NOTE - EATiP Feedback to Ocean Mission proposal

The European Aquaculture Research and Innovation Platform (EATiP) responds to the Mission proposal[1] on behalf of the aquaculture sector in Europe. EATiP is a member-driven, industry-led stakeholder forum covering the entire aquaculture value chain. It is key actor in driving aquaculture innovation, knowledge transfer and European competitiveness. EATiP has developed a Vision document with strategic priorities and sector recommendations. See www.eatip.eu.
In spite of strong commitments at EU level, Europe does not match the global trend in aquaculture growth[2] and national aquaculture regulations do not comply with the ambitions set at EU level, envisaging to increase its level of seafood self-sufficiency. These restrictions and lack of harmonisation may seriously limit the possibilities to invest in new solutions.

EATiP comments to the draft proposal

As a multi-actor platform on a European scale, EATiP strongly believes that the current players as well as the emerging stakeholders in the aquaculture sector should play a decisive role in achieving this Mission. Hence, the goals set out in the Mission highly depend on their active engagement and commitment, making them accomplices to the solution. However, referring to aquaculture as a currently unsustainable way of exploiting the sea and water resources is of serious concern and provides an unfair image of the sector to stakeholders and citizens to be involved in the Mission[3]. Aquaculture is dependent on clean and healthy waters. The sector is governed by Member States, ensuring to comply with the Good Environment Status descriptors as set in the Marine Strategy Framework Directive (MSFD), the Water Framework Directive (WFD) and the Strategic Guidelines for the Sustainable Development of EU Aquaculture. These guarantee that European aquaculture offers good quality products, and respects strict environmental sustainability, animal health and consumer protection standards. Thanks to these common efforts, Europe currently is a leader of sustainable aquaculture, pushing it to become the global standard for sustainability.

EATiP recognises the lack of data and knowledge to fully understand the carrying capacities of the ecosystems they operate in. There is also a lack of harmonization and fragmentation among EU countries. These have obstructed an evidence-based governance of the sector, and, due to the use of precautionary principles, has resulted in a stagnation and even a decline of aquaculture production in the European area. Supporting an EU lead on ensuring science based governance of oceans and waters is therefore much encouraged. EATiP proposes to implement simultaneously a benchmarking system, allowing to analyse the results of present governance systems, to exchange experiences and to further optimize. Caused by the lack of a level-playing field, Europe is losing its share on the market of aquatic food products. EATiP therefore believes that Europe should take the global leadership, with appropriate action at UN level, not

[1] "Mission Starfish 2030 – Know, restore and protect our oceans and water" draft version of 6 August 2020
[2] Global aquaculture growth rate of 5.8% in the period 2000-2016. FAO 2018. The State of World Aquaculture and Fisheries
[3] The mandate of EATiP does not include fisheries related issues, and it can therefore not provide comments on how severely fisheries practices might impact the ecosystems

only in protecting the oceans but also in applying a responsible production of aquatic food. In this context, the Mission will also contribute to reaching the objectives of the EU Directive on Maritime Spatial Planning and the Blue Growth Strategy.

Although the European Commission has launched several campaigns to promote sustainable aquaculture, a negative public opinion towards the sector has remained, hindering European countries to reach the set goals for growth. In general, there is very little understanding and appreciation for the full range of ways in which aquaculture is interacting with the environment. EATiP strongly believes in the creation of an ocean literate society, understanding the complexity of the system. As all human activity has a certain impact, it is crucial to promote activities that occur within the carrying capacity of the ecosystems. In order to achieve actual changes, it is equally important to promote a balanced narrative. Only when emotion is based upon rationality, and conservation goes hand in hand with use of resources, it will be possible to promote fact-based understanding and counteract polarization in society.

Aquaculture is victim of the effects of climate change, among others expressed by damage to structures through storms and other severe weather conditions, by the occurrence of new infections, and by lower oxygen levels. A further increase of the temperature may have a severe impact on the global production of aquatic food. At the same time, an increased share of aquaculture products in the global food security has a climate mitigation effect, due to its relatively low carbon footprint.

Contributions of the aquaculture sector to the Mission portfolio

Although the draft proposal recognises several "streams of actions" which are linked with aquaculture, it is specifically pointed out only in the context of low-trophic production. Whereas this branch represents a high potential and is important when it comes to decarbonization, EATiP emphasizes that also "feed-dependent" aquaculture has a role to play in achieving healthy oceans, seas, coastal and inland water. Promoting the use of feed ingredients based on low trophic species and of low-energy production technologies, optimizing the discharge management in processing plants as part of the circular economy, and encouraging new offshore and RAS technologies may all contribute to regenerating the oceans and waters by 2030. It is mainly the consumer behavior, the political decisions and the economic feasibility of the transitions that will decide the rate at which the sector can change.

Filling the knowledge and emotional gap

An improved governance of the aquaculture sector requires more reliable monitoring of seas, oceans and inland water. Existing data, models and services, as offered by the Copernicus Marine Service and EMODnet, are to be used smartly through selecting indicators that are key to sustainably manage sea-based production. Whereas these ocean data sets can be used as a backbone, they need to be supplemented with coastal data provided on a national or local scale, in order to reach a sufficient resolution and reduce the level of uncertainty. Many aquaculture sites are equipped with sensors and other monitoring systems to comply with environmental assessment demands set by national authorities. EATiP supports a data ingestion process that allows collecting privately owned in situ data and redistributing it into the international data portfolios. This would lead to a substantial increase in observation capacity and to the transparency of ocean activities. Feeding those into a digital twin of the oceans and waters will contribute to paving the way for a more fact-based decision making in ocean governance issues.

Innovation is fostered by entrepreneurship, and small businesses are a key source of jobs, business dynamism and innovation. Europe is not yet fully exploiting its entrepreneurial potential, in particular when it comes to maximation of women's intellectual potential, and the lack of support to women innovators/inventors. Openness and access to blue economy stakeholder facilities for education, testing, demonstration or technology transfer purposes is supported as science extension services and as contributor to an increased public awareness and societal involvement. Simultaneously, it can facilitate the process of scaling up promising technologies and methods.

A competent and adaptable workforce is key for a long-term responsible governance of Europe's oceans, seas and waters. Intensified mobility between academia, authorities and industry, and a harmonization of capacity building programmes, adapted to emerging competence needs are vital in this respect. Building the necessary blue human capital requires the ability to attract talented individuals with cutting-edge professional skills in a wide range of biological, technological and social science fields. In addition to specific expertise, they will increasingly need to understand, interact and create at a cross-disciplinary and cross-sectoral level.

Regenerating marine and water ecosystems

In certain cases, cultivation of aquatic species may be recognised as ecosystem services. The activities can lead to positive effects on marine and freshwater habitats. Not only seaweed farms, but also sites producing molluscs and other extractive species may have a restorative effect on ecosystems and should thus be regarded as bio-remediation tools. The Mission may provide an appropriate opportunity for the aquaculture sector to demonstrate how to have a successful, productive site within a marine protected area. Showing aquaculture as an interconnected part of the local environment through educational visits may at the same time stimulate the connection between citizens, the environment and the production of food.

Zero-pollution

The development of technologies for aquaculture recirculation systems (RAS) have led to a maximation if its efficiency, reducing its operation costs and improving water conditions and growth rates. An increasing share of land-based production sites in Europe apply RAS and thereby contribute to substantially reducing the accumulation of persistent compounds in the water.

Decarbonising our ocean, seas and waters

The SAPEA Food from the Ocean report provided evidence that the development of aquaculture, especially at lower trophic levels, is key to obtaining significantly more food and biomass sustainably. The market for human consumption of algal products does not yet provide the basis for new investments in seaweed farming, but new sources such as (fermented) kelp, other macro- and microalga, and single-cell proteins are already increasingly used as raw materials in fish feed. The positive perception of low-trophic species combined with the increased focus on lower "Fish-In-Fish-Out" (FIFO) ratios and CO2 footprints, as well as the demand for healthy, high quality food can make these products competitive in the future. A thriving fish farming sector is expected to still be crucial as end user of algal ingredients in the years to come. At the same time, challenges such as availability, product quality and stability, food safety issues and nutritional effects need to be resolved. In general, EATiP believes that both fish producers and consumers are ready for the change.

When developing incentives to promote increased production of algae, shellfish and invertebrates, standardized indicators need to be developed to measure their value as ecosystem service. Stakeholders need to pull together to agree on indicators, as well on assessment tools and auditing requirements. A strong methodological framework, an international long-term strategy, endorsed by policy makers, and an alignment of funding mechanisms on a European level are likely to be critical in order to reach the specified targets.

Both algae, shellfish and other invertebrates have the potential as decarbonizers in integrated multi-trophic aquaculture (IMTA) systems. Additionally, as they also remove nitrogen and phosphorous from the water masses, they contribute to fighting eutrophication, which is a widely known problem in many coastal areas of high touristic value. Analysis of the assimilation capability of Particulate Organic Matter (POM) by shellfish may provide evidence for direct waste uptake from fish farms. The many steps between the release of fish farm waste and the assimilation of nutrients by low-tropic species, and the low probability to find sites that are optimal for fish, shellfish and seaweed farms at the same time are major bottlenecks when it comes to commercialisation of IMTA at farm scale.

On a broader scope aquaculture can additionally contribute to decreasing its environmental impact:

- By 2025: increase in use of by-products from aquaculture by valorising both processed products and sludge from RAS; increase in use of renewable energy (wind, solar, waves) at sea-based and rural production sites
- By 2030: reduction in the economic feed conversion ratio (FCR), mainly through decreased mortalities in early life stages; use of new production areas – both on-land and in exposed sites – showing less environmental impact; main diseases are hindered through prophylactic measures leading to a further reduction in use of pharmaceutics.

Revamping governance

Regenerating our oceans and waters demands a level playing field for all stakeholders operating in the aquatic environment. In the EATiP Position Paper[4], aquaculture stakeholders have identified the absence of a harmonized regime for the allocation of aquaculture licenses as a serious obstruction to reach a common strategy for sustainable growth in Europe. This calls for an urgent review of existing regulations and a move towards predictable and evidence-based licensing systems in Europe and beyond.

As multi-stakeholder, industry-driven European network, EATiP has been involved in partnering initiatives in South-East Asia and across the North and South Atlantic. These experiences may be taken better advantage of in the stimulation of international collaboration. EATiP offers its engagement with the FAO Secretariat in organizing thematic dialogues on how the aquaculture sector may contribute to the Mission portfolio.

[4] EATiP Position Paper & Recommendations. 2019

EATiP as an active partner in the Mission

The Mission Board is hereby invited to take contact with EATiP[5] for additional details and discussions. EATiP also recommends an active involvement of aquaculture stakeholders in the further preparations and in implementation of the abovementioned areas as stepping stones towards the achievement of the Mission targets.

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