

# Conservation of biological resources and governance challenges in the Sinis MPA (Sardinia, Italy)



# Outline

## Part A

An introduction to the problem of **Paper Parks** (Stefania Coppa)

## Part B

Framing compliance: insights from **Regulation Literature** (Margherita Pieraccini)

## Part C

The case study: **The Sinis MPA**

- ❖ Introductory Notes & Methods (Stefania Coppa)
- ❖ Biological Results (Stefania Coppa)
- ❖ Socio-legal Results (Margherita Pieraccini)
- ❖ Conclusions (Margherita Pieraccini)

# Part A: The problem of Paper Parks

- ❖ **MPAs** are an important tool for marine conservation but their designation is not the end of the story!
- ❖ The literature is full with examples of **paper parks**, i.e. designated protected areas that are not ensuring a high level of protection on the ground due to poor compliance with and weak enforcement of regulations (e.g. Jameson *et al.*, 2002; Mora *et al.*, 2006; Guidetti *et al.*, 2008; Rife *et al.*, 2013; Advani *et al.*, 2015).
- ❖ In **Italy** there is no inter-disciplinary study considering the complex interrelationships leading to non-compliance. Existing studies have focused on increasing enforcement levels (Guidetti *et al.* 2008) or on the key role played by good leadership (Micheli and Niccolini 2013).

# Part A: Solutions to the problem of Paper Parks

## Neo-institutional approaches and critiques

Neo-institutional scholarship highlights the importance of **collective action** (e.g. Ostrom 1990, Mascia 2003, Christie 2003), **small-scale place-based management** (Young et al 2007) and **local stakeholder participation** (Jentoft 2007)

Jones' criticism to neo-institutional scholarship: too much focus on self-governance, neglecting "the need for top-down approaches and legal incentives"

Jones reintroduces state-based law as a component of the governance framework

## De-centring law with regulation theory

Black (2001) de-centred law

## Part B: Regulation theory: rethinking law and compliance in a de-centred world

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Beyond classical deterrence theory

Ayres and Braithwaite (1992) actors have “multiple selves”

Non-Compliance motivations (Parker and Nielsen 2011):

- Calculative (costs of non-compliance lower than those of complying)
- Normative (normative beliefs of actors not according with the law)
- Social (cultural and social backgrounds and pressures pushing actors to non-compliance)

## Part B: Regulation theory solutions to compliance gaps

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Really responsive regulation (Baldwin and Black 2008): towards a dynamic and adaptive approach to regulation.

### Regulatory capture literature

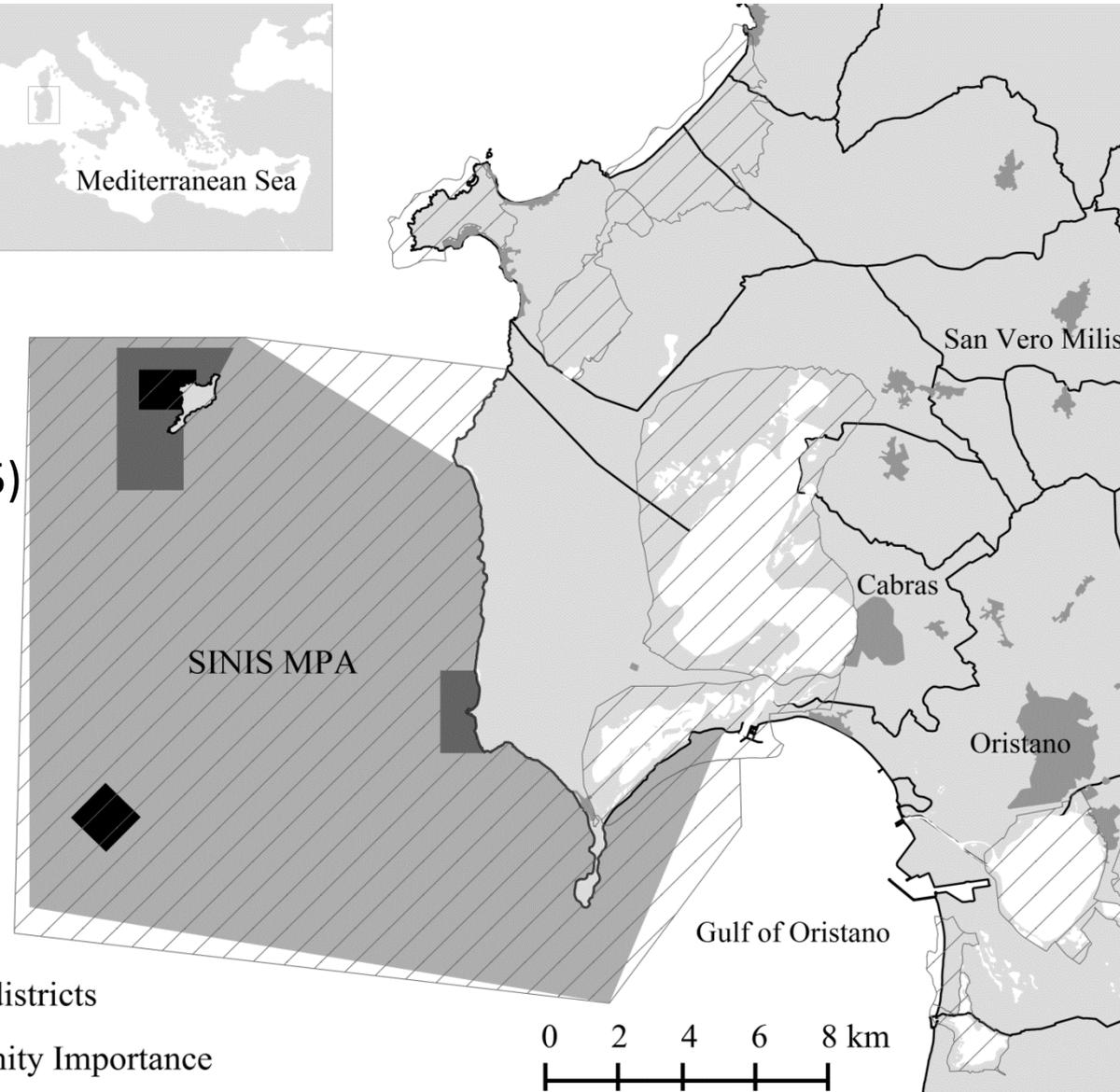
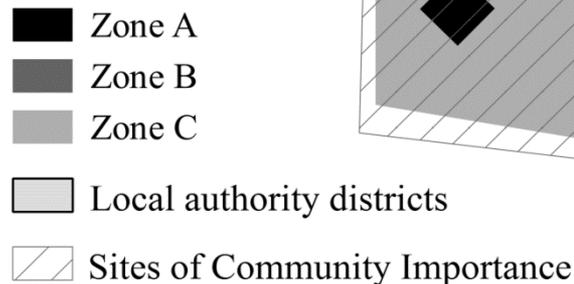
- Lodge (2004): improving transparency (“regulatory activities access-and assess-able”)and of accountability (“the obligation to account for regulatory (or any other type of) activities to another body or person”)
- Improving transparency and accountability through participatory processes?
- Stack’s “a paradox of process”: “participatory rights are conceptually fundamental to administrative legality but end up substantively shaping regulation in predictable and private-regarding ways”
- Creation of an independent oversight body

# C: The Sinis MPA - Introduction to the case study area

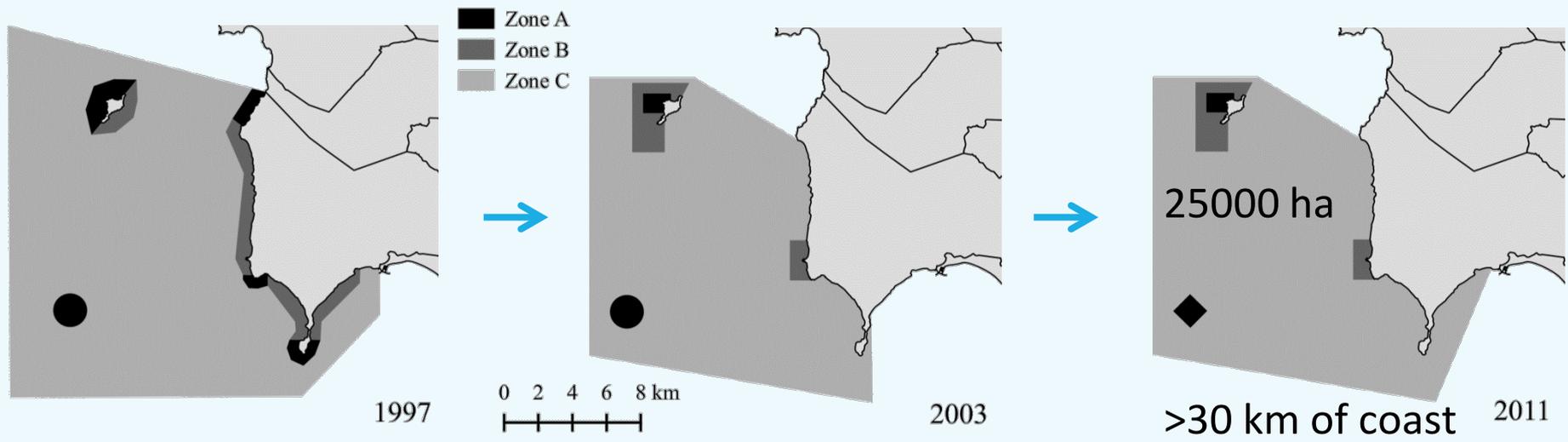


## Main features:

- ❖ Commercial fleet: 94 units (199 fishermen)
- ❖ 196 recreational fishers (2015)
- ❖ High biodiversity importance
- ❖ Low population density (Cabras: 9000 inhabitants)



## C: The Sinis MPA designation and management



- ❖ Management body: Cabras Local Authority. Managers are supported by a Commission that has only a consultative role.
- ❖ Normative framework: fishing regulated by ordinances issued by Port Authority and decrees by Agricultural Regional Department
- ❖ Specific Regulation of the MPA not yet adopted
- ❖ Enforcement bodies: Port Authority, Forestry Police and Local Police

# C: Methods

## Biological Methods

- ❖ Review of all available material on the conservation's effectiveness of the Sinis MPA
- ❖ Analysis of raw data on the commercial sea urchin *Paracentrotus lividus*

## Socio-Legal Methods

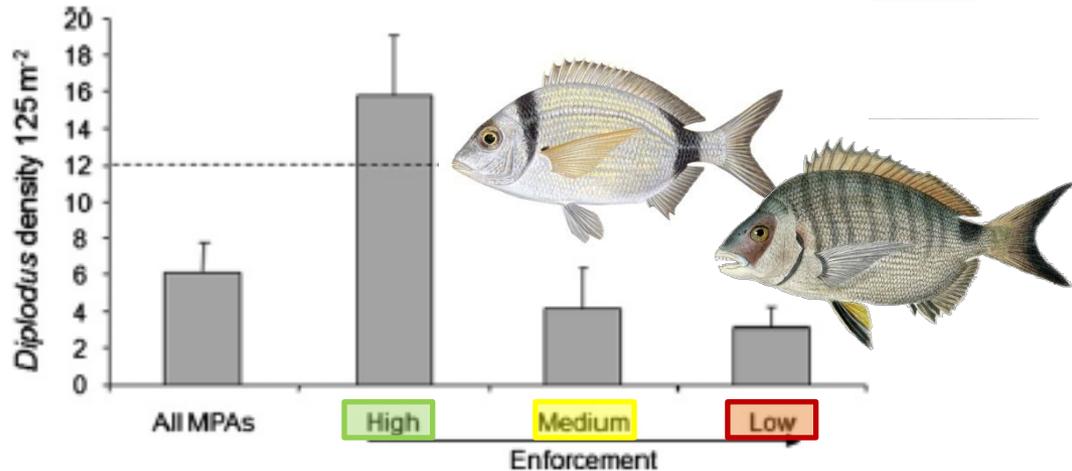
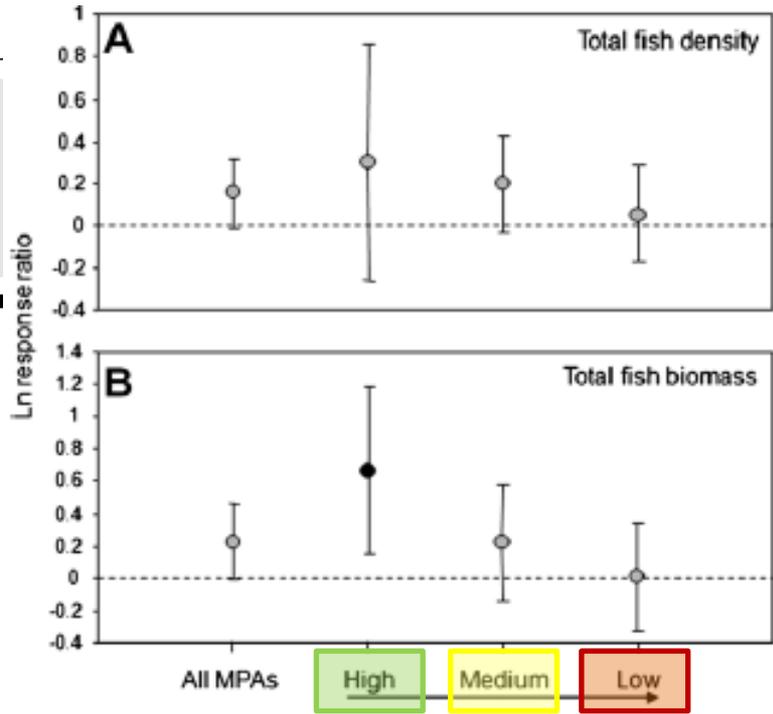
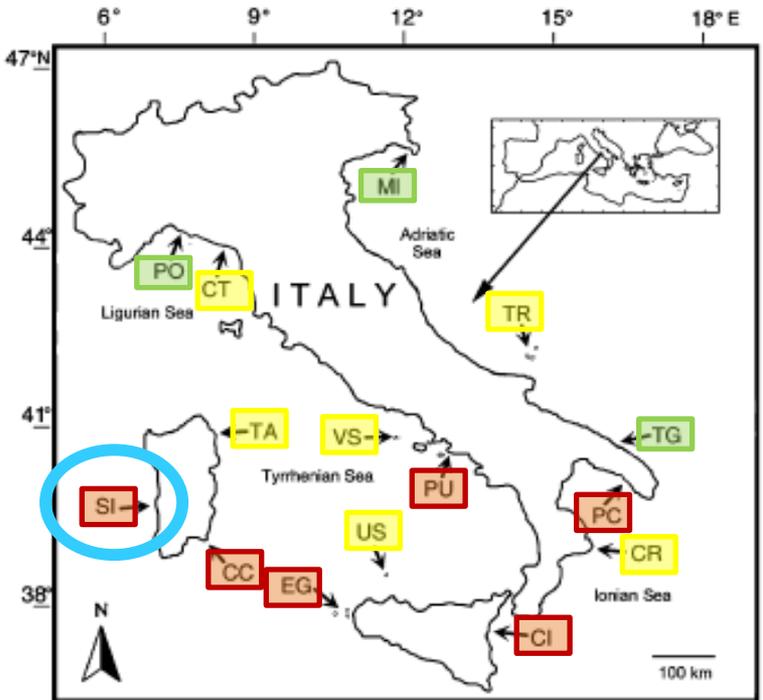
- ❖ Semi-structured interviews with stakeholders (both regulators and sea-users; 2014)
- ❖ 2 workshops in 2015 (one with stakeholders, one with the public)

# C: Biological Results – fish fauna



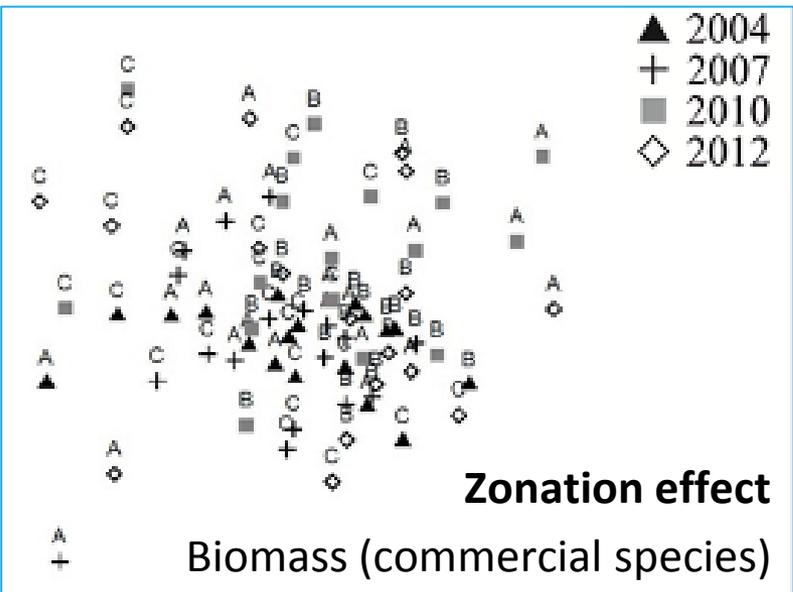
available at [www.sciencedirect.com](http://www.sciencedirect.com)  
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## Italian marine reserve effectiveness: Does enforcement matter? Guidetti *et al.*, 2008

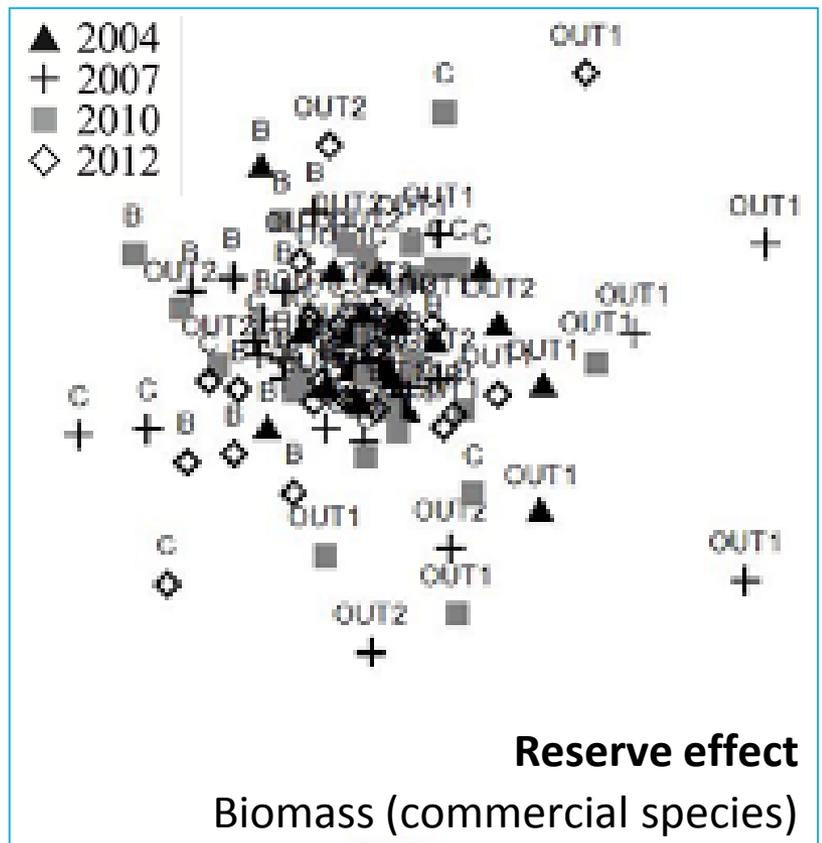
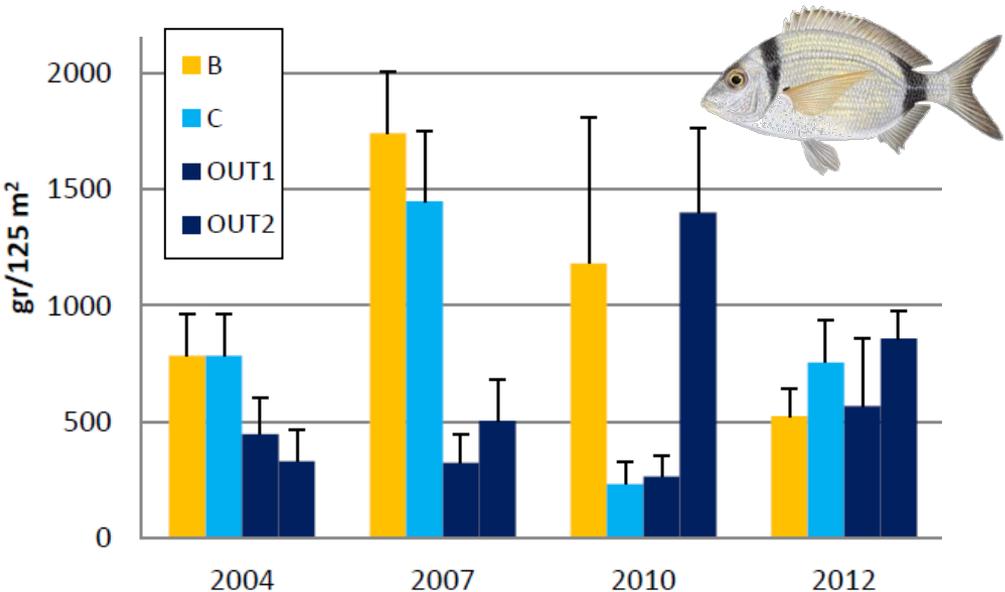


# C: Biological Results – fish fauna

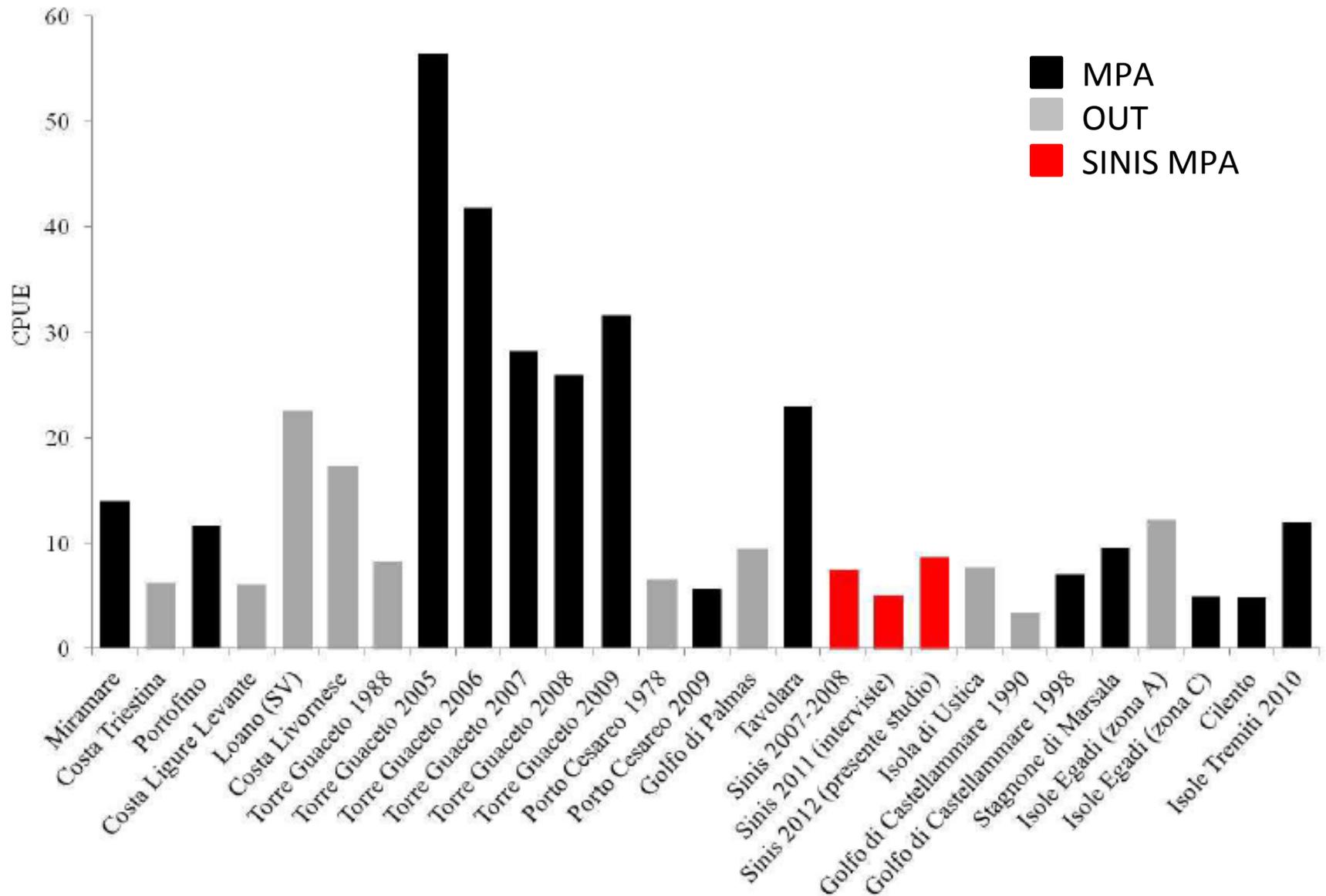
Marra *et al.* (under review)



- ❖ No increasing of size/biomass across the years
- ❖ No diversification among protection levels
- ❖ No diversification between MPA and Outside



# C: Biological Results – fish fauna

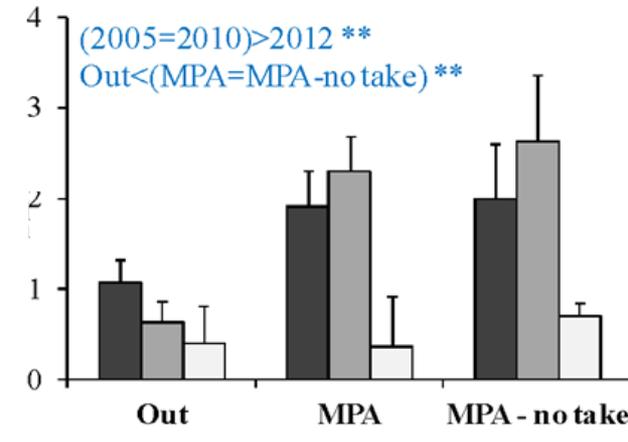
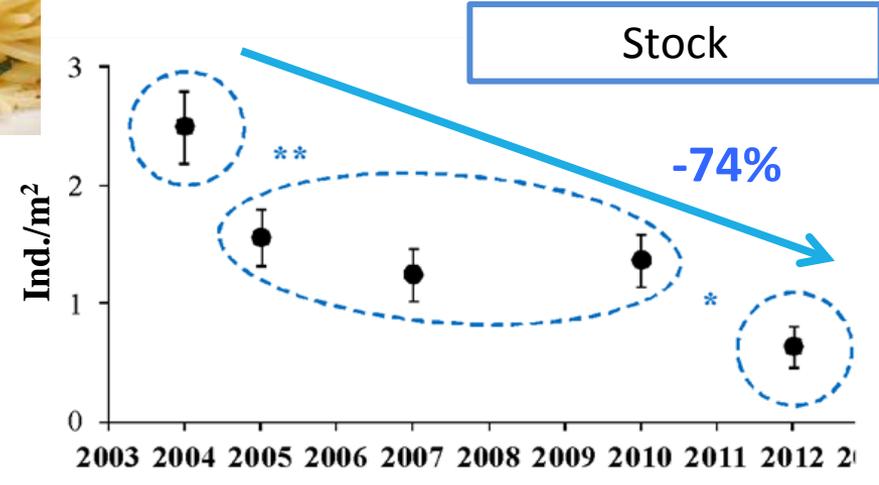
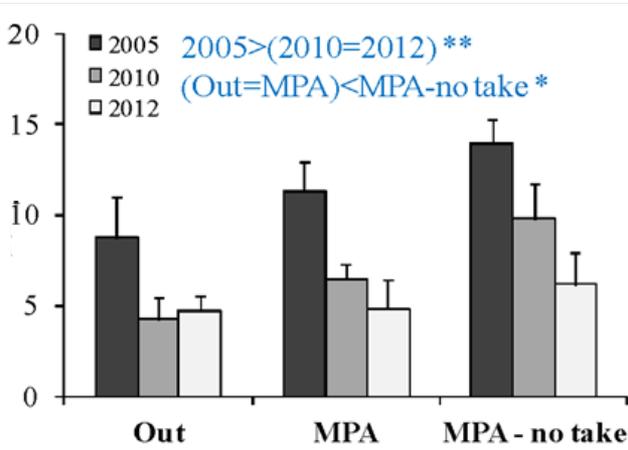
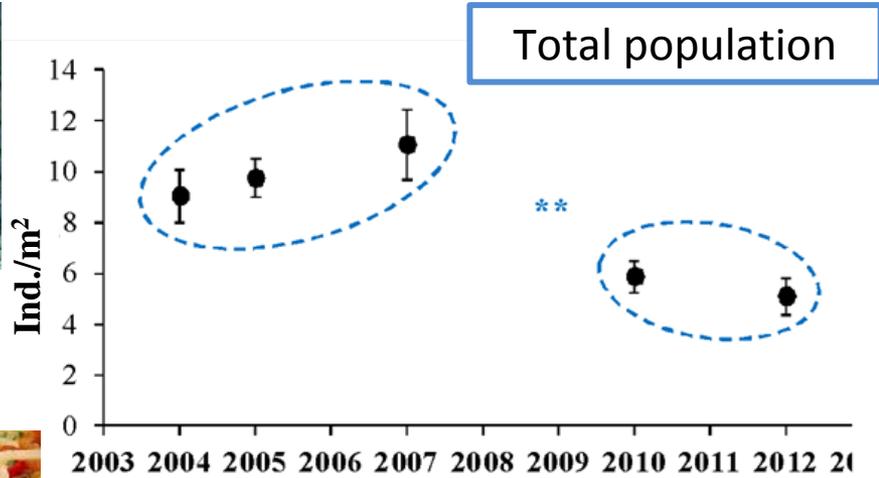


CPUE: kg/1000 m of gillnet/day) (Guidetti et al., 2013)

# C: Biological Results – other commercial species (sea urchin)



*Paracentrotus lividus*



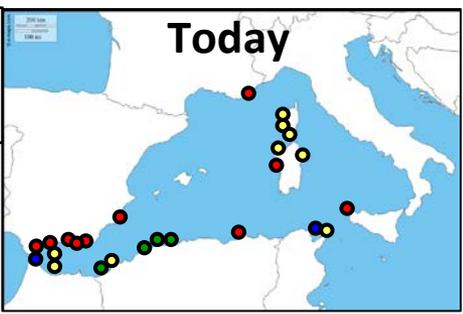
Pieraccini *et al.* (under review)

# C: Biological Results – protected species (*Patella ferruginea*)

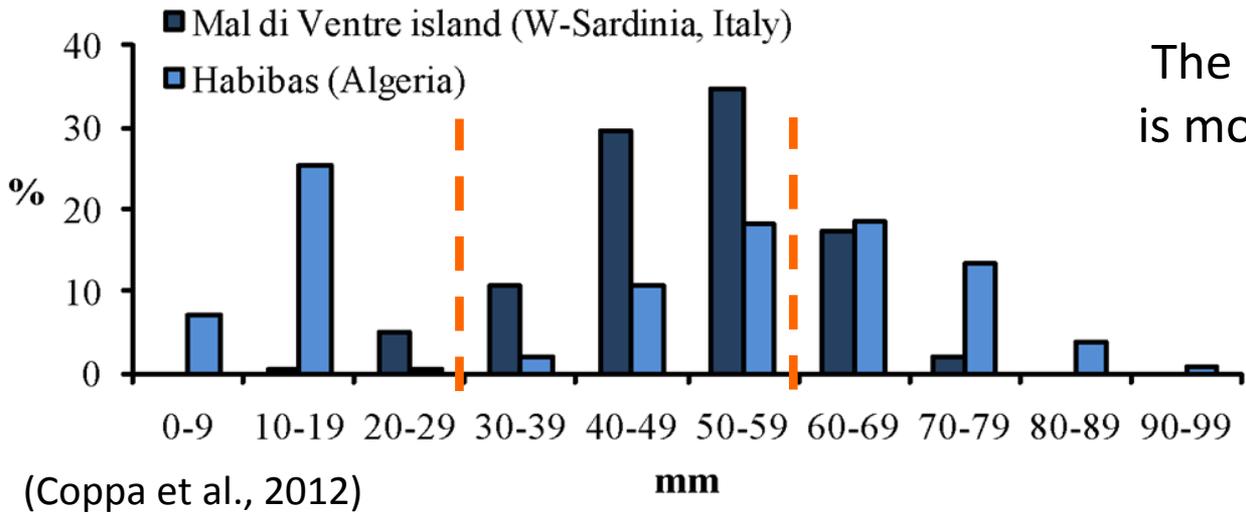


The most endangered endemic invertebrate in the Mediterranean Sea

- ❖ Habitat loss
- ❖ Pollution
- ❖ **Human harvesting**



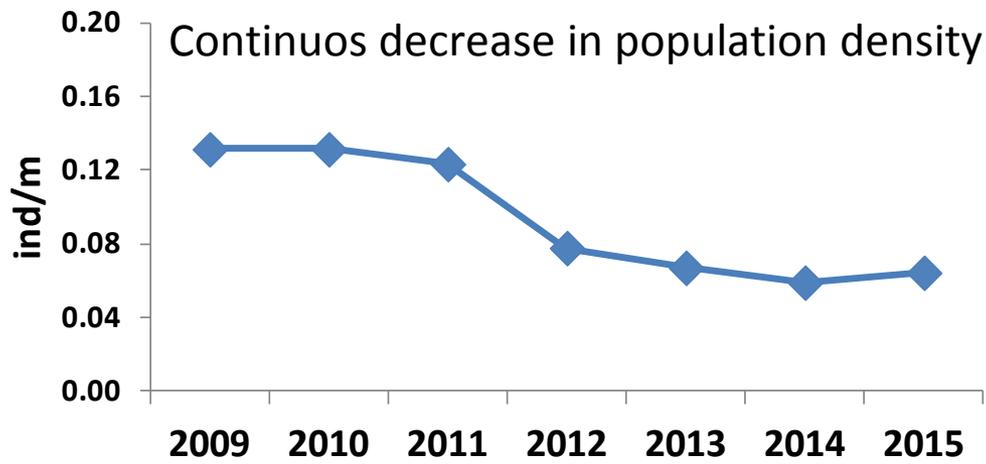
it is a **protandrous species**



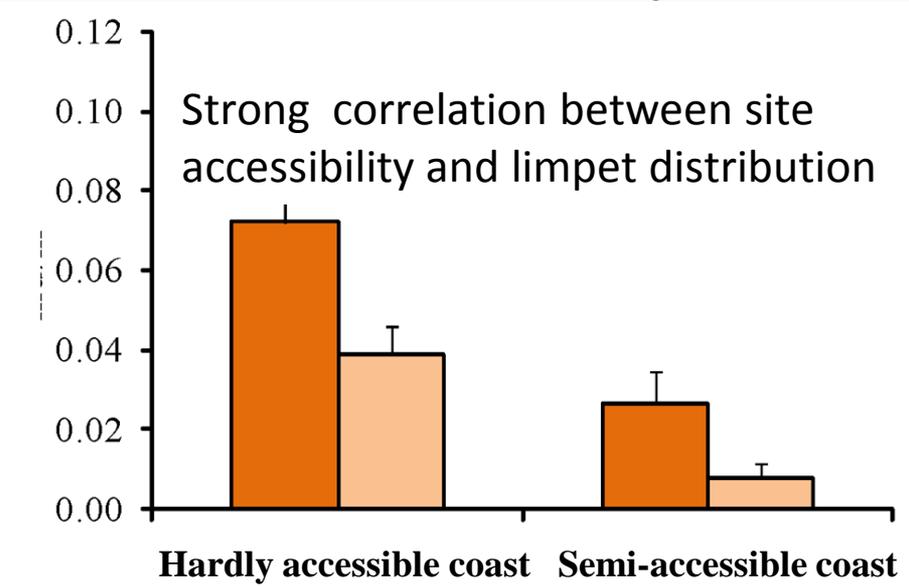
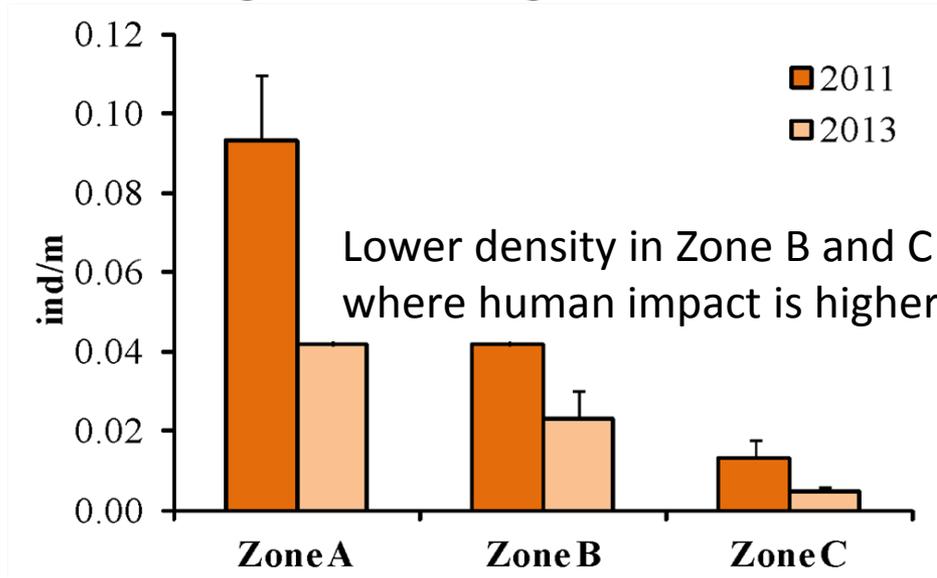
The population of the Sinis MPA is monitored annually from 2009

In 2013 the population size was estimated to be **310 individuals**

# C: Biological Results – protected species (*Patella ferruginea*)



Illegal harvesting is the main threat for the conservation of this species



(Coppa et al., 2015)

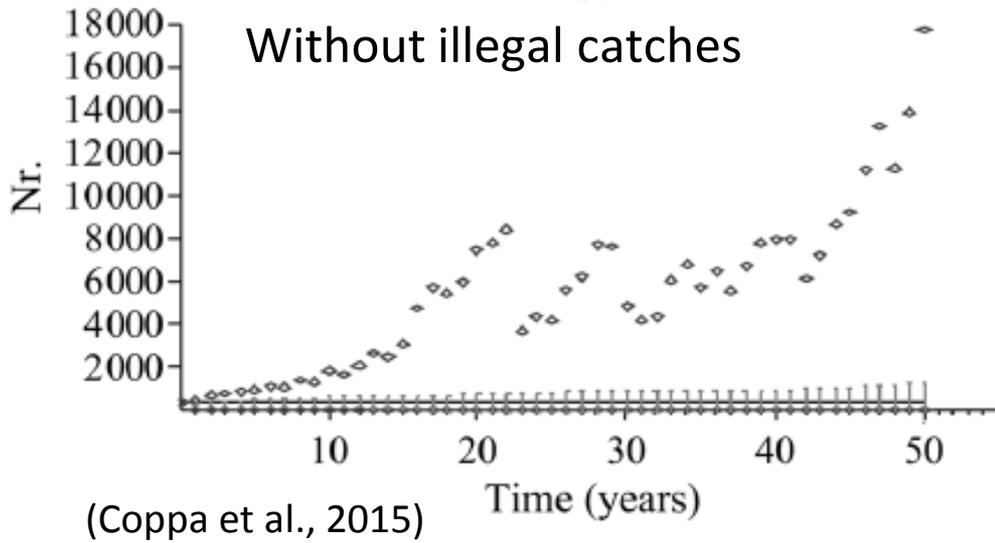
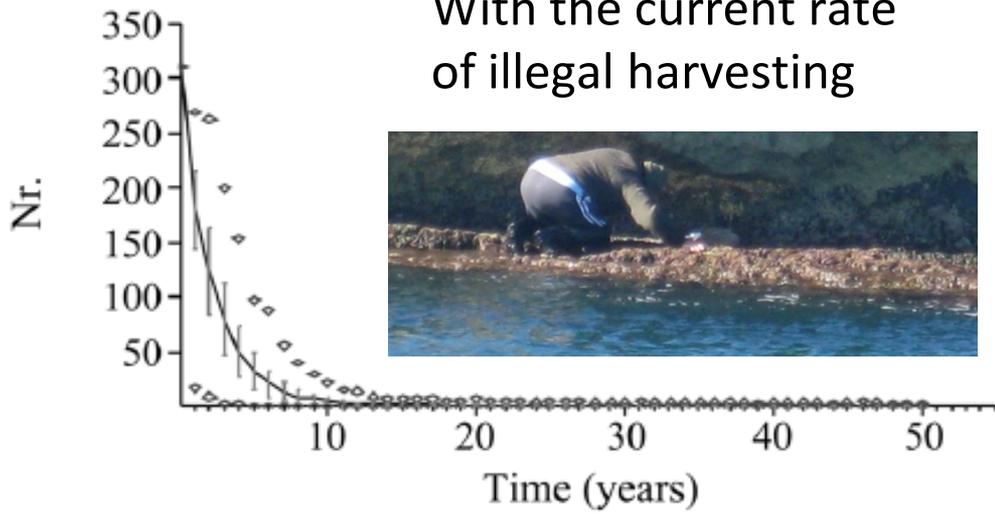
# C: Biological Results – protected species (*Patella ferruginea*)



**Catching this species is a criminal offence!**

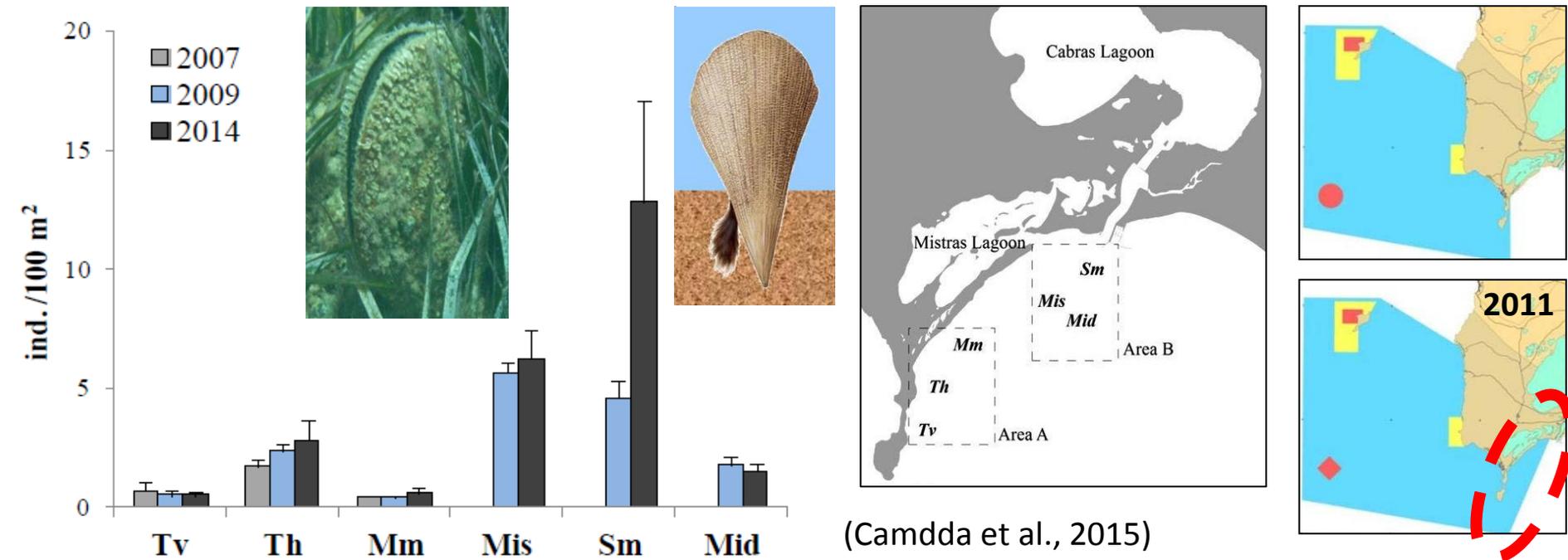
The results of the Population Viability Analysis further confirm the ineffectiveness of the Sinis MPA in protecting *Patella ferruginea*

With the current rate of illegal harvesting



(Coppa et al., 2015)

# C: Biological Results – protected species (*Pinna nobilis*)



- ❖ Presence of buoy fields to **minimize anchorage impacts**
- ❖ The increase in population density between 2009-14 could be due to the **enlargement of the MPA (2011)**

# C: Biological Results – Summary

- ❖ The Sinis MPA has been effective neither for the recovery and management of **commercial biological resources**, nor for the conservation of **endangered species**, especially those colonizing easily accessible sites.
- ❖ The results of the biological research raise questions regarding the levels of **legal compliance** and **enforcement** (Guidetti *et al.*, 2008, 2012, 2013; Coppa, 2011; Coppa *et al.*, 2012, Coppa *et al.*, 2015; Marra *et al.*, under review).



These main findings were the starting point for the socio-legal research.

# C: Socio-Legal Results: non-compliance motivations

## Regulators' non-compliance

### Social motivations

Nearly 50% of the sample doesn't know the environmental regulations or the state of conservation of the MPA

*"It is not lack of capacity but lack of willingness to intervene. I do not know why there is such lack of willingness, I do not think is a matter of corruption but surely inertia" (Sea-user 1)*

### Normative motivations

- ❖ Perceived lack of legitimacy of the administrative system due to institutional fragmentation and its politicisation and problems with legal implementation
- ❖ Awareness of corruption and black market

### Calculative motivations

*"It is also a political question considering that all the administrations do not want to impose stringent control to avoid losing the electorate" (Sea-user 1).*

# C: Socio-Legal Results: non-compliance motivations

## Sea-users' non-compliance

### Social motivations

- ❖ The sea is still considered as an open-access space for resource appropriation (*mare nullius*) (due to a young maritime culture?)
- ❖ individualism/lack of trust between fishermen and between fishermen and regulators
- ❖ Inertia (lack of interest in participating in meetings on MPA management)

### Normative motivations

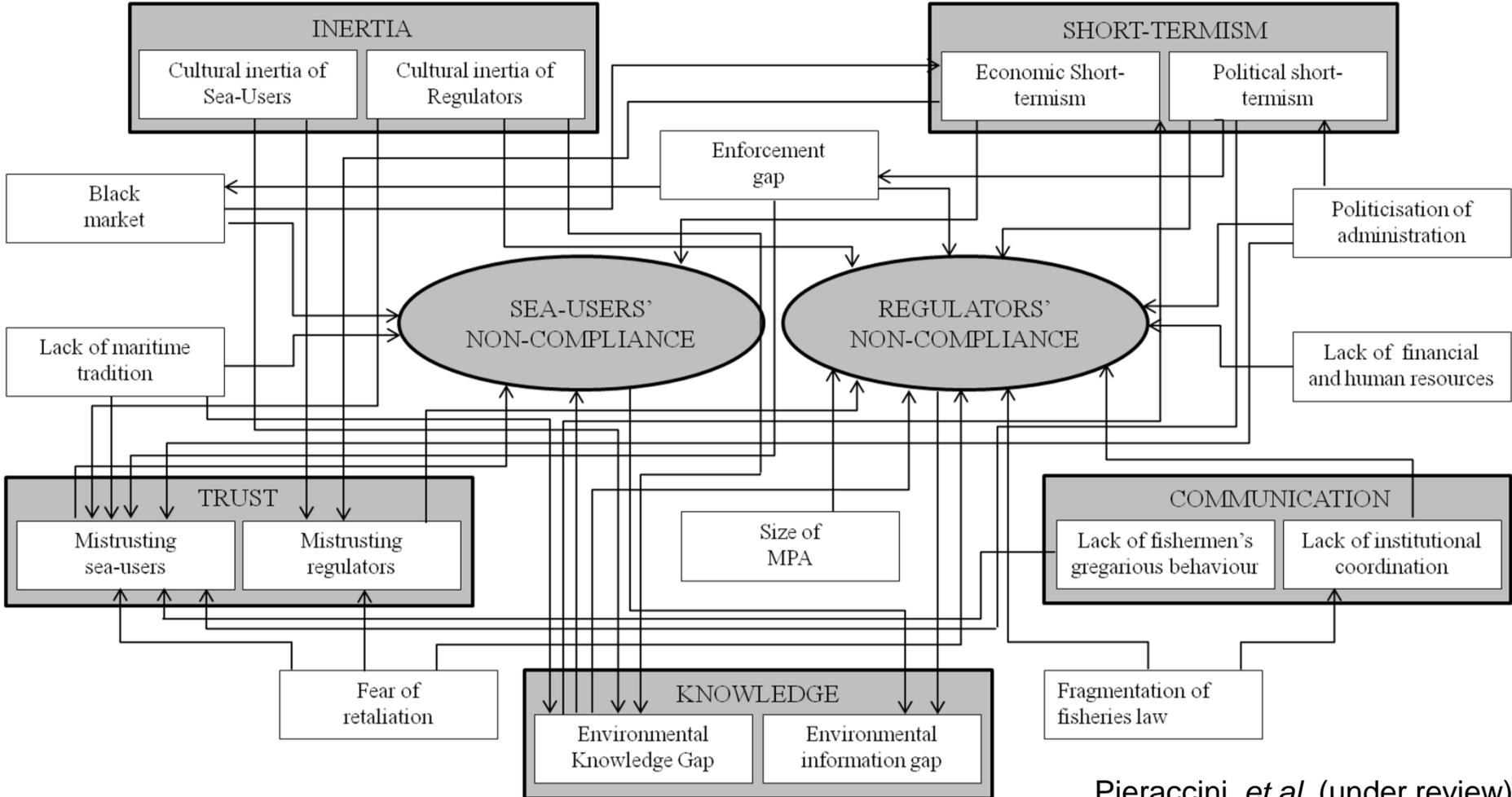
- ❖ Difficulty of accessing environmental information
- ❖ Lack of exercise of enforcement duties by authorities

### Calculative motivations

- ❖ Short term economic gains (black market)

# Part C: Socio-Legal Results: non-compliance motivations

Note that many of these motivations cross-cut categories as they are the product of multiple factors.



Pieraccini *et al.* (under review)

# Part C: Socio-Legal Results: moving forward

Short term: increase levels of surveillance and enforcement



To prevent local extinction of protected species/stock collapses

To hinder illegality/black market

Long-term: reshaping the institutional landscape and increasing environmental education

**Independent Oversight body** for increasing transparency and accountability and minimising the impact of “regulatory capture”

**Education programmes** for increasing environmental knowledge and enhancing local participation

# Part C: Conclusions

- ❖ Explaining the ineffectiveness of MPAs is a difficult task since they are **complex social-ecological systems**
- ❖ This study showed the importance of employing a **multi-disciplinary approach** to analyse MPAs effectiveness
- ❖ The biological study has demonstrated that **uncontrolled exploitation** is at the basis of the ineffectiveness of the Sinis MPA
- ❖ The socio-legal study categorised non-compliance motivations of the actors involved, to outline a number of inter-linked causes leading to non-compliance and to provide policy recommendations drawn from **regulation theory**
- ❖ The analysis carried out for the Sinis MPA may be useful for other case studies experiencing similar challenges

**Thanks for your attention...**



**Contacts:**

**[m.pieraccini@bristol.ac.uk](mailto:m.pieraccini@bristol.ac.uk)**

**[s.coppa@iamc.cnr.it](mailto:s.coppa@iamc.cnr.it)**