

# **NOSTRA**

## **Network Of STRAits**

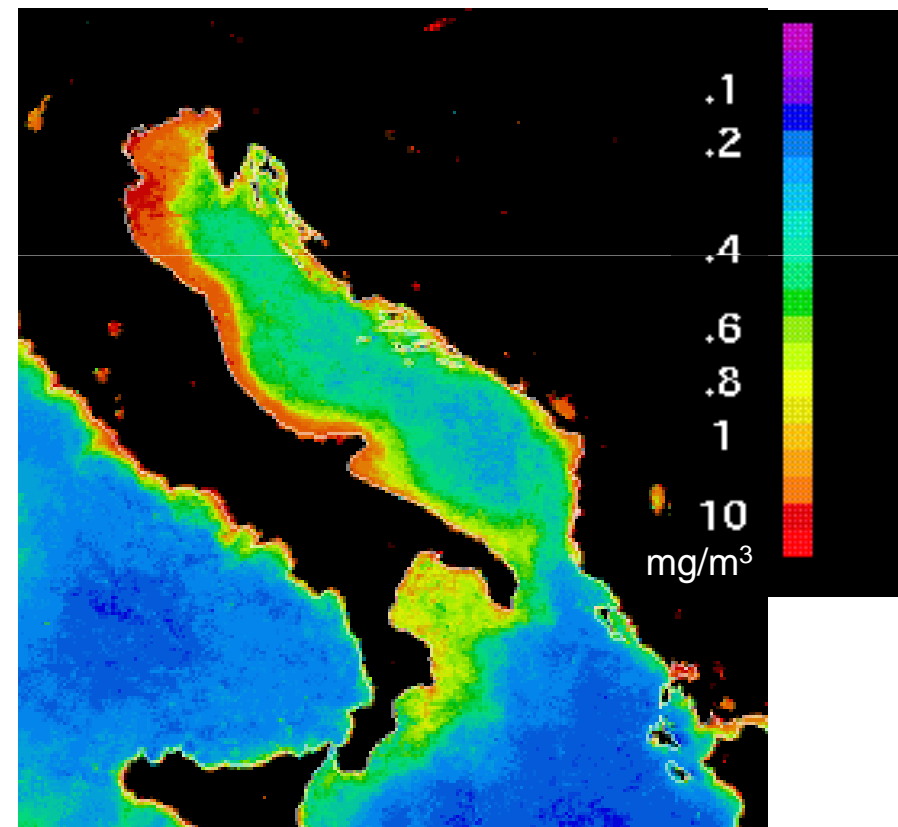
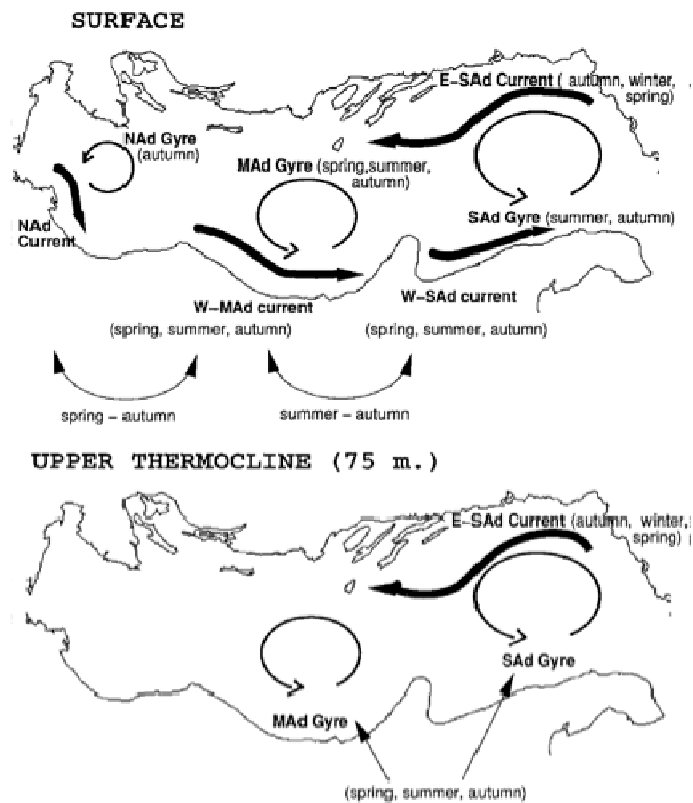
### **Workshop on** ***Tourism and Cultural Heritage***

## **Environmental conditions of transitional and marine ecosystems in the cross-border Adriatic Ionian Region**

ALBERTO BASSET, SIMONA FRASCHETTI AND ALL STAFF OF THE ECOLOGY, MARINE  
BIOLOGY AND ZOOLOGY LABS AT *Salento University*

Otranto, 10-11 April 2013

# The Adriatic-Ionian Region



# The Adriatic-Ionian Region



# Cross-border cooperation

- **Transitional** & Coastal Waters in the Adriatic-Ionian Region joint EU/Bilateral project

1. TWReferenceNet INTERREG IIIB
2. EcoGovernance INTERREG IIIA
3. ClimBioMedNet 6FP ERANET CIRCLEMED
4. WISER 7FP
5. Bilateral Italy-Albania



# Cross-border cooperation

- Transitional & **Coastal** Waters in the Adriatic-Ionian Region joint EU/Bilateral project

1. INTERREG IIA/IIIA Italy-Greece/Italy-Albania

2. INTERREG IIIB *HuReDePIS*

3. PEW Institute for Ocean Science: *Assessing the health of Mediterranean coastal ecosystems*

4. CoCoNet – progetto EU FP7 Ocean 2011

5. MAREA EU project



# Key topic areas

- Pressure assessment and mapping
- Ecological status assessment (WFD/MSFD) and tool development
- Data Platform development
- Habitat mapping
- Biodiversity patterns, drivers and mechanisms
- Ecosystem service assessment (fish nursery and fishery, tourism, ...)
- Protected area management (planning)
- Scenario building / climate change adaptation



# Pressure assessment and mapping

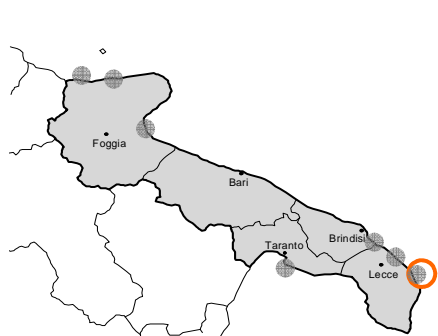


1. At the watershed level for every lagoon ecosystem in the cross-border area;
  1. Example on the Alimini lake ecosystems
2. At the cross border area level for the marine ecosystems.
  1. Examples on the entire cross-border area and on the Kerkira region

# Lake Alimini

## GENERAL

Location	
Position (centre)	40.20°N; 18.45°E
Amministrative area	Lecce
Coastal Zone Area	Southern Adriatic coast
Ecoregion	Mediterranean Sea



## HYDRO-MORPHOLOGICAL

Type	Lagoon
Area (Km <sup>2</sup> )	1.37
Perimeter (Km)	9.5
Maximum length (Km)	1.54
Minimum length (Km)	2.86
Mean depth (m)	1.5
Maximum depth (m)	3.4
Outlet length (km)	-
Volume (m <sup>3</sup> )	2.07*10 <sup>6</sup>
Mixing conditions	partially stratified
Tidal range (m)	0.19

## PHYSICO-CHEMICAL

	Min	Max
Salinity sup. (PSU)	3	41
Temperature sup (°C)	6	20
Oxygen sup (PPM)	5.70	12.20
Nitrogen (mmol/m <sup>3</sup> )	36	90
Phosphate (mmol/m <sup>3</sup> )	0.03	0.10

## Conservation status

Ramsar	PSIC	ZPS	National Reserve	Marine Reserve	National Park	Regional Park	L.R. 19/97



# Lake Alimini

## LAND USE

Catchment Area (Km)	70.75
<b>Habitat Corine I Level</b>	
Artificial surfaces	0%
Agricultural areas	94.0%
Forests and semi-natural areas	1.0%
Wetlands – Inland or Coastal wetlands	3.0%
Water bodies – Continental water bodies	2.0%



## SOCIO-ECONOMICAL

Type of Activity	Unit	Value
Agriculture - Consumption of Fertilizers (N & P Total)	t/y	355
Agriculture - Consumption of Pesticides (Total)	t/y	3.5
Livestock Farming (All animals)	animal head	1759
Fisheries (in the lagoon)	t/y	-
Industrial Units (number)	number	64
Population	persons	6675
Tourism	visitors/y	46573
Urban Waste	kt/y	3.2
Urban Waste Water Treatment Plants	number	-
Water Consumption (Agriculture-Industry-Households)	m <sup>3</sup> /y	4931



# Lake Alimini

## PRESSURES

Present	Proposed	
		Alteration water schemes
		Reclamation
		Dunes alterations
		Coastal regression
		Lagoon filling
		Power generation
		Urbanization
		Military activities
		Agriculture
		Industrial and port activities
		Waste discharge
		Sewage treatment works
		Transport & communications
		Sediments extraction
		Hunting
		Fishing
		Tourism & recreation
		Education & scientific research

## BIOLOGICAL

Angiosperms

Macroalgae

Phytoplankton

Macrofauna

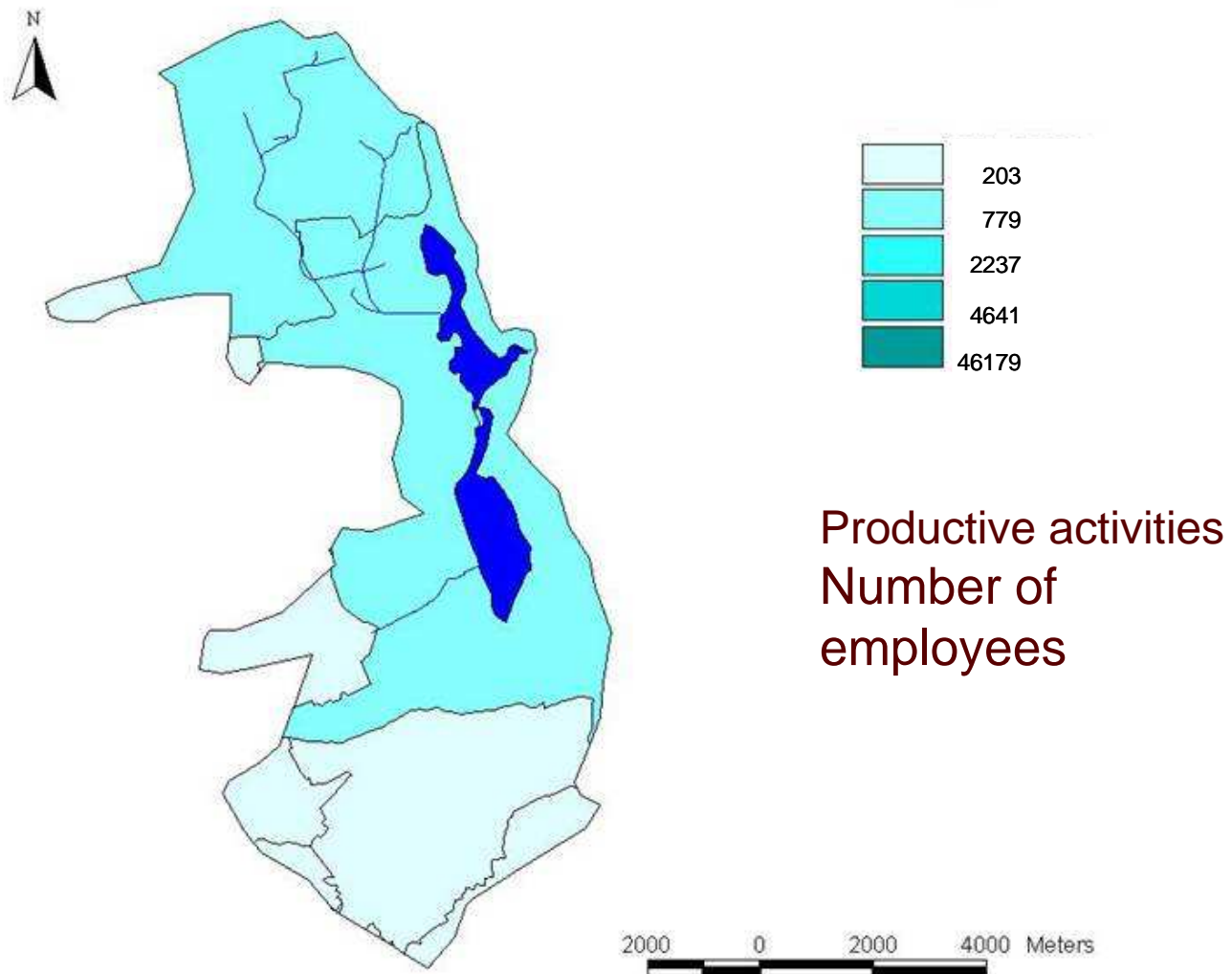
Fish fauna

 Known

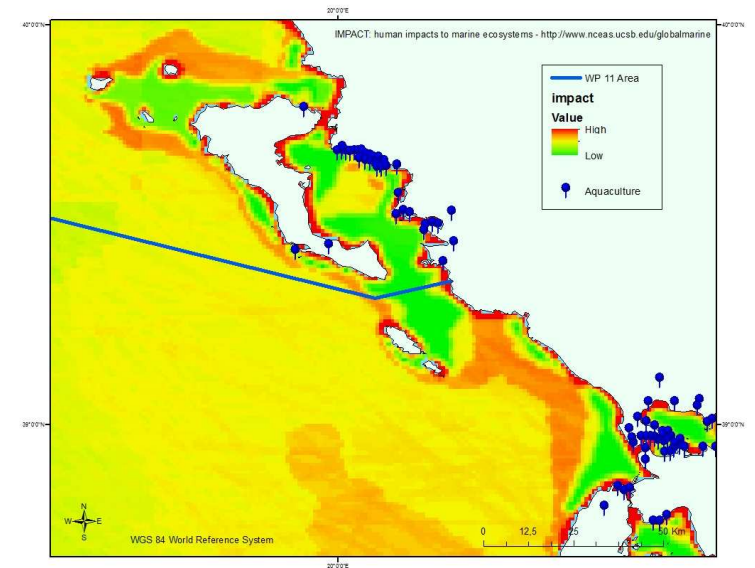
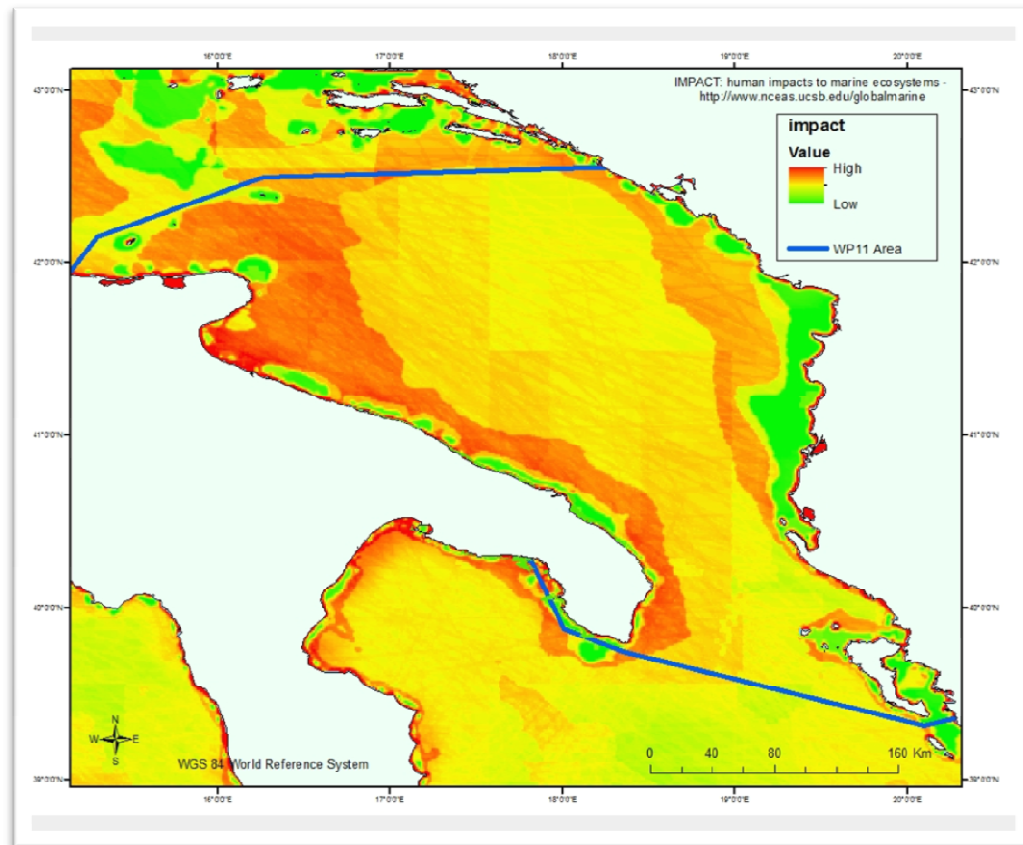
 Unknown



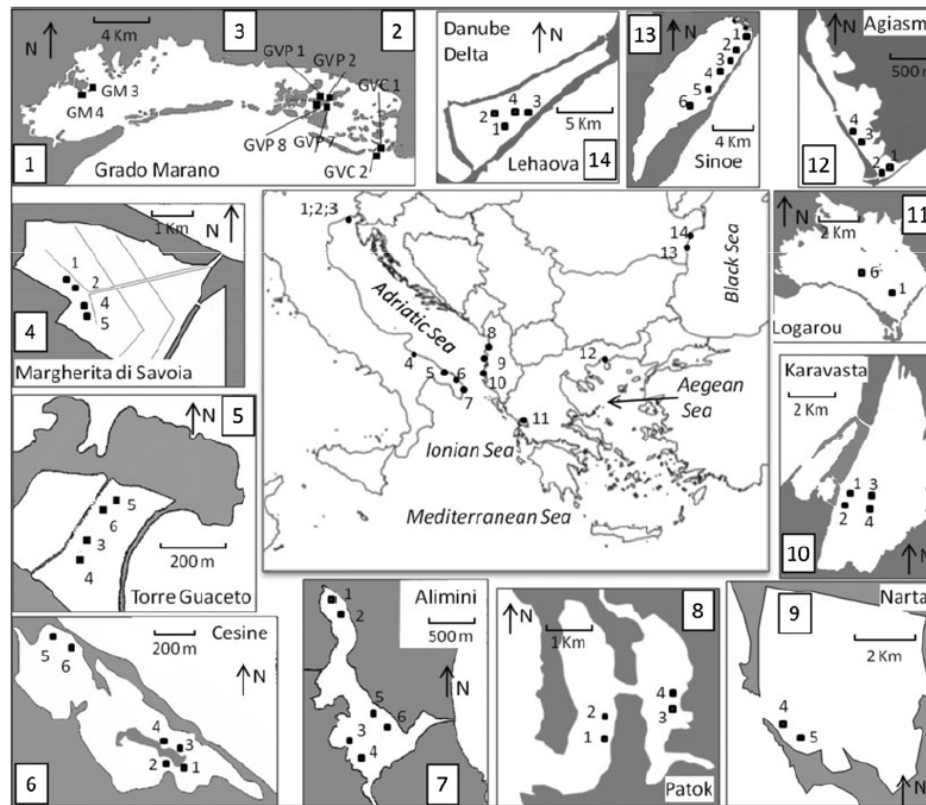
# Pressure assessment/mapping



# Pressure assessment/mapping



# Ecological status assessment and tool development

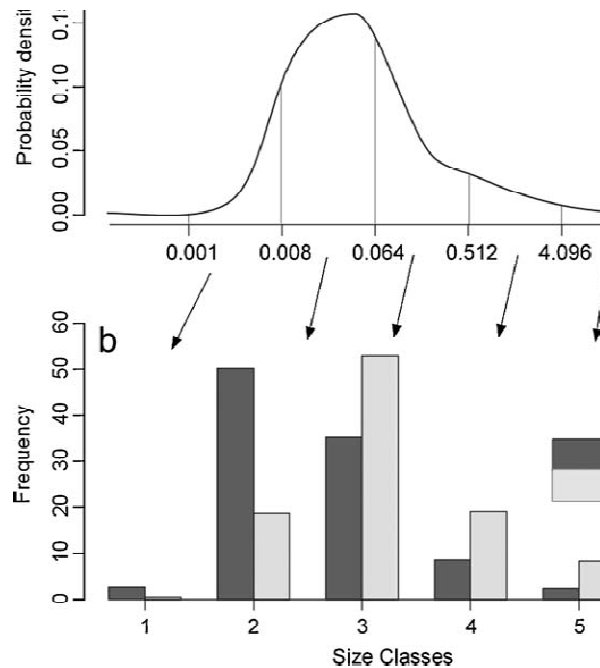


A new multi-metric index  
Has been developed  
and tested  
in the Adriatic-Ionian region

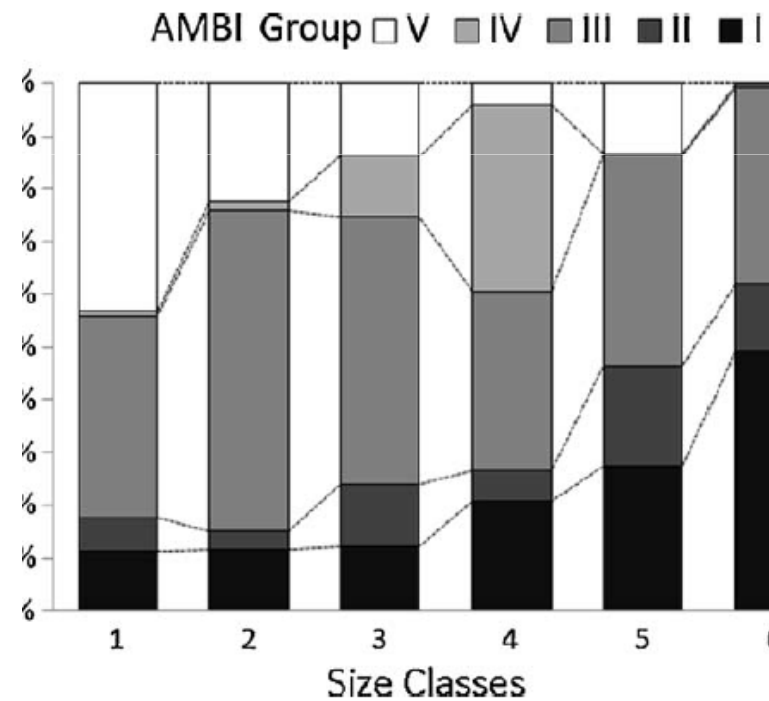


# Ecological status assessment and tool development

ISS metric, based on size class abundance and

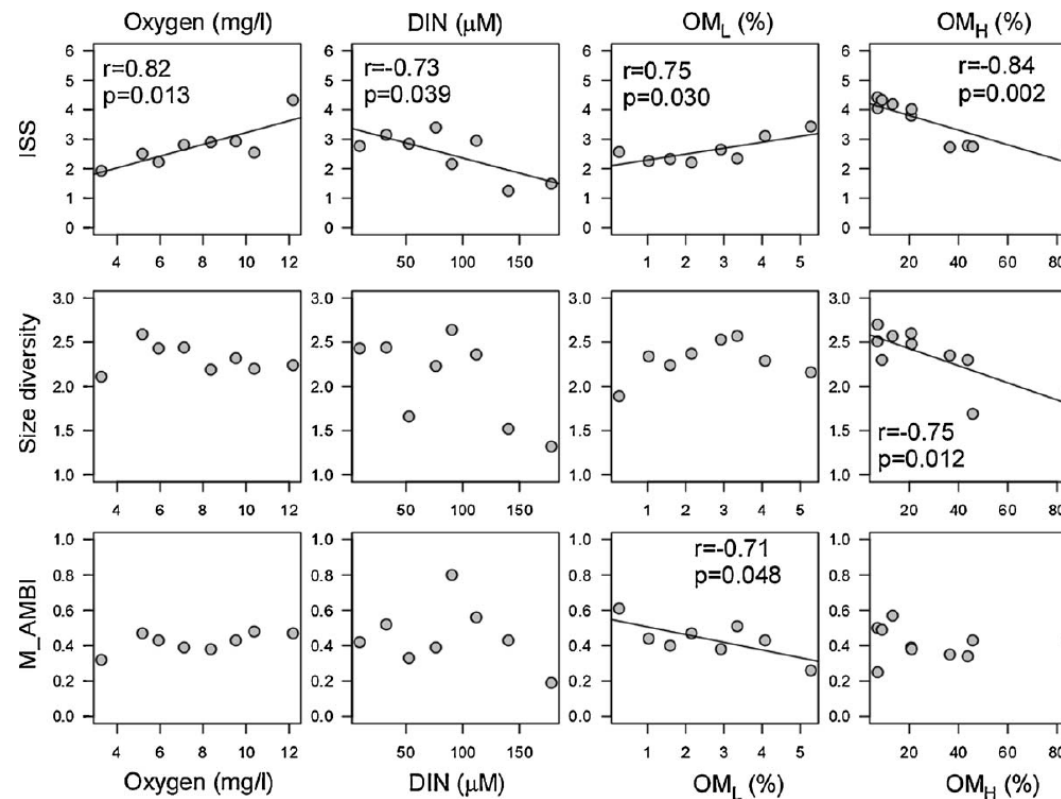


Size class sensitivity



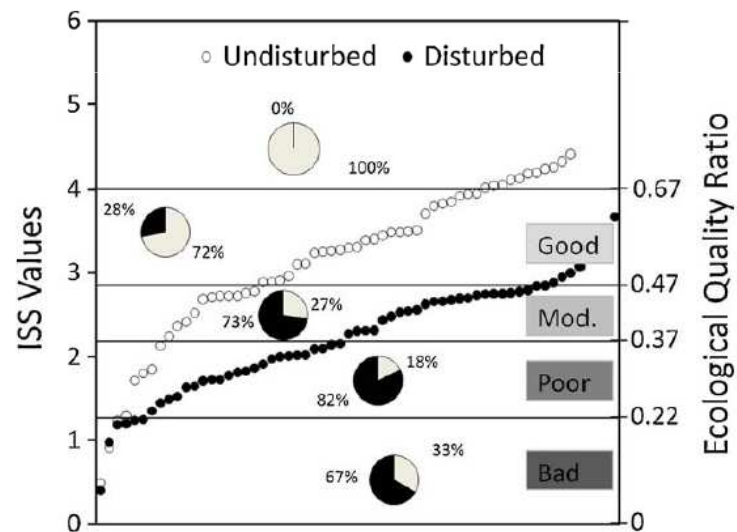
# Ecological status assessment and tool development

Tested the dose-response relationships with main abiotic pressures



# Ecological status assessment and tool development

## Developed classification



## Performed classification

	Type A		Type B1	Type B2	Type C
	Standard	New			
Reference lagoons/lagoon area					
Agi	Moderate	Moderate	Moderate	Good	Good
Ali	Good	Good	Good	Good	Good
Ces	Good	High	High	High	High
GM	Moderate	Good	Good	High	High
GVC	Moderate	Good	Good	Good	Good
GVP	Moderate	Good	Good	Good	Good
Kar	High	High	High	High	High
Lea	Moderate	Good	Good	High	High
Log	Moderate	Good	Moderate	Good	Good
MdS	Good	High	Good	Good	Good
Narta	Good	High	Good	Good	Good
Patok	High	High	High	High	High
Sinoe	Moderate	Good	Good	Good	Good
TG	Moderate	Good	Good	Good	Good
Disturbed					
GM	Poor	Moderate	Good	Good	Good
GVP	Moderate	Moderate	Moderate	Moderate	Good
Log	Poor	Moderate	Moderate	Moderate	Moderate
MdS	Moderate	Good	Moderate	Moderate	Moderate
Narta	Moderate	Moderate	Moderate	Moderate	Moderate
Varna	Poor	Moderate	Moderate	Moderate	Good



# Data Platform development: Transitional Water Platform



## IT TW data Platform

↓  
Built upon

↓  
**Public sources**

- ✓ Google maps;
- ✓ Country official maps
- ✓ Institutional websites
- ✓ EEA, ECOSTAT,  
national EPAs,...
- ✓ Published ISI paper
- ✓ Grey literature

↓  
Synergic with

↓  
**Existing TW Platforms**

- ✓ Elnet TWP;
- ✓ TWReferenceNET TWP

**Existing DBs**

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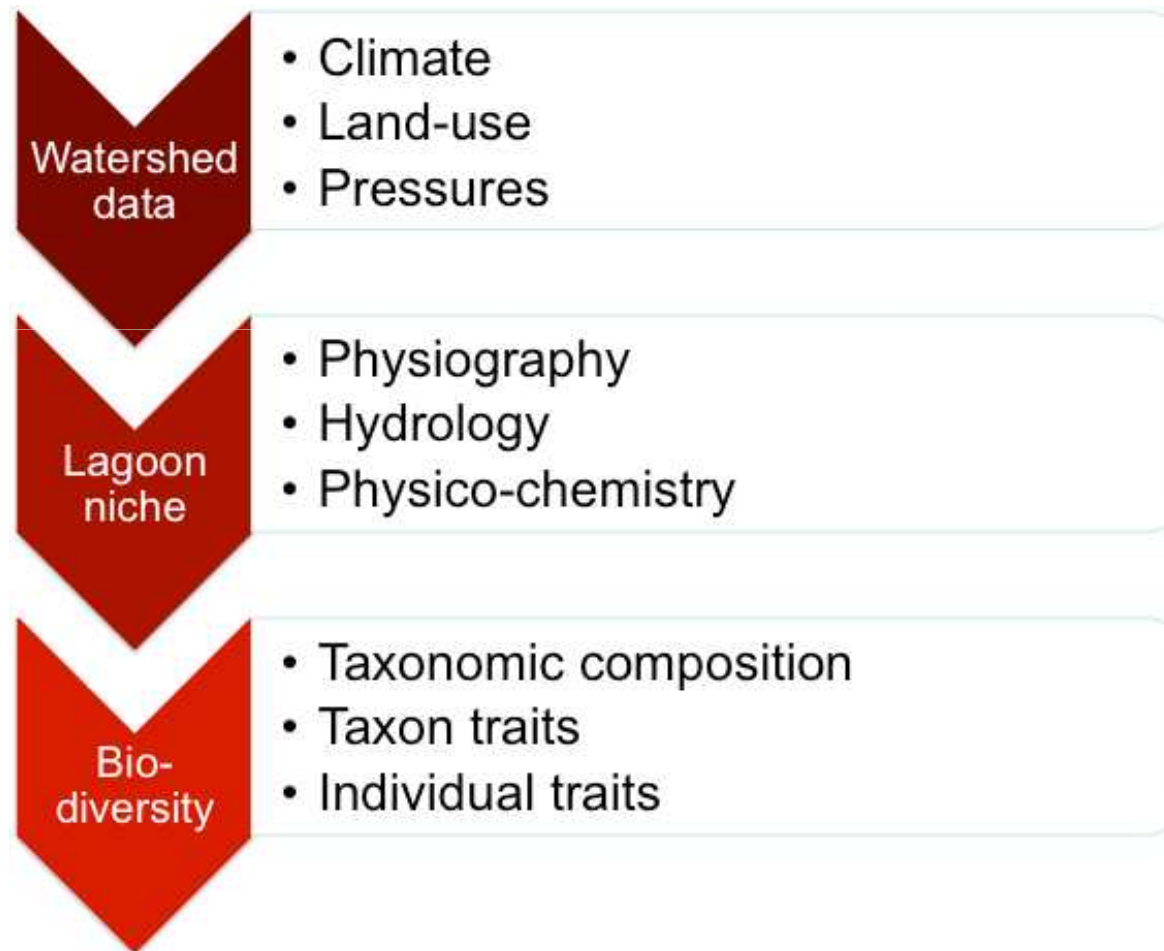
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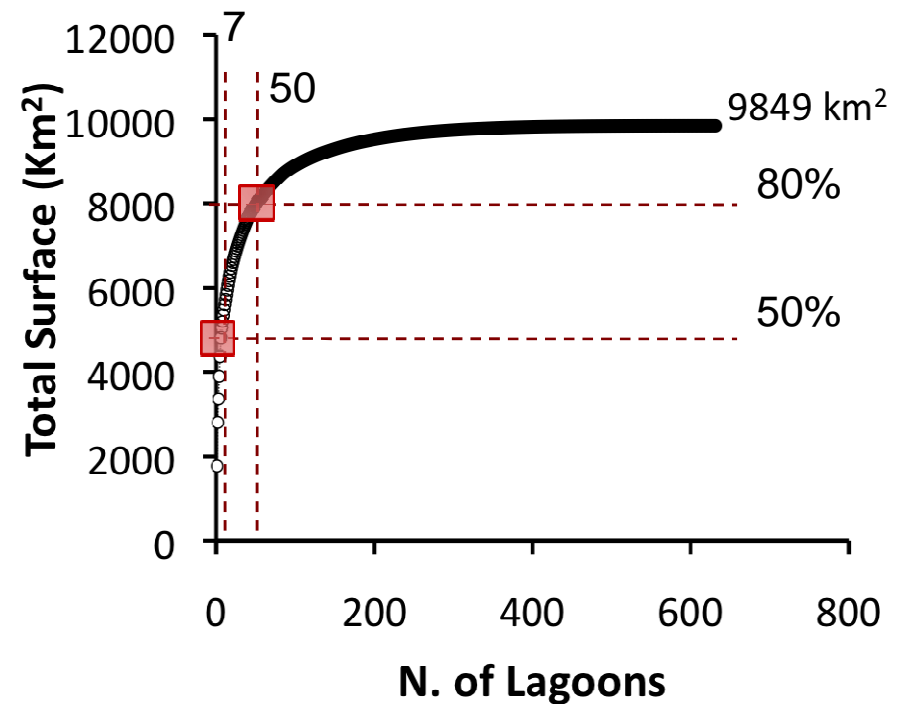
# Data Platform development



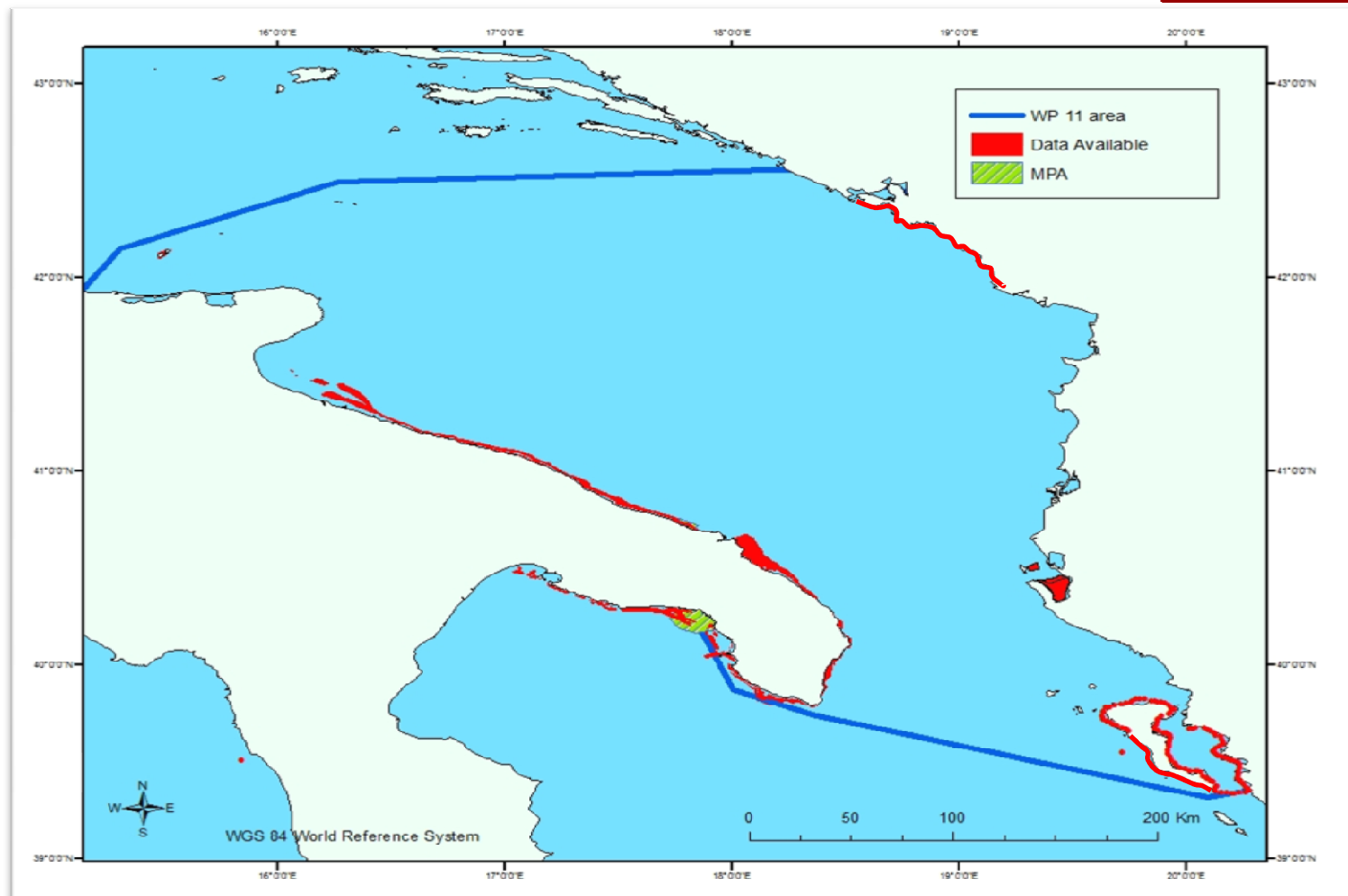
# Data Platform development



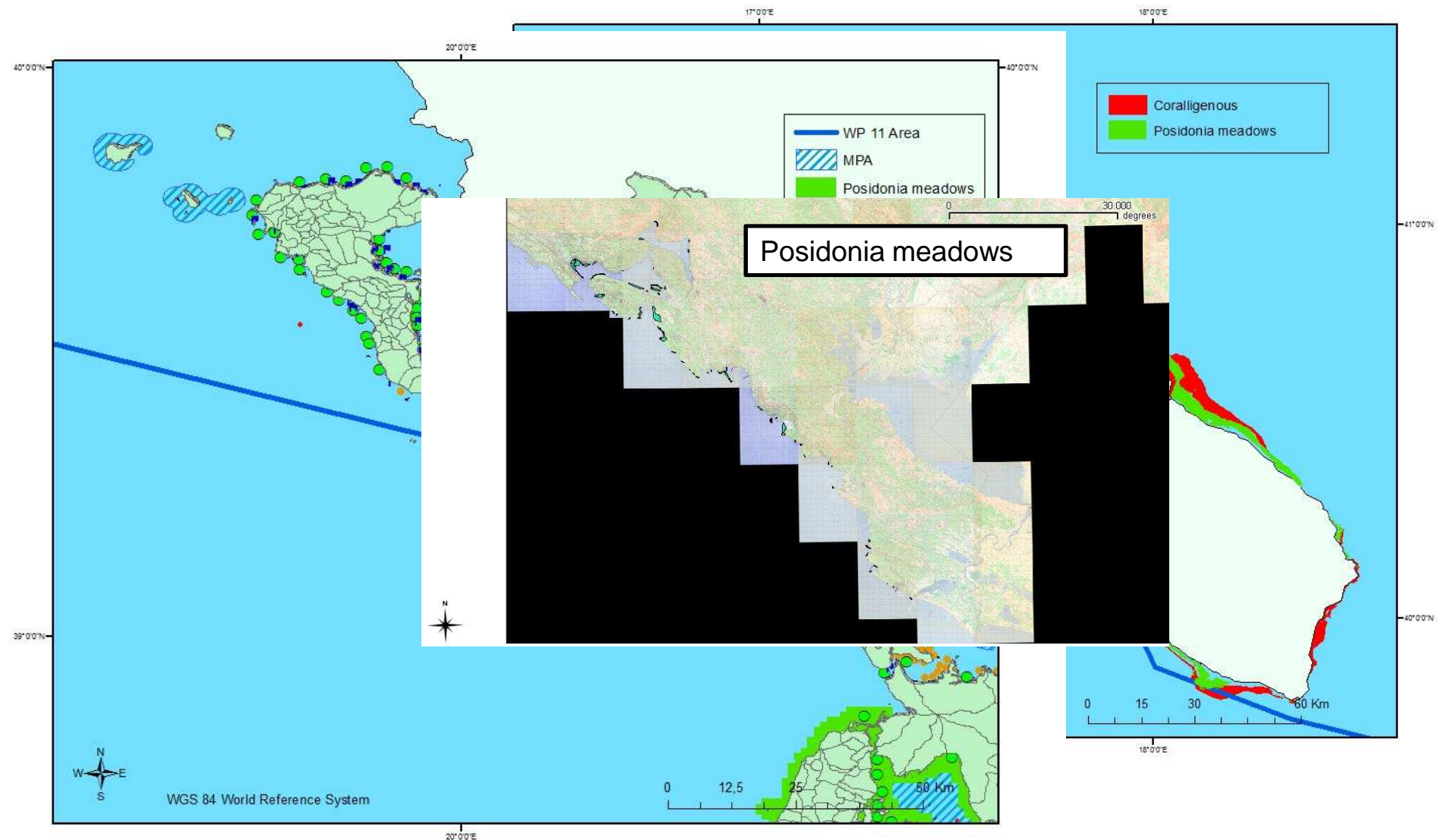
	Country	N. of Lagoons
E	Spain	116
E	France	59
E	Italy	244
E	Slovenie	4
E	Croatie	10
E	Montenegro	3
E	Albania	16
E	Greece	36
As	Turkey	66
As	Syria	2
Af	Egypt	7
Af	Lybia	16
Af	Tunisia	28
Af	Algeria	13
Af	Marocco	12
	Grand total	632



# Habitat mapping: the CoCoNet project



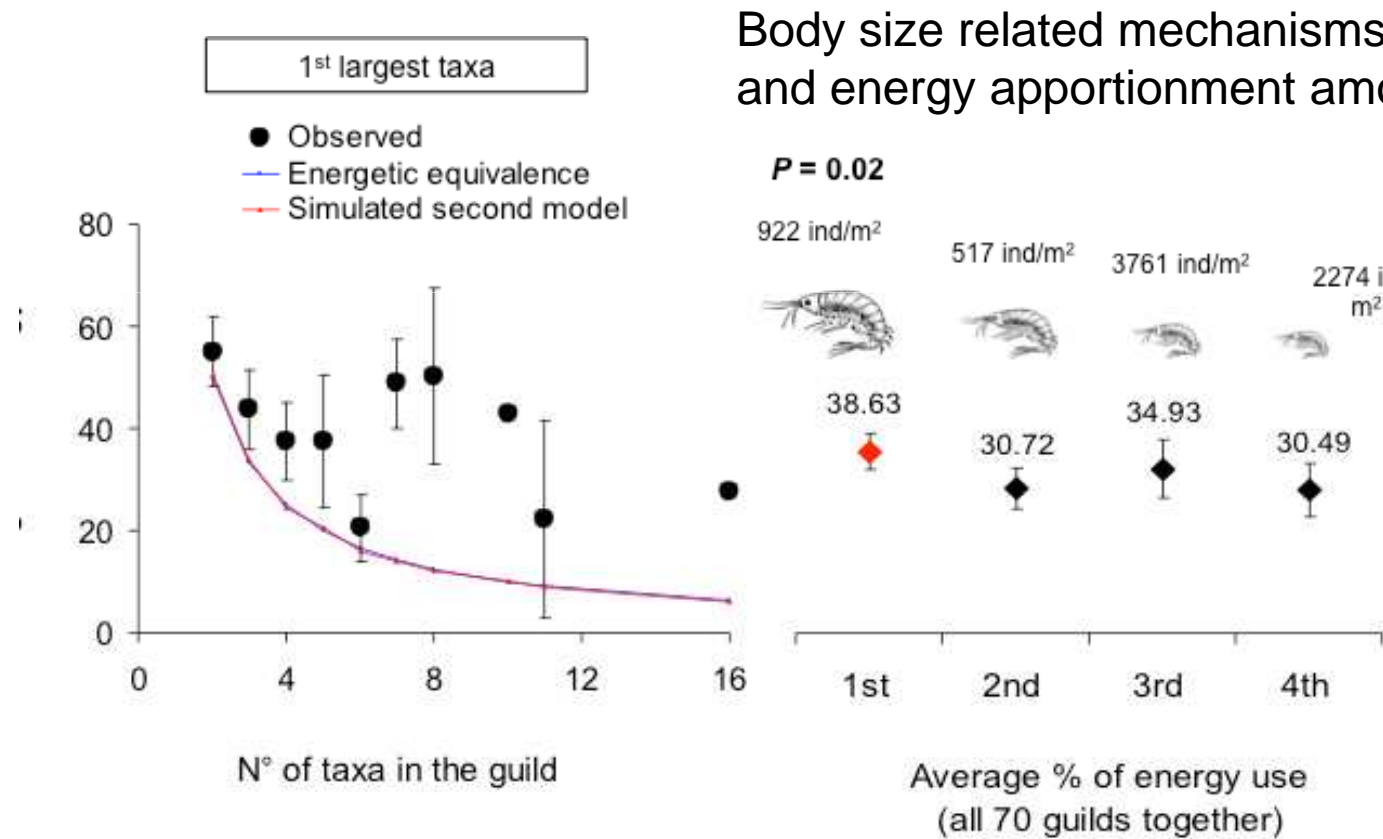
# Habitat distribution & mapping







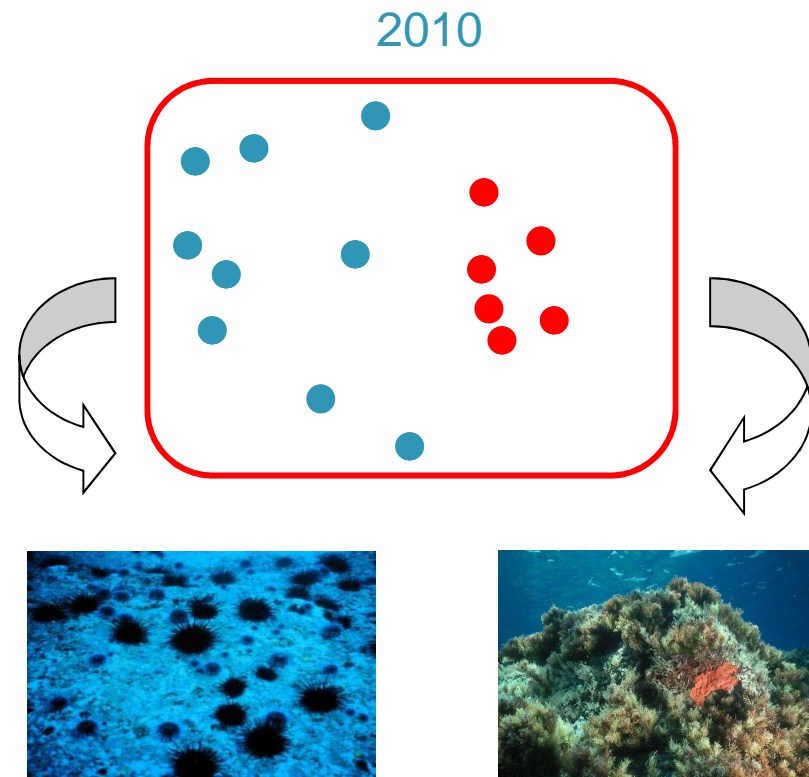
# Biodiversity patterns, drivers and mechanisms





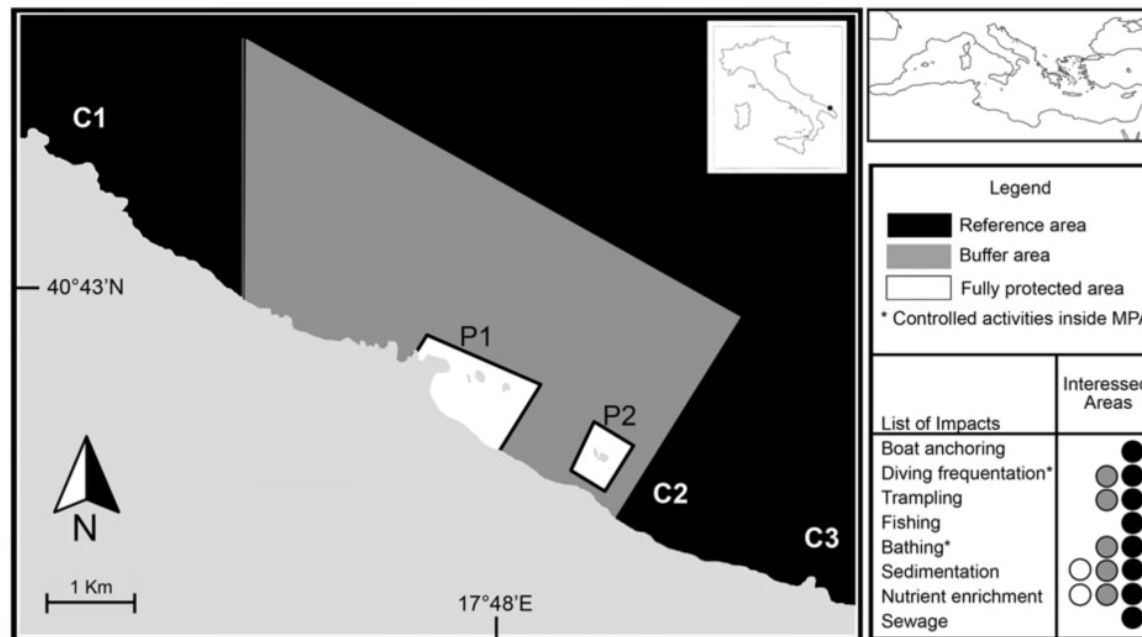
# Biodiversity patterns, drivers and mechanisms

- Top down control of biodiversity
- Field experiment in the Torre Guaceto protected area

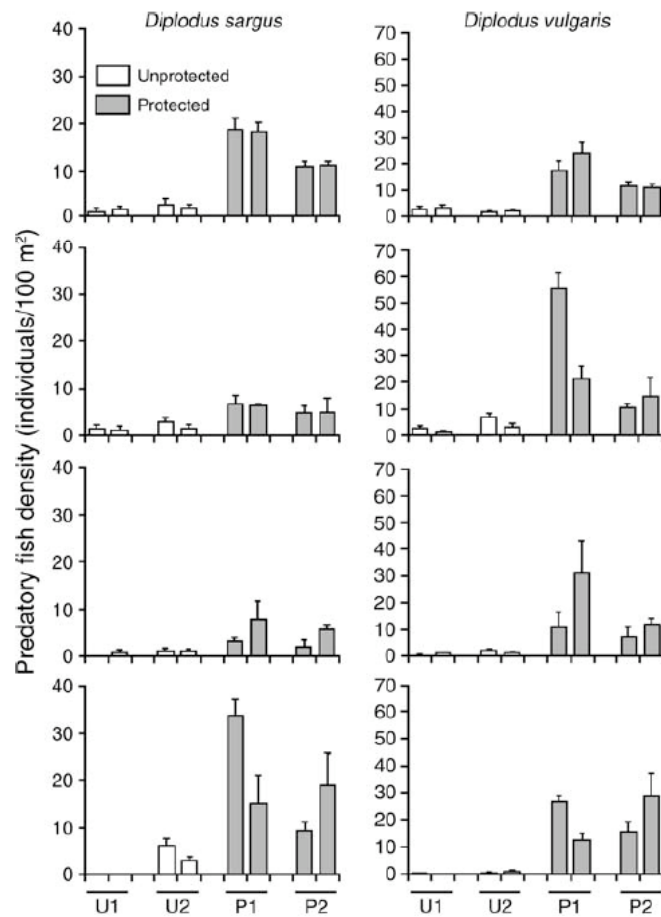


# Ecosystem service assessment

- The MPA of Torre Guaceto (Brindisi), instituted in 1991 and embedded into a human-dominated landscape, is a rare example of well-managed MPA where an adequate enforcement determined target fish recovery



# Ecosystem service assessment



# Protected area management (planning)



Their establishment of MPA in Montenegro is planned until the end of 2012.

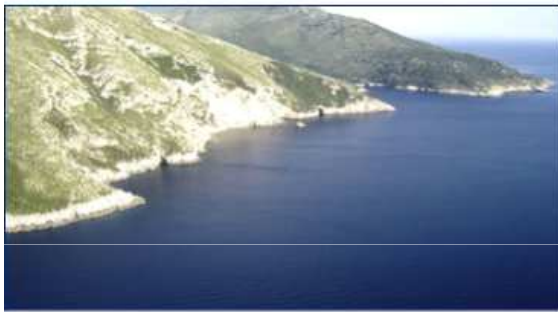
cape Platamuni  
(to the Žukovica bay)

island Katič area

island Stari Ulcinj  
(to the Valdanos bay)

The CoCoNet  
Project

# Protected area management (planning)



**Karaburun Peninsula – Sazan Island (Adriatic and Ionian seas),  
the first MPA in Albania (since April 2010)**



The CoCoNet  
Project



# Protected area management (planning)

It is **time** to move from words to **action**

The slide features a dark blue background with a central image of a bird in flight over a landscape. The text is in Italian and English. At the top, it says 'Il manuale di gestione e-book presenta molte azioni per l'obiettivo del countdown 2010 : sfogliamo le pagine più significative.' Below this, there is a box containing the text 'Linee guida per la gestione degli ambienti di transizione protetti' and a logo for 'COUNTDOWN 2010 introduces itself'. At the bottom, it says 'The e-handbook for the management of TW protected area contains many actions of the 2010 C.down: we can leaf through the more significant pages'.

Il manuale di gestione e-book presenta molte azioni per l'obiettivo del countdown 2010 : sfogliamo le pagine più significative.

Linee guida per la gestione degli ambienti di transizione protetti

COUNTDOWN 2010 introduces itself

The e-handbook for the management of TW protected area contains many actions of the 2010 C.down: we can leaf through the more significant pages

TW  
Project

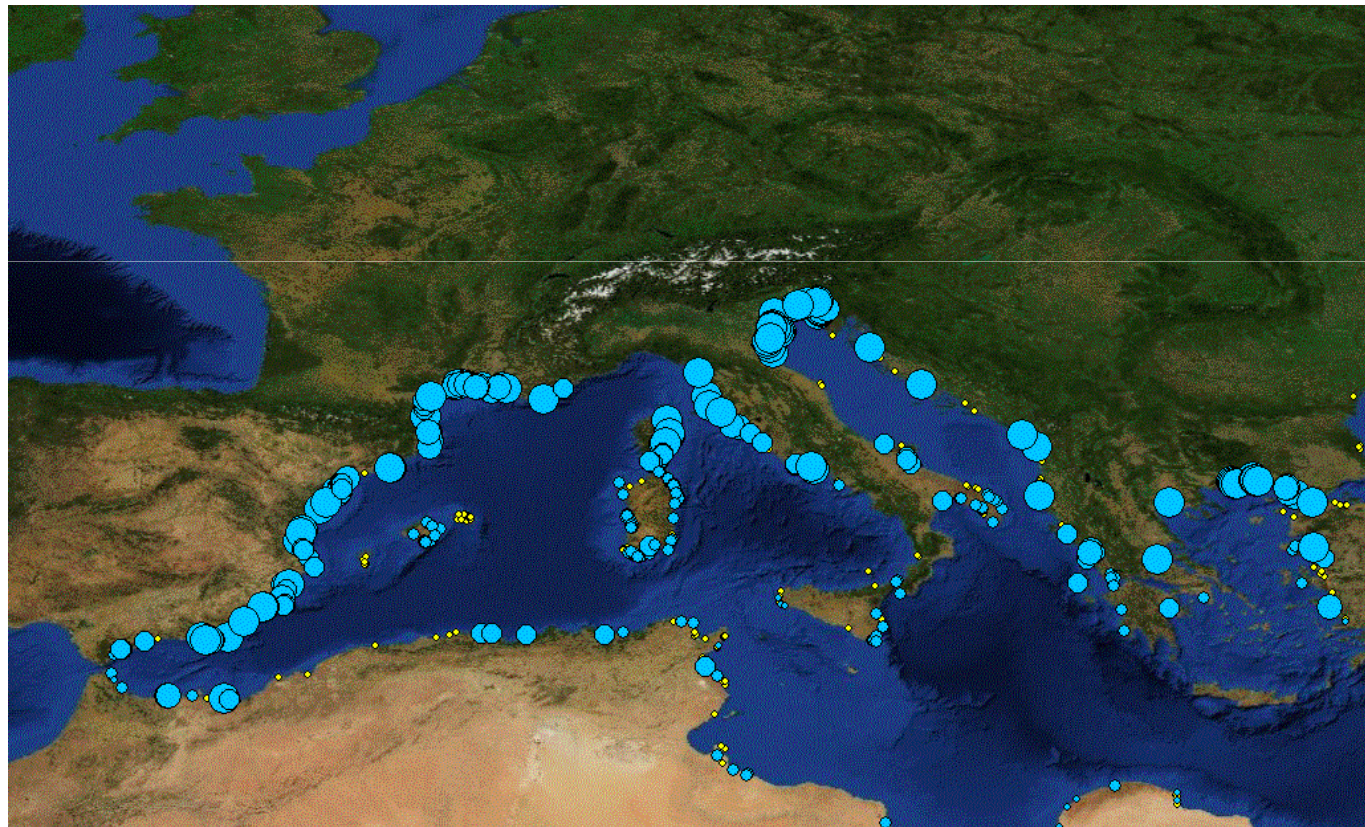


# Scenario building : decreasing rainfall



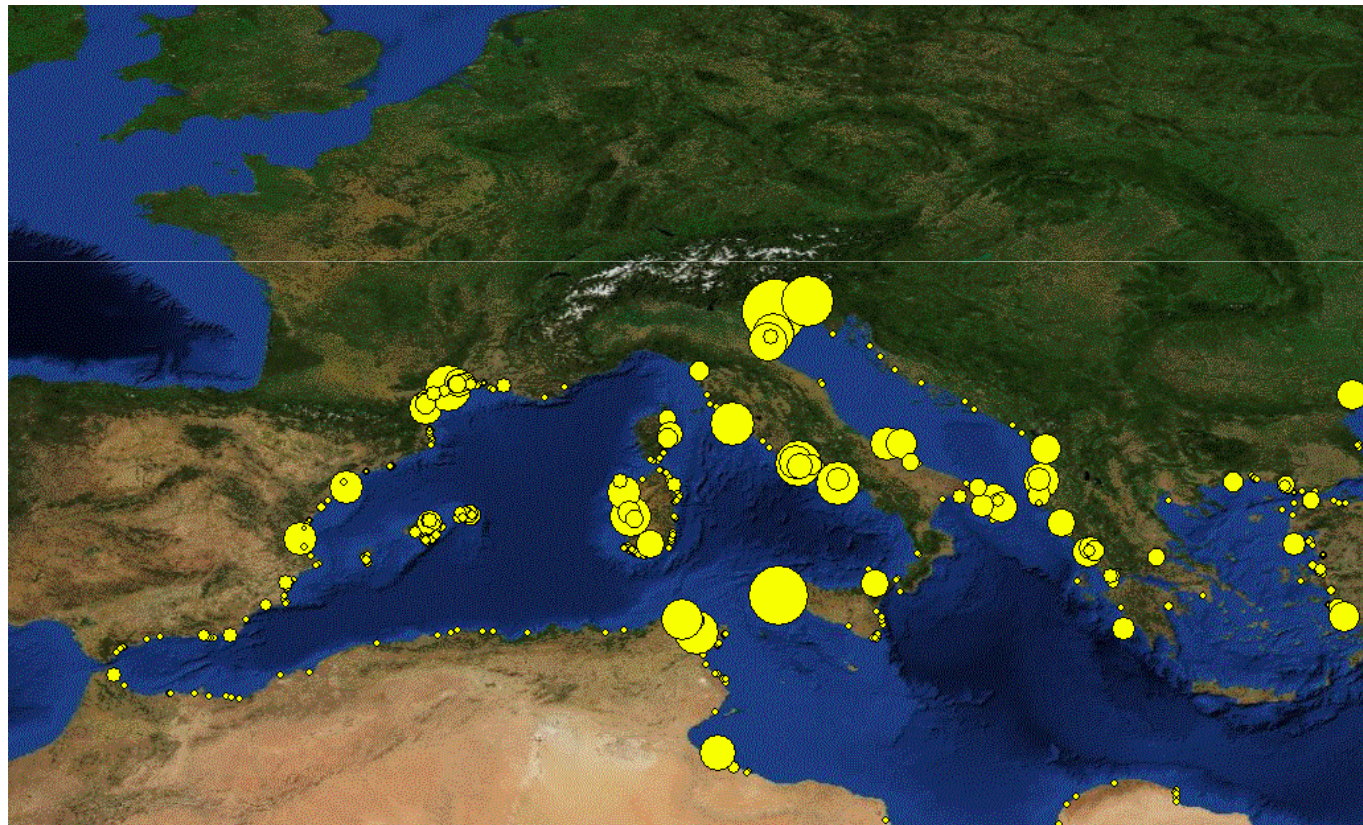


# Scenario building : increasing winter temperature





# Scenario building : macroinvertebrate hotspots



Biodiversity is life  
Biodiversity is our life

