

Kaly Group Limited

Navigational Risk Assessment & MEAC



Details

Version	Date	Description	Author(s)	Revised by
V1.12	31/03/2023	Final (amended)	Stevie Jarron	KMc

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Loch Bay Seaweed Farm – Navigational Risk Assessment

01 Introduction

Kaly Group Limited (Kaly) is a Scottish company (SC720237), registered office - Old Manse, Hallin, Isle of Skye, IV55 8GH.

The company will harvest and process seaweeds grown on a sea farm off the coast of Skye in Loch Bay. Kaly, propose to deploy the seaweed cultivation farm 1nm from Stein in Loch Bay. The cultivated seaweed will be grown on lines on a permanent sub surface structure anchored to the seabed.

Kaly wish to provide all marine users with the information to ensure safe passage past the farm site.

This document provides information on the farm position in relation to other users, lighting arrangements and the structure of the farm itself.

The last section of this document is the Marine Emergency Action Card (MEAC) that will be given to Northern Lighthouse Board (NLB), Marine and Coastguard Agency (MCGA) and other marine users in the area before the farm is deployed. Kaly will also inform the Hydrographic Office of the positions and types of navigation buoys, as agreed by NLB and MCGA, at the site, prior to commencement of any deployment of equipment.

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02 Vessel Traffic Review

A desktop study was undertaken to assess the Navigational Risks to vessels in the area of the proposed Seaweed Farm. Using Marine Traffic tracking software, it was possible to provide Density Maps for 2020 (Fig 1) and 2021 (Fig 2).

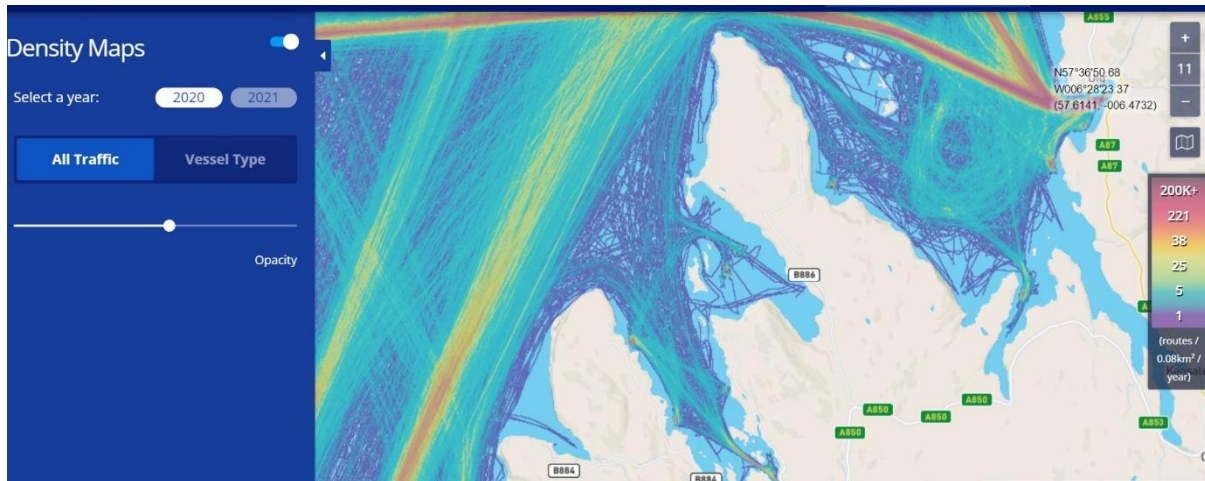


Fig 1 - AIS 2020 Density Map

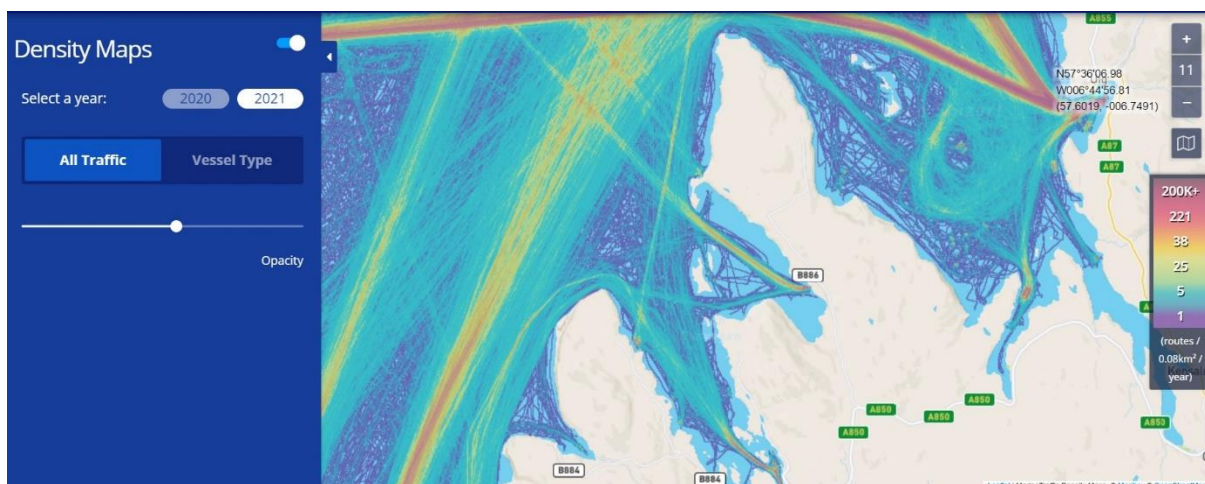


Fig 2 - AIS 2021 Density Map

As can be seen from above, AIS using vessels movements can be measured in single journeys through the Loch Bay farm site. This data does not include small fishing or pleasure vessels that use the area. Kaly have sought local input from marine users and community members and have been assured that use of the area for pleasure vessels is confined to other parts of the Loch Bay system.

Discussion with local fishing vessel owners and fishermen associations lead Kaly to believe the site for the proposed seaweed farm have very low volume use for creel fishing. The rock's islands and coastline to the north and east of the farm site are regularly used for creel fishing, but not the farm site itself.

03 Buoyage and Lighting Arrangement

Kaly have held discussions and been advised by Northern Lighthouse Board (NLB), Marine and Coastguard Agency (MCGA) and Royal Yachting Association Scotland (RYAS).

The conventional system for marking aquaculture sites is by the installation at the seaward corners of Special Marks. These are large, yellow coloured floating buoys. They have a top piece of a yellow St Andrews Cross and solar panel charged battery powered lights which flash yellow at night. Special Marks (Fig 3) are used to mark hazards and their colour and lighting set up offers information to the observer on where safe passage is available relative to their position.

Kaly have agreed that the site will be marked by 2 Special Marks (Fig 3). Before any equipment is deployed at the proposed site, Kaly will inform (as a license condition) The Hydrographic Office which maintains Admiralty paper and electronic charts so they can update accordingly. The aquaculture site will also be clearly marked on updated paper and electronic charts by a dotted line at its limits and a fish and cage symbol within.



Fig 3 - Special Marks

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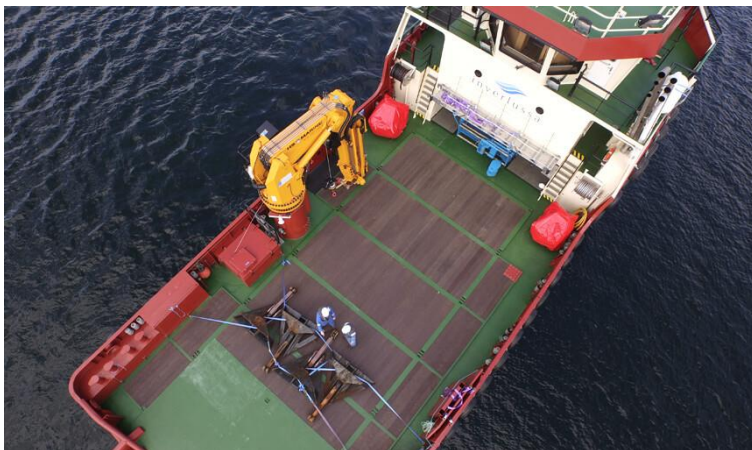
04 Deployment and Operational Vessels

To undertake the Deployment and operational work at the seaweed farm site, Kaly will charter the following style of vessels. These descriptions are to allow Statutory Consultees and Stakeholders to visualise the impacts. The exact charter companies and the vessels they will use are to be determined as contracts cannot be fixed at this stage of project development. Due to distance and speeds, it is envisaged that all vessels will make one journey in a day.

04.01 Multicat

Specialised flat bed mooring vessel ~28m x 10m. Speed - <12 knots.

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.



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04.02 Workboat

Versatile landing craft style vessel ~18m x 5m. Speed - <8 knots.

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.



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04.03 Creel boat

Local fishing fleet vessels around 10m to 16m. Speed - <8 knots.

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.



04.04 Fast workboat

Rigid Hull Inflatable Boat (RHIB) or hard boat 8m to 10m. Speed - 20 knots.

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.



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05 Transit Routes

The most likely harbour to be used during all phases of work on or at the farm are from Dunvegan. Stein slipway will be used for smaller vessels for farm checks and to assist the larger vessels (Fig 1). There may be occasion for equipment to come in on vessels from further afield.

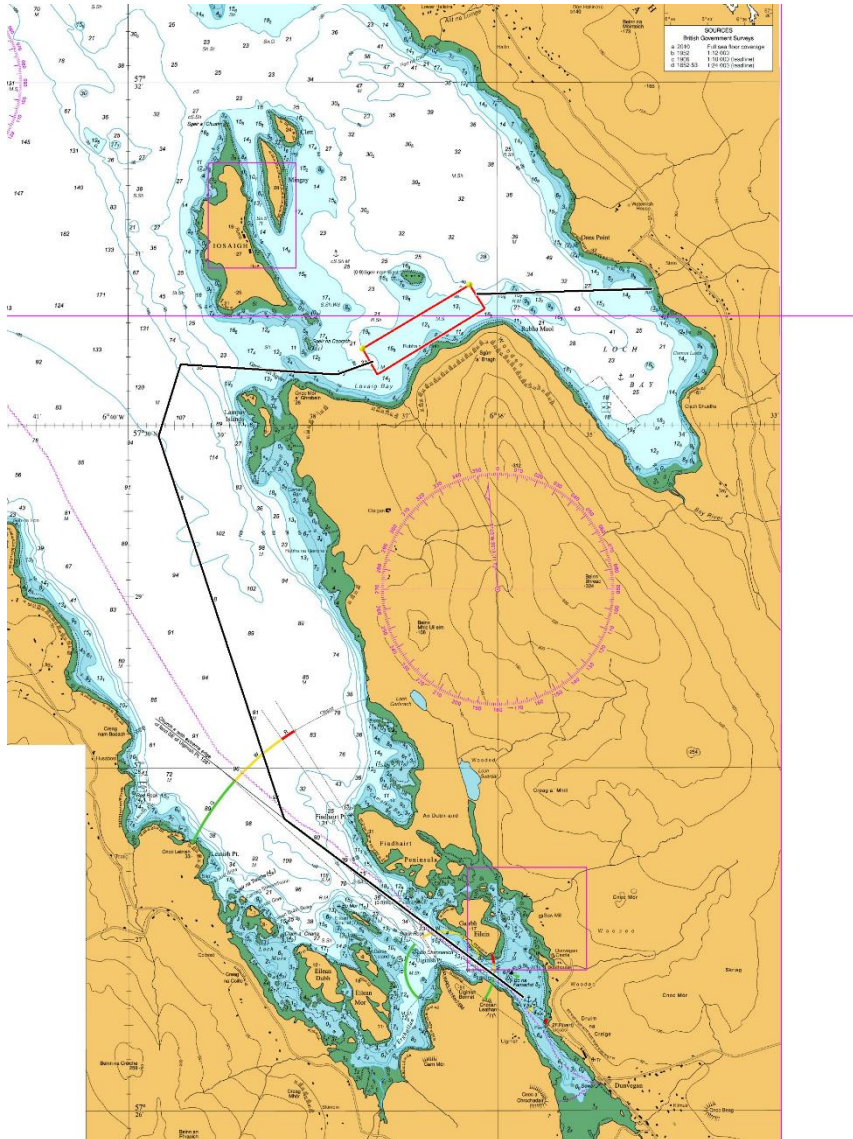


Fig 1 - Transit Routes (black) – Dunvegan – 11km, Stein – 2km to farm

Other than entry/exit of the harbours themselves, all vessels will be away from shore sites. Kaly's planned operations are likely to be conducted in daylight hours.

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06 Kaly Development Phase

Kaly have agreed with NLB that the Special Marks will be kept close to the extreme boundaries of the NW and NE of the deployed equipment.

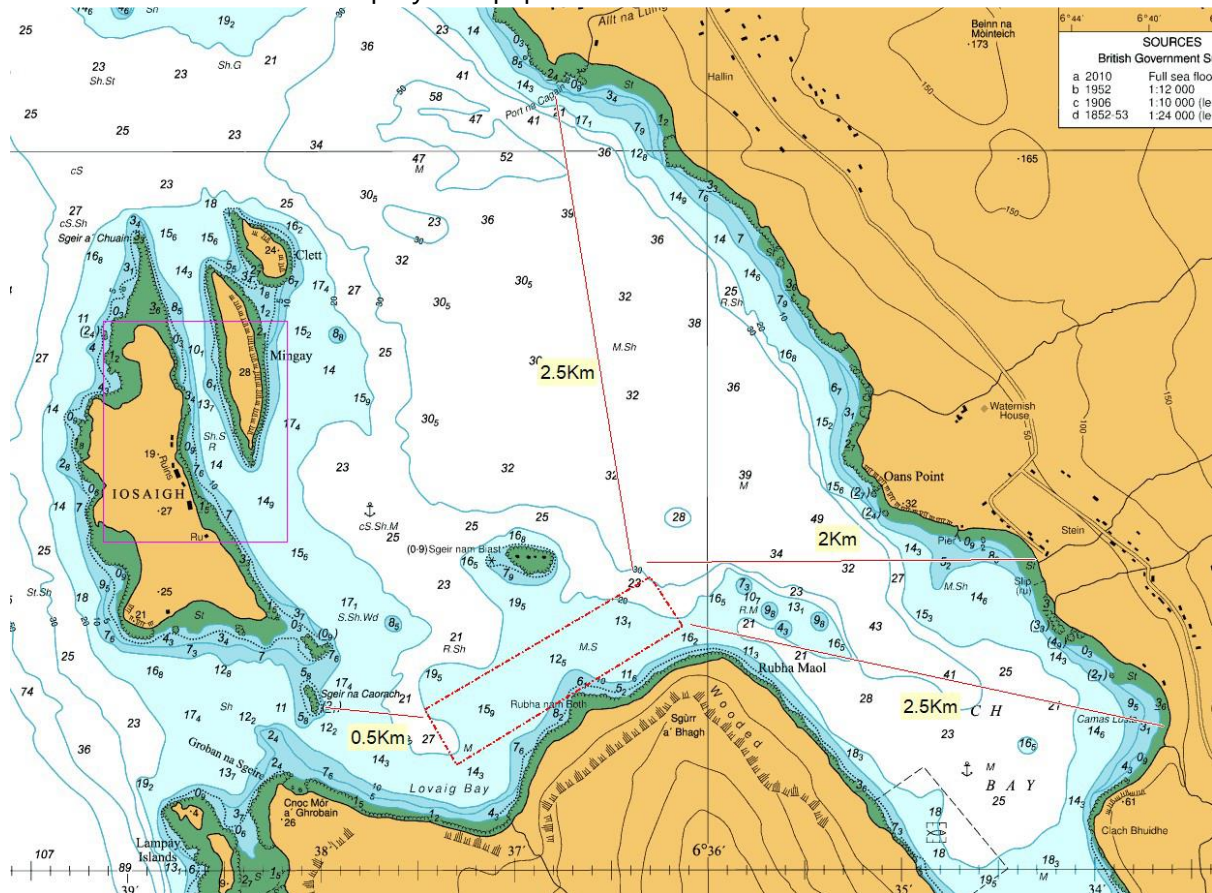


Fig 2 - seaweed farm area layout and relevant distance for vessel transit of the Loch Bay system.

Kaly will ensure that before any equipment is deployed at the farm site, Kaly will inform NLB, MCGA, Local marine users and The Hydrographic Office. The exact date will be given upon which the Special Marks will be moved into their positions. The Hydrographic Office will ensure that Admiralty paper and electronic charts are updated accordingly.

06.01 Vessel use

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 Dunvegan or Uig to load equipment on board and transit the site via recognised transit lanes used by other Marine Traffic.

06.02 Phase 1

Kaly's desire is to have a substantial seaweed farm at the site. To do this, the aim is to develop a 1st Phase of up to 4 seaweed Grid Structures late September and in to October 2023. This timing has been altered from original timetable. It is envisaged that the timing of this work will still allow for predictable weather and long daylight hours to complete the work, whilst

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avoiding a period of vulnerability for wildlife that will be discussed below. It is hoped the work will take no more than 3 weeks for this phase of work.

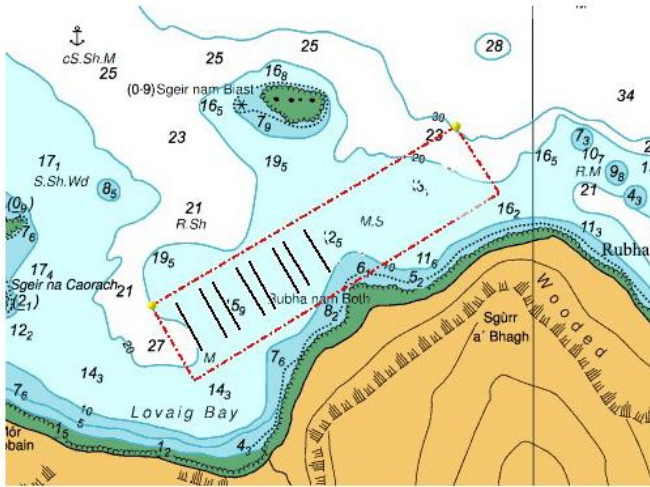


Fig 3 – Phase 1 deployment – Farm area (red) 4 grids with 2 pairs of headlines each (black) - Special Marks (yellow).

06.03 Phase 2

A 2nd phase is envisaged for the years 2025 or 2026. This will see Kaly potentially double the size of the farm with another 4 seaweed grid structures. As the seaweed farm begins to provide harvests for Kaly's new processing facility in Dunvegan, Kaly will evaluate the timing of the 2nd phase of development. As before, the timing of this work will be set to late September and in to October. It is envisaged that the timing of this work will still allow for predictable weather and long daylight hours to complete the work, whilst avoiding a period of vulnerability for wildlife that will be discussed below. It is hoped the work will take no more than 3 weeks for this phase of work.

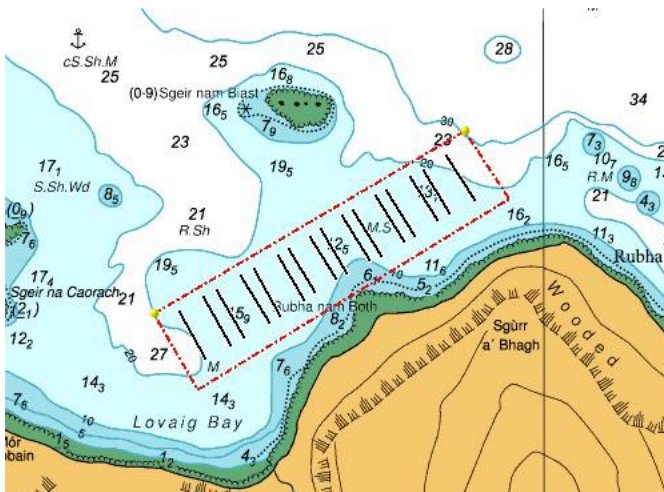


Fig 4 – Phase 2 deployment – Farm area (red) 8 grids with 2 pairs of headlines each (black) - Special Marks (yellow).

07 Kaly Farm Operations

Kaly will undertake 2 main Operational Phases. Growing Line Deployment Phase and Harvesting Phase. A further Intermediate Phase will also be described for clarity. During the Operational phases, Workboat and Creel fishing vessels will be brought in to deploy Growing Lines and to Harvest seaweed.

They are likely to be supported by smaller RHIB or hard boat style vessels (both in Operational and used in an Intermediate Phase). The vessels are likely to work out of the smaller harbour slipway at Stein. The vessels will load and unload equipment and seaweed and transit the site via recognised transit lanes used by other Marine Traffic.

07.01 Growing Line Phase

Seaweed Cultivation is an overwintering crop with the deployment of seeded seaweed Growing Lines beginning in mid-October completed by mid-November each year. There is also the possibility of Growing Line deployment in late-January to early-February.

In Phase 1 Operations, it is expected that Growing Line deployment will take 2 weeks.

In Phase 2 Operations, it is expected that Growing Line deployment will take 4 weeks.

07.02 Harvesting Phase

The harvesting of the matured seaweed plants begins in early-March and ends in late-May.

1. In Phase 1 Operations, it is expected that Growing Line harvesting will take place over an 8 week period, with roughly 2 harvest vessel journeys to the site per week, harvesting up to 20 tonnes per harvesting visit.
2. In Phase 2 Operations, it is expected that Growing Line harvesting will take place over an 8 week period, with roughly 3 or 4 harvest vessel journeys to the site per week, harvesting up to 20 tonnes per harvesting visit.

07.03 Intermediate Phase

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 (part of the license conditions) and to check on plant growth and crop quality.

08 Monitoring Arrangements

Kaly will ensure that the seaweed farm at Loch Bay will be regularly inspected by certified mooring specialists. A provision will be made for the continuous monitoring of the Seaweed Farm outwith its operational growing period. The site will be regularly visited by farm operatives by vessel.

A record of visits and inspections will be kept by Kaly and made available to any inspecting MCA staff on request (Fig 5).

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 checkby boat	All lines in place and tight	Kaly staff
05/12/2023	Kaly staff	Regular line checkby boat	All lines in place and tight	Kaly staff
15/12/2023	Kaly staff	Regular line checkby 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

Fig 5 - An example of monitoring records

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. To do that Inverlussa Marine (as yet unofficial), with over 20 years experience in design, installation and maintenance of marine structures will deploy a bespoke designed Seaweed Farm for Kaly (Fig 6) that uses oversized ropes, chains and anchors 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
- its construction, commissioning, operation, modification, maintenance and repair of the Seaweed Farm may proceed without prejudicing the structure's integrity.
- in the event of reasonably foreseeable damage to the installation or its moorings, it will retain sufficient integrity to enable action to be taken to organise appropriate safe repair, thus preventing mooring failure (thereby becoming a navigational hazard).
- it may be decommissioned and dismantled safely.

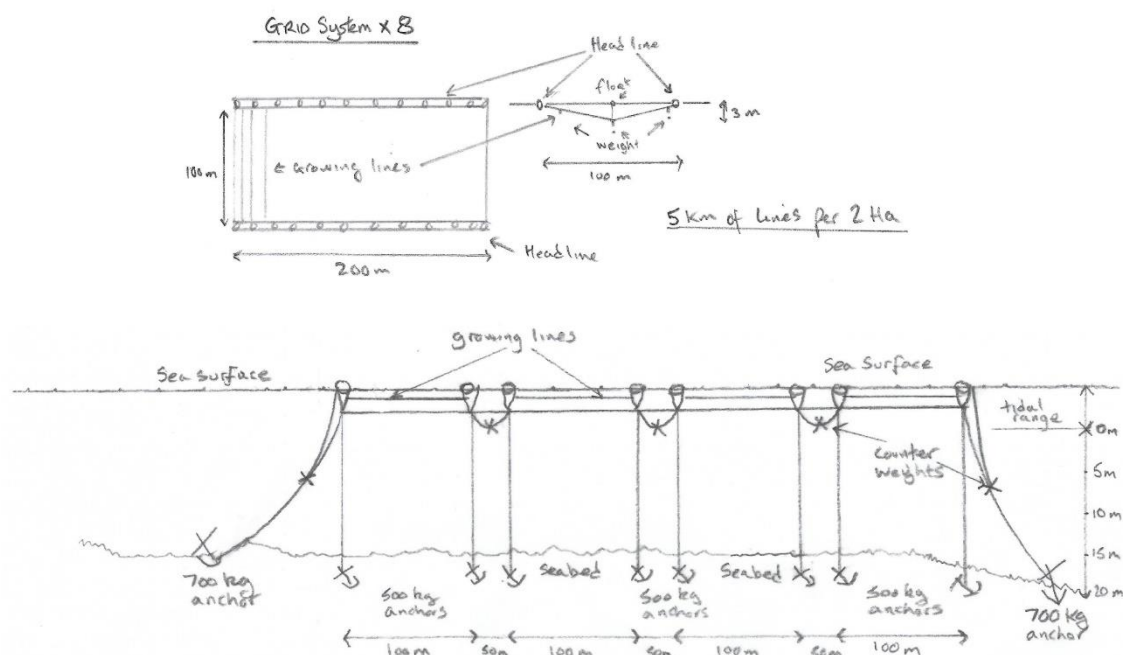


Fig 6 - Side and top view plan of grid system at sea farm site

09 Decommissioning Plan

Kaly have been trading since early 2022 and are investing heavily in the Seaweed Cultivation industry. The seaweed harvest this Farm will grow, will become high value ingredients across multiple product lines. Kaly are developing in parallel to the Seaweed Farm, onshore facilities for the movement and processing of their product. The cultivation of seaweed at their new seaweed farm will strengthen their supply of seaweed.

The Seaweed Farm design has been made with long service in mind. The use of heavy ropes rather than chains will allow a decade or more of operation before major replacement of parts are required.

Should the business venture founder, Kaly will hold back sufficient funds to enable the Seaweed Farm to be removed from site. The surface structure can easily be detached and towed to shore. The anchors that hold the structure in place can be simply lifted to the deck of a winch enabled vessel. The cost of decommissioning would be a fraction of the cost of deployment and the sale of the anchors and floats at the site should easily cover the cost of works.

10 Emergency Response Plan

This plan will exist both here for information and as a stand alone document that will be circulated to local HM Coastguard and RNLI stations, local vessel users, local houses and on a signpost overlooking the harbour at Stein.

Emergency scenarios and response

- vessel stranding – in the event of a vessel entering the Seaweed Farm exclusion zone and colliding with the Farm structure, the first concern is the safety of the vessel and crew. **999** should be called and the coastguard/RNLI informed. KALY should also be contacted (number below) and repairs to the Farm structure will be enacted.
- cetacean entanglement – in the unlikely event of a seal, whale, dolphin or basking shark becoming entangled in the Seaweed Farm lines, The British Divers RESCUE HOTLINE: **01825 765546** should be called - <https://bdmlr.org.uk/>
- float loss – occasionally, some line floats may become detached from the Seaweed Farm structure. This will not degrade the integrity of the Farm structure, but Kaly should be contacted (**number below**) so the float can be recovered and the replaced back where it came from.
- Storm damage/loss of integrity of the structure – the design of the Seaweed Farm is such that multiple anchor lines hold the structure in place and the loss of several of these lines would not degrade the integrity of the Farm. But should it be observed that the Farm structure has been damaged or worse, lost from its moorings **999** should be called and the coastguard informed. Kaly should also be contacted (**number below**) and emergency repairs to the Farm structure will be immediately enacted. Local vessels (fishing and aquaculture boats) will be retained as emergency response and ropes, floats and other equipment held in preparation for such emergency repair at Kaly shore base 1 mile to the east.

Kaly Contact details (to be contacted in all scenarios)

[Redacted]

MARINE EMERGENCY ACTION CARD

For Kaly – Loch Bay Seaweed Farm

Development summary (include details of the design, numbers of units/structures, mooring arrangements, subsea information, etc.) A full description including diagrams must be included below.

Emergency Contact One of the following or a combination of both, must be 24/7	
Duty Holder name	[Redacted]
Primary number	
Secondary number	
Media relations (if applicable)	
Coastguard	999
Police	999

Insert a picture/drawing of the device

See attached photograph of Special Marks and specification of light below

Development location	
Range & Bearing from land	150m north of Rubha nam Both. 2km west of Stein.
Dimensions of the area	300m x 1,350m
Number of devices	2

Device Specific information (adapt to suit the device)			
Heights/depths (m and ft)		Lights / Markings	
Height above sea level	Focal height of light 2420mm	Lights	2 x Y F15
Depth below surface	1.2m	Marks	Yellow
Height above seabed	15m OD		

SPECIAL MARK



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<p>Details of regular maintenance activities</p> <p>Weekly visual inspection from shore or vessel. Records will be kept for inspection by Kaly. See example sheet in details.</p>	<p>Summary of number of personnel working offshore and emergency response capabilities</p> <p>Site is fallow until October, There will be no work done at site until then.</p>
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<p>Details of vessels operating to/from the development – include name, callsign, description, communications (e.g. channels used), number of crew, operating limits, etc.</p> <p>No vessels are yet owned by Kaly. Operations at the site begins in October. This form will be updated as staff and vessels are assigned to the work.</p> <p>Various vessels will keep visual contact on site as they pass. Local fishing vessels will visually inspect site regularly. Records will be kept for inspection by Kaly.</p>

Personal SAR Locating Device Make & Model				
Functions: yes/no	COSPAS-SARSAT	AIS	DSC	121.5MHz
	n/a	n/a	n/a	n/a

<p>Additional information pertinent to the development</p> <p>No vessels are yet owned by Kaly. Operations at the site begins in October. This form will be updated as staff and vessels are assigned to the work.</p>
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