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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 22 members drawn from 21 States across the European continent, the FEAP represents

- **>2.3 million tons of produce**
- **Ex-farm value of over € 8 billion**
- **>100,000 aquaculture-related 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 | • Seabream |
| • Salmon | • Turbot |
| • Carp | • Cod |
| • Sea bass | • Sturgeon |
| • Catfish | • 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 data 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 (www.eumofa.eu).

Founded in 1968, 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.

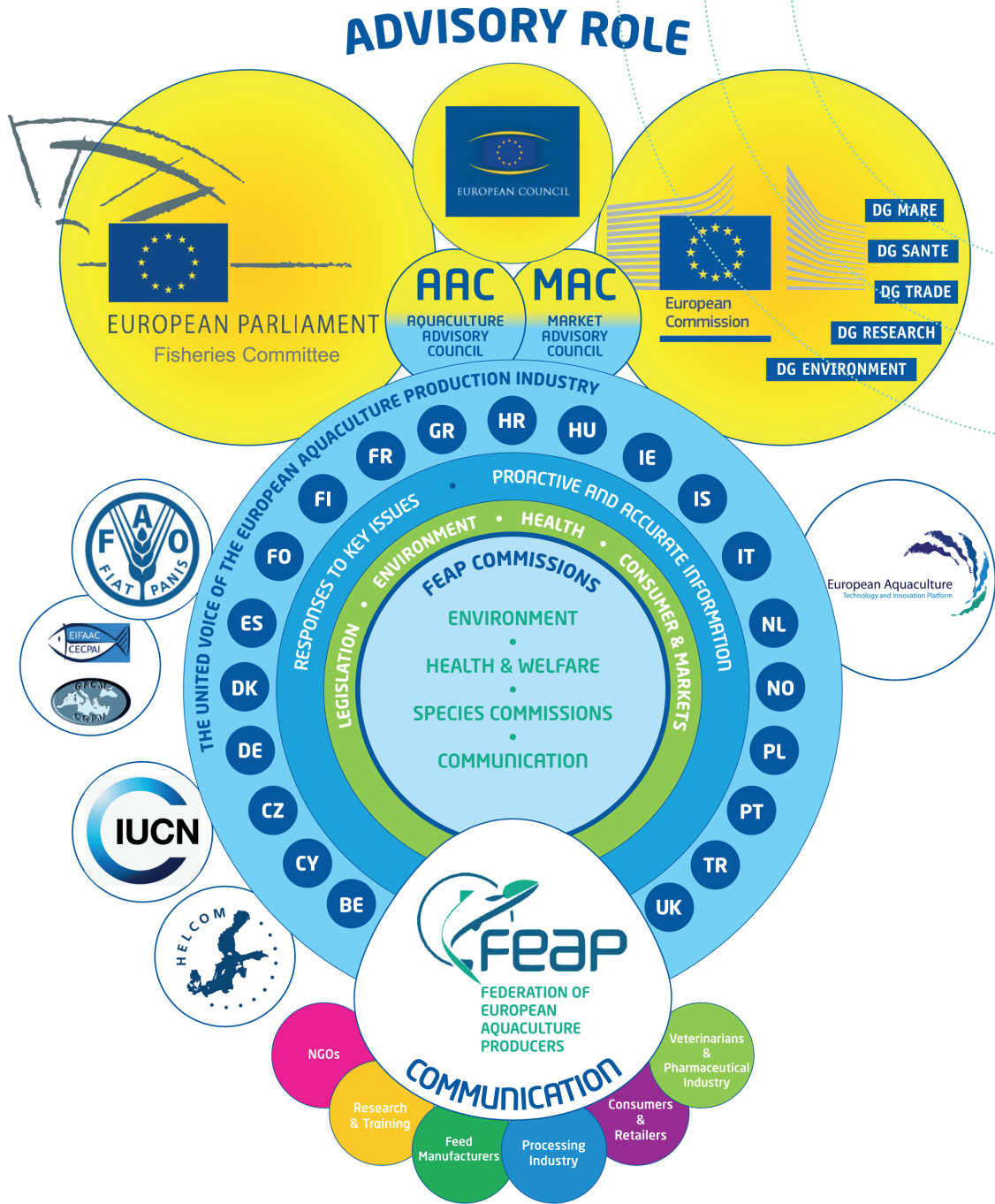
FEAP is run by professionals for professionals, meaning that all of its members are active in European fish farming and are experienced in the main issues concerning aquaculture and its sustainable development in Europe.

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 accurate and 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 global levels.



FEAP's Organisational Matrix



Introduction

Annual Report 2017

2016 was a year of change for the FEAP on several fronts. Marco Gilmozzi of the Associazione Piscicoltori Italiani was elected to the Presidency of the FEAP, following Arnault Chaperon who was President from 2010-2016. The new President's views on European aquaculture follow in this Report.

The Directorate-General for Maritime Affairs and Fisheries, better known as DG MARE, has restructured and aquaculture is now 'housed' in the Unit for the Blue Economies. Bernhard Friess, Director for Maritime Policy and the Blue Economy, provides his views on European aquaculture and its position to contribute to Blue Growth in Europe.

A High-level European conference on "FOOD 2030" gave important strategic guidelines for establishing effective Food Nutrition and Security at a global level through European Research and Innovation. Responses to the political priorities of growth, jobs and investments indicated aquaculture to be part of the food systems approach needed.

'Providing better framework conditions for the aquaculture industry is by far the most critical issue to solve to lay the foundation for future growth in the European aquaculture sector than providing public funding to individual

After 3 year's preparation, the Aquaculture Advisory Council (AAC) has been registered, where FEAP is one of the 16 founding members that have been joined by an additional 44 stakeholder organisations. The first meetings of the AAC Assembly and its Working Groups took place in late 2016 although its main work started in 2017. The FEAP is also a member of the Markets Advisory Council (MAC), which has followed a similar route and also started its actions in 2016. The AAC and the MAC replace the consultative Working Groups of the previous Advisory Committee on Fisheries and Aquaculture (ACFA). FEAP representation has

also been assured within the Animal Health Advisory Committee and different expert working and coordination groups on environmental and market issues. In 2017, it will be represented on the new Animal Welfare Platform.

Within the consultative processes, FEAP has participated in a 'fitness check' on EU nature legislation (e.g. Birds Directive, Habitats Directive...). Based on the results of a survey, the Commission will develop an Action Plan to address the shortcomings identified in the evaluation and improve these Directives' coherence with broader European socio-economic objectives. Targeted consultation activities will take place in early 2017, for completion of the Action Plan later in the year. This action follows the completion and publication of the report on Guidelines on the Application of the Water Framework Directive and the Marine Strategy Framework Directive in relation to aquaculture.

Several important reports concerning European aquaculture were published early in 2017, notably the "EU Consumer Habits regarding Fisheries and Aquaculture Products" (EUMOFA) and the STECF "Economic Report of the EU Aquaculture Sector". The Consumer study gives indications of clear trends and consumer preferences, consumption patterns and market structure. The Economic Report confirms the position of the FEAP in stating that 'providing better framework conditions for the aquaculture industry is by far the most critical issue to solve to lay the foundation for future growth in the European aquaculture sector than providing public funding to individual entrepreneurs.' The potential for growth is clearly inhibited more by administrative issues than technical ones.

FEAP's involvement in European projects and actions has continued. 2 projects were completed in 2016, 'ORAQUA' [on organic aquaculture] and 'TRAFOON' [on traditional European foods] which, alongside other project work, highlighted the need for effective communication with the sector and accompanying technology transfer actions. Identifying and refining these are integral to FEAP's strategic approach to project involvement. FEAP is very aware that the follow-up actions to completed projects need improvement, particularly where technical progress and technology transfer is envisaged. In pursuing this line, FEAP is participating in 2 new education actions under the ERASMUS+ programme to raise skills and lifelong learning within the profession.

Responses to the political priorities of growth, jobs and investments indicated aquaculture to be part of the food systems approach needed.

The FEAP's annual event "Aquaculture in Motion" took its focus as "Farmed in Europe" and examined how to create a great environment to develop European aquaculture, presenting different views and opinion on our multi-faceted activity.

This Annual Report also highlights the activities of French representative work and the development of the 'Label Rouge' quality scheme, where the Scottish salmon producers recently celebrated 25 years of participation. Again, we highlight young professionals in aquaculture, covering their activities and aspirations.

The statutory aim of the FEAP is "to develop and establish a common policy on questions relating to the production and the commercialisation of aquaculture species that are reared commercially and to make known to the appropriate authorities the common policies agreed". The matrix diagram that explains how the FEAP does this and who is involved, demonstrating that achieving simple goals can become complex!

In 2018, the FEAP will be celebrating 50 years of facilitating the dialogue between its Member Associations so as to achieve its goal – follow www.feap.info for information on new actions and activities!



FEAP AGM at Warsaw in 2016

Message from Bernhard Friess

Director Maritime Policy and Blue Economy, DG MARE



Since January 2017, Bernhard Friess has been the Director of the Directorate "Maritime Policy and Blue Economy" of the European Commission's Maritime Affairs and Fisheries Directorate-General.

Mr Friess studied Law at Munich University. His career with the European Commission included assignments in the areas Internal Market Policy, Competition Policy, Maritime Policy and Fisheries, and Education and Training.

He previously held positions as Head of Unit responsible for competition enforcement in banking, insurance, securities and financial services markets (as of 2002); as Head of Unit responsible for coordinating internal market policy (as of 2006); as Director for planning, personnel and communication (as of 2009); and as Director for maritime policy and fisheries in the areas of the Atlantic, Arctic, North Sea, Baltic Sea and the EU's outermost regions (as of 2011).

Could you explain the position foreseen for aquaculture in the Blue Growth scenario for Europe?

Aquaculture has a central role to play both in the context of Blue Growth, but also as an increasingly important source of food for future generations. At present only 2% of the world's food comes from the ocean and it generates less than 5% of economic activity. This has put an intense and unsustainable pressure on land use. Blue Growth aims to grow economic activities on the water and increase its potential for food supply, making the overall balance more sustainable.

As the Director responsible for the new Maritime Policy and Blue Economy Directorate, I am actively seeking to better integrate aquaculture with the other players in the blue economy. Many of the sectors are complementary. Take for example tourism, energy, and biotech. Coastal and maritime tourism can benefit from good availability of fresh farmed fish, while energy and biotech can offer solutions to improve our farming. These sectors also share many similarities. Each are striving for greener, more sustainable output, they all have the capability to deliver more, and all face similar hurdles to growth in planning, licensing and monitoring. Bringing these sectors closer together will help share experiences, help the sectors piggyback on each other's success and stimulate growth together.

The Commission's Scientific Advice Mechanism, comprising some of the foremost academics in Europe, has started working on the question submitted by European Commissioner for the Environment, Maritime Affairs and Fisheries Karmenu Vella: "how can we get more food from the ocean in the future?" It is clear that we have the capacity. The work of this group over the coming year will help us explore how policies may need to shift to allow us deliver more food and more economic success from our waters to support our growing population sustainably into the future.

"Blue Growth aims to grow economic activities on the water and increase its potential for food supply, making the overall balance more sustainable."

How important do you think that Blue Growth will be for food nutrition and security?

Blue Growth certainly can contribute to food security by increasing the share of fish we produce locally and sustainably. Increasing the supply of high quality fish farmed in the EU would reduce our reliance on imports, which currently stands at 65%. But where Blue Growth in the aquaculture sector can really improve things is when it comes to delivering greater sustainability, reducing production and transportation environmental costs, and delivering healthier choices with better nutritional values. A recent Eurobarometer report illustrated consumers shifting preferences and values when it comes to fish. The Farmed in the EU campaign and schools projects which we initiated in 2014 are continuing to grow and extend across the EU. I want to thank FEAP and its members for your enthusiasm and level of engagement with the schools. A greater understanding of what fish farming is all about will continue to be a key to growth in aquaculture. We have seen that as consumers become more aware of aquaculture, sustainability, and quality local produce, they are bringing this knowledge to the marketplace. Consequently new opportunities are emerging. One opportunity in particular which I feel EU aquaculture could expand on, is the delivery of high quality nutrition and security where it really matters in environments such as hospitals, nurseries, schools and care homes. Fish farmed in the EU are the perfect fit for this.

Now that the AAC has been created, are there any specific topics that you wish to highlight for its work ?

The establishment of the Aquaculture Advisory Council at the end of 2016 was very welcome, as there is no shortage of topics to be addressed! An important characteristic of the AAC is that it has the freedom to address the topics which are considered by its stakeholders to be the most important. The work plan we received for the first year is certainly ambitious and wide ranging and the Commission is ready to support the AAC in its pursuit of all of the topics in the work plan. Two topics proposed by the AAC, which I feel that the mix of enthusiasm, expertise, and the multi-stakeholder approach of the AAC are ideally suited to, are the exploration of the term "sustainable aquaculture" through the development of indicators and standards for sustainability. And secondly, the stakeholder-led monitoring of Member States' implementation of their multiannual aquaculture plans. Both of these topics would concretely help us work on delivery of sustainable growth in aquaculture.

What progress has been made on coordinated spatial planning for aquaculture sites in Europe?

Many of the coastal Member States are taking advantage of the Maritime Spatial Planning (MSP) Directive to map existing aquaculture facilities and identify areas that could be developed for all kinds of marine activities, with some Member States

dedicating specific zones for aquaculture development. Some Member States are also considering the broader context by developing a single law dedicated to aquaculture, which includes planning. Last year, the Commission launched an Assistance Mechanism for MSP which can provide administrative and technical support to Member States. Information is available through this mechanism on existing MSP practices, processes and projects and technical studies. The Assistance Mechanism should provide Member States with the tools they need to coordinate planning activities for aquaculture and other activities at the coast. More information can be found at www.msp-platform.eu. The Commission is also making funding available for cross-border cooperation projects on the management of maritime space in all European sea basins. Spatial planning is also a concern when it comes to inland aquaculture, and a number of Member States included actions in their multiannual plans to promote the integration of aquaculture in regional spatial planning. We will continue to monitor and follow up with Member States on the implementation of these plans.

Impressive work has been done this year by EUMOFA, which is providing more data on aquaculture. What future do you foresee for this initiative?

EUMOFA has been an important piece of work for us to bring transparency in the market place across the EU. The objective is to offer market intelligence to producers and other actors in the supply chain, to improve marketing, competitiveness and support growth. We have increasingly expanded the data and analysis performed by EUMOFA. We want to work towards delivering more tailored intelligence analysis that can effectively support the sector as well as our decision-making, and here we need your collaboration and feedback to ensure we match the needs of our users. One of the main objectives for EUMOFA this year is to take stock of what we have done since its launch and to make our analysis more robust. What we would like to do is to increase the coverage of our observatory in terms of Member States and types of data available, but at the same time also to improve the quality of the data. EUMOFA should be the go-to reference for EU fish producers looking for market intelligence.

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

The views of the new FEAP President

Marco Gilmozzi



It is a great honour for me to thank and succeed Arnault Chaperon who has led the FEAP for the last 6 years. I hope to be able to match his dynamism and enthusiastic leadership that has characterised his Presidency.

I have been a fish farmer for a long time now – rearing seabass and seabream in the Orbetello area of Tuscany in Italy – and am very aware of the challenges that face our profession every day. But the reason why I am still a fish farmer is because I know that we can solve many of the problems that affect our profession.

Aquaculture has its critics but also very many supporters and I take this opportunity to give my first views of what we do in aquaculture, why we do it and how we will address the many challenges in front of us.

All of European aquaculture sells its products to the European market, where the per capita annual consumption is now 25.5 kg. 75% of the seafood consumed in the EU is from fisheries while, at the global level, aquaculture now provides 50% of seafood production. EU aquaculture of fish and shellfish supplies less than 10% of the EU market. More than 60% of the EU seafood supply is imported and the EU trade balance deficit is €17.8 billion !

The “modest” contribution of EU fish farming is stable at about 700,000 tons, while our Northern neighbours have been able to increase the production of salmon and, within the Mediterranean, 3rd countries are raising the production of seabass and seabream. Again, much of this aquaculture produce is for the EU marketplace.

With global population growth projected to be 9.7 billion people in 2050, to be able to guarantee current levels of seafood consumption, the FAO forecasts that seafood supplies need to increase by 1.5 million tons EACH YEAR !

This is why WE ARE THE SOLUTION!

Because maximum sustainable catch limits have been reached, combined with the application of Marine Protected Areas, fisheries landings will remain stable at around 90 million tons. The only means of filling the gap between supply and demand is to develop aquaculture. We know this, the consumer increasingly knows this – but do the policy-makers and legislators know ?

We all know that fish farming requires water of high quality at the right temperature for the right species, supported by space availability for farms. Nonetheless, put simply, if 5 million Norwegians can produce 1.4 million tons and 500 million Europeans can only produce 0.7 million tons, something appears to be wrong. Why is this ? What is the problem ?

Is it the European system ? Does it allow expansion and production increases? Most of our farms are beautiful, efficient, with up-to-date equipment. We have financial support from EMFF, a healthy market demand and everything should be perfect.

Why is production not increasing? Well, systemised bureaucracy appears as our main problem – particularly in respect of regional and local aspects. To produce livestock for human consumption in an aquatic environment in rural or coastal areas in Europe means following hundreds of rules – some very important but others less so.

What sort of rules am I talking about? Well, those to do with feeds, veterinary treatments, waste water conditions, environmental matters, social conditions, fish welfare, staff security, traceability, certification....and I am just starting....

The views of the new FEAP President

Marco Gilmozzi

So, by the time that we get through all of this and put our fish on the market – fully traceable and certified and with all of the connected costs – most of these rules disappear! Why? The simple answer is the market!

Even though we assure quality, traceability, welfare and all of the other guarantees asked for – right now, price is still the dominant factor for the purchase decision. As EU producers, we cannot compete fairly with aquaculture that is not obliged to follow the same production rules but which benefits enormously from access to the market. I am very aware that the market is really not interested in the rules we respect nor the “level playing field” for producers.

However, it is important to recognise that Europe needs imported seafood – without imports our consumption would go down to 12 kg/person. At the same time, Europe cannot control the aquaculture production conditions in the same way as it does here, referring to employment conditions, worker social rights, feed ingredients, fish welfare and additional issues linked to our professional activities. We find that the European aquaculture profession is operating at the highest level but obtains lower rewards for being in this position.

Everybody knows that the consumer wants the highest quality at the cheapest price but, as I have indicated, this cannot be the driving factor for our development. Europe must focus on the food production sector that can provide the answers required to reduce the trade deficit, assure food and nutrition security and maintain the current high standards for seafood for the consumer.

We are very proud of what we do! We have complete traceability from the egg through to the final product on the shelf. We are the most efficient producers of safe, high quality food but EU producers are now providing a niche product – less than 10% of all fish consumed! The key question for me is how can the growth of European aquaculture be encouraged and realised?

I believe that an obligatory catch/harvest date should be imposed which, alongside guaranteed traceability, will provide a clear answer to consumer demands. This means that product labelling and associated information also needs to be discussed and reviewed.

Alongside these marketing and identification issues, there is another extremely important point – the issue of the European diet. 50% of Europeans are overweight and 25% are obese – this is a huge cost to public health systems because of the effects and diseases due to poor nutrition and life-styles. We must target and focus on this issue – improving awareness and providing encouragement for dietary improvement at all stages of life, where our products must be able to contribute.

To achieve the answers to the questions raised and the challenges in front of European aquaculture professionals, we need to have coherent and positive messages that cover each of the components of our activity. The aquaculture overview of this Annual Report is complemented by the detailed Production Report on the FEAP website. This demonstrates not only the variety of aquaculture but also its importance throughout Europe. The main goal of my Presidency is to support the sustainable development of European aquaculture, while understanding the complex challenges that we face each day. Aquaculture provides so many advantages that I am fully convinced that we have the answers and will provide the solution to the issues outlined here.

“We know very well that the consumer wants the highest quality at the cheapest price but this can not be the driving factor for our development”

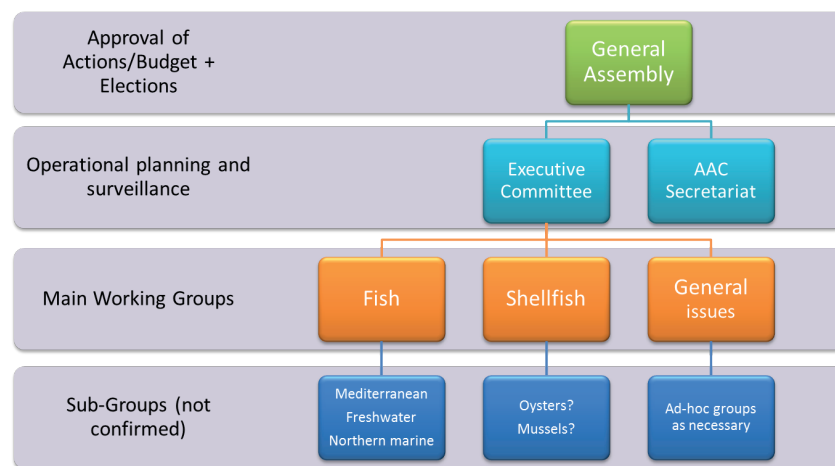


The Advisory Councils on Aquaculture and Markets

2016 marked the creation of 2 new Advisory Councils - for Aquaculture (AAC) and Markets (MAC). These Advisory Councils effectively replace and expand the Working Groups on Aquaculture and Markets of the Advisory Committee on Fisheries and Aquaculture that was disbanded in 2013. FEAP has contributed to the creation and organisation of both entities which are each legally-incorporated associations. FEAP is a founder member of each and present in the Executive (Management) Committees (ExCom) of both organisations.

Marco Gilmozzi, FEAP President, is the FEAP representative in the AAC ExCom and Arnault Chaperon, FEAP Past-President, in the MAC ExCom.

Each Advisory Council receives a grant from the European Commission, which cannot exceed 90% of its operational costs, that is accorded following approval of the administrative and operating structures which must follow Article 43(2) of Regulation EU No 1380/2013. Agreement on the Work Programme and the budget is needed before such financial assistance is accorded.



Structure of the Aquaculture Advisory Council

Aquaculture Advisory Council

In its General Assembly of 8th December 2016, Richie Flynn of IFA Aquaculture (Ireland) was elected as Chair of the AAC, following the resignation of Jean-Claude Cueff who had guided the creation process from 2014. Marco Gilmozzi and Marc Philip Buckhout of 'Seas at Risk' are the Vice-Chairs.

The core objective of the Aquaculture Advisory Council (AAC) 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.

The broad subject areas of the approved Work Programme are:

1. Implementation of the Strategic Guidelines for the Sustainable development of European Aquaculture
2. Environmental issues and sustainability concerns for aquaculture
3. European Maritime and Fisheries Fund - launch, application & progress
4. Aquatic animal health/welfare and food safety
5. Blue Growth - aquaculture focus

The Advisory Councils on Aquaculture and Markets

To achieve the Work Programme, 3 Working Groups – on Fish, Shellfish and Horizontal Issues – have been created, each looking at components of the Work Programme that has been agreed with the Commission. FEAP is leading prioritised actions dealing with the 'Level Playing Field' and 'Aquatic Animal Health Legislation' in the WG Fish, which is chaired by Javier Ojeda of APROMAR (Spain). 'Compassion in World Farming' is leading another priority action on 'Aquatic Animal Welfare'.

The Horizontal Issue WG is chaired by Bruna Campos of Birdlife International, with the Vice-Chair being Brian Thomsen of Dansk Akvakultur (Denmark) and will soon decide on its priority actions for 2017.

Markets Advisory Council (MAC)

Also created in 2016, the Markets Advisory Council's core objective is to submit recommendations and suggestions on matters related to the market of fishery and aquaculture products. These will be made on behalf of the whole value chain (primary producers (fisheries & aquaculture), traders, exporters, importers to/from third countries, processors, wholesalers, distributors, retailers), and consumers as well as other interest groups affected by the CFP and CMO. The Chair is Guus Pastoor of AIPCE (European Fish Processors Association).



AAC General Assembly (Paris, December 2016)



AAC Fish Working Group Meeting (Madrid, February 2017)

The **MAC** has three Working Groups:

1. Organisation of the Sector – mainly covering market evaluation, structure and trends
2. Market Supply – covering supply, trade, imports, traceability
3. Regulatory and Consumer affair – dealing with labels, certification, hygiene, contaminants...

Meetings of these working groups have started and progress will be reported in 2017

FEAP and several of its Member Associations are active members of both Advisory Councils and their representatives have played a key role in building and shaping them with the other stakeholder organisations involved. Although this has taken longer than foreseen, the Advisory Councils are in place, have been structured and populated and work has finally begun!

FEAP member Associations in the picture

Scottish Salmon Producers Organisation (SSPO) - www.scottishsalmon.co.uk

25 years of Label Rouge Scottish salmon

Scottish Salmon is celebrating 25 years of holding the French Government's "Label Rouge" award – an honour bestowed only on products of superior taste and quality. The industry is particularly proud that salmon was the first non-French food and only Scottish food to join this prestigious group.



Originally produced as a niche product for the premium French market, it is now sought after in other European countries, including Switzerland and Germany, and further afield in the Middle East and Japan. Last year saw record sales of Label Rouge Scottish Salmon; 8,000 tonnes of premium salmon, served in many of the top restaurants in France. A special anniversary event was held in Edinburgh in March 2017 culminating in a celebration dinner at Edinburgh Castle and the "premiere" of a short film commissioned to show the journey from Scotland's Highland salmon farms to the heart of Parisian culinary excellence. Guests included Scottish and UK Government ministers, Scottish chefs, media and representatives of the Master Chefs of France.

Michel Blanchet, Honorary President of Master Chef of France and Michelin Star for 39 years including holding two stars for 15 years, said: "We all know how famous French gastronomy is – our restaurants are recognised as the best in the world and the Master Chefs of France play a big part in this. We

are all passionate about our role, with passing on the expertise underpinning French cuisine the golden rule – one which would not exist with top quality products.

To earn this reputation, our chefs always seek out the finest products – without this there would be no great cuisine. Label Rouge represents a guarantee of this exceptional quality, which is found in Label Rouge Scottish salmon – the first fish outside France to be awarded the accolade.

We congratulate Scotland and the Scottish producers on their magnificent fish which provides us with a superb product worthy of our shining stars. On this 25th anniversary for Label Rouge Scottish salmon, we send everyone our best wishes and wish them a Happy Birthday, one which deserves to be celebrated, and we MCFs are delighted to stand beside you on this great occasion".

The Master Chefs of France have been advocates of Label Rouge Scottish Salmon since the early years of the award. Scottish salmon has been selected over the years to feature at many of their key events such as competitions for young, aspiring chefs and appears on the menus of France's top restaurants.

Many of the chefs visited salmon farms on the West Coast last year to see for themselves how one of their favourite ingredients is produced.

Christain Tetedoie, President of the Master Chefs of France, said:

"We have been working with Scottish Label Rouge Salmon for almost twenty years because this fish is simply delicious."

Scott Landsburgh, chief executive of SSPO, said:

"Being awarded the Label Rouge in 1992 was significant in developing the export market in France and has subsequently opened many other markets for Scottish salmon around the world. It is certainly an achievement worth celebrating and a moment to note that we produce salmon in some of Scotland's most remote, rural communities which ends up on dining tables around the world because of its Scottish provenance and reputation for high quality standards."



FEAP member Associations in the picture

La Fédération Française d'Aquaculture (FFA) - www.poisson-aquaculture.fr

The FFA represents the French fish farmers and their interests since 1924. It works in close collaboration with the CIPA, the Interprofessional Committee for the Aquacultural Products, which is composed of 3 colleges:

- The College of the Producers, represented by the FFA
- The College of Processors (ATT)
- The College of the food manufacturers (SPPA)

The roles and missions of the FFA are:

- Provide a forum or dialogue and exchange by organising debates between professionals, provide market research tools for the profession and help with the implementation of research programmes influencing aquaculture,
- Meeting consumers' expectations in respect to product quality, information about the industry and the promotion of French farmed fish,
- Foreseeing the sector's evolution as sustainable aquaculture and assuring food safety,
- Representing the sector at national, European and international level.

Thanks to the efforts of all French actors in freshwater and marine fish farming, the FFA prepared a quality charter in 2009 which ensures healthy nutrition, excellent traceability, maximum freshness and good breeding practices for fish welfare; the Charter targets sustainable development and adherence to its conditions is controlled by an independent organisation.



Jean Dufour - FFA

In terms of freshwater production, there are approximately 500 sites distributed throughout France that are managed by about 330 companies (Rural census 2007). France is the second European trout producers with 36 700 tons in 2015. 96% of the national freshwater production is dedicated to Rainbow trout.

Thanks to its work on reproduction and fish feeding, France is a pioneer in Europe in marine species breeding and has an annual production of 4500 tons of marine fish, mainly sea-bass and seabream. It also has a growing sturgeon sector and is a leading European producer of caviar.

The FFA is a founder member of the European Fish Farmers' Federation when it was the Federation of European Trout Growers (FES), stimulating its creation in 1968. The FFA provided the first President - Jean Dufour - and the first Secretary - Andre Tessier, Jean Dufour worked for the Moulins de France, which was later integrated into the BIOMAR feed company. For many years, the European Federation was housed in the offices of the FFA - at 11 rue Milton in Paris. Since the FEAP is still registered as a French 'Foreign Association', the link to the FFA remains as strong as ever.



Mr. Martin and Andre Tessier (FFA)

'Aquaculture in Motion 2016'

The annual FEAP event



Under the theme 'Farmed in Europe', the fifth edition of the FEAP's annual event 'Aquaculture in motion' took place on the 7th of December in Brussels. More than 75 people attended the conference, co-organised with the European Feed Manufacturers' Federation (FEFAC), which was animated and moderated by Pellegrino Riccardi. Presentations stressed the importance of aquaculture as a contributor to sustainable jobs and economic growth but also highlighted the conditions for assuring long-term development in Europe.

'Aquaculture in Europe is a priority but clear actions are needed to make things happen' said Arnault Chaperon, FEAP Past-President, in his opening remarks, after welcoming the participants to the event. Alexander Döring, Secretary General of FEFAC underlined the role and developments of compound feeds in contributing to improving the efficiency and sustainability of aquaculture.

Felix Leinemann, the new Head of Unit for aquaculture within the Directorate General for Fisheries & Maritime Affairs of the European Commission (DG MARE), underlined in his keynote the role of aquaculture in the Blue Growth Agenda, emphasising its high potential for sustainable jobs and growth.

In focusing on technical developments, Professor Sachi Kaushik made a review on fish farming processes in Europe demonstrating fish farming to be the most efficient animal production sector - in respect of feeds, protein retention, edible yield and water use.

Marco Gilmozzi, FEAP President, gave the views of the farmers on the trends in the European markets for seafood. "In the Seafood sector, Europe has a problem and we are the solution" he said, stressing that EU aquaculture produces about 1,3 of the 13,8 million tons consumed i.e. less than 10% of the products consumed in Europe. With the increase of the world population foreseen by 2050, aquaculture might well be the answer to responding to rising seafood needs and demands.

Antonio Nuccio from the European Market Observatory for Fisheries and Aquaculture Products (EUMOFA) presented figures from the observatory that gave many details on consumer preferences for seafood and related products, confirming the long-held views of the profession.

'Farmed in Europe'

Jamie Smith, Technical manager of the Scottish Salmon Producers' Organisation (SSPO) followed with a presentation on the social and economic role of aquaculture in society. He highlighted the importance of the sector in providing jobs in remote areas, helping to create and reinforce local communities. He also presented the recently published SSPO Community Charter and the wide benefit of engagement. 'Professionalism, Passion, Experience characterise the aquaculture workforce'.

Gilles Doignon, Communication officer within DG MARE, updated the audience on the progress of the 'Farmed in the EU' campaign, supported by the results obtained with the school kits circulated amongst teachers throughout Europe and, more specifically, in Spain. Gilles added that the campaign is 'the chance for European producers & researchers to become ambassadors of EU aquaculture in their community and beyond'.

Actions vs. Strategies - what is needed? was the last focal point of the conference where Arnault Chaperon presented the views of the farmers. He stressed the need for the European Banks to help finance the professional aquaculture sector and for the European Commission to facilitate achieving a 'level playing field'. Gustavo Larrazábal, President of the European Aquaculture Technology and Innovation Platform (EATiP) reported the important and essential role of Research and Innovation for the sector. 'We need the EU Commission to fulfil its promise. The EATiP Strategic Research and Innovation Agenda has to be the guide for investment in Aquaculture RD&I (Research Develop. & Innovation)'.

Before the closure of the conference, the moderator summarised the evidence that more efforts are needed to increase aquaculture growth in Europe. The EU must focus on the sector that can provide the answer to reduce the important trade deficit and maintain the current standards for seafood. The panel discussion was followed by a reception with a selection of excellent 'farmed fish' products, providing excellent proof of the content of presentations, discussions and conclusions.

All of the presentations are available in the report on Aquaculture in Motion at www.feap.info (>Media>News)

"With the increase of the world population foreseen by 2050, aquaculture might well be the answer to responding to rising seafood needs and demands."



FACTS & FIGURES

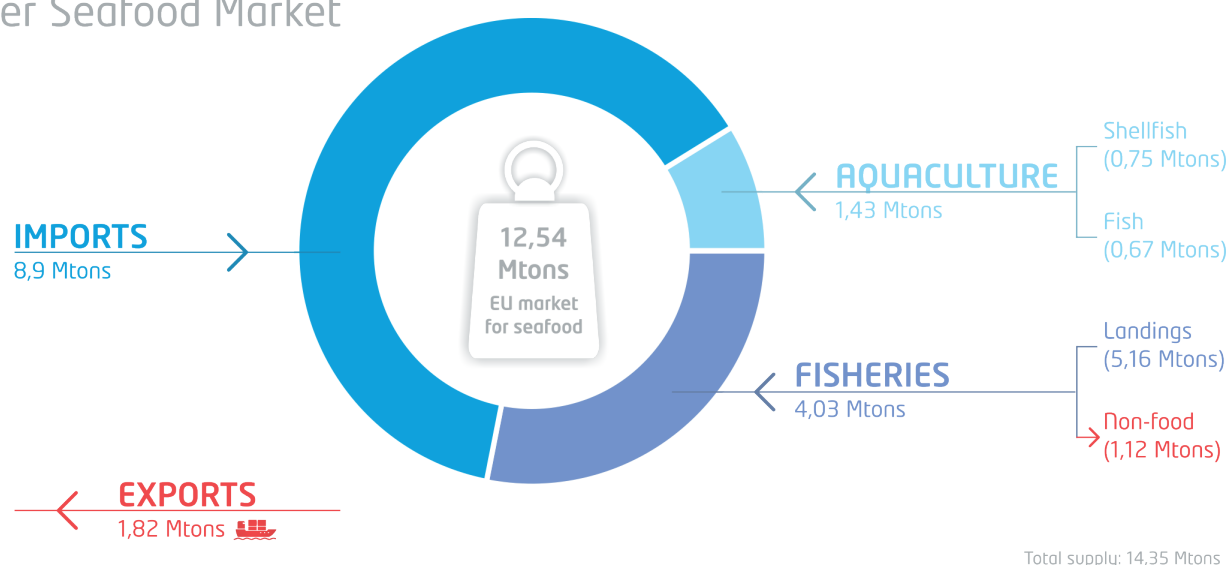


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The European Seafood Market 2015

Consumer Seafood Market



This view on the European Seafood market is for 2015, based on data from different sources^{1,2,3}, combined to give the figures reported.

The EU is the largest importer of seafood in the world. In 2015, its trade deficit reached EUR 17,8 billion, i.e. EUR 6 billion more than the United States deficit and EUR 7 billion more than the Japanese one. The EU deficit has been growing since 2009 and registered a significant 7% increase in 2015 compared to 2014, due to the growing imports of both frozen and fresh products.

Compared to 2014, the EU market for seafood grew from 12.26 to 12.54 million tons. This is made up of the fisheries supply of 4.03 million t., aquaculture harvests of 1.43 million t. and imports of 8.9 million t.. Both imports (9.1 to 8.9) and exports (2.16 to 1.82) reduced slightly in 2015. Imports represented 62% of the total supply (less non-food uses of fisheries landings). The value of imported fish grew 6% from 2014 and reached EUR 22,3 billion.

When taking away exports of 1.82 million t., this leaves a total of 12.54 million t. as the apparent market for seafood in the EU.

In terms of aquaculture supplies, shellfish production was 750,000 t. while farmed fish contributed 670,000 t., providing 13.7% and 12.4 % respectively of EU supplies. Since little of the production of EU aquaculture is exported, these figures are

assumed to be representative.

With a market of 12.54 million t., EU farmed fish thus represents 5.4% of the total, while EU shellfish was 6%. Evidently, aquaculture as an activity provides much more than this, given the supplies of salmon from Norway and shrimps and pangasius from South East Asia.

EUMOFA⁴ reported that EU consumers spent EUR 54 billion to buy fisheries and aquaculture products in 2015, reaching the highest amount ever recorded. With respect to 2014, the expenditure increased 3,2%, due to a general positive trend recorded in all Member States (with the exception of Greece).

Compared to 2014, the EU market indicates an increase of 280,000t. and these figures indicate an annual per capita consumption of 24.5kg.

1 AIPCE-CEP 'Fin Fish Study 2016'

2 European Mollusc Producers Association (communication)

3 FEAP - Annual Production Report (in preparation)

4 EUMOFA - EU Fish Market - 2016 Edition

European Aquaculture - 2016

This section gives information for 2016 on fish aquaculture in Europe, provided by the FEAP Member Associations or national authorities as confirmed or provisional data. 3 key production sectors are highlighted, being

- Marine coldwater species
- Marine Mediterranean species
- Freshwater species

Since FEAP's scope and membership is not restricted to the European Union, the term 'European aquaculture' refers to the geographical area of Europe. FEAP collects annual production data from its Member Associations which is published as an Annual Report in the 'Facts and Figures' section of its website (www.feap.info).

As in this report, countries that have a total production of less than 1,000 tons or lack a reliable data source have not been included. Within the species production reports, data on minor freshwater species and tuna fattening have not been included due to the lack of consistency.

European Fish Farming 2016

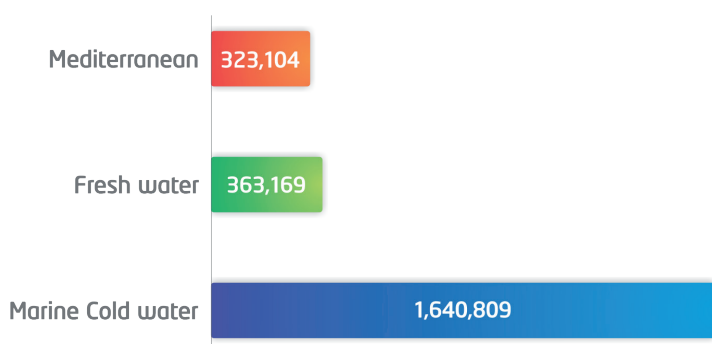
The total European production of fish by aquaculture is estimated to be 2,327,082 tons in 2016, indicating a very small drop in total production when compared to 2015. This is attributed to a reduction in salmon production in Norway and Scotland while an increase was indicated for the Faroe Islands. Mediterranean production appears to be stable and, as with freshwater production, small production increases are noted. It is noted that fish farming is one of the most climate-friendly food production systems that exist today.

Marine coldwater species represent 70% of total production, freshwater species 16% and marine Mediterranean 14%.

Norway remains the dominant producer in Europe with 58% of the total supply, mainly salmon but also large trout (>1.2 kg) production. The other countries that produce more than 100,000 tons annually are Turkey, United Kingdom and Greece.

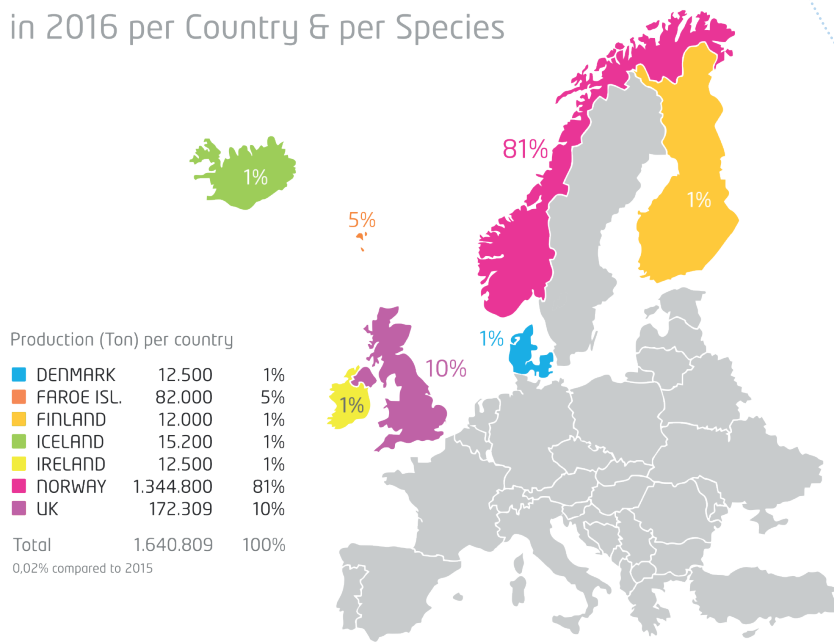
Additional production increases were noted for Spain, Italy and France while most other countries report stability.

The main species produced are salmon, trout, seabream, seabass and carp which represent 95% of the total European production in 2016. The following pages provide an overview of the key production sectors, analysed by country and by species.



Marine Coldwater

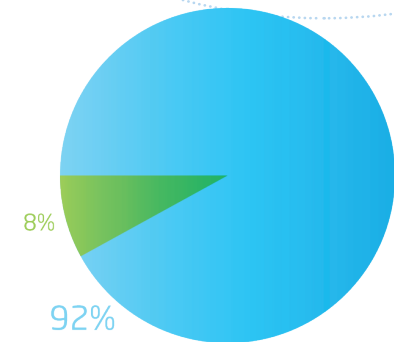
Marine Cold Water Production in 2016 per Country & per Species



1.640.809 T

Production (Ton) per species

Atlantic Salmon	1.527.239	92%
Large Rainbow Trout	126.936	8%
Arctic Char	6.144	0%
Halibut	1.570	0%
Cod	0	0%
Sole	500	0%
Total	1.640.809	100%



Key observations 2016

The Atlantic salmon harvest decreased a little for the first time in many years to 1,527,239 t. where drops were principally in Norway and Scotland, countered by rises in the Faroe Islands and Iceland. Health challenges and the effects of parasite control measures contributed to this position.

Large trout (>1.2 kg) increased slightly, providing 8% of marine coldwater production at an estimated 126,936 t.. A modest rise of Arctic char aquaculture is noted while halibut and sole remain minor elements of the production profile.

As reported in 2016, establishing control measures on the sealice parasite is of the highest concern to all salmon producers. The establishment of hatcheries to produce cleaner fish (e.g. Ballan wrasse) has provided a new, developing sector of aquaculture. Nonetheless, the impact of the costs of control measures in increasingly significant for all salmon producers.

The market for salmon has been buoyant for some time but this has posed problems for processors having difficulty with the high prices of raw materials and competition within the retail sector. The market remains good for fillets and higher value

convenience products. Nonetheless, there is an undersupply situation for the global market for salmon.

Closed farming systems have received more attention recently but still need much more development work to be economically efficient.



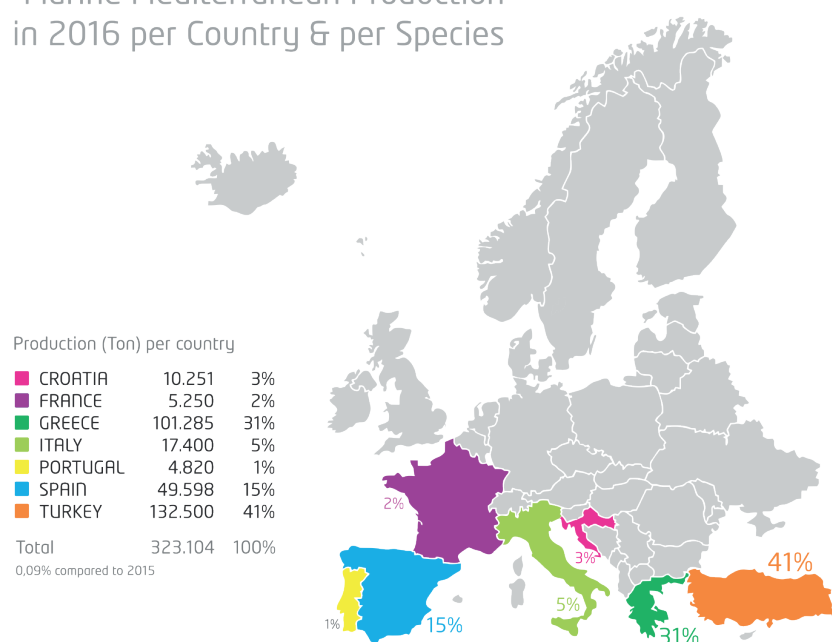
courtesy of SSPO

Marine Mediterranean

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.

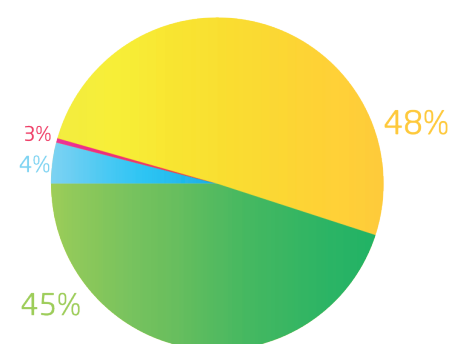
Marine Mediterranean Production in 2016 per Country & per Species

323.104 T



Production (Ton) per species

Sea Basses	156.216	48%
Sea Breams	143.826	45%
Flatfish	11.908	4%
Other Marine fish	11.000	3%
Total	323.104	100%



European seabass (*D. labrax*) – 156,216 t. - and gilthead seabream (*S. Aurata*) – 143,826 t. - are the main fish species produced in the Mediterranean area (including Portugal). The combined production of Turkey and Greece provide 72% of the production total, while Spain has increased to provide 15% of the production total. The production of turbot is stabilising in Spain and Portugal while meagre and sole are also establishing themselves as alternative species. Clear alternatives to established species are rare although minor markets for specialised production of Mediterranean fish species do exist.

Juvenile production for stocking in 2016 appears to have increased by 10% to 1,200 million. Increases were reported for Greece, Turkey, Spain and Croatia. The effects of this increase remain to be evaluated but indicate a rise in harvest potential in 2018-2019.

Many producers are increasing the size of the individual fish marketed – responding to demand – and prices have stabilised/increased in most of the main markets targeted. Turkey has reported significant growth of its national market.

Demand has grown for frozen products, for the cruise ship and HORECA sectors while the fresh/chilled product market

is growing for fillets. The food service sector is providing additional diversification opportunities away from the traditional whole fish product.

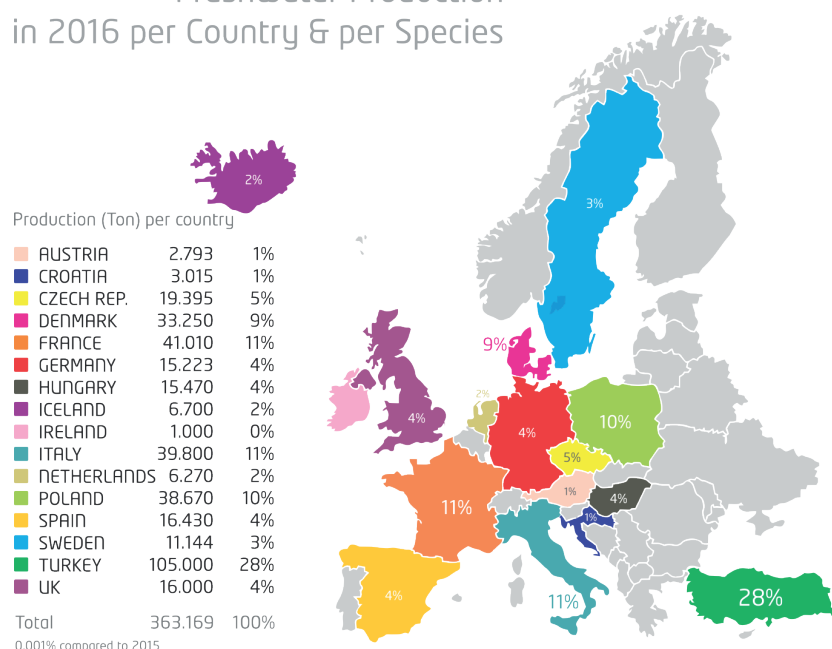
The sector sees that improvements in market intelligence are needed and is engaged in improving this through specific reporting systems managed by Kontali AS. Concerns remain on sectoral stability – notably in respect of the restructuring of major Greek companies and projected production growth scenarios. The Mediterranean production sector believes that such increases need to be addressed in a responsible and sustainable manner so that Mediterranean aquaculture can stabilise its future.

The Mediterranean Aquaculture Commission of the FEAP would like to see the establishment of a Mediterranean network of veterinarians to respond to the health challenges raised by infections and the potential effects of climate change on fish health issues.

2 new European research projects have been approved to work on improving the technical performance of Mediterranean aquaculture. These Horizon2020 projects are included in the BLUEMED initiative that covers Blue Growth in the Mediterranean area. These projects will start in mid-2017.

Freshwater

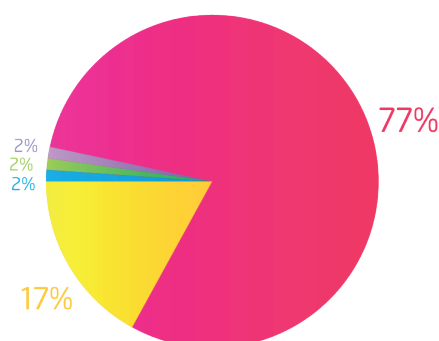
Freshwater Production in 2016 per Country & per Species



363.169 T

Production (Ton) per species

Trout	286.693	77%
Carps	62.085	17%
Catfish	7.032	2%
Eels	6.491	2%
Others	8.869	2%
Total	363.169	100%



Freshwater aquaculture is the widest spread aquaculture activity in Europe but has remained stable for many years, with little expansion and few new licences for production. The main species produced remain rainbow trout (*O. mykiss*) and common carp (*C. carpio*) and many countries have significant production levels, where 11 raise >10,000 t. per year.

It is sometimes forgotten that juvenile salmon are also produced in freshwater, since the smoltification process is their adaptation to be able to live in seawater. However, the figures for this freshwater production are not included in this report.

Turkish trout farming is the largest in Europe, over 100,000 t., while Italy, Denmark, France and Poland also have high production levels. With an estimated 287,000 t. of production of both portion-size trout and large trout, trout production represents 77% of freshwater aquaculture.

Carp production represents 17% of freshwater production and is practised mainly in central, inland Europe, which is also the location of the main markets. Poland, the Czech Republic and Hungary are the main producers of common carp and other carp species (e.g. silver and mirror carp). Production has been stable for a long time but an increase is noted for 2016.

Diversification efforts towards the production of brook trout (*S. fontinalis*) and brown trout (*S. trutta*) have been reported, while catfish (*wels*) is also receiving attention. Nonetheless, production levels remain marginal.

EU producers lead the world in caviar production. Production of 126 t. of caviar was foreseen for 2016, where Italy (38), France (30), Germany (15) and Poland (15) are the foremost producers. Forecasts to 2020 indicates a continuing rise, reaching 180 t. Parallel to this, global production is also seen to increase significantly. This situation raises a number of concerns on competition within the global market and that prices could collapse.

The pressure of predation continues for all of the freshwater aquaculture sector, with cormorants reported to be living on farms!

The application of organic legislation and certification remains problematic for different components of freshwater aquaculture. It is very difficult for sturgeon farmers to obtain organic certification due to the long rearing time; recirculation systems also face issues on certification even though they can be considered eco-friendly.

The sector has appreciated the work done on the fitness checks on European environmental legislation but notes that several reports indicate that this is the major block to future development.

FEAP'S PRIORITIES



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Knowledge Transfer

It is evident that investment in aquaculture research is needed but that access to research funding is also a highly competitive marketplace and only a small proportion of proposals receive funding. FEAP is committed to supporting actions where efficient and effective knowledge transfer is assured, looking to improve communication and dissemination activities to achieve this. FEAP has been involved in over 20 European projects since 1995 covering a range of interests and actions. These have included several European-level research dissemination actions – notably the 'Aquaflow', 'Profet' and 'Profet Policy' projects – that looked to communicate the results of European projects to the producers. These initiated the concept of developing simple technical leaflets – outlining results and potential application, prepared with researchers in easy-to-understand terms – and were initially distributed by fax...!!

Individual projects now have to give much more attention to communication of their results and measuring their impact. The Internet has brought many new tools and dissemination actions, making project results available to all. Nonetheless, good networking and coordination remains a necessities for good technology transfer.

Key issues encountered are that project results are often provided at the end and/or are protected by intellectual property rights, restricting dissemination opportunities. Enabling knowledge transfer through conferences or separate brokerage events has become more common, although assuring the presence of researchers and end-users in such events can be difficult. Farms work 24 hours/day and conference participation can be difficult for producers so ensuring access to important project results is an essential component of the communication efforts of both the FEAP and its member Associations.

Nonetheless, as projects end, researchers move on to the next one - project websites are no longer maintained and finding contacts for information on progress become problematic.

FEAP's participation in projects is primarily for this purpose - continuing to provide information access to the profession and assuring dissemination actions that target producers, using not only its network of Associations but also the wide range of contacts indicated in the Organisational Matrix diagram (see page 3).

Apart from reporting on project developments, FEAP also encourages the participants in active projects to be involved in its meetings, providing reports and updates, so as to widen the networks that project researchers have access to and initiate knowledge transfer before a project ends. In this way, both associations and producers can become aware of objectives and progress as early as possible - a position that facilitates interest and the establishment of valuable contacts for knowledge transfer.

Dedicated workshops or training events are a valuable means of informing end-users of generated knowledge and most projects have such actions integrated into their work programme.

FEAP and many Association representatives contribute to the work of the European Aquaculture Technology and Innovation Platform (EATiP) that developed a Vision and Strategic Research and Innovation Agenda (SRIA) for European Aquaculture in 2030 (see www.eatip.eu). This also highlighted the importance of Knowledge Management and EATiP created a dedicated Thematic Area to look at the issues affecting optimisation of knowledge management and transfer.

A new example of this approach has been incorporated into the project AquaExcel2020 where the aquaculture sector is represented in a special Industry-Research Advisory Panel, that advises on research project content and impact and how best to take the results forward. An additional effort has been the Columbus project (www.columbusproject.eu) which, although only focusing on marine and maritime research, covers marine aquaculture. Columbus thus looks to discover results of past and current research projects on marine aquaculture, in particular those which could provide the solutions to overcome the sectoral challenges faced today.

The EATiP is currently reviewing its SRIA with a focus on prioritisation of sectoral needs and research that will have an impact. As can be seen in this report, these are numerous and challenging.

In previous efforts, the FEAP became aware of the need for new skills and competences required by individual farms. These have included data management (FindIT project), farm effluent treatment and use (AquaEtreat), control of malformations in hatcheries (Finefish). In this report, a section on FISHBOOST is included, which is looking to use selective breeding and new technologies to provide fish to the producer that has disease resistance, can grow quicker and be adapted to new feed ingredients.

As can be seen, many of the skills required to use such developments are not necessarily provided by current education or training curricula. As a consequence, FEAP is working in 2 new projects under the Erasmus+ programme that address vocational training and new skill needs within harmonised qualifications for aquaculture professionals.

Research, innovation, knowledge management and training are integral for the sustainable development of European aquaculture and the FEAP is committed to supporting the best efforts to achieve this.

BlueEDU & Optimal

Fostering growth in the Blue Economy by developing an action plan for Innovative European Aquaculture VET and harmonised qualifications (BlueEDU)



The **BlueEDU** partnership has been established in response to growing concerns about the difficulties many European fish producers face when trying to recruit qualified staff with the necessary aquaculture knowledge and skills and when updating their existing staff knowledge. The skills needs and future demand for education and training will be established for cage farming operations (husbandry and supervisory). The application of new learning and communication technologies that can improve the quality and accessibility of education and training for remote work based learners, will be demonstrated and explored.

The supply of 'formal' aquaculture education and training by the public sector and private trainers will be evaluated alongside the un-certified short courses and in company provision which have served such a valuable role. The BlueEDU partners believe that a new working relationship can be catalysed between the education and training sector and industry, leading to a more responsive aquaculture education and training system in Europe.

BlueEDU is a two-years ERASMUS+ project coordinated by the Norwegian University for Science and Technology (NTNU) and the partnership includes the University of Stirling, Pisces Learning Innovations Ltd, Guri Kunna VET School, AQUARK, and the Federation of Aquaculture Producers (FEAP)

More information can be found on www.blueedu.eu

Optimised Training, Innovative Methods and tools for Acceptance of prior Learning in qualifications and workplace training

Optimal is a Strategic Partnership for Vocational Schools. The partnership is made up of 2 Vocational Education and Training (VET) schools, 2 SMEs with industry experience from the blue farming and production sector, one teachers association and one European industry member association under the leadership of the Blue Competence Centre of Norway. Optimal stands for Optimized Training, Innovative Methods and tools for Acceptance of prior Learning in qualifications and workplace training.

During this 3 year project, the partnership is going to investigate how delivery of VET to work-based learners through the application of Recognition of Prior Learning (RPL) methodologies and tools, allow teachers and instructors to optimise their training towards the most challenging topics and concepts with individuals or groups of learners.

BlueEDU and Optimal are financed by the European Commission under the Erasmus+ funding program.



Funded by the
Erasmus+ Programme
of the European Union

ClimeFish

A response to change for sustainable seafood



At the global level, climate change threatens the sustainable development of both aquaculture and fisheries. With an increasing world population, finding appropriate solutions to ensure adequate food production levels and respond to global demands for nutritional security is mandatory.

In this context, the ClimeFish project aims to identify the resilience of cultured and wild-caught fish and shellfish species in Europe, using predictions forecast on climate change. ClimeFish is studying three production sectors: marine aquaculture, marine fisheries and lake and pond production, which involve more than 25 species. Specific case studies have been organised for each of these sectors.

The main goals of ClimeFish are:

- Supporting sustainable fisheries
- Enabling an increase in European aquaculture production
- Facilitating employment and regional development through effective forecasting
- Developing management tools for adapting to climate change

When it comes to adaptation measures for aquaculture and fisheries, climate change is not just about the effects of storms, temperature rises and fish stock migration towards the north (which is happening). It also requires concrete measures and adaptation plans for every European country. ClimeFish is getting ready to co-create a Decision Support Framework that will help to ensure sustainable fish production in Europe taking forecast climate changes into full consideration. Scientists and stakeholders are working closely together – developing a stakeholder hub - to ensure that the knowledge generated is scientifically acceptable, has strategic and policy relevance and includes social robustness.

Representative organisations have a strong involvement in ClimeFish, such as the Food and Agriculture Organisation of the United Nations and ICES, the International Council for the Exploration of the Sea. FEAP provides strong stakeholder involvement for the professional aquaculture sector.

Preliminary results

The ClimeFish project has been running for a year now and some preliminary results are already available and noticeable. For instance, in the most important fish production areas throughout Europe (both in fisheries and aquaculture) there is a very clear indication that the species harvested in the North are less temperature tolerant. High production rated countries such as Norway, Iceland or the United Kingdom seem to be more vulnerable to this temperature change.

On the other hand, in the fresh water areas, the white fish seem to have good production conditions with the higher temperatures observed. With the same effort, a higher production and harvest could be noticeable in this fishery.

The University of Berlin is developing special software and a database to enable individual operators to be able to visualise the effects of climate change, principally temperature, on the production performance of aquaculture farms.



© Nadja Andersson

A major case study on marine aquaculture in Greece has started, accompanied by mapping and forecasting. In addition, consultation has started with stakeholders in all sectors and the development of a special communication hub is underway (led by CETMAR of Spain); a large number of stakeholder consultation events are to be organised in 2017.

First year progress has been impressive and further progress will be reported on www.climefish.eu and the FEAP website.

Starting in April 2016, ClimeFish is a consortium of 21 partners, led by the University of Tromsø, and FEAP is responsible for assisting scenario definition, communication, dissemination and training. The project will run until March 2020.

FISHBOOST

the next level of aquaculture breeding

While selective breeding is generally applied in land-based livestock farming, only about 10% of today's global aquaculture production use genetically-improved stocks. In Europe, there is huge potential to increase efficiency and profitability by domestication and genetic improvement of farmed finfish. The main challenge of FISHBOOST is to transfer this potential into economic and socially acceptable breeding schemes, and advance these for each of the target species included in the project.

FISHBOOST is examining the main components of breeding programmes for Atlantic salmon, common carp, European seabass, gillthead seabream, rainbow trout and turbot. Optimisation of breeding programmes has to account for the biological and technological specificities and constraints of each species. FISHBOOST lasts from 2014-2019 and results are providing clear progress on different fronts.

Preliminary Results

A survey among producers showed how many breeding programmes exist per species and revealed the main characteristics of these. The market shares of breeding companies by species were: 65-68% for trout, 93-95% for salmon, 43-56% for seabass, 60-66 for seabream, and 100% for turbot, showing that selective breeding already plays an important role in European aquaculture.

Data and samples from disease challenge and RAD-sequencing (genotyping-by-sequencing) experiments are being used to estimate genetic parameters for disease resistance, to detect and validate genetic markers affecting resistance, to calculate genomic predictions and, ultimately, apply the results in selective breeding for resistance to disease in each species. These results may lead to wider scale implementation of genomics into aquaculture breeding programmes.

A lot of effort is made on obtaining indicator traits for production efficiency; these are difficult to measure and FISHBOOST is looking at ways to measure production efficiency traits on live fish so as to make the selection procedures better.

Bioeconomical models for defining economic values for growth, feed intake, mortality and uniformity have been developed to quantify the importance of these traits for the European aquaculture breeding industry.

Impact of FISHBOOST

The most important impacts of FISHBOOST will occur when commercial fish breeders integrate new technologies for selection and adopt accurate measurements of new traits to attain genetic gains, taking breeding programmes up to the next level.

Optimised breeding programmes and genomics tools are being designed, including the economic impact of these. FISHBOOST addresses two groups of traits of economic and sustainability importance that are difficult to improve genetically: disease resistance and production efficiency.

Higher productivity, using more 'efficient' fish, will improve sectoral competitiveness in the market place. Reduced mortality in aquaculture production through selection for disease resistance will increase the health and welfare of the farmed fish, improve farm productivity and alleviate societal concerns.

As an example, resistance to VNN (Viral Nervous Necrosis) in European seabass has been mapped and the genomic prediction of breeding values increased accuracy of selection by 50% compared to traditional methods. These results can be taken up by the fish breeding sector.

A genetic epidemiology study on turbot, using the parasite *Phylasterides*, showed significant genetic variation in different components of the disease resistance phenotypes, including resistance, tolerance, resilience and infectiousness. Results have broad implications for understanding genetic epidemiology in aquaculture.

Studies have been done on the lipid reserves of common carp during the winter and results show medium to high heritability for growth, muscle fat content and visceral index. This work is the first practical step forward for building a breeding programme for common carp in Europe.

2 software tools are now freely available to the aquaculture industry. BASEPOP is a software tool to select individual fish or strains for new aquaculture breeding programmes while FISHBOOSTSEL is a tool to maximise genetic gains with restrictions on inbreeding.

The surveyed perceptions that European producers have on aquaculture breeding, covering benefits and risks, will enable the breeding sector to decide on desirable traits and applicable technologies in the future. Taken alongside the potential effects of climate change, FISHBOOST is setting the basis for future work on adaptation while aligning producer and consumer requirements within the scope of its research.

See www.fishboost.eu for further information.

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.



STEPHAN WINKELMANN

**Managing Director at
Heidefisch GmbH**

heidefisch.de

Who ?

32 years old, Born in Germany.

Company

I am working for about 8 years at Heidefisch GmbH as its Managing Director; it is a German aquaculture company also processing portion trout and trout caviar. Our annual production of portion trout is about 600 tons in partial circulation. We were the first ASC certified aquaculture company in Germany.

Why ?

The starting point was an agricultural family farm focusing only on agriculture but in the last 10 years it changed and started to focus on aquaculture, producing trout. Since I am very much interested in the practical and theoretical parts of aquaculture, we - as a family - have greatly expanded this area of our activities in recent years.

Main issues ?

Since the use of partial or full recirculating systems is not yet very common in aquaculture in Germany, it is also very difficult to obtain positive signals for expansion and / or development, for example with licensing authorities. I see it positively that the European Union in connection with the respective county or federal state started since years a support program for the development of aquaculture. This allows many fish farmers to expand their activity competitively.

Message

Be open and fair in particular with all business partners. I can only recommend to all young people looking for a diversified and challenging work, to enter in the aquaculture sector. This also offers a huge spectrum of opportunities for the future. The legislation needs to promote fish farming and aquaculture.

Future of EU aquaculture ?

Very positively, if the legislation and the aquaculture work out and find common guidelines in order to be able to fulfill a two-sided sustainable concept in production as well as environmental requirements.



PAUL MEULENDIJKS

**working at
Rijpelaal B.V**

rijpelaal.nl

Who ?

30 years old, Born in the Netherlands.
Degree: International trade and wholesaler.

Company

Rijpelaal started in 1988. My dad, Johan Meulendijks, started a little eel farm. He thought of his own culture system and learned the smoking process from an eels moker in Harderwijk (NL). Now we have a store next to the company for individuals to buy eel and some other fish products; they can also have a cup of coffee with a sandwich. Next to that, we deliver eel to several restaurants, wholesale traders and stores. Since 2012, we have a webshop where people can order eel and this will be delivered directly by the post office in cool boxes.

Why ?

My dad started the company and as a little kid I grew up in the farm. My dad's passion hit me and I was infected with the 'eel virus'. So after my study I started working in the company. In the following years we expanded the processing of the smoked and fresh eels.

Main issues ?

In Holland we have a code of conduct for fish farming. And for processing you need a HACCP handbook, this contains all the rules to work hygienically.

Message

We promote aquaculture by having an open day in the farm every other year. Also, we welcome students to have a look around and ask questions. We are affiliated with DUPAN, which is the Dutch Association of Eel traders. The foundation's purpose is to achieve the recovery of the European eel. It undertakes activities that contribute to a sustainable recovery of the eel stocks in both the Dutch and European inland waterways.

Future of EU aquaculture ?

I believe that with a growing world population, the consumption of fish will be growing too. So I'm very positive about that.

FEAP'S ACTIVITIES



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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 2016, FEAP participated in:

- European Commission workshops and meetings related to aquaculture (MARE, ENVI, SANTÉ)
- Animal Health Advisory Committee (AHAC) meetings
- Strategic Coordination Group (SCG) for the Common Implementation Strategy (CIS) of the Water Framework Directive (WFD) meetings
- AAC and MAC meetings
- FVO Workshop on veterinary medicines (IE)
- FEFAC Fish Feed Committee meetings – Gembloux & Brussels (BE)
- Bioeconomy meetings – Brussels (BE)
- MARIBE Workshop (Marine Investment - Blue Economy)
- FOOD 2030 conference – Brussels (BE)
- Ny Alesund Blue Ocean Symposium – Svalbard (NO)
- EATiP meetings – Brussels (BE)
- Aquaculture Europe 2016 – Edinburgh (UK)
- ERRIN Workshop on aquaculture – Brussels (BE)
- HELCOM conference – Stockholm (SW)
- Aquaculture Day 2016 – Madrid (ES)
- COFASP Final Conference – Kiel (DE)
- “FindIT” development meetings - (BE & NO)
- FISHBOOST project Meeting - Heraklion (GR)
- ASC meeting @ Seafood Expo Brussels (BE)
- AQUAEXCEL2020 project meetings – Szarvas (HU), Heraklion (GR)



- CLIMEFISH project meeting – Tromsø (NO)
- ORAQUA annual event – Venice (IT)
- TRAF00N-TRADEIT Final Conference – Brussels (BE)
- OPTIMAL project meeting – Edinburgh (UK)
- Sturgeon Working Group Meeting – Brussels (BE)

This high level of participation guarantees the expression of the views of the profession in different formats and functions, underlining the positive approach of the FEAP to debate and consultation on European aquaculture

The FEAP organised its 2016 Annual General Meeting in Warsaw (Poland) in May and its Presidents' Meeting in Brussels (Belgium) in December.

*The **49th Annual General Meeting** that will provide the positions for FEAP's future work is to be held in Mestre [Venice] (Italy) on May 18-20 2017, hosted by the Associazione Piscicoltori Italiani (API),*

*The **FEAP Presidents' Meeting** will be held in Brussels in late 2017.*



The Future: what brings 2017?

2017 provides the start of the real work of the Advisory Councils on Aquaculture and Markets. FEAP representation is assured at all levels, in the Working Groups of each AC as well as the Executive Committees.

Initial AAC work will focus on the factors affecting the 'Level Playing Field', indicators for sustainable and responsible aquaculture and 'Aquatic Animal Health and Welfare'.

The latter subject is complemented by continuing work in the FishMedPlus coalition on the authorisation of veterinary medicinal products for aquaculture and FEAP participation in a new EC platform on Animal Welfare.

Catherine Pons of the FEAP Secretariat will follow the "Blue-Edu" and "Optimal" Erasmus+ education projects, which look to improve formal and vocational training in aquaculture.

2 new projects on improving the technical performance in Mediterranean aquaculture will start in 2017, where several FEAP Associations and company representatives are participating.

A new FEAP Commission on Communication was created in 2016 and will be looking at new actions and their coordination within FEAP, supported by Maurine Toussaint - the FEAP Communications Assistant.

FEAP's work on the Product Environmental Footprint of fish farming is being furthered by an action led by FEFAC on a global reference for environmental footprinting in the feed industry. Since feeds represent the largest component of PEF in fish farming, a new representative database is under development.

The review of the FEAP's Code of Conduct for European aquaculture was initiated in 2016 and will continue in 2017.

In 2017, FEAP's consultation efforts will thus focus on

- The operation and work of the Aquaculture and Markets Advisory Councils, developing positions and advice on issues affecting European aquaculture
- Consultation with the FEFAC Fish Feed Committee, FEFANA (EU Association of Specialty Feed Ingredients) on the improvement of compound feeds for fish farming, including the development of the Global Feed Life-Cycle Analysis Institute
- Work within FishMedPlus and consultations with the relevant authorities on fish health, welfare and the availability of veterinary treatments
- Contributions to the European projects in which FEAP participates
- Consultation on how aquaculture is integrated within European environmental legislation
- Review of the FEAP Code of Conduct for European aquaculture

Contact us

The office holders of FEAP are:

- Marco Gilmozzi (Italy): President
- Paul Birger Torgnes (Norway): Vice president
- Gustavo Larrazábal (Spain): Vice president
- Bernhard Feneis (Germany): Vice president
- Arnault Chaperon (Spain): Past president

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National Member Associations:

BELGIUM	Collège des Producteurs (CdP)
CROATIA	Croatian Chamber of Economy – Aquaculture Unit (CCE – Aq. Unit)
CYPRUS	Cyprus Mariculture Association (CMA)
CZECH REPUBLIC	Czech Fish Farmers Association (CFFA)
DENMARK	Dansk Akvakultur (DA)
FINLAND	Ålands Fiskodlarförening
FINLAND	Finnish Fish Farmers' Association (FFFA)
FRANCE	Fédération Française d'Aquaculture (FFA)
GERMANY	Verband der Deutschen Binnenfischerei und Aquakultur (VDBA)
GREECE	Federation of Greek Maricultures (FGM)
HUNGARY	Hungarian Aquaculture and Fisheries Inter-branch Organisation (MA-HAL)
ICELAND	Icelandic Aquaculture Association (IAA)
IRELAND	Irish Salmon Growers Association (ISGA)
ITALY	Associazione Piscicoltori Italiani (API)
NETHERLANDS	Nederlandse Vereniging van viswerkers (NeVeVi)
NORWAY	Norwegian Seafood Federation (FHL)
POLAND	Polish Trout Breeders Association (PTBA)
PORTUGAL	Associação de Aquaculturas de Portugal (APA)
SPAIN	Asociación Empresarial de Productores de Cultivos Marinos (APROMAR)
TURKEY	Central Union of Aquaculture Producers
UNITED KINGDOM	British Trout Association (BTA)
UNITED KINGDOM	Scottish Salmon Producers Organisation (SSPO)

Notes
