ARGYLL AND BUTE COUNCIL	**Environment, Development and Infrastructure**
Development and Economic Growth	**5th December 2019**

Results of the Seaweed Farming Feasibility Study

1.0 EXECUTIVE SUMMARY

1.1 In Scotland, seaweed farming is an emergent industry and, in anticipation, the Scottish Government recently published its Seaweed Cultivation Policy Statement (**Appendix 1**).

1.2 In order to realise the full potential and possibilities for seaweed farming to local communities on the west coast, Argyll and Bute Council commissioned the Scottish Association for Marine Science (SAMS) to produce a report (see **Appendix 2**) into the feasibility of setting up seaweed farms in Argyll and Bute's coastal waters. This report pulls together information from academia, local communities and businesses, creating a holistic approach to seaweed farming.

1.3 The report describes the process of setting up and running a seaweed farming business in Argyll and Bute from conception, permissions, cultivation and processing to selling products to consumers. It includes case studies about setting up and running economically viable businesses by local communities. The case studies are site specific and provide a framework to assess the testing and creation of community-owned seaweed ventures.

1.4 It is important to note that seaweed farming is the most environmentally sustainable method of utilising the west coast seaweed resource and is the foundation of this report. Wild harvesting and industrial scale dredging, which although noted, are not the focus of the study and this report.

1.5 Members are asked to:

- Note the content of this paper.
- Approve the content of the final report for publication (see **Appendix 2**) and for a presentation on the published report at the Scottish Seaweed Industry Association (SSIA) conference in the Corran Halls, Oban on the 18th February 2020.

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Results of the Seaweed Farming Feasibility Study

2.0 INTRODUCTION

2.1 The cultivation of seaweed is a major global industry. In Scotland, seaweed farming is still an emergent industry and, in anticipation, the Scottish Government recently published its Seaweed Cultivation Policy Statement (**Appendix 1**). Given Argyll and Bute's abundant natural resources and strategic position on the west coast of Scotland, the region has potential to be the hub for seaweed farming in Scotland and perhaps Europe.

2.2 In the autumn of 2018, Argyll and Bute Council, through an award of 100% of funding from the European Maritime and Fisheries Fund (EMFF), commissioned Scottish Association for Marine Science (SAMS) to produce a report finalised on 11th November 2019 (see **Appendix 2**) into the feasibility of setting up seaweed farms in Argyll and Bute coastal waters. The report is intended to guide both the public sector and private investors about the requirements of setting up seaweed farming in Argyll and Bute.

2.3 With this transformational project report, the public sector will now have a framework for making informed decisions about key infrastructure/ support and private investors will have increased confidence in setting up seaweed farming in the region if they see a market opportunity.

3.0 RECOMMENDATIONS

Members are asked to:

3.1 Note the content of this paper.

3.2 Approve the content of the final report for publication (see **Appendix 2**) and for a presentation on the published report at the Scottish Seaweed Industry Association (SSIA) conference in the Corran Halls, Oban on the 18th February 2020.

4.0 DETAIL

4.1 The Food and Agriculture Organisation (FAO) estimates the global value of seaweed farming at $4.5 billion; most of it happens in Southeast Asia. In Scotland, seaweed farming is an emergent industry and, in

anticipation, the Scottish Government recently published its Seaweed Cultivation Policy Statement.

4.2 Argyll and Bute has the ingredients for success but does not currently have the infrastructure or supply chain that are required to develop these opportunities. It has businesses that want to farm seaweed in its pristine waters, with a number of small businesses already collecting and selling seaweed from the wild to the local market. Argyll and Bute also has a growing aquaculture value chain that can cater to each stage of setting up a seaweed farm. Moreover, public organisations understand the value of the marine economy and are keen to support its growth, together with businesses that want to use seaweed in their products, which include bread, spices, health products, pharmaceuticals, animal feeds and biofuels.

4.3 In order to realise the potential in terms of the possibilities for seaweed farming to local communities on the west coast Argyll and Bute Council commissioned the Scottish Association for Marine Science (SAMS) to produce a report into the feasibility of setting up seaweed farms in Argyll and Bute coastal waters. This report has pulled together information from academia, local communities and businesses, creating a holistic approach to sustainable forms of seaweed farming.

4.4 In more depth the report details:

I. The current state of the global seaweed industry before focusing on opportunities in Scotland. Scottish waters support the cultivation of kelp species (*Laminaria sp., Alaria esculenta* and *Saccharina latissima*), and the steps required to successfully cultivate these species are relatively well known. There are a variety of end markets, such as human food, alginate production and additives for animal feed to name a few.

II. The process of setting up a seaweed farm is detailed, covering the full cultivation cycle from hatchery to out planting on a farm, to monitoring, harvesting and post-processing of raw material. Various different designs of cultivation structures are presented, including adapted mussel longlines, individual longlines, grid-based systems and offshore cultivation rigs.

III. The consenting and policy regime for seaweed cultivation in Scotland is discussed, providing a practical guide on the two types of lease required (a seabed lease from Crown Estate Scotland and a license from Marine Scotland).

IV. The potential environmental impacts of seaweed cultivation are summarised to provide a context for how farm sites may affect the surrounding marine environment.

V. As highlighted in the report the suitability of a particular location for seaweed cultivation is dictated by numerous factors, which can be separated into three broad groupings: **local environmental conditions** e.g. temperature, light climate, waves salinity, nutrient concentrations, depth; **existing uses and socio-economic context** (e.g. fishing, boat traffic, protected areas); **operational considerations** (e.g. landing point, onshore facilities).

VI. A modelling exercise was undertaken, examining the first set of constraints, to produce a map of potentially suitable areas for the establishment of seaweed farms in the Argyll and Bute region. This showed that large areas of the Argyll and Bute region are potentially suitable for establishing seaweed farms.

VII. Beyond the environmental constraints on seaweed farm location, developers should seek to understand the socio-economic barriers that might constrain establishment of farms in particular locations. The report explains the concept of social licence, the benefits for the emergent seaweed industry in working towards social license for its activities.

VIII. An assessment of the business feasibility of seaweed cultivation in Argyll and Bute has been undertaken, describing the emergent industry and exploring routes for its development.

IX. The feasibility of these roles has been assessed and illustrated with case studies specific for the Argyll and Bute region. The first case study uses South West Mull and Iona Development (SWMID) as an example of a community led producer organisation. The second examines a number of companies capable of providing various services in an intermediary function. The third case study uses Davidson's Animal Feed as an example of an end market (that of seaweed as a feed supplement for livestock).

4.5 It is intended to distribute the report widely in order to develop the market and to inform on the best methods of processing for each species. The council could then capitalise on this through planning, permissions and licensing and Crown Estate revenue.

5.0 CONCLUSION

5.1 This final feasibility study provides a complete guide on the process of setting up and running a seaweed farming business in Argyll and Bute from conception, permissions, cultivation and processing to selling products to consumers. It is hoped that commercial opportunities will be realised across the region, given that seaweed aquaculture is an extremely varied market that is growing globally by 10% each year, making it the fastest growing aquaculture sector.

5.2 The usefulness of this report will be largely determined by how it is

distributed and used. As part of our funding commitment to EMFF the final report must be published. It is intended that the report will be available digitally and a limited number of hard copies will be printed. Subject to members' approval, Economic Growth officers will then, using existing funding resources, present the published report at the Scottish Seaweed Industry Association conference in Oban on 18th February 2020. The ultimate aim of this research is to position Argyll and Bute as a centre of seaweed farming excellence.

6.0 IMPLICATIONS

6.1	Policy	None arising from this report.
6.2	Financial	None, this project was 100% funded by EMFF.
6.3	Legal	N/A.
6.4	HR	N/A.
6.5	Fairer Scotland Duty	N/A.
6.5.1	Equalities	No negative impacts on equalities.
6.5.2	Socio-economic Duty	N/A.
6.5.3	Islands	Potential commercial opportunities for island communities.
6.6	Risk	Non-publication of the report could result in repayment of £105,000 to EMFF.
6.7	Customer Services	None.

Pippa Milne, Executive Director with responsibility for Employability

11th November 2019

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