

Fucus sp. and *Saccharina latissima* on textiles

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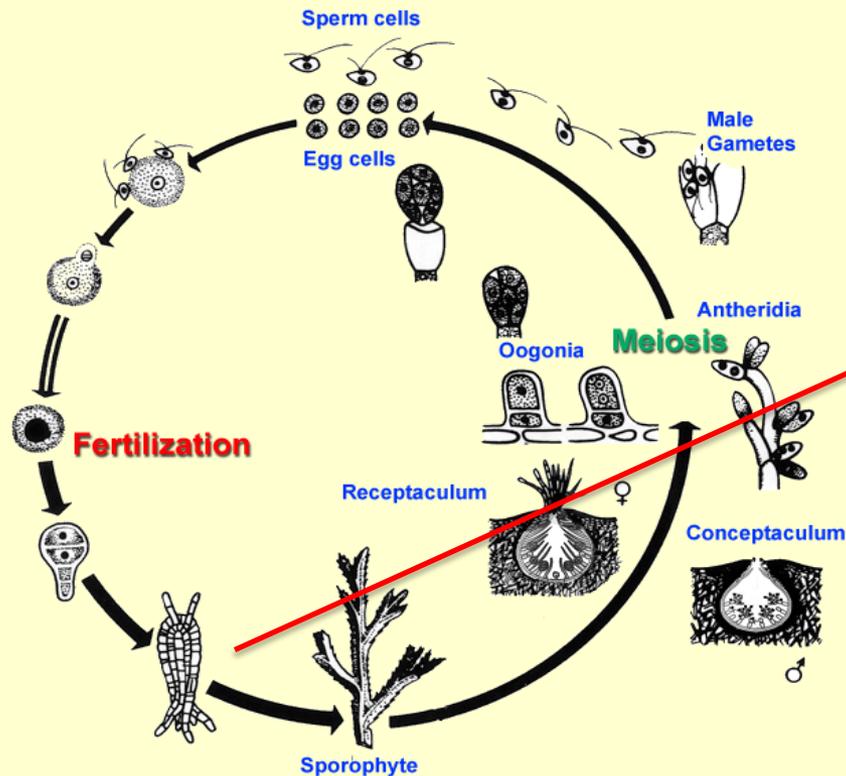


Over the past months, AU has undertaken a number of activities to further the objectives of the MacroFuels project.

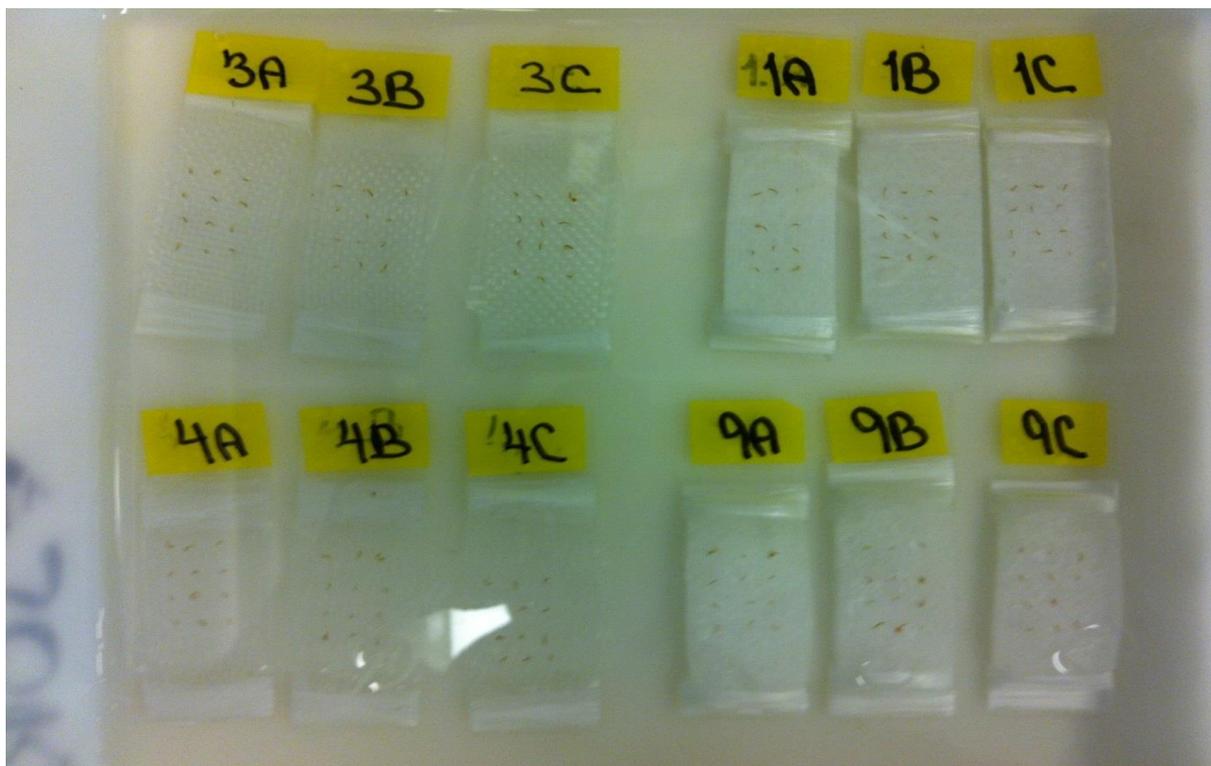
- We have focused our work on *Fucus serratus* and *Saccharina latissima*.
- Evaluating protocols on the fertilization process of *Fucus sp*
- Test of *Fucus serratus* growth on various SIOEN textiles and on ribbons in lab and field
- Propagate *Saccharina latissima* sporophyte cultures
- Deploying ribbons with *Saccharina latissima* in a local farm
- Maturation of *Saccharina latissima* from 4 different localities in DK to establish genetically identical cultures
- During the reporting period there have also been activities on establishing the new cultivation area at Grenaa, Kattegat.

Life cycle of *Fucus*

LIFE CYCLE OF *FUCUS SERRATUS* (BROWN ALGAE)



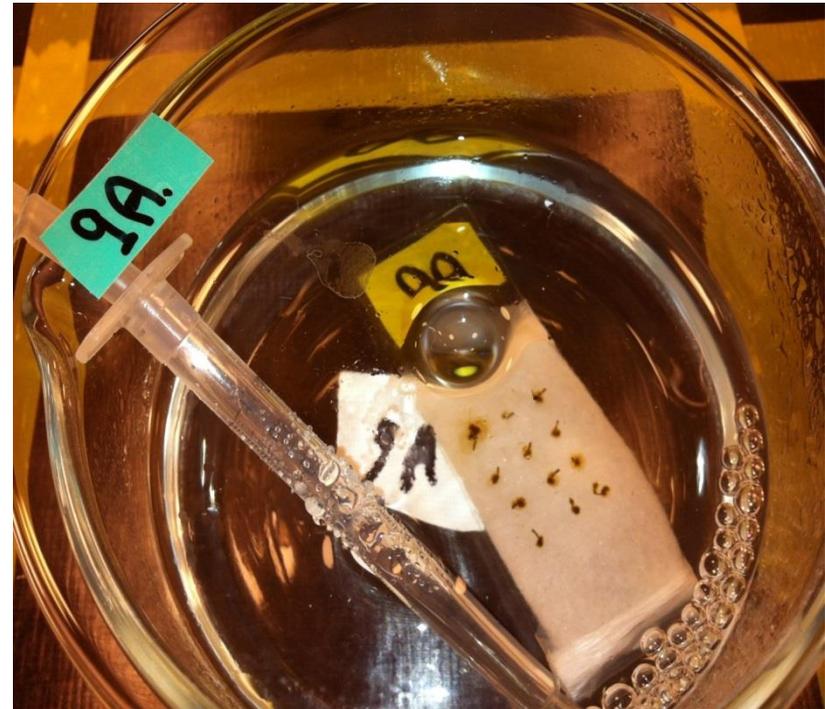
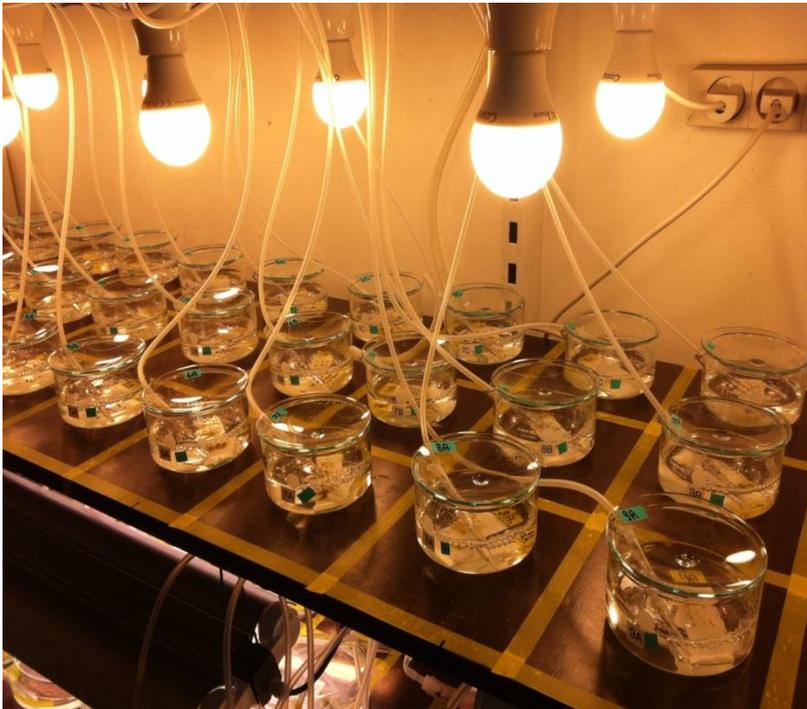
10 different textiles from SIOEN are being tested in relation to settling and growth of *Fucus serratus* sporophytes.



Every textile fragments was added binder. Using a stereolup 12 individual seedlings (0.5 - 1 mm) were added onto each textile fragment



Experimental set-up



Results

Textil	Sampl e nr.	09-02-2016	16-02-2016	22-02-2016	29-02-2016	04-03-2016
1. AlgaeTex G1	1A	12	11	11	11	11
1. AlgaeTex G1	1B	12	12	12	12	12
1. AlgaeTex G1	1C	12	12	12	11	11
3. G7650	2A	12	12	10	10	10
3. G7650	2B	12	3*	3*	3*	3
3. G7650	2C	12	12	12	12	12
4. PES fabric	3A	12	8	8	8	7
4. PES fabric	3B	12	11	10	10	10
4. PES fabric	3C	12	11	11	11	11
5. PP ribbon fabric	4A	12	6	6	6	7
5. PP ribbon fabric	4B	12	8	8	8	8
5. PP ribbon fabric	4C	12	3	1	1	1
7. S5351	5A	12	12	12	12	11
7. S5351	5B	12	12	12	12	12
7. S5351	5C	12	12	9	8	8
8. PES nonwoven	6A	12	12	12	10**	11
8. PES nonwoven	6B	12	12	12	12	12
8. PES nonwoven	6C	13	13	13	13	12
9. PLA nonwoven	7A	12	11	10	10**	8
9. PLA nonwoven	7B	12	12	12	12**	12
9. PLA nonwoven	7C	12	12	11	10**	9
10. PA nonwoven	8A	12	12	12	12**	11
10. PA nonwoven	8B	12	12	9	7**	10
10. PA nonwoven	8C	12	12	12	12**	10
11. PP nonwoven	9A	12	12	12	12	12
11. PP nonwoven	9B	12	12	12	11	11
11. PP nonwoven	9C	12	12	12	12	12
12. Jute nonwoven	10A	12	not visible	not visible	visible	visible
12. Jute nonwoven	10B	12	not visible	not visible	visible	visible
12. Jute nonwoven	10C	12	not visible	not visible	visible	visible

*Moved after second day
** Many filamentous algae

Preliminary results

Attaching the sporophytes is best on coarse substrate but as soon as the disc is established the costs smooth substrates best since there is less vegetation of filamentous algae.

Saccharina on textiles



- To evaluate the growth of *Saccharina latissimi* on textiles from SIOEN industries, Aarhus University deployed 150 meters of seeded ribbons on the 8th of march 2016 in Kattegat.

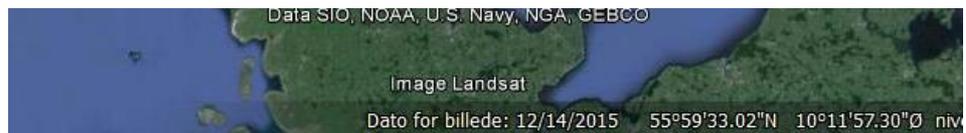
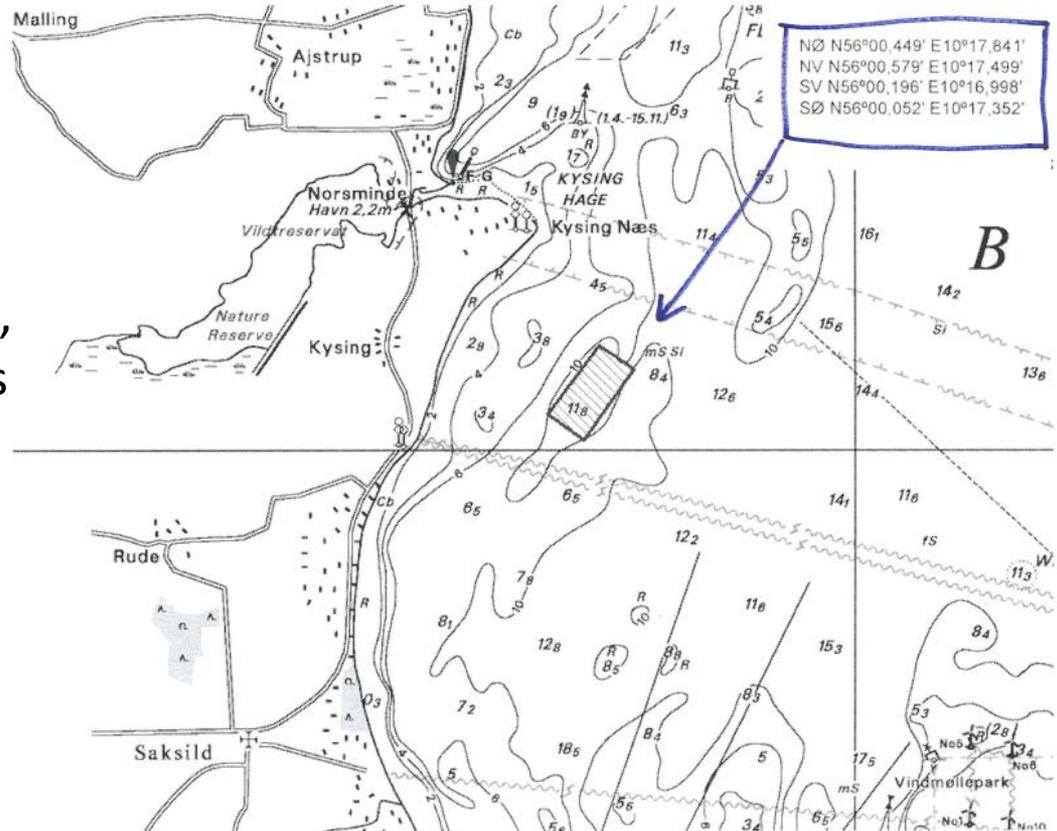


Saccharina on textiles

- The ribbons were seeded on the day of deployment using the method described by SAMS:
- Sporophytes of a size between 0.125 and 1 mm are mixed (blended) with a solution of ATSEA binder and seawater (1.5 %)
- The ribbons are then dragged through the solution and hereafter gently squeezed, to remove excessive binder
- The ribbons were seeded to a sporophyte density of 1.5 sporophytes/cm²
- After seeding the ribbons were kept for 2 hours at 10 °C before transport (1 hour) and then deployed

Saccharina on textiles

- The seaweed where deployed in the cultivation area of Seaweed Societé, 500 meters from the coast, 20 km south of Aarhus



Saccharina on textiles



Saccharina on textiles



Saccharina on textiles

- After one month at sea (4-4-2016), there were visible sporophytes of 1-2 mm on the ribbons, but the ribbons were starting to get fouled with benthic diatoms



Saccharina on textiles

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Saccharina on textiles

- After 2 months at sea unfortunately the ribbons were densely fouled, and only few sporophytes were visible



Saccharina on textiles

- On the 5-5-2016 loggers where also deployed on 1.5 and 5.5 meters depth to follow the salinity, temperature and light conditions in the area during the coming period



Saccharina on textiles

- The first deployment was therefore unsuccessful.
- The outcome was most probably caused by the late deployment time, which has been shown by previous deployment tests.
- A new attempt, to grow *saccharina* on the textiles, in Kattegat, is planned to take place during fall 2016.

Acknowledgement



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