

Tiny Treasures

Linking gametophyte research with future-proof nurseries

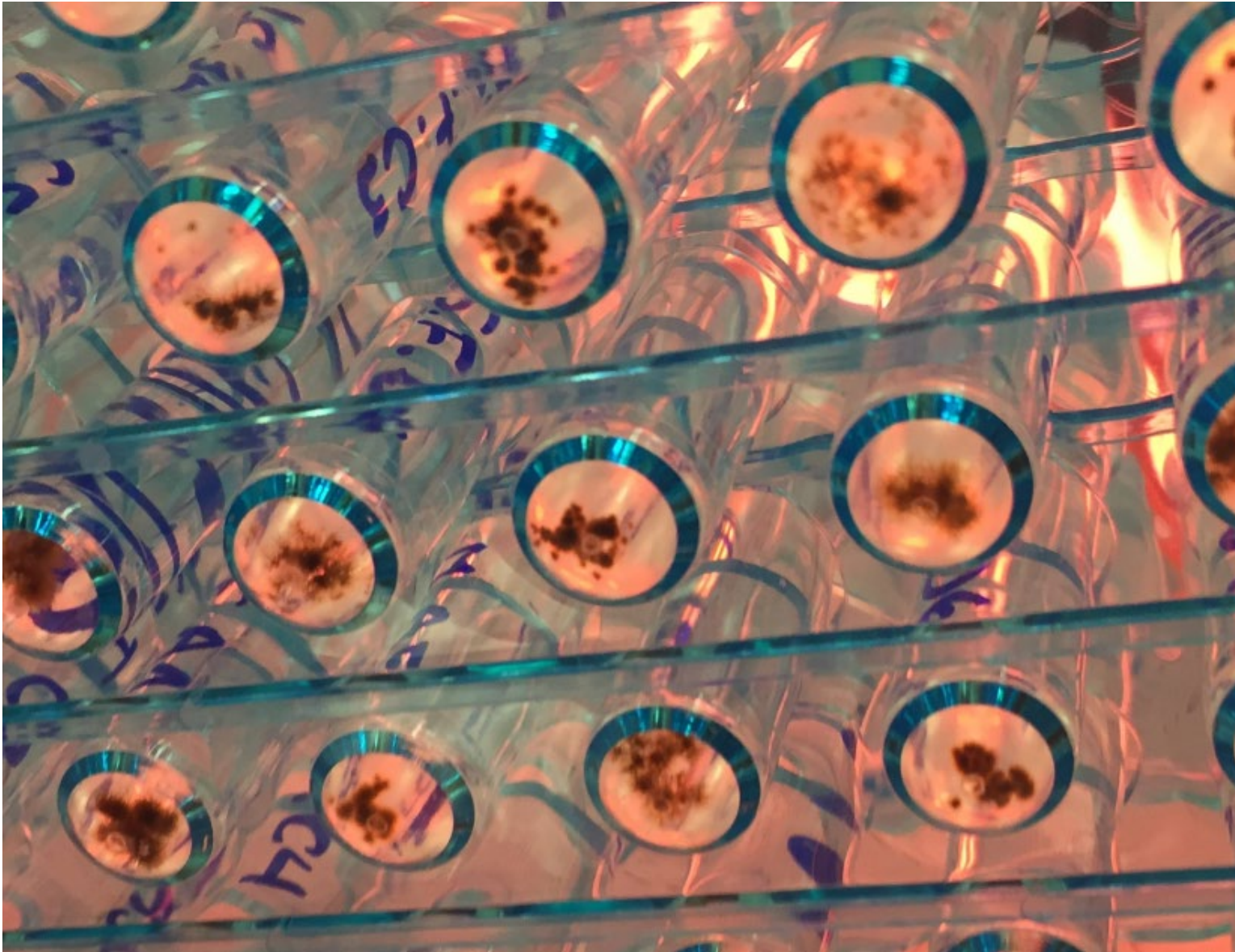
Reina Veenhof, SSIA 2025

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

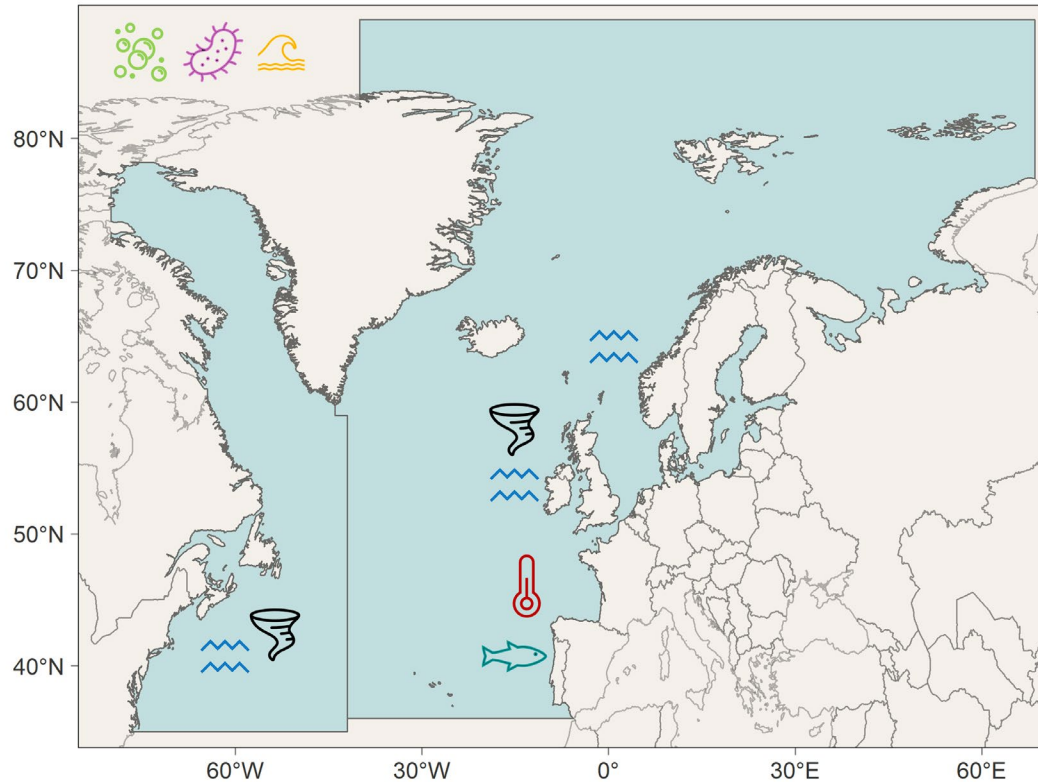
Farm vs. Wild trial



- 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*



Ocean warming



Marine heat waves



Ocean acidification



Salinity fluxes



Storms



Herbivory

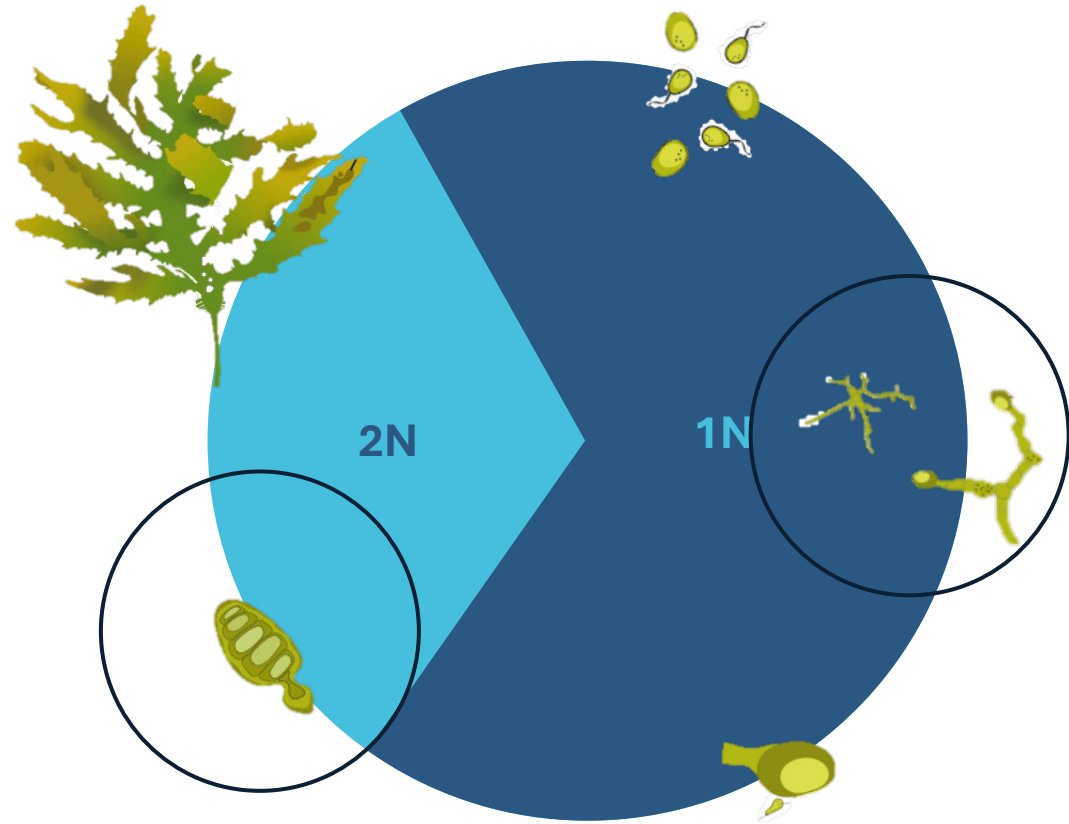


Disease

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.1483330.

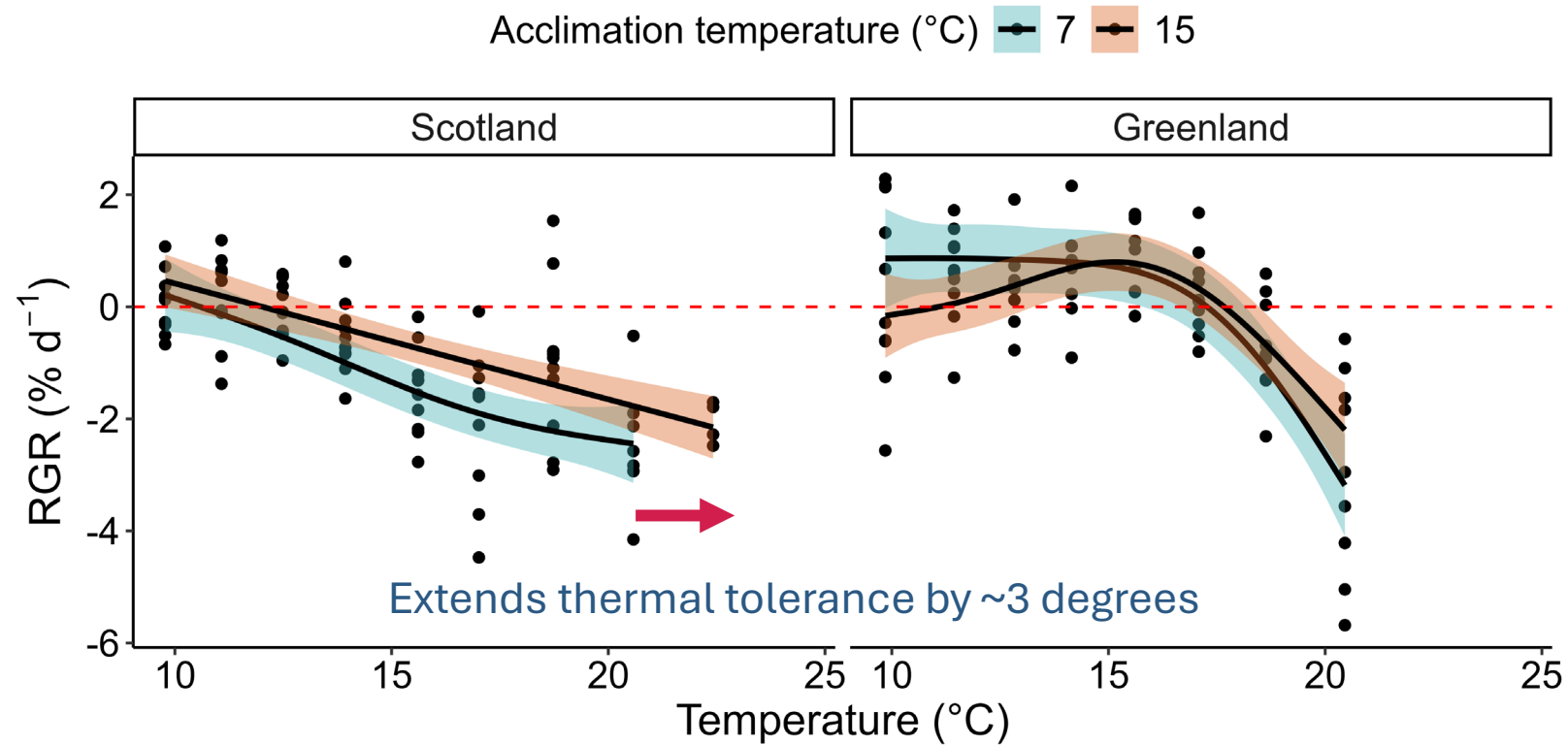
Leveraging the nursery for more resilient adults

- 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



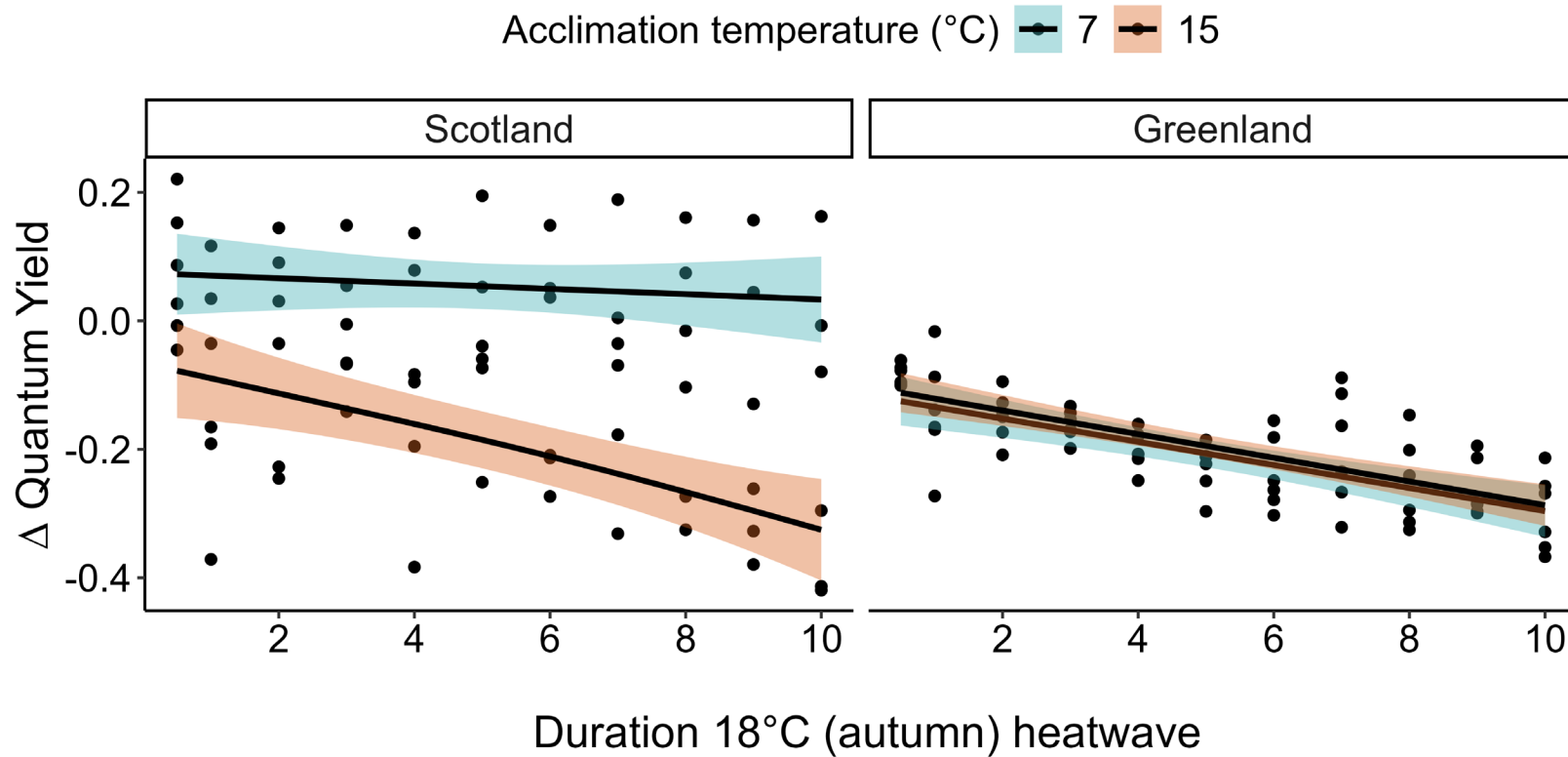
Gametophytes

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



Sporophytes

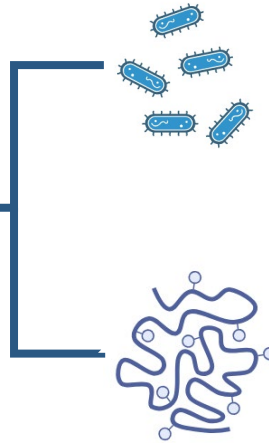
- 7°C acclimation improves thermal tolerance in Scotland
- No effect of acclimation on Greenland



Seaweed and climate resilience

Current work:
Digging into *mechanism* for observed changes

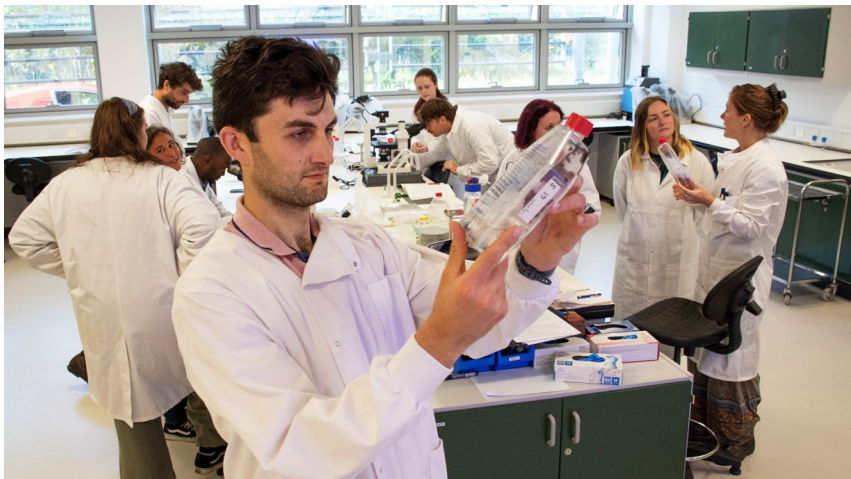
Fast-tracking adaptation?



- Microbiome

- Epigenomics


Nursery Course 2025




Seaweed
ACADEMY

Seaweed
NURSERY

THE
SEAWEED
NURSERY
HANDBOOK



August 2025

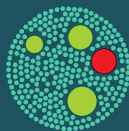
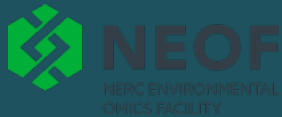


SAMS
ENTERPRISE

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Thank you!

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How can we improve thermal tolerance?

