



Proposed eight-grid seaweed farm in Loch Snizort, Isle of Skye

APPENDIX 2 - NAVIGATIONAL RISK ASSESSMENT

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1 Introduction

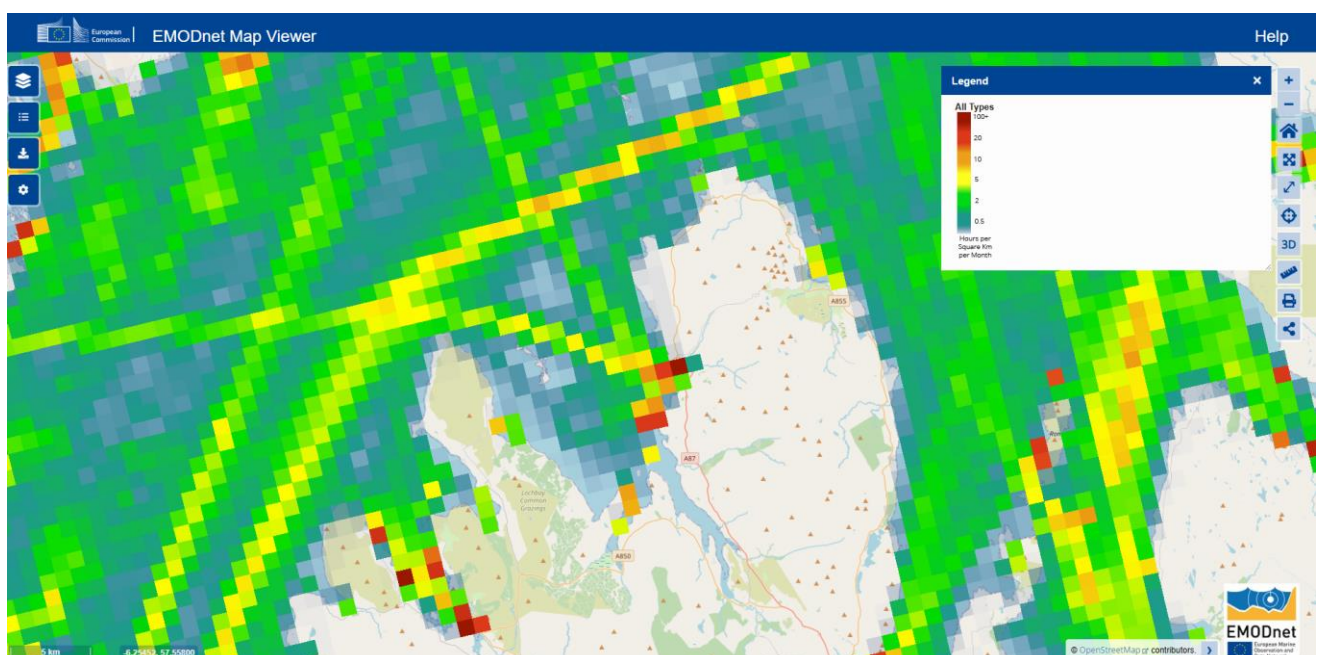
- 1.1.1 Kaly Group Ltd are committed to ensuring all marine users have safe passage around the seaweed farm site. This document provides information on the farm position in relation to other users, lighting arrangements, and the structure of the farm itself.
- 1.1.2 Also appended to this application is a draft Marine Emergency Action Card (MEAC), which should be read in conjunction with this Appendix. The final MEAC will be issued to the Northern Lighthouse Board (NLB), Maritime and Coastguard Agency (MCA), and other marine users in the area prior to the farm being deployed.
- 1.1.3 Kaly will also inform the Hydrographic Office of the positions and types of navigation buoys, as agreed with NLB and MCA, at the site prior to the deployment of any equipment.

2 Navigational Risk Assessment Plan

2.1 Vessel Traffic Review

- 2.1.1 A desktop study has been undertaken to assess the Navigational Risk to vessels in the area of the proposed seaweed farm. Figure 1 below show density maps of marine traffic.

Figure 1: Extract from the European Union’s EMODnet Map Viewer¹, showing vessel density.



- 2.1.2 The above figure captures annual averages of vessel density for the years 2017-2023. As shown, the figure captures a level of use by vessels travelling through the proposed site at Loch Snizort. Kaly have sought further assurances from local marine users, as well as from the Royal Yachting Association (Scotland) on the use of this area of the Loch by other marine users. The RYAS have confirmed this area of the Loch is not often used for pleasure vessels.

¹ <https://emodnet.ec.europa.eu/geoviewer/#/>

- 2.1.3 Kaly have sought to consult with local marine users and community members, including fisherman and those involved in yachting / pleasure boating associations to identify an optimal location for the seaweed farm which seeks to minimise impacts. There has been a series of discussions with local fishing vessel owners and representatives of local fishing groups to avoid areas identified as most sensitive / areas of highest quality for creel fishing as far as possible.

2.2 Buoy and Lighting Arrangement

- 2.2.1 Kaly have been advised on marker and lighting arrangements by the Northern Lighthouse Board (NLB), the Maritime and Coastguard Agency (MCA), and the Royal Yachting Association (RYAS).
- 2.2.2 The conventional system for marking aquaculture sites is by installing special marker buoys at the seaward corners (see Figure 2), which are installed to mark hazards.

Figure 2: Special marker buoy



2.3 Typical Deployment and Operational Vessels

- 2.3.1 The exact charter companies and vessel to be used will be determined at a later stage once contracts are fixed. It is envisioned that all vessels will be able to make one journey in a day.



Figure 3: Multicat Vessel
Specialised flat-bed mooring vessel
~28m x 10m; speed <12 knots



Figure 4: Workboat vessel
Versatile landing craft style vessel ~18m x 5m;
speed <8 knots



Figure 5: Creel boat
Local fishing fleet vessels around 10m – 16m; speed <8 knots



Figure 6: Fast workboat
Rigid Hull Inflatable Boat (RHIB) or hard boat
8m – 10m; speed <20 knots

- 2.3.2 **Multicat** - This style of vessel will be chartered to deploy the anchors, navigational marker lights, subsurface and surface farm structures and be integral in site inspection and maintenance/repair and as emergency response contract vessels for Kaly. Highly versatile, they are fitted with Dynamic Positioning (DP) to accurately lay anchors in predesignated positions. May be supported by smaller vessels
- 2.3.3 **Workboat** - This style of vessel will be the primary workhorse for seaweed farm Operational phases. The vessels have a large deck space and deck cranes to deploy Growing Lines in the water and lift them again at harvest time. The decks will also contain harvesting machines and suitable containers for seaweed harvested and waste rope collected. May be supported by smaller vessels. used to occasionally visit the site to observe the structural integrity, take sample of seaweed from the site and support larger vessels.
- 2.3.4 **Creel Boat** - This style of vessel will be used to visit the site to observe the structural integrity, whilst passing to or from their fishing grounds. They may occasionally take sample of seaweed from the site and support larger vessels. There is the possibility of these vessels being chartered for deployment and operational phases.
- 2.3.5 **Fast Workboat** - This style of vessel will be used to occasionally visit the site to observe the structural integrity, take sample of seaweed from the site and support larger vessels.

2.4 Transit Routes

- 2.4.1 Transit routes during both operation and monitoring of the seaweed site is anticipated to be from Greshornish. In relation to deployment and landing of biomass as well as decommissioning, Kaly propose use of the harbour at Kyle of Lochalsh which is most suitable for the scale of operation and vessel types.
- 2.4.2 Other than entry / exit of the harbours themselves, vessel activity will be within the lochs themselves and operations will be conducted during daylight hours, unless in an emergency situation.

Kaly Development Phase

- 2.4.3 Kaly have agreed with the NLB that Special Marks will be kept close to the extreme boundaries of the site – to the north western corner and the south western corner.
- 2.4.4 Kaly will ensure that before any equipment is deployed at the farm site, the relevant

consultees including NLB, MCGA, Local marine users and The Hydrographic Office are contacted with details of the deployment – this is per standard Marine Licence conditions. The Hydrographic Office will ensure that Admiralty paper and electronic charts are updated accordingly with Notices given to Mariners.

Vessel Use

- 2.4.5 During the deployment phases, Multicat - Dynamic Positioning (DP) work vessels will be brought in to accurately lay anchor blocks on the seabed. They are likely to be supported by smaller workboat or creel boat style vessels. The vessels are likely to work out of Greshornish to load equipment on board and transit the site via recognised transit lanes used by other Marine Traffic.

Phasing

- 2.4.6 To monitor the growth of the seaweed and to expand the farm in a sustainable manner, while monitoring environmental conditions around the proposed development, Kaly currently intend to install the farm in two phases although this may be subject to change ahead of installation with the full site deployed in one phase. If phased, Phase 1 would be four grids and Phase 2, the remaining four grids.

2.5 Kaly Farm Operations

Growing Line Phase

- 2.5.1 Seaweed is an overwintering crop. Seeded seaweed growing lines are generally deployed between mid-October and mid-November each year.

Harvesting Phase

- 2.5.2 After a growing period, seaweed lines are harvested between March and May.

Intermediate Phase

- 2.5.3 Outside of the Growing Line Deployment and the Harvesting or Operations phases, the seaweed farm will either be fallow or largely left unattended while the seaweed grows. Vessels will visit the farm weekly to inspect the site to check on the structures (typical per license conditions) and to check on plant growth and crop quality.

Monitoring Arrangements

- 2.5.4 Provision will be made for the continuous weekly monitoring of the Seaweed farm outwith its operational growing period to check the farm structures and will be regularly visited by vessel by farm operatives.
- 2.5.5 As part of this arrangement, a record of visits and inspections will be kept by Kaly and made available to any inspecting Marine and Coastguard Agency staff on request. See figure below for example:

Figure 7: An example of monitoring records

Site Name	Loch Bay			
Date	Observer	Observation	Comments	Staff
17/11/2023	AA Ltd, Kaly Staff	Visit to site during installation	Special marks installed	SJ, IM
18/11/2023	AA Ltd, Kaly Staff	Installation by Inverlussa Marine	Anchors lines installed	SJ, IM
19/11/2023	AA Ltd, Kaly Staff	Installation by Inverlussa Marine	Floats and lines installed	SJ, IM
20/11/2023	AA Ltd, Kaly Staff	Installation by Inverlussa Marine	All lines in place and tight	SJ, IM
27/11/2023	Kaly staff	Regular line check by boat	All lines in place and tight	Kaly staff
05/12/2023	Kaly staff	Regular line check by boat	All lines in place and tight	Kaly staff
15/12/2023	Kaly staff	Regular line check by boat	All lines in place and tight	Kaly staff
22/12/2024	Kaly staff	Shore observation	Special marks working, all floats in place	Anon
08/01/2025	Inverlussa Marine	Dive survey of lines	All joints and swivels intact	Inverlussa Marine
11/01/2025	Kaly staff	Deployment of seaweed lines	All lines and floats in place and tight	Kaly staff
18/01/2025	Kaly staff	Regular line check	All lines and floats in place and tight	Kaly staff

2.5.6 It is essential that the navigational and health and safety regulatory expectations for mooring systems are set in proportion to the potential risks with a view to develop a safe and sustainable seaweed growing platform for the long term. Kaly has commissioned specialist marine engineers to design the proposed grid system. Kaly will commission a specialist company with proven experience in design, installation and maintenance of marine structures to deploy the grid system to ensure:

- the structure can withstand such forces acting on it as are reasonably foreseeable including;
 - Environmental conditions, e.g. winds, waves, tidal currents
 - Loads during operational conditions including normal operation, contact loads from access boats and temporary loads during maintenance operations.
 - The weight of the installation and anything on it, buoyancy, drag and inertia forces from movement
 - Unplanned incidents including vessel impact
- that the construction, commissioning, operation, modification, maintenance and repair of the Seaweed Farm can proceed without prejudicing the structure’s integrity.
- that in the event of reasonably foreseeable damage to the installation or its moorings, the structure will retain sufficient integrity to enable action to be taken to organise appropriate safe repair, thus preventing mooring failure (thereby becoming a navigational hazard).
- that it may be decommissioned and dismantled safely.

Figure 8: Grid system schematic

