



# EU4Algae

## Working group #1: Macro-algae cultivation

WG meeting 7 – November 2024

European Climate,  
Infrastructure and  
Environment  
Executive Agency

**EABA** EUROPEAN ALGAE  
BIOMASS ASSOCIATION

**Eura**<sup>®</sup>

SYSTEMIQ

**s.Pro**  
sustainable  
projects

**technopolis**  
group

# Agenda for today

- 10h00 - 10h05: Welcome remarks
- 10h05 – 10h15: Latest news relevant to our WG
- 10h15 – 10h40: Licensing toolkit in practice: the Swedish case
- 10h40 – 11h20: Cultivating seaweed on land
- 11h20 – 11h30: Next steps for EU4Algae

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# Open call for proposal - EMFAF

- “**Demonstrating feasibility and environmental benefits of regenerative ocean farming and boosting algae innovation**”
  - Support the development of regenerative ocean farming by
    - Proving its feasibility and viability and generating knowledge on the environmental benefits
    - Testing these approaches in connection with marine protected areas (where possible)
  - Promote innovation in algae by supporting the development of, and bringing to market, new algae-based products and services, thus offering new green employment opportunities.
- **Deadline date:** 18 February 2025
- **Budget:** €M 5.7



# New seaweed project in the Med

Interreg



Co-funded by  
the European Union

Italy – Croatia



- **“BIOBASED: Development support of blue biorefinery in the Adriatic Sea”**
  - Seaweed production in Integrated Multi-Trophic Aquaculture (IMTA) to reduce environmental impacts and innovate aquaculture.
  - Valuing seaweeds and fisheries/aquaculture by-products using a Biorefinery Approach.
  - Producing high-value compounds and functional feeds for aquaculture.
- **Pilot sites** : Gargano and Chioggia in Italy, Mali Ston in Croatia
- **Start date** : 01/04/2024 - **End date**: 30/09/2026
- **Budget**: €M 1.3

# Opening of North Sea Farm 1

- Led by North Sea Farmers with support from Amazon
- Official opening in September 2024
- Five hectares farm located between offshore wind turbines
- Objectives:
  - Test and improve seaweed cultivation
  - Pioneer scientific research to explore the potential of seaweed farms to capture and store carbon



# Investment of IKEA in Nordic SeaFarm



- 25 Million SEK investment secured in August 2024 ( €M 2.1)
- Funds will primarily be used to further develop R&D capabilities and to scale up ocean cultivation in Europe



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An underwater photograph of a kelp forest. The scene is filled with various types of seaweed and algae. In the foreground, there are large, dark green kelp leaves with prominent, yellowish, club-like structures. Interspersed among these are delicate, feathery orange and red algae. The background shows a dense canopy of dark green kelp leaves, creating a textured, layered appearance. The lighting is natural, highlighting the vibrant colors and textures of the marine life.

# Licensing toolkit in practice: the Swedish case

*EU4Algae* Working Group 1 meeting, November 4th 2024

# Algae cultivation in Sweden

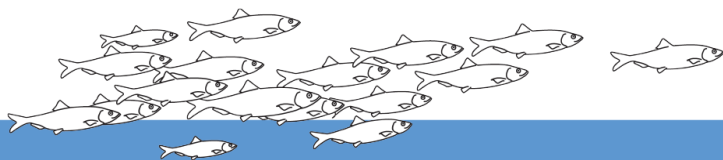
Company name	Production location	Year founded	Produced seaweed species	Annual amount of processed biomass (wet weight, 2023, [kg])	Main application of biomass [e.g. food, feed, biochemicals, building material]	Wild harvest [W] or cultivation [C]	Sea-based [SB] or land-based [LB] cultivation
<b>BlueFields</b>	Glommen, Falkenberg	2021	<i>Saccharina latissima</i>	N/A	Food	C	SB
<b>Nordic Seafarm</b>	Bohuslän, Tanum	2016	<i>Saccharina latissima</i> , <i>Ulva fenestrata</i>	70 000	Food	C	SB
<b>Kaira Nordic</b>	Hallands län	2021	<i>Saccharina latissima</i>	N/A	Food	C	SB
<b>Koastal</b>	Bohuslän [SE], [Stockholm, SE]; [Storebaelt, DK in 2024]	2022	<i>Saccharina latissima</i> , <i>Ulva fenestrata</i>	3 000	Food	C	SB
<b>Kobb</b>	Bohuslän, Hakefjorden	2017	<i>Saccharina latissima</i> ,	10 000	Food	C	SB
<b>Souto Ocean Culture</b>	Vik, Skåne	2022	Under development: <i>Ulva</i> sp., <i>Monostroma</i> sp., <i>Fucus vesiculosus</i>	N/A	Food	C	SB
<b>Ten island seafarm</b>	Bohuslän, Gotheburg archipelago (Hälsö, Öckerö)	2020	<i>Saccharina latissima</i>	1 000	Food, cosmetics	C	SB
<b>Volta Greentech</b>	Stockholm and Bohuslän, Lysekil	2018	<i>Asparagopsis armata</i> *, <i>Asparagopsis taxiformis</i> *	2 000	Feed	C	LB



# Governmental assignment

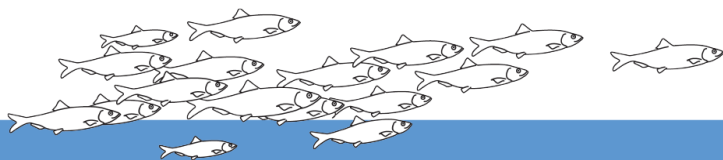
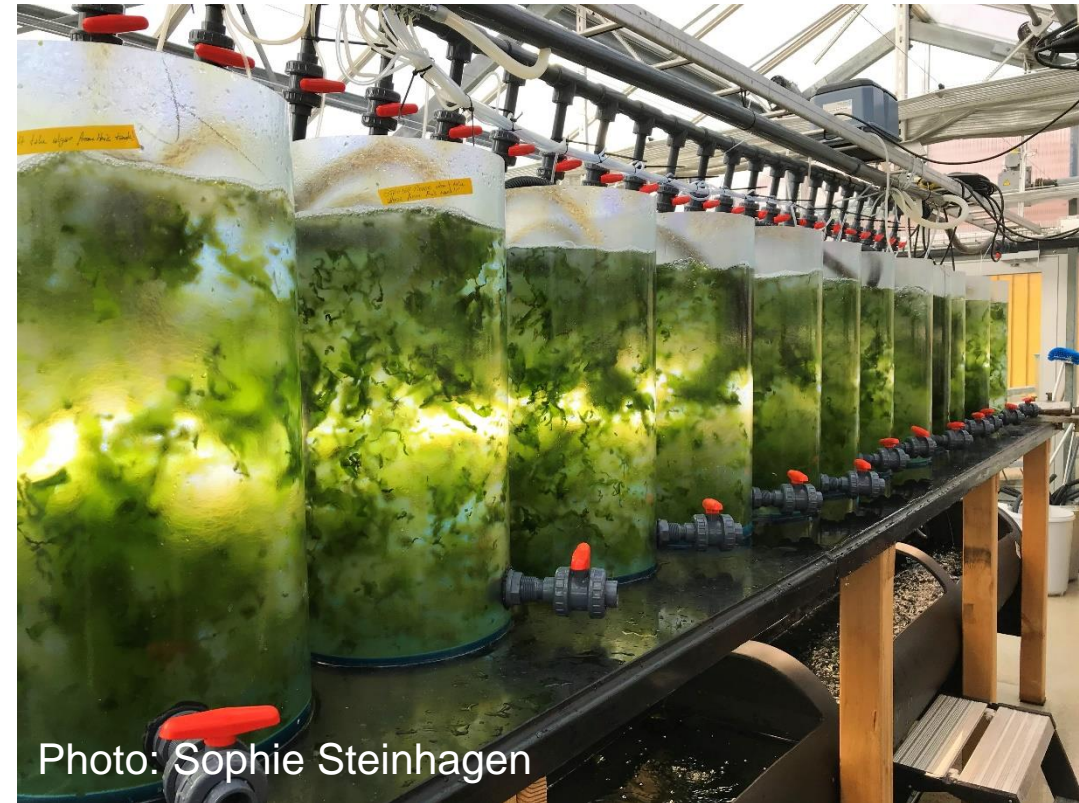
To analyze and identify possible obstacles and development needs in order to increase the sustainable production, consumption and use of algae-based products in Sweden. The assignment will be reported to the Government Office (Ministry of Rural Development and Infrastructure) in November 2024

Accomplished soon 😊



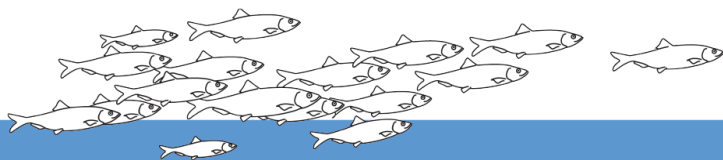
# Development needs

- General needs for changes
  - better cooperation within the industry and between the industry and relevant authorities
  - collection of data/statistics/database
  - a long-term formulated vision and a strategy for a profitable algae production in Sweden
  - regulatory simplification
- Technology development
- Product development, market measures



# Changes in the licensing process coming

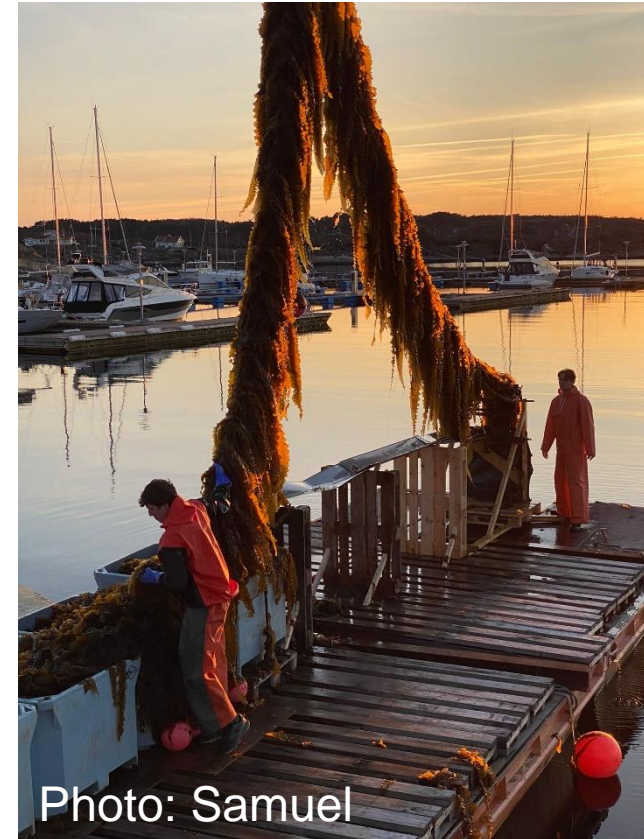
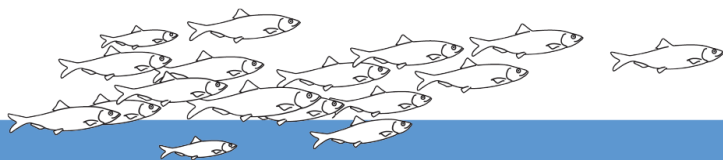
- Governmental investigation how to adapt regulations and simplify administration in the aquaculture licensing/permission giving process.
- The report from this work has been delivered to the Swedish Government in November 2024.



# KOASTAL - The Seaweed Franchise, with co-financing from Swedish Board of Agriculture

Project, co-financed by Swedish Board of Agriculture, commenced in September 2023 and will continue until September 2025.

Aims to test an innovative business model in real conditions for deploying small-scale sea-based seaweed farms. KOASTAL provides customers, such as fishers, with a turnkey farm package and a buy-back guarantee for their crops, fostering the growth of local small-scale seaweed farming.



Duration: highly variable (6 months to 2 years) | Validity: variable (on request)

| Legal cost: Depends on the cost of the water activity plus deposit | Authority in charge: Länsstyrelsen (County Administrative Board) and/or Mark och Miljödomstolen (Land and Environment Court)



## Process



Process phase	Duration	Overview of tasks
Preparation	1-3 months	<b>Project definition</b> (location, target size, type of equipment and techniques, potential impacts, etc.) <b>Pre-engagement</b> with stakeholders <b>Documentation</b> preparation (prepare application and pay application fee)
Public consultation & licence draft	Minimum 9 months (high variable)	<b>Advertisement and public consultation</b> <b>Remediation / address feedback</b> <b>Licence draft including conditions</b>
Installation	Minimum 1 months	<b>Pre-installation</b> <b>Installation</b>

## Process

Process phase	Duration	Key tasks	Challenges
<b>Project definition</b>		<ul style="list-style-type: none"> <li>Assess the farm's expected impacts on the environment, natural resources, and social impact.</li> <li>Define the project including location, target size, type of equipment and techniques to be used and create a conceptual farm sketch. Understand the current land use plan of the envisioned site of your seaweed farm.</li> <li>Ensure you have or can obtain the right to the water.</li> <li>Any activities with a surface area below 0.3 do not need a licence. However, a notification must be submitted and accepted by Länsstyrelsen before the water activities can start. This process takes around 4 months.</li> </ul>	<ul style="list-style-type: none"> <li>Is it often unclear where the exact boundaries of private/public waters are, as described by this report: <a href="https://www.lantmateriet.se/contentassets/4a728c7e9f0145569edd5eb81fececa7/lm-rapport-2012-1_allmant-vatten.pdf">https://www.lantmateriet.se/contentassets/4a728c7e9f0145569edd5eb81fececa7/lm-rapport-2012-1_allmant-vatten.pdf</a></li> <li>Developing an in-depth understanding of the year-round characteristics of your site is challenging due to the limited available data, and difficult to measure metrics. This can cause a limited understanding of location specifications and impact of the water activity.</li> </ul>
<b>Pre-engagement with stakeholders</b>		<ul style="list-style-type: none"> <li>Pre-engagement with local stakeholders is not mandatory, but highly encouraged since a local objection can block your license application.</li> <li>Involve authorities like the municipality, Sjöfartsverket and authorities for protected areas.</li> <li>Plan to reach out to local interest groups, like fish farmers, fishers, boating- and homeowners associations.</li> </ul>	
<b>Documentation preparation</b>		<ul style="list-style-type: none"> <li>Compile the information required Section 8 of the Environmental Assessment Ordinance (2017:966) as an application for water activities and submit to the e-service of Länsstyrelsen.</li> </ul>	



## Process



Process phase	Duration	Key tasks	Challenges
<b>Application initiation</b>	60 days	<ul style="list-style-type: none"> <li>Send in the developed application to Länsstyrelsen including all information per Section 8 of the Environmental Assessment Ordinance (2017:966)</li> <li>The local municipality will validate the completeness of your aquaculture application and that it is in accordance with the land use plan.</li> <li>In case the area is located in public water, request the right to the water at Kammarkollegiet.</li> </ul>	<ul style="list-style-type: none"> <li>If any information is missing, the local municipality will contact you. Be sure to respond promptly.</li> </ul>
<b>Advertisement and public consultation</b>	>3 weeks	<ul style="list-style-type: none"> <li>Länsstyrelsen will provide details on the required size of the consulting circle. Send out information regarding the planned activities to all public, business and individual stakeholders.</li> <li>Advertise the consultation in local newspaper</li> <li>Organise a consulting meetings to give stakeholders the opportunity to ask questions regarding the water activities.</li> <li>Send a report of the received comments to Länsstyrelsen. Any adjustments for the planned water activities based on the received comment must be reported as well.</li> </ul>	<ul style="list-style-type: none"> <li>Large consulting circle is required to ensure all impacted stakeholders are given the opportunity to comment.</li> </ul>
<b>Governmental validation</b>	>6 months (variable)	<ul style="list-style-type: none"> <li>Land and the Environment Court is in charge of evaluating the planned activities according to the Swedish Environmental Code. Pay the administration fee (varies based on the planned activities).</li> </ul>	<ul style="list-style-type: none"> <li>If any questions arise, be sure to respond promptly (a court ruling typically takes 6-9 months).</li> </ul>
<b>Remediation / address feedback</b>	3 months	<ul style="list-style-type: none"> <li>Stakeholders are given the opportunity to provide feedback and comments are the licence.</li> </ul>	<ul style="list-style-type: none"> <li>Be sure to respond promptly.</li> </ul>

## Process

Process phase	Duration	Key tasks	Challenges
Pre-installation	3-5 weeks	<ul style="list-style-type: none"> <li>Apply for SSA (sjösäkerhetsanordning) at Transportstyrelsen. Place SSA buoys and submit installation report to Sjöfartsverket.</li> <li>Place the required bank guarantee (depending on size of water activity). In case of bankruptcy, this bank guarantee is used to clean the infrastructure of water activity.</li> </ul>	<ul style="list-style-type: none"> <li>It takes several weeks before the safety markers appear on the sea charts. For optimal safety, they are installed a month before the water activity starts.</li> </ul>
Installation		<ul style="list-style-type: none"> <li>Install the infrastructure for the water activity as described in the licence, within the determined area.</li> </ul>	<ul style="list-style-type: none"> <li>Any major change to the infrastructure or design of the water activity must be reported to Länsstyrelsen. Länsstyrelsen will decide if a new impact assessment process must be started.</li> <li>Länsstyrelsen has the right to revoke the license at all times according to the miljöbalken Ch. 24 § 1</li> </ul>

A close-up, underwater photograph of vibrant red seaweed. The seaweed has broad, overlapping, leaf-like blades that are slightly curved and have a glossy texture. The background is a clear, bright blue-green water with some light refraction and small white particles visible. The overall scene is bright and clear, suggesting a shallow, clean underwater environment.

Thank you  
for your attention!!

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Aquaculture Coordinator  
Swedish Board of Agriculture  
[izabela.alias@jordbruksverket.se](mailto:izabela.alias@jordbruksverket.se)

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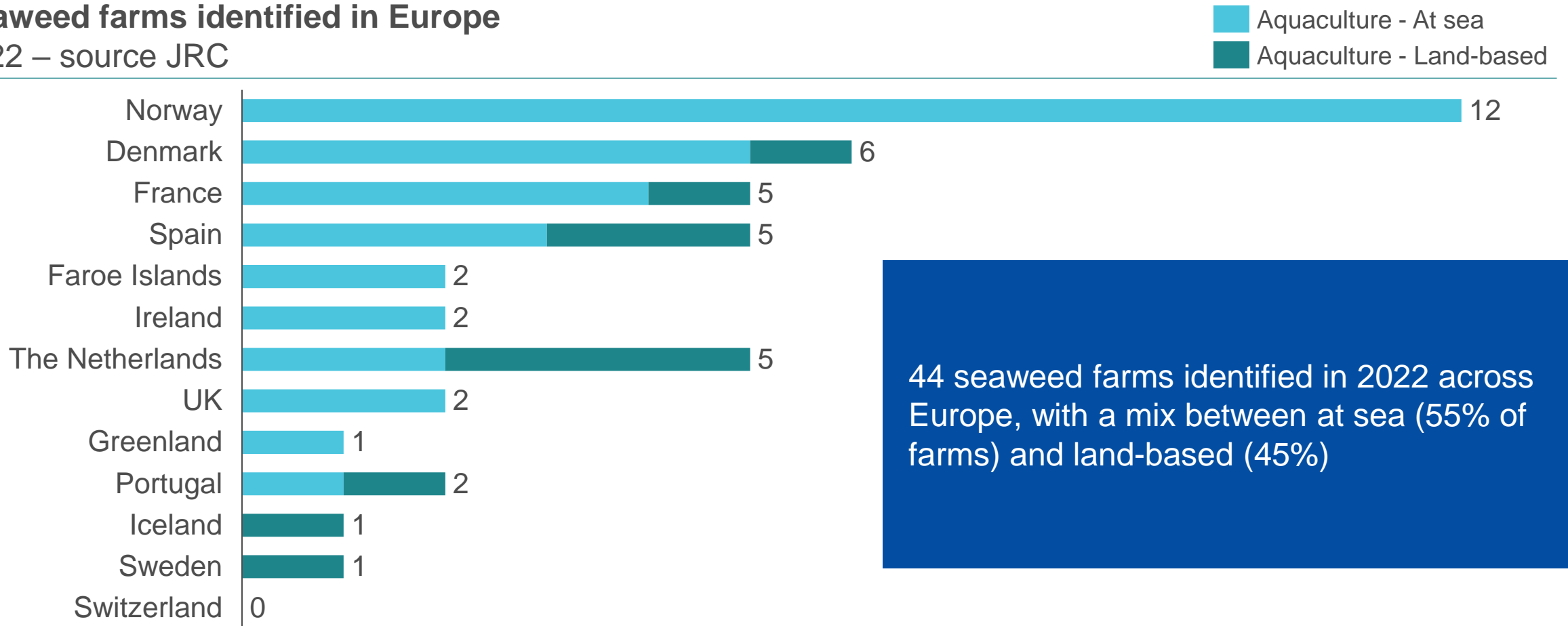
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# Seaweed farms are emerging in Europe

## Seaweed farms identified in Europe

2022 – source JRC



44 seaweed farms identified in 2022 across Europe, with a mix between at sea (55% of farms) and land-based (45%)

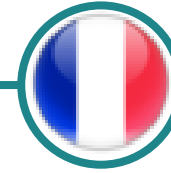
# Two European companies presenting their land-based cultivation strategy for seaweed



ALGA<sup>+</sup>



Ines Oliveira



Sea<sup>4</sup>Earth



Régis Lefevre

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# Thank you



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