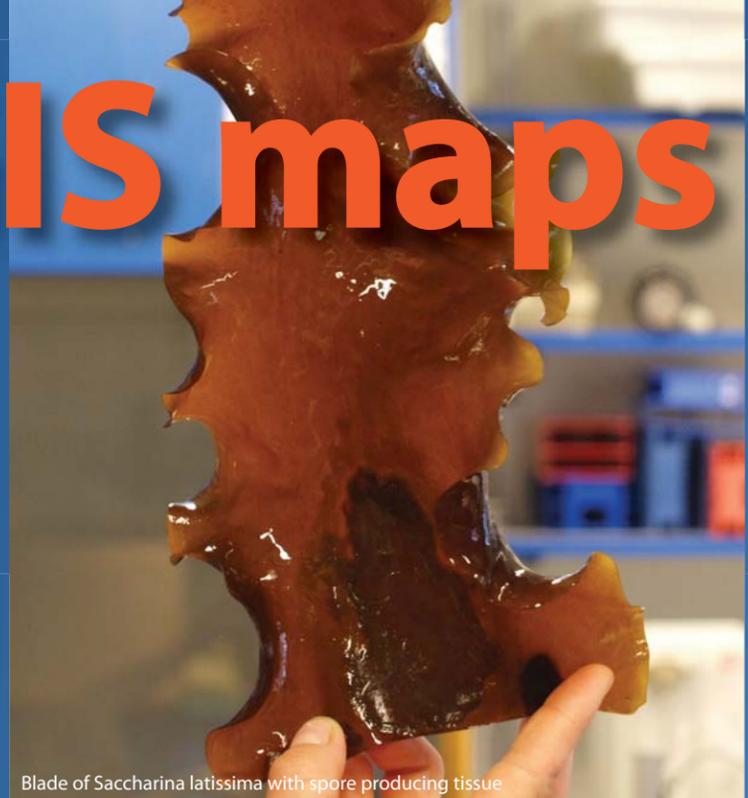


Compiling new GIS maps

outlining future possible cultivation sites for *Saccharina latissima* and *Laminaria digitata* favoring both high production and ecological sustainability

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Blade of *Saccharina latissima* with spore producing tissue

Aim

Improve knowledge and insight in areas suitable for valuable cultivation of *Saccharina latissima* and *Laminaria digitata* in inner Danish coastal waters.

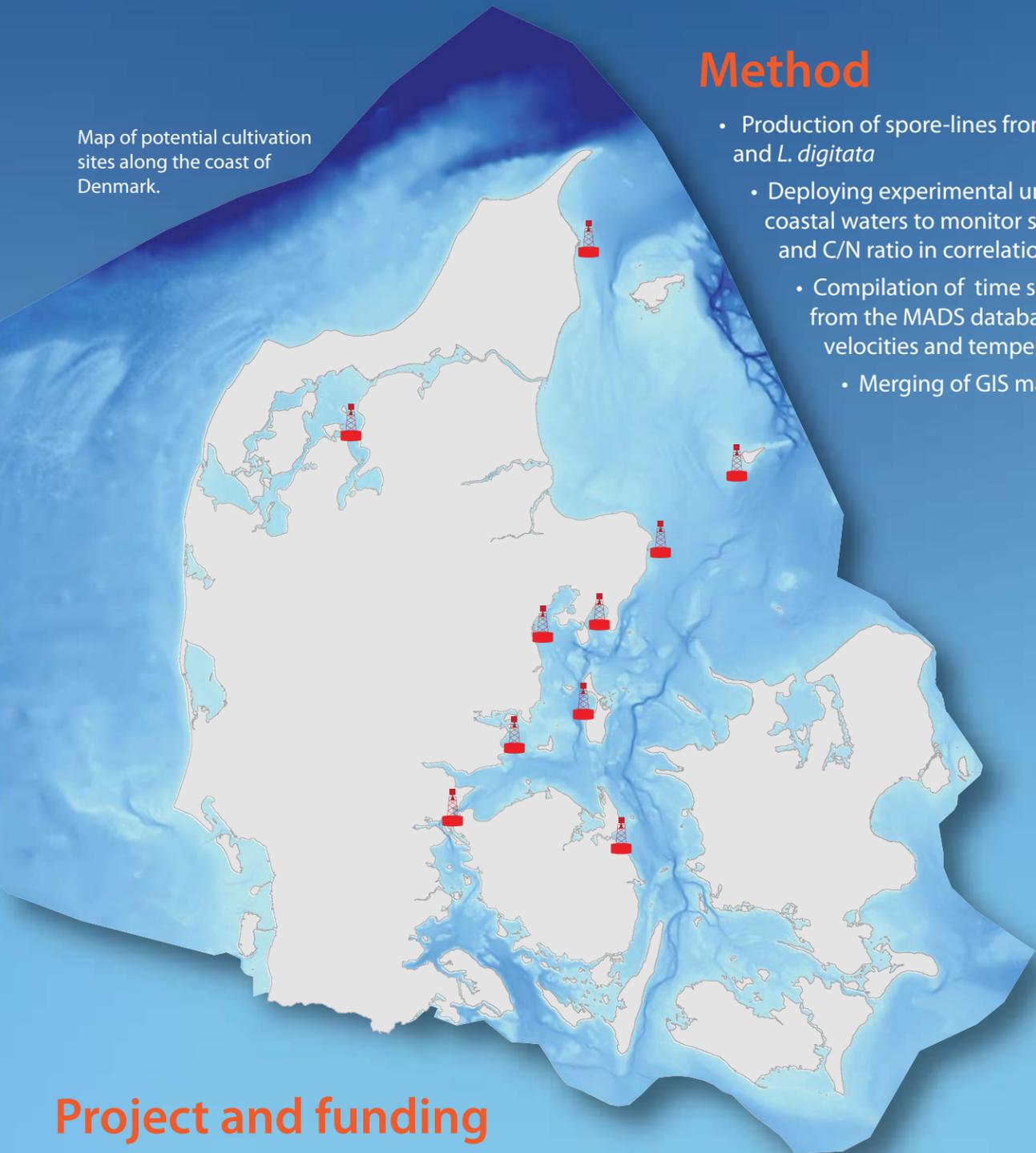
Background

Cultivation of algae in marine environments is unexploited in Danish coastal waters, but has a vast potential (Bruhn *et al.*, 2010). Biomass from brown algae can be used for bio-energy, fodder, food, cosmetics and industrial high value compounds, and the growth process removes nutrients from the polluted marine environment (Fødevareministeriet, 2010).

Method

- Production of spore-lines from direct spore release and gametophyte cultures of *S. latissima* and *L. digitata*
- Deploying experimental units ("algae-grow-out units") at selected locations in Danish inner coastal waters to monitor sporophyte development and assess biomass, pigments, sugars and C/N ratio in correlation to the physical environment
- Compilation of time series of data on relevant parameters from inner Danish waters from the MADS database (nutrient concentration, light penetration, salinity, current velocities and temperature)
- Merging of GIS maps with field results

Map of potential cultivation sites along the coast of Denmark.



Preparing spore-lines

- Algae cultivation in suitable sites and in conjunction to point sources of nutrient pollution of marine coastal waters could be a sustainable engineering tool to mitigate eutrophication problems and a new way of recycling nutrients (Tsagkamilis *et al.*, 2010).
- Biomass of *S. latissima* and *L. digitata* has an added economic value in terms of bio-energy, fodder, food, cosmetics and industrial high value compounds (Fødevareministeriet, 2010).
- High resolution GIS-maps are needed for proper positioning of future cultivation sites.

Project and funding

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Outcome

GIS maps pointing the areas susceptible to cultivation of *S. latissima* and *L. digitata*, giving an improved understanding of the scales of biomass production available in Denmark.

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