



# Integrated approach to the development of coastal communities in the Mediterranean region

- tools and best practices -

## Sustainable Blue Growth in a Mediterranean Protected Marine and Coastal Environment

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# Mediterranean Sea: top biodiversity hotspot

- Mediterranean has not only a very rich biodiversity, but also a large number of species that exist here and nowhere else in the world.
  - The rate of endemism is exceptionally high both on land and in the sea.
  - Of the 25,000 flowering plants identified so far – representing around 10% of all known plants on earth – more than half are endemic to the region.
- **Not surprisingly, the Mediterranean is considered one of the top biodiversity hotspots in the world.**





# Mediterranean Sea: tremendous diversity of marine organisms

- As for the Mediterranean Sea, its clear blue waters are famous throughout the world.
- Although not a very productive sea it nevertheless harbours a tremendous diversity of marine organisms, many of which are endemic to the region.
- Mediterranean contains 8–9% of all the world's marine creatures. Many of the lesser-known sponges, sea squirts, sponges, crustaceans etc... can be found
  - hidden amongst the vast underwater meadows
  - or *Posidonia* beds that grow in shallow coastal waters.



# The Mediterranean: a sea under pressure

- 1/3 of the global maritime traffic passes through the basin and is forecasted to grow by 4% per year until 2025
- 1st tourist destination in the world (343 million in 2014 + 40% expected by 2025)
- The exploration and extraction of hydrocarbons at sea are booming!!
- Its resources are overexploited, particularly fish stocks 85% of which are overfished
- Land-based pollutions have profound effects on biodiversity and the quality of coastal waters
- The Mediterranean already shows drastic impacts linked to **climate change**
- At least 40 invasive that are affecting local communities and marine habitats.





# Marine Protected Areas

- Marine Protected Areas (MPAs) involve the protective management of natural areas so as to keep them in their natural state (IUCN).
- MPAs can be conserved for a number of reasons including
  - economic resources,
  - biodiversity conservation
  - species protection.
- They are created by delineating zones with permitted and non-permitted uses within that zone.



# Marine Protected Areas

- Since the 1950s, Parties to the Barcelona Convention have established different Marine Protected Areas (MPAs) and Other Effective area-based Conservation Measures (OECMs) including countries that have not yet ratified the SPA/BD protocol.
- To date there are 1,231 MPAs and OECMs in the Mediterranean Sea, covering 179,798 km<sup>2</sup> which places a surface of 7.14% under a legal designation.
- For the majority of sites:
  - little is known on whether management measures are implemented,
  - whether these measures are effective to reach the site's conservation targets.
- These sites are established
  - at national level,
  - at regional level (European or Mediterranean scale)
- or at international level under a wide variety of designations.



## SPECIALLY PROTECTED AREAS OF MEDITERRANEAN IMPORTANCE (SPAMIs)



**SPAMIs and their year of inclusion in the SPAMI List: 34 sites** (as per last update of the SPAMI List in February 2016)

<b>ALBANIA</b> AL1 Karaburun Sazan National Marine Park (2016)	<b>ITALY</b> IT1 Plemmirio Protected Area (2008) IT2 Marine Protected Area of Portofino (2005) IT3 Maremare Marine Protected Area (2008) IT4 Tavolara-Punta Coda Cavallo Marine Protected Area (2008) IT5 Marine Protected Area of Torre Guaceto (2008) IT6 Marine Protected Area Punta Campanella (2009) IT7 Marine Protected Area of Capo Caccia-Isola Piana (2009) IT8 Porto Cesareo Marine Protected Area (2012) IT9 Capo Carbonara Marine Protected Area (2012) IT10 Marine Protected Area of Penisola del Sinis (2012)	<b>LEBANON</b> LB1 Palm Islands Nature Reserve (2012) LB2 Tyre Coast Nature Reserve (2012)	<b>ES9</b> Mar Menor (2001)
<b>ALGERIA</b> DZ1 Blanc des Kabyles Marine Reserve (2005) DZ2 Habibas Islands (2005)	<b>MOROCCO</b> MA1 Al-Hoceima National Park (2009)	<b>TUNISIA</b> TN1 La Galite Archipelago (2001) TN2 Kneiss Islands (2001) TN3 Zembra and Zembretta National Park (2001)	
<b>CYPRUS</b> CY1 Lara – Tokofra Turtle Reserve (2013)	<b>SPAIN</b> E1 Maro-Cerro Gordo Cliffs (2003) E2 Archipelago of Cabrera National Park (2003) E3 Natural Park of Cabo de Gata-Níjar (2001) E4 Natural Park of Cap de Creus (2001) E5 Sea Bottom of the Levante of Almería (2001) E6 Alboran Island (2001) E7 Columbretes Islands (2001) E8 Medes Islands (2001)	<b>FRANCE, ITALY AND MONACO</b> Int1 Pelagos Sanctuary for the Conservation of Marine Mammals (2001)	
<b>FRANCE</b> FR1 Port-Cros National Park (2001) FR2 Natural Reserve of Bouches de Bonifacio (2009) FR3 The Blue Coast Marine Park (2012) FR4 The Embreix Archipelago - Six Fours (2012)			



# Karaburuni-Sazani MPA

- With the proposal of the Ministry of Environment, Forest and Water Administration the Council of Minister with it decision nr. 289, data 28.04.2010 declare the area of Karaburun and Sazan as the first marine protected area (Marine Park) in Albania.
- 75% of endangered species of marine animals, mostly benthic macro-invertebrates have been recorded in Sazani – Karaburun area.
- some of the most threatened species on a global scale,
  - loggerhead turtle *Caretta caretta*, the common dolphins (*Delphinus delphis* and *Tursiops truncatus*) and the Mediterranean monk seal *Monachus monachus*.
- fish species of Karaburuni waters, included in Annex III of the Barcelona Convention
- dusky grouper (*Epinephellus marginatus*), Atlantic bluefin tuna (*Thunnus thynnus*) and swordfish (*Xiphias gladius*).



# Sustainable Aquaculture and Small Scale Fisheries – *FAO Code of Conduct*

- Fisheries, including aquaculture, provide a vital source of food, employment, recreation, trade and economic well being for people throughout the world, ***both for present and future generations*** and should therefore be conducted in a responsible manner.
- This Code sets out ***principles and international standards*** of behaviour for responsible practices with a view to ensuring the effective conservation, management and development of living aquatic resources, with due respect for the ecosystem and biodiversity.
- The Code recognises the ***nutritional, economic, social, environmental and cultural importance*** of fisheries, and the interests of all those concerned with the fishery sector.
- The Code takes into account the biological characteristics of the resources and their environment and the interests of consumers and other users.
- States and all those involved in fisheries are encouraged to apply the Code and give effect to it.





# *Sustainable Aquaculture???*

- 4 gilthead seabream and European sea bass farms
- Semi-intensive and extensive farms
- 1 Italian and 3 Albanian companies
- Export toward EU and local consumption
- Kilic Company request was refused by the Albanian government.
- The Law on Aquaculture was approved by the parliament on 20 September of 2016.
- No Allocated Zones for Aquaculture (AZA) established yet.



# *Large and Small-scale Fisheries*

- **Only sport and traditional /small scale fishing** is allowed, while large-scale commercial fishing is strictly prohibited in the MPA of Karaburun-Sazani (Management Plan, 2014).
- Albanian fishing fleet is represented by 180 trawlers and dredgers, 22 purse seiners for small pelagic and 67 artisanal (small scale) boats (Sacchi, 2011)
- the estimated values of average power of the vessels is 280 Kw for trawlers and dredgers, 200 Kw for purse seiners and 80 Kw for artisanal boats (Sacchi,2011).





# Small-scale Fisheries

- Artisanal fisheries or small-scale coastal fisheries are particularly important in the Mediterranean, where they constitute about 80% of the fishing fleet (European Commission 2004).
- Artisanal fishing is a complex system characterized by commercial fishers operating in small boats, exploiting areas near the coast, using a large number of gears and techniques, typically manned by a single fishers or a pair of fishers and targeting a high diversity of species (Colloca *et al.*, 2004; Gomez *et al.*, 2006; Lloret and Font, 2013).

- 900 fishers performing (either full or part-time) small-scale coastal fishing,
- most of them part-time fishers, primarily employed in agriculture



# Developing co-management approaches for sustainable fisheries in the Karaburun-Sazan MPA

- The overall goal of the project is to promote the conservation of fish species communities of the Karaburun-Sazan MPA.
- To this aim the project will develop activities linked to three main objectives, namely:
  - Building a data collection system for local fisheries inside and outside the MPA in cooperation with local fishers;
  - Increasing fishermen awareness about the role of the MPA for conservation of coastal habitats and long-term sustainability of local fisheries.
  - Improve knowledge of the fishermen to reduce overfishing risks and protect relevant sensible habitat and species.



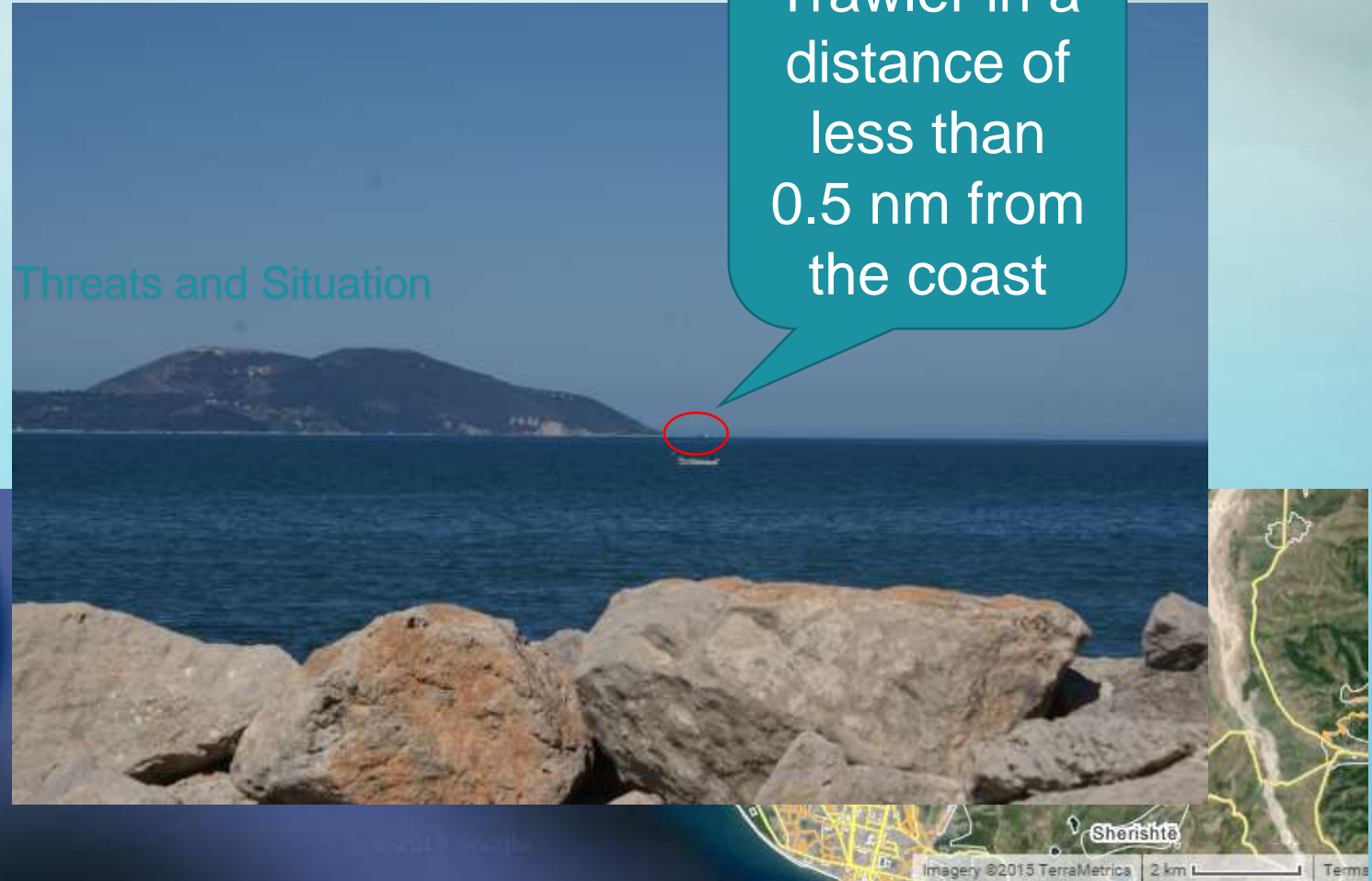


# Sustainable Fisheries???



Google

Threats and Situation



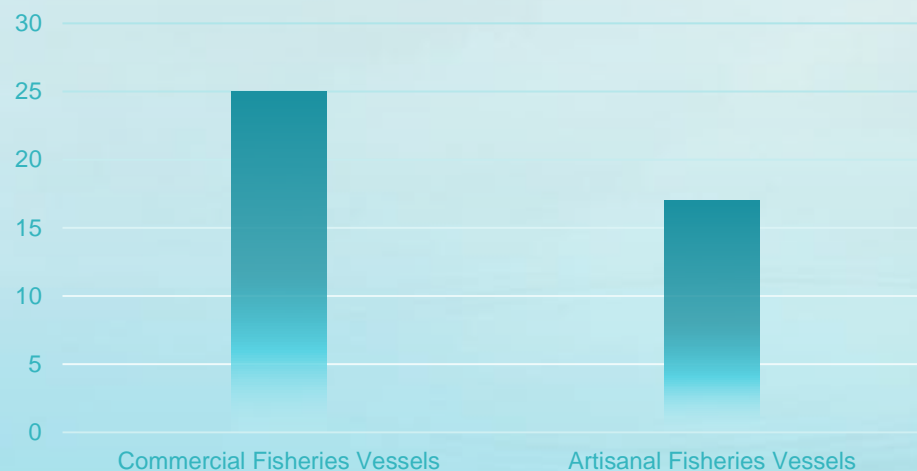
Trawler in a distance of less than 0.5 nm from the coast



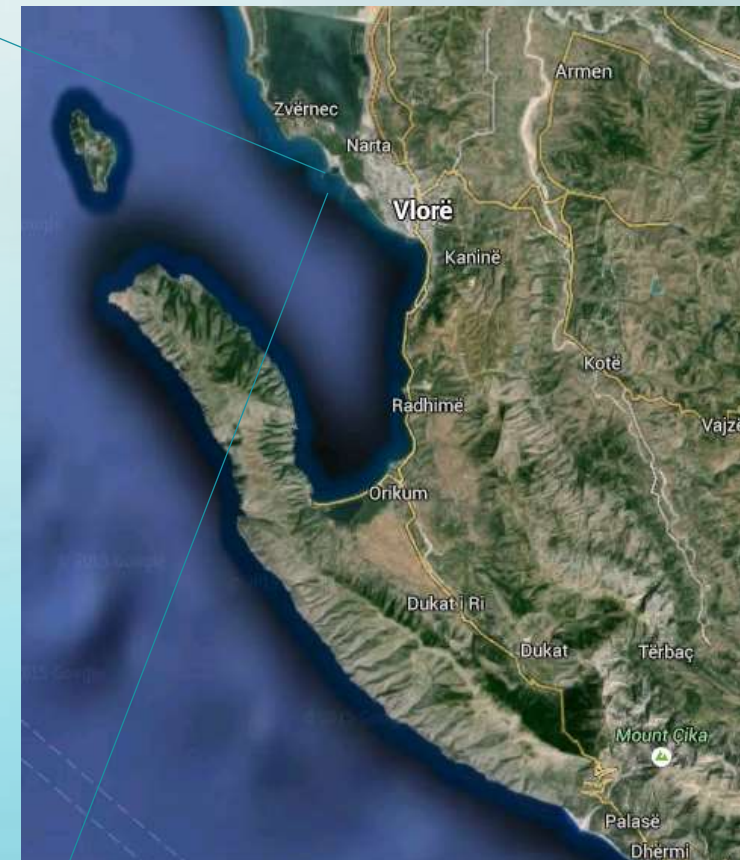
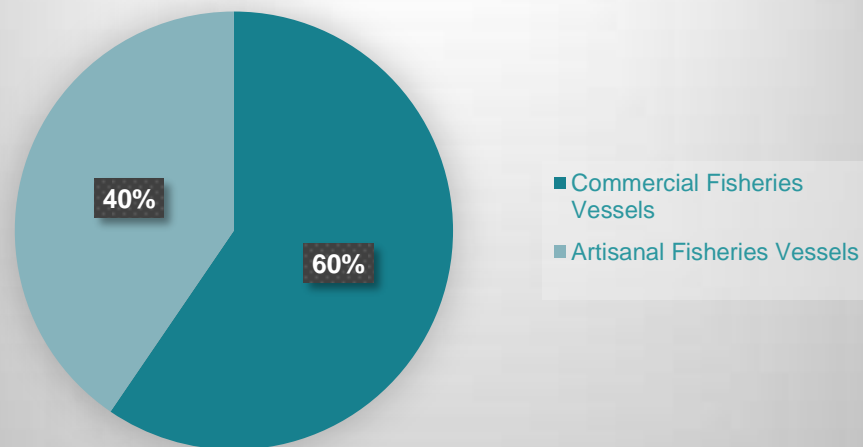
Imagery ©2015 TerraMetrics 2 km

# Results from survey on the status of Vlora fisheries fleet

## FISHING PORT OF VLORE



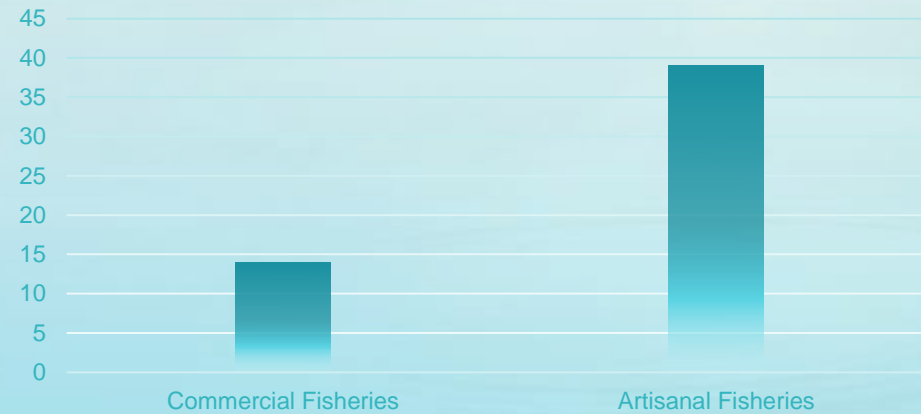
## Fishing Port of Vlore - Treport



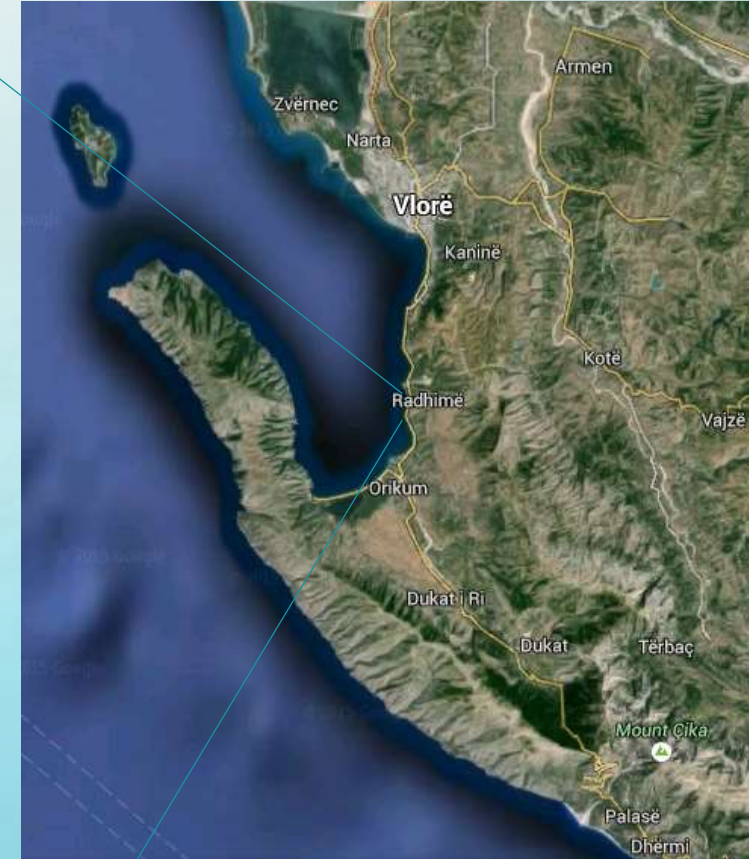
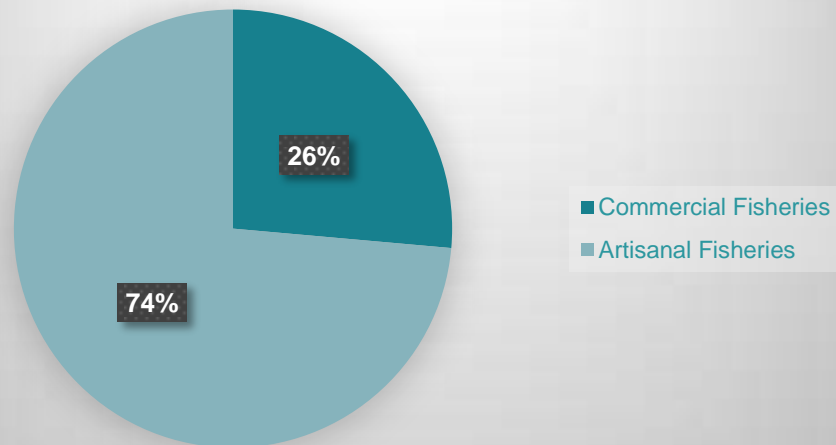


# Results from survey on the status of Vlora fisheries fleet

## N. OF FISHERMEN IN ORIKUM - RADHIME

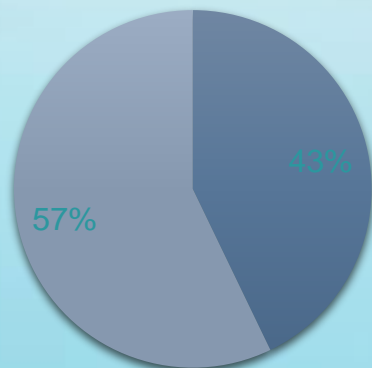


## N. of Fishermen

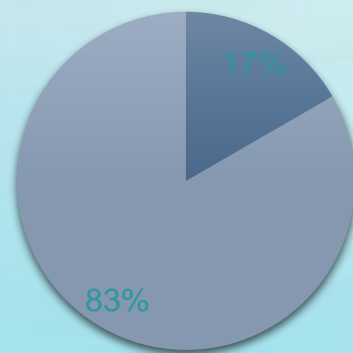


# Results of Landing Survey

European hake (merluci)  
Some of the analyzed individuals  
(Treport and Radhime) dimension < 20 cm.



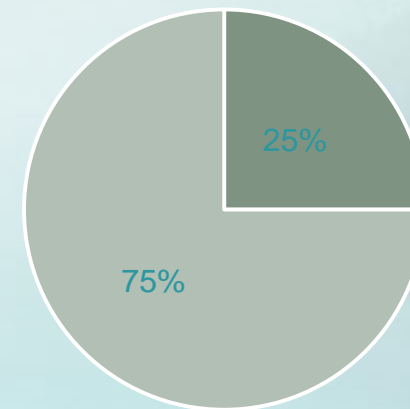
■ < 20 (Prohibited Size) ■ > 20 (Allowed Size)



■ < 20 (Prohibited Size) ■ > 20 (Allowed Size)

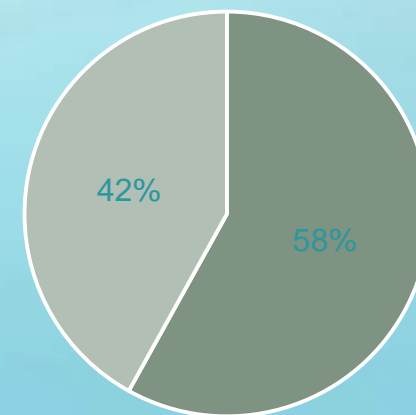
Gilthead Sea Bream (koce)  
Some of the analyzed individuals  
(Treport and Radhime) dimension < 20 cm.

## Analysed Boats for Each Region



■ Radhime ■ Treport

## Total Catch for Each Region

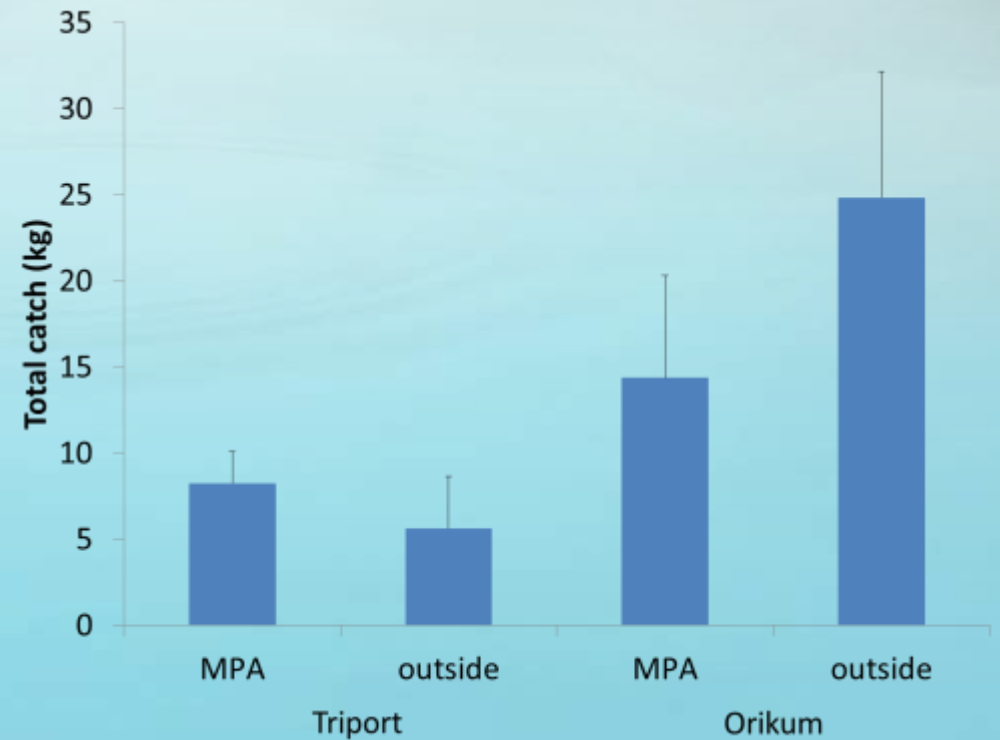


■ Boats from Radhime ■ Boats from Treport



# Conclusions

- Orikum fishers are strictly collaborating with the RAPAV rangers, which are continuously patrolling the KSMPA.
- some of the FMO fishers have established a small fish market named “Fishing Center Orikum”.
- Orikum fishery operating in and around the KSMPA are productive and at the same time fishermen seem to understand the importance of interacting with the MPA in order to protect the local biodiversity, which supports the fishing productivity.
- collaborative approaches with fishermen could drive to more sustainable fisheries (i.e. overall catches)



Unpublished data