

# IMTA farm Re-application – East Balvicar - Method Statement

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## IMTA farm Re-application – East Balvicar - Method Statement

### 01 Introduction

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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 2 Special Marks as recommended by Northern Lighthouse Board in the original application process, are Y Fl 5s (2m) are laid out in the existing MD license - 06833/20/0 at points:

56° 17.683' N	5° 35.441' W
56° 17.350' N	5° 35.598' 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.



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The License Re-application and associated documents contained and referred to in this submission provide the critical information required for Marine Directorate - Licensing Operations Team (MD-LOT) and other Statutory Consultees to ensure ongoing consent of this Marine Scotland licence can be granted before the 24/03/2025 expiry date.

The attachment, "1 – AA IMTA Re-application – East Balvicar v1.0" is the official application form for MD-LOT. Further updates on any anchoring system changes (is any) will be detailed in future communication to Marine Directorate and Crown Estate Scotland through the appropriate Attestation forms.

This document "2 – AA IMTA Re-application – East Balvicar - Method Statement v1.0" details AA's commitment to adhere to best practice when considering other users of the environment, both human and wildlife alike. This also contains a "Decommissioning Plan".

AA's commitment to wildlife and environmental preservation and wellbeing can be found in the attachment "3 – AA IMTA Re-application – East Balvicar - Environmental Responsibilities v1.0", which also includes a Biosecurity Plan.

Navigational and marine safety can be found in the attachment "4 – AA IMTA Re-application – East Balvicar – NRA MEAC Decom v1.0".

AA's commitment to "Scotland's National Marine Plan" and "Scotland's Seaweed Cultivation Policy" can be seen in attachment "5 – AA IMTA Re-application – East Balvicar - Scotland's Marine Planning considerations v1.0".



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### **02 Argyll Aquaculture – IMTA farm**

The former site owner Jack Macgregor and Sons had used the IMTA site for growing mussels up until 2016, then to grow seaweed from then on. Jack also owns nearby CES oyster leases.

AA plan to adapt the East Balvicar site further to be a commercial scale IMTA farm, looking at queen scallop and native oyster farming alongside the development of the cultivation of the red seaweed, Dulse. This will be the first commercial scale IMTA farm developed in Scotland (previous projects were purely research based), although AA will seek academic partners and funding support to ensure the development is based on sound practices.

To develop a scaled IMTA farm, AA will draw on a decade of experience in design, licensing and deployment of farms across Scotland. Utilising the existing farm structure in place (Fig 1), AA plan to hybridise the system to incorporate further anchors to give lateral support. This will create 2 hybrid longline grids (220m x 80m), allowing 1.8 Ha of growing area on each grid.

In 2021, Argyll Aquaculture designed, licensed and deployed the Aird Fada seaweed farm for South West Mull and Iona Development (SWMID) on Mull (which has been operated safely and productively for 4 seasons now). With further advancements in seaweed farming knowledge (which includes journey to Wando, South Korea) AA is developing similar, but improved farm structures for IMTA.

Different species will require a range of space to fully develop. For example, if configured for large brown kelps such as *Sargassum latissima* (sugar kelp) which will grow up to 4m long in a season, then the growing line spacing will need to be kept wide to 4m. This would mean a capacity of 8.8km of growing line on the structures. But if this site is to be developed to grow the red seaweed, Dulse, which will reach no more than 25cm in length, then a far more dense line layout would be possible. So technically 20 times the amount of Dulse line could be deployed. But this would be a huge amount of farm husbandry, and it is unlikely that level of density or scale would ever be desirable or achievable.

Similarly, farming other trophic species such as oysters and scallops in lantern baskets or mussels on rope lines, will require adaptations to the layouts. Through experience it has also been found that spat from mussel lines can have a negative effect on seaweed cultivation growing rates and quality, so any IMTA deployments will need to be well thought through and the timings of deployment and harvest well managed.

The East Balvicar IMTA site is more sheltered than other seaweed farms, which have been purposely deployed in active waters for the growth of large brown kelps that require higher levels of agitation to grow clean, quality fronds. The East Balvicar site is well flushed by strong tides flowing up from Cuan Sound through Seil Sound. This is perfect for the filter feeding shellfish and for red seaweeds being considered.



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The IMTA farm structures will have the same low visual and environmental impact as the existing structures. We foresee no indication of increased risk of wildlife or other marine user interactions. The proposed adapted structures and all farming activity will still be undertaken wholly within the existing licensed area boundary.

In summary - The IMTA site has provided good seaweed and mussel growth in previous harvest years. It is located off the main fishing grounds; is not a detriment to sensitive wildlife habitats, creates minimal visual impact to area; and is not a barrier to free movement of commercial or pleasure vessel traffic in and out of local harbours and anchorages.

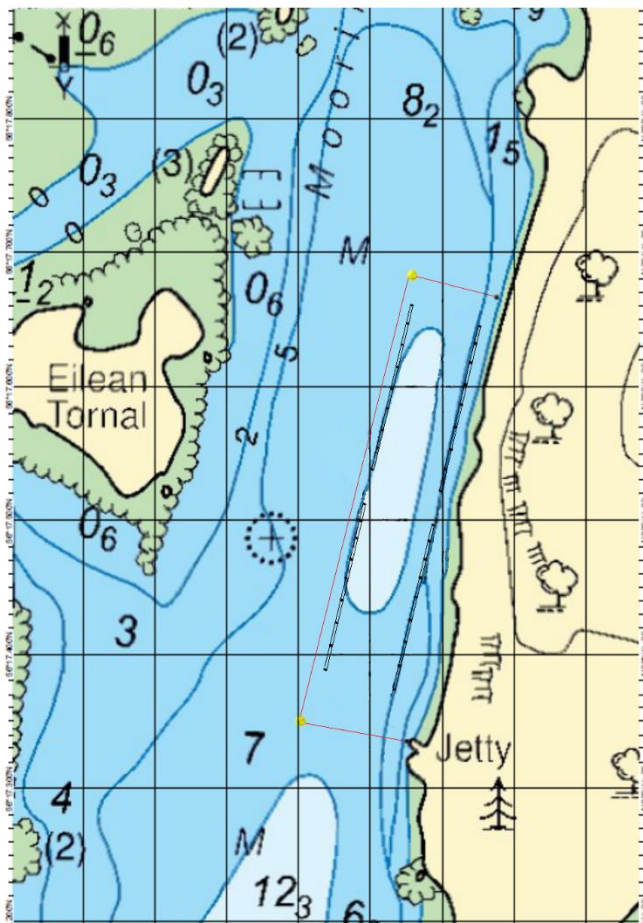


Fig 1 - East Balvicar Bay IMTA site, showing CES Lease (red), Special Marks (yellow), and 4 x 220m double headline longlines (dotted black parallel lines)

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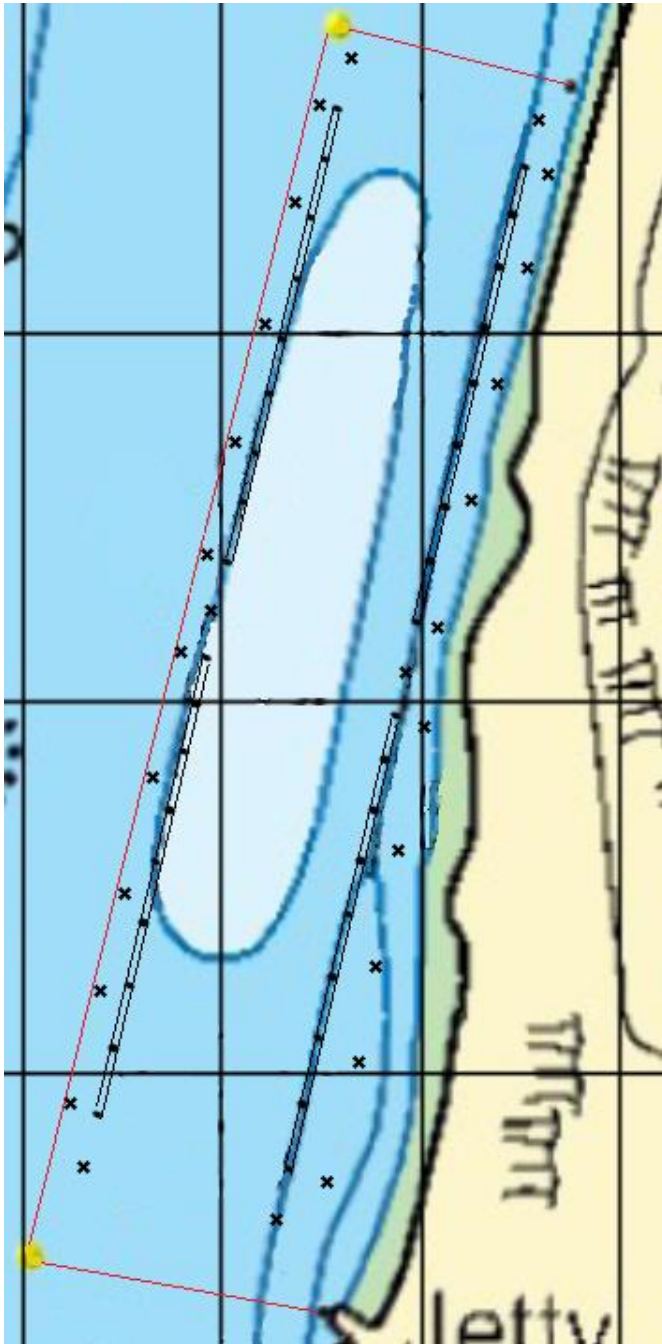


Fig 2 – East Balvicar, anchor positions for hybrid grid/longline system

In this chart (fig 2) we see the headline and anchor layout that will create the hybrid grid farm.

These will likely be train wheel weights (each 250kg to 350kg), which would be lowered gently onto the seabed. These will provide lateral support to the longlines, creating a hybrid grid/longline system.

The longlines and subsurface structures are made of high quality ropes as standard throughout the aquaculture industry and buoyancy is provided by 400l mussel floats. Heavy duty lifting strops are used to bridge gaps and fix lines to weights. These are better wearing than shackles and D-rings and produce less rust pollution in the water.

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### 03 Seaweed seeding and operations

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*)<sup>1</sup>. 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 Furbelows (*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.

The process for seaweed farming is to wrap seaweed seed infused string (0.5mm) around growing lines (thin ropes 10mm to 12mm) which are deployed to mimic the seeding cycle of seaweeds in autumn and harvested in late spring before the natural biofouling of other sea organisms spoil the quality of the seaweed crop.

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<sup>1</sup> In previous years it was found that Atlantic wakame (*alaria esculenta*) did not grow well in the (relatively) sheltered waters of East Balvicar Bay.



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### 04 Shellfish seeding and operations

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 (*aequiptecten 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.

### 05 IMTA Line Deployment

The basic underlying structure of the East Balvicar IMTA farm are 4 longlines, which are double roped headlines supported by 400l mussel farm floats. They provide the surface structure and flotation for all other activities at the farm site.

Growing lines and formations are unique for the various species at the IMTA farm. For seaweeds, growing lines are strung out horizontally between the headlines, to maintain the optimum light and nutrient condition for the growing of seaweed. For blue lipped mussels, lines will hang vertically in the water column, collecting nutrient particles as they pass with the tides. Oyster cultivation and queen scallop cultivation will require affixing lantern baskets to points along the headlines, probably at the point of contact with the mussel floats to assure buoyancy. across the sea farm structure. There are no chemical additions or treatments used for these low trophic species growing process and no feeds introduced to the water.

Regular and repeated plant and animal husbandry will be required to prevent the mussels, oysters (and queen scallops) being overwhelmed by predators such as starfish and sea urchins. And for the seaweed, to check on growth and quality to assure harvesting at maximum growth level versus acceptable biofouling levels.

Samples of seaweed will be taken and the quality tested. Periodic samples of shellfish will be collected for Environmental Health testing as per normal shellfish farming procedures.





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### **06 Harvesting Process**

The concept of IMTA is strongly focussed on a year round capability to harvest the multiple species grown at any one site. Any large brown kelps will be able to be harvested in April/May. Red seaweeds coppiced in May, July and September. Mussels, scallops and oysters will be dictated by the markets, likely avoid harvesting over the warmer summer weather for quality assurances during harvesting, processing and transport.

Automated seaweed harvesting machines are being developed which will use a simple frame with rollers and guides to channel seaweed past cutting heads. These will trim the useable frond of the plant into bins or boxes while leaving the rope and growing base (stipe and holdfast) of the plant intact. Red seaweed coppicing capability may be used to allow multiple harvests from these rapidly growing plants.

Automated mussel harvesting and riddling machines are available. AA will buy these in if the intention is to go back into full mussel farming. But if the levels of mussel farming are to be kept low, then the processing may remain more manual.

Scallops and oysters are a more manual process, inspecting each shell for size and health before readying for market.

### **07 Vessel use and operational cycle**

During any initial IMTA farm structure development/replacement/maintenance phases, large work vessels (18m to 22m) will be brought in to accurately reposition existing anchors or lay new anchor blocks on the seabed. The estimated on-site time of these vessels should be no more than 2 days. The surface floats and lines will be prepared ashore and can then be towed into place and the farm tensioned to hold the structure taught and in place. At all other parts of the operational cycle of the farm, AA will use small local vessels (6m to 12m) and local shoreside resources from the Balvicar area.

Depending on which other species are grown at the IMTA farm will determine what level of vessel activity the site will see, but it will be no more than 1 or 2 small vessel operations a week, in what is already a well used commercial and pleasure vessels area.

Vessels are required to visit the farm weekly to inspect the site to check on the structures (part of the license conditions) and will use this time to check on crop growth and quality. A register of vessel movements and observations will be kept and available upon request from relevant authorities.

A full description of all activities at the farm site including vessels and their timings of use, to consider the wider impacts on the environment, can be seen in "5 – AA IMTA farm Re-application - NRA MEAC Decom Plan v1.0".



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### **08 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.

### **09 IMTA Farm Further information**

Northern Lighthouse Board set the navigational buoyage for the farm site for the outer corners of the sea farm area to be delimited by the conventional system for marking aquaculture sites of 2 x Special Mark buoys. The buoys are in place and operational. These large, yellow-coloured floating buoys are each marked by a top piece with a yellow St Andrews Cross. A solar powered light unit on each flash yellow at night. These allow local and visitor marine users to keep a safe distance from surface and submerged structures within the consented area. The light pattern is a conventional Yellow Flash every 5 seconds (Y Fl 5s).

The materials needed for the maintenance and upgrading of the existing farm structure are all in place and ready to go. Floats and ropes accumulated over the years are being utilised in the improvements. So, expected cost of the IMTA farm will be  $\leq$ £2,500. The new license holder and site owner, need pay the minimum required fee of £74, which they will pay immediately by BACS to begin the process.



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### **10 Economic and Social Case for approval**

AA are making a commitment to provide local employment; building on the talent and skillsets to be found in the Oban area.

They envisage 1 full time equivalent (FTE) to manage the farming operations, with a further 5 people at busy times during line deployment and harvesting. These jobs are likely to be taken by local fishermen or members of the community already experienced in marine activities. The IMTA nature of the farm will also hopefully create more opportunities for sustainable employment in the area. Reversing the negative trend of economic emigration and an ageing demographic.

An Oban processing and administration hub will employ up to 6 FTE staff, as AA, Samudra Oceans and other processor/farmer partners' seaweed farming operations grow. There may be overlap between staff that work at the sea farm and at the Hub, providing year round as well as seasonal opportunities for local residents.

### **11 Decommissioning Plan**

AA have in place a Lease with Crown Estate Scotland for the existing IMTA farm site at East Balvicar Bay (AR3-6-19) granted 1<sup>st</sup> Aug 2024 when the site was bought from Jack Macgregor.

Part of that agreement includes the financial arrangements agreed between AA and Crown Estate Scotland on a 'Site Decommissioning Plan' in the event that AA choose to relinquish the site, or in the event that Crown Estate Scotland revoke their Lease, or where AA become insolvent.

AA propose to mirror this arrangement with Marine Directorate as part of the Re-licensing process through MD-LOT; as with the conditions of receiving the CES Lease; AA will ensure it retains sufficient funds to decommission the IMTA farm in proportion to the number of farm units installed.

AA agree to use local vessels, where possible, to remove all surface structures. These are light floats and longlines and would not require specialist vessels. Materials removed would be stored or disposed of ashore once all waste and environmental conditions have been complied with.

Subsurface anchors would be lifted by a chartered specialist vessel. Costs would be borne by AA to mobilise suitable vessel to site, lift risers and recover anchors. Navigation marks, risers and anchors would be removed from site. Materials removed would be stored or disposed of ashore once all waste and environmental conditions have been complied with.

