



Italian Presidency  
of the Council  
of the European Union  
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Food and Agriculture  
Organization of the  
United Nations





## Regional Aquaculture Conference

**Exploring the biological and socioeconomic potential  
of new/emerging candidate fish species for the  
expansion of the European aquaculture industry**



Co-funded by the  
Seventh Framework  
Programme  
of the European Union





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### KBBE-2013-07-GA 603121 DIVERSIFY





- **Duration = 5 years (2014-2018)**
- **Budget = €11,8 million**
- **Largest Aquaculture research project funded by the European Commission to date**
- **Institute of Marine Biology, Biotechnology and Aquaculture, Crete (HCMR) coordinator**





## Seafood consumption in the world/EU



- 50% of seafood worldwide from Aquaculture (vs wild Fisheries)
- 10% of seafood in the EU from Aquaculture
- 65% of seafood in the EU imported!!!!



Strong interest by the European Commission to increase EU aquaculture production






## Problems with Mediterranean species



- Small, plate size (difficult to prepare, bones)
- Consumers prefer fillets, steaks, ready-to-cook
- Larger fish more expensive to grow (3 y !!!!)



 **Choice of new/emerging species** 



**greater amberjack**

**meagre**



**Pikeperch (fw, RAS)**


**grey mullet (herbivorous, extensive)**


**wreckfish**

**Atlantic halibut**


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 **Choice of new/emerging species** 








- **meagre 23%** (*warm water, marine*)
- **greater amberjack 31%** (*warm water, marine*)
- **wreckfish 7%** (*cool water, marine*)
- **Atlantic halibut 13%** (*cold water, marine*)
- **grey mullet 11%** (*warm water, marine, herbivorous*)
- **pikeperch 14%** (*fresh water, RAS*)


 **meagre**  
(*Argyrosomus regius*)

 **greater amberjack**  
(*Seriola dumerili*)

 **wreckfish**  
(*Polypterus americanus*)

 **Atlantic halibut**  
(*Hippoglossus hippoglossus*)

 **pike perch**  
(*Sander lucioperca*)

 **Grey mullet**  
(*Mugil cephalus*)

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## Bottlenecks of new/emerging species



- **meagre** (*variable growth, limited genetic variation, nutrition, health*)
- **greater amberjack** (*reproduction, juvenile production, parasites*)
- **wreckfish** (*broostock availability, reproduction, juvenile production*)
- **Atlantic halibut** (*reproduction, juvenile production, health*)
- **grey mullet** (*reproduction, larval rearing, nutrition*)
- **pikeperch** (*juvenile production*)



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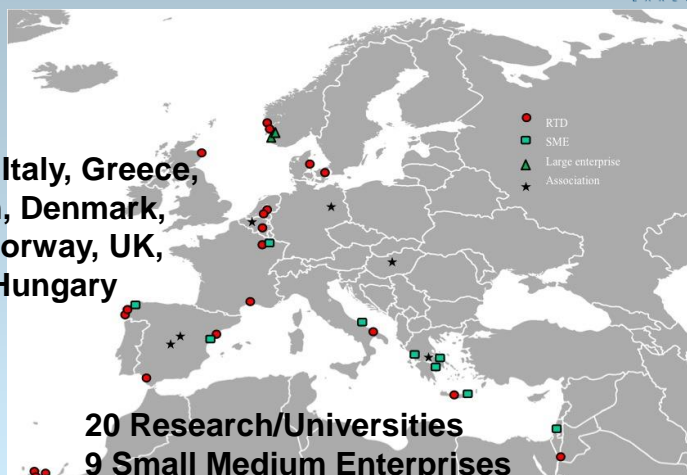


## Partnership of DIVERSIFY



### 38 partners:

Spain, France, Italy, Greece,  
Israel, Belgium, Denmark,  
Netherlands, Norway, UK,  
Germany and Hungary



20 Research/Universities  
9 Small Medium Enterprises  
3 Large companies  
5 Professional associations  
1 NGO

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**Partnership of DIVERSIFY**

**38 partners:**

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**Scientific disciplines 1/6**

- Reproduction & Genetics (21%)
- Nutrition (12%)
- Larval husbandry (16%)

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## Scientific disciplines 4/6



- **Grow out husbandry (20%)**
- **Fish health (13%)**
- **Socioeconomics and new product development (20%)**



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## Dissemination of results – initial brochure



### ABOUT DIVERSIFY

The majority of the growing demand for aquatic products in Europe is currently supplied by foreign imports (aquaculture and capture fisheries) that are often of questionable quality, and by aquatic products from over-exploited European fisheries. European aquaculture constitutes a safe, healthy and sustainable source of aquatic products and though facing some barriers for further growth, could fulfil the demand for aquatic products, but is currently supplying only 10% of the total EU consumption.



**DIVERSIFY** is an €11.8 million EU-funded project (2013-2018), which aims to expand the European aquaculture industry. It will develop scientific methods required to optimise the rearing and production of some new/emerging finfish species and establish the marketing techniques required to attract consumers.

#### WHY HAVE THESE FISH SPECIES BEEN SELECTED?

The selected species include the meagre (*Agrionomus regius*), greater amberjack (*Seriola lalandi*), wrackfish (*Polyprion americanus*), Atlantic halibut (*Hippoglossus hippoglossus*), grey mullet (*Mullus aeneus*) and pikeperch (*Sander lucioperca*). Originating from a wide range of climatic and geographic regions within Europe, the six species have been chosen based on their biological and economic potential. They have a large size/fast growth rate, enabling the production of a variety of value-added aquatic products, which are expected to attract consumers and be successfully commercialised.

#### FISH SPECIES AND BUDGET ALLOCATION

Atlantic halibut  
*Hippoglossus hippoglossus*  
13.2%



Greater amberjack  
*Seriola lalandi*  
31.3%



Grey mullet  
*Mullus aeneus*  
11.3%



Meagre  
*Agrionomus regius*  
22.9%



Pikeperch  
*Sander lucioperca*  
14.2%



Wrackfish  
*Polyprion americanus*  
7.1%



### MAIN OBJECTIVES

To develop the scientific techniques and methodology, which will ensure the successful rearing and production of the selected species and contribute to the expansion of the industry.

To determine the drivers for market acceptance of the new food prototypes in order to position the EU aquaculture sector as a leader in aquatic food production.



### EXPECTED OUTCOMES

**1**  
Scientific knowledge and techniques for culturing new/emerging finfish species that will be safe, sustainable, and attractive to consumers and markets.

**2**  
Wide dissemination of this information to key stakeholders (aquaculture producers, retailers, processors and consumer groups).

**3**  
Long-term business plans to ensure the successful market positioning of each species.

**4**  
Increased value of European aquaculture products, which will result in increased economic prospects of the sector. An efficient, sustainable and market-oriented expansion of the European aquaculture sector.



### RESEARCH AREAS

Studies will be carried out in the six selected species across a number of different scientific disciplines:





## Dissemination – [www.diversifyfish.eu](http://www.diversifyfish.eu)

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**SPECIES SELECTION FOR DIVERSIFY**

DIVERSIFY focuses on amberjack (*Seriola lalandi*), wreckfish (*Polypterus amboinensis*), Atlantic halibut (*Hippoglossus hippoglossus*), and pikeperch (*Sander lucioperca*). The species were selected based both on their economic importance and to cover the entire range of aquaculture production systems.

**PERT DIAGRAM SHOWING THE STRUCTURE OF THE RESEARCH UNDER EACH WORK PACKAGE AND THEIR INTERACTIONS**

To facilitate the work in DIVERSIFY, the research tasks designed to address the identified bottlenecks in each selected species have been separated by scientific discipline, so separate WPs address work in a specific discipline and species. The WPs were then organized in Groups of WP (GWPs) according to Research Area first, and then according to species. This was done in order to bring together researchers with similar expertise (e.g., reproduction, nutrition, larval rearing, etc.), but working in different species, thus increasing the potential for problem solving in each area of research.



**Members of the DIVERSIFY Consortium during the first Annual Coordination Meeting – Salone degli Affreschi, University of Bari, 4-6 November 2014**