



GENERAL FISHERIES COMMISSION FOR THE  
MEDITERRANEAN



COMMISSION GÉNÉRALE DES PÊCHES POUR  
LA MÉDITERRANÉE

*Artisanal fisheries and MPAs in Italy: the case  
study of Torre Guaceto (SE Apulia) in the  
Mediterranean context*

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## Outline of the presentation

- 1) Generalities on artisanal fisheries and MPAs in Italy
- 2) The story and data from the Torre Guaceto MPA



## The artisanal fishery

... is a multifaceted activity with various implications:

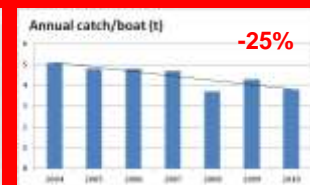
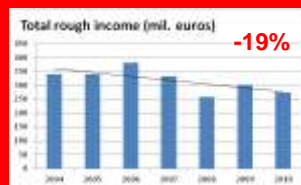
- 1) **environmental** (extraction of living resources, potential impacts on ecosystems)
- 2) **economical** (direct markets of fishing products and the induct of tourism)
- 3) **social** (occupation and incomes in coastal villages)
- 4) **cultural** (cultural heritage related to traditional fishing)

## How are artisanal fisheries doing in Italy?



Artisanal fisheries in 2010:

- 1) ~ 66% of the Italian fishing fleet in terms of no. vessels (n=8.776)
- 2) ~50% of employees in the fishery sector (n=14.047)
- 3) rough income of about 276 mil. euros

### Fuel expenses increased by 18% in 6 years

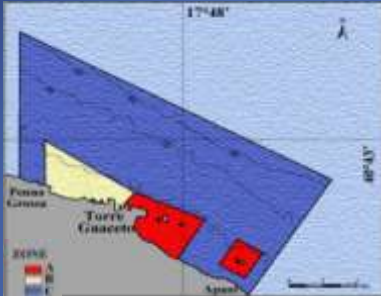





## The Torre Guaceto MPA

Zonation of the Torre Guaceto MPA







**Formal declaration:** 1991

**Management body:** consortium created in 2001 between WWF and municipalities of Brindisi and Carovigno

**Extension:** - Total AMP 2.227 ha  
- zone A 179 ha; zone B 163 ha; zone C 1.885 h

**Included coastline:** 8,4 Km

In the area, before the MPA was established, artisanal fishers have been fishing since long, mostly using fixed nets, but also long-lines and other destructive-illegal methods.

Fishing was not that remunerative, similar to many sectors of the Mediterranean where fishing is very intense

**Average catch in 1988, before the MPA was created: 8,23 kg/1000 m net**



From **2001 to 2005** the MPA of Torre Guaceto was effectively enforced and all fishing activities banned.

There was a continuous conflict between fishers VS the management authority of the MPA and coast guard (and other police bodies with competence at sea).

Each year more than 300 fines were imposed and several boats, nets and licences confiscated to professional fishers, including to local fishers practicing artisanal fishing.



Fishers were for sure formally wrong.

However, they felt to be the moral owners of that territory (where their fathers fished for generations) that was stolen by a “superior” authority, i.e. the State that established the ‘MPA’ ....



... the MPA was the ‘enemy’.






In **2005** the MPA asked the University of Salento-CoNISMa how to reduce the conflict while taking into account the conservation needs for the MPA.

The MPA thus funded a one-year project aimed at:

- 1) taking into account conservation issues in the MPA by selecting and monitoring some indicators to measure the conservation status
- 2) making the fishers happy.





## The idea of adaptive co-management

The experience of MPAs in Italy:

- 1) top-down decisions when MPAs have been establishment;
- 2) little funds for enforcement and communication-education

This led to the failure of most MPAs (actually paper parks) due to the lack of social acceptance by locals and political support



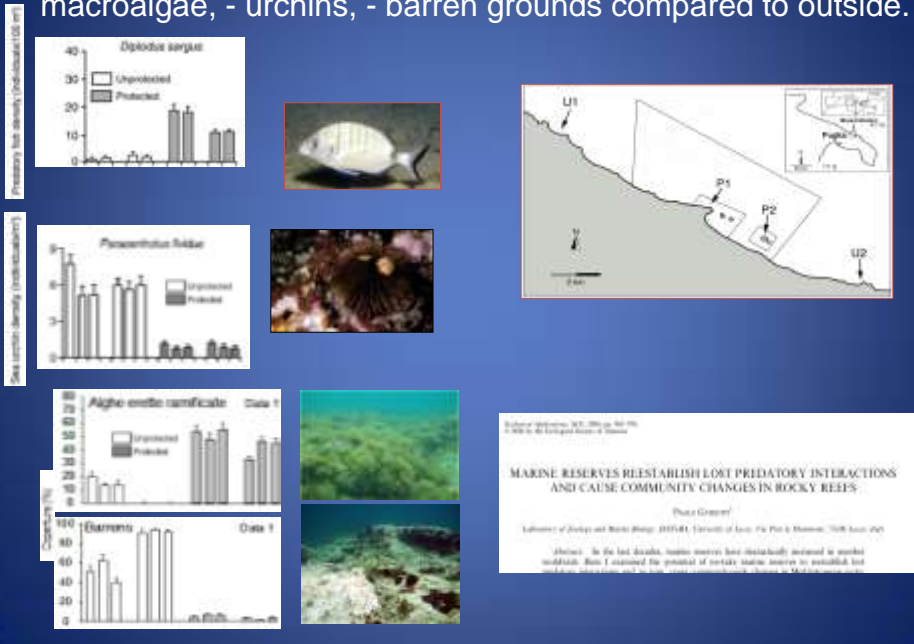


## Ecological data serve management

Visual census surveys and other field studies allowed to know and monitor in time the status of the MPA, what species there were there (e.g. endangered species) and detect functionally important species.

Between 2001 and 2005, fish communities and especially stocks of commercial species showed clear signs of recovery within the MPA.

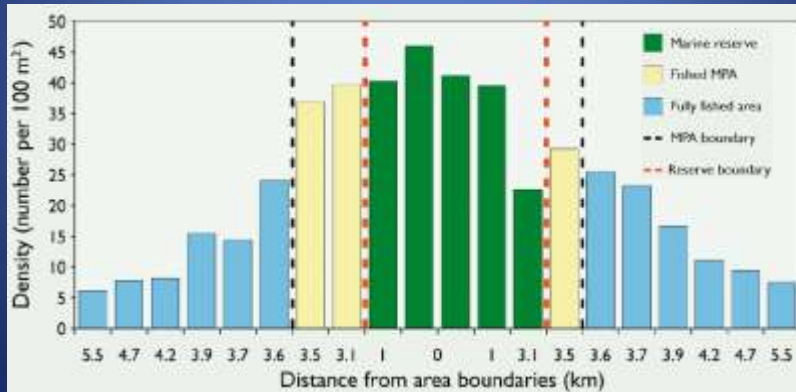
Within Torre Guaceto MPA there were + large/abundant fish, + macroalgae, - urchins, - barren grounds compared to outside.





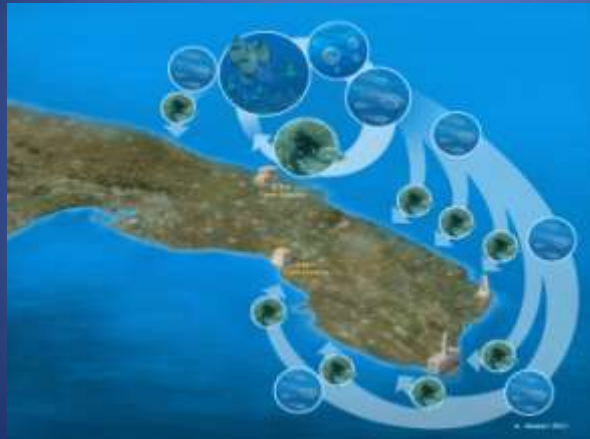
## Spillover and benefit to fisheries

Adult fish of 8 commercial species appeared to move from the reserve, where they were most abundant, into the nearby fished areas



## Recruitment subsidy and benefit to fisheries


Abundant and large-sized reproducers inside the TGMPA also replenish stocks outside the borders



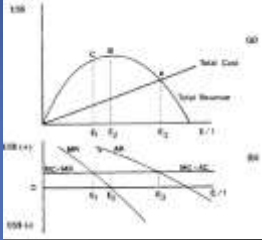

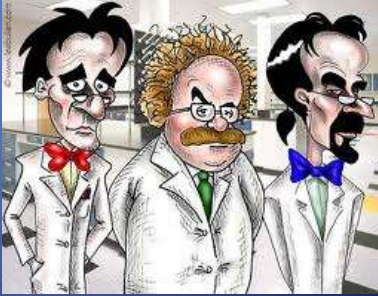
A. Di Franco, B.M. Gillanders, G. De Benedetto, A. Pennetta, G.A. De Leo, P. Guidetti, in press.

Dispersal Patterns of Coastal Fish: Implications for Designing Networks of Marine Protected Areas. PlosONE






In theory, there were interesting (and sometimes complicate) models and low-impact fishing methods to propose to local fishers, but ... fishers were very skeptical (in the beginning).







**Important steps:**

- 1) to meet fishers as more as possible even though discussing with them although, at the beginning, seemed to be not fruitful;
- 2) to be embarked on their fishing boats, in any season and conditions (thus reinforcing personal relations);
- 3) to speak the same language (e.g. fish species in the local dialect);
- 4) to try to understand their customs (e.g. traditional), needs, problems (e.g. the conflict with recreational fishers), fears (e.g. about the loss of fishing ground).



This phase took more than 1 year, many meetings and discussion, and many many days of embarkment.


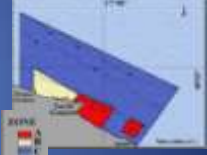




The shared decisions:

- 1) to keep using trammel nets, but with larger mesh size and far shorter nets compared to before;
- 2) to fish only in the C zone and only once a week;
- 3) who fishes in non-authorized days or using non-authorized gears is not allowed to fish for the rest of the year, besides being reported to coast guard.

The adhesion to this protocol was voluntary.





Since the beginning it was clearly that any decision should have been taken together and that any rule should have been subject to possible revision based on results obtained each year by the scientific monitoring (adaptive co-management).

**Why this gear?**

Among the gears traditionally used the trammel net causes quite little impact on:

- 1) benthic communities
- 2) juvenile fish
- 3) functionally important predators (e.g. sea breams) and slow-growing, long-living fish (ex. groupers)

Red list IUCN  
endangered species



So, between **2001** and **2005** the MPA was enforced efficiently and fishing banned.



In **2005** the experimental fishing (according with shared rules) began and data were got to scientifically monitor the effects of fishing and the status of the resources.

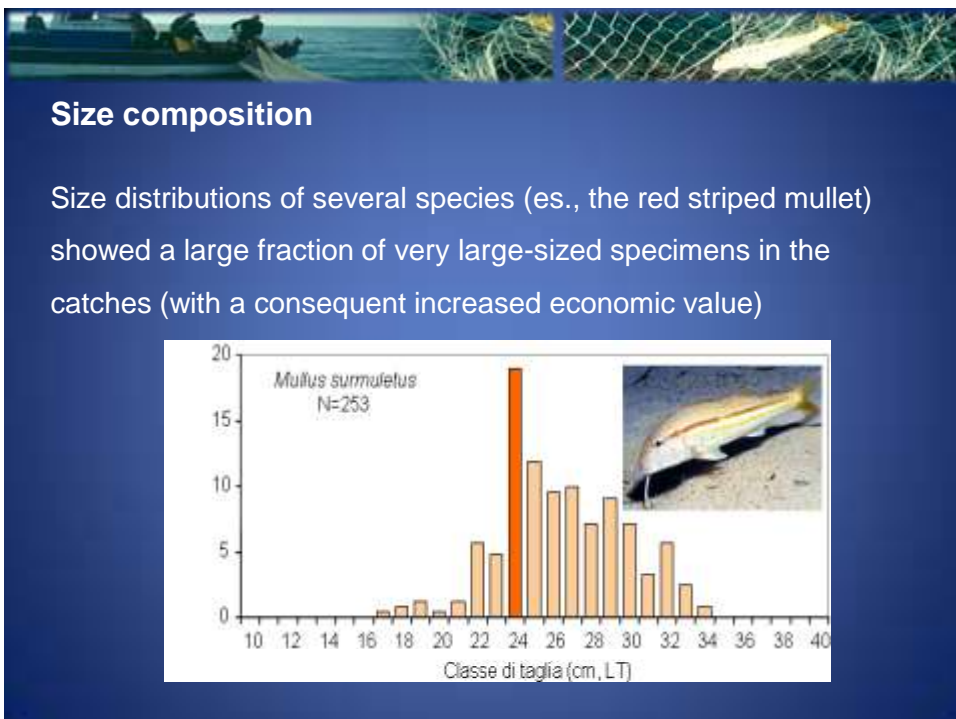
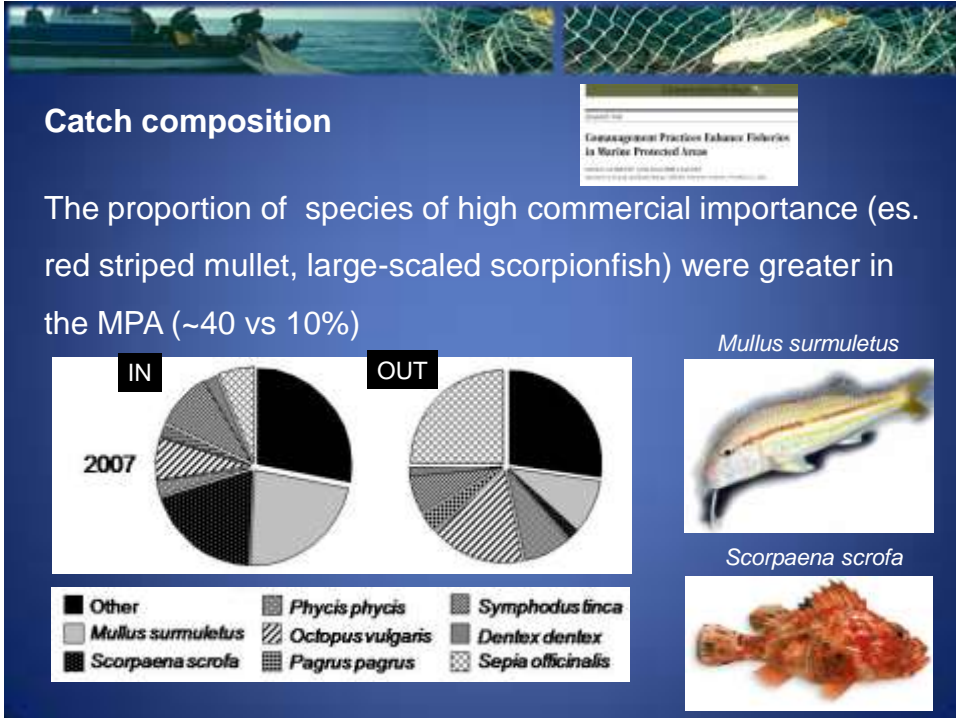


Fishermen working on 7 boats initially adhered to the protocol and were authorized to fish in the MPA.

The MPA authority was charged to control where the nets were placed, the length and the mesh size.

The scientific body collected data on catches, in terms of composition, weight and size of each fish species, both within and outside the MPA.



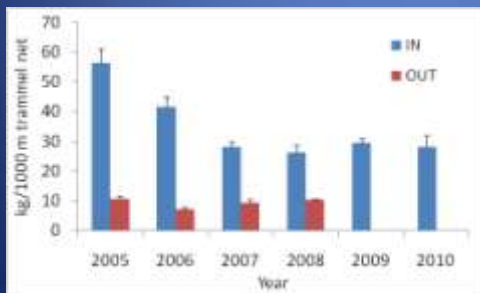




## Total catch per 1000 m of net

Total catch that was far higher within the C zone of the MPA compared to fishing grounds outside the MPA in the beginning, then stabilized around at least the double or more

Average catch in 1988, before the MPA was created: **8,23 kg/1000 m net**

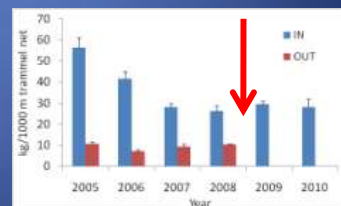


## Important points:

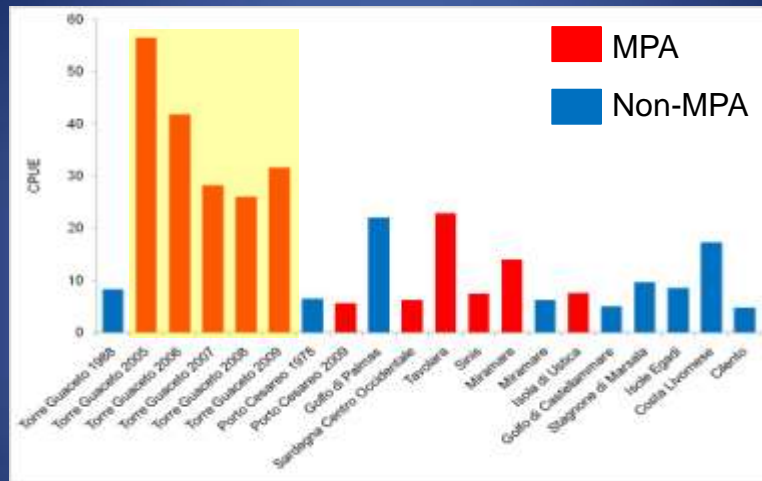
- 1) simple way to adapt fishing management;
- 2) simple goals: e.g. maintain yields inside the MPA at least double than outside;
- 3) adaptive component: fishers were told that if the average catch would have been assessed below the threshold, then the fishing effort would have been reduced.

In 2009 fishermen asked us to use larger mesh size!

The consequence in 2009-2010: similar catch and ~10% reduction of by-catch.



## Overall catch (CPUE: kg /1000 m of net)



Catches at Torre Guaceto are higher than in any other place in Italy (from which data are available).



### Other good points

Fishermen were publically prized and got a sort of eco-label for their eco-sustainable fishing, important to promote their products. They felt to have done something very important.



They are happy to be the 'protagonists' of the story.

All this led to a reduction of illegal fishing, from ~300 reports to police and coast guard in 2001-2003 to less than 20 in 2006, mostly addressed to fishermen coming from elsewhere.





## An unexpected side-effect

A number of fishermen did not adhere initially. When they knew about good fishing incomes of colleagues, they asked to participate.

These fishers were not that happy not to be authorized to fish in the MPA. To avoid conflicts we are thinking to some *ad hoc* activities to involve them and make it possible to have an income (e.g. targeting other fish and processing filets of mullets).



## Lessons learned

- 1) MPAs can be an occasion to protect biodiversity **AND** to preserve cultural diversity and identity of which fishers are the main vectors.
- 2) Properly co-managed MPAs may reduce conflicts while preserving natural and cultural heritages.
- 3) Reducing race to fish may reduce environmental impacts and help maintain higher, remunerative and stable fishing yields (than outside or before).
- 4) The role of science is crucial (referees).



5) The use of formal agreements is a sort of personal commitment ... not to respect the agreement is perceived as 'bad' by the 'community' of fishers, scientists, the MPA director and staff, etc.

6) The 'little' cultural revolution: from competition on shared resources to collaboration in managing a common resource. Now fishers feel to part in the management, enhanced their income and collaborate in the surveillance of the area.

7) Felice (fisherman) during the popular RAI 1 program *Linea Blu*: "I would like all the Italian coasts would be an MPA!" Now the MPA is (almost) a 'friend'!

8) Other MPAs and fishing communities through the Med look at TG with interest.

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**Fishermen contribute  
to protection of  
marine reserves**

Joachim Claudet, Paolo Guidetti