



aquaculture europe

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**Removing production
bottlenecks of
emerging species for
European aquaculture**



**A shellfish extension
network for Europe**



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Towards An Extension Network For European Shellfish: Second Stakeholders' Meeting Of The EU Euroshell Project

*All photos are courtesy of
Anne-Catherine Gillet, AC2G
Communication Gastronomique*

EUROSHELL is identifying current and future challenges facing the shellfish sector and addressing ways to improve the knowledge transfer between science and the industry, by ensuring that science is applied to the research needs of the industry.

Since the first stakeholders' meeting in Arcachon in November 2012, 7 consultation workshops in 5 countries have been organized and more than 200 shellfish producers, researchers and policy makers have provided valuable input on identification of the underlying factors that inhibit effective knowledge management in the sector and the possibilities to develop efficient methodology for knowledge transfer.

The main objective of this event was to present the EUROSHELL products that have been developed and to have participants' expertise and insights on the precise recommendations that will be made to the European Commission on the functioning of a European extension network and the contribution of the shellfish farming sector to European Aquaculture and Innovation Technology Platform (EATIP).



Anna Zito, Aquaculture policy officer at the Directorate-General for Maritime Affairs and Fisheries

More than 60 stakeholders from shellfish production, research and policy administrations came together in Rotterdam, The Netherlands in January to validate the work of the EUROSHELL partners and help develop final recommendations for the Commission and Member States to put in place an extension network for the European shellfish sector.



The event started with Anna Zito, Aquaculture policy officer at the Directorate-General for Maritime Affairs and Fisheries, presenting the importance of shellfish production within EU aquaculture and the main axes of the strategic guidelines for aquaculture within the Common Fisheries Policy reform.

Three roundtable groups then addressed key issues regarding the functioning of the extension network. These were:

- **Issues and needs of the shellfish industry**, moderated by Jean Prou and Aad Smaal
- **Functioning of the extension network** and skills of the extension workers, moderated by Alistair Lane and Richie Flynn
- **Place and role of extension in the national strategic plans for aquaculture**, moderated by Bruno Guillaumie and Courtney Hough



Roundtable 1: Knowledge issues and needs of the shellfish industry

This roundtable aimed at validating the outcomes and modifying items and priorities, in order to develop a European mollusc research agenda. The agenda will be used for the development of a European research program within the EMFF and Horizon 2020 through EATIP and the national platforms.

The knowledge questions have been ordered along the topics environment, market, production and governance. The outcomes of the regional workshops were the basis for the stakeholder discussion. The round table discussions in the stakeholder meeting in Rotterdam have delivered the final list of relevant knowledge questions and the priorities. It is acknowledged that different

regions may have different questions and priorities, and this has been addressed in the discussion as well.

The main questions that were addressed during the stakeholder meeting were:

1. **Knowledge questions:** have the proper items been addressed or are there other issues that need attention?
2. **Research priorities:** What items need to be addressed given the urgency of the problem, the ongoing studies and the knowledge gaps that were identified? How to come to a common European research agenda for the mollusc sector, including regional differences?
3. **Implementation:** How should the research agenda be addressed, given differences in orientation per region and differences in national research policies? What are the possibilities for the national input in the EMFF program development?

In Figure 1 an overview is presented of the knowledge issues that have been prioritized by the shellfish community

The full list of research priorities is presented in the adjacent box:



Roundtable 1

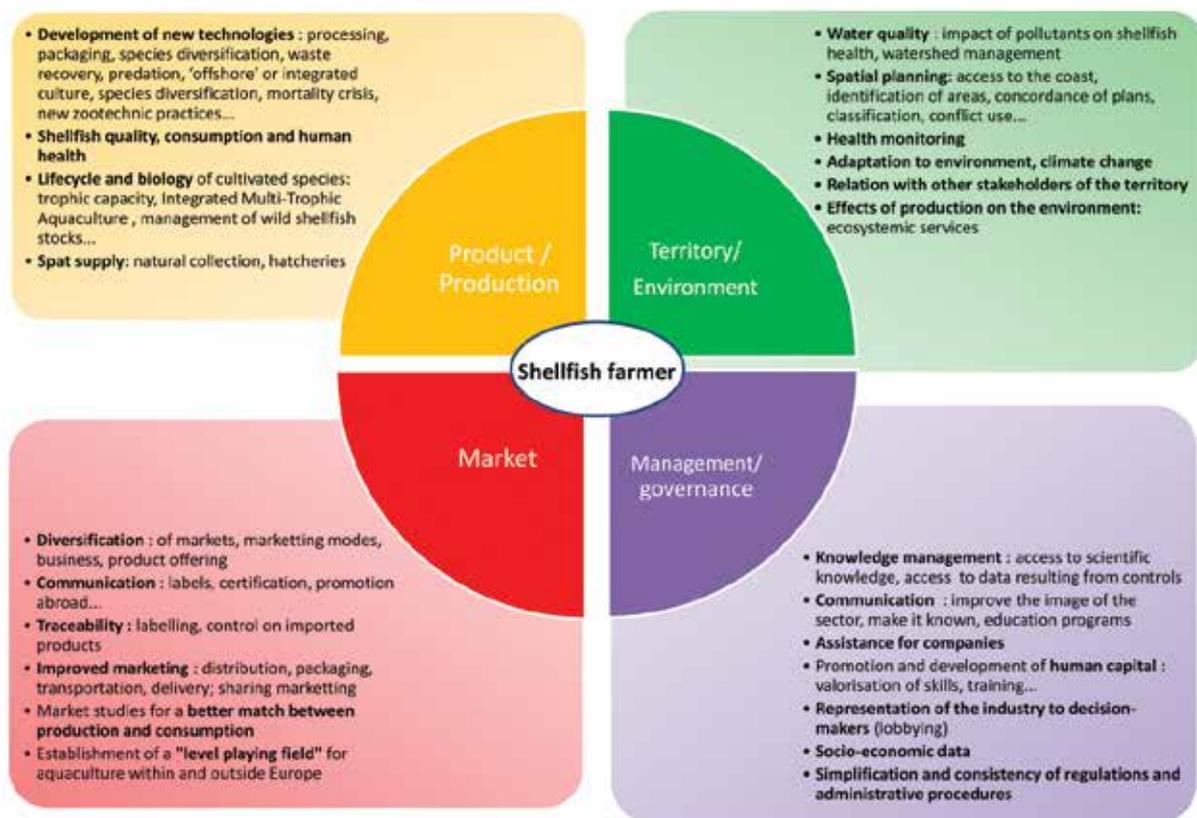


Figure 1. Overview of the most important knowledge questions of the shellfish industry



RESEARCH PRIORITIES

Product – Production

- 🌐 New and existing technologies
 - Develop new technologies for product packaging and processing
 - Diversify products and species (find alternatives to *Crassostrea gigas*), favoring indigenous species
 - Develop offshore production techniques to minimize land use conflicts
 - Understand the causes of the mortality crisis and find solutions
 - Develop new culture practices
 - Find solutions to fight against predators / competitors / invasive species
 - Develop by-products (eg waste shells).
- 🌐 Shellfish quality, consumption and human health
 - Improve shelf life, including during transport, apply supply-chain monitoring
 - Strengthen traceability, labeling of products and control of the quality.
- 🌐 Lifecycle and biology of cultivated species
 - Trophic capacity : conduct studies on shellfish nutrition sources (plankton); competition with invasive species can be a limiting factor for shellfish culture in some areas, and studies on mitigation measures are recommended; EU water quality policy (marine and water framework directives) may lead to low nutrient levels in shellfish culture areas and consequences for food availability need to be addressed
 - Conduct studies on the lifecycle and its variation in different natural production areas
 - Develop life cycle analysis for Integrated Multi-Trophic Aquaculture (IMTA); address the risk of pollution and other negative impacts caused by the other components of IMTA on shellfish
 - Improve management of wild shellfish stocks.
- 🌐 Spat supply
 - Improve the management of natural wild settlement to allow better natural collection
 - Develop hatcheries to diversify supply and improve year-round availability.

Territory-environment

- 🌐 Water management

Water quality is a critical issue. Although it is not new, it is a high priority for the shellfish farmers. In some countries water quality concerns mainly sanitary control, while in other areas harmful blooms and contaminants are issues. If translocation is at stake, water quality issues deal with areas of origin as well as areas of destination.

The workshop addressed the following topics and needs:

 - System to have an early warning of harmful algal blooms, and measures to mitigate impacts
 - Focus research on the impact of pollutants on shellfish' health (e.g. pesticides) and the means to eradicate the sources of pollution
 - Improve watershed management in shellfish culture areas
 - A system to improve the classification from B to A class if data show this to be allowed
 - Bioremediation and phytoremediation for shellfish aquaculture
 - Improve water treatment systems in areas with discharges
 - Special protection for shellfish waters
 - Biosecurity: monitoring and prevention of invasive species
- 🌐 Spatial planning

Spatial planning of aquaculture is highly relevant for the shellfish industry, as space is considered as the main limiting factor for expansion of the industry. The main research issues are:

 - How to deal with shellfish cultivation in protected areas (Natura 2000)
 - Implement measures to protect territories, particularly those where shellfish farming is practiced, while ensuring that these measures do not constitute barriers limiting shellfish farming
 - Identify and classify suitable areas for shellfish farming with appropriate criteria such as access to the coast.

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🌐 Shellfish health

Shellfish health and diseases are major topics, given the vulnerability of shellfish culture for diseases; the main research topics are:

- Develop predictive tools to be able to maximize farming practices and to respond to crises (closures)
- Improve environmental monitoring and information towards professionals, including a better responsiveness of monitoring networks
- Develop techniques allowing companies to adapt to health issues (innovative equipment, closed loops, water treatment techniques, etc.)
- Risk management – biotoxins, disease and microorganisms.

🌐 Relation with other stakeholders

- Analyse constraints arising from other plans

🌐 Climate change

The impacts of climate change for the shellfish include risks of storm damage, invasive species and acidification.

- specific studies are needed to understand the effects of acidification on shell formation

🌐 Ecosystem services

During the Rotterdam workshop more attention was given to ecosystem goods and services of shellfish, as a concept that should be applied to identify the productive aspects of shellfish culture to other stakeholders and interest groups; it is recommended to:

- Conduct research on the goods and services of shellfish aquaculture, and quantify them in order to better address the benefits of shellfish culture in a broader context.

Market

🌐 Diversification

At the stakeholder meeting, there was some confusion about the terminology of diversification as a marketing tool; it was proposed to use the term “new market development”. The workshop came up with the following knowledge topics:

- Diversify markets, develop new markets, including abroad
- Diversify marketing modes, while maintaining a significant proportion of direct sales in order to reduce dependence on supermarkets and hypermarkets that impose low prices and prevent any monopoly
- Explore possibilities for diversification of activities (pescaturism, tasting...)

- Diversify product offerings: new species, new products (including processed products).

🌐 Communication

- Communicate better on the quality of products, improve education and outreach
- Improve promotion on other markets, especially abroad to develop export
- Conduct studies on the carbon footprint of local shellfish products compared to non-EU products and to other products (from aquaculture or others).

🌐 Labelling

- Improve the cost-effectiveness of labelling
- Strengthen the traceability with labels, certifications, PGI (Protected Geographical Indication).

🌐 Marketing

- Improve the distribution, delivery and packaging of products, optimize their transportation, etc. especially considering that it is a living product
- Improve supply chain monitoring (temperature loggers) to check and maintain fresh product quality
- Pool marketing efforts among producers and / or distributors (cooperative)
- Promote local market of fresh products.

🌐 Establishing a “level playing field” within and outside Europe

This is a complex issue. Cultural differences make it difficult to work together even within Europe.

- Improve mechanisms which enable small producers to compete on markets.

Management and governance

🌐 Knowledge management

- Ensure the availability and effective use of research infrastructure in aquaculture across all boundaries to benefit the production
- Disseminate knowledge to different audiences (consumers, school, public ...)
- Support public funding of research
- Encourage applied research
- Improve the accessibility to data resulting from monitoring and control activities
- Create a national information repository (for



example under the Ministry of Public Health) to overcome the fragmentation of data of interest for the sector (product data, environmental data)

- Annual showcase of current research
- Facilitate access of industry to participate in research
- Better coordination between scientists and professionals to pool research efforts.

🌐 Communication

- Improve the image of the sector: dirty banks, ugly infrastructure ... can give a bad image and harm the interests of the sector
- Promote the image of shellfish as a symbol of the territorial identity
- Strengthen communication in general, not only on the benefits of shellfish
- Develop education programs to promote the quality of the product
- Public and scientific communication
- Develop a common communication strategy.

🌐 Assistance for companies

- Develop a financial and administrative support
- Develop a « one-stop shop » to help the establishment of young producers
- Offer training to improve fund raising capabilities and access to European programs
- Grant interest-free loans
- Simplify licensing

- Develop compensation programmes for disease (as in agriculture).

🌐 Representation of the industry to decision-makers (lobbying)

- Develop a clear and common message of the industry
- Increase the empowerment of producers
- Reinforce confidence, cooperation and pooling between producers.

🌐 Promotion and development of human capital

- Develop block-release training
- Develop ad hoc training courses to get shellfish farming qualifications
- Promote the profession of oyster-opener, which gives value to products
- Better train agents of the shellfish sector and strengthen communication among them.

🌐 Socio-economic data

- Conduct more comprehensive and reliable studies on the profession, other than those relating to the production, to better understand the sector: market conditions, economic importance of the sector, sociological knowledge, business needs, economic sustainability of businesses, etc.
- Make this data available to professionals
- Promote the social and territorial implantation of the shellfish sector: it creates jobs and is related to other activities. It cannot be relocated.
- Simplification and consistency of regulations and administrative procedures
- flexibility in governmental policy

Roundtable 2: Structure, functioning and implementation of an extension network

Prior to the event, participants had been sent a briefing document that summarised the outcomes of the consultation workshops held previously during the EUROSHELL initiative. That briefing document provided a series of suggestions and recommendations under the three 'pillars' of an extension network, notably the concept and needs; functioning and implementation and skills of extension workers.

More than 90% of the participants had taken part in one of the consultations workshops, so the objective was the validation and further refinement of the core principles of organisation and operation of an extension network in the European mollusc sector. The focus this time was on the **practical issues** – Who to include? How to communicate most effectively? How to structure? How to use existing networks? ; **the boundaries** – What is the mandate? How to implementing research findings?



Roundtable 2

How to put RTD to work at ground level? And finally **the resources** - development agencies, technical centres, FLAGs and other structures.

“Going from lack of knowledge, trust and information to working together, being more transparent and being better informed...”

The problems

One of the major problems identified is the system by which the careers of scientists are measured – notably their peer-reviewed publications, their administration and their teaching. Researchers are not recognised professionally for transfer and it may also be that in an environment of high competitiveness to access diminishing research funding, universities and public research institutes might actually keep back knowledge from peers and end users to be more competitive in certain fields of expertise.

Education and interest levels are also different in SMEs, especially small family companies that do not have the capacity to access information or implement knowledge in their daily operations.

In terms of actually sourcing and ‘packaging’ research knowledge for transfer there are often limitations on time and resources to do this, and especially concerning translation of the research findings and the assessment of their credibility. This problem may be compounded by the fact that some research has no direct, short term impact and it is not clear in many cases how to actually use the research outputs.

A final summary point raised here is the existence of a north/south divide in Europe that may operate on all the levels mentioned above. An example was provided for shellfish culture in Greece where the sector remains under-developed as it is not considered to be of strategic, political and socio-economic importance and hence resources are not directed towards its development.

In all shellfish producing countries – irrespective of their development status – there is a real need to strengthen connections and bridges between the structures, the tools and the regions.

The solutions

Discussion on the solutions to these problems are summarised here, with 10 consensus-based points arising. These focussed on the needs to:

- Have common needs and priorities for all stakeholders involved in the network.
- Define the mandate and boundaries of the extension network, set the ‘plan’ and deliver it.
- Have an industry and a research ‘champion’.
- Involve industry in RTD right from the inception of the programme(s).
- Provide courses for producers and incentives for participation.

- Focus on demonstration and learning from each other.
- Simplify the admin, procedures...for their participation in RTD.
- Re-assess the rules for transfer within the evaluation of projects and keeping them alive after the funded phase.
- Identify the ‘right’ people that can select, process and re-package the appropriate information for transfer.
- Maintain a contingency ‘fund’ for individual or groups of SMEs to buy specific services for punctual needs.

Best practice

The final part of the round table process identified best practice that could facilitate the success of an extension network. It is obvious that at a national, regional or local level there is not one ideal set up or structure that fits all the needs and structures present at these levels.

The key drivers for the successful implementation of an extension network are trust and facilitation.

These drivers may be enacted through national producer or trade associations and they could focus on the big issues, notably coordination and administration of extension activities. In many cases, it is necessary to broaden the mandate of Producer Organisations (POs), technical centres, or other extension ‘units’ as the link/interface with local groups and funded by regional authorities. These transfer structures need to have a ‘collective memory’ of needs and previous research or other projects and initiatives.

Finally, while these local groups could lead on communicating science and transferring knowledge, they may also need another activity to incentivise participation by SMEs. This could take the form of benchmarking production performance on indicators

developed by the participants; by rotating the regular meetings on participants’ farms and by organising visits to other farms in other regions or in other countries.

Roundtable 3: Place and role of extension in the National Strategic Plans for Aquaculture

The aim of this round-table was to discuss the position of extension actions in the shellfish sector within the context of the reformed Common Fisheries Policy. At the same time the legal context has become clearer: CFP1 and CMO2 regulations have been published and the EMFF3 regulation is in the process of being finalised. EMFF requires Member States to draw up a national multiannual strategic plan for aquaculture. To this end the Commission published guidelines to assist Member States in this exercise. These guidelines pose a certain number of questions and define an editorial plan.



Mr. Bruno Guillaumie



Roundtable 3

Specifically, one of the issues concerns **governance, transfer of knowledge and the relationship between science and profession**. It seems therefore very relevant that the recommendations and results of EUROSHELL are communicated to Member States for recovery in these national strategic plans.

The national strategic plans must also define objectives, results and indicators. The **catalogue of eligible actions** within EMFF will be then written on this basis. It is therefore crucial that the **extension activities and network** are clearly **identified among the results and indicators** of national strategic plans so that the corresponding **actions can be implemented and co-financed** by the EMFF.

Therefore the main questions to be addressed during the stakeholders' meeting are:

Objectives and key questions

Participants were invited to reflect on the best way to highlight the results of EUROSHELL into national strategic plans.

Key questions to address during the round tables:

1. **Who:** Who is responsible for drafting the strategic plans? How to contribute to this wording? What action of lobbying should be conducted?
2. **What:** What is the best way to implement an extension network in the national strategic plan?
3. **When:** What is the timetable for drafting? What is the link with the publication of EMFF? When is the contributory action most relevant?
4. **How:** How to give a contribution that takes best into account EUROSHELL's results and recommendations? How to prepare as soon as possible the setting up of an extension network?

State of the Strategic and Multiannual Plans for Aquaculture

The stakeholders present provided information on the state of the aquaculture plans for their Member State (MS), from which one can conclude that there are large

difference between MS (often dependent on whether there are autonomous Regions) and also in respect of the importance given to aquaculture by Regions/MS. This was one of the biggest issues and, apparently, a cause for delays in several countries.

Reports on excellent progress and high levels of sectorial consultation were rare although several countries appear to be near completion (Denmark, Netherlands, Ireland) of their plans. Spain, Italy and France each reported difficulties in the centralization and consolidation of regional plans, with complications reported on contacts with the production sector (exception of Spain).

Overall, while progress is being made, few MS are near completion and the degree of sectorial consultation is highly variable.

Position of Extension activities in the Plans

From the debates, only France appears to have this aspect clearly in their planning although it was reported by several participants that the Regions find this approach interesting. It appears that the EMFF is probably the best instrument for implementation of extension, although some FLAGs may also integrate this within the scope of their activities.

Position of Producer Organisations

This tool, which is highly encouraged within the COM/EMFF, has a range of instruments to help producers 'sell and market better'. A round-table review was made on the existence of POs, where France and UK appear to have higher levels of adoption than most other MS present. It was

noted that POs might be able to access and organise extension actions due to integration of higher numbers of producers within their scope and, hence, higher levels of production. UK indicated difficulties encountered by newcomers in the sector (vs. established larger companies) for access to European funding measures – could Producer Organisations help here?

Discussion of Extension activities

Spain reported good progress on this – developments coordinated by Government/Research/Sector – has serious plans for an extension network, with clear action lines and timeframe. A general view of how aquaculture can contribute to Blue Growth is clear here, while other MS appear to be less encouraging about aquaculture development.

Other countries reported difficulties in funding opportunities for extension actions – principally due to the requirement for co-funding within EMFF. An example was the Netherlands, where a 50/50 split (with the sector?) on such actions is needed. Greece indicated a need for more research and access to expertise for these activities.



Mariella Eripret

In summary, the round-table conclusions were:

- The sector needs to be more pro-active in promoting itself with the relevant authorities involved in the aquaculture plans; there is very uneven participation across the European MS
 - Even though several representatives indicated that the cost (time/money) was a restriction on participation, getting the sector actively involved is essential
- Improved information sharing (Cross-border/ Regional) is an important aspect – developed within Euroshell and needs to be continued
 - Maintenance of this (with appropriate decisions) – within a clear time-frame – would be of high benefit to the sector
- A common message is needed, for use at the European and National/Regional levels, for the development and implementation of extension programmes
- The elements identified for extension work will be supported both by Euroshell and EATIP, as well as being an issue for the Aquaculture Advisory Council.

The final part of the event included a presentation by Courtney Hough, General Secretary of EATIP, presented the European Aquaculture Technology and Innovation Platform (EATIP) and a plenary discussion, moderated by the General Secretaries of the two European Producer Organisations - Mr. Courtney Hough for the Federation of European Aquaculture Producers (FEAP) and the European Aquaculture Technology and Innovation Platform (EATIP) and Mr. Bruno Guillaumie for the European Mollusc Producers Association (EMPA) on the next steps, coherences and perspectives of Euroshell.

Next steps, coherences & perspectives

The discussion focused on the best way to highlight and bring forward the outcomes and recommendations of EUROSHELL into a coherent way with the different national and European entities. These include the new Advisory Council on Aquaculture, with a clear role for FEAP and EMPA in its plenary and executive committee; the EATIP, with its focus on inclusion of SMEs and its national 'Mirror' Platforms; the further growth in the FLAGs expected through the European Maritime and Fisheries Fund (EMFF) and the first calls of the RTD programme HORIZON 2020, where networking activities and socio-economic research are highlighted.

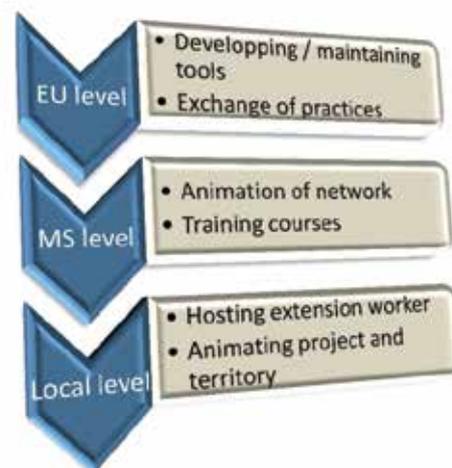
The first part of the discussion focused on the principal responsibilities at each level of the extension network and these are shown in graphic to the right. At the European level the EATIP is very well placed to maintain the tools that EUROSHELL has developed and to provide a forum for exchange of best practices.

The European Aquaculture Society (EAS) could also have a role of coordinating the sourcing of knowledge and the summaries that would continue to populate the EUROSHELL knowledge database. This could also be expanded to contain the complete set of summaries made for the EATIP in the AquaInnova initiative.



Another idea to keep the database up-to-date could be to include in it the public deliverables summaries of shellfish related projects that are conducted within Horizon 2020. This could be suggested to DG RTD and DG MARE.

At the Member State (MS) and local levels, clear solutions and ideas came out from the round table on the structure, functioning and implementation of an extension network – and these are not repeated here. But in terms of the future direction of the EATIP, the clear focus is on the Mirror Platforms in each country that will follow the



The principal responsibilities at each level of the extension network.

Vision and Strategic Research and Innovation Agenda (SRIA) developed by EATIP and ensure that research priorities developed by EATIP members and contributors are enshrined through the input of MS into the Horizon 2020 work programme and (possibly even more importantly) into national research programmes.

A scheme of how the different organisations and associations potentially fit in and around the Aquaculture Advisory Council (AAC) was presented to participants for discussion (see above). This comprises the core of the AAC and its two major initial tasks of mapping the



sector and refining the research database and roadmap. It also shows how organisations at the three operating levels (EU, MS and local) could fit together and how this may be achieved for those organisations involved in research (below left), in the EATIP (below centre) and representing producers (below right), with the arrows showing the communication flows between the various components.

It is anticipated that the AAC will only be made up of associative structures (and not individual companies or institutes) and that 60% of AAC members will be directly involved in the aquaculture value chain and 40% stakeholders that have an activity or interest in its place in society.

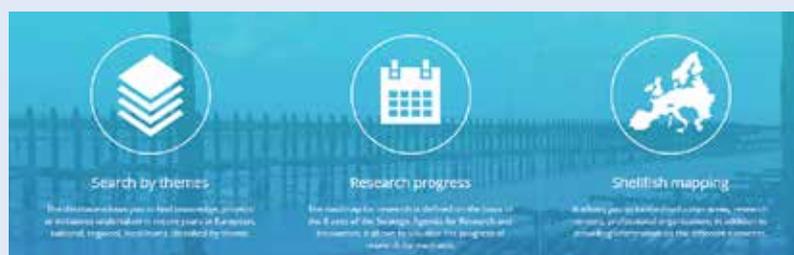
One network that is missing from the scheme is the FLAGS, as they will not be directly involved in the

AAC, even though they may have a critical importance in delivering shellfish extension, as highlighted by the outcomes of the round tables.

It also clearly appeared that the implementation and hosting of extension workers at the local level will be organised at the initiative of the professionals according to their organisation mode: association, syndicate, producers' organisation, FLAG... Synergies must occur at both national and European levels.

Finally, there was clear consensus that the shellfish sector needs a strong network at all operating levels to be able to feed back into research planning and especially to prepare sufficiently for the discussions and decisions that will be adopted by the AAC and proposed to the European Commission.

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