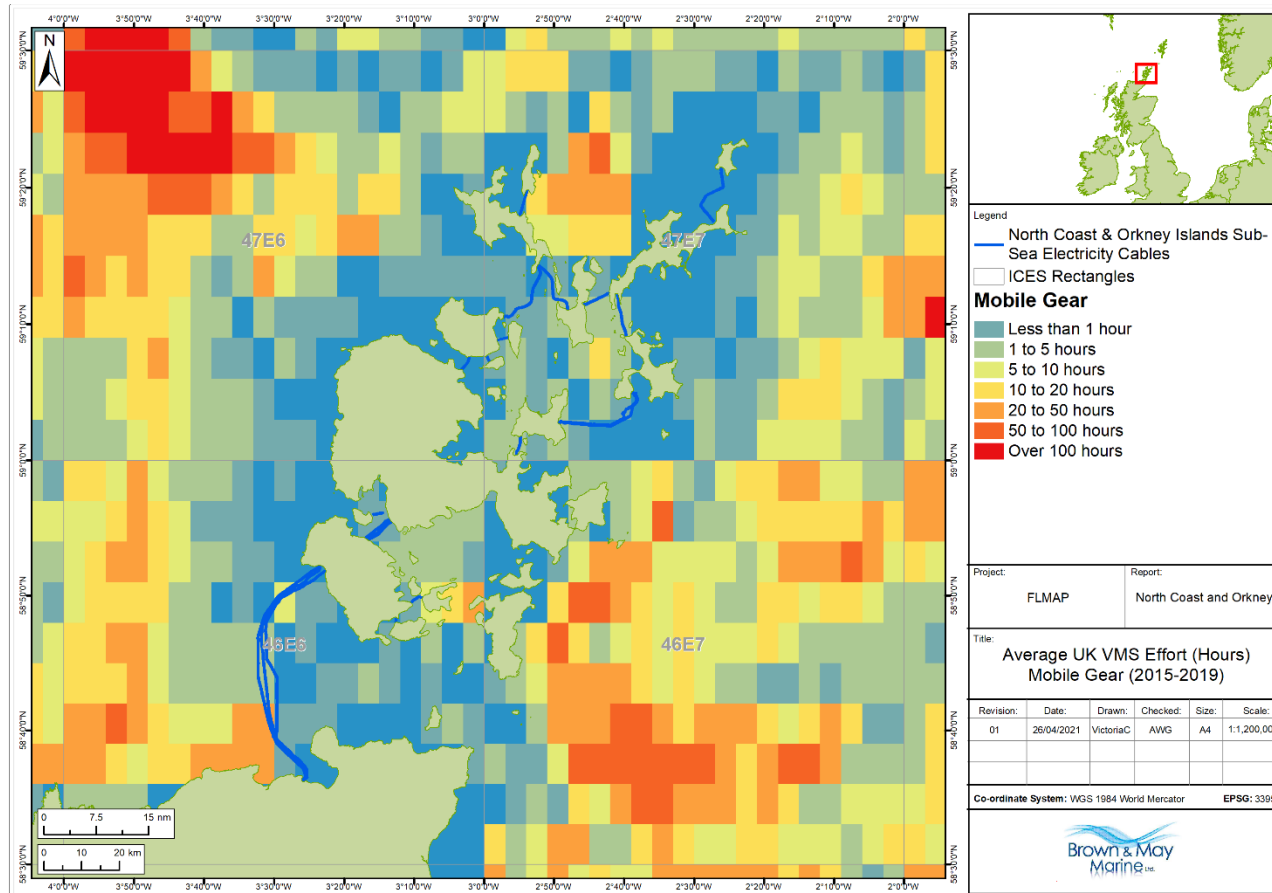


Figure 9 Average UK MMO VMS effort (hours) for mobile gear (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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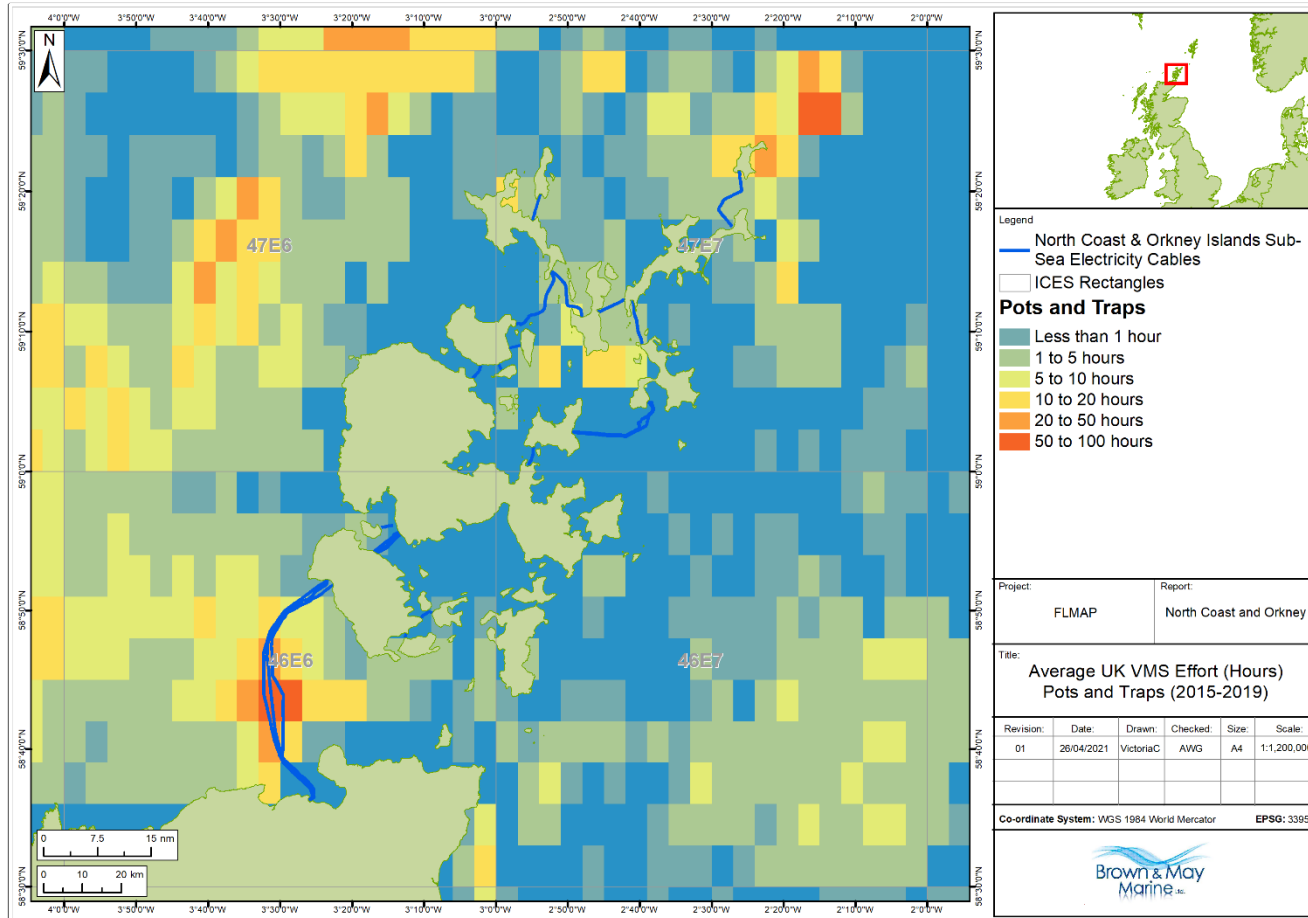


Figure 10 Average UK MMO VMS effort (hours) for pots & traps (2015-2019)



	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

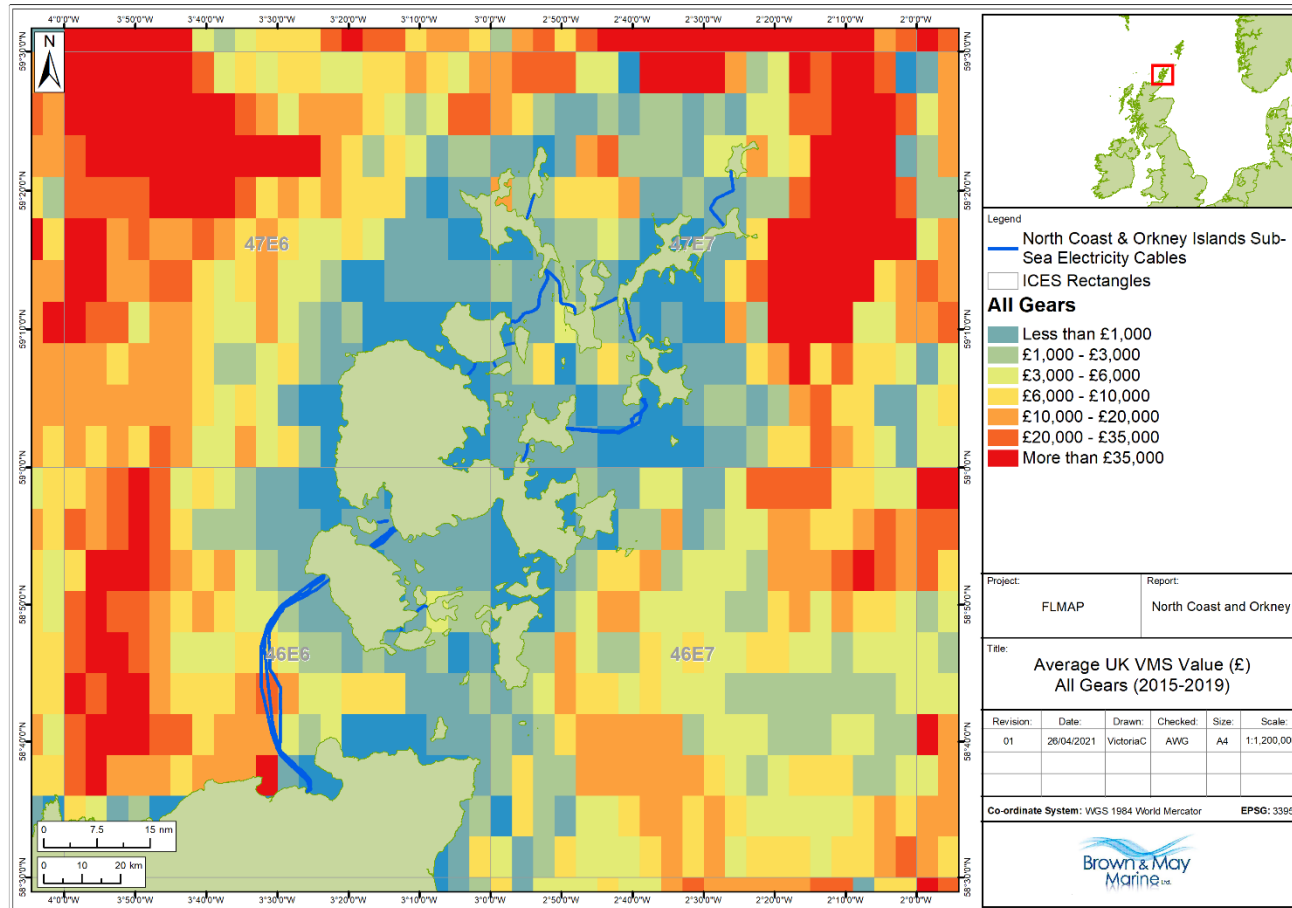


Figure 11 Average UK MMO VMS value (£) for all gears (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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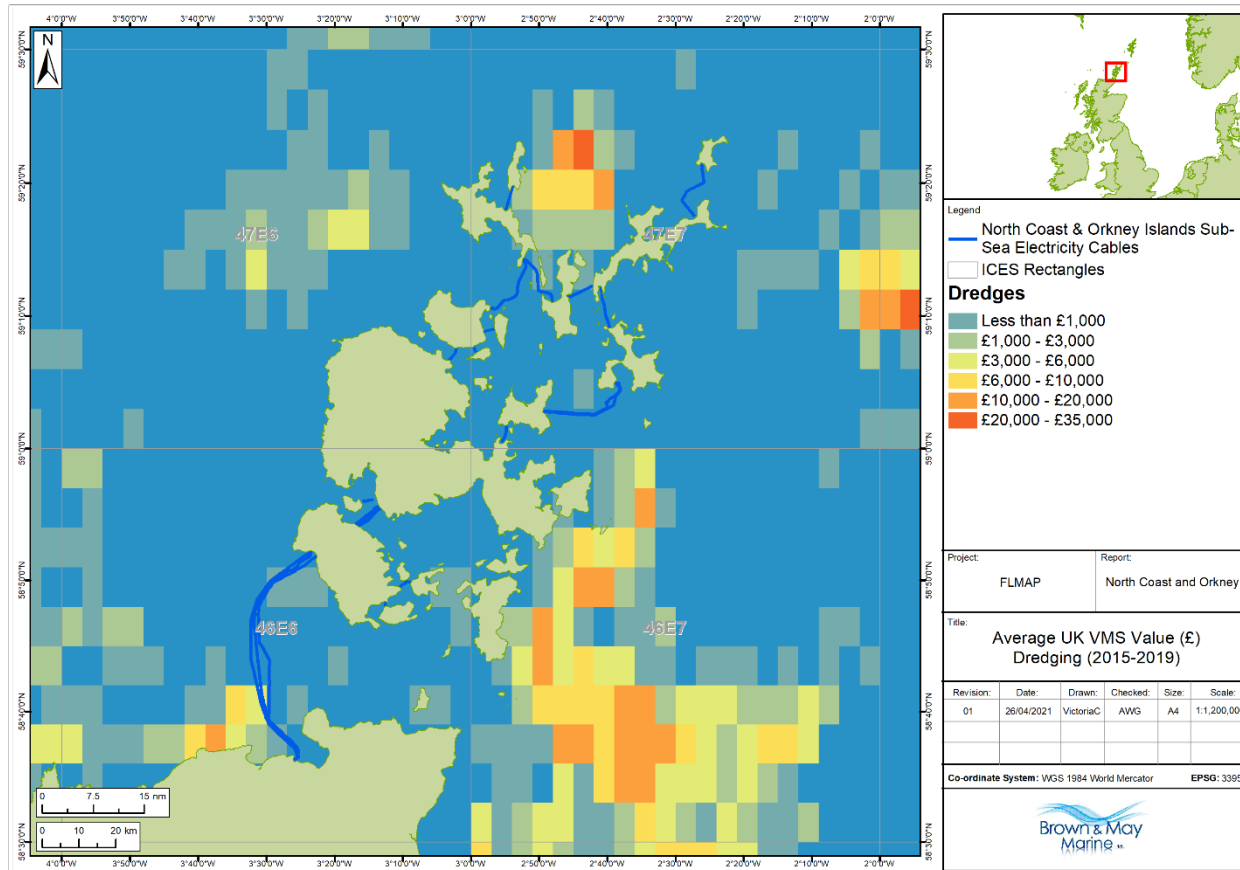


Figure 12 Average UK MMO VMS value (£) for dredging (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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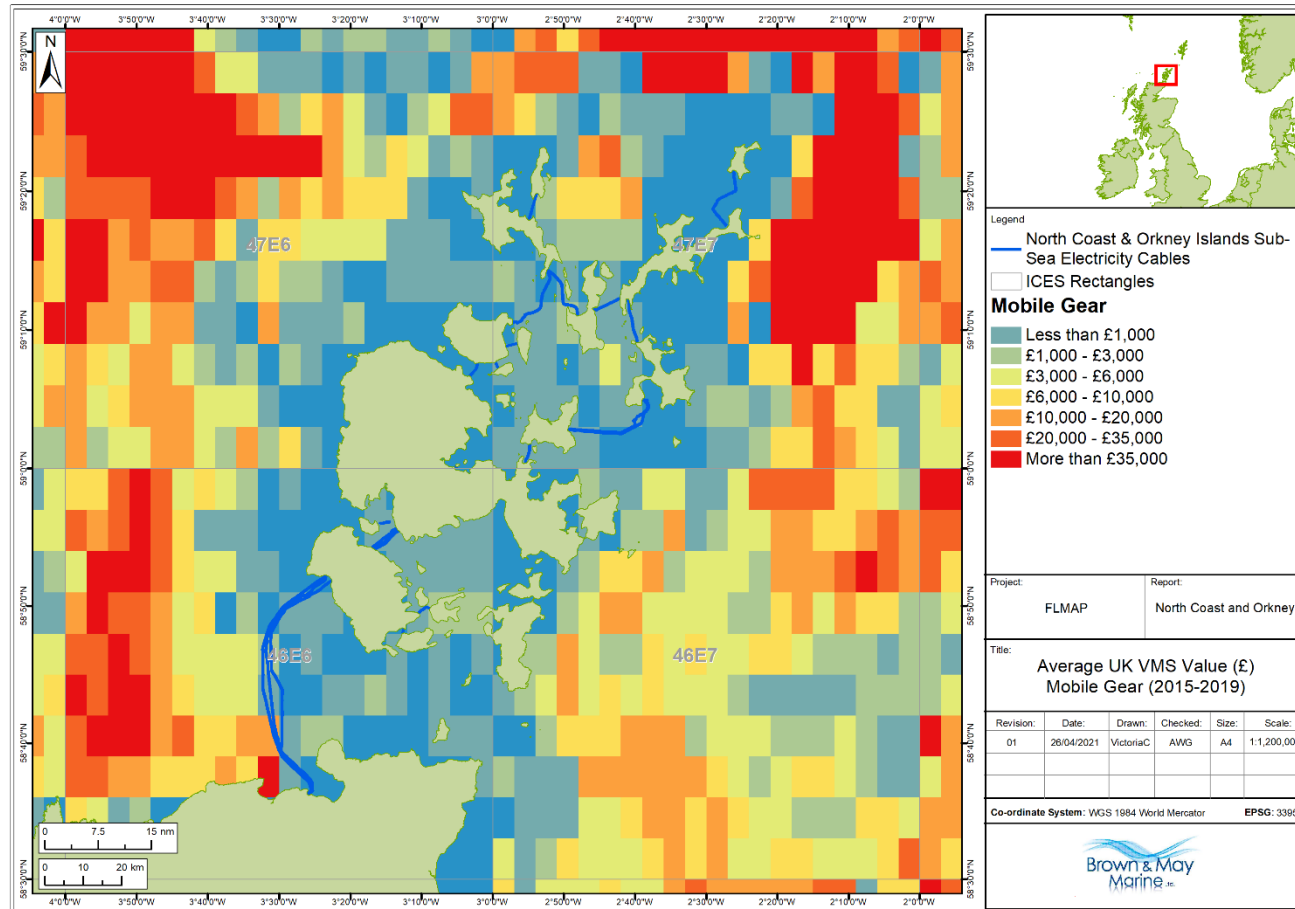


Figure 13 Average UK MMO VMS value (£) for mobile gears (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

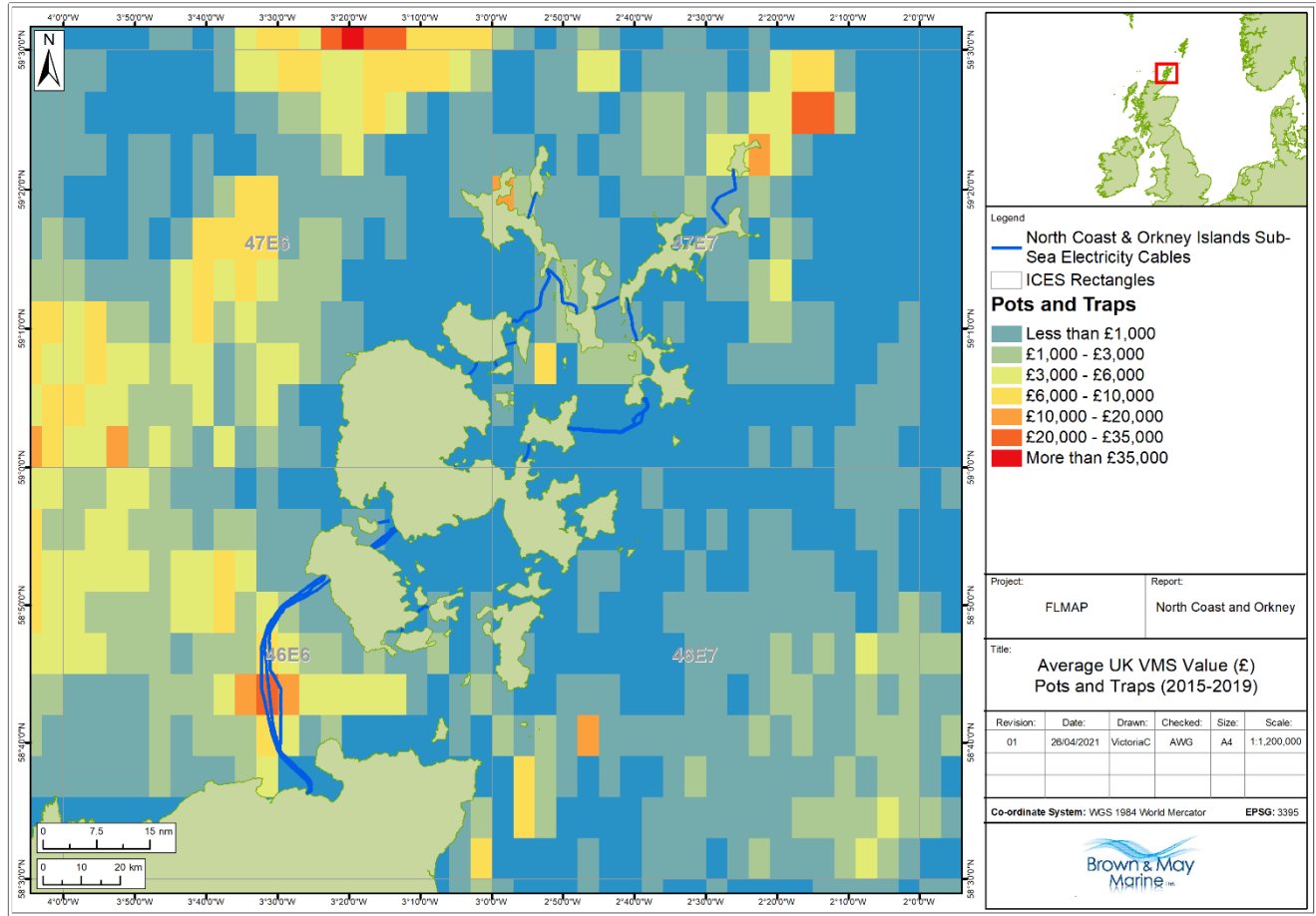


Figure 14 Average UK MMO VMS value (£) for pots and traps (2015-2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

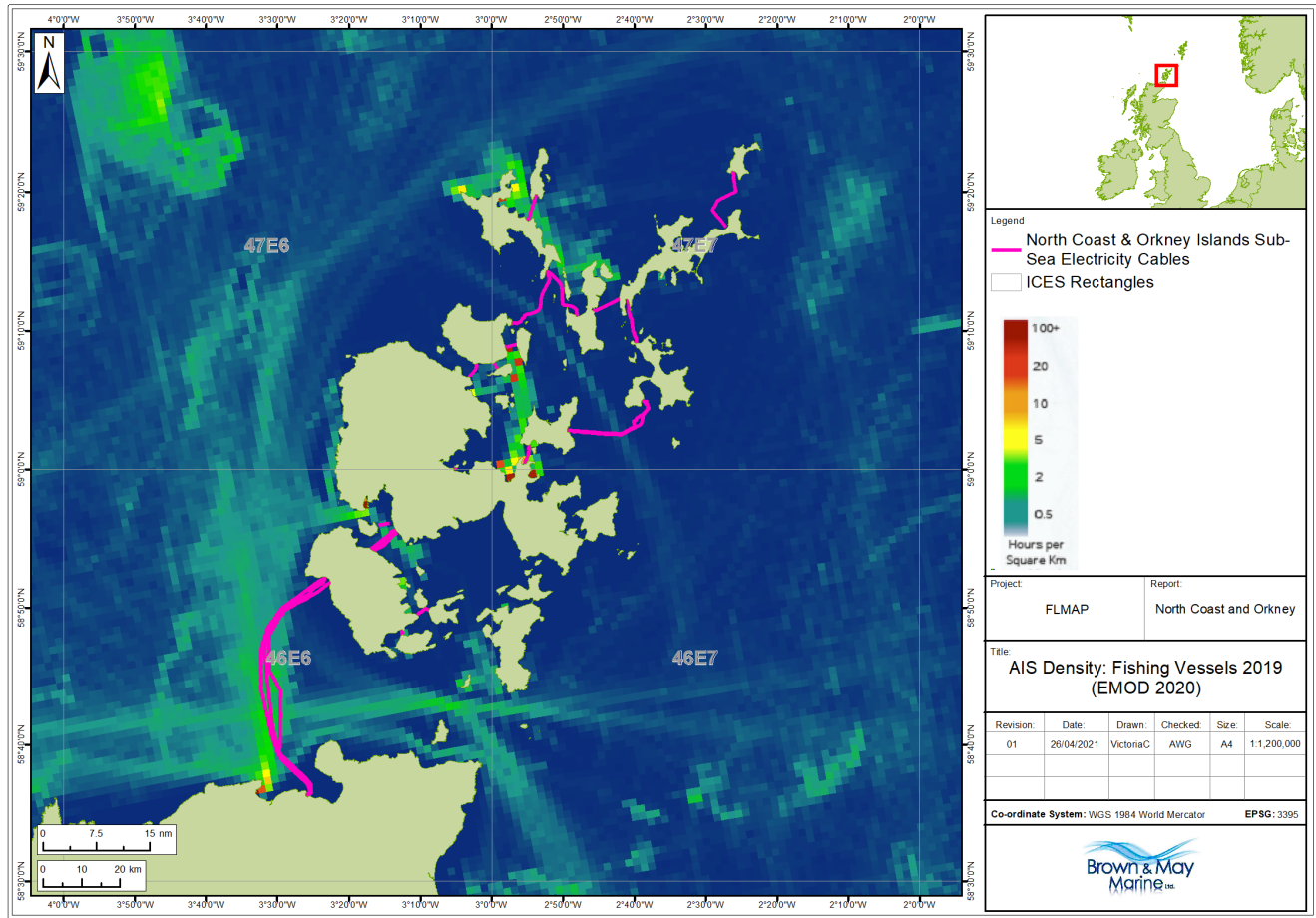


Figure 15 AIS density for fishing vessels in 2019 (EMODnet, 2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

## Appendix D Other Sea Users Charts

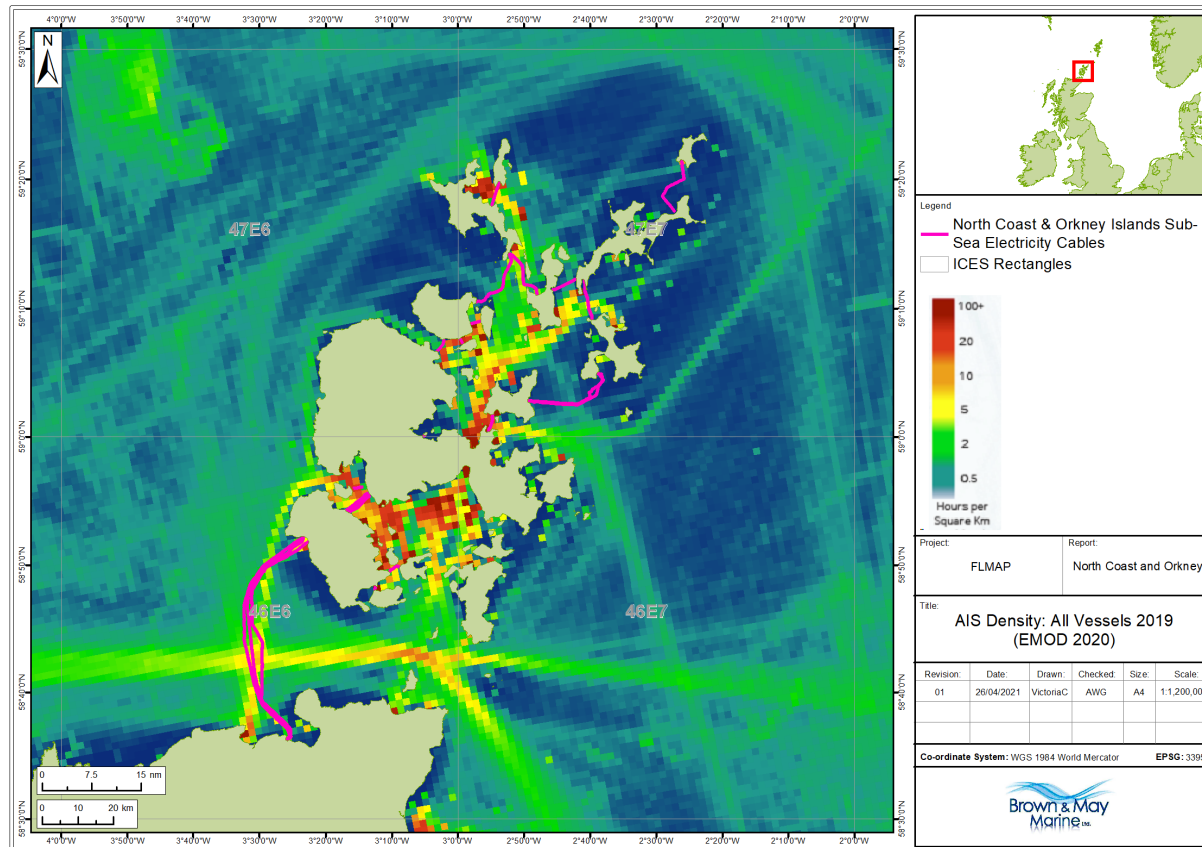


Figure 16 AIS density for all vessels (EMODnet, 2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

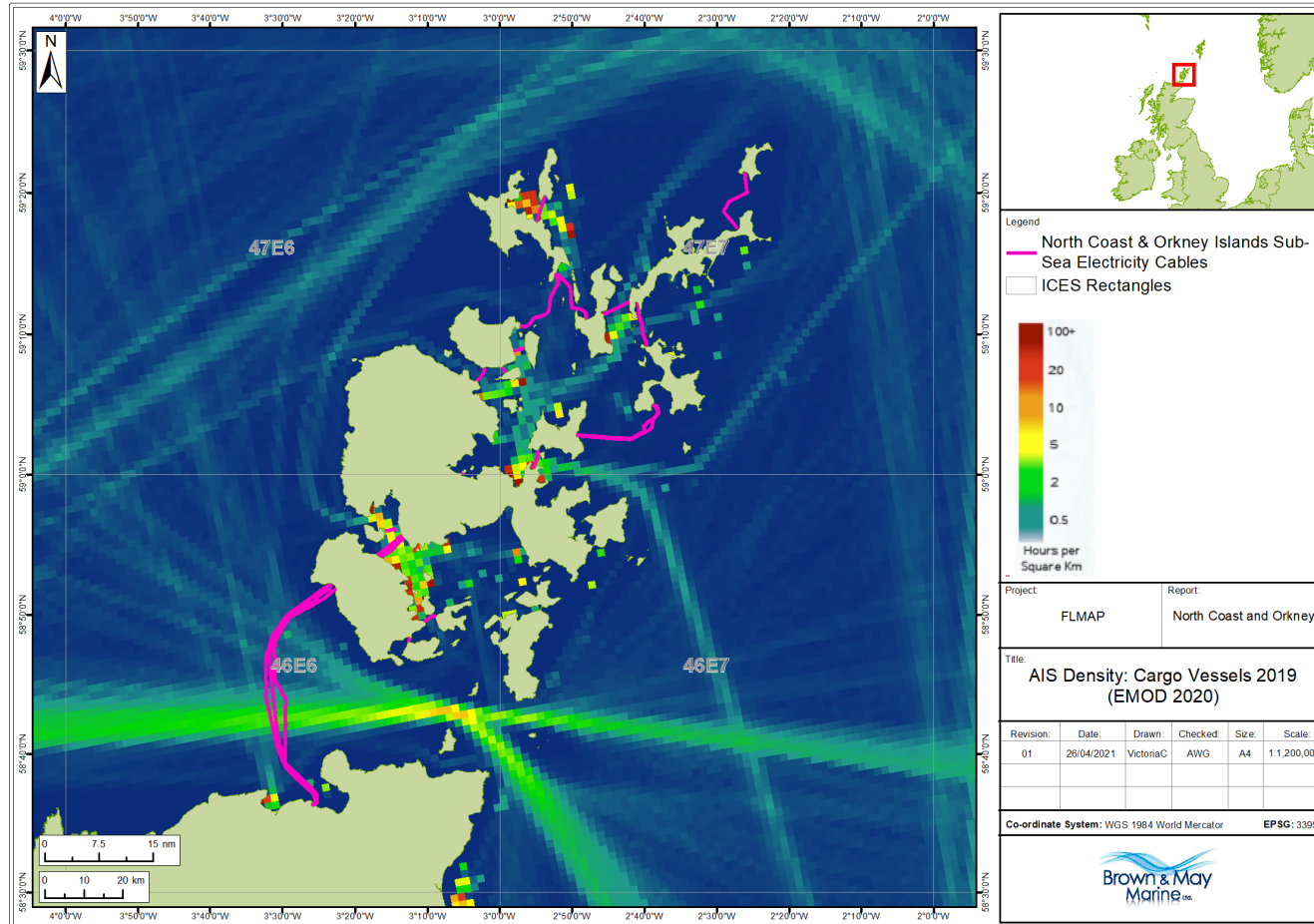


Figure 17 AIS density for cargo vessels (EMODnet, 2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

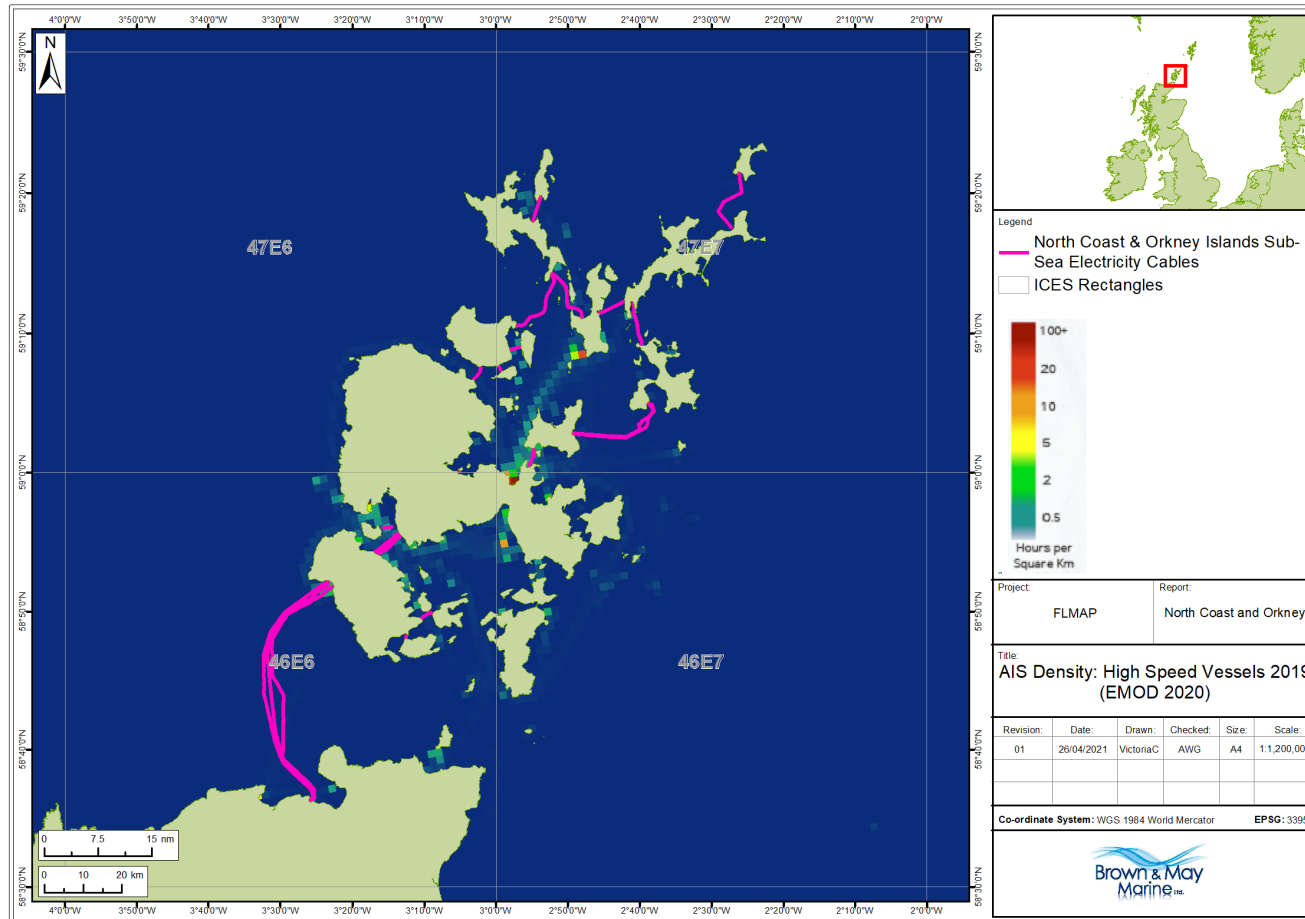


Figure 18 AIS density for high speed vessels (EMODnet, 2020)



	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

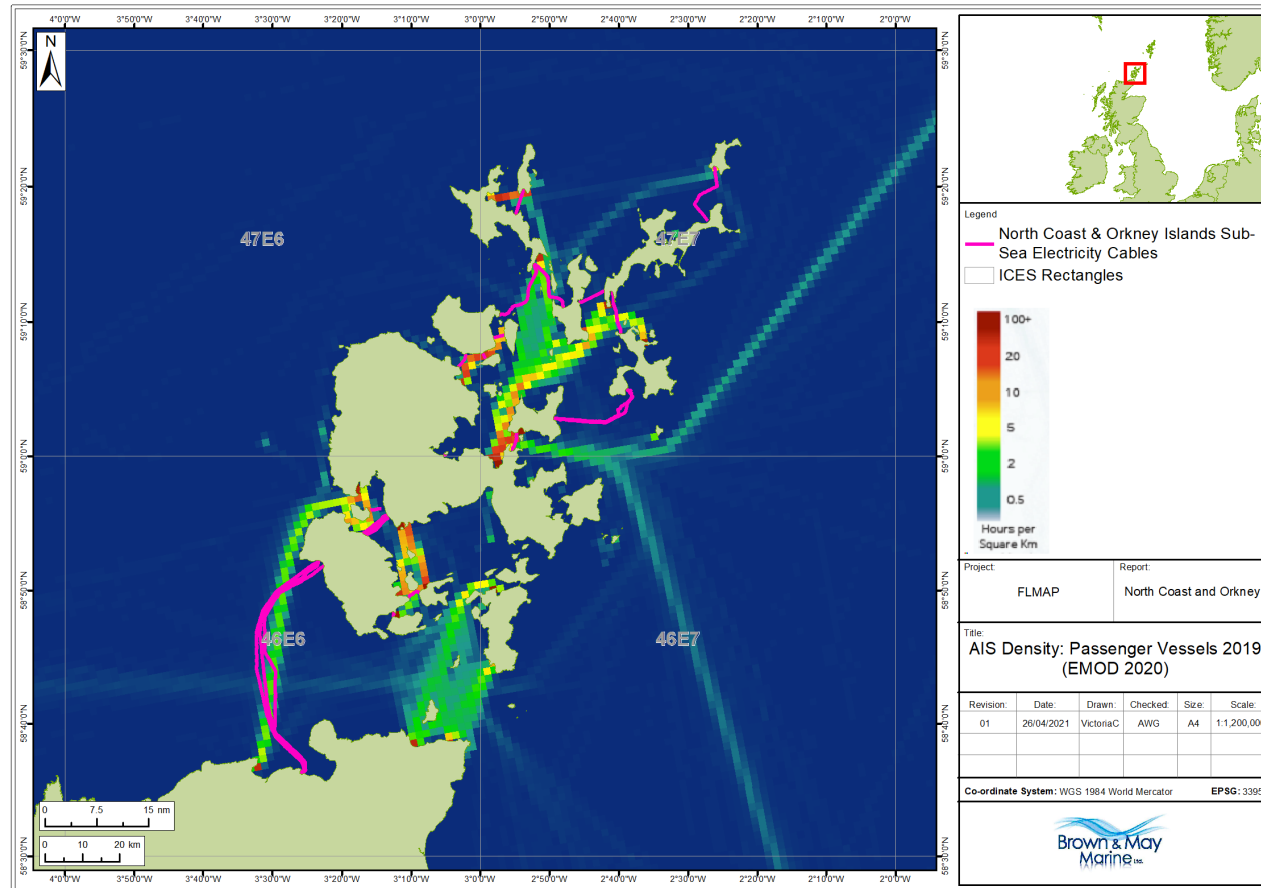


Figure 19 AIS density for passenger vessels (EMODnet, 2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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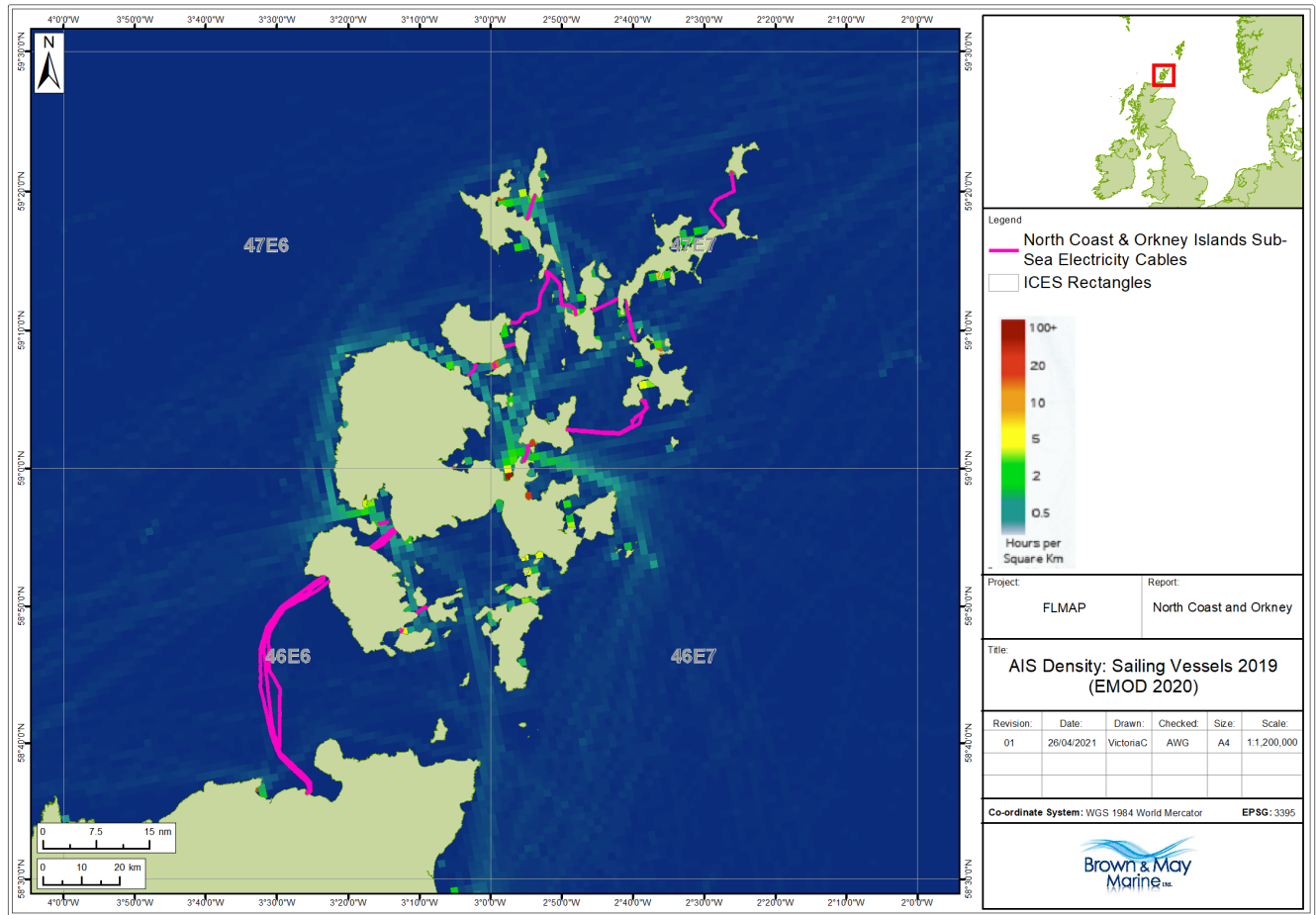


Figure 20 AIS density for sailing vessels (EMODnet, 2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

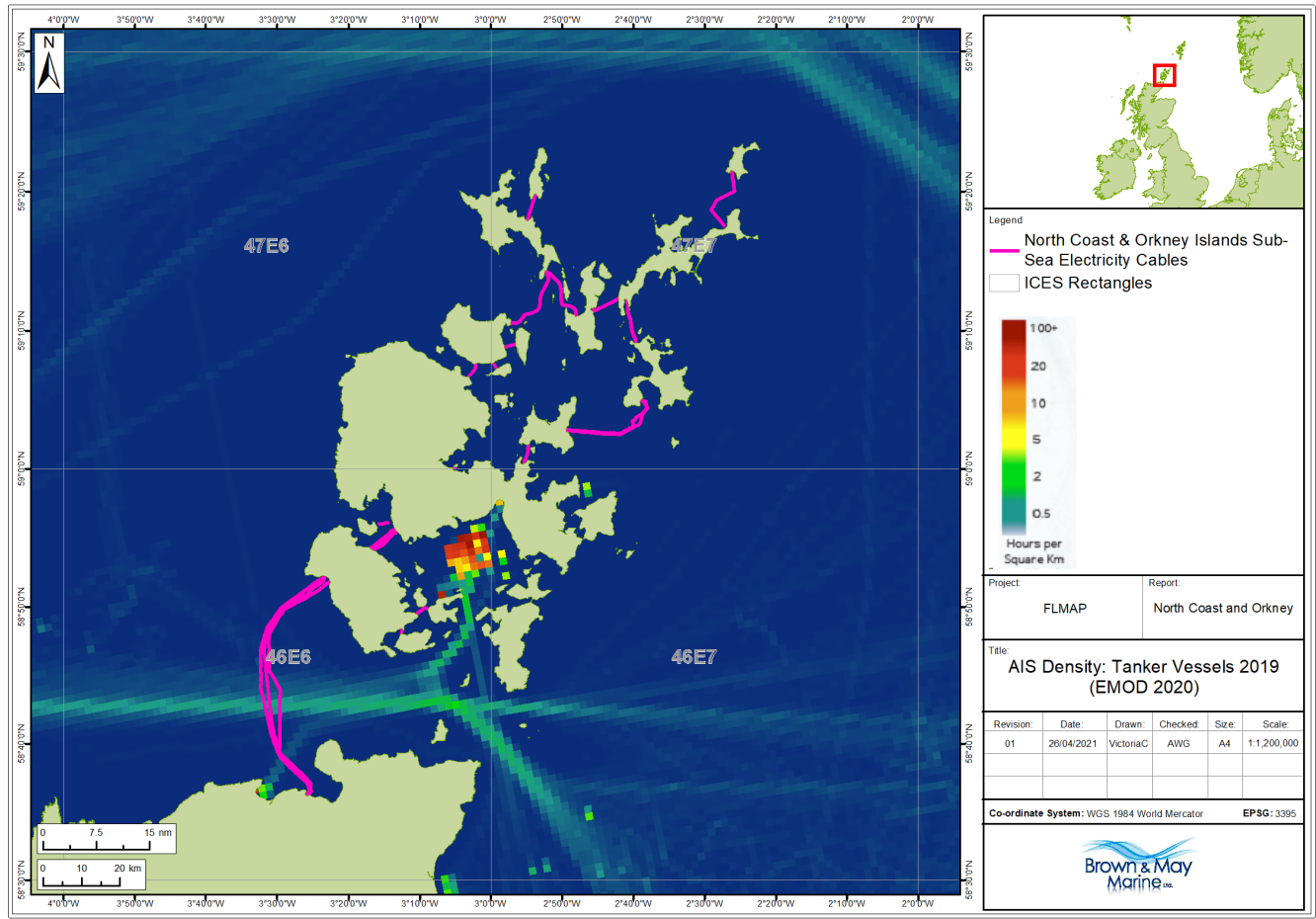


Figure 21 AIS density for tankers (EMODnet, 2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

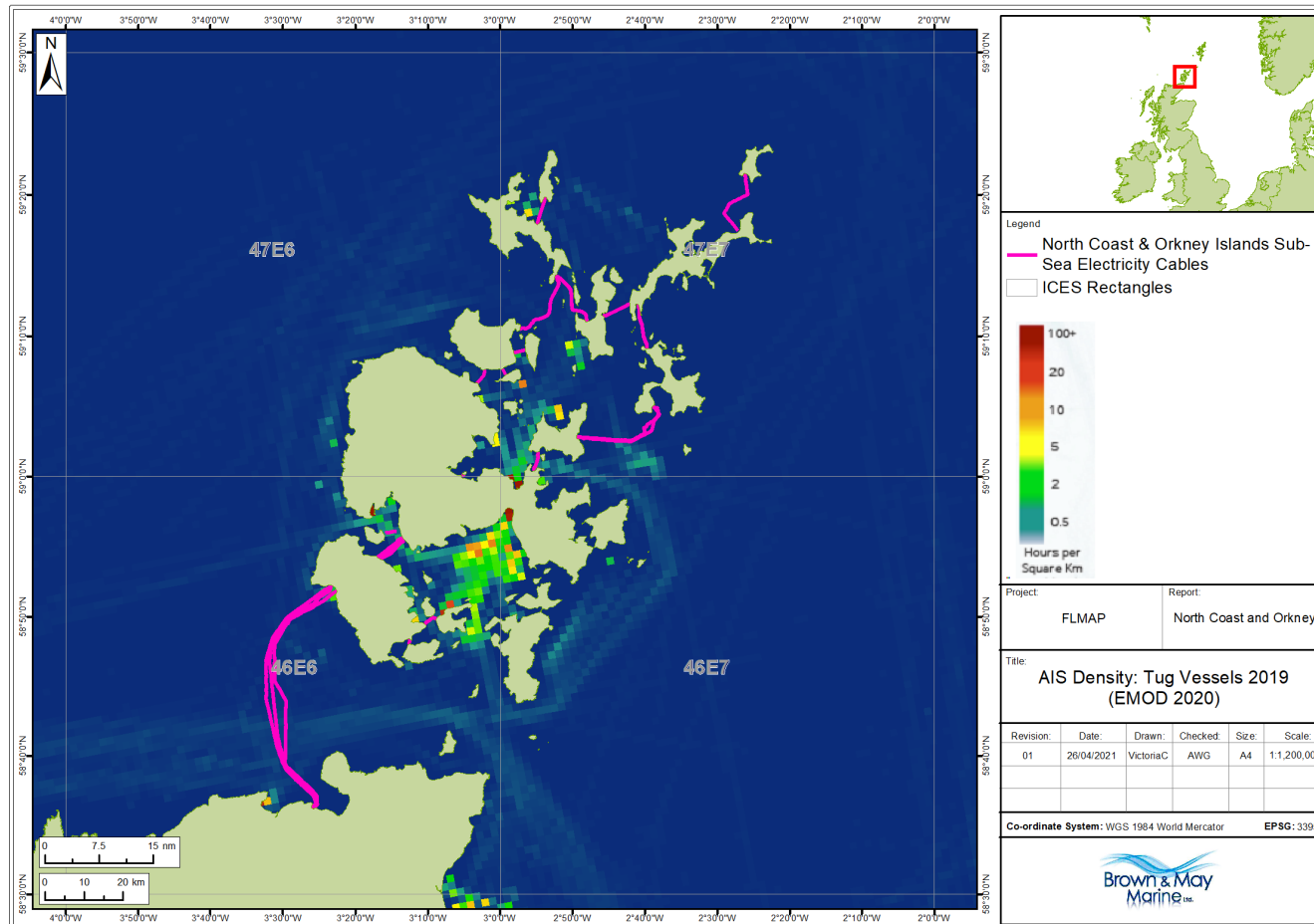


Figure 22 AIS density for tugs (EMODnet, 2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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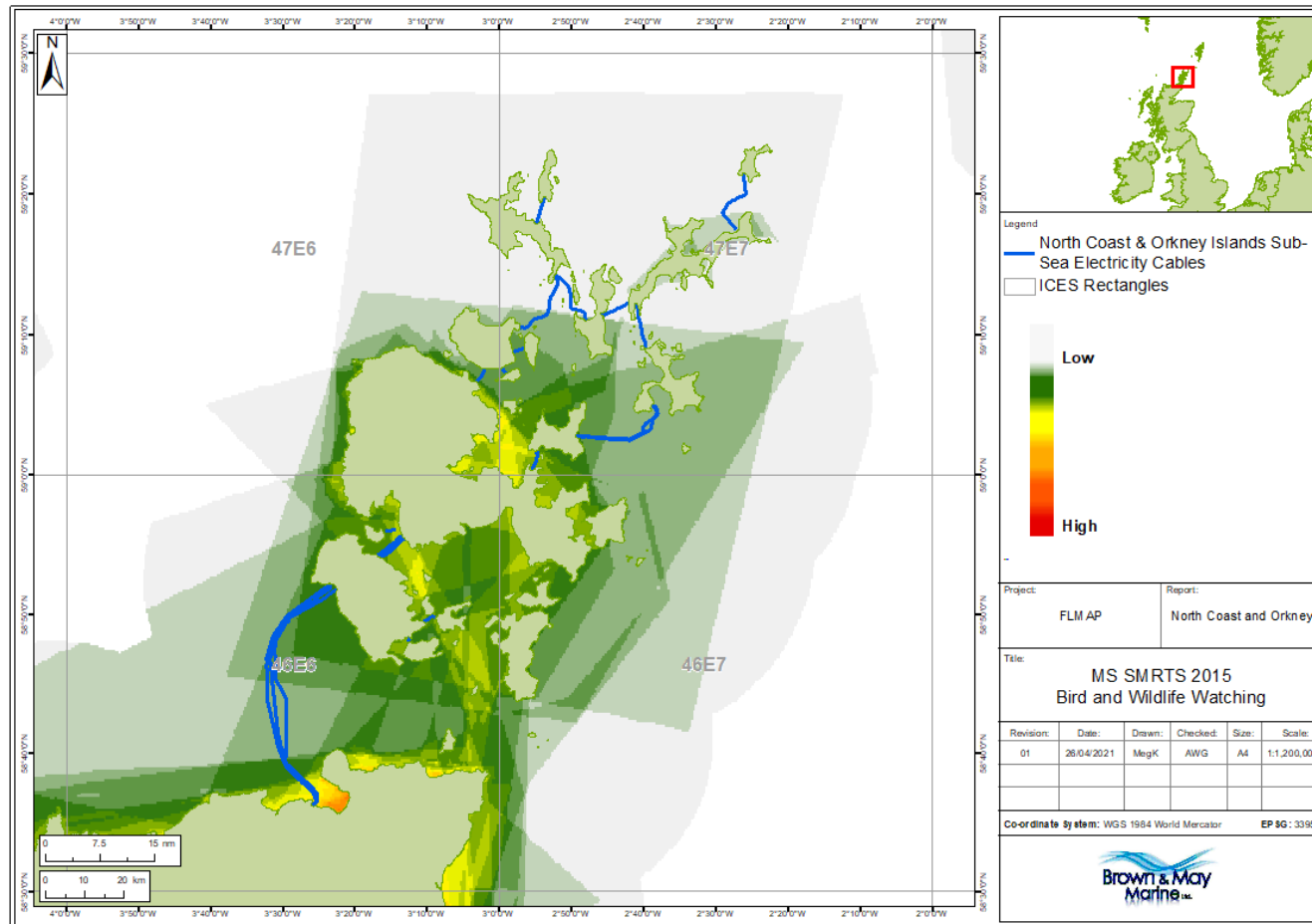


Figure 23 Bird and wildlife watching (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

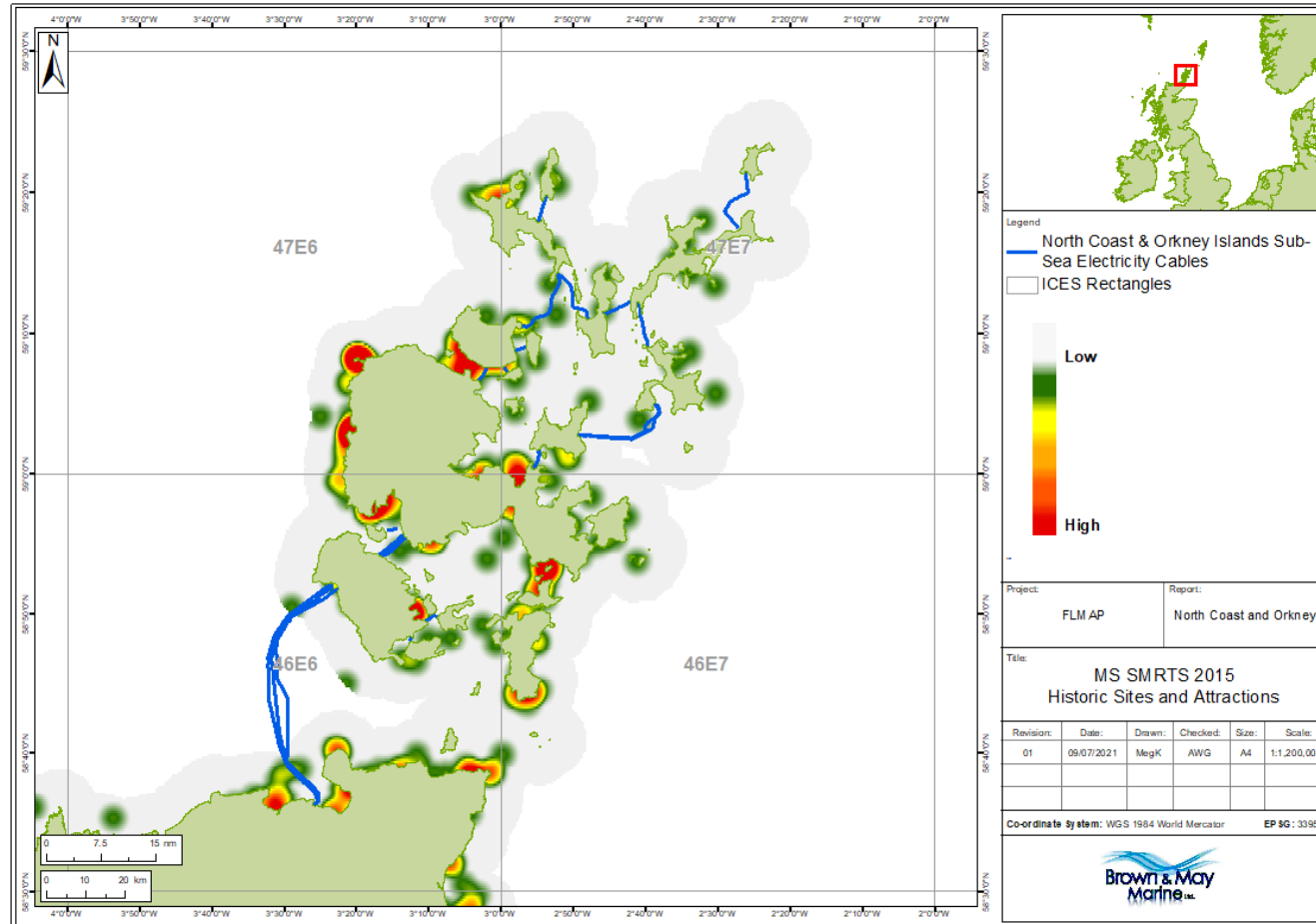


Figure 24 Historic Sites and Attractions (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

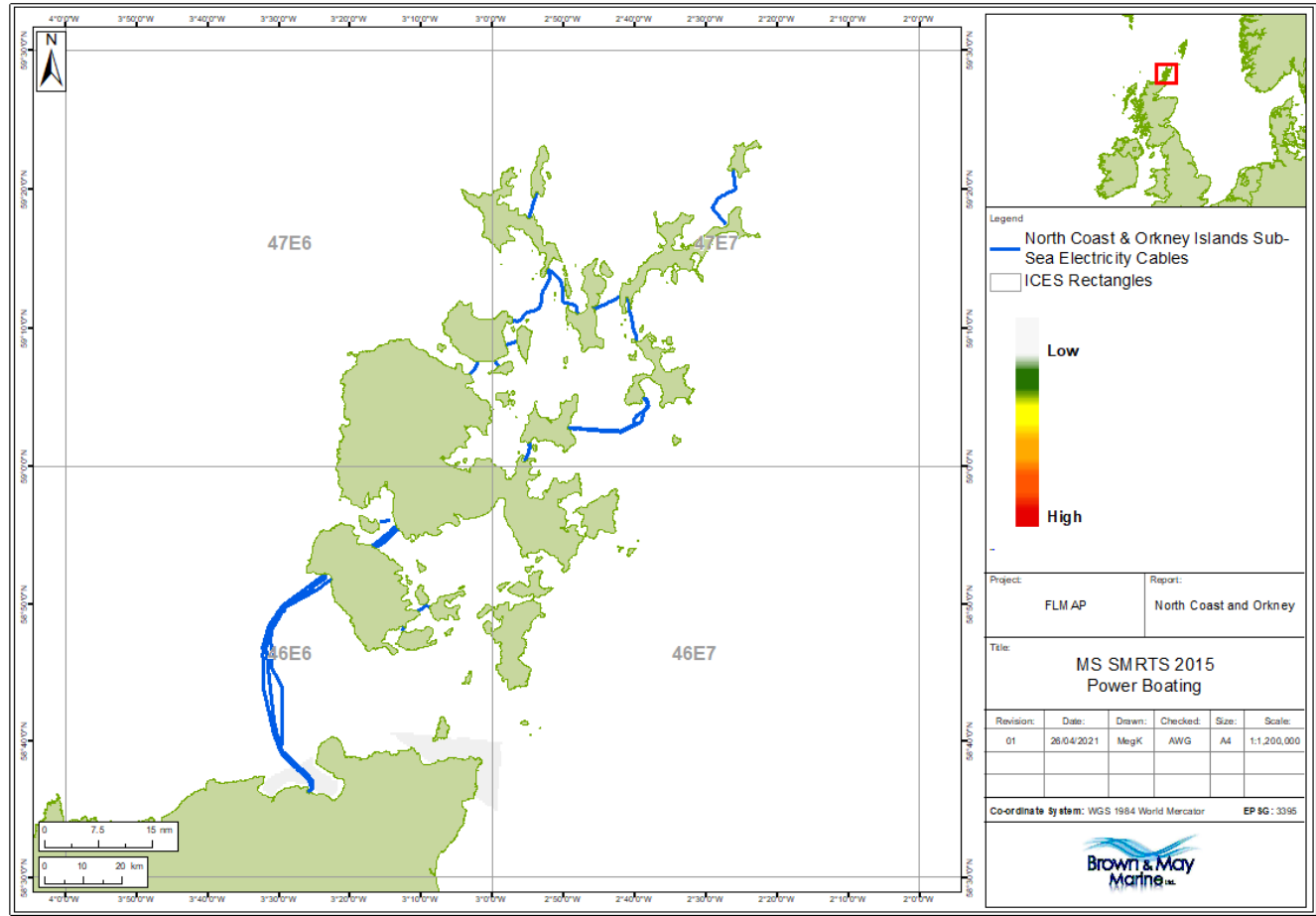


Figure 25 Power Boating (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

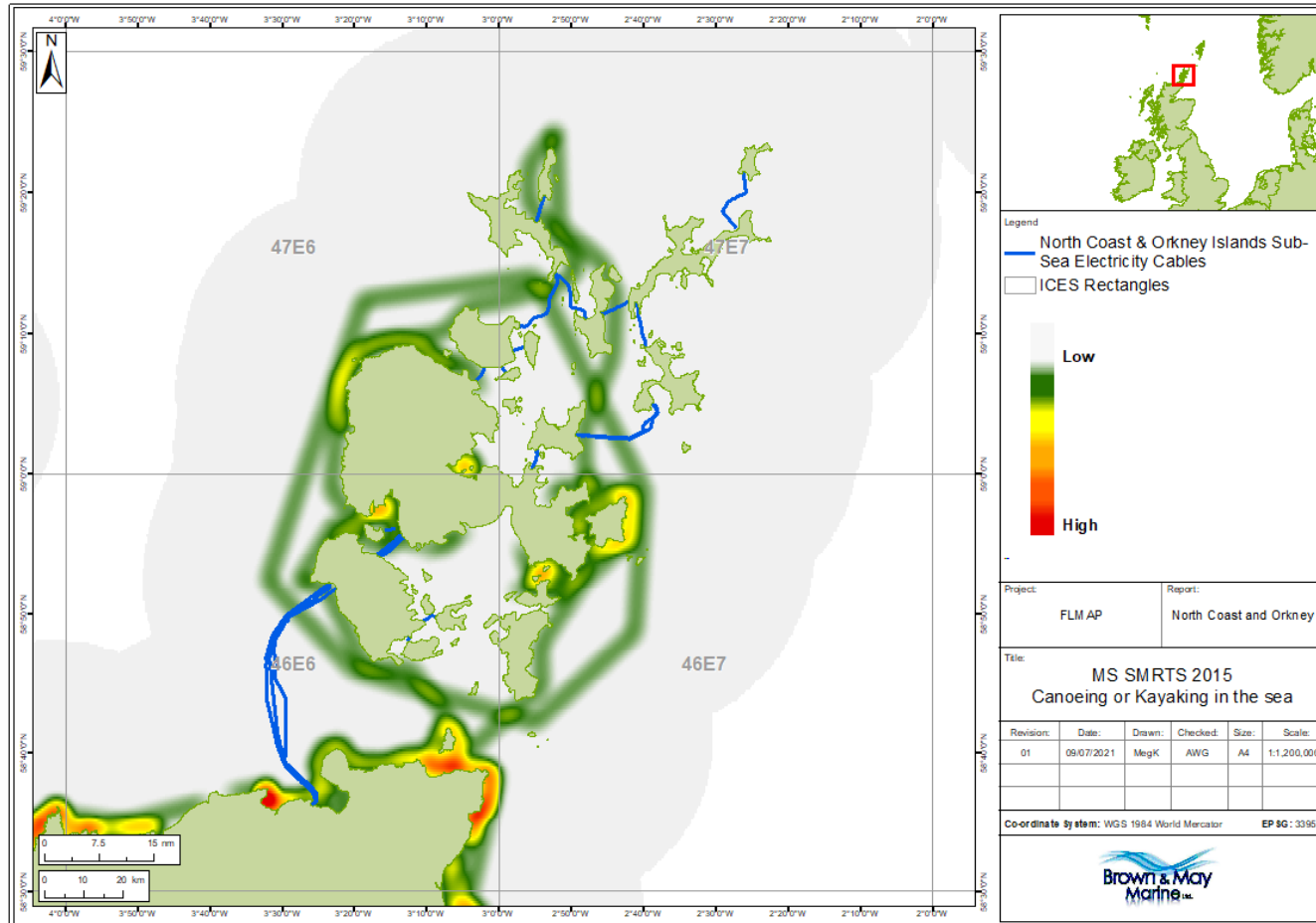


Figure 26 Canoeing and kayaking (Marine Scotland 2018)



	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

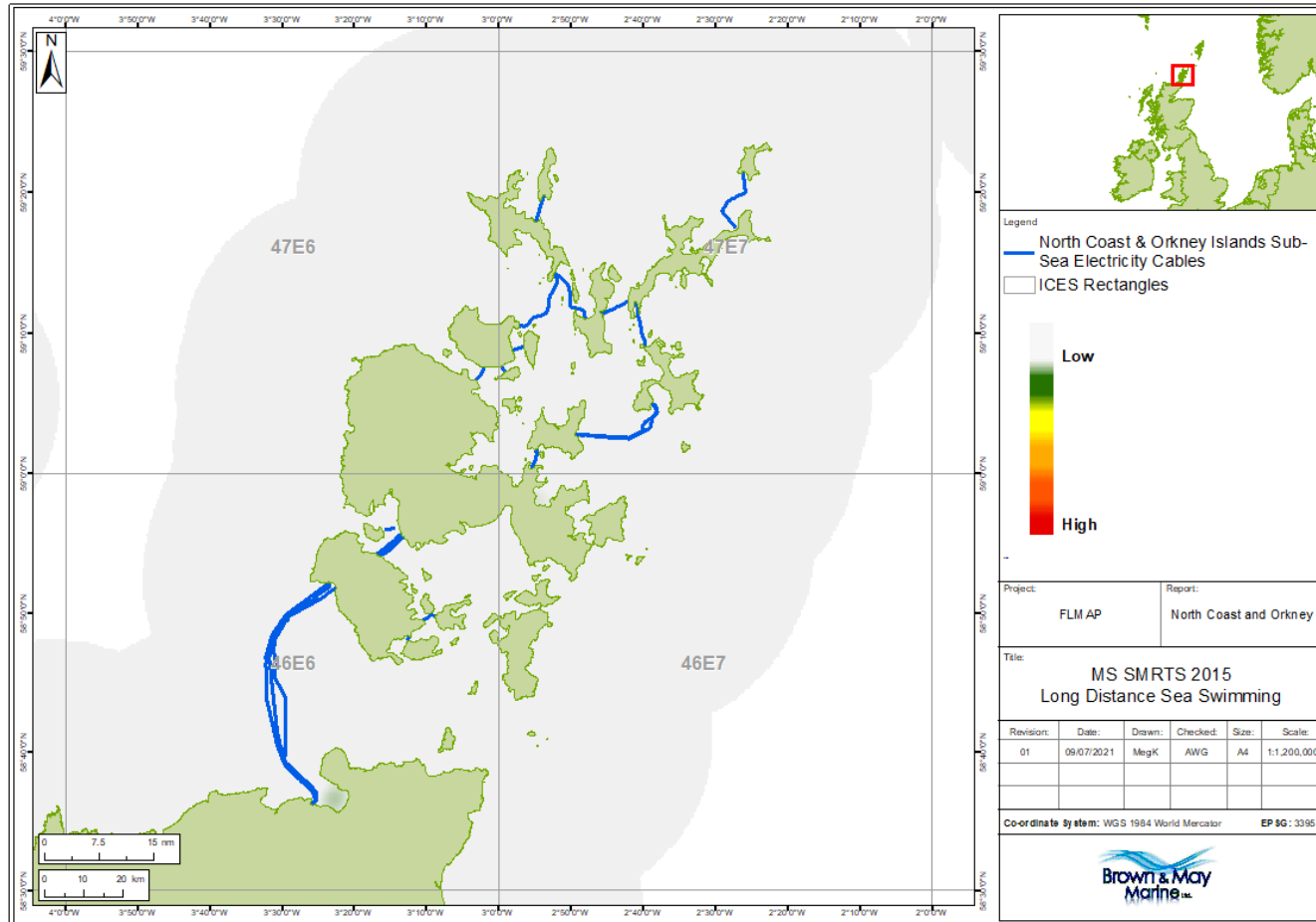


Figure 27 Long distance swimming (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

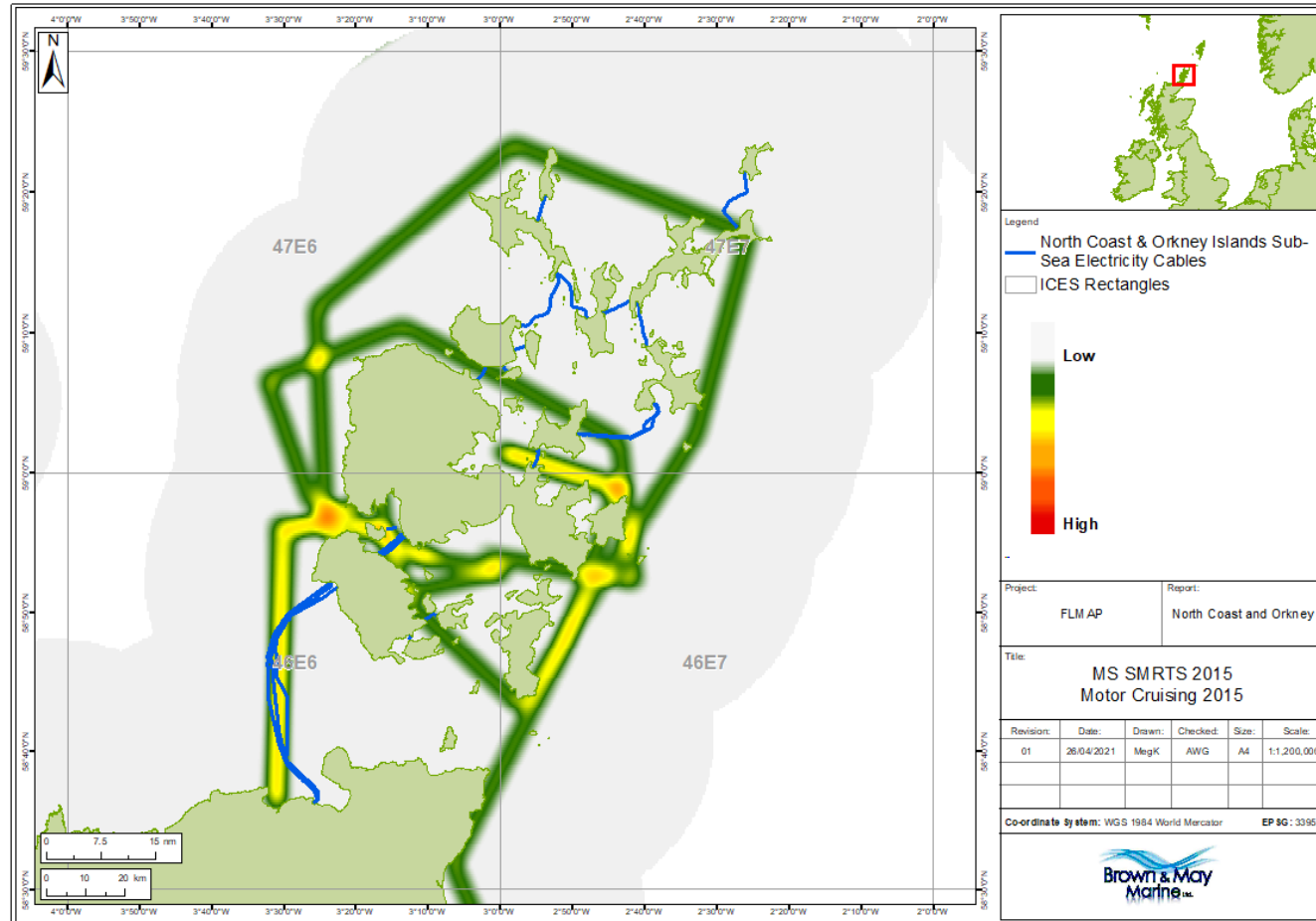


Figure 28 Motor cruising (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

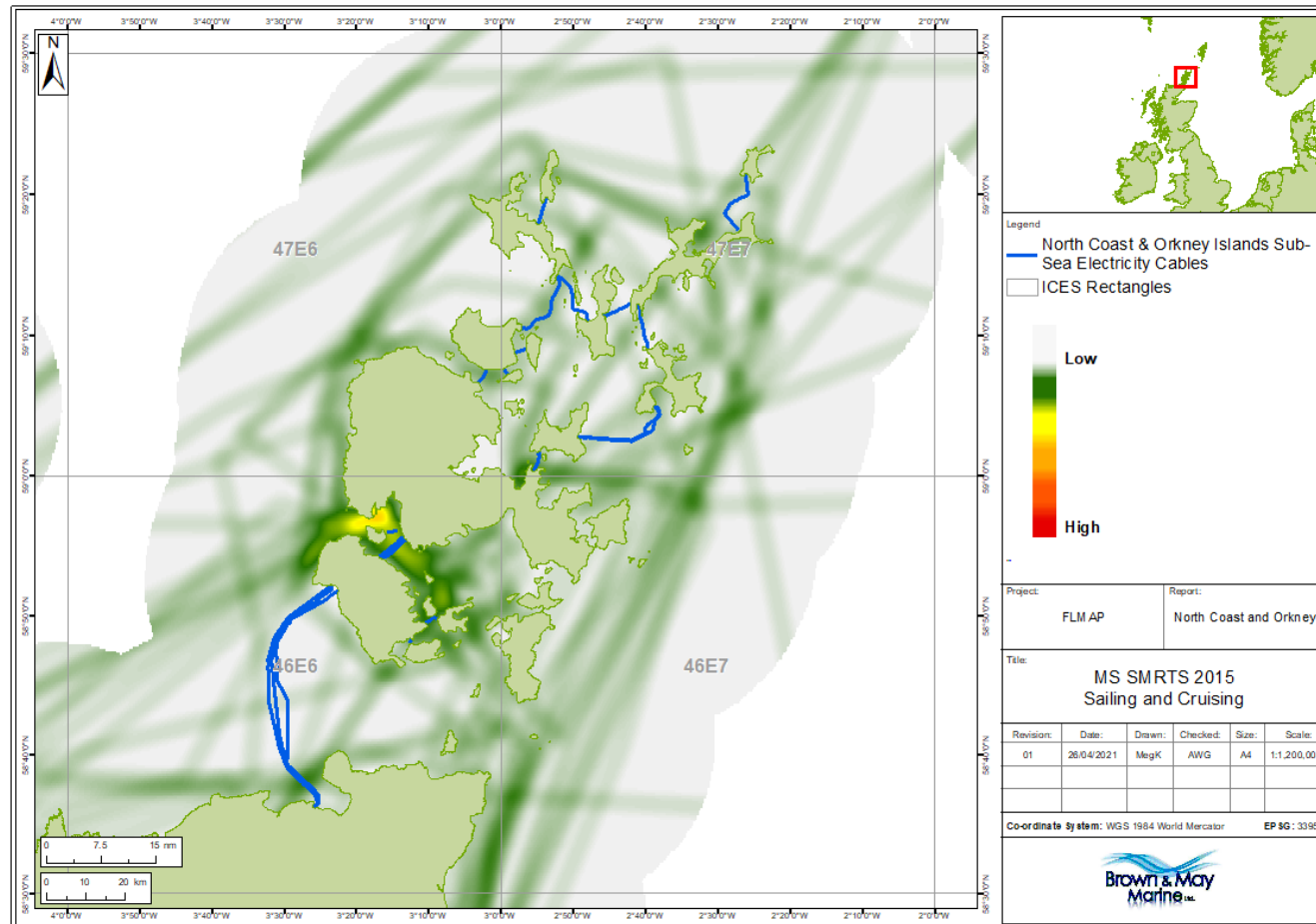


Figure 29 Sailing and cruising (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

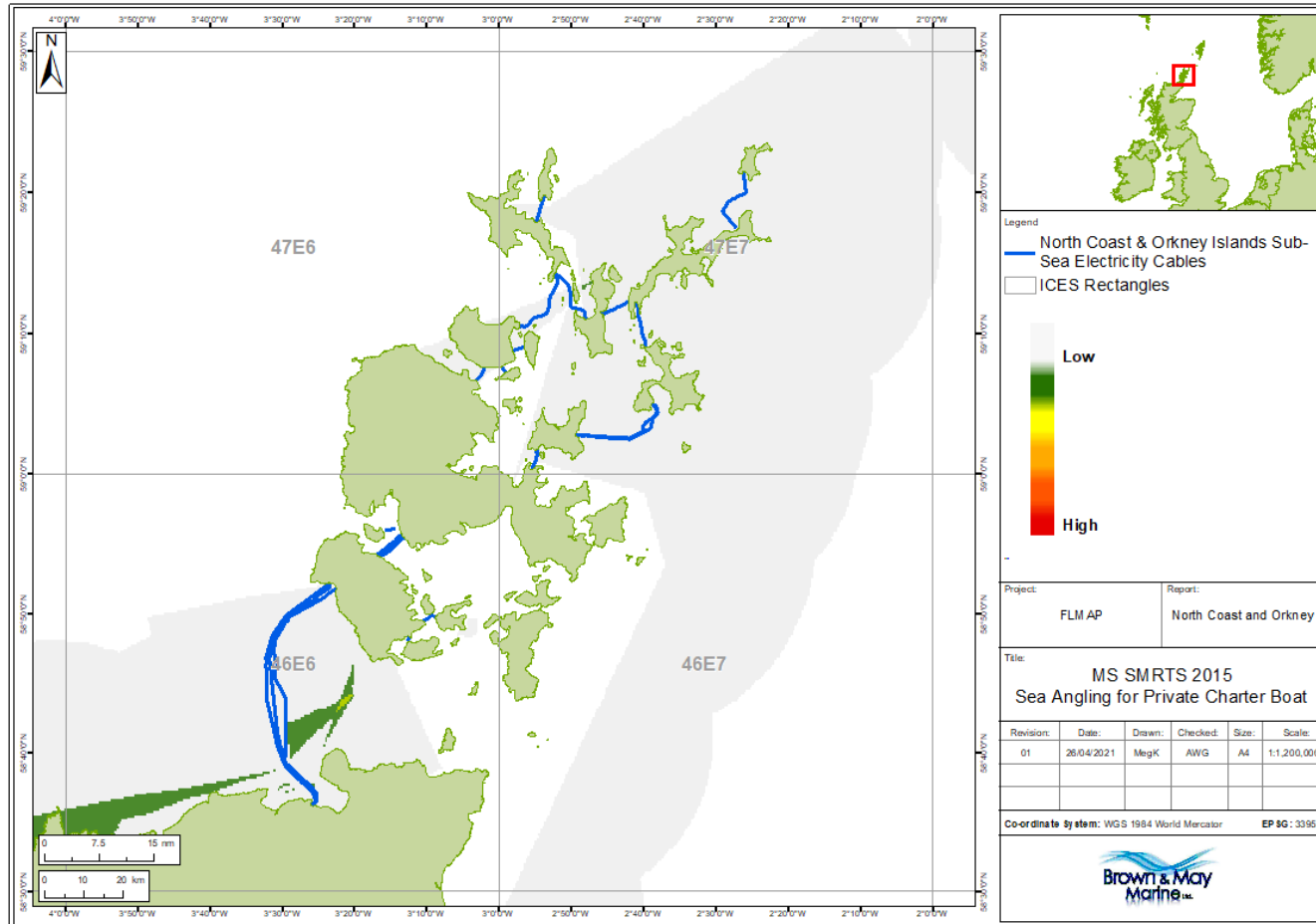


Figure 30 Chartered angling (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

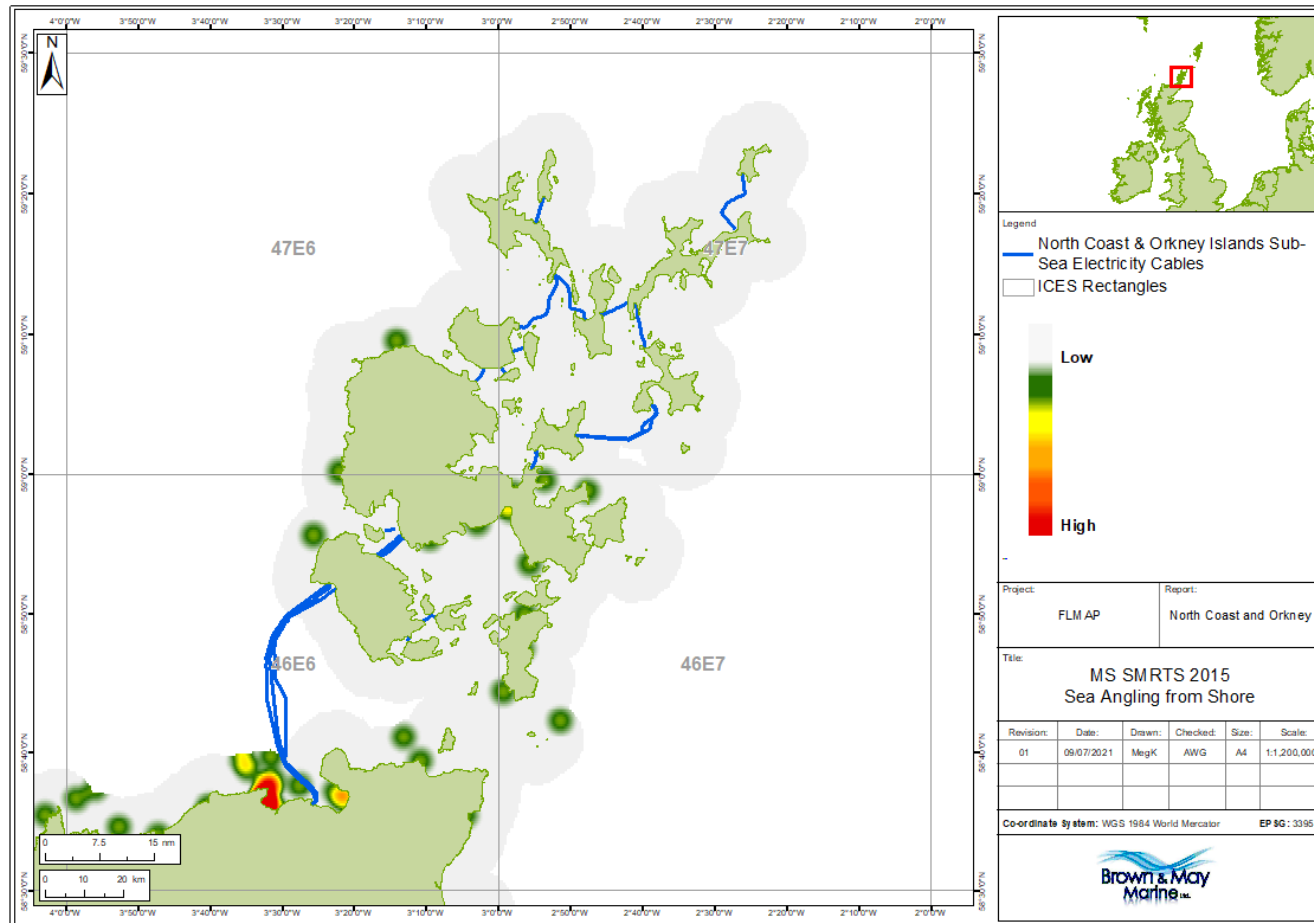


Figure 31 Sea Angling from shore (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

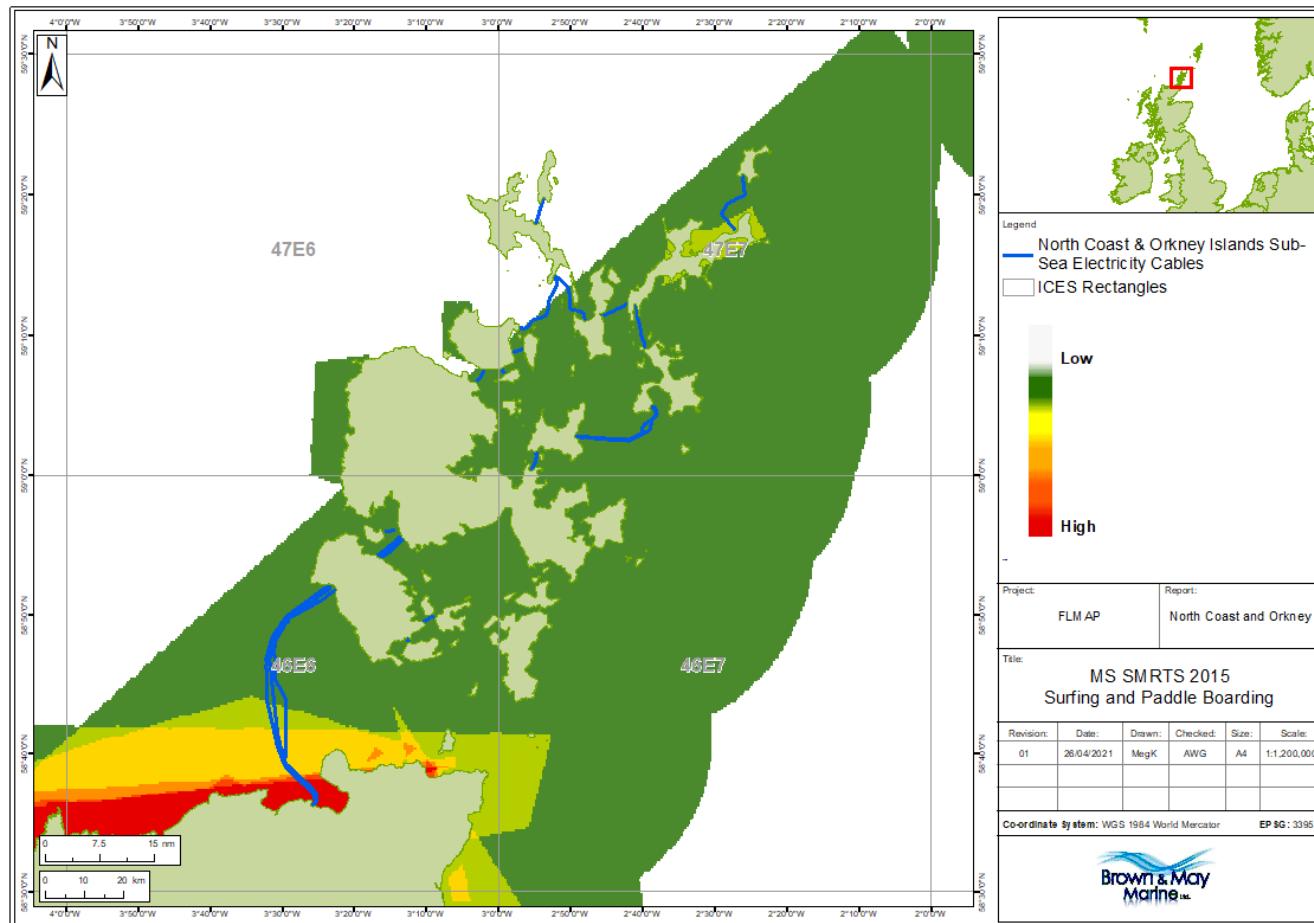


Figure 32 Surfing and paddle boarding (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

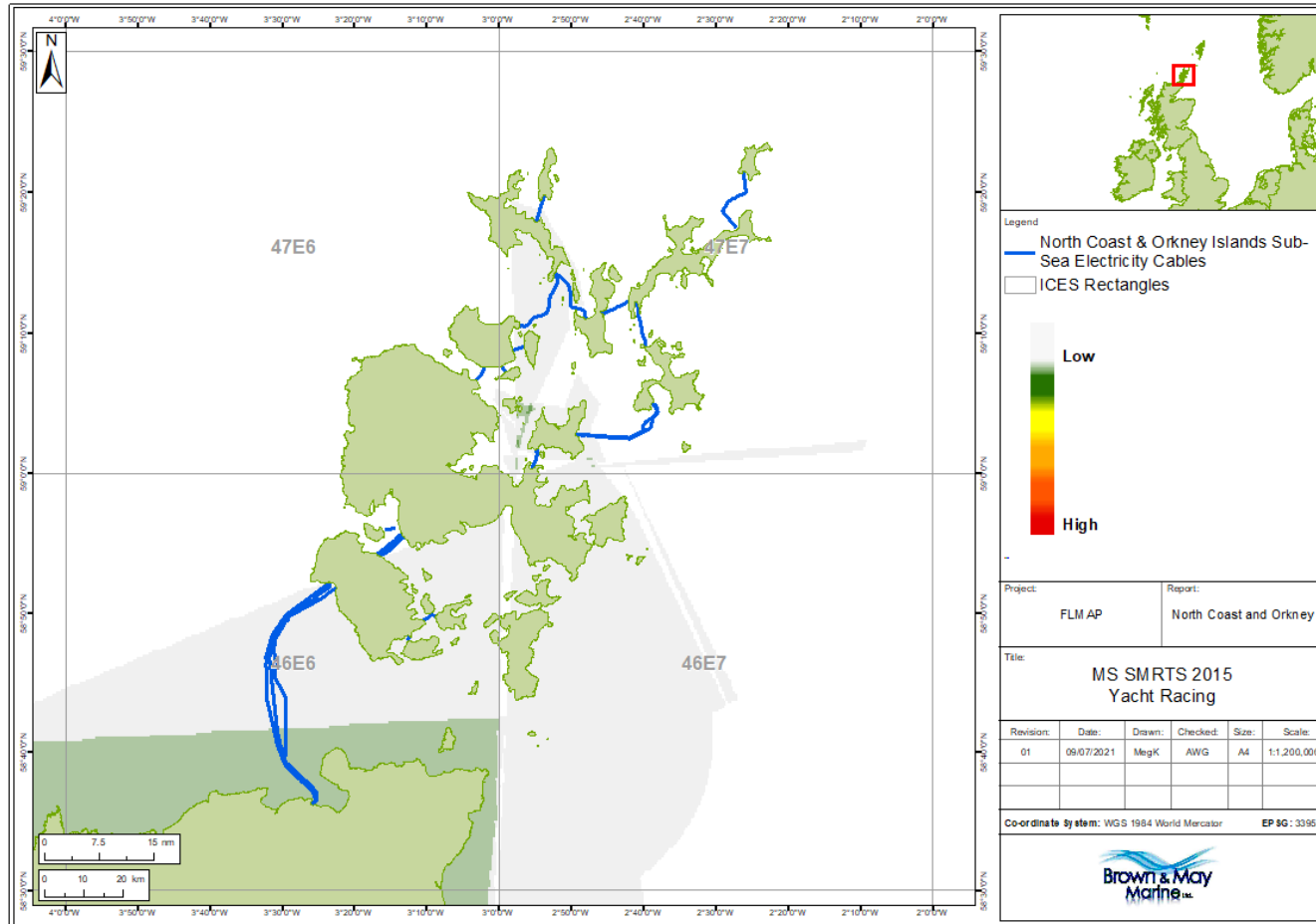


Figure 33 Yacht racing (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

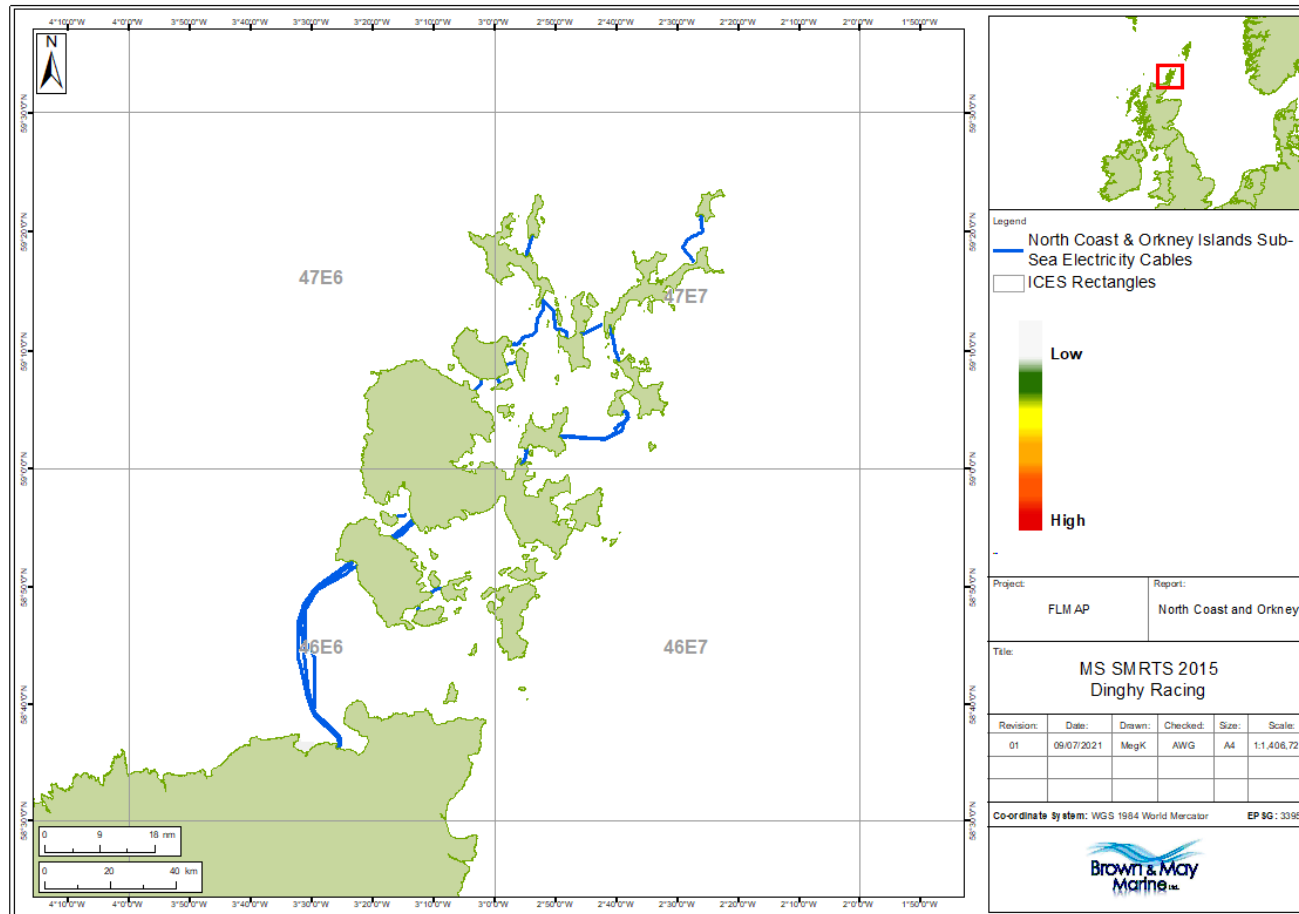


Figure 34 Dinghy racing (Marine Scotland 2018)



	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

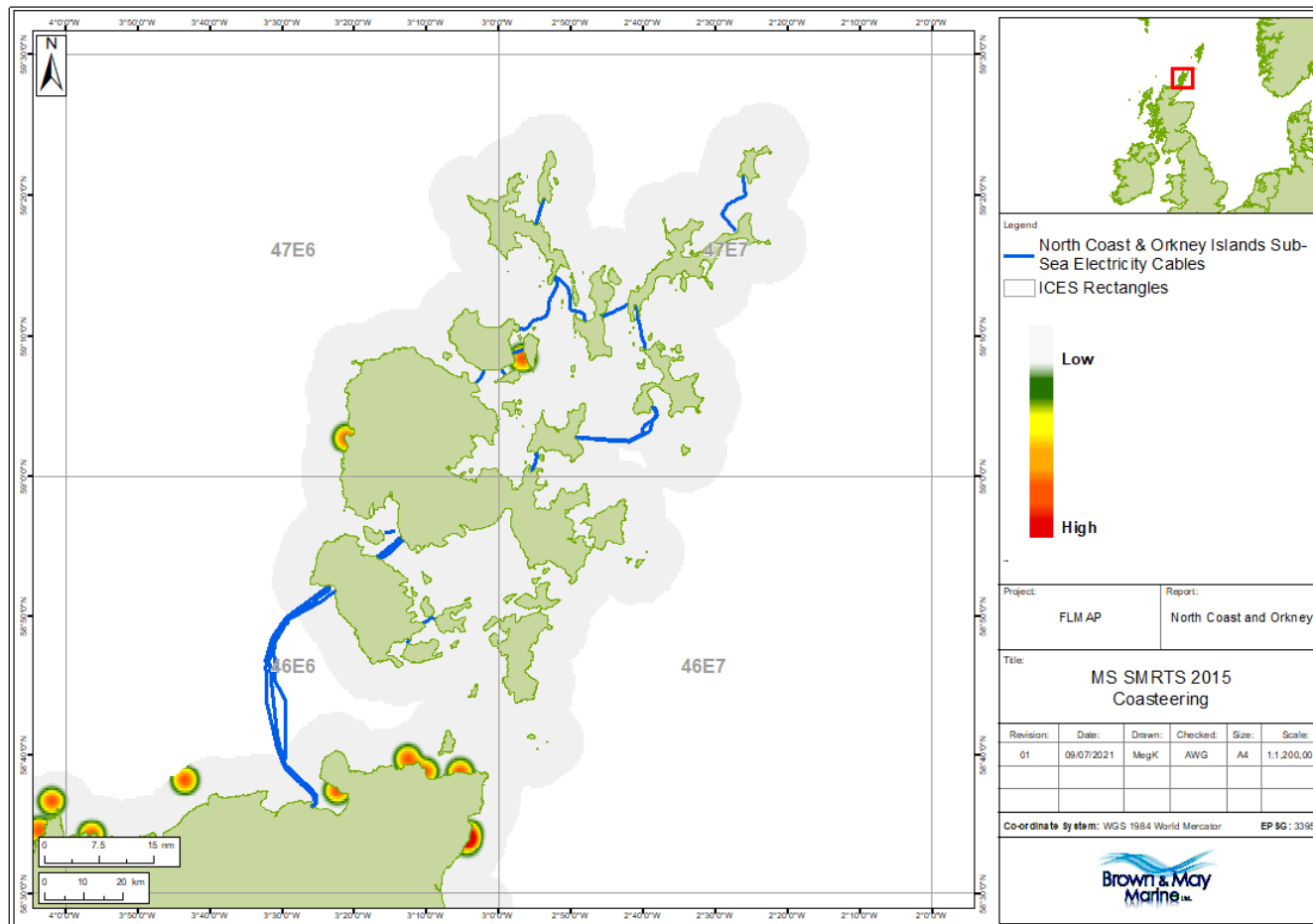


Figure 35 Coasteering (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
<b>Revision: 1.00</b>	<b>Internal Use</b>	<b>Issue Date:</b>	<b>Review Date:</b>	

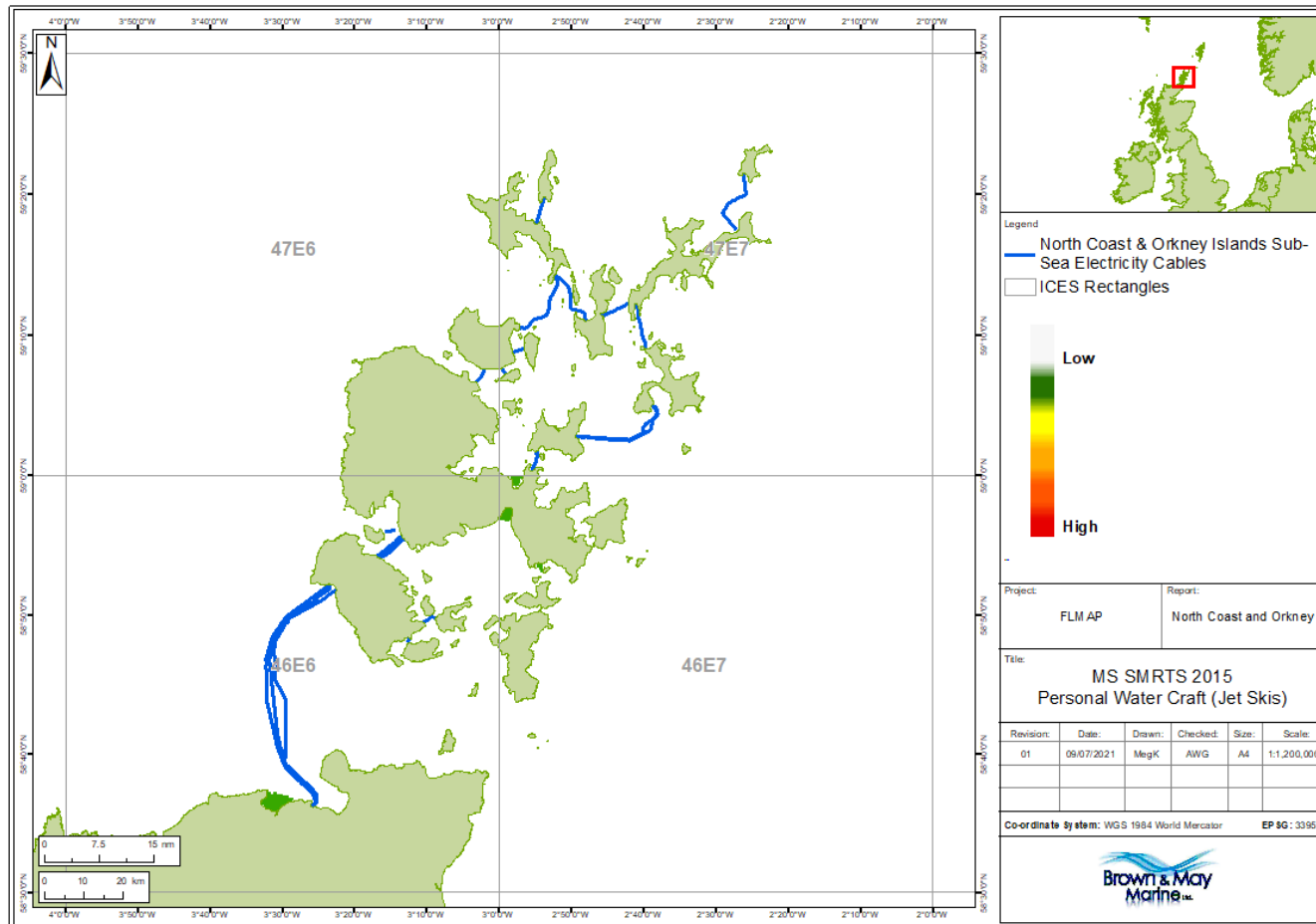


Figure 36 Personal water craft (Jet Skis) (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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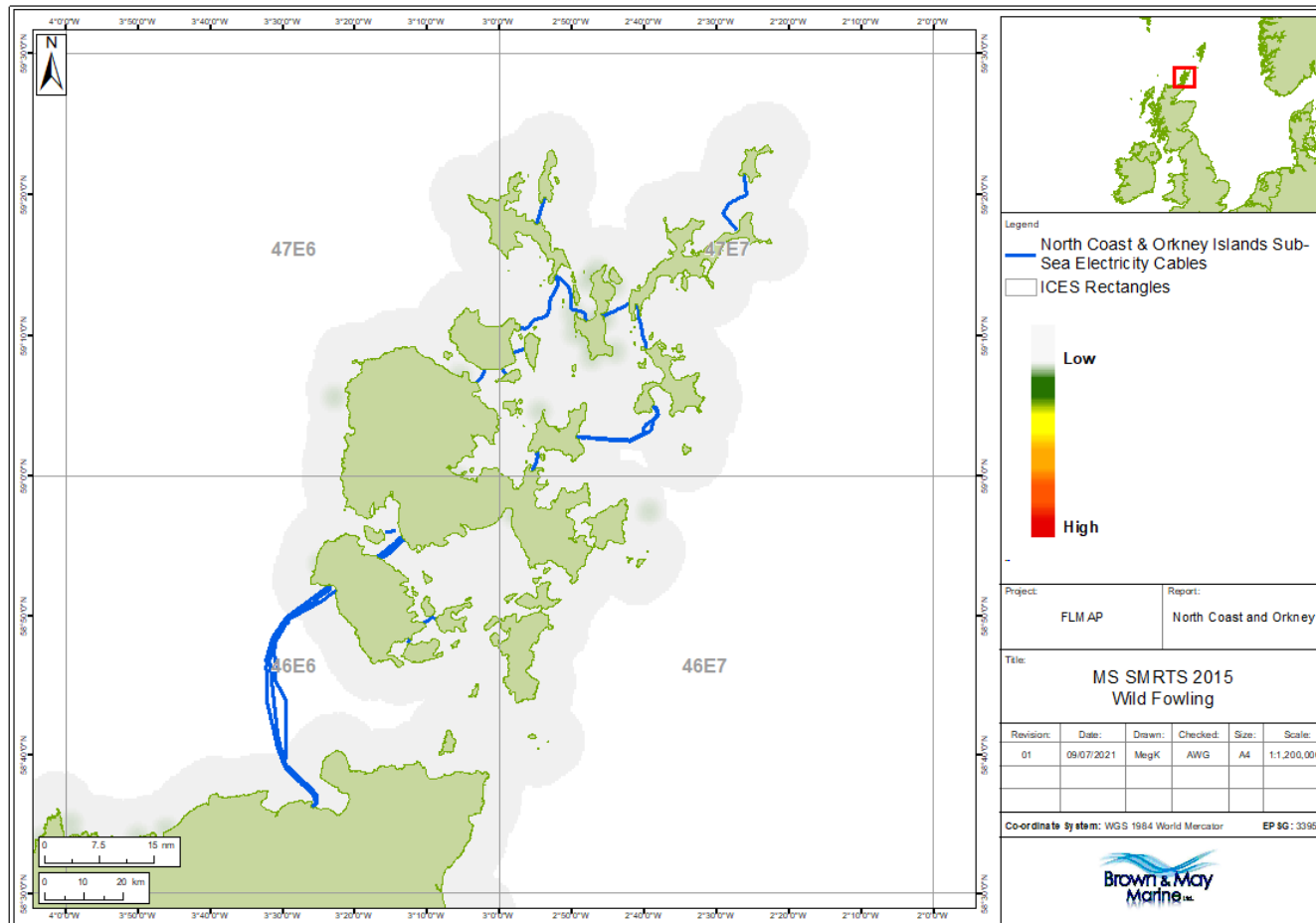


Figure 37 Wildfowling (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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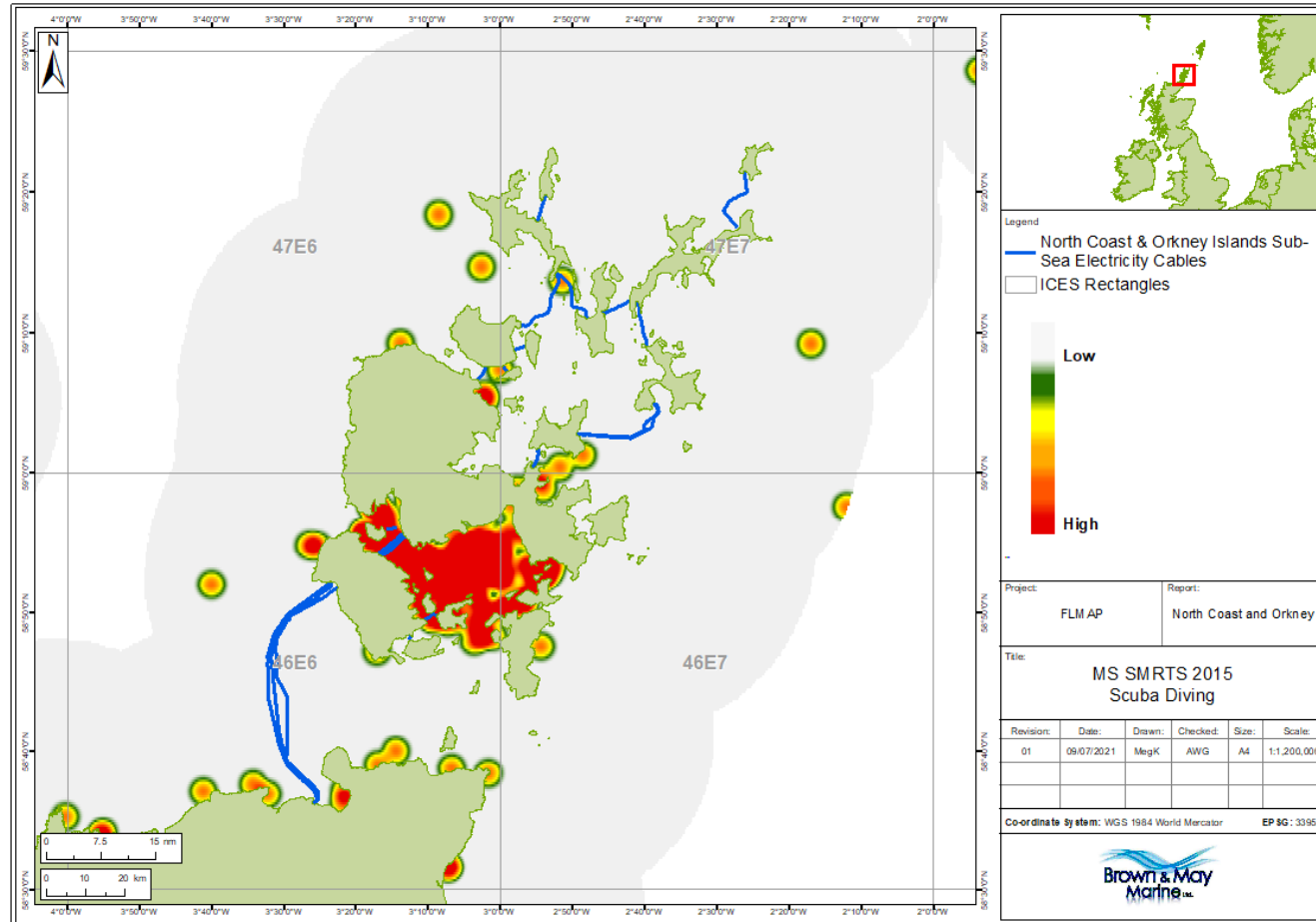


Figure 38 Scuba diving (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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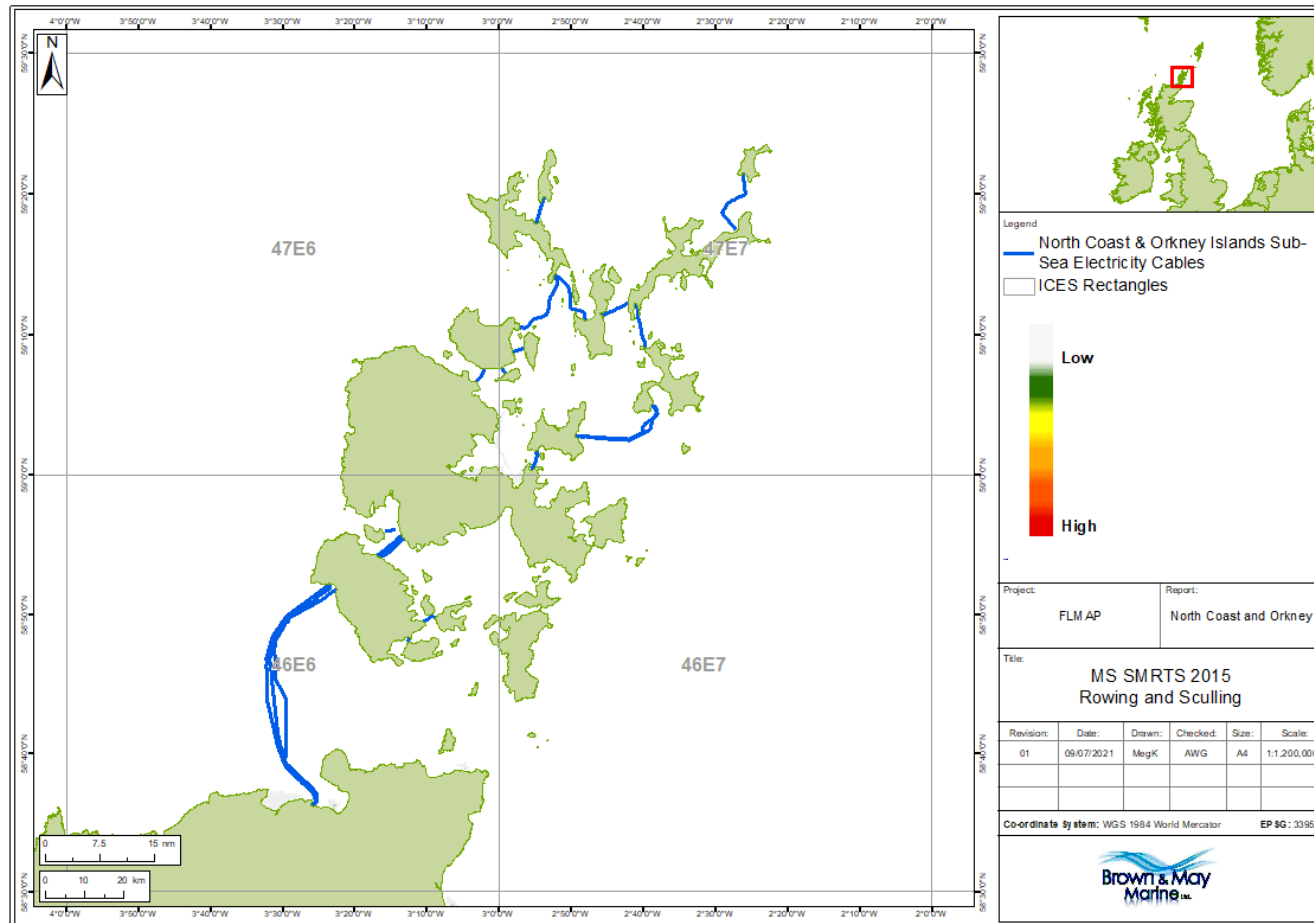


Figure 39 Rowing and sculling (Marine Scotland 2018)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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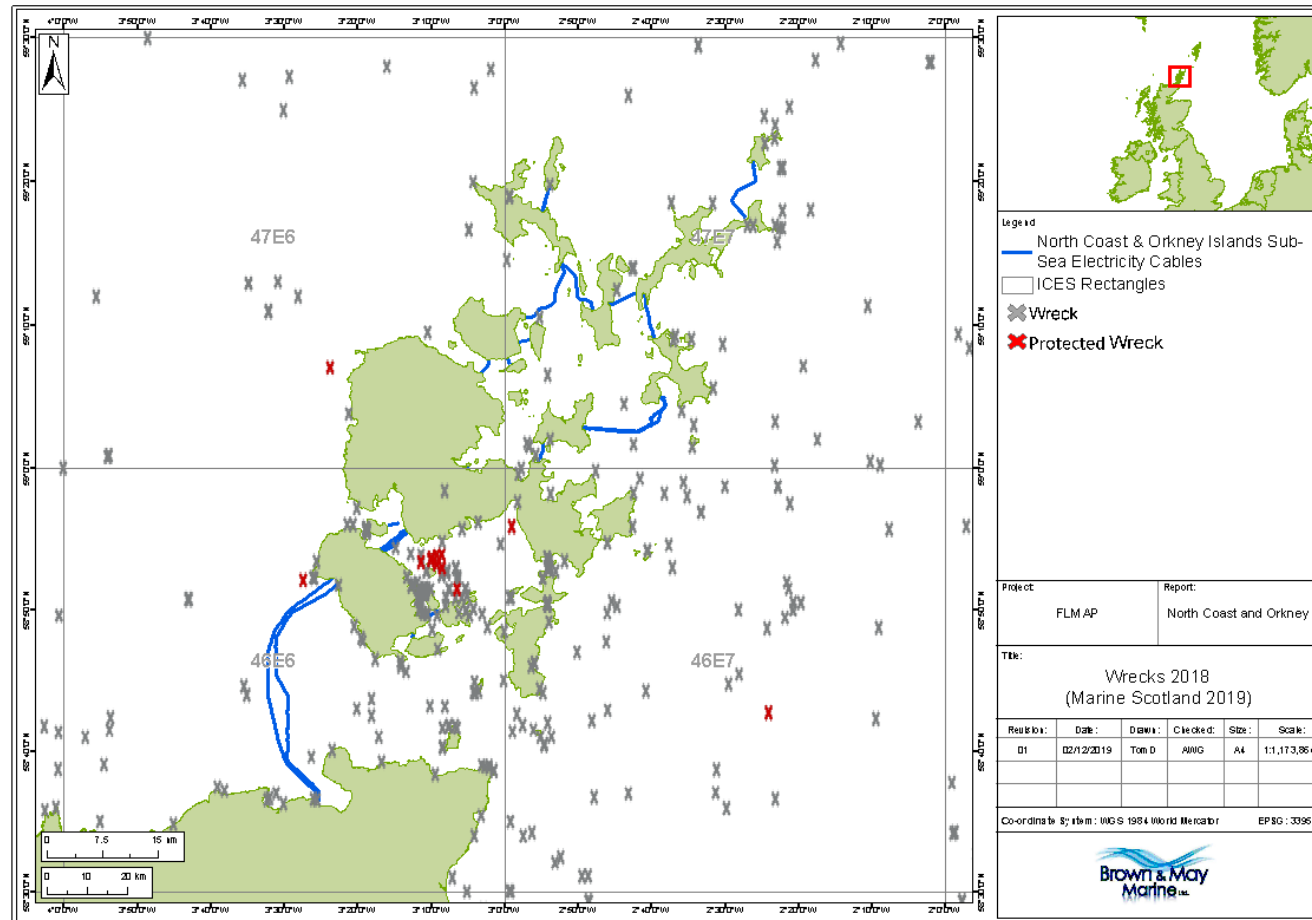


Figure 40 Known wreck sites (Marine Scotland 2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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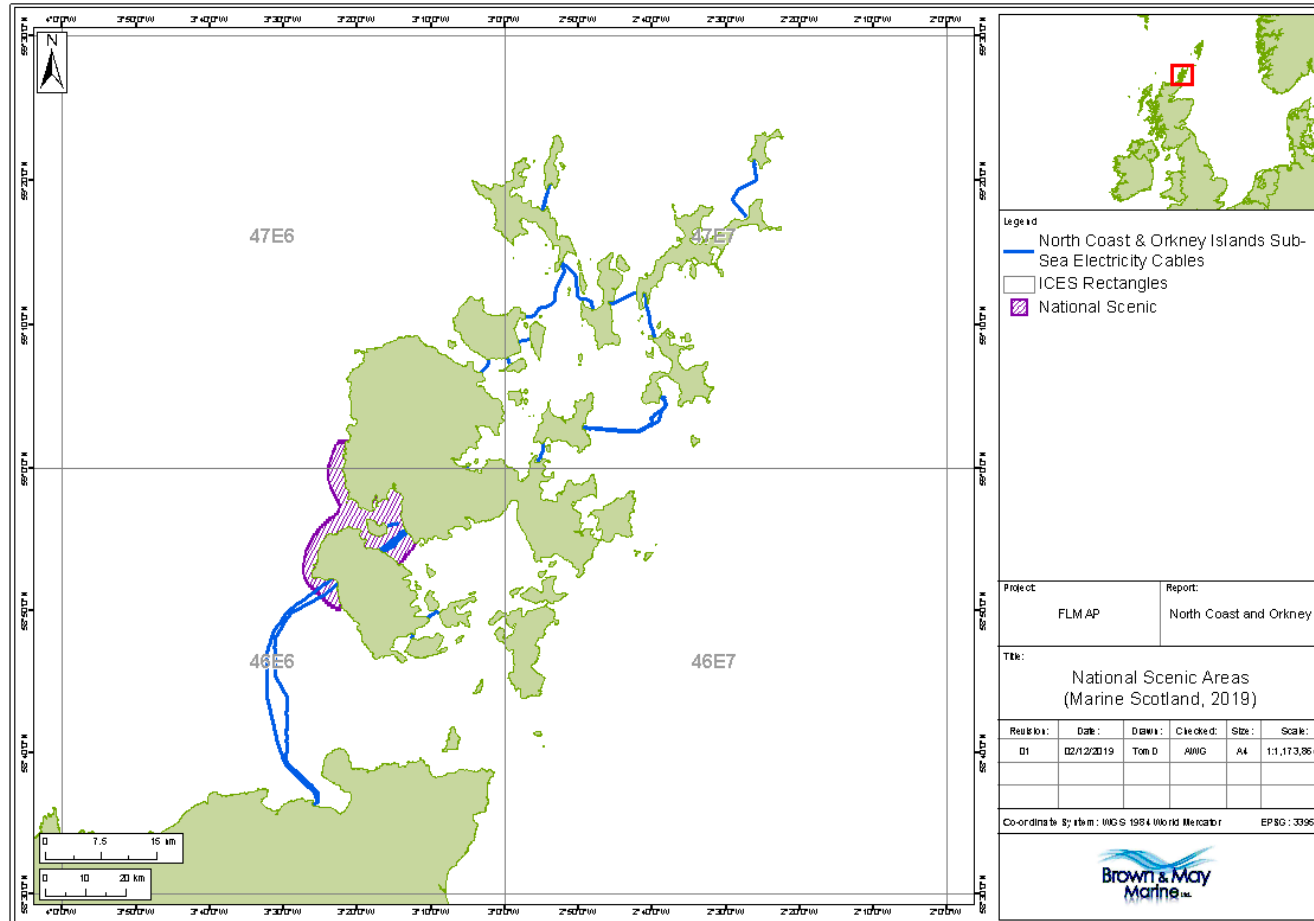


Figure 41 National Scenic Area coastal sites (Marine Scotland 2019)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
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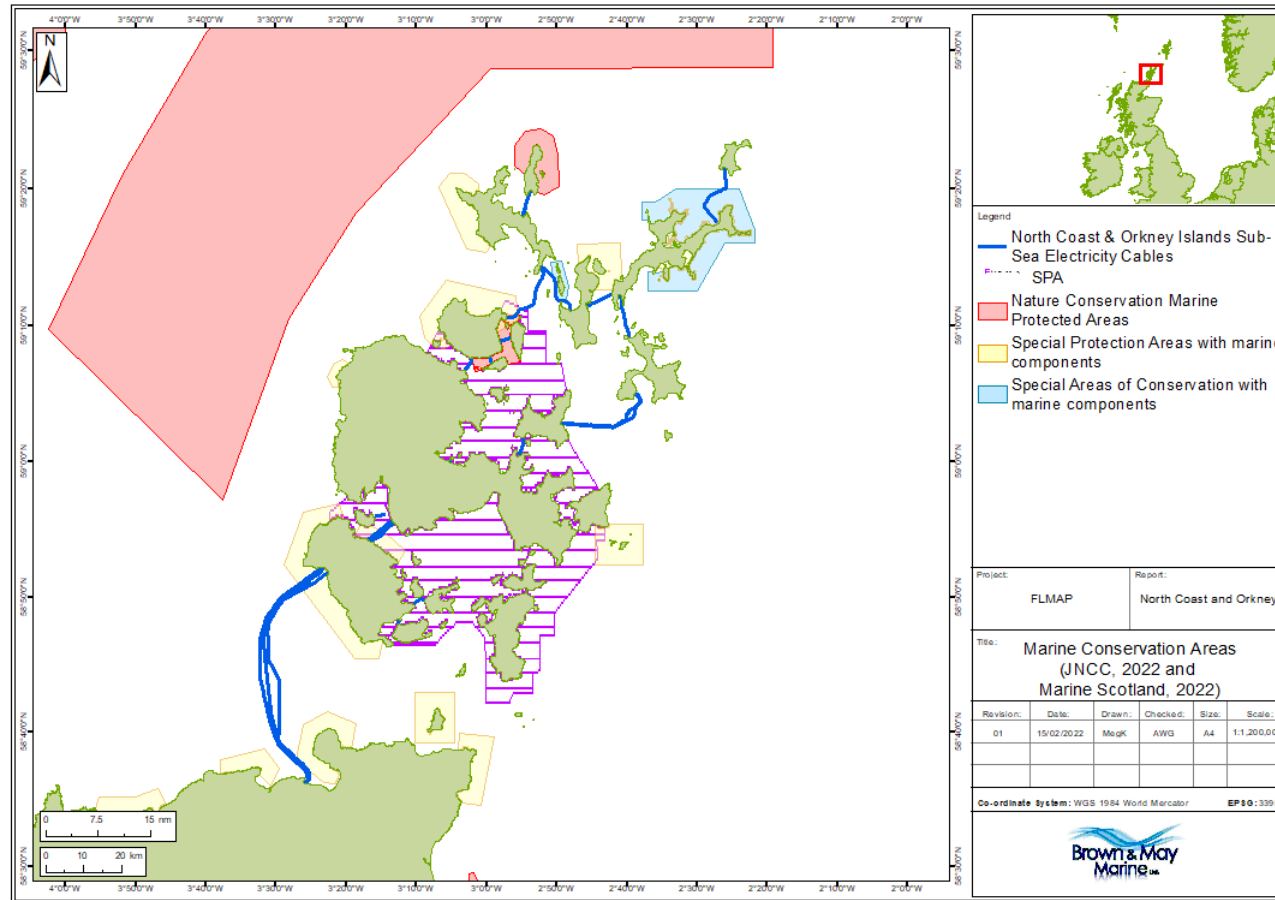


Figure 42 Marine Protected Areas, Special Protected Areas with Marine Components, Special Areas of Conservation with Marine Components and proposed Special Protection Areas with Marine Components (shown in purple hatching) (JNCC 2022 and Marine Scotland 2022)



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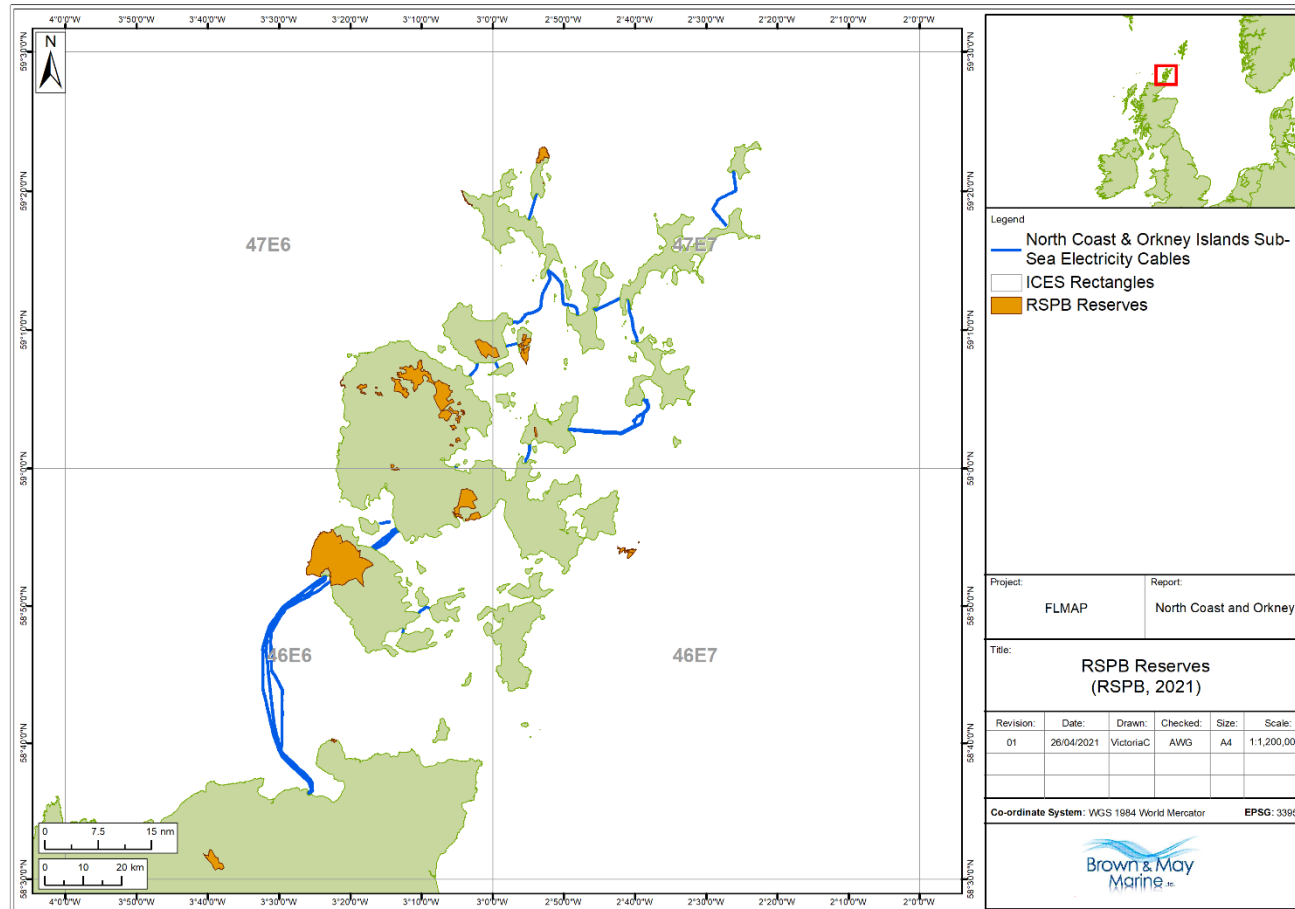


Figure 43 RSPB reserves (Royal Society for the Protection of Birds 2021)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
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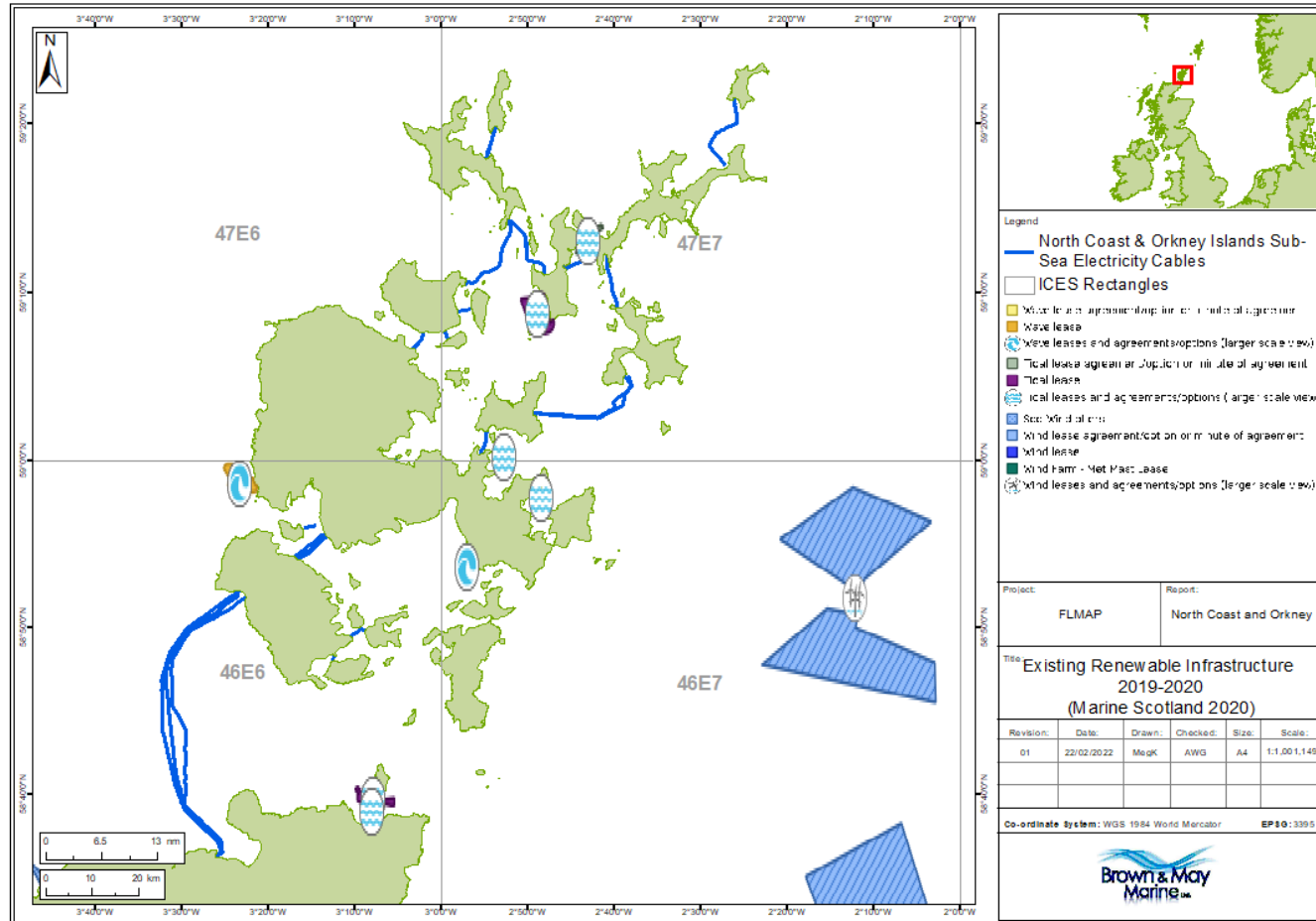


Figure 44 Renewable energy developments (Marine Scotland 2020)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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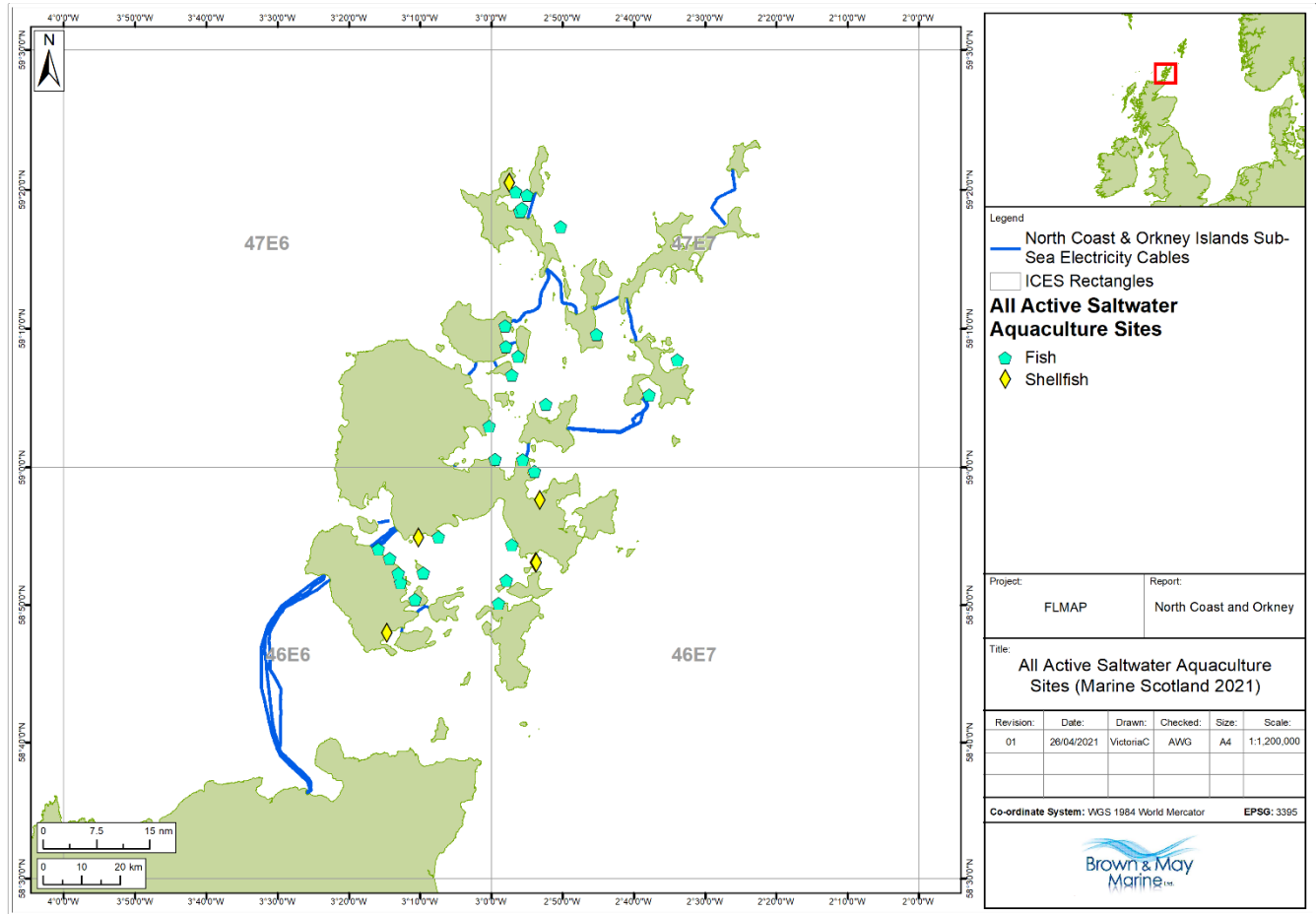


Figure 45 Active saltwater aquaculture sites (Marine Scotland 2021)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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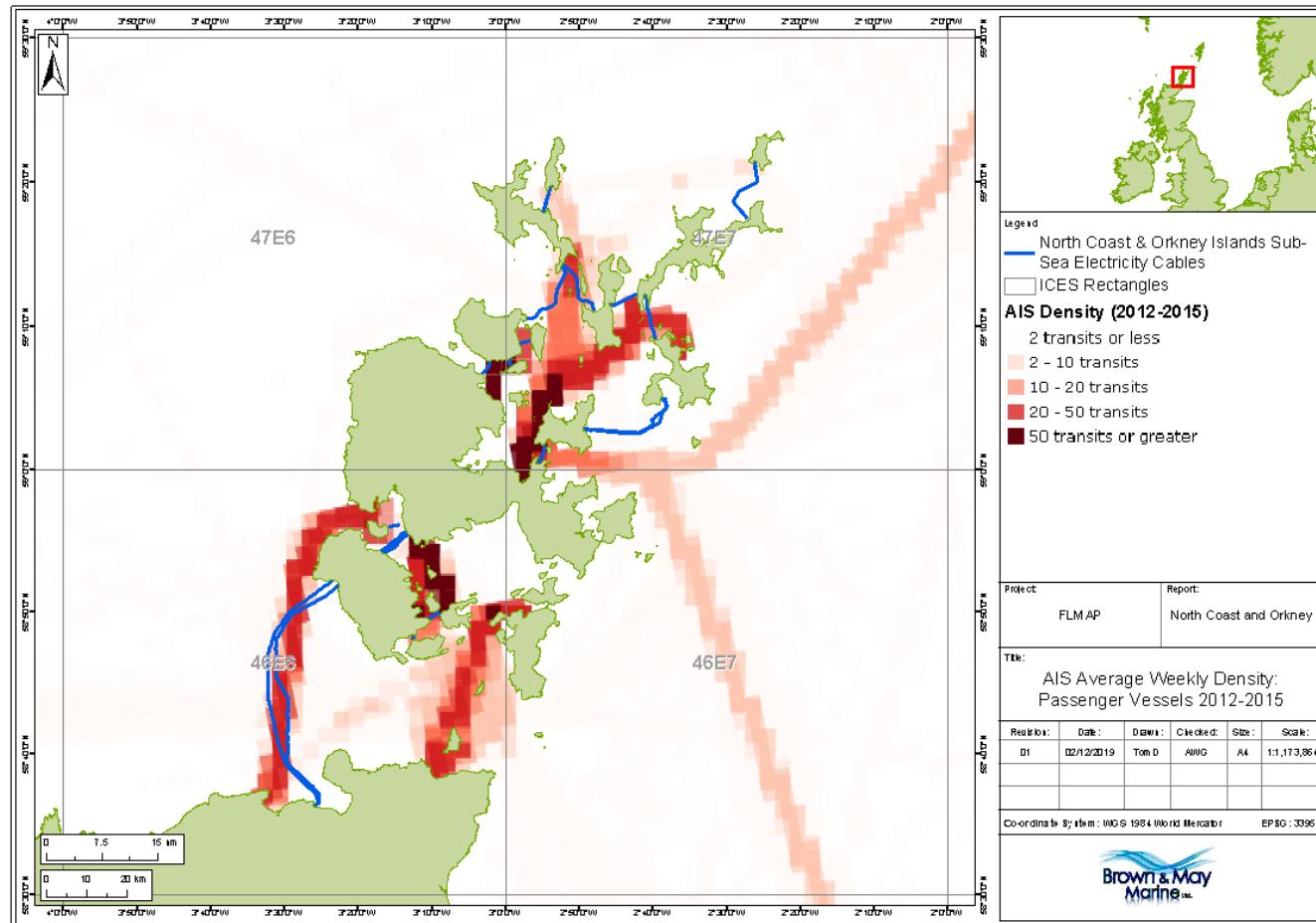


Figure 46 AIS passenger vessels – ferries 2012-2017 (Marine Scotland 2021)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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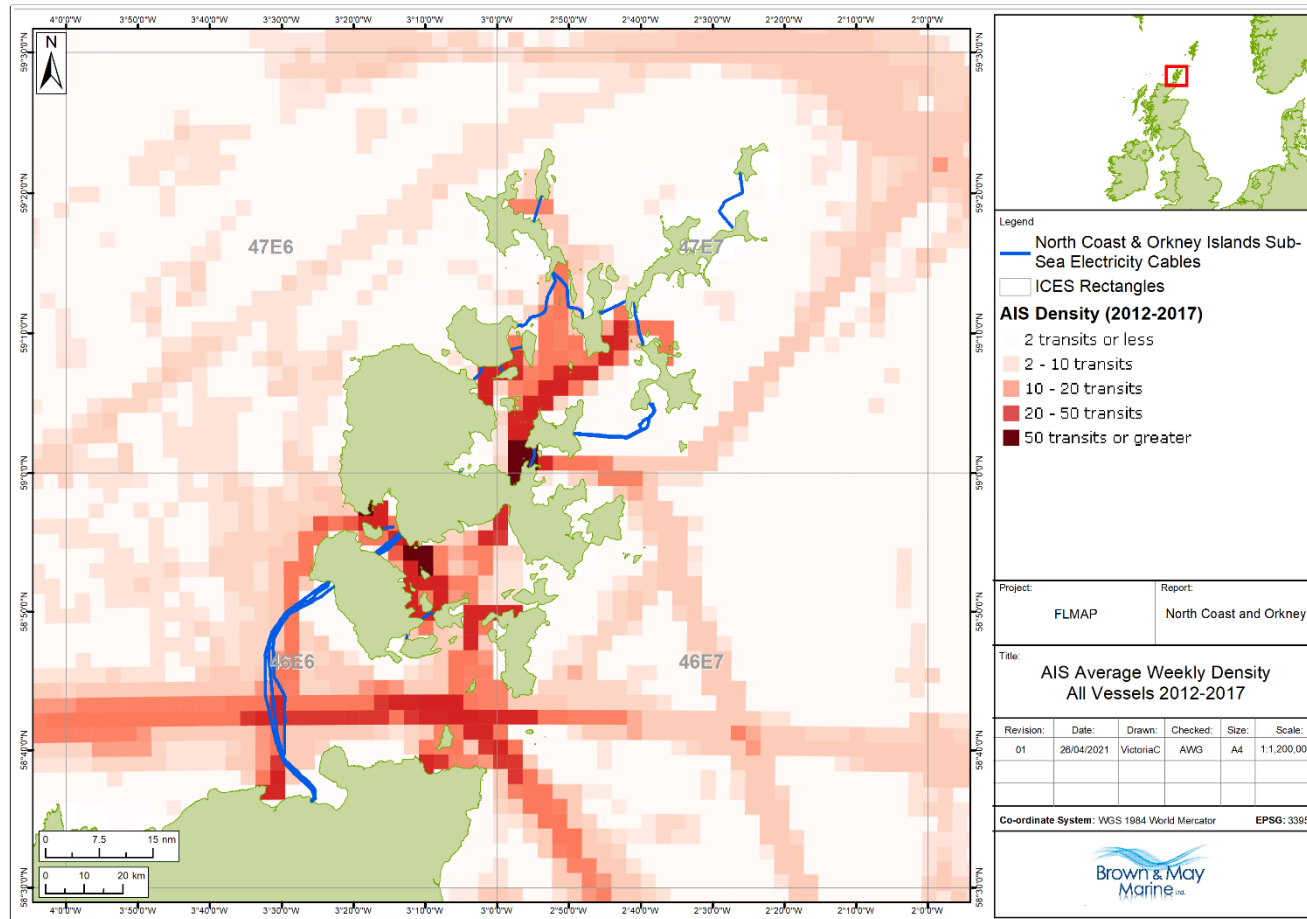


Figure 47 AIS all vessel types 2012-2017 (Marine Scotland 2021)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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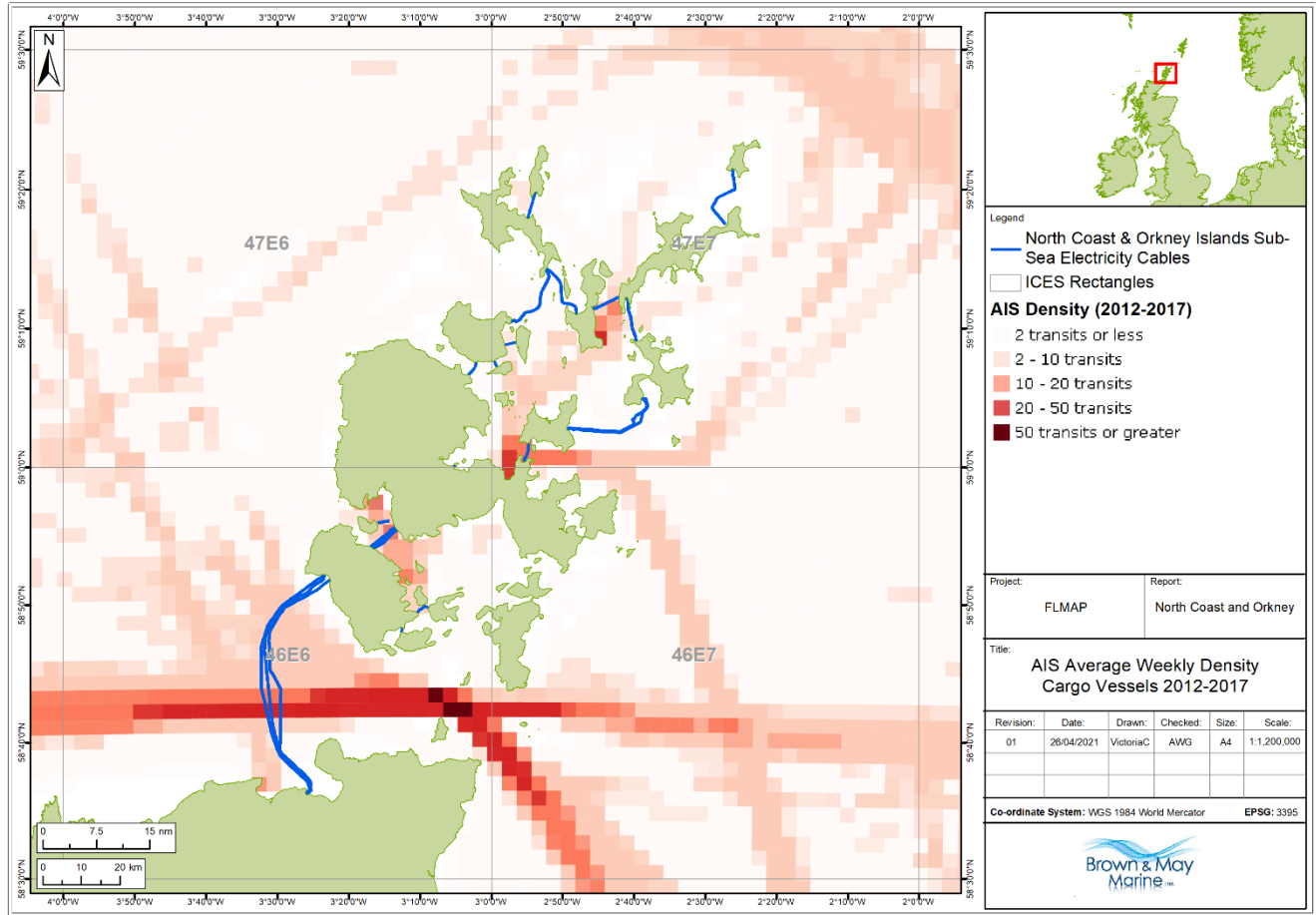


Figure 48 AIS cargo vessels 2012-2017 (Marine Scotland 2021)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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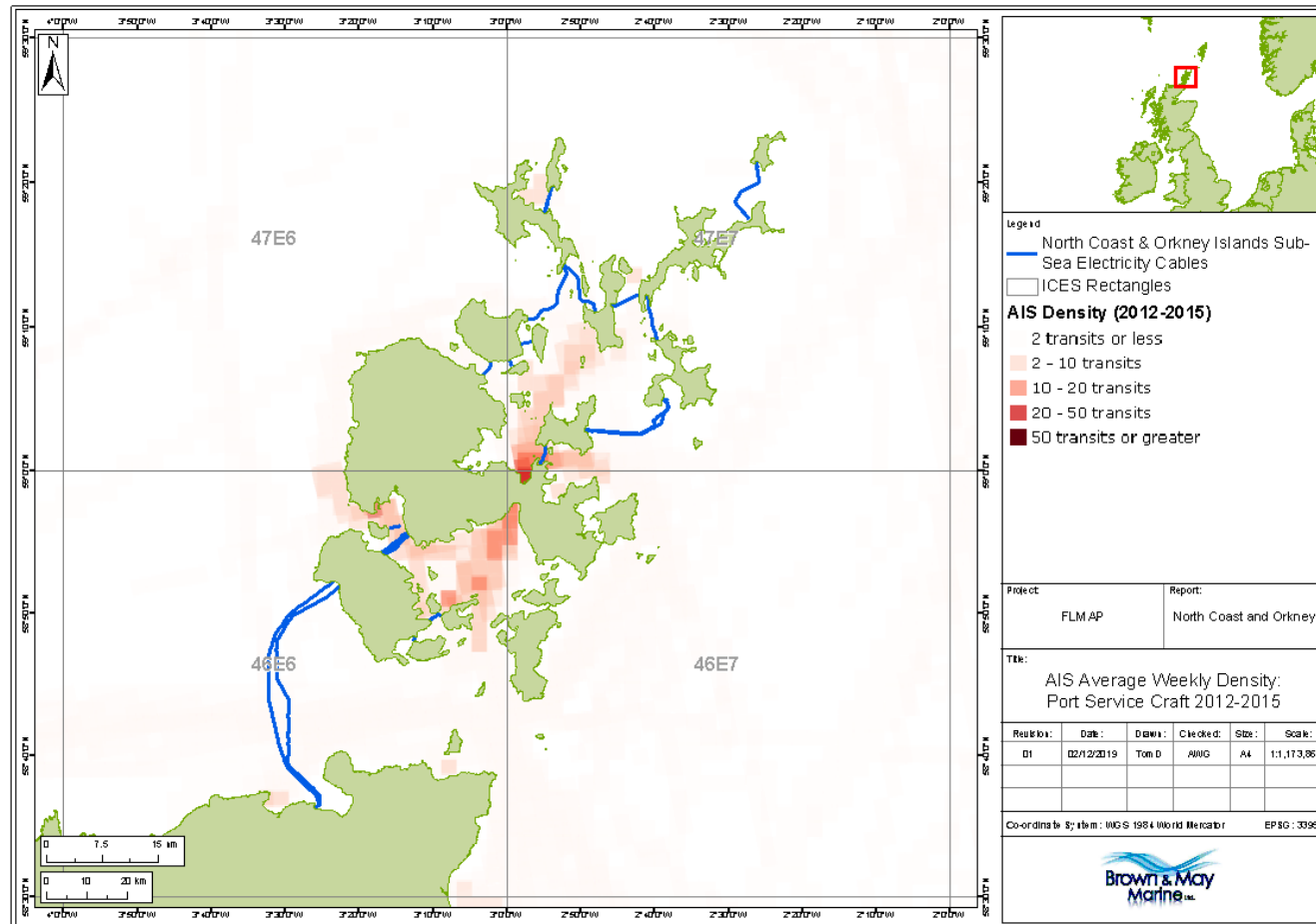


Figure 49 AIS port service craft 2012-2017 (Marine Scotland 2021)

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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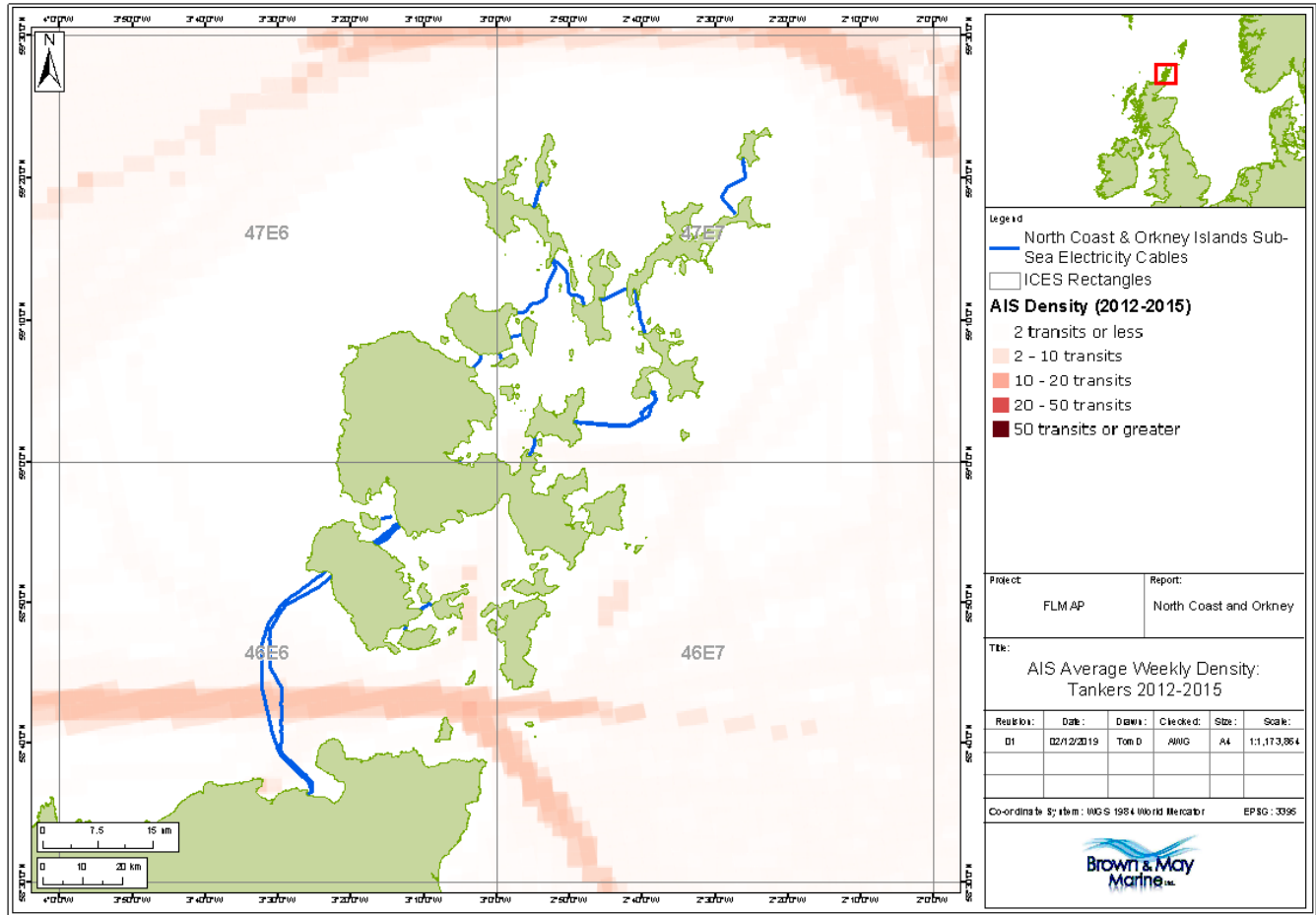


Figure 50 AIS tankers 2012-2017 (Marine Scotland 2021)



	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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## Appendix E Cable-Specific Interactions

**Table 38 Interactions for Cable Mainland Orkney - Graemsay**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £4,900,953 landings value per year, with the highest proportion of landings generated from crabs, followed by haddock and lobsters. Almost half of all landings come from pots and traps, followed by demersal trawls/seines. Over three quarters of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of <1 hour for mobile gear and pots and traps.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
EMODnet AIS vessel density (fishing) 2019	Yes	<0.5 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Low to moderate levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low levels of activity over the cable, though there is an area of high activity approximately 1.8km north of the cable.
Power boating	No	
Canoeing and kayaking	Yes	Low levels of activity directly over the cable, though there is an area of moderate activity approximately 2km north of the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Low to moderate levels of activity over the cable.
Sailing and cruising	Yes	Low levels of activity over the cable.
Chartered angling	No	
Sea angling from shore	Yes	Very low levels of activity over the cable.

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
			Distribution ✓	Transmission ✗
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Activity	Interaction	Notes
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	No	No activity directly over the cable route, though there is an area of very low activity approximately 3.1km south of the cable.
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	High levels of activity over the cable.
Rowing and sculling	No	
Marine archaeology	No	No wrecks directly over the cable, though there is a wreck approximately 3.2km south of the route.
Conservation designations	Yes	Hoy and West Mainland NSA covers the cable. Scapa Flow pSPA covers the cable. There is an SPA, Hoy, approximately 1.5km southwest of the cable.
Wave and Tidal	Possible	EMEC Bilia Croo wave testing site is located approximately 7.7km north west of the cable.
Aquaculture sites	Possible	Two finfish aquaculture farms, Bring Head (run by Scottish Sea Farms Ltd.) and Chalmers Hope (run by Cooke Aquaculture Scotland Ltd.), are within 5km of the cable. There may be transiting vessels from Stromness to the finfish site South Cava (run by Cooke Aquaculture Scotland Ltd.), intersecting the cable route. South Cava itself is approximately 8.5km south of the cable. There may also be transiting vessels intersecting the cable route between Stromness and the shellfish aquaculture site, Head of Banks, Orphir, which lies approximately 5.5km east.
Ferry routes	Yes	The cable route intersects the Scrabster-Stromness (alternate route, run by Northlink Ferries) and Graemsay-Stromness (run by Orkney Ferries). Another route, Hoy (Moaness)-Graemsay, does not intersect with the cable but departs from Graemsay Ferry Terminal, approximately 200m south of the cable landfall at Graemsay.
Local ports	Yes	Nearest port is Graemsay, which is used as a passenger ferry terminal. Approximately 380m south of the cable landfall at Graemsay. Other ports, Stromness (7.4km north), and the ferry terminal Moaness (7.5km west) have vessel traffic departing from them that intersect with the cable route.

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
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**Table 39 Interactions for Cable Mainland Orkney - Holm of Grimbister**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	Within 10km radius there are low levels of activity from potters/whelkers.
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £5,607,097 landings value per year, with highest proportion of landings generated from crabs and monks or anglers, followed by cod. Almost three quarters of all landings come from demersal trawls/seines, and just over a quarter are from pots and traps. The majority of vessels returning these landings are over 10m in length.
MMO VMS effort (hours) 2015-2019	No	
MMO VMS landings value (£) 2015-2019	No	
EMODnet AIS vessel density (fishing) 2019	No	
Bird and wildlife watching	Yes	Low to moderate levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Low levels of activity over the cable, but there is an area of high activity approximately 1.2km east of the cable.
Power boating	No	
Canoeing and kayaking	Yes	Low to moderate levels of activity over the cables.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low levels of activity directly over the cable, though there is an area of moderate activity approximately 6km to the east.
Sailing and cruising	Yes	Very low levels of activity over the cable.
Chartered angling	No	
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	No	

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
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Activity	Interaction	Notes
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cables.
Rowing and sculling	No	No activity directly over the cable, though there is an area of very low activity approximately 600m east of the cable.
Marine archaeology	No	
Conservation designations	Yes	North Orkney pSPA covers the cable.
Wave and Tidal	No	
Aquaculture sites	Possible	One finfish farm within 5km of the cable, Quanterness (run by Cooke Aquaculture Scotland Ltd.).
Ferry routes	No	
Local ports	No	Nearest port is Hatston, 13.3km away.

**Table 40 Interactions for Cable Mainland Orkney - Shapinsay**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	Within 10km radius there are low levels of activity from potters/whelkers.
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of 1-5 hours for mobile gear and <1 hour for dredging.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
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Activity	Interaction	Notes
EMODnet AIS vessel density (fishing) 2019	Yes	Average of 10 hours of AIS activity per square km per month at the Mainland cable landfall, with lower levels elsewhere.
Bird and wildlife watching	Yes	Low to moderate levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low to low levels of activity over the cable, though there is an area of high activity approximately 1.9km west of the cable.
Power boating	No	
Canoeing and kayaking	Yes	Very low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Low to moderate levels of activity over the cable.
Sailing and cruising	Yes	Low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable, with an area of low activity approximately 1.4km to the south east.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	Yes	Very low levels of activity over the cable.
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	No activity directly over the cable, though there is an area of low activity approximately 3.3km to the south of the cable.
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low to low levels of activity over the cables, though there is an area of high activity approximately 2.7km east of the cable.
Rowing and sculling	Yes	Very low levels of activity towards the Mainland Orkney landfall of the cable.
Marine archaeology	Yes	Possible interaction with wreck sites.
Conservation designations	Yes	North Orkney pSPA covers the cable.

	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
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Activity	Interaction	Notes
Wave and Tidal	Possible	EMEC Shapinsay Sound tidal testing site is located 1.8km east of the cable.
Aquaculture sites	Yes	One finfish aquaculture site, Carness Bay (run by Cooke Aquaculture Scotland Ltd.), directly adjacent to the cable. Two further sites within a 5km radius, Quanterness and Meil Bay (run by Cooke Aquaculture Scotland Ltd.).
Ferry routes	Yes	There are ferry routes from Kirkwall (Shapinsay Pier)-Shapinsay and Aberdeen-Kirkwall (Hatston) that intersect the cable route. These services are run by Orkney Ferries and Northlink Ferries respectively. Another route, from Kirkwall-Sanday (run by Orkney Ferries), is 2.3km to the west of the cable.
Local ports	Yes	Nearest port is Balfour, 830m east of the cable landfall on Shapinsay. This is used by fishing and leisure vessels, and as a ferry terminal for the Balfour-Kirkwall service, which intersects the cable route.

**Table 41 Interactions for Cables Mainland Orkney - Hoy North, Centre and South**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £4,900,953 landings value per year, with the highest proportion of landings generated from crabs, followed by haddock and lobsters. Almost half of all landings come from pots and traps, followed by demersal trawls/seines. Over three quarters of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of <1 hour for mobile gear and pots and traps.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
EMODnet AIS vessel density (fishing) 2019	Yes	Half the cable route, closest to Mainland Orkney averages <2 hours of AIS activity per square km per month. The remainder of the route sees no activity.
Bird and wildlife watching	Yes	Low to moderate levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Low levels of activity over the cables. There are hotspots of activity approximately 2.3km north and 2.8km east of the cables.

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Activity	Interaction	Notes
Power boating	No	
Canoeing and kayaking	Yes	Low levels of activity over the cables, though there is an area of moderate activity approximately 3.3km north of the cables.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Low to moderate levels of activity over the cables.
Sailing and cruising	Yes	Low to moderate levels of activity over the cables.
Chartered angling	No	
Sea angling from shore	Yes	Very low levels of activity over the cables.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	No	No activity directly over the cable, though there is an area of very low activity adjacent to the cable.
Coasteering	Yes	Very low levels of activity over the cables.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	High levels of activity over the cables.
Rowing and sculling	No	
Marine archaeology	Yes	Possible interaction with wreck sites.
Conservation designations	Yes	Hoy SPA covers half of the cables (Hoy side). Scapa Flow pSPA covers the cables. Hoy and West Mainland NSA covers the entirety of the cables.
Wave and Tidal	Possible	EMEC Bilia Croo wave testing site is located approximately 9km north west of the cables.
Aquaculture sites	Yes	Bring Head finfish farm is adjacent to the cables. Chalmers Hope finfish farm is approximately 2.3km south of the cables. There may be transiting vessels from Stromness to the finfish site South Cava, intersecting with the cable route. South Cava itself is approximately 7km south of the cable.
Ferry routes	Yes	The ferry route Scrabster-Stromness (alternate route) intersects the cables. Another route, from Hoy (Moaness)-Graemsay, is at its nearest point passes typically 90m north of the cables, so there may be the possibility for interaction with this route as well.

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Activity	Interaction	Notes
Local ports	Possible	Nearest ports are Moaness (4.1km) and Graemsay (3.6km north), which are used as passenger ferry terminals. A service between Graemsay and Hoy that passes very closely to the cable route (160m). The major port of Stromness, from which a high level of vessel traffic departs which crosses the cables, is 10.8km away.

**Table 42 Interactions for Cable North Ness - South Ness**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £4,900,953 landings value per year, with the highest proportion of landings generated from crabs, followed by haddock and lobsters. Almost half of all landings come from pots and traps, followed by demersal trawls/seines. Over three quarters of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of <1 hour for mobile gear and pots and traps.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
EMODnet AIS vessel density (fishing) 2019	Yes	<1 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Low levels of activity over the cables.
Visits to historic sites or to attractions	No	No activity over the cable, though there are areas of low activity approximately 1.3km and 1.6km east and west of the cable respectively, and an area of high activity 5km north.
Power boating	No	
Canoeing and kayaking	Yes	Very low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low levels of activity over the cable.



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Activity	Interaction	Notes
Sailing and cruising	Yes	Low levels of activity over the cable.
Chartered angling	No	
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	Yes	Very low levels of activity over the cable.
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cables, though there is an area of high activity 3.2km to the north east of the cable.
Rowing and sculling	No	
Marine archaeology	No	No wrecks directly over the cable, though there is a wreck approximately 2.5km east of the route.
Conservation designations	No	Scapa Flow pSPA covers the cable.
Wave and Tidal	No	
Aquaculture sites	Possible	One shellfish farm within 5km of the cable, North Bay West (run by Orkney Oysters (Hoy) Ltd.).
Ferry routes	Possible	There is a ferry route, South Walls (Longhope)-Flotta, which departs Longhope approximately 240m east of the nearshore South Walls section of the cable. This service is run by Orkney Ferries.
Local ports	Yes	Nearest port is Longhope, 640m east of the South Walls cable landfall. This is used by fishing and leisure vessels, and as a ferry terminal for the South Walls (Longhope)-Flotta service.

**Table 43 Interactions for Cables Pentland Firth East and West**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	Yes	Demersal and pelagic stern trawlers and a single long liner sighted directly over the cables, with more pelagic stern trawlers, potters/whelkers, demersal trawlers, a single Dutch pelagic stern trawler and (UK) scallop dredgers (French/Newhaven type) within a 10km radius.

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Activity	Interaction	Notes
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £4,900,953 landings value per year, with the highest proportion of landings generated from crabs, followed by haddock and lobsters. Almost half of all landings come from pots and traps, followed by demersal trawls/seines. Over three quarters of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Fishing effort ranges from 0 – 100 hours for all gears across the cable. Effort is lower at both landfalls (0-5 hours), with effort moderate to high in the centre of the cable. Dredging effort is 20-50 hours in centre of cable. Activity is predominantly by potters.
MMO VMS landings value (£) 2015-2019	Yes	Pocket of potting and trapping landings of up to £35,000, and mobile gear landings of £10,000-£20,000 over the centre of the cable route, with up to £6,000 from dredging.
EMODnet AIS vessel density (fishing) 2019	Yes	Average of up to 2 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Moderate levels of activity at the Pentland landfall of the cables, with low levels of activity elsewhere over the cables.
Visits to historic sites or to attractions	Yes	Low to moderate activity over the cables, though there are hotspots of high activity on the Pentland coast in Thurso Bay and Dunnet Bay.
Power boating	Yes	Very low levels of activity over the nearshore Pentland side of the cables.
Canoeing and kayaking	Yes	Very low to moderate levels of activity over the cables, with a hotspot of high activity approximately 3.5km south of the cables.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Moderate levels of activity over the central portion of the cables, with very low levels of activity elsewhere along the routes.
Sailing and cruising	Yes	Very low to low levels of activity over the cables.
Chartered angling	Yes	Small pocket of low activity in the Pentland Coast nearshore area of the cables, with very low levels of activity elsewhere along the routes. There is an area of low activity directly to the east of Pentland Firth East.
Sea angling from shore	Yes	Very low to low levels of activity in the nearshore areas at Hoy and the Pentland Coast. No activity elsewhere along the routes. Hotspots of high activity nearby at Thurso Bay and Dunnet Bay.
Surfing and paddle boarding	Yes	Moderate to high levels of activity across the nearshore Pentland side of the cables, and low levels towards the centre and Hoy landfall of the cables.

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Activity	Interaction	Notes
Yacht racing	Yes	Low levels of activity towards the Pentland Coast, with very low levels towards Hoy portion of the routes.
Coasteering	Yes	Very low to no levels of activity over the cables, though there is a hotspot of activity approximately 1.4km to the east.
Personal water craft (jet skis)	No	No activity directly over the cables, though there is an area of low activity approximately 2.9km to the west of the cables in Thurso Bay.
Wild fowling	Yes	Very low to no levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cables, though there are hotspots of high activity at Thurso Bay and Dunnet Bay, approximately 4.2km and 2.5km away respectively.
Rowing and sculling	No	No activity directly over the cables, though there are areas of very low activity approximately 1.4km east and 1.7km west of the cable respectively.
Marine archaeology	Yes	Possible interaction with wreck site, at Pentland nearshore area. There is a protected wreck approximately 2km north of the Hoy nearshore area.
Conservation designations	Yes	North Caithness Cliffs SPA overlaps with Pentland Firth East at Pentland landfall. Hoy SPA covers Hoy landfall of cables. Hoy and West Mainland NSA – around landfall at Hoy end of cable corridor. Hoy RSPB Reserve located at the Hoy landfall of the cables.
Wave and Tidal	No	
Aquaculture sites	No	
Ferry routes	Yes	The Scrabster-Stromness ferry route (run by Northlink Ferries) intersects the Pentland cable corridors. The alternate Scrabster-Stromness route also intersects the cables.
Local ports	Possible	Scrabster Port is located 9.6km the west of the landfall of the Pentland cable corridors.

**Table 44 Interactions for Cable Rousay - Egilsay**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	

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Activity	Interaction	Notes
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of 1-5 hours for mobile gear and pots and traps over the Egilsay cable landfall.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps at the Egilsay landfall.
EMODnet AIS vessel density (fishing) 2019	Yes	Average of 70 hours of AIS activity per square km per month over the Rousay cable landfall.
Bird and wildlife watching	Yes	Low levels of activity over the cables.
Visits to historic sites or to attractions	No	No activity directly over the cable, but there are low levels of activity adjacent to the cable, and a hotspot of high activity approximately 1.9km west.
Power boating	No	
Canoeing and kayaking	Yes	Very low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low levels of activity over the cable.
Sailing and cruising	Yes	Very low to low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	Yes	Very low levels of activity over the cable.
Coasteering	Yes	Moderate to high levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cables, though there is a hotspot of moderate activity approximately 3.2km south west of the cable.
Rowing and sculling	No	

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Activity	Interaction	Notes
Marine archaeology	No	No wrecks directly over the cable, though there is a wreck approximately 3.4km north of the route.
Conservation designations	Yes	Wyre and Rousay Sounds Nature Conservation MPA covers the cable. North Orkney pSPA covers the cable. Rousay SPA located approximately 1.3km north of the cable. Onziebust RSPB Reserve is located on Egilsay, approximately 220m east of the cable landfall.
Wave and Tidal	No	
Aquaculture sites	Yes	Kirk Noust finfish aquaculture site (run by Cooke Aquaculture Scotland Ltd.) is adjacent to the Rousay landfall of the cable. Another, Bay of Vady (run by Cooke Aquaculture Scotland Ltd.), lies 1.9km south of the cable.
Ferry routes	Yes	The ferry route Rousay-Egilsay (run by Orkney Ferries) intersects the cable.
Local ports	Possible	Nearest port is Skaill, approximately 1.2km north of the cable landfall at Egilsay. It is a small pier from which the Rousay-Egilsay ferry line departs, which intersects the cable route.

**Table 45 Interactions for Cable Rousay - Westray**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of up to 1-5 hours for pots and traps, and <1 hour for mobile gear over the central portion of the cable.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
EMODnet AIS vessel density (fishing) 2019	Yes	<0.5 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Very low to low levels of activity over the cables.

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Activity	Interaction	Notes
Visits to historic sites or to attractions	Yes	Low to moderate levels of activity over the cable.
Power boating	No	
Canoeing and kayaking	Yes	Very low to low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low levels of activity over the cable.
Sailing and cruising	Yes	Low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	Yes	Very low levels of activity over the cable.
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	There is a hotspot of moderate activity over the Westray landfall of the cable, with very low levels of activity elsewhere along the route.
Rowing and sculling	No	
Marine archaeology	Yes	Possible interaction with wreck site.
Conservation designations	Yes	Wyre and Rousay Sounds Nature Conservation MPA, and Rousay SPA, cover the nearshore Rousay section of the cable. North Orkney pSPA covers the cable.
Wave and Tidal	Yes	Westray South tidal testing site (operated by Westray South Tidal Development Ltd) overlaps with the cable. Fall of Warness tidal power testing site is located approximately 4.4km southeast of the cable.
Aquaculture sites	Possible	Bay of Ham finfish aquaculture site (run by Cooke Aquaculture Scotland Ltd.) is approximately 1km south west of the cable.
Ferry routes	No	

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Activity	Interaction	Notes
Local ports	Possible	Nearest port is Rapness, approximately 2.8km north of the cable landfall at Westray. It is a small pier from which the Kirkwall-Westray (Rapness) ferry line departs, which intersects the cable route.

**Table 46 Interactions for Cable Rousay - Wyre**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of <1 hour for mobile gear.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
EMODnet AIS vessel density (fishing) 2019	Yes	Average of <0.5 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Moderate to high levels of activity over the cable.
Power boating	No	
Canoeing and kayaking	Yes	Very low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Low levels of activity over the cable.
Sailing and cruising	Yes	Low levels of activity over the cable.
Chartered angling	No	No activity directly over the cable, though there is an area of very low activity 1.1km west of the cable.

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Activity	Interaction	Notes
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	No	No activity directly over the cable route, though there is an area of very low activity 1.8km east of the cable.
Coasteering	Yes	Very low levels of activity over the cable, though there is an area of moderate/high activity approximately 2.5km east of the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Moderate levels of activity over the cable.
Rowing and sculling	No	
Marine archaeology	No	
Conservation designations	Yes	Wyre and Rousay Sounds Nature Conservation MPA covers the cable. North Orkney pSPA covers the cable. Rousay SPA located approximately 4.5km north of the cable. Trumland RSPB Reserve is located on Rousay, approximately 640m north of the cable landfall.
Wave and Tidal	No	
Aquaculture sites	Possible	Bay of Vady finfish farm is approximately 3.2km east of the cable.
Ferry routes	Yes	The ferry route Tingwall-Rousay (run by Orkney Ferries) intersects the cable. Another, Rousay-Wyre (also run by Orkney Ferries), runs less than 500m east of the cable route, and therefore there may be the possibility for interaction with this service as well.
Local ports	Yes	Nearest port is Rousay, approximately 970m east of the cable landfall on Rousay. This is used by fishing vessels, and as a ferry terminal for the Tingwall-Rousay service, which intersects the cable route.

**Table 47 Interactions for Cable Sanday - Eday**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	



	<b>Fishing Liaison Mitigation Action Plan for North Coast and Orkney</b>		<b>Applies to</b>	
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Activity	Interaction	Notes
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of 1-10 hours for mobile gear and potting and trapping.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear, dredging and pots and traps.
EMODnet AIS vessel density (fishing) 2019	Yes	Average of <0.5 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Very low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low to low levels of activity over the cable.
Power boating	No	
Canoeing and kayaking	Yes	Low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low levels of activity over the cable.
Sailing and cruising	Yes	Very low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	No	
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	

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Activity	Interaction	Notes
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cable.
Rowing and sculling	No	
Marine archaeology	No	No wrecks directly over the cable, though there is a wreck approximately 1.5km north of the route.
Conservation designations	No	None directly over the cable, though Calf of Eday SPA is approximately 700m north of the cable.
Wave and Tidal	Yes	Orbital Marine Power Lashy Sound tidal testing site is located directly north of the cable.
Aquaculture sites	Possible	Noust Geo finfish farm (run by Scottish Sea Farms Ltd.) lies approximately 3.5km south of the cable, from which there is a high density of vessel traffic to Port Loth on Sanday.
Ferry routes	Possible	There are no ferry routes intersecting directly with the cable, however there are a collection of ferry routes across the Eday Sound all within 4km of the cable that may represent the possibility for interaction with cable works. These are Kirkwall-Sanday, Sanday-Eday, Eday-Kirkwall, Eday-Stronsay, Sanday-Stronsay and Kirkwall-Stronsay. These are all run by Orkney Ferries.
Local ports	Possible	Nearest port is Loth, approximately 2.9km south of the cable landfall on Sanday. This is used by fishing vessels, and as a ferry terminal for the Kirkwall-Sanday, Sanday-Eday and Sanday-Stronsay services.

**Table 48 Interactions for Cable Sanday - North Ronaldsay**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	Within 10km radius there are low levels of activity from scallop dredgers (French/Newhaven type) and a single potter/whelker sighting.
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of 1-20 hours for pots and traps.

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Activity	Interaction	Notes
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of up to £3,000-£6,000 per year for pots and traps.
EMODnet AIS vessel density (fishing) 2019	No	
Bird and wildlife watching	Yes	Very low to low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low levels of activity over the cable.
Power boating	No	
Canoeing and kayaking	Yes	Very low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low to low levels of activity over the cable.
Sailing and cruising	Yes	Very low to low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	No	
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cable.
Rowing and sculling	No	
Marine archaeology	No	No wrecks directly over the cable, though there are three within a 5km radius of the cable.

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Activity	Interaction	Notes
Conservation designations	Yes	Sanday SAC covers half of the cables (Sanday side). East Sanday Coast SPA covers the inshore Sanday section of the cable.
Wave and Tidal	No	
Aquaculture sites	No	
Ferry routes	Possible	There are no ferry routes intersecting directly with the cable, however there are routes from Kirkwall-North Ronaldsay and North Ronaldsay-Papa Westray (Moclett) running approximately 270m west of the North Ronaldsay cable landfall. These are both run by Orkney Ferries.
Local ports	Yes	Nearest port is Nouster Pier, approximately 660m south of the cable landfall on North Ronaldsay. This is used by fishing vessels, and as a ferry terminal for the North Ronaldsay-Papa Westray (Moclett) and Kirkwall-North Ronaldsay services.

**Table 49 Interactions for Cables Shapinsay - Stronsay North and South**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	Within 10km radius there are very low levels of activity from potters/whelkers.
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Up to 5 hours of mobile gear activity, with a peak at the Shapinsay landfall of the cables.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
EMODnet AIS vessel density (fishing) 2019	Yes	<0.5 hours of AIS activity per square km per month.

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Activity	Interaction	Notes
Bird and wildlife watching	Yes	Low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low to low levels of activity over the cable. Area of moderate activity approximately 3.7km to the south west.
Power boating	No	
Canoeing and kayaking	Yes	Very low to low levels of activity over the cables.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low to low levels of activity over the cables, though there is an area of moderate activity approximately 5km south.
Sailing and cruising	Yes	Very low to low levels of activity over the cables.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cables, with an area of low activity approximately 5.8km south.
Surfing and paddle boarding	Yes	Low levels of activity over the cables.
Yacht racing	Yes	Very low levels of activity over the Shapinsay landfall of the cables, though there is no activity elsewhere along the routes.
Coasteering	Yes	Very low levels of activity over the cables.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cable, though there is a hotspot of moderate activity approximately 2.1km south of the cables.
Rowing and sculling	No	
Marine archaeology	No	No wrecks directly over the cable, though there are four within a 5km radius of the cable.
Conservation designations	No	
Wave and Tidal	Yes	EMEC Stronsay Firth tidal testing site is located directly north of the cables.

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Activity	Interaction	Notes
Aquaculture sites	Yes	The finfish aquaculture site, Bay of Holland (operated by Cooke Aquaculture Scotland Ltd), lies 750m to the east of the cables.
Ferry routes	No	
Local ports	No	Nearest port is Balfour, 16.5km away.

**Table 50 Interactions for Cable Stronsay - Sanday**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of 1-5 hours for mobile gear and pots and traps.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
EMODnet AIS vessel density (fishing) 2019	Yes	<0.5 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low levels of activity over the cable.
Power boating	No	
Canoeing and kayaking	Yes	Very low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low levels of activity over the cable.

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Activity	Interaction	Notes
Sailing and cruising	Yes	Very low to low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	No	
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cable.
Rowing and sculling	No	
Marine archaeology	No	No wrecks directly over the cable, though there are two within a 5km radius of the cable.
Conservation designations	No	None directly over the cables, though Sanday SAC is approximately 4.2km north of the cable.
Wave and Tidal	No	
Aquaculture sites	Possible	No aquaculture sites in the immediate vicinity of the cables, though Noust Geo finfish farm lies approximately 4.8km west of the cable, from which there appears to be high density of vessel traffic towards Whitehall on Stronsay, which intersects the cable.
Ferry routes	Yes	There are ferry routes from Sanday-Stronsay and Kirkwall-Stronsay that intersect the cable.
Local ports	Possible	Nearest port is Loth, approximately 3.2km west of the cable route. This is used by fishing vessels, and as a ferry terminal for the Sanday-Stronsay service, which intersects the cable route.

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**Table 51 Interactions for Cable Westray - Papa Westray**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	Within 10km radius there are low levels of activity from scallop dredger (French/Newhaven type) and a single Faroe Islands trawler sighting.
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of up to 20 hours for mobile gear and dredging, and 1-5 hours for pots and traps.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of £1,000-£3,000 for pots and traps, mobile gear and dredging.
EMODnet AIS vessel density (fishing) 2019	Yes	Average of 2 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Very low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low levels of activity over the cable. There is a hotspot of high activity approximately 4.5km north of the cable.
Power boating	No	
Canoeing and kayaking	Yes	Low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Very low levels of activity over the cable.
Sailing and cruising	Yes	Very low to low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	No	
Yacht racing	Yes	Very low levels of activity over the cable.
Coastering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	



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Activity	Interaction	Notes
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Very low levels of activity over the cable.
Rowing and sculling	No	
Marine archaeology	Yes	Possible interaction with wreck site, at Papa Westray landfall. There are two further wrecks approximately 4.7km west of the cable.
Conservation designations	No	None directly over the cables, though Papa Westray MPA is approximately 1.4km north of the cable.
Wave and Tidal	No	
Aquaculture sites	Yes	There are three finfish aquaculture sites within 1km of the cable; Vestness (970m away), Bay of Cleat North (1km away) and Bay of Cleat South (1.2km away). All of these are run by Cooke Aquaculture Scotland Ltd.
Ferry routes	Yes	The ferry route Westray (Pierowall)-Papa Westray (Moclett) intersects the cable. Two other routes, Westray (Rapness)-Papa Westray (Moclett) and North Ronaldsay-Papa Westray (Moclett) depart from Moclett, approximately 360m east of the cable at its nearest point. These are all operated by Orkney Ferries.
Local ports	Yes	Nearest port is Moclett, approximately 700m south east of the cable. This is used as a ferry terminal for, amongst others, the Westray (Pierowall)-Papa Westray (Moclett) service, which intersects the cable route.

**Table 52 Interactions for Cable Mainland Orkney - Rousay**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £5,607,097 landings value per year, with highest proportion of landings generated from crabs and monks or anglers, followed by cod. Almost three quarters of all landings come from demersal trawls/seines, and just over a quarter are from pots and traps. The majority of vessels returning these landings are over 10m in length.
MMO VMS effort (hours) 2015-2019	No	

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Activity	Interaction	Notes
MMO VMS landings value (£) 2015-2019	No	
EMODnet AIS vessel density (fishing) 2019	Yes	<0.5 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Moderate to high levels of activity over the cable.
Power boating	No	
Canoeing and kayaking	Yes	Low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Low levels of activity over the cable.
Sailing and cruising	Yes	Low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	No	No activity directly over the cable route, though there is an area of very low activity 2.8km east of the cable.
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	Though there is no activity directly over the cable, there are hotspots of moderate and high activity directly adjacent to the east of the cable.
Rowing and sculling	No	
Marine archaeology	No	
Conservation designations	Yes	North Orkney pSPA covers the cable. Wyre and Rousay Sounds MPA directly adjacent to the cable (near Rousay landfall). Rousay SPA approximately 3.7km north of the cable.
Wave and Tidal	No	

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Activity	Interaction	Notes
Aquaculture sites	Possible	None within 5km of the cable, however there may be transiting vessels from mainland Orkney to the finfish site Wyre intersecting with the cable route. Wyre itself is approximately 5.8km east of the cable.
Ferry routes	Possible	There is a ferry route, Mainland Orkney-Rousay, which runs approximately 1.4km south east of the cable. This service is run by Orkney Ferries.
Local ports	No	Nearest ports are Tingwall (5.1km away) and Rousay 5.8km away.

**Table 53 Interactions for Cable Eday - Westray**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £9,641,084 landings value per year, with over half of all landings generated from herring, followed by crabs and scallops. Almost three quarters of all landings come from demersal trawls/seines, and a quarter are from pots and traps. The large majority of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Average fishing effort of 1-10 hours for pots and traps, up to 5 hours for mobile gear and <1 hour for dredging.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of £1,000-£3,000 for pots and traps and mobile gear, and <£1,000 for dredges.
EMODnet AIS vessel density (fishing) 2019	Yes	<0.5 hours of AIS activity per square km per month.
Bird and wildlife watching	Yes	Very low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low levels of activity over the cable.
Power boating	No	
Canoeing and kayaking	Yes	Low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.

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Activity	Interaction	Notes
Motor cruising	Yes	Very low levels of activity over the cable.
Sailing and cruising	Yes	Very low to low levels of activity over the cable.
Chartered angling	Yes	Very low levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	Yes	Very low levels of activity over the cable.
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	There is a hotspot of moderate activity over the Westray landfall of the cable, with very low levels of activity elsewhere along the route.
Rowing and sculling	No	
Marine archaeology	No	
Conservation designations	Yes	Faray and Holm of Faray SAC intersects the cable. Calf of Eday SPA is approximately 3.8km east of the cable.
Wave and Tidal	Possible	Westray South tidal testing site (operated by Westray South Tidal Development Ltd) is located 1.9km west of the cable. EMEC Fall of Warness tidal power testing site is located approximately 5.8km south of the cable.
Aquaculture sites	No	
Ferry routes	Yes	There are ferry routes from Kirkwall-Westray (Rapness) and Papa Westray (Moclett)-Kirkwall that intersect the cable. These are both operated by Orkney Ferries.
Local ports	Possible	Nearest port is Rapness, approximately 2.6km north of the cable route. It is a small pier from which the Kirkwall-Westray (Rapness) ferry line departs, which intersects the cable route.

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**Table 54 Interactions for Hoy - Flotta**

Activity	Interaction	Notes
MMO Surveillance sightings, 2016-2020	No	
MMO landings value (£) 2015-2019 by species, gear type and gear length	Yes	Average of £4,900,953 landings value per year, with the highest proportion of landings generated from crabs, followed by haddock and lobsters. Almost half of all landings come from pots and traps, followed by demersal trawls/seines. Over three quarters of these vessels are over 10m in length.
MMO VMS effort (hours) 2015-2019	Yes	Up to 10 hours of fishing activity for mobile gear over the cable and less than 1 hour for dredging and pots and traps.
MMO VMS landings value (£) 2015-2019	Yes	Average landings value of <£1,000 per year for mobile gear and pots and traps.
EMODnet AIS vessel density (fishing) 2019	No	
Bird and wildlife watching	Yes	Low levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Low to moderate levels of activity directly over the cable, though there is an area of high activity adjacent to the cable.
Power boating	No	
Canoeing and kayaking	Yes	Very low levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Low levels of activity over the cable.
Sailing and cruising	Yes	Low levels of activity over the cable.
Chartered angling	No	No activity directly over the cable, though there is an area of very low activity approximately 4.8km west of the cable.
Sea angling from shore	Yes	Very low levels of activity over the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	Yes	Very low levels of activity over the cable.

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Activity	Interaction	Notes
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba diving	Yes	High levels of activity over the cable.
Rowing and sculling	No	
Marine archaeology	Yes	Possible interaction with wreck sites.
Conservation designations	No	Scapa Flow pSPA covers the cable.
Wave and Tidal	No	
Aquaculture sites	Possible	Fara West finfish farm (run by Cooke Aquaculture Scotland Ltd.) is within 1.5km of the cable.
Ferry routes	Yes	There are ferry routes from South Walls (Longhope)-Flotta, Scrabster-Stromness, and Hoy (Lyness)-South Walls (Longhope, run by Orkney Ferries) that intersect the cable. Another, Hoy (Lyness)-Flotta at its nearest point passes typically 40m north of the cable, so there may be the possibility for interaction with this route as well.
Local ports	Possible	Nearest ports are Lyness (2.6km away) and Flotta, 2.5km away.