



SEAMARK: Seaweed-based Market Applications

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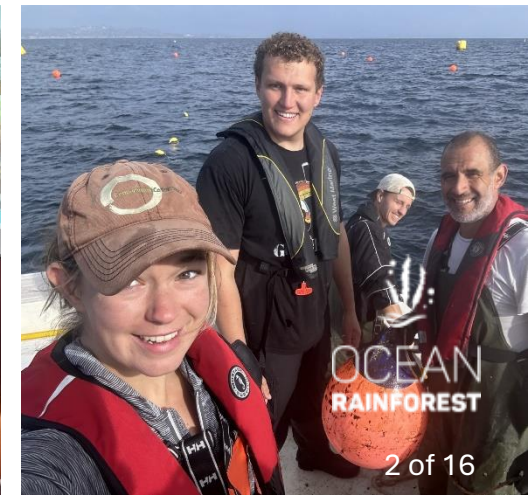
Oslo, SusKelpFood meeting
15th of August 2024





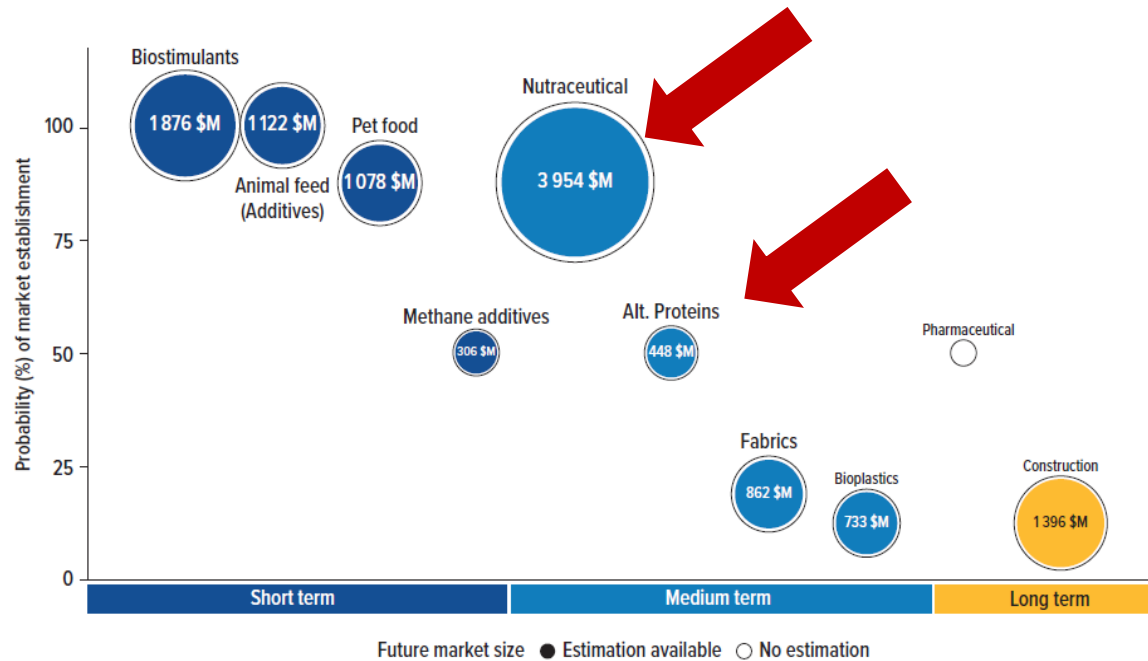
The Ocean Rainforest Team

-> International team with unique skills and capabilities on execution



Seaweed-based food products: quantities, prices and time to market

FIGURE A: Predicted seaweed market size by 2030 (\$ millions) with chance of market establishment indicated by color on a high-level market horizon timeline



Source: World Bank: Global Seaweed. New and Emerging Markets Report, 2023.

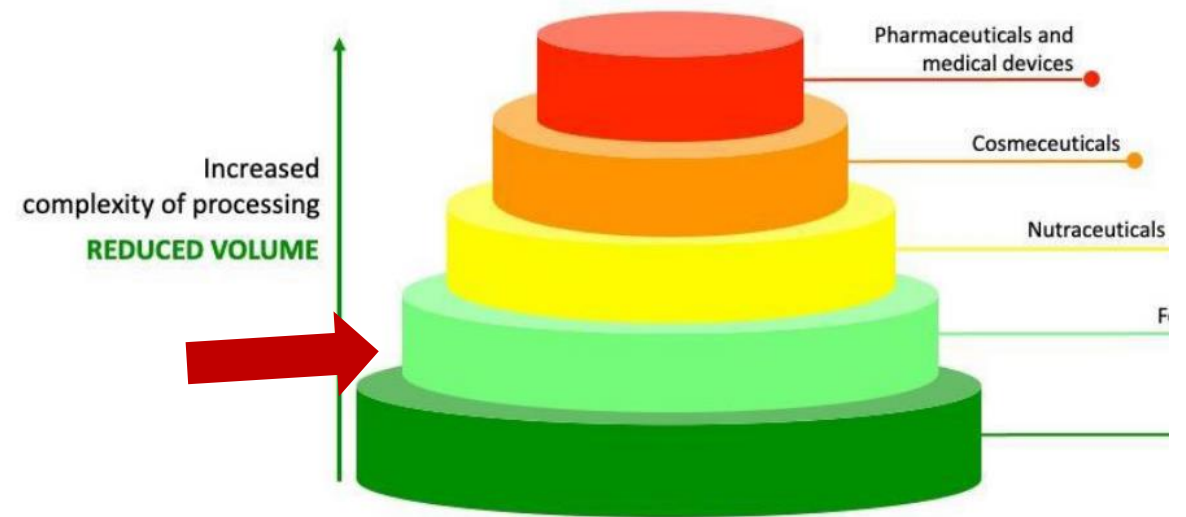
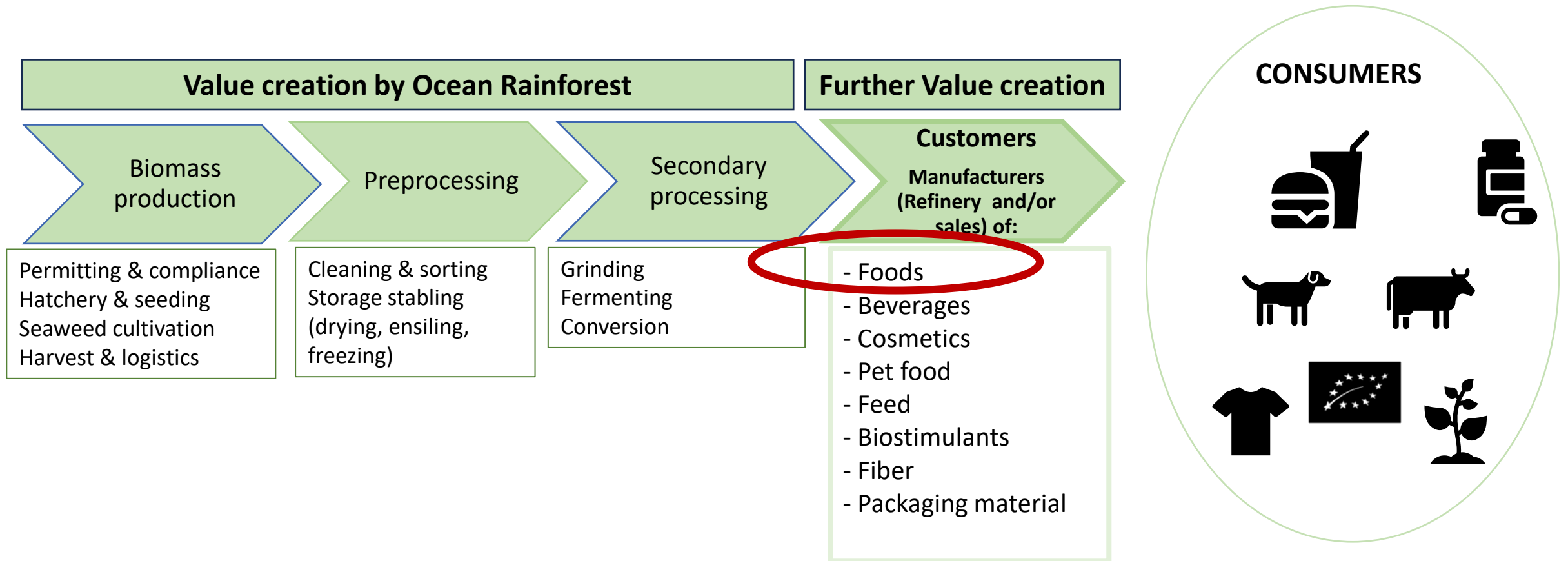


Figure 3: The value pyramid from the lowest value (feed) to the highest value (medical devices). Products will be produced for all these sectors within SeaMark.

The Ocean Rainforest value chain and forecasted seaweed market in 2030

→ the short to medium term market size estimated to > 8 Billion USD

→ Critical to understand our customer's customers



The food industry outside Asia is still early in the adoption curve but growing

(99% of global seaweed production is in Asia)

TARGET MARKET

Food Industry

Projected seaweed based, alternative protein market potential: **\$448 million in 2030**

The food industry will continue to experience a surge in demand for seaweed-based products. Seaweed's rich nutritional profile, including essential vitamins, minerals, and antioxidants, makes it an attractive **ingredient for health-conscious consumers**. Over the next five years, seaweed is expected to be increasingly incorporated into various food products such as **snacks, condiments, plant-based meat substitutes, and ready-to-eat meals**. The global seaweed snacks market, for instance, is projected to grow at a compound annual growth rate (CAGR) of **around 8% during this period**.

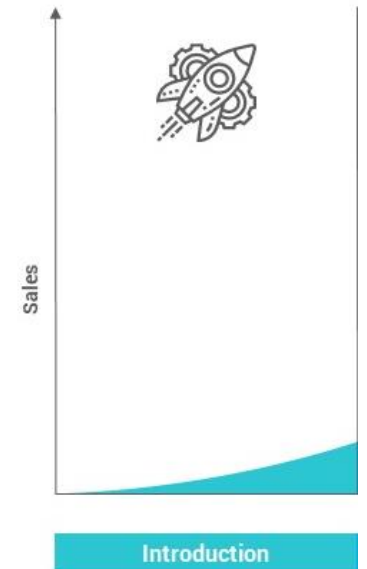
CUSTOMER



CONSUMER TREND



LIFESTAGE



The Global Seaweed Market

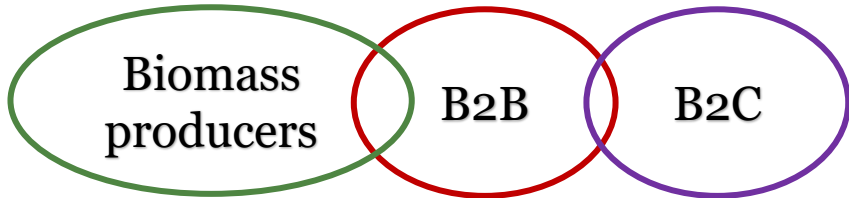


SeaMark: Overall Project Objective





The SeaMark consortium



12 seaweed-based products

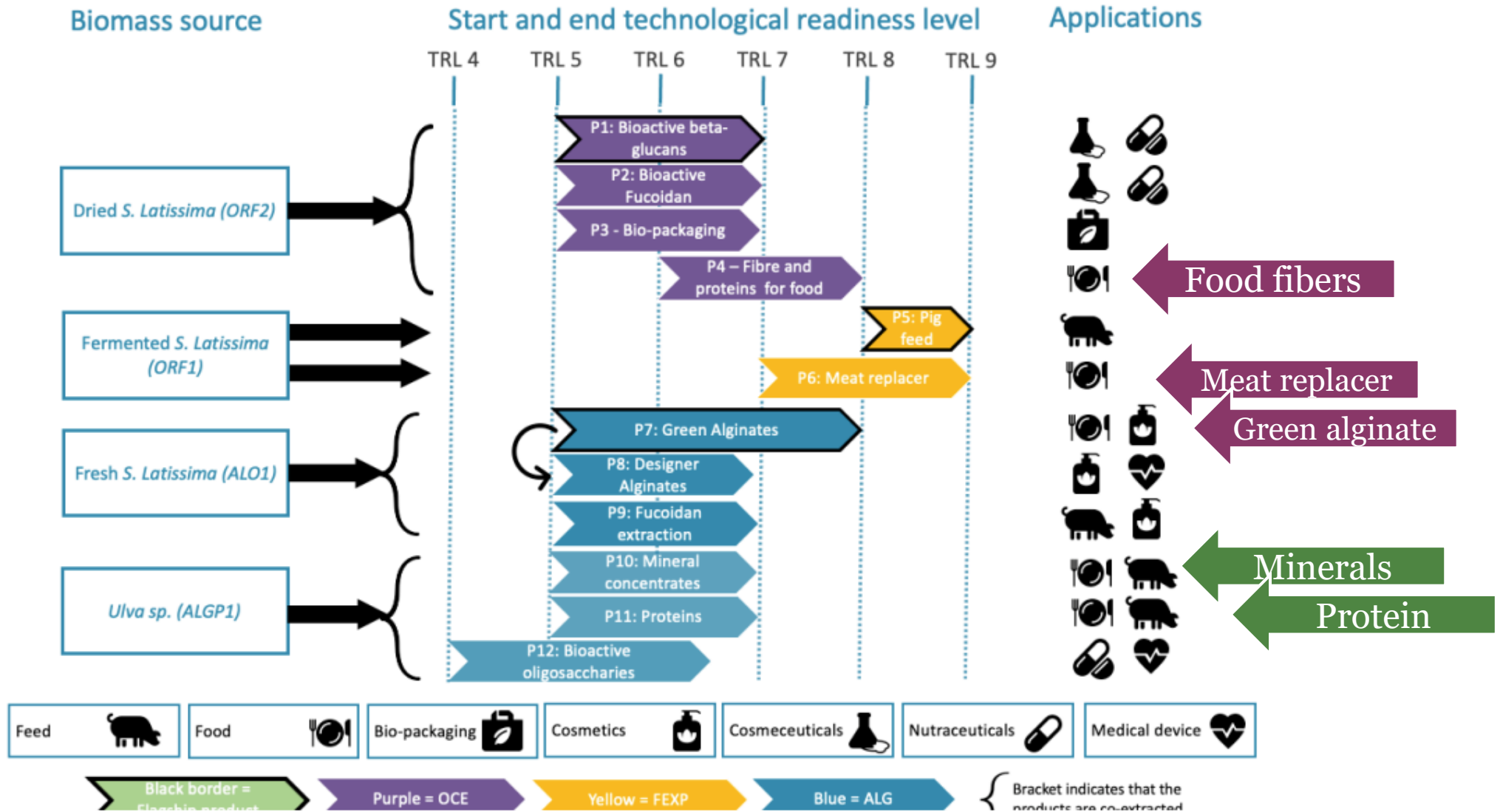


Figure 1: An overview of the SeaMark products, illustrating their relationships, biomass source, start and end technology readiness level (TRLs), and applications. SeaMark Flagship products have a black border. The brackets indicate that the products are co-extracted in a biorefinery process. Purple products are produced by Oceanium (OCE), yellow by Fermentation Experts (FEXP) and Blue by Algaia (ALG). (Note: A medical device is any article that is used to diagnose, prevent, mitigate, treat, or cure disease or other conditions, e.g. dressings for wounds)



Biorefinery processing for bioactives, food fibers & biomaterial

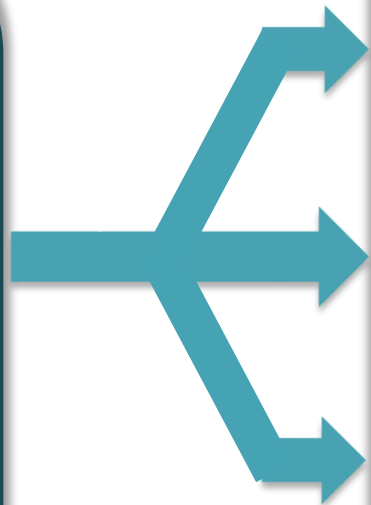


Seaweed biomass supplied

OCEANIUM®

Process plant specification and implementation plan

First Processing Campaign in autumn 2023 with capacity of 5 T/day



Process and Product Analysis

OCEAN HEALTH.
AN OCEANIUM® BRAND
Fiber & Protein

OCEANIUM®
Materials Feedstock

OCEAN ACTIVES.
AN OCEANIUM® BRAND

Fucoidan validation
Beta-glucan validation



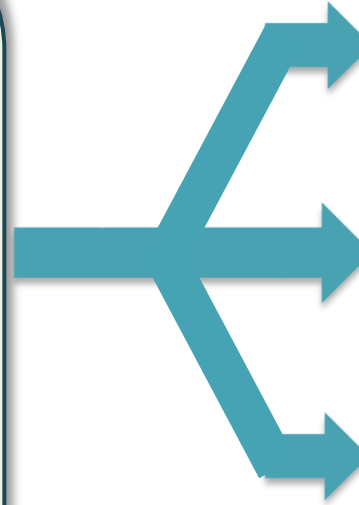
Fermented seaweed in **foods**



Seaweed **biomass**
supplied



Lactic acid fermentation with
capacity of 5 T/day



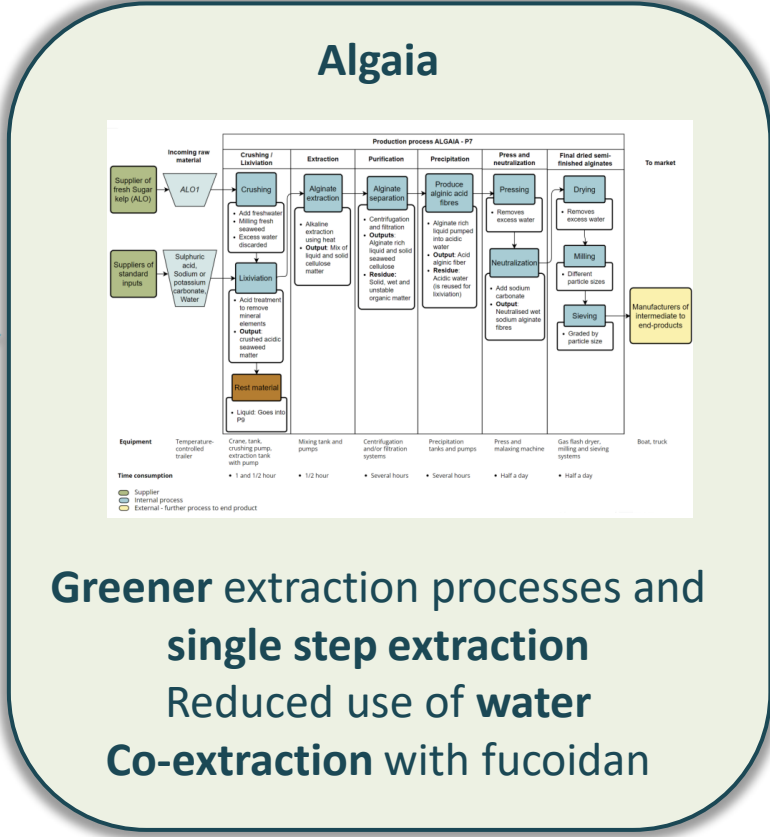
Fermentation Experts / European Protein



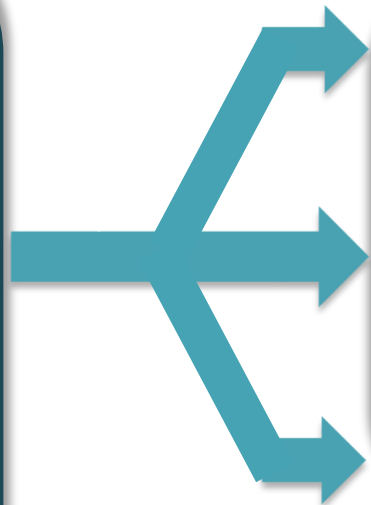
Green alginate for food and drinks ...and fucoidan



Seaweed **biomass** from France and the Faroe Islands



Greener extraction processes and single step extraction
Reduced use of water
Co-extraction with fucoidan



Green & sustainable alginate for food and drink products.



Summary



- SeaMark products: **5 food products**, + products indirectly related to food production (e.g. feed supplements and packaging materials).
- Focusing on customers to understand **the drivers of end-consumers**.
- Ocean Rainforest (Seaweed companies) has a role to play in helping our customers tap into **global trends** and highlighting the **unique qualities of seaweeds**.
- All sources forecast **global growth for seaweed**, pushing some categories to reach \$ billion + sizes before 2025.





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Deliverables

The public deliverables produced in SeaMark will be uploaded to this page as they become available.

- Work Package 1: Selective Breeding
- Work Package 2: Cultivation, Harvesting & Pre-Processing
- Work Package 3: Biorefinery Processing for bioactive, fibres & biomaterials
- Work Package 4: Health promoting effects of fermented seaweed
- Work Package 5: Co-extraction towards commodity & specialty ingredients
- Work Package 6: Product application development
- Work Package 7: Go-to-market strategies for products
- Work Package 8: Conduct techno-economic & socio-economic assessments
- Work Package 9: Ecosystem Services & Life Cycle Assessment

SEAMARK DELIVERABLE 8.1: CHARACTERISATION OF SEAMARK PRODUCTS

OPEN ACCESS

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Work Package / Task: / 78.1 Characterize SeaMark production processes

total number of pages (incl. annexes):



Characterisation of SeaMark products

SEAMARK DELIVERABLE 8.1
Sjókövin – Blue Resource

December 2022 | Deliverable 8.1 | SeaMark



OCEAN RAINFOREST

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