Version	Date	Description	Author(s)	Revised by
V1.0	17/11/2024	Final	Stevie Jarron	

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01 Introduction

Stevie Jarron is an Aquaculture Specialist and Marine Operation Consultant. Trading under the name of Argyll Aquaculture (AA). Trading address – Tigh air Oisean, Cnoc a Challtuinn, Clachan Seil, Argyll and Bute, PA34 4TR.

AA has acquired the Crown Estate Scotland Lease and the Marine Directorate consent for the Integrated Multi-Trophic Aquaculture (IMTA) site, from original owner Jack Macgregor (trading as Jack Macgregor and Sons).

The East Balvicar site was originally licensed as a mussel farm (04700), but algae farming consent was added (04700/17/0), creating an IMTA consent which was subsequently re-applied for under MD license - 06833/20/0.

The documentation for the change of ownership was submitted to Marine Directorate LOT on 01/10/2024. This change of ownership is still pending, but the license is due to expire on 24 March 2025. This re-application is being made under the new ownership details in the expectation that the new detail will match those pending changes.

The boundaries of the existing MD license - 06833/20/0 of the IMTA farm are laid out as:

56° 17.683' N	5° 35.441' W
56° 17.667' N	5° 35.325' W
56° 17.350' N	5° 35.598' W
56° 17.337' N	5° 35.451' W

The MD license - 06833/20/0, has the site consented for 4 longlines, all of which can be used for algae cultivation and 3 which can be used for mussel/shellfish cultivation.

Town and Country Planning (General Permitted Development) (Scotland) Order 1992 (as amended) which apply to marine and freshwater finfish and shellfish developments (updated April 2021) states in Class 21F – Change of use (change of species):
Subsection 65. The Town and Country Planning (General Permitted Development) (Scotland) Amendment Order 2018 introduced change of use (production species) for shellfish farmers. An operator may change the use of their farm from;

- mussels or pacific or native oyster cultivation to scallops;
- scallops or pacific or native oyster cultivation to mussels;
- pacific oyster, mussel or scallop cultivation to native oyster.

This change allows an multitrophic licensed site (such as East Balvicar) to be a truly IMTA farm.

This document is more specifically aimed at Nature Scot's needs and has been heavily influenced by direct guidance from them during other seaweed consenting processes.

02 Farming species choice

AA intend to cultivate several native species of seaweeds at the East Balvicar IMTA site. At this time, the three main seaweed cultivation species being cultivated in Scotland are Atlantic wakame (*alaria esculenta*), Sugar Kelp (*saccharina latissima*) and Oar Weed (*laminaria digitata*). Atlantic wakame does not favour the more sheltered location of East Balvicar Bay as they are more suited to sub-littoral rocks exposed to strong wave action. The other two kelps could be grown as required, as the site is suitable for their cultivation. But it is upon the native small red seaweeds, Dulse (*palmaria palmata*) and Pepper Dulse (*osmundea pinnatifida*), and Sea Lettuce (*ulva lactuca*) a small native green seaweed that AA hopes to trial cultivation. These are far more highly prized and have a greater marketability. The farm site is relatively more sheltered than other kelp farms in the area and offers easier access for plant and structure management to tend a multi-harvest coppicing at regular intervals throughout the plants' growing seasons. are to the area. AA are including these species in their application in anticipation of the perfecting of the technology to viably farm them is now at hand.

The volumes of seeding plants required to be collected are very small, a standard bucket of fertile seaweed can nurture 20km worth of seeded farm growing line which can produce over 150 tonnes of mature seaweeds.

All the seaweed species to be farmed are native and grow abundantly locally but inhabit the very lowest of the shoreline only exposed on low spring tides. This does not lend them to large scale shore harvesting by hand. So, cultivation is seen as a necessary method to grow these seaweeds at scale. There are no chemical additions or treatments used for the seaweed growing process. There are no feeds introduced to the water. The ropes used for growing are removed at the same time as the seaweed is harvested. This form of sea farming has a very light impact on the environment, compared to that of some other aquaculture means, with the spatial impact the main theme.

Initially, AA envisage small vessels (probably a 6m vessel and an 11m vessel) being used for seeding, maintenance, and harvesting which work best in short windows of weather opportunity.

The site is also currently consented for blue lipped mussel (*mytilus edulis*) farming and, although this is being considered in the mix, it is not advisable to culture mussels so close to farmed seaweed and heavy mussel spat (seed) can deteriorate the quality and growth potential of the seaweeds. It is most likely that a program of native oyster (*ostrea edulis*) cultivation may be looked at as part of restoration projects that are taking place in the local area. There is also evidence of heavy queen scallop (*aequipecten opercularis*) and these can be cultivated in similar ways to oysters in either lantern baskets on the farm structures or on traditional trestles alongside nearby oyster leases on the shoreline.

03 Existing East Balvicar Bay IMTA Farm

The embayment of East Balvicar Bay sits between the mainland of mid-Lorne and the island of Seil. The site is open to the sea to south and sheltered under steeply rising sea cliffs to the east and a rocky coastline of islands to the west and north. Twice daily the strong tides of the Great Race flow up into the Sound of Jura, splitting at the confluence of Cuan Sound and a tongue of water diverts into East Balvicar Bay and into Seil Sound and Clachan Sound to join the Firth of Lorne to the north. The site also experiences funnelled southerly sea winds which can produce sharp waves in wind against and wind with tides.

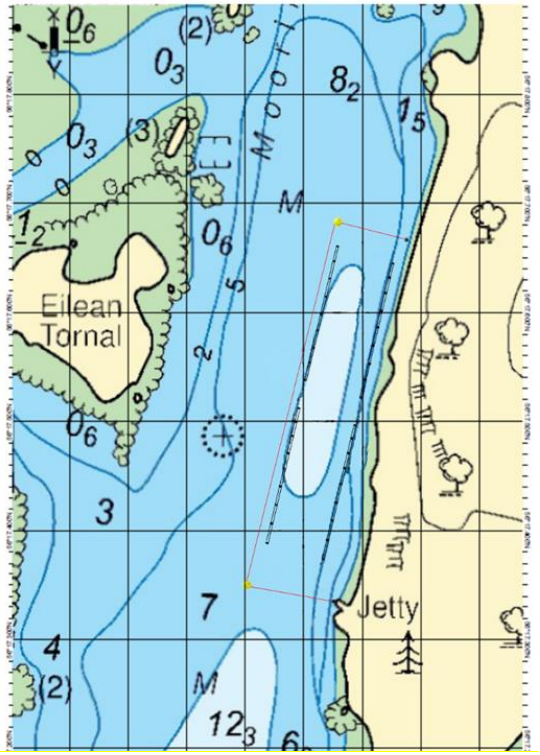

Fig 1 – Farm site showing CES/MD-LOT area (red) and 4 longline structures in license.

The consent for this IMTA 4 allows 4 x 220m longlines for seaweed cultivation and 3 of those structures can be used for mussel cultivation. Upon relicensing, it is planned that all structures will be removed, revamped and/or replaced as the existing structures are reaching the end of operational integrity. The new strictures will not exceed the licensed consent area or conditions. The proposed farm structures will have anchors set in a similar way to ensure they stay clear of rocky reefs and intertidal rock areas which hold many important sea-life habitats.

Northern Lighthouse Board set the navigational buoyage for the farm as the NW and SW corners of the farm area to be delimited by conventional marking system for aquaculture of 2 x Special Mark buoys. These yellow-coloured buoys are marked by a top piece with a yellow St Andrews Cross. A solar panel powered light unit on each flash yellow at night. The light pattern is a conventional Yellow Flash every 5 seconds (Y Fl 5s).

04 Site Designations

Integral to the original consenting process in 2018 was the scrutiny of Site Designations by statutory consultees Nature Scot and the Scottish Environment Protection Agency (SEPA) during the Marine Scotland Pre Application Consultation (PAC) process and Licence Application process. This was completed without concern from any of the above Regulators, but AA have undertaken full Due Diligence for their operations.

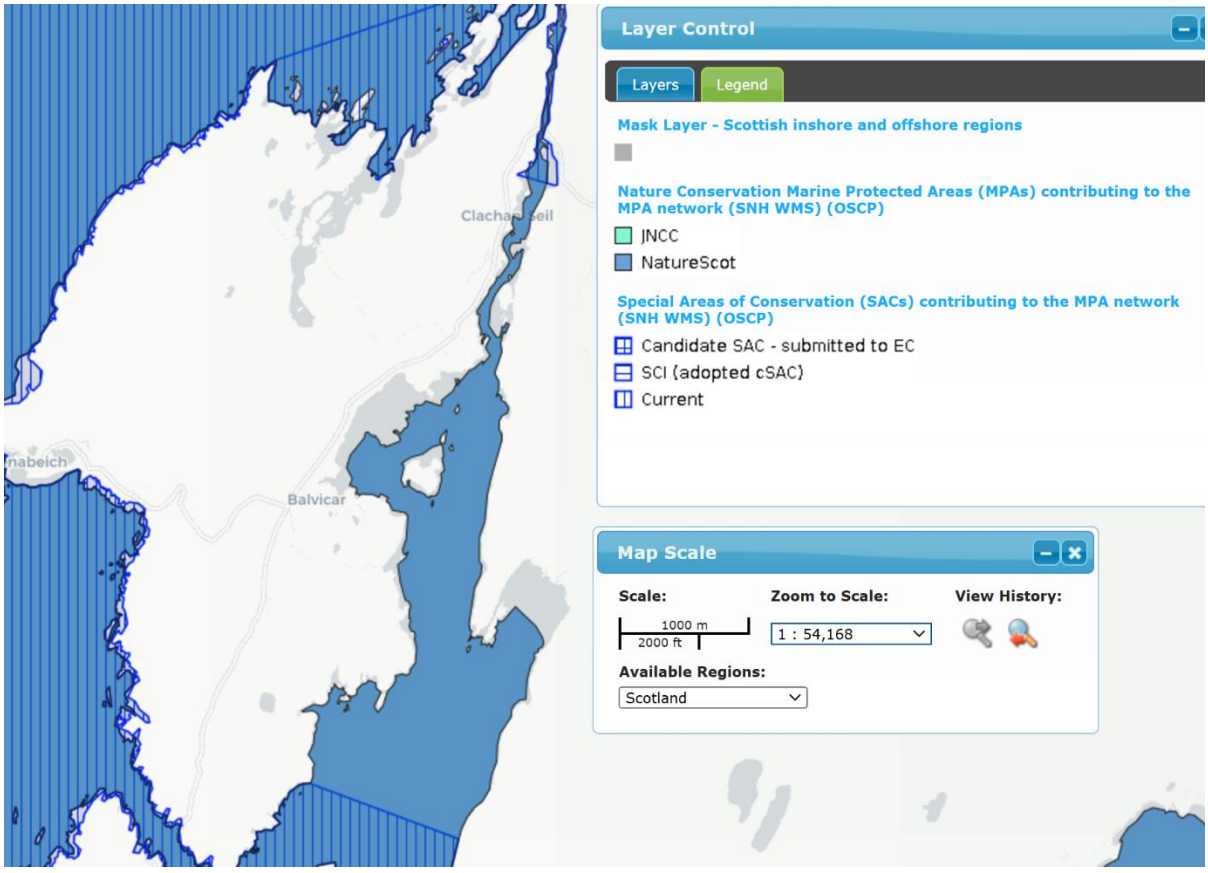

Fig 3 – Site Designations -MPA (flapper skate) at site, SAC (harbour porpoise) nearby

04.01 Designations (Fig 3)

The existing consented area of the IMTA farm site, sits within the Loch Sunart to the Sound of Jura – Marine Protected Area (MPA) https://sitelink.nature.scot/site/10418 which takes much of the sea area inside the Inner Hebrides. This MPA is set up for the protection of 'Flapper skate' (*dipturus intermedius*), which are heavily affected by mobile fishing activity, both as a bycatch of commercial fisheries and destruction of their egg laying sites.

The existing consented area of the IMTA farm site sits outside of, but near to the Inner Hebrides and the Minches Special Area of Conservation (SAC) https://sitelink.nature.scot/site/10508 which encompasses the greater proportion of the whole coast. This SAC is set up for the protection of 'Harbour porpoise' (*phocoena phocoena*), which frequent the west coast of Scotland.

There is no Habitat classification by EUNIS 2019 for the existing consented area of the IMTA farm, but it is likely to be Shallow Circalittoral mud in Low energy infralittoral seabed. Dives and anchor remanets at the site back this up.

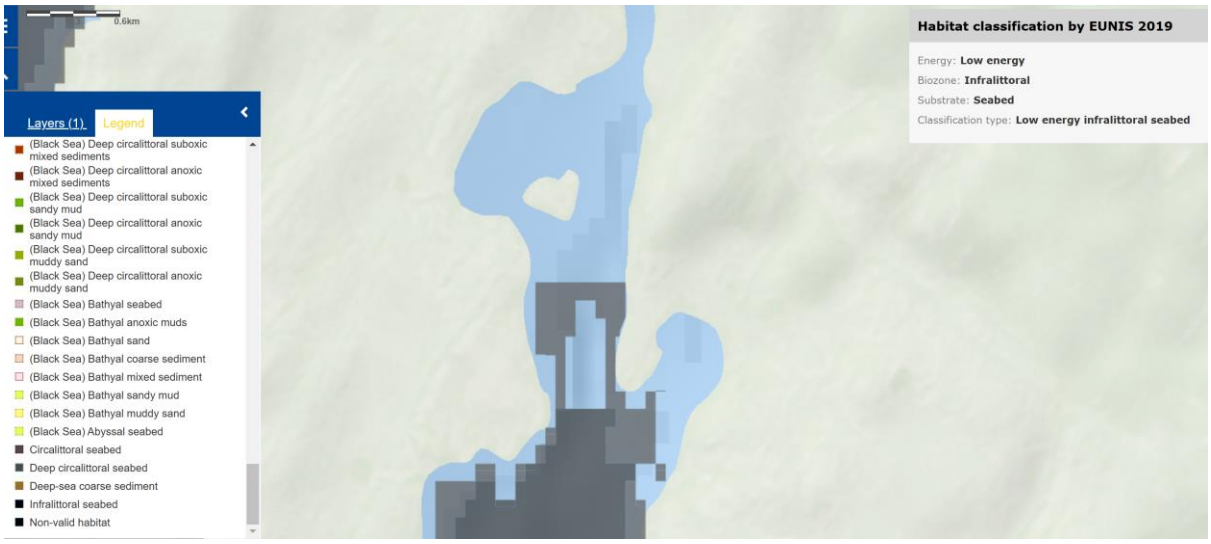

Fig 4 - EUNIS classification for site, probably Shallow Circalittoral mud

The existing IMTA farm site is clear of Rocky Reefs, which is a priority marine feature and a target area for creel fisheries. – anchors and subsurface structures will be set on soft sediment, clear of any rocky reefs. The anchor system will require short lines, retaining its footprint within the existing consented IMTA farm offering low seabed impact.

04.02 Underwater Archaeology

The location of the IMTA farm site is not located on / near a Scheduled Monument - including protected wrecks (HES WMS) (OSCP) according to NMPI data.

04.03 SEPA Management Controls

The sea area around the IMTA farm at East Balvicar falls under Marine Directorate - Disease Management Area 16d which covers most of the Slate Islands, Loch Craignish and Loch Melford area. The scheme in place for disease/lice control and for nutrification control.

04.04 Other Marine users

Within 8km to the north of the existing consented area of the IMTA farm site is a seaweed farm, "Aird na Cuile" managed Samudra Oceans. Another seaweed farm is situated 5km south and into Loch Melfort, "Eilean Coltair" managed by Kilchoan Estate. There are several finfish farm some 10km away to the south ringing the island of Shuna (south), these are managed by Kames (Steelhead Trout) and MOWI (Atlantic Salmon) fish farm companies.

A small local creel fleet work this sea area from the harbour of Balvicar, mostly in the Firth or Lorne or further afield. None of the local commercial vessels put creels in near the IMTA farm. AA intend to partner with local vessel owners to complement their work.

The Oban/Lorn/Slate Island area is well used by yachts and sea kayakers. This is mostly seasonal as a summer destination. The activities at the IMTA farm site will not interfere with passage of yachts (Seil Sound cannot be transited due to the Clachan Bridge) and kayaks can easily move through the area with impediment.

The existing consented area of the IMTA farm site is well marked and out of the main channel of transit into Seil Sound moorings area. It is marked in accordance with normal navigational practice for aquaculture sites, with 2 yellow Special Marks. A full document "4 - AA IMTA Re-application - East Balvicar - NRA MEAC Decom v1.0" accompanies this application and lays out the marine safety side of the Re-application proposal.

Also see bellow in - 05 Visual Impact.

05 Visual Impact

The existing consented area of the IMTA farm site is located in an embayment to the east of low lying islands near the small town of Balvicar on Seil (island). This long operational farm site is located to the west of the steep slopes of a rocky escarpment.

There are no national landscape designations which cover the site or surrounding area. There are no nearby core paths or roadways overlooking the IMTA farm site. The closest habitation locations are:

- a row of 3 houses to ¾ km to the northwest from the site, which have overlooked the farm for the last 20 plus years.
- the B844 road 1km North west which runs from Balvicar to Clachan Seil. At points on this road vehicle passengers may glimpse the structures in the water, seen behind the "Seil Sound Moorings Association" yacht moorings.

From a marine based vantage point, an IMTA farm can be difficult to make out from the land background and the dark colours of the water itself. IMTA farms have a low profile, with the visible surface equipment (when fully deployed) being a series of 4 parallel mussel farm style headlines, each 220m long, with 400l black buoys every 10m. This permanent structure of the farm blends in with the dark background ensuring visual impact is kept to a minimum.

The seabed anchoring system sinks well into the soft benthic muds and are kept well away from any rocky reef systems nearer the shore. The sub surface structure of the farm grid system will be constructed of heavy duty synthetic ropes and webbing slings to minimise the use of steel chains (which wear faster and pollute the area with rust). There are no rocky peaks within the farm footprint. All growing structure (seaweed and shellfish) will be deployed and held under tension subsurface between 1.5m and 5m depths.

The most visible indicator of the farm will be Special Mark buoys placed to clearly mark the outer limits of the site for mariners as indicated by NLB and as a condition of ongoing license conditions of the site. As with other similar aquaculture sites, the specific details of these special marks are given by MD-LOT/NLB as;
a) The site is currently marked with 2 lit yellow buoys fitted with yellow ''X'
b) Each light displays a character of flash one yellow every five seconds (Fl Y 5s) with a nominal range of 2 nautical miles and is installed above the 'X' topmark.
c) The buoys are approximately 1 metre in diameter at the waterline with the focal plane of the light 2 metres above that level, the 'X' topmark is greater than or equal to 50cm length by 7.5cm width.

06 Wildlife Considerations and the environment

06.01 Introduction

Seaweed and shellfish cultivation are relatively benign forms of aquaculture. The seaweed plants need no more than sunlight and both need ocean nutrients to grow. There are no feed additives or waste from the plants.

Seaweeds are plants, so the growing lines are laid horizontally to receive the optimum amount of sunlight. Mussel lines hang vertically. The lines are spaced out to allow water flow for nutrients to reach the plants and shellfish to catch food particles flowing through the site. Seaweed requires relatively more surface area than other forms of aquaculture. This we will hope to balance out by the farming of other shellfish, such as native oysters and queen scallops in lanterns hung under the headline floats. The impacts for low trophic IMTA farming are considered low or 'not significant' given lack of waste these systems produce.

AA are aware of the potential for impact on wildlife, most notably seabirds, seals and cetaceans which the wider area has varying designations for. From observations at other seaweed farms and sea farm sites, it has been noted that wildlife can become tolerant of low level human activity especially when kept out of sensitive breeding times and kept at respectful distances.

06.02 Bird and Pinniped Entanglement

The IMTA site will use no nets in the cultivation process for crop protection (e.g. as netting against eider ducks on mussel farms or anti predator netting against seals on fin fish farms). These nets are known to cause entanglement of diving birds and seals.

06.03 Seal Haul outs

Harbour seals (*phoca vitulina*) and grey/Atlantic seals (*halichoerus grypusare*) are both European Protected Species (EPS) and as such have legal protection from harm, disturbance and habitat interference. Both seal species are regularly seen in the area and there is a small colony of harbour seals often seen basking on the Cleat Rock, 2km to the west in Cuan Sound. This is well out of visual sight from the farm and as such we see no disturbance issues with this haul out are.

As mitigation to avoid seal disturbance, all of AA's activities will be well outwith the 100m distance that "The Scottish Marine Wildlife Watching Code" recommend as safe to avoid disturbance should you encounter a seal or other wildlife at sea. Further details have also been taken from "A Guide to Best Practice for Watching Marine Wildlife". Transit routes to and from the site is a low impact route of 1/2km to Balvicar Harbour to the west.

AA vessels and crew will be carefully trained on how to interact with wildlife. Many AA vessel staff will be local to the area and are already involved in fishing or marine wildlife tours and therefore be fully aware of the value of an undisturbed wild environment and the legal and moral obligations of limited interactions with wildlife.

The peak times for kelp seaweed operational activity at the existing farm site is October/November for Growing Line deployment and late March through early May for harvesting (timing will be subject to agreement with statutory consultees to avoid the most sensitive timescales locally).

Peak times of other seaweed and shellfish farming vary but are low impact and follow similar transit routes for vessels as used for kelp seaweed farming.

AA vessels will never intentionally steer toward seals seen in the water. Vessels will slow or where safe to do so, steer to avoid seals seen in the water. Additional advice from NS around slowing and stopping vessels to prevent disturbance has been given and will be adhered to.

06.04 Cetacean Entanglement

Whilst there have been no reported cases of entanglement of cetaceans in kelp or shellfish longline farming (Kraus et al., 2005[1]; NOAA, 2016[2]), AA are designing IMTA farms with wildlife in mind. It is nearly impossible to entangle in a taught rope. Farm design will ensure that lines are held taut at all times and sea states. Most cases of cetacean entanglement is evidenced to be from discarded fishing nets (ghost fishing) or from loose mooring lines or creel ropes.

AA's research on NBN Atlas within a 10km radius of Balvicar, has found that no sightings of the harbour porpoise (*phocoena phocoena*) have been recorded in the enclosed bay of East Balvicar, but they are a common sight in the more open water of the area. Since this farm was licensed as an IMTA farm in 2017, Marine Scotland, MCGA and NLB have asked for a navigational risk assessment, which includes emergency contact details to various organisations, including BDMLR and the Scottish Entanglement Alliance. This is provided in document "4 – AA IMTA Re-application – East Balvicar – NRA MEAC Decom v1.1" which accompanies this Re-application process.

AA staff will visit the existing IMTA farm site as a minimum of once a week (weather allowing) and will contact these numbers if there is any concern over a cetacean in our farm lines. AA staff will be encouraged to attend the BDLMR courses, and we will assist in strandings and entanglements of animals wherever they may happen locally. The existing farm requires no acoustical deterrent devices (ADDs) to ward seals off. As with seals, AA vessels will never intentionally steer toward cetaceans seen in the water. Vessels will slow or where safe to do so, steer to avoid cetaceans seen in the water.

06.05 Foraging and Breeding Bird disturbance

AA's research has found many hundreds of seabird records over many decades entered on NBN Atlas within a 10km radius of Balvicar. Seabirds are often seen roosting on the buoys of similar seaweed and mussel lines on the west coast. They are an important resting provision for foraging birds throughout the year, but particularly in the breeding season.

In recent harvesting operations on the similar styled Mull seaweed farm, cormorants, shags and various gulls were perched on the surface floats of the farm whilst harvesting was underway in April and early May. These birds would have been in the early stages of nesting in the sea cliffs near to the site (within 100m) and were certainly undeterred by the vessel and human operations. Diving birds of various species are often observed swimming down below the seaweed lines to hunt (cormorants and shags are the most seen birds at aquaculture farms). The IMTA farm attract many small fish (particularly juvenile lumpsuckers), crustaceans and other arthropods, molluscs and various Annelida.

[1] https://www.researchgate.net/publication/7704221_North_Atlantic_Right_Whales_in_Crisis
[2] https://media.fisheries.noaa.gov/dam-migration/wcr_2016_whale_entanglements_3-26-17_final.pdf

On the west coast of Scotland, it is not uncommon to see various divers (great, black and red necked, little grebes, goosanders and red breasted mergansers) over winter and throughout the summer. Vessel movements around sea farm sites do not dislodge the birds from roosting on the floats or scare them off from foraging. Birds very quickly become tolerant of the human activity at the sites.

The IMTA farming vessel activity predicted by AA at the East Balvicar farm site will be low level (a day or a few days per week on only a few weeks of the year) using small vessels (6m to 12m vessels), that are similar or the same vessels that will work and transit through the sea area throughout the year (AA intend to charter local fishing and work boats to service their needs at the farm site). We believe that any local birds or other wildlife will be tolerant to our levels of activity.

06.06 Benthic data and seabed disturbance (of PMFs)
There is no Habitat classification by EUNIS 2019 for the existing consented area of the IMTA farm, but it is likely to be Shallow Circalittoral mud in Low energy infralittoral seabed. Dives and anchor remanets at the site back this up.

To secure the IMTA farm structure so it is robust enough to survive winter storms for many years, the farm is anchored to the seabed with steel 250kg and 500kg anchors. These anchors are designed to dig in to the soft benthic muds of the farm site. They quickly bury deep into the sediment and form a secure anchor to carry the load of the subsurface structure and floating surface structure.

AA are confident that once the deployment phase of anchors has been completed, which will have obvious impacts to the direct spots the anchors are set, that our operational activities will have a negligeable impact on the benthic conditions of the site.

This has been discussed with Nature Scot on other seaweed/shellfish farm consultations and it has been considered that, given that there are no chemical or feed additions, no faecal or wate deposits and that outputs, beyond the initial damage dome during the initial construction phase where anchors are laid, there is negligible impact on immoveable PMF species under or near a IMTA aquaculture site. As a benign aquaculture method, IMTA farming provides more habitat enhancements (roosting, feeding etc) than any negatives.

06.07 Eurasian Otter (*lutra lutra*) disturbance
Otters are a European Protected Species (EPS) and as such have legal protection from harm, disturbance and habitat interference. AA's research has found many otter records over the decades entered on NBN Atlas within a 10km radius of Balvicar, covering the sea farm site. Also, from discussions with local residents and marine users around the area, it was confirmed

that otters are regularly seen on the shorelines, crossing roads and near rivers across the area, and that they had heard other residents discuss seeing otters as well.

We have applied the precautionary principle and the section below discusses potential for disturbance to otter during operation of the IMTA farm. Otters are regularly seen on in most parts of the Oban/Lorn/Slate Islands coast, including within the busy town of Oban itself. They can be remarkably tolerant of people, vehicle and vessel movements.

Nothing in AA's development or operational phases of the IMTA farm will constitute a threat to the life of an otter. Nor will any part of our operation touch land to damage or destroy their holts or holes. Landing of the seaweed uses an established pier at Balvicar.

The discussion on potential sources of disturbance can be split into 3 parts;

06.08 development phase disturbance
Any development work at site eg, weight or structure replacement, maintenance or repair will be of short duration (estimated less than a few days, weather dependent). It will likely require a 16m to 22m vessel to lay any anchors accurately into the seabed and to use winches to pull tension on ropes and lines. No cables will be strung to the coastline. All anchors will be laid in sublittoral positions and all ropes strung from these anchors head directly away from the shore to subsurface structures.

NatureScot guidance suggests that "If otters are known or suspected to be breeding, the exclusion zone should normally be at least 200m radius. However, it could be reduced to 100m depending on the nature of the works, topography and natural screening. For shelters, or holts where otters are not breeding, the boundary of the exclusion zone should be a minimum of 30m.". These exclusions zones are nominally looking at physical changes to the land near otters. As the IMTA farm will be sited off from the coastline and will not physically touch or alter the holt or hole of any otter, we would hope that the 30m rule would apply as a maximum. And the fact that the farm already has been in place for many decades is taken into account. It could be argued that the most direct disturbance to the otters could be the presence of any surveyor conducting an otter habitat survey on the shoreline itself.

A male otter's territory can be significant, using 20 km of rivers and coastline to hunt and defend up to 3 females against intrusion by other males. The female otters form sub-territories within, in which they produce up to 3 cubs, usually in early summer. The mother will rarely leave them for the first 10 weeks from birth at which point the cubs will begin to become mobile. They will then follow their mother as she hunts and suckles the young. She will use multiple holts and holes to dry off (otters don't like being wet!) and to sleep (which they do

for more than half the day). They will nurture the cubs for a year up to 18 months to teach them to fish by catching and releasing live fish for the cubs to re-catch.

It is difficult (without the aid of photo traps) to assess whether otter shelters or holts are being used by a breeding otter or not as females with cubs reduce sprainting to avoid detection. Indeed, it is an offence use photo traps without appropriate licenses.

No works that are undertaken fall within the minimum 30m exclusion zone. The minimum distance from the Mean Low Water Spring (MLWS) and distance to Mean High Water Spring (MHWS) is 30m (sheer shoreline) to avoid encroaching into the shoreline area. The predicted timing of any upgrades to the IMTA farm structure is late summer, which will coincide with any otter cubs becoming fully mobile.

06.09 Operational phase disturbance

All farming operations will take place in daylight. Seaweed deployment periods will be October to November for seaweed line deployment. Seaweed harvesting periods will be from mid-March through into late-May. The mainly nocturnal nature of otters will hopefully allow us to present no disturbance to feeding patterns. Shellfish work will be occasional and mostly confined to the late spring to early autumn time window. Winter weather will discourage small boat work at the site, beyond occasional visits to check the IMTA farm structure (a condition of license consent).

06.10 Ongoing presence and its effects

For the greater part, the IMTA farm will be left unattended by vessels. Outwith the operational phases (including all evenings, nights and weekends during the operational phases) little or no activity will take place over the winter months of September to April. Farm activity to tend lines, set lines or harvest will be modest, one to two days a week for a few weeks at the busiest periods.

A brief diurnal phase of otter feeding during the shortest days of the year will coincide with the winter slow growing period, where the IMTA farm is left mostly unattended save for occasional visits by small boat to check condition of the farm structure (a condition of license consent) and to take samples for quality and growth monitoring. We will ensure we do not visit the site near to dawn or dusk to prevent disturbance to otter feeding times during the hard winter months. This also a good practice for safe use of small vessels in winter.

06.11 Water column and seabed shading

IMTA cultivation Growing Lines are placed out at sea on the farm at various times of the spring to autumn months and the lines over-winter there. Shellfish are laid out in low density dropper lines or small lantern baskets and have a negligible effect on shading.

Seaweed growing lines are laid in autumn and the seaweed grows rapidly February through to April and harvested out by end of May/June. The low angles of the sun in the spring months the estimate of shading of the seabed and water column is less than 1% in Dec, less than 4% in Jan, less than 7% in Feb, less than 10% in Mar, less than 15% by end of April and the seaweed is harvested out by end of May. The chosen site of the IMTA farm is light benthic mud. It is therefore calculated that the IMTA farm will have a negligeable effect from shading on the wider marine environment.

06.12 Nutrients

Low trophic IMTA cultivation does not require the input of feed or conditioning chemicals. All the plants require to grow is sunlight and the shellfish a flow water as they draw in nutrients and minerals essential for their growth. These are then available to us when we consume the crop. AA's IMTA farm site is in a relatively active sea loch which attaches to the significant sea currents of the Great Race waters. Strong tides replenish the nutrients constantly preventing nutrient depletion in local waters.

07 AA Biosecurity Plan

This section forms the basis of a stand alone policy that will be broadened and become AA's Biosecurity Plan. In addition to this section, please see the proforma Biosecurity Plan (Annex 1 – Biosecurity Plan – Mock Template).

07.01 Invasive non-native species (INNS)

INNS are one of the biggest global threats to biodiversity, undermining the inherent resilience of ecosystems and causing significant economic costs for sectors such as agriculture and fisheries. Along with disease transfer, INNS cost £billions per year globally in harvest and infrastructure damage and the loss of local biodiversity presents an incalculable threat to future generations.

AA have based their Biosecurity Plan around such publications as Nature Scots' Commissioned report - Marine biosecurity Planning. AA will lay out each part of their existing seaweed farm operations and then describe the actions they will ensure are undertaken to protect from transfer of INNS or disease.

It is considered that overall, INNS are a Low Risk issue for IMTA aquaculture as the main materials used for cultivation are placed in the water for only short periods (6 months to 18 months) before being removed and replaced or cleaned thoroughly for reuse. No feeding barges or cages are used in seaweed cultivation and no equipment or vessels transfer to other aquaculture sites.

Only native species will ever be grown on AA's IMTA farm and seed stock taken from the local area only. No seed stock of non-native species will be brought in. All equipment used will be thoroughly washed before and after use to prevent the spread of INNS. Cards showing the common INNS species will be supplied to staff and contractors to identify potential INNS growth on the farm structure.

All AA staff and contractors will be trained in INNS recognition via ID cards placed on vessels, shore bases and at the AA's processing Hub and an effective reporting process put in place. In the event of the positive identification of an outbreak, staff will ensure that no product affected leaves the site. Any equipment and ropes affected will be taken ashore and will be treated and Nature Scotland informed immediately. Low Risk

We do not envisage disease issues at our IMTA farm site but our crop and animal husbandry practices around seaweed, mussels and oysters will remain vigilant. All equipment and growing lines deployed will be returned to shore for cleaning or disposal. Low Risk

07.02 The Farm Site

The existing site of the IMTA farm at East Balvicar is over 0.5km from the nearest habitation on the coastline, the village of Balvicar on Seil. As such the site is well away from any direct sewage or chemical outputs from direct source pollution.

AA will ensure that all harvest taken from the farm site will be washed ashore in fresh water at their processing Hub. The waste water from their processing is disposed through the areas' traditional Sewage Treatment Works (or septic tank system), which digests any materials in a microbial process, destroying and organic contaminant. Plant waste from the processing will be taken to be composted locally. No waste material from AA's processing facility will find its way back into the sea. Low Risk

07.03 Seaweed Species

AA intend to cultivate several native species of seaweed. At this time, the main seaweed cultivation species at the site will be, Sugar Kelp (*saccharina latissima*) and potentially Oar Weed (*laminaria digitata*)[3]. These large brown seaweeds or "kelps" are found naturally on lower littoral and sub-littoral rocks on the shores of East Balvicar Bay. Other large brown seaweeds, such as Furbellows (*Saccorhiza polyschides*) may also be trialled to test for natural self-seeding of lines and for their chemical and nutrient content.

The Kelps have similar seeding seasons and scatter seeds into the water in late November through to early January. Fruiting bodies develop on varying parts of the seaweeds, near the base of the plants in the case of alaria, or along the fronds in the other species. Fertile seeded stock will be collected from local shore sites and will be cultured onto growing medium at a commercial hatchery.

Dulse (*palmaria palmata*) and Pepper Dulse (*osmundea pinnatifida*) are valuable, small red seaweeds and Sea Lettuce (*ulva lactuca*) a valuable, small green seaweed that are native to the area. At the moment they are mostly hand harvested but the technology to cultivate them has been development by a commercial hatchery partnering AA. We include these species in the application in anticipation of the technology to viably farm them being available imminently.

The volumes of seeding plants required to be collected will be very small, a standard bucket of fertile seaweed could nurture 20km worth of seeded farm growing line which could produce over 150 tonnes of mature seaweeds.

All laboratories that AA will invest with the duty of seaweed seed production will be fully accredited and work to hygiene standards to ensure no cross contaminated of seaweed stock (or diseases) are brought back to AA's site. Low Risk

[3] In previous years it was found that Atlantic wakame (*alaria esculenta*) did not grow well in the (relatively) sheltered waters of East Balvicar Bay.

07.04 Shellfish Species

AA intend to develop cultivation of several native species of shellfish. The site has been used in previous years for the cultivation of blue lipped mussel (mytilus edulis) and there are several nearby farms for pacific oysters (crassostrea gigas), but there is great interest in beginning to culture native oyster (ostrea edulis) which has up until very recently, only been cultured purely for habitat restoration projects but is being is attracting commercial interest in the food market. It is hoped that joining with local native oyster farming schemes, we may be able to utilise the IMTA farm for these. Lantern baskets are a well used and know method for oyster farming and could be used at the site on the existing infrastructure.

Line maintenance at this and other sites has revealed that locally, there is a heavy spat formations of Queen scallop (aequipecten opercularis). This natural settlement could easily be collected and sorted. Lantern basket propagation could be trialled for queen scallops and give rise to a new line in the IMTA farm produce.

Blue lipped mussel farming may clash with seaweed farming as the heavy spat from mussels may cover seaweeds and reduce crop and quality levels.

No equipment or ropes based at the farm site will be moved to another site and no equipment or ropes used on another site will be brought in. Any equipment or ropes brought ashore from the AA farm site will be treated by cleaning with fresh water above the high tide mark. All equipment stored ashore will be kept separate from equipment from any other sites.

Any equipment that has accumulated crustaceans or algae on them that is brought ashore will be washed down with fresh water and along with air exposure cause the demise of sea grown fouling. Low Risk

07.05 Onward Processing

To ensure the IMTA farm produce retains its quality it will be landed locally and loaded onto temperature controlled vehicles for onward delivery to be processed.

Drying is the main processing method used at this time for seaweeds. Water content is be reduced through compressing or spinning equipment before chopping then drying at low temperatures. This creates a stable, storable product that can be rehydrated as a future new ingredient. Currently, seaweed processing is done further afield but there is discussion underway with other seaweed farmers and processors for the creation of an Oban processing hub, to suit pre-agreed buyer specifications.

Shellfish have many local routes for further processing and distribution to a wide and well developed market. On Seil itself, there are 2 shellfish companies with many more across Argyll and Bute.

For all processing routes, AA will ensure that all harvest taken from the farm site will be washed onshore in fresh water at a proposed processing Hub in Oban or at processing facilities of client partners. The waste water from their processing will be disposed through the areas' traditional Sewage Treatment Works (or sceptic tank system), which digests any materials in a microbial process, destroying and organic contaminant. Plant waste from the processing will be taken to be composted locally. No waste material from AA's processing facility will find its way back into the sea. Low Risk

07.06 Lost Lines and Site Waste

The IMTA farm site will be visited on a weekly basis throughout the year to ensure the structure and any growing lines deployed are fixed and tensioned appropriately. Any broken lines will hopefully still be attached at one end and so can be recovered and either reattached or removed. During fallow periods the visits will be a simple passing visit by a local vessel to ensure all floats are present and that all is well with the site. There are no chemicals or cleaner additions to the water column at the site from any of AA's activities.

Any waste generated from the project will be disposed of ashore through local, certified commercial waste disposal. All ropes and equipment will be stored ashore during fallow periods of the farm. And all cleaning of ropes and equipment will be done ashore. There are no Special Waste requirements envisaged.

AA are forming research partnerships with multiple leading universities. One area of research we are leading as an industry partner is biodegradable Growing Lines. We will be beginning our operations with tries and tested techniques and equipment, but also trialling, and in time hopefully fully committing to using ropes for our Growing Lines with an ability to breakdown harmlessly in the environment. We cannot divulge at this time the detail of the research due to its commercial sensitivity but are assured that the resultant ropes will not be based on hydrocarbon derived plastics.

Annex 1 – Biosecurity Plan – Mock Template

MARINE BIOSECURITY PLAN

Site Name or Description of Operation:	East Balvicar IMTA Farm
Site/Operation Location(s):	East Balvicar Bay, near Balvicar, Seil (20km south of Oban)
Plan period:	Aug 2025 to Aug 2026
Biosecurity Manager:	Stevie Jarron

Site features affecting biosecurity:

Salinity	Full - 34 and 35 grams per litre
Submerged structures	2 x Special Marks (2 anchors and risers)
	4 x 220m double headlines (6 main anchors and risers, 20 small anchors and risers)
	2 x 55 x 80m Growing Lines (for seaweed) 4 x 100 x 6m droppers (for mussels) 40 x lanterns (for native oysters/queen scallops)
Surface structures	4 x 220m double ropes headlines 36 x 400l mussel floats
Non-native species known to be present	None

Vessel types using the site/involved in the operation:

	Vessel type	**Risk factors;** Pathway, speed, biofouling control	**Risk:** High/Medium/Low
1	Landing craft	Local harbours to site, 8 knots, vessel antifouled annually	
2	Harvest Boat	Local harbours to site, 8 knots, vessel antifouled annually	
3	Creel boat	Local harbours to site, 8 knots, vessel antifouled annually	
4			
5			
6			

Site Activities which have a significant risk of introducing or spreading non-native species:

	Activity Description
1	No activities are seen as significant risk of introducing or spreading INNS
2	
3	
4	
5	
6	

Biosecurity Control Measures – Instructions for staff/contractors/site users:

Who	What	Where	When
Charter Vessels	AA Biosecurity Plan	Given to Charter company by AA	Before contract commences
Farm staff	AA Biosecurity Plan	Training given to AA staff by Farm Manager	On induction, annually reviewed
Processing Staff	AA Biosecurity Plan	Training given to AA staff by Processing Manager	On induction, annually reviewed

Site surveillance and reporting procedure:

Site Reporting log (aka MEAC log)	All activities relating to the farm site to be logged. This includes (but not limited to) debris entanglement, damaged lines, any wildlife interaction (including sightings of cetaceans), vessel interactions, suspected INNS

Contingency Plan:

Action	Responsibility	Location of Equipment
Suspected INNS found on Structure	Farm Manager	On vessels
Suspected INNS found on Growing Lines	Farm Manager	On vessels
Suspected INNS found amongst Harvest	Processing Manager	In Processing factory

Location of biosecurity logbook:

With Farm Manager

Plan Review Date: 01/08/2026