



**Aquatic food products and new marine value chains –
reinforcing EU Research and Innovation policy for food & nutrition security.**

SUMMARY REPORT

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14:30 - 17:50 – The SQUARE, Brussels



A report summarising the "Aquatic food products and new marine value chains" participatory workshop, organised by the Marine Resources Unit of the Directorate General for Research and Innovation of the European Commission and held just prior to the Commission High-Level Event "FOOD 2030: Research & Innovation for Tomorrow's Nutrition & Food Systems".

The European Commission High-Level Event 'FOOD 2030: Research & Innovation for Tomorrow's Nutrition & Food Systems' sought to explore what is needed to transform and future-proof our food systems to be sustainable, resilient, competitive, diverse, responsible and performant in their provision of accessible, healthy and sustainable food and diets for all. Specifically, it sought to address how research and innovation systems can be scaled-up to better contribute to the Food and Nutrition Security priorities i) Nutrition for sustainable and healthy diets; ii) Climate smart and environmentally sustainable food systems; iii) Circularity and resource efficiency of food systems and iv) Innovation and empowerment of communities.

As part of the event, four parallel participatory workshops were organised. This report summarises one of these **“Aquatic food products and new marine value chains”**, organised by the Marine Resources Unit of the Directorate General for Research and Innovation of the European Commission, with the objective to reinforce EU research and innovation policy for food and nutrition security from three thematic areas of aquaculture and fisheries: Underused fish biomass, new algae value chains for food and consumer acceptability of aquaculture products.

The participatory workshop brought together 30 key stakeholders, representing diverse upstream and downstream interest in these high-potential marine value chains and in communicating aquaculture as a high-potential contributor to European consumer health and food security. Guided by initial expert presentations, stakeholders identified the key challenges, barriers, research and innovation needs and short/medium term actions to help expand the sectors.

The initial presentations provided core messages for consideration:

- Many wild capture seafood value chains are characterised by low utilization factors and high proportion of waste. Only 21% of some EU finfish catches currently end up as human consumption - so how can we make better use of the biomass that is wasted?
- (Micro) algal composition and nutritional value is at least as good as – and in some cases better than soya. So why aren't we using it?
- As Jacques-Yves Cousteau famously quoted “We must plant the sea and herd its animals ... using the sea as farmers instead of hunters. That is what civilization is all about — farming replacing hunting”. Aquaculture is the most feed-efficient food production sector and can also contribute to ocean conservation. Should we therefore communicate aquaculture as farming?

The three thematic areas discussed in the workshop are different and thus have varying challenges, barriers and needs. In better using fish biomass, we must understand the markets for new food products from fish 'waste' and address regulatory constraints that potentially hinder increased utilisation. New and improved technology, along with changes in consumer behaviour will also lead to increased utilisation and reduction in waste.

Microalgae biomass has enormous potential in both food and non-food products. But we must understand better how to produce it at large scale and how to better embrace biorefinery concepts in its conversion to food products. While direct consumption of algal products is entrenched in Asian tradition and culture, this is not yet the case in Europe.

Consumer awareness and perception of aquaculture is variable across Europe and between different demographic groups. It is therefore important to have more knowledge on the common issues, but also on those that differ between groups or countries, so that the approaches and communication tools can be adapted to the 'audience'.

Key challenges and non-technical barriers

	Underused Fish Biomass	Microalgae Value chains	Aquaculture Awareness
Production	Proper handling of 'low value' materials.	What to grow? Complex genomes and confused taxonomy.	Addressing aquaculture within core curriculum subjects.
	Wastage of biomass in all links of the value chain.	Spatial planning and clear regulatory framework lacking.	Educators lack knowledge of aquaculture production and need tools to present it.
Process	Fragmentation/lack of connection between catch and processing.	Processing 'know how' is new.	Clear provision to consumers of farmed status and geographical origin.
	Consistent supply (volume and seasonality).	Value chain integration & Investor confidence.	Complementarity between European, national and regional promotional actions
Market	Market access, new markets (food and non-food), economic applicability.	New food applications and products needed.	Assurance or confusion created by labels and quality marks.
	Category 2 materials (inc. digestive tract) cannot be used for human consumption.	Aquaculture feed market is established, but algal supply is not.	Promote the nutritional value of algae.
	CFP Landing obligation not allowing fish below conservation reference size to be used for human consumption.	Novel Foods regulation EU 2015/2283 with potential generic authorisations.	
Consumers	Lack of knowledge and/or low perception of fish by-products in our food	Tradition and culture-related behaviour towards direct consumption of algae	Consumers do not always know if seafood is sourced from aquaculture or capture
	Lack of knowledge about regulations regarding antibiotics and contaminants	Lack of knowledge about regulations regarding environment and natural resources use.	Perceptions based on outdated information or traditional or cultural myths
	Proof of sustainability is lacking: (carbon and water footprints, nature conservation, social implications).	Proof of sustainability is lacking: (carbon and water footprints, nature conservation, social implications).	Promote awareness of the high efficiency of aquaculture when compared with terrestrial farming.

Research and innovation priorities and short/medium term actions.

	Underused Fish Biomass	Microalgae Value chains	Aquaculture Awareness
Production	Identify options and assess applicability.	Upscale and year-round production systems.	Produce simple communication tools.
	Scalability and predictability of extraction.	Low-cost, continuous harvesting.	Showcase systems, including 'local' or 'artisanal' production.
	Regional or seasonal properties of potential products.	Increase growth rate and knowledge of algal metabolism.	
Process	Identify factors that affect quality. Risk management and safety challenges.	Large-scale high volume processing with decreased inputs.	Identify key end-user communicators that are 'trusted sources' for the public
	Measure or characterise product properties.	Use non-fossil solvents and manage process water.	Explore systems that increase predictability of production
	Technologies to improve palatability.	Solve contamination issues.	
Market	Demonstrate quality properties of food made from RRM.		Further refine EU labels for aquaculture production and products.
	Common terminology for RRM/by-products/co-products.		

A key transversal element of the workshop was that of communication – and participants provided numerous suggestions on (new) partners, communication tools and strategies.

Who should we be talking to?

- Health and nutritionist authorities – benefits of aquatic food products.
- Local authorities – need to transform NIMBY into local communities wanting to have the activity in their area.
- Politicians and policy makers – to move aquatic food even higher up the agenda.
- NGOs partnering with us towards sustainability, noting aquaculture role in conservation.
- Public aquariums and science centres – that help to educate young and old.
- Journalists – that are also looking for good-news stories.

What communication tools should we use?

- Champions or ambassadors – to develop food initiatives.
- Audio-visual material that shows the faces of farmers, their jobs and their pride.
- Media kits that provide fact-based information on key consumer issues.
- Storybooks, games and apps that provide new ways to discover and learn.
- Product information (labels and QR) on origin, production and traceability.

How do we bring together existing communications and develop new ones?

- Use and expand the model of a levy on production to pay for market campaigns.
- Provide repositories for communication tools and products; liaise with ocean literacy and ocean conservation EU projects.
- Work with charities (e.g. Aquaculture Without Frontiers) to promote the activity as a tool for poverty alleviation or mitigation of malnutrition.
- Linking aquaculture to farming, but emphasising the diversity of aquaculture (fish, shellfish, algae...) and its importance in history, culture and tradition.

It is also important to understand how perceptions are changing over time. For example, some of the consumer perception studies for aquaculture products and practices published ten or more years ago showed various issues that were 'top of mind'. We need to regularly re-visit these studies so that we can see national or regional evolution in changing perceptions towards aquaculture.

The workshop resulted in several **recommendations** to the Commission, national and regional bodies and sectorial representatives to consider as pathways to develop the potential of underused fish biomass, new algae value chains for food and consumer acceptability of aquaculture products. They include **direct financial support actions** to produce a feasibility study on the best (food) use of underused fish biomass including infrastructure needs, to develop pilot plants as proof of concept for fish and for algae food products at semi-industrial scale and to develop bio-refineries as 'lighthouse' projects to encourage further investment.

They also include **communication actions** to improve dialogue between actors in the food chains, to promote the involvement of industry and scientists in societal debate to raise awareness and promote trust and to ensure industry and societal involvement in research strategies to provide solutions. This may be achieved by better use of existing networks.

Finally, they include **governance actions** - to monitor the impact on availability of marine biomass for human consumption under the Category 2 and CFP landing obligation regulations; to ensure long-term stable regulatory framework that provides a stable operating environment and predictability to facilitate investment in technology and know-how and to ensure that Member States promote aquaculture communication actions that have a clear place in structural funds (EMFF Article 68) and may also include the production, processing and marketing activities along the supply chain.

We have significant opportunities in all three of the workshop themes.

Upscaling our research and innovation systems by investing in large demonstration or smaller regional biorefineries for fish and for algae food products is the key for aquatic food chains to contribute better to the Food and Nutrition Security priorities of Nutrition for sustainable and healthy diets; Climate smart and environmentally sustainable food systems; Circularity and resource efficiency of food systems and Innovation and empowerment of communities.

Upscaling our communication activities in aquaculture and novel marine food value chains will also move us closer to obtaining a 'critical mass' of fact-based information that can be used in societal dialogue and impact acceptability.

Finally, we need to **cement the role of aquaculture and new marine food value chains in society as being required and desired.**

