



European  
Commission

# Summary of the 27 Multiannual National Aquaculture Plans

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## Contents

1.	INTRODUCTION .....	4
2.	CURRENT SITUATION AND GROWTH TARGETS.....	4
3.	MAIN TRENDS, CHALLENGES AND OBJECTIVES.....	5
3.1	Marine finfish .....	5
3.2	Shellfish .....	6
3.3	Other marine aquaculture.....	7
3.4	Freshwater aquaculture.....	7
4	STRATEGIC ACTIONS PLANNED BY MEMBER STATES .....	8
4.1	Simplification of administrative procedures.....	8
4.2	Coordinated spatial planning.....	9
4.3	Enhancing the competitiveness of EU aquaculture .....	9
4.4	Promoting a level playing field for EU operators .....	10
5	BEST PRACTICES.....	11

### EUROPEAN COMMISSION

Directorate-General for Maritime Affairs and Fisheries  
Directorate A  
Unit A2

E-mail: [MARE-A2@ec.europa.eu](mailto:MARE-A2@ec.europa.eu)

*European Commission  
B-1049 Brussels*

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## **1. INTRODUCTION**

The reformed Common Fisheries Policy (CFP) places an increased emphasis on the sustainable development of aquaculture. It requires EU Member States to establish a Multiannual National Strategic Plan for the development of aquaculture activities<sup>1</sup>. The multiannual national strategic plans include the Member States' objectives until 2020 and beyond, and the funding, administrative and other measures to be pursued to achieve them.

The European Commission published the Strategic Guidelines for the Sustainable Development of EU Aquaculture<sup>2</sup> which includes a draft outline for the multiannual national plans (Annex 1).

This document analyses the main objectives and challenges of the aquaculture sector identified by 27 Member States in their plans within the overall context of the CFP<sup>3</sup>.

## **2. CURRENT SITUATION AND GROWTH TARGETS**

Currently, the EU aquaculture sector produces about 1.2 million tonnes of fish and shellfish with a total value of around EUR 4 billion. This is little over 1% of the global aquaculture production. The sector is composed almost entirely of micro enterprises and provides employment to approximately 85,000 people. The most important farmed species in the EU are mussels, oysters, salmon, trout, carp, seabass and seabream. Relatively small quantities of other species are also produced, for example turbot, bluefin tuna, clams and catfish. The freshwater species (carp and trout) are reared in semi-intensive ponds and intensive recirculation systems, while marine finfish (salmon, seabass and seabream) are usually farmed in cages located in more protected inshore waters. Hatcheries producing eggs and fry are often integrated in farms dedicated to further on-growing. Various techniques are used for shellfish farming – on-bottom as well as off-bottom (rafts and long-lines).

The EU demand for fish is met by EU aquaculture (10%) and EU fisheries (30%), with the remaining 60% of wild and farmed fish consumed imported from third countries.

The estimated projection for aquaculture production in 2020<sup>4</sup> is an increase of over 300,000 tonnes (25%) to a total of more than 1.5 million tonnes.

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<sup>1</sup> Article 34 of Regulation (EU) No 1380/2013

<sup>2</sup> Strategic Guidelines for the sustainable development of EU aquaculture (COM(2013)COM(2013) 229 final; Brussels, 29.4.2013

<sup>3</sup> All EU Member States except Luxembourg

<sup>4</sup> Estimates are calculated according to the figures presented in Member States' plans

### **3. MAIN TRENDS, CHALLENGES AND OBJECTIVES**

#### **3.1 Marine finfish**

##### Trends

In 2012, EU Member States produced 330,000 tonnes of marine finfish species with a value of EUR 1.5 billion representing roughly 25% of EU aquaculture production. More than 90% of marine finfish production is concentrated on salmon, seabass and seabream. Other marine species grown in the EU include mostly turbot, and other miscellaneous species like meagre, sole or amberjack. The main production technique for marine finfish is farming in cages with fry produced in shore-based hatcheries.

In Northern EU countries, finfish aquaculture is dominated by salmon with a production of almost 180,000 tonnes at a value of EUR 720 million. The United Kingdom, and in particular Scotland, is by far the leading EU producer of farmed salmon with 95% of total EU production, Ireland is the next biggest producer of salmon (5%).

In Southern EU countries, and in particular in the Mediterranean Sea, seabass and seabream are the main species grown. Total EU production is close to 150,000 tonnes at a value of EUR 800 million. The main EU producers are Greece with 62% of EU production, Spain (20%) and Italy (7%). These two species are also grown in several other EU Member States including Croatia, Cyprus, France, Malta and Portugal but at modest levels (less than 4,000 tonnes annual production).

Portugal and Spain are the main producers of turbot (10,000 tonnes). Italy and Spain are the two main Member States pioneering production of other marine finfish species.

##### Challenges

The main challenge to enhancing production is the lack of available space in inshore sheltered areas. In response, the United Kingdom aims to develop offshore aquaculture while Greece, Italy, Ireland and Spain are focusing on reorganising production sites to optimise the use of available space. Competitiveness of products compared to similar production in third countries is another important challenge identified by Member States. Cyprus, France, Greece, Ireland, Italy and Spain aim to address this issue through the development of more cost-effective production techniques incorporating research and development outputs, improved marketing of products and better linkages between economic operators in the industry (i.e. feed manufacturers, fry producers). All Member States listed also intend to simplify administrative procedures related to national and regional environmental laws which have an effect on aquaculture activities in marine inshore areas.

##### Objectives

The objective for EU marine finfish aquaculture is to increase production to 480,000 tonnes by 2020, a 60% increase compared to current production levels.

## 3.2 Shellfish

### Trends

The EU shellfish aquaculture sector produced almost 550,000 tonnes in 2012 at a value nearing EUR 900 million, accounting for roughly half of EU aquaculture output. Main species produced include mussels, oysters and other bivalve species including clams, cockle, carpet shell, abalone and scallops. Shellfish aquaculture relies on extensive techniques with species consuming food web elements naturally present in the water. Fry is also mostly collected from the wild during planktonic phases. However, some shore based nurseries also produce higher growth performance spat (i.e. triploid oysters).

Mussels dominate EU shellfish aquaculture with production nearing 450,000 tonnes per year for a value of EUR 417 million. Northern Member States focus on the production of blue mussels while Southern and Black Sea Member States grow the larger body-sized Mediterranean mussel species. The main EU producer is Spain with almost 50% of the EU farmed mussel production. The main technique for shellfish farming is with ropes hanging below rafts deployed in sheltered areas (e.g. rias of Galicia). France and Italy are the second largest EU producers (20% each of total EU production) with mussels grown either on the bottom, on stakes or on ropes, the latter technique being more widespread in the Mediterranean. Other Member States with significant mussel production include Greece, Ireland, the United Kingdom, Netherlands, and Croatia.

Oyster is the second main shellfish species grown in the EU with approximately 95,000 tonnes produced valued at EUR 450 million. France is the single largest oyster producer (90% of EU production), along with Ireland, the Netherlands and Spain. Oysters are generally grown in estuarine areas, either in bags or laid on the bottom.

There is also a significant production of clams, especially in Italy, which produces approximately 30,000 tonnes

### Challenges

Increases in production are constrained by the lack of space in inshore areas. Nevertheless, Spain, France, Italy and other Member States foresee a possible expansion of mussel culture on hanging ropes in offshore areas and through restructuring of existing production sites to increase productivity. Improved commercialisation of shellfish through better marketing and use of techniques to extend shelf-life are identified as other potential growth factors. Environmental conditions causing algal blooms, and the spread of biotoxins with links to human and shellfish health also have a strong effect on production and time of harvest. Research and development is intended to increase the production efficiency of operations and also help build up the resilience of the sector to environmental hazards (bio-toxins, virus outbreaks etc.).

### Objectives

The objectives listed by Member States aim to increase shellfish production from 550,000 tonnes to 680,000 tonnes by 2020, a 25% increase compared to the current baseline.

### **3.3 Other marine aquaculture**

Bluefin tuna capture-based aquaculture is widespread in the Mediterranean basin. Adult and juvenile bluefin tuna are caught in the wild by fishing vessels and transferred live into cages and fattened until they reach valuable commercial grades. In 2014, the production reached approximately 10,000 tonnes with Spain, Malta and Croatia being the main producing Member States. Ongoing research and development related to closing the breeding cycle of tuna to allow for captive bred juveniles will eliminate the reliance on fisheries to provide the input for fattening. This could see significant growth in the aquaculture of tuna in the near future.

Data on seaweed farming, as distinct from wild harvest is lacking at present, however seaweed is a sector that is poised for growth with high-value applications in food, feed, and cosmetics. Bio-fuel from cultured macro-algae may also support further developments of seaweed aquaculture in Europe.

### **3.4 Freshwater aquaculture**

#### Trends

In 2012 the EU Member States produced 240,000 tonnes of freshwater fish with a total value of EUR 750 million. Freshwater production accounts for about 25% of EU aquaculture output. The most important species are trout and carp, which represent 93% and 86% of the total freshwater production volume and value respectively.

The EU produced 163,000 tonnes of trout in 2012, which generated a turnover of EUR 462 million. The most important producers are Denmark, France and Italy which account together for about 55% of the total output, followed by Germany, Poland, Spain, Sweden and the United Kingdom. About two thirds of the trout is produced in tanks. The remainder is produced ponds, recirculation systems, and cages.

In 2012 the EU produced about 80,000 tonnes of carp, with a total value of almost EUR 170 million. About three quarters of the total production originated from three Member States –the Czech Republic, Hungary and Poland. Ponds, which have been in existence for centuries, are the main production method used.

Farming of other freshwater species in 2012 amounted to 16,000 tonnes, with a total value of a little over EUR 90 million. Catfish, eel, char and sturgeon account for 83% of the total production. Caviar from sturgeon aquaculture is a noteworthy high-value freshwater product. Approximately 75 tonnes of caviar are produced each year. The key production technologies in freshwater aquaculture are tanks and recirculation systems, each accounting for about one third of the fish produced. Five Member States represent 60-70% of the total production: Hungary, Italy, the Netherlands, Poland and Sweden.

#### Challenges

Freshwater farming faces a number of major challenges. Most production originates from small scale farmers, with limited access to credit and low capacity to invest. Relatively high costs of labour, land and other inputs in many cases put the sector at a competitive disadvantage against cheap imports from third countries. However, such a competitive disadvantage is not always the case, notably in France, where strong markets have been

developed on the basis of high-quality and highly localised production. The fragmented structure of the sector cannot respond to concentrated demand from large retail chains. Finally, the lack of suitable space (due to competition with other users) imposes further restrictions on the development of the freshwater aquaculture.

Carp farming in ponds faces some additional specific problems, of which stagnating seasonal demand and damage by protected predators, especially cormorants, are the most significant. The problem of seasonality will be addressed by promoting processing, product development and marketing campaigns. Cooperation with research institutes and within the production chain are key to future success.

Successful introduction of new species requires long start-up periods, which are difficult to finance for small scale producers.

### Objectives

A number of countries including Italy, Austria, Germany and Slovenia plan small increases in the total volume of trout produced.

Increased carp production is not foreseen by any major producing Member State. Rather the carp sector will focus on achieving stable production and aim for product diversification, including agro-tourism, and strengthening of the environmental role of the ponds. Hungary, on the other hand, plans to increase its total aquaculture production by 15% through construction of new ponds and modernization of some of the existing ones.

Diversification of production to incorporate new species and new processed and added value products is an important part of the growth strategy and competitiveness of the freshwater sector. Hungary and Poland intend to strengthen fish farming in recirculation systems of species like eel, sturgeon, tilapia and perch. This is a part of an overall strategy which pursues promotion of 'modern' fish farming. The Netherlands and France pursue the development of knowledge, expertise and equipment all of which are viewed as potential export products.

## **4 STRATEGIC ACTIONS PLANNED BY MEMBER STATES**

### **4.1 Simplification of administrative procedures**

Most Member States acknowledge that administrative procedures are long and cumbersome. Administrative complexity stems from the number of ministries involved, the different national and regional regulatory requirements impacting aquaculture activities based on national transposition of WFD, MFSD, Bird and Habitat Directives, and the lack of communication between ministries and authorities on aquaculture issues.

The setting up of inter-Ministry coordination groups to review the applicable legislation, simplify it, and streamline application procedures are proposed by Bulgaria, Croatia, France, Germany, Greece, Italy, Malta, Romania, Slovakia, Spain and the United Kingdom. In Spain and in the United Kingdom where administrative responsibilities are devolved, harmonisation of legislation and procedures at national level is also a priority. Improved involvement of stakeholders in the decision-making process is a measure adopted by some Member States to better inform authorities on technical and legal issues. Bulgaria will create a dedicated advisory board while Denmark, Ireland, Italy, Finland, France and the United Kingdom plan to set up other fora for exchange between authorities and private operators.

Simplification of access for applicants is an overarching measure adopted by almost all Member States. Italy will create a one-stop-shop for license applications in particular to support Regional administrations. France will consolidate its existing one-stop-shop, while the Czech Republic, Ireland and Portugal will develop single web portals for submission and follow-up of applications. Guidelines to make the legislation and procedures more transparent, understandable and predictable are announced by Austria, Croatia, Cyprus, Estonia, Germany, Greece, Italy, and Portugal.

## **4.2 Coordinated spatial planning**

In marine areas, some Member States concerned will take up the opportunity offered by the Marine Spatial Planning Directive to map existing aquaculture facilities, and identify suitable potential aquaculture areas and their environmental relationships with other marine activities. Italy, Ireland and the United Kingdom announced the creation of stakeholder-driven local committees for co-management of aquaculture sites alongside other interests to assist in spatial planning at local scales, similar to the model of the C.L.A.M.S. pilot project developed in Ireland. Greece will also continue to build on an existing framework for Spatial Planning.

For inland waters, spatial management is usually devolved to local or regional authorities in most Member States. Bulgaria, France, Romania, Spain and Sweden intend to promote integration of aquaculture in regional spatial planning through increased awareness of responsible authorities on issues linked to the aquaculture sector and definition of common criteria for identification of aquaculture sites.

In all Member States, spatial planning is expected to constitute an important tool used by relevant administrations to inform the decision-making process for license applications for both maritime and continental aquaculture.

## **4.3 Enhancing the competitiveness of EU aquaculture**

Despite the large differences in aquaculture practices in the different Member States, all Member States have the same approaches to enhancing competitiveness. They focus on the importance of research and development, cooperation of stakeholders, promotion of environmentally sustainable practices and diversification and marketing.

Research and development plans are targeted at improving production technologies, especially energy efficiency (carbon footprint), waste water treatment, the efficiency of feeds, and reducing the susceptibility of the animals to diseases and viruses. Other broader issues like environmental impact and consumer demand related to the introduction of new species are also addressed.

Some Member States highlight the need for better cooperation among the producers, e.g. within producer organisations, and integration within the value chain between producers, processors and trade. This is stressed by Austria, Finland, France, Greece, Italy, Latvia, Lithuania, Portugal, Romania and Sweden. In order to benefit from the cooperation and increase efficiency and productivity, fish farms should have a sufficient commercial scale, an issue raised by Ireland, Lithuania and Malta.

It is considered essential that aquaculture demonstrates its environmental sustainability to the broader public. The need to better communicate, through certification or promotion

campaigns, on the environmental impact of aquaculture (use of water, energy and medicines and other additives), animal welfare and public safety is acknowledged by most Member States. The environmental sustainability of aquaculture is considered an important issue by Austria, Bulgaria, Cyprus, Germany, Greece, Italy, Spain, Slovenia and Sweden.

Estonia, France, Greece, Italy, Lithuania, Malta and Spain stress the need to create added value for aquaculture farms through diversification and marketing and promotional activities. The Czech Republic, Denmark and Lithuania aim to develop new products, which call for cooperation between fish farmers and fish processors. Marketing studies have to guide such development towards products for which strong demand can be expected.

Translating the required innovations into practice calls for creation of infrastructure facilitating lifelong learning of those working in the sector. Lifelong learning is considered a specific competitiveness tool by Bulgaria, Denmark, Estonia, Finland, Italy and Latvia. This should be achieved through intensified cooperation with the research institutes.

#### **4.4 Promoting a level playing field for EU operators**

All Member States consider innovation in aquaculture through promotion of research and development, close cooperation between research institutes and the industry as important drivers for a level playing field.

Cyprus, Greece, Italy, Romania, Sweden and the United Kingdom foresee the support of Producer Organisations to assist their members in areas such as the development of traceability schemes or codes of conduct and obtaining certifications. Producer Organisations could also facilitate exchange of knowledge and experience as well as cooperation with research institutes or implementation of pilot projects.

Promotion of certification is considered an important tool by Bulgaria, Estonia, Finland, Greece, Ireland, Italy, Romania, Spain and Sweden. Austria and the Czech Republic propose to develop new (or strengthen the use of existing) regional or national labels in the form of 'appellation / certificate of origin', which has been successful in other food products. The Netherlands propose the development of certification schemes in collaboration with established international certification bodies (e.g. Aquaculture Stewardship Council) for species which are not being certified at present. This could pave the way for international adoption and roll-out. The position of aquaculture products on the market needs to be improved, compared to potential substitutes. For this reason, marketing and promotion campaigns are announced by Austria, Belgium, Cyprus, Denmark, Lithuania and Malta. Certification of aquaculture products is expected to play an important role in order to improve fish farming practices as well as increase consumer awareness. Consumption of some species, particularly carp, is highly seasonal. Development of new products and promotion campaigns are intended to address this specific market characteristic in the Czech Republic, Poland and Hungary.

## 5 BEST PRACTICES

A broad variety of best practices are presented. These range from individual producers or projects, through to development of codes of conduct to demonstrate the application of scientific assessments, and adoption of certification. Promotion of best practices requires organisation for dissemination of knowledge and exchange of experience.

The Czech Republic, Croatia, Denmark, Italy and Slovenia make references to specific producers or projects, undertaken under the EFF, which can serve as pilot or demonstration units. These producers have achieved high standards in terms of environmental and economic efficiency and can be used as examples for others. Use of well-developed recirculation systems, which optimise use of energy, feed, water and space is a specific example of what some Member States consider best practice (Belgium, the Czech Republic, Denmark and Germany).

Development of a specific code of conduct, based on accepted international standards, and promotion of this code among producers, is another way to introduce best practices. Several Member States have already formulated a code in relation to specific fish farming practices. This is mentioned by Belgium, Ireland, Romania and the United Kingdom.

It is widely accepted amongst the best practices cited that scientific evidence should be followed to formulate and monitor management and production practices in relation to environmental impact, sanitary and veterinary conditions and food safety. This is cited by Bulgaria, Finland, Greece, Ireland, Italy and Latvia. Determination of the carrying capacity of the environment, in particular in open marine farming, is the principal precondition to allocation of space and provision of licenses or permits.

Several Member States (Austria, the Netherlands, Spain,) refer to specific certification schemes, which must ensure sustainability, quality and social responsibility:

- Sustainability certificates: ISO 14001:2004 (ERM), EMAS, ISO 14040:2006 and 14044:2006 (LCA), ISO 14067 (carbon print), ASC, GlobalGAP, ACC, GAA, FOS
- Quality certificates: ISO 9001:2008 (quality management), ISO 22000:2005 (food safety), BRC, IFS
- Productivity certificates: Denomination of origin (Member States specific), "Friend of sea", GAA, ACC, ASC, etc.
- Social responsibility certificates: ISO 26000 (SR), Fairtrade, SA 8000

Many Member States have set up (or intend to do so) committees with the objective of strengthening aquaculture and promotion of best practices (Cyprus, France, Ireland, Estonia, Greece, Lithuania and Latvia). These committees are usually composed of an array of stakeholders, including producers, scientific institutes, local and national administrations, processors and trade and various NGOs. The committees may cover the entire aquaculture sector or they may focus on specific activities such as combatting sea lice in salmon farming in Ireland. They may play a general role as a platform for exchange of knowledge and experience, but also assume specific tasks like coordination of the combating of diseases.

