Scottish & Southern Electricity Networks

SHEPD

Marine Scotland Licence

Scottish Hydro Electric Power Distribution

Fishing Liaison Mitigation Action Plan (covering all sea users)

Clyde

Contents

Scottish & Southern Electricity Networks

1 Introduction

1.1 Scottish Hydro Electric Power Distribution (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 14 submarine cables at the following locations:

- Otter Ferry
- Bute-Cumbrae North
- Bute-Cumbrae Centre 2
- Bute-Cumbrae 2
- Arran-Holy Isle
- Bute Ardyne North
- Bute Ardyne South
- Carradale Arran North
- Carradale Arran South
- Kames Bute North
- Kames Bute South
- Davaar (Campbeltown) - cable in service
- Davaar (Campbeltown) - cable not in service
- Sandbank Craigend

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 licenced evidence).
- Identify how to minimise and mitigate potential impacts on local communities.

1.4 SHEPD aim to facilitate co-existence between all parties as recommended in the FLOWW[1] and ESCA[2] (previously SCUK) guidelines**.** SHEPD has also developed the policy document *How Scottish Hydro Electric Power Distribution co-exists with other marine users*[3] 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 helped our collaborators to

[1] Fishing Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fishing Liaison, 2014
[2] European Subsea Cables Association
[3] Scottish and Southern Electricity Networks: *How we co-exist with other marine users*, available: https://www.ssen.co.uk/SubmarineCables/AboutUs/

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[4].

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 Clyde 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 Chapter 7 and visual representations of relevant activities are provided in Appendix C and Appendix D:

- The Clyde is a popular area for marine recreation.
- There are moderate to high levels of bird and wildlife watching, power boating, motor cruising, sailing and cruising and yacht racing.
- Activity levels range from low to high for visits to historic sites and attractions, canoeing/kayaking, chartered angling, sea angling from shore, surfing and paddle boarding and coasteering.
- There are very low to low levels of activity for long distance swimming, dinghy racing, personal water craft, water skiing/wakeboarding, wild fowling, scuba diving and rowing and sculling.
- There are ferry routes from Tarbert-Tighnabruaich and Bute-Tighnabruaich. These intersect the cable routes Kames Bute and Bute Ardyne respectively.
- There are a number of shellfish and finfish aquaculture sites in the vicinity of the cable works.
- There are no wave, wind or tidal arrays in the vicinity of the cable locations.
- Conservation designations within the vicinity of the cable locations include:
    - The National Scenic Areas (NSAs) North Arran and Kyles of Bute.

[4] 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

- The Nature Conservation Marine Protected Areas (MPAs) Upper Loch Fyne and Loch Goil and South Arran.

- There are a number of wreck sites in the vicinity of the cables Sandbank Craigend, Bute Ardyne, Bute-Cumbrae and Arran-Holy Isle.
- The majority of the cables fall under Clydeport Harbour Authority boundaries[5]. The remaining cables fall within the following Harbour Authority boundaries:
  - Carradale Arran lies adjacent (at the Carradale landfall) to Carradale Harbour[6]
  - Davaar (Campbeltown) lies adjacent to Campbeltown Harbour[7]

1.10 The predominant fishing activity in areas relevant to the identified Clyde cables are demersal trawling (including trawling for Nephrops), creeling (potting) and dredging. Potting vessels represent the most days at sea within the region due to the nearshore location of the cables. It is anticipated that creeling is likely to be the primary fishery that may interact with the cable locations, along with trawling for Nephrops.

[5] https://www.peelports.com/ports/clydeport
[6] https://www.argyll-bute.gov.uk/mid-argyll-kintyre-and-islay/carradale-harbour
[7] https://www.argyll-bute.gov.uk/mid-argyll-kintyre-and-islay/campbeltown-harbour

2 Communications

2.1 Information regarding any cable survey or construction works (referred to as works hereafter) required 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 Some activities such as cable installation works require additional information which will inform the potential interactions with sea users. When required SHEPD will provide the Project Description and other necessary documents.

2.3 Survey contractors shall provide details of all vessel movements, works and relevant co-ordinates to the CFLO and the FIR who will disseminate this information.

2.4 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.

2.5 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.

2.6 In the event that the date or duration of works deviates from the notification timings (e.g. NtM) outlined in the *Clyde FLMAP Delivery Programme*[8], 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.

[8] The Delivery Programme is to cover the entire period to April 2023.

3 Scheduling of liaison and information distribution

3.1 Dissemination of information to the fishing industry and other legitimate sea users will be issued as described in Table 1.

Table 1 Schedule for dissemination of information

Activity	Timescale for distribution
Inspection Programme	▪ Notice and information to be distributed at the earliest opportunity once information is available ▪ Regular liaison and updates by Fishing Industry Representative (FIR) with local fishermen of proposed timings with confirmations when operations are finalised. ▪ 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.
Surveys (including any requirement for Pre-construction surveys) that have the potential to require gear relocation	▪ 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. ▪ Notices and Information Distribution not less than 20 days prior to survey mobilisation, if possible, to allow inclusion in the Kingfisher Fortnightly Bulletin.
Specific construction activities i.e. installation works	▪ Notice and information distribution not less than 20 days, if possible, for individual construction vessels mobilisations. ▪ Regular liaison and updates by FIR with local fishermen of proposed timings with confirmations when operations are finalised. ▪ Regular liaison and updates by CFLO with other legitimate sea users of proposed timings with confirmations provided when planned works are finalised.
Meetings with fishery stakeholders	▪ Meetings as required during all works i.e. the inspection surveys and any subsequent requirements for pre-construction and construction phases.
Meetings with other legitimate sea users	▪ Meetings as required during all works i.e. the inspection surveys and any subsequent requirements for pre-construction and construction phases.
Ongoing Liaison	▪ 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.

4 Formal Notifications

4.1 Details of the cable works will be distributed to appropriate maritime users. The proposed formal communications are set out in Table 2.

Table 2 Formal notifications

Type	Function	Distribution
Submarine electricity cable flyer	▪ Flyers may be issued for specific cable works. ▪ This is not a requirement set out in the marine licences ▪ It is a proactive initiative taken by SHEPD to provide as much advance warning of the forthcoming works as possible.	▪ Flyers[9] will be published through Kingfisher Information Service Offshore Renewables and Cable Awareness (KISORCA) and Fishing News. ▪ Flyers will be issued nominally at least 4 weeks, if possible, prior to commencing the operations to which they relate.
Notices to Mariners (NtM)	▪ NtM and/or radio navigational warnings and publication in appropriate bulletins to comply with the conditions in the marine licences. ▪ Each NtM will contain full details of the vessel, location, activities, contact details etc. ▪ 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.	▪ All NtMs[10] will be issued by the CFLO ▪ NtMs will be published through KISORCA ▪ Details of the works will be promulgated to all appropriate sea users ▪ NtMs will be issued at least 20 days prior to works' start date, if possible, to allow inclusion in the Kingfisher Fortnightly Bulletin. ▪ NtMs will be issued using the example NtM document at relevant stages of cable surveys and works.
NtM updates	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, 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.

[9] The flyer will contain the following information: submarine electricity cable specific information; useful contacts; working area; national and regional charts; site specific charts.

[10] For details see ***Error! Reference source not found.****: Notice to Mariners* example template.

Type	Function	Distribution
Notices to static gear fishermen	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.
Notices to mobile gear fishermen	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.
Notices to other legitimate sea users	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 legitimate sea users identified through consultation will receive the NtM (the distribution lists are given in Table 3, and Table 4).

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 sea users and stakeholders 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*[11] to ensure our approach is consistent and fair to all sea users in the area.

5.2 The Clyde 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.

[11] Scottish and Southern Electricity Networks: *Standard Operating Procedures*, available: https://www.ssen.co.uk/SubmarineCables/AboutUs/

Table 3 Regional stakeholders' roles and duties

Regional Stakeholder	SHEPD point of contact	Role	Details
Marine Scotland (MS)	Lead Engagement and Submarine Policy 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 license.	Specific contact with MS will be made: ▪ **Prior to commencement of the works:** · Marine Scotland s 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. ▪ **During the works**: · to allow access for an authorised Enforcement Officer to inspect the works · to notify any changes to the works that may affect the validity of the licence · to submit and seek approval of plans to mitigate navigational dangers or risks, where required ▪ **On completion of the works**: · to notify the completion of the works · to submit an assessment of any risks posed by the installed cable
Scottish Natural Heritage (SNH)	Lead Engagement and Submarine Policy Manager	SNH is the Scottish public body responsible for natural heritage. SNH advises the Scottish Government regarding nature conservation requirements when deciding whether to consent activities. SNH is a consultee to Marine Scotland and as such they can influence licence conditions.	SHEPD will engage on matters related to the project as required.

Regional Stakeholder	SHEPD point of contact	Role	Details
Maritime and Coastguard Agency (MCA)	Up to work starting Stakeholder Engagement 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 licence conditions.	SHEPD will engage on matters related to the project as required.
Northern Lighthouse Board (NLB)	Up to work starting Stakeholder Engagement Manager During Works - Project Manager	The NLB is a consultee to Marine Scotland and as such they can influence licence conditions.	SHEPD will engage on matters related to the project as required.
Scottish Environmental Protection Agency (SEPA)	Up to work starting Stakeholder Engagement Manager During Works - Project Manager	SEPA is Scotland's environmental regulator. SEPA is a consultee to Marine Scotland and as such they can influence licence conditions.	SHEPD will engage on matters related to the project as required.
Clyde Marine Planning Partnership	Company Fishing Liaison Officer (CFLO)	Responsible for regional marine planning in the Clyde.	CFLO and SHEPD will engage on matters related to the project as required.
Royal Society for the Protection of Birds (RSPB)	Lead Engagement and Submarine Policy Manager	The RSPB is a consultee to Marine Scotland and as such they can influence licence conditions	SHEPD will engage on matters related to the project as required.

Regional Stakeholder	SHEPD point of contact	Role	Details
Scottish Fishermen's Federation (SFF)	Company Fishing Liaison Officer (CFLO)	The SFF represents 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.
West Coast Regional Inshore Fisheries Group (RIFG)	Company Fishing Liaison Officer (CFLO)	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 WCRIFG. Regular dialogue between the CFLO and the OSF will be maintained prior to and during the survey work (and any subsequent requirement for cable installation), noting that both mobile and static gear commercial fishing operations are present in the area.
Scottish Creel Fishermen's Federation (SCFF)	Company Fishing 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.	Specific contact will be made with the SCFF. Regular dialogue between the CFLO and the SCFF will be maintained prior to and during any installation work.
Unaffiliated commercial fishermen	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.
The Crown Estate (TCE)	Wayleaves Project Manager	TCE 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 TCE.	SHEPD will engage on matters related to the project as required.

Regional Stakeholder	SHEPD point of contact	Role	Details
United Kingdom Hydrographic Office (UKHO)	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.
Kingfisher Information Service Offshore Renewables and Cable Awareness (KISORCA)	Company Fishing Liaison Officer (CFLO)	Kingfishers work 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 KISORCA to provide regular updates on progress of the works and provide as-built details upon completion. The CFLO will maintain contact with KISORCA via NtMs for the Kingfisher bulletin.
Ministry of Defence (MoD)	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.	SHEPD and CFLO will engage on matters related to the project as required
Royal Yacht Association (RYA)	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.

Regional Stakeholder	SHEPD point of contact	Role	Details
Community Councils	Company Fishing Liaison Officer (CFLO)	The CC will keep the local community up to date on proposals.	CFLO will engage on matters related to the project as required.
NAFC Marine Centre	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.	We will engage on matters related to the project as required.

Table 4 Cable specific stakeholders

Cable specific stakeholder	SHEPD point of contact	Role	Details
Argyll and Bute Council	Company Fishing Liaison Officer (CFLO)	Argyll and Bute Council is the local authority for the Clyde coast.	We will engage on matters related to the project as required.
Clyde Fishermen's Association	Company Fishing Liaison Officer (CFLO)	The CFA have 65 members with vessels around the Clyde coast.	Specific contact will be made with the CFA. Regular dialogue between the CFLO, Offshore Fisheries Liaison Officer (OFLO) will be maintained prior to and during the cable works, noting that both mobile and static gear commercial fishing operations are present in the area.
Northern Ireland Fish Producers (NIFPO)	Company Fishing Liaison Officer (CFLO)	There are nomadic vessels operating from Ulster ports which operate in the vicinity of the cables.	CFLO will engage on matters related to the project as required.

Cable specific stakeholder	SHEPD point of contact	Role	Details
Clyde Cruising Club	Company Fisheries Liaison Officer (CFLO)	A sailing club which operates across Scotland, including Clyde and Firth of Clyde.	CFLO will engage on matters related to the project as required.
Royal Gourock Yacht Club	Company Fisheries Liaison Officer (CFLO)	A sailing club which operates around the Clyde.	CFLO will engage on matters related to the project as required.
Toward Sailing club	Company Fisheries Liaison Officer (CFLO)	A sailing club which operates around the Clyde.	CFLO will engage on matters related to the project as required.
Largs Ardrossan	Company Fisheries Liaison Officer (CFLO)	A sailing club which operates in the southern portion of the Clyde.	CFLO will engage on matters related to the project as required.
Caledonian MacBrayne	Company Fisheries Liaison Officer (CFLO)	The main ferry provider between mainland Scotland and the Scottish Islands.	CFLO will engage on matters related to the project as required.
Peel Ports	Company Fisheries Liaison Officer (CFLO)	Peel Ports manage all commercial/container traffic in and out of Ocean Terminal Greenock.	CFLO will engage on matters related to the project as required and will notify with the NtM as cables may be in locations where vessels transit on route to the port.

Cable specific stakeholder	SHEPD point of contact	Role	Details
HM Naval Base Clyde	Company Fisheries Liaison Officer (CFLO)	Naval base Clyde covers Fasland and Coulport.	CFLO will engage on matters related to the project as required.
Kildalloig Farm (Shellfish aquaculture development)	Company Fisheries Liaison Officer (CFLO)	Oyster commercial aquaculture development.	CFLO will ensure that they are informed of related to the project as required.
Scottish Canoe Association	Company Fisheries Liaison Officer (CFLO)	Canoe club association with interest in canoeing activity across Scotland. The association keeps records of NtM relevant to canoeing activity in the Clyde area.	CFLO will engage on matters related to the project as required.
Helensburgh Canoe Club	Company Fisheries Liaison Officer (CFLO)	A club of 40 members who undertake a range of activities including sea canoeing and undertake trips at least once a month and weekend expeditions.	CFLO will engage on matters related to the project as required.
Royal West of Scotland Amateur Boat Club	Company Fisheries Liaison Officer (CFLO)	The club caters for a range of water sports including sea kayaking, canoeing, sailing, rowing and open water swimming. The club is located in Greenoch on the River Clyde Estuary.	CFLO will engage on matters related to the project as required.
West of Scotland Fish Producer Organisation Ltd. (WSFPO)	Company Fishing Liaison Officer (CFLO)	The organisation is a group of fishermen (Producers' Organisation) set up under the legislation of the EU common fisheries policy.	Specific contact will be made with the WSFPO. Regular dialogue between the CFLO and the WSFPO will be maintained prior to and during the installation.

Cable specific stakeholder	SHEPD point of contact	Role	Details
Fyne Pioneer	Company Fisheries Liaison Officer (CFLO)	Dive charters operating around Jura and Islay and the Clyde	CFLO will engage on matters related to the project as required.
The Majestic Line – West Coast Cruises	Company Fisheries Liaison Officer (CFLO)	A luxury cruise liner which operates a 10-night cruise from Islay, Jura and the Southern Hebrides and a 6-day cruise for the isles of Clyde and Southern Hebrides.	CFLO will engage on matters related to the project as required.
Isle of Man Fishermen	Company Fisheries Liaison Officer (CFLO)	Association of fishermen based on the Isle of Man, some of which regularly fish off the West Coast of Scotland.	CFLO will engage on matters related to the project as required.
Wreckspeditions	Company Fisheries Liaison Officer (CFLO)	Diving charters based in Dunoon, Argyll that offer charters to various locations in the Clyde with expeditions also available throughout the South West of Scotland.	CFLO will engage on matters related to the project as required.
Mid Clyde Angling Association	Company Fisheries Liaison Officer (CFLO)	Association representing anglers in the Clyde based in Glasgow.	

6 Commercial Fishing

6.1 This section summarises the existing commercial fishing baseline in relation to the subsea submarine electricity cable assets. Commercial fishing activity is defined as the activity undertaken by licensed fishing vessels undertaken for the legitimate capture and sale of finfish and shellfish. The baseline evaluation will focus specifically on those fleets which are active in the vicinity of the cable corridors. The commercial fisheries charts are given in Appendix C Commercial Fisheries charts from Figure 2 to Figure 15.

6.2 Commercial fishing in European Union (EU) waters is subject to numerous controls and regulations at European, national and local levels. Such measures may have a direct impact on fishing effort, landings weights and values. Many of these measures are implemented at short notice with limited consultation, which limits confidence in predicting future trends. The main bodies regulating fishing in sea areas in which the cables are located are the EU through the Common Fisheries Policy (CFP), Marine Scotland (MS) and the Inshore Fisheries Management and Conservation (IFMAC) through national and regional regulations, and regional Inshore Fisheries and Groups (rIFGs).

6.3 The 14 cables are located within International Council for the Exploration of the Sea (ICES) rectangles 41E4, 41E5, 40E4, 40E5 and 39E4. 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 Clyde submarine electricity cables are sited within the 6nm limit, in which the UK has exclusive fishing rights. The territorial fishing limits of EU member states extend out to 12nm, within which only the vessels of a state 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.

Table 5 Commercial fishing key data sources

Data	Year	Coverage	Confidence	Notes
UK Marine Management Organisation (MMO) Fishing Statistics (landings values data)	2014 to 2018	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	2014 to 2018	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.
UK MMO Satellite Tracking (VMS) Data	2014 to 2018	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)	2017	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 2019 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 Clyde cable routes are reviewed in order to assess possible interaction scenarios. A brief characterisation of the fishing methods identified in the area around the Clyde cable corridors, with a description of the gear and photographic examples of the types of vessels is given in Table 6.

6.8 Surveillance sightings by method have recorded predominantly demersal trawlers and potters (creelers) with some scallop dredging activity in the Firth of Clyde. Many of the surveillance sightings recorded focus around the Isle of Arran. There were fewer sightings in proximity to the Kamer-Bute and Bute-Ardyne cables (Figure 2). These sightings were almost exclusively of UK-registered vessels (Figure 3). MMO landings values by method show that in the ICES rectangles where the cables are located (41E4, 41E5, 40E4, 40E5 and 39E4), the main gears are otter trawls (single and twin for Nephrops), pots (creels)and some dredges (Figure 4).

6.9 Figure 5 indicates that 72% of the landing values are derived from Nephrops in the Clyde region, with almost 100 % of value in 40E5 derived from Nephrops landings. 13% of the landings in the Clyde region are derived from scallops.

6.10 44% of the fishing vessels in the area are from the over 15m fleet, with the remaining vessels split between the 10-15m and the under 10m fleet (Figure 6).

6.11 VMS by all fishing gears indicates that the Clyde is an intensively fished area, with the area surrounding the Isle of Arran, (including the area around the Campbeltown cable) recording an average of over 100 hours of annual fishing effort (Figure 7). Less than 5 hours of effort was recorded further north in the location of the Sandbank Craigend, Bute Ardyne and Otter Ferry cables.

6.12 The VMS of dredging effort indicates that effort focuses west of the cable locations, focusing around the Isles of Gigha and the east coast of Jura (over 100 hours). The cable locations have lower levels of effort with up to 50 hours of fishing effort recorded (Figure 8).

6.13 High levels of mobile gear fishing effort were also recorded in the Clyde region, with levels recorded at an average of 50-100+ hours over Davaar (Campbeltown, Carradale Arran and Bute-Cumbrae. Moderate levels (10-50 hours) were recorded over Kames Bute and Arran-Holy Isle. There are 1-5 hours of fishing effort recorded in the vicinity of Otter Ferry, Bute Ardyne and Sandbank Craigend (Figure 9).

6.14 As indicated earlier in this report, VMS only represents vessels over 15m in length, as a result of this the potting and creeling activity is under represented (Figure 10) as this activity is predominately undertaken by the small vessels in the fleet.

6.15 VMS values for all gears show the highest values south of the Isle of Arran and over Davaar-Campbeltown (more than £35,000), between £20,000 and £35,000 over Carradale Arran, and lower levels elsewhere over the cables (Figure 11). There are much lower values for VMS dredging recorded in proximity to the cable locations (up to £10,000) (Figure 12).

6.16 VMS value by mobile gear indicates high values around the Isle of Arran, Davaar (Campbeltown) and Carradale Arran (£20,000-£35,000) with values over Bute-Cumbrae, Kames Bute, Bute Ardyne, Otter Ferry and Sandbank Craigend recorded at less than £10,000 (Figure 13).

6.17 Nephrops are caught by pots and demersal trawls, and VMS indicates that south of the Isle of Arran and the inner River Clyde (west of Sandbank Craigend) have the highest creeling values (Figure 14), although this will be under represented as creeling is largely undertaken by vessels under 15m in length.

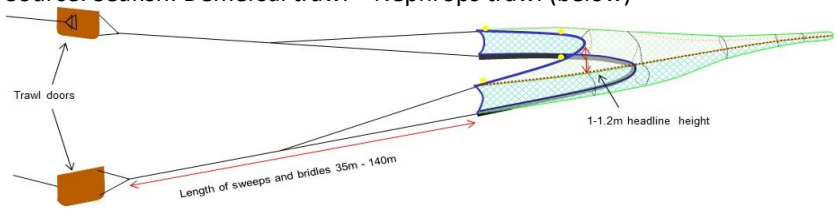
6.18 EMODnet fishing vessel AIS density (Figure 15) shows generally low to medium levels of activity (0.5-5 hours per km² per month) over the cables, with high levels (20+ hours) recorded over Davaar (Campbeltown).

Table 6 Characterisation of the fishing methods in the area

Fishing gear	Description	Pictorial representation
Creeling (potting)	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. 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. Fishing effort follows a seasonal pattern with activity varying to shelter from adverse weather conditions, react to seasonal changes and exploit target species. Nephrops, crab and lobster are targeted by creelers in the Clyde area. Creel boats in the area are predominately small (under 10m) such as the vessel indicated in the pictorial representation (right).	 Source: Trawler Pics: Creeler off Dunoon

Fishing gear	Description	Pictorial representation
Scallop Dredging	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). Dredging occurs along the Firth of Clyde targeting scallops[12], with boats operating from small ports along the coast including Largs, Ardrossan and Campbeltown. 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. 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).	 Source: Trawler Pics: Scalloper - Campbeltown

[12]Clyde Inshore Fisheries Management Plan http://ifgs.org.uk/files/4414/0188/9882/SWIFG_Clyde_IFG_MP.pdf

Fishing gear	Description	Pictorial representation
Demersal otter trawlers and Nephrops trawls	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 maintain contact with the seabed and can vary in design depending on the type of ground fished. Nephrops are the most common species targeted by demersal trawlers in the Clyde. Specifically designed Nephrops trawls are also used to target this species. A long winged low net, with light weight gear is towed over predominately soft muddy grounds. This net is designed so that the relatively fragile bottom of the net (known as the fishing line) skims a few inches off the seabed with the leaded bights of grass rope trailing on the seabed encouraging Nephrops into the net. These nets differ little from white fish gear apart from being lighter rigged with a smaller mesh size.	 Source: Finlay Oman, Clyde Fisherman Association: Clyde trawler (above) Source: Seafish: Demersal trawl – Nephrops trawl (below)  Nephrops trawl with trawl doors, sweeps and bridles

7 Other Sea Users

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

- Aquaculture
- Marine Archaeology
- Ferries
- Shipping
- Sailing
- Recreational: bird and wildlife watching, visits to historic sites and attractions, motor cruising, yachting, dinghy racing, jet skiing, sailing, diving, boating, angling, canoeing/kayaking, surfing, swimming, rowing/sculling, water skiing/wakeboarding, wild fowling and coasteering
- MoD
- Conservation sites/areas
- Telecommunications
- Subsea cables

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 2017 has been published by EMODnet, showing hours of activity per km² per month (Figure 16). This shows generally moderate levels of activity (5-10 hours per km² per month) over the cables, with high levels (20+ hours) recorded over Davaar (Campbeltown) and the cables from Bute and Sandbank. 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[13] and the Marine Scotland interactive Marine Plan[14] have been the main sources of reference for legitimate sea users listed in Table 7. Additional data on conservation 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

[13] Scottish Marine Recreation and Tourism Survey (SMRTS) 2015; http://www.gov.scot/Resource/0049/00497904.pdf
[14] Marine Scotland National Marine Plan Interactive; https://marinescotland.atkinsgeospatial.com/nmpi/

the website Ports and Harbours of the UK[15]. Where information is available, charts of spatial activity are provided for each of the sea users defined above.

Table 7 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, The Crown Estate 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	2019	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

[15] Ports and Harbours of the UK; http://ports.org.uk/

Data	Year	Coverage	Confidence	Notes
				and SPAs with 'marine components'.
Royal Society for the Protection of Birds (RSPB)	2019	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)	2017	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 2019 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 range of water sports activity in the vicinity of the subsea electricity cables in the Clyde is given below. 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:

- Bird and wildlife watching
- Visits to historic sites and attractions
- Angling
- Yacht racing
- Wildfowling
- Rowing and sculling
- Canoeing or kayaking
- Coasteering
- Long distance swimming
- Motor cruising
- Jet skis
- Power boating
- Sailing and cruising
- Scuba diving

- Surfing and paddle boarding

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 Clyde cables.

7.7 The charts showing recreational activity are given in Appendix D (Figure 23-Figure 40).

7.8 The SMRTS 2015 survey around Scotland show predominantly high, and some moderate levels of bird and wildlife watching across the cable locations (944 people provided spatial information). This activity and possible interaction is summarised in Table 8 below and shown in Figure 23.

Table 8 Bird and wildlife watching

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	High levels of activity over the cable.
Sandbank Craigend	Yes	High levels of activity over the cable.
Kames Bute (North and South)	Yes	High levels of activity over the cables.
Bute Ardyne (North and South)	Yes	High levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables.
Carradale Arran (North and South)	Yes	Moderate levels of activity over the cables.
Arran-Holy Isle	Yes	Moderate to high levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Moderate levels of activity over the cables.

7.9 The SMRTS 2015 survey around Scotland for visits to historic sites or to attractions show activity levels ranging from very low to high in the vicinity of all cables, depending on cable location (924 people provided spatial information). This activity and possible interaction is summarised in Table 9 below and shown in Figure 24.

Table 9 Visits to historic sites or to attractions

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Low levels of activity over the cable.
Sandbank Craigend	Yes	Moderate levels of activity over the cable, with an area of high activity directly adjacent to the cable.
Kames Bute (North and South)	Yes	Low levels of activity directly over the cables, with an area of high activity adjacent to the north of the cables.
Bute Ardyne (North and South)	Yes	Very low levels of activity directly over the cables, though there is a hotspot of activity adjacent to the south of the cables.

Bute-Cumbrae (North, Centre and 2)	Yes	There are hotspots of moderate to high activity at each landfall section of the cables, with very low levels of activity to the centre of the cables.
Carradale Arran (North and South)	Yes	Very low to low levels of activity over the cables.
Arran-Holy Isle	Yes	Moderate to high levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Low levels of activity over the cables, though there is a hotspot of high activity approximately 2.7km west of the cables.

7.10 The SMRTS 2015 survey results for power boating show moderate to high levels of activity in the vicinity over the cable locations (204 people provided spatial information). This activity and possible interaction is summarised in Table 10 below and shown in Figure 25.

Table 10 Power boating

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Moderate to high levels of activity over the cable.
Sandbank Craigend	Yes	Moderate levels of activity over the cable.
Kames Bute (North and South)	Yes	High levels of activity over the cables.
Bute Ardyne (North and South)	Yes	High levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables.
Carradale Arran (North and South)	Yes	Moderate to high levels of activity over the cables.
Arran-Holy Isle	Yes	High levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Moderate levels of activity over the cables.

7.11 The SMRTS 2015 survey results for canoeing and kayaking show activity levels ranging from very low to high depending on cable location (418 people provided spatial information). This activity and possible interaction is summarised in Table 11 below and shown in Figure 26.

Table 11 Canoeing and kayaking

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	High levels of activity over the cable.
Sandbank Craigend	Yes	Moderate levels of activity over the cable.
Kames Bute (North and South)	Yes	High levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Low levels of activity over the cable.

Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables.
Carradale Arran (North and South)	Yes	Moderate levels of activity over each cable landfall, with very low activity towards the centre of the route.
Arran-Holy Isle	Yes	High levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Moderate to high levels of activity over the cables.

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 12 below and shown in Figure 27.

Table 12 Long distance swimming

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Very low levels of activity over the cable.
Sandbank Craigend	Yes	Very low levels of activity over the cable.
Kames Bute (North and South)	Yes	Very low levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Very low levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	Very low levels of activity over the cables.
Carradale Arran (North and South)	Yes	Very low levels of activity over the cables.
Arran-Holy Isle	Yes	Very low levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Very low levels of activity over the cables.

7.13 The SMRTS 2015 survey results for motor cruising show activity levels ranging from moderate to high depending on cable location (163 people provided spatial information). This activity and possible interaction is summarised in Table 13 below and shown in Figure 28.

Table 13 Motor cruising

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	High levels of activity over the cable.
Sandbank Craigend	Yes	High levels of activity over the cable.
Kames Bute (North and South)	Yes	High levels of activity over the cables.
Bute Ardyne (North and South)	Yes	High levels of activity over the cables.

Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables.
Carradale Arran (North and South)	Yes	Moderate to high levels of activity over the cables.
Arran-Holy Isle	Yes	Moderate levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	High levels of activity over the cables.

7.14 The SMRTS 2015 survey results for sailing and cruising show activity levels ranging from moderate to high in the immediate vicinity of the cables, depending on the cable location (542 people provided spatial information). This activity and possible interactions is summarised in Table 14 below and shown in Figure 29.

Table 14 Sailing and cruising

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	High levels of activity over the cable.
Sandbank Craigend	Yes	Moderate levels of activity over the cable.
Kames Bute (North and South)	Yes	High levels of activity over the cables.
Bute Ardyne (North and South)	Yes	High levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables.
Carradale Arran (North and South)	Yes	Moderate to high levels of activity over the cables.
Arran-Holy Isle	Yes	High levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	High levels of activity over the cables.

7.15 The SMRTS 2015 survey results for chartered angling show activity levels ranging from low to high over the cables, depending on cable location (353 people provided spatial information). This activity and possible interactions is summarised in Table 15 below and shown in Figure 30.

Table 15 Chartered angling

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Moderate levels of activity over the cable.
Sandbank Craigend	Yes	Low to moderate levels of activity over the cable.
Kames Bute (North and South)	Yes	Moderate levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Moderate levels of activity over the cables, though there is an area of high activity adjacent to the south of the cables.

Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables.
Carradale Arran (North and South)	Yes	Low levels of activity over the cables.
Arran-Holy Isle	Yes	Moderate levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Low levels of activity over the cables.

7.16 The SMRTS 2015 survey results for sea angling from shore show activity levels ranging from very low to high 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 16 below and shown in Figure 31.

Table 16 Sea angling from shore

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Low to moderate levels of activity over the cable.
Sandbank Craigend	Yes	Very low levels of activity directly over the cable, though there is a hotspot of moderate to high activity approximately 1.9km to the east of the cable.
Kames Bute (North and South)	Yes	Very low levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Moderate levels of activity over the cables, though there is an area of high activity adjacent to the north of the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	Moderate to high levels of activity over the cables.
Carradale Arran (North and South)	Yes	Very low levels of activity over the cables.
Arran-Holy Isle	Yes	Moderate levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Very low levels of activity over the cables.

7.17 The SMRTS 2015 survey results for surfing/paddle boarding show activity levels ranging from low to high in the immediate vicinity of the cables, depending on cable location (201 people provided spatial information). This activity and possible interactions is summarised in Table 17 below and shown in Figure 32.

Table 17 Surfing and paddle boarding

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Moderate levels of activity over the cable.
Sandbank Craigend	Yes	Low levels of activity over the cable.

Kames Bute (North and South)	Yes	High levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Moderate to high levels of activity over the cable.
Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables.
Carradale Arran (North and South)	Yes	Moderate levels of activity over the cables.
Arran-Holy Isle	Yes	Moderate levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Low levels of activity over the cables.

7.18 The SMRTS 2015 survey results for yacht racing show activity levels ranging from moderate to high in the immediate vicinity of the cables, depending on cable location (26 people provided spatial information). This activity and possible interactions is summarised in Table 18below and shown in Figure 33.

Table 18 Yacht racing

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Moderate levels of activity over the cable.
Sandbank Craigend	Yes	Moderate levels of activity over the cable.
Kames Bute (North and South)	Yes	High levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Moderate to high levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables.
Carradale Arran (North and South)	Yes	Moderate levels of activity over the cables.
Arran-Holy Isle	Yes	Moderate levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Moderate levels of activity over the cables.

7.19 A SMRTS 2015 survey results for dinghy racing show very low levels of activity only over Bute-Cumbrae, with no activity recorded elsewhere over the cables (88 people provided spatial information). This activity and possible interactions is summarised in Table 19 below and shown in Figure 34.

Table 19 Dinghy racing

Cable Name	Interaction on chart	Notes

Otter Ferry	No	No activity directly over the cable, though there is an area of very low activity adjacent to the south of the cable.
Sandbank Craigend	No	No activity directly over the cable, though there is an area of very low activity adjacent to the south of the cable.
Kames Bute (North and South)	No	
Bute Ardyne (North and South)	No	
Bute-Cumbrae (North, Centre and 2)	Yes	Very low levels of activity over the cables.
Carradale Arran (North and South)	No	
Arran-Holy Isle	No	
Davaar (Campbeltown) (In service and not in service)	No	

7.20 The SMRTS 2015 survey results for coasteering show hotspots of activity in the immediate vicinity of Sandbank Craigend, Kames Bute, Bute-Cumbrae and Arran-Holy Isle. There are very low levels of activity over all other cables (238 people provided spatial information). This activity and possible interactions is summarised in Table 20 below and shown in Figure 35.

Table 20 Coasteering

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Very low levels of activity over the cable.
Sandbank Craigend	Yes	Moderate to high levels of activity over the cable.
Kames Bute (North and South)	Yes	High levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Very low levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	There is a hotspot of high activity covering the Great Cumbrae landfall of the cables, with very low levels of activity elsewhere along the route. There is another hotspot of activity adjacent to the south west of the Bute landfall.
Carradale Arran (North and South)	Yes	Very low levels of activity over the cables.
Arran-Holy Isle	Yes	High levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Very low levels of activity over the cables.

7.21 The SMRTS 2015 survey results for jet skiing show low levels of activity over only Otter Ferry and Bute Ardyne, and nearby Sandbank Craigend (9 people provided spatial information). This activity and possible interactions is summarised in Table 21 below and shown in Figure 36.

Table 21 Personal water craft (jet skis)

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Low levels of activity over the cable.
Sandbank Craigend	No	No activity directly over the cable, though there is an area of low activity adjacent to the south of the cable.
Kames Bute (North and South)	No	
Bute Ardyne (North and South)	Yes	Low levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	No	
Carradale Arran (North and South)	No	
Arran-Holy Isle	No	
Davaar (Campbeltown) (In service and not in service)	No	

7.22 The SMRTS 2015 survey results for water skiing/wakeboarding show a small amount of activity adjacent to Sandbank Craigend (25 people provided spatial information). This activity and possible interactions is summarised in Table 22 below and shown in Figure 37.

Table 22 Water skiing/wakeboarding

Cable Name	Interaction on chart	Notes
Otter Ferry	No	None directly over the cable, though there is an area of low activity approximately 1.2km to the south of the cable.
Sandbank Craigend	Possible	There is an area of low activity directly adjacent to the south of the cable.
Kames Bute (North and South)	No	
Bute Ardyne (North and South)	No	None directly over the cable, though there is an area of low activity approximately 1.7km to the south of the cable.
Bute-Cumbrae (North, Centre and 2)	No	
Carradale Arran (North and South)	No	
Arran-Holy Isle	No	
Davaar (Campbeltown) (In service and not in service)	No	

7.23 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 23 below and shown in Figure 38.

Table 23 Wild fowling

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Very low levels of activity over the cable.
Sandbank Craigend	Yes	Very low levels of activity over the cable.
Kames Bute (North and South)	Yes	Very low levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Very low levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	Very low levels of activity over the cables.
Carradale Arran (North and South)	Yes	Very low levels of activity over the cables.
Arran-Holy Isle	Yes	Very low levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	Very low levels of activity over the cables.

7.24 The SMRTS 2015 survey results for scuba diving show activity levels ranging from very low to high in the immediate vicinity of the cables, depending on cable location (168 people provided spatial information). This activity and possible interactions is summarised in Table 24 below and shown in Figure 39.

Table 24 Scuba Diving

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	High levels of activity over the cable.
Sandbank Craigend	Yes	Very low levels of activity over the cable, though there is a hotspot of high activity approximately 3.3km east of the cable.
Kames Bute (North and South)	Yes	Moderate to high levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Moderate levels of activity over the cables at the Bute landfall, though there is a hotspot of high activity adjacent to the south of the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	High levels of activity over the cables at the Cumbrae cable landfall, with very low levels elsewhere along the route.
Carradale Arran (North and South)	Yes	Very low levels of activity over the cables.
Arran-Holy Isle	Yes	High levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	Yes	High levels of activity over the cables.

7.25 There are several rowing clubs along the Clyde (including the Clydesdale Amateur Rowing club, the Clyde Rowing Club and Firth of Clyde coastal Rowing Club) although these are not in the vicinity of the cable locations. The SMRTS 2015 survey results for rowing and sculling show very low to low levels of activity over all cables except Carradale Arran and Davaar (Campbeltown), over which there is no rowing and sculling activity recorded (237 people provided spatial information). This activity and possible interactions is summarised in Table 25 below and shown in Figure 40.

Table 25 Rowing and sculling

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Very low levels of activity over the cable.
Sandbank Craigend	Yes	Moderate levels of activity over the cable.
Kames Bute (North and South)	Yes	Low levels of activity over the cables.
Bute Ardyne (North and South)	Yes	Very low levels of activity over the cables.
Bute-Cumbrae (North, Centre and 2)	Yes	Very low to low levels of activity over the cables.
Carradale Arran (North and South)	No	
Arran-Holy Isle	Yes	Very low levels of activity over the cable.
Davaar (Campbeltown) (In service and not in service)	No	

7.26 There are potential wreck sites within the cable corridors as indicated in Figure 41 and summarised in Table 26. 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.

Table 26 Marine archaeology

Cable Name	Interaction on chart	Notes
Otter Ferry	No	
Sandbank Craigend	Yes	Possible interaction with wreck sites.
Kames Bute (North and South)	No	
Bute Ardyne (North and South)	Yes	Possible interaction with wreck sites.
Bute-Cumbrae (North, Centre and 2)	Yes	Possible interaction with wreck sites.
Carradale Arran (North and South)	No	

Arran-Holy Isle	Yes	Possible interaction with wreck sites.
Davaar (Campbeltown) (In service and not in service)	Possible	No wreck sites directly over the cables, but the nearest is 1.5km away.

7.27 The nature conservation Marine Protected Areas (MPAs) with marine components Upper Loch Fyne and Loch Goil, and South Arran, cover Otter Ferry and Arran-Holy Isle respectively. The National Scenic Area (NSA) North Arran interacts with Carradale Arran, and the NSA Kyles of Bute is in the vicinity of Kames Bute and Bute Ardyne. The nearest RSPB reserve is Horse Island, off the Ardrossan coast of the mainland, though it does not interact with any of the cable routes. The nature conservation designations in the vicinity of the cable corridors are shown in Figure 42, Figure 43 and Figure 44 and summarised in Table 27.

Table 27 Conservation designations

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Upper Loch Fyne and Loch Goil MPA – covers entirety of the cable.
Sandbank Craigend	No	
Kames Bute (North and South)	No	None directly over the cable, though Kyles of Bute NSA is located approximately 1.7km north of the cables.
Bute Ardyne (North and South)	No	None directly over the cable, though Kyles of Bute NSA is located approximately 3.3km west of the cables.
Bute-Cumbrae (North, Centre and 2)	No	
Carradale Arran (North and South)	Yes	North Arran NSA – Covers Arran landfall of the cables.
Arran-Holy Isle	Yes	South Arran MPA – covers entirety of the cable.
Davaar (Campbeltown) (In service and not in service)	No	

7.28 There are currently no operational wave, wind or tidal renewable energy developments in the vicinity of the cable works.

7.29 There are a number of recorded finfish and shellfish aquaculture farms within the vicinity of the cables, operated by Ballimore Estate, Otter Ferry Seafish Ltd., The Scottish Salmon Company, Mowi Scotland Ltd. and Kildalloig Farm Products. The potential interaction is summarised in Table 28 and shown in Figure 45.

Table 28 Aquaculture sites

Cable Name	Interaction on chart	Notes
Otter Ferry	Possible	None directly over the cable, though there is a shellfish site approximately 1.8km south of the cable, Site 1, operated by

		Ballimore Estate. There are two finfish farms 2.4km north of the cable, Evanachan Marine Hatchery and Evanachan Salt Water, operated by Otter Ferry Seafish Ltd. There may be transiting traffic intersecting the route to and from these sites.
Sandbank Craigend	No	
Kames Bute (North and South)	No	
Bute Ardyne (North and South)	Yes	One finfish aquaculture farm, Ardyne (run by The Scottish Salmon Company) is located at the Ardyne landfall of the cables.
Bute-Cumbrae (North, Centre and 2)	No	
Carradale Arran (North and South)	Possible	One finfish aquaculture farm, Eilean Grianain (run by Mowi Scotland Ltd.), approximately 1.9km north of the cables.
Arran-Holy Isle	Possible	One finfish aquaculture farm, Lamlash (run by The Scottish Salmon Company), approximately 1.4km north west of the cables.
Davaar (Campbeltown) (In service and not in service)	Yes	There is a shellfish aquaculture site, Kildalloig Bay (run by Kildalloig Farm Products), directly over the 'in service' cable.

7.30 There are a number of ferry routes that overlap with the cables. The proximity of these ferry routes to the cable works is summarised in Table 29. There is an average of 50+ transits undertaken in the immediate vicinity of Sandbank Craigend. There are 10 or fewer transits over all other cables, shown in AIS density data for passenger vessels, Figure 46.

Table 29 Ferry routes

Cable Name	Interaction on chart	Notes
Otter Ferry	No	No
Sandbank Craigend	Possible	None directly over the cable, though there is a ferry route Gourock-Dunoon operated by Western Ferries that departs approximately 4.3km south of the cable. Another, Dunoon-Blairmore, operated by Paddle Steamer Waverley, runs approximately 4.8km south west of the cable. They both cross the mouth of the Holy Loch in which the cable is contained, so vessels accessing the cable may interact with these routes.
Kames Bute (North and South)	Yes	The ferry route Tarbert-Tighnabruaich (operated by Paddle Steamer Waverley) intersects the cables.
Bute Ardyne (North and South)	Yes	The ferry route Bute-Tighnabruaich (operated by Paddle Steamer Waverley) intersects the cables.
Bute-Cumbrae (North, Centre and 2)	No	
Carradale Arran (North and South)	No	

Arran-Holy Isle	Possible	None directly over the cable, though there is a ferry route Arran (Lamlash)-Holy Isle, operated by Holy Isle Ferry, that runs parallel to the cable route approximately 2.5km north at its closest point.
Davaar (Campbeltown) (In service and not in service)	Possible	None directly over the cable, though there are ferry routes Campbeltown-Ardrossan and Campbeltown-Ballycastle (operated by CalMac Ferries and Kintyre Express respectively), that run approximately 710m north of the cables at their closest typical point.

7.31 The nearest ports to each of the cable works is summarised in Table 30 below. Information on these ports is gathered from the website, Ports and Harbours of the UK. 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 30 Local ports

Cable Name	Interaction on chart	Notes
Otter Ferry	Yes	Otter Ferry quay sits at the eastern cable landfall, and is used primarily for leisure vessels.
Sandbank Craigend	Possible	The nearest pier is Kilmun (1.7km south east), used as an overnight berth by Western Ferries' services. Another, Holy Loch (1.8km south), is used as a working pier, where timber is loaded.
Kames Bute (North and South)	Possible	The nearest pier is Tighnabruaich (2.5km north of the cables), used by leisure vessels and the ferry service Tarbert-Tighnabruaich.
Bute Ardyne (North and South)	Possible	The nearest port is Port Bannatyne (2km south), used primarily by leisure and fishing vessels.
Bute-Cumbrae (North, Centre and 2)	Possible	The nearest port is Millport (1.8km west of the Cumbrae landfall), used primarily by leisure and commercial vessels. Kilchattan Pier is located 1.9km south west of the cables, and is used by leisure and fishing boats.
Carradale Arran (North and South)	Yes	Carradale Harbour sits at the Carradale cable landfall, and functions as a busy fishing harbour.
Arran-Holy Isle	Possible	Lamlash Pier is located approximately 3.7km north of the cable at the Arran landfall, and is used primarily by fishing and leisure boats.
Davaar (Campbeltown) (In service and not in service)	Possible	The nearest port is Campbeltown Loch POL Depot, which is a petroleum, oils and lubricants (POL) depot located approximately 1km west of the cables. Campbeltown Harbour is located 2.9km west of the cables, and is a popular destination for tourists as well as leisure, fishing and commercial vessels. Dalintober Jetty is located approximately 3km north west of the cables, and is currently used only for leisure purposes.

7.32 There has been no activity recorded for water skiing and wakeboarding and kite surfing in the location of the cables.

7.33 The key points of contact for these legitimate sea users are identified in Appendix B: *Communication Strategy*.

Table 31 Summary of other legitimate sea users' interactions

Activity		Interaction on chart	Notes
Recreational	Bird and wildlife watching	Yes	Moderate to high levels of activity over the cables.
	Visits to historic sites or to attractions	Yes	Very low to high levels of activity over the cables.
	Power boating	Yes	Moderate to high levels of activity over the cables.
	Canoeing/kayaking	Yes	Very low to high levels of activity over the cables.
	Long distance swimming	Yes	Very low levels of activity over the cables.
	Motor cruising	Yes	Moderate to high levels of activity over the cables.
	Sailing and cruising	Yes	Moderate to high levels of activity over the cables.
	Chartered angling	Yes	Low to high levels of activity over the cables.
	Sea angling from shore	Yes	Very low to high levels of activity over the cables.
	Surfing and paddle boarding	Yes	Low to high levels of activity over the cables.
	Yacht racing	Yes	Moderate to high levels of activity over the cables.
	Dinghy racing	Yes	Very low levels of activity over Bute-Cumbrae, none elsewhere.
	Coasteering	Yes	Hotspots of activity in the immediate vicinity of Sandbank Craigend, Kames Bute, Bute-Cumbrae and Arran-Holy Isle. Very low levels of activity over all other cables.
	Personal water craft (jet skis)	Yes	Low levels of activity over only Otter Ferry and Bute Ardyne, none elsewhere.
	Water skiing/wakeboarding	Yes	Low levels of activity adjacent to Sandbank Craigend, none elsewhere.
	Wild fowling	Yes	Very low levels of activity over the cables.

Activity		**Interaction on chart**	**Notes**
	Scuba diving	Yes	Very low to high levels of activity over the cables.
	Rowing and sculling	Yes	Very low to low levels of activity over the cables.
Conservation sites		Yes	The nature conservation Marine Protected Areas (MPAs) with marine components Upper Loch Fyne and Loch Goil, and South Arran, cover Otter Ferry and Arran-Holy Isle respectively. The National Scenic Area (NSA) North Arran interacts with Carradale Arran, and the NSA Kyles of Bute is in the vicinity of Kames Bute and Bute Ardyne.
Wave/Tidal		No	
Aquaculture (finfish and shellfish)		Yes	Some local finfish and shellfish sites in the vicinity of the cable locations.
Marine Archaeology		Yes	Possible interaction with wreck sites.
Shipping		Yes	AIS indicates that there are low to moderate levels of cargo vessel transits (<20 transits) over all cable routes, except Bute-Cumbrae, for which there are high levels (20-50
Ferries		Yes	There are ferry routes overlapping Kames Bute and Bute Ardyne, with ferry routes in the vicinity of the other cables.

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)[16] guidelines and summarised in the Cost Benefit Analysis Model[17]. 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 The main gear types used in the Clyde area are potting (creeling) and demersal twin trawling targeting Nephrops. However, with the exception of the Davaar (Campbeltown) cable which passes through a busy mobile gear fishing area, potting (creeling) vessels represent the primary fishery that may interact with the cable locations, due to their nearshore location.

8.3 While fishermen will be kept up to date with construction areas by Notices to Mariners (NTMs), Weekly Notices 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 onboard 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)[18].

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

[16] 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

[17] 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

[18] Scottish and Southern Electricity Networks: *Standard Operating Procedures*, available: https://www.ssen.co.uk/SubmarineCables/AboutUs/

mountable magnetometer, MBES and SSS, and a gradiometer array for a minimum corridor 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.

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*[19]. 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 Clyde cable inspections, they 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 accidently dropped during any construction and maintenance activities (if required following inspection surveys) 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.

[19] Scottish and Southern Electricity Networks: *How we co-exist with other marine users*, available: https://www.ssen.co.uk/SubmarineCables/AboutUs/

9.3 The following procedure outlined below replicates that which has been in place in respect of the UK offshore oil and gas industry and describes the steps that should be undertaken in the event of fishing gear becoming fastened on or in the vicinity of a submarine electricity cable:

- If the fastened gear is not easily retrieved, fishermen should not apply excessive winch, line or net hauler loads or engine powers in attempts to retrieve fastened gear
- Fishermen are to advise the coastguard and the CFLO/FIR immediately, giving an accurate position of the vessel and/or lost gear
- If the coastguard or CFLO/FIR confirms that the vessel is in the immediate vicinity of a cable, serious consideration will be given to the slipping of the gear and buoying and recording of its position;
- If the gear is slipped, after buoying off the gear, the position should be confirmed with the coastguard and the CFLO/FIR
- On return to port, the skipper is to contact the local Fishery Office and register the incident in the normal manner
- On no account should skippers grapple in an attempt to recover fishing gear lost or cut away in the vicinity of a submarine electricity cable.

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 any 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 any required construction phases, 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 any required construction schedules as far as is practicably possible with the aim of reducing potential combined loss of fishing area during this phase.

9.7 Fishing stakeholders will be informed of all the cable works throughout the inspection surveys (and any subsequent pre-construction or construction 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 any 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 (if new cable is required) to inform commercial fishermen of planned activities
- Organising construction schedules (if new cable is required) as far as is practicably possible in order to reduce the combined loss of fishing area associated with safety zones
- Distributing weekly notice of operations
- Providing information in plotter format to enable fishermen to easily interpret the information
- Scouting surveys to identify potting areas and any other relevant static gear areas.

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*[20].

[20] Scottish and Southern Electricity Networks: *How we co-exist with other marine users*, available: https://www.ssen.co.uk/SubmarineCables/AboutUs/

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, vessel3…..] 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]

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 500 m 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	

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 (CFLO) Alex Winrow-Giffin on 07760 160039 / 01379 872144, alex@brownmay.com. A local Fishing Industries Representative (FIR) George White georgewhite0@gmail.com, 07761 873965 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

Appendix B Communication Strategy

An example standardised high level cable replacement communication plan is given in Table 32 (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 33. Please note that the communication plan will need to be applied for each cable.

Table 32 Example of a communication programme for cable replacement

Time	What's happening	What we want to communicate	Who we are speaking to and frequency
Month 1	Cable inspection list created for [year] We have developed a list based on a number of define factors and previous cable history. This allows us to "guess 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.	▪ No communications at this stage.	N/A
Month 2	Mobilisation of inspection vessels for [year] programme of cable replacement Sending out inspection vessel, divers and/or ROV closely following cable to inspect cable condition and record it on film. This is then used to inform our health assessment of the cable.	▪ Essentially a safety message to let mariners know that we will have vessels in the area.	▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily)

Time	What's happening	What we want to communicate	Who we are speaking to and frequency
Month 3	Review inspections from 2 years ahead to create 1 year ahead survey list 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.	▪ No communications at this stage, unless there has been engagement with stakeholders who have experienced wet outages.	▪ Domestic and generation SHEPD customers to advise them that we will be replacing the cable (one off).
Month 4	Survey [year] Cable routes With our 125% list we then issue instruction to survey the cable routes. This uses a vessel dragging 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.	▪ Essentially a safety message to let mariners know that we will have vessels in the area. ▪ Messaging to highlight any environmental mitigation measures we have implemented to safeguard marine life (e.g. checking for dolphins before beginning sonar survey)	▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily). ▪ Environmental groups: to highlight any mitigation measures (one off).
Month 5	Select [year] cable routes and advise Marine Scotland (licensing) From our survey we will then define the project which is to be delivered. Reducing our project list to 100% of what we are able to deliver.	▪ No external communications at this stage.	N/A
Month 6-7	PAC events and license application	▪ The proposed project including location and route along with possible protections methods.	▪ Statutory and non-statutory stakeholders as well as

Time	What's happening	What we want to communicate	Who we are speaking to and frequency
	Pre-application consultation events are advertised and held. Comments received are noted and addressed as part of the licence application.		communities and mariners (one off).
Month 8	<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.	▪ Essentially a safety message to let mariners know that we will have vessels in the area.	▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily).
Month 9	<u>Start – completion of installation works</u> ▪ 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. ▪ Dependant on physical protection levels of cables there may be a number of extra vessels dispatched to complete the works. ▪ In parallel there will be onshore works which will be connecting the cable from the sea/shore end into the existing electrical network. ▪ All vessel(s) return to port(s)	▪ Essentially a safety message to let mariners know that we will have vessels in the area.	▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily). ▪ Domestic and business customers to be advised of any planned outages to allow us to carry out works (as required).

Time	What's happening	What we want to communicate	Who we are speaking to and frequency
18 months after installation	Post installation cable inspections ▪ Sending out inspection vessel, divers and/or ROV to inspect the cables most recently installed. This will allow us to decide what remedial works are required. ▪ 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.	▪ Essentially a safety message to let mariners know that we will have vessels in the area.	▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily).
Remedial works following cable inspection (if required)	Remedial works ▪ If required, we will send more vessels to complete any works which are required (from protection to complete cable replacement).	▪ Essentially a safety message to let mariners know that we will have vessels in the area.	▪ Mariners: the number of vessels, routes they are taking and activities they will be completing (daily).

Table 33 Example of unplanned outage due to wet fault in a cable

Time	What's happening	What we want to communicate	Who we are speaking to
Day 1	▪ Declared a wet fault following testing at termination poles at both shore ends. This will give the distance to the fault location within the sea.	▪ We are aware of a submarine electricity cable fault.	▪ Domestic and business demand and generation customers.

Time	What's happening	What we want to communicate	Who we are speaking to
	▪ Depending on the severity of the fault and the demand of the island we may be able to restore power whilst still investigating the fault. ▪ Embedded generation team will be deployed to operate the generators on the island. There will be someone on site 24 hours. ▪ We formally notify Marine Scotland, Northern Lighthouse Board and Fishing Liaison Officer at this point.	▪ Our engineers are on site and are connecting generators to restore your power.	
Day 2 -13	We are mobilising our marine contractors (divers, vessels and crew).	▪ Power will have been restored from the customers' perspective. ▪ Generation customers may be assisting islands in maintaining supply stability. We may wish to communicate this as a good news story.	▪ Domestic and business demand customers if we want to share good news story.
Day 14 - 17	<u>Locating the fault</u> ▪ If the cable is 30 m deep then divers visually inspect the cable to find the fault. ▪ If it is deeper than this Remote Operated Vehicles are deployed to do the same job. ▪ Visibility can be very poor so this will impact on how long this takes.	▪ We need to be sharing safety message with the marine community to beware that we have vessels operating in the area. ▪ This should highlight how many there are in the water and what they are doing. ▪ We may want to talk to the outside world about anyways we are mitigating our impact on either the environment or mariners.	▪ Mariners: We will have vessels operating in and around the cables. ▪ This should advise of specific movements.

Time	What's happening	What we want to communicate	Who we are speaking to
Day 18	<u>Fault zone found</u> Fault zone found visually (probably a worn section of cable with splayed armour; or disruption on seabed; or orange deposits on the armour). There is still work to be done in actually pin pointing the fault.	▪ We need to be sharing safety message with the marine community to beware that we have vessels operating in the area. ▪ This should highlight how many there are in the water and what they are doing.	▪ Mariners: We will have vessels operating in and around the cables.
Day 19 – 20	<u>Fault finding</u> ▪ We cut the cable in the fault zone. ▪ Tie one end that will remain in the sea to the buoy. We will check this is healthy once we have checked the end that we think has the fault. ▪ The end we think has a fault will be recovered onto the cable vessel. Jointers will strip the cable ready for testing. We find the exact location of the fault by cutting 10 metre lengths until the tests show that the cable is healthy. Once we know cable is healthy we make it waterproof and tie it to a buoy to it.	▪ We need to be sharing safety message with the marine community to beware that we have vessels operating in the area. This should highlight how many there are in the water and what they are doing. Especially since there will a number of anchors temporarily in the area whilst we are looking for the fault and fixing it.	▪ Mariners: We will have vessels operating in and around the cables. ▪ This should tell mariners where the buoys are and that the cable is at this location.
Day 21	<u>Option A</u> We call this a piece in where we are able to re-joint the cable with a new section of cable. <u>Option B</u> Depending on the distance from shore, we may take at new section of cable from the shore end to the existing cable (only needing one joint)	▪ We need to be sharing safety message with the marine community to beware that we still have vessels operating in the area. ▪ This should highlight how many there are in the water and what they are doing.	<u>Option A and B</u> Mariners: We will have vessels operating in and around the cables and estimate when we will be away <u>Option C and D</u> Mariners and statutory consultees: We need to do a full cable replacement and so need to apply

Time	What's happening	What we want to communicate	Who we are speaking to
	Option C If the cable is too deep (greater than 50 metres) we can't repair the cable by traditional means we will have to replace the entire cable end to end. Option D If cable has faulted and is planned for replacement due to health of cable we will replace entire cable end to end.	Option A and B Estimate how long we will be in the area mending the cable for and advise of vessel movements. Option C and D We need to apply for full marine licence. Please refer to other communication plan from here on.	for a marine licence which gives us consent to carry out the work.
Day 22	Option A 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. Option B 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	▪ We need to be sharing safety message with the marine community to beware that we still have vessels operating in the area. ▪ This should highlight how many there are in the water and what they are doing.	▪ Domestic and business demand and generation customers: The submarine electricity cable has been repaired and mobile generators have been removed from the island. ▪ Mariners: We will have vessels operating in and around the cables and estimate when we will be away

Time	What's happening	What we want to communicate	Who we are speaking to
	make sure it is clear of all faults. We will then re-energise cable when safe to restore power.		

Appendix C Commercial Fishing Charts

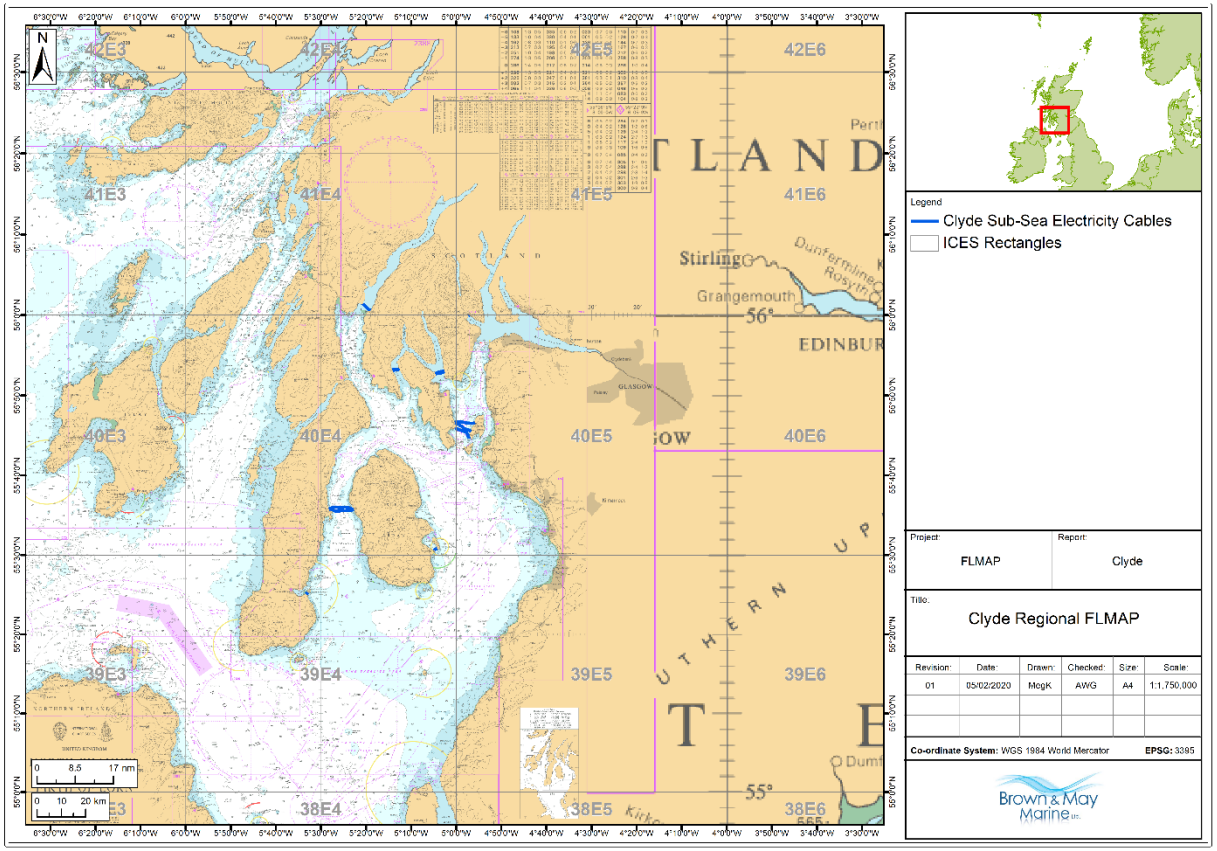


Figure 1 Clyde study area

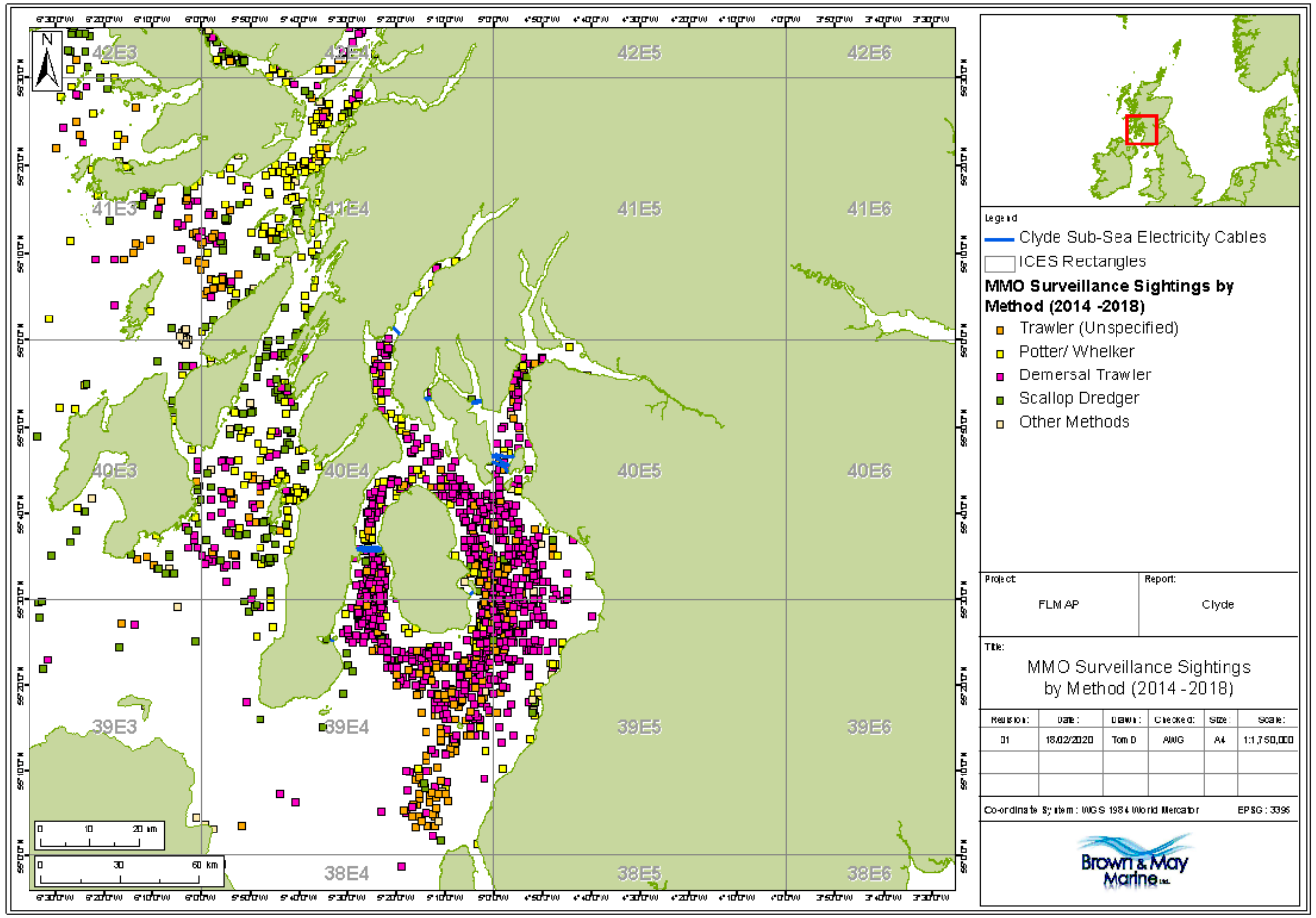


Figure 2 MMO surveillance sightings by method (2014-2018)

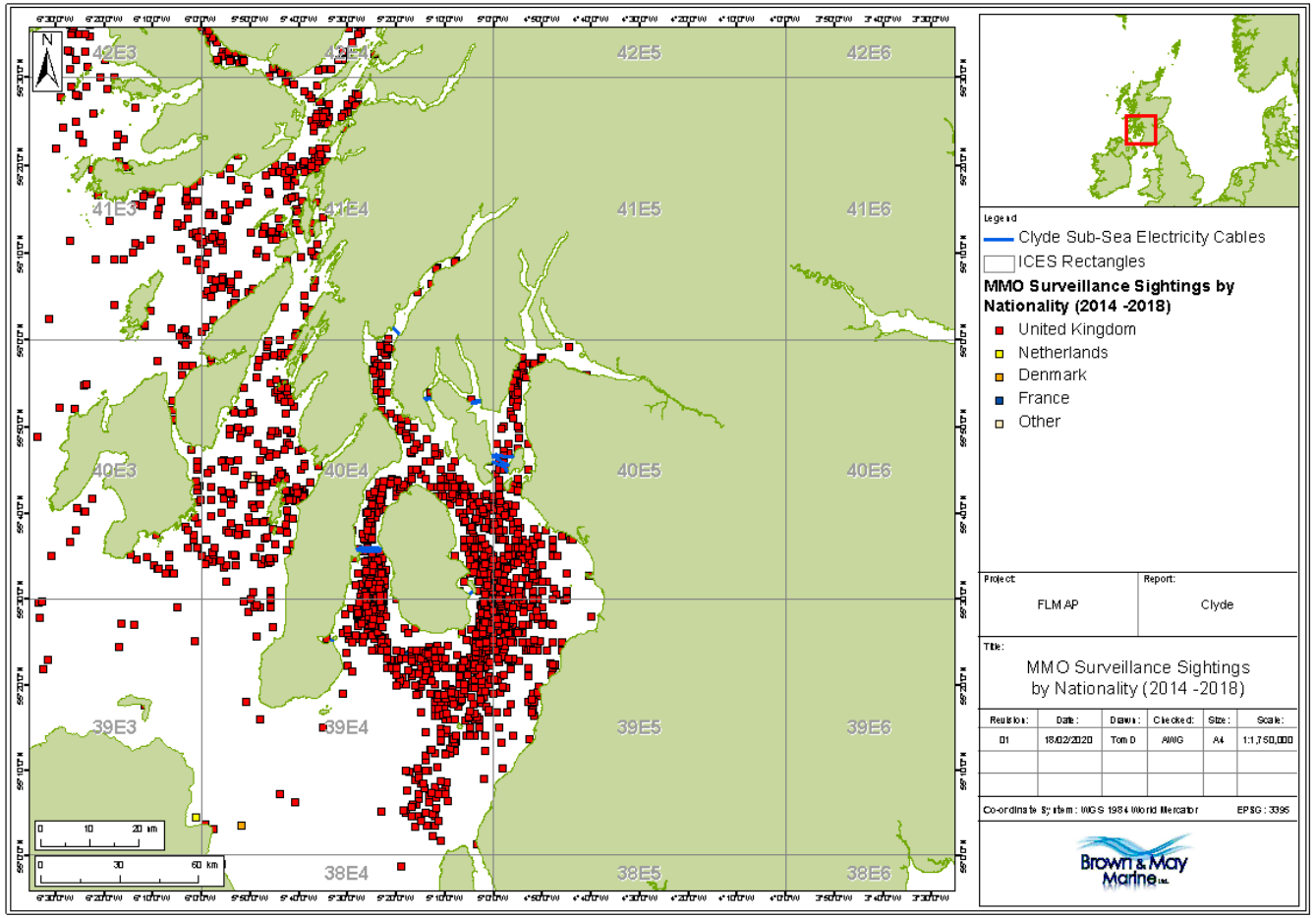


Figure 3 MMO surveillance sightings by nationality (2014-2018)

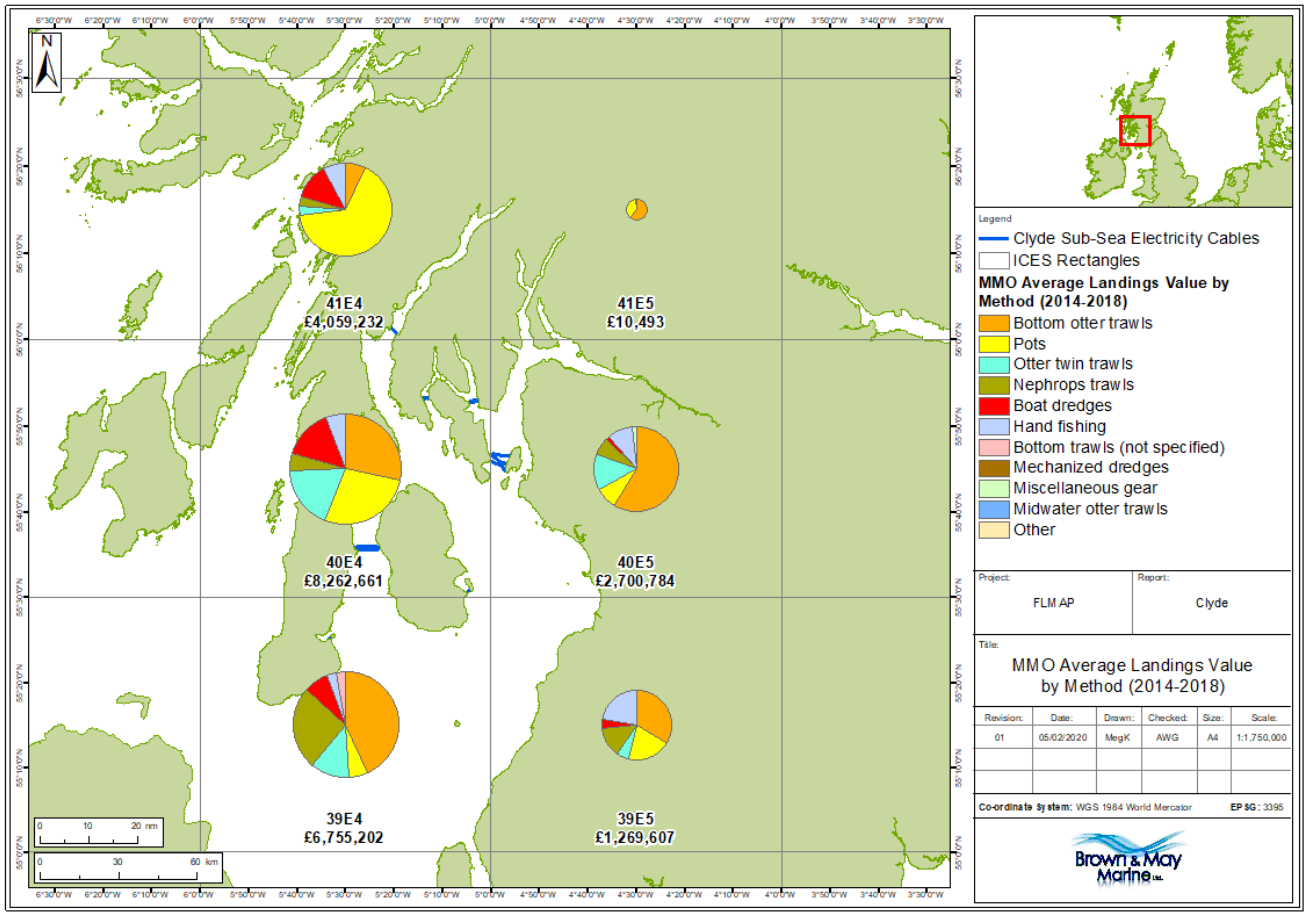


Figure 4 Average MMO landings value by method (2014-2018)

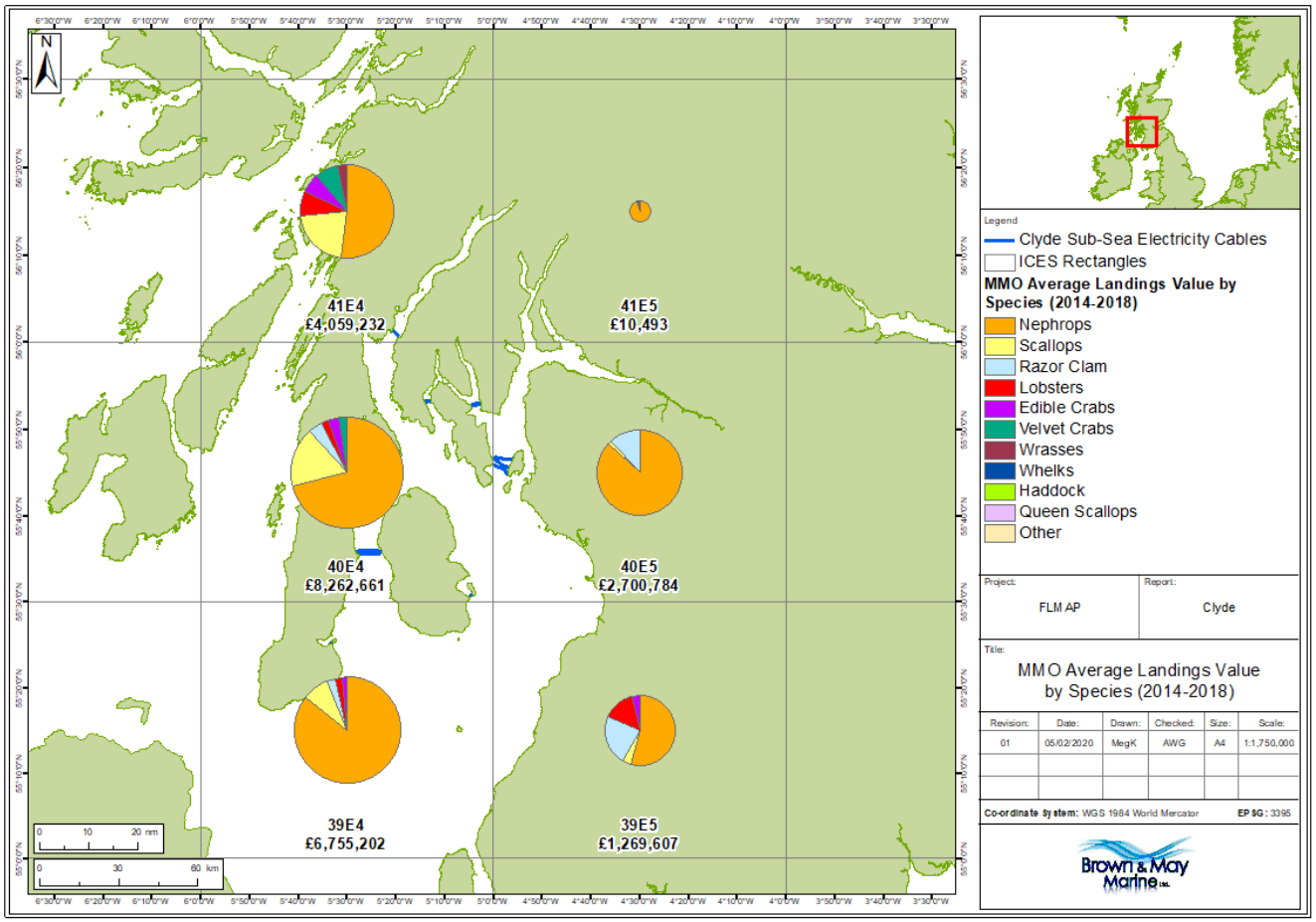


Figure 5 Average MMO landings value by species (2014-2018)

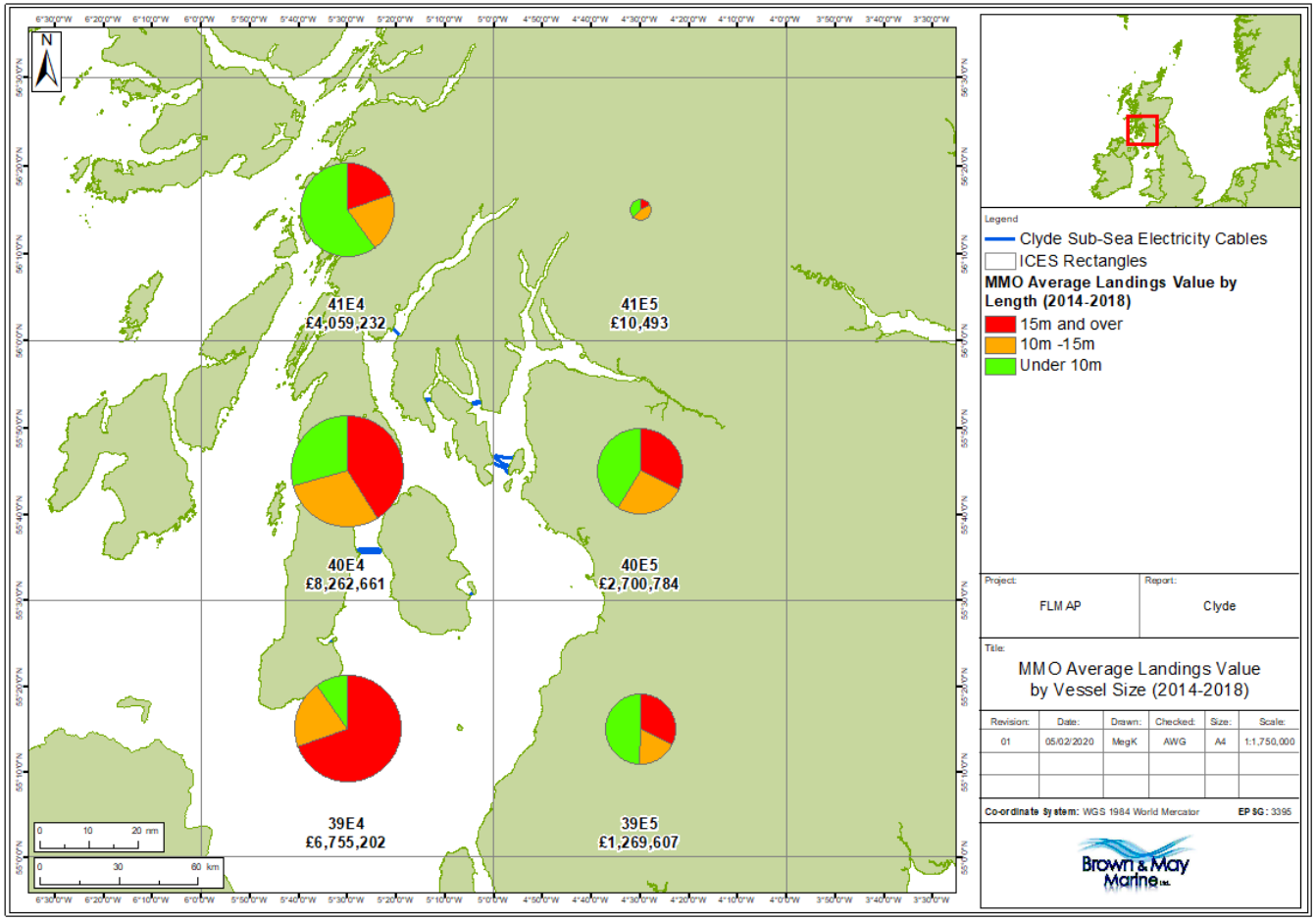


Figure 6 Average MMO landings value by vessel length (2014-2018)

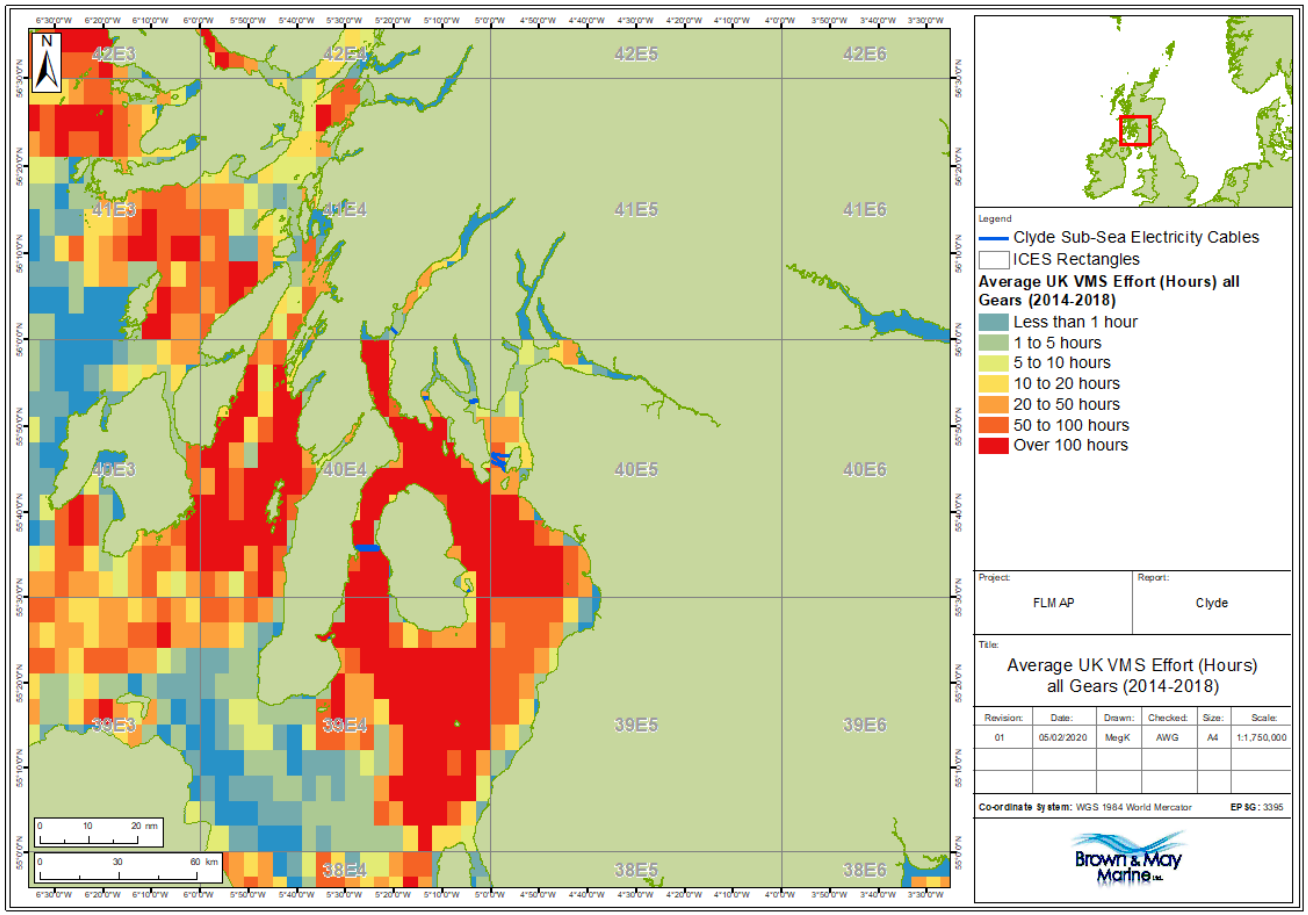


Figure 7 Average UK MMO VMS effort (hours) all gears (2014 to 2018)

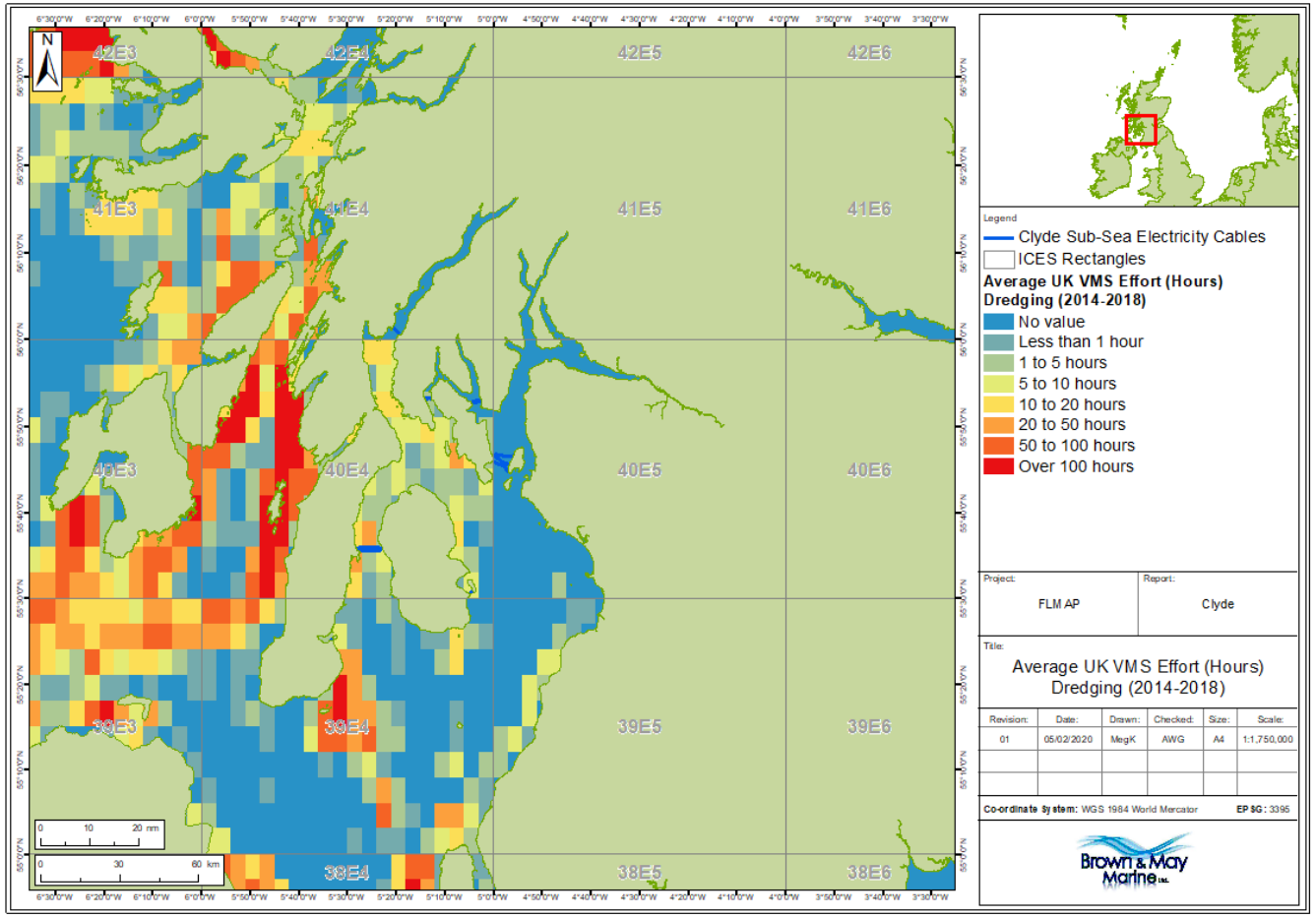


Figure 8 Average UK MMO VMS effort (hours) for dredges (2014 to 2018)

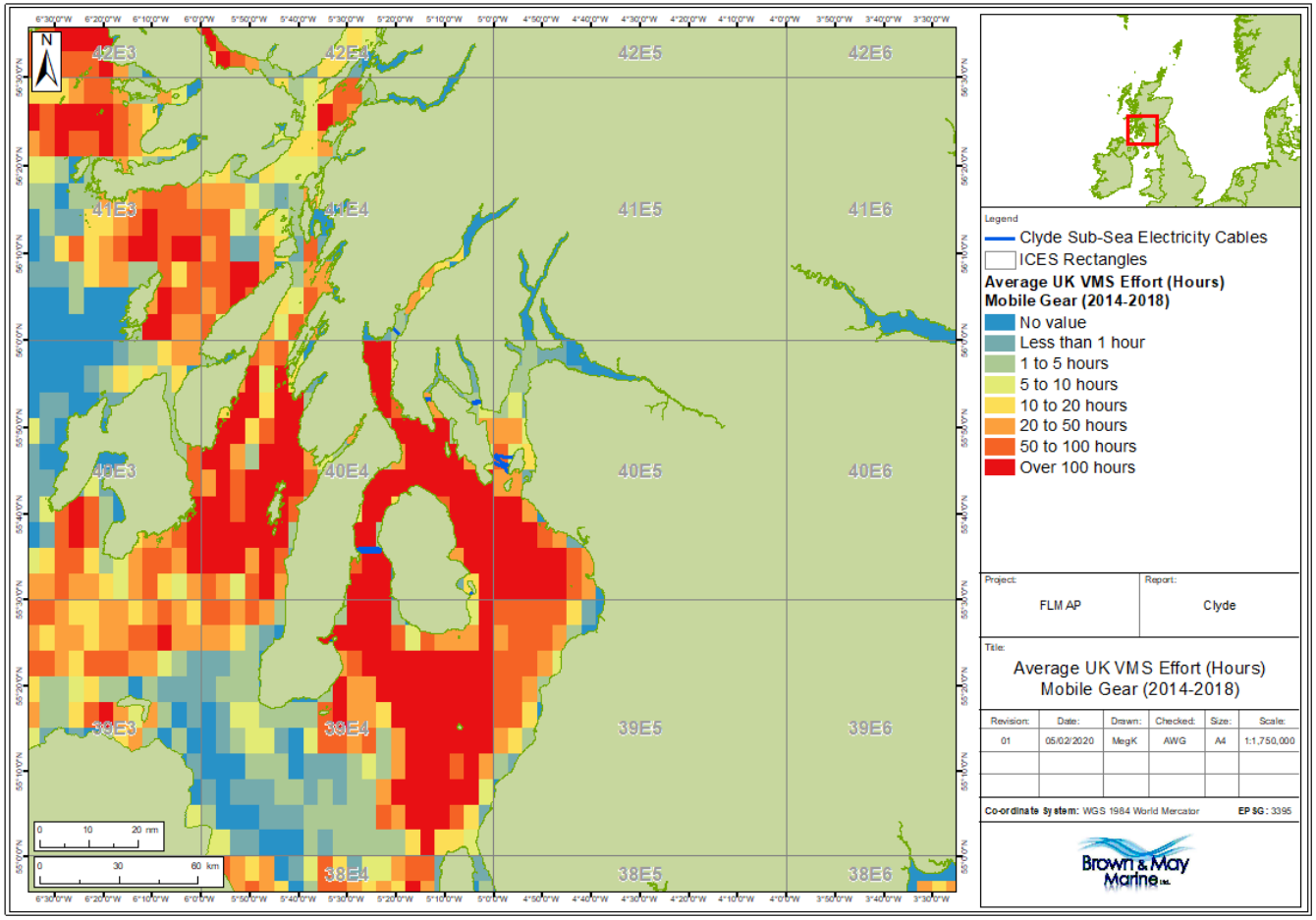


Figure 9 Average UK MMO VMS effort (hours) for mobile gear (2014 to 2018)

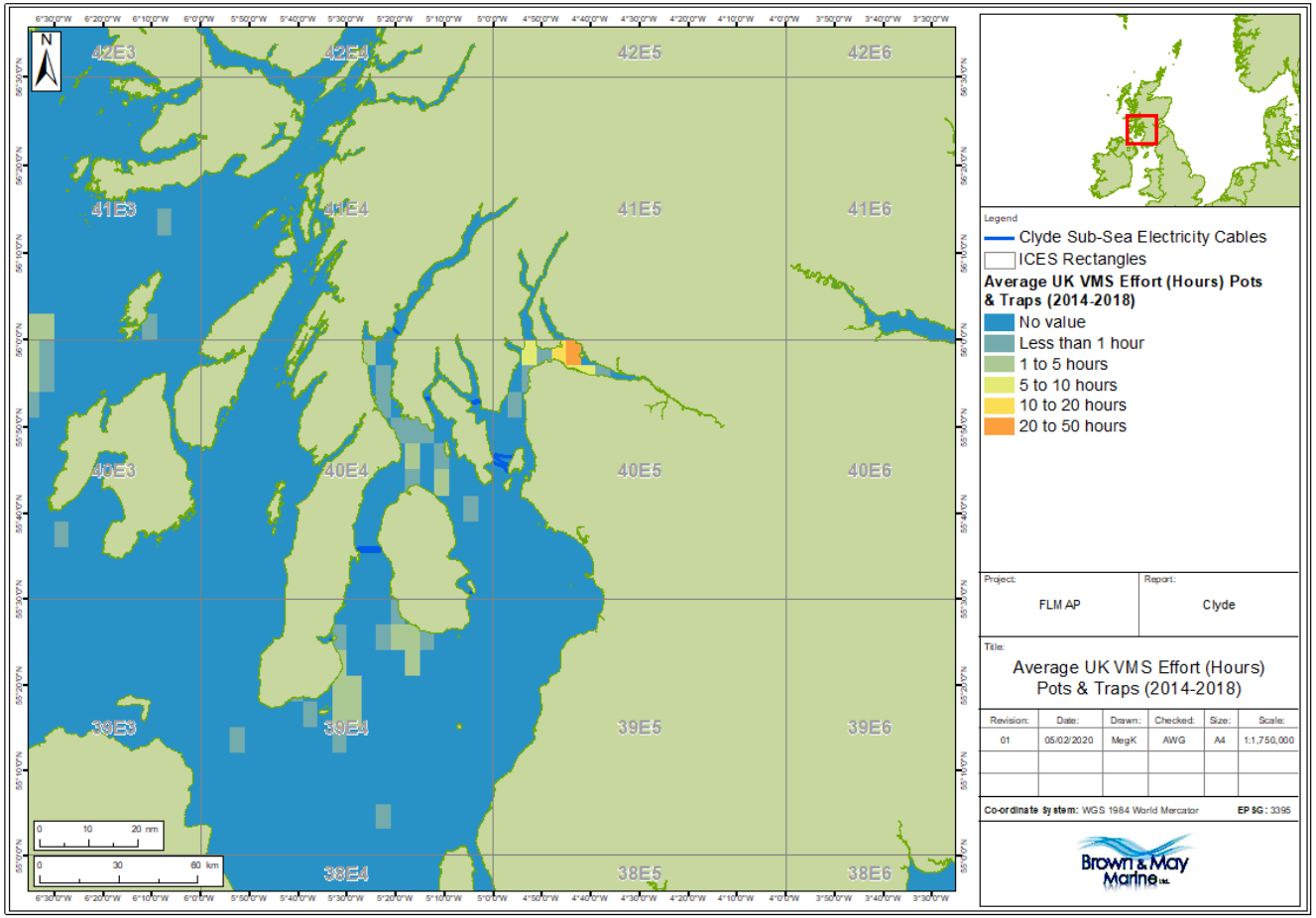


Figure 10 Average UK MMO VMS effort (hours) for pots & traps (2014 to 2018)

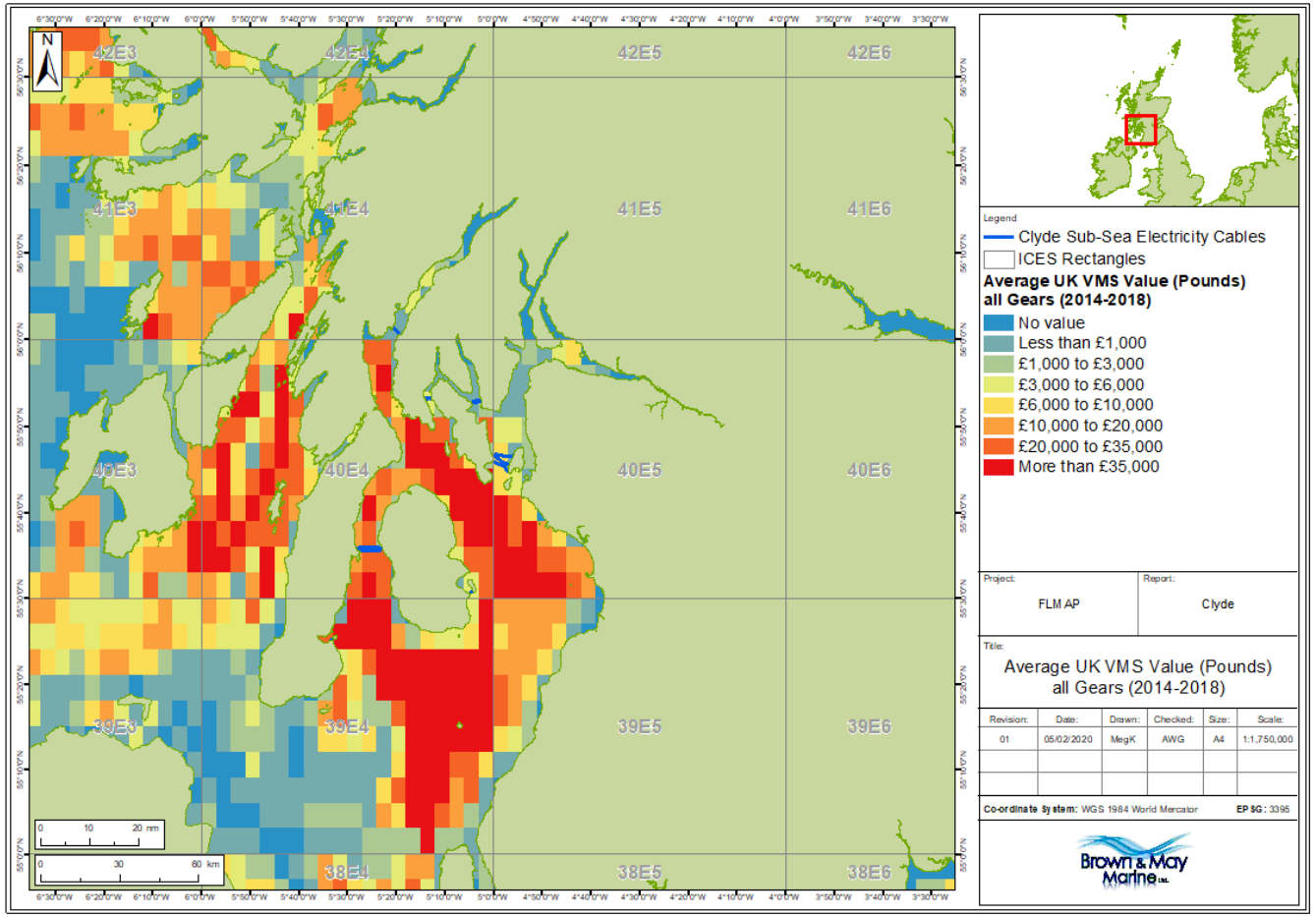


Figure 11 Average UK VMS value (£) for all gears (2014-2018)

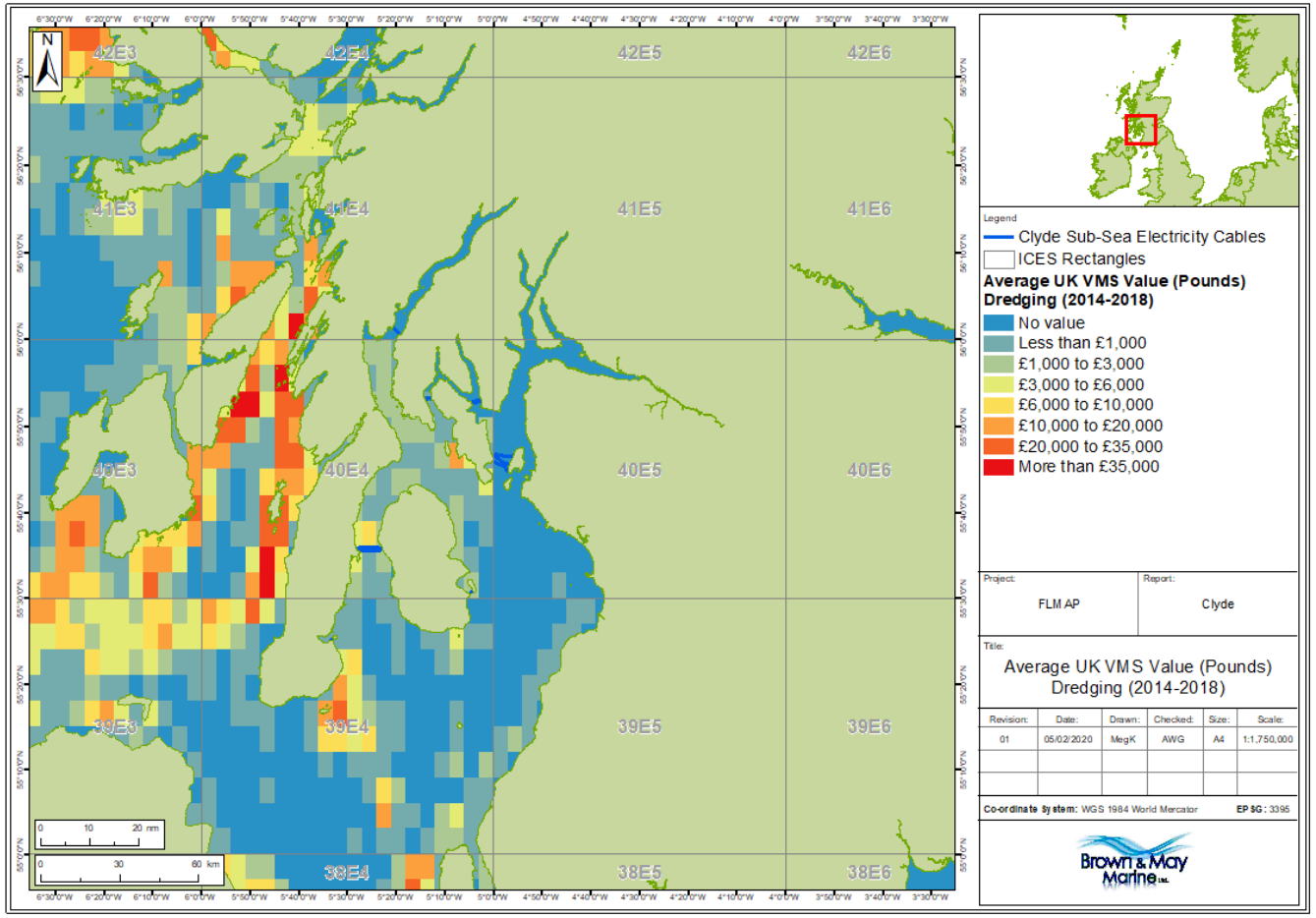


Figure 12 Average UK VMS value (£) for dredging (2014-2018)

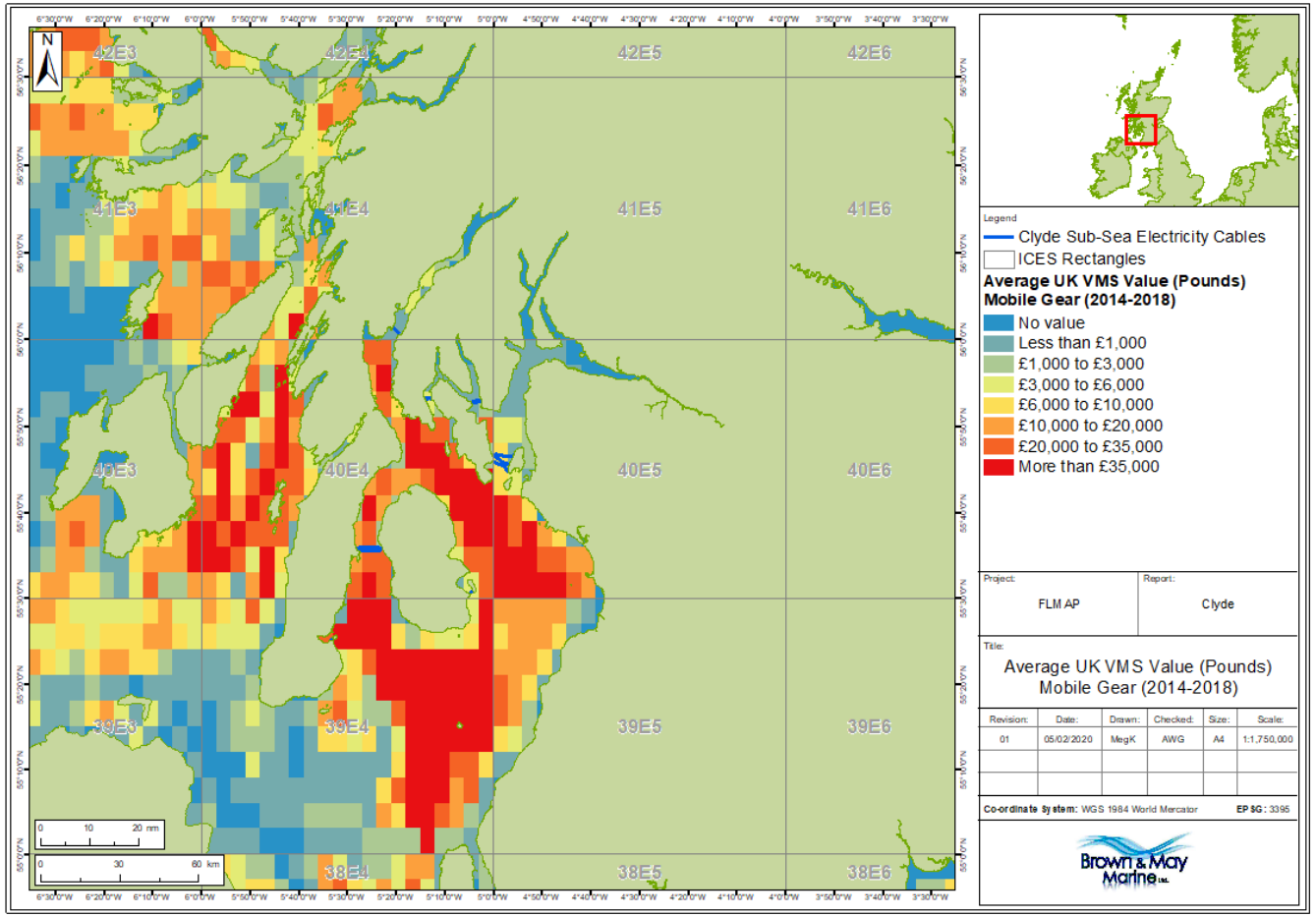


Figure 13 Average UK VMS value (£) for mobile gears (2014-2018)

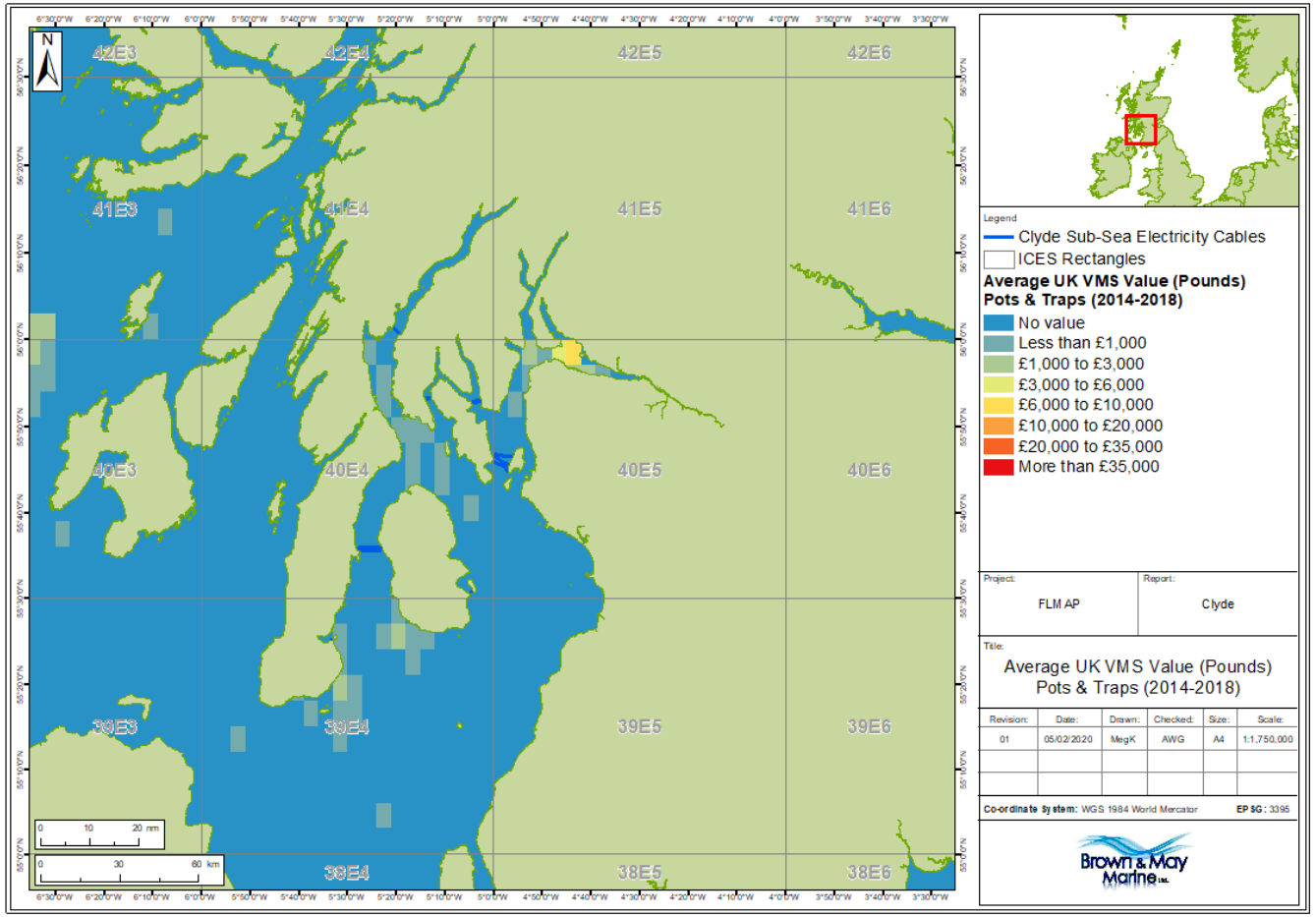


Figure 14 Average UK VMS value (£) for pots and traps (2014-2018)

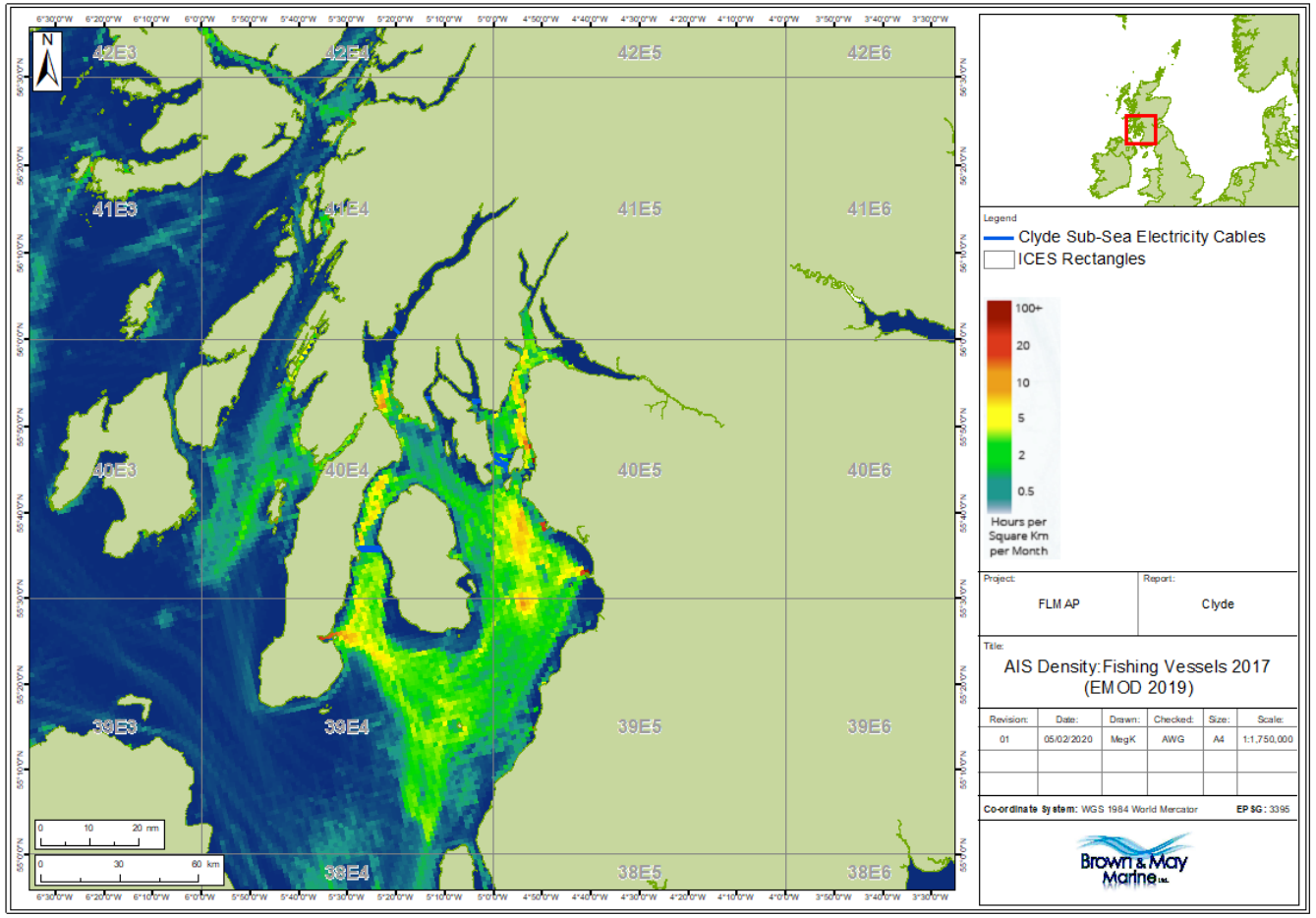


Figure 15 AIS density for fishing vessels in 2017 (EMODnet, 2019)

Appendix D Other Sea Users Charts

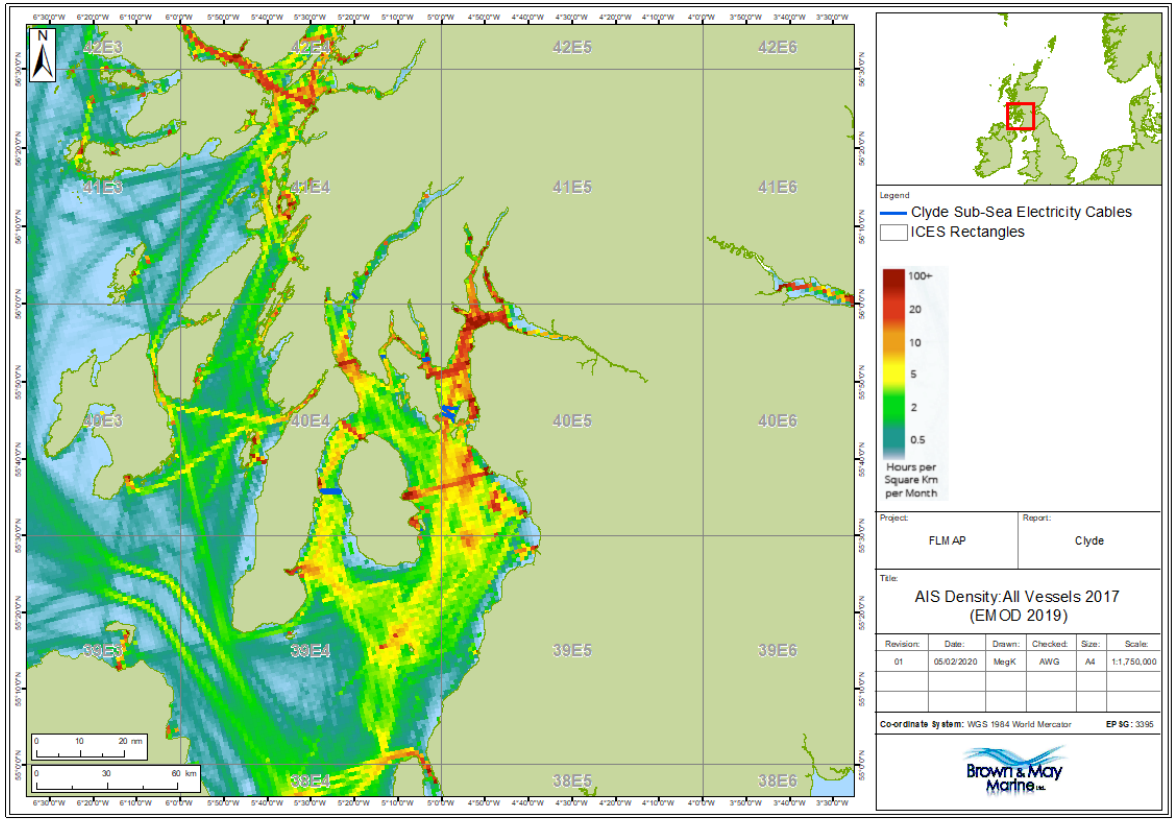


Figure 16 AIS density for all vessels (EMODnet, 2019)

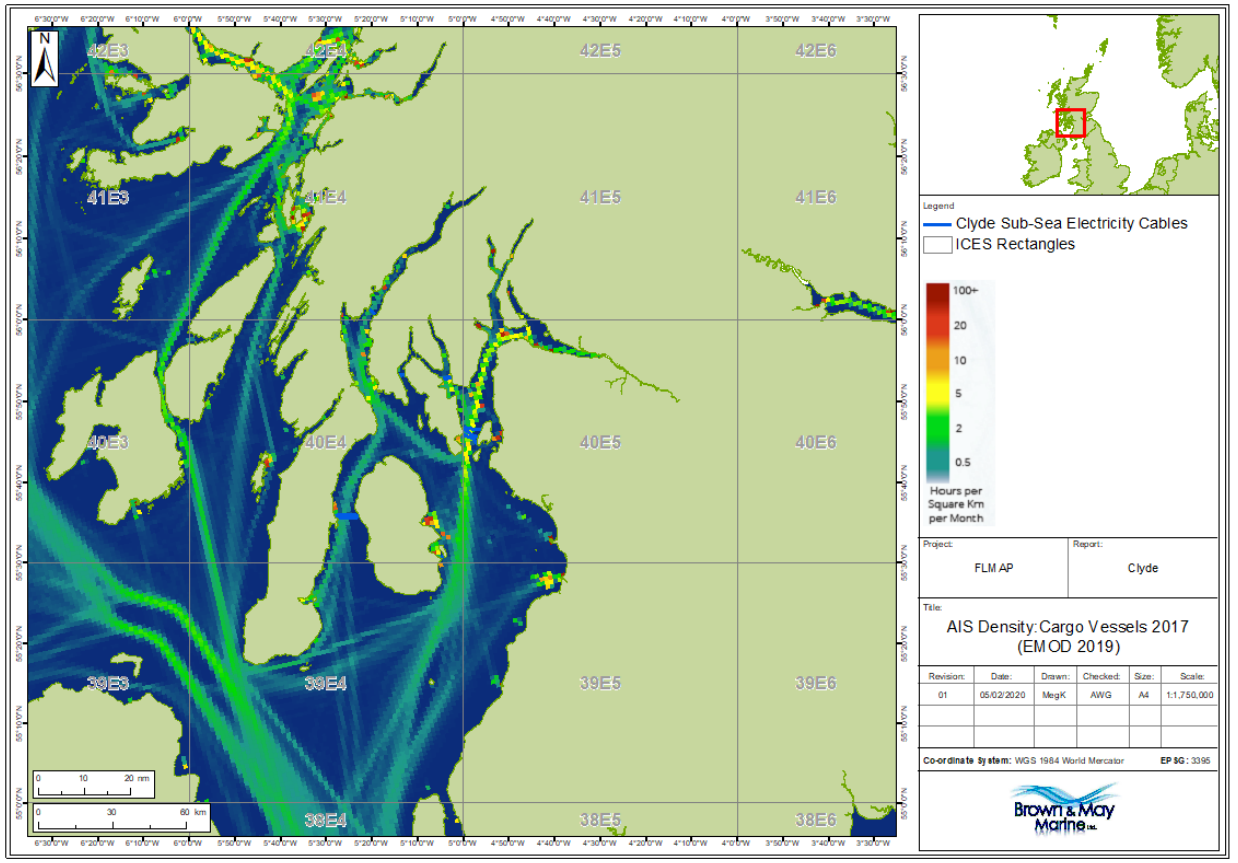


Figure 17 AIS density for cargo vessels (EMODnet, 2019)

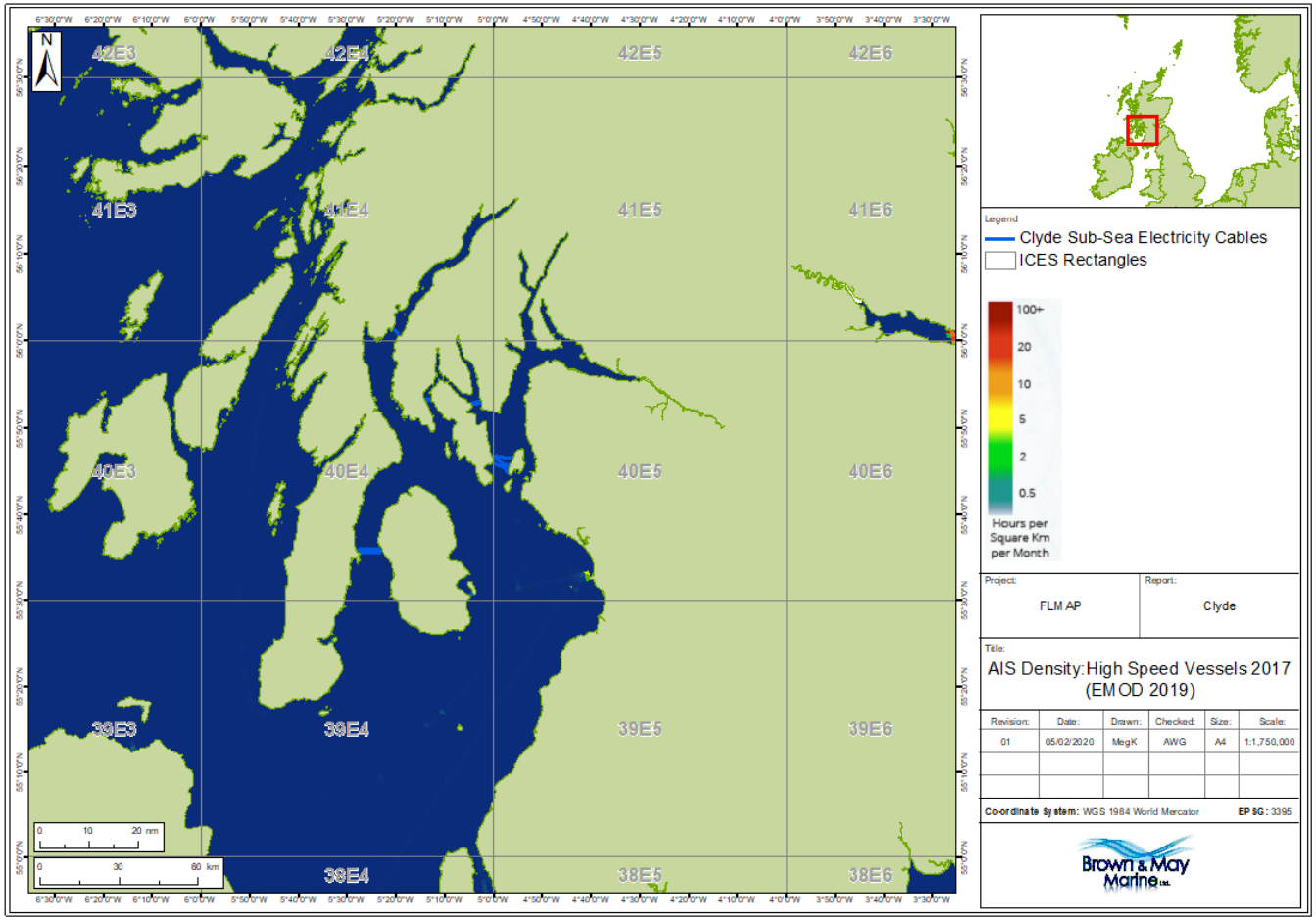


Figure 18 AIS density for high speed vessels (EMODnet, 2019)

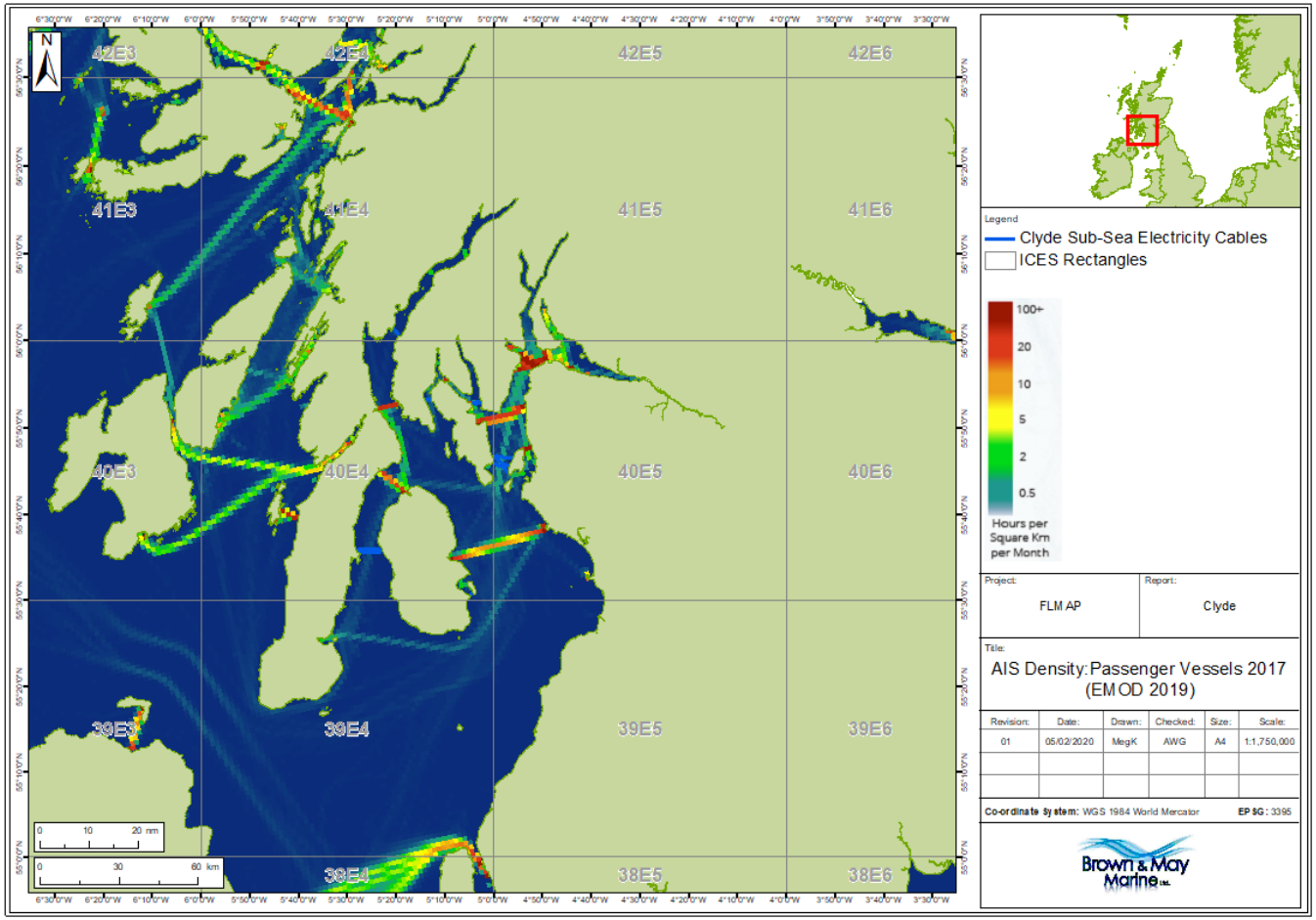


Figure 19 AIS density for passenger vessels (EMODnet, 2019)

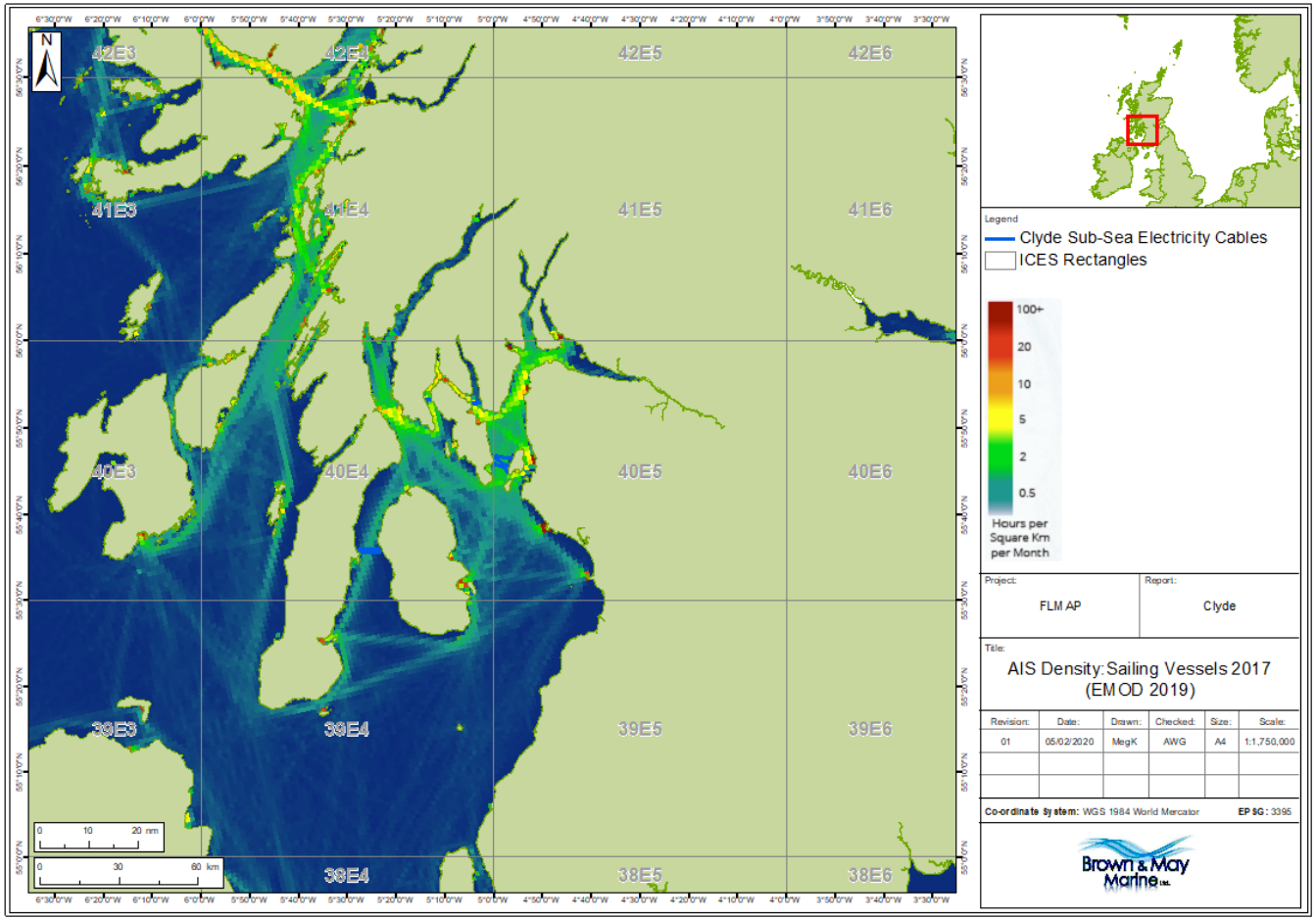


Figure 20 AIS density for sailing vessels (EMODnet, 2019)

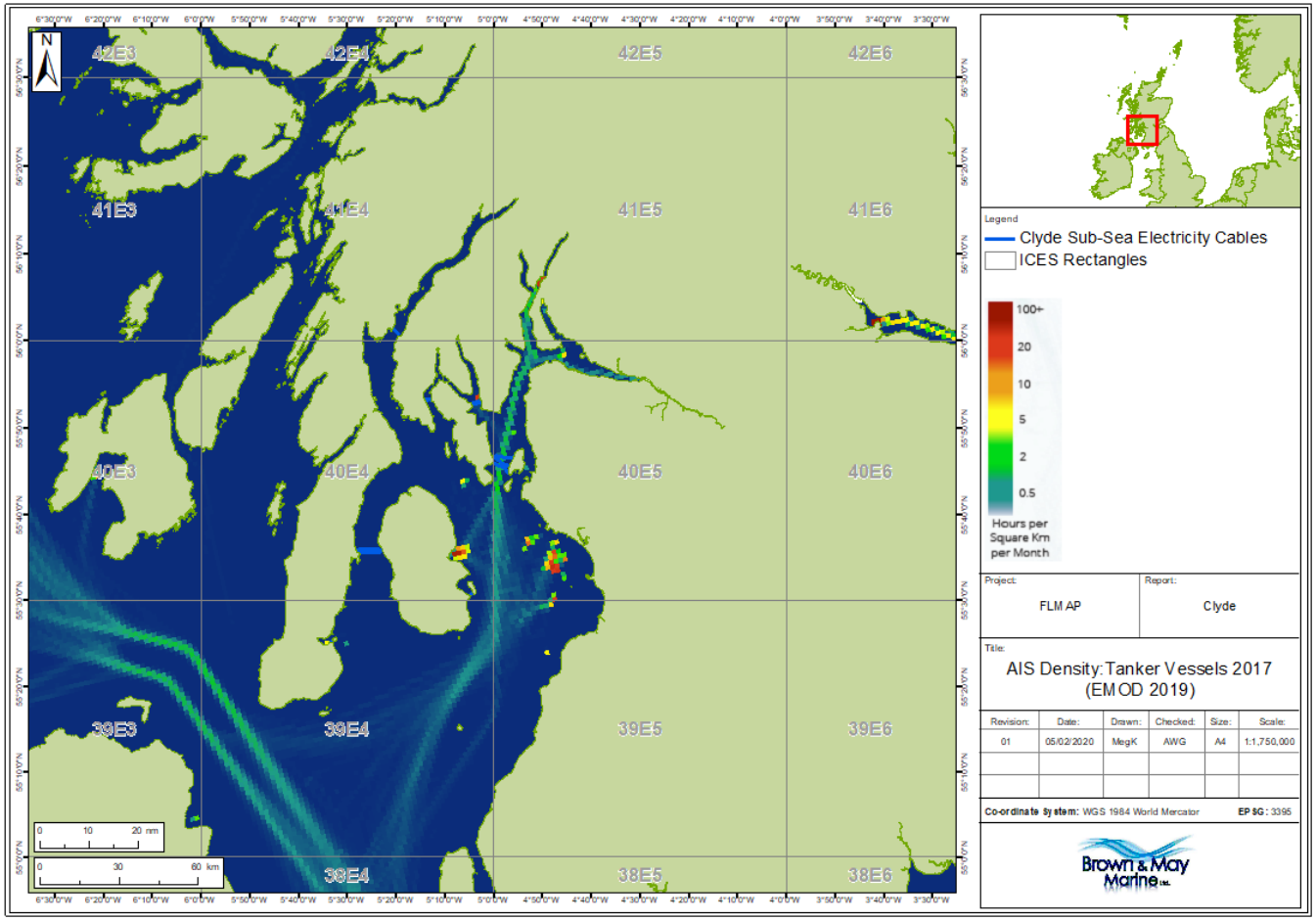


Figure 21 AIS density for tankers (EMODnet, 2019)

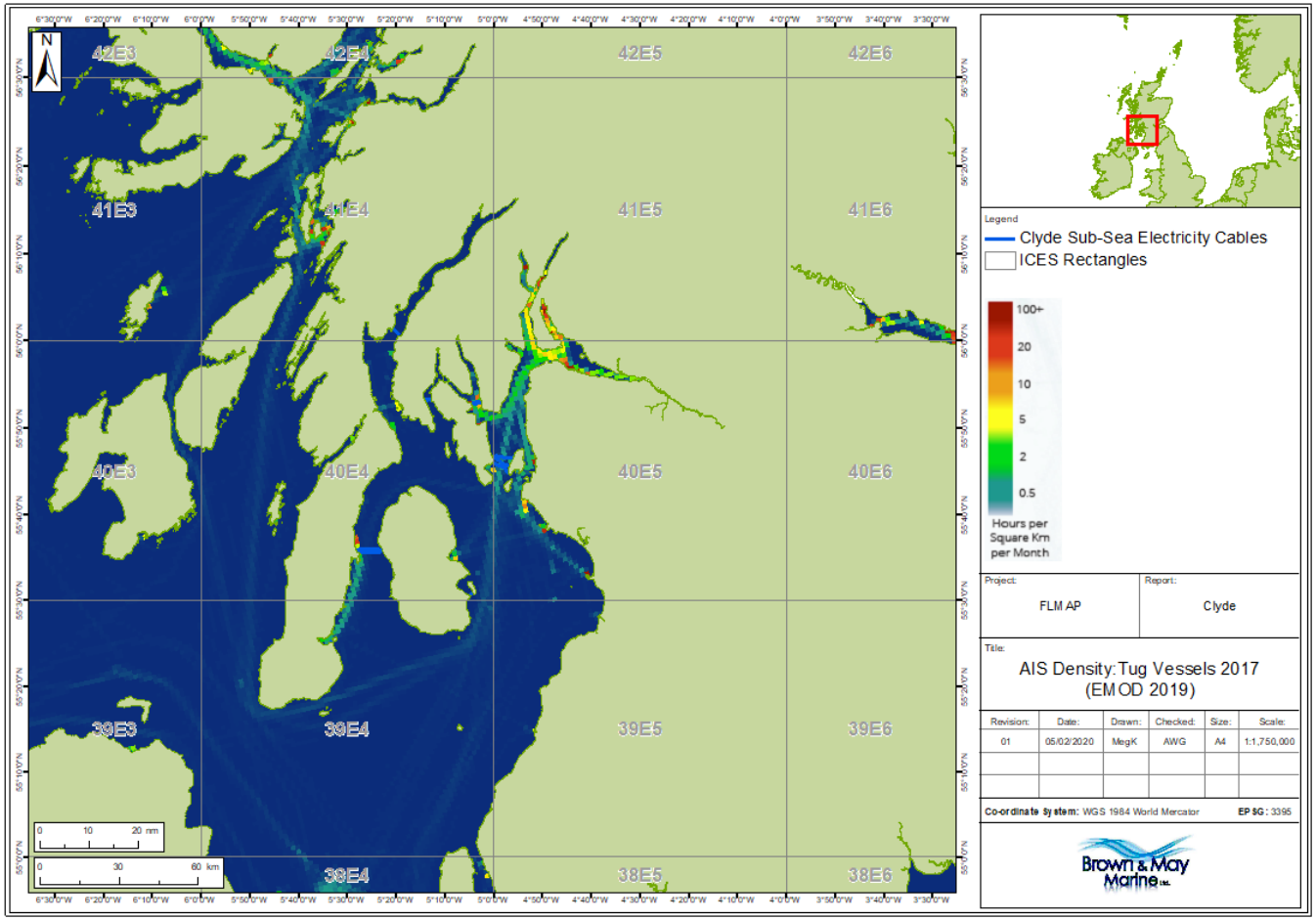


Figure 22 AIS density for tugs (EMODnet, 2019)

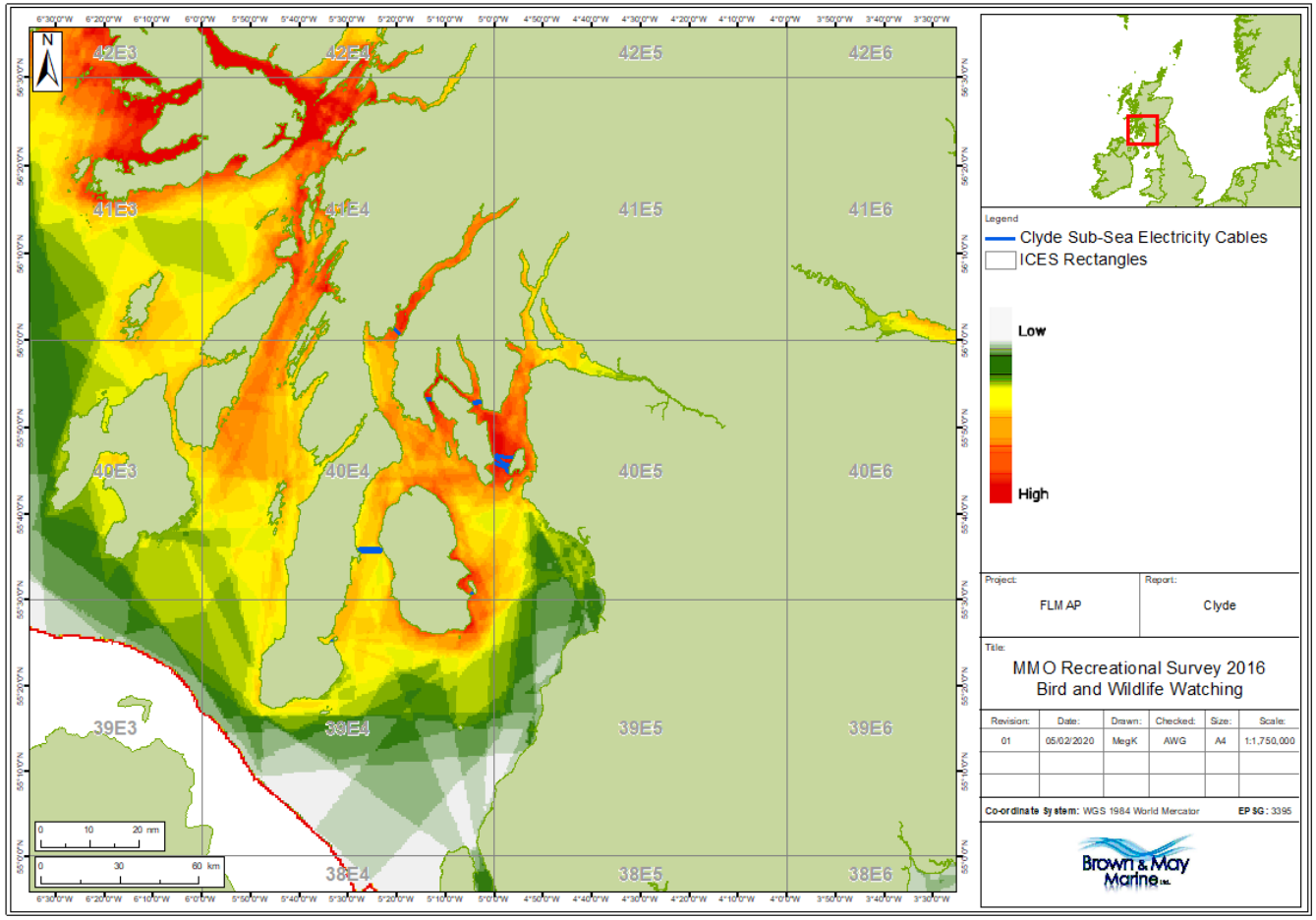


Figure 23 Bird and wildlife watching (Marine Scotland 2018)

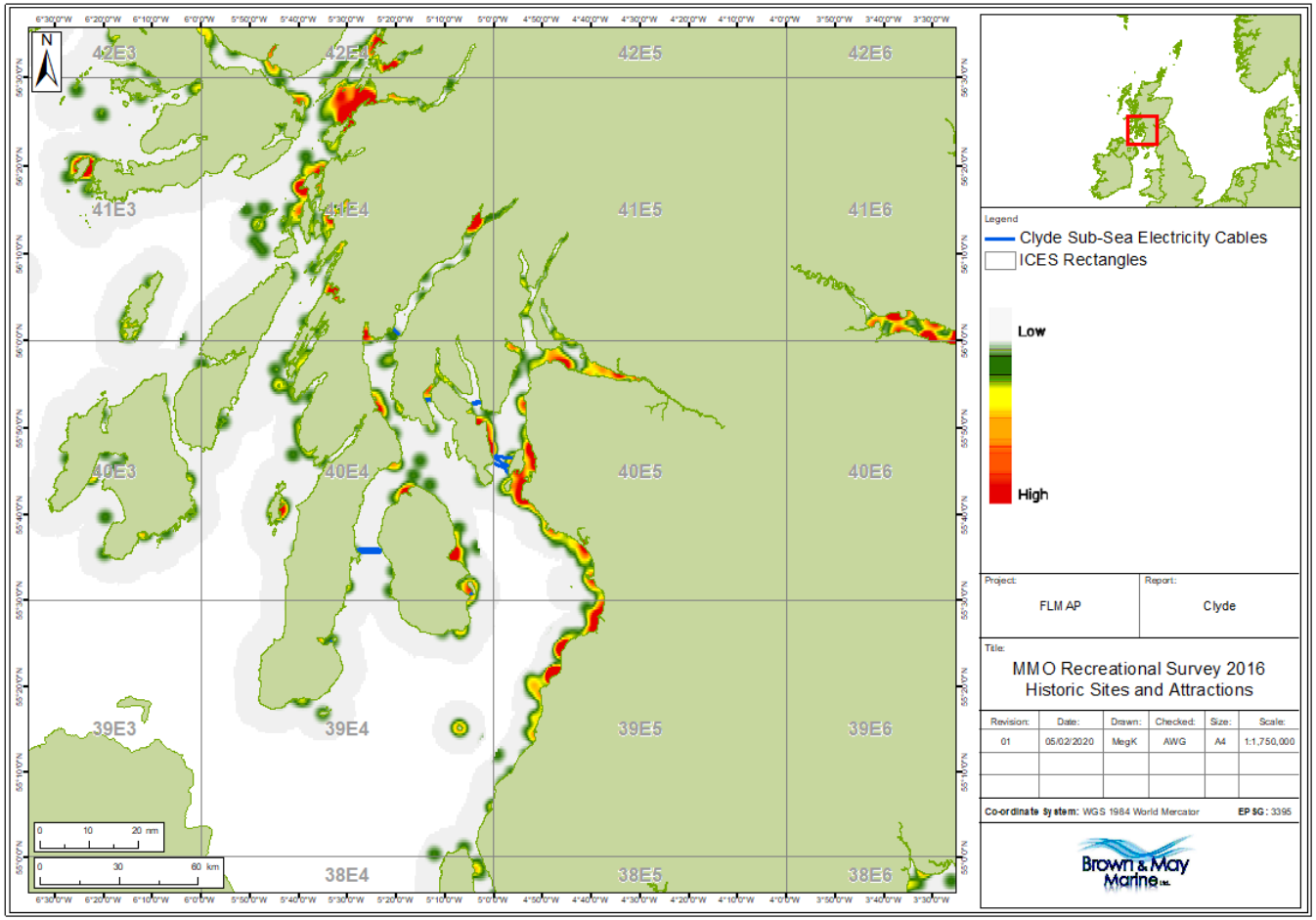


Figure 24 Historic sites and attractions (Marine Scotland 2018)

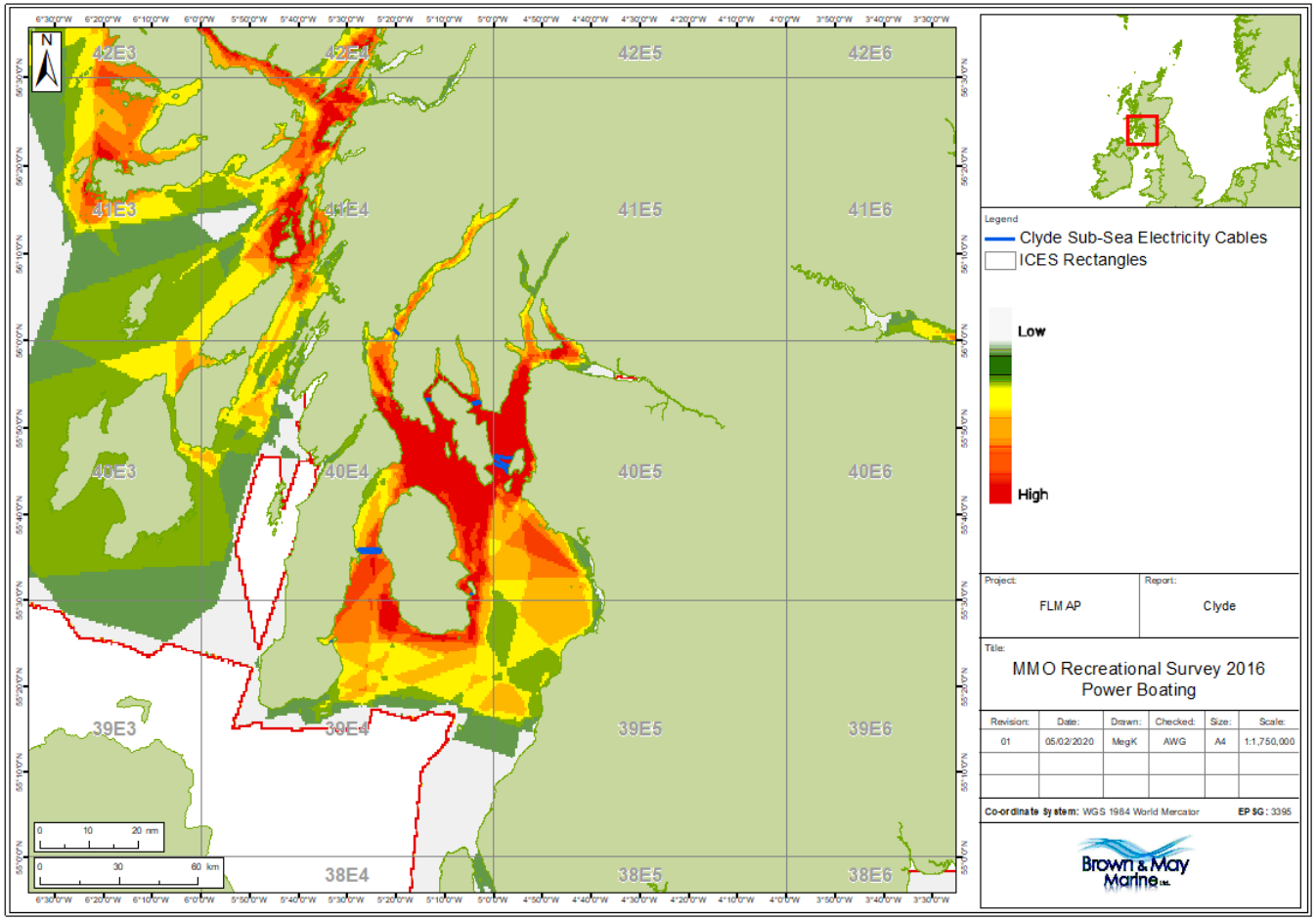


Figure 25 Power boating (Marine Scotland 2018)

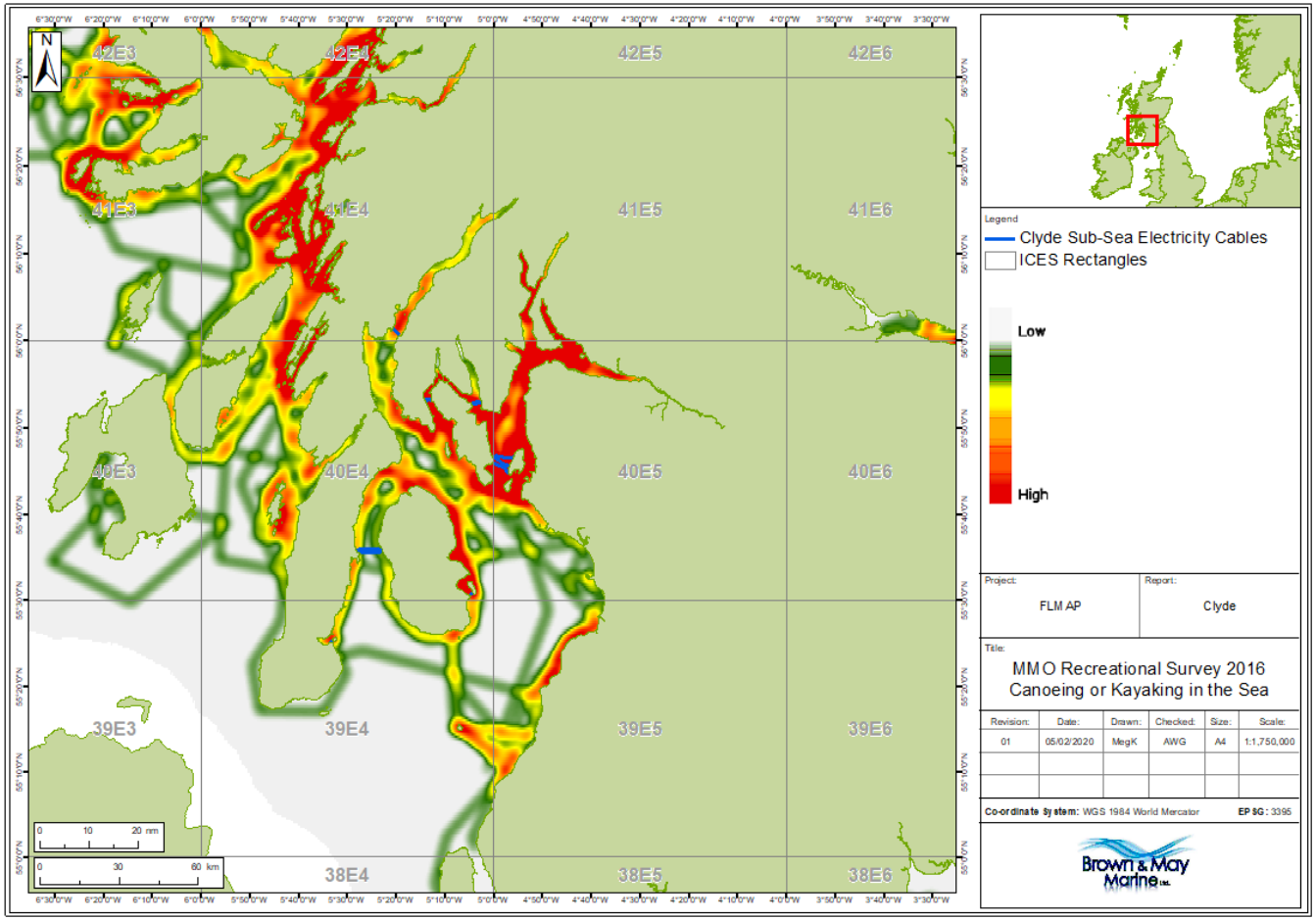


Figure 26 Canoeing and kayaking (Marine Scotland 2018)

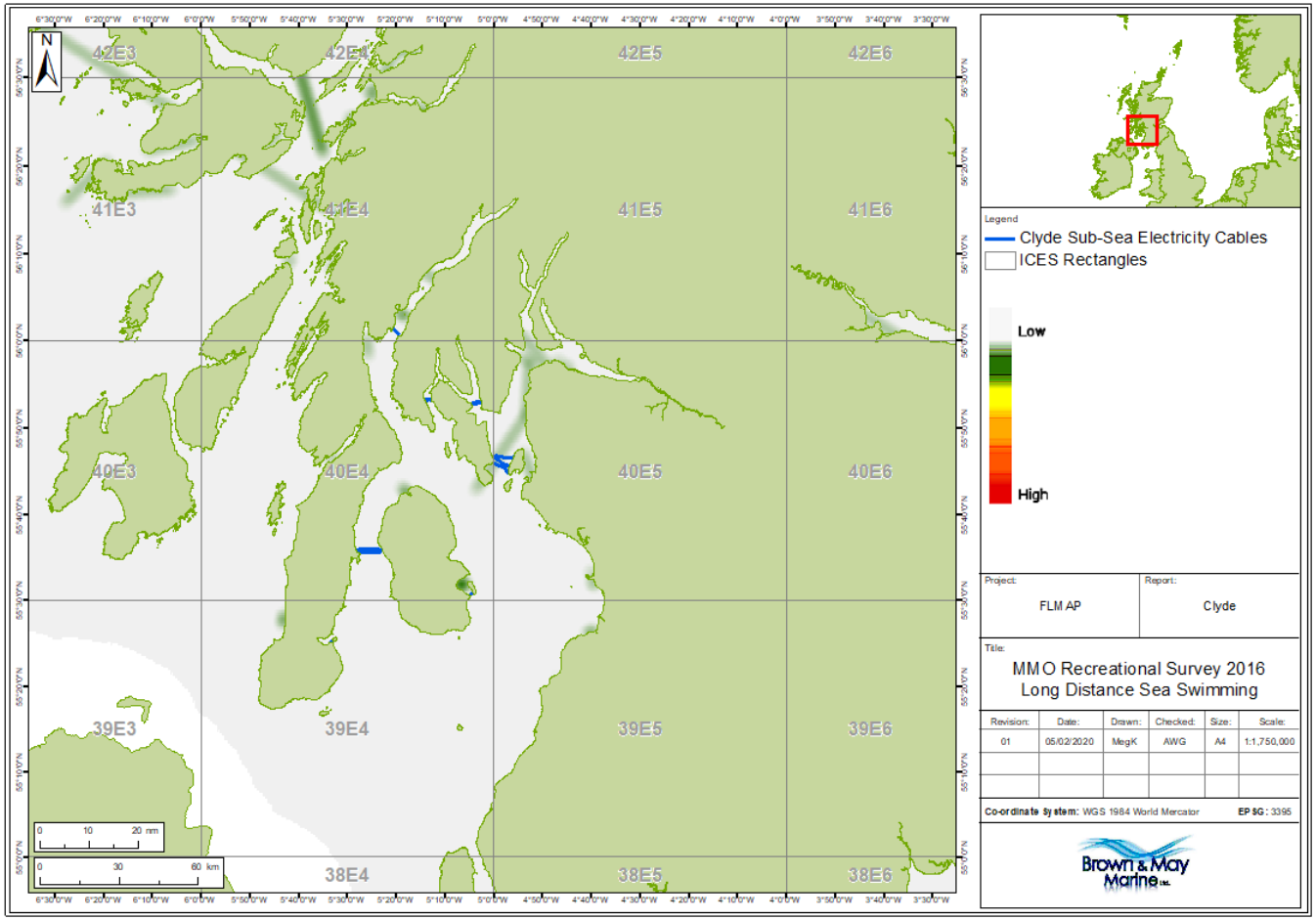


Figure 27 Long distance swimming (Marine Scotland 2018)

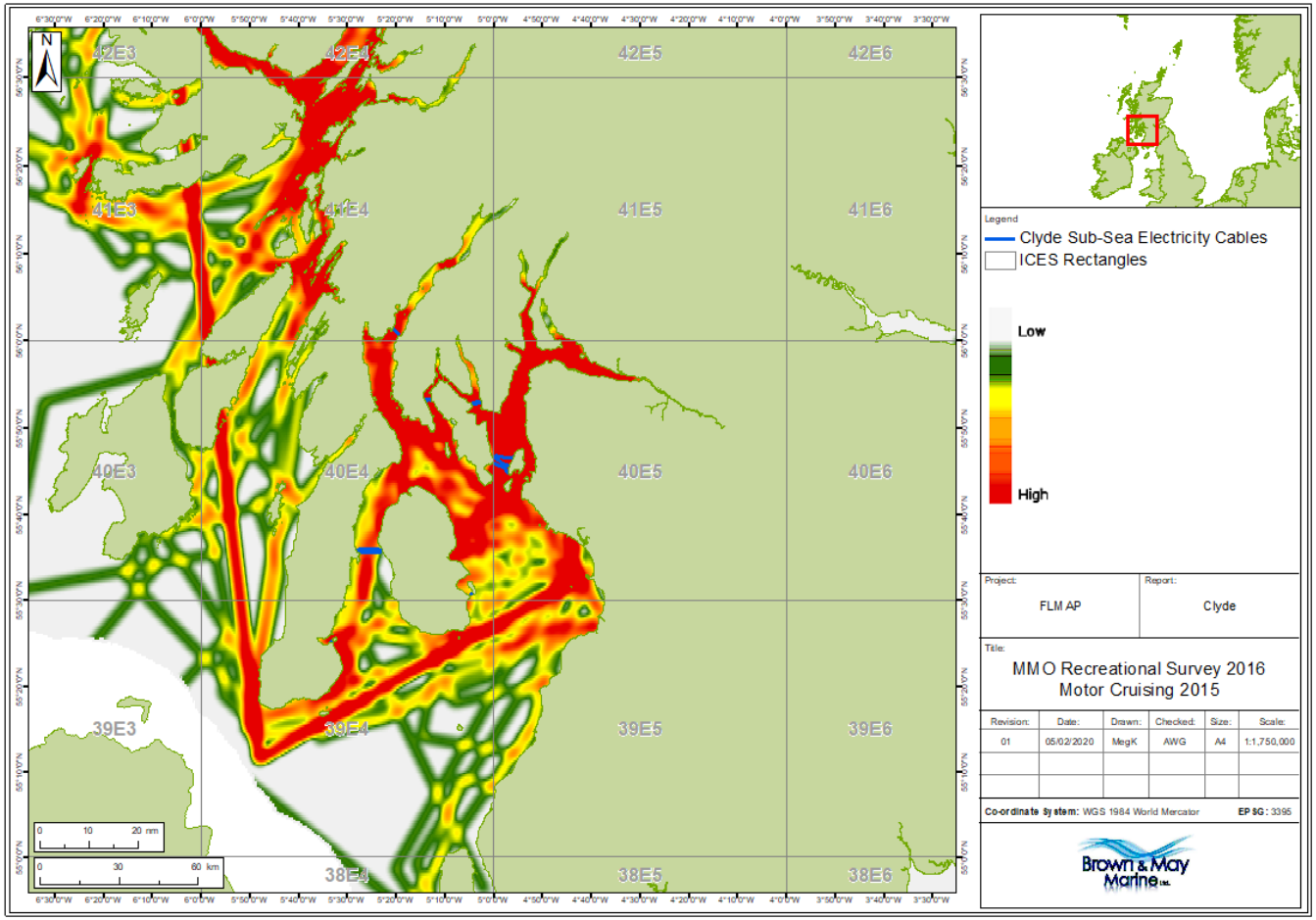


Figure 28 Motor cruising (Marine Scotland 2018)

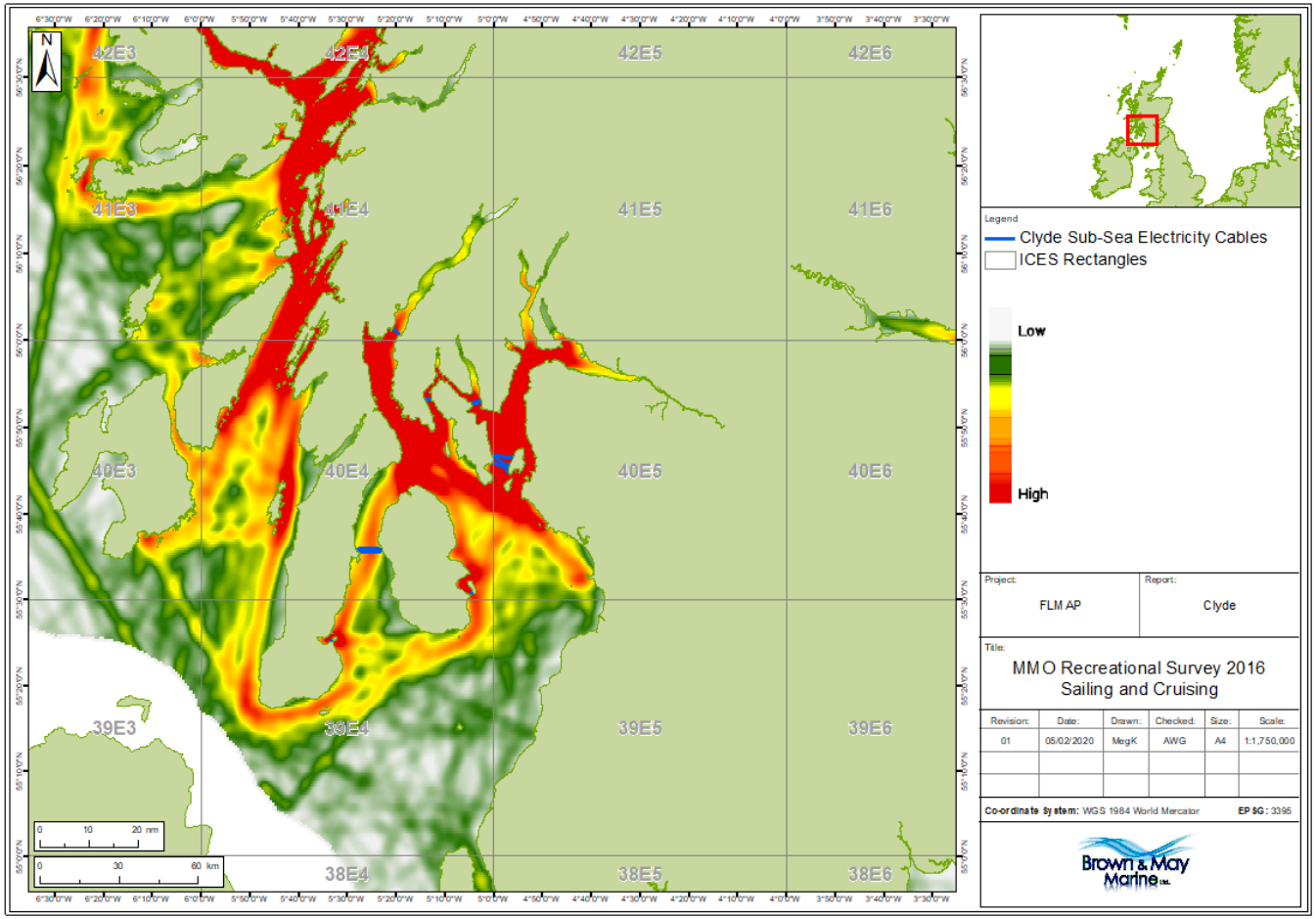


Figure 29 Sailing and cruising (Marine Scotland 2018)

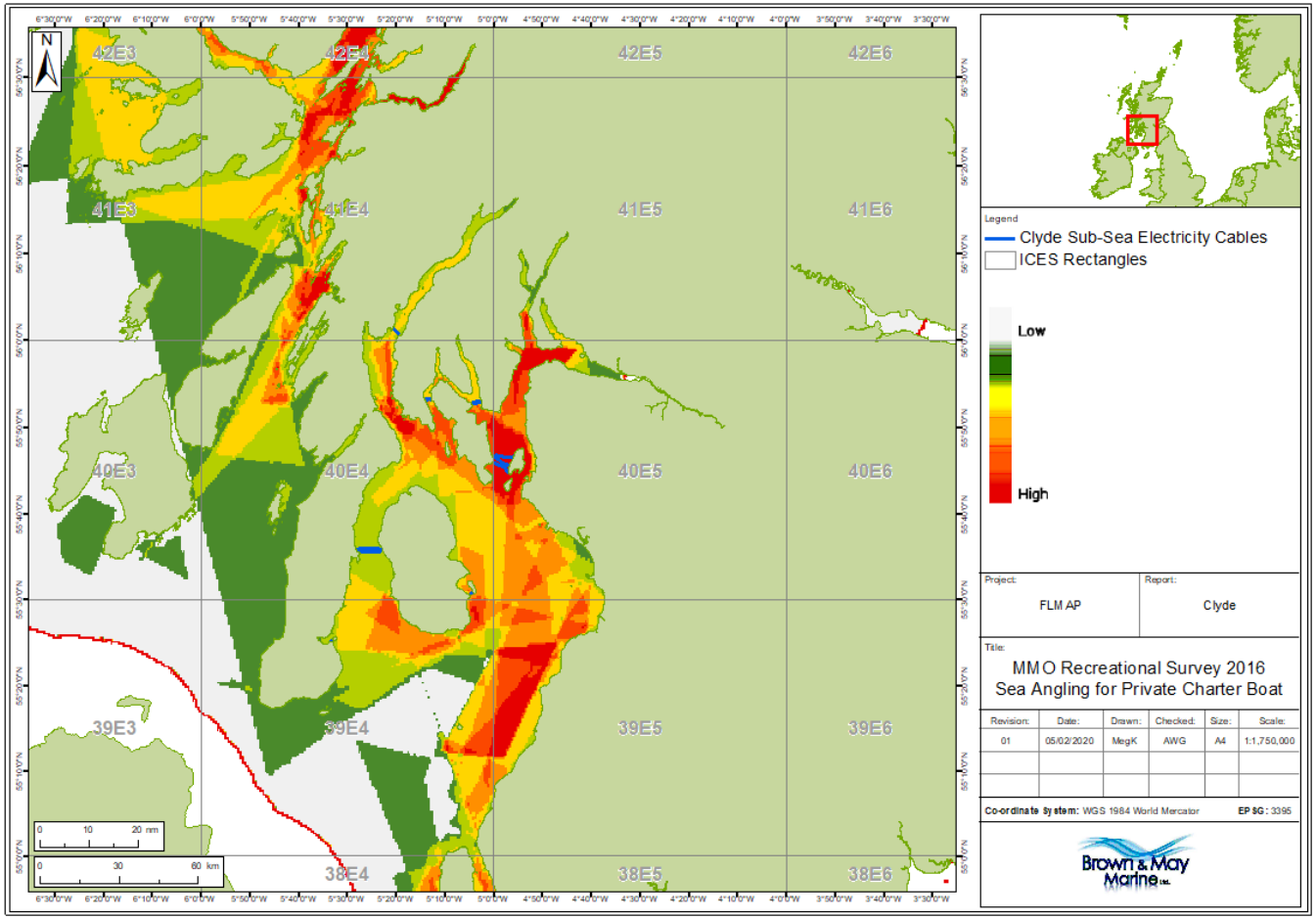


Figure 30 Chartered angling (Marine Scotland 2018)

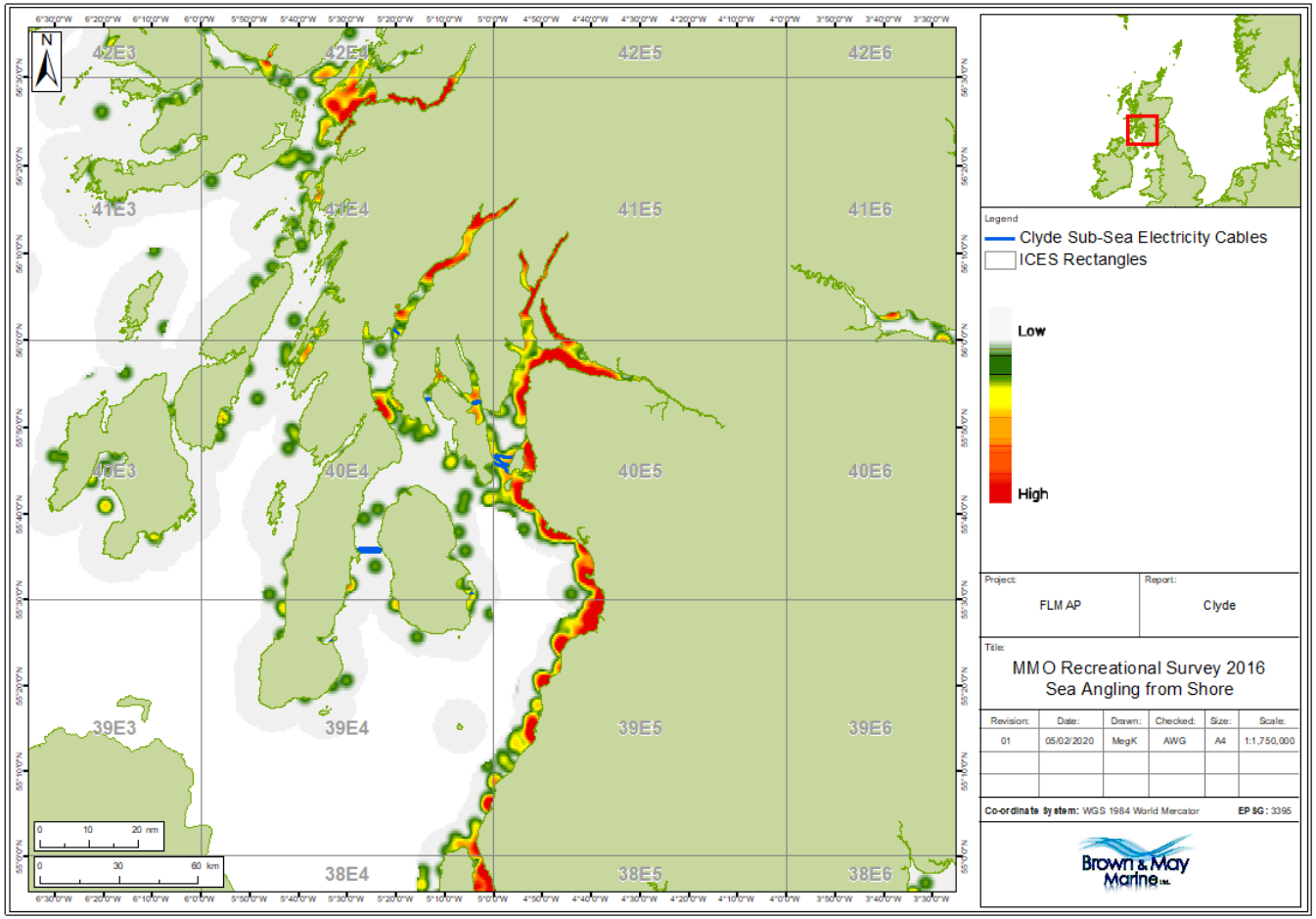


Figure 31 Sea angling from shore (Marine Scotland 2018)

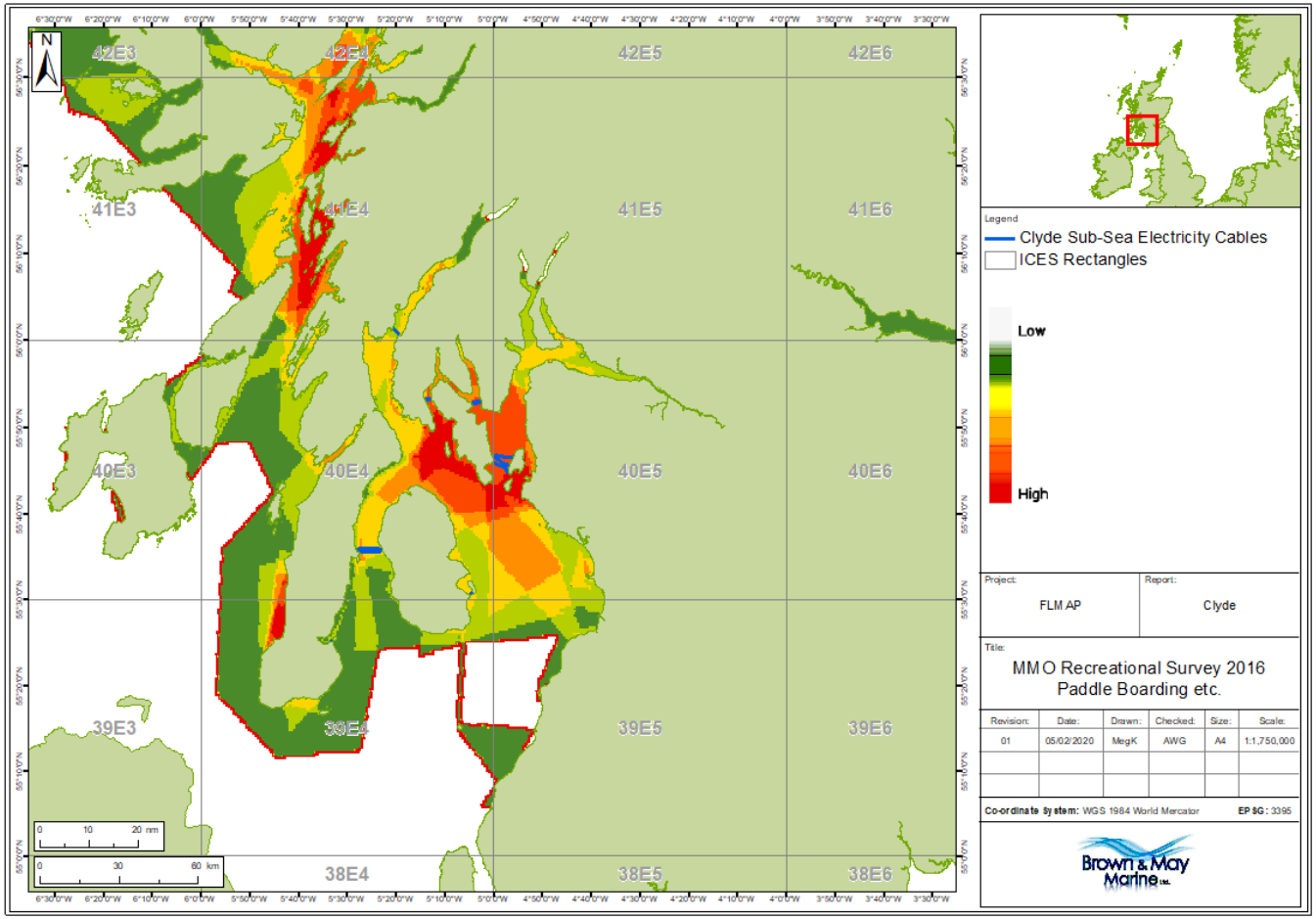


Figure 32 Surfing and paddle boarding (Marine Scotland 2018)

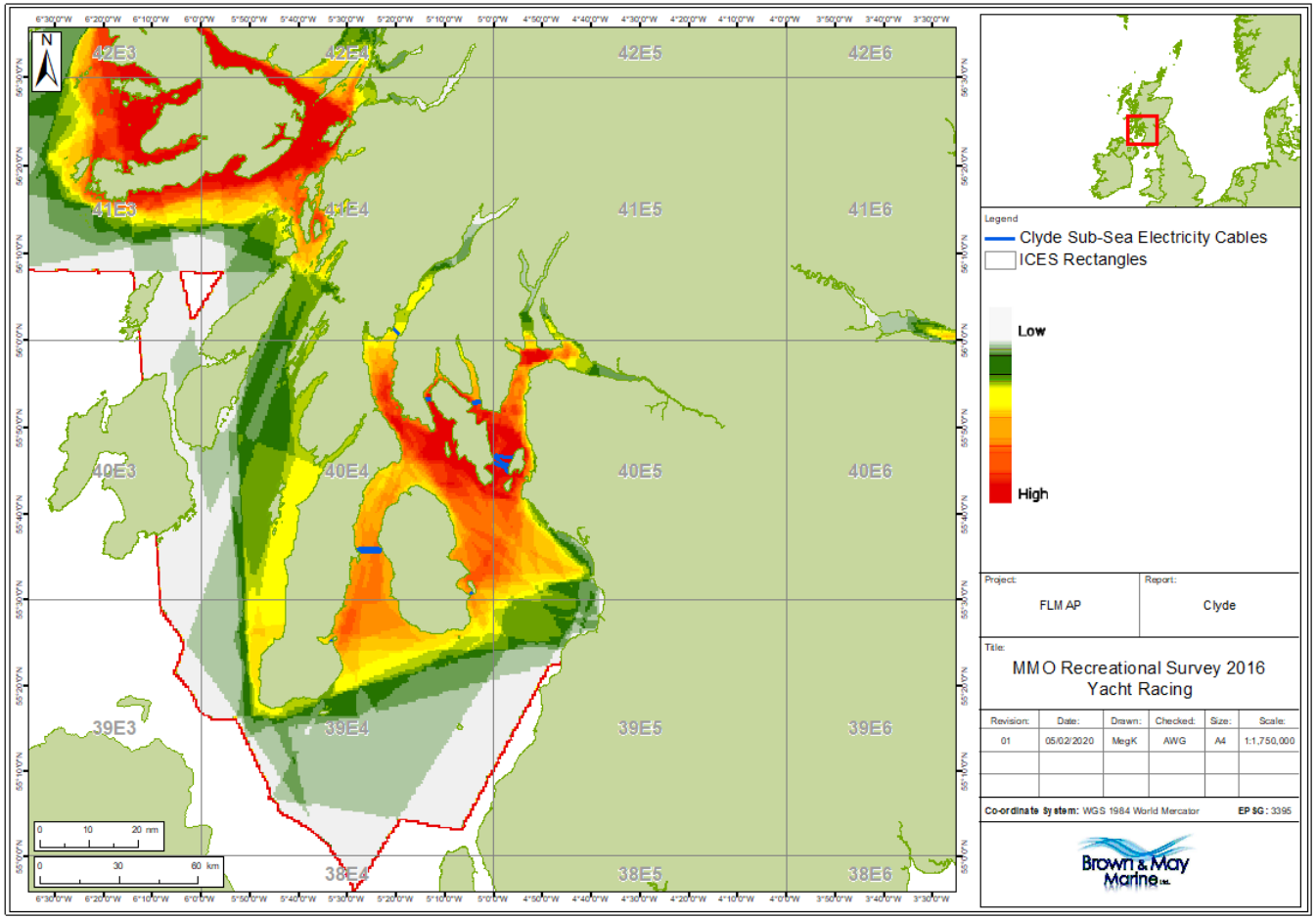


Figure 33 Yacht racing (Marine Scotland 2018)

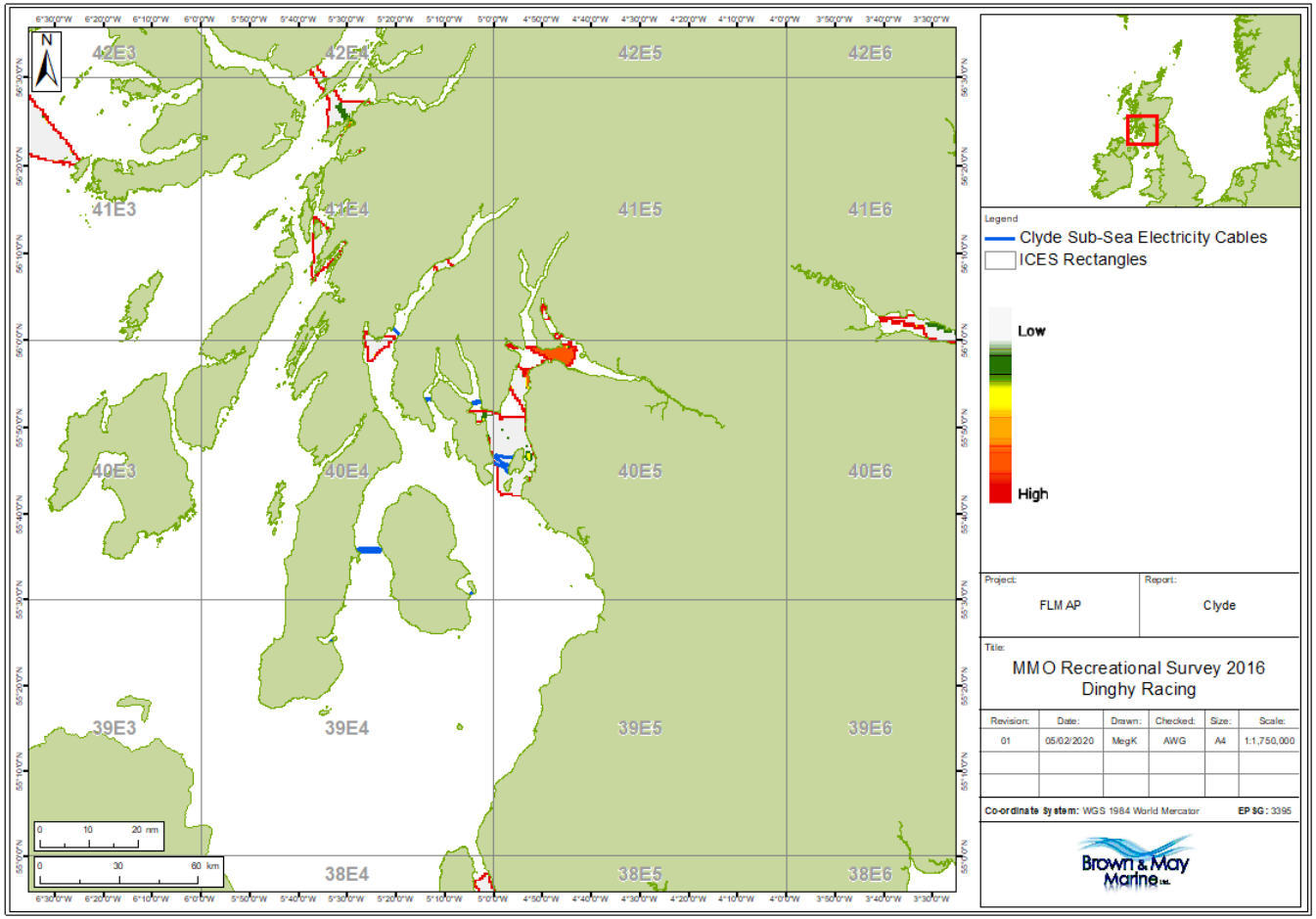


Figure 34 Dinghy Racing (Marine Scotland 2018)

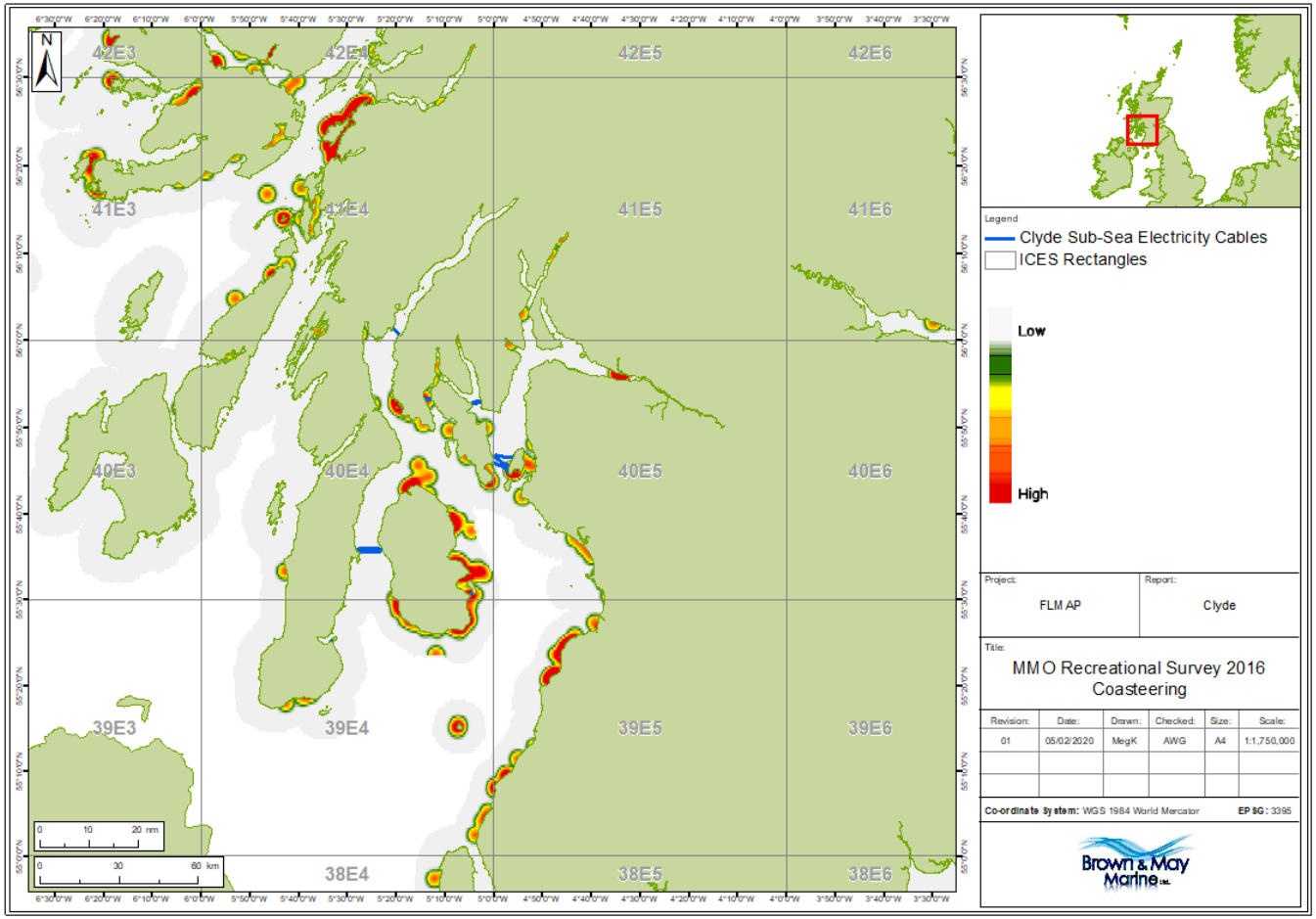


Figure 35 Coasteering (Marine Scotland 2018)

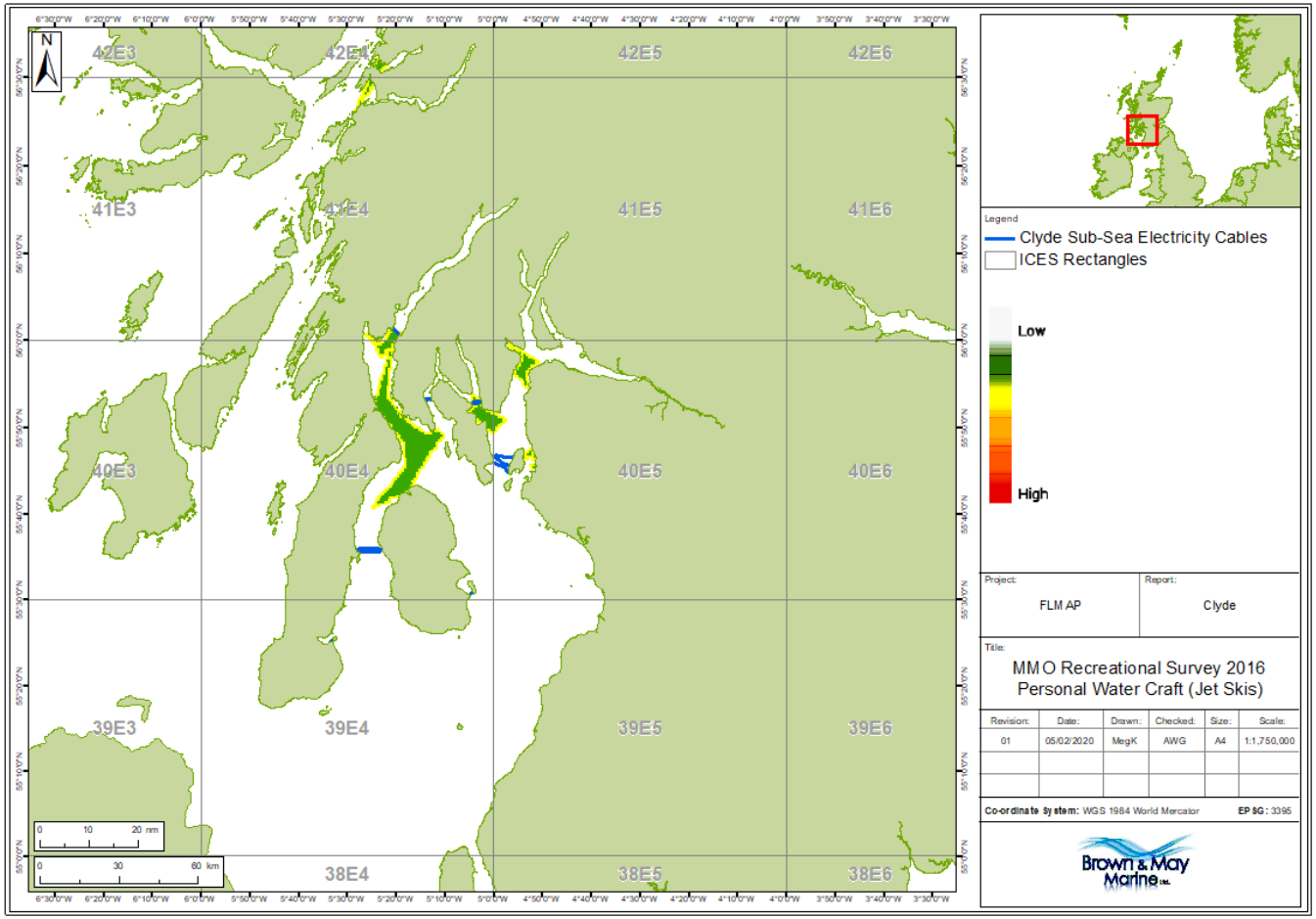


Figure 36 Personal water craft (jet skis) (Marine Scotland 2018)

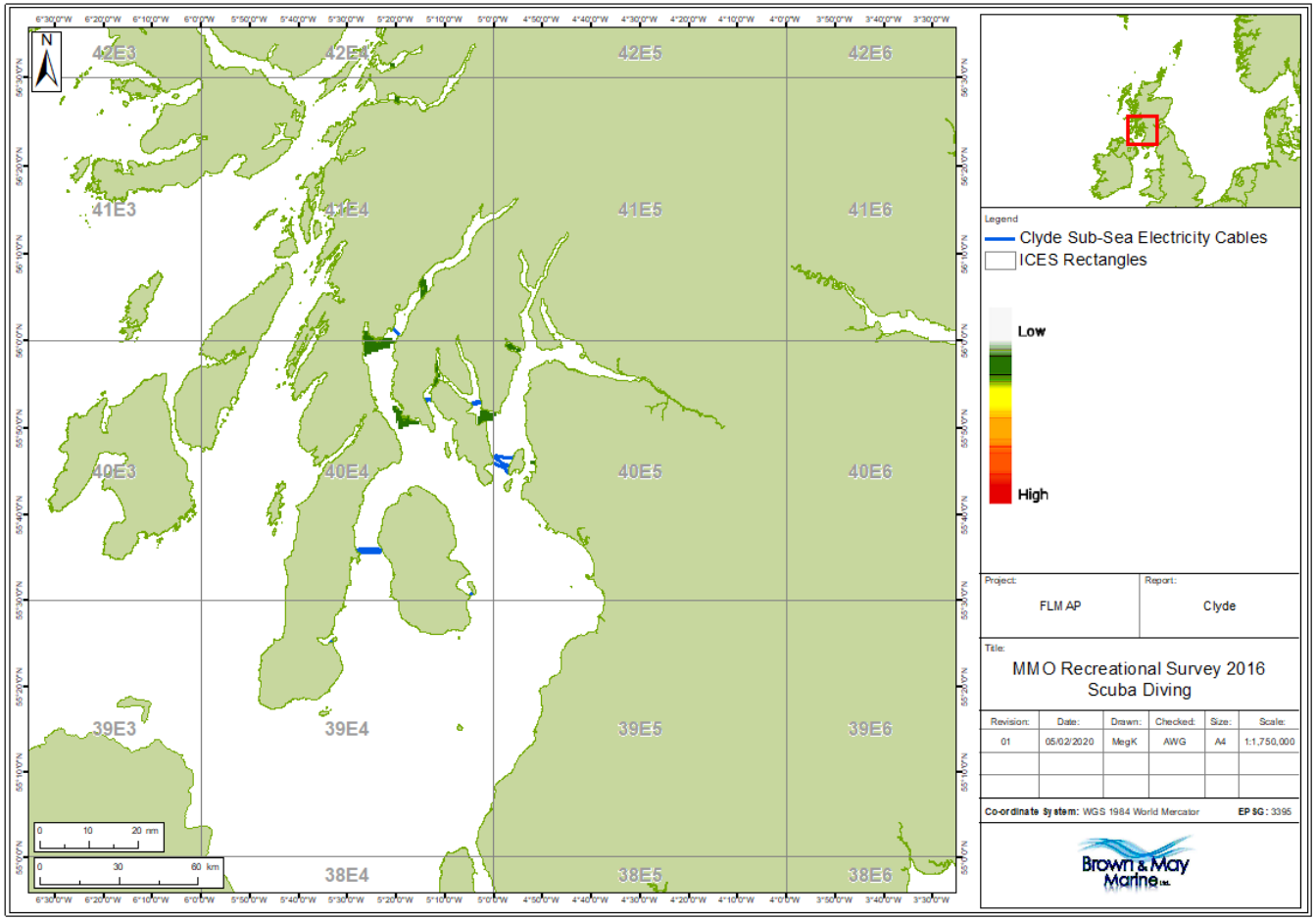


Figure 37 Water skiing and wakeboarding (Marine Scotland 2018)

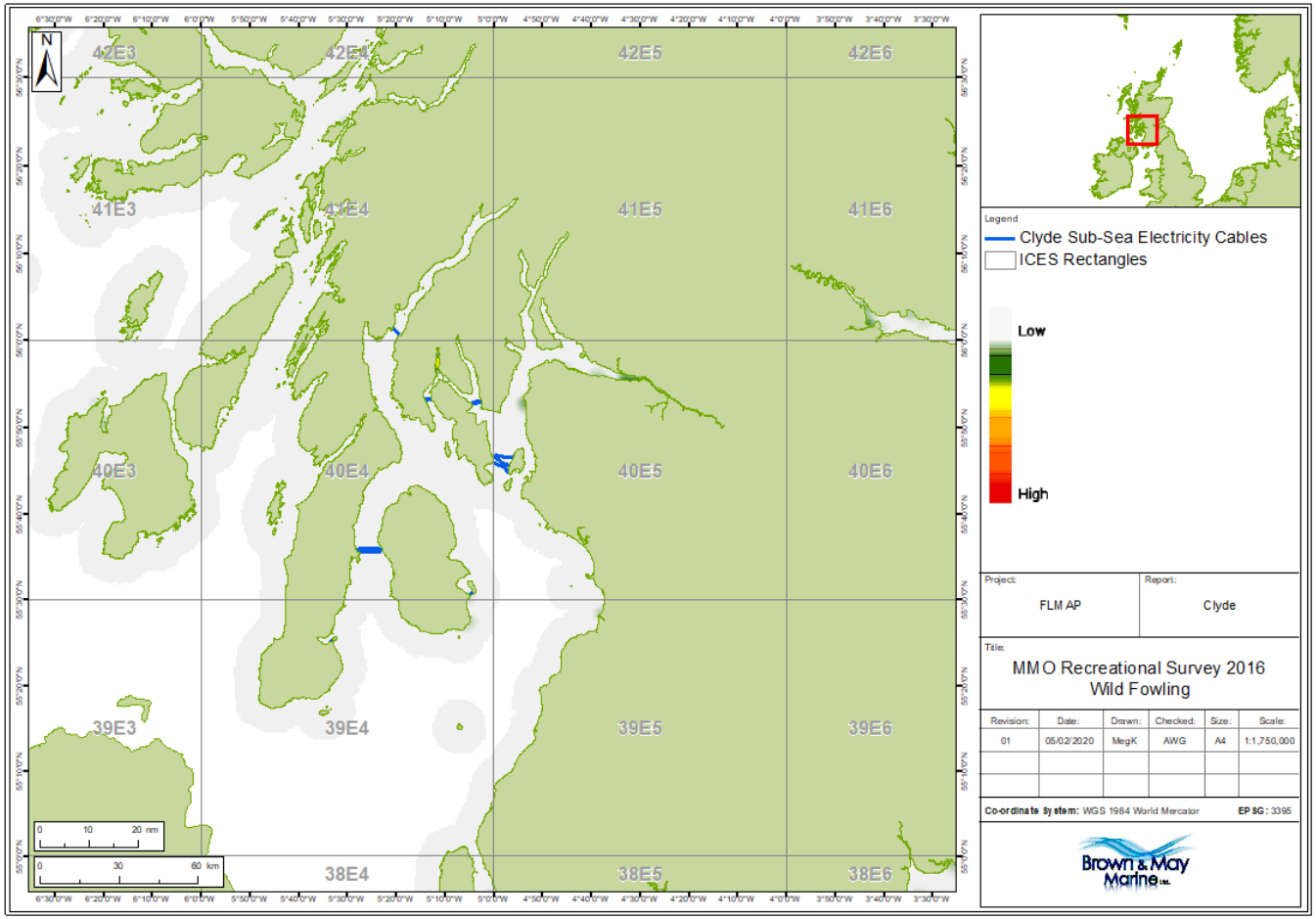


Figure 38 Wild fowling (Marine Scotland 2018)

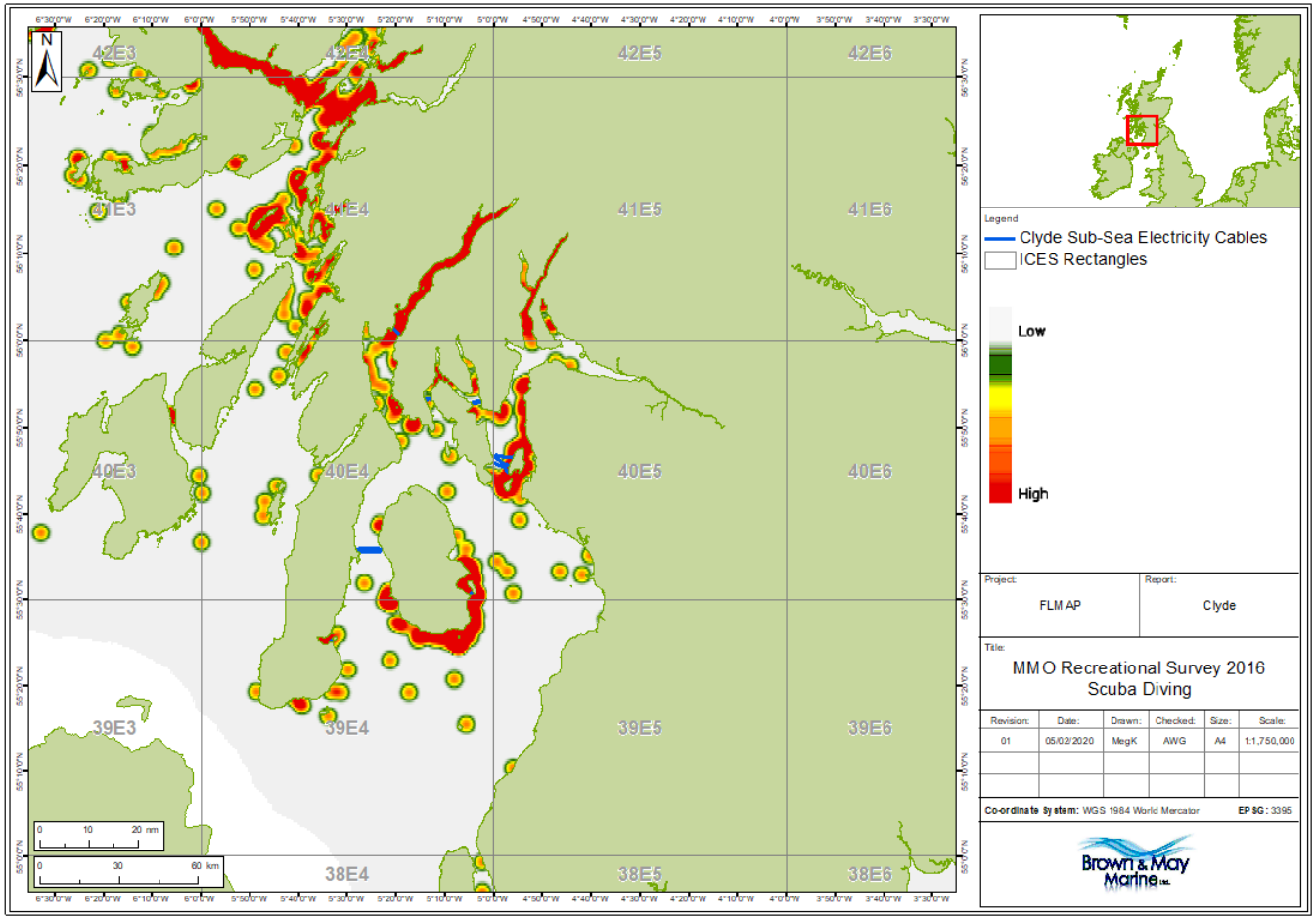


Figure 39 Scuba diving (Marine Scotland 2018)

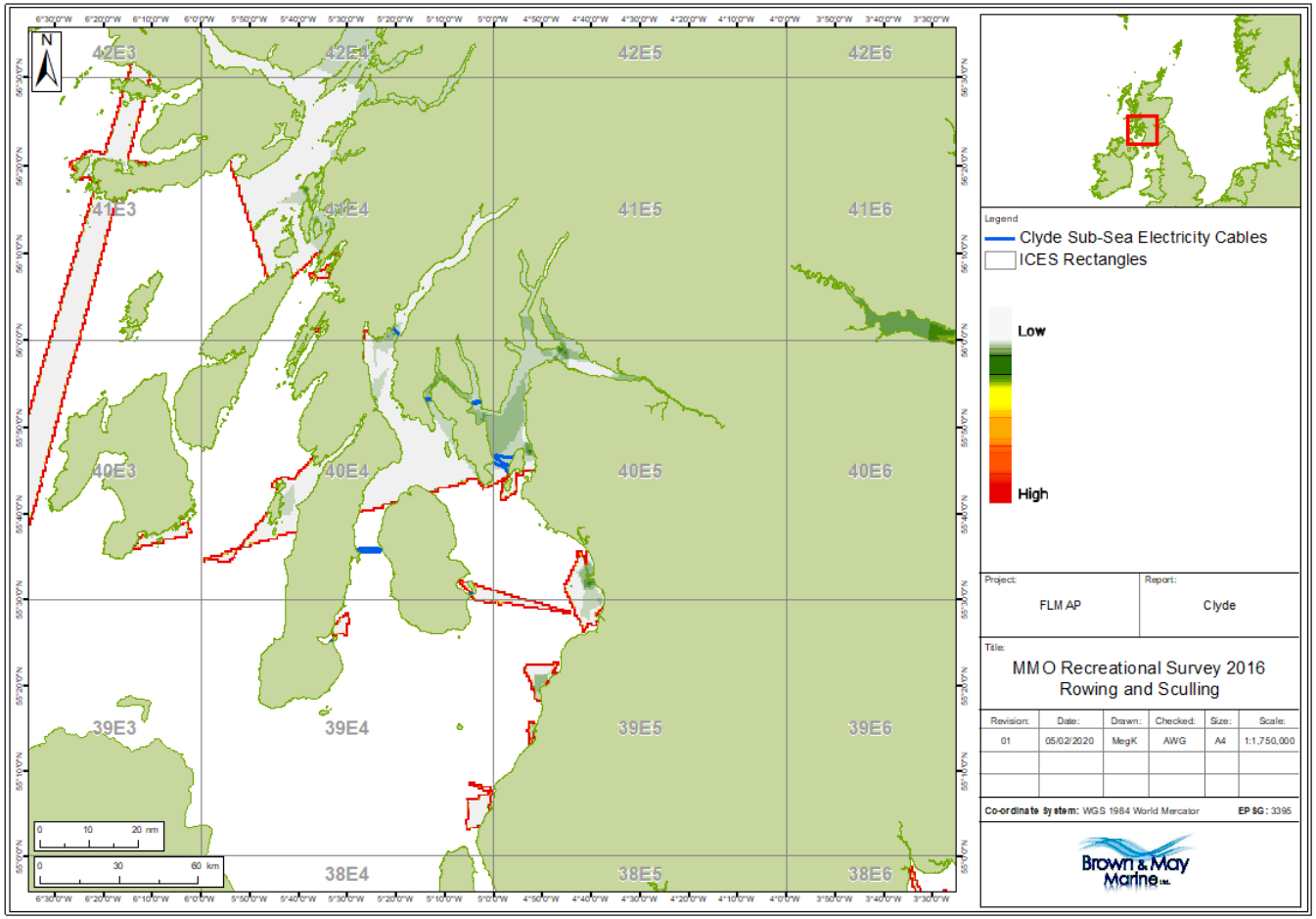


Figure 40 Rowing and sculling (Marine Scotland 2018)

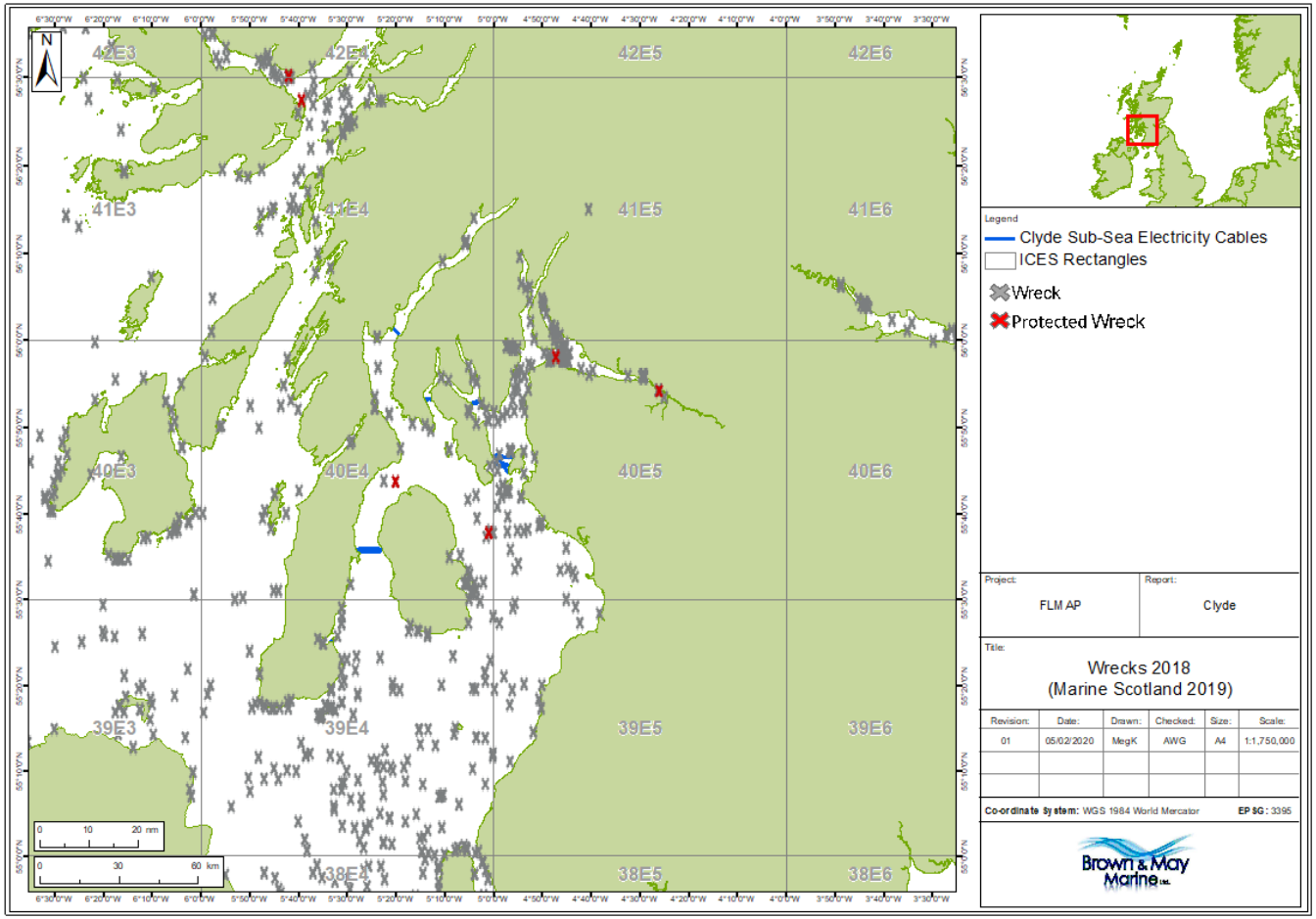


Figure 41 Known wreck sites (Marine Scotland 2019)

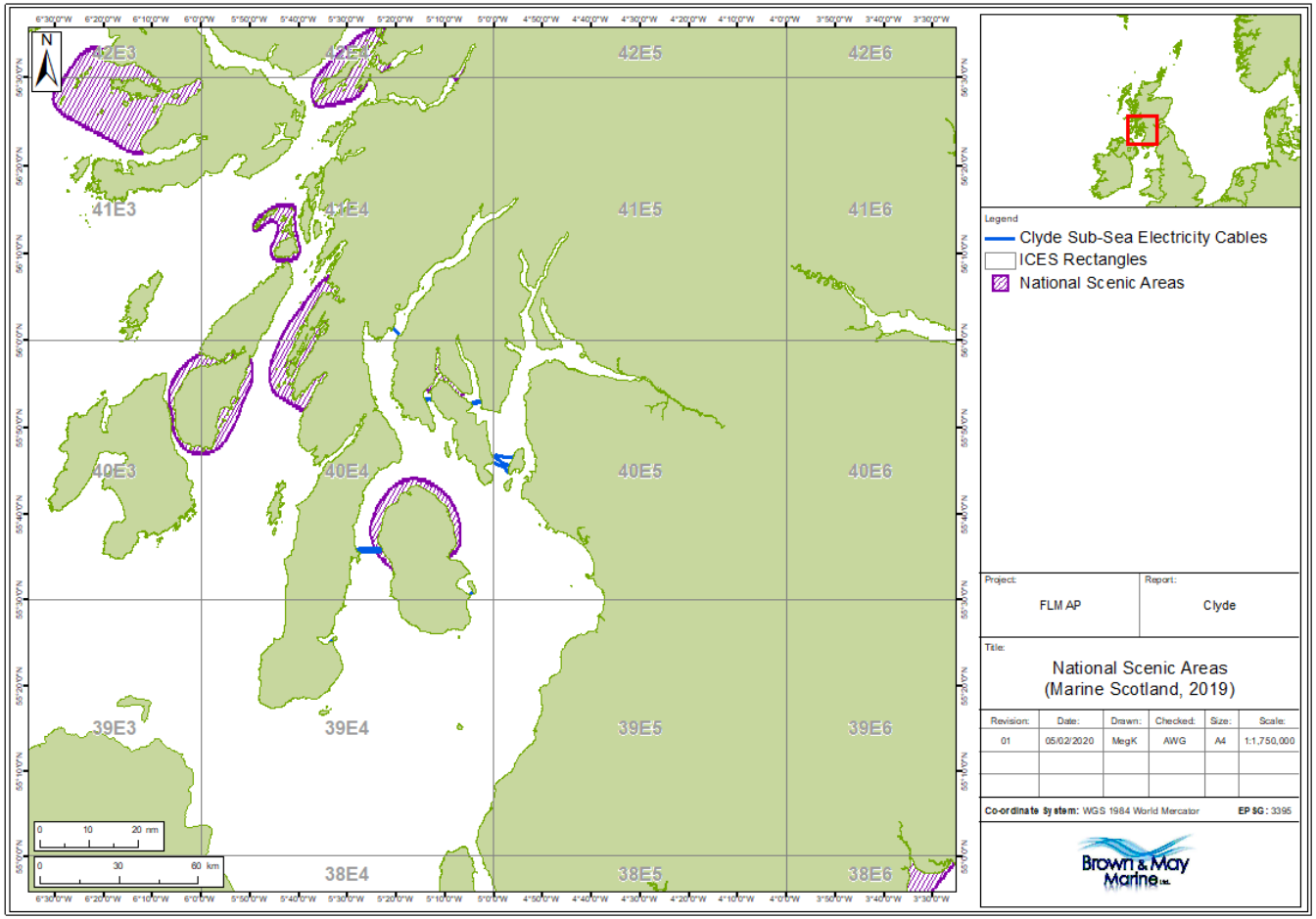


Figure 42 National Scenic Area coastal sites (Marine Scotland 2019)

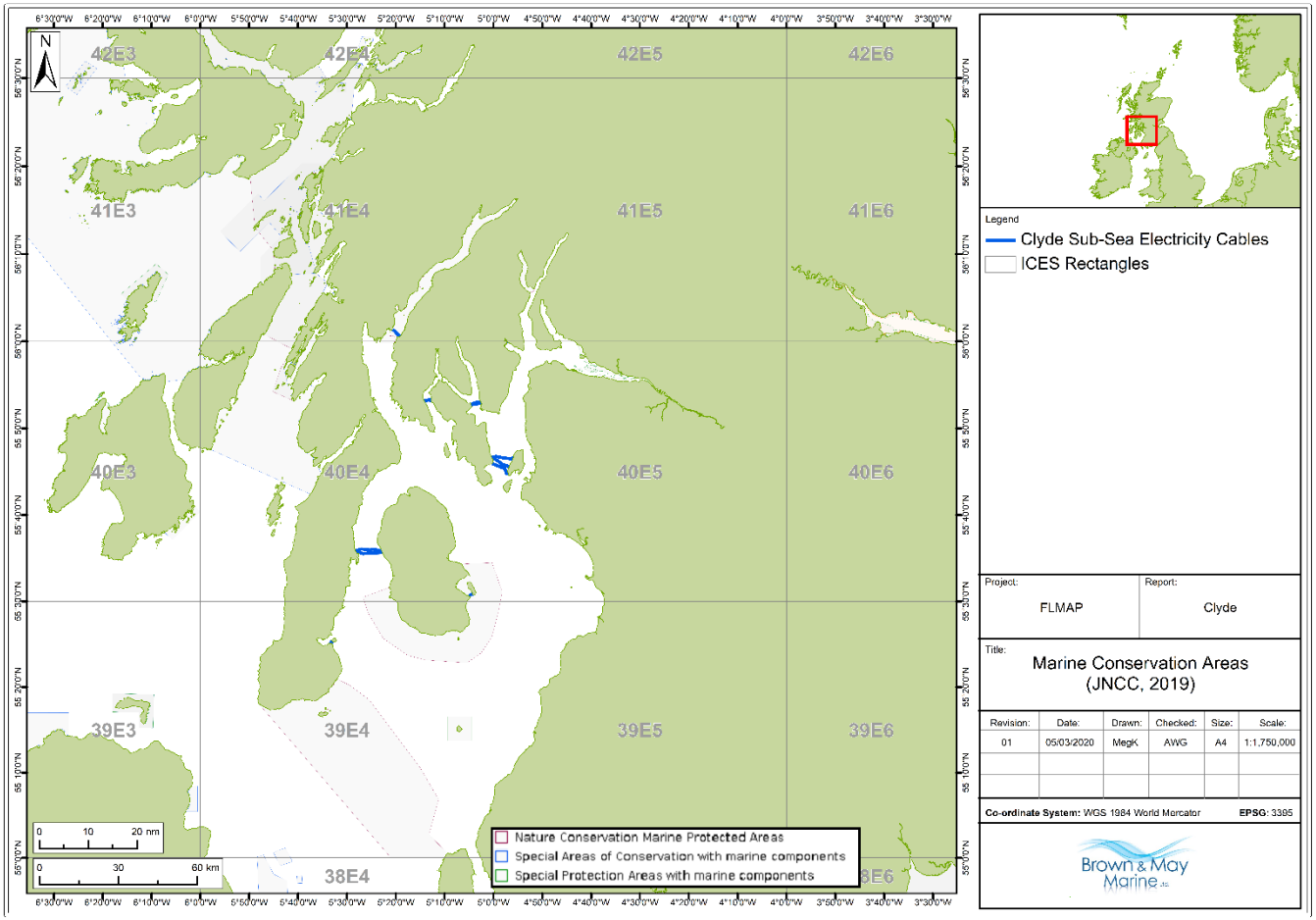


Figure 43 Marine Protected Areas, Special Protection Areas with marine components and Special Areas of Conservation with marine components (JNCC 2019)

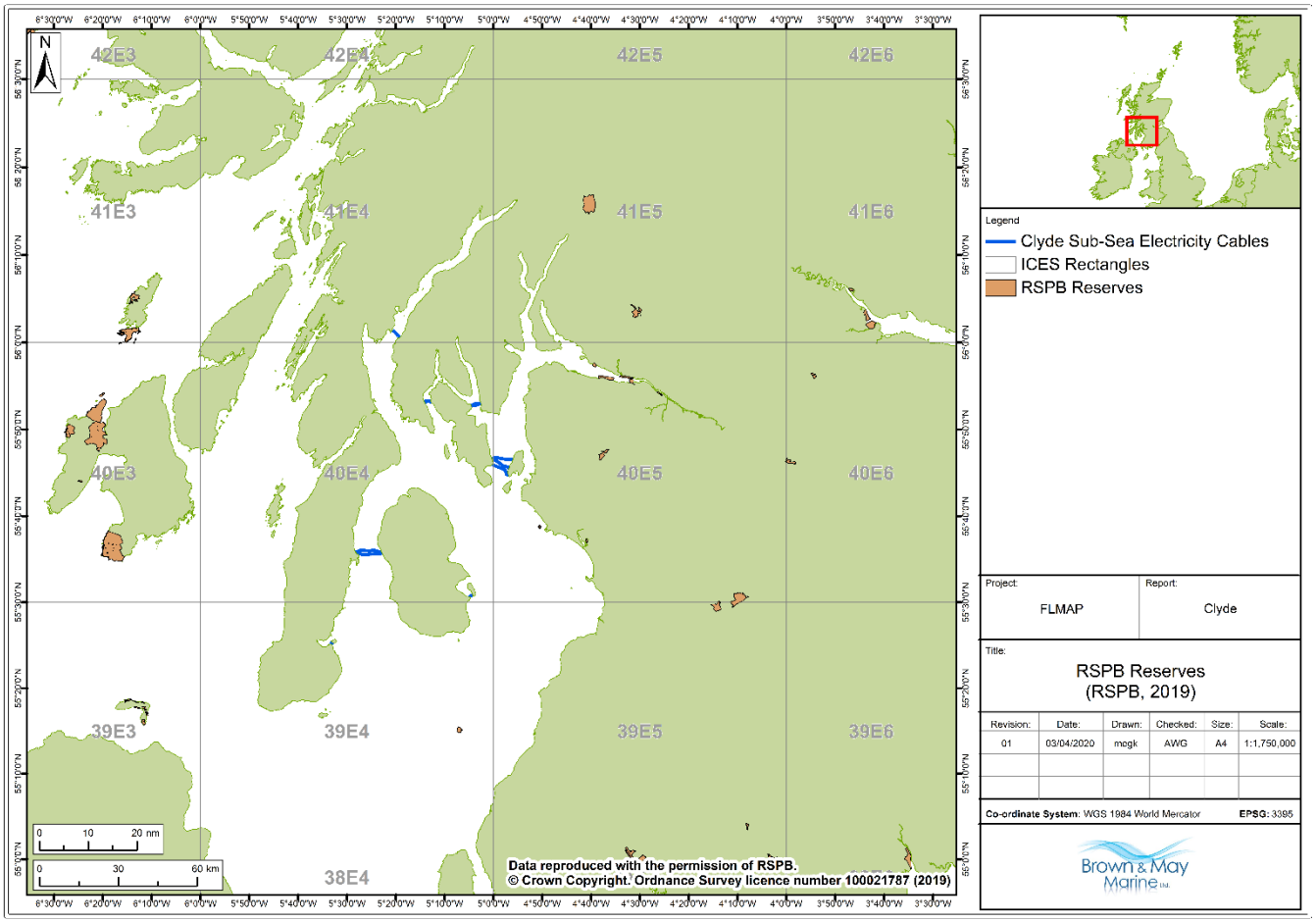


Figure 44 RSPB reserves (Royal Society for the Protection of Birds 2019)

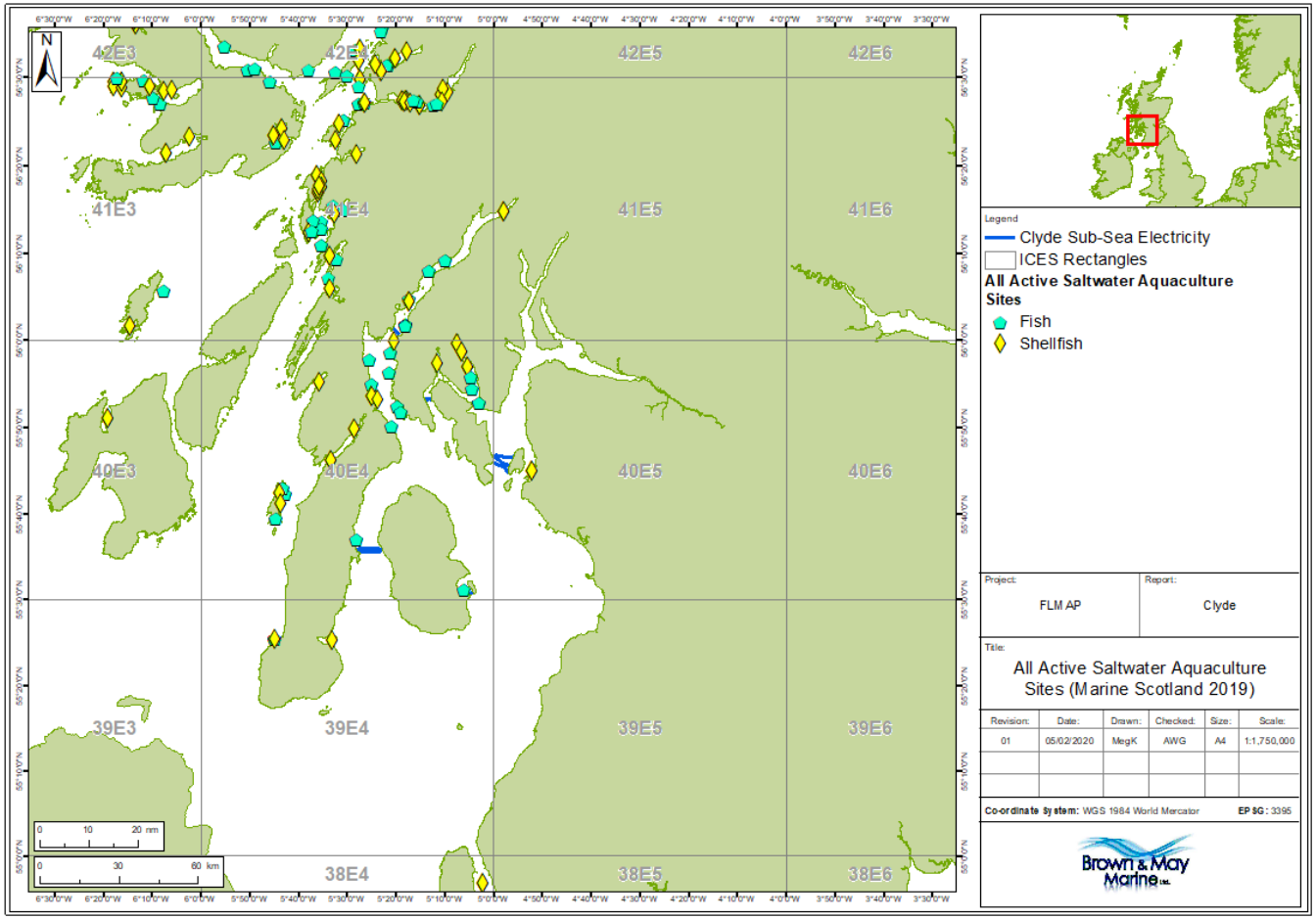


Figure 45 Active saltwater aquaculture sites (Marine Scotland 2019)

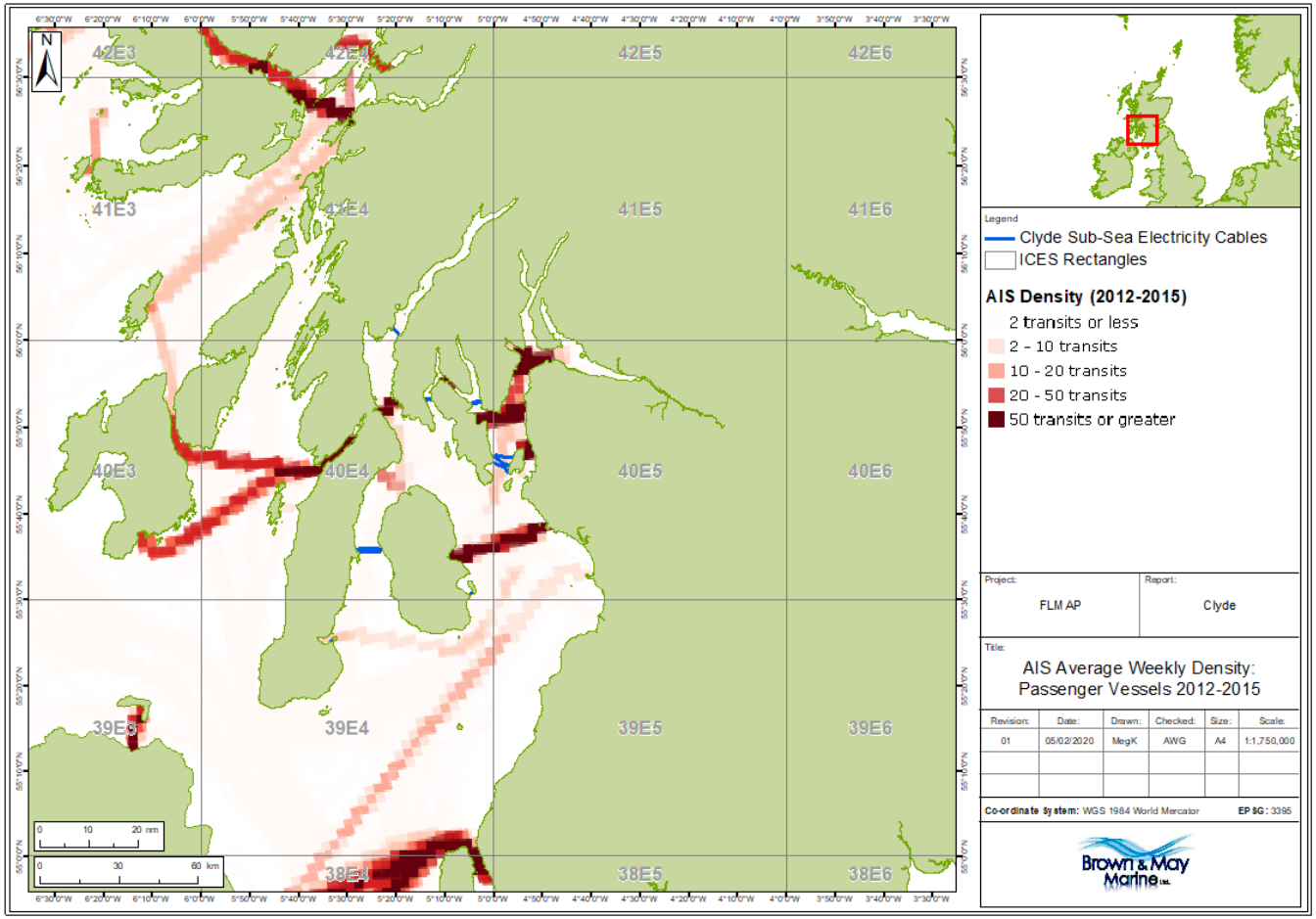


Figure 46 Passenger vessels – ferries (Marine Scotland 2018)

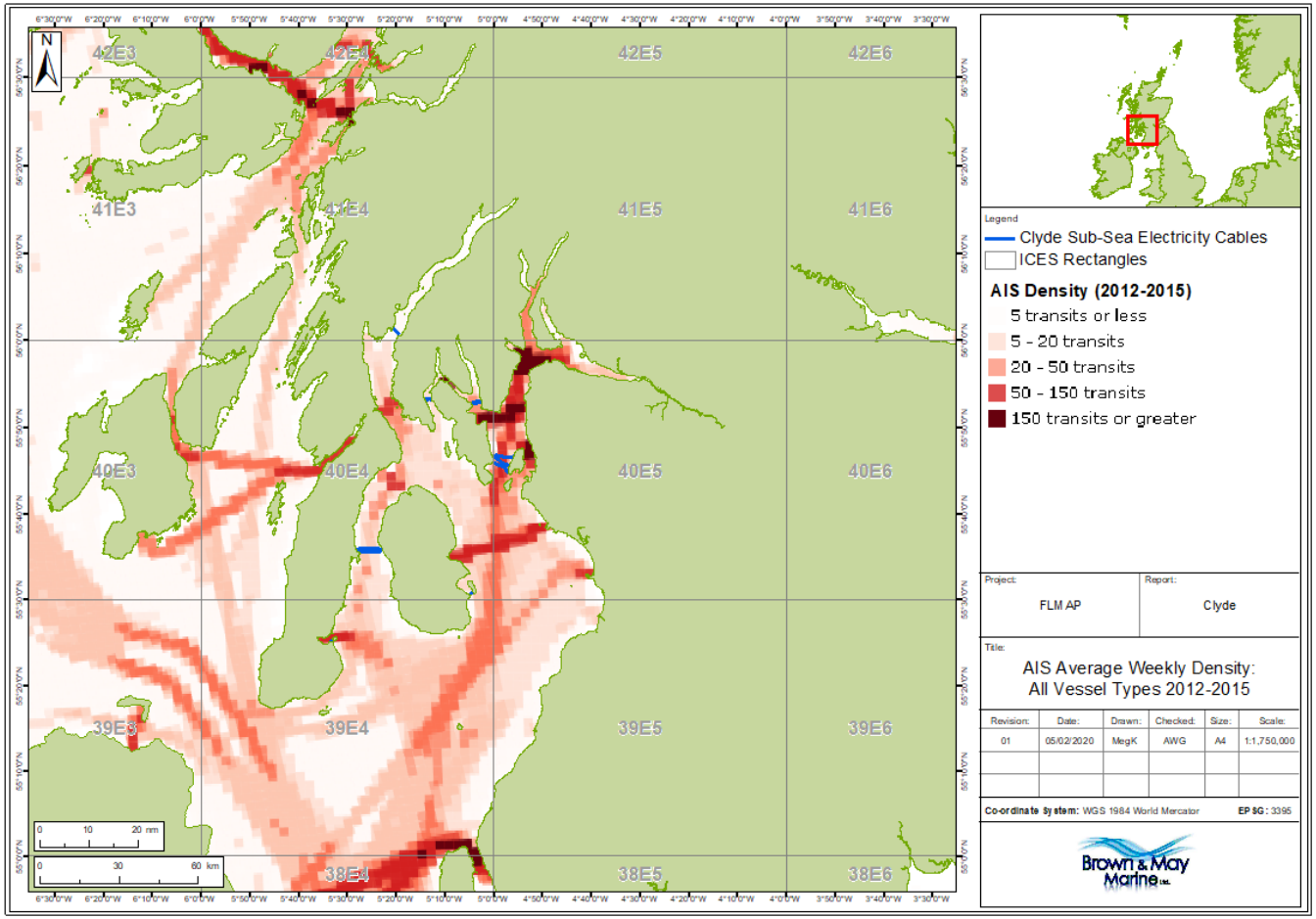


Figure 47 AIS all vessel types 2012-2015 (Marine Scotland 2018)

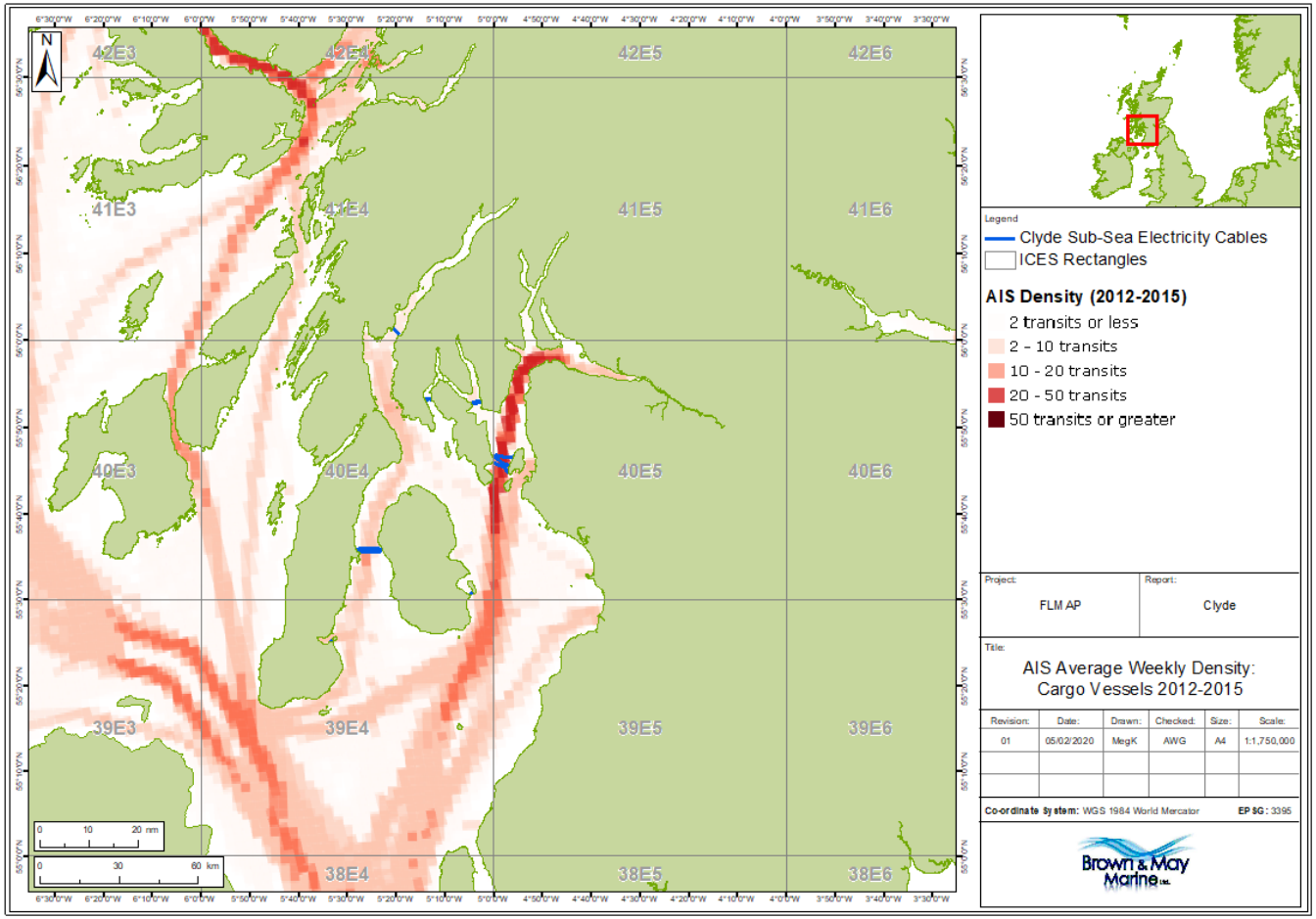


Figure 48 AIS cargo vessels 2012-2015 (Marine Scotland 2018)

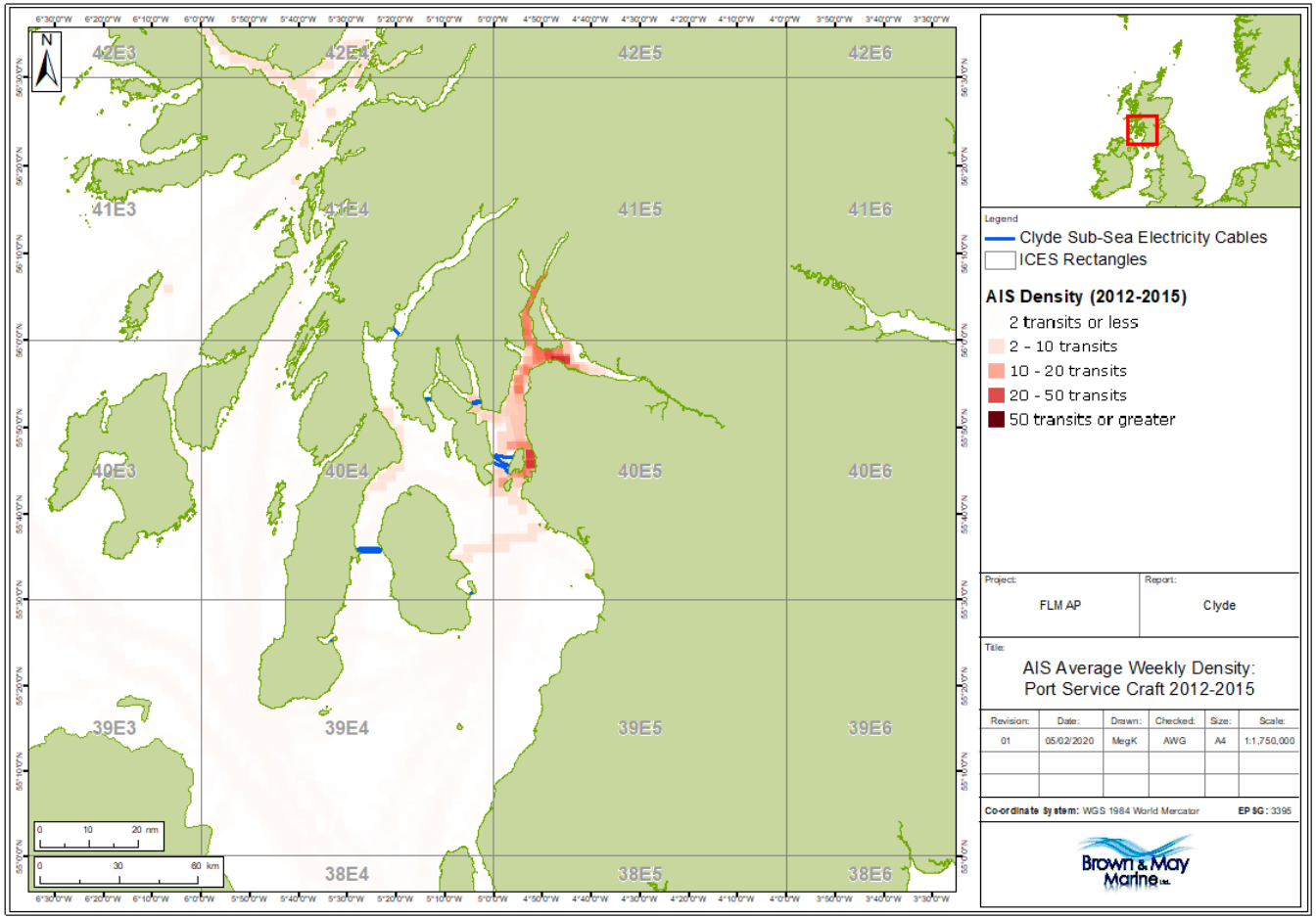


Figure 49 Port service craft 2012-2015 (Marine Scotland 2018)

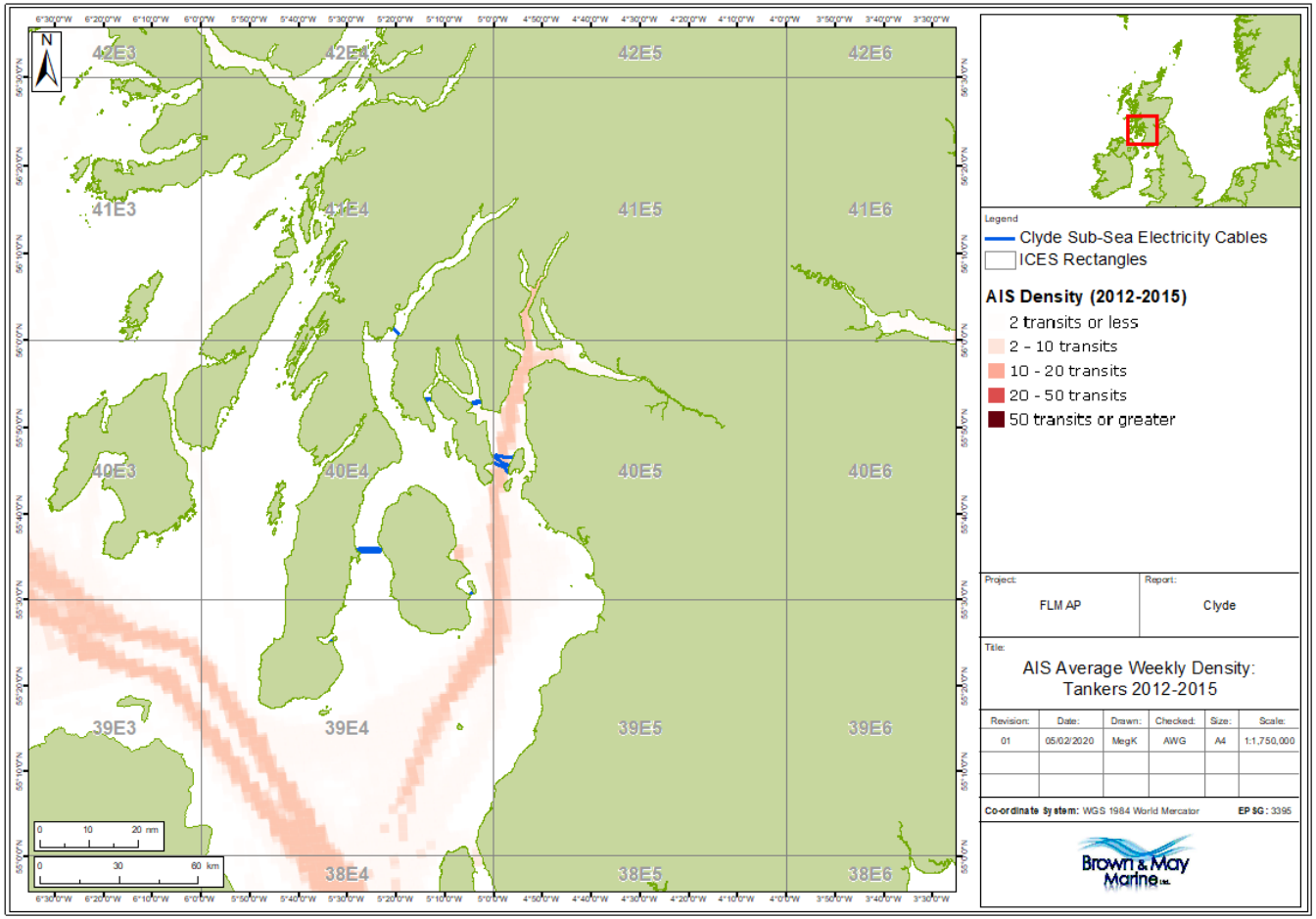


Figure 50 AIS tankers 2012-2015 (Marine Scotland 2018)

Appendix E Cable-Specific Interactions

Table 34 Interactions for Cable Otter Ferry

Activity	Interaction	Notes
MMO Surveillance sightings, 2014-2018	Possible	Within 10km radius there are low levels of activity from demersal stern trawlers, trawlers (all), potters/whelkers and a single scallop dredger (French/Newhaven type) sighting.
MMO landings value (£) 2014-2018 by species, gear type and gear length	Yes	Average of £4,059,232 landings value per year, with pots making up almost three quarters of these landings, followed by boat dredges, then bottom otter trawls and hand fishing. The largest proportion of vessels returning these landings are under 10m, with a roughly even split between 10m-15m and >15m vessels. The largest proportion of landings value comes from Nephrops, followed by scallops.
MMO VMS effort (hours) 2014-2018	Yes	Average fishing effort of 1-5 hours for mobile gear.
MMO VMS landings value (£) 2014-2018	Yes	Average landings value of <£1,000 per year for mobile gear.
EMODnet AIS vessel density (fishing) 2017	No	
Bird and wildlife watching	Yes	High levels of activity over the cable.
Visits to historic sites or to attractions	Yes	Low levels of activity over the cable.
Power boating	Yes	Moderate to high levels of activity over the cable.
Canoeing and kayaking	Yes	High levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cable.
Motor cruising	Yes	High levels of activity over the cable.
Sailing and cruising	Yes	High levels of activity over the cable.
Chartered angling	Yes	Moderate levels of activity over the cable.
Sea angling from shore	Yes	Low to moderate levels of activity over the cable.
Surfing and paddle boarding	Yes	Moderate levels of activity over the cable.

Activity	Interaction	Notes
Yacht racing	Yes	Moderate levels of activity over the cable.
Dinghy racing	No	No activity directly over the cable, though there is an area of very low activity adjacent to the south of the cable.
Coasteering	Yes	Very low levels of activity over the cable.
Personal water craft (jet skis)	Yes	Low levels of activity over the cable.
Water skiing/wakeboarding	No	None directly over the cable, though there is an area of low activity approximately 1.2km to the south of the cable.
Wild fowling	Yes	Very low levels of activity over the cable.
Scuba Diving	Yes	High levels of activity over the cable.
Rowing and sculling	Yes	Very low levels of activity over the cable.
Marine archaeology	No	
Conservation designations	Yes	Upper Loch Fyne and Loch Goil MPA – covers entirety of the cable.
Aquaculture sites	Possible	None directly over the cable, though there is a shellfish site approximately 1.8km south of the cable, Site 1, operated by Ballimore Estate. There are two finfish farms 2.4km north of the cable, Evanachan Marine Hatchery and Evanachan Salt Water, operated by Otter Ferry Seafish Ltd. There may be transiting traffic intersecting the route to and from these sites.
Ferry routes	No	No
Local ports	Yes	Otter Ferry quay sits at the eastern cable landfall, and is used primarily for leisure vessels.

Table 35 Interactions for Cable Sandbank Craigend

Activity	Interaction	Notes
MMO Surveillance sightings, 2014-2018	Possible	Within 10km radius there are low levels of activity from demersal stern trawlers, trawlers (all) and potters/whelkers.

Activity	Interaction	Notes
MMO landings value (£) 2014-2018 by species, gear type and gear length	Yes	Average of £2,700,784 landings value per year, with bottom otter trawls making up over half of these landings, followed by otter twin trawls and hand fishing. The largest proportion of vessels returning these landings are under 10m, with a roughly even split between 10m-15m and >15m vessels. The largest proportion of landings value comes from Nephrops, followed by razor clam.
MMO VMS effort (hours) 2014-2018	No	
MMO VMS landings value (£) 2014-2018	No	No value over the cable, though there is an area of <£,1000 for mobile gear adjacent to the cable.
EMODnet AIS vessel density (fishing) 2017	No	
Bird and wildlife watching	Yes	High levels of activity over the cable.
Visits to historic sites or to attractions	Yes	Moderate levels of activity over the cable, with an area of high activity directly adjacent to the cable.
Power boating	Yes	Moderate levels of activity over the cable.
Canoeing and kayaking	Yes	Moderate levels of activity over the cable.
Long distance swimming	Yes	Very low levels of activity over the cable.
Motor cruising	Yes	High levels of activity over the cable.
Sailing and cruising	Yes	Moderate levels of activity over the cable.
Chartered angling	Yes	Low to moderate levels of activity over the cable.
Sea angling from shore	Yes	Very low levels of activity directly over the cable, though there is a hotspot of moderate to high activity approximately 1.9km to the east of the cable.
Surfing and paddle boarding	Yes	Low levels of activity over the cable.
Yacht racing	Yes	Moderate levels of activity over the cable.
Dinghy racing	No	No activity directly over the cable, though there is an area of very low activity adjacent to the south of the cable.
Coasteering	Yes	Moderate to high 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 adjacent to the south of the cable.

Activity	Interaction	Notes
Water skiing/wakeboarding	Possible	There is an area of low activity directly adjacent to the south of the cable.
Wild fowling	Yes	Very low levels of activity over the cable.
Scuba Diving	Yes	Very low levels of activity over the cable, though there is a hotspot of high activity approximately 3.3km east of the cable.
Rowing and sculling	Yes	Moderate levels of activity over the cable.
Marine archaeology	Yes	Possible interaction with wreck sites.
Conservation designations	No	
Aquaculture sites	No	
Ferry routes	Possible	None directly over the cable, though there is a ferry route Gourock-Dunoon operated by Western Ferries that departs approximately 4.3km south of the cable. Another, Dunoon-Blairmore, operated by Paddle Steamer Waverley, runs approximately 4.8km south west of the cable. They both cross the mouth of the Holy Loch in which the cable is contained, so vessels accessing the cable may interact with these routes.
Local ports	Possible	The nearest pier is Kilmun (1.7km south east), used as an overnight berth by Western Ferries' services. Another, Holy Loch (1.8km south), is used as a working pier, where timber is loaded.

Table 36 Interactions for Cables Kames Bute North and South

Activity	Interaction	Notes
MMO Surveillance sightings, 2014-2018	No	
MMO landings value (£) 2014-2018 by species, gear type and gear length	Yes	Average of £8,262,661 landings value per year, with pots making up the greatest proportion of these landings, followed by bottom otter trawls and otter twin trawls. The largest proportion of vessels returning these landings are >15m vessels, with a roughly even split between 10m-15m and under 10m vessels. The largest proportion of landings value comes from Nephrops, followed by scallops.
MMO VMS effort (hours) 2014-2018	Yes	Average fishing effort of 1-5 hours for dredging, and 20-50 hours for mobile gear.

Activity	Interaction	Notes
MMO VMS landings value (£) 2014-2018	Yes	Average landings value of £3,000-£6,000 per year for mobile gear and <£1,000 for dredging.
EMODnet AIS vessel density (fishing) 2017	No	
Bird and wildlife watching	Yes	High levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Low levels of activity directly over the cables, with an area of high activity adjacent to the north of the cables.
Power boating	Yes	High levels of activity over the cables.
Canoeing and kayaking	Yes	High levels of activity over the cables.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	High levels of activity over the cables.
Sailing and cruising	Yes	High levels of activity over the cables.
Chartered angling	Yes	Moderate levels of activity over the cables.
Sea angling from shore	Yes	Very low levels of activity over the cables.
Surfing and paddle boarding	Yes	High levels of activity over the cables.
Yacht racing	Yes	High levels of activity over the cables.
Dinghy racing	No	
Coasteering	Yes	High levels of activity over the cables.
Personal water craft (jet skis)	No	
Water skiing/wakeboarding	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba Diving	Yes	Moderate to high levels of activity over the cables.
Rowing and sculling	Yes	Low levels of activity over the cables.
Marine archaeology	No	
Conservation designations	No	None directly over the cable, though Kyles of Bute NSA is located approximately 1.7km north of the cables.

Activity	Interaction	Notes
Aquaculture sites	No	
Ferry routes	Yes	The ferry route Tarbert-Tighnabruaich (operated by Paddle Steamer Waverley) intersects the cables.
Local ports	Possible	The nearest pier is Tighnabruaich (2.5km north of the cables), used by leisure vessels and the ferry service Tarbert-Tighnabruaich.

Table 37 Interactions for Cables Bute Ardyne North and South

Activity	Interaction	Notes
MMO Surveillance sightings, 2014-2018	Yes	There is a single sighting of a UK-registered scallop dredger (French/Newhaven type) over the cables.
MMO landings value (£) 2014-2018 by species, gear type and gear length	Yes	Average of £8,262,661 landings value per year, with pots making up the greatest proportion of these landings, followed by bottom otter trawls and otter twin trawls. The largest proportion of vessels returning these landings are >15m vessels, with a roughly even split between 10m-15m and under 10m vessels. The largest proportion of landings value comes from Nephrops, followed by scallops.
MMO VMS effort (hours) 2014-2018	Yes	Average fishing effort of 1-10 hours for mobile gear.
MMO VMS landings value (£) 2014-2018	Yes	Average landings value of up to £3,000 per year for mobile gear.
EMODnet AIS vessel density (fishing) 2017	Yes	Very low levels over the cables (≤0.5 hours per square km per month).
Bird and wildlife watching	Yes	High levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low levels of activity directly over the cables, though there is a hotspot of activity adjacent to the south of the cables.
Power boating	Yes	High levels of activity over the cables.
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	High levels of activity over the cables.

Activity	Interaction	Notes
Sailing and cruising	Yes	High levels of activity over the cables.
Chartered angling	Yes	Moderate levels of activity over the cables, though there is an area of high activity adjacent to the south of the cables.
Sea angling from shore	Yes	Moderate levels of activity over the cables, though there is an area of high activity adjacent to the north of the cables.
Surfing and paddle boarding	Yes	Moderate to high levels of activity over the cable.
Yacht racing	Yes	Moderate to high levels of activity over the cables.
Dinghy racing	No	
Coasteering	Yes	Very low levels of activity over the cables.
Personal water craft (jet skis)	Yes	Low levels of activity over the cables.
Water skiing/wakeboarding	No	None directly over the cable, though there is an area of low activity approximately 1.7km to the south of the cable.
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba Diving	Yes	Moderate levels of activity over the cables at the Bute landfall, though there is a hotspot of high activity adjacent to the south of the cables.
Rowing and sculling	Yes	Very low levels of activity over the cables.
Marine archaeology	Yes	Possible interaction with wreck sites.
Conservation designations	No	None directly over the cable, though Kyles of Bute NSA is located approximately 3.3km west of the cables.
Aquaculture sites	Yes	One finfish aquaculture farm, Ardyne (run by The Scottish Salmon Company) is located at the Ardyne landfall of the cables.
Ferry routes	Yes	The ferry route Bute-Tighnabruaich (operated by Paddle Steamer Waverley) intersects the cables.
Local ports	Possible	The nearest port is Port Bannatyne (2km south), used primarily by leisure and fishing vessels.

Table 38 Interactions for Cables Bute-Cumbrae North, Centre and 2

Activity	Interaction	Notes
MMO Surveillance sightings, 2014-2018	Yes	Low/moderate levels of activity from demersal stern trawlers, trawlers (all) and potters/whelkers.
MMO landings value (£) 2014-2018 by species, gear type and gear length	Yes	Average of £2,700,784 landings value per year, with bottom otter trawls making up over half of these landings, followed by otter twin trawls and hand fishing. The largest proportion of vessels returning these landings are under 10m, with a roughly even split between 10m-15m and >15m vessels. The largest proportion of landings value comes from Nephrops, followed by razor clam.
MMO VMS effort (hours) 2014-2018	Yes	Average fishing effort of up to 1-5 hours for dredging, and 5-100 hours for mobile gear.
MMO VMS landings value (£) 2014-2018	Yes	Average landings value of up to £10,000 per year for mobile gear and <£1,000 per year for dredging.
EMODnet AIS vessel density (fishing) 2017	Yes	Between 2-5 hours per square km per month fishing, with the highest level at the centre of the cables.
Bird and wildlife watching	Yes	High levels of activity over the cables.
Visits to historic sites or to attractions	Yes	There are hotspots of moderate to high activity at each landfall section of the cables, with very low levels of activity to the centre of the cables.
Power boating	Yes	High levels of activity over the cables.
Canoeing and kayaking	Yes	High levels of activity over the cables.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	High levels of activity over the cables.
Sailing and cruising	Yes	High levels of activity over the cables.
Chartered angling	Yes	High levels of activity over the cables.
Sea angling from shore	Yes	Moderate to high levels of activity over the cables.
Surfing and paddle boarding	Yes	High levels of activity over the cables.
Yacht racing	Yes	High levels of activity over the cables.
Dinghy racing	Yes	Very low levels of activity over the cables.

Activity	Interaction	Notes
Coasteering	Yes	There is a hotspot of high activity covering the Great Cumbrae landfall of the cables, with very low levels of activity elsewhere along the route. There is another hotspot of activity adjacent to the south west of the Bute landfall.
Personal water craft (jet skis)	No	
Water skiing/wakeboarding	No	
Wild fowling	Yes	Very low levels of activity over the cables.
Scuba Diving	Yes	High levels of activity over the cables at the Cumbrae cable landfall, with very low levels elsewhere along the route.
Rowing and sculling	Yes	Very low to low levels of activity over the cables.
Marine archaeology	Yes	Possible interaction with wreck sites.
Conservation designations	No	
Aquaculture sites	No	
Ferry routes	No	
Local ports	Possible	The nearest port is Millport (1.8km west of the Cumbrae landfall), used primarily by leisure and commercial vessels. Kilchattan Pier is located 1.9km south west of the cables, and is used by leisure and fishing boats.

Table 39 Interactions for Cables Carradale Arran North and South

Activity	Interaction	Notes
MMO Surveillance sightings, 2014-2018	Yes	Low/moderate levels of activity from demersal stern trawlers, trawlers (all), scallop dredgers (French/Newhaven type) and potters/whelkers.
MMO landings value (£) 2014-2018 by species, gear type and gear length	Yes	Average of £8,262,661 landings value per year, with pots making up the greatest proportion of these landings, followed by bottom otter trawls and otter twin trawls. The largest proportion of vessels returning these landings are >15m vessels, with a roughly even split between 10m-15m and under 10m vessels. The largest proportion of landings value comes from Nephrops, followed by scallops.

Activity	Interaction	Notes
MMO VMS effort (hours) 2014-2018	Yes	Average fishing effort of up to 1-50 hours for dredging, and 100+ hours for mobile gear.
MMO VMS landings value (£) 2014-2018	Yes	Average landings value of up to £35,000 per year for mobile gear and up to £10,000 per year for dredging.
EMODnet AIS vessel density (fishing) 2017	Yes	Up to 100+ hours per square km per month fishing activity, with the highest level at the Carradale cable landfall.
Bird and wildlife watching	Yes	Moderate levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Very low to low levels of activity over the cables.
Power boating	Yes	Moderate to high levels of activity over the cables.
Canoeing and kayaking	Yes	Moderate levels of activity over each cable landfall, with very low activity towards the centre of the route.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	Moderate to high levels of activity over the cables.
Sailing and cruising	Yes	Moderate to high levels of activity over the cables.
Chartered angling	Yes	Low levels of activity over the cables.
Sea angling from shore	Yes	Very low levels of activity over the cables.
Surfing and paddle boarding	Yes	Moderate levels of activity over the cables.
Yacht racing	Yes	Moderate levels of activity over the cables.
Dinghy racing	No	
Coasteering	Yes	Very low levels of activity over the cables.
Personal water craft (jet skis)	No	
Water skiing/wakeboarding	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	

Activity	Interaction	Notes
Marine archaeology	No	
Conservation designations	Yes	North Arran NSA – Covers Arran landfall of the cables.
Aquaculture sites	Possible	One finfish aquaculture farm, Eilean Grianain (run by Mowi Scotland Ltd.), approximately 1.9km north of the cables.
Ferry routes	No	
Local ports	Yes	Carradale Harbour sits at the Carradale cable landfall, and functions as a busy fishing harbour.

Table 40 Interactions for Cable Arran-Holy Isle

Activity	Interaction	Notes
MMO Surveillance sightings, 2014-2018	No	Within 10km radius there are low/moderate levels of activity from demersal stern trawlers, trawlers (all), potters/whelkers and a single scallop dredger (French/Newhaven type) sighting.
MMO landings value (£) 2014-2018 by species, gear type and gear length	Yes	Average of £8,262,661 landings value per year, with pots making up the greatest proportion of these landings, followed by bottom otter trawls and otter twin trawls. The largest proportion of vessels returning these landings are >15m vessels, with a roughly even split between 10m-15m and under 10m vessels. The largest proportion of landings value comes from Nephrops, followed by scallops.
MMO VMS effort (hours) 2014-2018	Yes	Average fishing effort of up to 5-10 hours for dredging, and 10-20 hours for mobile gear.
MMO VMS landings value (£) 2014-2018	Yes	Average landings value of £3,000-£6,000 per year for mobile gear.
EMODnet AIS vessel density (fishing) 2017	No	
Bird and wildlife watching	Yes	Moderate to high levels of activity over the cable.
Visits to historic sites or to attractions	Yes	Moderate to high levels of activity over the cable.
Power boating	Yes	High levels of activity over the cable.
Canoeing and kayaking	Yes	High levels of activity over the cable.

Activity	Interaction	Notes
Long distance swimming	Yes	Very low levels of activity over the cable.
Motor cruising	Yes	Moderate levels of activity over the cable.
Sailing and cruising	Yes	High levels of activity over the cable.
Chartered angling	Yes	Moderate levels of activity over the cable.
Sea angling from shore	Yes	Moderate levels of activity over the cable.
Surfing and paddle boarding	Yes	Moderate levels of activity over the cable.
Yacht racing	Yes	Moderate levels of activity over the cable.
Dinghy racing	No	
Coasteering	Yes	High levels of activity over the cable.
Personal water craft (jet skis)	No	
Water skiing/wakeboarding	No	
Wild fowling	Yes	Very low levels of activity over the cable.
Scuba Diving	Yes	High levels of activity over the cable.
Rowing and sculling	Yes	Very low levels of activity over the cable.
Marine archaeology	Yes	Possible interaction with wreck sites.
Conservation designations	Yes	South Arran MPA – covers entirety of the cable.
Aquaculture sites	Possible	One finfish aquaculture farm, Lamlash (run by The Scottish Salmon Company), approximately 1.4km north west of the cables.
Ferry routes	Possible	None directly over the cable, though there is a ferry route Arran (Lamlash)-Holy Isle, operated by Holy Isle Ferry, that runs parallel to the cable route approximately 2.5km north at its closest point.
Local ports	Possible	Lamlash Pier is located approximately 3.7km north of the cable at the Arran landfall, and is used primarily by fishing and leisure boats.

Table 41 Interactions for Cables Davaar (Campbeltown) in service and not in service

Activity	Interaction	Notes
MMO Surveillance sightings, 2014-2018	No	Within 10km radius there are moderate levels of activity from demersal stern trawlers and a single scallop dredger (French/Newhaven type) sighting.
MMO landings value (£) 2014-2018 by species, gear type and gear length	Yes	Average of £6,755,202 landings value per year, with bottom otter trawls making up the greatest proportion of these landings, followed by Nephrops trawls, then otter twin trawls. The largest proportion of vessels returning these landings are >15m vessels, followed by 10m-15m and then <10m vessels. The largest proportion of landings value comes from Nephrops, followed by scallops.
MMO VMS effort (hours) 2014-2018	Yes	Average fishing effort of 100+ hours for mobile gear, 5-10 hours for dredging and <1 hour for pots/traps.
MMO VMS landings value (£) 2014-2018	Yes	Average landings value of >£35,000 per year for mobile gear, and <£1,000 for dredging and pots/traps.
EMODnet AIS vessel density (fishing) 2017	Yes	Very low levels over the cables themselves (≤0.5 hours per square km per month), though there is an area of 100+ hours directly adjacent to the cables.
Bird and wildlife watching	Yes	Moderate levels of activity over the cables.
Visits to historic sites or to attractions	Yes	Low levels of activity over the cables, though there is a hotspot of high activity approximately 2.7km west of the cables.
Power boating	Yes	Moderate levels of activity over the cables.
Canoeing and kayaking	Yes	Moderate to high levels of activity over the cables.
Long distance swimming	Yes	Very low levels of activity over the cables.
Motor cruising	Yes	High levels of activity over the cables.
Sailing and cruising	Yes	High levels of activity over the cables.
Chartered angling	Yes	Low levels of activity over the cables.
Sea angling from shore	Yes	Very low levels of activity over the cables.
Surfing and paddle boarding	Yes	Low levels of activity over the cables.
Yacht racing	Yes	Moderate levels of activity over the cables.
Dinghy racing	No	

Activity	Interaction	Notes
Coasteering	Yes	Very low levels of activity over the cables.
Personal water craft (jet skis)	No	
Water skiing/wakeboarding	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	Possible	No wreck sites directly over the cables, but the nearest is 1.5km away.
Conservation designations	No	
Aquaculture sites	Yes	There is a shellfish aquaculture site, Kildalloig Bay (run by Kildalloig Farm Products), directly over the 'in service' cable.
Ferry routes	Possible	None directly over the cable, though there are ferry routes Campbeltown-Ardrossan and Campbeltown-Ballycastle (operated by CalMac Ferries and Kintyre Express respectively), that run approximately 710m north of the cables at their closest typical point.
Local ports	Possible	The nearest port is Campbeltown Loch POL Depot, which is a petroleum, oils and lubricants (POL) depot located approximately 1km west of the cables. Campbeltown Harbour is located 2.9km west of the cables, and is a popular destination for tourists as well as leisure, fishing and commercial vessels. Dalintober Jetty is located approximately 3km north west of the cables, and is currently used only for leisure purposes.