

EATiP uses its multi-stakeholder membership to drive innovation in **European aquaculture**

Wide-ranging collaboration to realise aquaculture's potential

The European Aquaculture Technology and Innovation Platform (EATiP) is one of 39 European Technology Platforms (ETPs), officially recognised by the European Commission as the representative multi-stakeholder platform addressing priorities for research and innovation for a sustainable European aquaculture. David Bassett, General Secretary, offers his thoughts here on the future of the sector and on the issues it faces.

As an organisation dedicated to research and innovation needs within the EU aquaculture sector, the decade-long stagnation in EU farmed seafood production must be deeply frustrating. What, in your opinion, are the top five factors preventing the expansion of the sector and where do the solutions lie? How do you see the future of aquaculture in the EU given its history?

In terms of seeking solutions and innovations to address ongoing industry challenges, I would suggest that the five factors which will facilitate the expansion of the sector will be:

- Social licence and general societal awareness of aquaculture. We still need to promote understanding and awareness of what aquaculture is and where aquatic foods come from, alongside improving transparency, openness of the sector, dialogue between stakeholder groups and the community at large
- The industry continues to cite that allocation of licenses and appropriate aquaculture governance models remain a significant operational barrier. We need more use of evidence-based models as decision making tools for the allocation of the most suitable zones for

aquaculture (within the carrying capacity of the ecosystem, and addressing the animal welfare KPI thresholds) in order to grow and expand.

- Precision farming is set to play a much greater role across our sector, especially through better control and higher efficiency within farming, through data use and intelligent tools for monitoring and operation (with regard to environmental interactions, behaviour etc). This is across the board, for example there is great innovation in observation of interactions and fish behaviour and equally within the spheres of automation, AI, logistics, genetics...
- Maintaining and further researching animal health and welfare needs to sustain the highest standards that are currently operating within European aquaculture.
- The ongoing need for alternative feed ingredients including from sources at a low trophic level that sustain high nutritional values yet are cost-efficient and provide a good food conversion ratio

I also think it important to stress the above should not be read as a "ranking". These five factors are all equally but differently important and require simultaneous



David Bassett, General Secretary, European Aquaculture Technology and Innovation Platform (EATiP)

consideration for the sector to achieve potential.

Looking into the future, the full potential for aquaculture will only be realised with greater collaboration – both between industry,

regulators, academia & research communities and civil society groups, but also between businesses and producers – and this across the value chain. A common understanding and vision needs to be reached and then delivered

The direction of fish farming in Europe is influenced by EATiP

Strategic research for the aquaculture sector

Established in 2007, EATiP includes membership drawn from across the aquaculture industry value chain, alongside universities, research clusters, NGOs, civil society groups and associations and individual associate members. The not-for-profit platform is industry led, privately funded through membership subscriptions, and managed by a small central secretariat. A network of EATiP Mirror Platforms, national or regional multi-stakeholder clusters addressing aquaculture research & innovation needs, help drive forward the actions of the platform in conjunction with an agreed Strategic Research and Innovation Agenda (SRIA) and published recommendations. Communication and dissemination activities are key for EATiP, particularly with regard to participating in EU funded project activities. Including Mirror Platform membership the reach of the EATiP network is in excess of 900 organisations. Further information on EATiP activities and objectives – including the SRIA and services such as the EATiP online thematic forum events and “On the Horizon” project dissemination service is available via www.eatip.eu. If you are interested in supporting the work of EATiP, please contact secretariat@eatip.eu.



through such capacity building measures as to promote a vibrant and attractive sector.

With its ability to produce healthy food with a low carbon footprint and to reduce pressure on wild stocks, aquaculture could make a significant contribution to the EU's Green Deal, as well as to the UN sustainable development goals. How can this view of the potential of aquaculture be reconciled with the fact that the sector is bound up in red tape and competition from other activities that prevent it from expanding?

It is of the greatest encouragement to us to see the high level political and policy support that is now being expressed not only in the Green Deal but also in the Farm2Fork Strategy, EU Organic Communication, EU Missions, Horizon Europe, and EU Algae Strategy among other policies, for both aquatic food production and also for how aquaculture can offer solutions to some of the environmental challenges we face – this is a really positive and affirming development. As with everything, education, knowledge and social acceptance will be key in allowing our sector to fulfil

potential. To do so will require demonstrations of best practice in all production systems, showing aquaculture operating within – or improving and restoring – aquatic ecosystems, carrying capacities and biodiversity, best practice in production and providing sustainable, nutritious, high quality, ethically produced food.

Farmed fish is met with scepticism among certain consumer segments, where it is considered to be of inferior quality compared with wild fish. Some also consider farmed fish to be environmentally harmful and unhealthy to boot because of the use of antibiotics or other chemicals. How accurate is this perception and what will it take to turn it around? Does the level of acceptance of cultivated fish vary from one EU country to another? How can deeply ingrained attitudes be changed for the better?

Education, marketing and promotional campaigns are essential here, all part of growing the social licence of the aquaculture sector. Cultivation of fish has taken place across Europe for centuries. Statistics show the consumption of fish is greatest amongst coastal and Mediterranean member states – perhaps unsurprisingly. However, the principle of farming our food is universally understood – exposure to innovations in aquatic farming systems through good communication and education campaigns, including into diet and food systems, is important.

Misconceptions and inaccurate assumptions about aquaculture production and products continue to be a source of disappointment and frustration to us all. In part, this can be attributed to the relative novelty of large-scale

aquaculture production in Europe coupled with unhelpful, deliberately misleading or sensational press coverage. Combatting such misinformation or “fake news” is important and something an organisation such as EATiP can support in taking and promoting an open, objective, science-based approach.

On the specific question of antibiotics, statistics clearly show an almost negligible use of antibiotics in intensive aquaculture, and regulations in Europe are made according to the precautionary approach, being of the highest standard globally. The EU is currently undergoing a review exercise of antimicrobial use in farming in relation to the AMR debate and this extends to aquaculture too. EATiP is currently working with EC colleagues on this very topic. It is to be hoped that as part of the output from this exercise the strong position of aquaculture with regard to very low levels of antibiotic use will be highlighted and promoted.

More broadly, it is fair to say there is very little understanding and appreciation for the full range of ways in which aquaculture is interacting with the environment – often in a positive way! Again, education into aquatic ecosystems and the creation of an ocean literate society will help. All human activity has a certain impact, it is crucial to promote activities that occur within the carrying capacity of the ecosystems, and to promote a balanced narrative. I am confident that we are beginning to see evidence of this – for example the trend within the NGO community to identify aquaculture as a solution to aquatic environmental problems, coupled with developments such as a Nature Based Solutions and



Consumers need to be educated on the positive interactions between aquaculture and the environment. Pond farms provide a number of ecosystem services including the conservation of biodiversity, flood control, and groundwater retention.

the One Health / systems based approach. This shows a greater maturity in understanding the broader issues at stake when considering aquatic environmental interactions.

The ability to control all the parameters in a RAS system has made it the obvious choice for the production of exotic species that require special conditions, African catfish, tilapia, kingfish, or tropical shrimp, for example. What would it take to get European consumers to eat more African catfish or tilapia, species that are easier to produce than salmon or pike perch?

Consumer habits, purchasing decisions and diet is a complex

subject – and an area where research into diversification and adapting existing consumption patterns is currently being undertaken – including with regard to low trophic and alternative species.

The promotion of increasing the consumption of all aquatic foods as part of a healthy and nutritious diet is important here; explain and educate why consumers should choose fish, shellfish or aquatic plants and the rest will follow. That said, some key messages can always be reinforced, particularly concerning product quality, price / value for money and the high standards of food safety attached to European farmed fish products. Innovation extends to cooking and cuisine too – I am always

struck by the explosion in the availability of global cuisine, particularly in our multi-cultural urban centres, over my lifetime and consumption of species such as catfish and tilapia will increase as part of this trend.

Urban aquaculture is developing in some European cities where fish is grown either alone or as part of a system in which crops are cultivated as well (aquaponics). Raising a source of healthful protein close to the consumer is an attractive idea, but do you see it ever becoming anything more than a niche activity?

As a personal observation, I have always found technical visits

to urban aquaponic sites to be among the most enjoyable and interesting, one has such a strong sense of standing next to real innovation in action when standing on-site.

It is important to remember that aquaponics targets and addresses a specific segment of the market. Yes, it is true to say that there are niche aspects to the products in terms of price and market penetration, but there is much else besides – for example the educational role of aquaponics sites and the focus on the circular economy.

Going forward there is going to be a need for many different food production systems – as we address food security and local food production in Europe.

Aquaponics will have a growing contribution to make here, alongside traditional aquaculture production systems.

Micro and macroalgae are seen by many as wonder-organisms that are a source of food, valuable micronutrients, feed, fertilisers, fuel and in addition have environmentally friendly properties such as their ability to absorb nutrients and sequester carbon. However, algae production in the EU is only a fraction of what it is in other parts of the world. Does EATiP have a role to play in changing this?

We would certainly like to! Europe has a long tradition in harvesting seaweed and we need to build upon this competence to stimulate farming and develop a strong long-term framework for so doing.

The scope of our platform extends across all sectors and production systems – marine and freshwater, finfish and shellfish, flow through farms, cages and RAS – it is certainly in our strategic plan to engage on issues relating to European algae production. Certain priorities have already been identified – once again through the outputs of one of our online EATiP forum events. At present, we are undertaking a number of actions including engagement with the EC on the development of the EU Algae Strategy, being involved in collaborative actions promoting research on the production / processing of algae for food & feed & micronutrients

One key issue is that of economics and the market – i.e. to make algae aquaculture economically viable. This is vital. There is a lot of positive commentary and “noise” surrounding algae aquaculture – and low trophic production in general – but in order for

them to be traction and sustainable growth then economic realities must be addressed.

EATiP’s strategic research and innovation agenda highlights several ways to develop European aquaculture sustainably and responsibly. Now, five years after the second edition was released, how do you assess the response to the agenda? How much has been implemented and what is still outstanding? Is a new edition forecast for 2022 and what are the likely changes?

With five years having passed since the publication of our last SRIA it is certainly an issue that our Board will be considering this year. Practically speaking, the review exercise and consultation process is time and resource heavy, and in order to ensure the degree of legitimacy a Technology Platform SRIA carries this process must engage across all stakeholders engaged in the aquaculture sector.

Our SRIA ensures the buy in and engagement of the platform membership and demonstrates to external organisations the non-partisan, research led nature inherent to any ETP. It makes us more than a simple lobby group – something that is an important strength of the ETP voice. EATiP uses our SRIA to inform on our input to key policies, documents, consultation exercises and communications – for example the EU Strategic Guidelines for a Sustainable Aquaculture to 2030, A Sustainable Blue Economy, the EU Green Deal, Farm to Fork Strategy, Food 2030, Horizon Europe, the European Missions and European Partnerships (in development)... The list goes on!

Using our Mirror Platform Network (MiPs), we received input on the SRIA to issue a set of

further recommendations and priorities in 2019 and we use the SRIA for continuous interaction with EU policy makers and national / regional authorities to promote knowledge based development – including through events such as the EATiP Forum series, projects, MiPs, engagement with the SCAR (Fish) Committee, Aquaculture Advisory Council and in collaboration with associations, other organisations and NGO groups.

The EU contributes to research and development through different programmes (such as Horizon 2020) and funds that encourage collaboration across the EU, between different disciplines, and that foster cooperation between research and the industry. How well has this system functioned over the years and where do you see scope for improvements?

The first thing to say is to congratulate the EU on an enlightened and strategic approach to a competitive and dynamic knowledge based economy; of which the development of European Technology Platforms like EATiP has been part. That said, there is always the scope for continuing development and improvement, particularly given that circumstances and political priorities change.

There needs to be greater aquaculture sector engagement in the design of new research programme priorities, across the value chain. Political decisions – often reflected in the structural fund programmes, need to be considered through a filter of practical realities, economic impact and efficacy of implementation – and also to consider unforeseen knock-on impacts and implications of such political

decisions.

Incentives at European and national MS levels are needed to enable and de-risk potentially disruptive changes and ensure the investment culture that is required. On a similar theme, SMEs require access to low threshold funds for industry-oriented R&D. Improved mechanisms for effective knowledge transfer and successive projects are required to ensure implementation, demonstration and application of research results.

In terms of specific EATiP recommendations: enabling technologies, adapted to sector-specific challenges, have the potential to create high-impact innovations. More specifically, it is believed that digitalisation, gene editing, novel materials and engineering systems are areas that have the capacity to optimise the sector’s efficiency. Tracking programmes will allow for the measurement of the efficacy and efficiency of projects.

One final, but important, issue is a need to avoid duplication or over complication of the research landscape. We are currently going through a process of development of a number of co-funded European Partnerships that will impact on our sector and this should be considered in relation to current and existing research and innovation networks and programmes. Inherent in the European project is a tension between MS control and centralisation, but it is important for there to be alignment of principles and priorities wherever possible, and for this alignment always to be focused on end users – i.e. in the interests of European citizens and civil society.