FEDERATION OF EUROPEAN AQUACULTURE PRODUCERS

ANNUAL REPORT | 2016

Contents

About FEAP

FEAP is the united voice of the European aquaculture production industry, being the Federation of National aquaculture associations in Europe that represent professional fish farming.

With 26 members drawn from 22 States across the European continent, the FEAP represents

- **>2.3 million tons of produce**
- **Ex-farm value of over € 8 billion**
- **>100,000 direct jobs in coastal & rural areas**

FEAP supports and promotes the responsible development of aquaculture and provides the common positions and opinions of the European aquaculture sector.

Focused on fish farming, FEAP represents a range of different farmed species that include:

- Trout
- Salmon
- Carp
- Sea bass
- Catfish
- Seabream
- Turbot
- Cod
- Sturgeon
- Meagre

European aquaculture rears many other species, both in fresh and salt water, and details on the levels of production reported can be found in 'Facts & Figures' at ***www.feap.info***. Additional statistical information on aquaculture is provided by National statistics, the FISHSTAT service of the Food and Agricultural Organization of the United Nations (***www.fao.org***) and the European Commission's Directorate General for Maritime Affairs and Fisheries – DG MARE (***ec.europa.eu***), notably through its EUMOFA service.

Founded in 1969, FEAP has responded to the changes and developments in European aquaculture and, in line with society's expectations, provides transparent information on activities and developments in this dynamic sector.

FEAP is run by professionals for professionals, meaning that all of its members are active in European fish farming and are experienced in the main issues concerning aquaculture and its sustainable development.

FEAP's Mission

- Pursue and improve its coordination role of the goals of its National member associations and the aquaculture profession.
- Assure a pro-active position in front of all relevant authorities and interests
- Provide accurate information and sound rationale to policy and decision makers.
- Guarantee the communication of unbiased information on aquaculture processes and products to the consumer.
- Guarantee valid, consensual and timely responses to key issues.
- Develop the structure and operations required for the representation of a dynamic and visible sector at European and worldwide levels.

Introduction
Annual Report 2016

The needs for improving competitiveness and ensuring sustainable activities are paramount for European aquaculture to grow. Innovation in aquaculture, achieved through research and development, is high on the European agenda. The list of topics that require to be addressed is long and a wide range of funding opportunities – at European or National levels - allows projects of merit to be achieved. FEAP's first project involvement was to develop a pan-European database on European fish production – in 1998 - for weekly/monthly updates on production and prices; it was difficult, ahead of its time, but is now mirrored by the EUMOFA platform, operated by DG MARE. Since then, FEAP has been actively involved in many EU actions, usually to provide knowledge about the sector and its operations, while assuring dissemination of results to the professionals. The 2016 Annual Report highlights several innovation projects that will contribute to supporting European aquaculture's development, ranging from selective breeding for desirable traits to forecasting the effects of climate change on aquaculture. The support given to resolving sectoral challenges is essential for establishing the long- term sustainability of the profession.

"To be truly effective, EU policy must be 2 things: easily implemented and easily understood"

Karmenu Vella - European Commissioner for the Environment, Maritime Affairs and Fisheries

Consultation actions in 2015 included fish health issues (DG Health & Food Safety), the Fitness checks on the Birds and Habitats Directives (DG Environment), the priorities for research and innovation for Horizon 2020 programme (DG Research & Innovation). These accompanied the completion of the audits of the Food and Veterinary Office of DG Health & Food Safety on how health issues are managed in European fish farming (report due in 2016). The extent of consultation subjects continues to rise and FEAP is closely involved in the creation of the two new Advisory Councils - on Aquaculture and on Markets - to be completed in early 2016; these will play an active role in providing advice to European bodies (see p 12). The new Director General of DG MARE, João Aguiar Machado, sets the scene on the contributions anticipated while the FEAP President, Arnault Chaperon provides his views on obstacles facing the development of European fish farming.

'Aquaculture in Motion', FEAP's annual event looked at 'Integrating Aquaculture' and focused on the roles of aquaculture in food security, in the seafood market, into the environment and within society (see p12).

European production continues to be stable and many professionals feel that site availability and licensing conditions remain as the major blocks to growth and development, a position complicated by national positions relative to implementation of European legislation. Increasing interest is being given to developing offshore fish farming and integrated multitrophic aquaculture but their implementation remains as exceptions, as demonstrated in a special case review (see p20). We also highlight the work of 2 Member Associations, from Spain and from Finland, while 3 young aquaculturists provide their views on their work, why they entered the profession and their hopes for the future..

The FEAP and its Member Associations are committed to responding to the concerns of the professionals in all aspects of European aquaculture. Its potential contribution to the EU agenda for Blue Growth is clear and the sector anticipates – with the preparation of the national multi-annual plans for development – that national and European authorities will provide the support required for the successful and sustainable development of European aquaculture.

Message from João Aguiar Machado Director General - DG MARE

João Aguiar Machado is Portuguese and studied economics in Lisbon (Portugal) and Bruges (Belgium).

Appointed in 2015, João Aguiar Machado is in charge of implementing the new Common Fisheries Policy and to secure sustainable fisheries and aquaculture, a stable supply of seafood for EU market and prosperous coastal communities.

Within the European Commission, he worked previously on trade matters and international relations, namely as Deputy Director-General for Trade and Deputy Director-General for External Relations. Following this, he became Director-General in the DG for Mobility and Transport.

As the Director-General in charge of Maritime Policy, his mission is also to promote an integrated approach to all maritime policies.

What do you see as the major challenges to the growth of European aquaculture?

We know that administrative burdens represent one of the main barriers to the sustainable growth of European aquaculture. We are now working with Member States' administrations to compare and contrast aspects of the licensing process, looking more closely at regional differences and instances where solutions to these challenges have successfully been put in place. Access to space and water is another major challenge that we are discussing with national and regional administrations. The Maritime Spatial Planning Directive provides a useful framework, and Member States are now exchanging ideas and experiences on this as well. This work and Member States' commitment to their plans, together with over 1.2 billion euro in EMFF funding for aquaculture, our constant investments in research, are our means to address the challenges to aquaculture in the EU, for which we also rely on your continued commitment as world leaders in quality and sustainable fish production.

Do you find the national multi-annual plans for aquaculture an encouragement for developing the Blue Economy?

The multiannual national plans set out the medium-term objectives for the sector in each Member State. They are the logic behind how the 1.2 billion euro available for aquaculture under the EMFF can be spent to achieve Member State's objectives. I find the level of effort and commitment expressed in the plans very encouraging. Every Member State has defined a strategy that is tailor-made to its needs and objectives: many have defined these objectives in terms of sustainably increasing the volume of production, while others plan to invest in greener, modernised facilities with a smaller production footprint and greater environmental services, or focus on further diversifying aquaculture, growing the market for their products, developing new added value products and improving the image of their production. Not only do these plans give us an encouraging overall picture of how each Member State intends to develop this sector of the Blue Economy, but they also show us the strengths and margins for improvement in each Member State. This information will help us to plan for the support we will need to provide beyond 2020, for example in developing specific disease research in support of investments made towards farming new species.

"Our priority this year is to help Member States turn the objectives of the Multiannual Plans into concrete actions."

What are you expecting from the new Advisory Councils on Aquaculture and Markets?

Advisory Councils give stakeholders the opportunity to contribute directly by providing input to EU policy in their respective fields. These new bodies will have the opportunity to address the issues they have identified as being of greatest relevance. For example, in the case of the Aquaculture Advisory Council, I expect that the knowledge and experience of the members of this body will provide a valuable contribution on issues such as criteria for the identification of areas suitable for aquaculture under Maritime Spatial Planning, environmental impact assessment requirements or different approaches to water charging. The Market Advisory Council on the other hand, will be an essential forum covering the common organisation of the markets, marketing issues, and trade policies for fishery and aquaculture products. The Commission needs strong commitments and valuable inputs from the sector through these Advisory Councils as soon as possible to tackle the challenges ahead of us.

What are the Commission's priorities for its work on aquaculture in the coming year?

Our priority this year is to help Member States turn the objectives of the Multiannual Plans into concrete actions. Last year we organised the first of a series of technical meetings with the Member State administrations handling aquaculture issues, to exchange experiences and good practices on administrative simplification, capacity building and spatial planning. This is an ongoing work, which will help Member States to work together to find and implement solutions to the challenges faced by the aquaculture sector. At the same time, we need to consolidate clear communication channels between policy makers and stakeholders.

To this aim, it is essential to have the Advisory Councils up and running as soon as possible. This will establish a channel for balanced input from stakeholders from all sides. The outputs from the Advisory Council will enrich the technical work conducted in the Member State administration, and vice versa.

On top of this, a high level conference we are holding in Brussels on the 24th of May this year will crystallise the collective vision put forward by Member States in their plans and by producers, researchers, innovators and NGOs on how they see the future of the sector. We are also working on a revamped aquaculture website with the objective to provide users with a single entry point to all relevant information.

The Schools component of 'Farmed in the EU' was very interesting. Do you have any plans for follow-up actions?

Our "Farmed in the EU" campaign, started in 2014, has the objective of explaining and promoting the sector to show citizens the human face of the sector, and that farming in the water is as natural and as important as farming pigs or chickens on land. It is clear that aquaculture is not fully understood in terms of its necessity, benefits, value, and quality.

As education is key, we wanted to take that message to schoolchildren, the consumers of tomorrow. The pilot project which included 20 schools from 10 EU Member States ran with great success in 2015, especially thanks to the enthusiasm of the participating FEAP members. This was the basis for designing the school kit to bring aquaculture to the classroom. Our follow-up this year focuses on disseminating this school kit more widely. We have been actively promoting it at the International Green Week in Berlin and the Salon de l'Agriculture in Paris this year.

The next big event for us will be the EAS conference in Edinburgh in September. I take this opportunity to thank you and to encourage your continued support and enthusiasm for this initiative. Your participation is essential to link schools with their local producers. The school kit is available online via our website in all EU languages and we look forward to hearing about your success stories from your local projects!

"We also rely on your continued commitment as world leaders in quality and sustainable fish production."

The views of the President
Arnault Chaperon

Am I satisfied with the position of European aquaculture?

It is now 6 years that I have been the President of the FEAP and, after these two terms in office, the answer is – unfortunately – ***NO !***

I cannot be satisfied by the position of aquaculture in Europe nor by its anticipated development in the coming years.

After completing a presidency, it is generally seen as being good form to say how well we have worked together and cover all the positive progress made by the Federation. However, I will not do this or, at least, I will try to be objective about what has not worked - and does not work - in our profession as to ensure the long-term sustainable development of aquaculture in Europe.

Of course, with the efficient help of the Secretariat and the active members of the FEAP, we have advanced a number of strategic issues:

- We are no longer the poor cousin of fisheries - aquaculture is a strong and visible pillar of the Common Fisheries Policy;
- The European bodies wants to develop aquaculture, urging all Member States to provide a National Multi-Annual Strategic Plan for how they will develop of aquaculture;
- FEAP has been able to defend the interests of European farmers on issues as diverse as health, welfare, the environment, the commercial aspects of sales/marketing, labelling/certification and research and development priorities;
- The image of aquaculture has grown in the minds of decision-makers and consumers and there is even a European initiative "Farmed in EU", accompanied by an information campaign in schools;
- After several difficult years, the market is now buoyant for virtually all farmed species in Europe;
- FEAP has played an active role in the development of the Aquaculture Advisory Council, the future platform for dialogue and advice with NGOs, other stakeholders in the sector and the Commission

But I remain a fish farmer !

As a fish farmer, I have raised and marketed 10 aquaculture species in France and Spain. In my current status of being a "new" farmer of trout and sturgeon in Spain, my feet are firmly on the ground, or in the water, and I have in my mind all of the difficulties that European farmers have in front of them today. But how to be able to survive ? and how to grow ? How to be sustainable ?

What are the key issues we face ?

It is obvious that the fragility of the licensing systems and permits is a basic problem throughout Europe which, when combined with fastidious public services and politicians sitting on the fence, gives a real conundrum for our profession.

One cannot ask a farmer to make important investments in a risky business if the administrative conditions themselves are not fully met and integrated in a sustainable manner. I know of an example where a farmer had to wait 5 years for a 3-year licence, so as to have permission for capital investment to be depreciated over 20 years !

The famous 'Level Playing Field', a concept put into the front position by the FEAP for many years, is far from being realised. Numerous aquaculture products that are reared outside the EU, whose rearing conditions do not respect the European rules imposed on our producers, are sold every day to European consumers.

The views of the President
Arnault Chaperon

I underline the fact that European producers are not afraid of competition, they simply want that the rules be the same for everybody and that information for the consumer must be pertinent and clear.

Financing is another crucial issue for the successful development of aquaculture - particularly when starting up.

How can you expect that a young person in aquaculture can wait for up to 8 years before selling his first fish ?

> *Calculation:* 3-5 years to get a licence, then 1 year building the farm,, 2 years of actually growing fish to market size....
> This has to be combined with the current cautiousness of banks and financing support measures that arrive 2-3 years after the battle started....

This problem is crucial and, now, the FEAP is looking at how to put in place a guarantee fund for European aquaculture so as to give a warranty for farmers to finance their stock development and to cover the [usually] late arrival of financial grants.

In previous years, we have highlighted several young people who have embraced aquaculture as their career. Elsewhere in this annual report, different opportunities for aquaculture development are identified and described. To respond to development demands, it is essential that the framework of licensing and financing becomes more predictable and reliable for the next generation to be able to contribute significantly to European aquaculture's growth and sustainable development. The FEAP is committed to this aspect - as confirmed by our 'Dublin Declaration' to which our Member Associations subscribed in 2013.

The fish farming paradox

In Europe, we now have in place a rather special concept – the 'fish farming paradox' - which needs an explanation.

We had a position before - e.g. in the 1980s/1990s - when there was little, clear national or European desire to develop aquaculture and yet it was during that period that it developed. Today, we have a well-defined European strategy, national plans and a strong public will to develop – but it is not happening, due to the reasons that have been put forward here.

I am not losing hope !

A huge range of studies show how fish and seafood have positive benefits for human health and that fish is the best converter of food, produces less greenhouse gases and that aquaculture is probably the most resistant to climate change for sustainable food production. Our activity is one that creates jobs and wealth in coastal and rural communities where options are few. We are backed up by excellent scientific progress and the profession is full of managers and technicians that are ready to adapt and change processes and procedures with new developments and innovation.

The understanding of our advantages and commitment, and the communication of the messages about these benefits, has to reach the consumer and, particularly, the local levels - public and administrative - so as to be efficient.

Let's not wait !

Numerous industries have already left Europe to do their business elsewhere. We need to learn how to keep aquaculture in Europe, take advantage of its advantages, to develop and grow and we cannot do this alone.

In spite of this frustration at the lack of development of our sector and the serious obstacles in front of us, it has been a great pleasure – since I have also had a lot of satisfaction – to work with and for the European fish farmers as the President of the FEAP..

Let's continue to speak with one voice – and with commonly-agreed opinions and principles.
This is the only way to advance together and to successfully develop our sector.

The Aquaculture Advisory Council

As stakeholder bodies, the organisation of both the Aquaculture and Markets Advisory Councils has had to be achieved by volunteer actions from parties interested in participating in these new Councils, that replace the function of the original Advisory Committee on Fisheries and Aquaculture (ACFA). Preparations were completed in 2015 for the agreed objectives, official statutes and Rules of Procedure for operation of both Councils. FEAP has been active in assisting the developments of these new consultative bodies.

In February 2016, the European Commission published a communication on the start of functioning of the Advisory Councils for aquaculture (AAC) and for markets (MAC). This decision follows Article 43(2) of Regulation (EU) No 1380/2013 of the European Parliament and of the Council of 11 December 2013 on the Common Fisheries Policy establishing these and the communication followed approval of the documentation presented and the qualification of the founder members by both the European Commission and the Member States concerned.

The core objective of the Aquaculture Advisory Council is to contribute to the sustainable development of European aquaculture by preparing and providing advice on subjects and issues relating to the aquaculture value chain, on behalf of all those stakeholders engaged in the aquaculture production sectors, feed and ingredient suppliers, processing, service suppliers, consumers and other interest groups.

Specifically, the AAC will look to support and realise the achievement of the objectives concerning aquaculture within the Common Fisheries Policy, the Common Organisation of the Markets for Fisheries and Aquaculture Products and other relevant European and international regulations.

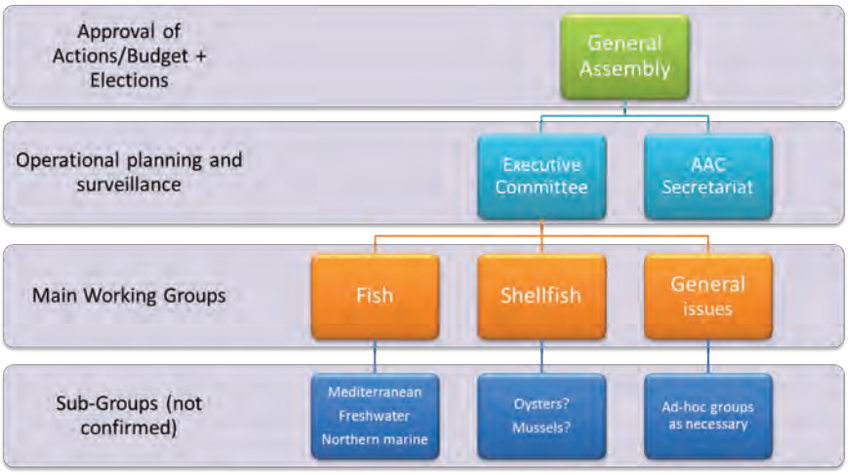
The AAC will be structured to address the different issues affecting it's the different components of the sector, using expertise from its member organisations and, where appropriate, scientific advice. It will accommodate new aquaculture activities, such as algae production, as these develop.

In line with evolving European policies and strategies, the AAC will also consider the position and contributions of aquaculture within, for example, the Bioeconomy and the Circular Economy and gather and provide such information that aquaculture stakeholders may wish to communicate.

The working structures of the AAC are governed by the General Assembly of member organisations, while the operations are overseen by an Executive Committee, assisted by a Secretariat.

The main work will be achieved by 3 working groups, covering the interests of fish, shellfish and general issues.

Sub-groups will be created - on the initiative of the Assembly or the Executive Committee so as to face the needs of the annual work programmes.



Structure of the Aquaculture Advisory Council

Following registration of both the Aquaculture Advisory Council and the Markets Advisory Council as non-profit associations, a call of interest to representative stakedholder organisations will be communicated in the first half of 2016, so as to achieve the constitutive General Assemblies. FEAP has already registered to both and is recognised as a founder member of both the AAC and the MAC.

These forthcoming Assemblies will then decide on the programme and calendar of work, in addition to electing the office-holders of each Advisory Council. It is anticipated that the work of each will start during the summer of 2016, following the financial contribution of Member organisations and the completion of a grant agreement, for funding accorded by the European Commission.

FEAP Award for Excellence in European Aquaculture

During the FEAP Presidents' meeting, held in Brussels on 17th November, Mr László Váradi received the 2015 FEAP Award for Excellence in European Aquaculture.

Decided by a jury composed of the previous recipients of the Award, following nomination by the Hungarian Aquaculture Association and the Hungarian Fish Farmers Association, the award was presented during the gala dinner of the FEAP Presidents' meeting by Arnault Chaperon, FEAP President, and Patrick Lavens, New Business Development & Innovations Director at Inve Aquaculture, which sponsors the award.

In a video presentation prepared by Ferenc Levai, his Hungarian colleague and FEAP delegate, László was recognised for dedicating his entire career to develop Hungarian aquaculture and freshwater pondfarming as well as for his strong involvement and cooperation with less developed countries.

László has been involved in aquaculture development since 1974 when he started to work in the Research Institute of Fisheries, Aquaculture and Irrigation (HAKI) in Hungary. Besides R&D activities aiming at the development of sustainable freshwater aquaculture systems and technologies in Hungary, he has also been involved in various aquaculture development projects in developing countries in Asia, Africa and Latin America mainly as an expert for the FAO. He was the director of HAKI for twenty years, from 1991 until his retirement in 2012. He obtained his PhD degree in 2001 with a thesis on the development of water efficient and environmentally-friendly aquaculture systems. He has been an active participant of numerous EU-funded research projects and European initiatives, contributing to the transfer of R&D results into practice in the field.

László has always placed high importance on the development of collaboration between Eastern and Western European aquaculture institutions and organisations, initiating the establishment of the Network of Aquaculture Centres in Central and Eastern Europe (NACEE) for which he has been the President since its foundation in 2004.

He is a past-President of the European Aquaculture Society (EAS), chairing the organisation between 2006 and 2008, and is a strong supporter of its international conferences. He is currently President of the Hungarian Aquaculture Association and is also Chief Technical Adviser of the Hungarian Aquaculture Technology and Innovation Platform (HUNATiP).

Previous Recipients of the FEAP Award for Excellence in European Aquaculture

Baron Charles de Fierlant Dormer (Belgium)

Jean-Jacques Sabaut (France)

Tore Håstein (Norway)

D. Lázaro Rosa Jordán (Spain)

Yvette White (France)

Constantin Vamvakas (Greece)

Randolph Richards (UK)

Bjorn Myrseth (Norway)

Želimir Filić (Croatia)

FEAP member Associations in the picture

Asociación Empresarial de Productores de Cultivos Marinos (APROMAR) - www.apromar.es

Improving the competitiveness of its members

The Spanish marine fish farming companies, teaming up also with the ancillary businesses, share the belief that by working together they can solve their common challenges and, furthermore, pave the way for individual long term profitability.

Marine fish farming in Spain is a relatively small industry, but its stakeholders share the vision of a promising future and team up in APROMAR. The characteristics of such common effort are wide representativeness in front of public administrations, internal balance regardless the size of the member companies, transparency, accountability and a workforce independent of any member. Financial capacity is also a necessary condition, but it comes in naturally when the previous requisites are met.

Just as in any other European Member state, the challenges for aquaculture in Spain are massive.

Offering consumers reasonably priced, healthy, delicious and environmentally friendly food is not enough. The lack of a level playing field with imported fish, an unbalanced value chain and the need to improve
production performance, complicate what should other ways be a straight forward business.

To face these challenges, APROMAR has focused its efforts during 2015 on three important issues that face Spanish marine aquaculture:

1. fish health
2. innovation
3. marketing

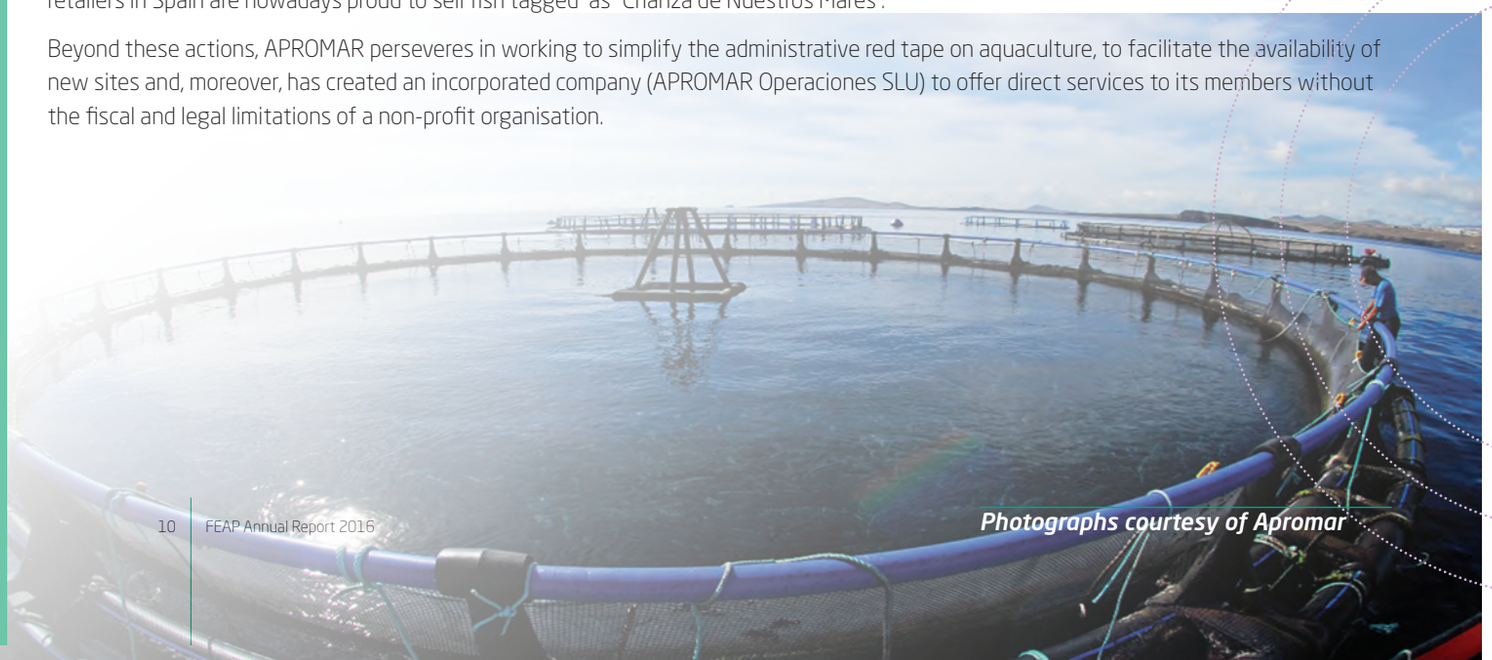
For each of these topics, APROMAR has set specific objectives, developed an action plan, put a structure in place, each with independent financing.

Assuring optimal fish health conditions is vital for a profitable industry, and because common sanitary measures are necessary, a complete network of veterinary organisations has been established, under the coordination of the nationwide federation FEADSA, so as to survey the health condition of all fish farms, by Region.

Innovation is the only possible way forward for an industry that is in permanent evolution and adaptation. In order to align the multiple efforts dedicated to innovation, APROMAR has promoted the creation of an organisation dedicated exclusively to research in aquaculture, named REMA, which is already active in national and international projects.

In respect of marketing, APROMAR launched, in 2015, a strong collective brand for marine aquaculture products called "Crianza de Nuestros Mares" ("Nurtured in our Seas"). This third party-certified scheme assures consumers that seafood tagged with this label are the freshest products, have been produced locally, provide employment in coastal and surrounding areas and have a low carbon footprint. The majority of retailers in Spain are nowadays proud to sell fish tagged as "Crianza de Nuestros Mares".

Beyond these actions, APROMAR perseveres in working to simplify the administrative red tape on aquaculture, to facilitate the availability of new sites and, moreover, has created an incorporated company (APROMAR Operaciones SLU) to offer direct services to its members without the fiscal and legal limitations of a non-profit organisation.



Photographs courtesy of Apromar

FEAP member Associations in the picture

The Finnish Fish Farmer's Association (FFFA) - www.kalankasvatus.fi

A Lobby of interests since 1964

The objective of the lobby of Finnish fish farming interests is to protect the operational conditions of aquaculture and at the same time to ensure the supply of farmed fish to the Finnish food production and consumers..

The association promotes the interests of fish farmers by issuing statements. In 2015 FFFA delivered 41 different statements and introduced into various working groups and teams the problems and requirements of development in the field.

FFFA has a representation in 50 different working groups or has a stakeholder status. As an example, the association is represented in the development group of aquaculture appointed by the Ministry of Agriculture and Forestry. The group deals with trade licensing in these fields, policy of environmental licenses, fish markets, situation of diseases and allocating the investment subsidies among other topics.

The association is also represented in the achievement of research and development projects related to production engineering, quality and environmental issues that affect the Finnish fish farming sector.

In terms of membership, FFFA has 119 members : 39 fish farming companies, 7 support members, 70 personal members and 3 honorary members. FFFA members produce approximately 85% of the total fish farming production in Finland and the Åland Islands.

International activities - The association is actively involved in international organizations, for example as member of the Federation of European Aquaculture Producers (FEAP). The association participates in the preparatory work of aquaculture affairs in the EU, for example through the upcoming Aquaculture Advisory Council and the 'Fish' working group of Copa-Cogeca (European farmers and agri-cooperatives). The FFFA is also involved in a project that aims to support the development of women fish farmers' cooperatives in Nepal since 2012.

The FFFA is also active in following the activiites of HELCOM - the Baltic Marine Environment Protection Commission - representing FEAP in an observer status, alongside the associations of Denmark, Poland and Germany. Recent contributions have focused on HELCOM's Recommendation on Sustainable Aquaculture. that was adopted in March 2016. The Recommendation gives tools for the Baltic Sea region to develop aquaculture based on the Best Available Technologies (BAT) and Best Environmental Practices (BEP); this will now be followed by expert work to jointly develop a menu of BAT/BEP descriptions.

Communication - The association actively informs its members about reforms, changes, examination results, education and vacancies that are related to aquaculture. Information is delivered through direct communication with FFFA members. Furthermore, information concerning our field is gathered and updated on the website ***www.kalankasvatus.fi*** and is also published in FFFA's trade and membership magazine **Suomen Kalankasvattaja-Fiskodlaren**.

Photographs courtesy of FFFA

'Aquaculture in Motion' the annual FEAP event

'Integrating Aquaculture' was the theme of this year's 'Aquaculture in Motion' looking at how the activity is integrated within different aspects of food supply and society.

Focus was given to the role of aquaculture in food security, how its products are integrated within the seafood market, and how aquaculture integrates into the environment and within society.

Over 90 participants from 16 different European countries attended this important event. 'Aquaculture in Motion' and was co-organised by the FEAP with FEFAC, the European Feed Manufacturers' Federation and was supported by the Committee of the Regions.

'AQUACULTURE IN MOTION', the fourth edition of FEAP's annual European aquaculture event, was held in the Committee of the Regions in Brussels on 16th November 2015

The meeting was opened by Jesús Gamallo Aller, the Director-General for external relations and relations with the European Union, Region of Galicia, the FEAP President, Arnault Chaperon and Alexander Döring, General Secretary of FEFAC.

Ernesto Peñas Lado, Arnault Chaperon Jesús Gamallo Aller

'Aquaculture in Motion' the annual FEAP event

Ernesto Peñas Lado, Director in DG Mare, made a keynote introduction, highlighting the position and contributions of aquaculture in food security and covering different policy contributions, notably that €1.2 billion has been earmarked for supporting the development of sustainable European aquaculture.

The first session addressed the integration of aquaculture products in the seafood market, covering four different topics. The health aspects of seafood were explained by NIFES' research director Livar Frøyland, followed by a review on consumer habits related to aquaculture products by Kristof Werbrouck from Marine Harvest Consumer Products. Anna Pyć, a Polish trout farmer and FEAP representative, talked about how to include aquaculture products into children's' eating habits, putting into practice the Schools Project of European Commission's 'Farmed in the EU' initiative. Finally, Jamie Smith from the Scottish Salmon Producers Association covered the economical importance of aquaculture in Europe with many positive references for coastal and rural areas.

The second session handled the integration of aquaculture activities within the environment. László Váradi from the Hungarian Aquaculture Association showed how pond farming contributes to the preservation of biodiversity and better water management, providing ecosystem services while achieving the goals of Natura2000 and the Water Framework Directive. Vedran Nikolic from DG Environment talked about how aquaculture and Natura2000 can go together while his colleague from DG Mare, Eoin MacAoidh, provided complementary information on the status on the multiannual plans on aquaculture development provided by the Member States.

Ulrike Rodust MEP

The session was completed by a report by Nicolas Martin of FEFAC on the work on the environmental footprint of both aquaculture feeds and processes, initiated by DG ENVI of the Commission.

The third session covered the integration of aquaculture with other activities, such as agriculture, demonstrated nicely with different examples by Stefan Meyer from the Competence Network for Aquaculture (Germany). Gilles van de Walle (FARNET) showed how aquaculture helps in developing local rural and coastal areas, referring to the opportunities presented by Fisheries Local Actions Groups (FLAGs) and Community Led Local Development (CLLD).

The last presentation by Jacques Fuchs of DG Research & Innovation highlighted new opportunities for aquaculture research and innovation under Horizon 2020.

Ulrike Rodust, MEP and member of the Fisheries Committee closed the meeting by stressing the needs to support the sector and to allow European aquaculture to live up to its potential. However, with so many highly engaged actors seen at this event, she is convinced that the future of the sector will be bright!

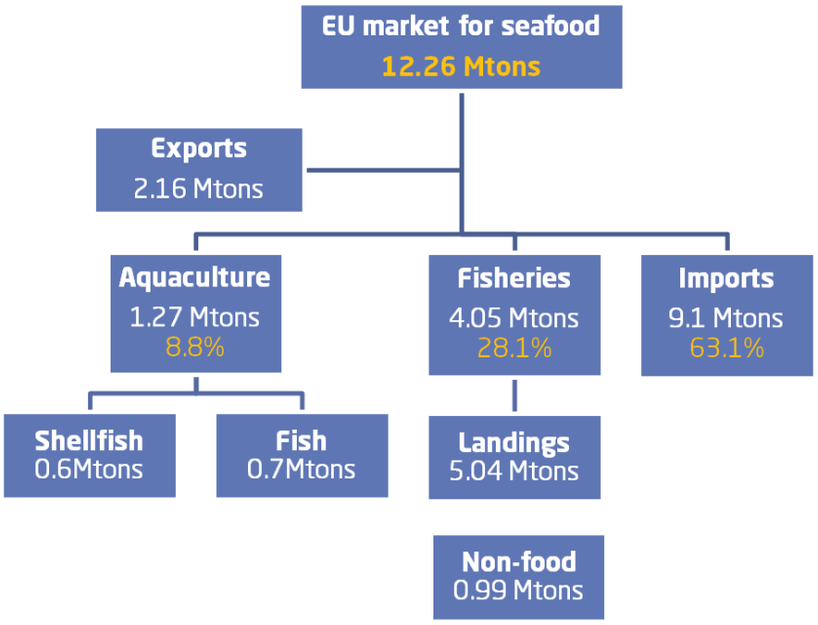
Allow the sector to live up to its potential and the future will be bright !

FACTS & FIGURES

courtesy of Stephan Hofer

The European Seafood Market 2014

Structure & Volume



Compared to last year there is small growth in total supply of 220,000 t. to a level of 14.42 million t. (products for food use) reflecting stability and a slightly improved market.[1]

EU aquaculture provided 1.27 million t., split between fish and shellfish, representing 23.9% of EU 'landings' (fisheries & aquaculture). Imported products comprised 9.1 million t., a small increase compared to last year, representing around 63% of the market[1].

The result of this is that one can see a net consumption total of 12.269 million t in 2014, which is an increase of 82,000 t, or 0.7 % over 2013.

These figures bring us to a net consumption level of around 24.4 kg per capita in the European Union.

Norway and China remain the main EU suppliers. Imports from Norway, which cover 1/4 of the total, reached a peak in 2014, mostly represented by fresh salmon. Norway's exports to the EU have increased by 70% since 2009.

China confirmed its leading role as a processing country for white fish (cod and pollock)[2].

The EU is the first importer of seafood products, absorbing ~24% of total world exchanges in value [2]

[1] A.I.P.C.E. – C.E.P-EU Fish Processors and Traders Association 2015

[2] The EU Fish Market, 2015 edition - see website for updates - ***www.eumofa.eu***

European Aquaculture - 2015

Introduction

This section provides provisional 2015 data on fish aquaculture in Europe (figures either confirmed officially or as estimates), distinguishing 3 key production sectors, namely

- Marine cold water species
- Marine Mediterranean species
- Freshwater species

Since FEAP's scope is not restricted to the European Union, the term 'European aquaculture' refers to the geographical area of Europe. The data collected annually by FEAP is published in the 'Facts & Figures' section of its website (www.feap.info).

As in the full production report, some countries that have a total production of less than 1,000 tons or without reliable data supply have not been included (e.g. Belgium/Luxembourg and Malta). Within the criteria of species production reports, some minor freshwater species and tuna have not been entered due to the lack of reliable data..

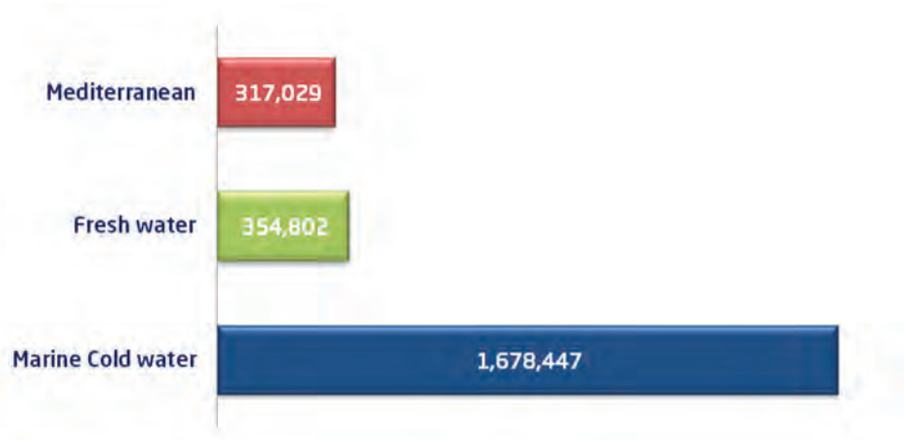
European Aquaculture 2015

The total European aquaculture production reached **2,350,278** tons, a very small 0.4% rise when compared to 2014. In contrast to previous years, the Norwegian salmon production stayed at a stable level.

Cold water marine species now represent **71.4%** of the total production, fresh water species **15.1%** and the marine Mediterranean species **13.5%**.

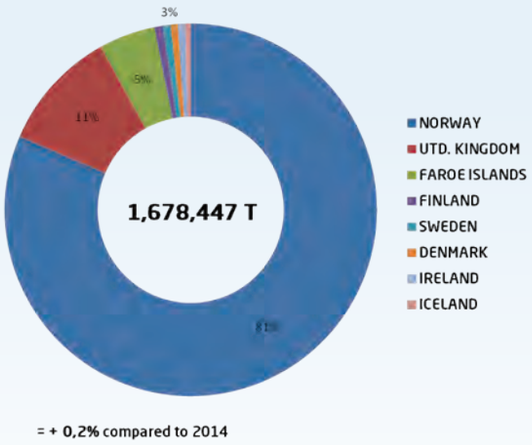
Norway alone represents 58% of this total production; the other countries that produce more than 100,000 t. annually are Turkey, United Kingdom and Greece.

The main species: salmon, trout, seabream, seabass and carp represented **94%** of the total European production in 2015. The production split up per sector, per country and per species is presented in the following sections.

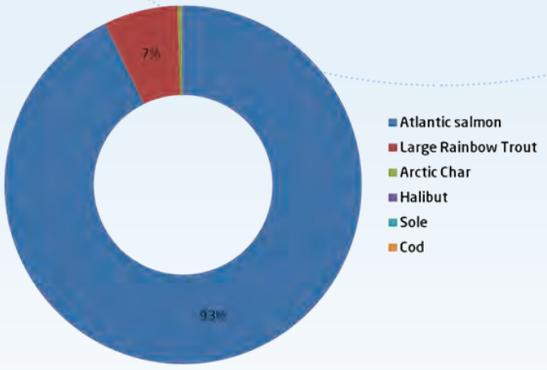


Marine Coldwater

Marine Cold Water Production in 2015 per Country & per Species



= + 0,2% compared to 2014



Key observations

In 2015, Atlantic salmon production increased slightly to 1.56 million t., principally due to a rise in Scottish production, countered by stabilisation in Norway and the Faroe Islands.

Large Trout (>1.2 kg) was stable, around 113,000 t., where the largest producers are Norway, Finland, Sweden and Denmark. Arctic char (Iceland) and halibut (Norway) rearing also showed modest increases, are interesting alternative species although volumes remain limited. Icelandic production is developing and has a potential capacity for significant increases.

The challenge of responding to the sealice parasite is paramount and research into control methods continues. The use of cleaner fish is promising, alongside new technologies for in-cage control, and represents a new, fast-growing sector. Nonetheless, the complexity of licensing and permits has been highlighted. Procedural reviews are in place in several countries, where the avoidance of duplication is anticipated. A traffic-light system relating to sustainability was introduced in Norway in 2015 and there is concern that such demands will increase production costs.

Markets for salmon have been good, with increasing demand for fillets, and the growing market for seafood and added-value/convenience products is evident. Access to developing markets (e.g. Russia, China) can be problematic but are seen as excellent future opportunities.

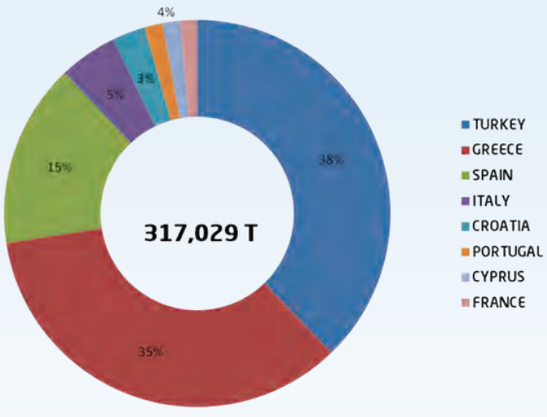
Cleaner fish (wrasse & lumpfish) production is increasing to respond to sealice biological control needs

Photo of ballan wrasse courtesy of Dr. S. Helland (Nofima)

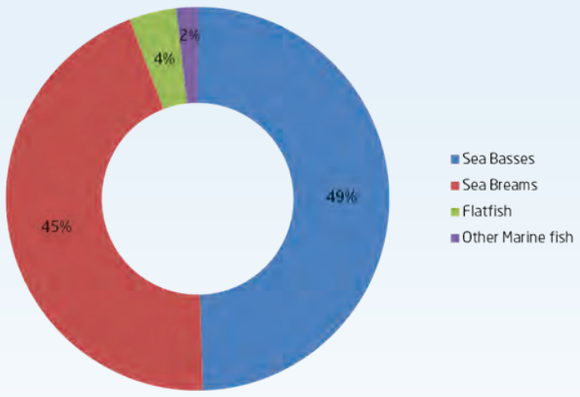
Marine Mediterranean

Marine Mediterranean Production in 2015 per Country & per Species

While termed 'Mediterranean', this report represents the marine production of the southern European countries and covers seabass, seabream and other marine species produced in warm, marine waters, including turbot, sole and meagre.



= +1,6 % compared to 2014



Key Observations

The main species produced are European seabass (D. labrax) and gilthead seabream (S. Aurata), whose combined production attained 300,000 t. in 2015, where seabass represents higher production levels that seabram – a reverse position vs. 2012. Turbot production has grown in Spain and Portugal, while sole is increasing in Spain, and also in Iceland ! Meagre production has stabilised, the main producer being Turkey.

Greece and Turkey occupy the prominent production positions, followed by Spain and Italy, these 4 countries representing 94% of the production reported. Juvenile production, for stocking ongrowing farms, is stable at 1.100 million.

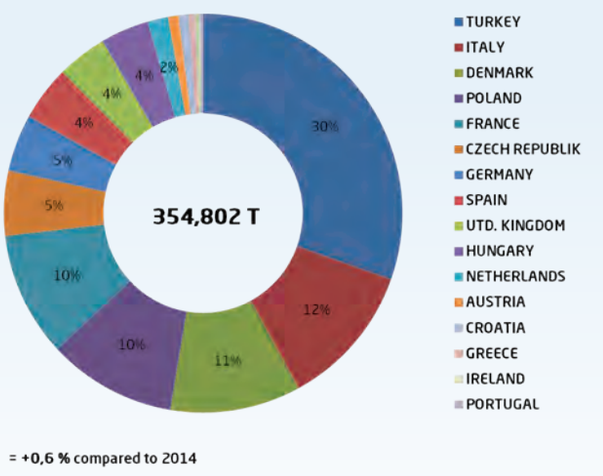
The size of fish marketed has increased, responding to market demand, and prices – in the different markets – has been good, reflecting higher market stability seen during recent years. Modest growth has been seen in several, smaller producing countries. With a more positive position in the market, regular contributions to a Mediterranean market information report are anticipated. Understanding the market focus and developments is seen as a priority.

Restructuring has continued in the Greek sector, with major companies being merged and restructured within consolidation actions, which should be completed in 2016. Elsewhere, the production sector is more optimistic that improved markets is contributing to sectoral stability.

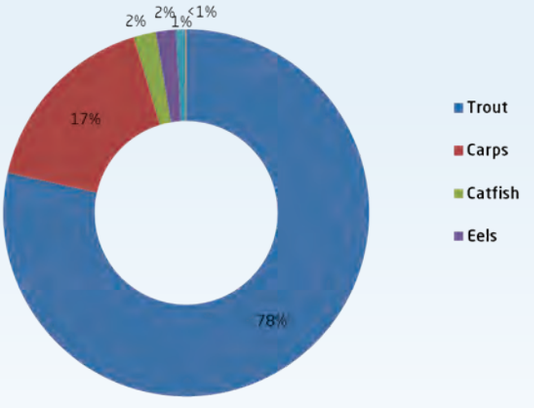
The sector sees that a longer term strategy needs implementation – improving both technical and market performance. The 2014 Aquaculture Europe meeting highlighted the need for technical improvements in several different areas of Mediterranean fish farming and a specific European call for project proposals was published in October 2015, for submission in 2016. In line with this, the European Commission launched the BlueMed initiative, for promoting blue growth in the marine environment, which will be put into place in 2016.

Freshwater

Freshwater Production in 2015 per Country & per Species



= +0,6 % compared to 2014



Key Observations

Freshwater fish production is the oldest and the widest spread sector of fish farming in Europe. All European countries have some freshwater aquaculture activities. Split predominantly among trout and carp production, many countries produce over 10,000 t./year. The biggest growth in trout production has been seen in Turkey, which now produces >110,000 t./year, doubling production in the last 10 years. Growth has also been seen in Poland, has receded in Spain while most other countries have shown stability.

In addition, there has been a move to produce larger sizes of freshwater trout, responding to market demand. Carp production is steady, with slight increases reported for 2015. The expansion of sturgeon production, for caviar, also continues – with the EU becoming the world leader of this sector. The production of 'minor' species (including eel, catfish, pikeperch and coarse fish) remains stable.

Main issues affecting the sector are changes in feed formulation, echoed by the Mediterranean sector, due to fishmeal and fish oil replacement – where it is felt that higher levels of cooperaiton are needed with the compound feed manufacturers to obtain consistent, high quality feeds.

Concerns as to the effects of climate change have been raised, since little control can be made over rearing conditions. The sector is very dependent on weather for good performance and both inland carp and trout producers have reported extreme conditions recently (drought, high temperatures...).

Predation pressure continues on pond farmers and there is general concern over gold-plated application of European environmental legislation at national levels, affecting both freshwater and coastal aquaculture. The Fitness checks and Guidelines of how best to integrate aquaculture with environmental legislation are anticipated to give some relief on these issues.

The central European freshwater producers are looking to improve cooperation and collaboration so as to improve performance and, particularly, innovation to respond to sustainable intensification of the activity.

More detailed production data can be found in the annual production report on the FEAP website:

see ***www.feap.info***

courtesy of RYB - Czech Republic

A case study

Ocean Forest
Integrated Multi-Trophic Aquaculture

Dr. Solveig van Nes - Bellona

OCEAN FOREST – CREATING OPPORTUNITIES

When one combines the seriousness of CO2-driven global climate changes with increased food demand and altered conditions of access to vital resources, such as fresh water and arable land, a very complicated position arises, as emphasised by the Intergovernmental Panel on Climate Change (IPCC).

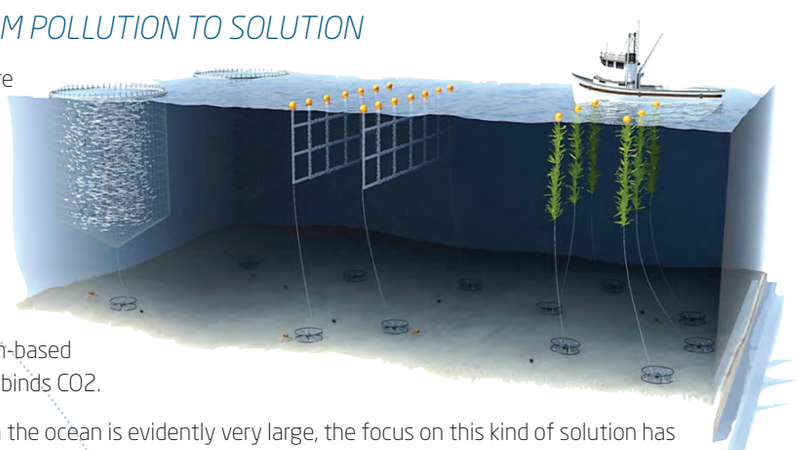
The main conclusion was that the only way to combat global warming and simultaneously meet the increasing demand for food security is to produce massive amounts of biomass that can function as both food and raw material to replace fossil hydrocarbons.

Bellona is an independent non-profit organisation, based in Norway, which aims to face and counter the climate challenges by identifying and implementing sustainable environmental solutions. Since 2008, Bellona has worked to find solutions to produce biomass that do not conflict with fresh water resources or land areas for food production or biodiversity – an evident answer is to produce biomass in salt water.

Norway has a long and impressive coastline and a history of living with and from the ocean, thus Bellona decided to investigate new ways to produce biomass directly in the ocean. In cooperation with the Lerøy Seafood Group, the Ocean Forest concept was established – aiming to reduce the impact from fish farming activities, increase resource efficiency and associate potential economic benefits while taking advantage of the huge carbon negative potential. An important principle is that waste, in some cases, represents misplaced resources that should be utilised. Launched in 2013, Ocean Forest now aims at developing knowledge and technology to combine carbon negative solutions alongside increased production of marine biomass for food, feed and clean energy purposes in profitable, integrated systems.

INTEGRATED AQUACULTURE - MOVING FROM POLLUTION TO SOLUTION

Integrated multi-trophic aquaculture (IMTA) is a multi-culture system where several species from different trophic levels (different levels in the food chain) are reared in proximity. Similar to a natural ecosystem, the waste or excess nutrients produced from fish being farmed (e.g. faeces and waste metabolites, uneaten feed) become nourishment and thus a resource for lower trophic species – such as shellfish or seaweeds - housed within the same system or environment. This combination contributes to an ecosystem-based production that, in addition to recycling nutrients, naturally binds CO2.



While the theoretical potential for the growth of biomass in the ocean is evidently very large, the focus on this kind of solution has been suprisingly low.

For as long as it is performed within ecologically sustainable limits, IMTA offers potential solutions to increased and profitable production of local, resource-efficient and climate-friendly food and biomass for energy purposes - whilst capturing CO2.

ECONOMIC & ENVIRONMENTAL BENEFITS FROM MARINE BIOMASS PRODUCTION

IMTA is based on the concept of recycling and is a different way of thinking about aquatic food and biomass production. Instead of growing only one species (monoculture) and focusing primarily on the needs of that species, IMTA mimics a natural ecosystem by combining the farming of multiple, complementary species from different levels of the food chain

The natural ability of these species to recycle the nutrients (or wastes) that are present in and around fish farms can help growers improve the environmental performance of their aquaculture sites. In addition to their recycling abilities, the extractive species chosen for an IMTA site can also be selected for their value as marketable products, potentially providing extra economic benefits to farmers and local value creation. There are large potential benefits from IMTA in a climate perspective

Illustration of IMTA; The Dude / The Bellona Foundation

Extractive species that Ocean Forest is working on - from left to right; Blue mussel (Mytilus edulis); Sea lettuce (Ulva lactuca); Dulse (Palmaria palmata); Sugar kelp (Saccharina latissima); Winged kelp (Alaria esculenta) and Oarweed (Laminaria digitata).

IMPROVED ENVIRONMENTAL PERFORMANCE IN AQUACULTURE PRACTICES

Bellona believes it to be fundamentally positive and important to grow food and biomass in the ocean, provided that existing challenges are improved and production is performed within the carrying capacity of the environment. The work in Ocean Forest has led to working on a range of issues

With our present work in Ocean Forest, with a transfer from monoculture to integrated culture, even more environmental issues are addressed:

Removal of waste and recovery of nutrients (increased resource efficiency)

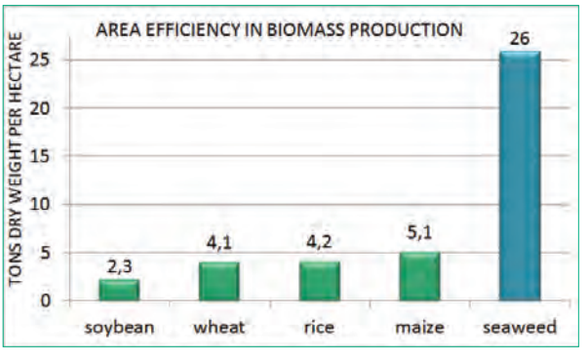
IMTA systems also recycle/recover otherwise unexploited, valuable and limited (!) minerals such as phosphate (P). Both algae and the shell of molluscs (such as blue mussel) – can be used as fertilizer, thereby bringing nitrogen and phosphorus back into the food chain.

More food without additional need for feed (increased resource efficiency)

Field trials have shown that macroalgae cultivated in close proximity to fish farms have 40-50 % higher growth rates as compared to reference algae.

Area efficient production with little or no use of limited resources

Compared to land-based biomass production, marine biomass is more resource efficient and more area efficient; seaweeds do not require any use of freshwater or pesticides. Seaweeds produce a 5 to 10 fold higher yield as compared to land plants (see figure).

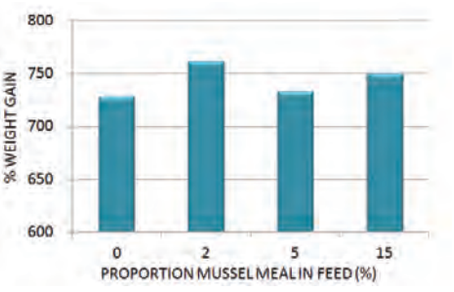


Area efficiency of marine and land plants measured in dry weight per hectare (Data from SINTEF)

More self-contained production with sustainable marine feed ingredients

Several of the organisms that can be produced in IMTA systems contain both the essential omega-3 fatty acids as well as the correct amino acid profile (building blocks of the protein) to fulfill the dietary requirements of the farmed fish and assure the quality required by the consumer. New feed ingredients for farmed fish (and potentially for farmed land animals) can be cultured with a low carbon footprint and without the use of freshwater, arable land and fertilizer.

Feeding trials performed by EWOS for Ocean Forest indicate that fish perform equally well or even better when fed feed where fishmeal was partly replaced by meal made from blue mussel (see illustration below : courtesy Bellona). This shows that mussel meal can be a fully adequate replacement for fish meal.



A case study

Ocean Forest

Integrated Multi-Trophic Aquaculture

THE CLIMATE PERSPECTIVE:

There is a need for transition from fossil-based energy towards carbon capture and non-polluting bioenergy as well value creation from green jobs rather than from fossil-based industry. Carbon capture into marine biomass that can replace fossil hydrocarbons: Algae naturally capture and fix CO_2 through photosynthesis, thereby reducing atmospheric CO2 levels, but also reducing ocean acidification – one of the major negative effects from increased CO_2 emissions.

Due to the high carbohydrate content of the kelp species, sometimes up to 60% of dry weight, they are an attractive biomass resource for production of ethanol, butanol and more advanced fuels. As opposed to fossil energy sources, marine biomass is renewable and the released carbon from combustion equals the absorbed carbon during growth/ photosynthesis, and therefore not adding any new carbon to the atmosphere.

Of further great importance is the fact that "first generation" biofuels are produced from biomass like rapeseed, soy and corn. In contrast to seaweeds, the production of these require arable land, freshwater and pesticides, and should preferably be used for food purposes rather that for production of energy. Hence, seaweeds offer an excellent alternative for production of clean and renewable energy.

Increased food production at reduced "carbon cost"

The production of seafood requires less energy input and has a lower carbon footprint than food produced on land. Another reduction of the carbon footprint can be reached through eating non-fed species, since the largest contributor to carbon emissions from the value chain of farmed fish comes from the production and transport of feed. A transition to the increased use of non-fed seafood species, such as mussels and algae, in the diet would have positive implications for carbon emissions.

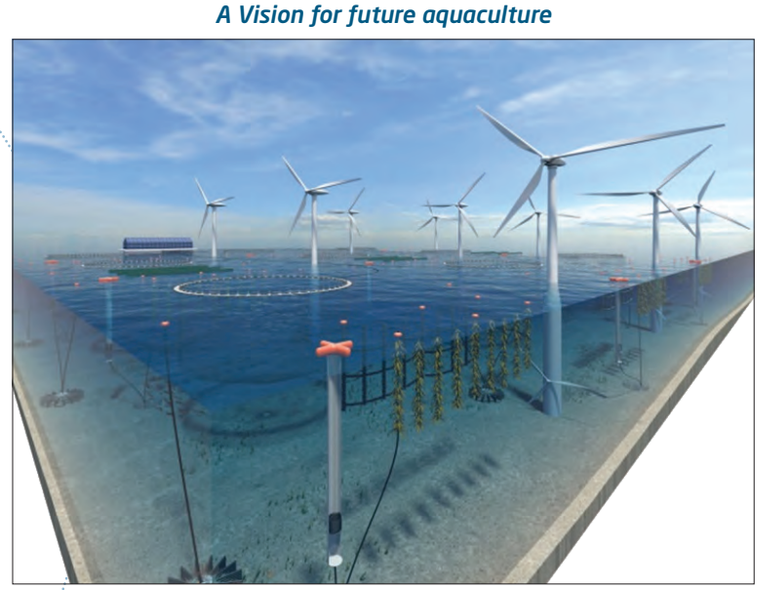
KNOWLEDGE BASED DECISION-MAKING AND RESPONSIBLE DEVELOPMENT OF IMTA

For any move towards the commercialisation of IMTA practices, these have to be made within ecologically sustainable limits and, importantly, appropriate regulatory and policy frameworks need to be developed. The responsible development of IMTA will depend on knowledge-based decision making and further research to find innovative ways to improve the environmental performance of the systems. Bellona therefore has recently initiated an interdisciplinary project with leading research institutes and managing authorities in Norway with the aim to compile a knowledge base for decision- and policy makers as well as development of a theoretical platform for improved environmental performance of IMTA systems..

The outline of this approach is that a theoretical environmental impact assessment (EIA) is prepared so as to better understand and regulate the impacts that are unique to IMTA and to establish sustainable, ecosystem-based practices. This EIA will aid management authoritiesto take decisions based on knowledge as well as to proactively address environmental concerns with the potential scaling up of the IMTA systems. In addition, such an EIA could form the basis for future development of a legal framework for IMTA.

About the author: *Dr. Solveig van Nes is Manager Aquaculture in the Bellona Foundation, working in the intersection between authorities, industry and research, aiming at development and implementation of solutions and technology for sustainability in the whole value chain of marine seafood production. She manages Bellona´s R&D-activities in Ocean Forest and is a board member of the Programme for Aquaculture Research at the Research Council of* Norway

A Vision for future aquaculture



Courtesy of Bellona Foundation

ClimeFish
A response to change for sustainable seafood

Background

As the global population grows, the demand for food is increasing. However, forecasts indicate an overall decline in food production - directly due to climate change. Virtually all aquatic fish and shellfish species are cold-blooded and physically supported by water ; this means that they are more efficient nutrient converters and also have higher edible yields than most terrestrial animals. In contrast with terrestrial food production, aquatic food production has the potential to increase significantly in the future, particularly in the aquaculture sector. Fisheries and aquaculture also diversify overall food production and provide proteins and lipids that are essential for human wellbeing and health. In addition, production from fisheries and aquaculture is more resilient to sudden temperature changes than terrestrial food production in general; one of the reasons for this is that the temperature fluctuations in water are not as extreme. This indicates that our future food security will depend increasingly on food obtained from aquatic systems.

The European seafood sector is significant when it comes to food supply, employment and economic contributions, but its dependence on imports (~70%) presents a challenge. Efficient management and good decision-making at all levels is crucial if the potential of European seafood production is to be maximised, especially given the uncertainties related to climate change.

ClimeFish is a new European project, funded under Horizon 2020, that will - through co-creation with stakeholders - provide a Decision Support Framework to ensure sustainable fish and shellfish production in Europe in the face of climate change.

ClimeFish work should ensure that seafood production comes in areas and for species where there is a potential for sustainable growth, given the expected climate developments, thus contributing to employment and the sustainable development of rural and coastal communities. ClimeFish will also contribute to establishing fisheries management systems that are coherent with the precautionary approach, in co-creation with the operators and other stakeholders. This may secure a stable or, in some areas increased fisheries production. Thus the main objectives for ClimeFish are formulated as follows.

The overall goal of ClimeFish is thus to enable an increase in European aquaculture production, support sustainable fisheries, facilitate employment and regional development through effective forecasting, and develop management tools for adapting to climate change. The following objectives are to be targeted;

1. To investigate the effects of climate change on aquaculture and fisheries at European and regional scale, collecting and harmonising relevant data.
2. To develop forecasting models that simulate and analyse changes in production in the aquaculture and fisheries sectors, predicting risks and uncertainties as well as identifying opportunities.
3. In co-creation with stakeholders, develop specific management plans that mitigate risks and use opportunities that are associated with anticipated effects of climate change on aquatic production. These will be based on ecosystem and results-based management approaches, as well as guidelines and best practices for developing such plans in the future.
4. Develop the ClimeFish Decision Support Framework, in co-creation with stakeholders, which encompasses the ClimeFish Decision Support System and other decision support tools and guidelines
5. To provide training for use of these developments, to ensure active use of the tools and guidelines beyond the project lifetime in close collaboration with the European Climate Adaptation Platform (Climate-ADAPT).

Starting in April 2016, FEAP is a member of a consortium of 21 partners, led by the University of Tromsø, and is responsible for assisting scenario definition, communication, dissemination and training.

See ***www.climefish.eu*** for details.

FEAP'S PRIORITIES


courtesy of FFFA

FISHBOOST

the next level of aquaculture breeding

FISHBOOST is an EU funded project that aims to boost European aquaculture breeding practices for the six main finfish species in Europe: Atlantic salmon, rainbow trout, gilthead seabream, European seabass, turbot and carp. It is a project with 26 partners from nine European countries, where industry collaborate with universities, research institutes and also the FEAP. The coordinating institute is Nofima from Norway, led by Anna Sonesson.

Selective breeding has a very high potential for improving the genetic makeup of fish in aquaculture production. It just takes a few generations to accomplish major improvements in economically important traits. These improvements can be achieved by using selective breeding in better and efficient breeding programmes.

Today, there are 37 active breeding programmes in Europe for the main six finfish species in fish farming: Atlantic salmon, rainbow trout, gilthead seabream, European seabass, turbot and common carp. Up to 80% of the aquaculture production of these species comes from genetically improved stocks. The technical level of these different breeding programmes vary greatly, and the aim of FISHBOOST is to bring them all one step further - up to the next level.

The potential of aquaculture breeding

Wageningen University conducted an extended survey amongst fish breeders in Europe to get an overview of the impact of selective breeding programmes in European aquaculture (see Table 1). As can be seen, there are large differences in the market shares of genetically improved stocks. It is believed that increasing the use of genetically improved stocks will increase productivity in European aquaculture.

Market share of genetically improved stocks (%) for the six main finfish species in Europe

Species	Market share (%)
Turbot	100
Atlantic salmon	93-95
Rainbow trout	65-68
Gilthead seabream	60-66
European seabass	43-56
Common carp	0

in 2015, EFFAB and Nofima jointly conducted interviews with different stakeholders of the aquaculture sector to find out how the European aquaculture sector is perceived today. The main strengths are thought to be the technical advancement of the sector and the positive perception of aquaculture products .

In addition, a good understanding of the current market demands and the availability of suitable coastal and inland waters for fish farming create opportunities for the sector to live up to its potential in the future. Controlling diseases and environmental factors are thought to be factors that can threaten the full use of this potential. This is where the FISHBOOST research can be of much help to the sector.

Here's how FISHBOOST can help

FISHBOOST researchers and industry partners are working together to develop methods to improve economically important traits for the respective species. The most important traits that are under investigation are related to disease resistance and production efficiency.

In the first place, disease resistance traits form one important group of traits. In turbot, for example, partners from Spain and the UK study the parasite Philasterides. They want to find out how heritable resistance to Philasterides is, how resistance to this parasite can be measured best and which genes are responsible for resistance to the parasite.

Ranges of heritability estimates (%) for aquaculture species traits

Traits	Heritability (on a scale from 0 – 100%)
Growth	30 – 60
Morphology/appearance	10 – 50
Sexual maturity	10 – 40
Disease resistance	10 – 50
Carcass quality	10 – 30
Processing yield	20 - 50

Based on Allan and Burnell (2013)

Other work is to develop methods that make best use of the obtained information in the breeding operations, and how much information at the DNA level can increase the accuracy of selection of parents when selecting for these traits.

Genotyping of all samples is done by partners from Italy and France. Similar work is done in FISHBOOST for other important viral, bacterial, or parasitic diseases in the other five finfish species by partners from France, Greece, Norway, Czech Republic and Spain: Pancreas Disease in Atlantic salmon, Koi Herpes Virus in common carp, Viral Nervous Necrosis in European seabass, Pasteurella and Sparicotyle Chrysophrii in Gilthead seabream and Flavobacteriosis in rainbow trout.

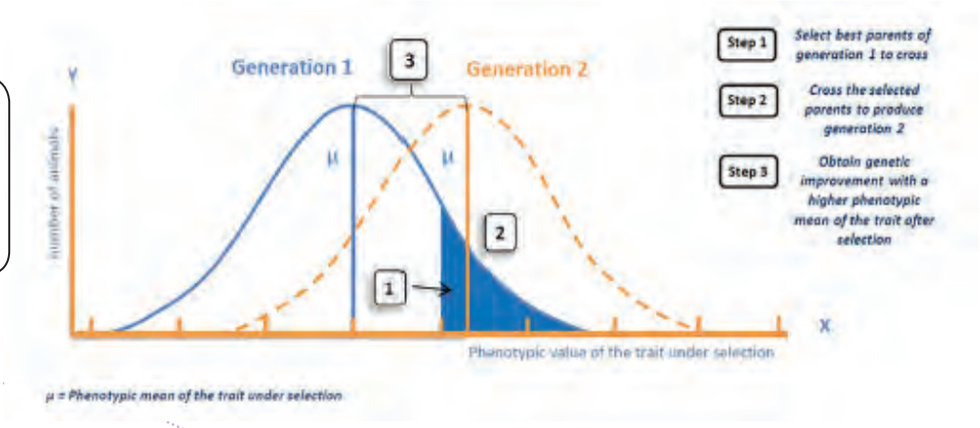
Selective fish species breeding for aquaculture

The second group of traits is related to increased production efficiency: feed efficiency and fillet percentage. These are more difficult to improve than the economically very important trait weight gain, because they cannot be individually measured on the selection candidates themselves. Partners from Finland, the Netherlands, Czech Republic, France and Greece obtain data for these production traits, analyse these data and, very important, work on getting the results implemented in their respective breeding operations. Indirect measurements for fillet yield on live fish will be one important output of FISHBOOST.

Last but certainly not least, FISHBOOST has developed free-of-charge software tools for two kinds of applications that are important for responsible breeding operations. BASEPOP helps breeders to set up a base population for future breeding operations. Individuals are selected with the aim of maximizing the genetic variation in the very important first generation upon which the whole future selection of parents should be based. The second software tool FISHBOOSTSEL helps breeders to select animals to be parents and allocate matings of these animals, while controlling rates of inbreeding, which is important for the fitness of the population as well as for future genetic gain. These software tools and all other information about FISHBOOST can be found on the website: ***www.fishboost.eu*** .

Overall, FISHBOOST will produce knowledge and tools within fish breeding that European aquaculture industry can take into use to develop an even more efficient and sustainable fish production.

A key benefit of selective breeding is that the genetic gains are cumulative



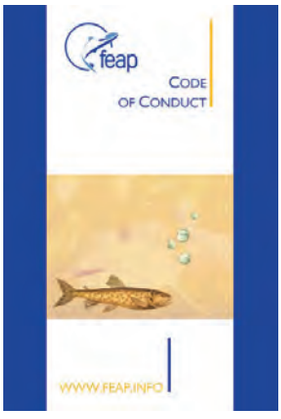
Kostas Tzokas is the R&D/Selection Program Manager at Andromeda in Greece, and industry participant in FISHBOOST: "My expectations for this project is that it will enhance the Mediterranean aquaculture by detecting new molecular tools and techniques for producer's favourable traits. These can then be implemented to existing breeding programs after the project. "

"A breeding scheme that gives you a genetic gain of 2% per year, results in commercial production of fish that are about 20% superior to the current production of fish after 10 years of operation!"

Addressing fish health and welfare a pan-European effort

Healthy animals produce safer food

The FEAP welcomed the adoption of the EU Law in March 2016 on transmissible animal diseases, also called the Animal Health Law (AHL) which will be applicable five years after its entry into force. The AHL stipulates that farmers and other animal owners will be required to apply the principles of good animal husbandry, the prudent and responsible use of veterinary medicines, and to receive regular animal health visits from a veterinarian - for disease prevention, detection and biosecurity.



No fish farmer wishes to lower growth performance and lose fish through disease and infections. The FEAP strongly supports the improvement of veterinary skills and networking throughout Europe so as to improve and access best on-farm practices. The FEAP's original Code of Conduct had as its primary goal the promotion of the responsible development and management of a viable European aquaculture sector in order to assure a high standard of quality food production while expecting environmental considerations and consumers' demands. The Code of Conduct 2016 is to be reviewed in 2016 and will reflect the advances made in the sector and new challenges.

The official Delegated Acts, which will specify the working of the new AHL in greater detail, remain to be developed. Since these Acts will have great consequences for the final impact of the AHL, the FEAP calls for a proper consultation with all stakeholders for the best understanding of the law and its implications in practice..

FEAP is a partner in the FishMedPlus Coaltion, a FVE initiative

A key problem, for now and probably for many years in the future, is the lack of availability of and access to authorised medicines, including vaccines, for many aquaculture species. This situation is a serious constraint in the prevention and treatment of disease, leading to welfare problems and hampers the growth of European Aquaculture.

The FishMedPlus coalition, aninitiative of the Federation of European Veterinarians, was created in December 2015 with the goal to increase the availability of authorised veterinary medicinal products for aquaculture, covering the European Union and EFTA countries.

Veterinary Medicines and Medicated Feed legislation

The Fish Health Commission of the FEAP has met with the Unit 'Medicinal products – quality, safety and efficacy' of DG SANTÉ to report its views on the proposals for amendments to the EC COM(2014) 558 for a Regulation of the EP and the Council relating to Veterinary Medicinal Products. The FEAP believes that changes proposed to the cascade system could be dramatic for the fish farming industry: the deletion of option c) and d) for aquatic species (article 116 para2 of the COM (2014) 558) could lead to serious animal health and welfare issues. THe cascade system for food-producing aquatic animals should follow the same principles as for all other food-producing animals.

In respect of the medicated feed legislation, the vote on the proposal for a regulation of the EP and of the Council on Medicated feed (COM (2014) 556) took place in March 2016 in the AGRI Committee but still needs to be validated by the European Council.

In this respect, the FEAP emphasises that it is very important to understand that many aquaculture farms are located in such remote areas, that the time needed to receive newly-prepared medicated feed is far too long to be effective for treating infections and diseases ; anticipated production and storage should thus be allowed.

Consumers in the EU and beyond should have access to the finest and safest European farmed fish products on the market

The FEAP strongly promotes the conditions for a 'level playing field' for European aquaculture and believes that such EU rules on farming processes and responsibilities should be applied to farming activities in third countries that supply fish and fish products to the European consumer market. EU producers should not be put at a disadvantage in this respect.

Antimicrobial Resistance

Antimicrobial resistance (AMR), including antibiotic resistance, is the resistance of a microbe to an antimicrobial medication that used to be effective in treating or preventing an infection caused by that microbe.

It is recognised that antimicrobial resistance poses a serious risk to both human and animal health, since resistant bacteria can be transferred between animals, animal products and people. The World Health Organisation has warned of a post-antibiotic era, where antibiotic resistance would cause more deaths than cancer. The European Commission sees this risk as a major priority by in its political agenda on food safety and has also been highlighted by the European Parliament's recent work on veterinary medicines. Preventive and innovative actions are being proposed to address the concerns raised by antimicrobial resistance.

Assuring healthy fish on the farm

Consumers in the EU and beyond should have access to the finest and safest European farmed fish products on the market. Therefore, European fish farmers and their veterinarians continue to work in concert to develop Veterinary Health Plans, optimised global surveillance and monitoring programmes. No fish farmer wishes to lower growth performance and lose fish through disease and infections. The FEAP strongly supports the improvement of veterinary skills and networking throughout Europe so as to improve and access best on-farm practices.

Antibiotics are used to treat farmed and pet animals for the same reasons as they are used to treat people: they are selectively used to treat and control specific diseases. Responsible prescription and use of antibiotics in all types of food producing animals, including fish, is a key consideration.

The focus for professional fish farming is on disease prevention rather than cure: antibiotics are therefore not used unless considered to be essential for disease treatment. The prophylactic use of antibiotics does not occur. Use of good husbandry practices and associate biosecurity measures are thus a priority for fish farmers to assure high levels of health and welfare.

Vaccination at the freshwater stage of the farmed salmon cycle, before fish are exposed to the more open marine environment, has reduced antimicrobial usage at sea to a minimum. Vaccine development for existing and emerging diseases needs to be encouraged.

The use of selective breeding technologies for disease resistance provides another option, but remains as a longer-term challenge to be resolved.

Emerging bacterial syndromes may require the use of antibiotics or alternative treatments until vaccines can be developed. However, few new or alternative medicinal treatments are being discovered, so it is vital for the sector to retain the effectiveness of present antibiotic medicines for the future.

In respect of the presence of antibiotic residues in the environment, as pointed out above, high quality water is of primary importance for the growth and health performance of the fish. Any water treatment is an additional cost for the fish farmers who will therefore avoid, as much as possible any potential residues.

Innovative measures and developments are evident requirements to assure fish health and welfare in the future and research into new medicines and treatments is needed urgently. The therapeutic reserve for veterinarians to be able to treat infections is very limited, due particularly to the marketing authorisation procedures existing in Europe. The FEAP supports the proposal to decouple the veterinary procedures from those of medicines for humans.

Upcoming actions

The FEAP is well aware of the imminent dangers to fish and shellfish aquaculture posed by climate change and ocean acidification, complicated by new and emerging diseases. New European projects, 'Climefish' and 'Ceres', will examine these aspects in detail.

The project 'ParaFishControl' aims to improve our understanding of fish-parasite interactions and will develop innovative solutions and tools to diagnose, prevent, control and mitigate the most harmful parasites affecting farmed fish.

These efforts should lead to new innovative proposals for on-farm best management practices.

The FEAP therefore looks forward to the results of the current revision of the legislation concerning veterinary medicines and medicated feeds that may improve both availability and efficiency of use. These reviews should contribute to increasing the health and welfare of millions of fish that, at present, are potentially placed at risk and hopefully limit the risk of antibiotic resistance developing.

Aquaculture for the next generation

One of the core values of FEAP's Dublin Declaration on 'Streaming Sustainability' is assuring continuity of the European aquaculture sector by the next generations. Some young people indicate why they chose to start in this business, what message they have for other potential newcomers and their ideas on the future development of the sector.

KARI VÄÄRÄNIEMI
Owner and CEO of Kalankasvatus Vääräniemi Oy

kalankasvatus.vaaraniemi.net

Who ?

Finnish, 32 years old.

Company

Kalankasvatus Vääräniemi started up in 2011. We are focused on producing different types of salmon for fish stocking, and whitefish for food fish production. We produce our fish in hatcheries and local natural settings. Our goal is to continue to be a good and reliable company in our local market and continue to deliver high quality products, while maintaining the company as a satisfying place to work for our employees. The quality of the product and making sure we deliver to our customers are our highest priorities. In the future we are planning to grow as a company and expand our production.

Why ?

For me it was quite clear to start a business in the industry, as I've been working in my father's fish farming business nearly all my life. In 2011, I bought my father's business as he retired. I've always been interested in the fish farming industry, in its challenges and possibilities.

Main issues ?

At least in Finland it can be challenging to get the necessary permits for fish farming. The legislation is very strict and new farming permits are difficult to obtain

Message

To promote fish farming and aquaculture the legislation needs to be eased up. Fish as a nutrition is efficient and healthy. The legislation should be used in a way to give possibilities to fish farming rather than trying to hamper it excessively. Additionally, research needs to be carried out to discover new methods of producing fish more efficiently, whilst maintaining the balance with nature and its demands. To young people and potential entrepreneurs, I encourage you to take on the challenges of aquaculture, it's very challenging and engaging. While it can take a lot of effort especially as an entrepreneur, the potential rewards are likewise great.

Future of EU aquaculture ?

I see a lot of opportunities for aquaculture in the EU. I believe fish will be the most important source of food in the future, as fish is healthy as a nutrient and efficient to produce. Aquaculture is blue gold.

BALÁZS DITRÓI
working at Bicskei Horgásztó és Tatabányai Galambász Horgásztó

bicsketo.hu

Who ?

Hungarian, 26 years old,.

Studied in Szent István University in Gödöllő, Hungary and finished both his Bsc. and Msc. there, in agricultural engineering

Company

Balázs work in a family fish farm, which was established in the year of 2007. We have 4 lakes in it. We produce and trade with fish in two lakes (approximately 60 hectares) and also make sport angling in the two other lakes (approximately 10 hectares).

Why ?

Ever since I was young I wanted to work with fish and/or nature. Fortunately my family and I had this interest in common and we had the opportunity to establish our farm back in 2007. However because of my studies I can only fully participate in the farm's life from this year.

Main issues ?

Rearing fish is a very beautiful work to make; it is like art. On the other hand it is very hard work; furthermore, authorities will not make our work easier (for example they plan to collect water tax).

Message

In my opinion this is the work that can only be made with passion. It is hard work indeed, but if you love what you do, it will worth it; and of course if you are good at it, it will also be profitable. There are lots of opportunities in this sector both in marine and freshwater aquaculture; and this industry needs young and fresh professionals to develop and increase.

Future of EU aquaculture ?

I believe that aquaculture will get even stronger than now. I hope that freshwater aquaculture will be counted as important as marine

Aquaculture for the next generation

Lars Berg-Hansen

Working at NorseAqua AS in Terråk (Norway) *norseaqua.no*

Who ?

I am from a little place called Bindal in the middle of Norway. I was born in 1990 and am nearly finished a bachelor's degree in aquaculture and management

Company

NorseAqua is a new venture and had its first employee on the 28th of January 2015. We develop and deliver solutions to increase efficiency and welfare of the cleaner fish, who eat salmon lice. We deliver everything you need to succeed with the cleaner fish, from equipment to consulting.

Why ?

Because this is the future ! We need more sustainable marine proteins, for a growing global population.

Main issues ?

The biggest issue is to learn more about the cleaner fish.

How do you promote aquaculture?

Write about it on social media.

Your message to other young people to start in this business?

Come On! Just get started, with one or two people who are really good at something you don't like to do yourself.

Future of European aquaculture ?

Growth and expansion. 3 times bigger in 2050

And why do you need cleaner fish ?

The salmon louse *(Lepeophteheirus salmonis)* is an ecto-parasite that uses salmonid fish as a host and has always been seen to be present on wild salmonids in Norwegian waters. Known as salmon lice or sea lice, they feed off the skin, mucus and blood of salmon and may, if present in high numbers, cause illness or death through secondary infection and osmoregulatory difficulties.

In the early 1990s, it was discovered that wrasse fish demonstrated a cleaning behaviour of these lice and a few organic farms started to use wrasse in the role of cleaner fish.

Salmon farmers need tools to use to keep the lice levels as low as possible. This realisation has led to an increased interest in the use of wrasse fish species as a primary solution to combat lice infections.

Originally, wrasse supplies were based on seasonal wild fisheries but since year-round use is needed, a reliable supply of cleaner fish has to be based on a combination of wild-caught and farm-raised fish. It is therefore timely that a commercial industry to cultivate ballan wrasse has started and, more recently, also the rearing of another species of cleaner fish, the lumpsucker (*Cyclopterus lumpus*).

Although in its infancy, the aim of this new aquaculture industry is to meet the urgent requirement of the salmon farming industry for disease-free cleaning/delousing fish - as well as to protect wild wrasse stocks.

The production of wrasse juveniles was developed with support from the Institute of Marine Research in Bergen, being the background for undertaking comprehensive developmental work, aiming to establish the commercial farming of ballan wrasse.

Ballan Wrasse brood fish Photo: courtesy Dr. S. Helland

Text from "Production of ballan wrasse: Science & Practice" - see ***www.rensefisk.no***

FEAP'S ACTIVITIES

Research & Innovation

OrAqua - www.oraqua.eu

European Organic Aquaculture – Science based recommendations for further development of the EU regulatory framework and to underpin future growth in the sector

A comprehensive stakeholder event was organized in Rotterdam on the 19th-20th October 2015. For this event, Oraqua scientists completed the methodical and comprehensive state-of-the-art reviews on existing data and literature sources.

The workshop focused on assessing multi-stakeholders' knowledge, experience and perception on key issues for the economic development of organic aquaculture.The meeting identified factors that may hinder the social and bio-economic development of the European organic aquaculture sector.

A wide range of issues had been identified at the 1st stakeholder meeting in 2014, where no less than 18 different subject areas had been identified as being necessary to address so as to provide opinions/solutions.

This OrAqua meeting provided a key milestone, where the bio-technic and socio-economic scientific in¬formation was presented to the stakeholders. These give the basis upon which the project will base its propositions for the new EU organic regulation on aquaculture, . The meeting also allowed stakeholders to react to the information presented and to provide their feed-back to the project team.

The final recommendations will be presented at the final meeting to be held in Mestre/Venice in June 2016.

Key issues affecting the development of organic aquaculture in Europe

- Regulations and standards seem not in line with practical and economic realities, necessitating amendments extending dead¬lines. This means low predicta-bility and uncertainty, making the regulations a "moving tar¬get"; and creates constraints for the future development and expansion of the industry
- Lack of clarity in the regulation has resulted in differences in interpretation and practice and hence variations in national im¬plementation
- Uncertainty about production rules, control provisions and exception dead¬lines create a lack of trust and investments; i.e. impeding the transition to organic production
- Highly competitive rivalry from organic aquaculture products imported to the EU due to lower production costs compared to higher costs of organic production in EU due to the current EU regulation for organic aquaculture
- Transparent, proactive communication strategy on organic aquaculture is needed
- Assessment of use of energy (carbon footprint) in the various production systems, including recirculation technologies (water (re)use)
- Sourcing of organic juveniles is urgently challenging due to the deadline of 1st January 2016 of 100 % organic juveniles; i.e. specific organic rules to manage the life cycle stage between hatching and the weaning of juveniles for specific fresh water and marine species, including production of phyto-and zooplankton, in order to be able to distinguish between organic and non-organic hatcheries
- Adequate stocking densities of fish sp. should be considered taking into account the co-variation with water quality and a multitude of operational behavioural, physiological and morphological welfare indicators, as well as management practices
- Sourcing of feed ingredients – Diversifying the raw material basket; i.e. increase the adequate options of ingredients to better match amino acid profiles and covering the dietary needs of other essential nutrients for the full organic production cycle, i.e. brood stock, fry and for on-growing. Further taking into account compliance with the organic principles of fish health and welfare and environmental sustainability
- Lack of statistics and information on national implementation makes it difficult to identify bottlenecks related to the rules, procedures and control measures, hence hard to make make corrective action to improve the management and control system

All the information collected and developed will now be used to build the project's proposal for a new set of organic regulations, more deeply rooted in science.

Research & Innovation "FindIT"

FINDIT

A cutting edge platform for data management and analysis to assist European fish aquaculture in its development towards higher performance & competitiveness

The FindIT project has developed a stand-alone Web-based platform for aquaculture hatchery and farm data management and analysis, which comprises a database for infrastructure, inputs and livestock monitoring where data can be provided manually or through sensors. Multi-variate analysis, using data mining technology, of farm operations and processes allows the rapid analysis of stock/farm performance and identification of drifts from anticipated results. Machine learning, from historical data/results, allows the proposal of process decision trees for the selection of variants and, hence, improvement. The flexibility of the system allows the incorporation of ancillary data for certification and standardisation measures.

Developed by a consortium containing ICT professionals and commercial hatcheries and farms, FindIT has demonstrated proof-of-concept in its approach to improving aquaculture operational performance analytics. Focusing initially on Northern (salmon) and Mediterranean (seabass/seabream) hatcheries and juvenile production, FindIT can be set up for both individual real-time site/farm monitoring or for comparative benchmarking. Focus has been given to simplifying data entry, notably by automating links to existing farm management software systems.

By accessing current and historical data, users are able to compare and analyse all aspects of farm management, including growth and food conversion, and access automatically generated reports on farm performance. Influences on juvenile malformations have also been quantified and assessed.

FindIT is now a functional prototype that, based on existing data from consortium partners, provides new data management possibilities. Use of FindIT has shown the value of analytics to decision making in both hatchery and farm management. The capacity to benchmark performance, in-house and through comparison to anonymous farm data, provides a valuable opportunity for self-assessment.

This approach has also identified the need for training and expert support services for rapid uptake of the system in professional circumstances.

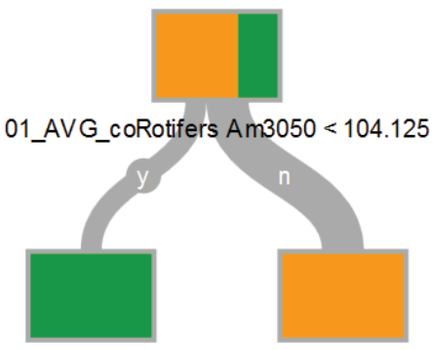
The project has examined the issues of data ownership and intellectual property and has prepared draft license agreements so as to pursue data entry by new users, allowing the constitution of new and large data sets that are needed for applying the full capacity of FindIT. Expansion to other species and farming systems has been accommodated into FindIT's design and operational capacity.

The consortium's intention is to promote and develop FindIT further, through the creation of a new company that will host and operate the FindIT platform, provide training and support services and complete the development of FindIT. Decision for this will be taken upon agreement of a business plan by the consortium partners in 2016.

Think IT different,
FINDIT simple!

Decision Tree proposed by FindIT for rotifer administration in hatchery.

Green is GOOD, Yellow is BAD



Research & Innovation

trafoon

Traditional Food Network to improve the transfer of knowledge for innovation

Traditional Food Network to improve the transfer of knowledge for innovation

www.trafoon.eu

To support traditional food SMEs, TRAFOON organized 30 training workshops for SMEs in 13 European countries on five food categories (Vegetables & Mushrooms, Fish, Grain, Olives and Sweet Fruits) during 2015. Additionally, one workshop on "Food safety and quality" was also held. In 2016, a second round of Training Workshops will be held. Target groups for the Workshops are mainly SMEs but also food industry, SME associations and food researchers. These training workshops improve communication and transfer of innovations between research and food SMEs.

Each training workshop addresses the requirements/gaps/shortfalls of SMEs which were identified during the first year of TRAFOON project and includes trainings on technical innovations which are specific to the traditional foods category, as well as generic topics on food processing, food packaging, food safety, food quality and stabilization of processing protocols, marketing, legal issues, European food law, IPR, certification and labelling.

Three TRAFOON Training Workshops on fish took placein April 2016 in Poland, covering "Food quality and safety in the aquaculture sector". Earlier in the year, a TRAFOON workshop on "Improving fish feed and feeding techniques, fish processing, labelling and marketing with fish products" was made in the Czech Replublic.

New European projects of interest

Each year brings new projects to the attention of FEAP and European aquaculture, given the efforts within the Horizon 2020 research and innovation framework programme of the European Union.

AQUA EXCEL 2020

AQUAEXCEL^{2020} is a research infrastructure project funded under the EU's Horizon 2020 programme and coordinated by the French National Institute for Agricultural Research (INRA). The project, which has started in October 2015, aims to further support the sustainable growth of the European aquaculture sector. AQUAEXCEL^{2020} will integrate a large group of leading European aquaculture research facilities and aims to advance aquaculture research and innovation in Europe. see ***www.aquaexcel.eu***

One of its key aspects will be to provide subsidised access to top-class aquaculture facilities, as well as numerous highly pertinent services for researchers from academia and industry. Nearly half of the project's €9.7 million budget will go into the provision of transnational access to research facilities and harmonised services for both academic and private sector users from industry, especially SMEs. Academic and industry researchers will then be able to perform their research projects with "free of charge" access to top EU aquaculture research infrastructures which are not available in their country of origin. Several FEAP experts will provide advice, through a special Industry-Acedemic Research panel, on project results of value.

AquaSpace

AquaSpace is a new project that aims to provide increased space for aquaculture production by identifying and attempting to overcome key constraints limiting the industry's development using an ecosystem approach leading to a sustainable increase in EU aquaculture, while maintaining environmental quality. see ***www.aquaspace-h2020.eu***

The main objective of the AquaSpace project is to support the increase of space for aquaculture by adopting the Ecosystem Approach to Aquaculture (EAA) and Marine Spatial Planning (MSP) to deliver food security and increased employment opportunities through economic growth.

AquaSpace will work in collaboration with the aquaculture industry, other stakeholders, and coastal managers and planners in the European Economic Area and beyond to produce a range of tools that will enable effective implementation of EAA and MSP to support the aquaculture sector. A total of 16 case studies from different countries with a range of scales, environments and space-related development constraints as defined by local stakeholders will be assessed to improve and/or create appropriate tools using a common process so as to facilitate synthesis and comparison. FEAP is participating in stakeholder consultation.

Participation & Promotion

FEAP is actively involved in sectoral discussions on aquaculture as well as broader issues that affect the profession. FEAP representatives also participate in appropriate Conferences, Workshops and project meetings where aquaculture development is a focal point.

In 2015, FEAP participated in

- EU Presidency, Commission and Parliament meetings related to aquaculture
- EC workshops on Advisory councils and technology platforms
- Animal Health Advisory Committee (AHAC) meetings
- Strategic Coordination Group (SCG) for the Common Implementation Strategy (CIS) of the Water Framework Directive (WFD) meetings
- Joint meetings with FVE (Federation Veterinarians Europe), Fish Feed Committee of FEFAC (European Feed Manufacturer's Federation)
- Committee of the Regions stakeholders consultation on the future of aquaculture
- Product Environmental Footprint (PEF) meetings on FEED and SEAFOOD
- FindIT project meetings, Athens (GT) & Rome (IT)
- COFASP aquaculture workshop, Rome (IT)
- Trafoon annual meeting, Athens (GR)
- Sturgeon Producers' meeting at ESE Brussels
- BioEconomy Panel of the European Commission
- EATiP AGM – Brussels (BE)
- Fishboost meeting, Wageningen (NL)
- Oraqua meeting, Rotterdam (NL)
- EAS-EATiP panel discussion – welfare and losses during the production cycle, Rotterdam (NL)

- Conference on fitness check of EU nature legislation, Brussels (BE)
- International Aquaculture conferences
  - o "Aquaculture in Europe: a model for the future" at the Expo Milan 2015.
  - o Genetics in Aquaculture conference - Santiago de Compostela, Spain
  - o International Carp Conference, Vodnany, Czech Republic
  - o Aquaculture Europe 2015, Rotterdam, The Netherlands

The FEAP organised its 2015 Annual General Meeting in A Coruña (Spain) in May and its Presidents' Meeting in Brussels (Belgium) in November.

*The **48th Annual General Meeting** will be held in Warsaw (Poland) on May 27-28 2016, hosted by the Polish Trout Breeders' Association, to develop the positions for FEAP's future work.*

*The **Presidents' Meeting** will be in Brussels - Late 2016.*

The Future: what brings 2016?

2016 is a year of promise, with important actions being concluded. At the top of these is the finalisation of the new Advisory Councils on Aquaculture and Markets, which can be completed following the publication of the delegated Regulation (EU) 2015/242 in February 2016 that provides the detailed rules for their functioning under the Common Fisheries Policy. The first General Assemblies and Working Group operation will occur in mid-2016, following approval of their work programmes and associate budgets.

The report will be published on fish health, welfare and governance in European aquaculture, made by the Directorate for Health, Food Audits and Analysis (formerly the Food and Veterinary Office) of DG Health and Food Safety. This will provide a clear appraisal of conditions and positions within for these aspects.

The FEAP is a partner in the FishMedPlus coalition which is a 3-year initiative aiming to to increase the greater availability of authorised veterinary medicinal products for aquaculture on the market of European Union and EFTA countries. A group of 10 experts – drawn from the aquaculture industry, academia, regulatory authorities, legislators, the animal health industry and the veterinary profession - will start work in 2016.

Different actions contributing to 'Blue Growth' will be followed, notably in respect of the 'BLueMed' initiative launched in late 2015 and the role of aquaculture within the Bioeconomy will also be promoted.

FEAP's Code of Conduct for European aquaculture was published in 2000 and reviewed in 2008 ; given significant changes in many technical and operational aspects since that time, the FEAP will initiate a review of its Code of Conduct.

In 2016, FEAP's consultation efforts will thus focus on

- The creation and functioning of the Aquaculture and Markets Advisory Councils
- Consultation will the FEFAC Fish Feed Committee, FEFANA (EU Association of Specialty Feed Ingredients) and the IUCN, on the improvement of compound feeds for fish farming
- Continued consultation with the relevant authorities on fish health, welfare and the availability of veterinary treatments
- Work on the FISH and FEED PEF Pilot actions, notably in respect of the screening studies
- Review of the FEAP Code of Conduct for European aquaculture
- Contributions to the European projects in which FEAP is a participant
- Consultation on how aquaculture is integrated within the Water Framework Directive and Marine Strategy Framework Directive
- Promotion of aninternational Warranty Fund for professional European aquaculture

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CROATIA	Croatian Chamber of Economy – Aquaculture Unit
CYPRUS	Cyprus Mariculture Association
CZECH REPUBLIC	Czech Fish Farmers Association
DENMARK	Dansk Akvakultur
FAROE ISLANDS	Faroese Fish Farmers
FINLAND	Finnish Fish Farmers' Association
FINLAND	Ålands Fiskodlarförening
FRANCE	Fédération Française d'Aquaculture
GERMANY	Verband der Deutschen Binnenfischerei
GREECE	Federation of Greek Maricultures
HUNGARY	Hungarian Fish Farmers Association
HUNGARY	Hungarian Aquaculture Association
ICELAND	Icelandic Aquaculture Association
IRELAND	Irish Farmers' Association
ITALY	Associazione Piscicoltori Italiani
NETHERLANDS	NeVeVi
NORWAY	Norwegian Seafood Federation
POLAND	Polish Trout Breeders Association
PORTUGAL	Associação de Aquaculturas de Portugal
SPAIN	Asociación Empresarial de Productores de Cultivos Marinos
SPAIN	Organización de Productores de Acuicultura Continental
TURKEY	Central Union of Aquaculture Producers
UNITED KINGDOM	Scottish Salmon Producers Organisation
UNITED KINGDOM	British Trout Association

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