Scottish & Southern Electricity Networks

SHEPD

Marine Scotland Licence

Scottish Hydro Electric Power Distribution

Fishing Liaison Mitigation Action Plan (covering all legitimate sea users)

Arran and Carradale

Bute and Cumbrae

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1. Introduction

1.1. We want to make it easy for all stakeholders who have interests in the process to have a strong voice in helping us determine our installation and protection practices but also inform our inspection, maintenance and decommissioning works. We are committed to open, honest and transparent communication and engagement with all stakeholders.

1.2. This fishing liaison mitigation action plan (FLMAP) will help inform survey and installation works of submarine electricity cables which are critical for a safe and reliable supply of electricity to our customers[1].These cables lie between:

- the Isle of Arran and Carradale
- the Isle of Bute and Cumbrae

1.3. A summary of the assessment of potential construction and cable asset interactions with legitimate sea users in the vicinity of the Clyde cables showed:

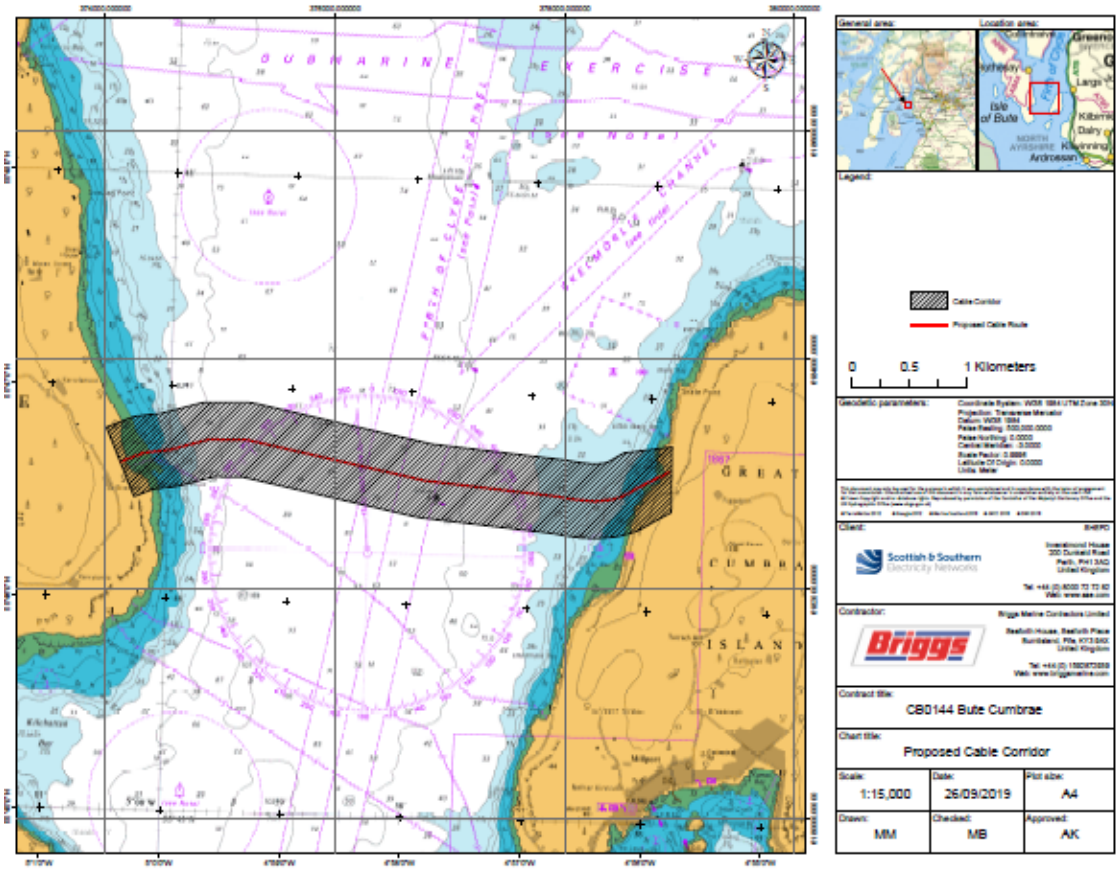
- Arran-Carradale: Low to intermediate levels of recreational sailing, motor cruising, yacht racing, sea angling and surfing. No direct overlap with any marine conservation, tidal/wave lease and marine archaeology sites are observed.
- Bute-Cumbrae: Low to intermediate levels of recreational yacht racing, sea angling, scuba diving, surfing and high levels of recreational sailing, motor cruising, power boating and canoeing. No direct overlap with any marine conservation, tidal/wave lease and marine archaeology sites are observed.
- Fishing activity, predominately otter trawling, occurs in the vicinity of each of the identified Clyde submarine electricity cables, in particular around the Isle of Arran and off the west coast of the Isle of Bute. Static fishing (pots/creels) is undertaken at the weekends and mobile fishing methods during the week[2]. A full assessment of commercial fishery activity and other legitimate sea user activity is given later.

1.4. The proposed route for the new cable between Bute-Cumbrae is shown in *Figure 1 Bute-Cumbrae Proposed Cable Corridor*. As this route falls just to the north of the exsiting cables that connect Bute-Cumbrae, the survey area referred to in the charts contained in Appendices F & G also cover the proposed route.

[1] A detailed project description can be found in the *Project Description.*

[2] It is worth noting that data supplied by the MMO may be considered an under representation of fishing activity in the area due to the exclusion of small vessel lengths <10m.

Figure 1 Proposed Bute-Cumbrae Cable Corridor



1.5. As part of the marine licencing process, we have undertaken early engagement with the general public and all interested stakeholders. We state within the *Pre-application consultation report*[3] how their views have been considered and influenced our approach to cable design, installation and protection.

[3] The *Pre-application Consultation Report* is required by Marine (Scotland) Act 2010: Section 24.

2. Purpose of Fishing Liaison Mitigation Action Plan

2.1. The purpose of the FLMAP is to:

- Illustrate the associated risks to the commercial fishing industry (and other legitimate sea users), and address the potential effects
- Identify how to minimise and mitigate potential impacts on local communities

2.2. The main elements of our liaison activities will be to identify and pro-actively engage with legitimate sea-users who could be potentially impacted by our activities.

2.3. The Community Fishing Liaison Officer (CFLO) will be responsible for liasing with legitimate sea users, with support from the Fishing Indusry Representative (FIR).

3. Communications

3.1 Information regarding pre-construction and construction works will be issued to all fisheries and relevant legitimate sea user stakeholders to ensure effective co-existence.

3.2 Construction contractors and survey consultancies shall provide details of all vessel movements, works and co-ordinates to the Company Fisheries Liaison Officer (CFLO) and the Fisheries Industry Representative (FIR) who will disseminate this information.

3.3 The relevant stakeholders will be contacted before a planned work activity that has 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 work.

3.4 In addition to statutory stakeholder engagement, SHEPD also has a number of obligations where it is necessary to engage with non statutory stakeholders prior to, during and/or upon completion of certain work activities.

3.5 In the event that an activity's date or duration was to deviate from the work programme detailed in the *Project Description*, an update will be issued to the affected 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 and associated timeline would be agreed prior to the works commencing.

4. Scheduling of liaison and information distribution

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

Table 1 Schedule for dissemination of information

Activity	Timescale for distribution
Construction Programme	▪ Notices and information distribution once available, and following submission to Marine Scotland (MS). ▪ Regular liaison and updates by Fisheries Industry Representative (FIR) with local fishermen of proposed timings with confirmations when operations are finalised. ▪ Regular liaison and updates by the Company Fisheries Liaison Officer (CFLO) with other legitimate sea users of proposed timings with confirmations when operations are finalised.
Pre-construction surveys that have the potential to require gear relocation or have the potential to cause significant displacement to fishing activity	▪ Regular liaison and updates by FIR with local fishermen, well in advance of disruption, defining who might be affected, as well as 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 14 days prior to survey mobilisation, to allow inclusion in the Kingfisher Fortnightly Bulletin.
Specific construction activities	▪ Notice and information distribution not less than 14 days 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 the pre-construction, construction, and operational phases
Meetings with other legitimate sea users	▪ Meetings as required during the pre-construction, construction, and operational 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

5. Formal Notifications

5.1 Details of the works will be distributed to all appropriate maritime users. The anticipated formal communications are set out in *Table 2 Formal notifications*.

Table 2 Formal notifications

Type	Function	Distribution
Submarine electricity cable flyer	▪ It is intended that flyers will be issued for each cable. ▪ 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[4] 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 NtM[5] will be issued by the CFLO ▪ NtMs will be published through KISORCA ▪ Details of the works will be promulgated to all appropriate maritime users ▪ NtMs will be issued at least 20 days prior, if possible, to an activity's start date, if possible, to allow inclusion in the Kingfisher Fortnightly Bulletin. ▪ NtMs will be issued using the example NtM document at the stages of the cable installation set out below: – HDD works – Cable laying – Relevant surveys
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.

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

[5] For details see *Appendix A Notice to mariners'* example template.

Type	Function	Distribution
Notices to static gear fishermen	Further specific liaison between SHEPD's FIR in Clyde and the fishermen who will be affected by the survey and installation operations will take place 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 in Clyde 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 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.	Other legitimate sea users identified through consultation will receive the NtM (the distribution lists are given in Table 3 Regional Clyde stakeholders roles and duties.

6. Stakeholder Communication Distribution List

6.1 The identified Clyde submarine electricity cables have a discrete footprint in a small geographical area. Many of the stakeholders in Clyde are common to the submarine electricity cables proposed for replacement. For simplicity, the communication distribution list has been separated into regional stakeholders, applicable to all identified Clyde submarine electricity cables and given in *Table 3: Regional Clyde stakeholders roles and duties and cable specific stakeholders.*

6.2 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 the stakeholder.

Table 3 Regional Clyde 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 for the following purposes: · to submit and seek approval of a cumulative impact review, if necessary · to notify the commencement of the works · to submit and seek approval of any updates to the communications strategy as detailed within FLMAP · to agree recipients of real-time data relating to the planned works
	Project Manager		▪ During the works for the following purposes: · 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 for the following purposes: · to notify the completion of the works to submit an assessment of any risks posed by the installed cable
Scotland Natural Heritage (SNH)	Lead Engagement and Submarine Policy Manager	SNH is the Scottish public body responsible for natural heritage. SNH advises the Scottish Government in the consideration of nature conservation requirements when deciding whether to consent activities. SNH are a consultee to Marine Scotland and as such they can influence conditions on the consent.	We will engage on matters related to the project as required.

Regional Stakeholder	SHEPD point of contact	Role	Details
Maritime and Coastguard Agency (MCA)	Project Manager	The MCA is an executive agency of the United Kingdom and is responsible for implementing British and international maritime law and safety policy. The MCA are a consultee to Marine Scotland and as such they can influence conditions within the consent.	We will engage on matters related to the project as required.
Northern Lighthouse Board (NLB)	Project Manager	The NLB are a consultee to Marine Scotland and as such they can influence conditions within the consent.	We will engage on matters related to the project as required.
Scottish Environmental Protection Agency (SEPA)	Project Manager	SEPA is Scotland's environmental regulator. SEPA is a consultee to Marine Scotland and as such they can influence conditions within the consent.	We will engage on matters related to the project as required.
Royal Society for the Protection of Birds (RSPB)	Project Manager	RSPB are a consultee to Marine Scotland and as such they can influence conditions on the consent.	We will engage on matters related to the project as required.
Scottish Fishermen's Federation (SFF)	Company Fisheries Liaison Officer (CFLO)	The SFF represent predominately 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.
Regional Inshore Fisheries Group (RIFG)	Company Fisheries Liaison Officer (CFLO)	West coast Inshore Fisheries group (WCIFG) is the regional IFG. Nine executive fisherman associations are part of the WCIFG, and collectively represent mobile and static vessels that are active in the WCIFG region.	Specific contact will be made with the RIFG. Regular dialogue between the CFLO and the WCIFG will be maintained prior to and during the installation work, noting that both mobile and static gear commercial fishing operations are present in the area.

Regional Stakeholder	SHEPD point of contact	Role	Details
Clyde Fishermen's Association (CFA)	Company Fisheries Liaison Officer (CFLO)	The CFA is an executive member of the Clyde Inshore Fisheries Group (IFG). The CFA represents currently 65 vessels, both mobile and static in local area.	Specific contact will continue to be made with the CFA. Regular dialogue between the CFLO and the CFA will be maintained prior to and during the installation work, noting that both mobile and static gear commercial fishing operations are present in the area.
The Crown Estate (TCE)	Wayleaves Project Manager	TCE manage property belonging to the Sovereign.	We will engage on matters related to the project as required, ensuring licences and wayleaves are in place.
United Kingdom Hydrographic Office (UKHO)	Project Manager and Company Fisheries 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 and 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 Fisheries 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 Fisheries 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.	Regular training exercises are conducted by the British Royal Navy in the Firth of Clyde and surrounding waters. CFLO will maintain contact with the MOD as and when required.

Regional Stakeholder	SHEPD point of contact	Role	Details
Royal Yacht Association (RYA)	Company Fisheries 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.
South Ayrshire Council (SAC)	Company Fisheries Liaison Officer (CFLO)	Part of the Clyde Marine Planning Partnership (CMPP). The SAC are a key stakeholder in marine planning and offshore development.	We will engage on matters related to the project as required.
Argyll and Bute Council (ABC)	Company Fisheries Liaison Officer (CFLO)	Part of the Clyde Marine Planning Partnership (CMPP). The ABC are a key stakeholder in marine planning and offshore development.	We will engage on matters related to the project as required.
Caledonian MacBrayne Hebridean and Clyde Ferries (CALMAC)	Company Fisheries Liaison Officer (CFLO)	Part of the Clyde Marine Planning Partnership (CMPP). State owned operator of vehicle and passenger ferries in the west of Scotland. Five ferry routes are currently active around the Clyde region.	We will engage on matters related to the project as required.
Clydeplan Glasgow and the Clyde Valley Strategic Development Planning Authority	Company Fisheries Liaison Officer (CFLO)	Clydeplan is the operating name for the Glasgow and Clyde Valley Strategic Development Planning Authority Joint Committee. The principal role of Clydeplan is to prepare and to maintain an up to date Strategic Development Plan (SDP).	We will engage on matters related to the project as required.

Regional Stakeholder	SHEPD point of contact	Role	Details
Community of Arran Seabed Trust (COAST)	Company Fisheries Liaison Officer (CFLO)	COAST is a community based organisation that promotes sustainable marine management, marine conservation and delivers and develops education programmes to the local community.	We will engage on matters related to the project as required.
Field Studies Council (FSC)	Company Fisheries Liaison Officer (CFLO)	FSC is an independent environment educational charity which provide professional training courses for environmental professionals and teachers along with a number of other services. The FSC are one of the 22 stakeholder members that make up the CMPP.	We will engage on matters related to the project as required.
Peel Ports Group (Clydeport)	Company Fisheries Liaison Officer (CFLO)	Controlling port authority of Glasgow, Greenock, Hunterston and Adrossan ports. Jurisdiction covers 450 square miles including the Clyde estuary.	Specific contact will be made with the Peel Ports Group (Clydeport). The ports and harbours given in Appendix B will be considered for the distribution of information in reference to the proposed cable replacements
Scottish Coastal Forum (SCF)	Company Fisheries Liaison Officer (CFLO)	The SCF was formed in 1996 to encourage debate at national level on coastal issues. Its members advise Marine Scotland, from an operational perspective, on the development of policy relating to marine planning and licensing	We will engage on matters related to the project as required.

Regional Stakeholder	SHEPD point of contact	Role	Details
Scottish Environment LINK	Company Fisheries Liaison Officer (CFLO)	Scottish Environment LINK is a forum for Scotland's voluntary environment organisations. It's over 35 member bodies represent a wide range of environmental interests. LINK assists communication between member bodies, government and agencies.	We will engage on matters related to the project as required.
Scottish Sea Angling Association (SSACN)	Company Fisheries Liaison Officer (CFLO)	SSACN is an independent charity focusing on marine conservation issues.	We will engage on matters related to the project as required.
The Scottish Salmon Company (SSC)	Company Fisheries Liaison Officer (CFLO)	The SSC is engaged in the production and sale of farmed salmon around the Scottish Coastline. SSC has a number of aquaculture sites around Clyde and the surrounding isles.	We will engage on matters related to the project as required.
Visit Scotland	Company Fisheries Liaison Officer (CFLO)	Visit Scotland hosts the official consumer website for the Scotland National Tourist Board. It works closely with private businesses, public agencies and local authorities.	We will engage on matters related to the project as required.

7. Fisheries Liaison Mitigation Action Plan for Clyde

7.1 This Fisheries Liaison Mitigation Action Plan (FLMAP) describes how we will interact with all legitimate sea users, prior to, during and after the installation of the cable. It also identifies the respective responsibilities of the Company Fisheries Liaison Officer (CFLO), and the Fisheries Industry Representative (FIR), and how the FIR and CFLO will operate.

7.2 *Project description* is a key reference for the Fisheries Liaison Mitigation Action Plan (FLMAP) as the installation and protection designs will inform the potential interactions with legitimate sea users.

7.3 The FLMAP has been constructed to facilitate co-existence between us and other legitimate sea users. An approach of avoiding and reducing impacts to the fishing industry is considered to be the most sustainable approach to co-existence, as recommended in the FLOWW[6] and ESCA[7] (previously SCUK) guidelines. While there is no established guidance for liaison procedures with other legitimate sea users, we apply the same approach.

7.4 The FLMAP provides an overview of the fisheries and legitimate sea user consultation, liaison and communication strategy, engagement, safety issues and mitigation strategies. As such, it will be developed and updated through the cable lifecycle. The FLMAP will also form an audit trail, documenting that communication and liaison between SHEPD and legitimate sea users.

[6] Fisheries Liaison with Offshore Wind and Wet Renewables Group (FLOWW) Best Practice Guidance for Offshore Renewables Developments: Recommendations for Fisheries Liaison, 2014.
[7] European Subsea Cables Association

8. Company Fisheries Liaison Officer (CFLO)

8.1 The primary responsibilities of the CFLO are to establish and maintain effective communications between SHEPD, any contractors or sub-contractors and legitimate sea users during surveys and construction, and ensure compliance with best practice guidelines whilst doing so. This will include:

- provision of advice on Fisheries Liaison throughout the project;
- production and issue of NtMs through KISORCA;
- maintaining availability to receive and respond to telephoned and e-mailed enquires and statements from fishermen's representatives, individual fishermen and client enquiries;
- maintaining availability to resolve fisheries related issues as they arise;
- production of Standard Operating Procedures[8] (SOPs) advising for the avoidance of potential fisheries interactions;
- maintaining the fisheries stakeholder database to ensure all fisheries stakeholders are adequately informed of survey and construction activities;
- maintaining a legitimate sea users stakeholder database which contains details of possible activity in the area of the submarine cables for replacement;
- being the first point of contact for local fisheries stakeholders and other legitimate sea users;
- all interactions with the relevant stakeholders are recorded in the communication log;
- maintaining regular liaison with the regional and cable specific stakeholders;
- sense check and distribute with appropriate timing, the required information and notices, of all cable replacement related activities which could potentially interact with all legitimate sea users (stakeholders). This will include:
  - a description of the works to be undertaken
  - the schedule of works
  - details of the vessels involved in the works including the vessels contact details
  - installation vessels transit routes including
    - locations and timings of safety exclusion zones to be imposed around installation activities
    - Health and Safety Policies
    - Environmental Standards
    - Contractor obligations
    - Conflict avoidance response procedures
- obtaining and transmitting to the developer the concerns of fishery stakeholders and other relevant legitimate sea user's, in respect of the various activities associated with the cable replacement;
- advising fishery stakeholders and other relevant legitimate sea users of any changes in cable replacement design, scheduling, policies or relevant legislation;
- monitoring fishery stakeholders and legitimate sea user activities, where possible, in proximity to the potential cable route;
- informing contractors as to the fishing activities and other possible stakeholder interactions, and provide details of:

[8] As detailed in *Appendices D &E Fishing Gear Interaction Standard Operating Procedures*.

- Vessel and gear types that could be present in their areas of work,
- Any fishery stakeholder and other relevant legitimate sea users' sensitivities; and,
- Channels and contact details for communicating with fishing vessels at sea.

9. Fisheries Industry Representative (FIR)

9.1 The FIR reports to the CFLO and works in conjunction with SHEPD. The primary responsibilities of the FIR are to:

- be the local conduit for liaison with local fisheries stakeholders;
- assist the CFLO at a local level in undertaking the tasks listed above
- feedback to the CFLO any concerns communicated to the FIR;
- be available as required to address local issues;
- liaise with fishing skippers with the objective of providing details of fishing activities in the area, and particular sensitivities
- assist CFLO to identify areas of concern and/or potential conflict at a sufficiently early stage to enable as far as practicable appropriate measures to be implemented to address these;
- assist in the distribution of notices and relevant cable replacement information to legitimate sea users and to check recipients' receipt of such notices.

10. UK Legislation, References and Guidance

10.1 Damage to submarine cables is expensive to repair and can cause disruption to power 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 The legal implication of damaging a submarine cable is summarised in the International Cable Protection Committee (IPCC) booklet "Fishing and submarine cables" (2009):

> *"Under UNCLOS and the earlier 1884 International Convention for the Protection of Submarine Cables, if a mariner damages a cable and the damage could be avoided by taking reasonable care as a prudent seaman, then the person causing the damage is liable. If a mariner damages a cable with fishing gear or an anchor, when he could have seen that cable on a chart and avoided it, he may be liable for the damage. In addition to civil liability for damages, the mariner may face criminal sanctions for culpable negligence or wilful injury to a cable.*
>
> *However, international law recognises an exception. If the mariner's damage to the cable is caused by taking necessary actions to save the vessel or crew, there is no liability. An example would be a ship without power being set upon a shoal that is saved by anchoring and in the process a cable is damaged.*
>
> *International law also requires that a vessel that has gear or an anchor caught on a cable is required to sacrifice the gear or anchor to avoid injury to the cable. Provided the mariner was not negligent in contacting the cable in the first place, the mariner is entitled to indemnity for the cost of the sacrificed gear or anchor by the owners of the cable".*

10.3 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.

10.4 There is no legal obligation on a SHEPD to pay co-operation payments to fishermen in respect to offshore works.

11. Commercial Fisheries

11.1 Commercial fishing in European Union (EU) waters is subject to numerous controls and regulations at European, national and local levels[9].

11.2 Our cables are located within International Council for the Exploration of the Sea (ICES) Division IVa (Celtic Seas). Pressure stocks are managed by ICES Division and quota is also allocated at this scale. Fisheries data are recorded, collated and analysed by ICES rectangles within each division. ICES rectangles are the smallest spatial unit available for the collation of fisheries data and have therefore been used to define the analysis areas for the proposed cable replacements. Fisheries data are recorded, collated and analysed by ICES statistical rectangles within each ICES division and these rectangles are the smallest spatial unit for which fisheries data is available. The identified Clyde submarine electricity cables are located within ICES rectangles 39E4, 39E5, 40E4, and 40E5[10].

11.3 The identified 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.

11.4 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.

11.5 The key data sources used to characterise the baseline of the commercial fisheries receptors are summarised in *Table 4 Commercial fisheries key data sources*. 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.

Table 4 Commercial fisheries key data sources

Data	Year	Coverage	Confidence	Notes
UK Marine Management Organisation (MMO) Fisheries Statistics (landings values and fishing effort data)	2010 to 2014	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	2011 to 2015	Sightings of vessels by gear type (all nationalities) recorded in UK waters on	Medium to high	May underestimate total extent of fishing activity due to flyover frequency

[9] The main bodies regulating fisheries 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).

[10] As detailed in *Appendix F Commercial Fisheries Chart*.

Data	Year	Coverage	Confidence	Notes
		weekly surveillance fly overs during daylight hours.		and timing.
UK MMO Satellite Tracking (VMS) Data	2010 to 2014	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.
Marine Scotland VMS data	2007 to 2012	Aggregated VMS separated by gear type or fishery to show relative value. Only vessels over 15m.	High	VMS provided on a sliding scale of relative value. No actual financial figures are given. As dataset limited to vessels over 15m this will not be indicative of the inshore fleet.
Scotmap	2007 to 2011	Spatial information on the fishing activity of under 15m Scottish registered commercial fishing vessels, based on interviews of 1,090 fishermen. Data are aggregated and analysed to provide information on the monetary value of seas around Scotland	Medium	Not all those interviewed provided earnings information. Individuals defined their fishing areas with variable levels of precision. Coverage provided by the ScotMap data set varies regionally.

11.6 The potential fishing activity methods in the vicinity of the Arran-Carradale, Ardyne-Bute, Cumbrae-Bute and Kames-Bute submarine electricity cables are reviewed in order to assess possible interaction scenarios. Surveillance sightings by method have recorded predominately bottom demersal stern trawlers in the vicinity of the Clyde submarine cables, followed by potting/welking vessels[11]. Fishing my method also shows that bottom otter trawls as the predominant method, followed by potting and *Nephrop* trawls.

11.7 A brief characterisation of the fishing methods identified in the area of the submarine electricity cables including a description of the gear and photographic examples of the types of vessels are given in *Table 5 Characterisation of the fishing methods in the area and details of fleet characteristics*, fishing effort and landing statistics are given below.

11.8 ScotMap VMS data indicates that the highest monetary value for *Nephrops* pots are recorded in the inshore areas around the coast of Carradale and the north east coast off Arran. Low to moderate values are recorded around the immediate vicinity of both the southern and northern cable routes between Bute and Ardyne. No VMS data has been recorded around the Kames-Bute cable route. Slightly elevated monetary values are documented for dredging around the cable route but the majority of value is concentrated in two inshore areas to the south of Arran and off the west coast of Carradale. *Nephrops* trawls however represent the

[11] Details can be found in Appendix F Figures 2 to 7

highest monetary value in proximity of the cable routes, with high levels recorded across the majority of the Firth of Clyde and the waters surrounding the Isles of Carradale and Bute[12].

11.9 MMO VMS data by effort, shows a large amount of fishing around the Firth of Clyde and the Isle of Arran. Intermediate fishing effort is observed near the Bute-Ardyne cable route (East coast) but effort levels sharply increase towards the South East and North West corners of Bute, both of which have cable routes in close proximity[13]. A similar spatial distribution of fishing effort by value is observed around Clyde, with the majority of value concentrated around the Firth of Clyde and Arran and extending up towards the west coast of Bute. Fishing effort by value and effort for mobile methods, shows an almost identical spatial distribution; largely because the VMS data supplied by the MMO is considered an under representation of fishing activity in the area due to the exclusion of small vessel lengths (<15m) from the dataset[14].

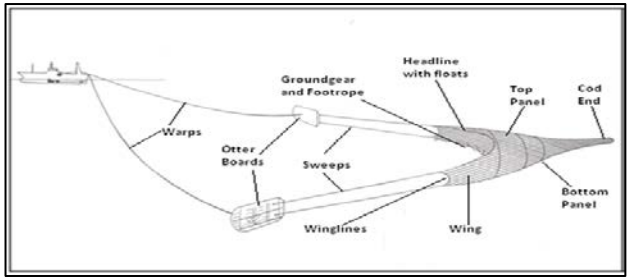
11.10 Otter trawling shows the largest value by method percentage in all four ICES rectangles 40E4, 40E5, 39E4 and 39E5 contributing approximately 50% on average to the total value[15]. *Nephrop* trawling and dredging are the second and third most common methods respectively; only with the exception of ICES rectangle 40E4 where potting/creeling methods are the second most valuable method. The other methods that make up the remaining percentages by value are hand fishing and twin otter trawling. In regards to species, *Nephrops* make up the vast majority of value for all four ICES rectangles followed by scallops and clams. Larger shellfish such as velvet crabs and lobster only contribute a small proportion to the total landing value[16].

11.11 Vessels in the class of >15m and above are the main contributors by value in ICES rectangles 39E4, 40E4 and 39E5. The total value for ICES rectangle 40E5 is more evenly distributed with approximately a third of landings attributed to each vessel class[17]. Effort (days finished) by vessel class is more variable for each ICES rectangle. Vessels in the class of >15m and above showed the highest effort in 39E4, whereas vessels between 10-15m showed the highest effort for 40E4. For rectangles 40E5 and 39E5 effort by vessel class is uniformly spread[18].

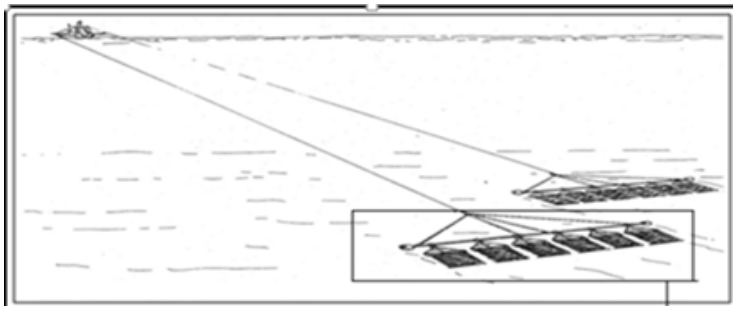
11.12 Port landings data has been collated for ICES rectangle 40E4, 40E5, 39E4 and 39E5. Campbeltown port, south Kintyre facilitates the most landings in Clyde followed by Troon on the West coast of mainland Scotland[19]. Smaller numbers are observed in the ports in and around Cumbrae and off the west coast of Bute, where smaller inshore fisheries are likely to flourish as oppose to large trawlers.

[12] Details can be found in Appendix F Figure 8 to 10
[13] Details can be found in Appendix G Figure 11
[14] Details can be found in Appendix G Figure 12
[15] Details can be found in Appendix G Figure 13
[16] Details can be found in Appendix G Figure 14
[17] Details can be found in Appendix G Figure 15
[18] Details can be found in Appendix G Figure 16
[19] Details can be found in Appendix G Figure 17

Table 5 Characterisation of the fishing methods in the area

Fishing gear	Description	Pictorial representation
Demersal otter trawling	Fishing areas around the Clyde are heavily dependent on the shellfish sector. Of the vessels that operate in the area demersal trawls are the most common, largely targeting *Nephrops* (*Nephrops norvegicus*) all year round across the Firth of Clyde[20]. A collapse in stocks in traditional fisheries such as Cod and Haddock, led the pelagic fleet shift towards targeting *Nephrops* almost entirely. Of the vessels that operate in the area 53 are registered from Cambletown (>10m and above) operating from fishing ports such as Tarbert and Carrradale[21]. The total area fished by trawling methods is approximately 3000km^2. Demersal 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. Scallops (namely king Scallops *Pecten maximus*) make a significant proportion of total landing by species in the Firth of Clyde and surrounding Isles. Scallops are predominantly fished by dredge[22]. The	 Source: A Nephrops Trawler (source: IntraFish) 

[20] Clyde Inshore Fisheries Group, Fisheries Management Plan, November 2011 page 1-37
[21] McIntyre, F., Fernandes, P.G. and W. R. Turrell (2012). Scottish Marine and Freshwater Science Volume 3 Number 3: Clyde Ecosystem Review
[22] Clyde Inshore Fisheries Group, Fisheries Management Plan, November 2011 page 1-37

Fishing gear	Description	Pictorial representation
	south end of the dredged king scallop fishery extends to Loch Ryan. The northern boundary of the fishery extends as far north as Lochghilpead[23]. 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).	 Scallop Vessel operating five dredges per side (source: BMM)  Scallop gear configuration

[23] McIntyre, F., Fernandes, P.G. and W. R. Turrell (2012). Scottish Marine and Freshwater Science Volume 3 Number 3: Clyde Ecosystem Review

Fishing gear	Description	Pictorial representation
Hand diving for scallops	Although the majority of fishing for king Scallops (*Pecten maximus*) is by dredge in the waters around clyde, 5% of total are landings are fished commercially by divers.	 Hand diving (Source: OSF)
Creeling	The Inshore fleet (generally vessels under <10m) around clyde mainly target Lobster, brown crab, velvet crab and *Nephrops.* Fishing occurs all year round is often poor in the summer months when the carapace can often be soft. A number of creels are set on a main line anchored to the seabed and marked with a 'dahn' at either end. A set of pots is known as a 'string' or 'fleet', and is left to soak for anywhere between 24hrs to three days or more, depending on the productivity of grounds and weather conditions which may prevent the gear being hauled. As described previously the method is also increasingly used to target *Nephrops* in the regional study, particularly the Firth of Clyde and Minches.	 Creel vessel (Source: BMM)

12. Other Legitimate Sea Users Overview

12.1 This section of the report provides a brief overview of other legitimate sea users in relation to the submarine electricity cable assets. Other legitimate sea users that may be affected by cable replacement works include:

- Aquaculture
- Marine Archaeology
- Tidal developments
- Ferries
- Shipping
- Sailing
- Recreational:
- MoD
- Conservation sites/areas
- Telecommunications

12.2 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 marine spatial plans and the *Pre-application consultation report*.

12.3 Scottish Marine Recreation and Tourism Survey (SMRTS) 2015[24] and the Marine Scotland interactive Marine Plan[25] have been the main sources of reference for legitimate sea users listed in *Table 6 Other legitimate sea users data sources*. Where information is available, charts of spatial activity are provided for each of the legitimate sea users defined above.

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

Table 6 Other legitimate sea users' data sources

Data	Year	Coverage	Confidence	Notes
RYA Recreational Boating GIS dataset	2011 - 2013	• AIS intensity data (polygon data) • General boating areas (polygon data) • Offshore routes (point data) • RYA affiliated training clubs (point data) • RYA affiliated training centres (point data) • Marinas (point data)	High	Only given for summer months (May to September). Does not differentiate by recreational activity and will not show vessels without AIS
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	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.

12.4 The main water sports undertaken around the Firth of Clyde and surrounding isles are recreational scuba diving, windsurfing, rowing/sculling, canoeing, yachting/sailing, charter angling, power boating, water skiing and long distance swimming.

12.5 Using the Scottish Marine Recreation and Tourism Survey (SMRTS) an overall picture was depicted for recreational activity around the identified Clyde submarine electricity cables in the Firth of Clyde and the surrounding area. Each activity was subdivided and analysed independently to asses possible interactions. Based on the information provided by the SMRTS the following recreational activities have been assessed in this report:

- Scuba diving
- Surfing
- Windsurfing
- Rowing/sculling
- Canoeing
- Yachting/Sailing
- Power boating
- Water-ski

12.6 Based on the data provided from SMRTS (2015), rowing and sculling has the potential to interact with survey/construction works on the two cable routes between Cumbrae and Bute and the cables connecting the North of Brute to Ardyne[26]. The Firth of Clyde sailing club operate a number of weekly training exercises and scheduled regattas. They operate from the west coast of mainland Scotland, parallel to Cumbrae. A calendar with the summer schedule can be found on http://www.firthofclydecoastalrowingclub.com/. Yachting activity in the vicinity of each of the Clyde cable assets is summarised in *Table 7 Rowing/Sculling.*

Table 7 Rowing/Sculling

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	Identified regions by survey participants, indicates a degree of overlap between recreational rowing, and the cable route.
Cumbrae Centre-Bute	Yes	Identified regions by survey participants, indicates a degree of overlap between recreational rowing, and the cable route.
Ardyne North - Bute	Yes	Identified regions by survey participants, indicates a degree of overlap between recreational rowing, and the cable route.
Ardyne South – Bute	Yes	Identified regions by survey participants, indicates a degree of overlap between recreational rowing, and the cable route.
Carradale – Arran North	No	

[26] For details see Appendix G Figure 1 Rowing/sculling heat map

Clyde cable	Interaction on chart	Notes
Carradale – Arran South	No	
Kames – Bute North	No	

12.7 Using spatial data from the response of 132 participants and 19 clubs around Scotland from the SMRTs survey, a heat map of yachting activity around the identified Clyde submarine electricity cables was produced to assess any potential interactions[27]. From that data it is deduced that yachting has potential to be undertaken in the vicinity of all proposed cable routes. Yachting activity in the vicinity of each of the Clyde cable assets is summarised in *Table 8 Yachting.*

Table 8 Yachting

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	SMRTs data indicates levels of yachting are particularly high in the region of the Cumbrae-Bute cable route.
Cumbrae Centre-Bute	Yes	SMRTs data indicates levels of yachting are particularly high in the region of the Cumbrae-Bute cable route.
Ardyne North - Bute	Yes	Intermediate levels of yachting
Ardyne South – Bute	Yes	Intermediate levels of yachting
Carradale – Arran North	Yes	Low-intermediate levels of yachting
Carradale – Arran South	Yes	Low-intermediate levels of yachting
Kames – Bute North	Yes	Intermediate levels of yachting

12.8 The Clyde Yacht clubs Association (CYCA) is an overarching yachting club with several subsidiary clubs on the West of Scotland and Isles around the Clyde. There are 15 associate clubs that are active in and around the Clyde area, all of which operate in the surrounding waters[28]. A heat map has been produced using the spatial data provided by 542 participants from SMRTS survey. Sailing activity is particularly prominent around the isle of Bute, the waters of the coast of Ardyne and the north coast off the isle of Arran[29]. A full CYA racing and muster calendar runs between mid April and late October each year. The calendar for 2019 will be reviewed once published. Sailing activity in the vicinity of each of the Clyde cable assets is summarised in *Table 9 Sailing.*

[27] For details see Appendix G Figure 2 Yachting heat map
[28] http://www.cyca-online.org.uk/index.asp accessed on the 26/09/2018
[29] For details see Appendix G Figure 2 Yachting heat map

Table 9 Sailing

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	SMRTs data indicates levels of Sailing are particularly high in the region of the Cumbrae-Bute cable route.
Cumbrae Centre-Bute	Yes	SMRTs data indicates levels of Sailing are particularly high in the region of the Cumbrae-Bute cable route.
Ardyne North - Bute	Yes	SMRTs data indicates levels of Sailing are particularly high in the region of the Ardyne North- Bute cable route.
Ardyne South – Bute	Yes	SMRTs data indicates levels of Sailing are particularly high in the region of the Ardyne North- Bute cable route.
Carradale – Arran North	Yes	Low-intermediate levels of Sailing
Carradale – Arran South	Yes	Low-intermediate levels of Sailing
Kames – Bute North	Yes	SMRTs data indicates levels of Sailing are particular high in the region of the Kames- Bute North cable route.

12.9 Motor cruising has the potential to interact with all of the proposed cable routes in the Firth of Clyde and surrounding Isles. Spatial data provided from 163 participants from the SMRTs survey, was used to produce a heat map highlighting the intensity of power boating in the proximity of the cables[30]. The presence of motor cruising activity in the vicinity of each of the cable assets is summarised in *Table 10 Motor Cruising.*

Table 10 Motor Cruising

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	SMRTs data indicates levels of motor cruising are particularly high in the region of the Cumbrae-Bute cable route.
Cumbrae Centre-Bute	Yes	SMRTs data indicates levels of motor cruising are particular high in the region of the Cumbrae-Bute cable route.
Ardyne North - Bute	Yes	SMRTs data indicates levels of motor cruising are particularly high in the region of the Ardyne North-Bute cable route.

[30] For details see Appendix G Figure 4 Motor cruising heat map

Ardyne South – Bute	Yes	SMRTs data indicates levels of motor cruising are particularly high in the region of the Ardyne North-Bute cable route.
Carradale – Arran North	Yes	Intermediate levels of motor cruising.
Carradale – Arran South	Yes	Intermediate levels of motor cruising.
Kames – Bute North	Yes	SMRTs data indicates levels of motor cruising are particularly high in the region of the Kames- Bute North cable route.

12.10 Power boating has the potential to interact with all of the proposed cable routes in the Firth of Clyde and surrounding Isles. Spatial data provided from 204 participants from the SMRTs survey, was used to produce a heat map highlighting the intensity of power boating in the proximity of the cables[31]. The presence of power boating activity in the vicinity of each of the cable assets is summarised in *Table 11 Power Boating.*

Table 11 Power Boating

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	SMRTs data indicates levels of power boating are particularly high in the region of the Cumbrae-Bute cable route.
Cumbrae Centre-Bute	Yes	SMRTs data indicates levels of power boating are particular high in the region of the Cumbrae-Bute cable route.
Ardyne North - Bute	Yes	SMRTs data indicates levels of power boating are particularly high in the region of the Ardyne North-Bute cable route.
Ardyne South – Bute	Yes	SMRTs data indicates levels of power boating are particularly high in the region of the Ardyne North-Bute cable route.
Carradale – Arran North	Yes	Low-intermediate levels of power boating.
Carradale – Arran South	Yes	Low-intermediate levels of power boating.
Kames – Bute North	Yes	SMRTs data indicates levels of power boating are particularly high in the region of the Kames- Bute North cable route.

12.11 There are four sea angling clubs situated off the West coast of Scotland. The sea angling club Inverclyde Sea operate out of the port of Glasgow and the other three from Ardrossan port further south. Spatial data provided from 353 participants from the SMRTs survey, was used to produce a heat map highlighting the intensity of sea angling in the proximity of the cables routes in western

[31] For details see Appendix G Figure 5 Power Boating

Scotland[32]. The presence of sea angling activity in the vicinity of each of the cable assets is summarised in *Table 12 Sea Angling.*

Table 12 Sea Angling

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	Intermediate levels of sea angling activity.
Cumbrae Centre-Bute	Yes	Intermediate levels of sea angling activity
Ardyne North - Bute	Yes	Low levels of sea angling activity
Ardyne South – Bute	Yes	Low levels of sea angling activity
Carradale – Arran North	Yes	Little or no activity
Carradale – Arran South	Yes	Little or no activity
Kames – Bute North	Yes	Low levels of sea angling activity

12.12 Scuba diving has the potential to interact with all of the proposed cable routes in the Firth of Clyde and surrounding Isles. Spatial data provided from 168 participants from the SMRTs survey, was used to produce a heat map highlighting the intensity of power boating in the proximity of the cables[33]. The presence of scuba diving activity in the vicinity of each of the cable assets is summarised in *Table 13 Scuba Diving.*

Table 13 Scuba Diving

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	Intermediate levels of activity.
Cumbrae Centre-Bute	Yes	Intermediate levels of activity
Ardyne North - Bute	Yes	Low levels of sea angling activity
Ardyne South – Bute	Yes	Low levels of sea angling activity
Carradale – Arran North	no	
Carradale – Arran South	no	
Kames – Bute North	no	

[32] For details see Appendix G Figure 6 Sea Angling heat map
[33] For details see Appendix G Figure 7 Scuba Diving heat map

12.13 Surfing/paddle boarding has the potential to interact with all of the proposed cable routes in the Firth of Clyde and surrounding Isles. Spatial data provided from 201 participants from the SMRTs survey, was used to produce a heat map highlighting the intensity of Surfing/paddle boarding in the proximity of the cables[34]. The presence of Surfing/paddle boarding activity in the vicinity of each of the cable assets is summarised in *Table 14 Surfing/paddle boarding.*

Table 14 Surfing/Paddle boarding

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	Low-Intermediate levels of activity.
Cumbrae Centre-Bute	Yes	Low- intermediate levels of activity
Ardyne North - Bute	Yes	Low-Intermediate levels of activity
Ardyne South – Bute	Yes	Low-Intermediate levels of activity
Carradale – Arran North	Yes	Low levels of activity
Carradale – Arran South	Yes	Low levels of activity
Kames – Bute North	Yes	Low levels of activity

12.14 Canoeing/kayaking has the potential to interact with all of the proposed cable routes in the Firth of Clyde and surrounding Isles. Spatial data provided from 481 participants from the SMRTs survey, was used to produce a heat map highlighting the intensity of Canoeing/kayaking in the proximity of the cables[35]. The presence of Canoeing/Kayaking activity in the vicinity of each of the cable assets is summarised in *Table 15 Canoeing/Kayaking.*

Table 15 Canoeing/Kayaking

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	SMRTs data suggest that Canoeing/kayaking activity around Cumbrae north and Bute cable route is relatively high, especially off the east coast of Cumbrae.
Cumbrae Centre-Bute	Yes	SMRTs data suggest that Canoeing/kayaking activity around Cumbrae centre and Bute cable route is relatively high, especially off the east coast of Cumbrae.
Ardyne North - Bute	Yes	Intermediate to high levels of activity
Ardyne South – Bute	Yes	Intermediate to high levels of activity
Carradale – Arran North	Yes	Low levels of activity
Carradale – Arran South	Yes	Low levels of activity

[34] For details see Appendix G Figure 8 Surfing/Paddle boarding heat map
[35] For details see Appendix G Figure 9 Canoeing/Kayaking heat map

Kames – Bute North	Yes	Intermediate to high levels of activity

12.15 Oceanflow development limited have secured a seven year lease agreement with the Crown Estate, for offshore territory in Sanda Sound, South Kintyre for the long term development of tidal stream turbines[3637]. Another site in the Mull of Kintyre has been leased to Argyll Tidal ltd. Both lease sites however do not overlap with any of the identified Clyde submarine electricity cables[38]. The presence of wave and tidal sites in the vicinity of each of the cable assets is summarised in *Table 16 Wave/tidal.*

Table 16 Wave/Tidal

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	No	.
Cumbrae Centre-Bute	No	
Ardyne North - Bute	No	
Ardyne South – Bute	No	
Carradale – Arran North	No	
Carradale – Arran South	No	
Kames – Bute North	No	

12.16 One of three operational bases for the Royal Navy is located at Faslane[39], north east of the isle of Bute. Regular training exercises are conducted out of Faslane and in and around the Firth of Clyde[40]. The most recent been a multi-national exercises called joint warrior in March 2017. Additionally the submarine naval base for the Vanguard-class submarines is located on the west coast of Argyll. The presence of MOD training areas in the vicinity of each of the Clyde cable assets is summarised in *Table 17 MOD.*

Table 17 MOD

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	Yes	Active naval base to the west of Argyll and Faslane. Regular military exercises conducted in around the cable assets and around the Firth of Clyde[41].

[36] For details see Appendix G Figure 10 Wave/Tidal
[37] S.P. Neil *et al* 'The wave and tidal resource of Scotland' *Renewable Energy*, (1-5), March 2017 accessed on the 22/05/2017.
[38] https://marinescotland.atkinsgeospatial.com/nmpi/ accessed on the 22/05/2017
[39] http://www.royalnavy.mod.uk/our-organisation/where-we-are/naval-base/clyde accessed on the 23/05/2017
[40] https://marinescotland.atkinsgeospatial.com/nmpi/ accessed on the 23/05/2017
[41] For details see Appendix G Figure 11 MOD exercises

Cumbrae Centre-Bute	Yes	Active naval base to the west of Argyll and Faslane. Regular military exercises conducted in around the cable assets and around the firth of Clyde.
Ardyne North - Bute	Yes	Active naval base to the west of Argyll and Faslane. Regular military exercises conducted in around the cable assets and around the firth of Clyde.
Ardyne South – Bute	Yes	Active naval base to the west of Argyll and Faslane. Regular military exercises conducted in around the cable assets and around the firth of Clyde.
Carradale – Arran North	Yes	Active naval base to the west of Argyll and Faslane. Regular military exercises conducted in around the cable assets and around the firth of Clyde. MOD danger zone located to the South of Arran but does not overlap with the cable.
Carradale – Arran South	Yes	.Active naval base to the west of Argyll and Faslane. Regular military exercises conducted in around the cable assets and around the firth of Clyde. MOD danger zone located to the South of Arran but does not overlap with the cable.
Kames – Bute North	Yes	Active naval base to the west of Argyll and Faslane. Regular military exercises conducted in around the cable assets and around the firth of Clyde.

12.17 Scottish aquaculture is a growing food production industry and is dominated by finfish namely Atlantic salmon. Finfish are typically arranged in a series of cages or pens in a gridded arrangement. The structure of the pens is a floating circular ring or square on the sea surface, supporting a large net bag hanging in the water. The floating rings are normally 90-110 metres in circumference with the net bags being 15-20 metres deep enclosing a volume of 10,000–15,000 cubic metres of water equivalent to approximately 20 swimming pools. The cages are anchored securely to the seabed using ropes, chains and heavy specialised anchors[42]. The presence of aquaculture sites in the vicinity of each of the Clyde cable assets are shown is summarised in *Table 18 Aquaculture.*

Table 18 Aquaculture

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	No	
Cumbrae Centre-Bute	No	
Ardyne North - Bute	Possible	Active finfish aquaculture site, operated by the Scottish Salmon Company, site name Ardyne. Situated towards extremity of the cable line towards Ardyne[43].

[42] http://aquaculture.scotland.gov.uk/our_aquaculture/types_of_aquaculture/marine_finfish.aspx Accessed on the 23/05/2017

[43] For details see Appendix G Figure 12 Aquaculture

Ardyne South – Bute	Possible	Active finfish aquaculture site, operated by the Scottish Salmon Company, site name Ardyne. Situated towards extremity of the cable line towards Ardyne.
Carradale – Arran North	Yes	Active finfish site operated by Marin Harvest (Scotland), site name Eilean Grianain. Situated at the western end of the cable route (towards Carradale).
Carradale – Arran South	Yes	Active finfish site operated by Marin Harvest (Scotland), site name Eilean Grianain. Situated at the western end of the cable route (towards Carradale).
Kames – Bute North	Yes	Active scallop aquaculture site, operated by the Scottish Salmon Company, site name Rubha Mhor. Situated at the western end of the cable route (towards Kames).

12.18 Canmore online database, encompassing a record of Scotland's maritime heritage has been used to verify any possible interaction with the Clyde submarine electricity cables and any current or scheduled archaeological sites of national importance, legally protected under the Ancient Monuments and Archaeological Areas Act 1979.[44] This dataset provides additional archaeological sites that are not documented by Historic Scotland (HS) as sites of national importance, but may cause an obstruction or impede navigation during construction activities. Please note maritime data on Canmore is derived from a variety of sources, and some sites will be more accurately reported than others. The presence of Marine Archaeology sites in the vicinity of each of the Clyde cable assets are shown is summarised in *Table 19 Marine Archaeology.*

Table 19 Marine Archaeology

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	possible	Steam Trawler wreck situated to south of the cable route, western extreme towards the Isle of Bute[45].
Cumbrae Centre-Bute	Possible	Two wreck sites one to the south and one slightly north of the cable route.
Ardyne North - Bute	Possible	A number of anchor obstructions are situated just off Ardyne point, at the eastern extreme of the Bute-Ardyne cable route[46].

[44] https://canmore.org.uk/site/search/result?SITECOUNTRY=0&view=map
[45] For details see Appendix G Figure 13 Marine Archaeology Cumbrae – Bute
[46] For details see Appendix G Figure 14 Marine Archaeology Ardyne - Bute

Ardyne South – Bute	Possible	A number of anchor obstructions are situated just off Ardyne point, at the eastern extreme of the Bute-Ardyne cable route.
Carradale – Arran North	Possible	Aircraft remains are situated slightly south of the cable route. Classified as an obstruction by the CANMORE database[47].
Carradale – Arran South	Possible	Aircraft remains are situated in close proximity of the cable route. Classified as an obstruction by the CANMORE database.
Kames – Bute North	No	

12.19 30 Marine Protected Areas (MPAs) are distributed around the Scottish coastline under the Marine (Scotland) Act 2010. The Clyde Seal Mill MPA stretches from the coastline of the Mull of Kintyre to Corsewall Point (Mainland Scotland), but does not directly interact with any of the identified Clyde submarine electricity cables. The South Arran MPA is closer in proximity to the two Carradale-Arran submarine cables, but again does not directly overlap[48]. The presence of conservation sites in the vicinity of each of the Clyde cable assets is summarised in *Table 20 Conservation Sites.*

Table 20 Conservation Sites

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	No	.
Cumbrae Centre-Bute	No	
Ardyne North - Bute	No	
Ardyne South – Bute	No	
Carradale – Arran North	No	South Arran MPA is in relatively close proximity but does interact directly with cable[49].
Carradale – Arran South	No	South Arran MPA is in relatively close proximity but does interact directly with cable.
Kames – Bute North	No	

12.20 The main internal sea transport operator in Clyde is Caledonian MacBrayne Hebridean and Clyde Ferries. There are 5 internal routes that run routinely near the areas of interest: West coast of Scotland to the Isle of Arran, Arran- Campbeltown, Arran-Claonaig, West coast of Scotland-Cumbrae and West coast of Scotland – Isle of Bute[50]. The presence of ferry routes in the vicinity of each of the Clyde cable assets are summarised in *Table 21 Ferry routes.*

[47] For details see Appendix G Figure 15 Marine Archaeology Carradale-Arran
[48] http://gateway.snh.gov.uk/sitelink/searchmap.jsp accessed on the 23/05/2017
[49] For details see Appendix G Figure 16 Marine Conservation Sites
[50] For details see Appendix G Figure 17 Internal Ferry Routes

Table 21 Ferry routes

Clyde cable	Interaction on chart	Notes
Cumbrae North -Bute	No	
Cumbrae Centre-Bute	No	
Ardyne North - Bute	No	
Ardyne South – Bute	No	
Carradale – Arran North	No	
Carradale – Arran South	No	
Kames – Bute North	No	

13. Construction and Cable Asset Interactions

13.1 Otter trawling, in particular is a significant fishery carried out in Clyde, largely by vessels in the class of >15m and above. Smaller vessels <10m and below are however under represented in the data source and are likely to be the most frequent source of conflict in the inshore regions around each cable route.

13.2 While fishermen will be kept up to date with construction areas by Notice to Mariners (NTMs), Weekly Notice of Operations (WNO) and update emails from the developer and their subcontractors, there is scope for conflicting demands on the same area of sea. Construction schedules are fluid and dependent upon many factors and fishermen may not regularly read emails, if they have access to the internet at all and therefore may not be aware of recent updates.

13.3 In most cases the presence of a FIR on board the survey boats should prevent fishing gear interactions by survey/construction vessels. However, it may not be feasible for all vessels to have an offshore FIR on board therefore a standard operating procedure (SOP) has been created for the offshore FIR and crew of the survey and construction vessels to follow (Fishing Gear Interaction SOP), given in *Appendix G Fishing gear Interaction standard operating procedure*.

13.4 The potential interactions between fishing stakeholders and survey/construction vessels are dependent on the survey and installation methods detailed in the *Project description*.

13.5 The potential interactions to fishery stakeholders, based on the site specific proposed construction methods, are given in *Table 22 Summary of potential impacts to fishery stakeholders* and specified in the Cefas and MCEU (2004) guidelines[51]. It should be noted that fishing 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

Table 22 Summary of potential impacts to fishery stakeholders

Category	Type	Detail of impact	Cost Benefit Analysis Model Impact Number
Health and safety impacts	Snagging risk	Anchor mounds from proposed anchor mooring systems	1
	Snagging risk	Presence of obstacles on the seabed post-construction	1
	Access to shelter	Reduced access to shelter in adverse weather conditions	New[52]
Socio-economic impacts	Collision risk	Increased collision risk at sea during cable installation	3

[51] 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.

[52] This impact is not included in the current Cost Benefit Analysis Methodology. We will carry out a literature review to see if there is a quantifiable link between submarine electricity cable and this impact.

	Loss of earnings	Loss of access to fishing grounds during surveys and cable installation	7
	Additional costs	Obstruction of navigation routes resulting in increased steaming distances/times during cable installation	7
	Additional costs	Increased fuel consumption due to increased steaming times/distances during cable installation	7
	Loss of earnings	Increased competition for commercially exploited fish and shellfish due to displacement of vessels into other fishing grounds during cable installation	7
	Loss of earnings	Interference to normal fishing activities during maintenance	7
Environmental impacts	Loss of earnings	Adverse impacts on commercially exploited fish and shellfish populations	New[53]

[53] This impact is not included in the current Cost Benefit Analysis Methodology. We will carry out a literature review to see if there is a quantifiable link between submarine electricity cable and this impact.

14. Other Legitimate Sea Users

14.1 Potential interactions between survey and construction vessels and other legitimate sea users are given in *Table 23 Summary of potential impacts to other sea user stakeholders*. It should be noted that commercial fishing 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

14.2 Due to the range in levels of activity for all other legitimate 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.

Table 23 Summary of potential impacts to other sea user stakeholders

Category	Type	Detail of impact	Cost Benefit Analysis Model Impact Number
Health and safety impacts	Access to shelter	Reduced access to shelter in adverse weather conditions	New[54]
Socio-economic	Collision risk	Increased collision risk at sea during cable installation	3
	Loss of earnings	Loss of access to sea areas during surveys and cable installation during cable installation e.g. ferries/sailing/scuba diving/kayaking	New[55]
	Additional costs	Obstruction of navigation routes resulting in increased steaming distances/times and fuel consumption	New[56]
	Loss of earnings	Interference to normal sea user activities during maintenance e.g aquaculture sites	New[57]

[54] This impact is not included in the current Cost Benefit Analysis Methodology. We will carry out a literature review to see if there is a quantifiable link between submarine electricity cable and this impact.
[55] This impact is not included in the current Cost Benefit Analysis Methodology. We will carry out a literature review to see if there is a quantifiable link between submarine electricity cable and this impact.
[56] This impact is not included in the current Cost Benefit Analysis Methodology. We will carry out a literature review to see if there is a quantifiable link between submarine electricity cable and this impact.
[57] This impact is not included in the current Cost Benefit Analysis Methodology. We will carry out a literature review to see if there is a quantifiable link between submarine electricity cable and this impact.

15. Safety

15.1 Safety management is a key aspect of the FLMAP. With regards to commercial fishing, the Safety Management Plan for submarine cable replacement will include the following elements that mitigate the identified risks:

- Code of Good Practice for all Vessels
- Procedures in Relation to Gear Fastening or Loss
- Safety Zones (500m) Around Active Construction Areas

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

15.3 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.

15.4 The purpose of a safety zone is to ensure the safety of other legitimate sea users by communicating a safe distance between other users and the construction, operation and maintenance activities related to the submarine electricity cables.

15.5 Whilst 500m is the maximum permissible size for a safety zone, it could be that during the construction phase, the safety of other users is better served through an additional precautionary area communicated by Notice to Mariners in which it is recommended other legitimate sea users do not enter. If entry is unavoidable, then navigation with extreme caution is advised.

15.6 We will aim to organise construction schedules as far as is practicably possible with the aim of reducing potential combined loss of fishing area during the construction phase.

15.7 Fisheries stakeholders will be informed of all works throughout pre construction, construction and operational phases.

15.8 SHEPD will, in consultation with commercial fisheries 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 described previously, including:

- Continuing effective positive liaison with commercial fisheries stakeholders through the pre-construction, construction and operational phases of the cable replacement;
- Continued employment of CFLO/FIR services until the completion of the replacement works;
- Ensuring contractors comply with the contractor's obligations outlined above so as to minimise any interference to commercial fishing activities;
- Managing the cable replacement works so as to minimise any potential effects on the marine environment, habitats and commercial fishing;
- Raising awareness of the danger of fishing in the vicinity of submarine cables;
- Adopting a hierarchical approach to submarine cable protection, taking account of legitimate sea users concerns;
- Organising a construction phasing workshop to inform commercial fishermen of planned activities;
- Organising construction schedules as far as is practicably possible in order to reduce the combined loss of fishing area associated with safety zones during the surveys and construction phase of the submarine cable replacement;
- Distributing weekly notice of operations;

- Providing information in plotter format to enable fishermen to easily interpret the information; and
- Scouting surveys to identify potting areas and any other relevant static gear areas.

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 Clyde 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, Vessel 3
Sidescan Sonar	Towed	50-350m	Vessel 1, Vessel 2, Vessel 3
Magnetometer Array	Towed	50-350m	Vessel 1, Vessel 2, Vessel 3
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	

VESSEL 3	
Call sign	
Bridge	
Offshore manager / Party Chief	

Email	
Onshore Site Manager	

VESSEL 4	
Call sign	
Bridge	
Offshore manager / Party Chief	
Email	
Onshore Site Manager	

Fisheries Liaison Officers

Fisheries liaison for the [survey] will be co-ordinated by Brown and May Marine (BMM). For any commercial fishery queries please contact the Company Fisheries Liaison Officer (CLFO) Alex Winrow-Giffin on 01379 872144, alex@brownmay.com, or Stephen Appleby on 07887 777 001, sja@brownmay.com. A local fisheries industries representative (FIR) [name and contact details] 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

Distribution List

The following contacts on the distribution list are taken from those listed in the main document (FO-NET-CAB-405-G).

Contact	Email
Kingfisher	kingfisher@seafish.org.uk
United Kingdom Hydrographic Office	sdr@ukho.gov.uk
UKHO Navigation Warnings	navwarnings@btconnect.com
Northern Lighthouse Board	navigation@nlb.org.uk
Trinity House	navigation.directorate@thls.org
Marine Scotland	MS.MarineLicensing@gov.scot
Maritime and Coastguard Agency	Heloise.Warner@mcga.gov.uk
The Crown Estate	Darren.Hirst@bidwells.co.uk
Scotland Natural Heritage	David.Law@snh.gov.uk
Scottish Environmental Protection Agency	planning.aberdeen@sepa.org.uk
Scottish Fishermen’s Federation	renewables@sff.co.uk
Scottish Creel Fishermen's Federation	info@scottishcreelfishermensfederation.co.uk
Unaffiliated commercial fishermen	TBC

RYA Scotland	admin@ryascotland.org.uk
Anglo-Scottish Fisherman's Association	sff@sff.co.uk
Clyde's Fisherman Association	l.wilson@clydefish.com
Galloway Static Gear Association	TBC
Isle of Man Fishing Association	TBC
Mallaig and North West Fishing Association	mike@swfpa.com
Northern Ireland Fishermen's Federation	TBC
Scallop association	Scallop-association.org.uk
Scottish Pelagic Fishermen's Association	Ian.gatt@scottishpelagic.co.uk
Scottish White Fish Producers Association Limited	annie-marie@swfpa
Argyll & Bute Council	enquiries@argyll-bute.gov.uk
Caledonian MacBrayne	enquiries@calmac.co.uk
Clydeplan	info@clydeplan-sdpa.gov.uk
The Scottish Salmon Company	info@scottishsalmon.com
South Ayrshire Council	TBC
Peel Ports	Clydeport.portlinks@peelports.com
Scottish Coastal Forum	scfmailbox@scotland.gsi.gov.uk
North Ayrshire Council	contactus@north-ayrshire.go.uk

Appendix B Clyde Ports

Table 1 Ports and harbours for information distribution

Relevant Cable	Port/Harbour	Principal Trade
Isle of Arran- Carradale	Lochranza (Arran)	Ferry terminal, leisure
	Brodick (Arran)	Ferry terminal
	Lmalash (Arran)	Leisure and Fishing
	Claonaig	Ferry terminal
	Carradale	Fishing
	Campbeltown	Leisure, Fishing, Commercial
	Ardrossan	Commercial, Ferry terminal
	Saltcoast	Leisure, Fishing
	Irvine	Leisure
	Troon	Leisure
	Ayr	Fishing, Commercial
	Dunure	Leisure, Fishing
	Maidens	Leisure, Fishing
	Girvan	Leisure, Fishing
Cumbrae- Bute	Hunterston	Commercial
	Millport (Cumbrae)	Leisure, commercial
	Fairlie quay	Leisure
	Largs	Ferry terminal
	Largs yacht haven	Leisure
	Wemyss Bay	Ferry terminal
	Rothesay (Bute)	Leisure, Fishing, Commercial, Ferry terminal
Bute- Ardyne	Rothesay (Bute)	Leisure, Fishing, Commercial, Ferry terminal
	Ardyne	
	Bannatyne	Leisure
	Dunoon	Fishing, Ferry terminal
	Holy loch	Commercial
Kames – Bute	Colintraive	Ferry terminal
	Tighnabruaich	Leisure
	Auchenlochan	
	Portavadie	Leisure, Ferry TERMINAL
	Tarbert	Ferry terminal

Appendix C Communication Programme

1.1 A standardised high level cable replacement communication plan is given in *Table 1 Cable replacement programme communication plan* and *Table 2: Unplanned outage due to wet fault in cable* gives a programme of actions to be undertaken in the event of an unplanned outage. Please note that the communication plan will need to be applied for each cable.

Table 1 Cable replacement programme communication plan

Time	What's happening	What we want to communicate	Who we are speaking to and frequency
April 2014	Cable inspection list created for 2017 We have developed a list based on a number of define factors and pervious 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
June 2014	Mobilisation of inspection vessels for 2017 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)
September 2014	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).
September 2015	Survey 2017 Cable routes With our 125% list we then issue instruction to survey the cable routes. This uses a vessel dragging a sonar device across	▪ Essentially a safety message to let mariners know that we will have vessels in the area. ▪ Messaging to highlight any	▪ 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
	a wide area multiple times to build up an image of the sea bed. It may also include carrying out intrusive geotechnical investigations.	environmental mitigation measures we have implemented to safeguard marine life (e.g. checking for dolphins before beginning sonar survey)	▪ Environmental groups: to highlight any mitigation measures (one off).
June 2016	<u>Select 2017 cable routes and advise Marine Scotland (licensing)</u> 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
May 2018 **September 2018**	<u>PAC events and license application</u> See separate communications plan please	See separate communications plan please	See separate communications plan please
February 2019	<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).
February 2019	<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).
18 months after installation	<u>Post installation cable inspections</u> ▪ 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.	▪ 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
	▪ 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.		
Remedial works following cable inspection (if required)	<u>Remedial works</u> 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 2: Unplanned outage due to wet fault in 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 indicate the distance to the fault location within the sea. 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 Company Fishing Liaison Officer at this point.	▪ We are aware of a submarine electricity cable fault. ▪ Our engineers are on site and are connecting generators to restore your power.	Domestic and business demand and generation customers.
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 20 m deep then divers will 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.	▪ Essentially a 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.
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.

Time	What's happening	What we want to communicate	Who we are speaking to
Day 19 – 20	Fault finding ▪ We cut the cable close to 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	Option A We call this a piece in where we are able to re-joint the cable with a new section of cable. Option B 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) 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.	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. 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.	Option A and B Mariners: We will have vessels operating in and around the cables and estimate when we will be away Option C and D Mariners and statutory consultees: We need to do a full cable replacement and so need to apply for a marine licence which gives us consent to carry out the work.
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 make sure its clear of all faults. We will then re-energise cable when safe 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
	restore power.		

Appendix D Fishing Gear Interaction Standard Operating Procedure (SOP)

Survey/Construction and Fishing Gear Interactions - CLYDE

1.1. Scottish Hydro Electric Power Distribution (SHEPD) owns and operates the distribution network of submarine electricity cables across and around the north of Scotland. Electricity is delivered to the islands through submarine electricity cables and SHEPD monitor the submarine cables to see which ones need to be replaced to maintain a reliable supply of electricity to the islands. Several cables have been identified for replacement in 2017 with varying methods of cable installation under consideration.

1.2. In Clyde static fishing gear has the highest potential to disrupt the associated offshore survey and construction works commissioned by SHEPD, for the replacement of submarine cables. Static fishing gear, creeling (potting), is a significant fishery carried out in Clyde by smaller vessels (u10m) in the vicinity of the submarine electricity cables. Temporary competition for space between static gear and construction/ survey vessels is likely to be the most frequent source of conflict.

1.3. Towed gear has a higher potential to damage submarine electricity cables post-installation as demersal trawls (including trawl doors and clump weights), beam trawls and dredges are in contact with the seabed and can dig into the sediment to varying depths. However, it is an offence to wilfully damage submarine cables (United Nations Convention on the Law of the Sea (UNCLOS) Article 113, 1982) and any interactions of fishing vessels with survey/construction vessels will be regulated by the International Regulations for Preventing Collisions at Sea 1972 (COLREGs).

1.4. While fishermen will be kept up to date with construction areas and activities by Notice to Mariners, Weekly Notice of Operations 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.

1.5. In order to standardise SHEPD's response to possible scenarios of gear interactions with survey/ construction vessels this document will incorporate sections detailing:

- Fishing gear that may be encountered
- Scenarios where construction activity and fishing operations could come into conflict
- Defined actions to take should survey/construction works and fishing gear interactions occur.

1.6. This is a working document and will evolve following consultation with fisheries stakeholders and legal advice as the final construction plans are refined for each cable.

Roles and responsibilities

1.7. The main elements of SHEPD's commercial fisheries liaison activities to avoid any gear conflict have been and will continue to be:

- To identify and pro-actively engage with commercial fisheries stakeholders and statutory and non-statutory bodies and organisations that have the potential to be affected by SHEPD's activities;
- To formulate, agree and implement efficient communication channels for distributing project related information to stakeholders;
- To continue to obtain and address the concerns of commercial fisheries stakeholders to be used in the formulation of mitigation strategies;
- Promotion of productive co-existence through pre-application consultation of construction and cable laying plans with fisheries stakeholders, including the possible use of cable protection measures if required.

1.8. The primary responsibilities of the CFLO and FIR in maintaining successful co-existence and reduce the likelihood of gear interactions are provided in Appendix G sections 3 and 4.

1.9. It is important that the FIR is diplomatic and non-confrontational, with a good local knowledge of the fishing activity in the area. It is also important that the fishermen trust that any information that the fishermen pass on to the FIR regarding their fishing grounds will not be exploited by the FIR. It is often preferable to use a local ex-fisherman, who will have a good working knowledge of the local fishing activity, without any possible conflicts of interest.

1.10. A list of the known local fishermen and their contact details would need to be sourced from consultation and the Clyde Inshore Fisheries Group prior to survey/construction activities taking place, in order for the FIR to be effective.

1.11. If the survey/construction vessel is in the area for a couple of days, the presence of an FIR on board may prevent the setting of gear in the survey/construction area in the first place. Any fishing vessels in the area would be contacted by the CFLO and prior to the fishermen setting their gear the FIR would request that the fishermen shift their gear a small distance to ensure no conflict.

Factors included within standard operating procedures (SOP)

1.12. An SOP is a set of step-by-step instructions compiled to help workers carry out routine operations. SOPs aim to achieve efficiency, quality output and uniformity of performance, while reducing miscommunication and failure to comply with industry regulations.

1.13. Scenarios of fishing gear interactions with survey/construction vessels are detailed in the following section with the corresponding SOP. The SOP actions will vary depending on the inclusion of varying factors:

- Establishment of a co-operation agreement between SHEPD and the local fishermen, which would include a clause for the removal of static gear.
- Presence of a fisheries industry representative (FIR) on board the survey / construction vessel.

Co-operation agreement

1.1. SHEPD will not establish co-operation agreement payments with local fishermen for planned survey and construction works. This is because for the majority of cables, the asset is already in place and will remain in the same position. Consultation has not progressed beyond the meetings with the FIR. All interactions with the local fisherman have been recorded in the communication log. Furthermore, the local fishermen will be directly benefited by the replacement of the islands submarine electricity cables and the increased robustness of the infrastructure. It should be noted that a non-payment co-operation agreement could be established with local fishermen for relocation of their gear. However, once the possibility of a cooperation agreement is raised it is unlikely that one will be agreed with the fishermen without some form of compensation.

1.2. In most co-operation agreements a clause is included that states that the fishermen agree to the removal of gear by SHEPD, using an appropriate vessel and crew if the fishermen are unable or unwilling to remove the gear themselves.

1.3. However, if no co-operation agreements are in place and there are conflicts with static gear in the area, there are two main aspects that need to be taken into consideration should SHEPD consider removing the fishing gear without the owner's knowledge or permission:

- The legal implications of removing static gear without the owners knowledge/permission.
- The health and safety implications of removing static gear.

1.4. There may be potential legal implications in the removal of a third party's property (i.e. a fisherman's fishing gear), which could have associated costs such as loss of earnings from the catch and any potential damage to the static gear. This could also result in court costs. Potential health and safety issues could arise if the gear was re-shot incorrectly – if the lines were tangled this could cause multiple creels to be hauled at the same time, resulting in a possible injury to the crew.

1.5. The health and safety implications can be mitigated by the choice of vessel and crew, but this can raise additional issues. A local fishing vessel and crew would be the preferred option as the vessel would be suitable for purpose and the crew would have demonstrable experience hauling gear. However, it may be difficult to find a local vessel and crew to carry out removal of gear in such small communities unless the local fishermen agree to it amongst themselves. This would necessitate informing the fishermen of that option which removes the possibility of SHEPD moving the static gear without their knowledge.

SOP 1: UNATTENDED UNMARKED STATIC GEAR (NO CO-OPERATION AGREEMENT)

1.6. For the scenario of unattended, unidentified static gear set in an area where survey/construction works are planned, the below steps are proposed, and are also given pictorially as a flow diagram in *Figure 1: SOP 1: Unattended unmarked static gear*.

1. **Unidentified static gear in survey/construction area:**
   - The CFLO/FIR should be aware if a particular area is regularly fished by certain vessels and know how individual fishermen mark their gear (i.e. flags, buffs, buoys, dhans, and cans).

2. **CFLO & FLO to exhaust all avenues to determine who owns the static gear:**
   - The CFLO/FIR will endeavour to contact the fishermen known to consistently target the area and ask if the gear belongs to them, or if they know who the gear belongs to. Each CFLO would be provided with a list of known local fishermen and their contact details.

3. **Owner of static gear identified: YES (4) /NO (7)**

4. **CFLO & FIR to contact the identified fisherman and request removal of static gear from the survey/construction area: AGREED (FINAL OUTCOME) / NOT AGREED (5)**
   - The CFLO/FIR will endeavour to contact the identified fisherman to request removal of their gear. Agreement results in a final outcome of "Gear is removed and survey/construction can continue", and non-agreement leads to the static gear remaining on site.

5. **Gear remains on site due to fisherman's inability or refusal to remove gear: (6)**
   - The fisherman may be either unwilling or unable to move the static gear, resulting in delays to the survey /construction works unless further actions are taken.

6. **SHEPD to consider offering payment for loss of catch for the time it would take for the fisherman to move the static gear: PAYMENT ACCEPTED (FINAL OUTCOME) / PAYMENT NOT ACCEPTED (7)**
   - If the fisherman is unwilling to move the static gear due to the added expense and lost time fishing, a good will payment may be offered to the fisherman to cover these losses. If the payment is accepted this results in a final outcome of "Gear is removed and survey/construction can continue", and if the payment is not accepted the static gear remains on site.

7. **SHEPD to consider legal, and health and safety implications of removing static gear without the owner's permission: GEAR NOT REMOVED (8) / GEAR REMOVED (9)**
   - If the fisherman remains unwilling/unable to move the static gear SHEPD may consider removing the static gear without the owner's consent in order to prevent delays to surveys/construction. The legal considerations of removing a third party's property will need to be assessed in addition to the health and safety implications.

8. **SHEPD does not remove the static gear: FINAL OUTCOME**
   - The surveys/construction would be delayed until the fisherman moves the static gear as part of normal fishing operations. Standard soak times are approximately 2 – 4 days for creels.

   - However It is not possible to define a time period for when the gear would be worked, as it is affected by both physical factors (season, weather conditions, tides, working gear elsewhere) as well as personal factors (holidays, sickness, vessel breakdown).

9. **SHEPD removes static fishing gear:**
    - In order for survey/construction works to continue SHEPD authorises the removal of the static fishing gear in the site, following an agreed methodology. The removal of the static gear must be video recorded and SHEPD and BMM to be provided with the video and supporting report detailing actions taken.

10. **SHEPD to reimburse fisherman for any loss of catch: FINAL OUTCOME**
    - Once the final outcome of "Gear is removed and survey/construction can continue" has been achieved SHEPD will reimburse the fisherman for the loss of catch, and to replace, loan, repair or reimburse for any damage caused to the static gear during its removal.

SOP 2: TOWED GEAR VESSEL

1.7. Bottom otter trawls are the most common fishing method in Clyde. A significant part of the trawling fleet are likely to be nomadic and thus not endemic to ports around Clyde. As such the vessels may be unaware of the survey/construction works. However, as the submarine cables are an asset in place and as it is against the law to damage a cable wilfully or through negligence the vessels should not be passing directly over the survey/ construction area.

1.8. Furthermore, all vessels must adhere to COLREGS in respect to vessels of limited manoeuvrability.

1.9. If a towed gear vessel is encountered during the survey/construction works the following actions should be taken:

- The CFLO/FIR should make contact via the radio and explain the safety zones, and politely request that the vessel promptly vacates the safety zone. It would be unusual for the vessel to disregard such requests.
- If the towed gear vessel does not cooperate and continues to behave disruptively, delaying the survey/construction works the CFLO/FIR should write a report for SHEPD detailing the incident. The vessel would then be reported to the MCA by SHEPD.

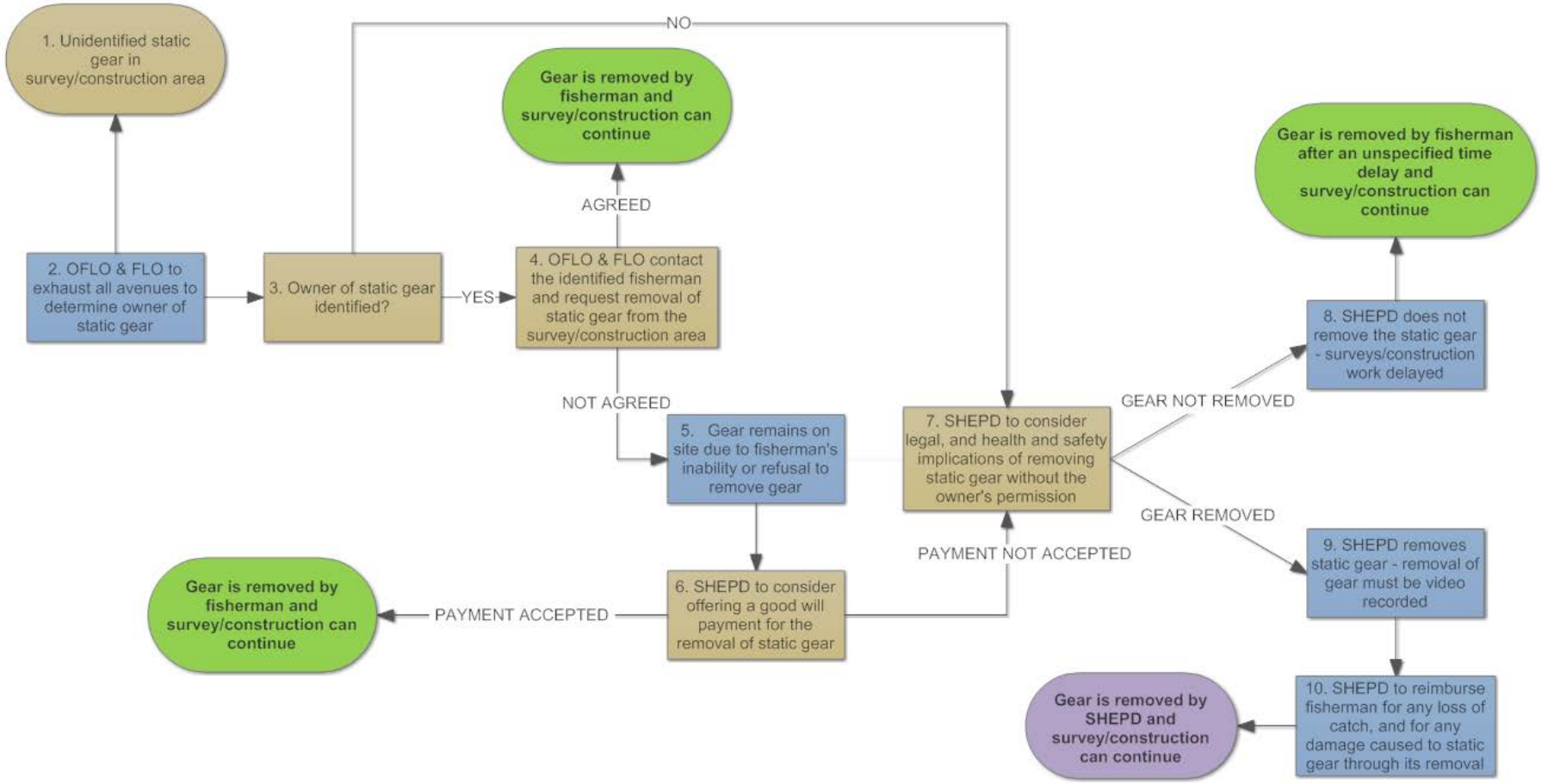


Figure 1 SOP 1: Unattended unmarked static gear

Appendix E Other Sea Users Interaction Standard Operating Procedure (SOP)

1.1. Scottish Hydro Electric Power Distribution (SHEPD) owns and operates the distribution network of submarine electricity cables across and around the north and west of Scotland. Electricity is delivered to the islands through submarine electricity cables and SHEPD monitor the submarine cables to see which ones need to be replaced to maintain a reliable supply of electricity to the islands. Several cables have been identified for replacement in 2017 with varying methods of cable installation under consideration.

1.2. As detailed in section 7 (Other Legitimate Sea Users Overview), there are several other potential legitimate sea users that may interact with survey/construction vessels, and competition for space is likely to be the most frequent source of conflict. However, any interactions of vessels with survey/construction vessels will be regulated by the International Regulations for Preventing Collisions at Sea 1972 (COLREGs).

Company Fisheries Liaison Officer (CFLO)

1.3. The primary responsibilities of the CFLO in maintaining successful co-existence and reduce the likelihood of vessel interactions are:

- Working with SHEPD to create and maintain a fisheries stakeholder database which contains details of vessel operation within the area of the project;
- To be the first point of contact for local stakeholders;
- Maintain regular liaison with relevant stakeholders;
- Working with SHEPD to sense check and distribute with appropriate timing, the required information and notices, of project related activities which could potentially interact with stakeholders;
- Obtain and transmit to the developer all relevant stakeholder's concerns in respect of the various activities associated with the project;
- Advise relevant stakeholder of any changes in project design, scheduling, policies or relevant legislation;
- Inform contractors of potential stakeholder activities and provide details of vessel types which could be present in their areas of work, any relevant stakeholder's sensitivities and channels and contact details for communicating with vessels at sea.

Fisheries Industry Representative (FIR)

1.4. An FIR is used to aid co-existence between sea users, and their primary responsibilities are:

- To maintain daily contact with fishing vessels observed to be within the vicinity of the work areas of survey and construction vessels;
- To keep the masters and watch officers of survey and construction vessels informed of fishing vessels in the vicinity of their vessels working area and the gears and modes of operation of such vessels;
- To keep vessels advised of the surveys that have the potential to cause significant displacement to stakeholder activity;

- To keep vessels advised of construction vessels locations, operations, schedules, safety zones and H&S factors; and
- To assist and advise survey and construction vessels officers with the objective of minimising hindrance to vessels, avoiding any conflicts and ensuring the required H&S measures are undertaken.

1.5. A list of the known stakeholders and their contact details would need to be sourced from consultation prior to survey/construction activities taking place, in order for the FIR to be effective.

Co-operation agreement

1.6. SHEPD's will not establish co-operation agreement payments with local sea user stakeholders as the survey and construction works are for an asset that is already in place, and the sea user stakeholders will be directly benefited by the replacement of the islands submarine electricity cables.

SOP 1: Other Legitimate Sea Users

1.7. A range of other legitimate sea users could be present in the vicinity of the submarine electricity cables and sometimes these operators can be nomadic and not local residents of the area. As such, vessels may be unaware of the survey/construction works.

1.8. Furthermore, all vessels must adhere to COLREGS in respect to vessels of limited manoeuvrability.

1.9. If a vessel is encountered during the survey/construction works the following actions should be taken:

- The CFLO/FIR should make contact via the radio and explain the safety zones, and politely request that the vessel promptly vacates the safety zone. It would be unusual for the vessel to disregard such requests.
- If the vessel does not cooperate and continues to behave disruptively, delaying the survey/construction works the CFLO/FIR should write a report for SHEPD detailing the incident. The vessel would then be reported to the MCA by SHEPD.

Appendix F Commercial Fisheries Charts

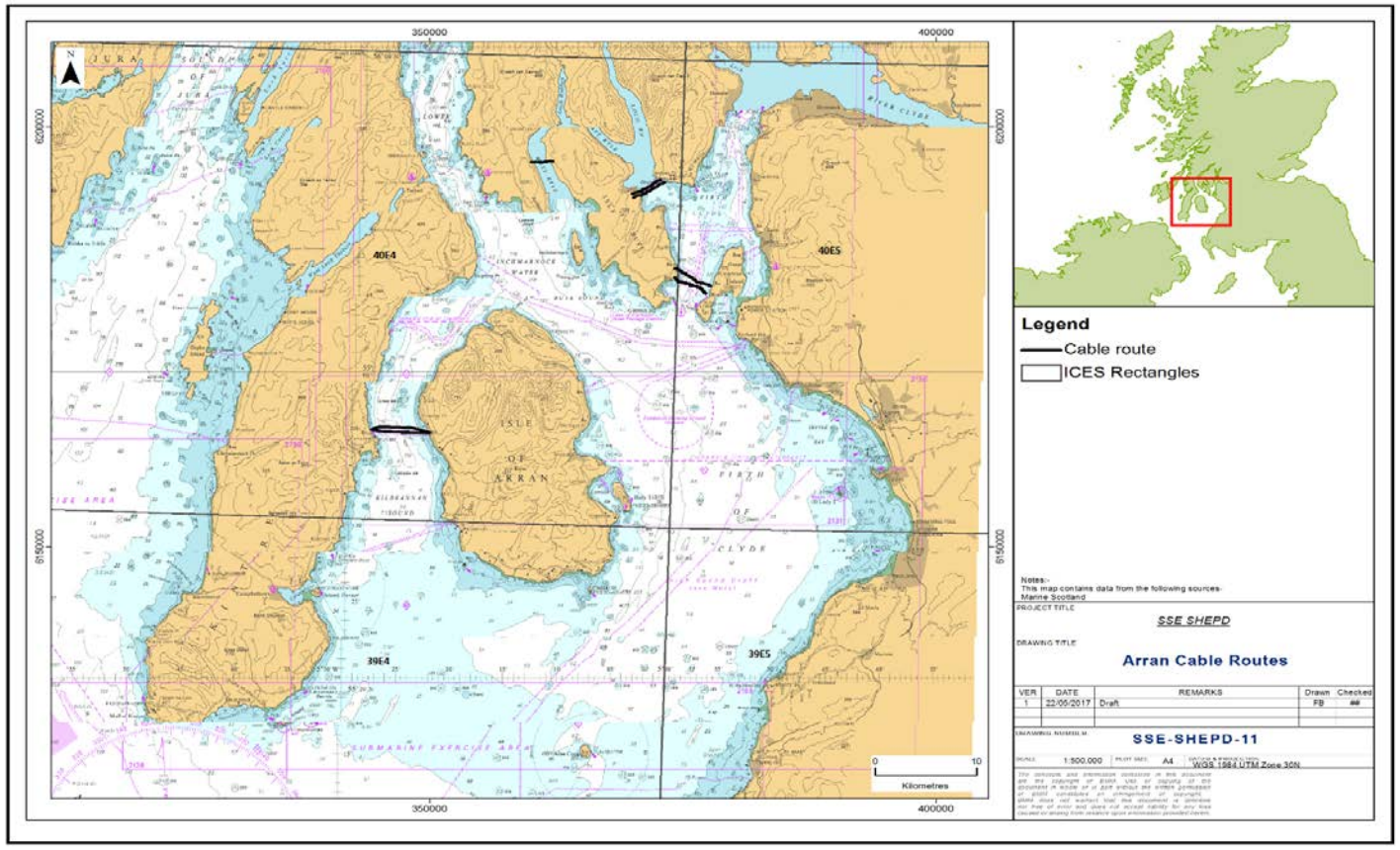


Figure 1 Submarine electricity cables identified for replacement in Clyde, with ICES rectangles

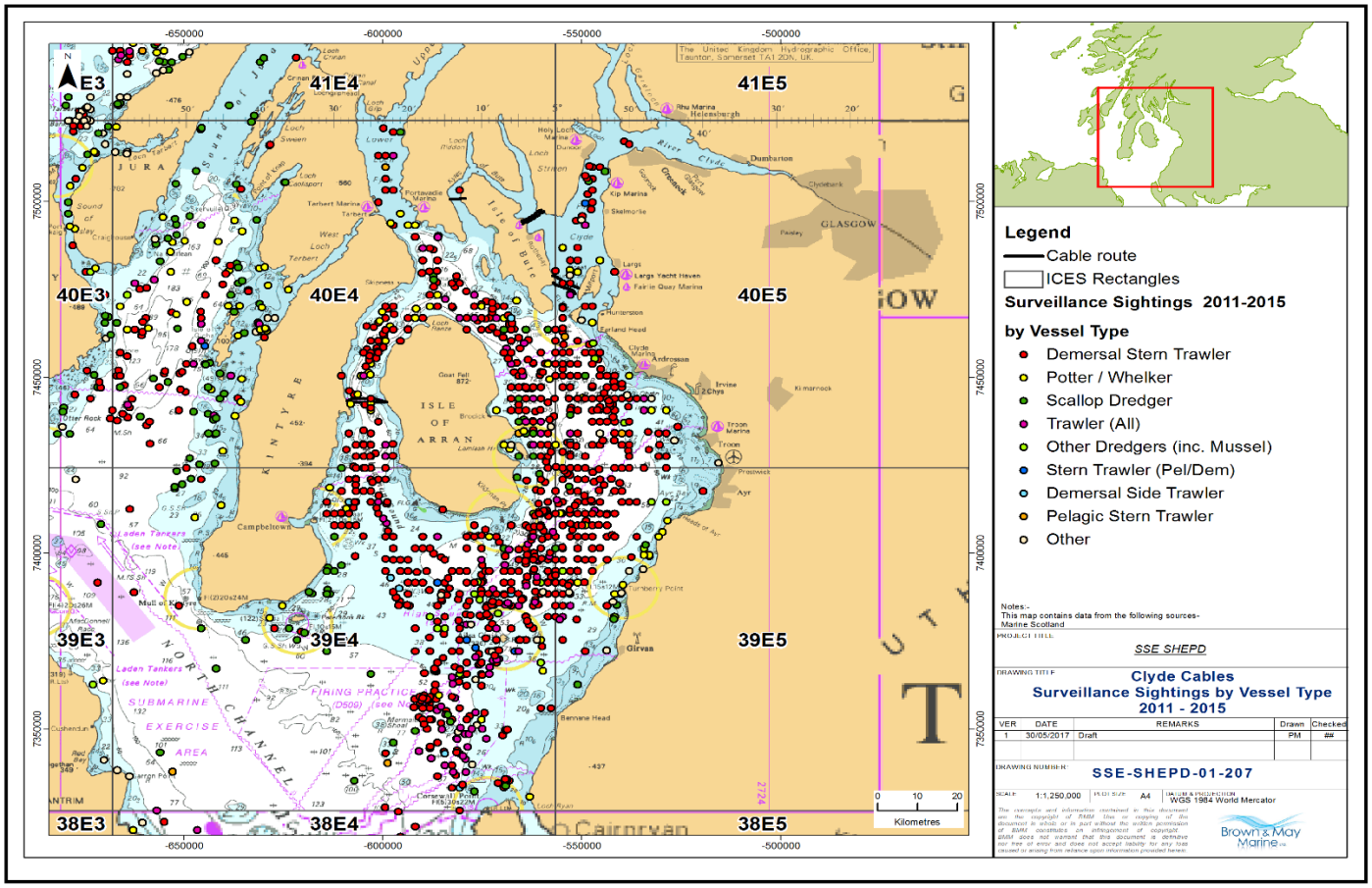


Figure 2 Surveillance sightings by vessel type 2011-2015 (Source: MMO)

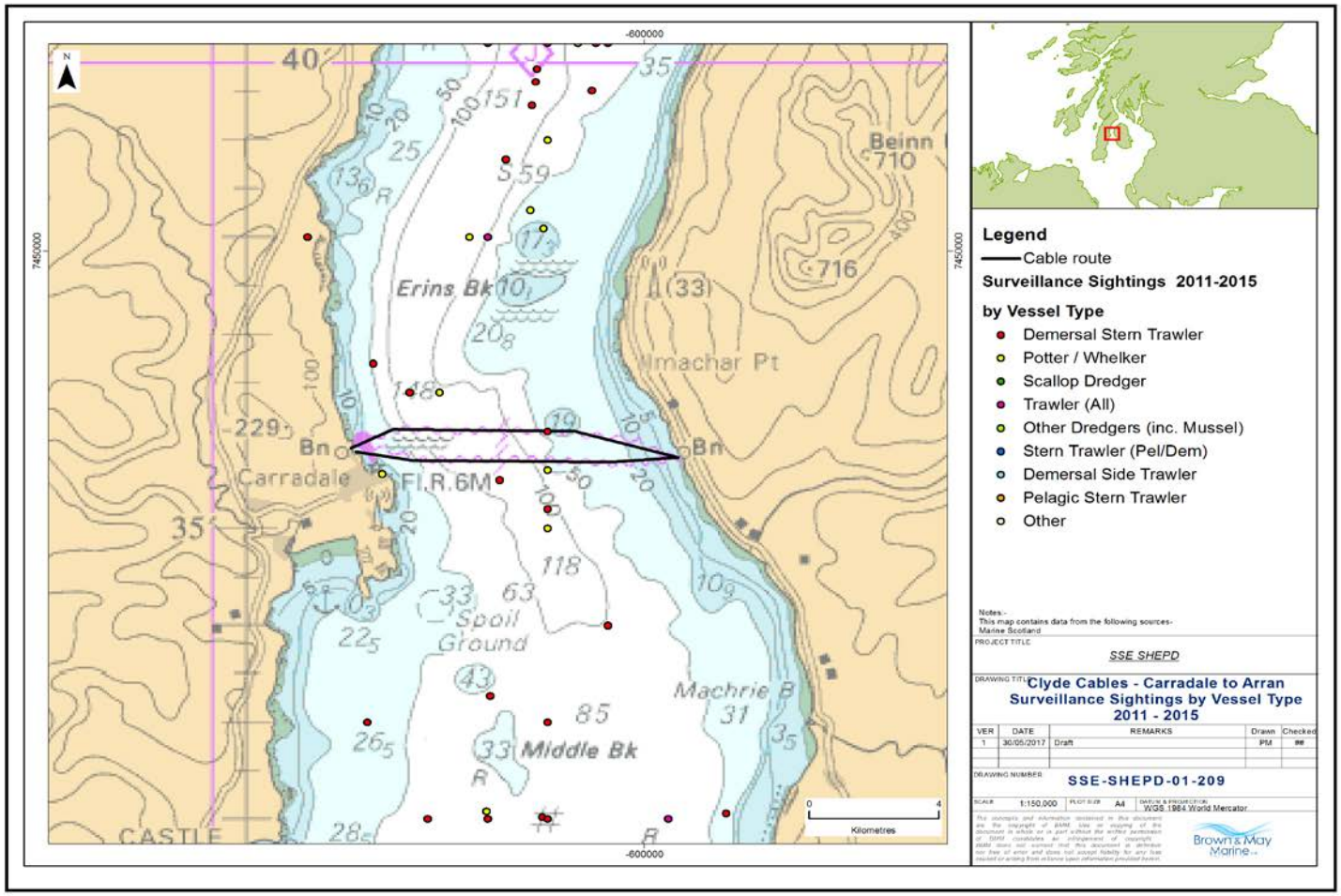


Figure 3 Surveillance sightings by vessel type 2011-2015 for the Arran cable (Source: MMO)

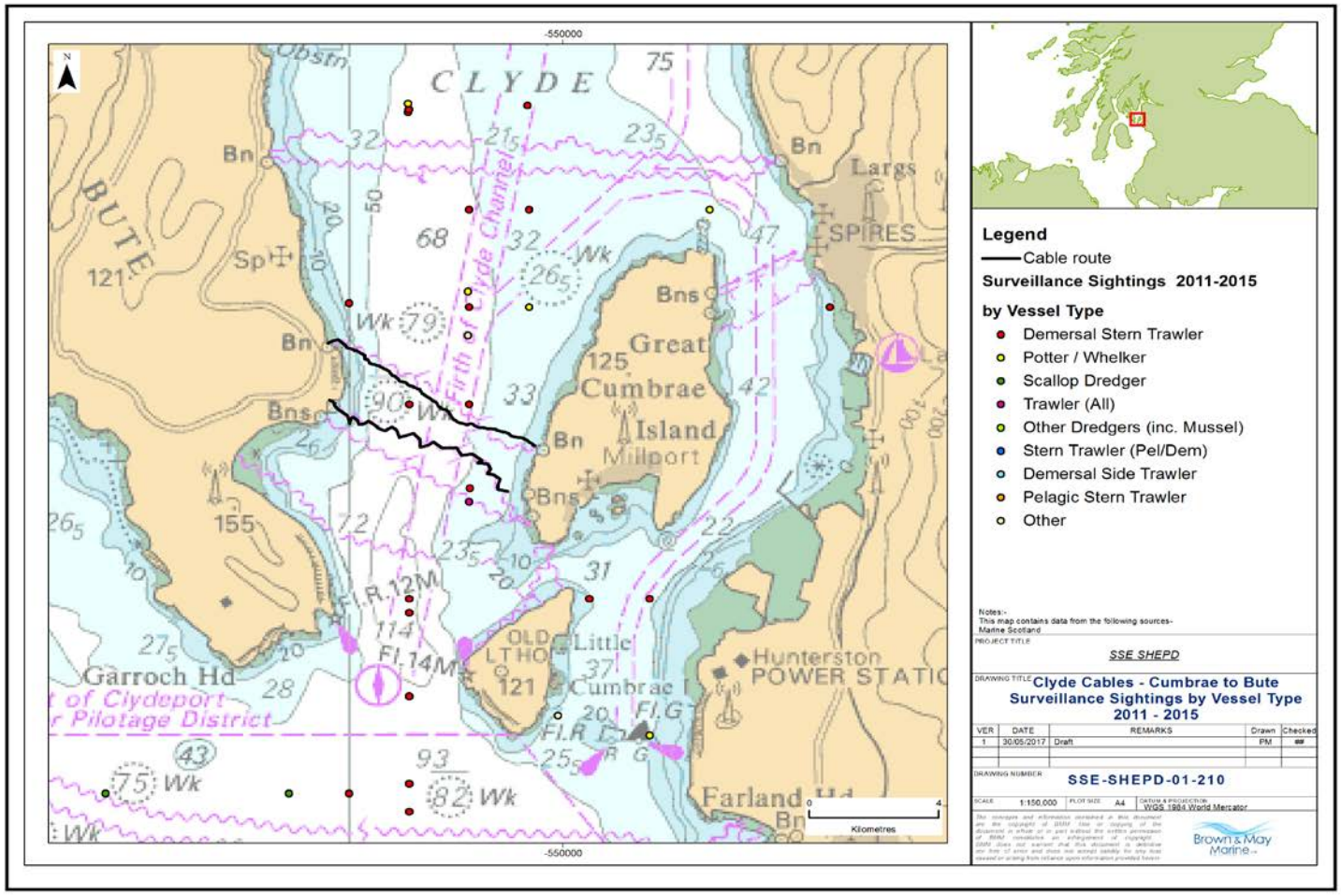


Figure 4 Surveillance sightings by vessel type 2011-2015 for the Cumbrae-Bute cable (Source: MMO)

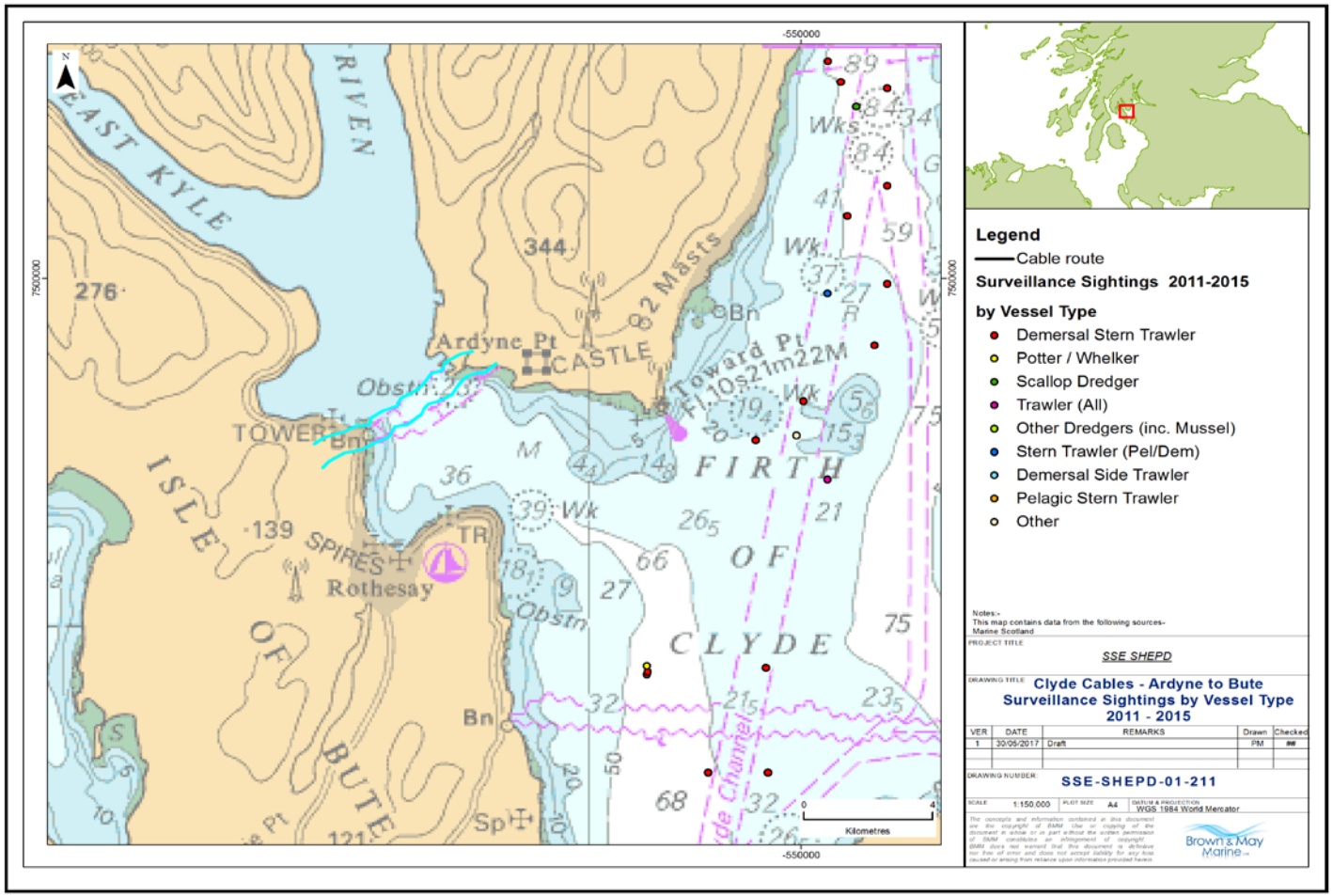


Figure 5 Surveillance sightings by vessel type 2011-2015 for the Bute-Ardyne cable (Source: MMO)

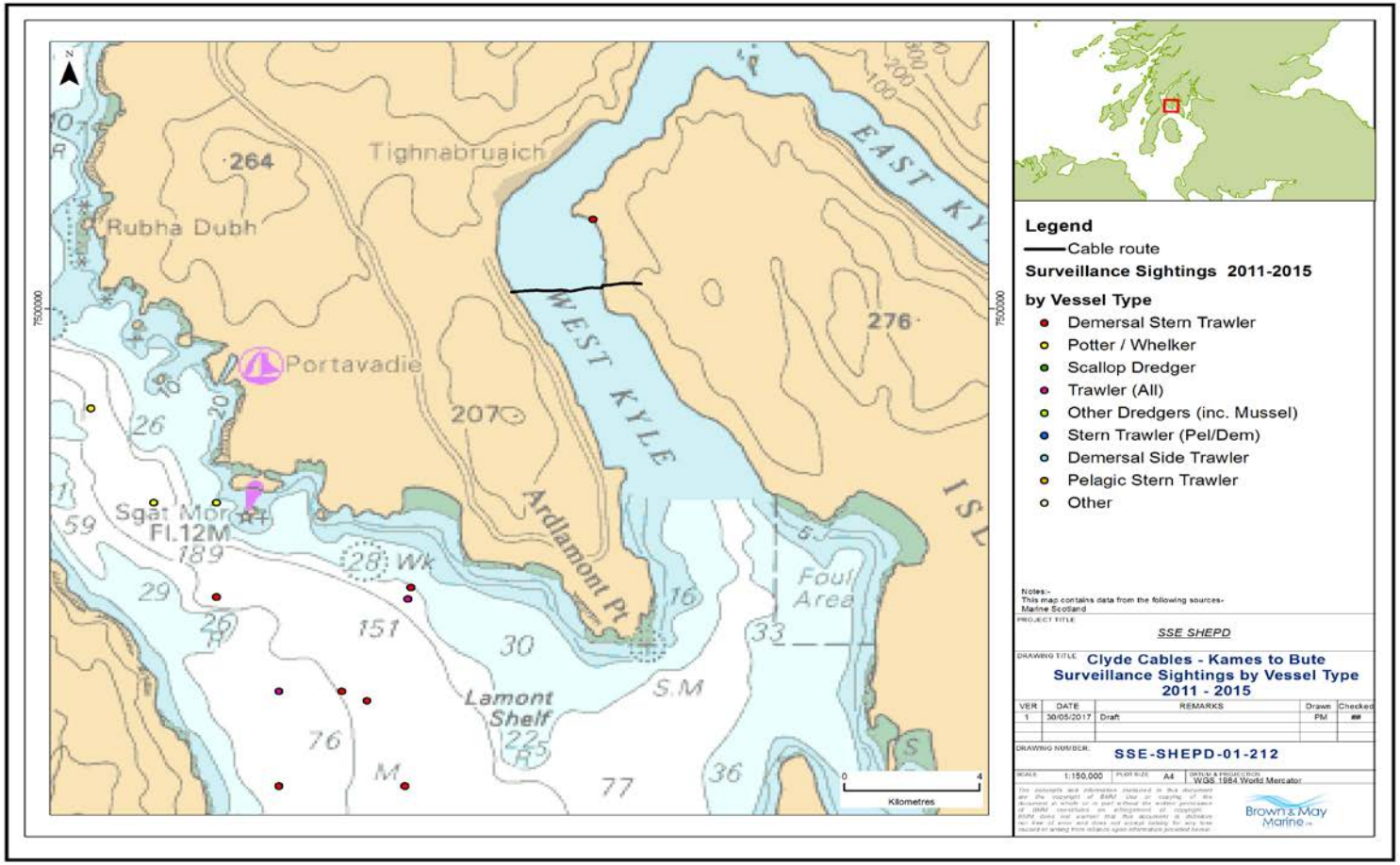


Figure 6 Surveillance sightings by vessel type 2011-2015 for the Kames-Bute cable (Source: MMO)

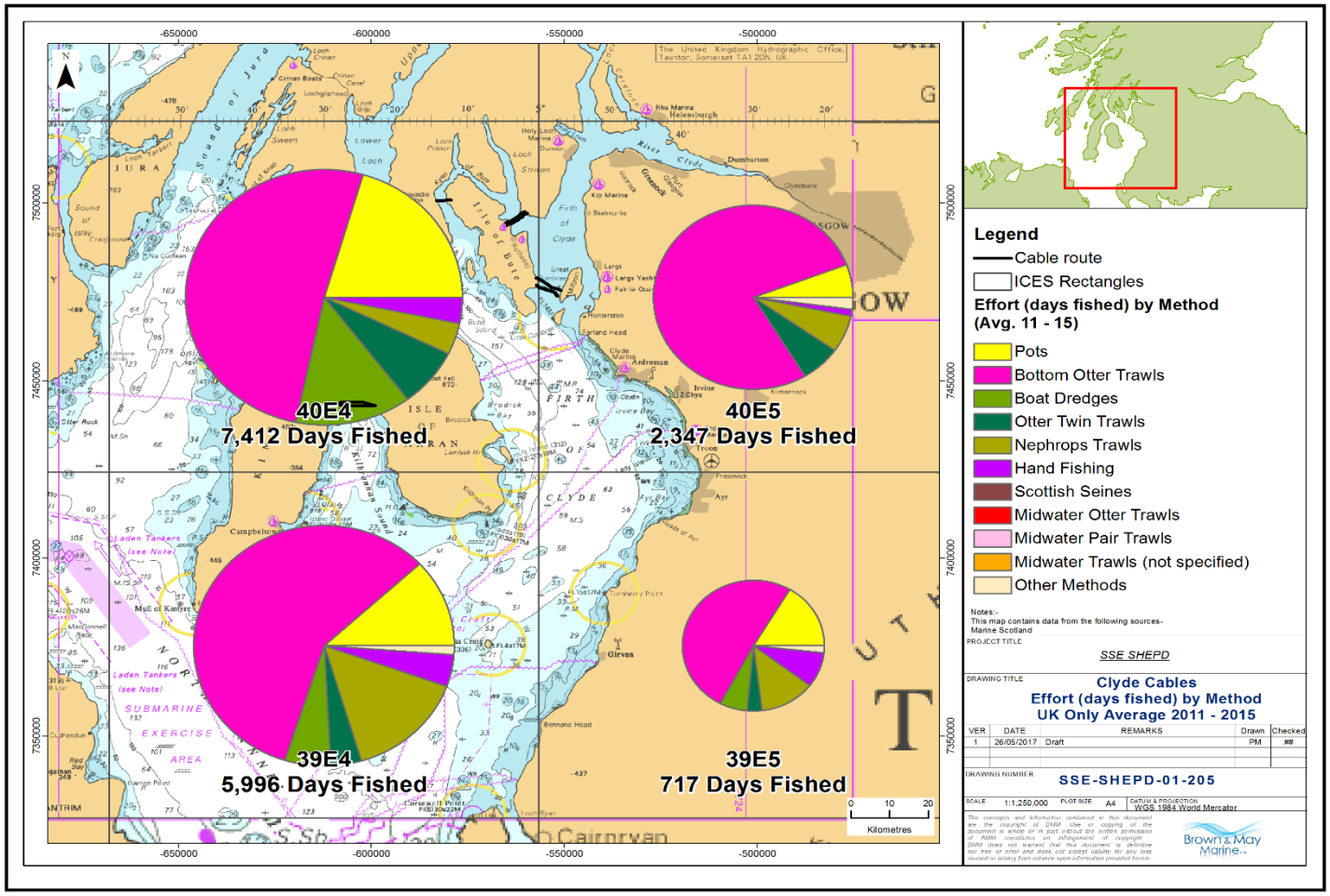


Figure 7 Average UK fishing effort (days) by method 2011-2015

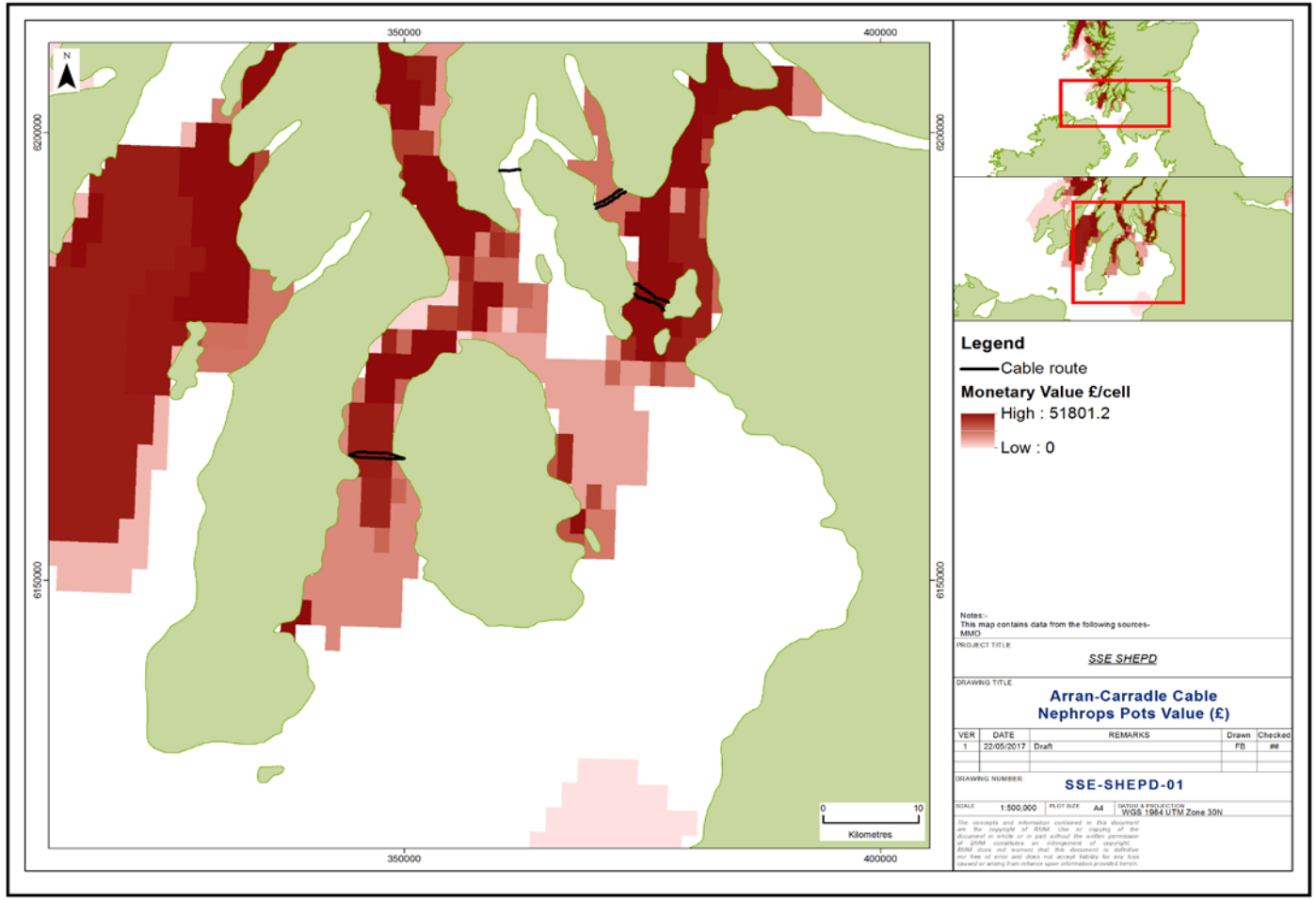


Figure 8 Scotmap- crab and lobster port value

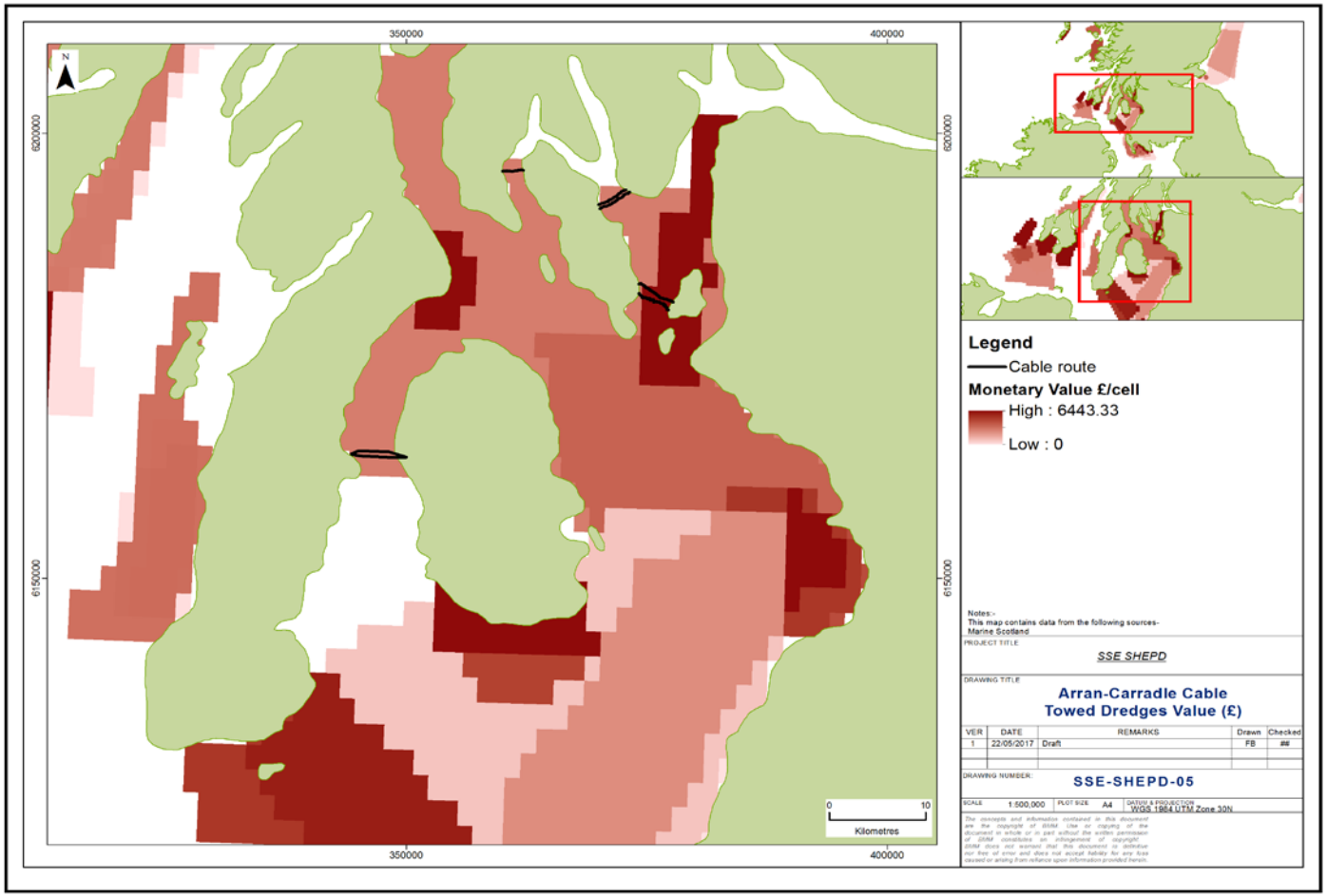


Figure 9 Scotmap- Towed dredges value

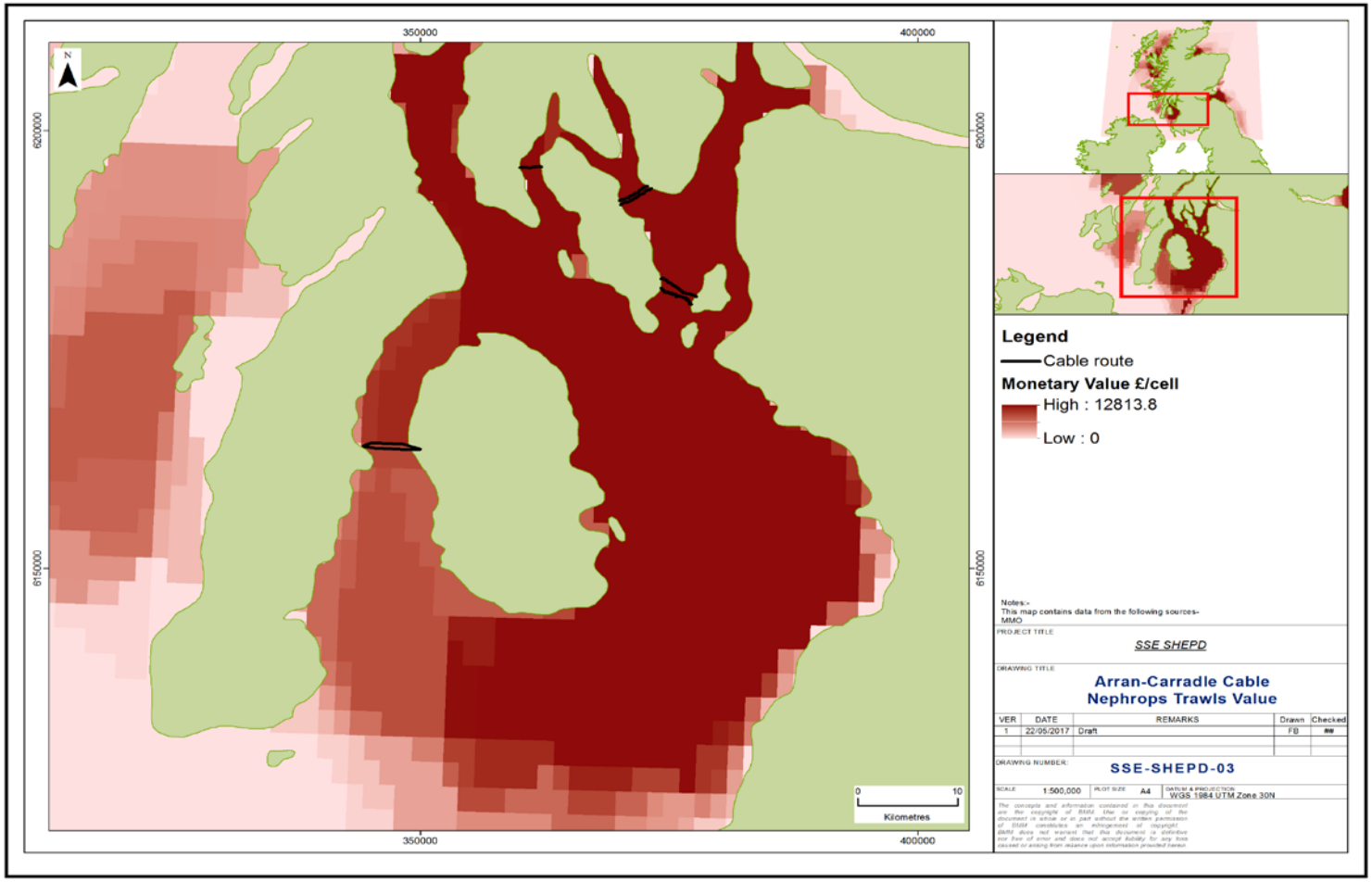


Figure 10 Scotmap-Nephrop Trawls value

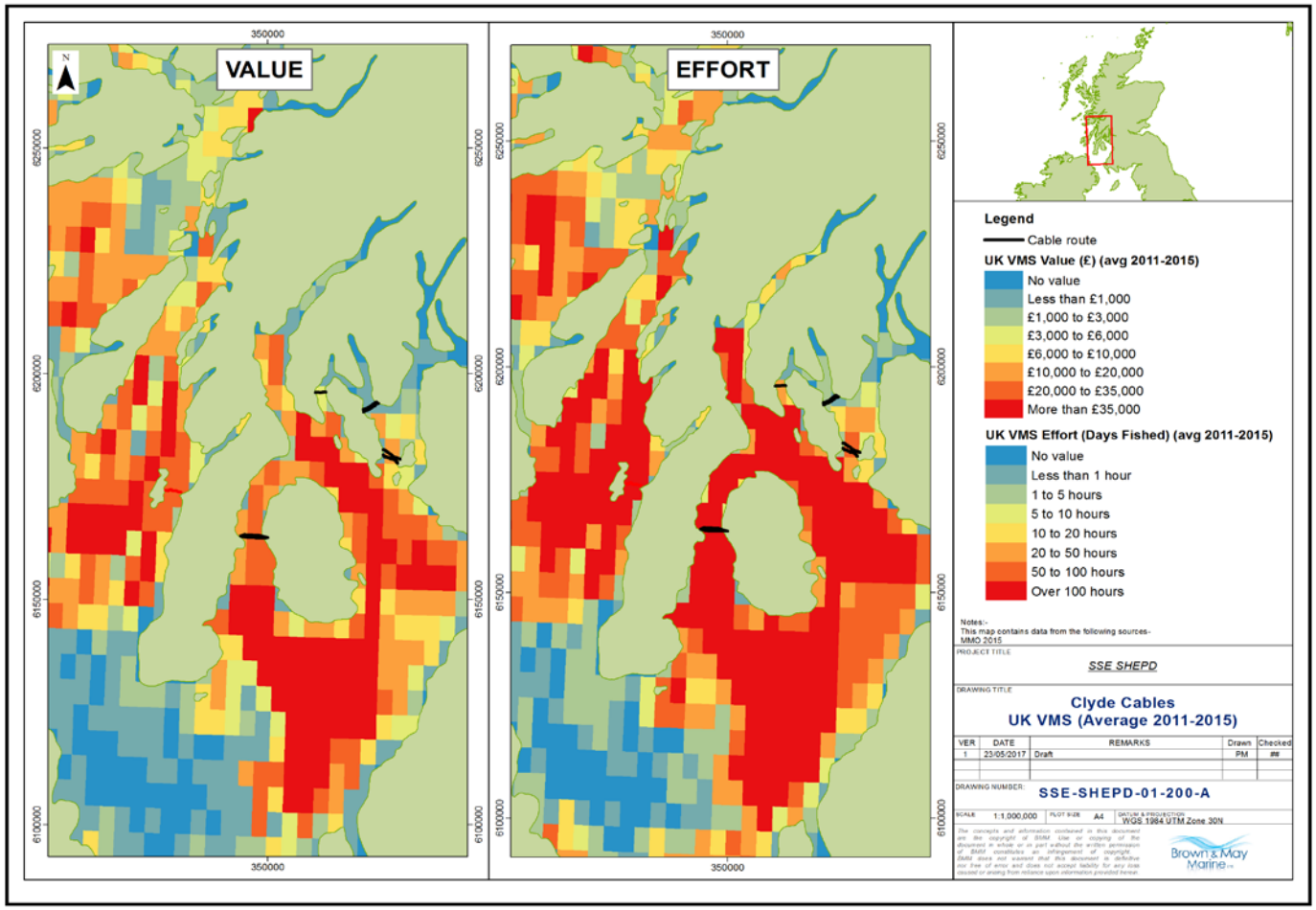


Figure 11 UK VMS by value and effort (average 2011-2015; >15m vessel length)

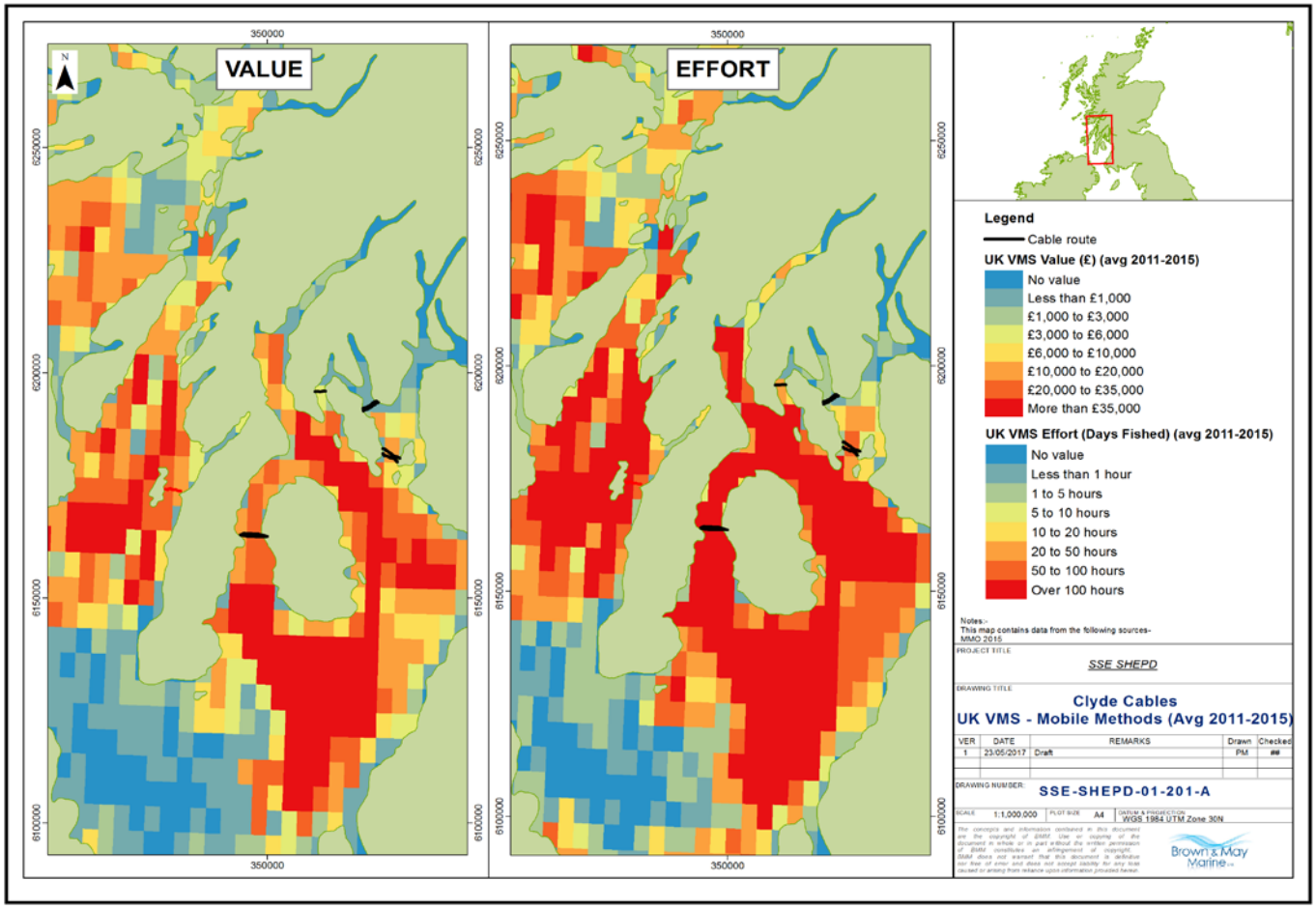


Figure 12 UK VMS by value and effort mobile methods (average 2011-2015; >15m vessel length)

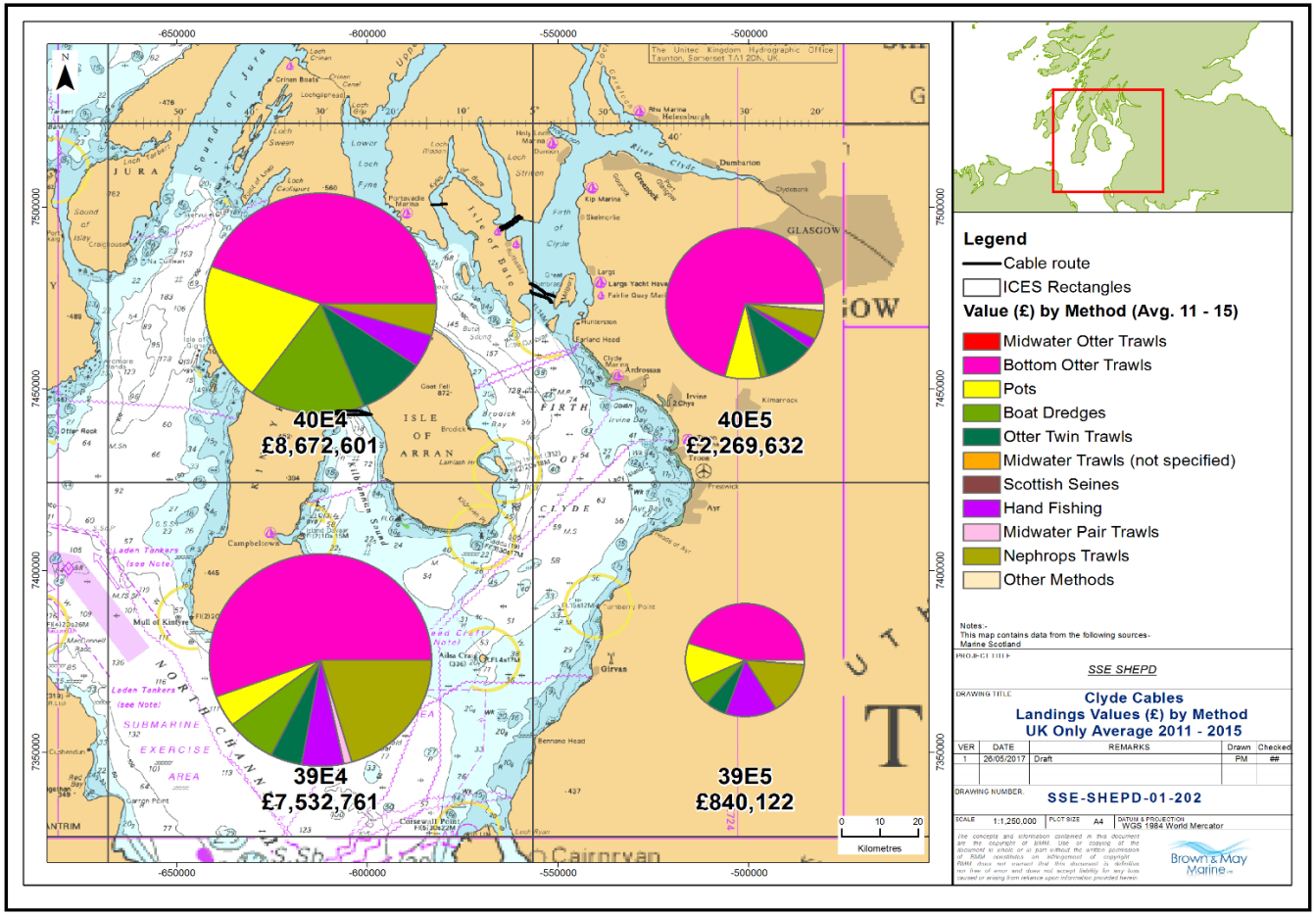


Figure 13 UK landings values by method (average 2011-2015)

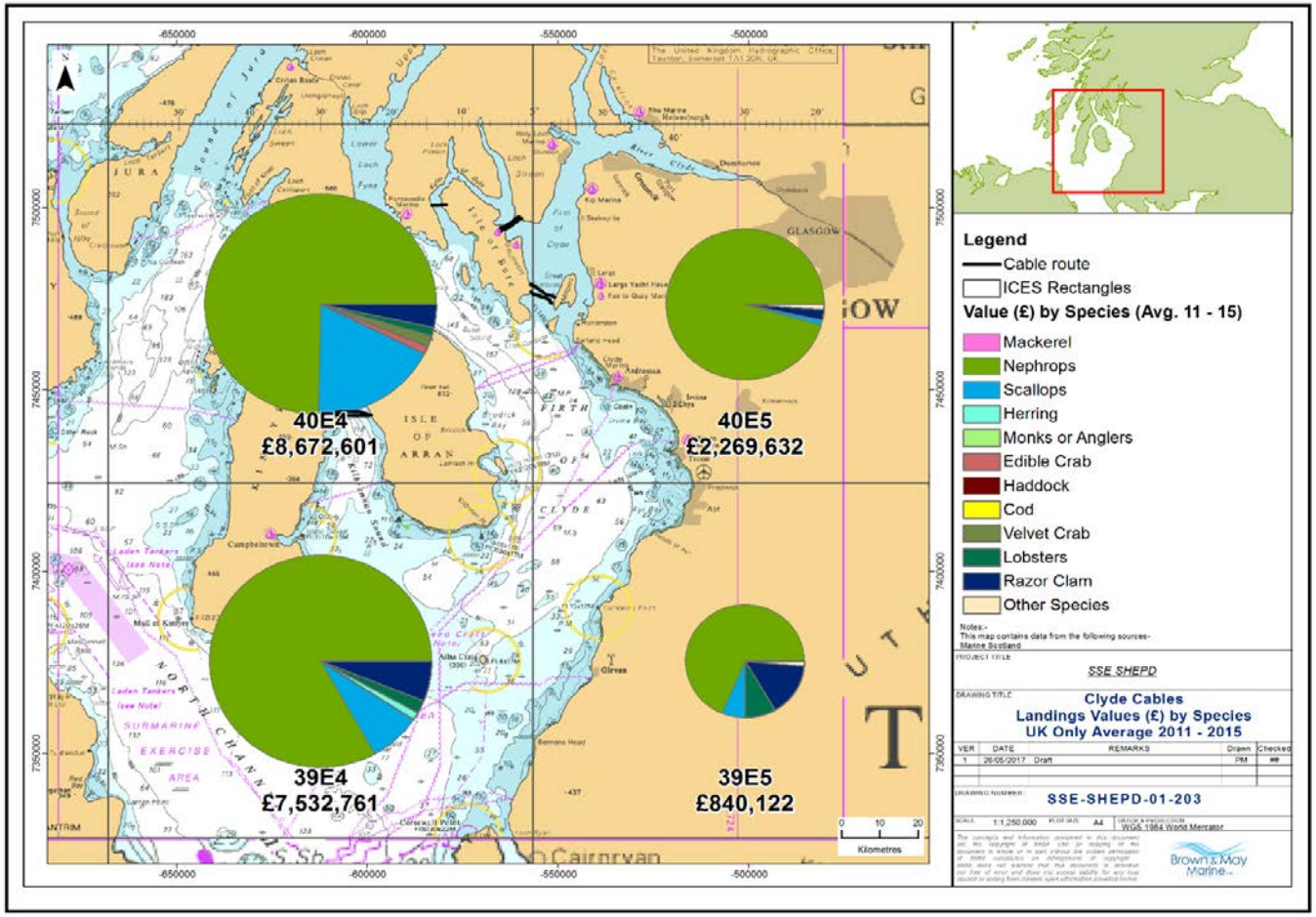


Figure 14 UK landings values by species (average 2011-2015)

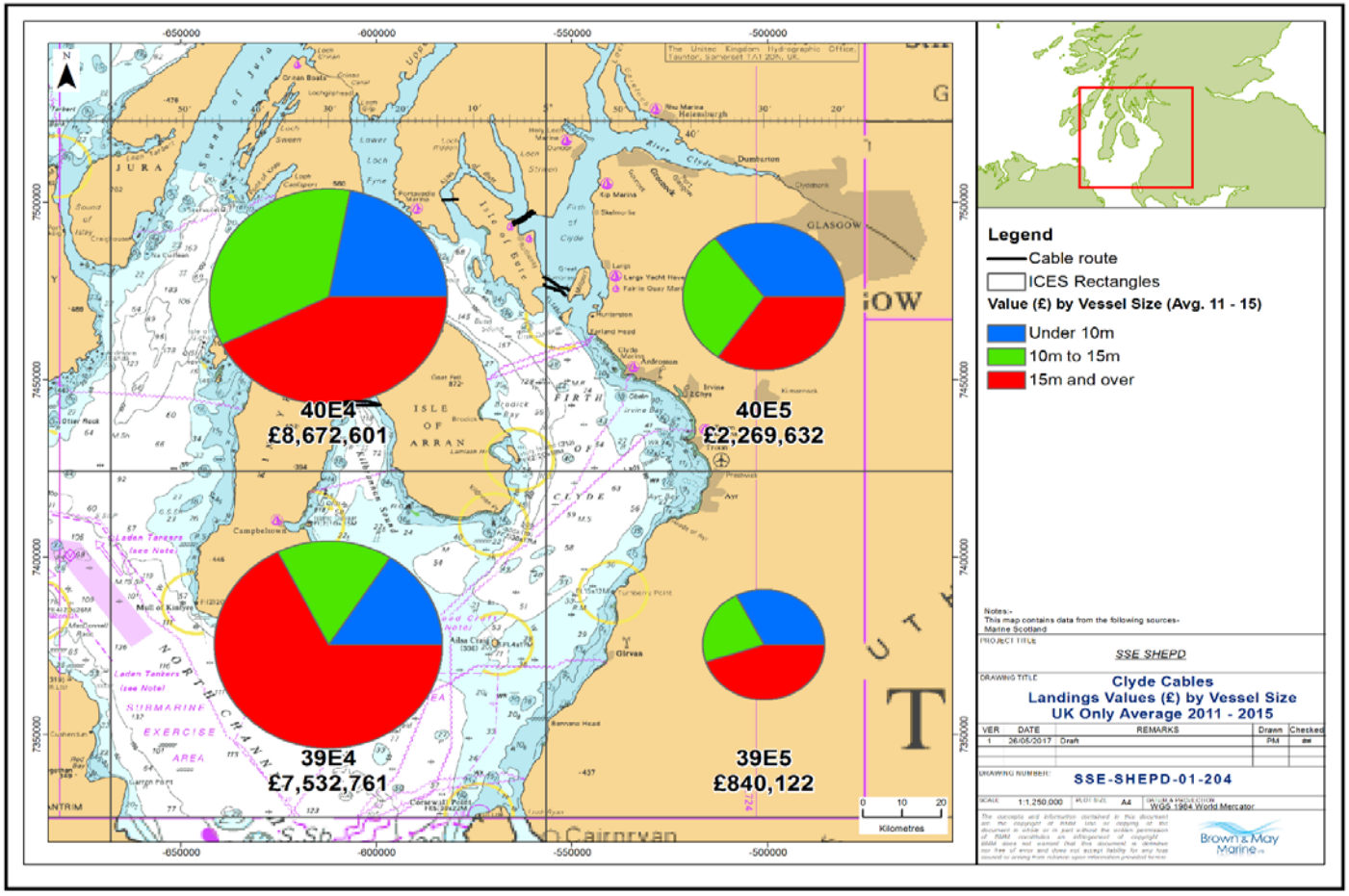


Figure 15 Landings values by vessel lengths (average 2011-2014)

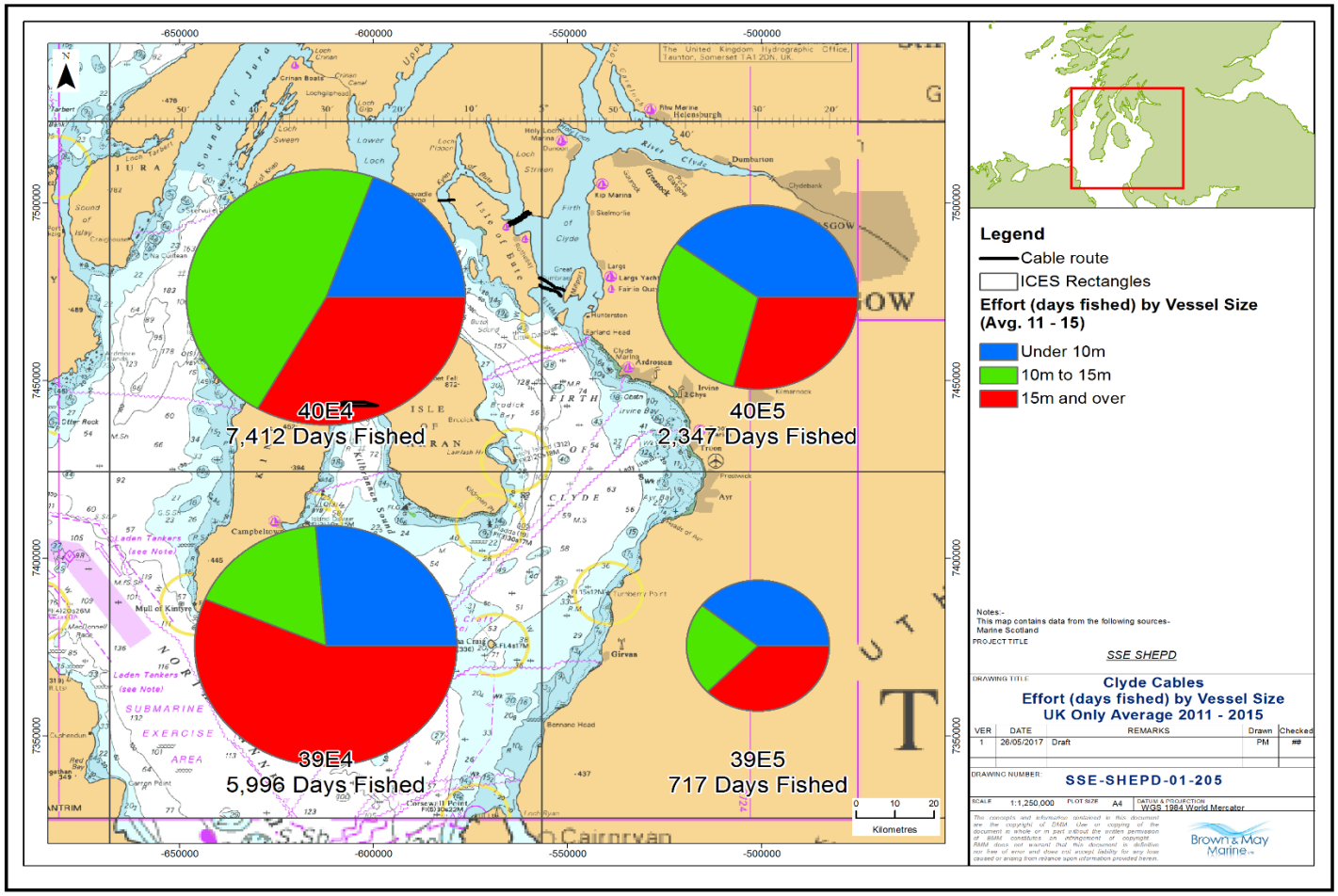


Figure 16 Effort by vessel lengths (average 2011-2015)

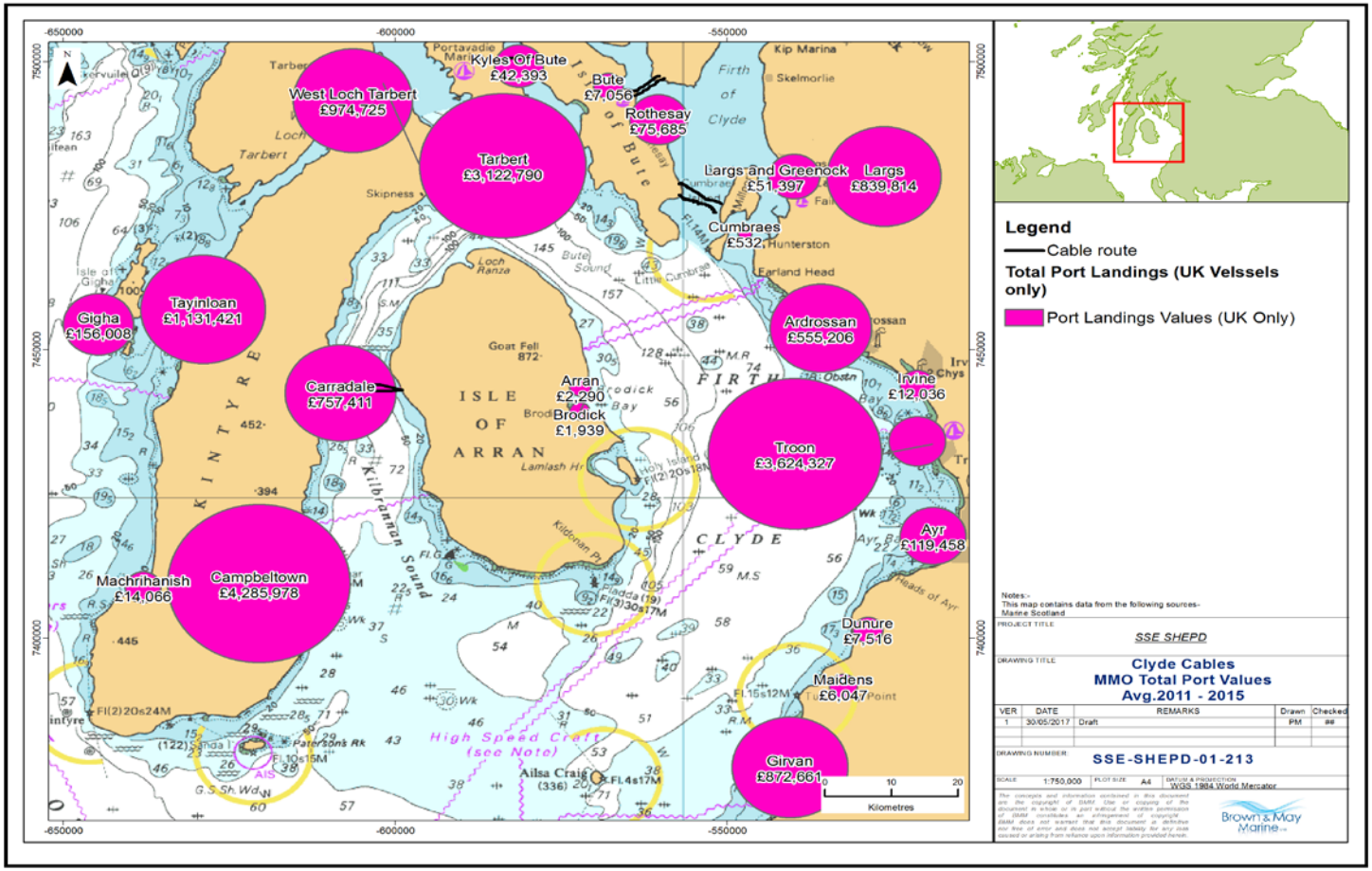


Figure 17 Total port landings average 2011-2015 (source MMO)

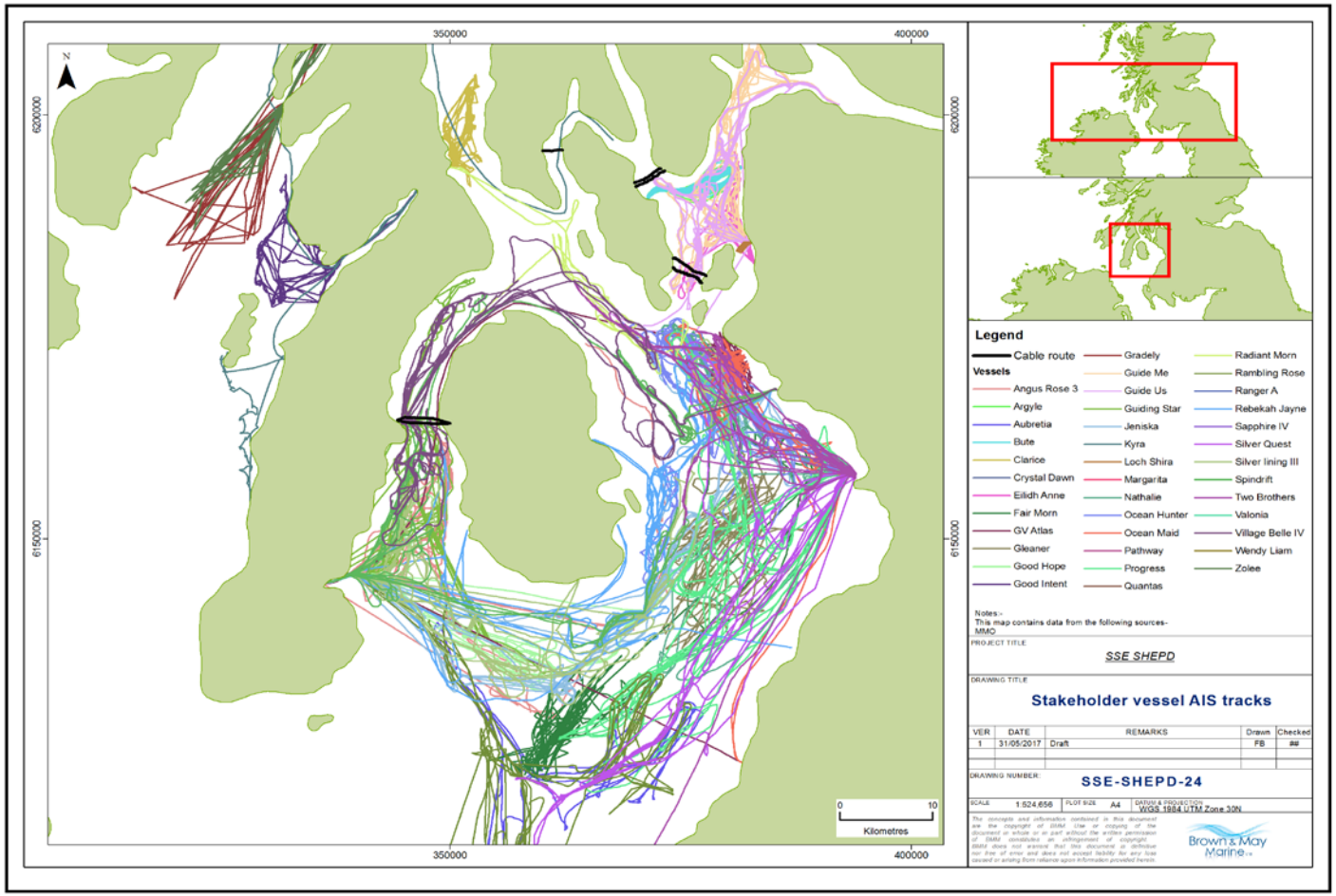


Figure 18 AIS tracks (source Marine Traffic)

Appendix G Other Sea Users Charts

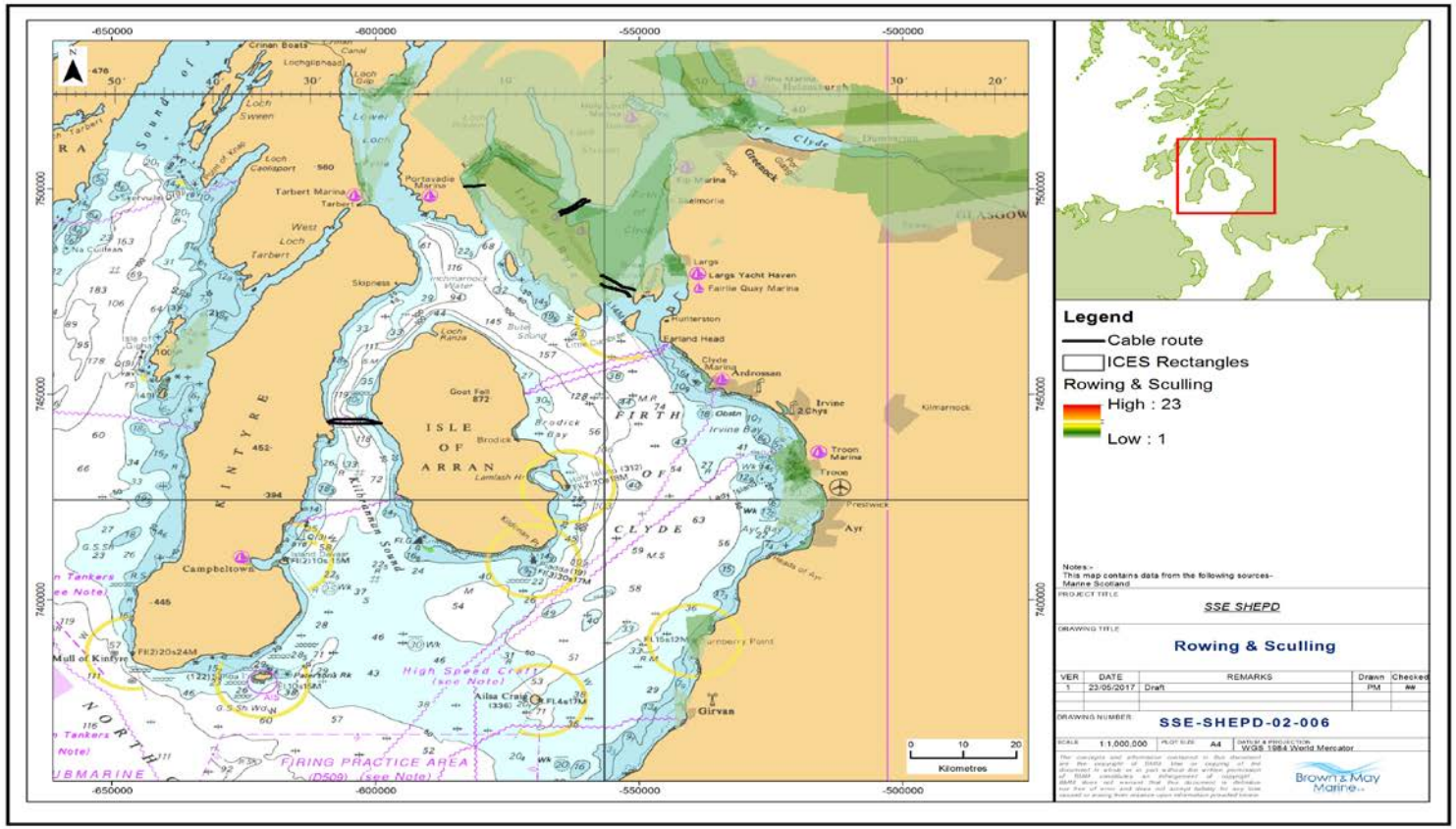


Figure 1 Rowing/Sculling heat map (Source:SMRTS)

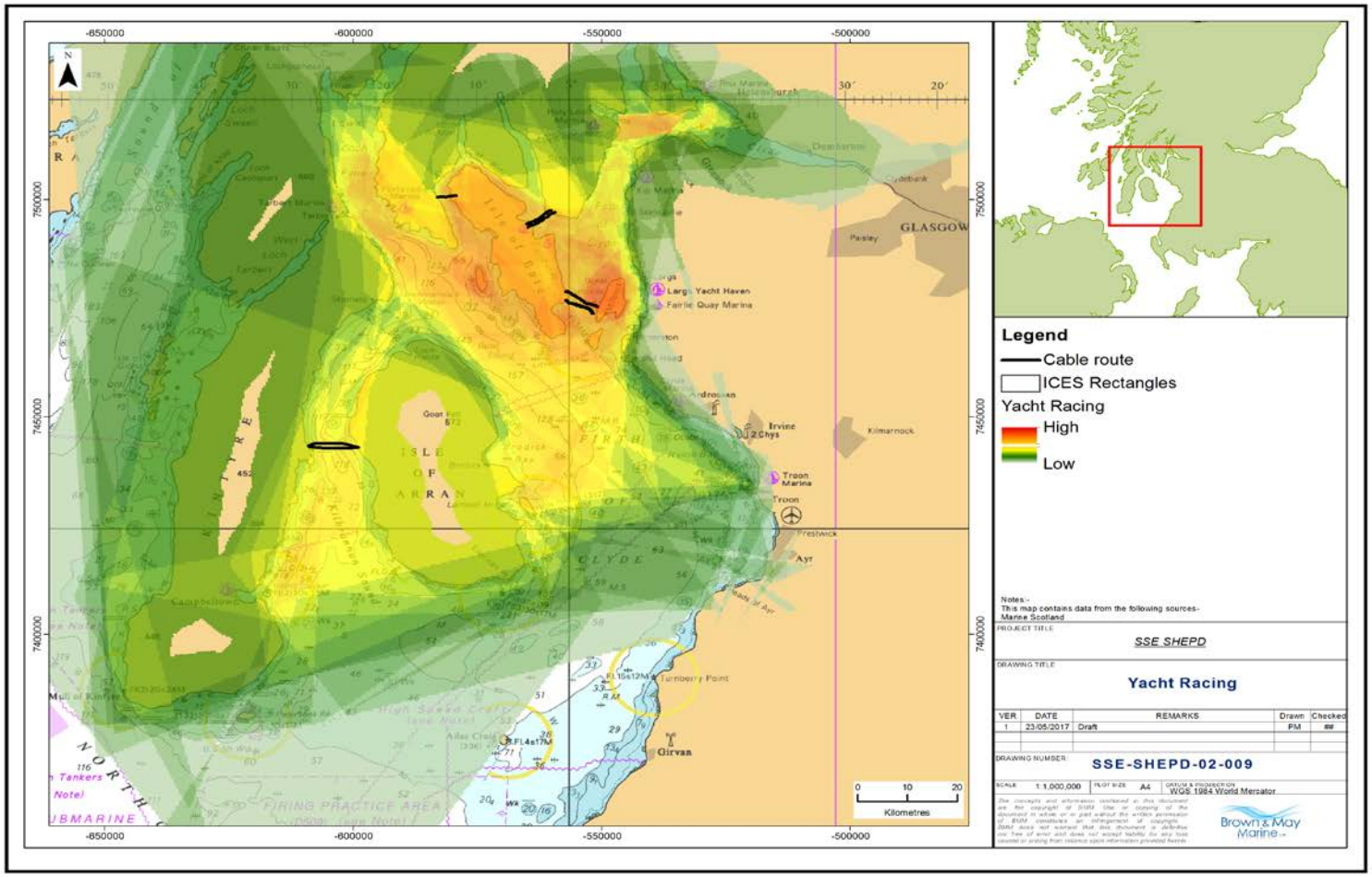


Figure 2 Yacht Racing heat map (Source SMRTS)

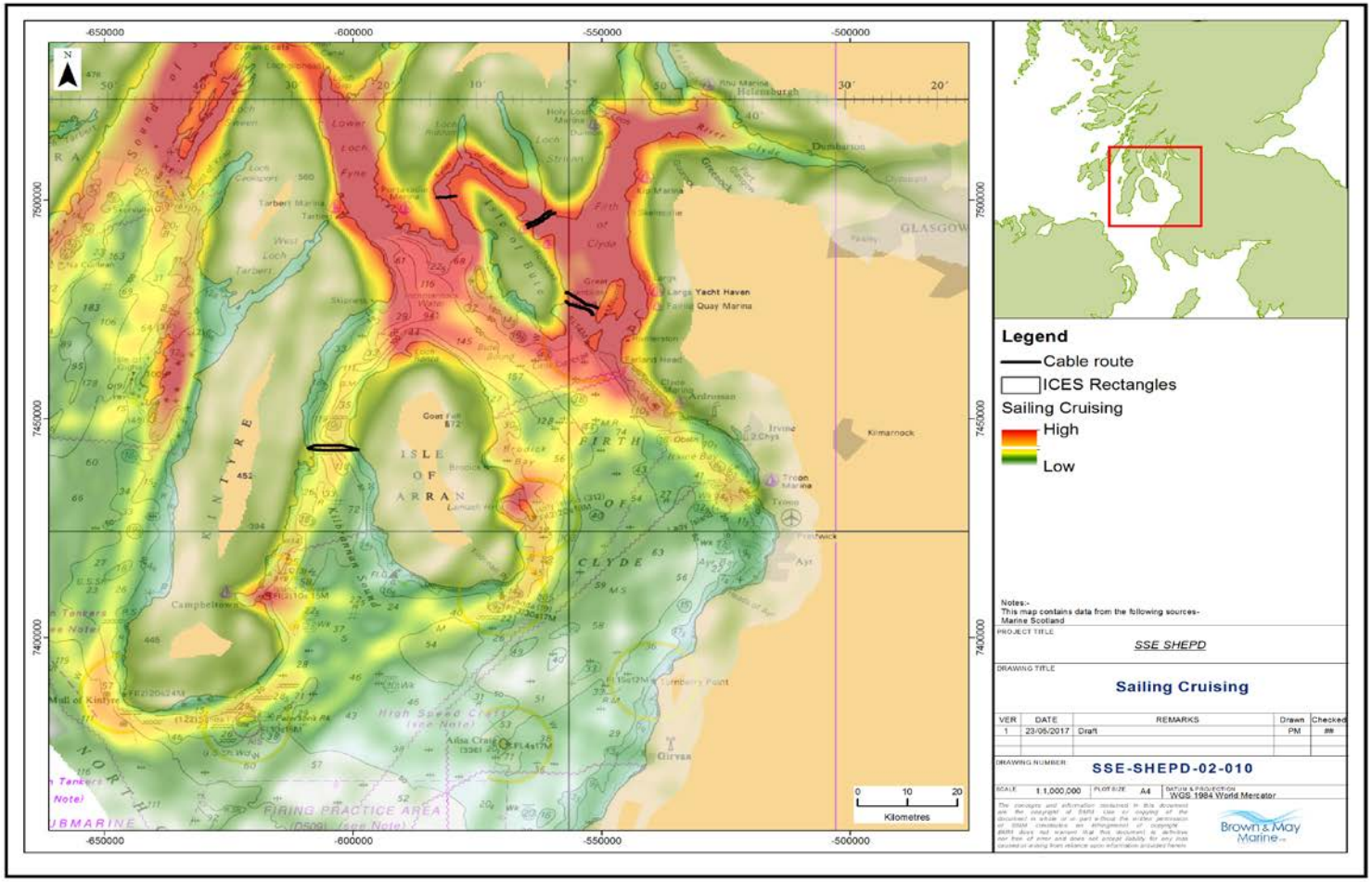


Figure 3 Sailing heat map (Source:SMRTs)

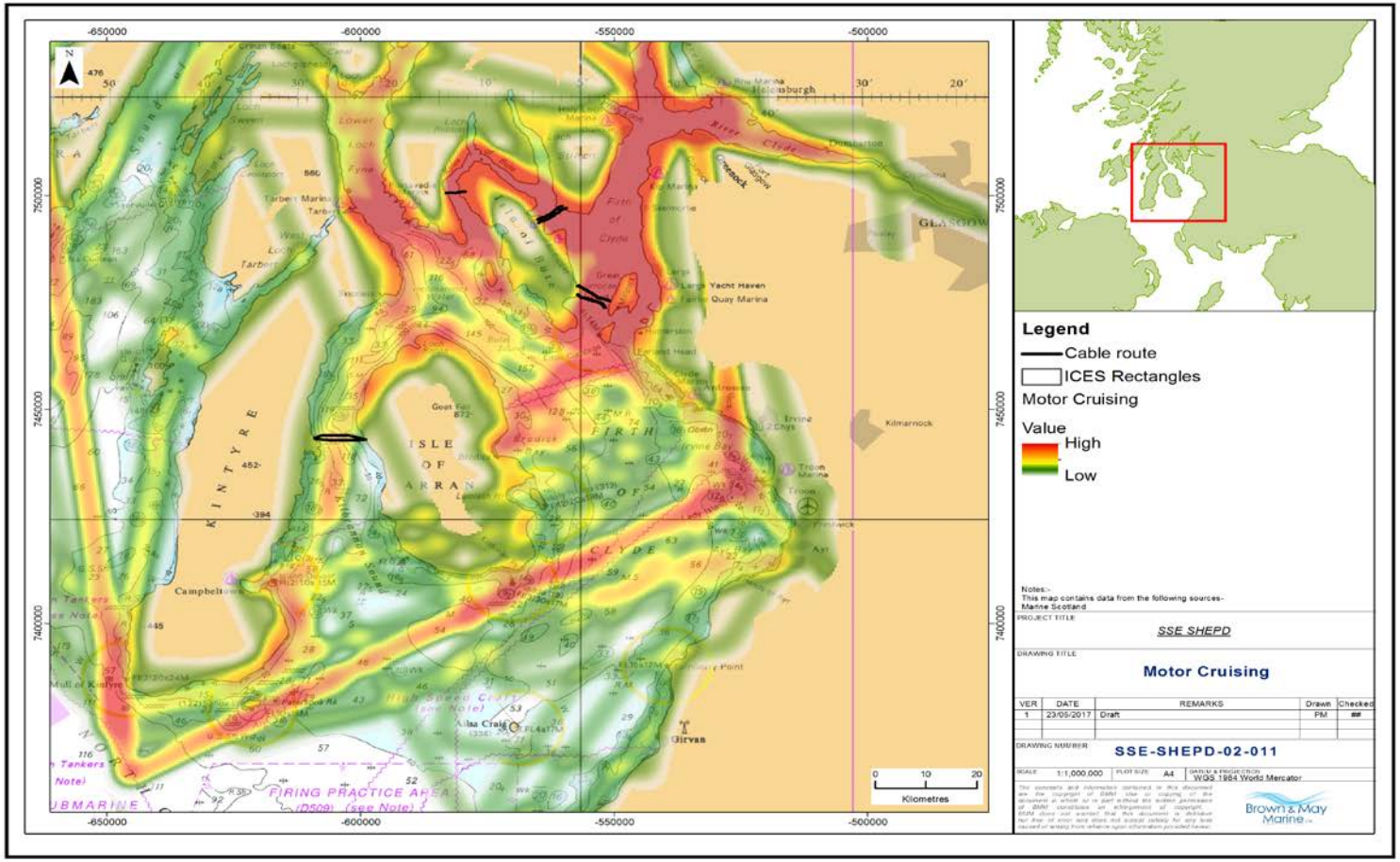


Figure 4 Motor Cruising heat map (Source: SMRTs)

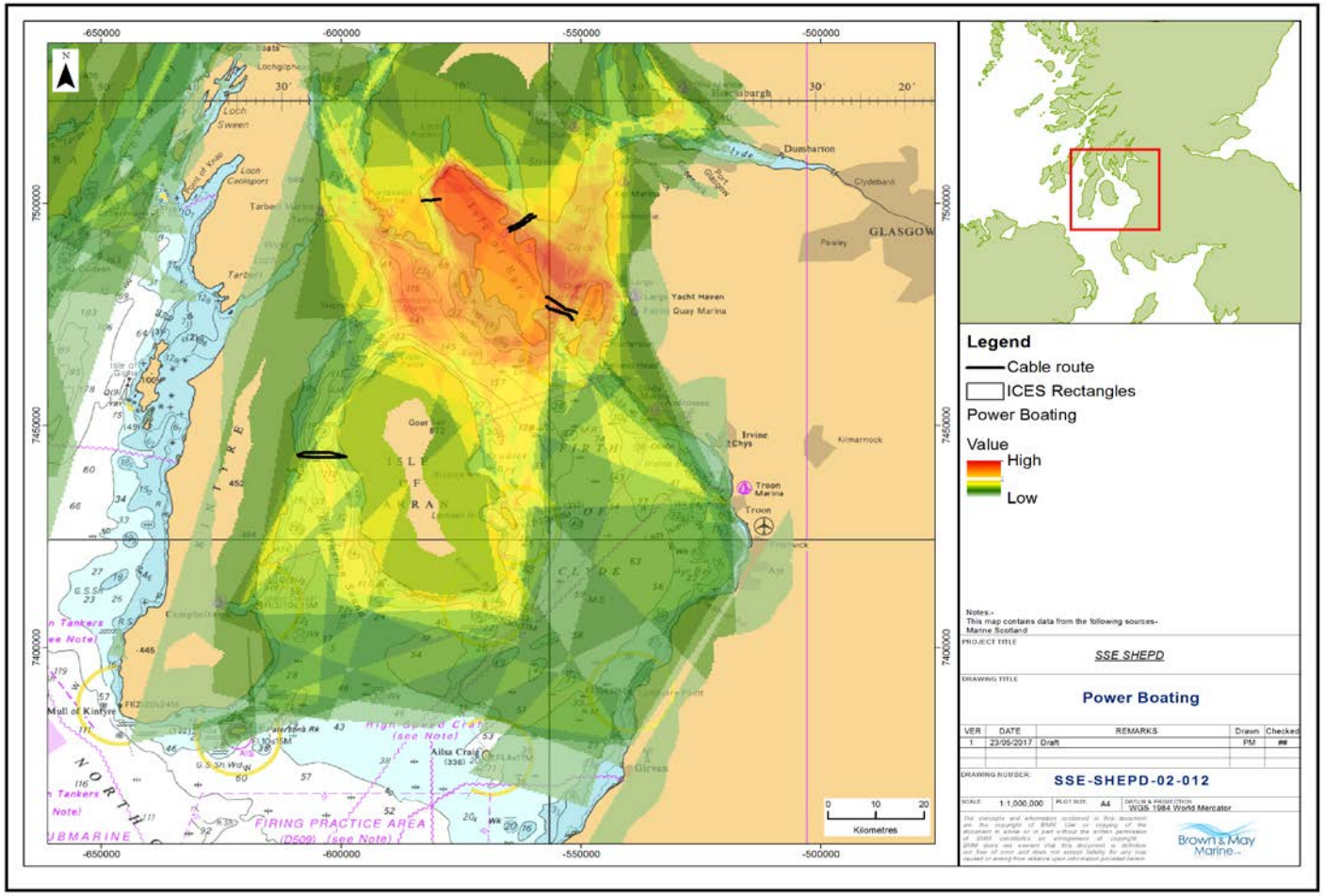


Figure 5 Power boating heat map (Source: SMRTs)

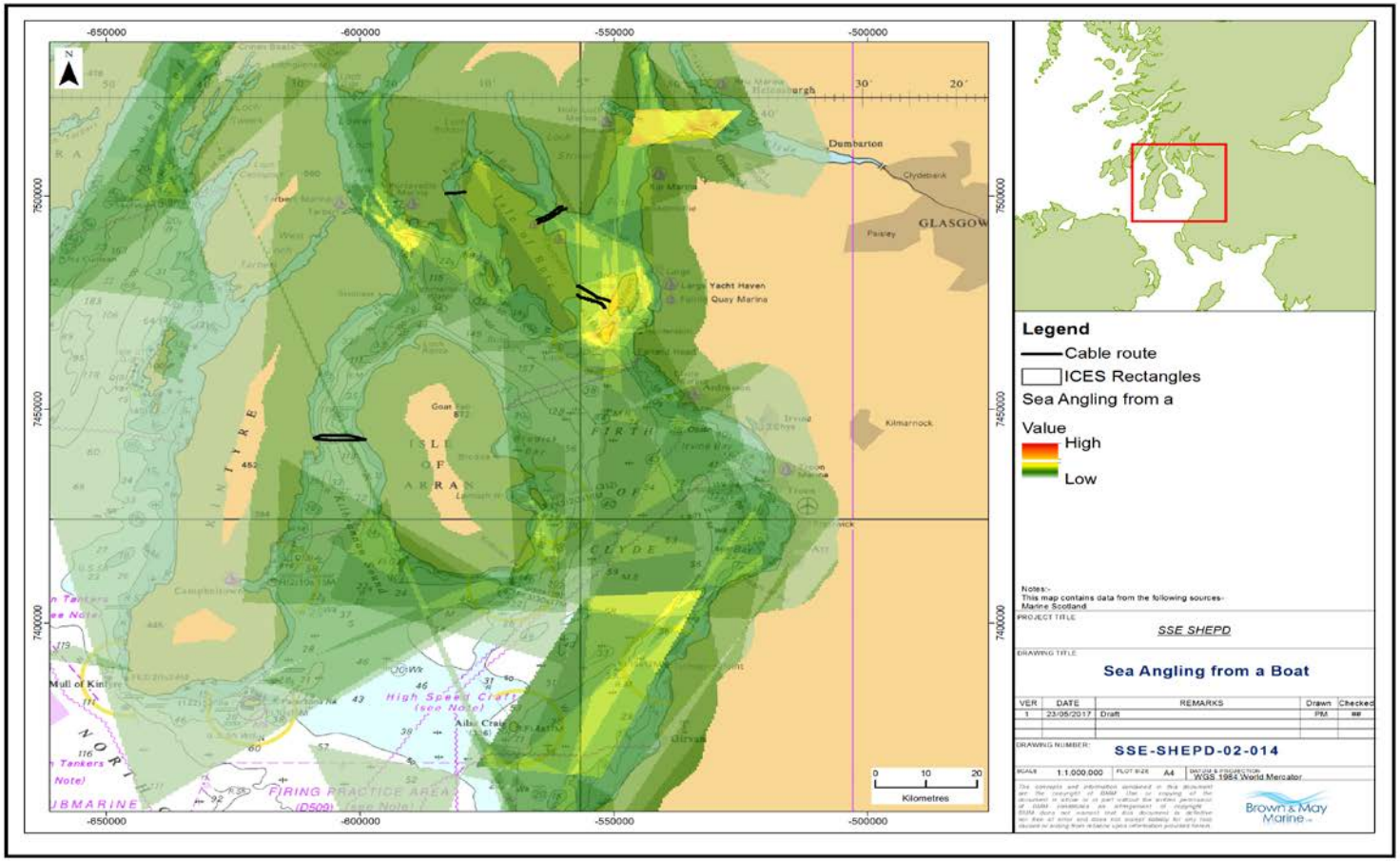


Figure 6 Sea Angling heat map (Source: SMRTs)

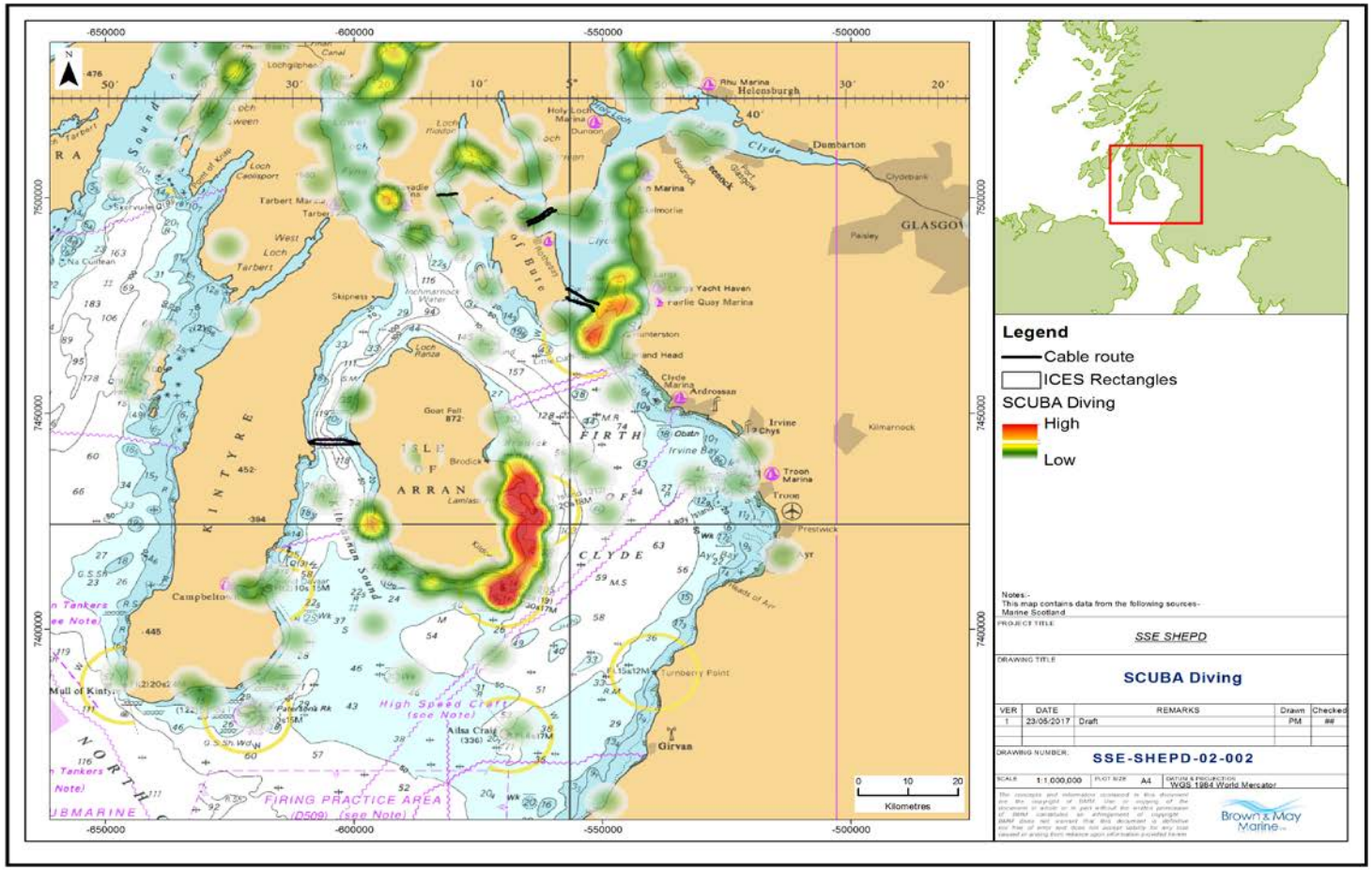


Figure 7 Scuba Diving heat map (Source: SMRTs)

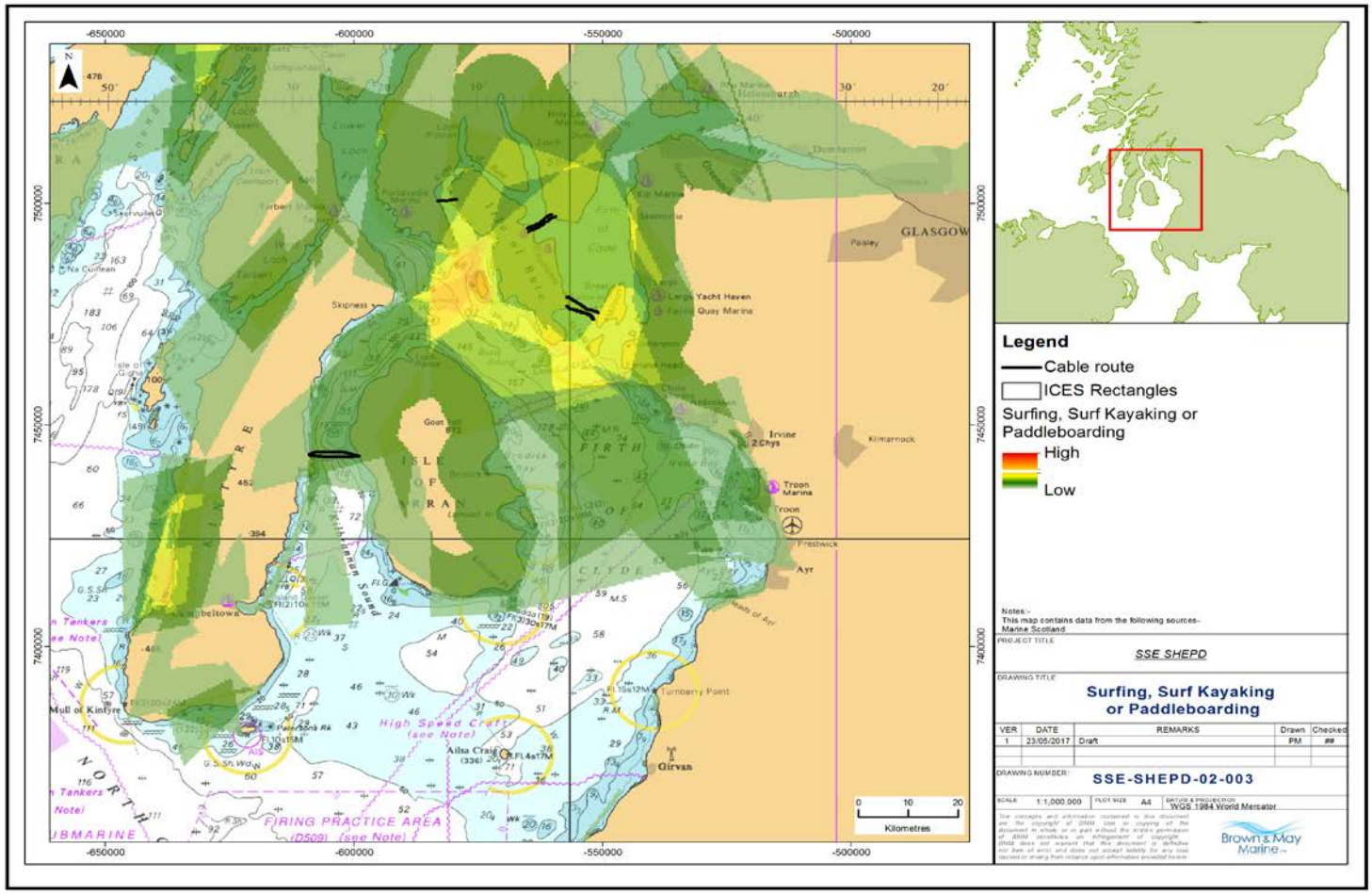


Figure 8 Kayaking/Paddle boarding heat map (Source: SMRTs)

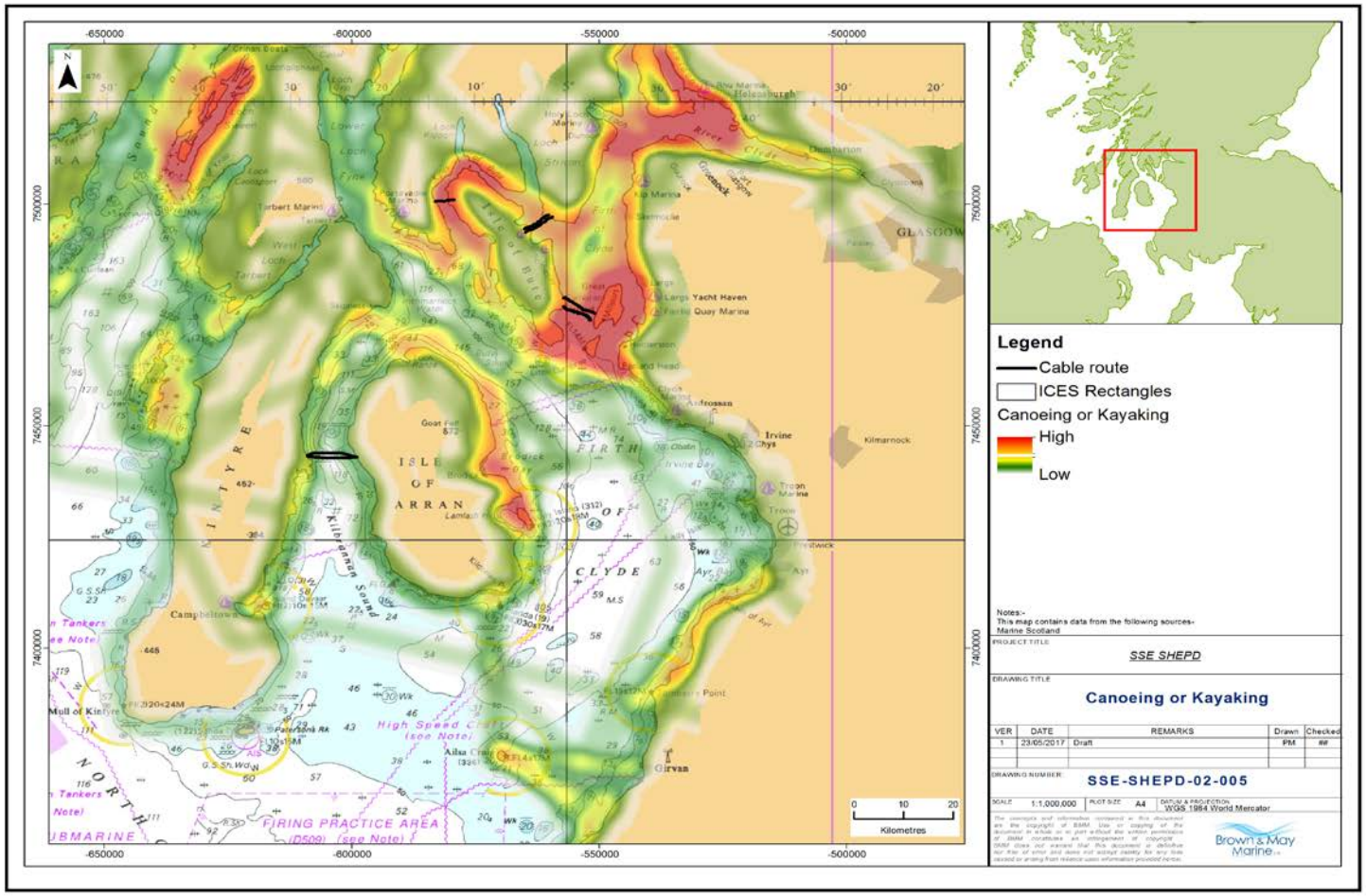


Figure 9 Kayaking/Paddle boarding heat map (Source: SMRTs)

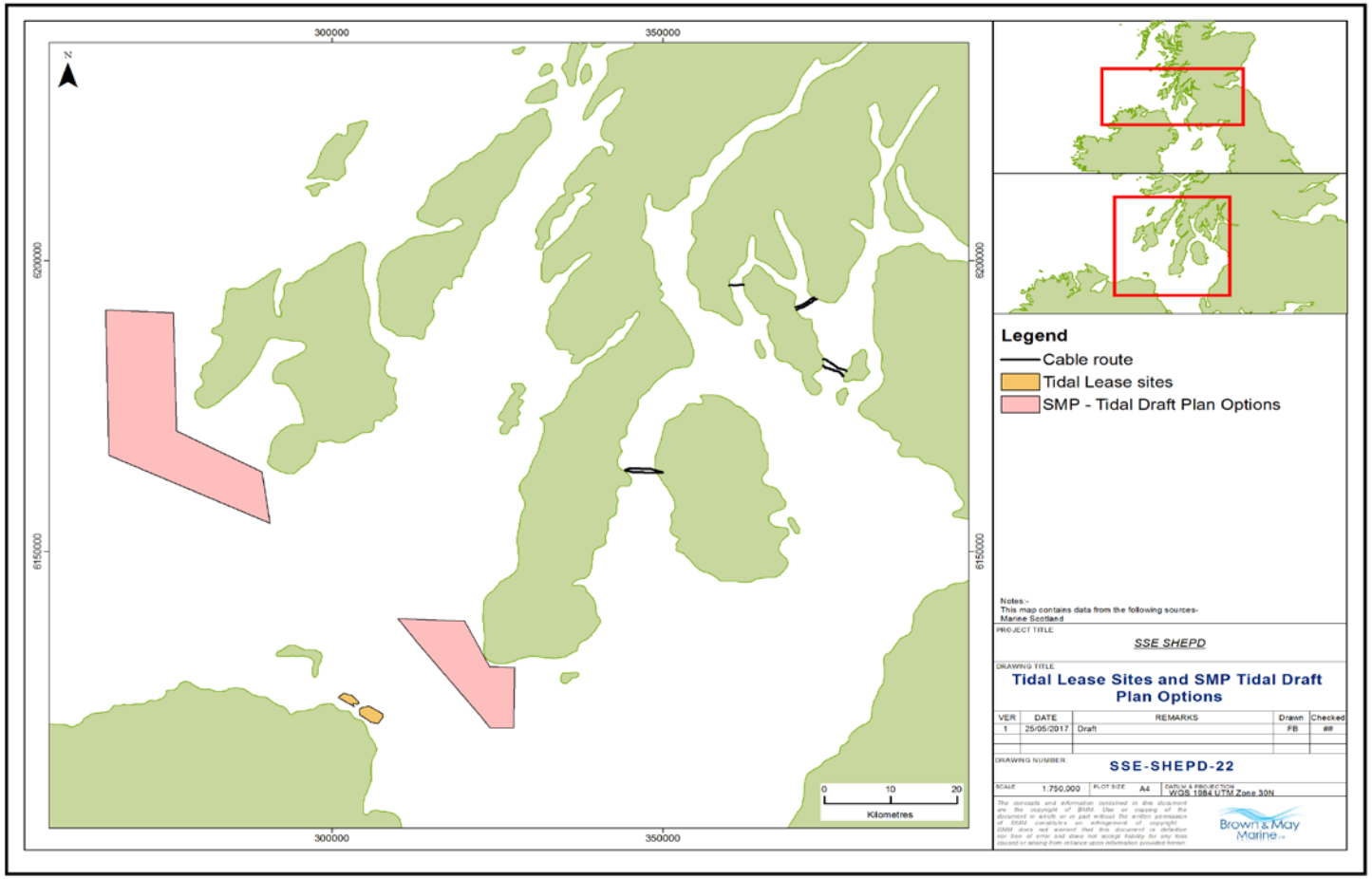


Figure 10 Wave/tidal sites (Marine Scotland)

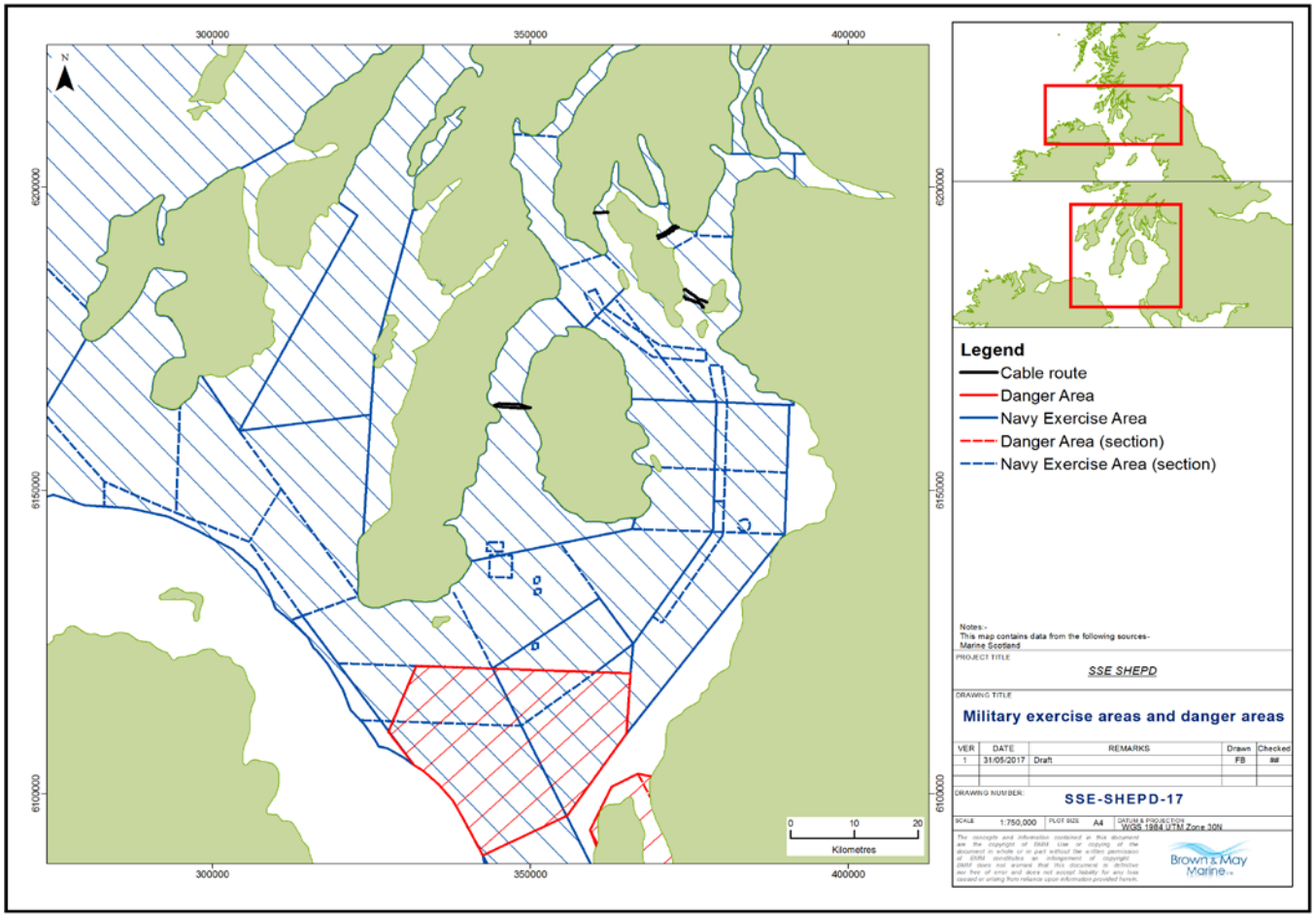


Figure 11 MOD exercise areas (Marine Scotland)

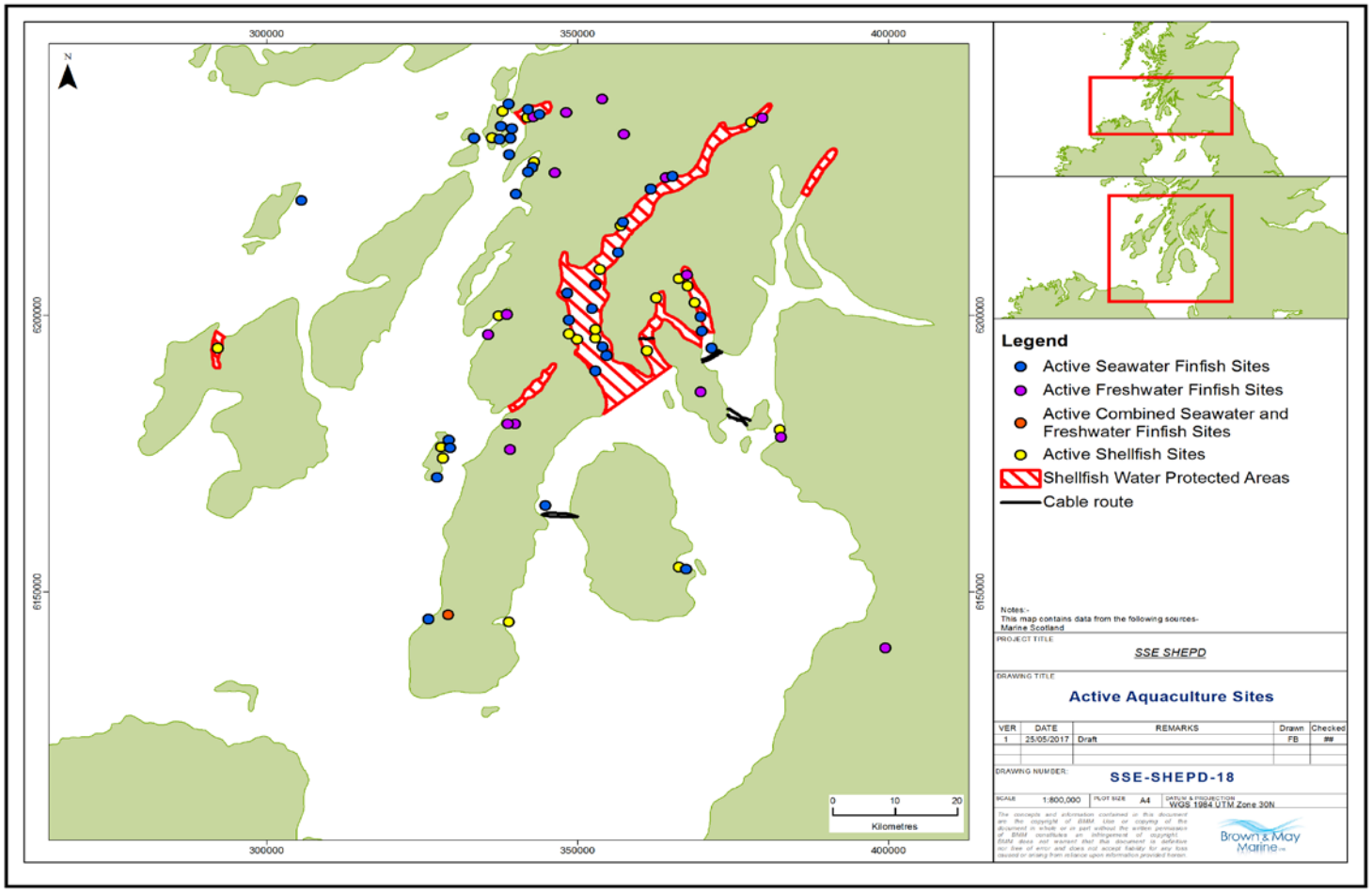


Figure 12 Aquaculture (Marine Scotland)

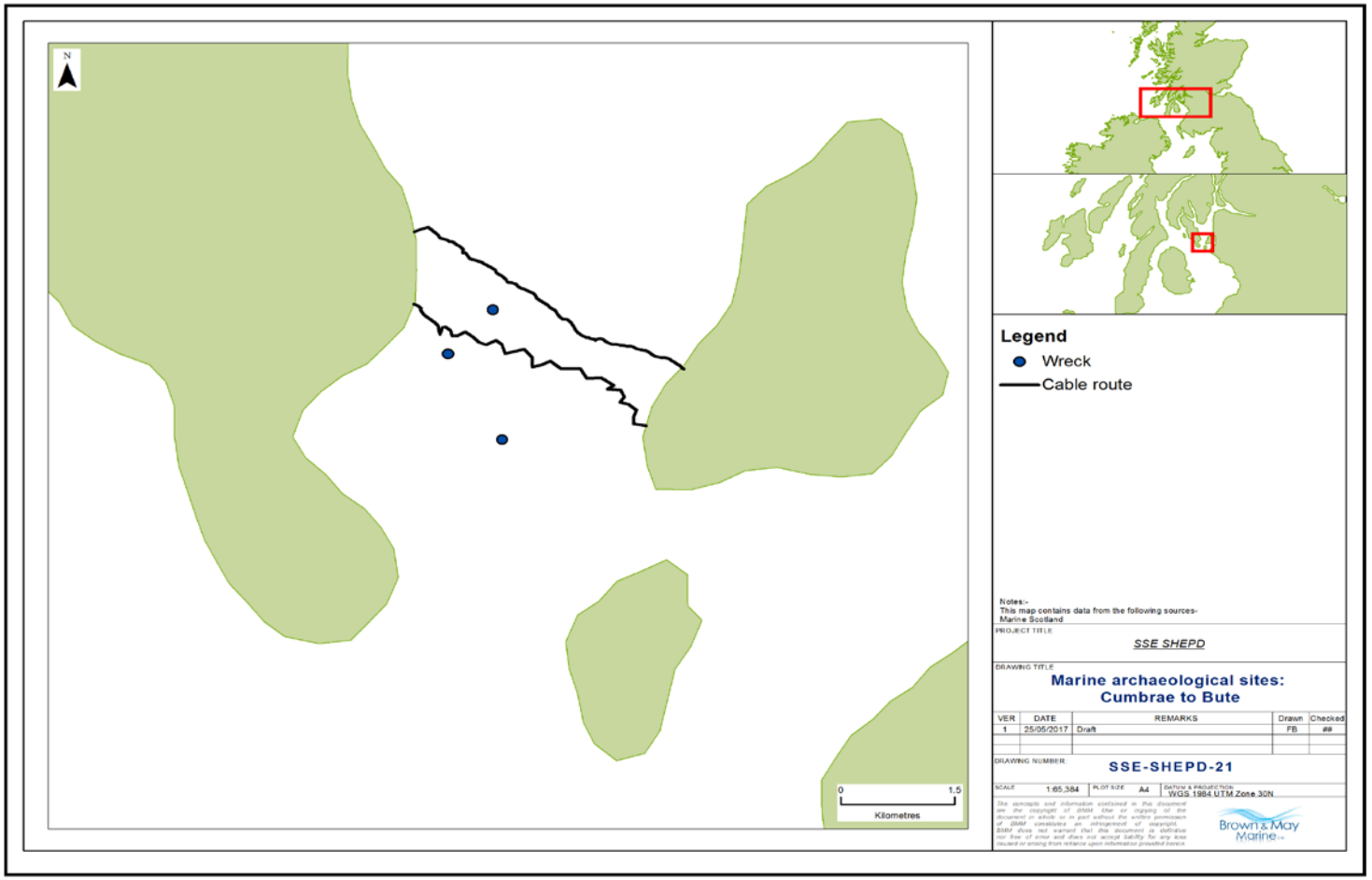


Figure 13 Marine Archaeology Cumbrae- Bute (CANMORE)

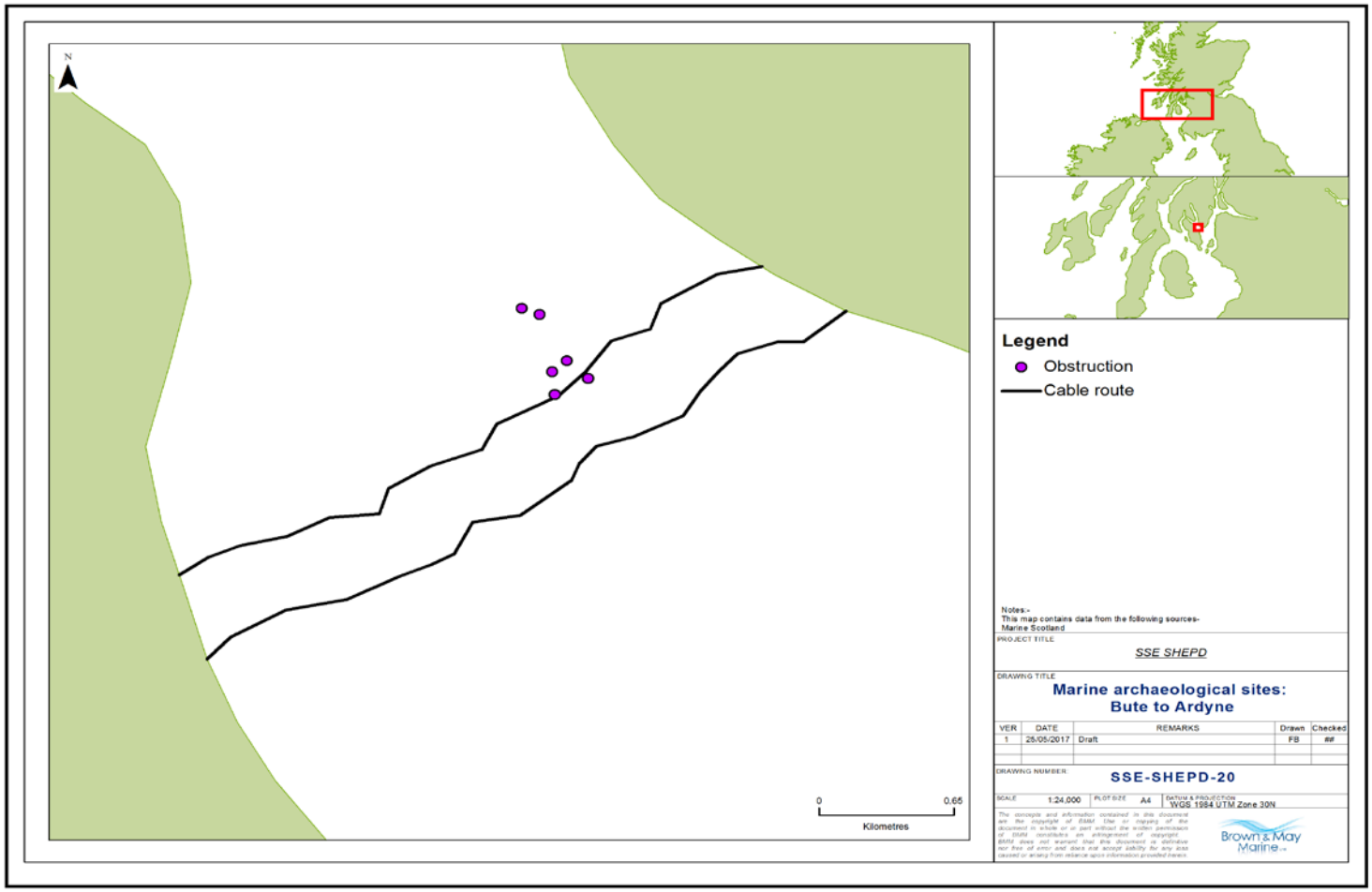


Figure 14 Marine Archaeology Bute- Ardyne (CANMORE)

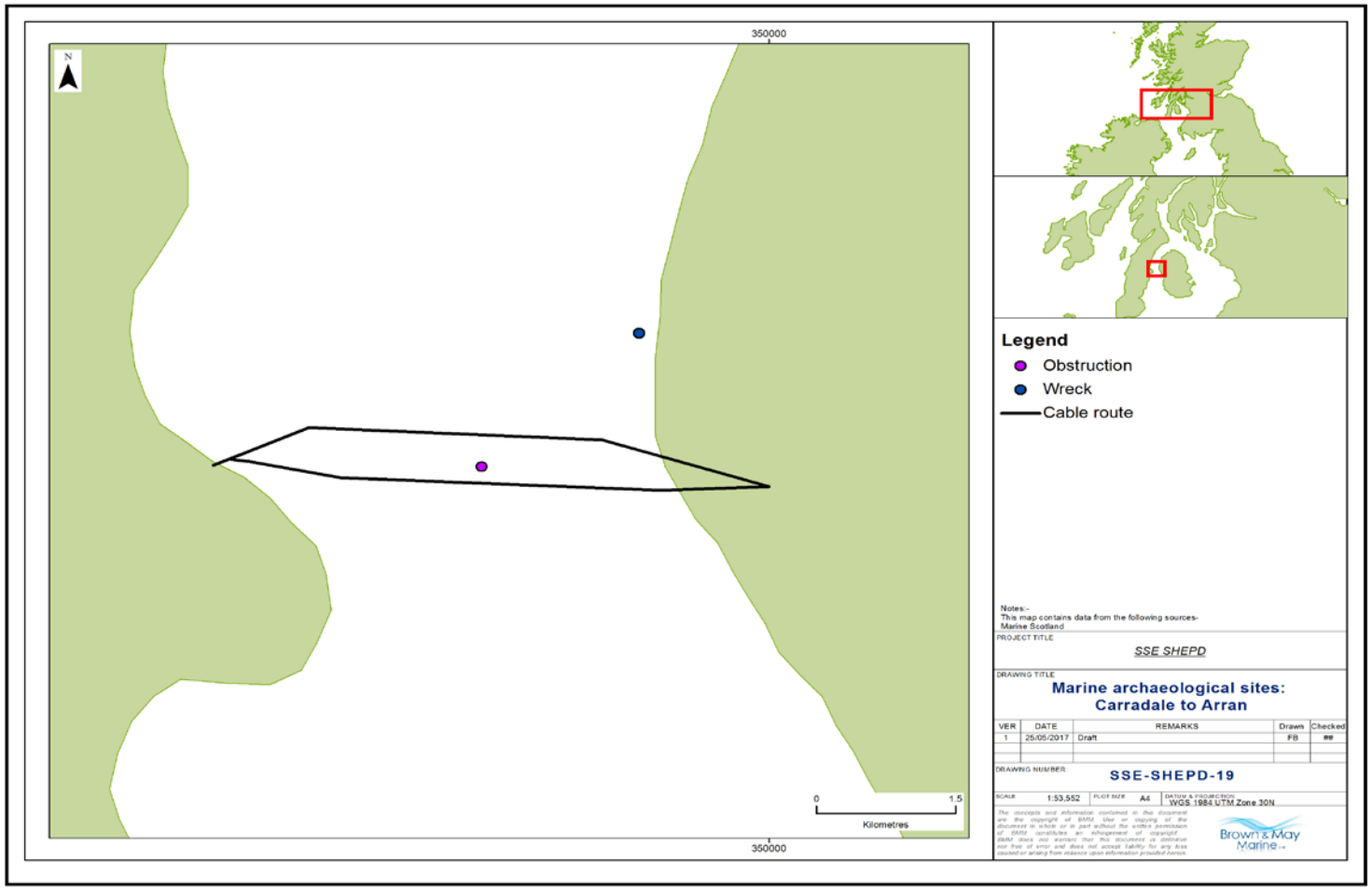


Figure 15 Marine Archaeology Arran- Carradale (CANMORE)

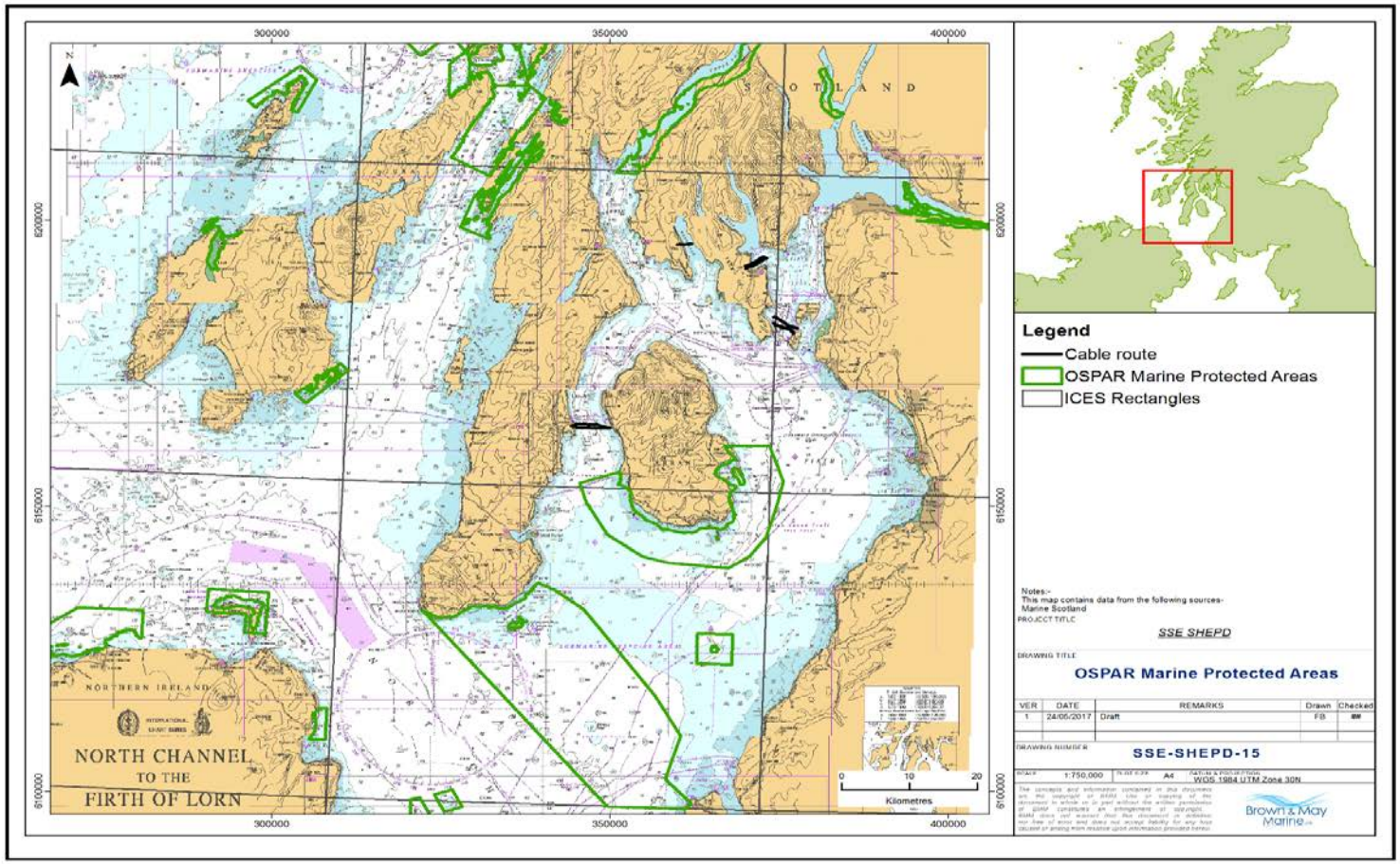


Figure 16 Marine Conservation sites (JNCC)

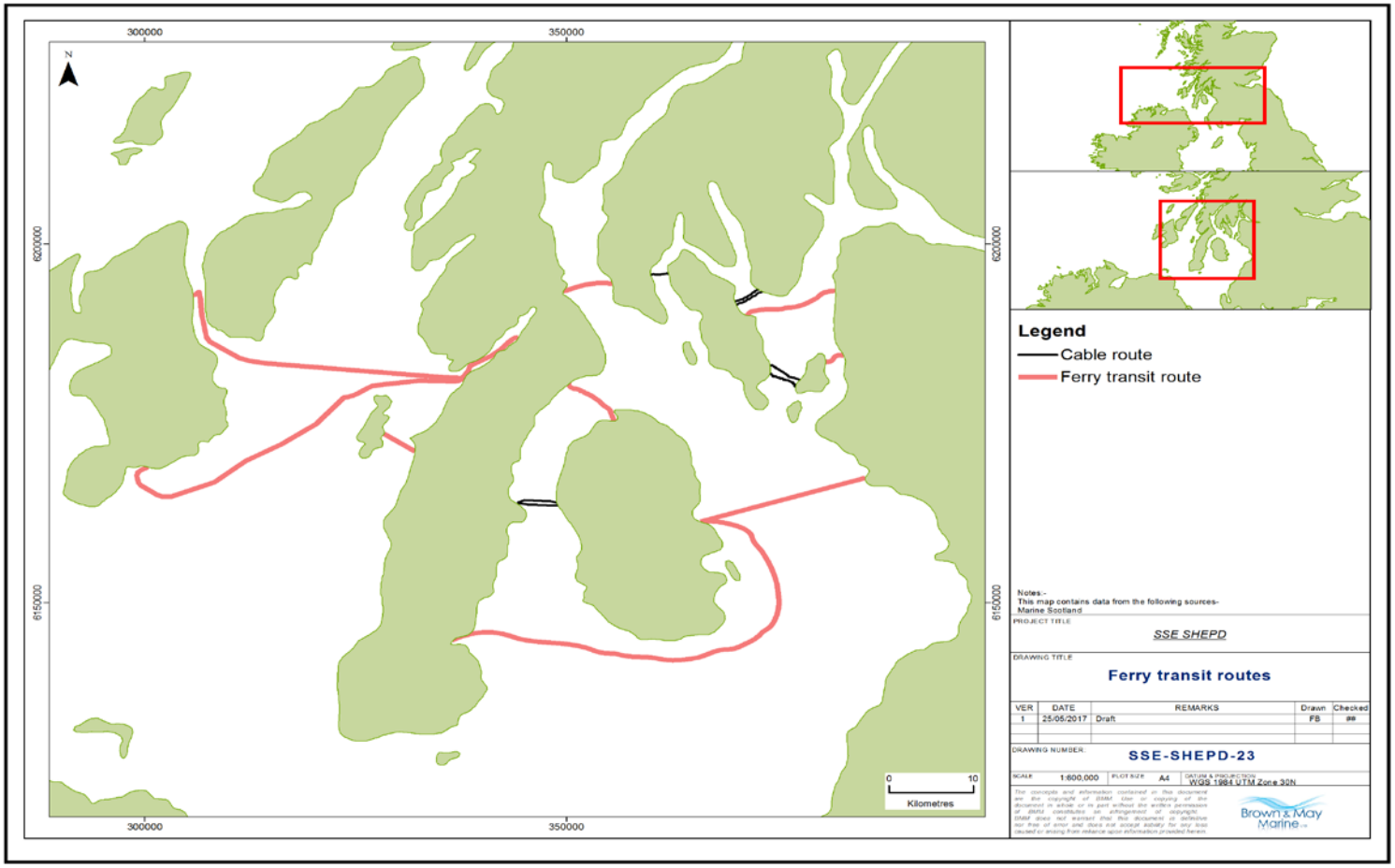


Figure 17 Ferry transit routes (CALMAC)