

Muckairn IMTA Re-application – All Sites - Marine Planning consideration

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Introduction

This Document represents **Muckairn Mussels Limited** (Muckairn)'s review of the Scottish Government policy paper, Scotland's National Marine Plan (Part 1 - pages 1 to 11). This is outlined as a requirement in Section 6 of the Marine Scotland Application form. Muckairn have also reviewed the Scottish Government paper, Scotland's Seaweed Cultivation Policy Statement (Part 2 - pages 12 to end). This was suggested as a requirement by MD-LOT in other licensing processes.

Part 1 - Scotland's National Marine Plan

The Scottish Government is fully supportive of the sustainable growth of aquaculture, including seaweed and shellfish cultivation (<https://www.gov.scot/publications/seaweed-cultivation-policy-statement-2017/>), as a means to diversify and expand the aquaculture sector. Muckairn has studied Scotland's National Marine Plan and has reviewed the General Planning Principles. Below is our understanding and response to these principles.

GEN 1 General planning principle: There is a presumption in favour of sustainable development and use of the marine environment when consistent with the policies and objectives of this Plan.

Muckairn Response – Seaweed Cultivation, although a globally well-developed industry, is a developing sector in Scotland with only a few small to medium farms in operation. Seaweed Cultivation has the potential to offer an organic and environmentally regenerative additional industry to the Scottish coastal and rural economy. Shellfish farming (mainly mussels and oysters) is a well established industry in Scotland with strong economic levers, especially in the rural coastal communities.

The existing site of the IMTA farm group was selected with care to ensure minimal impact on other users of the marine environment. The farms are constructed from corrosion free, low maintenance materials, and have a negligible impact on the surrounding environment. Seaweed requires only sunlight as an input and produces no waste output. Shellfish filter feed from passing currents and similarly require no additional feed or produce any smothering waste to the seabed. This is in line with the aims of sustainable development and of the planning principles.



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GEN 2 Economic benefit: Sustainable development and use which provides economic benefit to Scottish communities is encouraged when consistent with the objectives and policies of this Plan.

Muckairn Response – We intend to work in collaboration to establish a new Seaweed processing Hub in the Oban area close to the nearest landing harbour of the harvested seaweed. To manage and operate the Hub processing facilities Muckairn will partner with other seaweed companies such as Samudra and Seaweed Enterprises to employ a local workforce to service the IMTA farm which will also employ personnel from the local community. Muckairn will also tap into the existing network of mussel and oyster processing through joining the cooperatives that exist as part of the ongoing commercial legacy of the existing site.

Muckairn will demonstrate their commitment to provide quality local employment opportunities building on the unique local skills and knowledge of Oban's fishing and aquaculture community. Muckairn envisage the Loch Etive IMTA farm(s) will require 1 local full time post to oversee and manage the farm and up to 5 further seasonal staff at peak times (line deployment/harvesting).

In addition to Muckairn's harvest operations, it is expected that the Oban Seaweed Hub will employ up to 6 FTE employees to accommodate the expected processing needs and other responsibilities around the Hub. This will increase in time as we expand beyond processing activities into other areas of sustainable marine conservation and restoration.

During initial years Muckairn will contract in ancillary support service companies to supplement their own local marine services and logistics. These will include local farm infrastructure and harvesting vessels, contract short wheel based vehicles, and shoreside resources. In total we estimate the annual costs to support both direct and indirect jobs for the IMTA farm will be up to 4 local full time equivalent (FTE).

GEN 3 Social benefit: Sustainable development and use which provides social benefits is encouraged when consistent with the objectives and policies of this Plan.

Muckairn Response – Muckairn's recruitment policy favours finding employees from within the local community. We believe there are synergies between seaweed and shellfish farming and the skills of local creel fishermen and other aquaculture staff, such as seamanship skills, vessel stewardship and other marine/shore based skills. Seaweed Cultivation is a winter crop and may give valuable additional income to existing fishermen to visit the site, take samples and monitor the crop growth during less active fishing times of the year.

The combination of seaweed farming, shellfish farming and creel fishing could assist in the retention of local skills and provide a more sustainable future for both marine industries.



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Seaweed is deployed during October/November and harvested in late March/May. These peak activity periods for seaweed cultivation tend to occur during the quieter times for creel fishing and will provide seasonal employment for fishermen and their vessels and harbour related activities. Mussel spat (seed) are collected late spring and harvests of mature mussels can be taken throughout the year. Line structure maintenance is best undertaken in the longer daylight and better weather days over the summer months.

At a time of pressure on Scotland's fragile coastal and fishing communities, whether from changes in markets or from environmental considerations, we believe a new and sustainable industry such as seaweed cultivation could bring economic benefits to the wider community. We believe the resurrection of the seaweed industry, in conjunction with existing low trophic marine cultivation in Scotland could act as a catalyst for other community projects associated with the marine environment, such as native oyster restoration.

Discussions with members of the local community including key business leaders have already taken place as part of wider Blue Economy development. Topics have included shore and beach clean-up, tourism support activities, provision of improved welfare and educational /training support programmes, and improvements to the local marine infrastructure.

GEN 4 Co-existence: Proposals which enable coexistence with other development sectors and activities within the Scottish marine area are encouraged in planning and decision making processes, when consistent with policies and objectives of this Plan.

Muckairn Response – As a major aquaculture site, Muckairn is acutely aware of the importance in taking cognisance of existing marine users in the area. Marine cultivation in Scotland has from a very early stage undertaken discussion with existing stakeholder groups. As well as creel fishermen, there has been engagement with a local diving business, local moorings committee, and various boat owners who offer tourist trips close to this and other aquaculture farms. In addition, local businesses connected with leisure tourism were made aware of the proposals. These discussions influenced the site selection and final positioning as well as this new ownership venture.

The IMTA farm site is located away from rocky reefs which are priority marine features on the west coast of Scotland. It is mostly unseen from the shore of the nearby houses so to lessen any visual impact, and its immediate location is not in conflict with the passage of pleasure craft, windsurfers or other water-sports. The safe transit lanes past the farm site north and south are clear and well marked with outside Special Mark buoys.

These marks are standard flashing yellow Special Marks at the site's NW and SW outer edges; an arrangement considered essential by the NLB and MCGA. The site is within easy reach of Muckairn shorebase and other ports and harbours on the Oban/Lorn coast.



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GEN 5 Climate change: Marine planners and decision makers must act in the way best calculated to mitigate, and adapt to, climate change.

Muckairn Response – Muckairn, as well established business venture has evolved into a Net Zero operation model plan carefully how it intends maintaining its net zero status while operating the business. Muckairn are committed to testing today's technology to the limit to ensure Net Zero Scottish Government targets are achieved. Whether this is the ropes that grow the product, the diesel fuelled boats, or the energy required to process the harvest, we look at every aspect to mitigate the use of fossil fuel based technology. A commitment to Research and Development to create change is central to the Muckairn business plan. Muckairn are a business whose philosophy is to mitigate the effects of the Climate Crisis through the benefits of cultivating shellfish and seaweeds, which are low carbon footprint protein sources.

IMTA Cultivation only requires clean seawater and sunshine (for the seaweed) to produce the crop; seaweed absorbs CO₂ in the growing process at a rate that far exceeds land plants; growing at up to 30cms a day from February – April/May when it is harvested. As such there is little more required beyond the seeding/spatting to begin the process and the harvesting at the end that require fossil fuels. There are no feed or chemical treatment inputs throughout the process for either seaweeds or shellfish. As the crop is grown in seawater there are no requirements for fresh water. To that end, low trophic IMTA it is one of very few truly sustainable food production sources, even if grown and consumed in high volumes.

The potential role for IMTA aquaculture as a key component in combatting or mitigating climate change is increasingly being studied and understood and is highly significant. As one of the fastest growing crops on the planet seaweeds take both carbon and nitrates out of the water. By removing nitrates, seaweed can act to de-acidify our sea lochs and improve water quality. Additionally, a portion of the seaweed (estimates are in the range of 30%) of the biomass will break away from the seaweed over its growing cycle and eventually fall to the seabed sequestering the carbon it has captured. Shellfish, including oysters are seen as one of the most efficient ways of transforming nutrients in coastal sea waters, into low cost, low carbon proteins.

We intend to cultivate a variety of species towards multiple end products which will replace many more damaging fossil based products - bio plastics, nutraceuticals, amalgams, and fertilisers. As a food or feed additive seaweed has a further carbon mitigation role by replacing in whole or part meat and intensively land grown crops. Other sustainable uses of seaweed being studied or implemented include reduction of methane emissions when used as an additive in cattle feed, use in replacing plastic with biopolymers, and in bioremediation of certain marine habitats. As well as high in protein, shellfish such as mussels and oysters contain essential salts and minerals for healthy living. Both seaweeds and shellfish can be grown with



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a minimum of direct intervention beyond structure maintenance and necessary husbandry of the crop. Creating a low carbon alternative to intensive land based farming systems.

Muckairn is looking at a program of electrification for their marine and land modes of transport. The advancement of hybrid engine technology is now available for smaller style boats, some of which are already working locally. Vehicles including vans and lorries are now capable of being battery operated and local charging points have been installed recently. Other equipment for movement of harvest to shore and delivery to the planned Oban Hub will be non fossil fuel based. The Oban processing facilities will be located close to the landing point at Oban harbour to reduce road miles. The above mitigation and adaptation measures will be monitored and calculated as part of Muckairn's ongoing carbon mitigation strategy, Net Zero carbon footprint commitment, and internal Quality Control Management System to ensure compliance is met.

GEN 6 Historic environment: Development and use of the marine environment should protect and, where appropriate, enhance heritage assets in a manner proportionate to their significance.

Muckairn Response – Our IMTA farm site lies approximately 15km east-north-east of the historic "Gateway to the Isles" town of Oban and 2km east of the small village of Connel. Careful consideration has been given to the original siting of the (original mussel, and now) IMTA farm(s), to ensure none of the natural and built beauty of the area was spoiled. The farm site(s) are barely visible from any busy roads or buildings in the area.

As the bulk of the existing IMTA cultivation farm infrastructure is subsurface, visual impacts from passing vessels are negligible. With only short periods to deploy farm infrastructure and harvest the site, the level of marine traffic is expected to be low.

Regular visits to site from local safe havens by small boats to undertake maintenance and monitoring inspections will have little or no visual or operational impact on the community. Muckairn, are regular local boat users to the area, and share facilities with other existing users. This will assist in the preservation and maintenance through operational dues paid to local harbours and membership of local moorings committees.

All harvests from the IMTA farm will be transported directly to the adjacent pier and shorebase, privately owned by Muckairn. The IMTA farm vessels working and landing seaweed, mussels and/or oysters has little impact on the rural setting of Loch Etive.



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GEN 7 Landscape/seascape: Marine planners and decision makers should ensure that development and use of the marine environment take seascape, landscape and visual impacts into account.

Muckairn Response – As mentioned, the existing IMTA Farm has a low visual profile and is situated on the southern shore of Loch Etive where it is not directly overlooked (the nearest houses are 1km away on the north side of the loch. There is no discernible impact on the existing seascape with the farm infrastructure mostly located below water level. The most visible aspect of the farm are Special Mark buoys, placed to clearly delineate the outer limits of the site for mariners.

GEN 8 Coastal process and flooding: Developments and activities in the marine environment should be resilient to coastal change and flooding, and not have unacceptable adverse impact on coastal processes or contribute to coastal flooding.

Muckairn Response – This existing development has no impact on the Coastal Processes or Flooding. The site is situated in light benthic muddy seabed. The anchors holding the farm do not block the movement of any substrate from its natural course. Servicing of the farm site is from their own established shorebase/oier/slipway and no new coastal developments are required to service the farm other than an Oban Processing Hub which will be based inland.

GEN 9 Natural heritage: Development and use of the marine environment must:

- (a) Comply with legal requirements for protected areas and protected species.
- (b) Not result in significant impact on the national status of Priority Marine Features.
- (c) Protect and, where appropriate, enhance the health of the marine area.

Muckairn Response – The existing consented area of the IMTA farm site, sits outside 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 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.



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(a) Comply with legal requirements for protected areas and protected species.

Muckairn will comply morally and legally with all legislation set to protect the many protected status habitats and species in the area. Muckairn believe their IMTA farm will contribute to the conservation, protection, and restoration of localised marine habitats and the surrounding marine environment. Muckairn will work closely with Nature Scot and others to ensure they achieve this.

(b) Not result in significant impact on the national status of Priority Marine Features.

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.

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.

(c) Protect and, where appropriate, enhance the health of the marine area.

Low trophic IMTA cultivation species (seaweed, mussels and oysters etc) requires only sunlight (for the seaweed) and passing nutrients carried by the twice daily tides. We will use no chemicals and any litter/debris will be taken ashore and disposed of responsibly. As has been mentioned seaweed and shellfish are known to enhance the health of the marine environment through improvements in water quality and habitat restoration/creation.

GEN 10 Invasive non-native species: Opportunities to reduce the introduction of invasive non-native species to a minimum or proactively improve the practice of existing activity should be taken when decisions are being made.

Muckairn Response – All sea vessels, equipment and personnel will strictly follow Muckairn’s Biosecurity Plans being put in place. A copy of which accompanies this submission. The species being cultivated are native and are found locally on the rocky foreshores, buoys and jetties surrounding the existing consented IMTA farm site. Seaweed seed and shellfish spat collected for cultivation will be collected from close to the farm site. Culturing of seaweed seed will be done in clinical laboratory conditions.

GEN 11 Marine litter: Developers, users and those accessing the marine environment must take measures to address marine litter where appropriate. Reduction of litter must be taken into account by decision makers.



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Muckairn Response – Any waste generated from the IMTA farm operations will be disposed of ashore through local, certified commercial waste disposal. All ropes and equipment cleaning and storage will be done ashore. There are no Special Waste requirements envisaged.

GEN 12 Water quality and resource: Developments and activities should not result in a deterioration of the quality of waters to which the Water Framework Directive, Marine Strategy Framework Directive or other related Directives apply.

Muckairn Response – There are no fresh water needs or waste water created from the IMTA cultivation. Cultivating seaweed and shellfish at the existing IMTA farm site takes up nutrients, especially nitrates and phosphates from the water moving through the site. This will improve the water quality in the coastal zone by reducing nutrient loading that can lead to algal blooms in summer.

GEN 13 Noise: Development and use in the marine environment should avoid significant adverse effects of man-made noise and vibration, especially on species sensitive to such effects.

Muckairn Response – We do not envisage additional noise pollution from this project other than through visiting vessels. There will be no generator platforms left on the existing farm site. The Special Mark lights for navigation are solar/battery powered. Vessel activity will be kept to a minimum and be an insignificant increase to existing vessel movements. Harvest landing will be at Muckairn's own pier over short periods of the year and will have little noise impact on existing activities at or surrounding either harbour.

GEN 14 Air quality: Development and use of the marine environment should not result in the deterioration of air quality and should not breach any statutory air quality limits.

Muckairn Response – We envisage no impact on local air quality from the IMTA farm operations.

GEN 15 Planning alignment A: Marine and terrestrial plans should align to support marine and land-based components required by development and seek to facilitate appropriate access to the shore and sea.

Muckairn Response – Muckairn's sites all have T&C Planning consent held by Argyll and Bute Council and/or Scottish Government Muckairn will be using existing shore infrastructure to land harvests and service the site, and the Oban Processing Hub building will be subject to separate planning consent. The farm infrastructure is already deployed and the harvest season(s) are short (6-8 weeks in total) and will few lorry movements over that period.



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GEN 16 Planning alignment B: Marine plans should align and comply where possible with other statutory plans and should consider objectives and policies of relevant non-statutory plans where appropriate to do so.

Muckairn Response – As GEN 15 above.

GEN 17 Fairness: All marine interests will be treated with fairness and in a transparent manner when decisions are being made in the marine environment.

Muckairn Response – Low Trophic Aquaculture has very little impact on other marine users by comparison to finfish cultivation. With no feed/chemicals/additive requirement there will be few vessel movements. The only impact will be the seabed lost to the farm footprint itself. The original site selection followed dialogue with creel fishermen to ensure it has the lowest impact on fishing within the area.

In addition, Muckairn consulted with as many Stakeholders as could be reached to discuss potential impacts from the selected site. All Statutory Consultees and Stakeholders were given due notice of the plans through the appropriate Pre-Application Process set out by (the then) Marine Scotland.

GEN 18 Engagement: Early and effective engagement should be undertaken with the general public and all interested stakeholders to facilitate planning and consenting processes.

Muckairn Response – Local engagement has been ongoing since Muckairn's formation well over 20 years ago. Regular dialogue with statutory and non statutory bodies has taken place since the early 1990's. During the screening process the sites were discussed and potential impacts on existing fishing grounds were identified and mitigated

The original licensing process advertised the farm development across the communities near the farm site through local press, posters, emails, and face to face meetings as required in the Pre-Application Consultation Process. They engaged with all resident users of the area on the farm proposals. Muckairn intend to be a permanent continued positive influence on the well being of these communities through the presence of the IMTA farm.

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GEN 19 Sound evidence: Decision making in the marine environment will be based on sound scientific and socio-economic evidence.

Muckairn Response – Although seaweed cultivation is in its relative infancy in Scotland, the structures and techniques used at the IMTA farm site will follow those developed at Muckairn's mussel sites over the last 20 plus years Muckairn have been involved in developing a variety of aquaculture farm designs and this has been influential in the way this IMTA farm is to be set out. The intention is to utilise the operational and research relationships built up between Muckairn, other aquaculture companies and academic research institutes to ensure an evidence based approach to all aspects of IMTA farming is adhered to at the farm site.

GEN 20 Adaptive management: Adaptive management practices should take account of new data and information in decision making, informing future decisions and future iterations of policy.

Muckairn Response – Robust management of the project will be undertaken by Muckairn team members who have considerable business skills combined with marine industry experience. Members of the team have had an involvement with the aquaculture industry as it has developed. In addition, local knowledge from Muckairn of the Oban/Lorn area and its environment will be invaluable to assessing change.

Links with research and development organisations involved with the cultivation of seaweed have been formed, e.g. Marivate, Seaweed Enterprises and SSIA. These organisations have an established track record of working with other seaweed farmers and have developed routine communication on new developments.

While our approach at this site will be to incorporate tested technology in the design of farm infrastructure, seeding, harvesting, and processing, we are continually researching new ways to improve current methodology. In particular we have been researching best practice to meet our Net Zero objectives including biodegradable ropes, automatic harvesting, hybrid operated marine vessels, and renewable energy sources to process biomass.

Muckairn objective at the IMTA farm site will be to continually test new ideas and techniques in commercial seaweed cultivation in the industry. Already a collaborative approach exists between those currently farming seaweed in Scotland, but it will be through research and field visits to those Nations currently leading the industry that future advancements will most likely come from.



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GEN 21 Cumulative impacts: Cumulative impacts affecting the ecosystem of the marine plan area should be addressed in decision making and plan implementation.

Muckairn Response – Cumulative impacts affecting the ecosystem are considered to be low from all current knowledge of IMTA farming. There are other seaweed and shellfish farms currently operating in the Oban area, but there is no suggestion that they have any individual or cumulative negative effect.

There are no known potential cumulative impacts which would affect the ecosystem of the farm area. However, Muckairn plan to work with Samudra Oceans, a tech based company with their own inspired remote sensing devices which will be placed at the IMTA farm site. Muckairn will undertake assessments to continually monitor the site and will act to mitigate any negative impacts detected.



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Part 2 - Scotland's Seaweed Cultivation Policy Statement

The Scottish Government supports the sustainable growth of the seaweed cultivation sector as a means to diversify the aquaculture sector. Muckairn has studied Scotland's Seaweed Cultivation Policy Statement and has considered the policies within. Below is our understanding of those policies.

Policy 1 - In principle, the SG is supportive of small-medium farm seaweed cultivation, subject to regulatory consideration; the General Policies set out in Chapter 4 of Scotland's' National Marine Plan; and any other relevant policies within that Plan. Applications for such seaweed farms should demonstrate that mitigation measures have been considered to prevent adverse environmental impacts and set out how these will be delivered.

Muckairn Response – Muckairn's have a well established, substantial IMTA farm at the site. This consists of hybrid mussel style longline structures as well as rafts.

The document above sets out Muckairn's response to "Chapter 4 of Scotland's' National Marine Plan". Full consideration to environmental implications of the farm are set out in the accompanying document "3 – Muckairn IMTA Re-application – Site (1 to 5) - Environmental Responsibilities v1.0" and other documents accompanying this Re-application.

Policy 2 – Only species native to the area where seaweed cultivation will take place should be cultivated, to minimise the risk from non-native species.

Muckairn Response – Seeded stock of preferred species *saccharina latissima* (Sugar Kelp) and *palmaria palmata* (Dulse) will be sourced from the local area. Only very small amounts of fertile seaweed material are required to be taken for stock in the seeding process. Full details can be seen in the accompanying document "3 – Muckairn IMTA Re-application – Site (1 to 5) - Environmental Responsibilities v1.0" in the section – "Biosecurity Plan".

Policy 3 – Where seaweed is grown for human consumption, cultivators should site farms away from sewage outfalls and other potential sources of pollution.

Muckairn Response – The chosen farm site is 3 km east of the township of Connel and the harvests from it are intended as a food source for human consumption. The farm site is in a sea area where there are no sewage outfalls or other known sources of pollution. Any coastal domestic or industrial effluent discharges will be greatly diluted by coastal water movement before reaching the site. While any potential sources for pollution are not envisaged to reach the existing IMTA farm site, regular monitoring and recorded data collection of water quality will be undertaken throughout the year. This will be collected via remote sensing equipment installed at the farm site and samples collected as part of an ongoing programme of data collection.



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Policy 4 – Equipment used in seaweed cultivation should be fit for purpose to withstand damage from adverse weather conditions.

Muckairn Response – A detailed desk study was undertaken using maps and charts of wave patterns and available weather and sea state data during the original screening process. Considerable local knowledge of weather conditions exists within the local team and from a local diving company which cover the last 25 years. All equipment and farm infrastructure are designed to exceed the most adverse sea weather conditions envisaged during the life of the farm. Farm designs will exceed in robustness, the maximum adverse sea conditions and drag forces they will encounter.

Policy 5 - Other marine users and activities should be considered in the siting of farms.

Muckairn Response – A Pre-Application Consultation (PAC) process was undertaken during the original licensing of the site(s) where existing and visiting marine users were informed. This included the fishing sector, local diving company, pleasure boat companies and visiting leisure craft.

Policy 6 – Small-medium size farming is unlikely to be spatially limited, and may be located anywhere in Scotland, subject to agreement and appropriate local conditions.

Muckairn Response – The original development of the site(s) considered a number of potential sites to locate the farm

Proximity to the local facilities and manpower of Oban provides an opportunity for Muckairn to undertake its wider objectives for IMTA farming to create tangible benefits for the local community whether these are environmental, social, economic or educational. Muckairn believe that IMTA farming can become a platform for other marine conservation and restoration projects involving the local community. We know there is much more likelihood of measurable economic benefits coming to a community where the IMTA farm is integrated into that community rather than being completely isolated.

Policy 7 – The SG is supportive of IMTA.

Muckairn Response – Muckairn are an established name in the mussel and other low trophic farmed species in Scotland. Muckairn have owned and operated an IMTA farm at their site(s) for over 30 years. Muckairn will continue to grow and process native seaweeds and shellfish into high value end products. The concept of seaweed/shellfish farming in conjunction with other marine species or as a catalyst to conserving or restoring habitats is one Muckairn fully endorse. Integrated Multi Trophic Aquaculture (IMTA) is currently being invested in here by



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Muckairn as a means of improving the marine environment, providing supplemental income, increasing biodiversity and aiding in carbon capture.

Muckairn believe we have overcome the practical challenges concerning the design of IMTA farm infrastructure. Existing marine structures can be adapted to best create optimum growing conditions for other trophic species (mussels, oysters, scallops, sea urchins, sea cucumbers etc). Muckairn hope that Marine Directorate will consider this IMTA Re-application and allow continued license consent for many more operational years of IMTA farming.

