LIFE BLUE NATURA

Life Blue Natura

Rosa M.ª Mendoza Castellón & Soledad Vivas

30 September 2019

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CONSEJERÍA DE MEDIO AMBIENTE Y ORDENACIÓN DEL TERRITORIO

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OBJECTIVES

1. QUANTIFICATION OF ACTUAL CARBON DEPOSITS AND CARBON SEQUESTRATION RATES IN SEAGRASS MEADOWS AND TIDAL MARSHES IN ANDALUSIA.

2. ASSESMENT OF BLUE CARBON ENVIRONMENTAL SERVICES ASSOCIATED TO CLIMATE CHANGE MITIGATION, WITH BASIS ON PROJECTIONS OF CARBON FLUXES AND CARBON BALANCE IN CLIMATE CHANGE CONDITIONS.

3. EXPLORATION OF FINANCING ALTERNATIVES TO SUPPORT BLUE CARBON HABITATS PROTECTION AND RESTORATION PROJECTS, INCLUDING CARBON OFFSETT SCHEMES.

4. TRAINING, COMMUNICATION, AND AWARENESS RAISING INVOLVING KEY STAKEHOLDERS.

5. PREPARATION OF A STANDARDIZED METHODOLOGY FOR BLUE CARBON MONITORING.

LIFE BLUE NATURA

SÚMATE A BLUE NATURA Y COMBATE EL CAMBIO CLIMÁTICO

11.000 has

Posidonia oceanica - (Cymodocea nodosa, Zostera noltii)

Tidal Salt marshes:

24.400 Has

Bahía de Cádiz - Marismas del Odiel

LIFE BLUE NATURA

SÚMATE A BLUE NATURA Y COMBATE EL CAMBIO CLIMÁTICO

PHASE I: QUANTIFICATION OF ACTUAL CARBON DEPOSITS AND CARBON SEQUESTATION RATES

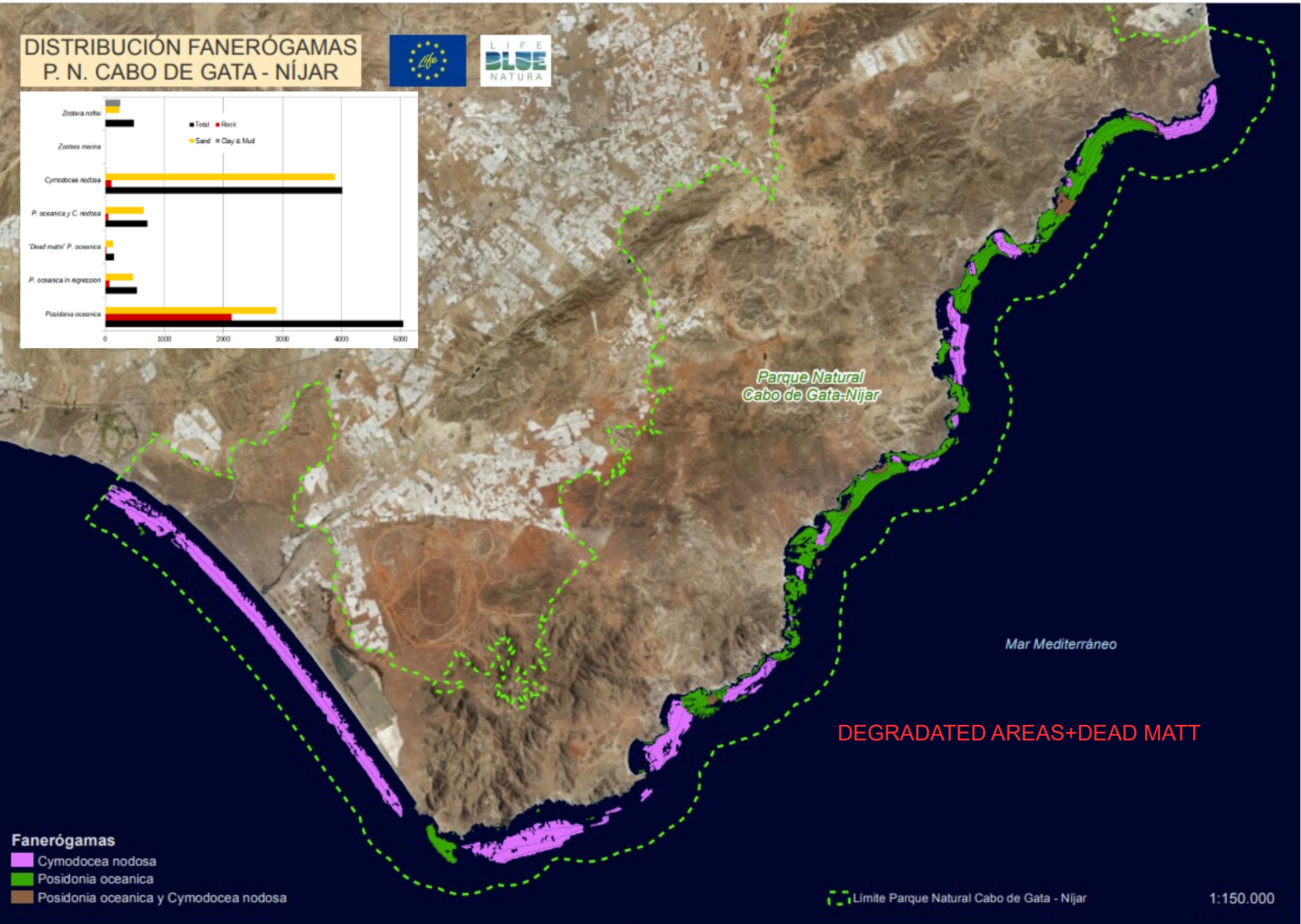
HIGHT ENRONMENTAL VARIABILITY

SAMPLE DESIGN: TO CAPTURE THE ENVIRONMENTAL VARIABILITY IN STOCK AND FLUXES TO TARGET SPP/HABITAT

KEY ENVIRONMENTAL FACTORS: SUBSTRATE AND AND DEPTH / CONSERVATION STATUS

GRADING: PREVIOUS WORKS- THEMATICS MAPS WITH THE SURFACES COVERED BY EACH PRE-DEFINE COMPARTIMENT OR TYPOLOGY

ANDALUSIAN SEAGRASS MEADOWS CARTOGRAPHY: BATHIMETRY*SUBSTRATE TYPE



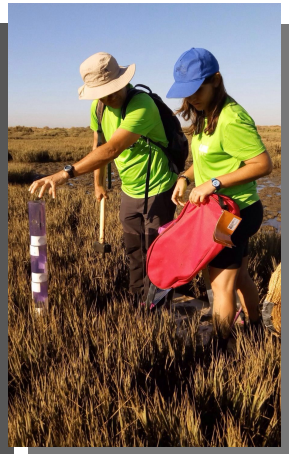
CSIC CEAB

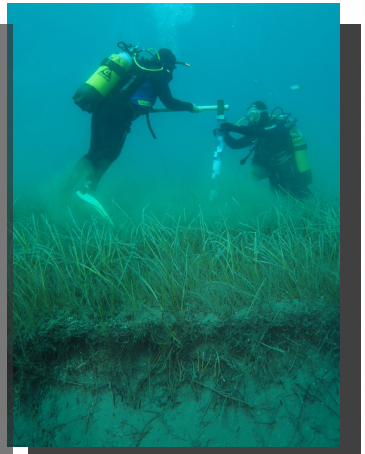
Sampling sites overview

and samples taken

First field mission 2016

(Shallow seagrass stations and all saltmarshes
28/Sept – 12/Oct)





7 sites - 21 stations – 75 cores

50% of Seagrass samples + 100% Saltmarsh samples

Second field mission 2017

(Seagrass intermediate and deep stations
11-19 October)

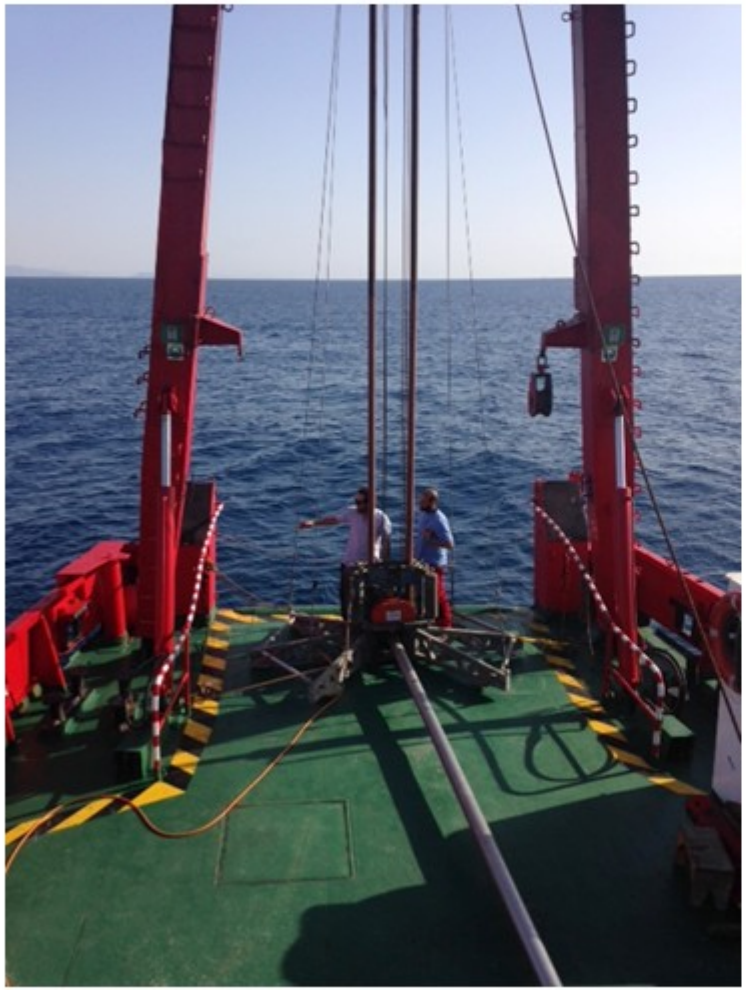
7 sites - 16 stations – 44 cores

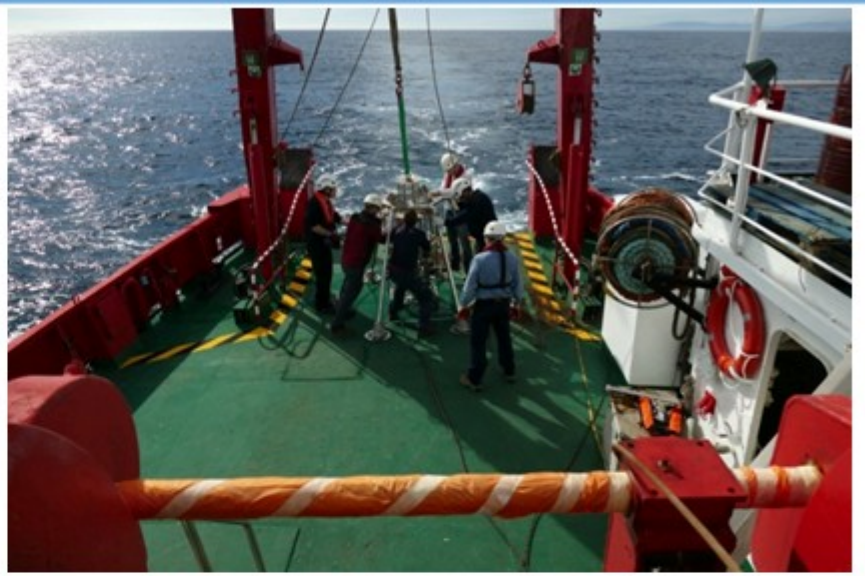
100% of Seagrass samples completed

Manual Coring

Vibrocoring

Up to 6m-cores





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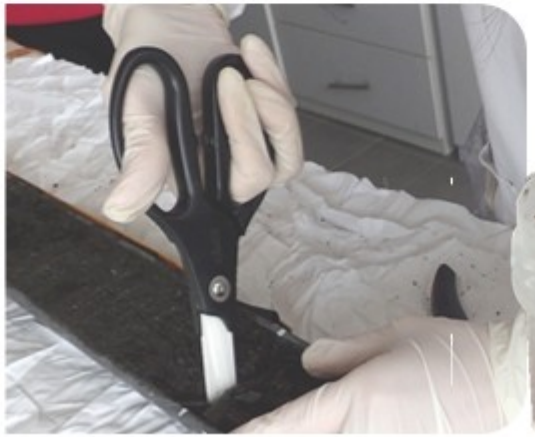
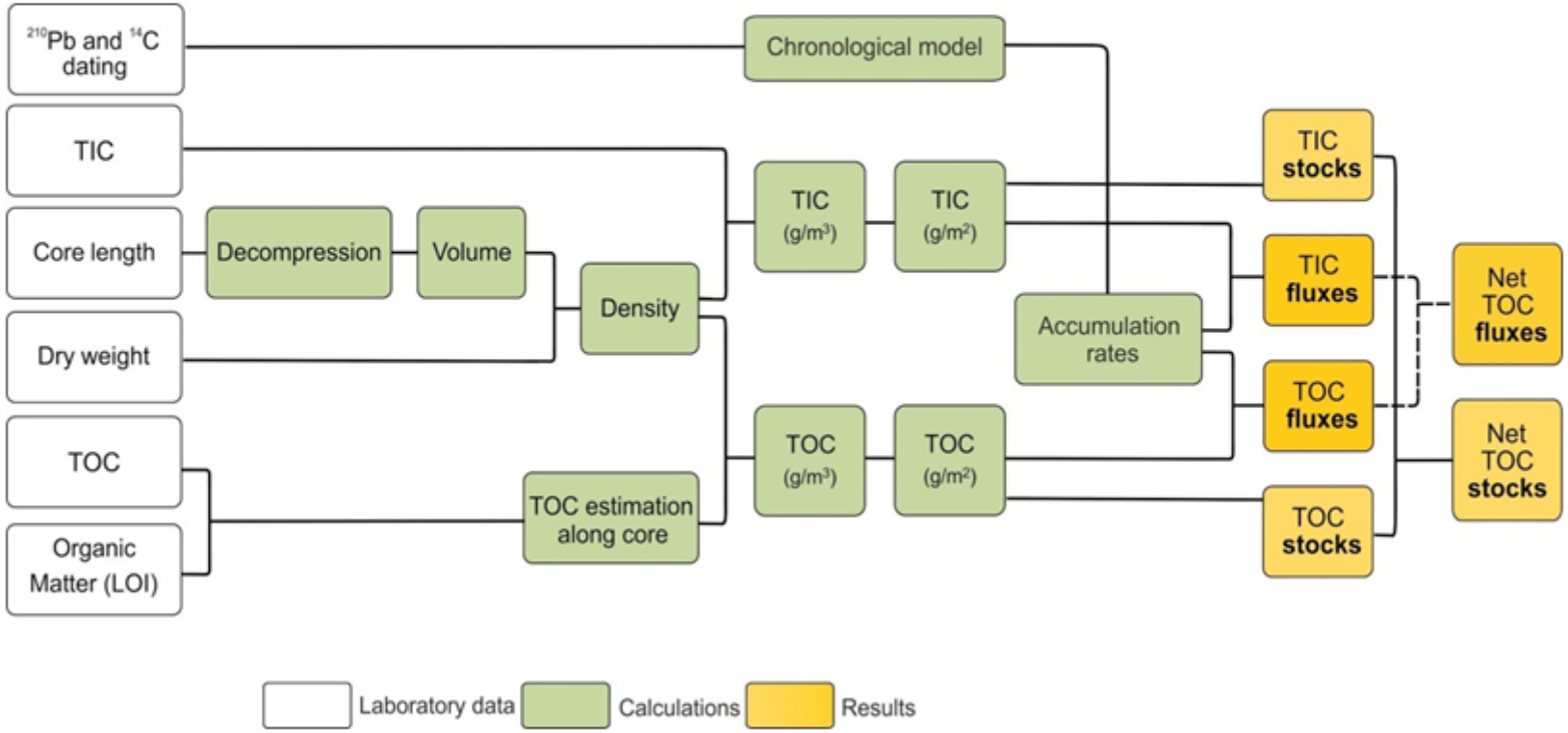
Core subsampling



Work flow toward net carbon stocks & fluxes



LIFE BLUE NATURA

GAME
GROUP OF AQUATIC MACROPHYTE ECOLOGY

A2, A3
C1, C2

Global numbers

3 sampling missions
14 sites
70 stations
160 seagrass and saltmarsh soil cores, 0.5 to 6 m long
50 aboveground biomass samples
> 220 m of soil profiles processed
20 variables analysed…
… in more than 7,700 soil samples

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CARBON STOCKS AND FLUXES ASSOCIATED TO ANDALUSIAN SEAGRASS MEADOWS

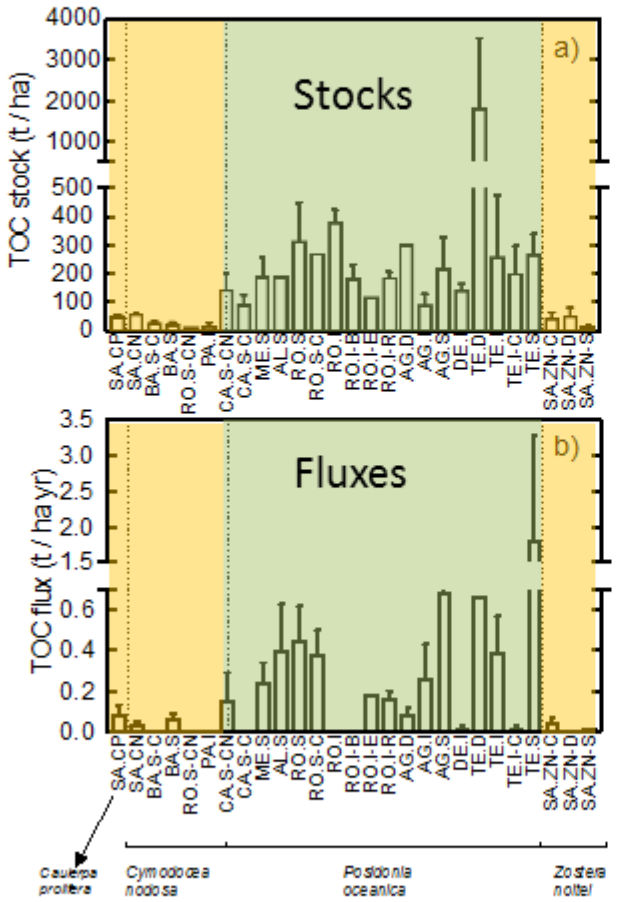
DELIVERABLE C1: RESULTS REPORT

LIFE BLUE NATURA

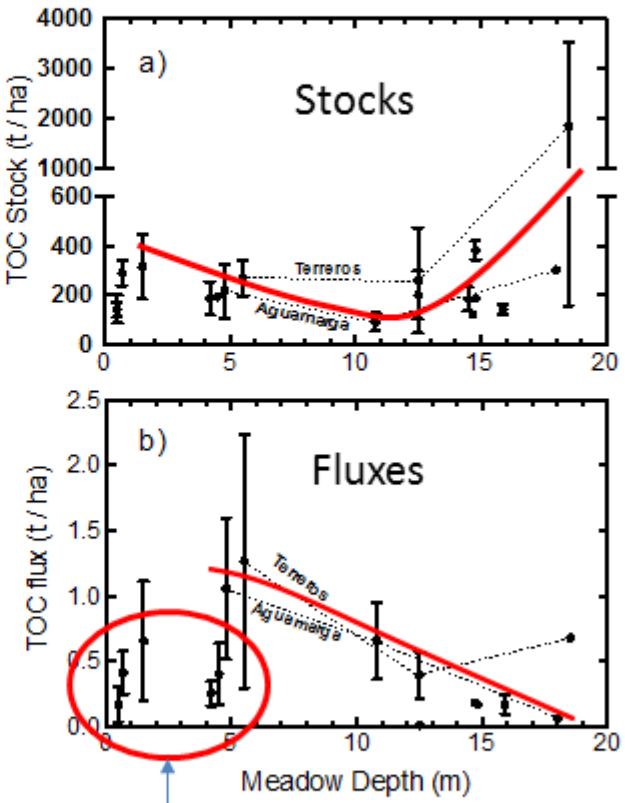
(LIFE14CCM/ES/00957)

Summary C1: stocks and fluxes variability overview

Spatial variability



Bathymetric variability



Small seagrasses

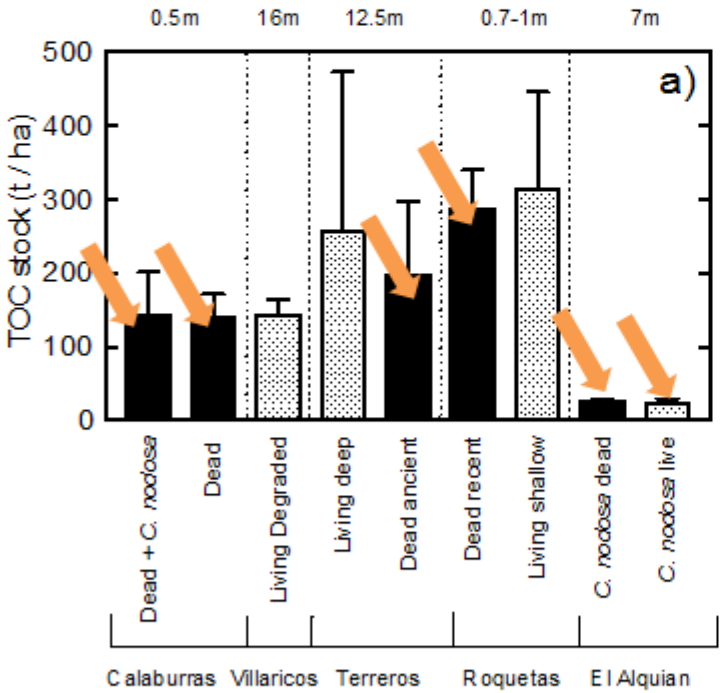
Summary C1: stocks and fluxes variability overview

Meadow condition

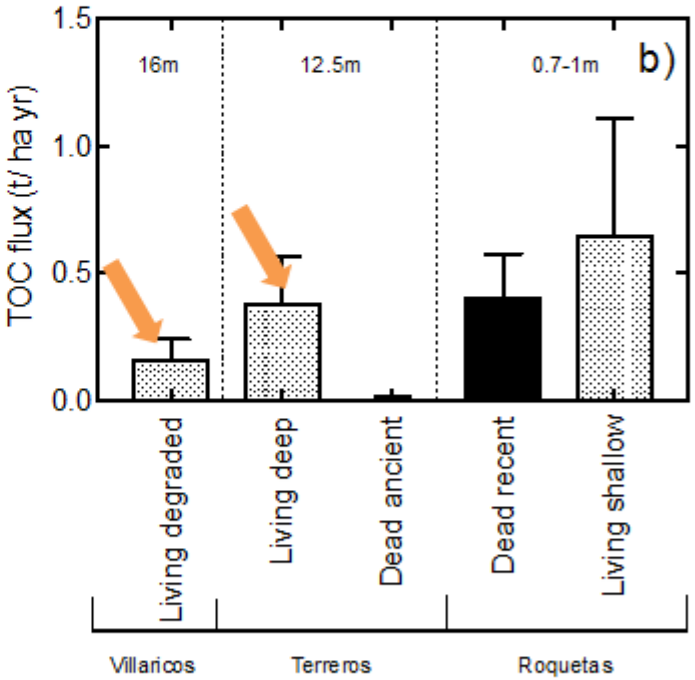
Dead meadow

Living/degraded meadow

Stocks

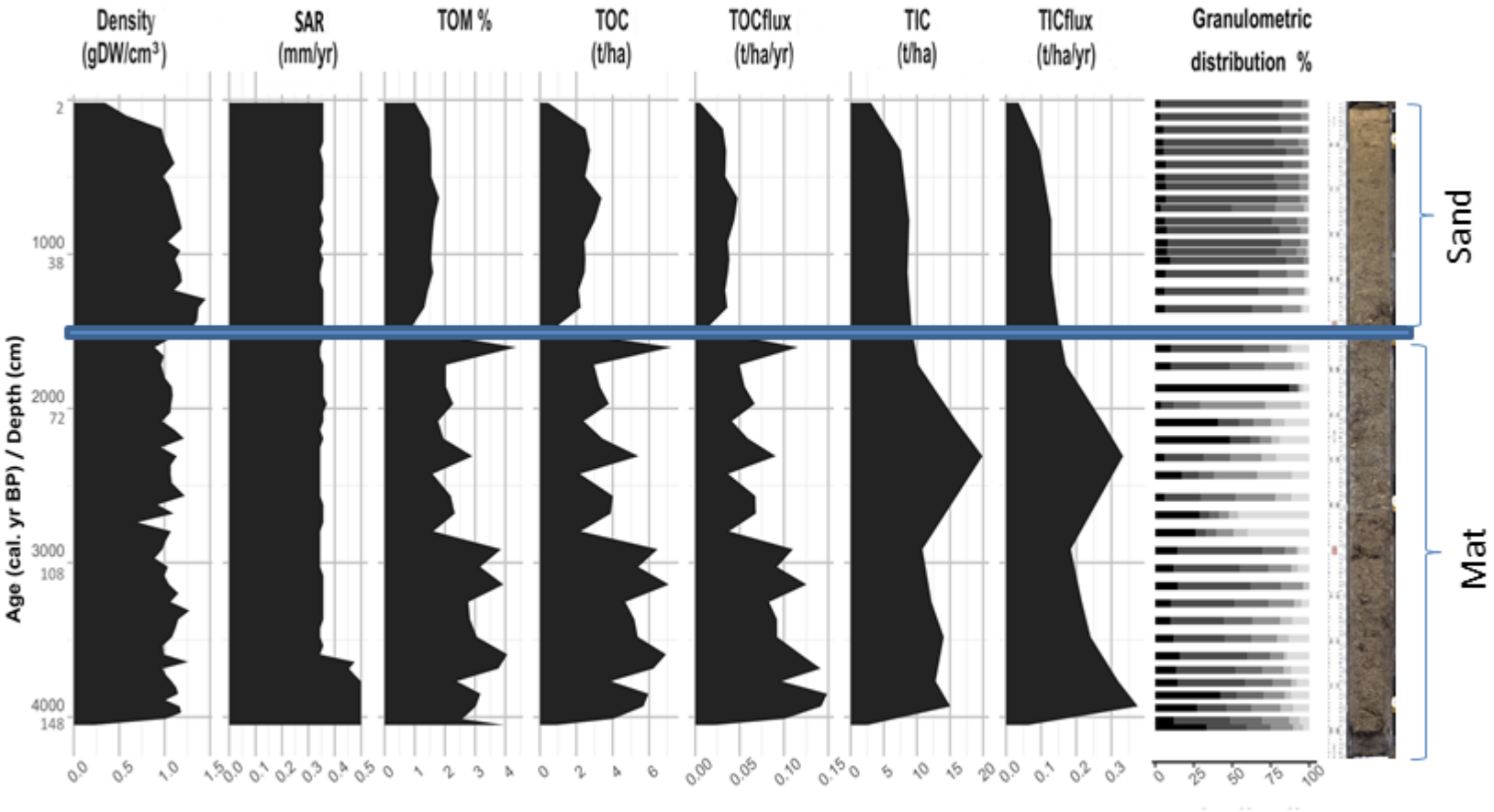


Fluxes



Posidonia oceanica

Time and depth distribution of the main variables



Example for Terreros, 12m, control. Notice max. age of 4000 years

Andalusian SEAGRASSES: Ready for CO_2 compensation projects

Types

P. oceanica stable
C. nodosa stable (open)
C. Nodosa stable (bay)
C. Nodosa + *Z. noltii (bay)*
P. oceanica regression
P. oceanica + *C. nodosa*
P + *C* + *Z*
P. oceanica + *C. cylindracea*
P. oceanica dead mat
P. oceanica on rock
C. nodosa on dead mat
Z. Noltii (bay)
Z. Marina (stable)

10-15	51.2	622.2	226	0	0.3	31.9	0

$Flux_{100yr}$

tCO_2/ha yr

Max: **1.7**, *P. oceanica* estable 5-10m
Min: **0**, *P. oceanica* dead mat

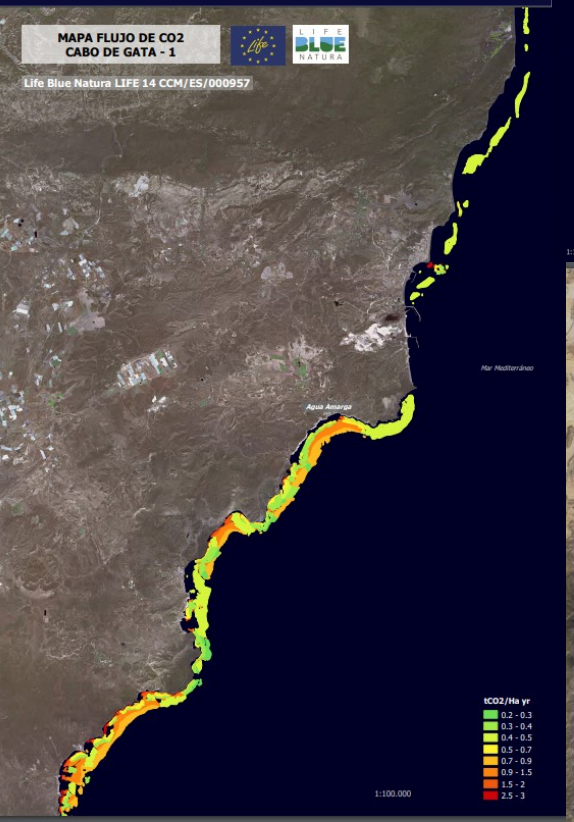
C. Nodosa estable 5-10m: **0.5**

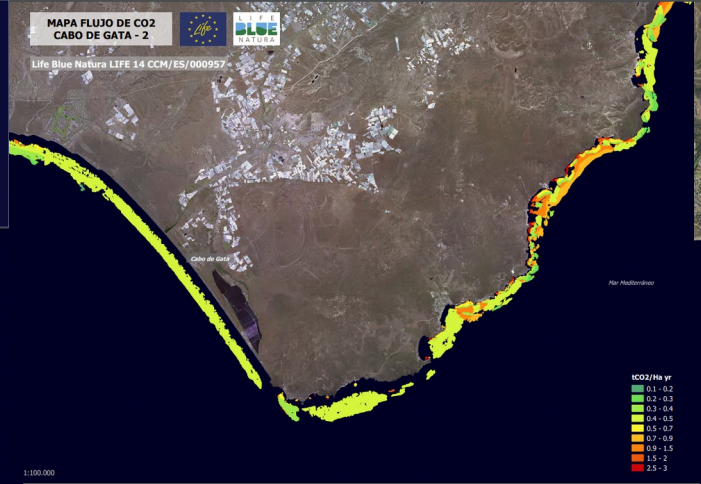
Z. marina estable <5m: **0.1**
Z. noltii <5m: **0.1**

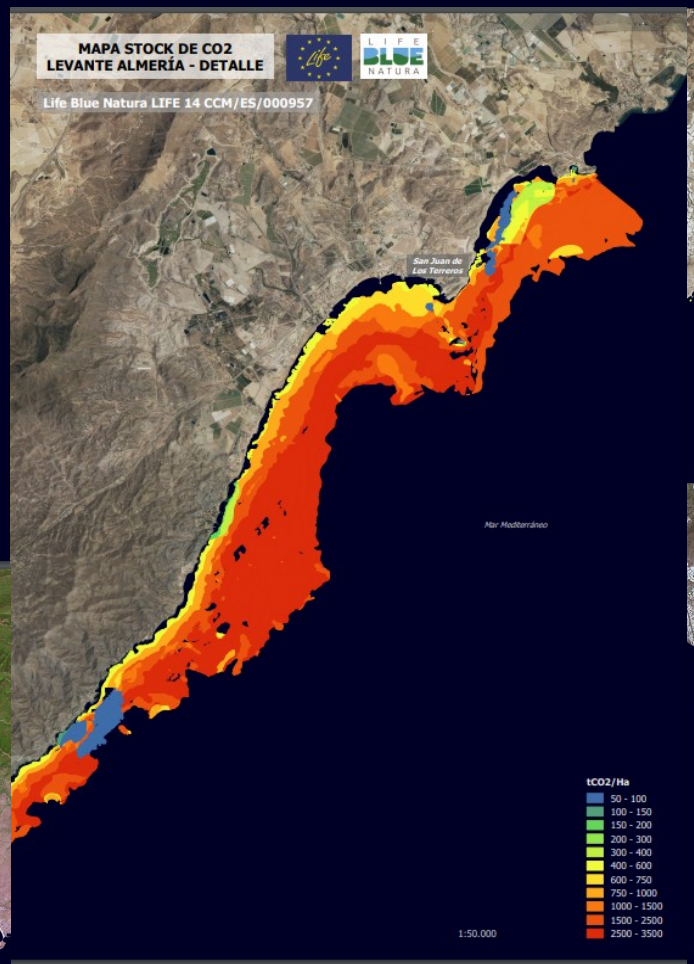
P. oceanica in regression, 5-10m: **1.3**

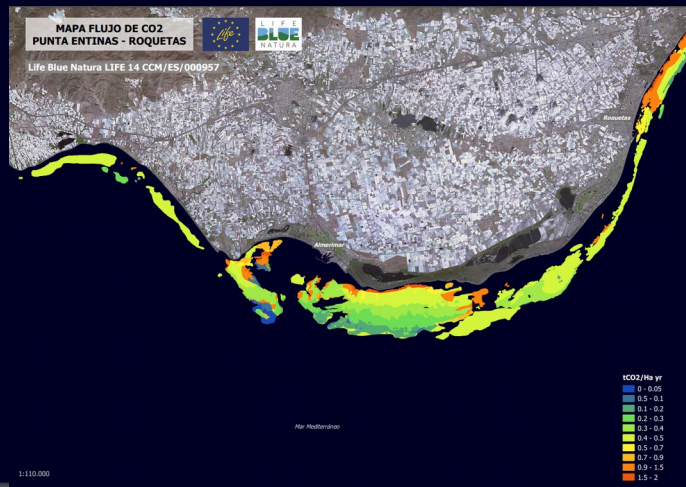
P. oceanica on rock: **0.6**

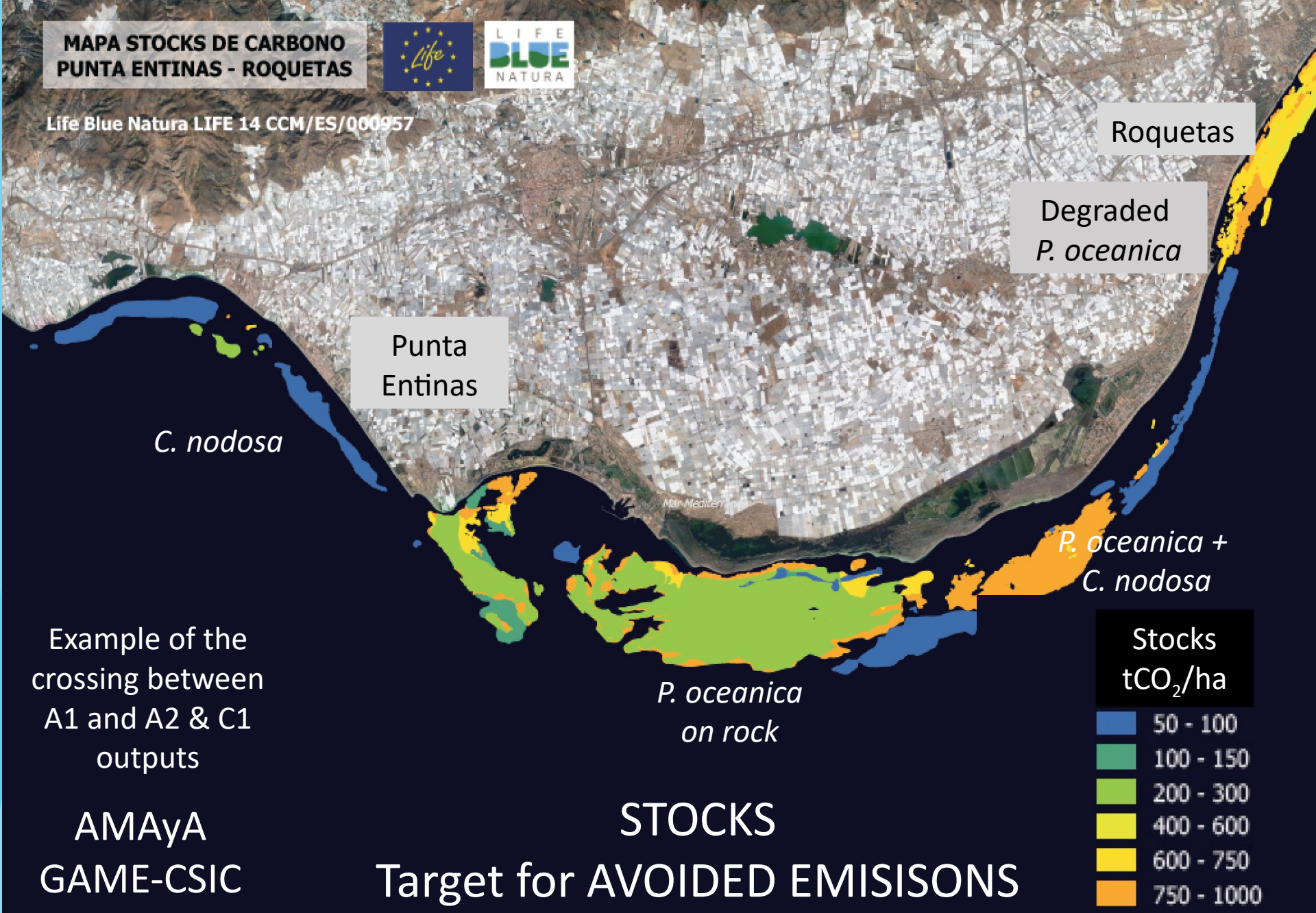
THEMATIC MAPS









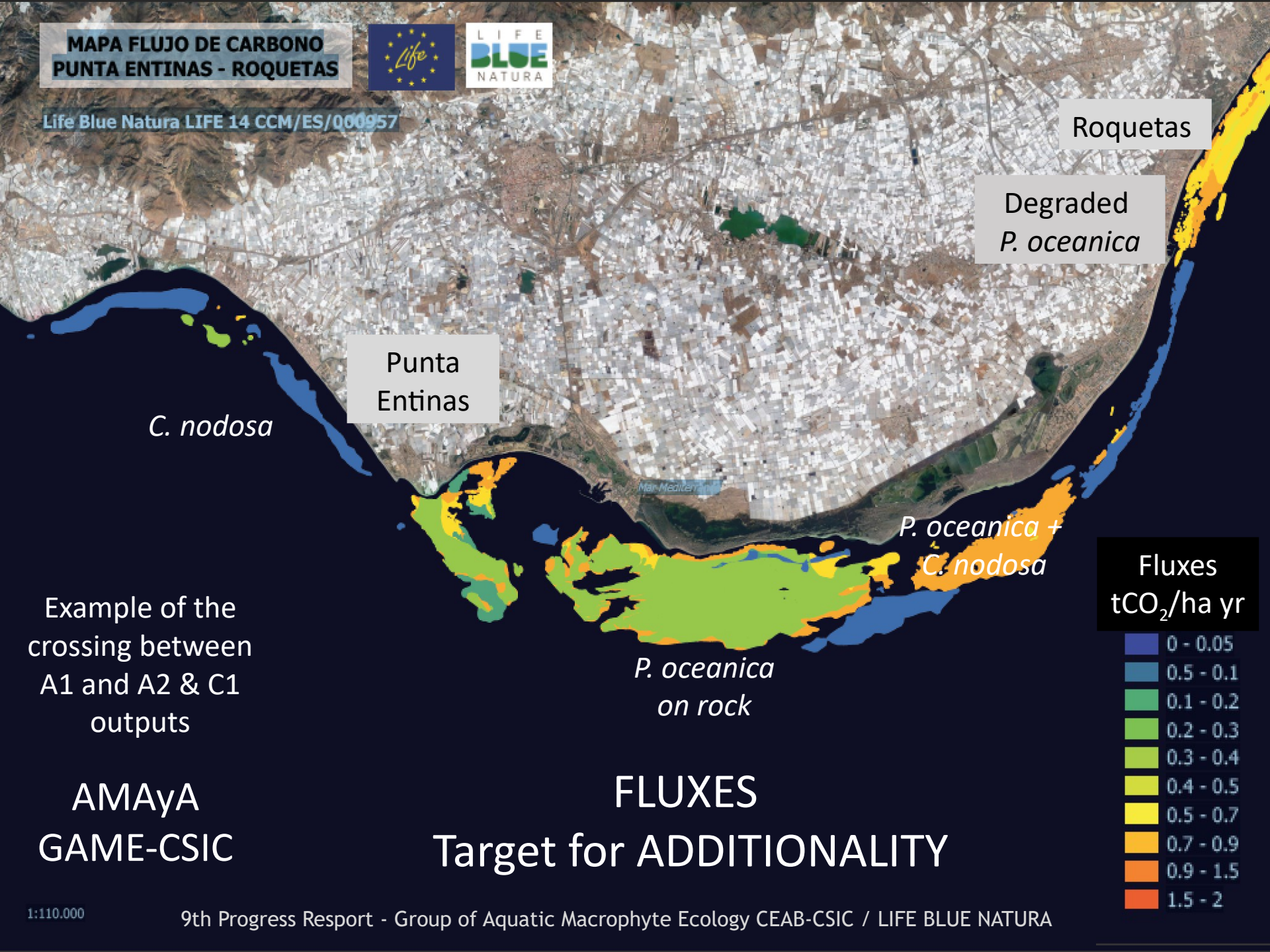


Example of the crossing between A1 and A2 & C1 outputs

AMAyA
GAME-CSIC

STOCKS
Target for AVOIDED EMISISONS

1:110.000



Example of the crossing between A1 and A2 & C1 outputs

AMAyA
GAME-CSIC

FLUXES
Target for ADDITIONALITY

Summary C1: Conclusions and Recommendations

- *Posidonia oceanica* holds 97.4 % of all the CO_2 of Andalusian segrasses and 95% of the annual flux.

- The annual input of CO_2 to the sink is 14,384 tCO_2 for all Andalusian segrasses. Little relevance.

- Offset projects should focus on the conservation of the millenary stocks of *P. oceanica:*

1. promoting measures to prevent the mechanical destruction of the habitat
2. improving the quality of the waters hosting seagrass meadows.

PHASE II: CREATE THE NECESSARY LEGAL REGULATIONS TO FINANCE CONSERVATION AND RESTORATION PROJECT OF BLUE CARBON SINK-HABITATS WITH POLICIES FOR MITIGATING TO CLIMATE CHANGE: CARBON EMISSIONS TRADING OR CARBON MARKETS

Dialogue and selection of future carbon compensation projects for the conservation and regeneration of Blue Carbon

First meeting of the Advisory Group 2018

6 February 2018, Cadiz

Also participation of Submon, Cepsa, Bosques Sostenibles, Blogeus y Factor CO_2

- Definition and prioritization of criteria of BC projects and those specific for tidal wetlands
- Conservation status of knowledge of carbon stocks and fluxes wetlands.
- Projects and prioritization

Dialogue and selection of future carbon compensation projects for the conservation and regeneration of Blue Carbon

Second meeting of Advisory Group 2018

22-23 October 2018

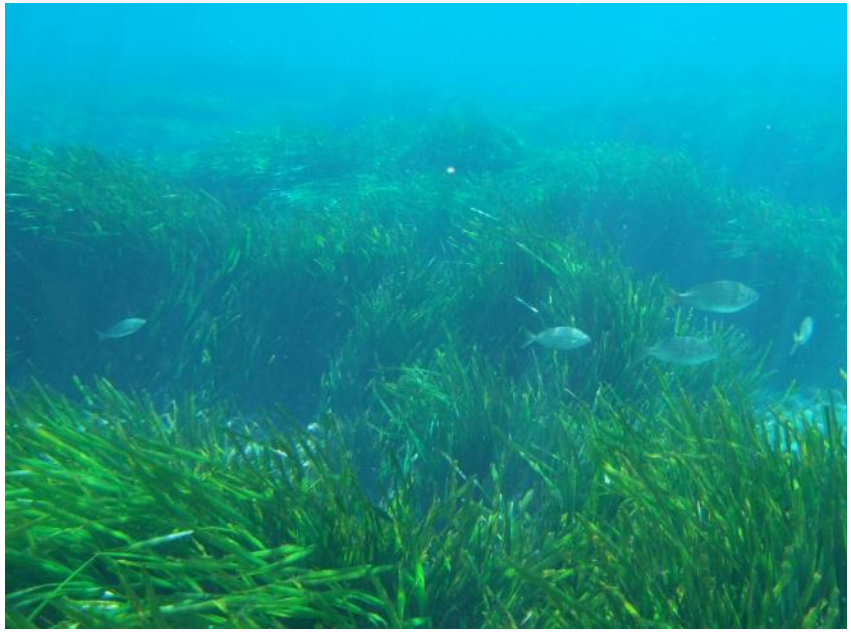
Also participation OECC, Life-RESMARIS, Ecodes, Bosques Sostenibles y Factor CO_2

- Projects on segrass restauration.
- Definition and prioritization of criteria of BC projects and those specific for seagrasses
- Conservation status of knowledge of carbon stocks and fluxes seagrasses.
- Projects structure and prioritization

LAST MEETING 4/10/2019

Valoración económica del Carbono Azul de Andalucia

Feasibility studies for the preparation carbon offsets projects in seagrasses



Identification of suitable area for carrying out the exercise: Aguarmarga and Roquetas

Enhance conservation and protection efforts (cleanning activities, buoys) and regulations

Restoration of seagrasses (avoided emissions) with different actions (replantation, reduction of OM/Nutrients; restauration of hydrological conditions)

Including study of other ecosystem services

Adicionality, volumen of acreditation, risk factors, mitigation options, costs of development, cash flow over the time.

Network to gather available knowledge

Mitigation instruments for companies

Andalusian Law of Climate Change includes two mitigation instruments to improve emissions reductions and low carbon culture in companies:

- Andalusian Registered Emissions System (SAER)
- Andalusian Offset Emissions System (SACE)

Andalusian Registered Emissions System (SAER)

- Mandatory regime for companies with electric energy consumption greater than 3 GWh (600 companies in Andalusia)
- Companies obligations under SAER:
  - Monitoring and notification of their ghg emissions annually.
  - Reduce their ghg emissions under sectoral reference levels (fixed by regulation)
- Offsetting Emissions is not mandatory

Andalusian Offset Emissions System (SACE)

- Voluntary regime for companies
- SACE Targets:
  - Get information about ghg emissions of the companies
  - Improve low carbon culture in companies
  - Get ghg emissions mitigation
  - Increase Andalusian sink capacity in public property lands by offset projects

Offset projects

- Type of Offset Projects:
  - forestry or agricultural actions
  - restoration or conservation actions in wetlands, meadows of marine phanerogams or another similar environments

- Offset projects will generate Absorption Units calculated according with a Carbon Standard and will be included in a public Catalogue.

Carbon Standar

Andalusian Environment Department already has a Carbon Standard for forestry offset projects.

Life Blue Nature will develop a Blue Carbon Standard and will develop Blue Carbon offset projects to be included in the Catalogue

Blue Carbon Standard

Blue Carbon Standar will contain:

- Standar Principles: Additionality, Transparency, Permanence,….
- Methodologies: as accurate as possible, with a tier system of uncertainty and in a continuous improvement process.
- Verification and certification procedures and requirements

Offset Projects Catalogue

The Andalusian Environment Department will include the Blue Carbon projects in the Registry of the SACE and publish them in a Catalogue of Offset Projects.

Companies interested in offsetting their emissions will be able to access the Catalogue, choose the project and buy the Absorption Units.

Seminarios para responsables políticos y del sector privado

Brussels, Nov 2018

The panel included:

- **Ricardo Serrão Santos MEP**
- **Maria Spyraki MEP**
- **Alberto Arroyo Schnell, IUCN European Regional Office**
- **Miguel Ángel Mateo Mínguez, CSIC, Spain**
- **Tobias Salathé, RAMSAR**
- **Maris Stulgis, DG MARE, European Commission**
- **Herbert Lust, Conservation International**

Views from the International Association of Oil and Gas Producers brought an industry perspective to the discussion.
DG Mare was to explore its participation in the International Partnership for Blue Carbon.
roadmap for inclusion of wetlands into the Regulation on the inclusion of greenhouse gas emissions and removals from land use, land use change and forestry (LULUCF)

Taller de formación para gestores y técnicos de proyectos de Carbono Azul

Tue, 04 Jun 2019

Del 16 al 18 de septiembre de 2019, Marismas de Odiel, Huelva

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/fr/news/mediterraneo/201807/situation-durgence-pour-la-grande-nacre-en-mediterranee	226	193
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/news/all-news	191	64
/news/mediterranean/201904/med-conservation-maps-a-digital-platform-sharing-data-biodiversity-conservation-mediterranean	187	132
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/news/mediterranean/201906/training-workshop-managers-and-technicians-development-blue-carbon-projects	290	00:01:20

International hands-on course: SIZING THE BLUE CARBON

28-30 October 2019

- **Aim**: The attention to biospheric carbon sinks has been growing during the last few decades as a means to decelerate the increase of CO_2 in the atmosphere. The potential of Blue Carbon in this endeavor is being actively explored in the last few years with important efforts both in quantifying the stocks and fluxes and in setting the mechanisms for monetization in the international carbon markets. **As a first key step**, in this workshop we will focus on the necessary technical knowledge to estimate the size and rate of growth of the carbon sink associated to seagrass meadows and saltmarshes, including:
- **(i) sampling design, (ii) field works, (iii) laboratory works, and (iv) numerical procedures.**
- **Organizes**: Group of Aquatic Macrophytes Ecology (CEAB-CSIC), a partner of Life Blue Natura (LIFE14CCM/ES/000957).

WEBPAGE : www.life-bluenatura.eu

FACEBOOK/TWITTER/YOUTUBE: Life Blue Natura

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SÚMATE A BLUE NATURA Y COMBATE EL CAMBIO CLIMÁTICO

(LIFE2014/CCM/ES000957)

El Carbono Azul en Andalucía

y su papel para la mitigación del cambio climático

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