



**GLENELG SEA FOREST SEAWEED FARM:  
NOSTIE BANK, LOCH ALSH**

**APPENDIX 7:  
NAVIGATION RISK ASSESSMENT**

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## 1 Introduction

This document aims to provide an assessment of the risk to shipping and navigation at the proposed seaweed farm site location at Nostie Bank, along with the risk controls. It has been produced in accordance with the principles outlined in the Maritime & Coastguard Agency (MCA) guidance document, Methodology for Assessing the Marine Navigational Safety & Emergency Response Risks of Offshore renewable Energy Installations (OREI).

## 2 Project Details

### 2.1 Proposed Seaweed Farm Site Details and Locations

Glenelg Sea Forest Ltd (GSF), are applying to Marine Scotland for licenses to set light lines seeded with algae (various native, local species) on a new, purpose built Seaweed Farm, at Nostie Bank, Loch Alsh, Wester Ross, Highlands (Fig.1).

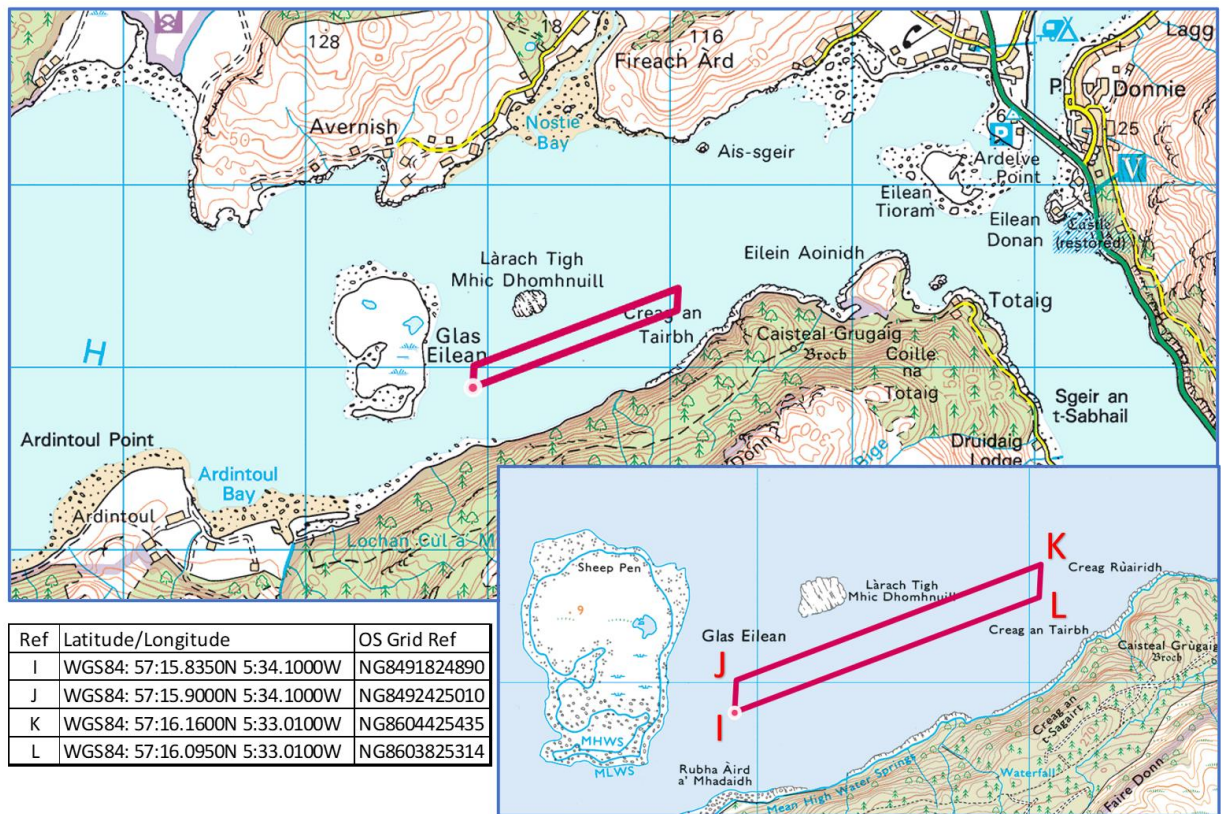


Figure 1: Nostie Bank Seaweed Farm Location and Coordinates

### 2.2 Navigation

As with standard aquaculture practice recommended by Northern Lighthouse Board (NLB), the outer extent of the site shall be special marks comprising yellow buoys fitted with yellow crossed top marks and lit with a flashing sequence. **These marker buoys will be located at the southwest and northeast edges of the site, at positions I and K marked on Figure 1.** The position of the anchor points will not be marked in any way, to keep the visual impact of the site to an absolute minimum.

### 2.3 New In-water Equipment

A subsurface grid will be used similar to that used by finfish farming, but with no surface cages; and will be secured to the seabed with a robust anchoring system (design to be finalised). Only the cushion (outer) and dropper line (intermittent) buoys will be visible on the surface, as will appropriate special marks denoting the site outer limits.

The farm will be set out as a five 400m longlines, held roughly 1.5m below the surface. This will provide a growing length of 4km at full capacity (all grids). 2km (5 long lines) will be seeded in year 1, 1km (remaining grid lines) in year 2, and the remaining 1km (1 other grid) in year 3

The seeded lines will be located every 10 metres. This distance was selected as it is a sufficient width for monitoring vessels to fit between the lines, for harvesting vessels to remove the seaweed and for minimising the risk of entanglement between adjacent lines. There will be riser buoys every 10 – 12 m to provide additional support to the lines. Figure 1. Demonstrates the indicative design of the site.

All in water equipment will be removable. The seeded lines will be deployed in mid-October and will be removed after harvesting, to be returned to the water at the next deployment period. The moorings and grid system will be in place all year.

## 3 Vessel Traffic Assessment

A desktop study was undertaken to assess the risk to vessels in the area of the proposed farm. Using Marine Traffic tracking software, Density Maps for 2019 and 2020 are shown in Figures 2 and 3 below.

Observations made from analysis of the density maps and stakeholder consultations<sup>1</sup>, indicate that the farm only poses a low navigational risk, as:

- the maps indicate that the bay where the seaweed farm would be located is out with the normal routes used by vessels; and
- GSF have undertaken consultations with the local fish farmer (Mowi) and local creel boat owners to ensure that the footprint of the farm and infrastructure does not interfere with potting grounds, nor pose a risk to any of their vessels who work within the vicinity. This has resulted in the orientation of Nostie Bank being amended slightly.
- GSF have undertaken consultations with the Royal Yachting Association, who raised no objections to the site, providing it is adequately marked and lit.

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<sup>1</sup> Consultations were undertaken in Mar-2021 and Dec-2021; refer to Appendices 6, 6a and 6b.



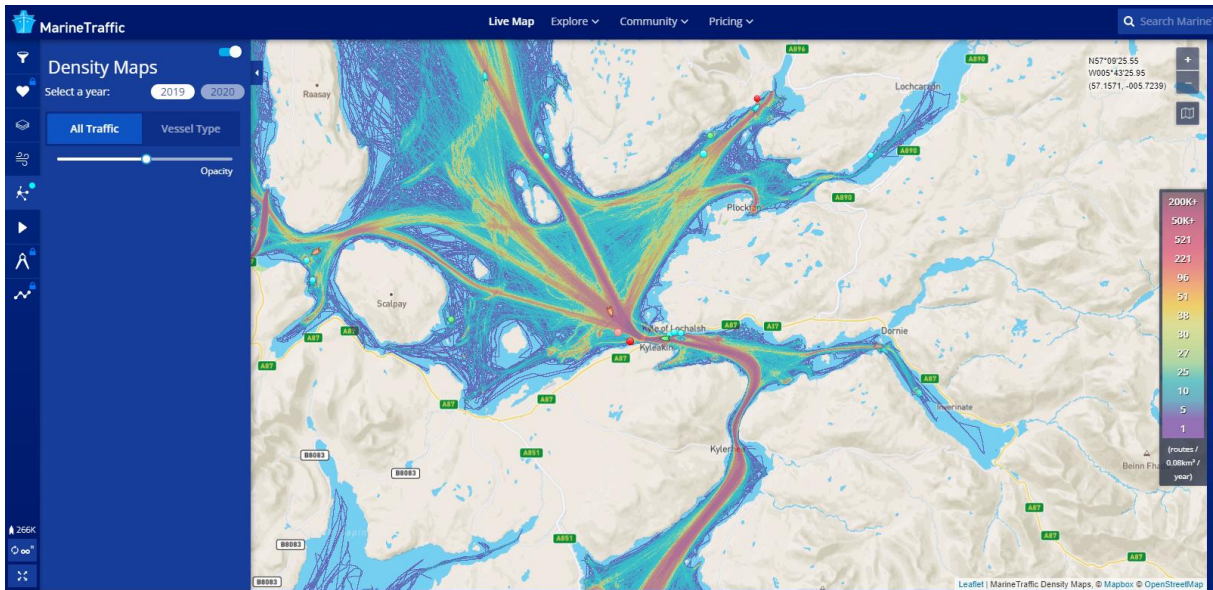


Figure 2: AIS 2019 Density Map, Source: [www.marinetraffic.com](http://www.marinetraffic.com)

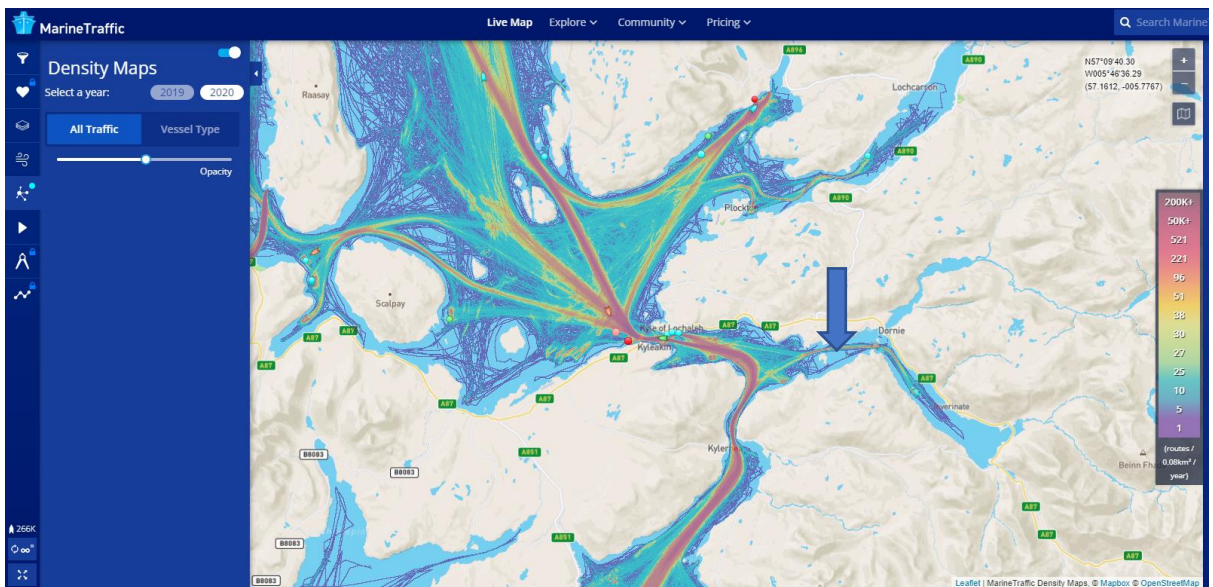


Figure 2: AIS 2020 Density Map, Source: [www.marinetraffic.com](http://www.marinetraffic.com)

## 4 Design, Monitoring and Maintenance

### 4.1 Design

The following outline the design considerations in relation to navigation:

- The farm footprint has been deliberately restricted in size to minimize impact on other marine users such as commercial and leisure vessels operating in or transiting through the area. **The site area will be closed to vessels but open to recreational users such as SUPs and kayaks.**
- **A RNLI Lifeboat could access the site, and between the seeded lines. The boat stationed at Kyle of Lochalsh, the closest station, has a draught of 0.54 m and a maximum width of 2.85 m. The Mallaig station has a draught of 1.45m and a maximum width of 4.9 m and so could also navigate within the seeded lines, though with a smaller margin of error.**

- The mooring system will be designed by the appointed contractor to undertake the works. Their appointment will be based on their previous experience, qualifications and competency; and shall take the following into consideration within their design:
  - o the mooring system should allow at least a decade of operation before major replacement of any of the parts are required.
  - o identify the potential risks in the area, with a view to developing a safe and sustainable seaweed growing platform for the long term.
  - o comply with navigational, and health and safety regulatory standards.
  - o ensure their design 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; and unplanned incidents including vessel impact .
  - o its construction, commissioning, operation, modification, maintenance and repair of the farm may proceed without prejudicing the structure's integrity.
  - o 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).
  - o

#### 4.2 Monitoring and Maintenance

The following monitoring and maintenance procedures will be implemented to ensure the continual integrity of the farm:

- the farm will be inspected by certified mooring specialists as required.
- farm operatives will receive training to check the integrity of the farm when they undertake visits. As a minimum these checks will include ensuring that the special marks are place and working; all lines and floats are in place and tight; and joints and swivels are intact.
- the site visits will be undertaken on a regular basis during the operational growing period; outwith this, a provision will be made for the continuous monitoring of farm.
- **There will be weekly inspections of the site during the operational growing period, and visits after any significant storm event.**
- **The response time after an incident reported on site will be 1 hour.**

A record of visits and inspections will be kept by GSF and made available to any inspecting MCA staff on request; these will detail:

- site visited, with location.
- date, time that the visit was undertaken.
- weather conditions on the day of the visit; and noting if there had been any extreme events in the lead up to the inspection; and/or any other reasons for the visit outwith routine inspection.
- where the inspection was undertaken from e.g., shore, boat.
- a note/ comment of the inspection, and any actions undertaken or further actions required.

#### 4.3 Decommissioning Plan

The farm has been designed with long service in mind (refer to point 4.1 above). Should the business venture flounder, GSF intend to hold back sufficient funds to enable the farm to be removed from site.

The surface structure can easily be detached and towed to shore; and the mooring system that secure the grids in place can be lifted on to the deck of suitable vessel. All in-water equipment is removeable.

Refer to Appendix 3b, Decommissioning Plan, for further information.

#### **4.4 Identifiable Hazards: Construction and Operation**

Appendix 3a, Installation Method Statement includes a non-exhaustive list of potential hazards and their associated mitigation strategies for installation and construction. Refer to this document for further information.

##### **4.4.1 Construction**

*This section to be completed once we have RAMS from the selected installation contractor, based on the installation method statement provided at this stage. To be tendered once marine licence is secured.*

##### **4.4.2 Operation**

*This section to be completed once we have the information on the specific type, number and recommended maintenance requirements from the installation contractor, and also dependent on the type and size of vessel undertaking maintenance and operation To be tendered once marine licence is secured.*

## **5 Emergency Response Plan**

Should any component of the farm break free, then the Emergency Response outlined below should be implemented. This plan will exist both here for information and as a standalone document, **the Marine Emergency Action Card**, that will be circulated to local HM Coastguard and RNLI stations, local vessel users, local houses and on a signpost overlooking the site from shore.

Emergency Scenarios and Response:

- Vessel Stranding: in the event of a vessel entering the 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. GSF should also be (Bruce Langlands, 07872 474 933) 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 Marine Life Rescue (<https://bdmlr.org.uk/>) should be called, RESCUE HOTLINE: 01825 765546
- Float Loss: occasionally, some floats may become detached from the farm structure. This will not degrade the integrity of the Farm structure, but SWMID should be contacted (number below) so that it can be recovered and the replaced back where it came from.
- Storm damage/loss of integrity of the structure: the design of the farm is such that multiple anchors 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 damage has occurred, or worse, lost from its moorings, 999 should be called and the coastguard informed immediately. GSF should also be contacted [Redacted] 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 GSF shore base.