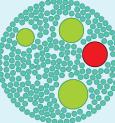


 **IBMC**
International Bioeconomy & Macroalgae Center

 **SULSA**

 **NEOF**
NERC ENVIRONMENTAL OMICS FACILITY

 British
Phycological
Society
Understanding and using algae

 **SAMS**
Scottish Association
for Marine Science

 Scottish Seaweed
Industry Association

Tiny Treasures

Linking gametophyte research with future-proof nurseries

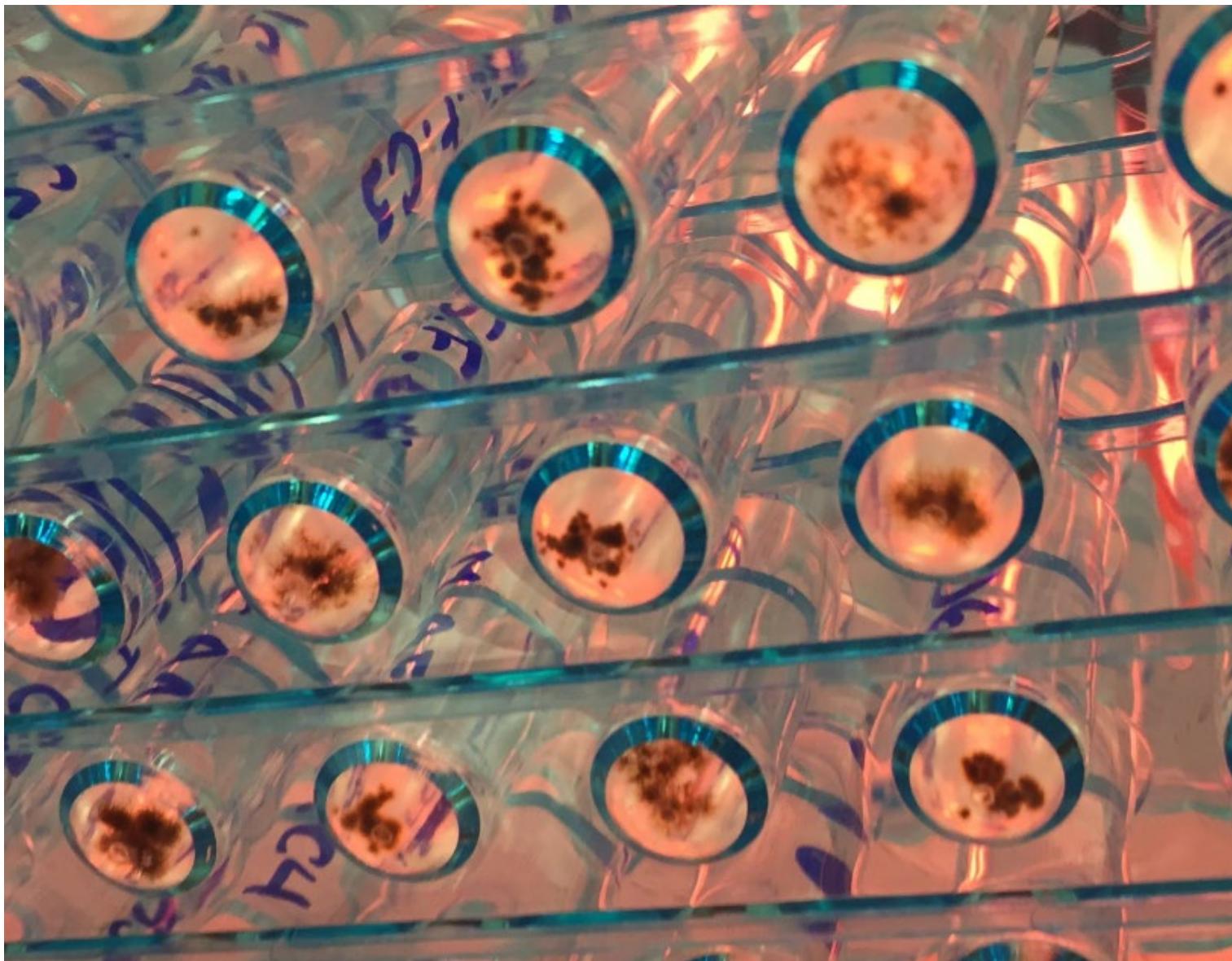
Reina Veenhof, SSIA 2025

Content

- SAMS nursery
- Farm trials
- Climate proof nurseries
- Sharing the love: Nursery Course 2025



SAMS Nursery



- Since 2016
- Seeded twine
- Biobank
- Five species of kelp
- Separate populations

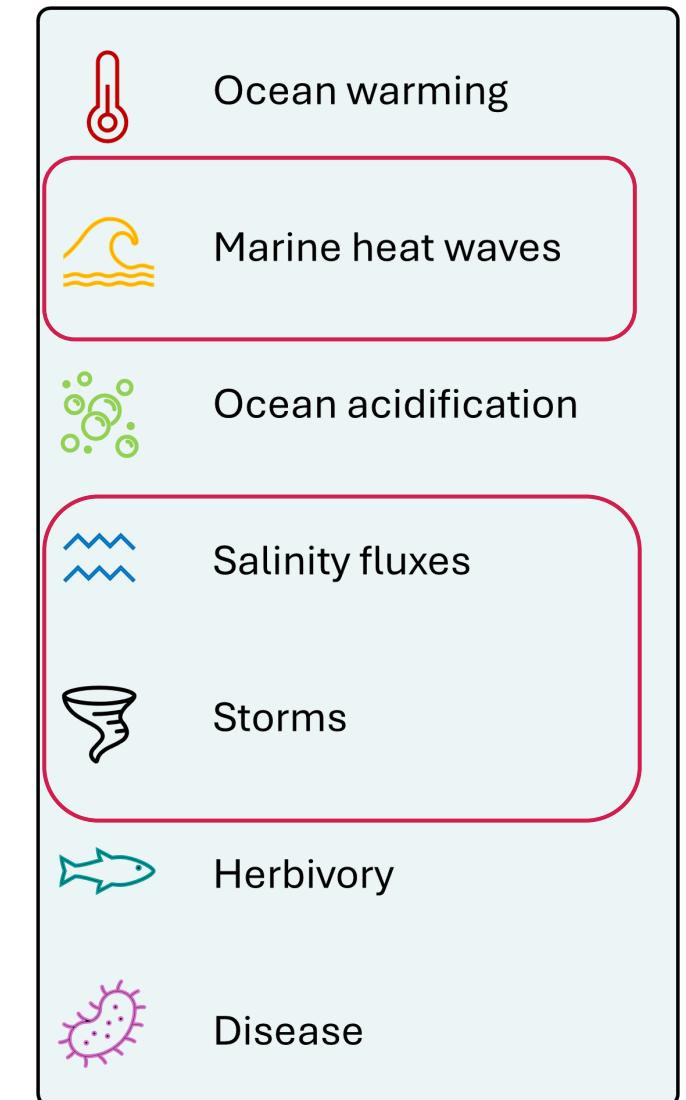
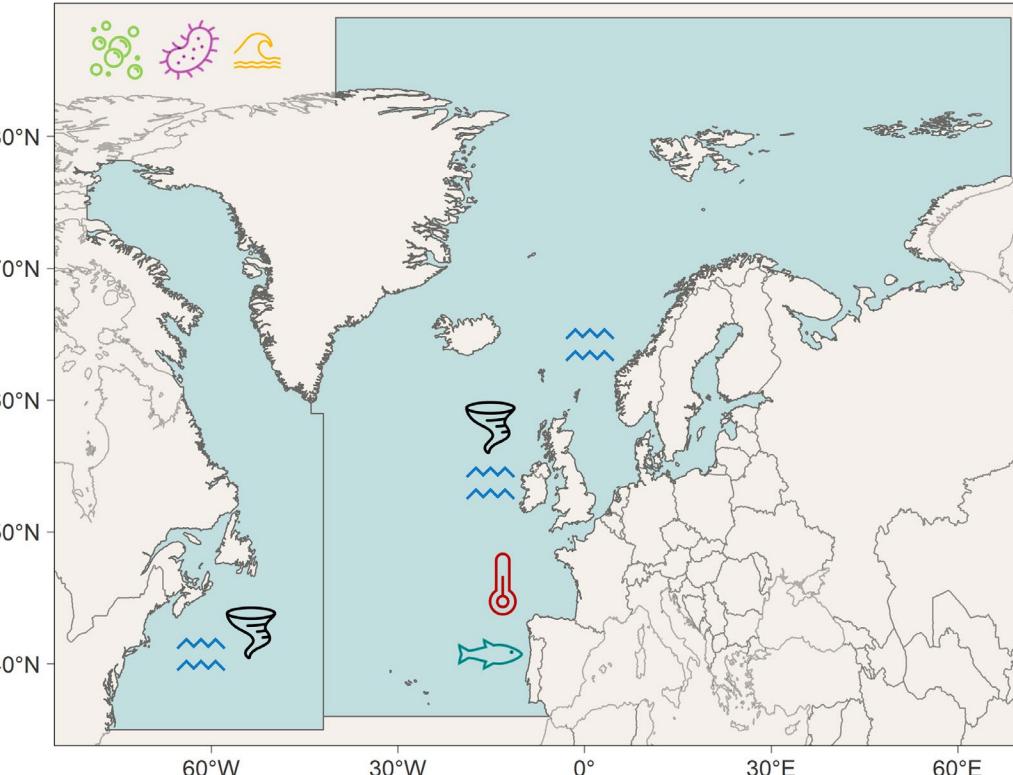
Farm vs. Wild trial



- Constant replenishment of cultures
- Derive seedstock from farm → (mal)adaptation?
- 2025/26 trial *Alaria esculenta*

Climate-proof seedstock

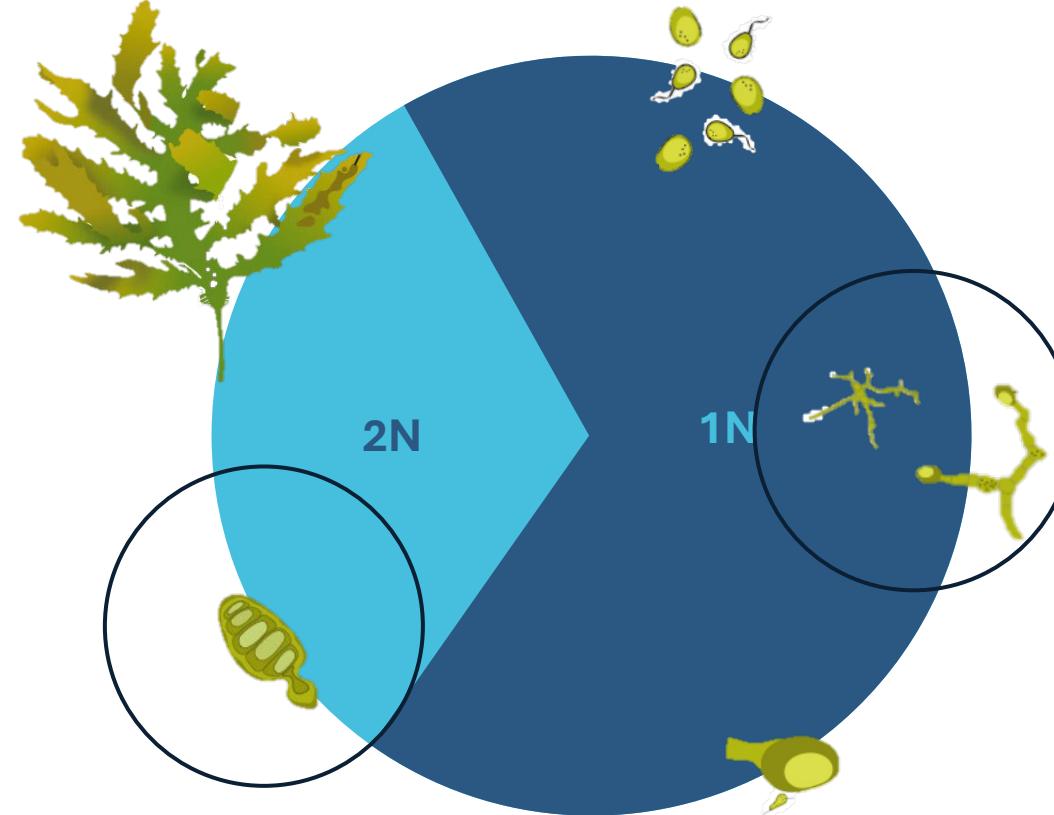
- Climate change: the elephant in the room
- Temperature & salinity stress
- A potential loser: *Alaria esculenta*



Veenhof, R.J., Burrows, M.T., Hughes, A.D., Michalek, K., Ross, M.E., Thomson, A.I., Fedenko, J. and Stanley, M.S., 2024. Sustainable seaweed aquaculture and climate change in the North Atlantic: challenges and opportunities. *Frontiers in Marine Science*, 11, p.148330.

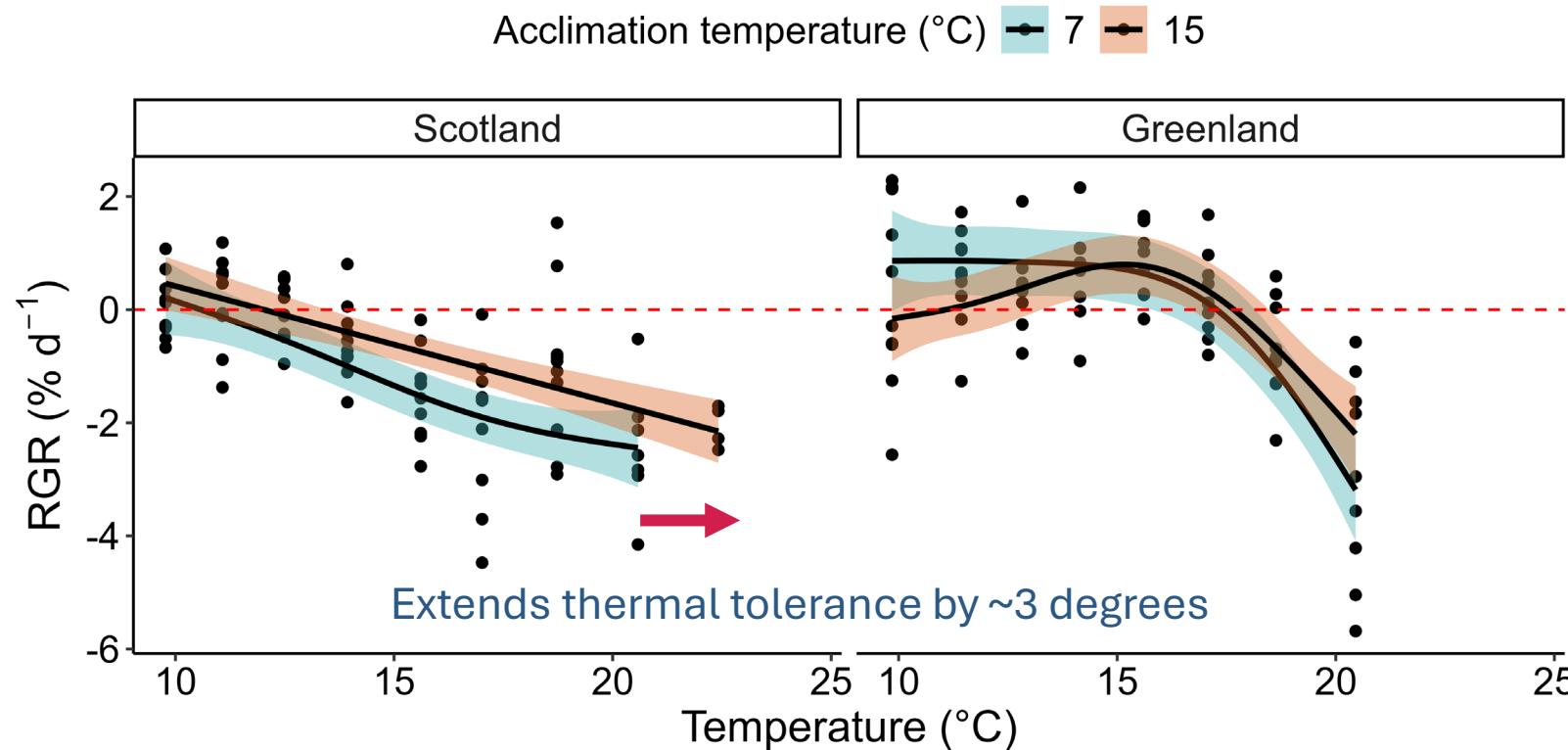
Leveraging the nursery for more resilient adults

- We can increase stress tolerance of adults by changing the growing environment of the babies
- Test the effect of two separate acclimation temperatures (7°C and 15°C) on thermal tolerance Scottish and Greenland gametophytes and sporophytes



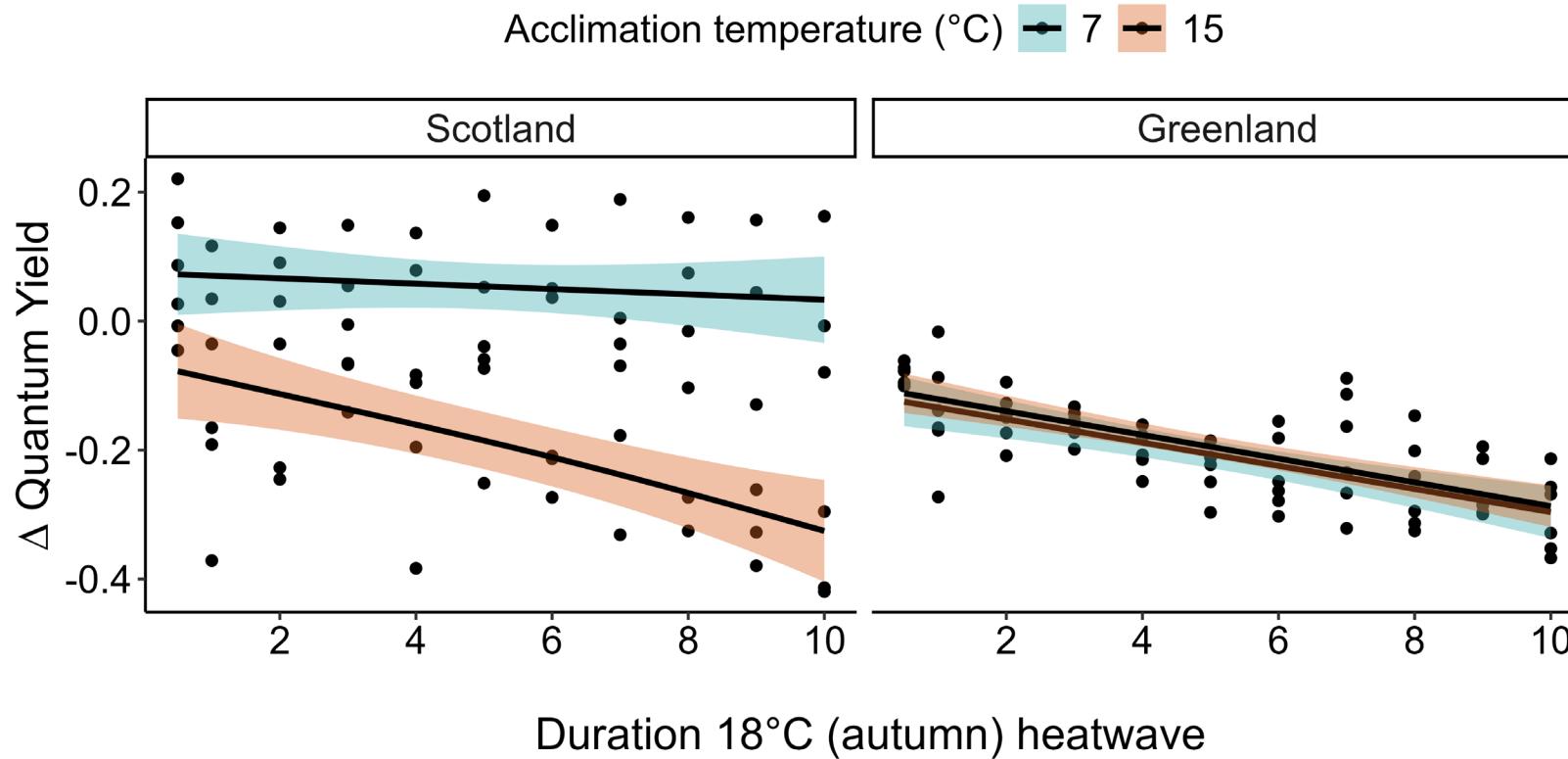
Gametophytes

- 15°C acclimation improves thermal tolerance in Scotland
- No effect of acclimation on Greenland



Sporophytes

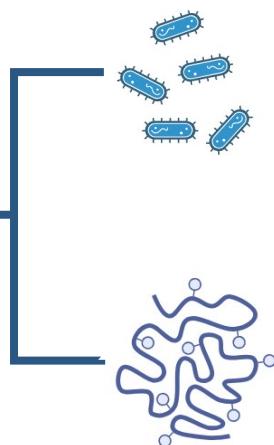
- 7°C acclimation improves thermal tolerance in Scotland
- No effect of acclimation on Greenland



Seaweed and climate resilience

Current work:
Digging into *mechanism* for observed changes

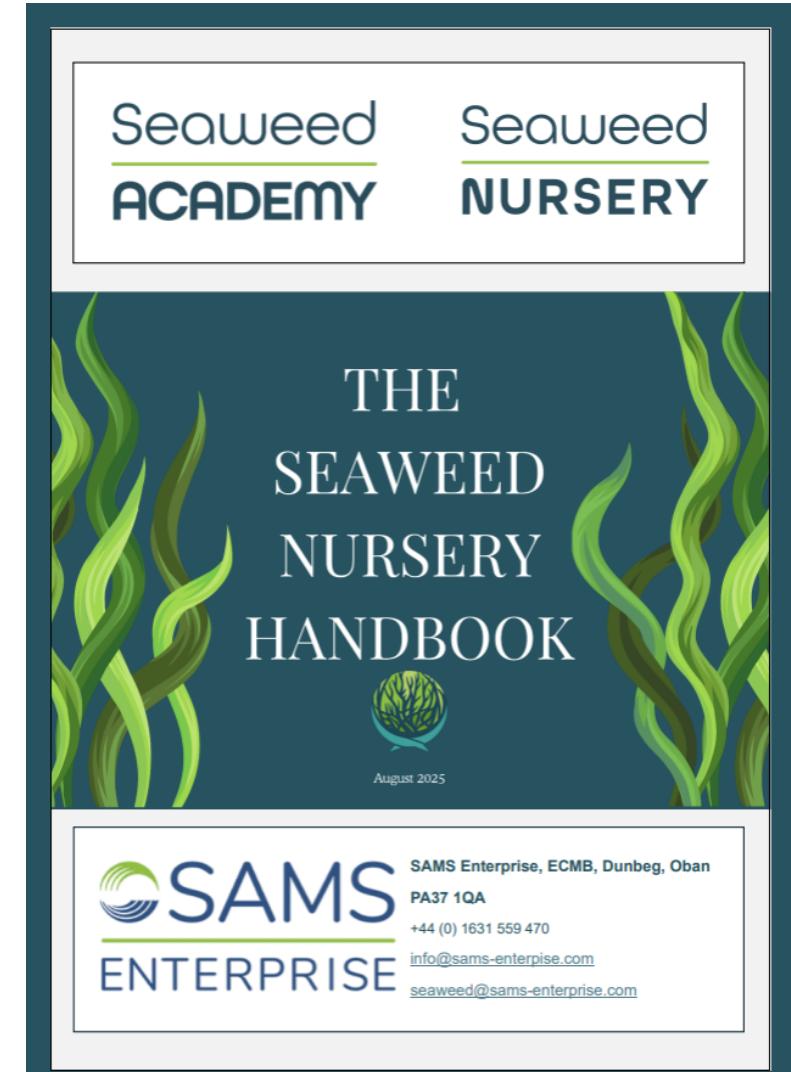
Fast-tracking adaptation?



- Microbiome

- Epigenomics

Nursery Course 2025



Seaweed
ACADEMY

Seaweed
NURSERY

THE
SEAWEED
NURSERY
HANDBOOK



August 2025

SAMS
ENTERPRISE

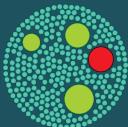
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Thank you!

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WWF

How can we improve thermal tolerance?

