The Role of Research Collaboration in Advancing Norway's Seaweed Sector

Dr. David Aldridge, SINTEF Ocean

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SINTEF | 75 år

Status from Norway

150 tonnes harvested, more *Alaria* then *Saccharina (Frozen)*

A shift from companies controlling operations along the whole value chain towards a specialization into different operations:

- production (seeds and/or biomass production)
- processing, products (incl sea farms) or market.

Market demand for red and green species

("we cannot only cultivate the seaweed; we also need to cultivate the market")

- Norwegian Seaweed Cluster: 55 members across the value chain
- Buisnesses, users, research institutions and public sector
- Steering committee and members set directions and priorities
- Cross-sector focus groups led by industry and research partners

Collaboration is key!

Focus areas

- ➢ Production Technology
- ➢ Market & Product
- ➢ Sustainability & Framework

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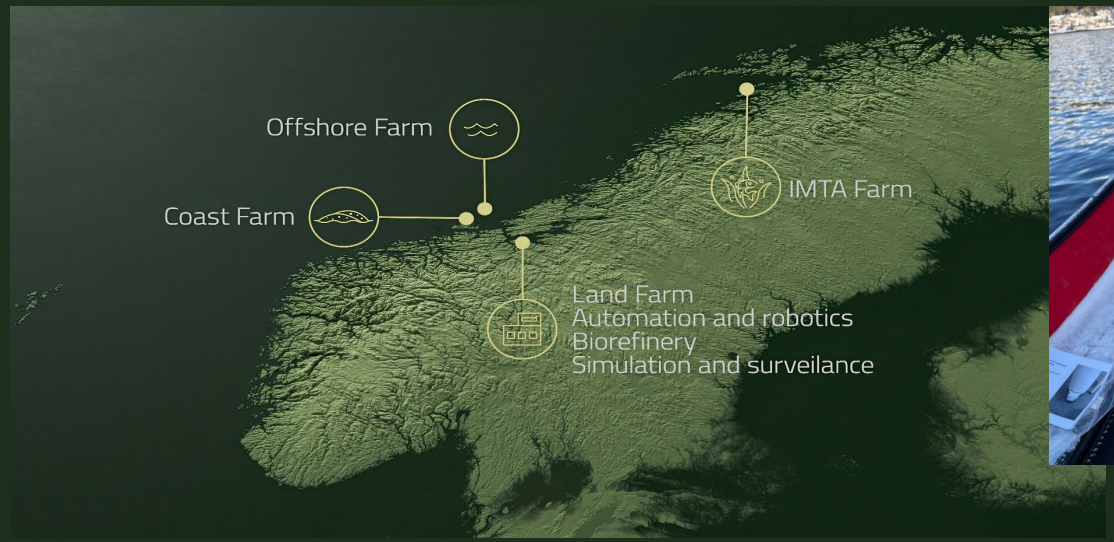
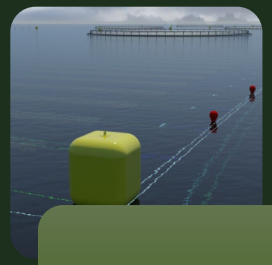
Norwegian Seaweed Centre

Funded by The Research Council of Norway

Norwegian Test Center for Seaweed Cultivation and Utilisation Technologies (RI SEAWEED)

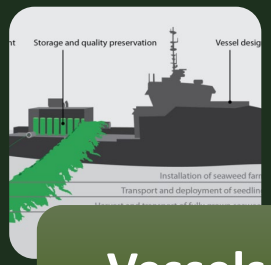


Land farms

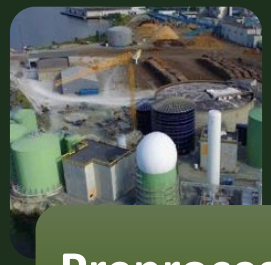


Sea farms

Simulation and surveillance



Vessels and logistics



Preprocessing and storage

Processing and products

Offshore Cultivation

Seaweed Carbon Solutions

Phase 1 PILOT 2022-2025

Budget: 52MNOK

Contribution from partners:

1M€ (3 MNOK) per year

Project Partners

SINTEF

DNV

AkerBP

equinor

OCEAN RAINFOREST
SUSTAINABLE NORDIC SEAWEED

United Nations Global Compact

REV Ocean

NIVA
Norsk institutt for vannforskning

south pole

Seaweed Solutions

HORTIMARE
BREEDING & PROPAGATING SEAWEED

GOAL

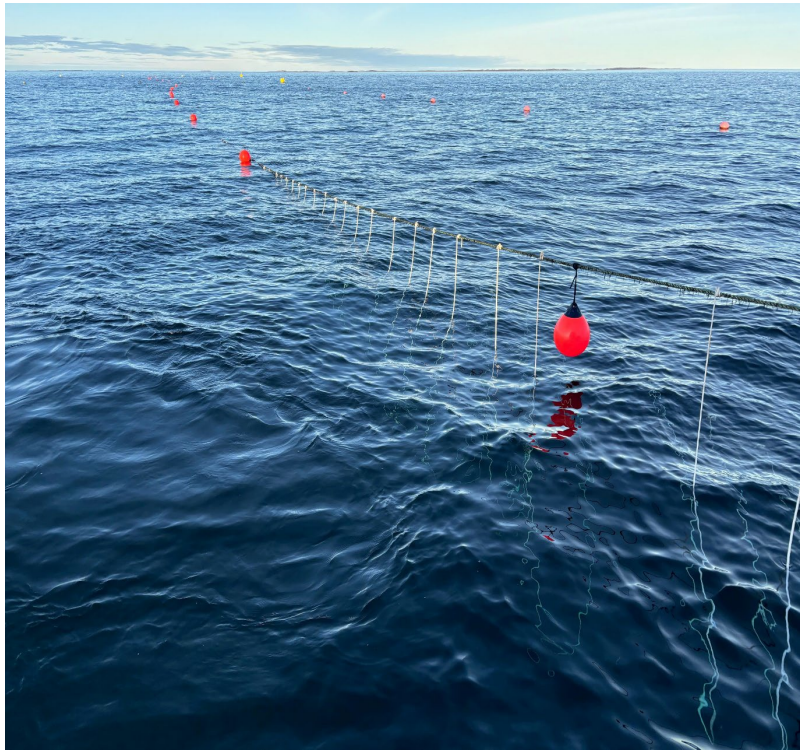
Develop scalable technology for open ocean seaweed-CDR (carbon dioxide removal) with a potential for the removal of 1 mill tons of CO_2 in 2030 by climate positive products or solutions

Advisors

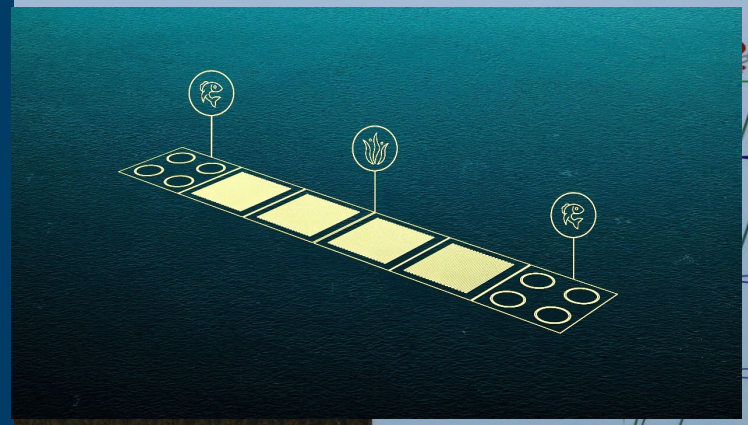
- Installed and testing a 50 t CO_2/y pilot seafarm in offshore conditions in Frohavet (Norway/Trøndelag)
- Passive deposition of seaweed biomass as carbon storage
- Monitor and assess environmental impact
  - positive and negative

R&D-partners

- Develop seaweed biochar for soil improvement & carbon storage
- Quantify actual and potential net CO_2-removal
- Outline possibilities to qualify seaweed-CDR as CO_2-offset mechanism and business case



Integrated multi-trophic aquaculture (IMTA)



- Salmon aquaculture in Norway releases annually
  - 50,000 t nitrogen (N)
  - 2,500 t phosphorus (P)
- Additional benefits
  - Co-use of space
  - Shared infrastructure

- Integrated aquaculture of Atlantic salmon (*Salmo salar*) and sugar kelp (*Saccharina latissima*) is realized and developed at a full-scale sea-based facility in the North of Norway
- Develop robust solutions for both biological production and structural design

Folla Alger AS
SINTEF
NORD universitet
NTNU
CERMAQ

SFI SEAWEED

2026-2033 | Budget € 15 MILL

Norwegian Research Council funded Centre for research-based innovation

Research partners

SINTEF

NTNU

NIVA
Norsk institutt for vannforskning

ciimar

DTU

CNRS • SORBONNE UNIVERSITÉ
Station Biologique de Roscoff

Industry

Folla Alger AS

iff

WACKER

inaq

FUGRO

Felleskjøpet
Rogaland Agder — siden 1899

SCALE AQ

Felleskjøpet
Fôrutvikling

Seaweed Solutions

MOREFISH

OCEAN RAINFOREST

B'ZEOS
GREEN TECH

Orkla Health Ocean

BASF
We create chemistry

Norsk Kylling

Public

Frøya

Trøndelag fylkeskommune
Tröndelagen fylhkentjielte

NGO/Trade org

NORWEGIAN SEAWEED ASSOCIATION

global seaweed coalition

NORWEGIAN SEAFOOD COUNCIL

If the seas were always calm, we would never build a better boat

https://norwegianseaweedcentre.com/

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