11th International Seaweed Conference EU

Seagriculture

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BREMERHAVEN, GERMANY

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**Description of the Innovation (ca. 250 words):**

The Seaweed Academy (TSA) is the UK's only dedicated seaweed industry facility offering a complete package of training, education, and business development. Catalysing the growth of this emerging industry has a crucial role to play in net zero aspirations from the local to national and global scale.

TSA has mapped the end-to-end process, offering support to the growing seaweed aquaculture industry throughout the value chain. This innovative and holistic approach builds on SAMS' experience and knowledge including inputs such as seeded line through to research and technical input on topics such as disease management and social licence, support in establishing a commercial business, cryopreservation of strains and practical skills development.

On the 25th – 27th of April SAMS hosted the launch of the Seaweed Academy, bringing together all stakeholders, industry professionals, aspiring farmers, and those engaged in the developing industry. The launch event was attended by almost 200 people in person and over 250 online, with representatives from Government, industry, and education, highlighting the importance of this initiative for the future growth of the seaweed sector.

By addressing the skills requirements for the seaweed industry, TSA is enabling further growth of the sector and increase Europe's position as a global innovation leader in this field. The integrated approach to skills development will ensure that the workforce is well equipped for all aspects of seaweed farming, ensuring optimal growth of this new and crucially important sector for the coastal economy.

**What makes your innovation unique compared with other products? (ca. 400 words)**

The Scottish Association for Marine Science (SAMS) have launched the UK's first and only dedicated seaweed industry facility offering a complete package of training, education, and business development. SAMS is in a unique position to be able to utilise its two seaweed farms located offshore from the Oban campus, which allow boat-based delivery of training in a live farming setting. By gaining hands-on experience with a qualified and experienced researcher, attendees are offered a unique and innovative training opportunity in functional proficiency and expert knowledge. A blended learning approach will allow attendees access to in-person, hands-on training as well as online courses to reach a wider audience.

Delivery of training from the SAMS facility near Oban, on the West coast of Scotland, will allow access to a considerable range of staff expertise as well as the physical resources within The Seaweed

Academy training suite, the newly refurbished seaweed nursery; the Ocean Explorer Centre (OEC); and the Culture Collection of Algae and Protozoa (CCAP), which is one of the world's most diverse biological resource centres, providing services including cryopreservation; as well as other laboratory and teaching spaces on campus.

As the facility will be based in Argyll, the highly innovative approach will also support job creation and economic activity across the Highlands and Islands. The attendees on courses run through TSA will be from throughout the UK and internationally and due to the nature of seaweed farming, they will largely be in rural coastal communities, therefore supporting economic development in these regions.

The activities that will be delivered through the SAMS Ocean Explorer Centre will further improve collaboration across the seaweed sector and will provide STEM education into primary and secondary schools throughout the UK and further afield utilising a new online platform and associated resources. This innovative approach means that The Seaweed Academy will address skills and knowledge gaps in relation to seaweed, carbon, and climate change from primary school level through to vocational Further Education courses working with a local college parker (UHI Argyll), Continued Professional Development courses (CPD), as well as undergraduate, Masters and PhD level courses provided through SAMS. The partners have extensive experience of training delivery in similar sectors such as finfish and shellfish farming in the UK and will therefore be able to apply significant cross-sector lesson learning when delivering seaweed-related training.

**What special new advantages does your innovation bring in terms of for example commercial, environmental and social factors? (ca. 400 words)**

While there will be a range of direct benefits from TSA, a high level of wider benefits will also arise, including:

- Stimulating the growth of the seaweed aquaculture from individuals and community groups through to large commercial organisations;
- Growing opportunities in high volume (e.g. animal feed), as well as high value markets (e.g.
- pharmaceuticals);
- Promoting and supporting new applications for seaweed as a versatile bioresource e.g. through production of bioplastics and reduced reliance on fossil-plastics;
- Increasing awareness and competitiveness of seaweed products globally;
- Enabling increased removal of CO2 from the ocean surface, promoting marine ecosystem services and mitigation of the impacts of climate change.

TSA will result in significant cumulative impact as increasing numbers of people are trained and therefore able to pass on that knowledge to others working in the seaweed sector. It is also highly scalable, with potential for international collaborations and partnerships.
TSA is actively investing in the wider benefits of seaweed farming, such as:

1) Investment in skills - equipping people with skills needed to make the most of seaweed farming opportunities;
2) Investment in local business - through targeted support to entrepreneurs, innovative businesses and community organisations;

3) Investment in communities and place - through project development, improving blue/green infrastructure, and increasing community engagement.

The production of biomass in the marine environment is inherently more carbon efficient when compared to the terrestrial environment. Furthermore, seaweed farming requires no additional fertilisers and extracts inorganic nitrogen from the marine environment, in doing so reducing Greenhouse Gas emissions from the environment by reduction of marine N2O to the atmosphere. As seaweed grows some carbon is lost into the sediment and seawater, where both pathways can sequester carbon with resulting positive contribution towards reducing climate change and achieving the Net Zero targets. Once harvested, if the biomass is used for bioenergy or as a fertiliser, the residue is highly stable and when stored within soils offers significant potential for carbon sequestration. All such practices will be covered through training provision within TSA.

Through operation of two seaweed farms, SAMS works collaboratively with international experts to ensure adoption of best practice in minimising the carbon footprint. The use of low carbon technology, efficient practice and environmental considerations are crucial throughout the seaweed supply chain and will be promoted through courses offered within TSA.

**For which market and target group was your innovation mainly developed? Who is likely to be the key customer group? (ca. 200 words).**

The primary direct beneficiaries of The Seaweed Academy (TSA) will be individuals and businesses looking to improve technical knowledge or gain accreditation in required skills for farming seaweed. TSA will benefit all people seeking to engage in the seaweed value chain, including economically inactive or unemployed individuals, as well as existing or prospective seaweed farmers and businesses in the supply chain.

It will also play a key role in the wider UK and global context for direct and indirect beneficiaries as the seaweed industry grows around the coastline, particularly in rural areas. The target groups therefore include both local farmers and interested stakeholders through to international attendees through online training provision.

As TSA becomes more established, it is anticipated that more organisations will engage and have attendees on the course, from aquaculture companies looking to diversify through to markets or buyers, such as pharmaceutical and food developers looking to enhance their technical knowledge of the farming process. There are increasing opportunities for businesses supplying the overall industry from mooring technology to growth substrates and seeded material and interest has already been generated from such groups, with delivery of both standard and bespoke courses planned in the coming months.

**Please give very briefly 3 reasons why you believe your innovation should win the Seagriculture 2022 Innovation Award:**

Skills development: Addressing skills shortage and enabling growth of the seaweed sector through the provision of practical on farm training and technical desk-based theory either online or in person at our bespoke training suite in Oban.

Rural social and economic benefit: Contributing to social and economic development of rural coastal

communities from local communities to international stakeholders.
Climate change mitigation and ecosystem services: Enabling participants to achieve seaweed production, associated climate change mitigation benefits and related ecosystem services, through the application of the extensive knowledge and experience of the scientists at SAMS.


Seaweed
ACADEMY
was officially opened on
26th April 2022
SAMS
UHI ARGYLL

# The Seaweed Academy: Theory of Change

**Growing skills, supporting business and investing in communities**