The contribution of undersea mapping for assessing and managing biodiversity

Université di Corsica Pasquale Paoli

Ecosystèmes Littoraux

CAPITALISATION ON EUROPEAN PROJECTS FOR A BETTER KNOWLEDGE AND MANAGEMENT OF BIODIVERSITY IN THE STRAIT OF BONIFACIO

Gérard & Christine PERGENT

50 EUROPA NOSTRA

Biodiversity

Scientist: 1988 – Edward Osborne Wilson ➔ the term biodiversity

Popularity/policy: 1992 - Earth Summit in Rio de Janeiro

Biodiversity is the natural diversity of living organisms. It can be assessed by considering the diversity of ecosystems, species and genes in space and in time, as well as interactions within these levels of organisation and between them (Wikipedia, 2014).

Biodiversity

Genetic diversity

Set of genetic information contained in a species' gene pool

Specific diversity

All the species present in a defined areas (sample, biotope, ecosystem or biosphere)

Taxonomic diversity

Phylogenetic diversity

Ecological diversity

Biocenoses, habitats and ecosystems in a given territory

Environmental diversity

Biodiversity

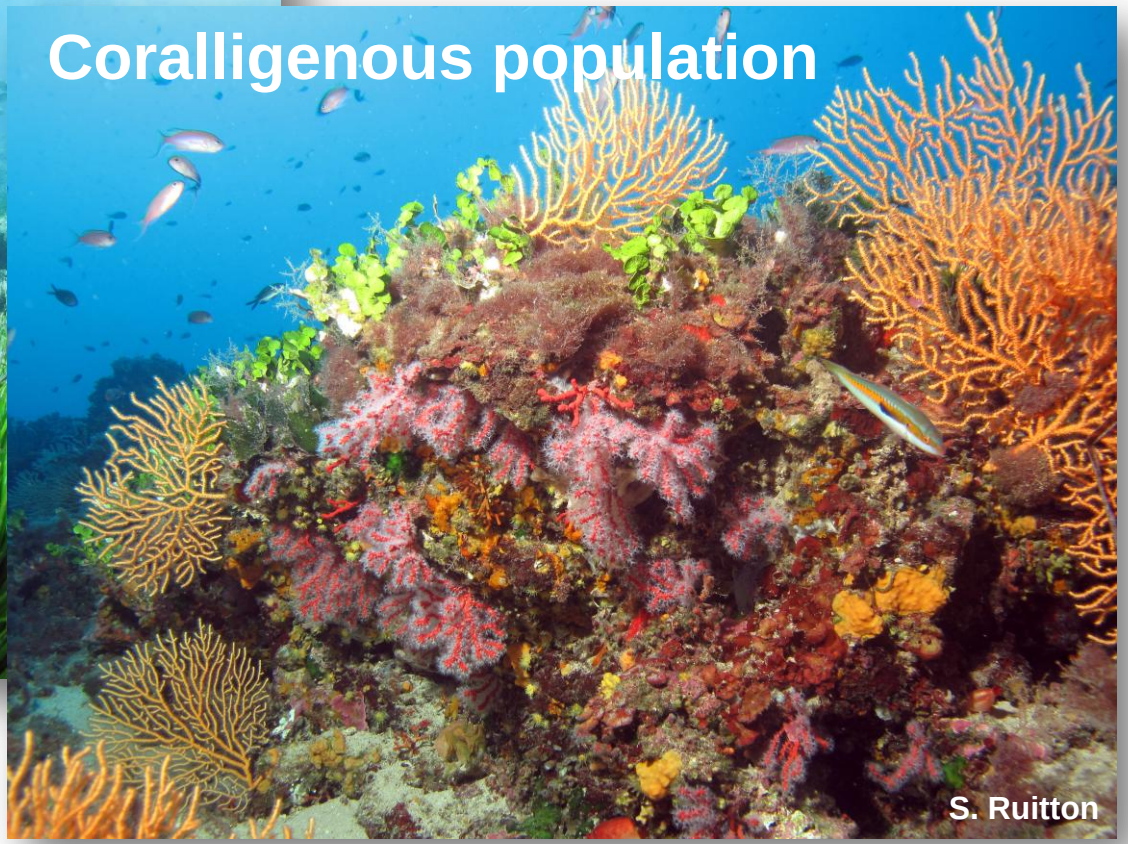
The number of species must be balanced against their rarity (endemic species), their role in the ecosystems (engineering species) and their interest for conservation (heritage species).

The coastal halophilic rock ecosystem in Corsica: *Armeria soleirolii*

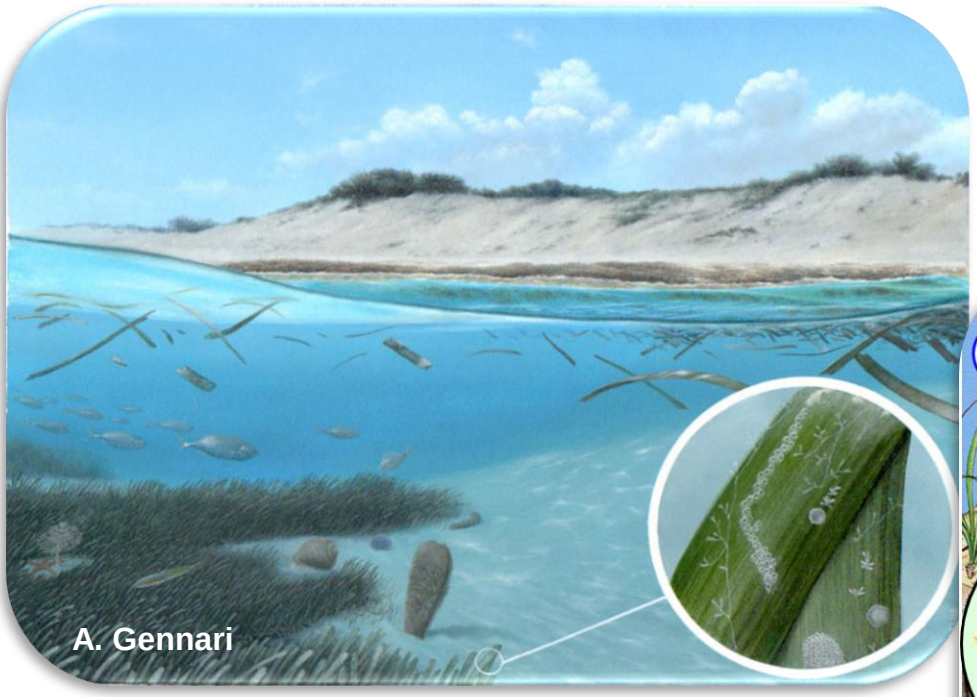
Ecosystems with very poor specific diversity or with very poor production, may have a very high heritage value

The Mediterranean

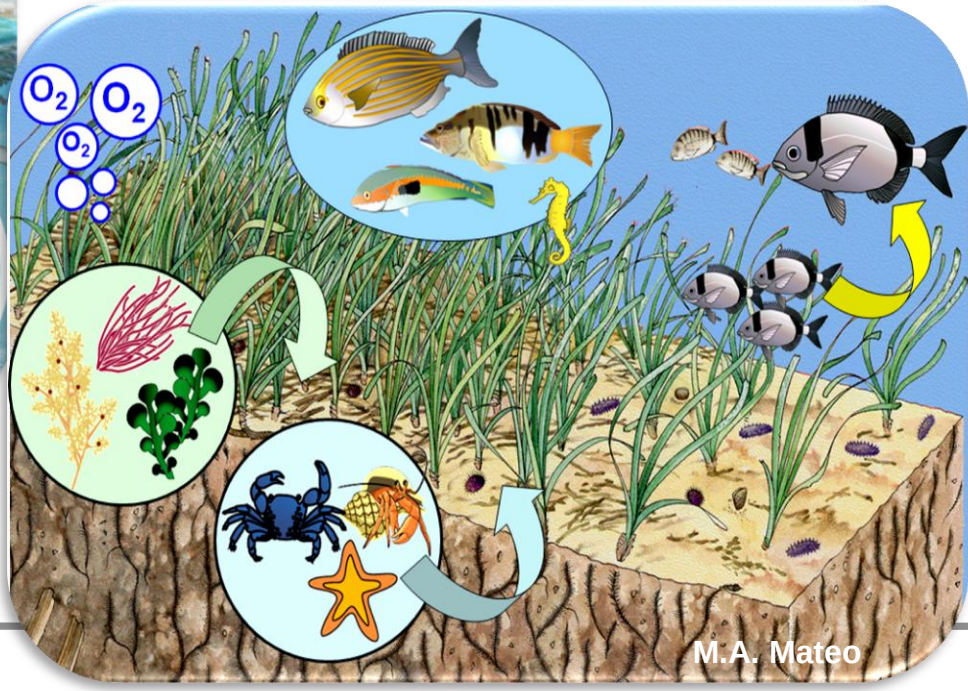
Coastal ecosystems: biodiversity hotspots



Posidonia grass beds

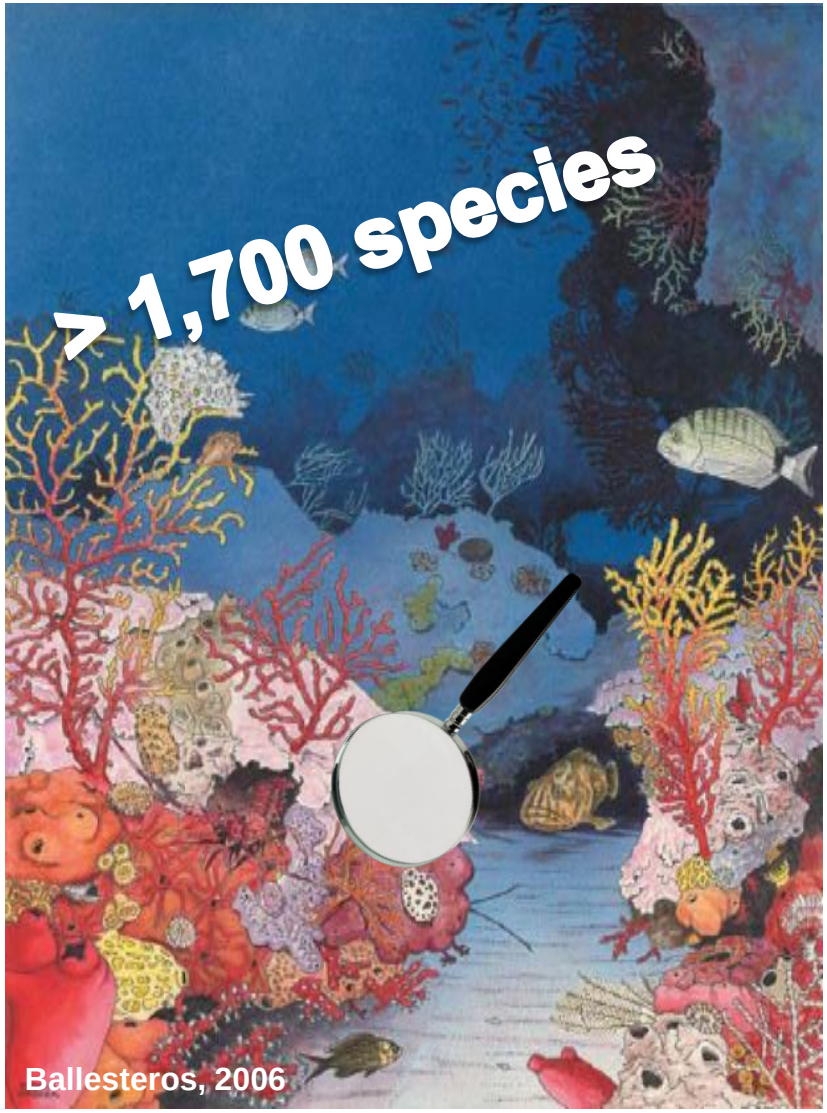


3.5 million hectares
25% of sea beds (0 to -50 m)
10% Mediterranean forests



>500 plant species
X1,000 animal species
(70 fish species)

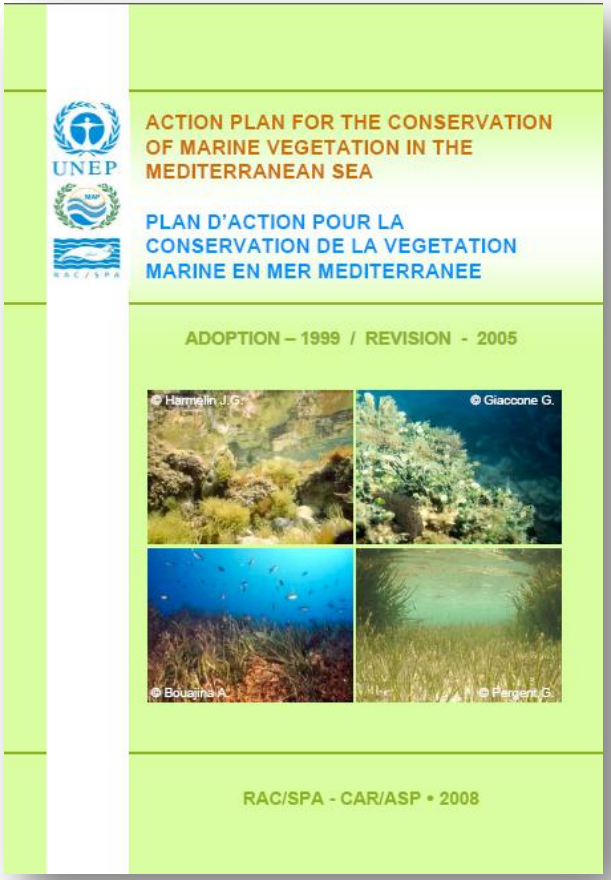
Coralligenous populations



Submarine landscape, typical of the Mediterranean, made up of a coralline algae structure growing in low light conditions

Biodiversity conservation

Mediterranean Action Plans (PNUE)



PNUE

PAM

CAR/ASP

➔Identification of these habitats = priority for MAP managers

INTERREG I and II (1992-2000)

First RNBB cartography

Superficial area

Aerial photographs
Scale:1/20,000
Specifications

Deep area

Side scan sonar oceanographic campaign

Field data

Scuba diving
Transect
GPS Localisation

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Culletividu Territuriale di Corsica
OEC Office de l'Environnement de la Corse
UAC Uffiziu di l'Ambiente di a Corsica

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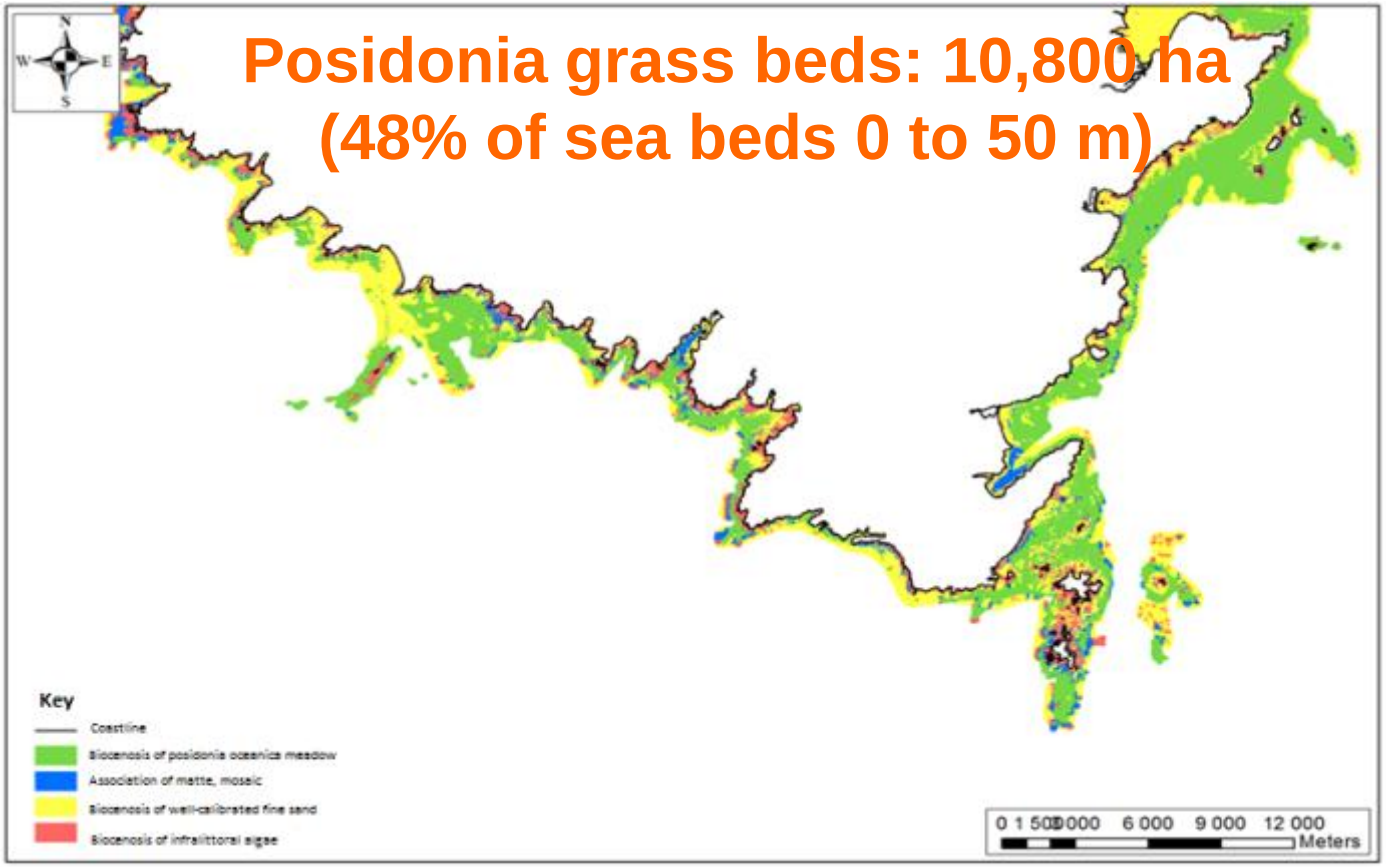

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INTERREG I et II (1992-2000)

First RNBB cartography

➔ **Doctorate from the University of Corsica**
And numerous scientific publications

➔ **Initiate mapping programmes on a Mediterranean level (MedPosidonia, guidelines)**

➔ **Biocenosis modelling on a Mediterranean level**

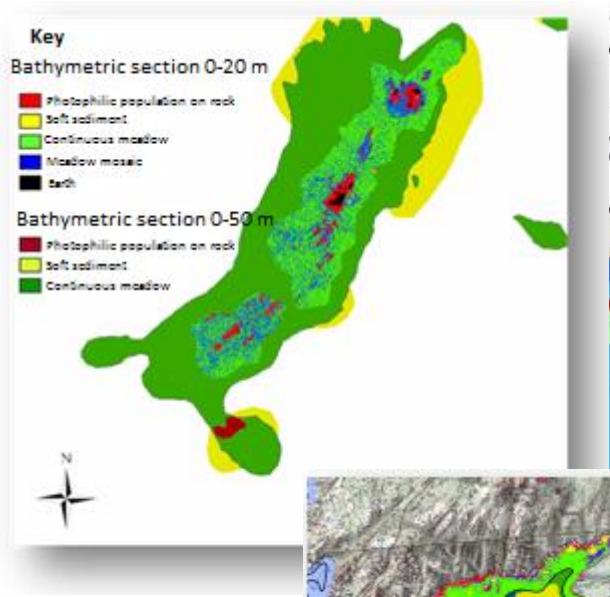
PLOS one

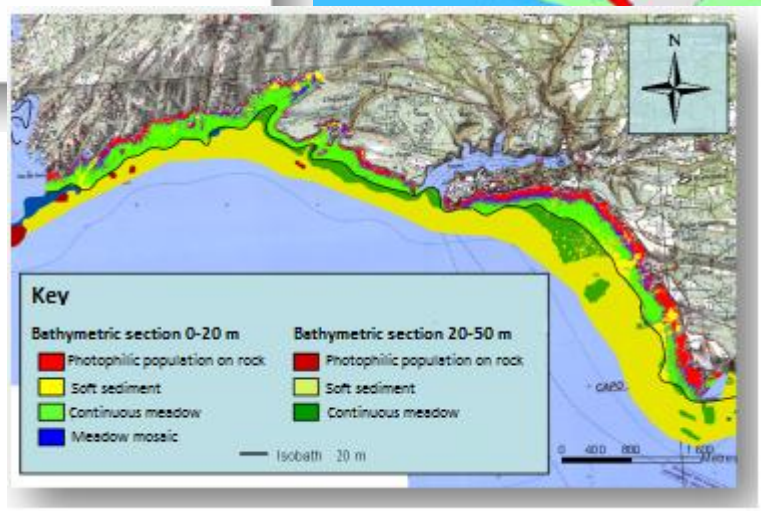
SCIENTIFIC REPORTS

DG MARE
"Mediterranean Sensitive Habitats"
MEDISEH project (MAREA)

RNBB/PMIBB(2001-2004)

Cartography of no-take zones





Reference state

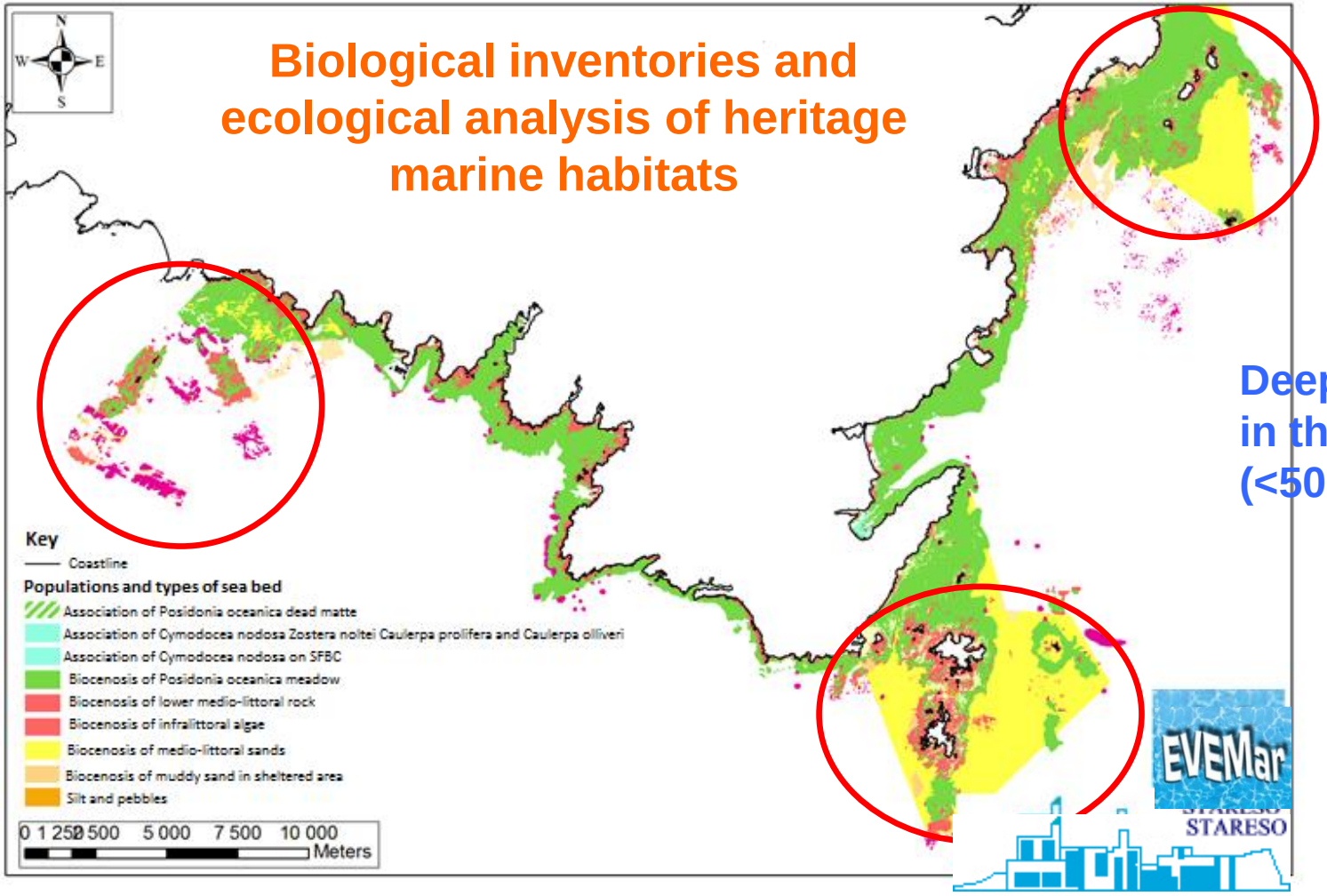
Superficial habitats

Université de Corse Pasquale Paoli

Collectivité Territoriale de Corse – Cullettività Territuriale di Corsica – OEC Office de l'Environnement de la Corse – UAC Uffiziu di l'Ambiente di a Corsica

CARTHAM (2010-2013)

NATURA 2000 sites at sea



Deep investigation in three sectors (<50 m)

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RÉPUBLIQUE FRANÇAISE
Direction régionale de l'Environnement, de l'Aménagement et du Logement
CORSE

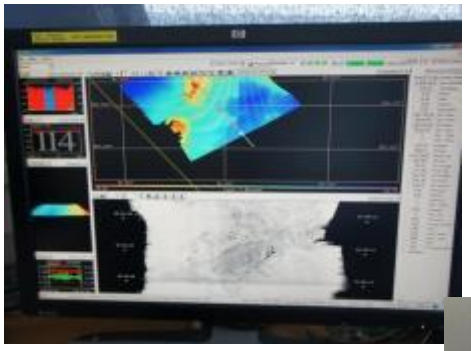
Agence des aires marines protégées

CORALCORSE (2013-2014)

Cartography of coralligenous populations

Mission

22 August – 2 September 2013



Agence des aires marines protégées

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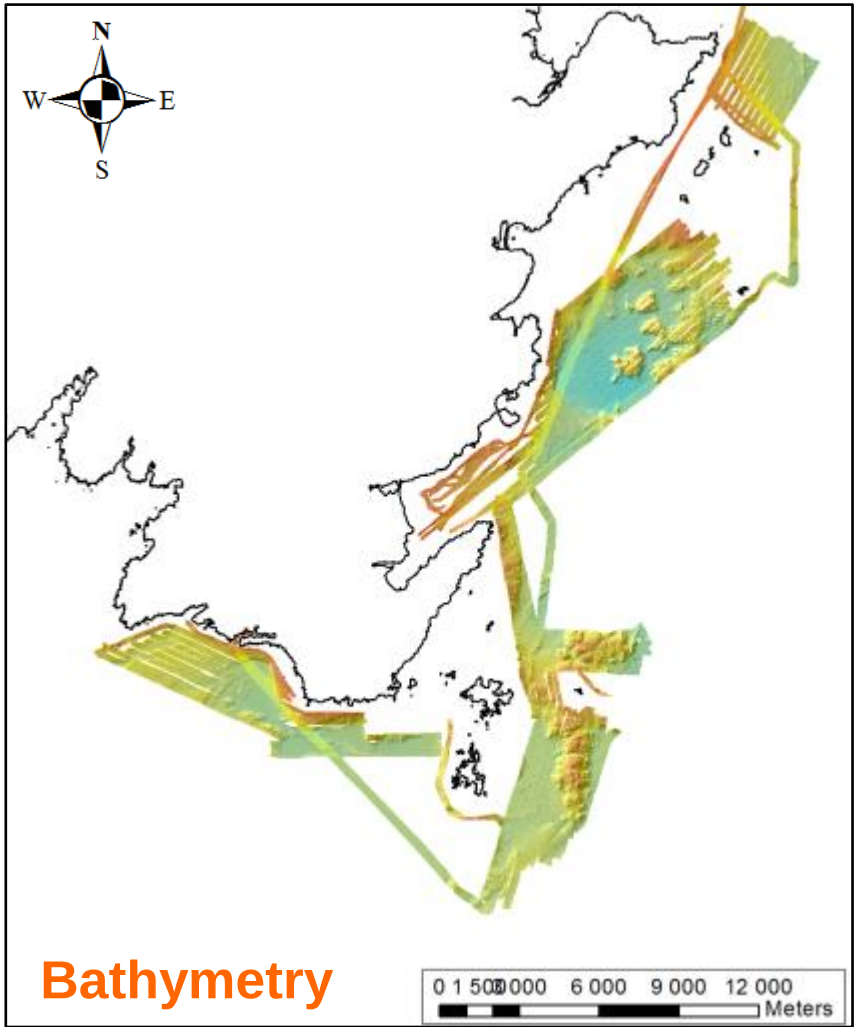
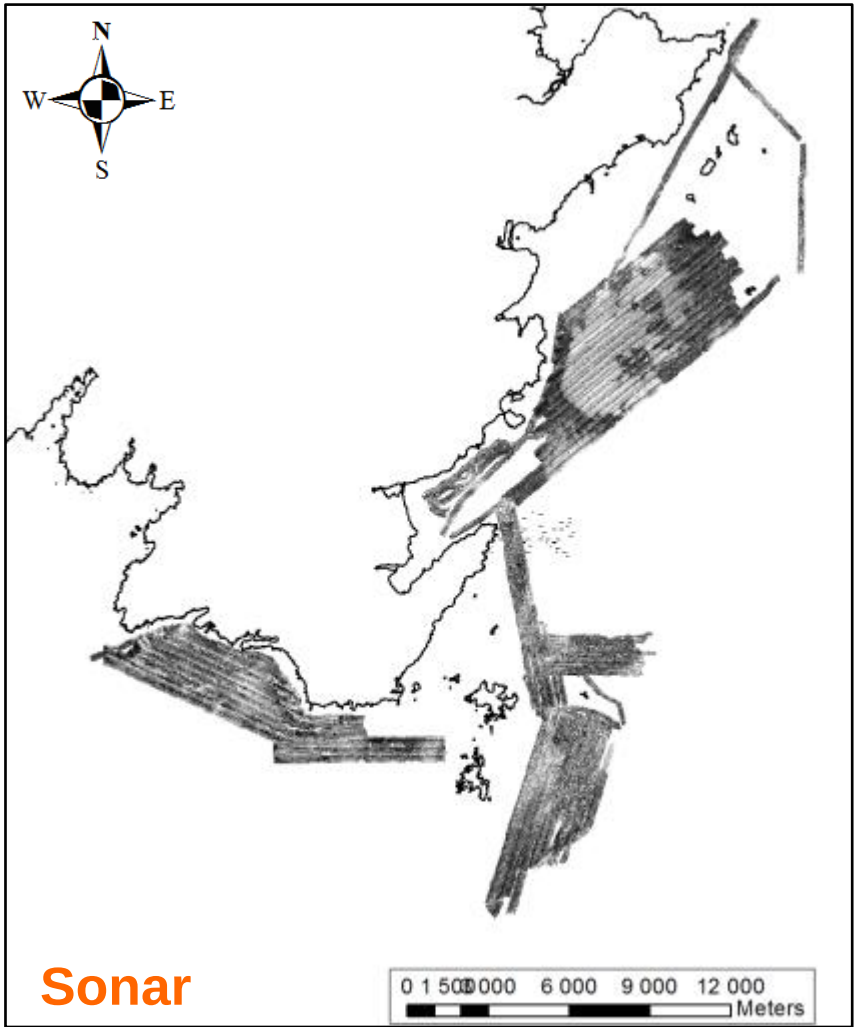
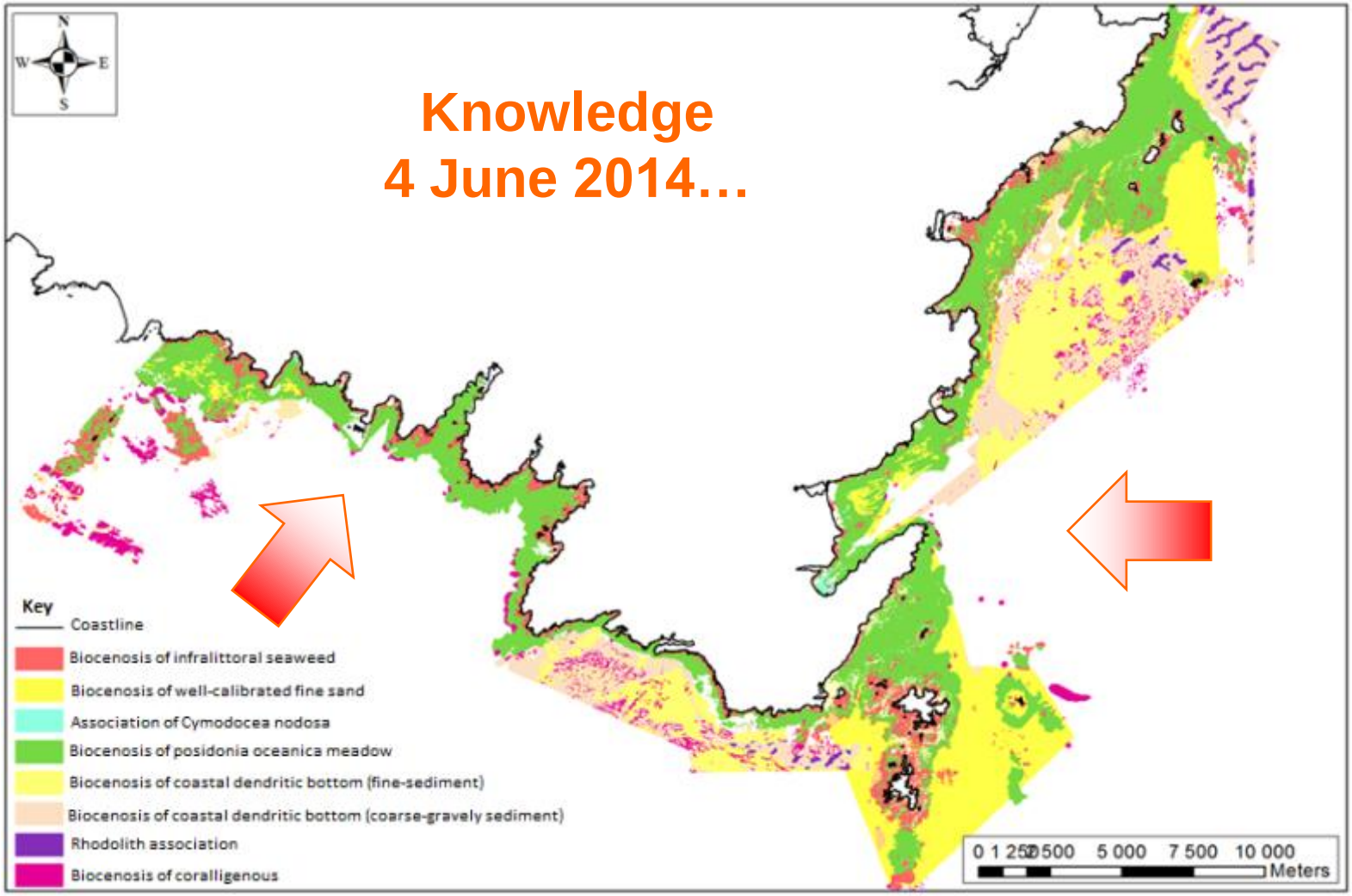
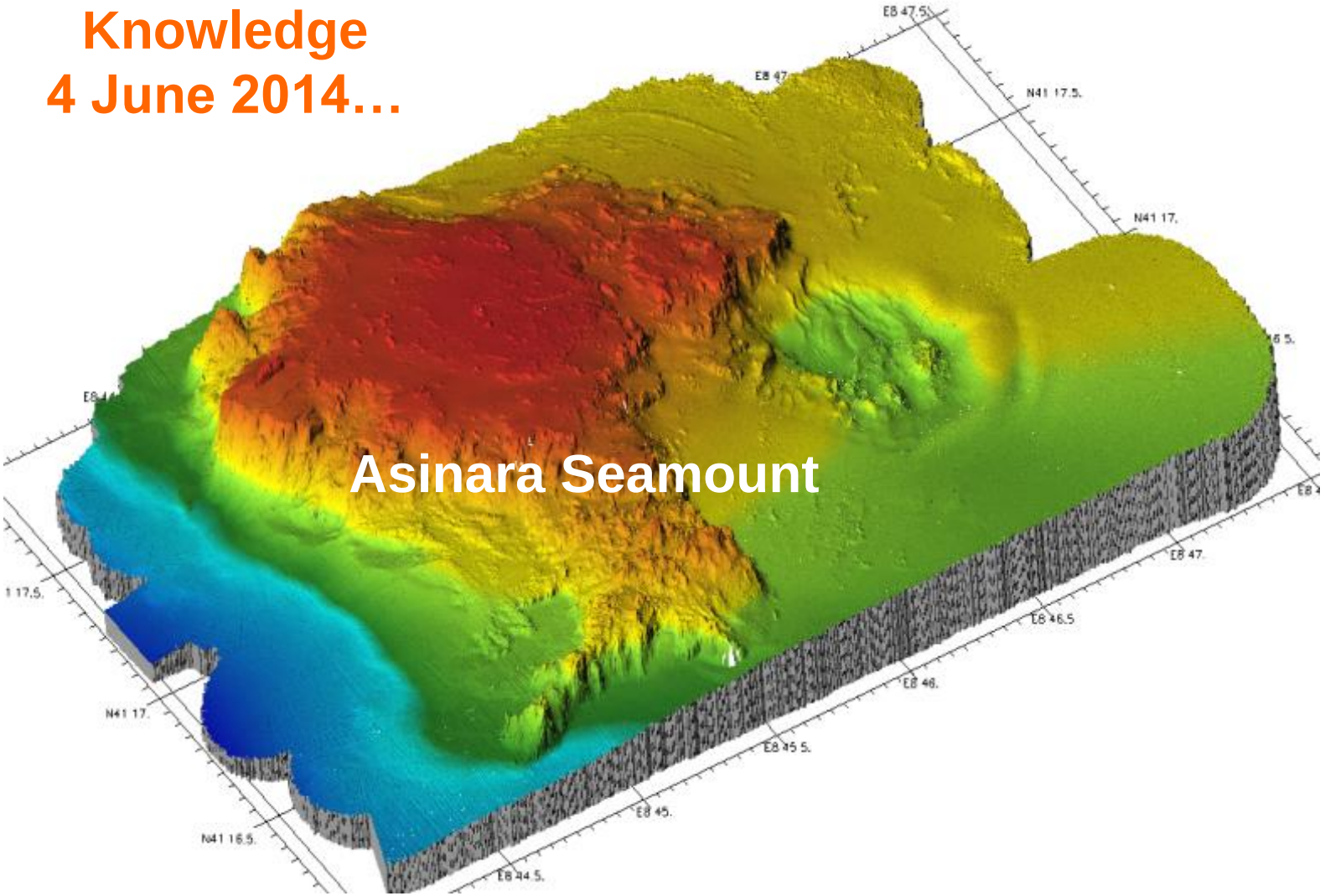




CARTHAM and CORALCORSE



Knowledge
4 June 2014…



EGCT - PMIBB

Action Plan

➔ **Priority problem areas**

Characterising biodiversity

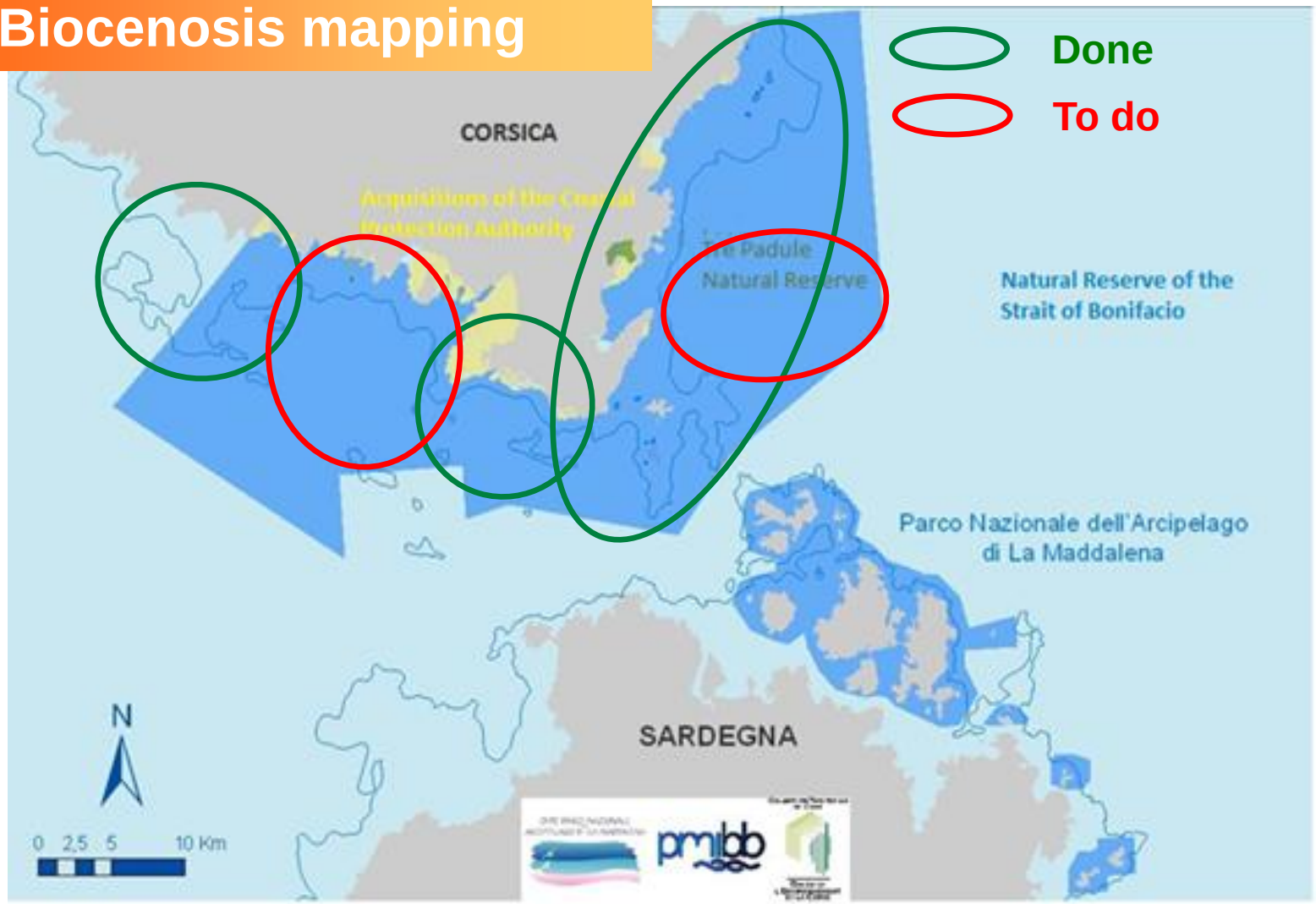
Biocenosis of the hard substrate (deep coralligenous)

Sea grass beds

1- Full biocenosis mapping of the EGCT-PMIBB
2 – temporal monitoring of the Posidonia grass bed (RSP)

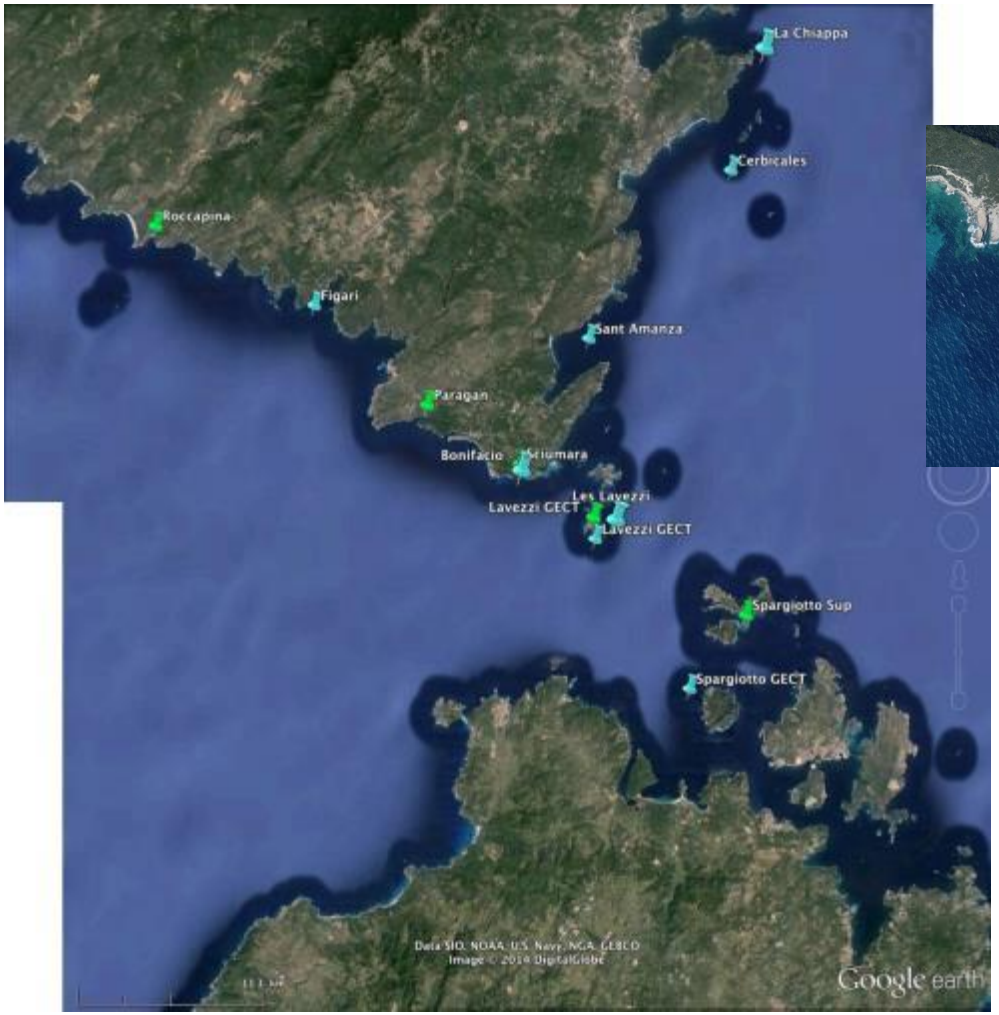
EGCT - PMIBB

Biocenosis mapping

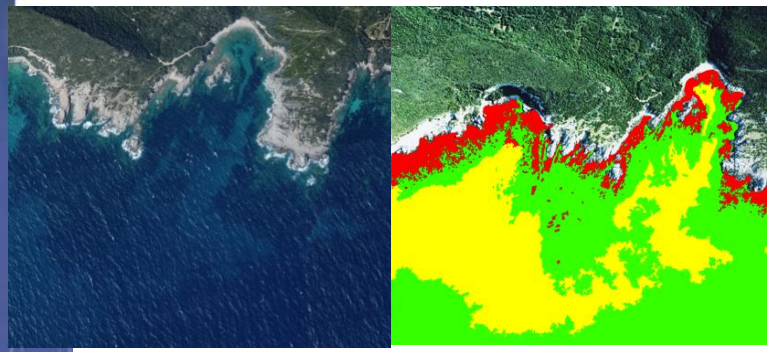


EGCT - PMIBB

Network of Posidonia monitoring



5 upper limits



8 lower limits

EGCT - PMIBB