



European Aquaculture Technology and Innovation Platform

Priorities and Opportunities for Innovation in European Aquaculture

David Bassett
General Secretary - EATiP

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www.eatip.eu



HUNGARIAN PRESIDENCY
COUNCIL OF THE EUROPEAN UNION





Who are we?



Innovation

Technology

Collective Interest

Collaboration

Collective Knowledge

Safe and healthy seafood

Future of Aquaculture

- One of 39 European Technology Platforms
- ETPs identify Strategic Research & Innovation Agendas for given industry sectors.
- Multi Actor, Industry led, entire value chain
- Finfish, Shellfish, Algae
- Marine, FW
- National / **Regional Mirror Platforms**
- SRIA & Recommendations
- Communication, Dissemination, Exploitation
- www.eatip.eu

Opportunities for innovation within the EU Policy* Framework



- Green Deal & “Future Ocean Pact” (the latter tbc)
 - Farm to Fork / Food 2030
 - Common Fisheries (& Aquaculture) Policy
- ***
- COM (2021) 240: Blue Economy
 - COM (2022) 592: EU Algae
 - COM (2021) 236: Strategic Guidelines for a sustainable European Aquaculture to 2030

All of these initiatives support (& promote...):

- **Zero Carbon, low impact & circular aquaculture**
- **Low trophic aquaculture, novel & alternative species**
- In addition to **Offshore, RAS & Organic** production
- Specific thought towards (80%) **Micro & SME** businesses

*non exhaustive...

The EU Aquaculture Research & Innovation Landscape



Framework Programmes, European Partnerships, Joint Programming Initiatives, KICs, SCAR-Fish Committee, EU Missions

Varied innovation actions to support key EU Policy Objectives:

- Environmental, Economic, Climate, Strategic (Food / Energy), Societal (Communities & Citizens)
- Includes International Collaboration (ex-EU).
- Science diplomacy within a wider political vision.
- Focus and funding models vary.
- Aquaculture included in all of them to a certain degree

Within the Strategic Guidelines:

Cross Cutting Objective 4:

“Knowledge & Innovation”

- *Role of (Regional) Innovation Clusters**
- *RDI Dissemination & Synergies*
- *Smart Specialisation Strategies*
- *Investment in innovative solutions (EMFAF & Invest EU)*
- *Skills / Training / Lifelong Learning*

COM (2021) 236: Aquaculture Assistance Mechanism

The screenshot shows the website interface for the EU Aquaculture Assistance Mechanism Knowledge Base. At the top, there is the European Commission logo and a search bar. The main navigation menu includes Home, About, Key Documents, Knowledge base (selected), Country info, Funding, Events, Media, EU Member States area, Users area, FAQ, and Contact. Below the navigation, there is a breadcrumb trail: Home > Knowledge base. The page title is "Knowledge base". A paragraph explains that the knowledge base contains relevant, up-to-date knowledge, best practices, and information on aquaculture-related topics. It also includes a call to action: "Do you want to suggest new content for our Knowledge Base? Download and fill this document and then upload it at User Submission Form." Below this is a search bar with the text "Search in our knowledge base" and a "Search" button. The main content area features eight categories of knowledge base items, each with a representative image and a title: "EU legislation and relevant international instruments", "Guidelines", "Good practices and experiences", "Projects", "Reports", "Scientific papers & publications", and "Learning material". At the bottom, there is a footer with three columns: "EU Aquaculture Assistance Mechanism" (managed by the European Commission), "Contact us" (with links for Contact us and Accessibility), and "About us" (stating that the mechanism supports the implementation of Strategic Guidelines for a more sustainable and competitive EU).

- Industry calls for improved information on research project knowledge outputs.
- Summary resources, fact sheets, all easily accessible to producers.

AAM Knowledge Base helps to address this.

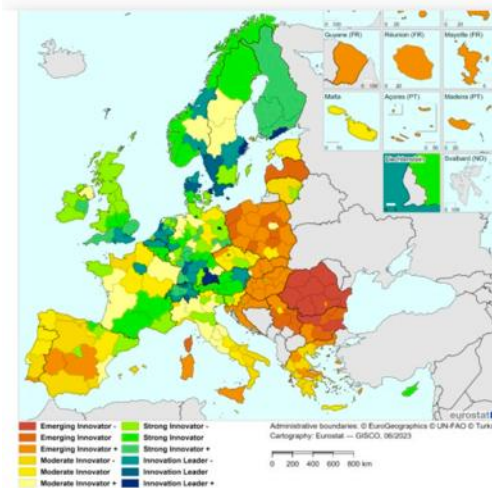
Regulation, Guidelines, Good Practices, Projects, Reports, Papers and Publications, Learning Material.

Please:

- Register for it!
 - Upload information to it...
 - Use it, explore it, criticise it...!
-
- Should be easy to use and interrogable.
 - Project information should be useful
 - Accessible to everyone... ...if it isn't tell us!

Cohesion Policy, Smart Specialisation & Innovation Transfer

- EU Cohesion policy supporting regional innovation transfer, Clusters, CoP, Regional Innovation Valleys...
- Smart Specialisation **now includes the Blue Economy**
- Designed to support bottom up industry innovation transfer (higher TRL levels).
- Focus on region & locality
- Network building & information exchange permitted
- Example of differing motivation for EU funding (379€ Billion 2021 - 2027)



European Regional Development Fund support to research and innovation (2021-2027)

Total EUR 34.9 Billion

- ❑ Less Developed Regions
EUR 20.6 Billion (59.1%)
- ❑ Transition Regions
EUR 8.7 Billion (24.9%)
- ❑ More Developed Regions
EUR 5.6 Billion (16%)

EU regional and urban development

Home | Policy | 2021-2027 | Funding | What's new | In your country | Projects | Information sources

Regional Policy > Policy > Communities and Networks > S3 Community of Practice > Partnership on Circular Smart Aquaculture



NCE AQUATECH CLUSTER

Norwegian Centres of Expertise NCE Aquaculture

aquimer

CLUSTER acuplus

Region Hauts-de-France

Aqua cultur

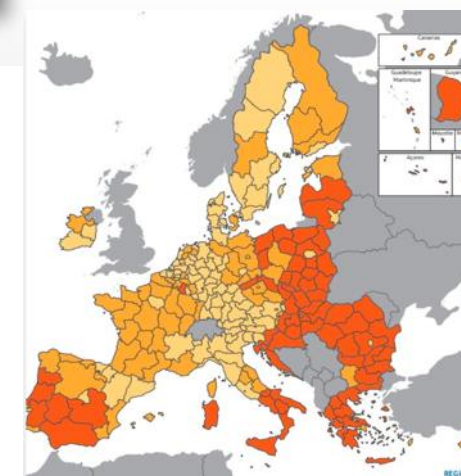
Regional Innovation Scoreboard 2023



Interreg Europe



Co-funded by the European Union



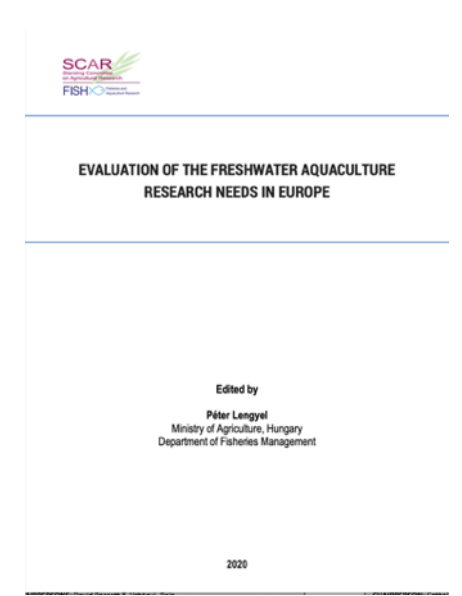
Prioritisation Exercises

Various prioritisation exercises for European aquaculture research needs are undertaken. A word on research:

- Strategic aims for the sector must be acknowledged... alongside the lack of growth.
- Industry concerns & priorities must be considered alongside societal challenges
- Research must be balanced with impact, including dissemination & exploitation by end users.
- A key challenge! (But essential to innovation transfer.)

Sectoral diversity is vast: micro to industrial, variety of species & production systems. Some common themes:

- Sustainable production technologies including sustainable intensification (RAS, IMTA, FIMTA, Aquaponics, Offshore, Extensive)
- Prevention and treatment of disease, bacterial & viral, including through treatment and breeding
- Profitability of production systems including cost analysis of production methodology and environmental indexing



Additional issues including:

- Climate (health, welfare, meteorologic...)
- Novel Species & Feeds
- Water Quality (inputs / environmental balance)
- Genetics & AI
- Value chain innovation – products / packaging / marketing etc.
- Capacity Building in terms of skills, training and career incentivisation.

Examples of Innovation Transfer in Action:

- Field Work, Exchanges, Site Visits, Study Tours, Technology & innovation transfer
- Transnational Research Access
- Blue co-labs, Incubators, Bio-economy clusters

Needs to be encouraged & promoted!

- Blue Forum – future role in developing an Ocean Pact?
- Education: A remote classroom based introducing to aquaculture to school children and families.
- Financial stimulation through BlueInvest programme

Awareness raising and engagement



Financial Stimulation, Competition vs. « Public » Services

Research dissemination tools exist, but reviews and portfolio analysis suggest that...

- ...Fiscal stimulus & incentives (tax breaks, credits, licencing variation) remain the most effective way to ensure industry / citizen take up (c.f. electric vehicles, boilers & heating, lighting...)
- Disruptive innovation, engagement of non-aquaculture industries in aquaculture production (e.g. industrial investment in algae culture for credits / off-setting)?
- What drives / constricts competition in the sector? Commercial rivalry (survival of the fittest...) or collectives & associations (NB – micro producers & artisanal production) ?
- Is there a need to agree certain services are better offered at the public level (e.g. DTO, observation & systems, satellite services, information and big data services)?



Innovation in Circularity of Aquaculture

“...in order to survive we have to ensure value creation for the future...”

- But create value from where?
 - Sales? Exports? Technologies? Equipment? Systems?
- And / or:
- Diversification
 - Valorisation of by-products
 - Added value
 - Circularity, Zero Waste

Beyond aquatic foods:

- Animal & aquatic animal feeds
- Other novel feed ingredients
- Nutraceutical products
- Pharmaceutical products
- Fertiliser

VNF'S PRODUCT PORTFOLIO BY 2025

APPLICATIONS

| | | |
|----------|--------|---------------|
| Pharma | Food | Agriculture |
| Chitosan | Chitin | Thaic Protein |
| Truc Air | Chitin | Protein |

Canned products made from cod liver: Smoked liver and liver paté

Fisk skin transformed to collagen

Fisk skin transformed to leather

Natural fish stock for food processing

Heads and bones dried and exported

Enzymes from intestines used for medical products

Caviar from roe

Cosmetics made from enzymes from inner organs.

Liver oil used for Omega-3 and capsules

Hand- & foot creams with omega 3

Fish skin as medical device

USD 50-60

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HUNATIP HUNGARIAN TECHNOLOGY AND INNOVATION PLATFORM

European Aquaculture Technology and Innovation Platform

Understanding aquaculture within marine spatial planning (MSP) agro-ecology & land use.

Understanding blue/green interactions – more than just aquatic food production:

- Marine multiuse – integration of energy and low trophic aquaculture
- (Significant) implications for (large scale) MSP
- Aquaculture production in terms of enabling agricultural set aside & green deal targets
- Eco-system services of aquaculture (FW ponds, habitat, biodiversity, restoration, NbS)
- Land based, RAS farming / terrestrial water resource implications.
- Aquaponics and urban farming



Understanding diversification within aquaculture and the wider blue economy : Aquaculture & innovative business practice



Benefits of:

- Promoting the benefits and social licence of aquaculture
 - Diversified income
 - Enhance crisis-resilience
 - Cost-minimising production systems
-
- Freshwater & Marine Blue Economy:
 - Food
 - Fisheries
 - Tourism
 - Leisure & hospitality
 - Natural environment
 - Emphasising aquaculture within MSP and land use

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Enormous opportunities for innovation but with a need for strategic prioritisation, from all stakeholders...

Contact: **David Bassett**
General Secretary
david@eatip.eu

