

# Summary 1st EU Algae Awareness Summit

5th of October to 7th of October 2023



co-organised by



Supported by



La Maison de l'Océan | PARIS

5-7 OCTOBER 2023

**1<sup>st</sup> EU ALGAE**  
**AWARENESS SUMMIT**

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# I. Introduction

The [1st EU Algae Awareness Summit](#), held from 5th to 7th October 2023 at the [Maison de l'Océan in Paris](#), marked an important milestone in the journey towards promoting the cultivation, acceptance, and consumption of algae within the European Union (EU). The summit also contributed to the implementation of the [EU Algae Initiative adopted 15/11/2023 and aiming at unlocking algae potential in the EU](#). Algae, both macro and micro, present a vast array of potential advantages, from economic activities to ocean regeneration. This pioneering event served as a catalyst for raising awareness, fostering collaboration among all relevant stakeholders and inspiring innovation in both the macro- and micro-algae sectors.

The Summit aimed to inspire individuals, organisations, and EU Member State representatives to further support the algae sector. It initiated a process aimed at illuminating the manifold benefits that algae hold for national and regional economies and encouraging broader acceptance among the EU Member States' administrations and the general public.

Through a diverse array of activities, including presentations on global and European algae sector developments, high-level panel discussions, break-out group discussions, tastings of various algae products, exhibitions, workshops and immersive virtual reality experiences, participants were given a unique opportunity to explore the multifaceted contributions of algae to our society.

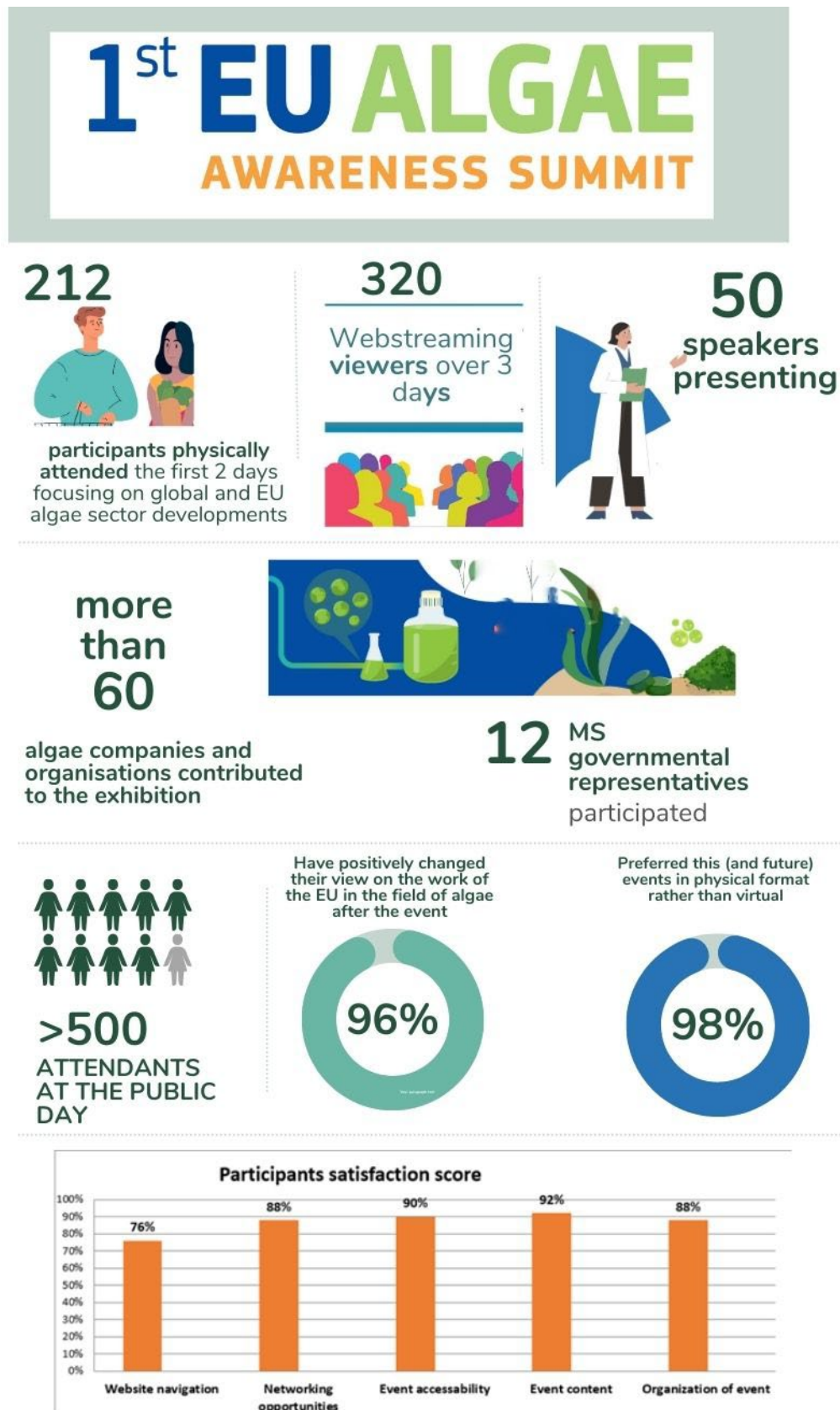
This summary highlights the Summit's objectives, achievements, and impact on promoting the algae sector within the EU.

The Summit was co-organized by the European Commission, the French Government, and the Global Seaweed Coalition, with valuable support from the [Oceanographic Institute, Prince Albert I of Monaco Foundation](#) (see Annex to this report for more details)



Photo: Mariejo SKRZYNIARZ, Sculpture: Marc Morvan

## II. Summit highlights



[https://maritime-forum.ec.europa.eu/contents/first-ever-eu-algae-awareness-summit\\_en](https://maritime-forum.ec.europa.eu/contents/first-ever-eu-algae-awareness-summit_en)  
Images: by [Gerd Altmann](#) from [Pixabay](#) and event visual identity

### III. Day by Day

#### Nichola Dyer, Master of Ceremonies

The summit had the honour of being hosted by Nichola Dyer, *Senior Advisor at the Global Seaweed Coalition*.

Nichola Dyer is a seasoned international economic development professional with experience spanning the non-profit, public, and private sectors. Having served for 26 years in diverse roles at the World Bank Group, she retired and turned her attention to the seaweed sector. She joined the then Safe Seaweed Coalition as a Senior Advisor, providing advice on strategy and governance, designing and moderating events, and chairing key meetings, and now also leads the Global Seaweed Coalition Secretariat.



#### Day 1: Thursday, 5<sup>th</sup> October 2023

The first day of the Summit set a dynamic and forward-looking tone, as renowned speakers shared their perspectives on the potential of the algae sector in the European Union and globally. The Global Seaweed Coalition held its Annual Meeting in the morning. In the afternoon, GSC members and speakers shared valuable insights into best practices, field experiences, global initiatives, and the varying challenges and statuses of algae sector developments in different World regions.

This and other sessions at the Summit were also summarized by attractive drawings by the Summit's graphic designer **Fanny Didou**.



Drawing 1. Global Seaweed Coalition Annual Meeting

The day closed with a networking dinner created around algae.

## 1. Welcome remarks and opening speeches

**Delilah Al Khudhairy**, *Director on Maritime Policy and Blue Economy at the European Commission's Directorate-General for Maritime Affairs and Fisheries* opened the Summit by welcoming participants and emphasising the potential of the algae sector in the European Union to benefit national economies, coastal communities, and ocean regeneration. She stressed the importance of global awareness and highlighted the increasing demand for algae. The way forward for Europe could be to focus on high-value added algae products



**Vincent Doumeizel**, *Senior Advisor at the United Nations Global Compact, Director Food Programme Lloyd's Register Foundation, co-founder of the Global Seaweed Coalition, and author of "The Seaweed Revolution" book*, called for innovative solutions to address the climate and food crises and saw the Ocean as a source of potential remedies. He emphasised the vast potential of macroalgae diversity in Europe, highlighting its applications in various sectors. Vincent Doumeizel also urged the cultivation of seaweed to bridge land and ocean, creating a circular agriculture system. He identified a few key areas of improvement:



- Regulatory improvement: Enhancing existing regulations to support the algae sector's development.
- Licensing simplification: Streamlining the licensing process to broaden access to ocean resources across Member States
- Specialised training: Establishing dedicated educational and training initiatives for seaweed culture.
- Scientific advancement: Promoting scientific research to enhance our understanding and cultivation of EU seaweeds.

*"If we learn on how to farm the ocean we may be remembered as the first generation on this planet that will be able to feed the entire world population with seaweed while mitigating climate change, biodiversity loss, boosting our economy. If we farm the ocean we can be remembered as such. But for this, we need to get together unified under the EU flag. The EU flag is blue, just like the ocean."*

**Olivier Poivre d'Arvor**, *Ambassador for the Ocean & Poles as well as Special Envoy for the UN Ocean Conference 2025* emphasized the critical nature of the ocean's warming and the role of algae in combating its consequences, such as acidification, extreme weather events, rising sea levels, and biodiversity loss. He stressed the importance of raising awareness of algae's properties and their potential to address food security challenges while preserving the ocean. Olivier Poivre d'Arvor noted that the Summit reflects a commitment to Ocean preservation and highlighted the need for a clear path for algae to the [United Nations Ocean Conference \(UNOC 2025\)](#), June 2025 in France.



*“This summit is a testament to our commitment to making Ocean preservation the rule rather than the exception. The humble algae stands as a symbol of hope and resilience.”*

**Mauro Colagreco**, *UNESCO Goodwill Ambassador for Biodiversity and Chef at Mirazur Restaurant* expressed the Summit's significance in advancing seaweed valorisation and emphasised the need to reconnect food systems with the origins of life. He advocated for the return of algae to our kitchens, focusing on a cuisine that values the pleasure of taste as much as benefits for our health and for the planet.



Drawing 2. Welcome remarks and opening speeches

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## 2. Algae basics and application types

**Vitor Verdelho**, *General Manager at EABA - European Algae Biomass Association*, defined macro and microalgae, highlighting their diverse characteristics and potential applications. He identified regulations as a bottleneck limiting the use of various algae species and applications, noting “there is no common recognition between countries.” Vitor Verdelho presented different production platforms and the wide range of market applications for both macro and microalgae.



## 3. Key numbers/facts about the algae industry globally and regionally



**Manuel Barange**, *Director of the Fisheries and Aquaculture Division at the Food and Agriculture Organization of the United Nations* provided a global and regional overview of the algae sector, noting that most farmed seaweed is produced in China and Indonesia. He emphasised the benefits of seaweed aquaculture, including water quality improvement, biodiversity support, and ocean acidification buffering. Manuel Barange identified barriers and suggested ways to improve seaweeds' recognition worldwide, especially in areas where they are still considered novel foods or niche products. He highlighted aquaculture as a primary means to meet safety requirements and introduced FAO's vision of blue transformation, focusing on improving management, intensifying aquaculture to supply the growing demand, and developing value added products. FAO's recent guidelines are a tool for furthering the sector's growth.



## 4. The algae industry around the world

### a) Examples from Asia

**Yoichi Sato**, Professor, Institute of Industrial Science, University of Tokyo, and Global Seaweed Coalition Scientific Council member, outlined that Japan boasts a rich history of seaweed culture, with over 100 edible seaweed species. However, only 20 of them are available for general purchase. Each region has cultivated a unique seaweed food culture tailored to its local environment. The country's extensive coastline spans subarctic to tropical zones, with the most popular seaweeds being Kombu, Mozuku, Aosa (Aonori), Wakame, and Nori. Seaweed farming rights are granted to individuals in Japan with each fishery handling the entire process from aquaculture to primary processing, leading to productivity of 16 tons per person in 2018, lower than South Korea's 30-300 tons per person in 2022. The Japanese seaweed market continues to grow, primarily because of its low carbon footprint. Yoichi Sato emphasised the importance of sharing local knowledge with the next generation and the world to foster sustainable development. Knowledge sharing among fishermen and turning tacit knowledge into formal, evidence-based information is crucial.



*“Now it’s the time to share local knowledge with the next generation and the world... Coastal environments in Japan are very diverse and locally-adapted methods could be a clue for solving your problem...We hope our thousands of years of history and local cultures can contribute to the global society...”*



**Rajendran Lingan**, Senior General Manager – Quality and R&D E.I.D. – Parry (India) Ltd Parry Nutraceuticals Division, said that microalgae production in India commenced in 1974. Spirulina from India is primarily exported to the US and EU, with products mainly catering to the food supplement market. Rajendran Lingan stressed the significance of robust pilot plant studies before commercialization.

**Fengzheng Gao**, *researcher specialising in microalgal biotechnology*, emphasized that China is the world's major algal biomass producer. Algae has long been a daily dish in some Chinese cities. China's macro-algae production reached 2.55 million tons of dry weight in 2021. Over 60 years, China has developed the microalgae industry, with around 150 companies working in this field. Eight microalgae species have been approved as novel foods in China. Greenhouses and raceways are utilised in North China to produce microalgae, particularly spirulina.

*“Small micro-algae, but big potential”*



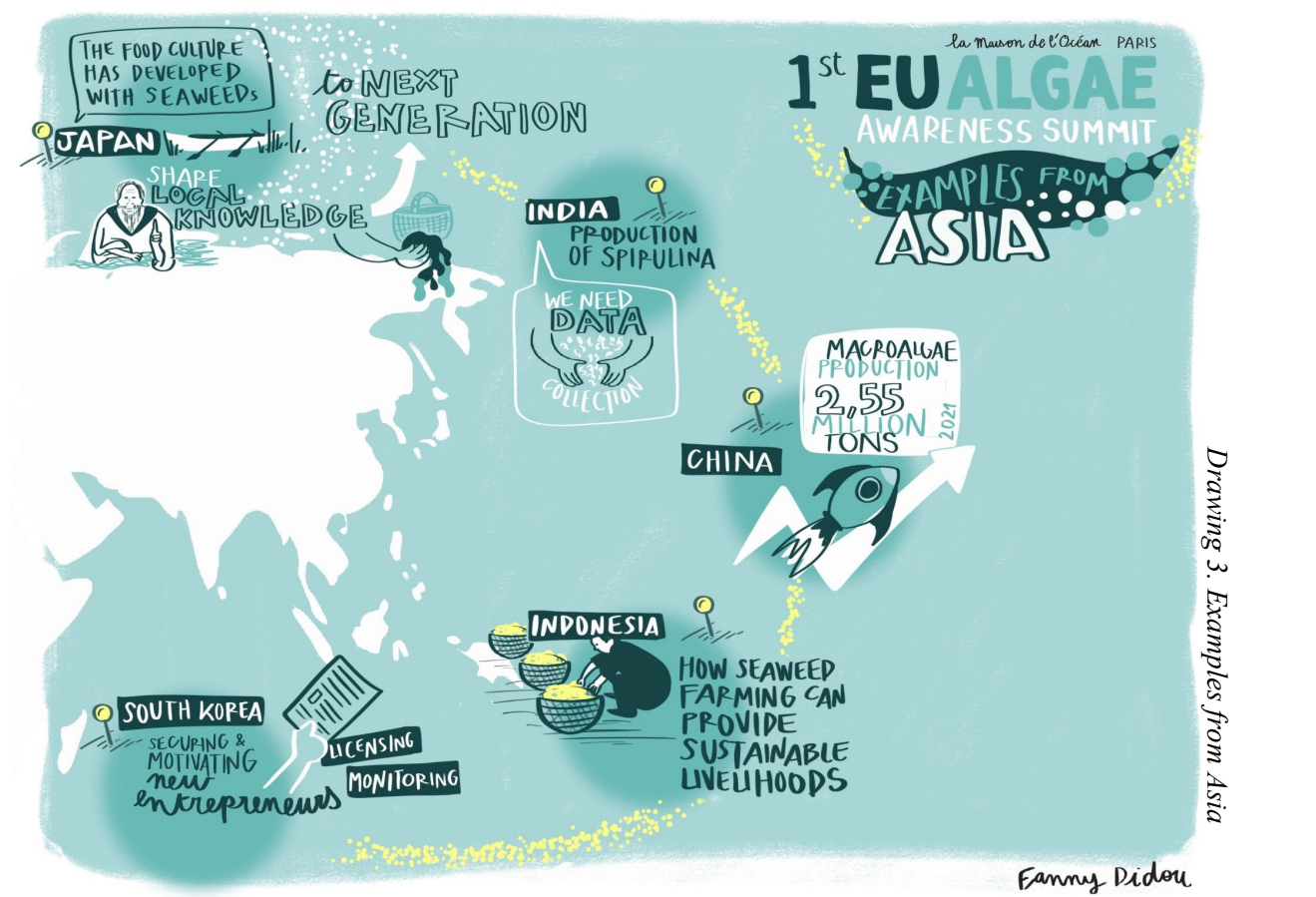
**Raul Socrates Banzuela (Indonesia)**, *Chief of Staff of PAKISAMA (National Confederation of Family Farmers' Organizations), Global Seaweed Coalition Strategic Advisory Council member*, outlined that seaweed farming has transformed the prospects of coastal communities in Indonesia. Fishers switching from fishing to seaweed farming have increased their earnings fourfold. Seaweed farming provides stable and diversified local income sources. The success in Indonesia is the result of collaborative efforts, but most of the 267,000 farmer households in the country are not yet organised. Professionally managed cooperatives offer comprehensive support to their members, but there are

challenges to be addressed. The West Papua initiatives exemplify how seaweed farming can provide sustainable livelihoods, and underscore the significance of collaboration among institutions, the pivotal role of cooperatives, and the challenges they face.

**Gwang Hoon Kim (South Korea)**, *Director, Institute of Biotechnology, Kongju National University, Global Seaweed Coalition Scientific Council member*, highlighted the role of the South Korean government in supporting the seaweed aquaculture industry. The government sets standards for aquaculture to ensure the efficient use of fishery resources and addresses misconduct. About 3-4% of licences are revoked annually due to sea farmers' misconduct. Risk management in aquaculture beds is essential, and South Korea initiated Aquaculture Disaster Insurance to support sea farmers in recovering from damage. This insurance covers 70-80% of the average yearly production on the condition that farmers restore their farms to their prior state. As a result, sea farmers have become more willing to report disease outbreaks and try new cultivation methods. Government support, including licensing and monitoring, is crucial for establishing an aquaculture industry. Incentives for maintaining tidy sea farms are necessary, and all stakeholders, including researchers, farmers, distributors, and government officials, must collaborate from the outset. The



active participation of phycologists is vital for effective policy making in seaweed valorisation in Europe.



Drawing 3. Examples from Asia

## b) Examples from North America

**Arun Nair**, *President & CEO of AstaReal, INC*, highlighted the significant potential of microalgae productivity in the right business environment. He noted that while the US did not meet its 2014 goal of producing 1 billion gallons of fuel from microalgae, it has driven technology and innovation in the sector. The current microalgae market stands at US\$355.61 million, and it is expected to reach US\$593.15 million by 2030, representing a substantial growth opportunity. The microalgae industry serves various sectors, including nutraceuticals, food and beverages, biofuels, cosmetics, biomaterials, and aquaculture, with the US market covering the majority of applications. The supply chain, from industry to customers, plays a crucial role. Factors influencing the USA microalgae market include consumer awareness, technological innovation, industry coverage, plant protein demand, nutritional and medicinal applications, adverse event reports, production costs, and climate change.



**Anoushka Concepcion**, *Associate Extension Educator in marine aquaculture with the Connecticut Sea Grant Program and UConn's Department of Extension, Chair of the Global Seaweed Coalition's Strategic Advisory Council*, explained the emerging seaweed industry in the United States, sugar kelp being the most frequently cultivated species. The primary seaweed production areas are the Northeast, Northwest, Hawaii, and Alaska. Maine stands out as the leading producer with a high volume. Barriers to expansion include limited access to markets, post-harvest and processing infrastructure, social acceptance, and access to seed. However, there are substantial efforts to overcome these barriers, such as government funding, the National Seaweed Hub to create practical resources, support from non-profit organisations, and farmer-led initiatives.

**Michael Williamson**, *CEO and Co Founder of Cascadia Seaweed*, provided insights into the seaweed industry in Canada, which spans the North Atlantic and Pacific coasts. Canada has seen impressive growth, with a production increase from zero to 500 tons over the last five years. The regulatory framework in Canada involves three governmental bodies (federal, provincial, and local), and First Nations partnerships are crucial for companies operating in specific regions. The seaweed companies in Canada are primarily focused on biostimulants, agrifeeds, and ecosystem services, with limited food development. To further advance the industry, there is a need for more investments, research, collaboration, and adaptation to food technology and industrial processes.





Drawing 4. Examples from North America

### c) Examples from Middle East and Africa

**Claudio Fuentes Grunewald**, *PhD in Science and Environmental Technology, MSc in Environmental Studies, and Aquaculture Technical Engineer*, emphasised the nascent but promising algal biotechnology industry in Saudi Arabia. The country's focus on this industry stems from a need to reduce reliance on imported raw materials for animal feeds. This endeavour addresses food security, CO2 capture, and bioremediation. The utilisation of biomass, particularly from seasonal sargassum, highlights the importance of harnessing local resources. Claudio Fuentes Grunewald also noted the successful production of spirulina from seawater, underscoring the need for capacity building and training to enable large-scale production. He highlighted the suitability of desert regions for algal production due to biological, climatic, and cost-related factors. Europe was acknowledged as a global leader in algae technology and knowledge provision.



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**Flower Msuya**, *Freelance Senior Researcher & Consultant, Former Senior Researcher at University of Dar es Salaam, Institute of Marine Sciences & Department of Botany, Founder and Chairperson of the Zanzibar Seaweed Cluster Initiative (ZaSCI), Global Seaweed Coalition Scientific Council member.*

Flower highlighted the rich biodiversity of seaweed species in Africa, with only a fraction of these under cultivation. Seaweed cultivation in Tanzania dates back to 1989, and it has since expanded to Madagascar, Kenya, and Mozambique. Two primary species, *Spinosum* and *Cottonii*, have been cultivated in Tanzania, with the latter having a higher market price. The seaweed industry significantly contributes to employment, particularly for women, with export markets in the USA, Denmark, and France. The challenges faced include climate change, diseases, pests, low prices, limited

markets, seed availability, and seasonality, leading to declining production. Solutions include farming in deeper water and collaborative efforts to expand the seaweed industry, providing technological support and assistance to farmers.

**Paubert Mahatante Tsimanaoraty**, *Minister of Fisheries and Blue Economy for Madagascar*, highlighted the exploitation of three main seaweed species in Madagascar. While production currently stands at 2500 to 3000 tons per year of *Kappaphycus* sp (*Cottonii*), there is potential for much higher production. The government's efforts include production control technology, community resilience enhancement through model village aquaculture, and addressing challenges such as climate change, water pollution, access to seeds, isolated communities, and funding options. Their approach focuses on government support, algoculture promotion, risk management improvement, funding, and seeking new partnerships.

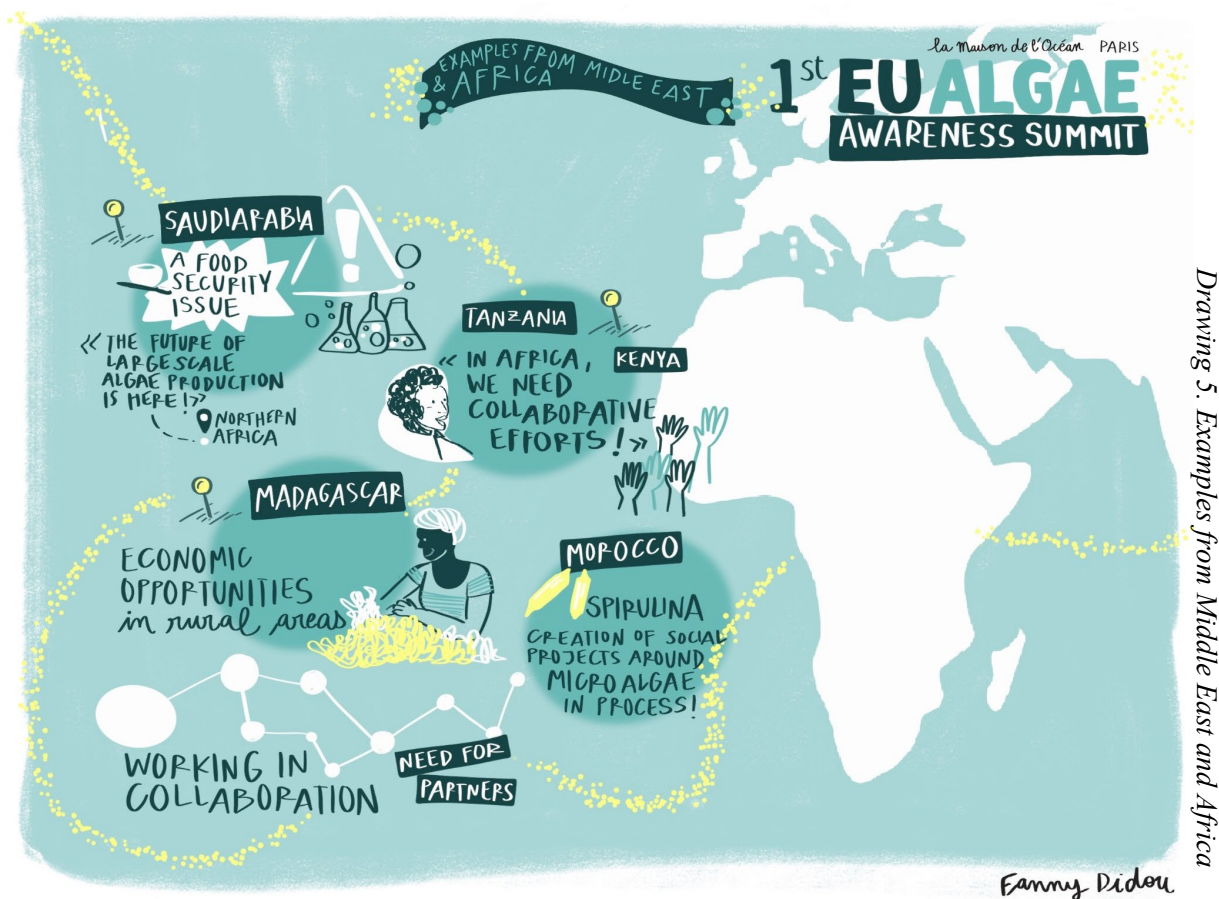


**Mounir Boulkout**, *Founder and Chief Executive Officer and Managing Director at Selt Marine Group (active in Tunisia, Zanzibar, Mozambique and France)*, presented SELT Biotech, the first producer of red seaweed in France. SELT Biotech is unique as it integrates all processing and covers risks for farmers, emphasising a sustainable approach to red algae production that aligns with 8 Sustainable Development Goals (SDGs). Red seaweed offers multiple applications, including processing into juice, cellulose, sugar, biomolecules, protein, and H<sub>2</sub>. The potential for red algae production in Europe is considerable.

**Imane Wahby (Morocco)**, Professor, Mohammed V University and expert in microalgae valorisation, provided insights into algae production in Morocco, highlighting the country's strengths in algal diversity and favourable temperature conditions. Despite the commercial potential of many microalgae species, spirulina remains the only widely cultivated variety. Gelidium is the most exploited seaweed, with agar agar production using just 20% of the biomass, the rest (waste)



being turned into biofertilizers. Morocco produces 35 tons of dry weight spirulina annually. Challenges in the macroalgae sector include complex state-level management, while the microalgae sector faces regulatory gaps and the importation of cheaper biomass. Morocco's government initiatives aim to address these challenges, including social projects, increased acceptance of algae-based products, and promotional strategies with tailored training programs.



Drawing 5. Examples from Middle East and Africa

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#### d) Examples from Oceania and South America



**Peter Ralph**, *Founder Deep Green Biotech Hub*, highlighted Europe's dominance in the realm of algae startups, with a focus on investments in biorefinery and livestock methane reduction. Australia has seen success stories like Sea Forest and CH4 Global in Asparagopsis production, along with various companies exploring applications in textiles, fibres, bioplastics, biomasonry, and algae as a service (e.g., PacBio and Young Henry's). However, the Australian algae industry faces challenges including regulatory control, coordination for accessing coastal leases, and the development of longer supply chains for global

markets. Algae opportunities include plant breeders' rights, land-based seaweed production on non-arable land, commodity production for the bioeconomy, and decarbonization through high-value compounds.

*“We need to see algae as a service not as just a product.”*

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**Jo Kelly**, *Chair of the Board of Australian Sustainable Seaweed Alliance (ASSA) - peak industry group*, spoke about algae developments in Australia, including Asparagopsis for reducing methane emissions in livestock. The focus in macroalgae domain is a transition from wild harvesting to farming. Environmental projects and markets are witnessing substantial growth. Challenges in the sector include regulation and policy issues, technical knowledge and workforce

constraints, and the need for increased investments. To address these challenges, the government has allocated AU\$8 million, targeting the development of a national hatchery network, policy developments, research and development optimization and extension, and industry capability and leadership.

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Drawing 6. Examples from Oceania and South America

## 5. Myth or reality - Carbon dioxide removal and marine permaculture

**Brian von Herzen, Ph.D.,** founder and executive director of the Climate Foundation, outlined the urgent need for a regenerative, climate-positive marine economy with a focus on measuring carbon export. He introduced three core pillars of this approach: food security and sustainable livelihoods, ecosystem regeneration, and carbon balance. He highlighted the critical issue that over 93% of the heat trapped by greenhouse gases is currently ending up in the upper ocean, causing severe damage to kelp forests, with a staggering 95% loss in Australian and Californian macrocystis kelp forests. He proposed a solution known as "Marine Permaculture: Sea Forestation," which effectively restores kelp forests and offshore ecosystem services using a seaweed platform that offers higher yields. The seaweed produced is then converted into biostimulants for agriculture. He indicated that marine permaculture significantly reduces greenhouse gas emissions, sequestering or avoiding 30,000 tonnes of CO<sub>2</sub> emissions per km<sup>2</sup> through direct carbon removal, reduced emissions from manufacturing, fuel, energy, and nitrate fertiliser application. Notably, this system also exhibits resilience to Category 5 hurricanes.



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**Catriona Hurd**, *Professor Seaweed Physiology and Ecology, Institute for Marine and Antarctic Studies, Global Seaweed Coalition Scientific Council member*, delved into the possibility of using seaweeds for carbon dioxide removal offsets (carbon credits). Seaweeds, as primary elements in coastal ocean zone ecosystems, play a vital role in fixing carbon dioxide through photosynthesis. To address the imperative of reducing emissions and keeping global warming below 2 degrees Celsius, various companies, NGOs, and governments are exploring seaweed growth for carbon dioxide removal in coastal and open oceans. Some are even considering sinking seaweeds to the deep ocean for the permanent storage of atmospheric CO<sub>2</sub>.



Professor Hurd explained carbon dioxide removal as a process by which CO<sub>2</sub> is eliminated from the atmosphere, resulting in carbon sequestration, meaning the secure storage of carbon-containing molecules for more than 100 years outside the atmosphere. Long term carbon sequestration is central to carbon trading schemes. However, she pointed out that seaweeds differ from terrestrial forests as they do not create soil. Seaweeds absorb CO<sub>2</sub> in a two-step process, and the time scale for the equilibrium of CO<sub>2</sub> between air and water is relatively slow, taking weeks, months, or even a year. Measuring and verifying CO<sub>2</sub> removal by seaweeds is challenging, requiring the quantification of two complex processes: the removal of CO<sub>2</sub> from the seawater parcel and the fate of seaweed biomass (Particulate Organic Carbon).

In conclusion, Catriona Hurd raised concerns that biological carbon removal offsets might not effectively combat climate change. She emphasised that seaweeds do not sequester carbon as living biomass and highlighted the current lack of reliable methods to monitor, report, and verify CO<sub>2</sub> removal by seaweeds. Using seaweeds for carbon credits necessitates the development of robust techniques that link air-sea CO<sub>2</sub> equilibrium to seaweed carbon stored in sediments for more than 100 years.

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## Day 2: Friday, 6th October 2023

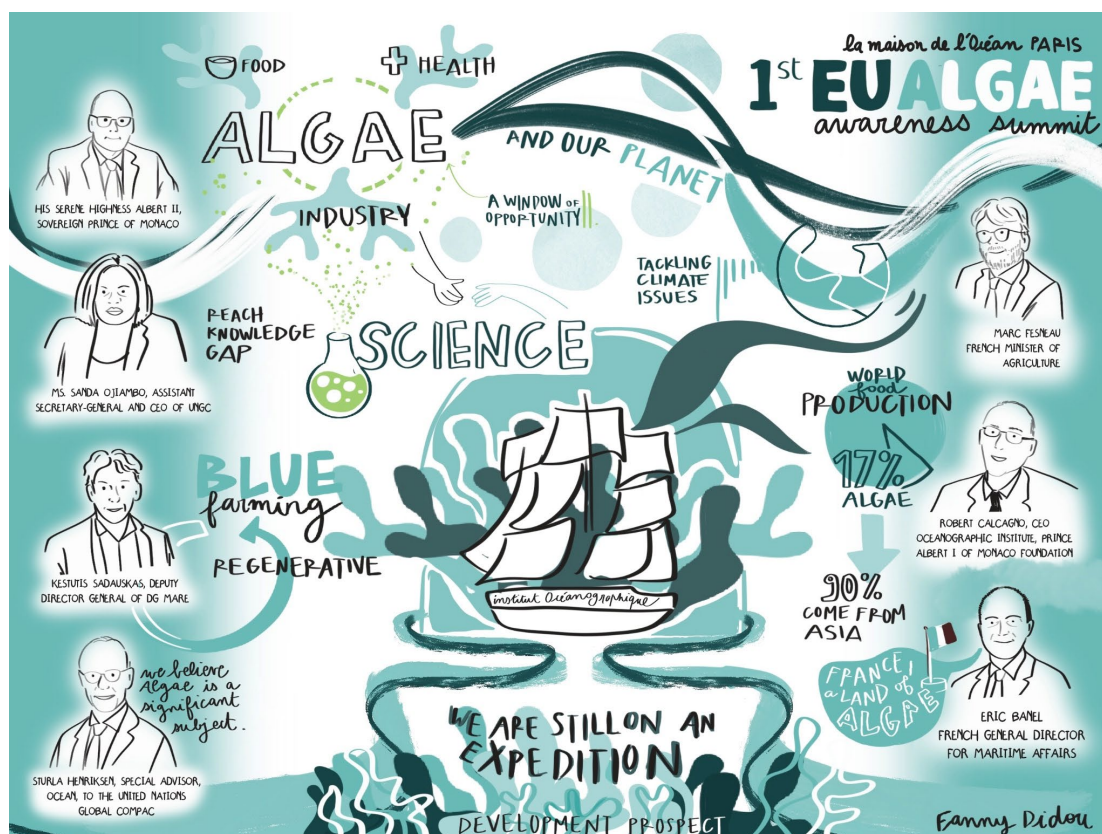
At the beginning of Day 2 the European Commission invited Summit co-organizers as well as some industry and science representatives to an **informal breakfast** to exchange views on specific further actions the Commission could take to unlock algae potential in the EU.

The European Commission stressed the need for public sector support, collaboration and innovation within the European algae sector, emphasising the role of science in providing essential research and data. Europe's focus on wild harvesting needs to shift to seaweed cultivation to improve water quality and create a competitive "Made in the EU" label for high-quality seaweed products.

Industry representatives appreciated the Commission's leadership and suggested pushing the seaweed agenda at the national level and engaging countries into the conversation. Leveraging public funds through blended seaweed funds was proposed to attract private investments. The EU algae industry will compete with global algae players. Given the multifaceted potential of the ocean, there is a need for a cross-stakeholder approach, carbon credit schemes, sustainability, and inclusivity. Long-term subsidy schemes are needed to incentivize large-scale seaweed farming, as has been done in the renewable energy sector.

French industry representatives emphasised the importance of generating strong interest in seaweed in France, revising standards for iodine and certain contaminants and distinguishing between danger and risk. They also stressed the significance of seaweed education, cultural shifts, and providing career change opportunities for those interested to join seaweed industry. Finally, they encouraged the European Commission to allocate more resources to algae.

Academic/Science representatives emphasised the importance of adopting national laws for seaweed, protecting the ocean and seaweed, regulating cultivation, ensuring space for cultivation, and promoting mutualization between stakeholders. They also highlighted the need for international collaboration among seaweed researchers, emphasising connections with Asia and the need to address challenges in accessing funding, with application processes in Brussels easier compared to certain countries. The Global Seaweed Coalition praised the Commission for its initiative in organising the Summit, noting that it is state of the art in terms of regional consultations.



Drawing 7. High level speeches

## 6. High-level speeches

The plenary sessions on the second day were kicked off by high level and notable speakers who expressed their support to algae sector developments globally and within the EU as well as their support to organizing the Summit.

**His Serene Highness Albert II, Sovereign Prince of Monaco** highlighted the critical role of algae in maintaining the natural balance of our oceans. He emphasised the necessity of taking algae into consideration due to the pressing issues of climate change and the increased food production needs of a growing global population. The Prince underscored the immense potential offered by algae in addressing these challenges and called for them to become a driving force in our development.



He also recognized algae as a fundamental element of the blue economy, acknowledging its significance in creating a responsible paradigm that meets both human aspirations and environmental needs. The Prince stressed the importance of dedicating not only time and energy but also intelligence and material resources to the study and utilisation of algae.

*“Algae are central to the natural balance of the ocean. The potential offered by algae is huge... Algae are fundamental elements of the blue economy... Therefore it’s vital to devote time, energy and intelligence, as well as material resources to algae, as many of you are doing and as proposed by this event”*

**Marc Fesneau, the French Minister of Agriculture and Food Sovereignty** expressed France's pride in hosting the event, given the country’s rich tradition in algae production, its position as one of Europe's primary algae producers, and the importance of algae and its benefits for local communities.



Minister Fesneau expressed his belief in the pivotal role that algae will play in addressing contemporary challenges such as the climate crisis, environmental health, and food security. The Minister was confident that this Summit would elevate public awareness on this vital subject by serving as a platform to explore and discuss the production, consumption, and utilisation of algae. Furthermore, the Minister confirmed France's alignment with the European Commission's algae initiative and pledged to implement it at the national level, a commitment that reflects France's dedication to promoting algae production.

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**Sanda Ojiambo**, *Assistant Secretary-General and CEO of UN Global Compact, host of the Global Seaweed Coalition* highlighted the global significance of seaweed as a valuable resource with vast potential in addressing pressing challenges, including climate change, pollution, and biodiversity loss. She noted seaweed's advantages for various applications, and pointed to ongoing research on its potential to combat methane emissions.



Despite the growing interest in the seaweed industry, Europe lags behind, necessitating knowledge sharing with major producing countries like China and Indonesia. To unlock the full spectrum of seaweed benefits, a coordinated global strategy involving governments, commercial enterprises, and local communities is essential.

The Global Seaweed Coalition has been established to promote inclusivity and leverage cutting-edge science. However, there remains much to learn about the benefits and sustainable production of seaweed. To advance global research efforts, she called for the establishment of a dedicated scientific research body focusing solely on seaweed, building on the foundation created by the Global Seaweed Coalition. This entity would support industry sustainability including by creating universally accepted safety and quality standards.

In conclusion, Sanda Ojiambo called upon governments, the private sector, and the international community to unite in support of a thriving and sustainable nature-based industry centred on seaweed.

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**Kestutis Sadauskas**, *Deputy Director General, Directorate-General for Maritime Affairs and Fisheries, European Commission* acknowledged the strong algae production and research tradition in France and underscored the European Commission's dedicated efforts to advance the EU algae sector.

The Deputy Director General spoke of the EU's pioneering initiative consisting of 23 actions and the establishment of a European stakeholder platform, [EU4Algae](#). He stressed the importance of cross-institutional and pan-European collaboration to fully integrate algae's potential into EU policies.

He pointed out the growing global momentum in the algae sector that presents a unique window of opportunity for the European Union, its member states, and businesses.

He highlighted the transformative potential of sustainable algae growth, from providing food to replacing plastics and contributing to environmental restoration and urged national authorities to grasp the economic, ecological, and societal potential of the algae sector.

He underscored the Commission's readiness to foster the needed collaboration between the industry, the scientific community, and the public sector. Further, he emphasised the importance of funding to de-risk investment and shared that the Blue Invest network plans to allocate over 2.1 billion euros to the blue economy, including algae-related activities, between now and 2030.



In terms of support from national authorities, Sadauskas stressed the importance of streamlining licensing and maritime space allocation for algae cultivation, backing pilot projects, and addressing concerns raised by EU citizens.

*“If we grow algae sustainably, algae could feed people, replace animal and fish feed, replace plastic, decarbonize the economy, cool the atmosphere, clean up the oceans, rebuild marine ecosystems, create jobs in coastal communities, where fishing resources are in decline... The European Union cannot miss the window of opportunity algae provides.”*

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**Eric Banel**, French General Director for Maritime Affairs, Fisheries, and Aquaculture underscored the unique and promising nature of this unprecedented event. He highlighted that having the summit hosted in France, a country deeply rooted in a coastal history intertwined with algae, testifies the nation's commitment to this sector.

Eric Banel spotlighted the traditional and age-old practices of seaweed harvesting, primarily concentrated along the Brittany coast, as a driving force behind France's substantial annual seaweed production of approximately 60,000 tons. France's in-depth understanding of these practices has positioned it as the second-largest seaweed producer in the European market. The ambitious goal to triple alga-culture production by 2027 maintaining high seaweed quality reflects France's commitment to growth that respects environmental sustainability and local relevance.



Furthermore, the Director General outlined essential priorities, which are aligned with those of the European Commission, to unlock the full potential of algae in France and Europe. These include creating diverse consumer outlets, ensuring quality and health standards through efficient certifications, identifying sustainable production methods, guaranteeing fair remuneration for producers, and supporting sectoral economic development, with research remaining a key pillar in facilitating sectoral growth. France aims to support the European effort by sharing best practices, thus encouraging the development of the algae sector within both France and Europe. He concluded that the summit signifies the beginning of a new era, marking a significant step towards realising the potential of algae.

*“We are very proud to host this summit here in France. As a subject that echoes our own coastal history, France is a land of seaweed, a land of algae”*

**Robert Calcagno**, CEO Oceanographic Institute, Prince Albert I of Monaco Foundation explained the long history of the Institute's interest in algae, describing Prince Albert I's recognition of algae's benefits. He noted that during his expeditions Prince Albert I had collected numerous algae specimens, some of which remain in the Oceanographic Institute Collection and are utilised for scientific research. Echoing Prince Albert I's address in Washington 102 years ago, Mr Calcagno underscored the importance of protecting and cultivating marine plants, stating that the Institute's interest in algae has never been greater. Mr Calcagno presented an infographic comparing terrestrial and ocean food production to illustrate the promising prospects of algae production in Europe. He mentioned the Institute's efforts to promote this industry, such as Seaweed Days during Monaco Ocean Week and the Monaco Ocean International challenge. Pointing towards the UN Ocean Conference in Nice in June 2025, he expressed a desire to collaborate with private sector stakeholders and national and international organisations for the algae sector's development.

He stressed that funding is essential for algae sector growth, noting that Monaco has announced a €100 million investment fund to support the blue economy. To stimulate algae development, Robert Calcagno suggested working on both supply and demand, emphasising the importance of scientific mediation and teaching society about algae through educational workshops such as those organised by the Museum.

Lastly, Robert Calcagno announced plans for a major program focused on the Mediterranean Sea in collaboration with the Prince's government and key stakeholders. This program will prioritise algae and seek regional initiatives to foster dialogue among the scientific community, businesses, decision-makers, and civil society. He also expressed gratitude to ambassadors, including top chefs, for promoting the use of algae in gastronomy.





**Sturla Henriksen**, *Special Advisor for Ocean at the United Nations Global Compact (UN Global Compact)* underscored the need for heightened ocean literacy and a broader understanding of the potential of algae. He portrayed algae as a multifaceted solution that addresses climate change, promotes ocean health, and preserves biodiversity. Moreover, he highlighted its potential to provide healthy food and foster sustainable economic growth in coastal communities, especially benefiting women in the

global south. However, he stressed that unlocking this potential requires intentional action, not mere chance.

Mr Henriksen called for the establishment of an international regulatory system, setting ambitious, measurable, and attainable targets, securing funding and financial mechanisms, and acknowledging potential conflicts of interest among various stakeholders.

He advocated for "Climate Smart Maritime Spatial Planning" as means to ensure the sustainable and inclusive deployment of algae farms, mitigating conflicts of interest while maximising mutual opportunities and benefits. This approach necessitates collaboration between governments, businesses, local authorities, Indigenous communities, and smallholders, which aligns with the collaborative spirit of the summit.

*“It will not happen by default, it will only happen by design.”*

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## 7. EU support to the EU Algae sector



**Delilah Al Khudairy**, *Director for Maritime Policy and Blue Economy in the European Commission's Directorate General for Maritime Affairs and Fisheries (DG MARE)*

Delilah Al Khudairy discussed the [EU Algae Initiative](#), emphasising the need to transition from sustainability to regenerative thinking. The presentation aimed to raise awareness about the EU algae sector and its alignment with the EU Green Deal's flagship goals. Delilah stressed the importance of simplifying national licensing procedures and governance for algae cultivation and highlighted the European Commission's support through

best practices, tools like the [EU4Algae licensing toolkit](#), and other mechanisms. She also emphasised the role of national authorities in unlocking the sector's potential and encouraged them to support projects funded by EMFAF. Delilah concluded by highlighting the EU's continuous support for the algae sector.



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**Adrien Vincent**, founder and president of “Albatros Advisory”, consortium member of EU4Algae, Global Seaweed Coalition Fundraising Manager introduced the [EU4Algae platform](#), launched in February 2022, aiming to centralise algae-related information, provide a forum for industry discussions, and supporting implementation of the EU Algae Initiative. The platform, piloted by CINEA and DG MARE, now has over 850 registered members. The EU4Algae website offers a knowledge library, a business corner, a licensing toolkit, and a newsletter. Adrien highlighted the platform's seven working groups, facilitating cross-project coordination with various EU-funded initiatives. He concluded by underlining EU4Algae's commitment to supporting the EU Algae Initiative and serving as a collaborative platform for industry stakeholders.

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**Pierre Karleskind**, Member of the European Parliament and Chair of the Committee on Fisheries recounted his personal journey with the Oceanographic Institute, which began with research on micro-algae in the Indian Ocean and further studies at the lab in Roscoff research centre.

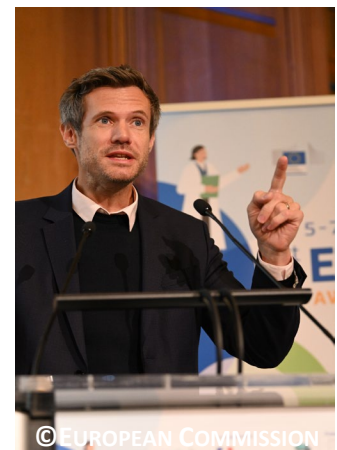
From the perspective of the European Parliament, he welcomed the EU algae initiative and emphasised its importance in strengthening European food sovereignty. He also highlighted the role of algae in sequestering carbon, underlining the significance of EU engagement with the global south to protect vital ecosystems. Mr Karleskind praised examples of successful aquaculture endeavours.

The MEP stressed the need for scaling up algae cultivation, particularly in Europe. He emphasised the importance of collaboration and coordination among stakeholders, citing EU4Algae as a successful model. He also touched on various European Union funding opportunities.

Drawing from his experience as Vice-President of the Brittany region, MEP Karleskind underscored the importance of local community involvement and acceptability.

*“ I have been waiting for this summit for 20 years. ”*

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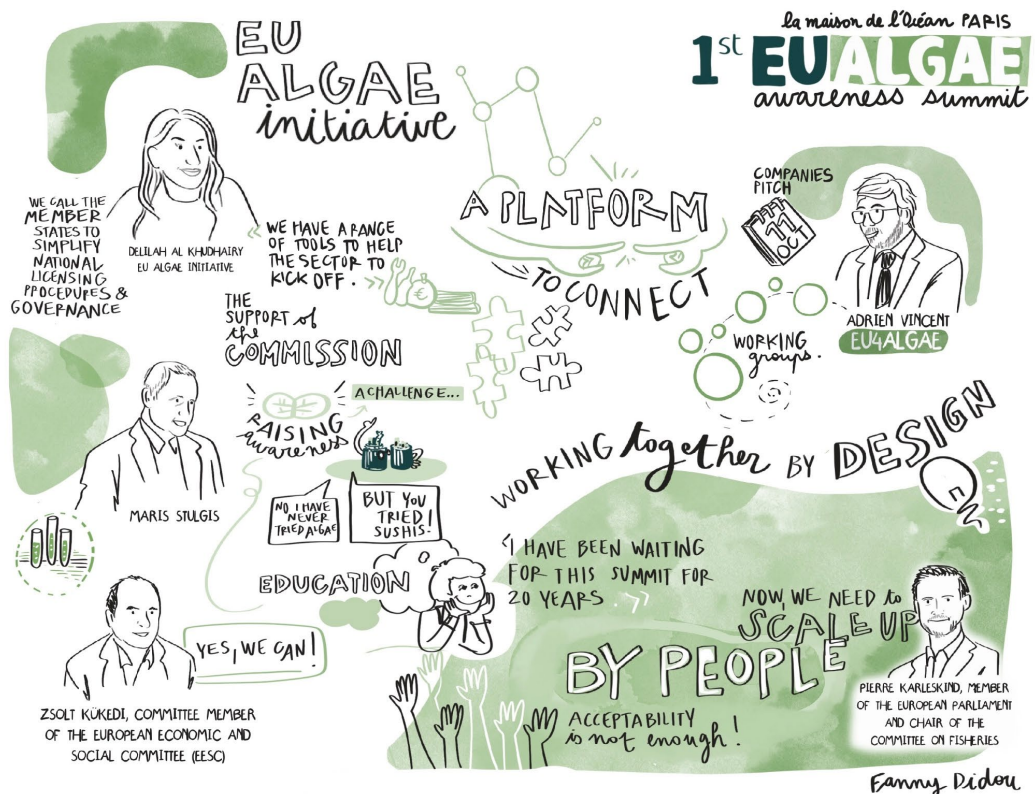
**Zsolt Kükedi**, member of the European Economic and Social Committee provided a perspective from EU civil society, emphasising the significance of discussing algae and its potential in Europe. He pointed out that algae, as a resilient species with a history spanning three billion years, has played a vital role in maintaining the Earth's atmosphere. Today, it can also be harnessed to address human-induced pollution.

He stressed the European commitment to sustainability and climate change mitigation, highlighting algae's potential contributions to the European Green Economy, owing to its unique properties and environmentally friendly cultivation methods.

Zsolt Kükedi referred to the European Economic and Social Committee's assessment. Its key recommendations include enhancing confidence in algae-based products' safety, integrating algae production into existing value chains, tapping into the revenue potential of macroalgae in marine coastal waters, emphasising freshwater-based algae production, and recognizing the productivity of microalgae in closed reactors, despite requiring capital investment. Furthermore, he called for the inclusion of different algae species in the EU food catalogue.

In conclusion, Mr Kükedi underscored the importance of exploring and utilising the potential of algae for a sustainable and greener future.

*'Can we use algae to make a better world? The answer is Yes, we can!'*



Drawing 8. EU support to the EU algae

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## 8. Presentation of trends in new research, creation of innovative start-ups and products, recent investments in the sector

### Macroalgae Presentation by Adrien Vincent

Adrien Vincent's presentation provided a comprehensive overview of the macroalgae industry in Europe. He highlighted several critical points, including the fact that a significant 96% of Europe's macroalgae production comes from wild harvesting. However, he raised concerns about the potential increase of production from this practice, noting that wild seaweed harvesting is approaching its maximum sustainable yield level. He emphasized the primary applications of European seaweed, which are predominantly focused on food, agriculture, and health/cosmetics, but these markets tend to offer low profit margins.



Adrien Vincent's presentation also shed light on two essential transformations occurring in the European macroalgae industry. The first is the shift in production methods, which is becoming more innovative and sustainable. Secondly, there is a growing emphasis on transforming macroalgae into various products. He highlighted the suitability of European waters for algae cultivation and the rise of innovative seaweed companies in the region, attracting increased investor interest.

To promote sustainability and responsible growth in the macroalgae sector, Adrien proposed a holistic approach. This approach involves stimulating demand, increasing production capacity, reducing production costs, establishing a cost-effective processing network, and ensuring a seamless connection between European seaweed supply and demand. He also cautioned against repeating the mistakes of monoculture agriculture, underscoring the importance of preserving ocean ecosystems.

Adrien Vincent's presentation concluded with a set of five guiding principles for sustainable and equitable development in the European macroalgae industry, focusing on a systemic view, resilience building, fair benefit distribution among stakeholders, informed decision-making based on scientific knowledge, and the use of comprehensive metrics to measure and monitor success.

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### Microalgae Presentation by Jean-Paul Cadoret



Jean-Paul Cadoret's presentation provided complementary insights into the microalgae sector, emphasising its interconnectedness with macroalgae within the broader algae industry. He began by drawing historical inspiration from Jules Verne, who recognized the potential of algae farming early on.

Jean-Paul highlighted the challenge of microalgae production: while it can be achieved at various volumes, cost-effectiveness remains a significant hurdle. He presented the work by the JRC concerning European microalgae production but noted that assessing the revenue generated in this sector is a complex task.

The presentation underscored the potential for creating value throughout the microalgae value chain in Europe, emphasising the need for skilled professionals to maintain the positive image of the algae sector. Jean-Paul Cadoret also detailed the rich array of high-value compounds found in

microalgae, such as proteins, phycobiliproteins, carotenoids, phenolic compounds, flavonoids, vitamins, minerals, polysaccharides, and Omegas 3-6 EPA and DHA.

Moreover, Jean-Paul Cadoret highlighted a paradox within the microalgae industry – while some microalgae products can't be produced in Europe, they can be imported from other countries. He stressed the need for support and further development, particularly in the food and novel food sectors, to bridge this gap.

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## 9. European algae industry on the move

**Olavur Gregersen**, representing *Ocean Rainforest*, shared insights into the fantasy and reality of scaling up seaweed cultivation from their company's perspective. Based in the Faroe Islands, their ambitious goal is to produce 10,000 tons of wet weight seaweed by 2028. The success of the seaweed market will depend on factors like supply reliability and cost-effectiveness compared to existing products. Only 0.004% of the potential seaweed cultivation space in the world is currently being utilised, indicating substantial room for growth. Key barriers include governance, requiring spatial planning to prevent conflicts, and alignment of legislation across member states. Market access also needs standards suitable for algae products.

A quote:

*“We believe that there is a need for seaweed cultivation, and we hope that we will accommodate that demand.”*



**Agnese Stunda-Zujeva**, of *Spirulina Nord*, introduced the concept of delicious spirulina production and highlighted the successful implementation of a "plug and play" solution.

A quote:

*“Please share with your friend, that delicious spirulina is now available”*

**Stefan Kraan**, from *The Seaweed Company*, emphasised the need to transform our food system due to the adverse impact of current agricultural practices on the environment, particularly the meat sector. He presented the sustainable potential of seaweed as a food ingredient and discussed their efforts to alleviate issues within the agri-food chain, with two concepts: less meat by replacing 25% of beef in meat products with edible seaweed and less chemicals by replacing 25% of synthetic inputs with seaweed biostimulants. However, he stressed the existing bottleneck in Europe concerning a reliable, sustainable, and cost-competitive supply of seaweed.





**Pierre Paslier** introduced Notpla, a company focused on developing seaweed-based packaging as an alternative to plastic. Notpla's innovative approach, including edible packaging and coatings for food service, received recognition through their Earth Shot Prize win this year.

*“It is the beginning of using seaweed as a key component for packaging“*

**Jörg Ullmann**, *Managing Director; Scientific Project Manager at Algenfarm Klötze GmbH & Co. KG (Algae Farm Klötze)* outlined the operation of photobioreactors, fermenters, and open ponds to meet the diverse demands of the industry. He highlighted the extensive range of applications for chlorella, from dietary supplements to textiles. The need for collaboration among microalgae producers to meet market demands was emphasised, and the introduction of filamentous natural algae for textile production was presented. He created in 2017 the 1<sup>st</sup> “World Algae Day”, now every year on the 12<sup>th</sup> of October.



*“Education is key, on the customer level.”*



**Alexandra Mosch**, from Naturcosmo, presented her work in turning algae innovation into scalable business solutions, particularly in the food industry, focusing on functional ingredients. Additionally, Alexandra's involvement in the textile industry through Algaeing, with a clean textile innovation company, was highlighted, driven by the potential of algae.

**Boris Brüllmann**, representing Alganex, emphasised the significant impact that achieving 15% protein production from algae by 2050 could have on freshwater, land use, and CO2 emissions. He addressed the need to overcome mistrust between major stakeholders in the algae industry and streamline transactions through trust-building and industry standards.





**Lisa Boulton**, from Nestle Purina PetCare, Global Seaweed Coalition Strategic Advisory Council member, discussed the company's support for nature-based solutions, particularly seaweed bio-stimulants. She highlighted their pilot initiatives aimed at gaining confidence in seaweed biofertilizers and their ongoing consortium-based study to understand the benefits in terms of plant performance, reduced synthetic fertiliser use, and improved soil quality.

*“How do we move from the trials and the theory to the scale? It's very much of a multistakeholder approach, it has to be a combined effort.”*

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**Jean-Pierre Renaud**, representing Azollae, shared their mission of restoring ocean ecosystems through regenerative seaweed value chains. Their focus areas included shellfish farming, offshore wind turbines, dedicated farms, and seabed restoration, with an initial emphasis on replacing ammonitrate fertilisers and biostimulants for agriculture. Projects in South-East Asia and Brittany, France, were highlighted.



**Cecile Bury**, from Neptune Elements, discussed their mission to democratise seaweed use in food and contribute to the growth of the industry. They grow seaweed in Brittany, assist other companies in integrating seaweed into formulations, and offer consumer products under the Neptune Elements brand.

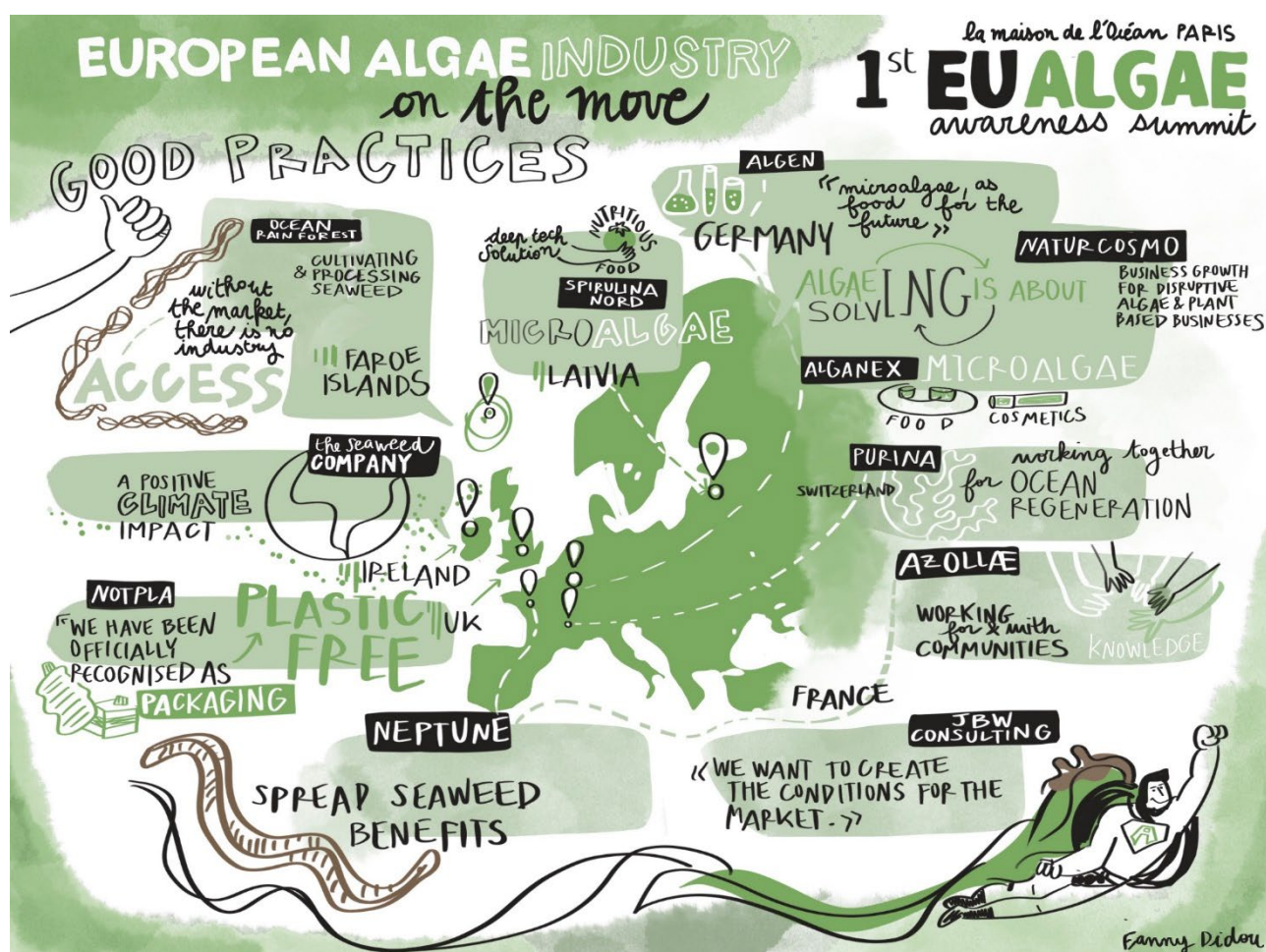
*“France has a unique opportunity to be a leading country for the development of algae in Europe.”*

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Jean-Baptiste Wallaert introduced "Place des Algues," a marketplace connecting buyers and sellers primarily in the B2B segment. He emphasised the challenges faced by sellers in sharing their production online, highlighting the need for financial resources and time to create a successful marketplace. Presentations from Cluster des Algues underscored the importance of aligning seaweed products with market requirements and the need for collaboration in utilising maritime spaces effectively.

A quote:

*“The players are there, let’s aggregate them, the maritime space is there let’s use it”*



Drawing 9. EU algae industry on the move

### VIP Lunch

After the plenary sessions, a lunch was held in the Salle du Conseil with decision-makers and organisations. The lunch provided an opportunity for guests to discuss the future of the seaweed industry, while tasting algae delicacies created by Chef Yukié Uno.

Kestutis Sadauskas shortly addressed the participants and drew parallels between the breakfast with industry and science representatives to emphasise the vital role they play in propelling advancements in the algae sector.

Additionally, the lunch allowed the Global Seaweed Coalition to emphasise the need for high-quality data, consistently measured across countries.

## 10. Collaborating effectively

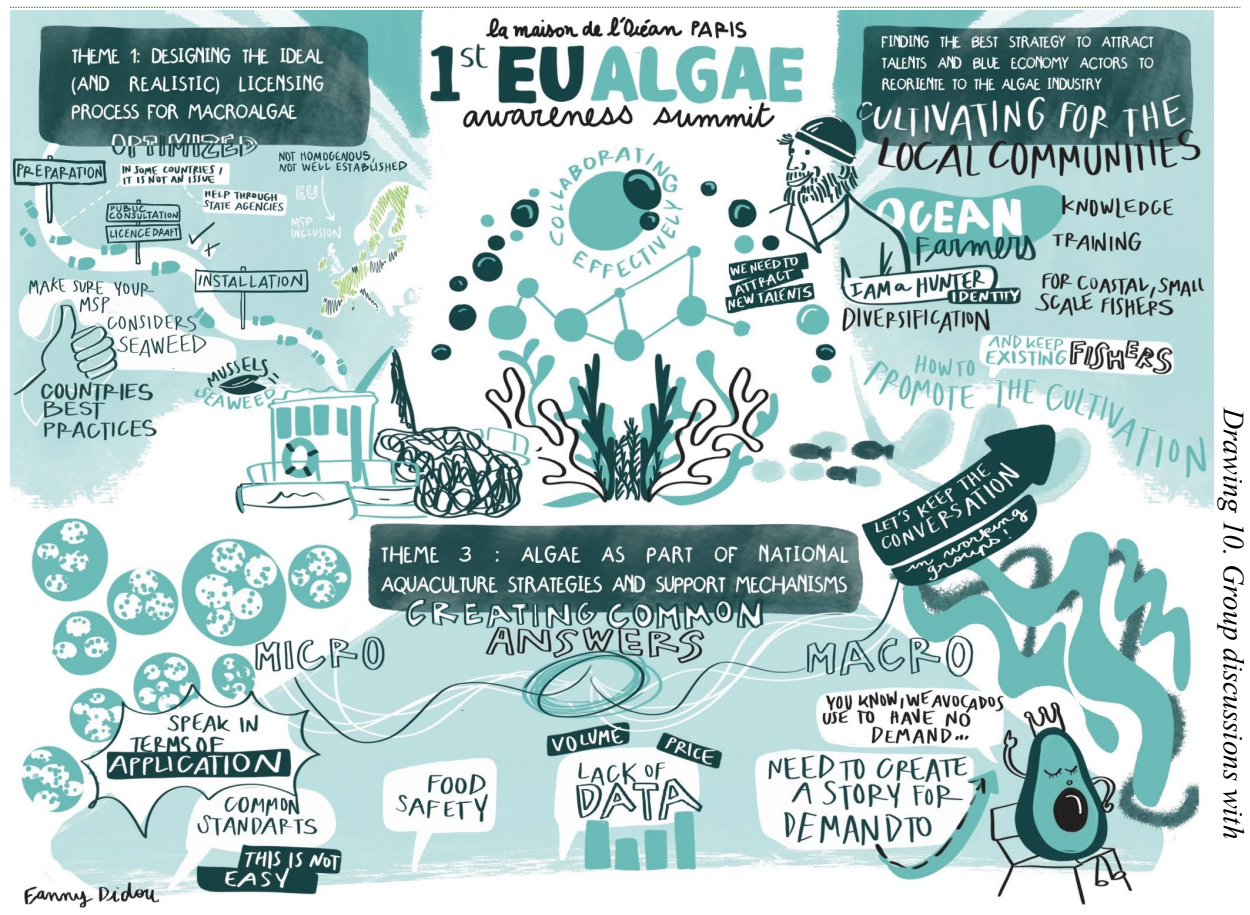
Representatives from 12 Member States engaged in participatory group discussions that were organised around 3 following topics:

Theme 1: Designing the ideal (and realistic) licensing process for macroalgae

Theme 2: Finding the best strategy to attract talents and blue economy actors to re-orientate to the algae industry

Theme 3: Algae as part of national aquaculture strategies and support mechanisms

The Commission and group chairs will follow-up at a later stage on the results of the group discussions with the EU national aquaculture authorities



## 11. Collaborating with business support organisations to fast-track implementation of the EU Algae Initiative

The results from the Slido poll clearly showed the top three policy actions as 1) Long-term financial support; 2) Regulatory reform and 3) Public awareness. These three actions were discussed in three groups of industry stakeholders. The task was to discuss these actions and agree on a succinct, concrete “slogan” or acronym to convey the action for policymakers. The first group agreed that all algae stakeholders would benefit from long-term financial support, but it must be implemented in a fair, holistic way that incentivises sustainability and concurrent benefits such as ecosystem services. The second group agreed that regulation is a complex issue, and that novel food and standardised EU contaminant levels are a good focus for reform. The third group agreed that algae must enter the public discourse in the form of mainstream advertising, and the narrative



should be moved on from media hype to tangible demonstrations and opportunities for both businesses and citizens. A public awareness campaign celebrating the diversity of regional European cultures and commonalities in the context of global maritime solidarity could be easily implemented through an EU project. Participants agreed that there should be a call or tender for this purpose, to be executed by a professional advertising company. In summary, financial support should be discussed by policymakers in the wider context of European fiscal policy; EFSA must be engaged to focus on creating an enabling regulatory environment for algae; and a public awareness campaign should be implemented through an EU project call under Mission Ocean.

### Day 3: Saturday, 7th October 2023

On the 3<sup>rd</sup> day of the Summit, the Maison de l'Océan hosted over 500 visitors. Renowned persons, including Romain Troublé, Brune Poirson, and Vincent Doumeizel, delivered inspirational speeches. They were followed by French chefs Julie Desnoullez and Armand Lasseur who talked about how they work with algae and include them in the kitchen from a European taste perspective.

The Saturday also included workshops and activities, offering educational sessions organised by Station Biologique de Roscoff and Merci les Algues and a quiz from EU4Algae.

- **Romain Troublé**

Romain Troublé, Director General of Tara Ocean, an ocean-going schooner with a rich 20-year history, covering over 580,000 kilometres and visiting 75 countries. Tara Ocean is the first foundation in France recognized for its public utility role, dedicated to ocean exploration and awareness. Tara's missions include exploring, understanding, and anticipating climate and environmental challenges. He emphasised the importance of water and micro-algae in our ecosystems, highlighting their fragile balance. Tara's initiatives aim to inspire awareness and action, involving political figures and educating children. Their programs focus on climate, biodiversity, and pollution, including plastic litter research. Tara's significant contributions involve the discovery of thousands of new micro-algae species, underscoring their vital role in ecosystems.



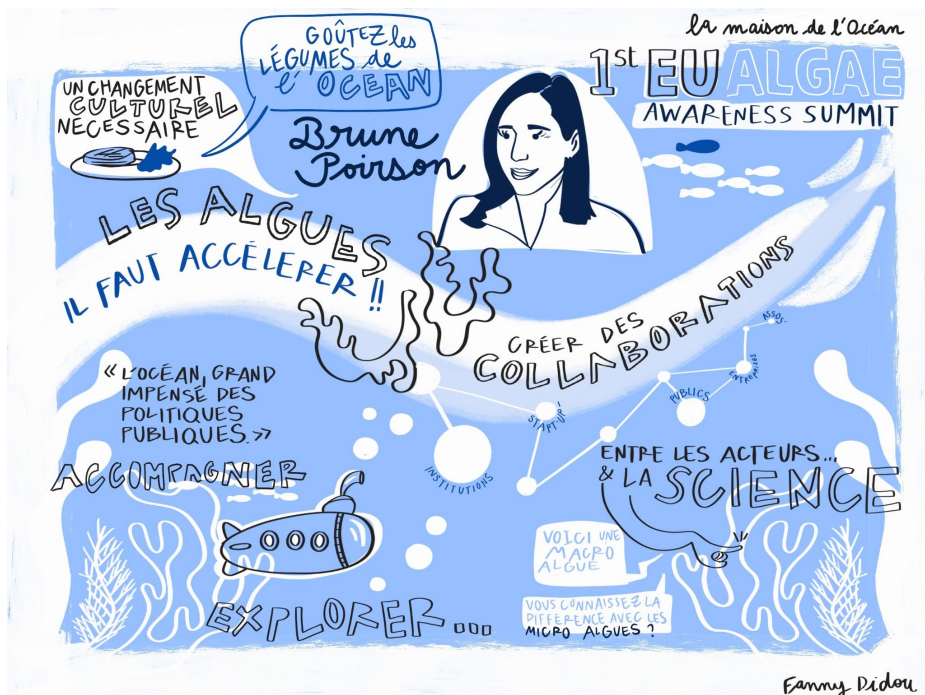
Drawing 11. Presentation of Romain Troublé

- **Brune Poirson**

Brune Poirson, CSO at Accor, member of the board of the Museum d'Histoire Naturelle, was interviewed by Adrien Vincent. Ms Poirson addressed the importance of algae and ocean-related issues. She shared her personal connection to the ocean through plastic pollution awareness in India and emphasised the need for policymakers to prioritise ocean concerns. Ms Poirson noted a growing global trend in addressing these issues and advocated for international collaboration. She discussed the role of large organisations like Accor in promoting sustainable and healthy food choices. Ms Poirson highlighted the need for cultural changes and long-term contracts to encourage innovation in the culinary sector. She encouraged reliance on science for identifying and adopting innovative solutions, including the use of algae for packaging and other applications. Poirson called for greater representation and usage of algae-based products, aiming to raise awareness about their potential as everyday items.



“I would like more and more representatives to consume algae and use algae-based products because we need to increase awareness regarding the fact that it can be part of our daily consumption.”



Drawing N°12. Interview with Brune Poirson

- **Vincent Doumeizel**

Vincent Doumeizel opened with a compelling narrative, inviting young Zara and Maroine to share their enthusiasm for algae. He emphasised the role of the Global Seaweed Coalition (GSC) in inspiring new generations. He drew from his own career, which began in Africa, highlighting his interest for addressing global challenges such as hunger, dwindling arable land, climate crises, social issues, and environmental concerns.



Vincent Doumeizel stressed the need to transition from the "stone age" and embrace the vast potential of ocean-based solutions such as seaweed, which he referred to as the "Seaweed Revolution." That understanding the ocean's crucial role in global ecological cycles is paramount for addressing the crises mentioned.

He shed light on Asia's successful seaweed revolution, which produced 36 million tonnes of seaweed, a production comparable to Europe's entire cereal sector. Vincent urged Europe to embark on a similar journey.

The importance of research, regenerative ocean culture, and the reparative role of algae in ocean restoration were discussed. Additionally, the diversity of algae types and their numerous applications were emphasised, including their nutritional value for humans and animals. Among the examples he highlighted the potential of algae to mitigate methane emissions, capture nitrogen, and replace plastic and textiles.

Also, the real-world examples of seaweed's positive impact on coastal communities, as seen in Zanzibar, were presented. He concluded with a call to create dedicated educational programs, improve regulations, and integrate algae into daily life, championing an intergenerational commitment to support the algae sector.



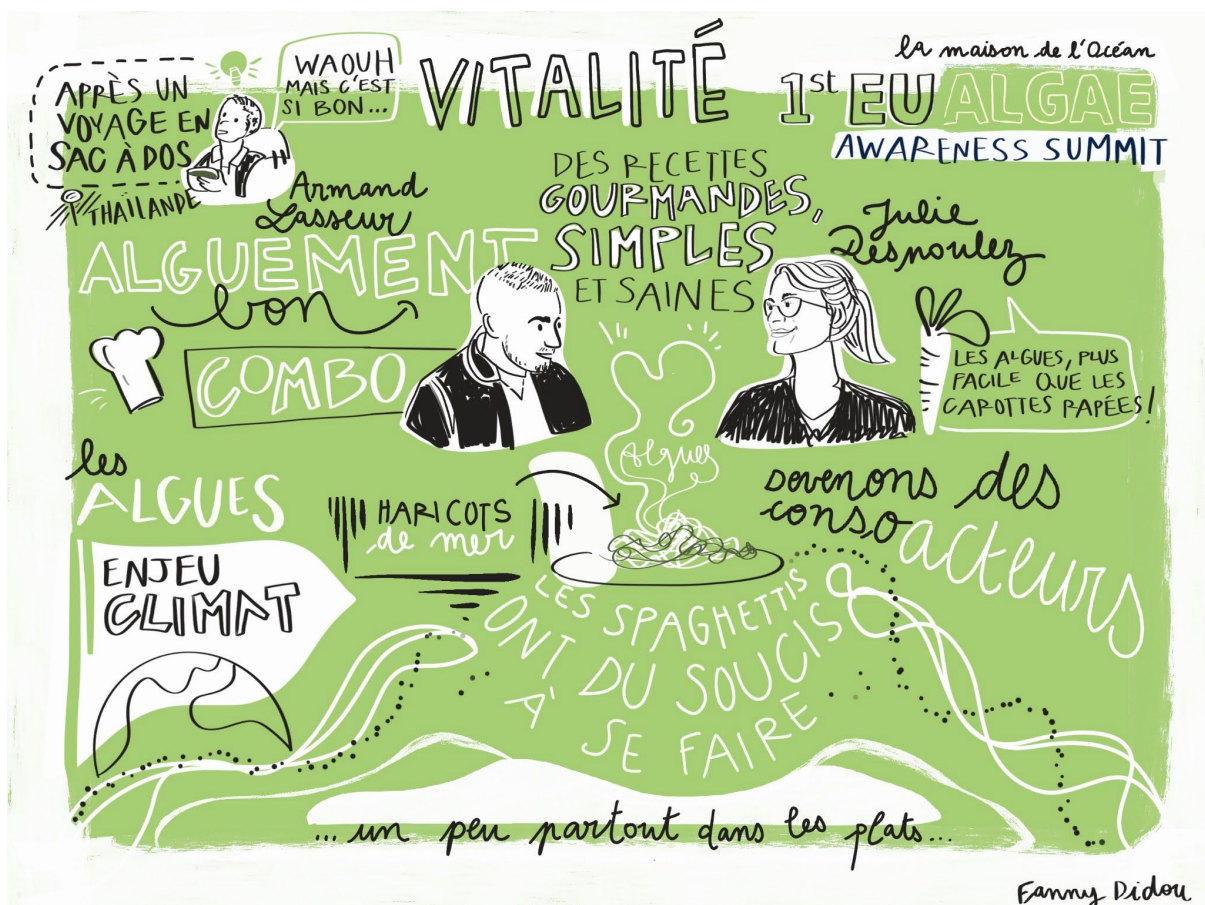
Drawing 13. Presentation of Vincent

- Discussion between chefs - Julie Desnoulez and Armand Lasseur

Julie Desnoulez and Armand Lasseur engaged in a conversation, sharing their experience as French chefs adapting their algae culinary creations to European palates. They aimed to make algae an attractive complement to our plates. They emphasised the importance of easy, gourmet, and vitality-filled recipes that cater to European tastes.

The duo advocated for integrating algae into traditional recipes without drastic changes, emphasising the goal of sharing the joy of discovering algae with customers. They underlined the potential for algae to contribute to environmental conservation and offered diverse culinary approaches, including dried, fermented, and fresh uses.

Julie highlighted the simplicity of algae, akin to using grated carrots, and encouraged listeners to find in the algae variety an algae that resonates with their preferences. They explored algae's applications in patisserie and the joy of experimenting in the kitchen, from appetisers to desserts. Armand emphasized that algae bring more to the table than just a seafood taste, and it's essential to explore it fully. They encouraged trying algae-based products, particularly among children. Julie and Armand concluded by introducing the concept of "umami," the fifth taste, and extended an invitation to listen to people's preferences and ideas for incorporating algae into their diets.



Drawing 14. Discussion of chefs

- **Workshops**

During the open day two organisations, the Station Biologique de Roscoff and Merci les Algues, organised 3 workshops aimed at raising awareness of algae among both young and adult participants. These workshops served the purpose of popularising science and engaging the public in various educational activities centred around macro-algae and microalgae.

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### **Workshop 1: Macro-Algae Workshop**

*Organiser: Station Biologique de Roscoff (Philippe Potin and Dan Potin)*



The first workshop focused on macro-algae, aiming to introduce various species of algae from which phycocolloids are derived. Participants were guided through the properties of algae gels and the transition from a viscous solution to gel beads, particularly in the case of alginates. This transition was demonstrated through a simple, engaging 5-minute experiment. Additionally, the workshop showcased various products that incorporate extracts from these macro-algae, providing attendees with practical insights into the application of algae in everyday products.

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### **Workshop 2: Micro-Algae Workshop**

*Organiser: Station Biologique de Roscoff (Martin Gachenot and Ian Probert)*

The second workshop, facilitated by Martin Gachenot and Ian Probert from the RCC (Roscoff's micro-algae culture collection), offered a unique experience. It featured virtual reality with headsets and a Curiosity microscope from the association "Plankton Planet" for participatory science. In addition to modern technology, the workshop also provided access to a more traditional inverted microscope with an integrated screen, ensuring that participants could explore micro-algae through different lenses. Attendees had the opportunity to examine a variety of cultures of different micro-algae strains, housed in multicolored culture flasks, facilitating the understanding of micro-algae in various contexts.

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### **Workshop 3: Merci les Algues - Discovery Workshop**

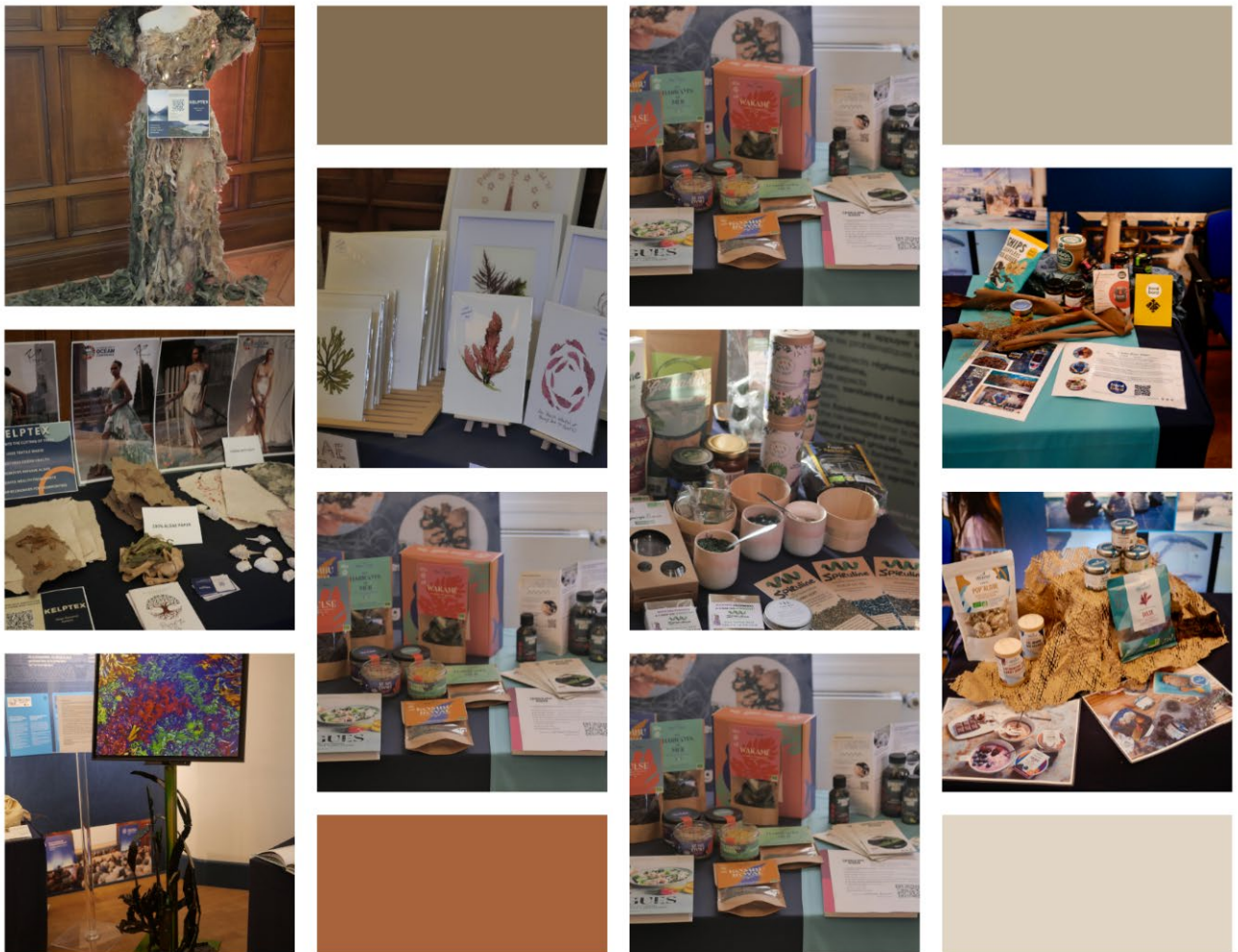
*Organiser: Merci les Algues*

Merci les Algues hosted a discovery workshop on algae, primarily targeting children. This workshop featured a general presentation of the algae's. Additionally, participants engaged in a paper origami activity, a wheel of fortune with questions related to algae and were provided hands-on experience in working with algae-related materials. Fresh products were also presented, linking the science of algae to tangible products for a more holistic understanding.



## IV. Exhibitions

The three-day event included an exhibition area featuring more than 60 algae companies and organisations structured around the following thematic areas: algae for food, feed, cosmetics, bio-packaging, biostimulants, textile/art/design, other applications, enabling technologies, science, coalitions and enabling organizations, farmers and producers. The exhibition demonstrated a great variety of applications algae could provide to various industry sectors. Participants had the opportunity to taste, drink, touch, smell algae products, enjoy different art designs, clothes as well as very innovative products.



## V. Conclusions and way forward

During the course of the three-day summit, significant advancements and enthusiasm in the algae sector were evident, both on a global scale and within the European context. The summit provided a platform to delve into various applications and innovations within the sector. It served as a catalyst for cooperative efforts, revealing the immense potential the algae sector holds for Europe.

This summit can be deemed a resounding success, as it achieved its primary goal of raising awareness. The event garnered substantial visibility on social media and in the press, drawing considerable attention to the sector.

Furthermore, the summit's success extended to its level of participation. During the business-focused days, which were exclusively open to organisations and Member States, over 200 participants were engaged. On the public day, the summit attracted over 500 participants, underscoring its ability to capture attention and engage a broader audience.

One noteworthy aspect of this summit was the exceptional presentations from actors around the world, sharing best practices with EU stakeholders. This collaboration and sharing of insights have set a remarkable example, providing inspiration to the EU algae sector. As we look to the future, the organisation of another summit is under consideration, with the intent of further building upon the groundwork laid during this event. The overarching aim is to continue raising awareness and inspiring Member States, the general public, and fostering even deeper cooperation among algae sector stakeholders.

## Annex 1. Summit co-organizers

The **European Commission** (represented by the Directorate on Blue Economy and Integrated Maritime Policy of the Directorate General for Fisheries and Maritime Affairs (DG MARE)) has recently devoted lots of support to algae sector developments in the European Union (EU). Among other actions, it adopted a dedicated EU Algae Initiative on 15 November 2022 and created a European Algae Stakeholder platform EU4Algae that already comprises more than 890 registered algae sector stakeholders within and outside the EU. Lack of awareness about the benefits and opportunities that algae can bring to national economies and lack of acceptance of algae products in the EU have been recognized among the key bottlenecks preventing algae sector developments. To address these, the European Commission is decided to organising a collaborative 1st EU Algae Awareness Summit to inspire EU national and regional aquaculture authorities in charge of regulations and governance to facilitate allocation of licences and maritime space for algae cultivation.

### **The French Government:**

[insert text]

**The Global Seaweed Coalition (GSC)** is a global partnership established to support the safety and sustainability of the seaweed industry as it scales up, and to unite a fragmented market through a unified vision and goals. The 2020 Seaweed Manifesto, a collaborative effort of the three founding partners – Lloyd’s Register Foundation, the Sustainable Ocean Business Action Platform of United Nations Global Compact (UN Global Compact), and the French National Research Centre (French acronym CNRS) – laid the groundwork to establish the Coalition. Since its formal launch as the Safe Seaweed Coalition on March 17, 2021, membership has grown to over 1200 crossed the 1000 mark in 2023. Members represent the full array of seaweed stakeholders, from smallholder farmers to multinational businesses, specialised research institutes to intergovernmental organisations – all working together to realise the full potential of the seaweed industry and to ensure its safety for consumers, for workers, and for the environment. As organizers, speakers, exhibitors and masters of ceremony, GSC membership provided Summit participants its industry and scientific expertise, showcasing the multifaceted variety of algae-based products, and the great potetial of the seaweed sector.

### **The Oceanographic Institute, Prince Albert I of Monaco Foundation**

Founded in 1906 by Prince Albert I, the Oceanographic Institute is a foundation officially recognised as serving the public interest. It brings together scientific, political, economic and public stakeholders to promote the sustainable use of the Ocean and the conservation of marine ecosystems. As a vehicle for numerous projects on the national and international scene (symposia, exhibitions, educational programmes, etc.), it pursues its mission of environmental outreach using its two sites, the Oceanographic Museum of Monaco and the Maison de l’Océan in Paris. It implements this mission highlighting the exceptional heritage of Prince Albert I and the exemplary commitment of HSH Prince Albert II of Monaco to “Promote knowledge, love and protection of the Ocean”.



## Annex 2. Acknowledgements

The event co-organizers would like to express our profound appreciation to all participants, distinguished speakers, delegates from EU Member States, organising teams and the subcontractors as well as volunteers for their pivotal contributions to the 1st EU Algae Awareness Summit. Your active engagement, insightful contributions, and unwavering support were integral in the successful execution of this event. We anticipate and welcome your sustained involvement in our future initiatives. We extend our heartfelt gratitude to the Global Seaweed Coalition and European Algae Biomass Association for their invaluable contributions to organizing the event and specifically - in mobilizing speakers and exhibitors to the summit.

Also especial thanks to the voluntary photographers and artists Mariejo SKRZYNIARZ and Bertrand Veillith and Seaweed Ambassadors of the Global Seaweed Coalition.



And also big thanks to all the industry and organizations representatives who contributed to the Summit with specific products or knowledge, namely, [ADASMAE](#), [Algaia](#), [Algama](#), [Algolesko](#), [Algosource](#), [Atelier LUMA](#), [B'Zeos](#), [Bettafish](#), [Biome Algae](#), [Biorea](#), [Bord à Bord](#), [C-Weed](#), [CEA \(H2020 Project Nenu2phar\)](#), [Centrale Paris](#), [CEVA](#), [CNC](#), [CNPMEM](#), [Corbion](#), [CSAVM](#), [Cluster Algue de Bretagne](#), [EU4Algae](#), [Eranova](#), [Farrage WestCork](#), [Fermentalg](#), [Fermentation experts](#), [Fitoplancton Marino](#), [Flexsea](#), [France Haliotis](#), [Nuri](#), [Help Ken](#), [Algues Bio](#), [HQ Seaweed](#), [Inalve](#), [Lofoten Seaweed](#), [Maari](#), [Marinoe](#), [Merci les algues](#), [Microphyt](#), [Mojo Design Studios - Runa Ray](#), [Neptune Elements](#), [Notpla](#), [NUOO](#), [Olala!](#), [Ocean Rainforest](#), [CNRS Station Biologique de Roscoff \(SBR\)](#), [SELT Marine Group](#), [Spirulina Nord](#), [Studio Samuel Tomatis](#), [Submariner Network](#), [The Seaweed Company](#), [Wavy Wonders](#), [Yanne Wellness](#), [Zalg](#), [Polaris](#), [Spiru'Marine](#), [North Sea Farmers](#), [FSF](#), [EABA](#), [Armand Lasseur](#), [COMBO](#) [Alguement bon !](#)