



**AGRICULTURE, RURAL DEVELOPMENT AND ENVIRONMENTAL DEPARTMENT  
SUSTAINABLE MANAGEMENT AND PROTECTION OF FOREST AND NATURAL  
RESOURCES SECTION**

*ARGOS Project*

*Shared GOVERNANCE of Sustainable fisheries and aquaculture activities as leverage  
to protect marine resources in the Adriatic Sea*

**WP 4- Knowledge-based decision-making process**

# **APULIAN FISHERY AND AQUACULTURE**

## **Preliminary analysis of the productive context**

*Edited by:*

**Giuseppe SCORDELLA**

Project Manager ARGOS Project – Apulia Region

**Cataldo LICHELLI, Mario PANSINI, Giuseppe STORELLI**

Technicians for detection and collection of data on fishery and aquaculture of the fleet and farms – Apulia Region

**Alessandra MICCOLI**

Communication Manager ARGOS Project – Apulia Region

*Photos:*

**Cataldo Licchelli - Alessandra Miccoli – Giuseppe Scordella**

Donato PENTASSUGLIA  
*Agriculture Councilor - Apulia Region*

Gianluca NARDONE  
*Head of Agriculture Department – Apulia Region*

Domenico CAMPANILE  
*Head of “Sustainable management and protection of forest and natural resources” Section – Apulia Region*

Benvenuto CERCHIARA  
*Implementation Responsible – Apulia Region*

Vito DI PIERRO  
*Financial coordination and management – Apulia Region*

Francesco BELLINO  
*Technical support – Apulia Region*

Nazzareno LOVERRO  
*Project Secretariat – Apulia Region*

Giuseppe SCORDELLA  
*Project Manager – Apulia Region*

Cataldo LICHELLI,  
Mario PANSINI,  
Giuseppe STORELLI  
*Data collection Technicians -Apulia Region*

Alessandra MICCOLI  
*Communication Manager – Apulia Region*

Antonia MOLFETTA  
*Legal Consultant– Apulia Region*

Massimiliano TORALDO  
*First Level Controller – Apulia Region*

ARGOS



SHARED GOVERNANCE OF SUSTAINABLE  
FISHERIES AND AQUACULTURE ACTIVITIES  
AS LEVERAGE TO PROTECT MARINE  
RESOURCES IN THE ADRIATIC SEA

GESTIONE CONDIVISA DELLA PESCA  
E ATTIVITÀ DI ACQUACOLTURA SOSTENIBILI  
COME LEVA PER PROTEGGERE LE RISORSE  
MARINE NEL MAR ADRIATICO

DIJELJENO UPRAVLJANJE ODRŽIVIM  
RIBARSTVOM I AKVAKOLTURNIM  
AKTIVNOSTIMA KAO MENADŽER ZA  
PROJEKTIRANJE MORSKIH IZVORA U  
JADRANSKOM MORU

Leader Partner Friuli Venezia Giulia Region

Alberto FONZO – General Project Manager



## Summary

1.	Premises	6
2.	ARGOS Project	7
2.1	Goals	7
2.2	Partnership	7
2.3	Apulia Region activities as part of the project	8
3.	Apulian coast	9
3.1	Short geographical description	9
3.2	Maritimes Compartments	10
3.3	Port Authorities	10
3.4	GSA	11
3.5	Ports and landing	13
3.6	Aquaculture sites	13
3.7	Aquaculture: productive practice on land and in sea	14
4.	Preliminary survey of fishery and aquaculture companies	15
4.1	The fish entrepreneur	15
4.2	Aquaculture farmer	17
5.	Analysis of economic and production data	17
6.	Main acquisitions	20
7.	Perspectives	20
8.	References	21
9.	Websites	21

## 1. Premises

Fish economy is a valuable element of development for the coastal communities of Apulia and it is a substantial component of the entire “blue” production chain of the region.

The “small fishery” represents an element of great social and cultural importance, as it is strongly linked to the traditions and territorial identities due to the relationship that merges fishermen and sea. This practice is the result of traditions handed down and rooted over the centuries: its coastal and artisanal character makes it more vulnerable than other fishing practices, as it is more affected by coastal anthropization and coexistence with tourism.

Nowadays the evolution of the relationship between fish operator and consumer, the constant need to generate an impulse to relaunch the production sector, the recent health emergency and the change in consolidated habits induced by it, in addition to the financial opportunities offered by the programs community, presuppose a necessary reconfiguration of methods for enhancing fishery and aquaculture products. It means reorganization of the production chain, respect for the qualitative characteristics of the product, greater attention to environmental sustainability and to ensure coexistence between traditional and modern fishery practices.

This strategic approach needs an in-depth knowledge of the “numbers” and must be based on objective data: often these conditions have not been adequately considered. This resulted in a certain inability to express an effective and updated planning analysis, which is a basic requirement for the development of adequate system policies.

Those just expressed are some of the main reasons behind the will, on the part of the Apulia Region, to deepen the analysis of the state of the art in the field of fisheries and aquaculture to facilitate a continuous dialogue between policy makers and stakeholders, in order to contribute to support fish entrepreneurs through effective and targeted tools.



## 2. ARGOS Project

The project Shared Governance of Sustainable Fisheries and Aquaculture Activities as Leverage to Protect Marine Resources in the Adriatic Sea (ARGOS) is funded by INTERREG Italy - Croatia 2014-2020 Program.

ARGOS was developed through an in-depth analysis of the state of the fisheries and aquaculture in Adriatic Sea and the comparison between policy makers and stakeholders: in order to improve the sustainable management of production practices and the critical issues affecting the fishery sector. Specifically, the project is aimed at establishing a common governance of fishery and aquaculture activities in the Adriatic Sea, for a more effective protection of biodiversity and marine resources.

### 2.1 Goals

The general objective of ARGOS is to promote and apply a common integrated approach in the protection of marine resources and in the preservation of good environmental status of Adriatic Sea, built upon both institutional and operative actions oriented to reduce directly and indirectly the human pressure by fisheries and aquaculture activities on marine habitats and species.

Specifically, the project is oriented to sustain: a) the establishing a common framework for the CB dialogue and governance of Adriatic marine resources, b) the set up a knowledge-based and inclusive decision-making process for the protection of marine resource and c) the improvement of sectorial know-how toward environmental sustainability

### 2.2 Partnership

ARGOS project involves 16 cross-border public partners with the Autonomous Region of Friuli Venezia Giulia as leader; in particular, the project provides for the participation of: Veneto Region, Emilia Romagna Region, Marche Region, Molise Region, Apulia Region, Ministry of Agricultural Policies, Istrian County, Coastal Montana County, Zadar County, Sibenik - Knin County Development Agency, Split County Development Agency - RERA, Dubrovnik-Neretva County, National Research Council CNR-IRBIM, Croatian Institute for Oceanography and Fisheries and Ministry of Agriculture of Croatia.



### *2.3 Apulia Region activities as part of the project*

As part of ARGOS, Apulia Region collaborates in defining a common framework for the governance of fisheries and aquaculture in the Adriatic Sea (*WP3: Governance Framework*), within which all the institutions are called to work in unison for the protection and management of shared fish resources. This approach is embodied in the establishment of a permanent management tool, called the *Adriatic Advisory Council*, which is participated by all the partners and in which common strategies are discussed and traced.

ARGOS project also contributes to strengthening the decision-making process and sector policies by harmonizing the interregional knowledge system and supporting the collection of basic data on the production system (*WP 4: Knowledge based decision making process*).

Furthermore, ARGOS concretely implements the common framework for governance through a series of pilot actions (*WP5: Sectorial know-how development and Pilot Project implementation*), all configured as a shared approach to the sustainable management of Adriatic fisheries and aquaculture activities, and which in Apulia are substantiated by the development of a fisheries co-management plan for the shared management of marine activities in a Natura 2000 site on the Apulian coast. Through this intervention, the Apulia Region wants to develop an intervention capable of identifying effective models to improve the stability of fish stocks, contribute to the protection of marine biodiversity and promote the increase of the environmental sustainability of fishery activities and, specifically, development of a fisheries co-management plan for the shared planning of fishery activities (and not only) in a Natura 2000 site on the Apulian coast.





### 3. Apulian coast

#### 3.1 Short geographical description

Apulia is the Italian region with the largest coastal extension. It presents a variety of landscapes, different from each other in lithological, morphological and vegetational characteristics. Along the Apulian coast it is possible to recognize eight different sub-zones: Gargano and Subappennino Dauno, Tavoliere delle Puglie, Murge, Terra di Bari, Adriatic coast, Valle d'Itria, Arco Ionico Tarantino and Salento.

In the collective imagination, the expression “coasts of Apulia” brings to mind particular coastal landscapes and stimulates reflections which, in most cases, relate to a markedly touristic perception of the subject. The Apulian coast line manifests itself as a sum of biodiversity, geodiversity, landscape, archaeological, cultural and environmental heritage. The sea represents the structural invariant for a territory of which it is a fundamental resource, especially with a view to relaunching the sustainable circular economy.

From a geographical point of view, in fact, the coast is defined as that strip of territory between the sea and the continent that is affected by the direct and indirect actions of the sea. The coastal landscape, in fact, is constantly shaped by exogenous and endogenous agents. Each of the aforementioned types of coast has determined, directly or indirectly, the character of men and territories, orienting the activities and the economies of the latter.



### 3.2 Maritimes Compartments

The coast of the Apulian territory is divided into a Maritime Directorate (based in Bari) and 7 port authorities (compartments) based in Bari, Barletta, Brindisi, Gallipoli, Manfredonia, Molfetta and Taranto. They represent the peripheral office of the administration of the Ministry of Infrastructure and Transport. They are hierarchically subject to the maritime area (Maritime Directorate) and exercise their competence on the maritime districts (Maritime District Office), on the local maritime Offices and on the Beach Delegations.

### 3.3 Port Authorities

Two Port Authorities are also present in Apulia region:

- ✓ *Port System Authority of the Southern Adriatic Sea, with its main office in Bari*
- ✓ *Port System Authority of the Ionian Sea, based in Taranto.*

Differently by the Maritimes Compartments, Port System Authority carries out the following tasks:

- a) direction, planning, coordination, regulation, promotion and control, also through the port territorial offices of port operations and services, of authorization and concessionary activities and of other commercial and industrial activities carried out in ports and territorial districts. The port system authority is also vested with ordinance powers, also with reference to safety with respect to the risk of accidents related to the activities and hygiene conditions at work;
- b) ordinary and extraordinary maintenance of the common parts in the port area, including that for the maintenance of the seabed;
- c) assignment and control of activities aimed at providing for consideration to port users of services of general interest identified by decree of the Minister of Infrastructure and Transport;
- d) coordination of the administrative activities carried out by public entities and bodies within the ports and in the maritime state-owned areas included in the territorial district;
- e) exclusive administration of the areas and assets of the maritime state property
- f) it promotes forms of connection with the retro port and interport logistics systems.

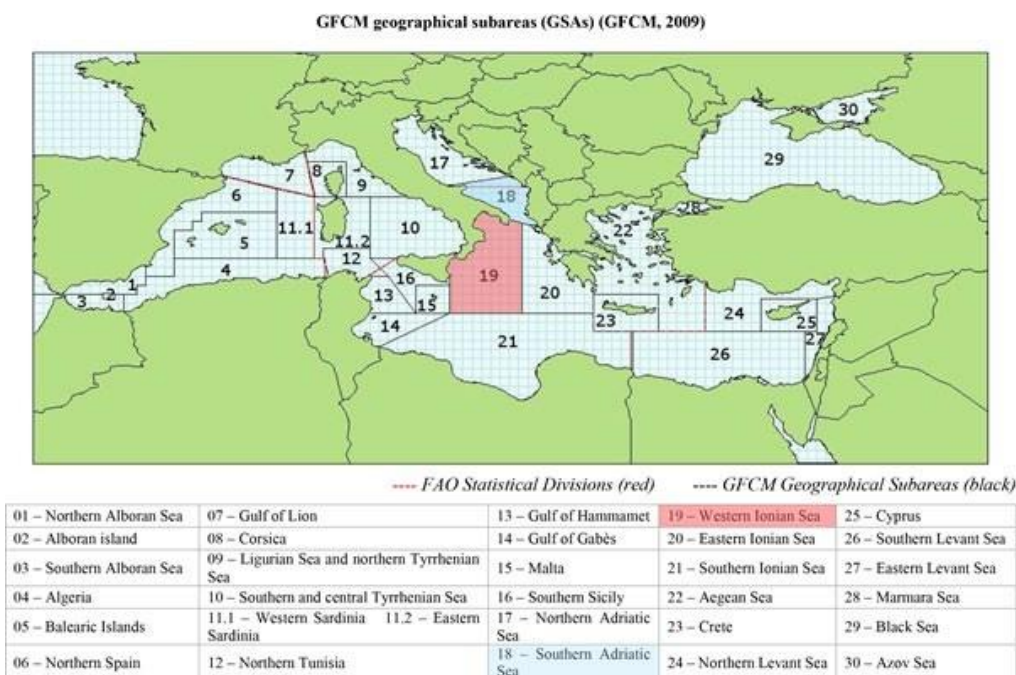


Ports are crucial intermodal hubs in the freight and passenger transport network and, in addition to being important border control points, play an essential role in international trade.

### 3.4 GSA

Mediterranean Sea, for needs related to the method of data collection for the assessment of biological resources and monitoring of fishery activity, is divided into 30 geographical sub-areas, called GSA (*Geographic Sub Areas*).

The term “sub” refers to the fact that the Mediterranean Sea is, in turn, one of the more than 60 Large Marine Ecosystems on the planet. This division was established by resolution 31/2007/2 of the General Fisheries Commission in the Mediterranean (GFCM), on the advice of the Scientific Advisory Committee (SAC). The 30 areas differ greatly in size and characteristics.



Picture 1. Mediterranean Sub areas (<https://www.fao.org/gfcm/data/maps/gsas/en/>)

In addition, the area of application of the GFCM, consisting of the Mediterranean and the Black Sea, is considered by FAO to be the 37 Major Fishery Area for statistical purposes.

The seas that bathe the coasts of the Apulia Region are part of the FAO Area classified as Central Mediterranean (Sub-area 37.2) which includes: Adriatic (Division 37.2.1) and Ionian (Division 37.2.2).

The Apulian coasts fall into two sub-geographical areas, GSA 18 and GSA 19.

The region is characterized by the presence of 3 National Marine Protected Areas: Tremiti Islands, Torre Guaceto and Porto Cesareo.

Born by regional will, but certainly reason of interest for the fishing sector and for the aims of the ARGOS project, is the recent establishment of 2 Blue Oases: "Le Secche di Ugento" and "Porto Selvaggio".



Picture 2. Geographical location of the Marine Protected Areas and Blue Oasis

Blue Oasis are governed by the Regional Law 3 November 2017, n. 43 "Planning and development of regional fisheries and aquaculture" which, in art. 8, defines blue oasis "the management tool that consists of the temporary acquisition (delivery) by a local authority of a Site of Community Interest (SIC) area at sea and / or any area adjacent to it, at the within which the zoning and regulation of activities (professional, sporting and recreational) is carried out".

The objective of the blue oasis is to implement fishery management tools and policies through the identification of concerted rules shared with all stakeholders, keeping together the conservation needs of marine resources with those of economic development. of small local fishery.

### 3.5 Ports and landing

The Apulian fishery fleet is distributed territorially on the basis of the registration in the Ports; each vessel is registered in a base port which may or may not correspond to the operating port. In Apulia there are 25 fishery ports, to which correspond as many Registration Offices of the Harbor Master's Office.

### 3.6 Aquaculture sites

The regional data concerning the main aquaculture sites in Apulia are provided by *National Zootechnical Registry* which traces an analysis every six months based on 5 main statistical dimensions:

1. Municipal and provincial location
2. Bred species
3. Type of farming and production
4. Time dimension (on a half-yearly basis)
5. Type of water (fresh / salt)

The location of the main data represents a first element of territorial characterization of the Apulian aquaculture economy, which, although widespread throughout the region, is concentrated mainly in the provinces of Taranto and Foggia.

This location allows us to immediately understand the substantial contribution of the Municipality of Taranto to the entire regional aquaculture sector.

As for the diversification in the farmed species, it is evident that shellfish farming represents the primary form, followed by fish farming and crustacean farming, the latter concentrated in some municipalities of the Foggia area.



### *3.7 Aquaculture: productive practice on land and in sea*

Apulia plays an extremely important role in aquaculture, as it is characterized by being one of the most productive centers on a national level. This situation has its origins in the presence in the region of two essential factors for development: professional and cultural potential and also environmental peculiarity.

In Apulia there are, in fact, ancient traditions and a marked professionalism in fishery and in the management of coastal lagoons and lakes. Furthermore, the length of its coasts, the presence of large expanses of wetlands or lagoons, and finally the environmental characteristics, such as temperature and water quality, have been the favourable environmental conditions that have allowed its development. In addition to these factors, the

conditions of the Apulian fish market and, more generally, of the entire commercial system of southern Italy, which is very receptive as regards high quality and high freshness fish products, have had a decisive influence. market that is constantly and constantly expanding.

However, the high production costs significantly affect the sector, generating a worrying scenario that requires strong innovation actions to guarantee the sector's development prospects.



Therefore, Apulian aquaculture is faced with a new challenge: to innovate in order to continue to compete with commercial aggressions due to globalization in order to avoid the risk of being out of the market.

So, to relaunch the sector, there are two fronts on which to intervene: innovations in the breeding process and product innovations. The former is related to the welfare of farmed fish and new technological frontiers, while the latter refers to new consumption patterns, product safety (supply chain) and investments in research and development. These are challenges that are not easy for operators to face and, therefore, a support activity for the sector by public administrations (Regions, State, EU) is mandatory, which must be addressed to the concentration of supply (creating Organizations of Producers that can lead to the creation of regional or corporate quality brands), to the start of the processing and transformation of products, to provide information to consumers, in particular towards young people, on the healthy characteristics of fish and the nutritional importance of its consumption.

#### 4. Preliminary survey of fishery and aquaculture companies

Distinction between companies operating in the fishery and aquaculture sectors.

- ✓ **Primary sector:** capture fishery (small coastal fishery, large and industrial fishery) and aquaculture (marine, freshwater and shellfish);
- ✓ **Processing of fish products:** processing and conservation of fish, crustaceans and molluscs; prepared dishes and meals, manufacture of oils and fats and other food products;
- ✓ **Distribution of fish products:** retail sale of fish, crustaceans and molluscs in specialized shops and wholesale of other foods, including fish, crustaceans and molluscs.

The aforementioned activities fall within the so-called *Blue bio-economy*, which includes any economic activity associated with the use of renewable aquatic biological biomass (for example, food additives, animal feed, pharmaceuticals, cosmetics, energy, etc.).

##### 4.1 *The fish entrepreneur*

Professional fishery is the organized economic activity carried out in marine or brackish or freshwater environments, aimed at the search for living aquatic organisms, the hauling, the laying, the towing and the recovery of a fishery gear, the transfer on board the catch, transshipment, storage on board, processing on board, transfer, caging, fattening and landing of fish and fishery products.



The following activities are connected to professional fishery activities, provided that they do not prevail over these and carried out by the fish entrepreneur through the use of products coming mainly from his own fishery activity or of company equipment or resources normally used in the fishery enterprise:

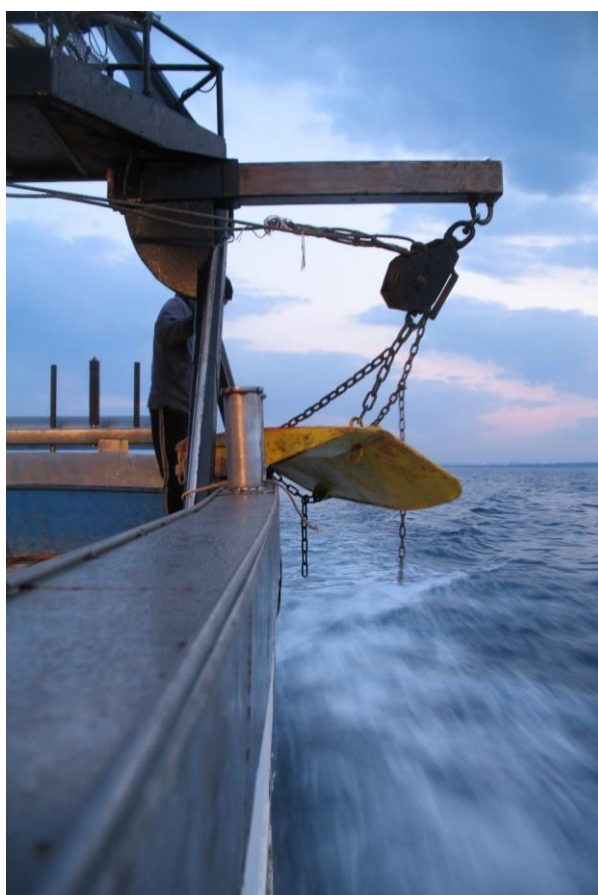
- a) boarding of people who are not part of the crew on fishery vessels for tourist-recreational purposes named “fishtourism”;
- b) hospitality, recreational, educational, cultural and service activities, aimed at the correct use of the aquatic ecosystems of fishery resources and at the enhancement of the socio-cultural aspects

of the fishery enterprises exercised by entrepreneurs, single or associated, through the use of own home or structure in the availability of the entrepreneur himself, called, in Italian, “ittiturismo”;

- c) processing, distribution and marketing of fishery products, as well as promotion and enhancement actions;
- d) the implementation of active management interventions, aimed at productive enhancement, the sustainable use of aquatic ecosystems and the protection of the coastal environment.

Cooperatives of fish entrepreneurs and their consortia are also considered as fish entrepreneurs when they mainly use members’ products or mainly supply the same goods and services aimed at carrying out fishery activities.

Art. 11 of the L.R. n. 43/2017 “Planning and development of regional fisheries and aquaculture” clarifies that the fish entrepreneur can also practice the direct sale of the fish, that is the sale, carried out by the fish entrepreneur of its products directly to the consumer without any intermediation. The direct sale of its products to the final consumer is therefore not subject to requirements that apply to food trade activities. So it can take place through the transfer from on board the fishery boat, on public areas in itinerant and non-itinerant form, in a place open to the public and may include home delivery.





#### 4.2 Aquaculture farmer

A fish farmer is an aquaculture farmer who carries out aquaculture activities individually or in partnership.

Aquaculture is the organized economic activity, exercised professionally, aimed at the breeding or cultivation of aquatic organisms through the care and development of a biological cycle or a necessary phase of the cycle itself, of a vegetable or animal nature, in waters sweet, brackish or marine.

The aquaculture activities carried out by the aquaculture farmer are those aimed at:

- a) manipulation, conservation, transformation, marketing, promotion and enhancement;
- b) supply of goods or services through the prevalent use of company equipment or resources normally used in the aquaculture activity carried out, including hospitality, recreational, educational and cultural activities, aimed at the correct use of aquatic and valley ecosystems and the resources of aquaculture, as well as the enhancement of the socio-cultural aspects of aquaculture enterprises, exercised by entrepreneurs, individuals or associates, through the use of their own home or structure in the availability of the entrepreneur himself;
- c) the implementation of active management interventions, aimed at productive enhancement, the sustainable use of aquatic ecosystems and the protection of the coastal environment.



## 5. Analysis of economic and production data

The main economic and production data relating to the world of fishery in Italy are produced by Eumofa, an initiative of the European Commission - Directorate-General for Maritime Affairs and Fisheries (DG MARE). It is an international team of experts and analysts from the fisheries and aquaculture sector with the task of monitoring the EU market on a daily basis. It provides different categories of data and views relating to the fish world, each of these however has a different temporal and territorial characterization, among these the data on “first sales” is the most relevant as it allows to have constantly updated data on a weekly basis and monthly with a level of detail on a regional, provincial and municipal basis.







## 6. Main acquisitions

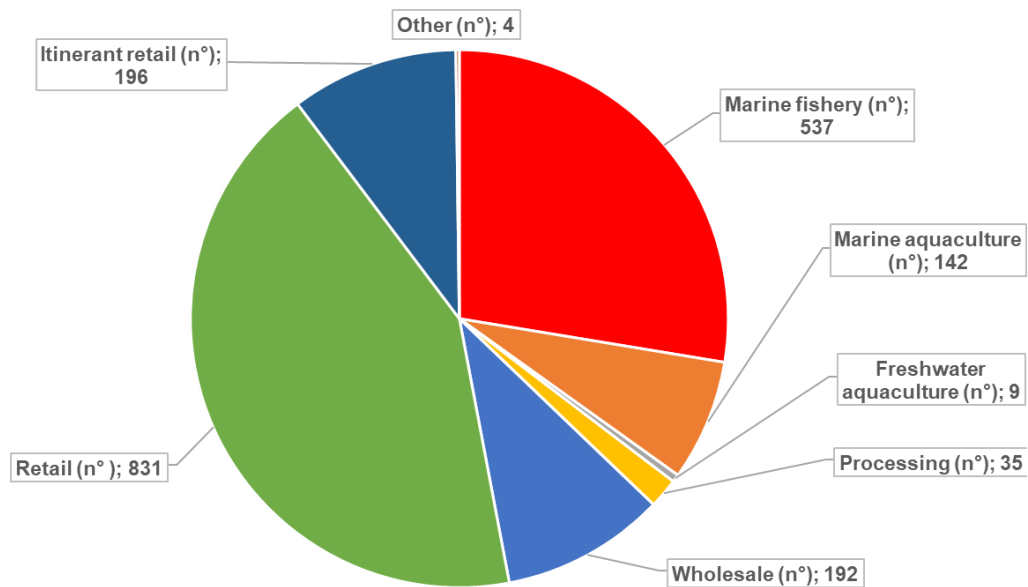
The study conducted by Apulia Region aims to summarize a first analysis of the set of data available in the various databases, exposing them in their complexity.

The fleet of **1,474 fishing boats** has an average age of 38 years and is made up of 62% hulls with a length of less than 12 meters. 68% of it is distributed in GSA 18 and mostly equipped with passive systems.

The **173 farms** registered in the National Zootechnical Registry are for the most part concentrated in the Taranto and Foggia area and show a prevalence towards shellfish farming (over 80%).

The Business Register exhibits **no. 1,946 economic subjects included in the categories of fishery, aquaculture, processing and trading of fish products.**

The survey conducted, therefore, confirms the importance of the entire fish supply chain in the Apulian economy and highlights, at the same time, some gaps in information regarding small-scale fishery activities and markets.



**TOTAL n° 1.946 enterprises**

## 7. Perspectives

The subsequent activities of the WP4 of the ARGOS project will continue with field surveys focused on relevant case studies that can be the object - in addition to stimulating the planning of regional sector policies and real estimation of the information acquired so far - also for comparison with the other project partners for the promotion of a common integrated approach in the protection of fish and marine resources and in the improvement of the environmental quality conditions of the Adriatic Sea.

## 8. References

- AA.VV. (2011) *Lo stato della pesca e dell'acquacoltura nei mari italiani*. Cataudella S. e Spagnolo M. (cur). Ministero delle Politiche Agricole Alimentari e Forestali, Roma, Italia: 903 pp.
- AA.VV. (2019) *Annuario Ambientale 2019, Capitolo 2 "Pesca e acquacoltura"* - ISPRA
- Lembo G. & Donnalioia L. (2008). *Osservatorio Regionale della Pesca*. Apulia 2008. COISPA, Bari, 78 pp.
- Gismondi R., Labanchi L., Marzocchi B.M., Sermoneta C. (2020). Statistiche sulla pesca in Italia, uso integrato di indagini campionarie e dati amministrativi. *ISTAT WORKING PAPERS N. 4/2020*
- *NISEA Impatto socioeconomico sulla piccola pesca dell'emergenza Covid-19" (2021) (francoangeli.it) di Rosaria Felicita Sabatella, Paolo Accadia, Maria Cozzolino, Dario Pinello, Monica Gambino, Loretta Malvarosa, Evelina Carmen Sabatella*
- *NISEA, 2020 Rapporto sull'andamento economico della flotta italiana per regione amministrativa, Luglio 2020. (http://www.nisea.eu/dir/wp-content/uploads/2020/09/Nisea-Rapporto-Flotta-Luglio-2020-rev2.pdf)*

## 9. Websites

- [https://webgate.ec.europa.eu/fleet-europa/search\\_en](https://webgate.ec.europa.eu/fleet-europa/search_en)
- [EUMOFA - Osservatorio europeo del mercato dei prodotti della pesca e dell'acquacoltura](https://www.eumofa.eu/)
- <https://www.guardiacostiera.gov.it/organizzazione/comandi-territoriali>
- <https://istat.com>
- <http://www.nisea.eu>
- <http://www.nonnodondolo.it/>
- <https://www.paginegialle.it/>





REGIONE PUGLIA



**Interreg**  
Italy - Croatia  
ARGOS



EUROPEAN UNION