Interreg Mediterranean

MPA Engage

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MPA ENGAGE

Engaging Mediterranean key actors in Ecosystem Approach to manage Marine Protected Areas to face Climate Change Impacts

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VULNERABILITY ASSESSMENTS

Project co-financed by the European Regional Development Fund

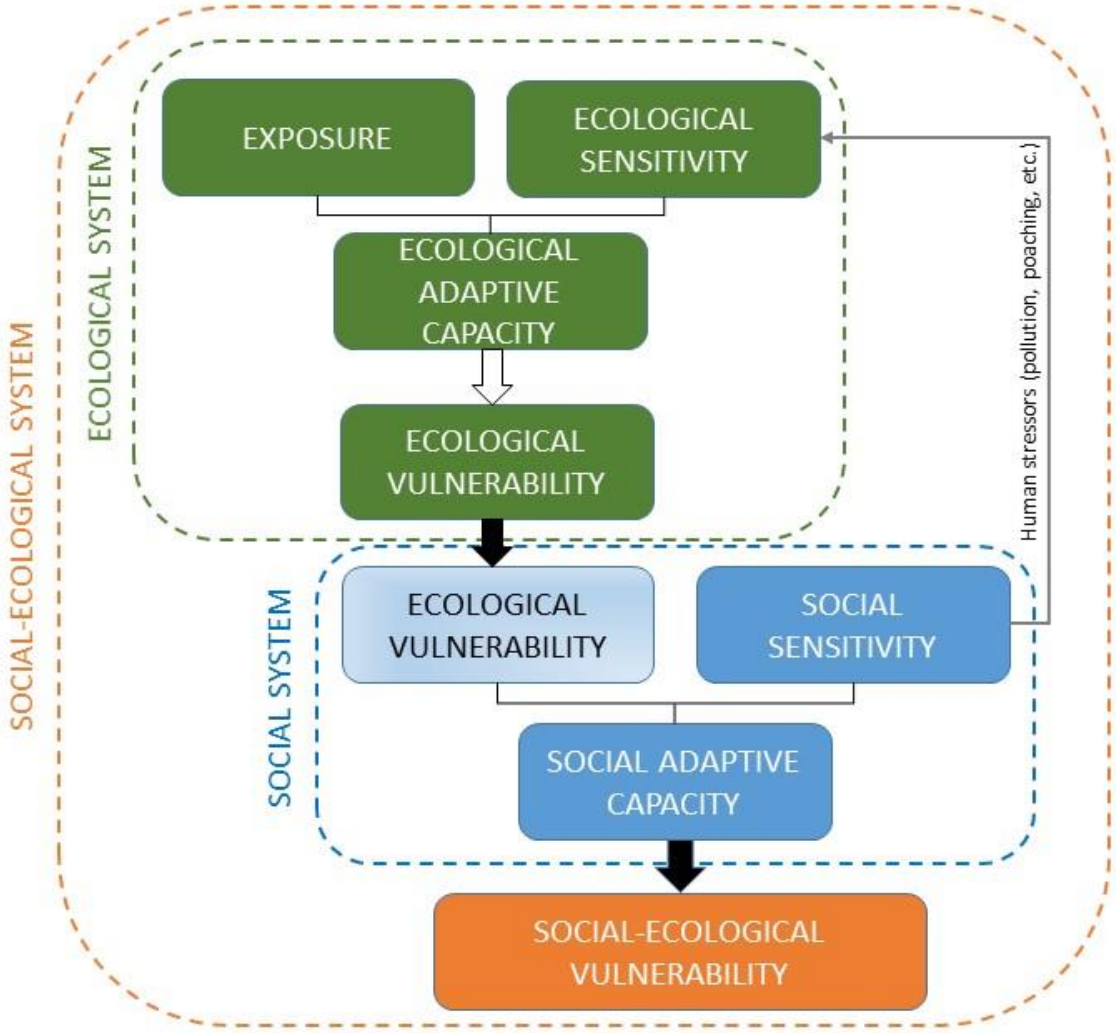
Vulnerability is the propensity or predisposition of a system to be adversely affected by climate change.

- Our system is an MPA and the approach combines ecological and social vulnerability.
- The vulnerability of a system depends on 3 main components:

Exposure

Sensitivity

Adaptive capacity



VULNERABILITY DIMENSIONS

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ECOLOGICAL EXPOSURE

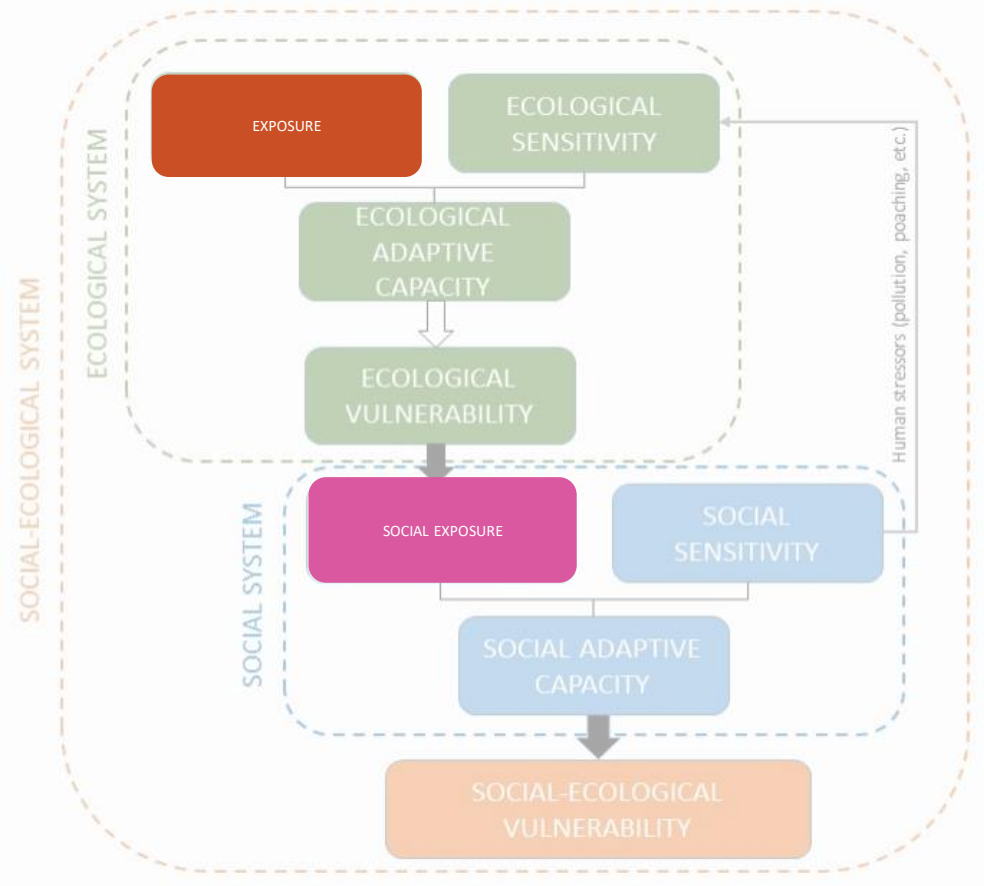
Degree of exposure of the system to the impacts of climate hazards in terms of magnitude, frequency, duration or extent.

SOCIAL EXPOSURE

Exposure in the social domain is the ecological vulnerability.

Photo: Ernesto Azzurro

Photo: Federico Burgalassi



VULNERABILITY DIMENSIONS

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ECOLOGICAL SENSITIVITY

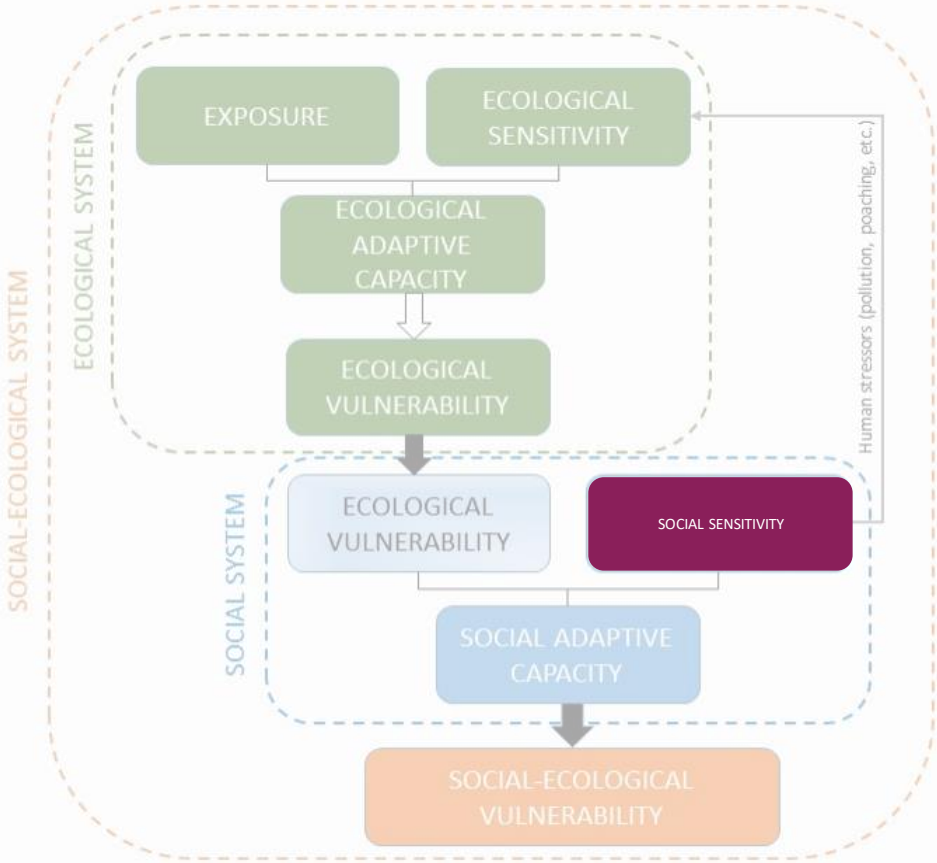
Conditions and characteristics mediating the short term propensity of the ecological domain to be influenced by exposure.

SOCIAL SENSITIVITY

Conditions and characteristics of the social domain and their dependency on the system's habitats and species.

Photo: Alberto Barisani

Photo: Calanques NP



VULNERABILITY DIMENSIONS

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ECOLOGICAL ADAPTIVE CAPACITY

Present and future abilities to implement effective and long-lasting responses to changes.

SOCIAL ADAPTIVE CAPACITY

Present and future ability of the users groups to implement effective responses to change by minimizing, coping and recovering from the potential impact of a stressor.

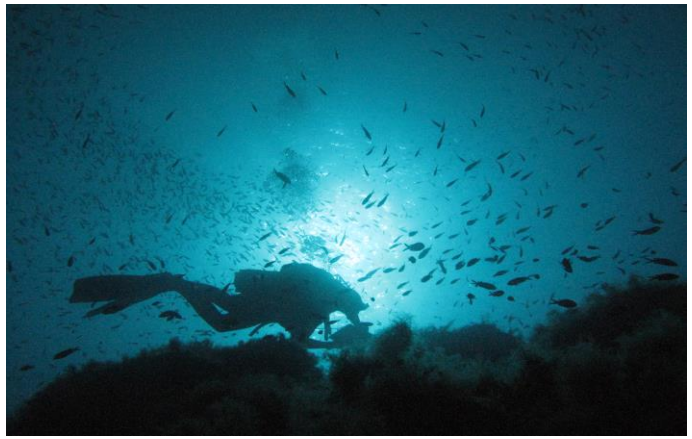
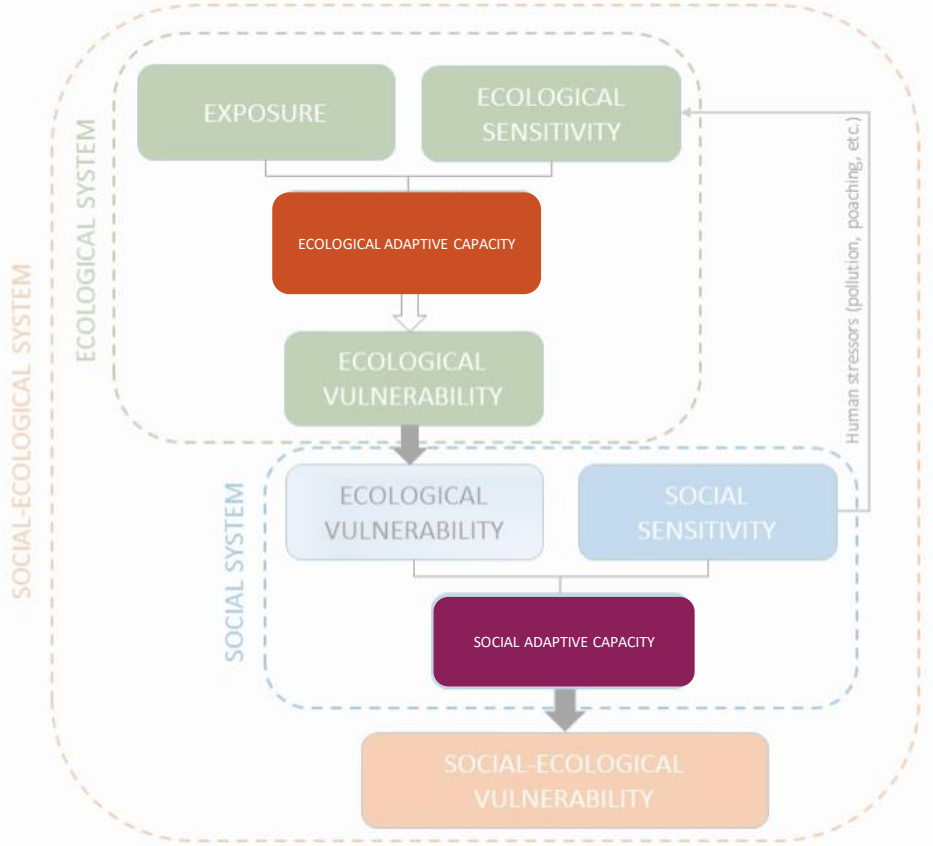


Photo: Ernesto Azzurro

Photo: Calanques NP



The MPA as a social-ecological system

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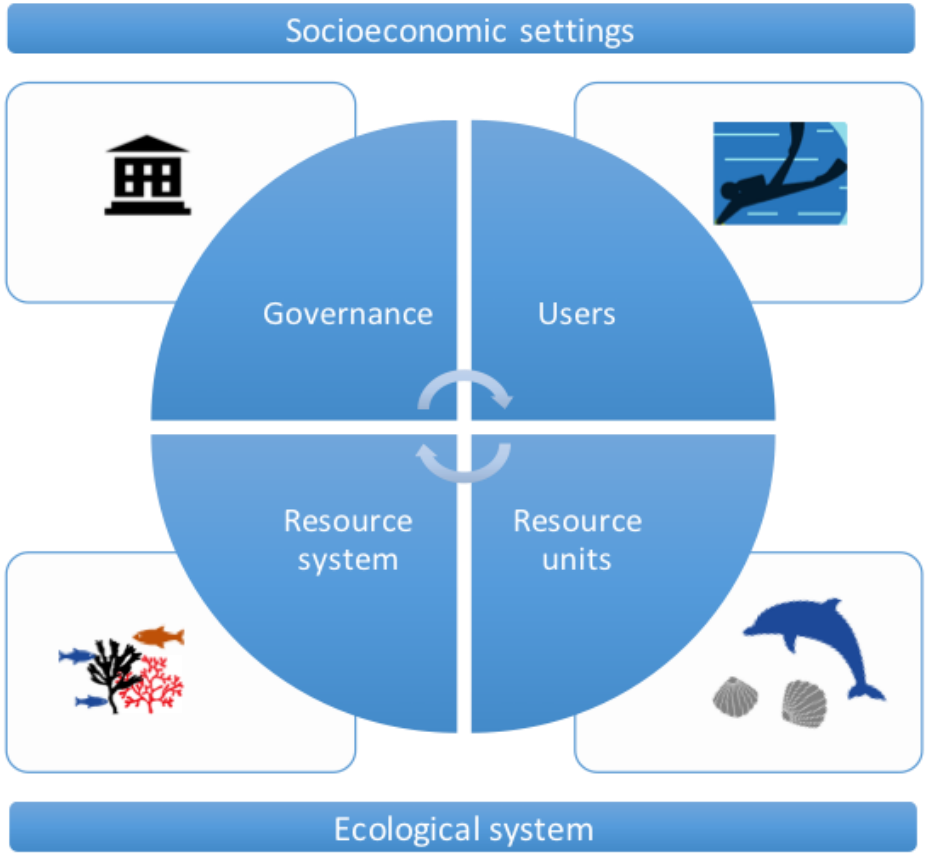
Governance:
Incorporates all the rules and regulations for the MPA management.

Resource system:
The ecological system to protect: habitats, species and ecosystems.

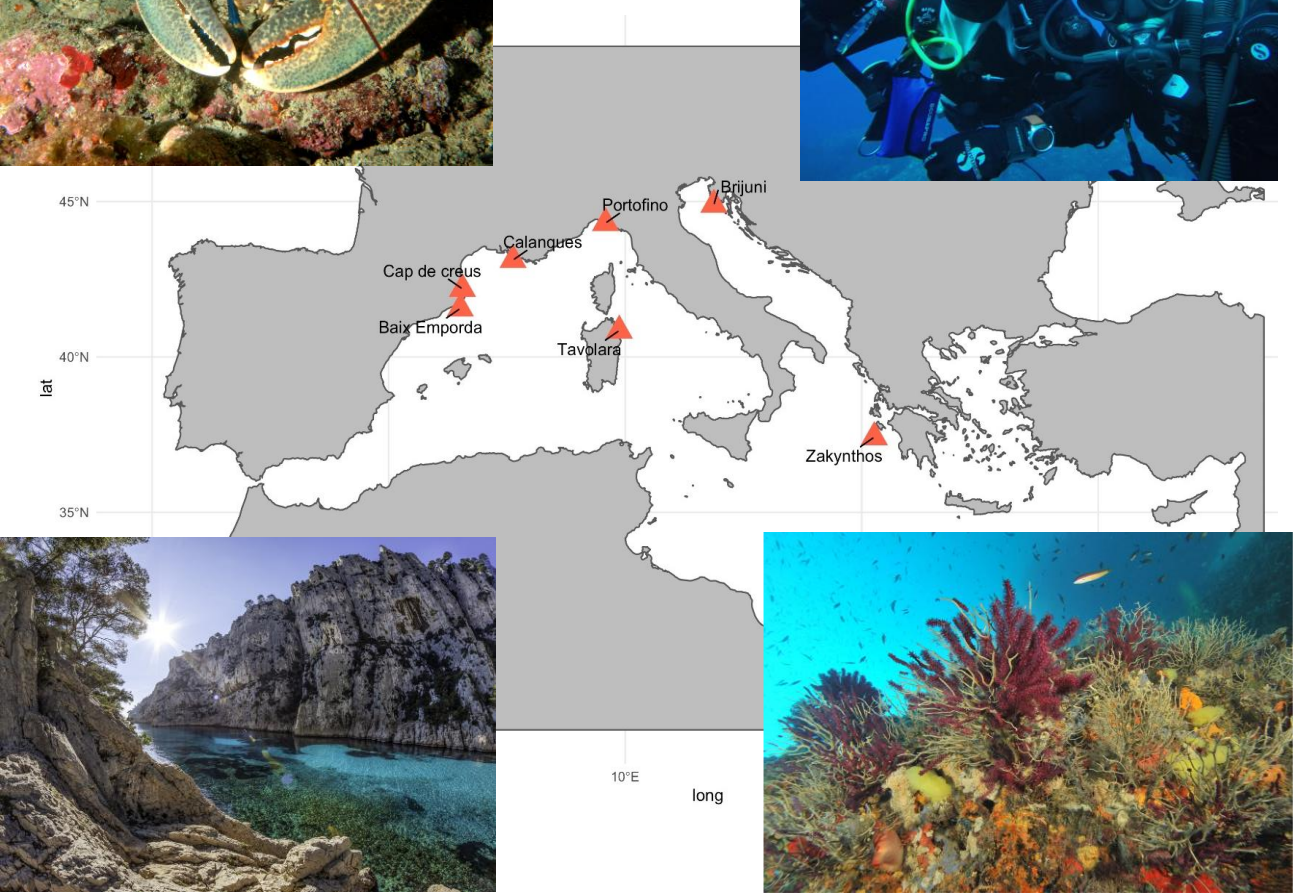


Users:
Include all the stakeholder groups that develop activities in the MPA.

Resource units:
the units of the ecological system that interact with users, for example, harvested species and charismatic megafauna.

MPA SES, based on Ostrom, 2009

MPA Engage results

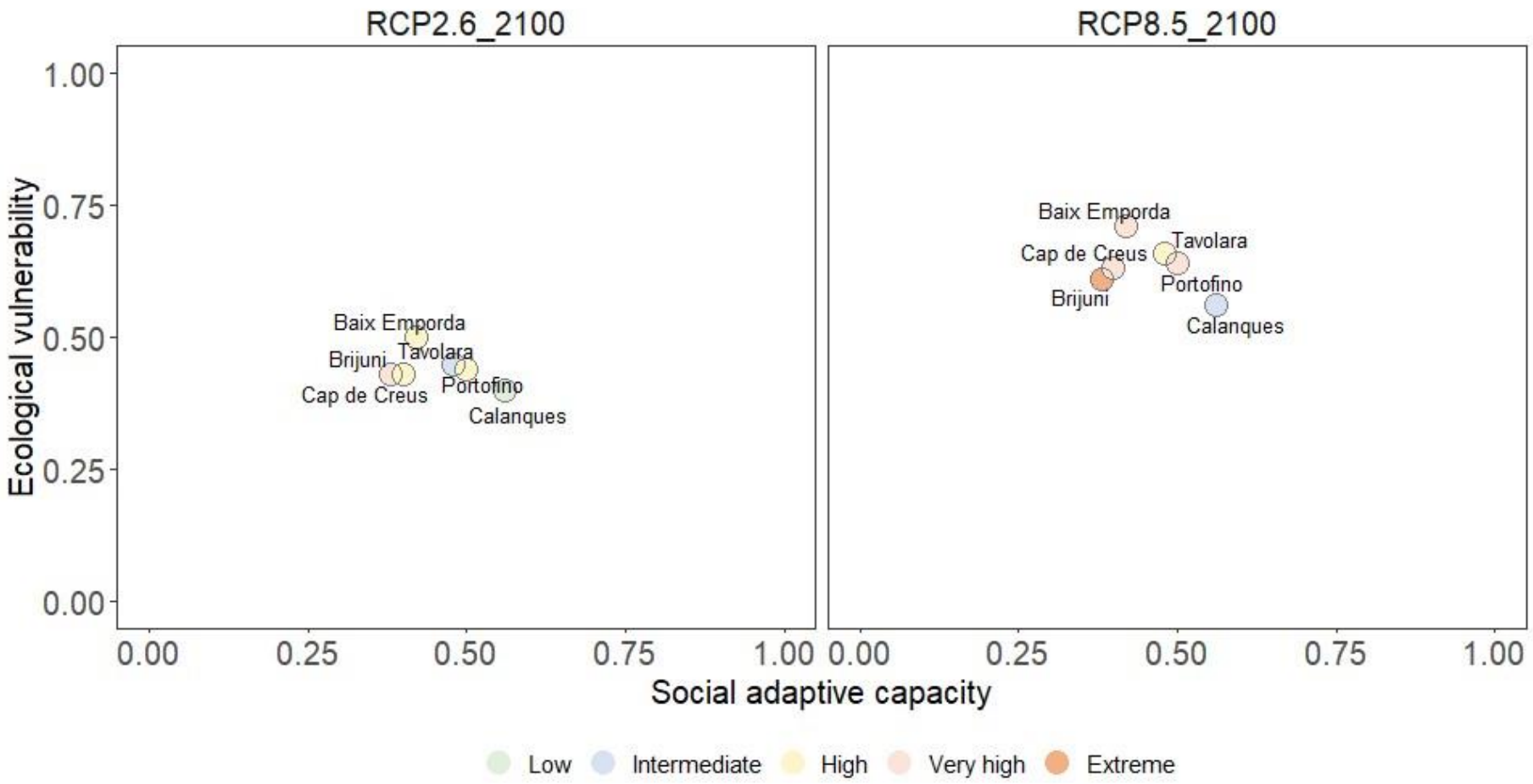


Mediterraneran partner MPAs

Vulnerability index (VI)	# of Indicators
Socio-ecological VI	89
Ecological VI	56
Habitat VI	15
Species VI	15
Professional fishers VI	27
Recreational activities VI	26
SST VI	85
MHW VI	85

MPA Engage results

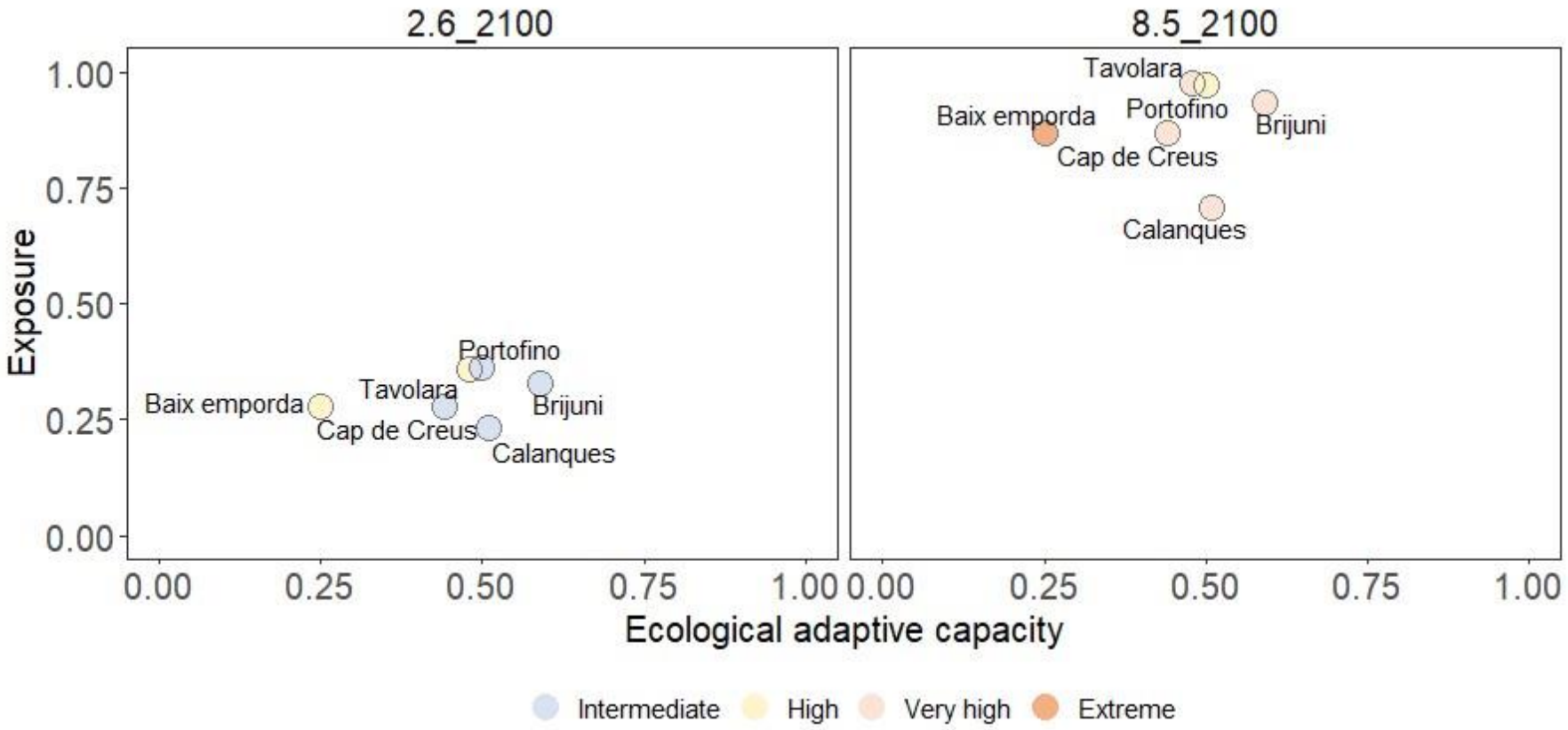
Socio-ecological Vulnerability Index



***Brijuni** is the MPA with highest **Socio-ecological vulnerability** while **Calanques** is the least vulnerable of the partners*

MPA Engage results

Ecological Vulnerability Index



Baix Emporda' *is the MPA with highest* ***Ecological vulnerability*** *while no MPA stands put as the least vulnerable*

MPA Engage results

Results for RCPs 2.6, 4.5, 8.5 years 2050 and 2100

Species

N=39

Most vulnerable species:

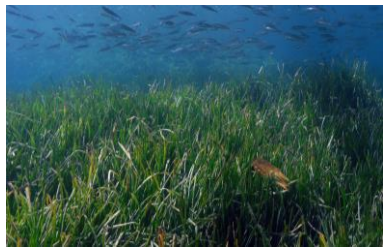
Paramuricea clavata
Pinna nobilis
Corallium rubrum
Posidonia oceánica
Eunicella cavolini
Cladocora caespitosa
Patella ferruginea
Savaglia savaglia

Habitat

N=5

Most vulnerable habitats:

Coralligenous
Posidonia oceánica
Infralittoral rocky bottom



Users

N=5

Most vulnerable users:

Divers
Nautical sector

Achievements & challenges

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Standardize and replicable methodology at the Mediterranean level

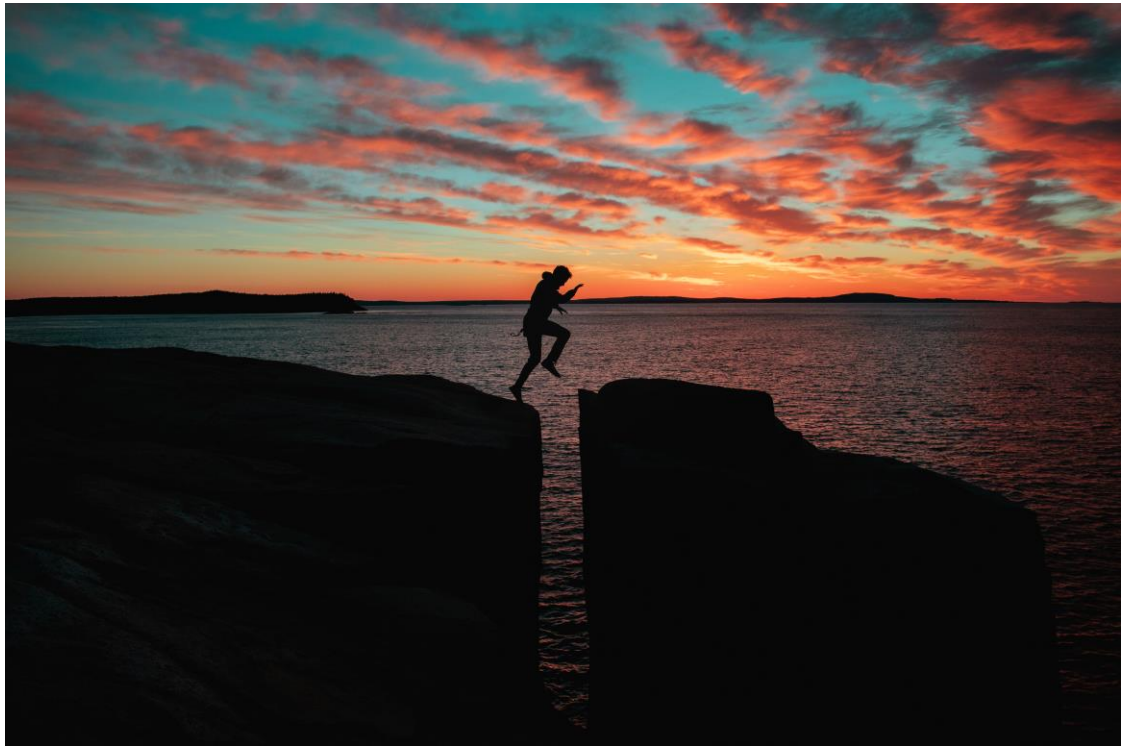
An overall index to evaluate the MPA Vulnerability

A relative ranking of vulnerability scores for the units assessed (habitats, species, users, etc.)

Vulnerability scores from different analyses are not comparable.

Updating an analysis on an annual basis is easy but requires more work (not automatic)

Limitation of data availability



Thank You

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