



No 59 December 2012

FISHERIES AND AQUACULTURE IN EUROPE

 **Maritime Sectors: developing blue growth**

 Scientific advice: for the general public

 Report: Castletownbere Haven

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We welcome your comments or suggestions at the following address:
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- Website of Maria Damanaki, European Commissioner for Maritime Affairs and Fisheries
> http://ec.europa.eu/commission_2010-2014/damanaki/index_en.htm
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Fisheries and aquaculture in Europe is a magazine published by the Directorate-General for Maritime Affairs and Fisheries of the European Commission. It is distributed free on request (see subscription coupon on page 12). *Fisheries and aquaculture in Europe* is published five times a year and it is also available on the Maritime Affairs and Fisheries DG website: http://ec.europa.eu/fisheries/documentation/magazine/index_en.htm

Editor: European Commission, Directorate-General for Maritime Affairs and Fisheries, Director-General.

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Illustrations (*Sparus aurata* – *Mytilus edulis*/*Mytilus galloprovincialis*): © Scandfish



Good news

Good news is worth talking about, especially when it pertains to the economy – and even more so in today's economic and financial climate. The good news is that the European blue economy is faring well, and more importantly, it offers us sustainable growth opportunities. The added value it creates and the jobs it generates are growing and there are no signs that this trend will stop anytime soon. This is what is announced in the European Commission's recent initiative on 'blue growth', presented in the following pages.

Indeed, European maritime companies are enjoying a boom for the moment. They are buoyed by healthy key sectors such as freight, cruise tourism and offshore wind energy. These sectors are also leading to the creation of niche or growth sectors such as speciality high-technology shipbuilding (cruise ships). Even fisheries, an activity that has long felt the pinch of a resource crisis, still offers pockets of growth, as seen in this issue's report on Ireland.

This is a boon. As terrestrial Europe grapples with the economic crisis and strives to emerge from a slump, these growth prospects are crucial for the 21st century. As well as growth in these well-established sectors, there are also good prospects in a number of emerging activities. This potential contributes not only to high quality jobs, but also a more resource-efficient Europe, through sustainable tourism and recreation, an expansion of marine renewable energy, a greater variety of aquaculture seafood products and a biotechnology industry that can exploit the seas' extraordinary biodiversity.

Europe's policy-makers are aware of this opportunity. On 8 October in Limassol, Cyprus, the Ministers with responsibility for maritime affairs in the European Union Member States put in writing their expectations of the promises made regarding the blue economy. They pledged, with the Commission, to do all they can to make sure these promises are kept.

In order to lower the cost of embarking on these new activities and to stimulate innovative new products and services, the EU is undertaking a number of actions to improve knowledge of the sea through networking marine data providers, to provide businesses with the sea space they need through better spatial planning and to protect these new activities with a more cost-effective maritime surveillance.

But this growth must not become a modern version of the gold rush, causing irreparable environmental damage to unique ecosystems. These same measures – better knowledge of the sea, better maritime surveillance and better spatial planning – can facilitate a more rational use of our seas, while safeguarding a healthy marine biodiversity.

Many are the challenges, but many also are the opportunities – and this is why blue growth can really be a 'good news story' come true.

The Editor

Growth and jobs: the new maritime bywords

The European Union's maritime policy recently took on a new dimension as a result of two initiatives. First, on 13 September, the European Commission adopted a Communication on Blue Growth that recommends developing the maritime sectors to help Europe put its economy back on the road to recovery. Then, on 8 October, in Limassol, Cyprus, an informal Council of Ministers echoed this call by adopting a maritime agenda for growth and jobs. The blue economy has become a pillar of the Europe 2020 Strategy.

This is undoubtedly a turning point. Until now, the Integrated Maritime Policy has tried to end compartmentalisation of policies to the benefit of sustainable development. Walls between maritime economic sectors had to be torn down to involve them in a coherent and sustainable development process. Five years of a policy based not on legislation but on persuasion and constant dialogue with stakeholders laid the foundations to facilitate and supervise the blue economy's development.

Following the adoption of its Communication⁽¹⁾ on Blue Growth, the European Commission has connected the blue sectors with the rest of the European economy and placed them high on the list of political and business priorities. In today's grim economic climate, the development potential offered by most maritime sectors can help boost the economy so that it can achieve the growth and job creation targets set by the European Union (EU) in its Europe 2020 Strategy.

Various figures show that the blue economy is already a success story. Today, the EU's maritime sectors generate EUR 485 billion in gross added value and employ 5.4 million people. Realistic projections for 2020 show gross added value of EUR 600 billion and seven million jobs. Growth is therefore more or less certain. The European Commission wishes not only to encourage this growth but also to expand it. Its aim is twofold: to remove obstacles to growth and to work out intelligent solutions to stimulate emerging maritime sectors.

Mobilising public funds

For traditional sectors such as maritime transport and maritime and coastal tourism, the idea is to find ways of boosting competitiveness. For emerging sectors such as marine renewable energy and blue biotechnology, the goal is to speed up development to generate more products and services and create more jobs. Transfers of know-how also have to be organised from traditional sectors to emerging sectors.

Above all, the Commission has targeted these emerging sectors. It lists five sectors that offer extremely attractive growth potential where targeted action could provide further impetus (see following pages).

Obviously, it is the decision of private companies to take initiatives and invest in their development. But the political sphere can also foster such investment, preferably by mobilising untapped growth potential. The Member States and companies are therefore urged to make optimal use of Structural Funds and scientific research programmes, targeting innovative projects that can contribute real added value to the blue economy whilst also protecting biodiversity and the marine and coastal environment.

These development prospects are not confined to coastal states alone. Maritime value chains can include businesses or research centres based far inland or in land-locked Member States. This development is not only for the large players as all segments of society are likely to benefit from the spillover effects of this growth.

(1) *Blue Growth: opportunities for marine and maritime sustainable growth* (COM(2012) 494 final).



© Henderyckx Fotografie

In its Communication on Blue Growth, the European Commission connects the maritime economy with the rest of the European economy, and places it high on the list of political and business priorities.

FACT FILE

The five blue growth focus areas

The European Commission has singled out five sectors of the maritime economy that present real potential for job creation and growth. They deserve special policy focus to remove obstacles that could hamper development of this potential, but also to make sure that growth in these sectors is sustainable. The list drawn up by the Commission is not exhaustive: other existing and future maritime sectors are and will be chosen for policy focus as needed.

Blue energy

The European Union's target of producing 20% of its energy from renewable sources by 2020 has triggered rapid development of this sector in Member States. Thanks to the energy potential of wind, marine currents and wave swells, the sea has become one of the prime focus areas for developing renewable energy. So far, this trend has primarily benefited offshore wind farms.

A few recent figures: in 2011, offshore wind power accounted for 10% of installed capacity in Europe (3.8 GW), employed 35 000 people directly and indirectly and represented EUR 2.4 billion in annual investments. This is just the beginning. Based on national plans, offshore wind

power could reach 133.3 TWh in 2020, meeting 4% of EU electricity demand (14% in 2030) and provide 170 000 jobs (300 000 in 2030).

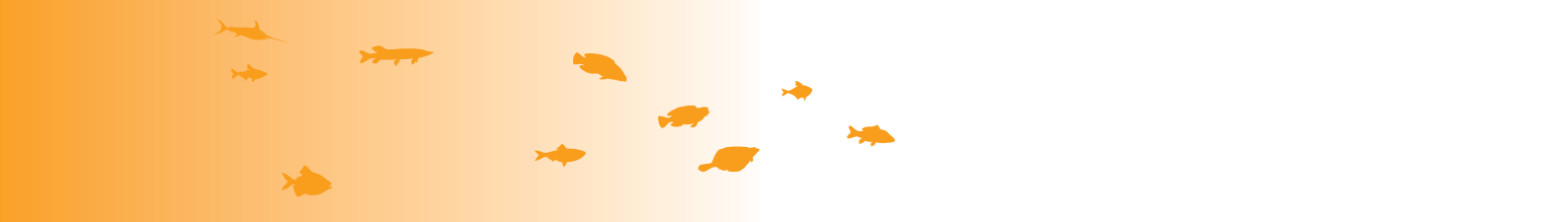
By contrast, other offshore renewable energy technologies are still in their infancy and national plans suggest that progress here will remain modest. However, other marine energy technologies present a major advantage: they are predictable, whereas wind power remains dependent on fluctuating wind force.

What are these alternatives to wind power?

Tidal barrages – Dam-like structures used to capture energy from masses of water moving in and out of a bay or estuary. An example of this is La Rance power station (France) with a capacity of 240 MW.

Wave and current power devices – Devices attached to the sea bed that contain turbines driven by the current or waves to generate electricity. These are starting to be marketed as individual structures (22 MW).

For the European Commission, it is essential to speed up the marketing of these offshore energy alternatives by reducing technology costs. It is therefore looking at possible support measures at different



levels: to facilitate investment in grid connections and transmission capacity, to boost research and development and to build the confidence of financial investors, particularly through co-financing with Structural Funds.

Aquaculture

The paradox of European aquaculture has been discussed time and again in this magazine. Globally, aquaculture is growing at an annual rate of 6.6%, but it has been stagnating for over a decade in Europe. Demand does exist, however: aquaculture products currently account for 25 % of European consumption of fish, molluscs and crustaceans, a share expected to grow in the future. As a result, Europe can meet this demand only through a high level of imports.

There is no mystery to the failure of Europe's aquaculture sector to meet demand. The chief problems are a lack of maritime space, competition in the global market and administrative constraints (especially for licensing procedures). Environmental constraints are also more pronounced in Europe than in other producing regions. In addition, the economic crisis has cut into financing opportunities.

Despite this, the aquaculture sector does offer real potential. On the one hand, its level of excellence is such that it meets the demands of European consumers who choose quality products, preferably those produced under sustainable conditions. On the other hand, it can avail itself of European coastal communities' aim of diversifying their economies. At present, more than 90 % of EU aquaculture businesses are small and medium-sized enterprises (SMEs), which employ around 80 000 people.

As part of the Common Fisheries Policy (CFP) reform, the Commission announced its intention to develop aquaculture and to eliminate bottlenecks that are strangling this sector. It recommends strategic non-binding guidelines, national multi-annual strategic plans and the exchange of best practices. Administrative practices will also have to be improved, especially in licensing.

The Commission also impresses upon EU Member States the need to offer public financing for certain promising projects, in particular through the future European Maritime and Fisheries Fund for investments and the future Horizon 2020 programme for research and innovation, for example for experimentation on new and more resistant species or the development of technical solutions for aquaculture farms further offshore.

Tourism

Maritime and coastal tourism are currently the largest single maritime economic activity: they provide nearly 2.5 million jobs, or 1.1 % of total EU employment. More than 90 % of firms in this sub-sector employ fewer than 10 people, although some parts such as cruise shipping are clearly dominated by large international players.

One thing which is evident is that recreational boating and cruises are growing fast. Cruise tourism in Europe employs nearly 150 000 people and generates turnover of EUR 14.5 billion. This boom benefits industry: EU shipyards have specialised in building large cruise ships and small leisure craft.

Tourism can develop only in a specific context. In addition to a beautiful coast, it requires a healthy environment (quality bathing waters and pristine natural habitats), effective infrastructure (port facilities, berthing capacity and transport), skilled personnel, and a year-round offer to include the low season.

To maintain growth in coastal and maritime tourism and ensure its sustainability, the Commission suggests that different initiatives should be planned and developed at local, regional or even inter-regional and cross-border levels, because each sea basin presents different challenges that require tailor-made approaches. This even applies to the cruise sector where different destinations attract different customers and pose different challenges.

Generally speaking, it is certain that public administrations will need to take a strategic approach to investments in key infrastructures. Higher education needs to produce skilled professionals capable of ensuring the success of Europe's maritime and coastal tourism in a demanding global market where future visitors increasingly come from emerging economies. Additionally, companies must reduce their carbon footprint and environmental impact.

The Commission is tackling the problem of the regulatory burden on SMEs. It will also start assessing other measures to enhance the sector.

Marine mineral resources

As the emerging economies expand, shortages in raw materials may occur. Sea beds may hold solutions to ensure the continuity of certain industrial activities in Europe. This includes not only the exploitation and mining of mineral deposits containing zinc, copper and cobalt, but also the extraction of dissolved minerals such as boron or lithium from seawater.

This activity is still in the early stages of its development globally and its scope is limited to shallow coastal waters. There are no offshore mines currently in European waters, but the quantity of minerals extracted from the ocean's floors could account for 5 % of the global total by 2020 and 10 % by 2030. Global annual turnover of offshore mineral mining can be expected to rise from virtually nothing to EUR 10 billion by 2030. There are evidently growth opportunities.

The most promising deposits are found in metallic sulphides in volcanically active areas. These zones are characterised by extreme temperatures and pressures. They are home to a very vulnerable marine biodiversity that must be protected, in keeping with the United Nations Convention on the Law of the Sea. The impact of extraction activities on these areas consequently needs to be studied and regulated. At institutional level, this responsibility falls on the coastal State in areas under its national jurisdiction and on the International Seabed Authority (ISA) in the high seas.

With their lengthy experience in specialised ships and underwater handling, European firms will inevitably have a role to play in this value chain. However, their participation in this development depends on several factors: access to financing (in an inherently risky market), a research and development strategy targeting extraction techniques, the ability to obtain licences in international waters and the adoption of robust measures to protect deep sea ecosystems.

Sea bream

Sparus aurata

7



Biology

Gilthead sea bream (*Sparus aurata*) is the only species of sea bream which is currently farmed on a large scale. It is common throughout the Mediterranean and is also found along the Eastern Atlantic coasts, from the United Kingdom to the Canary Islands. Its Latin name comes from the characteristic golden band between its eyes. It can live in marine waters as well as in the brackish waters of coastal lagoons. Commonly seen in rocky or sandy bottoms, it can also be found in sea-grass beds. During the spawning period (October to December), adults move into deeper waters. The young fry migrate to coastal or estuarine water in early spring. This species is hermaphrodite, maturing as a male throughout the first or second year of its life and then as a female throughout the second or third year. It feeds on molluscs, crustaceans and small fish.

Farming

Traditionally, sea bream have been farmed extensively in the coastal lagoons and brackish ponds of northern Italy ('*vallicoltura*') and in southern Spain ('*esteros*'). In the 1980s it was successfully reproduced in captivity and intensive rearing systems (especially sea cages) were developed. Since then this species has become one of the main products of European aquaculture.

Initially, farming mainly involved capturing juveniles, but now most of the sea bream production comes from juveniles produced in technologically sophisticated hatcheries requiring skilled staff. Its hermaphroditism makes proper broodstock management essential. Adult fish are prepared for spawning by controlling exposure to daylight (photo-manipulation) and temperature. The male fertilises the female's eggs, which float on the water's surface. They are then collected and transported to incubation tanks, where they hatch 48 hours later. After three or four days the larvae will have absorbed their yolk sac and can start feeding: first on a diet of microscopic algae and zooplankton, then on artemia, and finally on high-protein inert feed.

In coastal lagoons, sea bream are generally reared with mullet, seabass and eels. Either they feed naturally under extensive systems, or they feed under semi-extensive systems where the available natural food is supplemented with additional feed. In intensive systems, sea bream are fattened with commercial pellets in land-based tanks or, for a large part of their production (in the Mediterranean and the Canary Islands) in sea cages.

On average, sea bream reach commercial size after one and a half years.

Production and trade

Most sea bream come from aquaculture. The EU is by far the biggest producer worldwide, followed by Turkey. Within the EU, Greece is the largest producer, followed by Spain. Trade between the EU and third countries is very limited. On the other hand, intra-EU trade is substantial, Greece being the major exporter towards Italy, Portugal, France and Spain.



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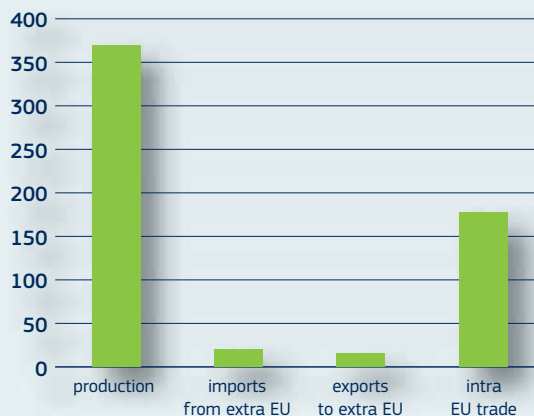
Presentation on the market

Like seabass, sea bream is nearly always presented as a whole-portion sized fish in the chilled section of sales outlets.

Nutritional value per 100 g (average)

Calories: 128 kcal
Protein: 21 g
Selenium: 7 µg
Vitamin D: 0,87 µg
EPA: 327mg
DHA: 555 mg

EU sea bream supply and trade* (2009) (million EUR)



* from fishery and aquaculture.

Source: Eurostat.

Sea bream with herbs and tapenade

Recipe for 4 people

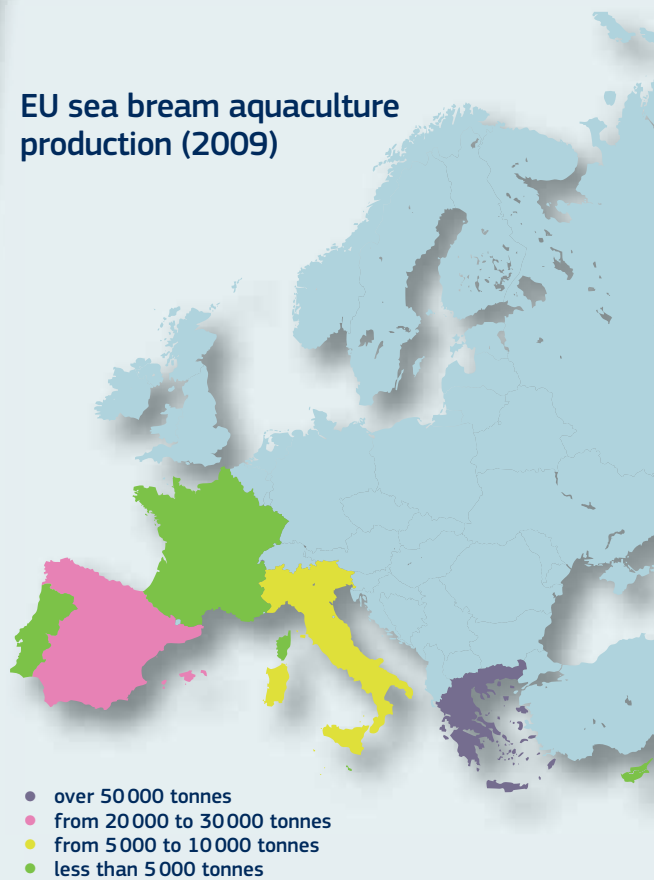
- 4 sea bream (each weighing approx. 300 g)
- 2 stems of basil
- 1 sprig of thyme
- 1 onion
- 4 garlic cloves
- 3 soup spoons of olive oil
- 1 small pot of tapenade
- 2 lemons
- 2 courgettes
- Salt and pepper

Instructions

1. Thinly slice the onion, finely chop the herbs, crush one clove of garlic and thinly slice the other three.
2. Scale, gut, wash and dry the sea bream. Stuff the fish with half the chopped herbs mixed with the clove of garlic, one spoonful of tapenade, pepper and the grated zest of one lemon.
3. Place the fish on a plate and sprinkle with olive oil. Wrap the dish in cling film and leave in the fridge to marinate for at least one hour, or overnight.
4. Soften the onions and finely sliced garlic in frying pan on a medium-heat. Lightly season with salt and pepper and pour lemon juice over the mixture. Keep warm.
5. Using a peeler, cut long ribbons of courgette peel and blanch them in salted, boiling water. Drain the courgette ribbons and mix with the onion and garlic sauce.
6. Drain the sea bream and bake them at 180° for approximately fifteen minutes.
7. Place the fish on a warm plate surrounded by the courgette ribbons. Sprinkle over the remaining chopped herbs and serve with the tapenade.

Recipe provided by Chef David Monier (Euro-Toques Belgium)

EU sea bream aquaculture production (2009)



Source: Eurostat.

Mussels

Mytilus edulis



Mytilus galloprovincialis



Biology

Mussels are found in a wide variety of habitats, from tidal areas to fully submerged zones, with a broad range of temperature and salinity. They feed on phytoplankton and organic matter by constantly filtering the sea water and are therefore always farmed in areas that are rich in plankton. Water quality is a very important factor for mussel rearing.

Specific features of mussels are their high fecundity and a mobile larval phase, allowing for widespread distribution. Usually between March and October, depending on the latitude, mussels produce larvae that are carried by currents. In less than 72 hours, the larvae fatten and develop to a stage where they can no longer float. They then settle, attaching themselves to various substrates.

Farming

Mussel production is the top shellfish farming activity in Europe. There were reports in France in the 13th century of cultivation on wooden stakes. Production began on the Atlantic coast with the blue mussel (*Mytilus edulis*), followed by the Spanish Atlantic coast and the Mediterranean with the Mediterranean mussel (*Mytilus galloprovincialis*), which is reared right up to the Black Sea. Hybrids of the two species are also commonly found in nature.

Culture begins with the collection of mussel seed either from natural beds or from a rope or other collector placed in areas chosen for their currents and the presence of micro-organisms. The ropes are collected and transferred to mussel farms, generally between May and July. Mussel dredges move the juveniles from natural beds to sheltered growing areas inshore.

The three most common rearing methods in EU coastal areas use:

- **Ropes** (mainly in Spain, the Mediterranean, Ireland and the United Kingdom) – The mussels are attached to ropes that are suspended vertically in the water from a fixed or floating structure (raft). In Galicia (Spain), rafts are located in estuaries. There is some near-shore mussel farming in France, Ireland and Belgium using longlines.

- **Stakes** (called 'bouchots' in France) – This type of culture uses rows of wooden stakes driven into the lower tidal zone. Three to five metres of collecting rope or tubing filled with spat (larvae) are wrapped around the stake and attached. A net is then placed over the whole structure to keep the mussels from falling off.

- **Plots** (in the Netherlands, Ireland and the United Kingdom) – Juveniles are spread over plots in shallow water, generally in bays or sheltered areas on the ground.

Harvesting takes place 12 to 15 months later.

Production and trade

Worldwide, aquaculture accounts for 95% of mussel production. China and the EU are the two biggest mussel producers, followed by Chile and New Zealand. Most of the EU supply of mussels is produced locally. Chile and New Zealand are the two main suppliers of mussels to the EU, providing our market with frozen products which are used as raw material by the EU processing industry. Intra-EU trade is well developed with a value around half the total value of EU supply. There are major trade flows from Spain, the Netherlands and Denmark (wild mussels in the case of Denmark) to Belgium, France and Italy. The EU market for mussels is highly segmented with different prices and marketing seasons, depending on their origin. Exports from the EU are very limited, mainly to Switzerland and Russia.



Presentation on the market

Mussels are the most versatile shellfish species as regards presentation and packaging. They may be sold loose, in pre-packed mesh bags or in chilled, ready-to-use vacuum packs. In Spain, the larger Mediterranean mussels are frequently canned without their shells. Mussels are now being presented pre-cooked, with a range of dressings, in durable vacuum packs.

Nutritional value per 100 g

(average values for cooked mussels, *M. edulis*)

Calories: 103 kcal

Protein: 17 g

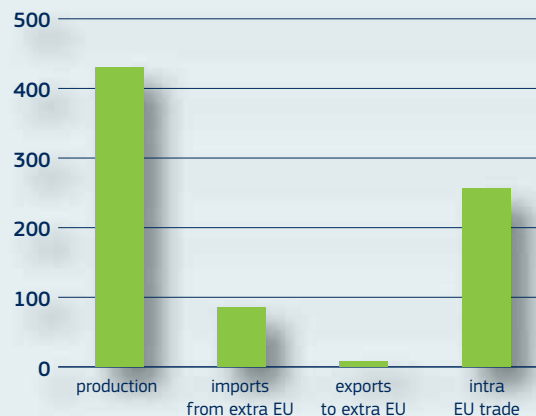
Selenium: 50 µg

Vitamin D: < 0,5 µg

EPA: 340 mg

DHA: 214 mg

EU mussel supply and trade* (2009) (million EUR)



* from fishery and aquaculture.

Source: Eurostat.

Mussels

Recipe for 4 people

- 4 kg mussels
- 600 g celery
- 600 g onions
- 100 g butter
- Water
- Chips

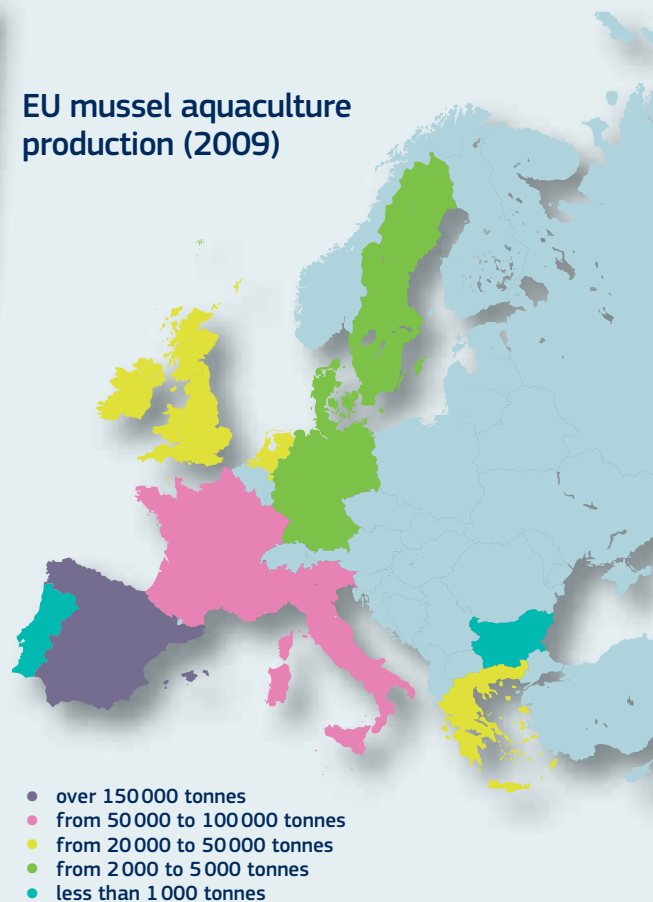
- Spices for the mussels:
- 250 g salt
 - 2 level teaspoons of crushed pepper (grey or white)
 - 1 teaspoon of curry powder
 - 1 teaspoon of powdered garlic
 - 1 level teaspoon of celery salt
 - 1 pinch of cayenne pepper

Instructions

1. Prepare the vegetables, wash them and chop into 3 mm slices.
2. Put 25 g of butter in a saucepan (if possible use an individual saucepan for each person), add 250 g of the mixed vegetables, then one kilo of the cleaned and washed mussels, add a teaspoon of the spice mixture, a soup spoon of water and finally the remaining 50 g of mixed vegetables.
3. Put a lid on the saucepan, cook on a high heat for 8 minutes, then shake or stir to mix.
4. Once the mussels have opened, serve them in the saucepan in which they were cooked, accompanied by the chips.

Recipe provided by Chef Jean Castadot (President of Euro-Toques Belgium)

EU mussel aquaculture production (2009)



Source: Eurostat.



© Marc Ryckaert

The European Commission aims to promote the development of the maritime sectors so that they can help Europe put its economy back on the road to recovery.

What role can the EU play to make sure that its companies are part of this global growth and contribute to its sustainability? It could take steps to guarantee that European firms are not squeezed out of the market by state-supported competitors. It could also develop pilot research actions targeting the main technology challenges. European involvement would contribute to setting and enforcing high legal and security standards, but most importantly, it would ensure that the exploitation of such non-energy raw materials is strictly subject to the highest environmental safeguards.

Blue biotechnology

Blue biotechnology is a sector holding significant potential. New gene sequencing technologies make it possible to explore the characteristics of certain marine species. In particular this includes organisms that can resist extreme temperatures and pressures and grow without light. Success stories are already evident: the anti-viral drugs *Zovirax* and *Acyclovir* were obtained from Caribbean sponges and the cancer treatment drug *Yondelis* was developed from small marine invertebrates.

Ongoing research may lead to new developments in pharmaceutical, cosmetic or industrial applications in the future, in addition to the use of algae as a source of biofuels.

Currently this sector provides relatively few jobs in Europe and its gross added value amounts to around only EUR 0.8 billion. By 2020, though, blue biotechnologies will evolve into a mid-sized market that will expand by producing organic compounds (lipids, sugars, polymers and proteins) for the chemical, food and feed industries. By 2030, this sector could provide mass-market products with high added value.

But the future of blue biotechnology requires intensive research, both basic (on ocean life) and applied (on possible industrial applications). Such research offers low probabilities, but its few successes offer a high return on investment.

The EU could develop a strategic approach to research and innovation to set out the development areas for emerging industrial sectors. This work of reducing bottlenecks would help the sector attract more investors and move more easily from development to the market phase. A European approach would also make policy makers, the private sector and citizens more aware of the potential of marine aquatic products.



The Limassol Declaration is a 20-plus point Marine and Maritime Agenda for Growth and Jobs that aims to enhance the development of maritime economy.



The Limassol Declaration

The European Union has made a firm commitment to stimulate growth in the maritime sectors. With their joint adoption of the Limassol Declaration, European Ministers in charge of Maritime Affairs and the European Commission have confirmed Europe's political will to bring vitality to the blue economy while guaranteeing the healthy state of the seas and oceans.

The previous issue of Fisheries and Aquaculture in Europe featured a report on Cyprus, a maritime nation that has ambitious objectives in this area, especially in terms of port development⁽¹⁾. The Cyprus Presidency of the EU Council therefore made it a priority to give new impetus to the integrated maritime policy, five years after its launch in 2007.

Thus, in Limassol, on 8 October, an informal meeting of EU Ministers with responsibility for maritime affairs was held. This important event fully justified the presence of Demetris Christofias, President of the Republic of Cyprus, and José Manuel Barroso, President of the European Commission. This new impetus is focused on economic growth.

'Let's face it,' explained Maria Damanaki, European Commissioner for Maritime Affairs and Fisheries. 'Five years ago, integration [of the maritime sectors] was just a promising idea. Now we wonder how we managed without it and we are ready to build further. We can do it, because now we can do things we couldn't do before. We have the technology to work further offshore, even under severe weather conditions. We have materials that withstand the corrosion of salty water. We have remotely controlled submarines which can explore the ocean depths. But we also must do it because we are convinced that maritime sectors will make a stronger contribution to European growth and help Europe out of the economic crisis.'

Stimulating growth

Ministers and the Commission adopted a 20-plus point Marine and Maritime Agenda for Growth and Jobs⁽²⁾ that aims to enhance the development of maritime sectors. The Limassol Declaration places emphasis on a broad agenda of promising maritime sectors, including the five sectors highlighted in the Blue Growth Communication discussed above, namely renewable energy, aquaculture, maritime and coastal tourism, marine mineral resources, and blue biotechnology.

'The Declaration we are adopting today is not simply a statement of the status quo,' explained European Commission President José Manuel Barroso, commenting on its content. 'It goes much further than this, with a focus not just on what is important today, but a clear emphasis on what we should do to create the jobs of tomorrow.' President Barroso also emphasised that the Declaration *'is a strong basis on which to develop the blue economy in Europe. By doing so we are giving a strong maritime pillar to the Europe 2020 strategy.'*

The ministerial agenda also highlights the importance of completing the initiatives launched five years ago to give the maritime economy the horizontal tools vital to its development. This includes support for research and knowledge of the marine environment, training in maritime sectors, cooperation in maritime surveillance, development of maritime spatial planning and on-going effective implementation of the Marine Strategy Framework Directive.

(1) See *Fisheries and aquaculture in Europe*, No 58, October 2012, pp. 10-12.

(2) *Declaration of the European Ministers responsible for the Integrated Maritime Policy and the European Commission, on a Marine and Maritime Agenda for Growth and Jobs, the 'Limassol Declaration'.*



Scientific advice for the general public

This year, the International Council for the Exploration of the Sea started publishing a non-technical version of its annual advice on fish stocks. The aim is to make information on this scientific work available to readers who are not experts in the field.

Each year, the European Commission signs an agreement with the International Council for the Exploration of the Sea (ICES). From now on, in addition to its 'traditional' scientific advice, this organisation has been asked to publish a one-page summary of its advice for each stock, intended for the general public. These non-technical briefs available on the Internet aim to inform the general public and facilitate dialogue among the stakeholders.

Until now, European citizens seeking first-hand information on the state of fish stocks in European waters needed to have considerable technical knowledge to read and interpret the scientific documents available. It was hard to understand ICES scientific advice without knowing (preferably in English) the meaning of terms such as spawning biomass, fishing mortality rate and recruitment. Readers also had to decipher abbreviations, acronyms and symbols that are the daily fare of researchers, such as Fmsy, Bpa, Fmg and the like.

ICES is an international scientific marine biology research institute headquartered in Copenhagen, Denmark. One of its missions is to monitor the evolution of fish stocks in the North Atlantic and Baltic Sea and to inform the European Commission. To do this it coordinates the work of over 1 600 scientists from 200 research institutes linked by an inter-governmental agreement. Twenty North Atlantic coastal states are parties to the agreement, among which 15 are EU Member States.

The prime objective of the Council's work is to help authorities adopt fisheries management measures, mainly by advising on the amounts of fish that can be caught from the different stocks. The scientific advice provided by ICES is thus essential for policy-makers in the field of fisheries.

Speaking the same language

This is an essential job, but reserved to a group of specialised users. However, since the 2002 reform, the European Union has officially brought more players into fisheries decision-making. These include non-governmental organisations and the regional advisory councils that bring together fishing industry stakeholders. Other examples are certain public consultations, where everyone, organisations or individual citizens, have the opportunity to submit an opinion.

The Commission thus considered it essential to facilitate access to scientific information for all actors concerned and for the general public, not only to make a documented contribution to management measures, but also to make sure that everyone speaks the same language when they discuss the state of fish stocks.



These briefs for general readers are available at the following site:
<http://www.ices.dk/products/BriefInformation.asp>

To suggest ways to improve these briefs, please send comments to:
MARE-CONSULTATION-DG-MARE-ICES@ec.europa.eu

See the TACs and quotas 2012 poster on the following link:
http://ec.europa.eu/fisheries/documentation/publications/poster_tac2012_en.pdf

The non-technical briefs were the subject of lengthy discussions between the two institutions, in which their scientists and communication teams were involved. The present format includes a biological description of the species, a map showing where the stock is located (indicating names rather than geographic codes) and an overview of its general status. Although the documents are available only in English for now, the goal is to make them available in all the languages of the European Member States bordering on the EU's Atlantic coast. The brief in its present form is a provisional version, which will evolve in light of users' suggestions and reactions.

In the same spirit, DG Maritime Affairs and Fisheries continued to co-organise with ICES specific training sessions on the scientific advice documents for its staff, but also decided to open these up to interested staff of other Commission Directorates-General (Environment, Research & Innovation, etc.), members of the regional advisory councils, advisers from Member States' permanent representations, European Parliament assistants and other stakeholders.

Castletownbere Haven

Castletownbere is a small port town in southwest Ireland. Although the town is home to around just 1 000 residents, 26 different nationalities work here side by side. This is because the port, officially called the Fishery Harbour Centre, has attracted intense economic activity centred on international landings from demersal and pelagic fisheries in the Celtic Sea and the west coast of Ireland. Taking advantage of its situation as Ireland's primary port for demersal fishing, local stakeholders set their sights on the 'Europeanisation' of their trade.

John Nolan is a busy man. Enconced at his desk, surrounded by formidable piles of papers and files, he juggles phone calls, queries from colleagues, and answering the interviewer's questions. He has been manager of the Castletownbere Fishermen's Co-op since 1982 and is very proud to show visitors around his 'factory', as he calls it, which includes some 5 000 m² of offices, freezers, an automatic filleting and salting line for small pelagic species, and a packaging room for demersals.

The fish factory is located on Dinish Island, 200 metres off Castletownbere. By evening and night, the large projectors that light up the brand new pier reveal the flurry of activity that ensues with each landing. The co-operative has 34 boats run by 200 sea fishermen. The factory employs one hundred workers on the island and generates a turnover of EUR 45 million.

'It is plain to see now that added value is key,' John Nolan explains. 'Ten years ago we had no processing facility here, so no added value. Everything was loaded onto lorries and sent to the continent. But now we've developed the processing side, which acted as a basis that enabled us to sign some long-term partnerships. We produce primarily for export, all over the world. This brings us added value so that we can cope with the economic recession which has lowered fish prices, especially those of demersal species.'

A natural harbour

Take a medium-sized bay, place a small island in the middle, then add a long island to shelter it from the sea. Then nestle it all in the lush green beauty and hills of largely rural southwest Ireland. This is the site of Castletownbere, said to be the largest natural harbour in the world. The town grew up behind the bay. The port is spread over two piers: the town pier and across from it the pier on small Dinish Island.

The 16 ha of this islet, which is linked to the coast by a bridge, are dedicated to firms specialising in fishery products. Alongside the co-operative factory are some ten other businesses offering services that range from ice production to seaweed processing. You will also find a net manufacturer, the local office of a major aquaculture group that breeds salmon in the vicinity, and a branch of a Spanish specialist shellfish export firm. According to a recent economic study, fishing and aquaculture directly and indirectly employ 660 people, which accounts for 81 % of local jobs⁽¹⁾.

The local co-operative is dramatically expanding industrially and commercially because the port has capitalised on a logistical advantage. Castletownbere is ideally located at the tip of southwest Ireland, and is right next to the fishing grounds of the Celtic Sea and western Ireland. These fishing grounds harbour huge and varied resources.

'This means that there probably isn't a single fishery that isn't operated by at least one of our members,' explains Eibhlín O'Sullivan, CEO of ISWFPO⁽²⁾, a producers' organisation that manages the whole region. 'We have members involved in pelagic fishing. We have boats that target demersals. Or others that only fish for crab. The fisheries we have here are representative of Irish fishing as a whole.'

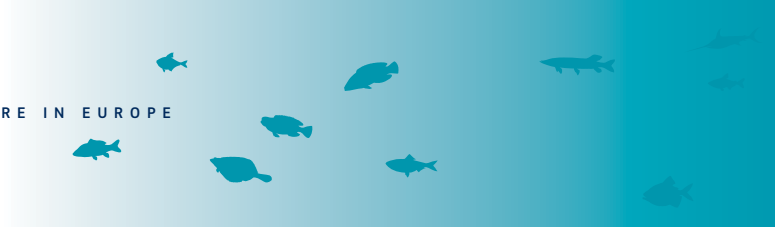
Infrastructure

For pelagic fishing (9 698 tonnes in 2011), the main species are albacore, herring, horse mackerel and sprat. For demersal fishing (14 902 tonnes), it is hake, angler, megrim, boarfish and whiting. These figures are not completely representative of the port's activity, as they do not account for landings – primarily of demersal fish – by boats from other Member States that are declared in their own countries.

In order to foster the port's development, Ireland's Department of Agriculture, Food and the Marine, its owner, decided to invest in infrastructure. In 2005, it launched a series of modernisation works on Dinish Island. The new facilities were unveiled last April. The objective of this EUR 39.5 million investment, of which EUR 13.5 million was financed by European Regional Development Funds, was to enable the port to attain world-class standards. The approach channel, the inner harbour and the berthing basin were dredged to make them deeper. The berthing wall was extended to 215 m, and equipped with all the additional apparatus needed for landings.

⁽¹⁾ Castletownbere – An economic Survey to determine the level of Seafood Activity and establish its economic Importance for the Region, Bord Iascaigh Mhara (BIM), 2012 – See www.bim.ie

⁽²⁾ Irish South and West Fish Producer's Organisation.



'We've given full support to the harbours,' explains Kevin Hodnett, assistant principal at the Sea Fisheries Administration Division. 'We began with Killybegs and we did a significant development there – around EUR 60 million. Castletownbere was our next focus. The intention is to gradually bring the six harbours up to an international standard. Because it's providing employment, it's supporting the fishing industry. And, very importantly, it's a very rural community here and there are significant 'spin-off' benefits for the locals as well. It's also worth mentioning – this is not to do with fishing – that because we have such good facilities, we are open as well to cruise liners visiting. It wouldn't be regular but we had our first one this year. It has pretty big implications for local businesses.'

The result seems to have lived up to the original aspirations, judging by the satisfaction of local stakeholders and the increase in

foreign landings. More than ever, the co-operative is investing in added value and its fish factory is already processing demersal landings from a Spanish fishery company. It also wants to develop the albacore fishery, with new infrastructure that will enable it to handle landings from the large Killibegs pelagic trawlers (up to 79 m). This would mean it could take advantage of its proximity to the fishing grounds and become the processing and marketing centre for this product. The co-operative is also applying for eco-labelling for this seasonal fishery in order to meet the demands of their buyers, who are primarily Spanish and French.

As a town dependant on fishing, Castletownbere has undeniably been able to take advantage of its ideal geographical location to minimise the effects of crises in both resources and in the economy. They have done this by investing in added value, service and trade.

At the tip of southwest Ireland, the port of Castletownbere is ideally located close to fishing grounds in the Celtic Sea and western Ireland.



Baltic TACs: three stocks fished at MSY level

In its traditional October exercise, the Council of Ministers reached an agreement on fishing opportunities for the Baltic Sea for 2013. These cover total allowable catches (TACs) for 10 regulated stocks and fishing effort restrictions for two cod stocks that are under a multiannual plan. The Council approved these fishing opportunities based on the Commission's proposals, which were drawn up on the basis of scientific advice and rules set out in the multiannual plans. It is important to note that the final decision was based on a common proposal presented by the Member States concerned (Baltic Sea coastal states), making it a first example of successful regional cooperation.

- Fishing opportunities for cod will be reduced in 2013, for both the eastern stock (61 565 tonnes, -9%), still exploited at maximum sustainable yield (MSY), and the western stock (20 043 tonnes, -6%), which is close to MSY. The Commission had proposed a 2% reduction for the western stock, but the Member States concerned opted for a larger cut to speed up recovery.
- The status of herring is still mixed. The western stock continues to do well and is now fished at MSY level (25 800 tonnes, +23%). The central stock, the largest, is expected to benefit from cuts in TACs over recent years and to reach MSY next year. The Council therefore increased TACs for this stock (90 180 tonnes, +15%). With the changes in reference values for the stock in the Gulf of Bothnia, it was necessary to maintain the TAC at 2012 level (106 000 tonnes). The TAC for Gulf of Riga stock is also at the same level as last year (30 576 tonnes), since the state of the stock is not improving fast enough.

- The sprat stock is currently healthy and has reached MSY level, resulting in an increase in authorised catch levels (249 978 tonnes, +11%).
- With this year's improvement in scientific knowledge on plaice, it was possible to calculate TACs more precisely and raise them significantly (3 409 tonnes, +18%).
- Based on the harvest control rules proposed in the salmon management plan TACs for this stock were cut (108 762 tonnes, -11%), except in the Gulf of Finland, where current catch limits are rolled over (15 419 tonnes).

Mauritania: new fisheries protocol

The new protocol signed on 26 July 2012 between Mauritania and the European Union, to implement the fisheries partnership agreement with this country, is now undergoing an adoption and ratification process. This new two-year protocol will give European fishermen the right to fish for certain demersal resources (mainly shrimps and black hake) and pelagic stocks in Mauritania's waters. The protocol concerns sustainable exploitation of the surplus not caught by Mauritanian operators, with quantities determined on the basis of the best scientific advice. The European Union's financial contribution includes annual compensation of EUR 67 million as well as a contribution to support the development of local fisheries. The protocol also contains a human rights clause and provides for increased employment opportunities for Mauritanian seamen on European vessels.

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