

What's Aquaculture's Role in a World Shaped by Climate Change?

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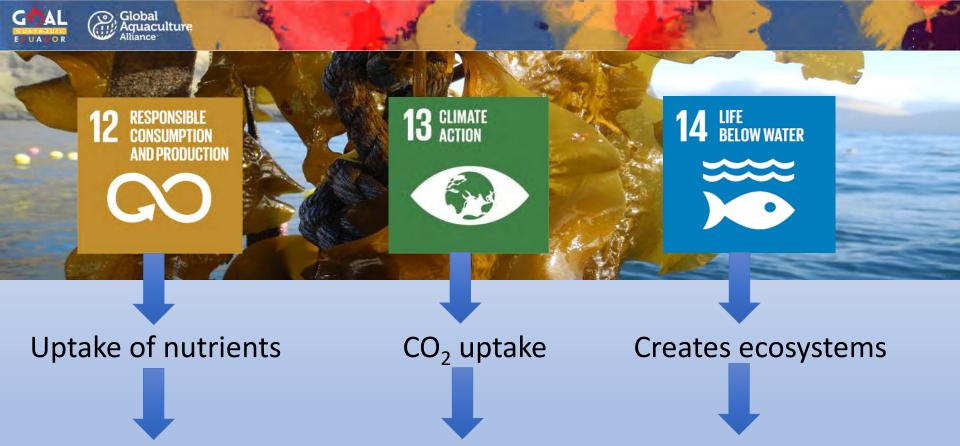
Olavur Gregersen

Olavur Gregersen has more than 30 years of experience as an entrepreneur. He is managing director of Ocean Rainforest in the Faroe Islands, one of the largest seaweed cultivation companies in Europe. Also he is the founding partner of Syntesa Partners & Associates, which provides research and innovation services within business development, project management and socio-economic impact analysis.









No use of land, fertilizer or freshwater

Reduces global heating and acidification of the oceans

Provides shelter, nursery habitat and feeding chamber for fish and other marine animals OCEAN

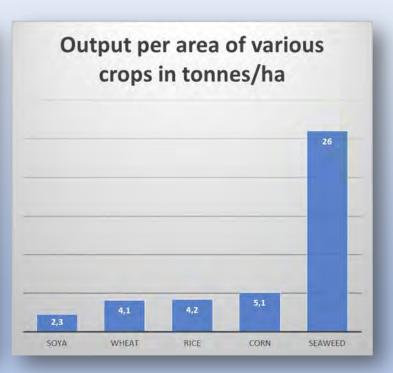




High yield in comparison







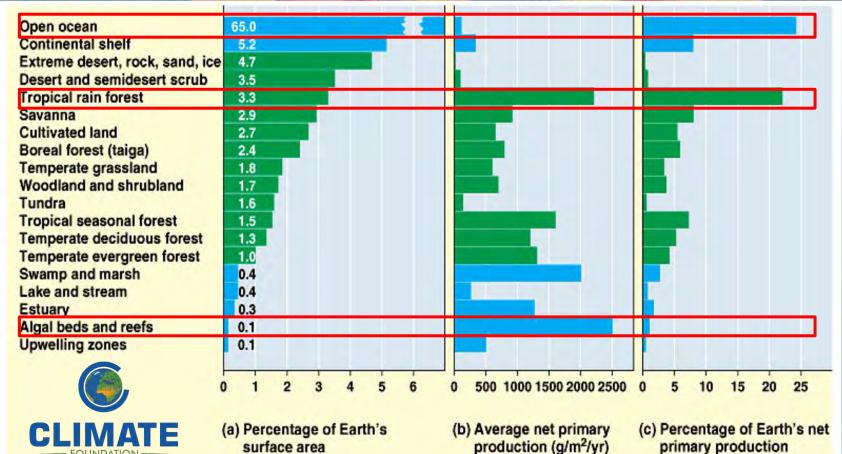
February

20 May















Combatting climate change with seaweed cultivation

Converting 9 % of the world's oceans into seaweed farms will:

- > capture 19 gigatons CO₂ a year which is about **51% of the humanity's** net emissions per year (~37 gigatons).
- help to redress the acidification of the oceans and improve conditions for shellfish and invertebrates.
- rapidly attract biodiversity including a large number of fish species and indirect **improve fish stocks**.

"The potential for providing large quantities of food and biomass from macroalgae mariculture is much larger than for any other group of marine organisms."

Source: Science Advice for Policy from European Academies (SAPEA) is a consortium involving more than 100 European science academies, established to provide evidence-based advice to the European Commission on major policy issues. Its first report, "Food from the Oceans", was published at the end of 2016.







Cultivation of seaweed is big in Asia





Our cultivation site

62°18'19.0"N 6°54'29.0"W





Water depth:

Exposed site: 50-70 meters

Moderate exposed site: 15-35 meters

Water temperature: 7-11 °C

Salinity: approx. 35 %

Current: 1-3 knots

Max. wave height: 8 meters

Max. wind speeds: 62 m/s

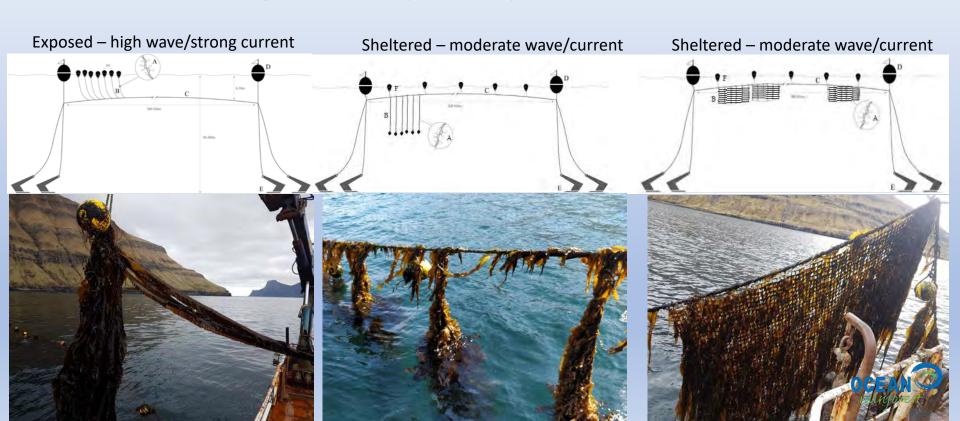


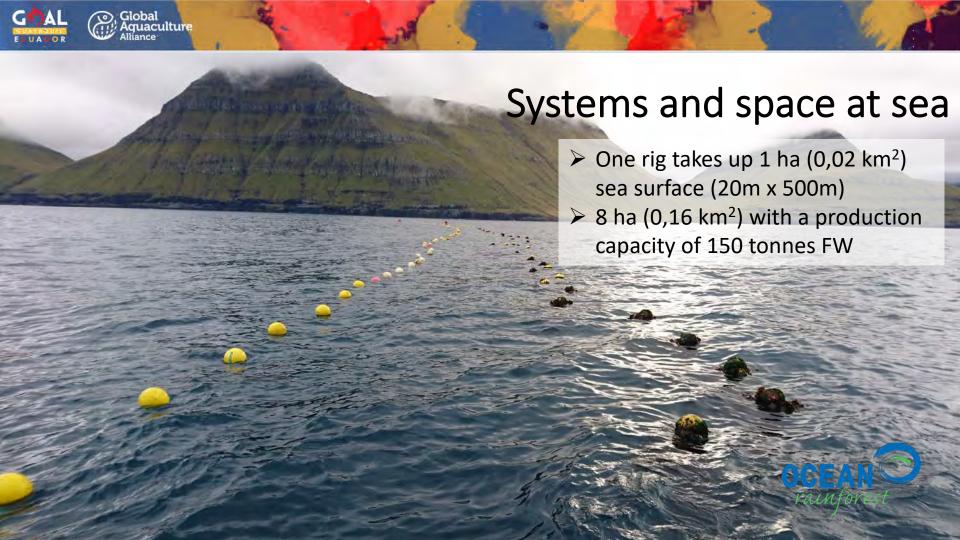
Funningsfjørður, Faroe Islands





Cultivation rig developed by Ocean Rainforest









Regrowth with multiple harvest







Why seaweed for food and feed products?

- Natural food additives (alginate, E407-E418)
- Flavour (umami taste)
- Natural pigments (in feed for fish & animals)
- Sodium reduction (major public health issue in US and EU)
- Improve digestion pre/pro/sym biotic effects tested in humans and feed (pig, poultry & salmon)
- Essential amino acids and minerals (iodine, B12 vitamins, OMEGA 3 etc.)



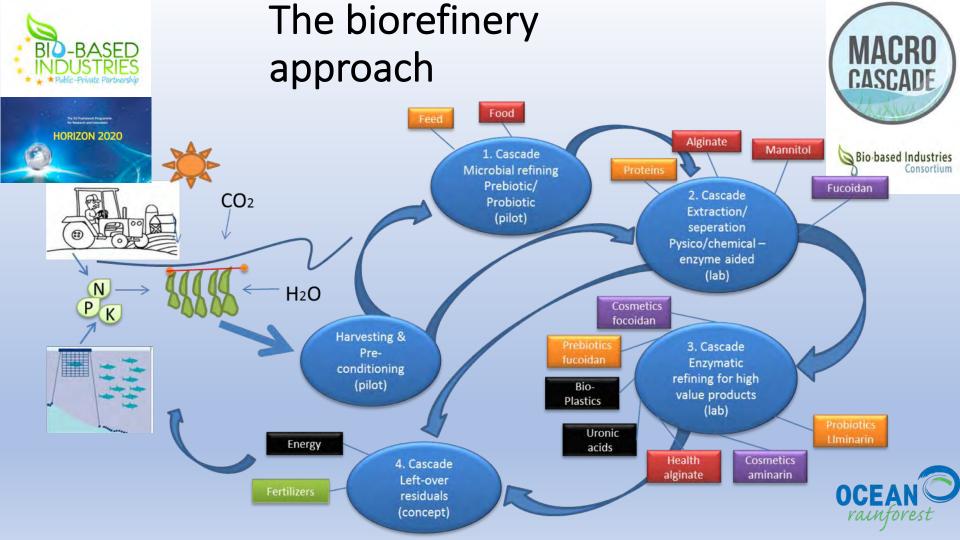






Global production of macroalgae & market assements









Exclusive Economic Zone Faroe Islands 260.996 km²



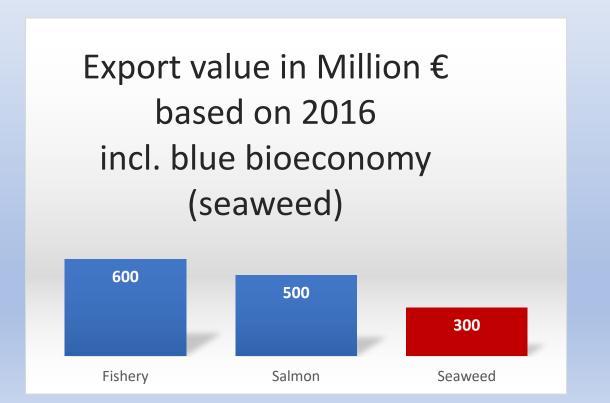






Blue Bioeconomy Business Case:

Offshore seaweed cultivation in the Faroe Islands



Salmon production	70.000 tonnes in 2016
Nitrogen Phosphor	3500 tonnes 700 tonnes
4 kg N pr 1000 kg, ww seaweed	1 mio. Tonnes ww
Total emission of CO ² in the Faroes	870.000 tonnes in 2016
3 kg ww seaweed/1 kg CO ²	3 Mio. Tonnes ww seaweed
MACR: 5000 tonnes ww/km ²	600 km ² or 0.2% of EEZ
CAPEX: €800M Depreciation & interests: €100/year	240.000 tonnes tonnes dw storage stable intermediates/y
Average price €1000/t dw = €300M / year	40% OPEX €80M profit /year











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LOLIWARE LEAVES NOTHING BEHIND.



OUR PRODUCT

LOLIWARE started with the first and only edible disposable cup. We provided a completely new experience, 100% plastic-free, gluten-free, gelatin-free, BPA-free, non-GMO, all natural, non-toxic, safe, and FDA approved, LOLIWARE Cups and Straws. Our products are made from a biodegradable material so natural you can eat it.

LOLIWARE is made from seaweed, organic sweeteners and flavors and colors derived from fruits and vegetables. Serve room temperature, chilled, or frozen drinks and desserts.

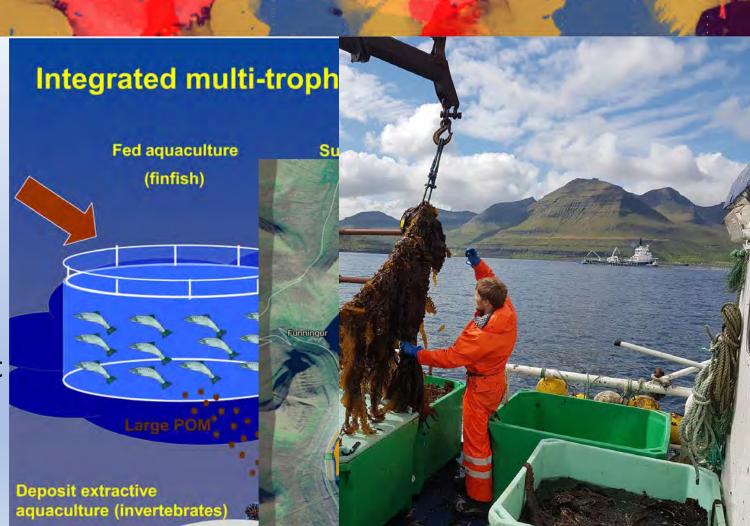
LOLIWARE can be found at the Four Seasons Hotel, or through Aramark, caterers and





Integrated multi-trophic aquaculture (IMTA) systems, using an integrated coastal area management (ICAM) strategy.

(T. Chopin)







The most disruptive trends in the sector

 Appreciation of the healthy, nutritional & environmental functions

 Develop seaweed based products and markets

 Demonstrate integrated processes at large scale

 Develop appropriate regulations to allow the sector to grow









