

## Introduction

Seaweed Farming Scotland (SFS) has considered the MCA's *Methodology for Assessing Marine Navigational Safety & Emergency Response Risks of Offshore Renewable Energy Installations (OREI)* and produce this submission that is proportionate to the scale of the developments proposed and the magnitude of the risks.

The proposed development is in an area where the potential risks are lower, and is a small-scale development, so this submission is based on the following:

- Hazard list
- Navigation Risk Assessment based on qualitative techniques such as “expert judgement”
- Emergency response overview, to agreed MCA requirements
- Risk Control List.

## Project details and scope

Seaweed Farming Scotland (SFS) is developing aquaculture sites on the West Coast of Scotland in line with Scottish Government's Seaweed Cultivation Policy. This proposal is for a longline structure to cultivate rope grown seaweed.

SFS has commissioned AquaMoor Ltd to design farm layouts and cultivation structures. The engineering team at AquaMoor have over 60 years' experience in design and installation of aquaculture structures. All AquaMoor designed structures are subject to hydrodynamic load modelling using ProteusDS software to predict structural loads for given wave climate and current conditions at site. This analysis informs the requirements for appropriate equipment specification.

This is the same service that AquaMoor provides to Scottish clients in the finfish and shellfish sectors.

The core marine operations team at SFS have been contract farming for several years for AquaMoor clients and have 5 years hands on experience of operating seaweed farms, including seeding and harvesting operations, conducting planned maintenance programmes, moorings and Nav Mark inspection and maintenance, etc.

The standard long line length is 200m and the mooring lines at either end range from 75m to 10m dependent upon site depth. Wherever possible SFS farms will be installed using AquaMoor's helical screw anchors to minimise environmental impact at the seabed and maximise asset security.

Farm installation and planned maintenance programmes are undertaken all year round subject to suitable weather. The farming calendar sees peak activity at site in October and February for seeding farms and during April, May and June for harvesting. This will be conducted by SFS using its own workboat or local contracted vessels for larger operational requirements. Once the crop has been harvested, growing lines will be removed however mooring lines and surface cushion buoys will remain in place all year round.

## Seaweed Farming Scotland – Navigational Risk Assessment of Argyll Sites

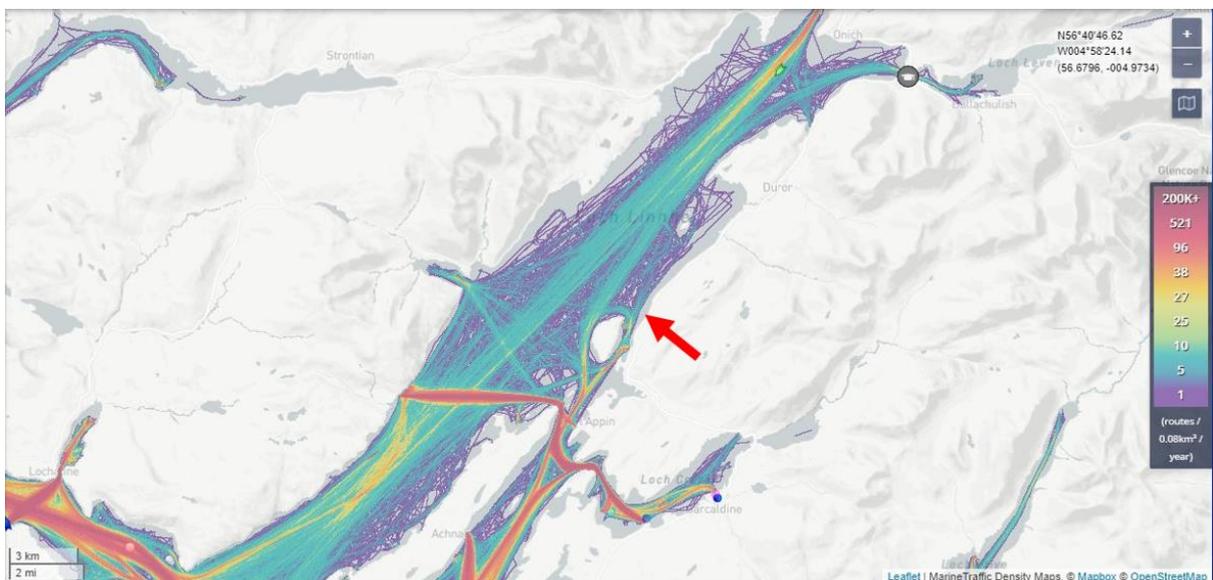
### Existing traffic baseline

A leading principle of SFS site selection strategy has been to ensure coexistence with other marine users and avoidance of displacing any other seafarers earning a living from the sea.

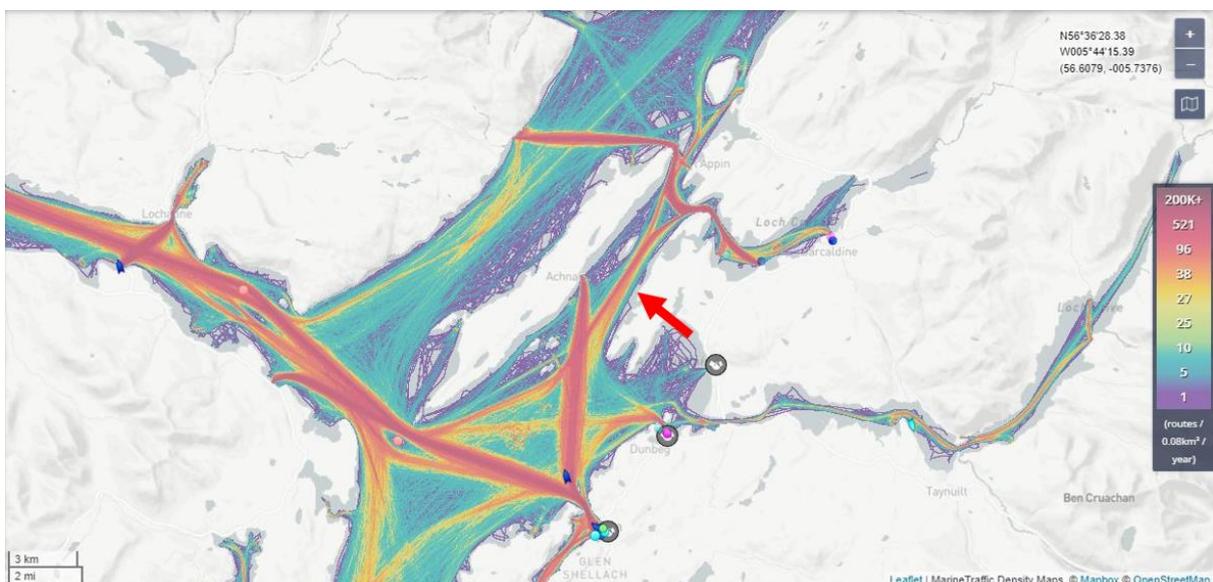
A desktop study has been undertaken for every site to assess the risk of the proposed seaweed farm to vessels in the area. Using Marine Traffic AIS data tracking software Density Maps for the full site including surrounding areas were generated for 2020/2021.

The marine operations team at SFS have been working in these waters for over three decades and have comprehensive local knowledge of fishing, commercial and recreational vessel activity and operators. The “Future Case” level of risk based on predicted growth in future densities and types of traffic is not expected to vary from the established current levels. SFS does not anticipate in the reasonably foreseeable future changes in the marine environment that would adversely impact on vessel density.

Seaweed Farming Scotland – AIS 2020/2021 Density Map for Shuna Site

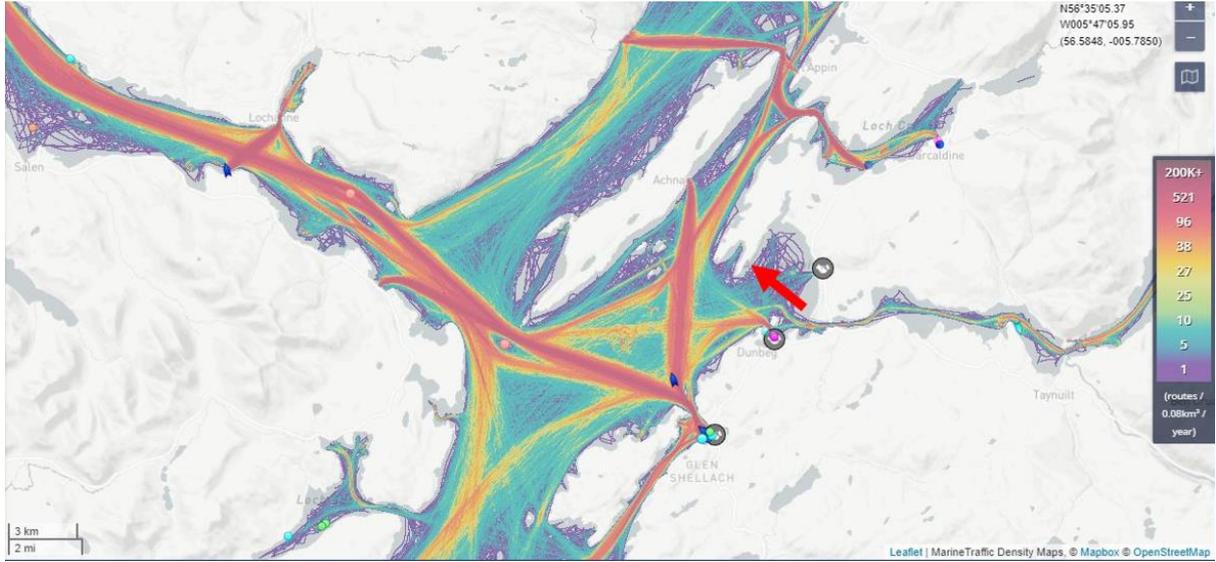


Seaweed Farming Scotland – AIS 2020/2021 Density Map for Eriska Site

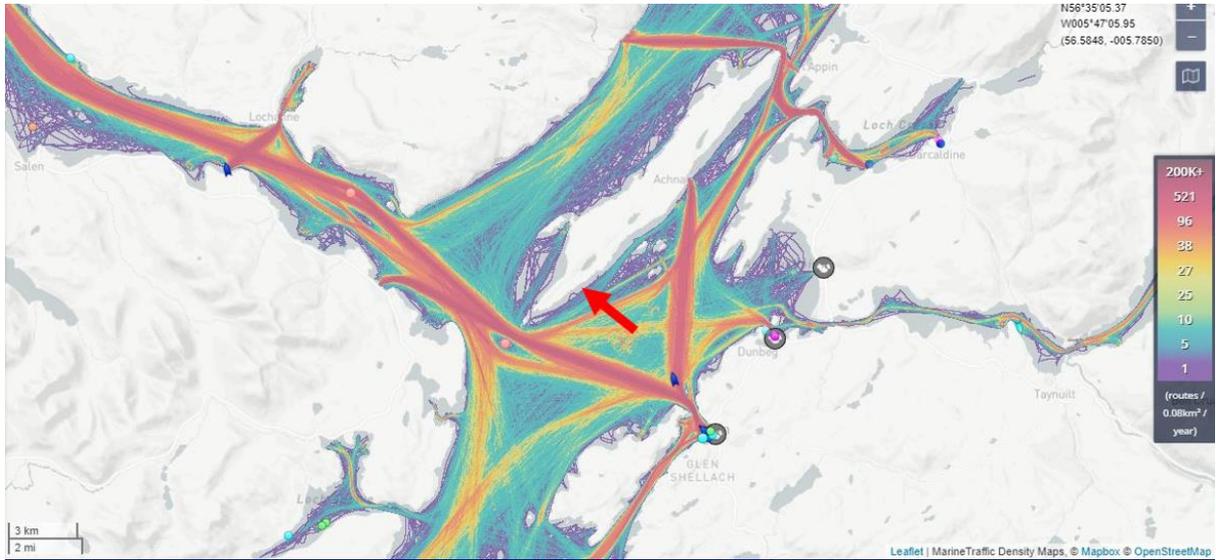


# Seaweed Farming Scotland – Navigational Risk Assessment of Argyll Sites

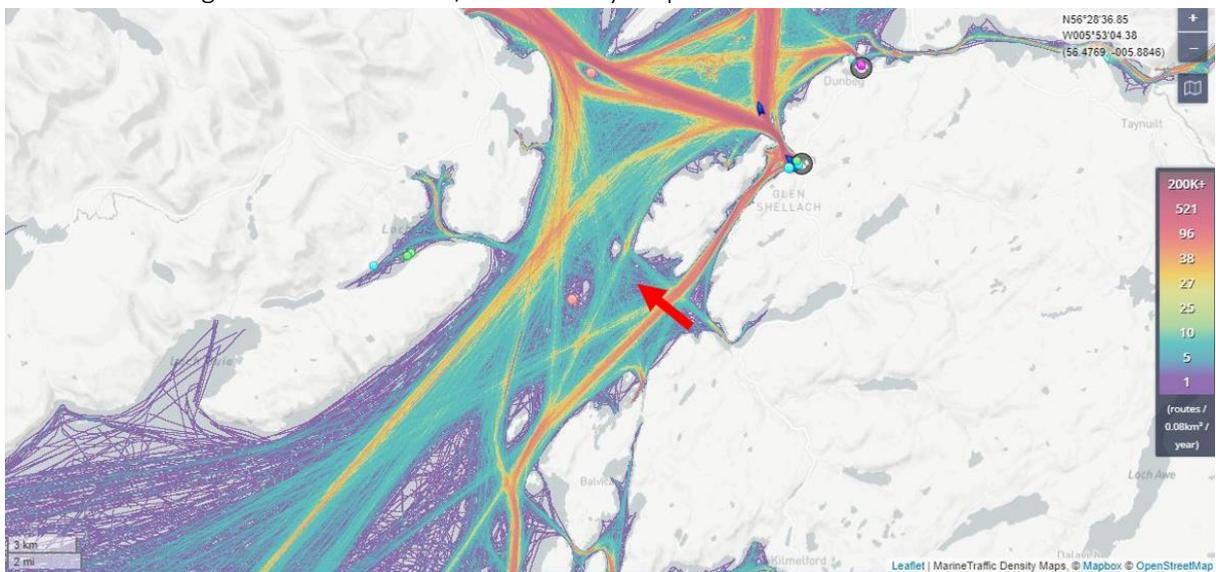
## Seaweed Farming Scotland – AIS 2020/2021 Density Map for Ardmucknish Site



## Seaweed Farming Scotland – AIS 2020/2021 Density Map for Lismore Site



## Seaweed Farming Scotland – AIS 2020/2021 Density Map for Kerrera Site



Discussion with local fishing vessel owners and fishermen, observations of activity at these sites and 'expert judgment' indicate these are not suitable fishing grounds.

Although the Argyll region is popular for recreational yachting, this site does not impact on access to any anchorage and is not itself a suitable anchorage due to its bathymetry and its location on a lee shore to the prevailing winds and currents.

### **Risk assessment**

*A qualitative assessment on the risks associated with the hazards during construction, operation and decommissioning:*

To meet the Marine Navigational Safety Objectives:

- appropriate assets must be identified, consultations with appropriate stakeholder bodies held, agreement with the competent body reached, and the assets have to be put in place by the responsible body.
- applicable rules must be identified, consultations with appropriate stakeholder bodies held, agreement with the competent body reached, and the rules have to be implemented by the responsible body.
- standard or relevant good practice risk controls must be identified, consultations with appropriate stakeholder bodies held, agreement with the competent body reached, and the risk controls have to be implemented by the responsible body.
- risk control options have to be identified, consultations with appropriate stakeholder bodies held, agreement with a competent body reached, on risk controls that are capable of reducing risk to that which is As Low As Reasonably Practical and are assessed by risk assessment and the assessment used to decide if they will be incorporated
- emergency and contingency plans must be put in place and exercised.

Seaweed Farming Scotland considers that the risks associated with the site are 'Tolerable' on the basis of "As Low As Reasonably Practicable" (ALARP)' and should therefore be acceptable.

### **Emergency Response Arrangements**

The emergency response arrangements are detailed in the Marine Emergency Action Card which is to be agreed with HM Coastguard in advance via [OELO@mcga.gov.uk](mailto:OELO@mcga.gov.uk) . A copy of this has been provided to the MCA along with this submission for reference. *Include MEAC cards*

### **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.

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. SFS 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 SFS 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 factors of safety have been incorporated into the design of all components. There is sufficient contingency such that the loss of any individual anchor line that holds the structure in place will not result on complete failure 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. SFS 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 SFS shore base.

SFS Contact details (to be contacted in all scenarios)

**Monitoring Arrangements**

SFS will ensure that every Seaweed farm that it operates 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 and viewed from the nearby shoreline by local SFS employees. SFS will also ensure that regular visitors to the vicinity (local fishing and aquaculture vessels) are asked to observe the site to ensure its integrity.

A record of visits and inspections will be kept by SFS and made available to any inspecting MCA staff on request. An example log is shown below:

<b>Shuna</b>				
<b>Date</b>	<b>Observer</b>	<b>Observation</b>	<b>Comments</b>	<b>Staff</b>
17/06/2021	SFS	Visit to site during installation	Special marks installed	AB/LS
18/06/2021	AquaMoor	Installation by North West Marine	Anchors lines installed	AB/BS
19/06/2021	AquaMoor	Installation by Inverlussa Marine	Floats and lines installed	AB/CB
20/06/2021	AquaMoor	Installation by Inverlussa Marine	All lines in place and tight	SB
27/06/2021	AquaSky	ROV Subsurface Survey	All lines in place and tight	SFS
22/07/2021	SFS	Regular line checkby boat	All lines in place and tight	SFS
17/08/2021	SFS	Regular line checkby boat	All lines in place and tight	SFS
18/08/2021	SFS	Shore observation	Special marks working, all floats in place	SFS
13/09/2021	North West Marine	Dive survey of lines	All joints and swivels intact	NWM staff
11/10/2021	AquaMoor	Deployment of seaweed lines	All lines and floats in place and tight	SFS
12/10/2021	AquaMoor	Regular line check	All lines and floats in place and tight	SFS

### **Mooring Arrangement Assessment**

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 AquaMoor, with over 60 years experience in design, installation and maintenance of Aquaculture structures have designed a Seaweed Farm for SFS that is compliant with the Scottish Technical Standard for Finfish Aquaculture to ensure the structure;

- can withstand such forces acting on it as are reasonably foreseeable including;
  - o Environmental conditions, e.g. winds, waves, tidal currents
  - o Loads during operational conditions including normal operation, contact loads from access boats and temporary loads during maintenance operations.
  - o The weight of the installation and anything on it, buoyancy, drag and inertia forces from movement
  - o 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.

### **Consideration of Cumulative Impact**

The site is not in close proximity to other projects or proposed projects in the vicinity of the proposed farm therefore there is no concern of any cumulative impact in combination with another site in relation to shipping and navigation.