



Scottish Seaweed
Industry Association

Session 1: Biosecurity

Ryan Marchington
Liz Cottier-Cook



Crown Estate
Scotland
Oighreachd a' Chrùin Alba



Sustainable Aquaculture
Innovation Centre



Highlands and Islands Enterprise
Iomairt na Gàidhealtachd 's nan Eilean



Seeding for Success – SAMS Enterprise Seaweed Nursery

Ryan Marchington



Who are we?

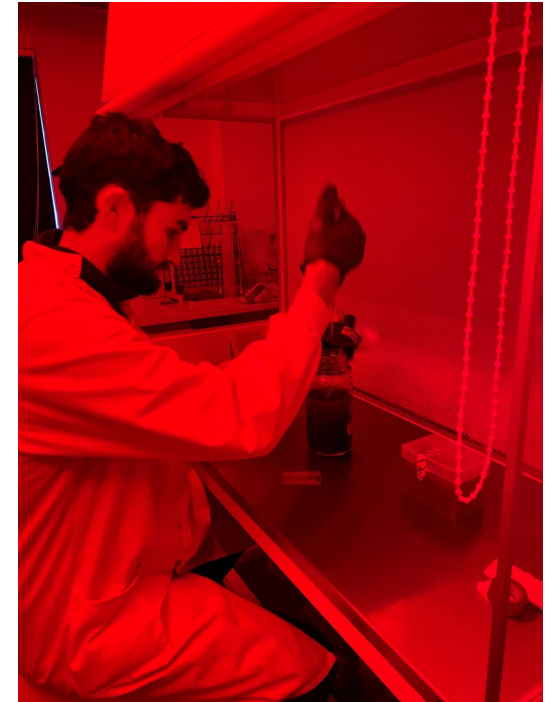
Part of the Scottish Association for Marine Science (SAMS)

SAMS Enterprise Seaweed Nursery

- UK's largest dedicated commercial seaweed nursery
- Seaweed husbandry aquarium
- Diverse collection of kelp gametophytes

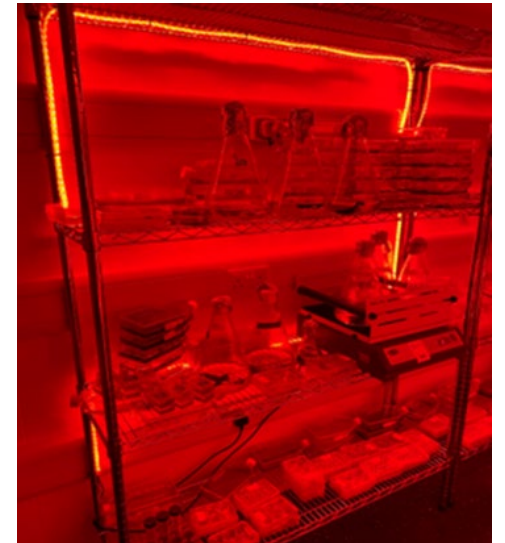
Two operational farming sites

- Cutters Rock, Kerrera
- Port A'Bhuiltin, Lismore



SAMS Enterprise seaweed nursery

- Seaweed products, training and research
- Continual R&D for nursery processes, products and farming methods
- Collaboration with farmers on seed supply and novel seeding mechanisms
- High biosecurity standards
- SEPA awards for marine innovation and best practice



Nursery products/ services

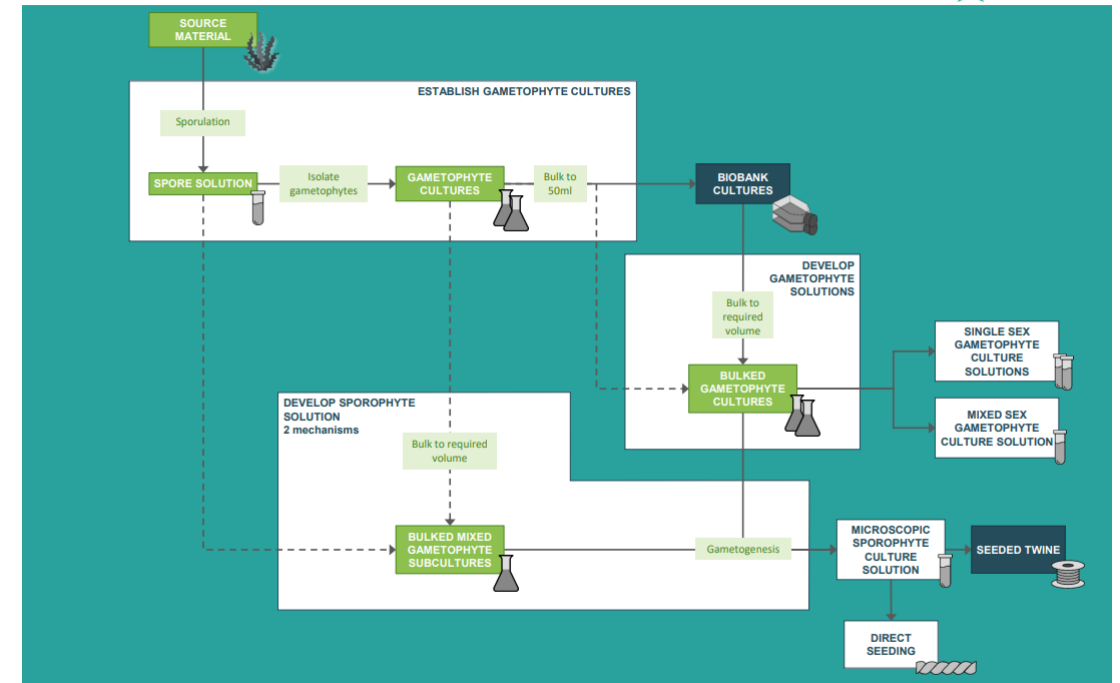
Products

- Seeded twine
- Bulk gametophyte and sporophyte cultures
- Single-sex gametophyte isolates

Services

- Long-term biobanking of gametophytes
- Training (isolations, bulking, spore releases)
- Product testing
- Land-based macroalgae tank cultivation

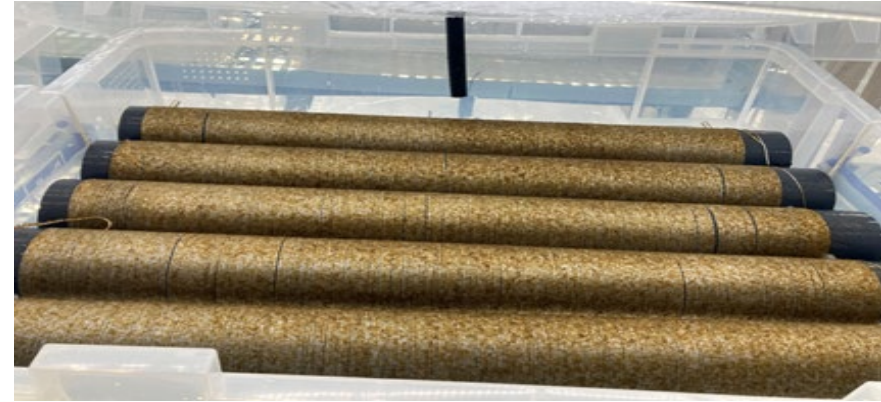
SEAWEED NURSERY PRODUCTS June 2023



PRODUCT KEY
CURRENTLY COMMERCIALISED | EXPERIMENTAL - EAR TERM IN DEVELOPMENT
A biobank culture = a 'storage' culture maintained, safely, on behalf of a client for a period of 12 months

Why seaweed nurseries?

- **Industry scaling**
- **Biobank**
- **Seasonal flexibility**
- **Genetic diversity**
- **Environmental stewardship**

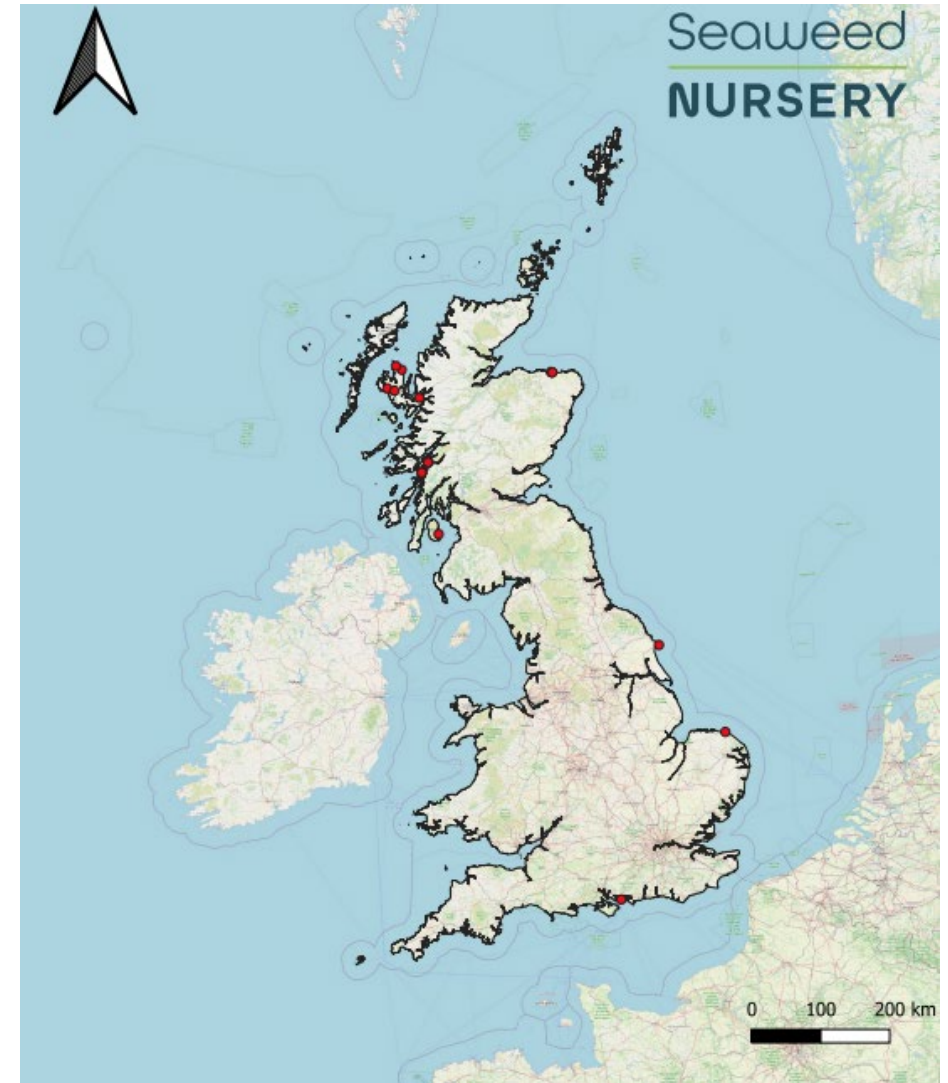


Biosecurity

- 1. Environmental stewardship**
- 2. Nursery gametophyte cultures**
- 3. Twine aquarium husbandry**

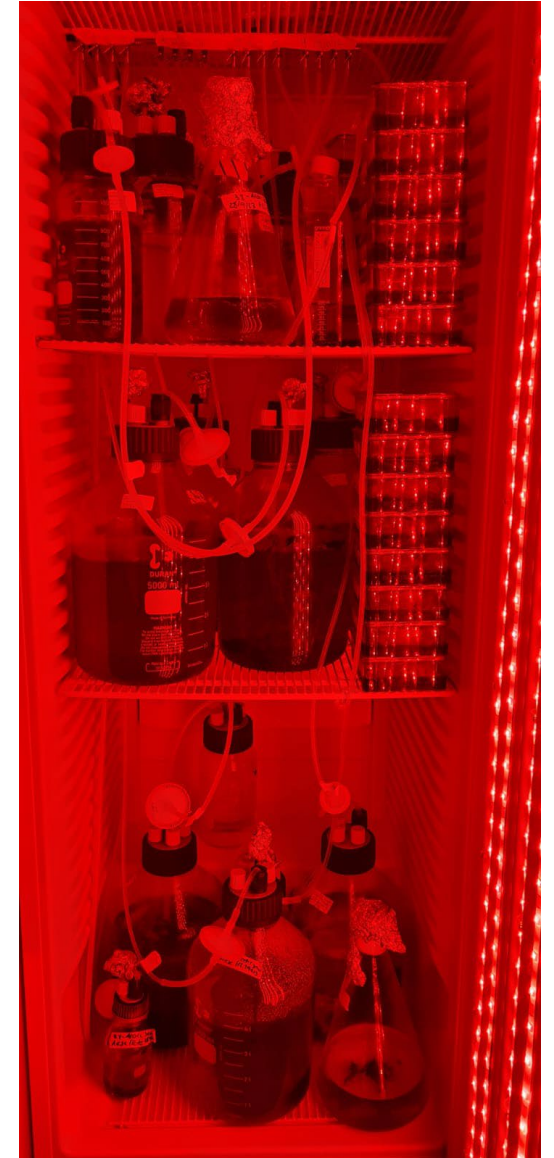
Biosecurity: Environmental stewardship

- Duty to provide quality seeded material
- Local seed stock
- Traceability
- Further research – genetic mapping of kelp populations



Biosecurity: Gametophyte cultures

- Clean & healthy gametophyte cultures.
- Sorus cleaning & processing.
- Filtered, UV & autoclave seawater.
- Regular sub-culturing & vessel change.
- Contaminants & pathogens.
- Biological waste



Biosecurity: Aquarium husbandry

- Biosecure twine production.
- Non-native strains.
- UV & filters.
- Flow through system.
- Cleaning regimes & water changes.
- System disinfection.



Summary

- Seaweed nurseries are essential for scaling the industry sustainably.
- Biosecurity measures are critical in sourcing sorus material and nursery laboratory procedures.
- Nursery products and services include seeded twine, bulk sporophyte cultures and biobanking.
- SAMS Enterprise seaweed nursery provides continued R&D into optimising nursery and farming process.
- Contact SAMS Enterprise for your 2024 season enquiries: seaweed@sams-enterprise.com.



Expertise throughout the value chain



Seaweed activity at SAMS



Teaching & education - BSc, MSc and PhD level



Culture & cryopreservation of c.3,000 algae strains



Industry training provision



Supply of **seeded line & bulk cultures** to industry



Marine consultancy services incl. seaweed & aquaculture



Seaweed farms: Demonstration/ incubator sites, commercial experience & research



Public engagement & schools outreach work



World-leading **seaweed research:** Disease, biology, IMTA, system design and seeding techniques

- Wholly owned commercial subsidiary of SAMS
- Over 20 years of specialist marine environmental consultancy
- Project Managers / Consultants with specialisations in

- Marine renewables
- Marine mammals
- Aquaculture
- Fisheries
- Seaweed
- Polar research / snow science
- Deep sea mining
- Marine Spatial Planning

- Internal technical and commercial support team, plus 100+ SAMS scientists
- Accredited to ISO9001 Quality Management System

Seaweed
NURSERY



Seaweed
ACADEMY



SIMBA



**New
DEPOMOD**