

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

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)

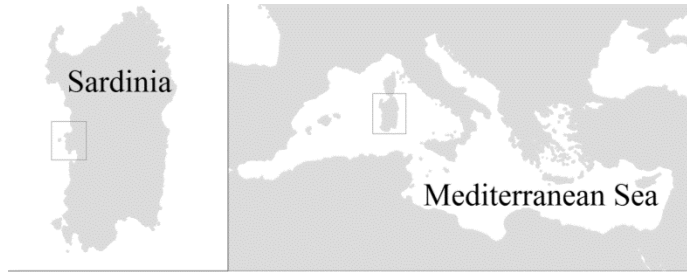
Part B: Regulation theory solutions to compliance gaps

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

Regulatory capture literature

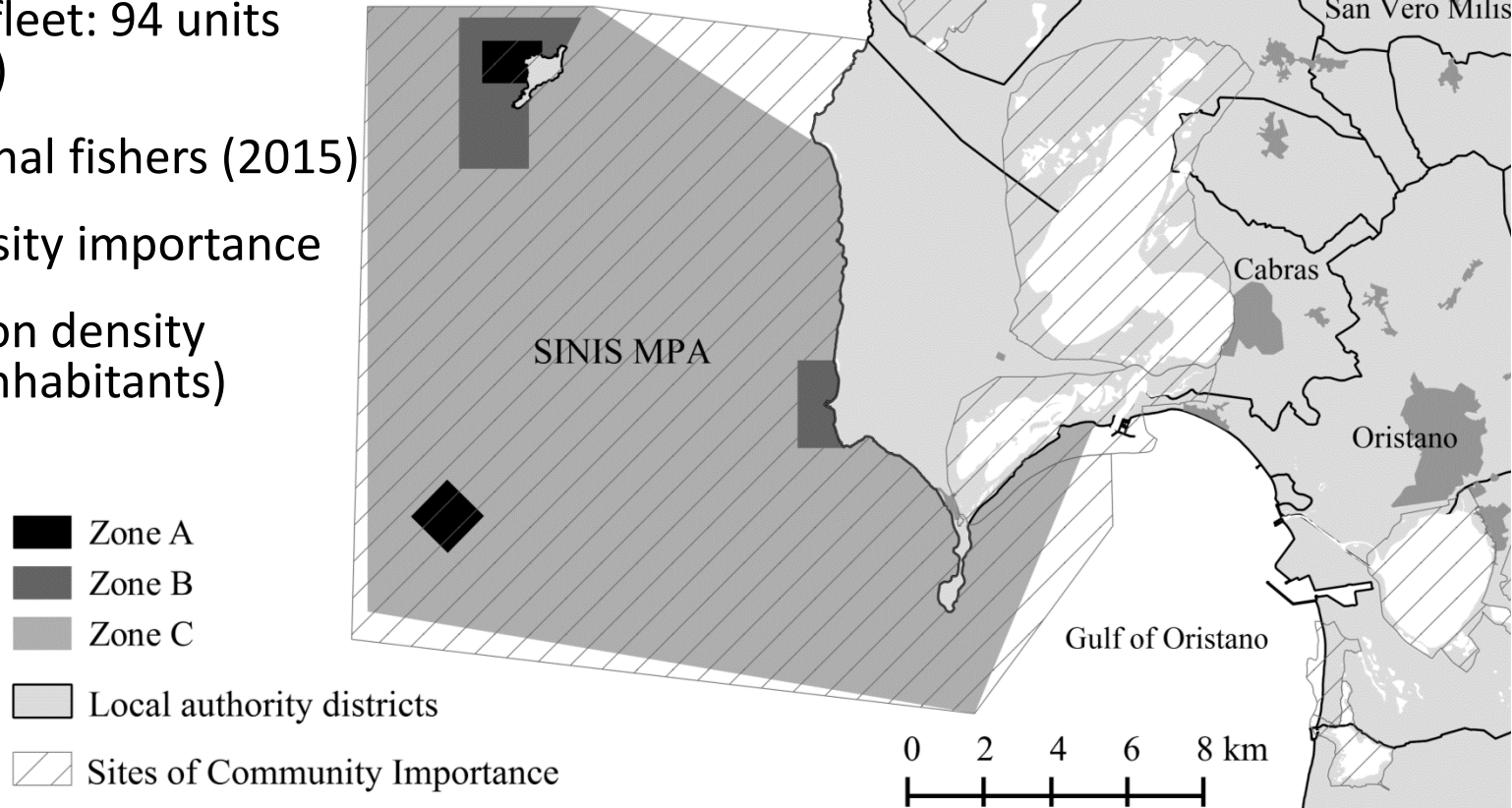
- Lodge (2004): improving transparency (“regulatory activities access-and assess-able”)and of accountability (“the obligation to account for regulatory (or any other type of) activities to another body or person”)
- Improving transparency and accountability through participatory processes?
- Stack’s “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

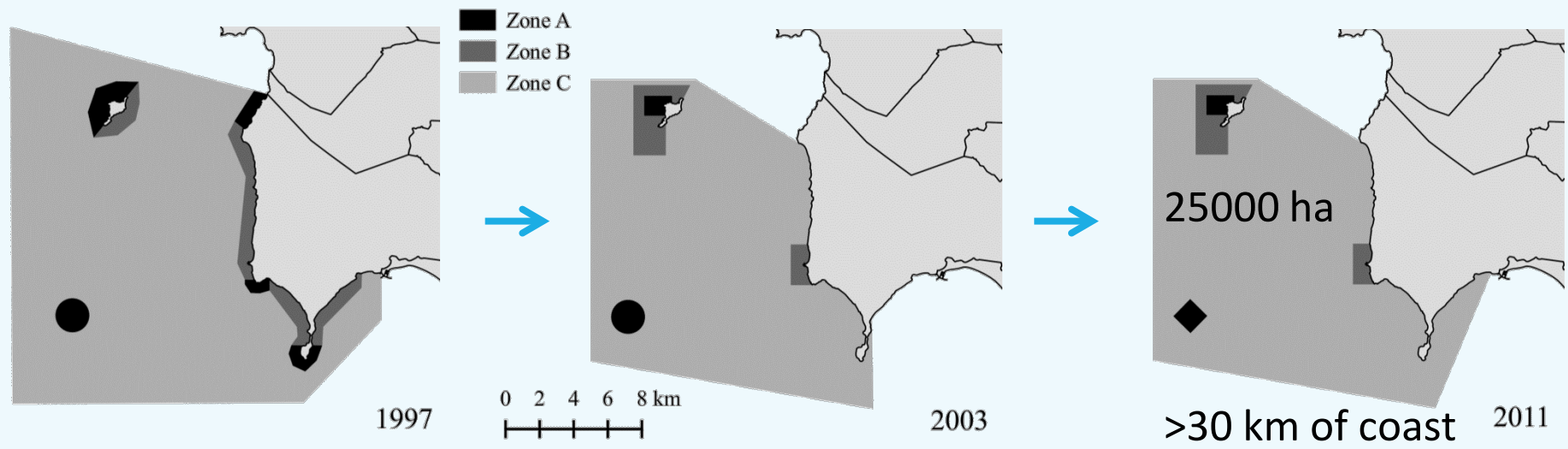


Main features:

- ❖ 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



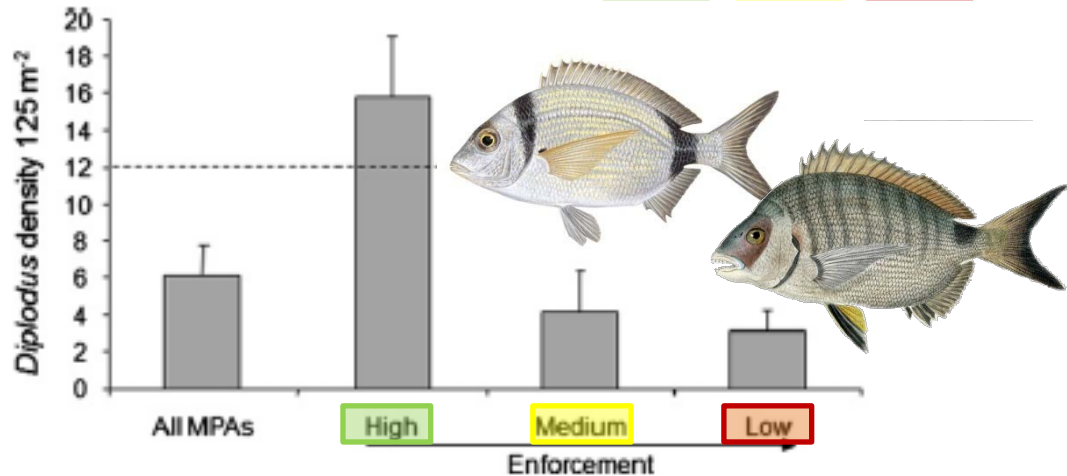
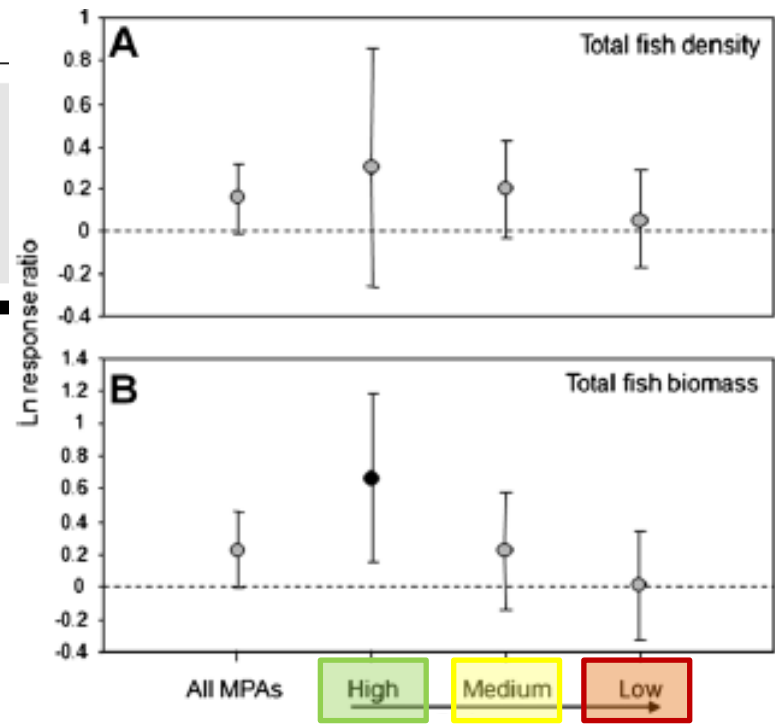
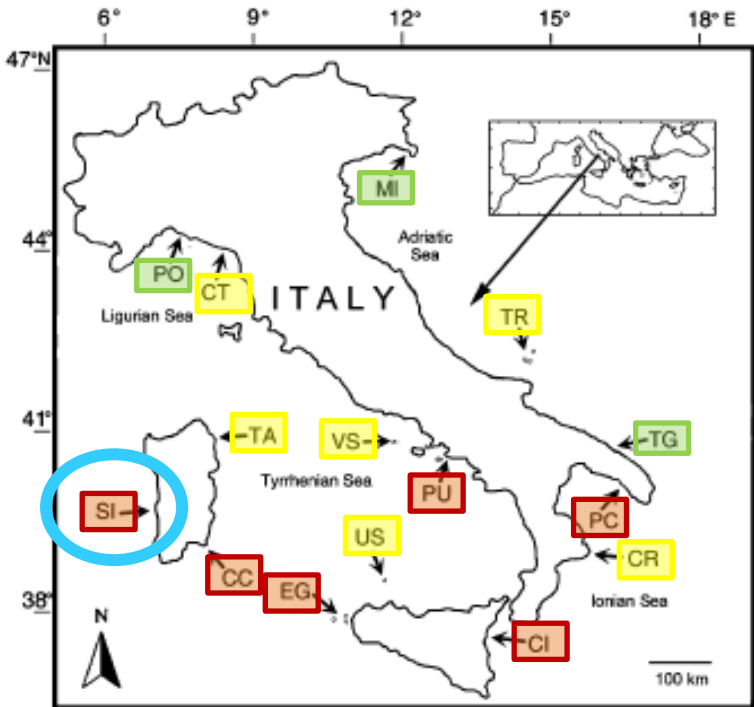
available at www.sciencedirect.com



journal homepage: www.elsevier.com/locate/biocon

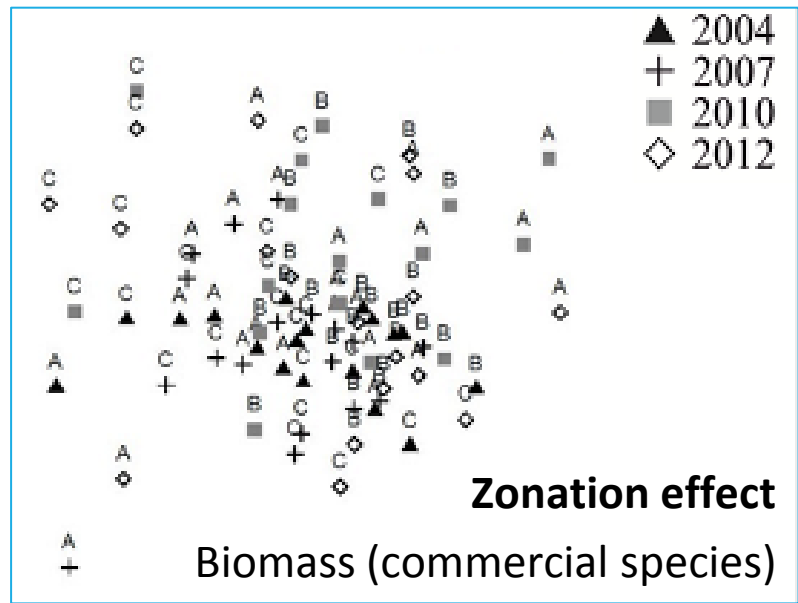
Italian marine reserve effectiveness: Does enforcement matter?

Guidetti *et al.*, 2008

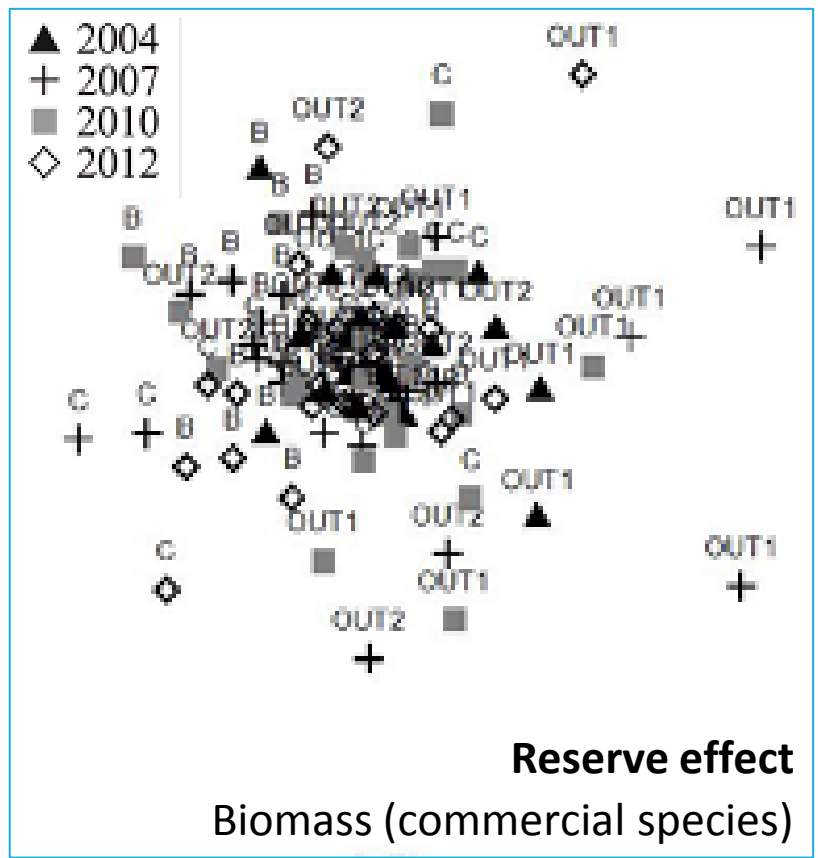
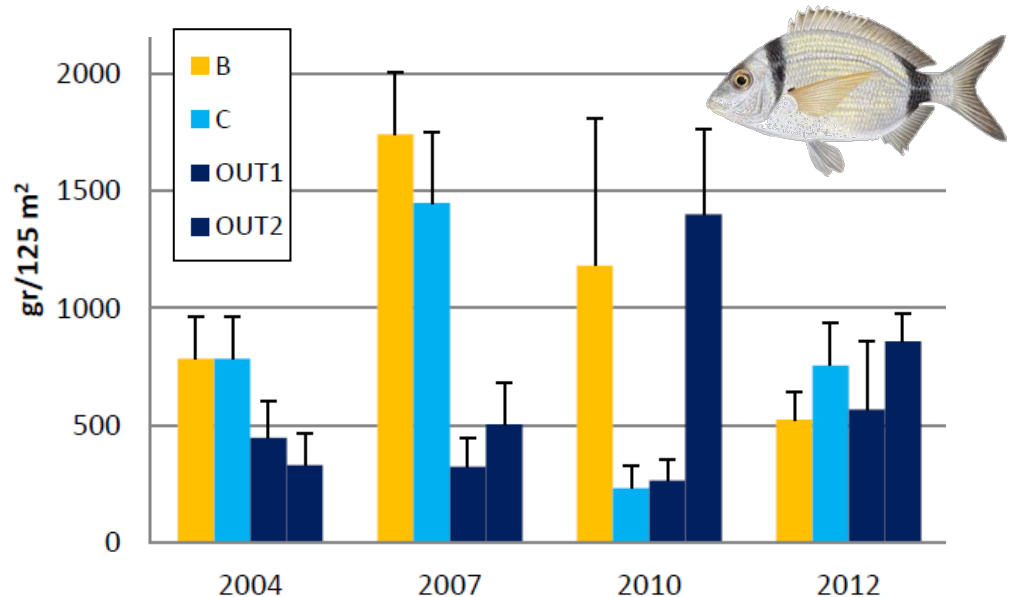


C: Biological Results – fish fauna

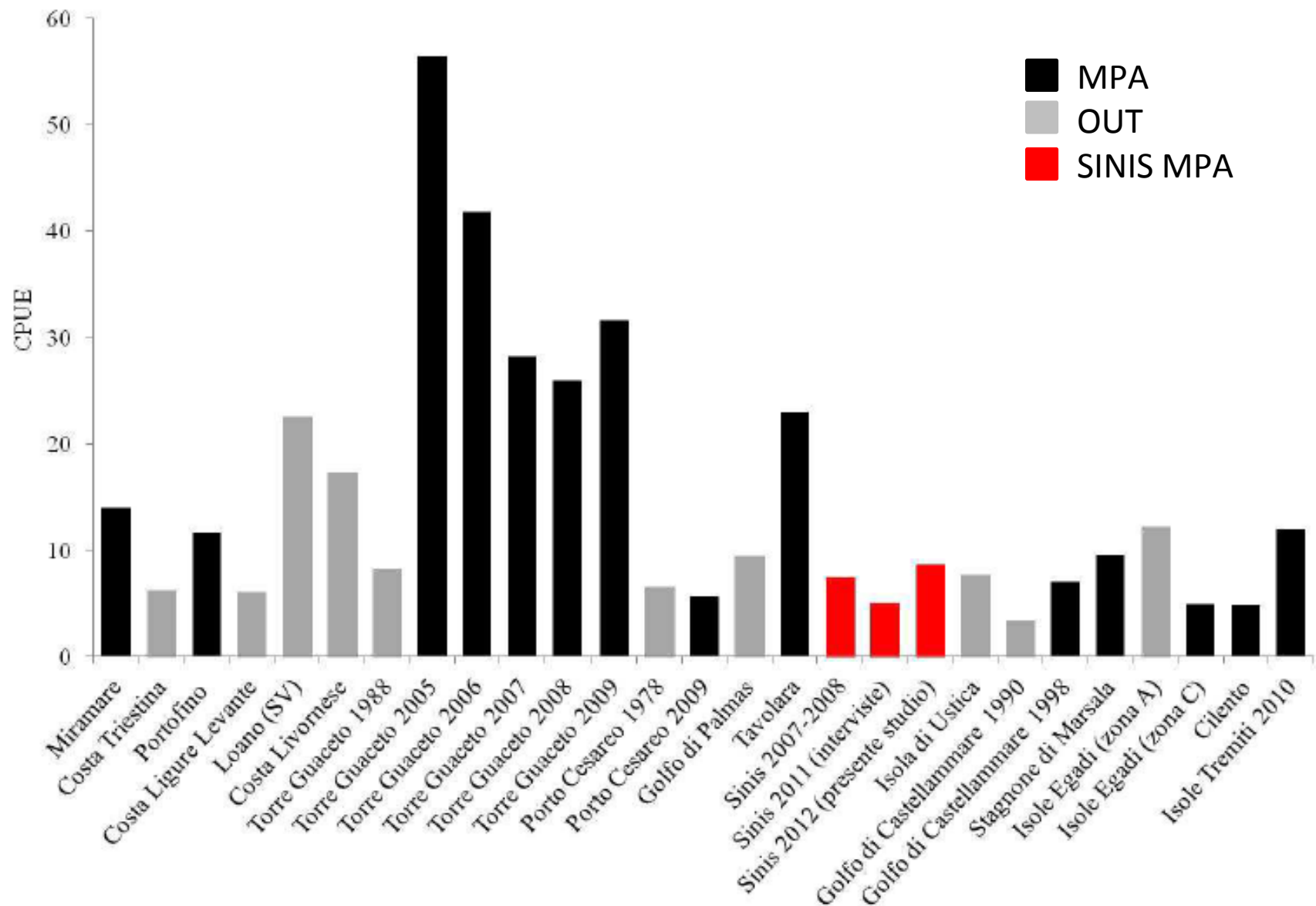
Marra *et al.* (under review)



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



C: Biological Results – fish fauna

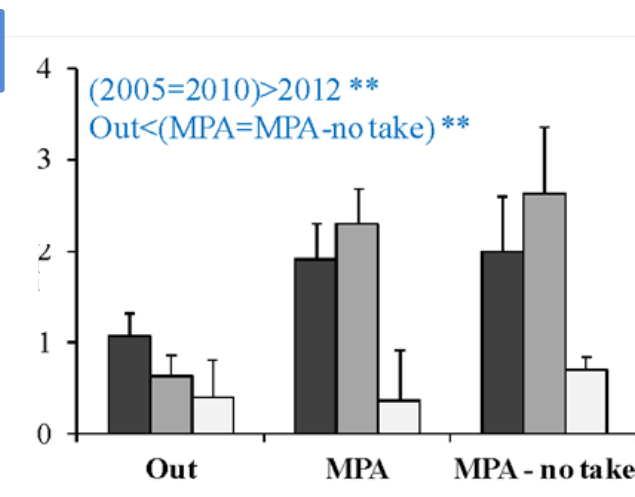
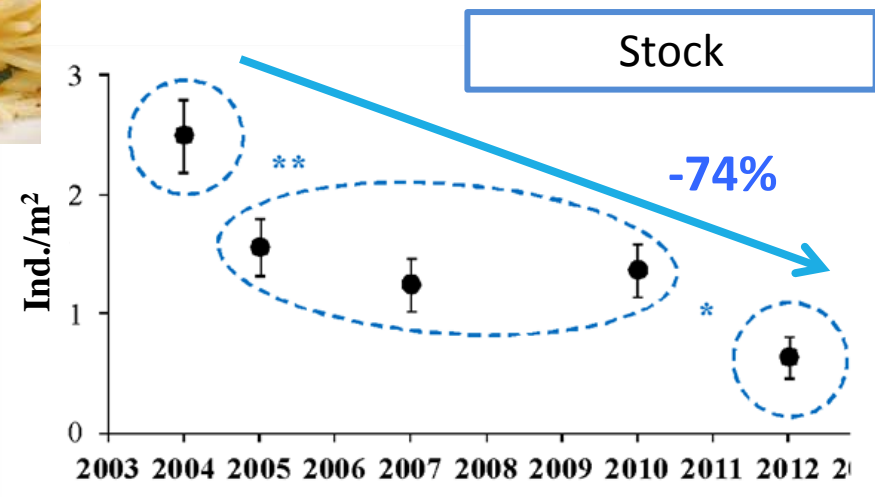
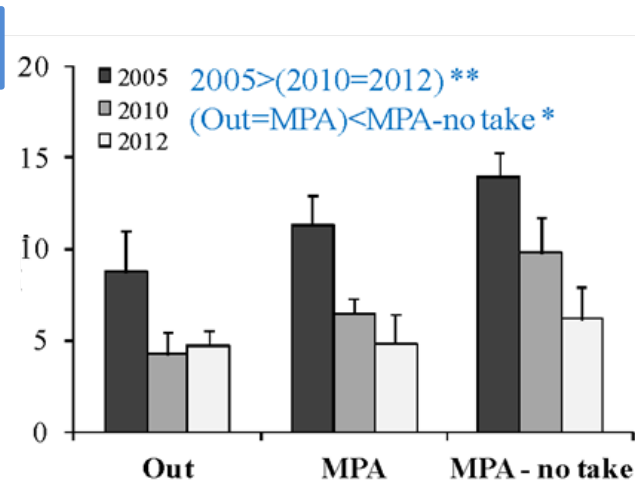
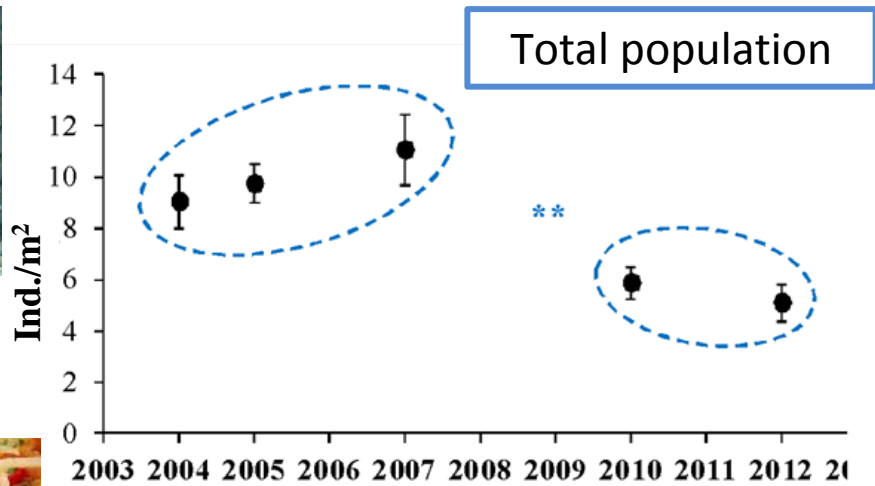


CPUE: kg/1000 m of gillnet/day (Guidetti et al., 2013)

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



Paracentrotus lividus



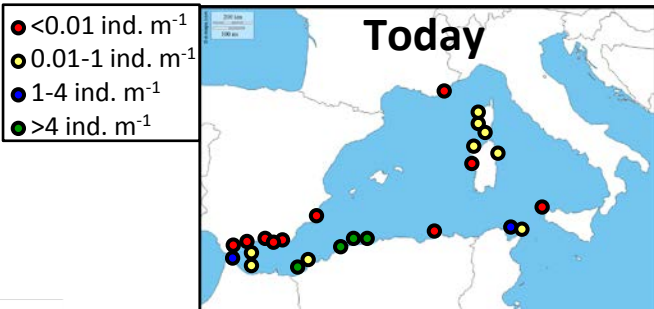
Pieraccini et al. (under review)

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

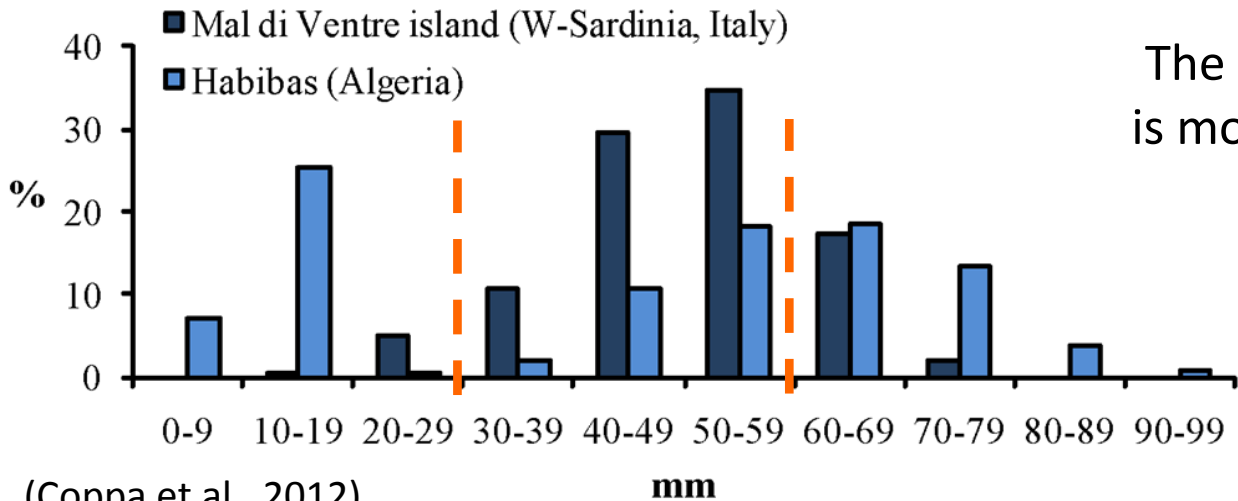


The most endangered endemic invertebrate in the Mediterranean Sea

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



it is a **protandrous species**

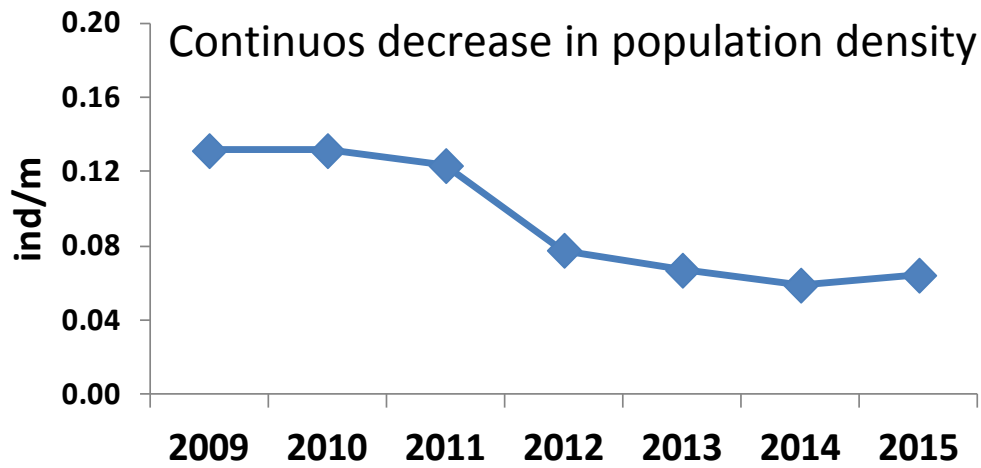


(Coppa et al., 2012)

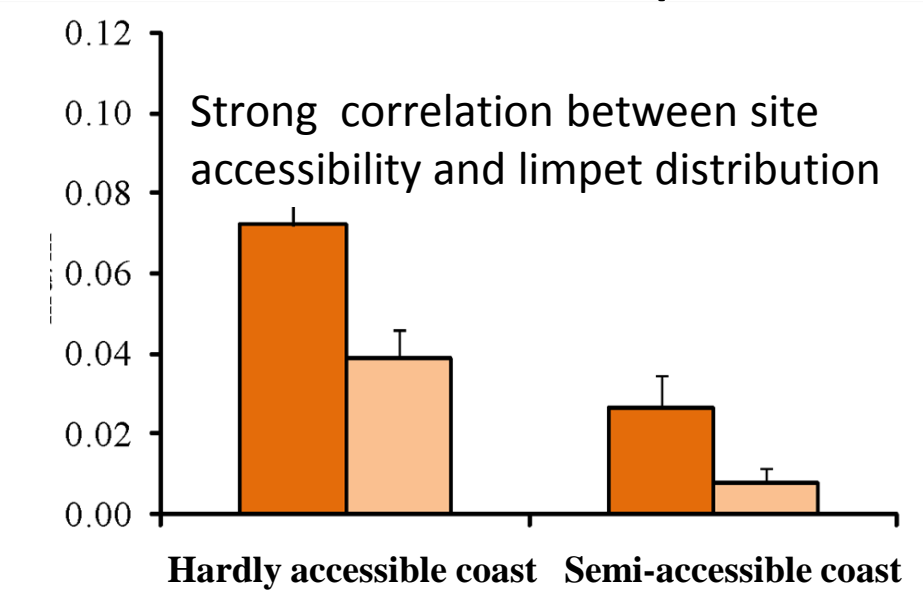
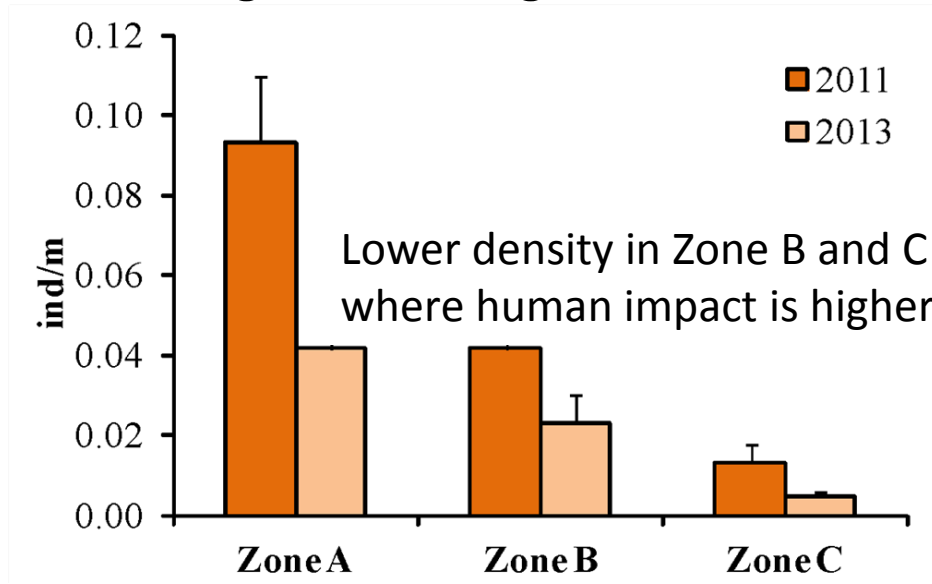
The population of the Sinis MPA is monitored annually from 2009

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



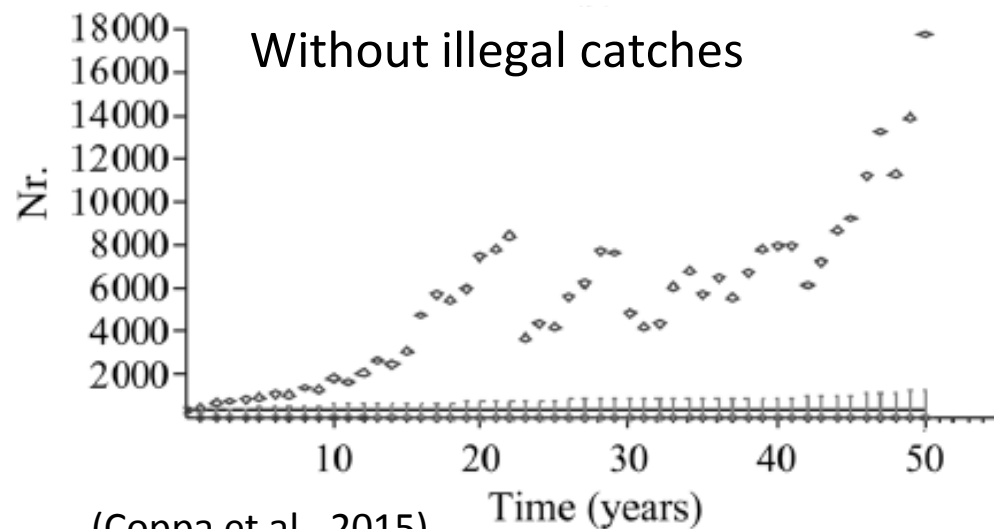
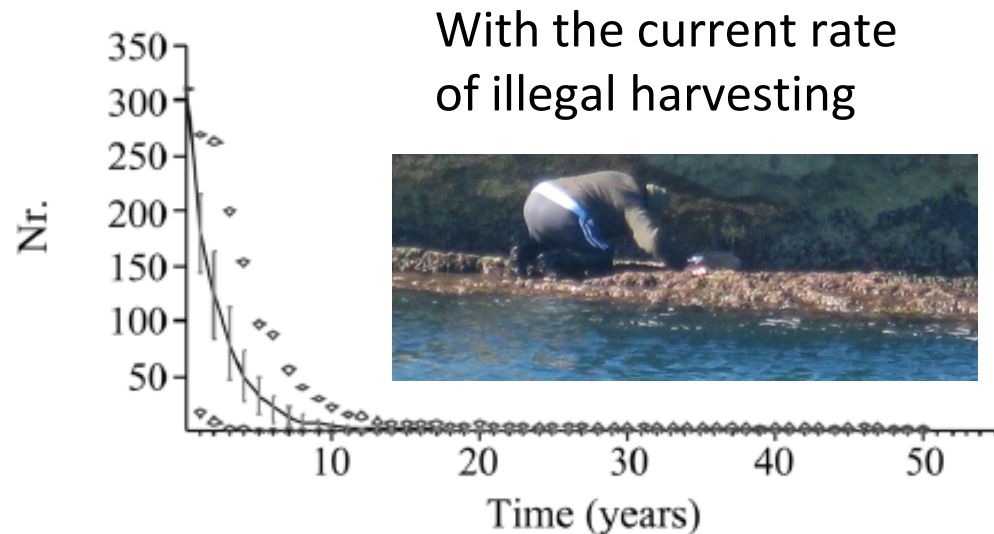
(Coppa et al., 2015)

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



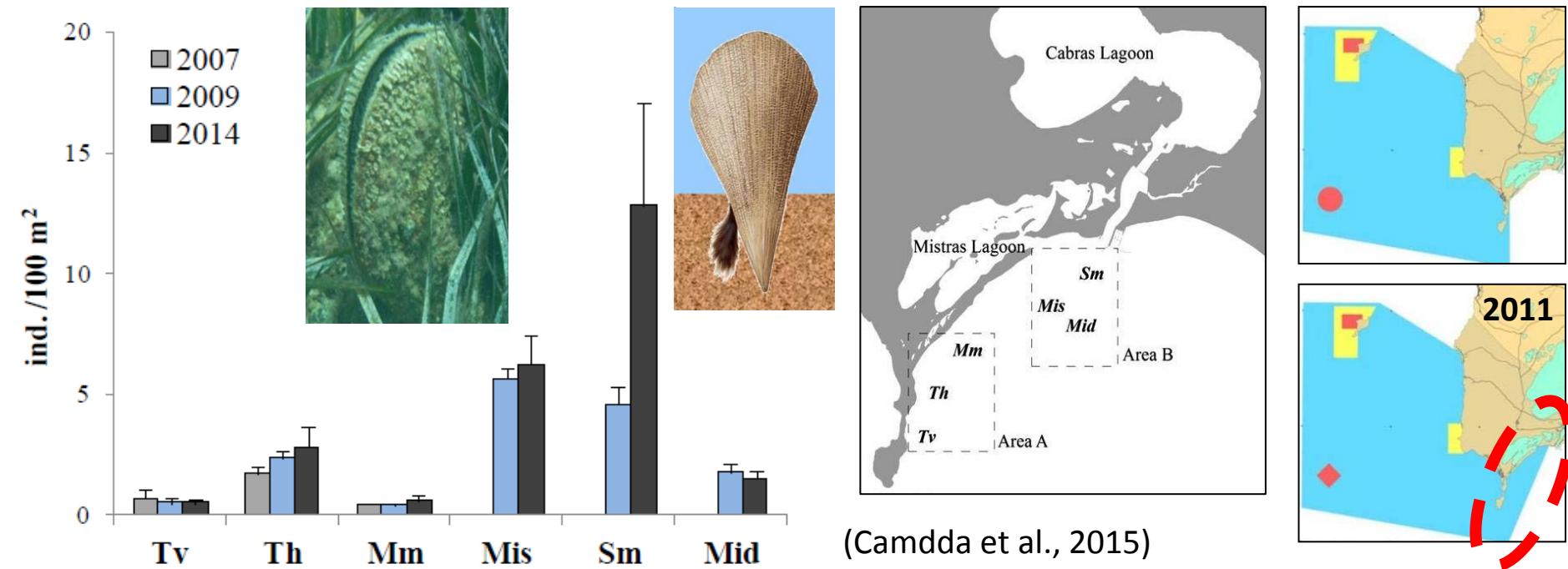
**Catching this species
is a criminal offence!**

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



(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

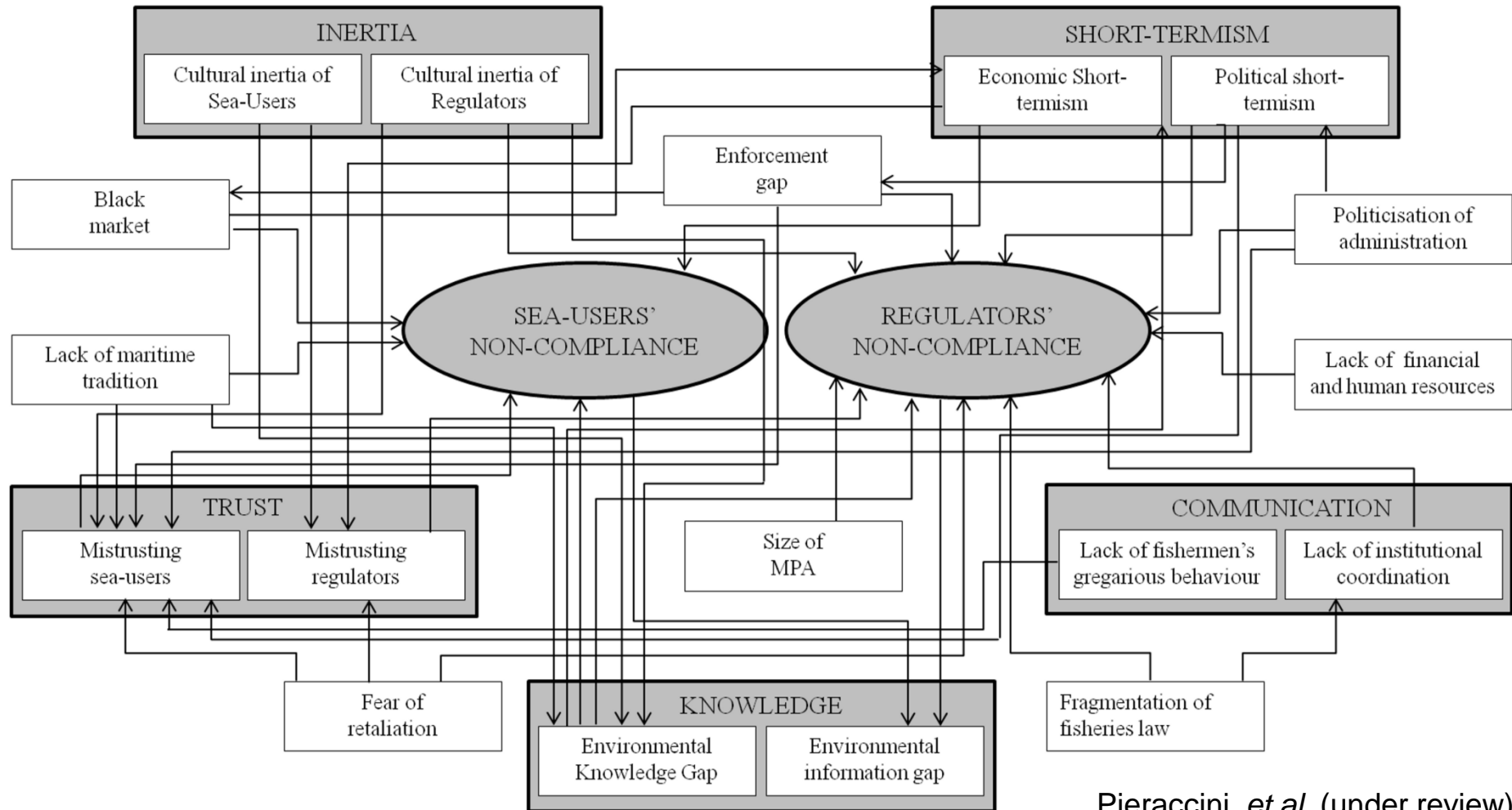
- ❖ Difficulty of accessing environmental information
- ❖ Lack of exercise of enforcement duties by authorities

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

s.coppa@iamc.cnr.it