LIFE+
posidonia andalucía

# Proyecto LIFE+ NATURALEZA

## Conservación de las Praderas de *Posidonia oceanica* en el Mediterráneo andaluz

LIFE 09/NAT/ES/00534

JUNTA DE ANDALUCIA
CONSEJERÍA DE MEDIO AMBIENTE Y ORDENACIÓN DEL TERRITORIO

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**Beneficiarios**

JUNTA DE ANDALUCIA
Agencia de Gestión Agraria y Pesquera
CONSEJERÍA DE AGRICULTURA, PESCA Y DESARROLLO RURAL
Agencia de Medio Ambiente y Agua
CONSEJERÍA DE MEDIO AMBIENTE Y ORDENACIÓN DEL TERRITORIO

UICN

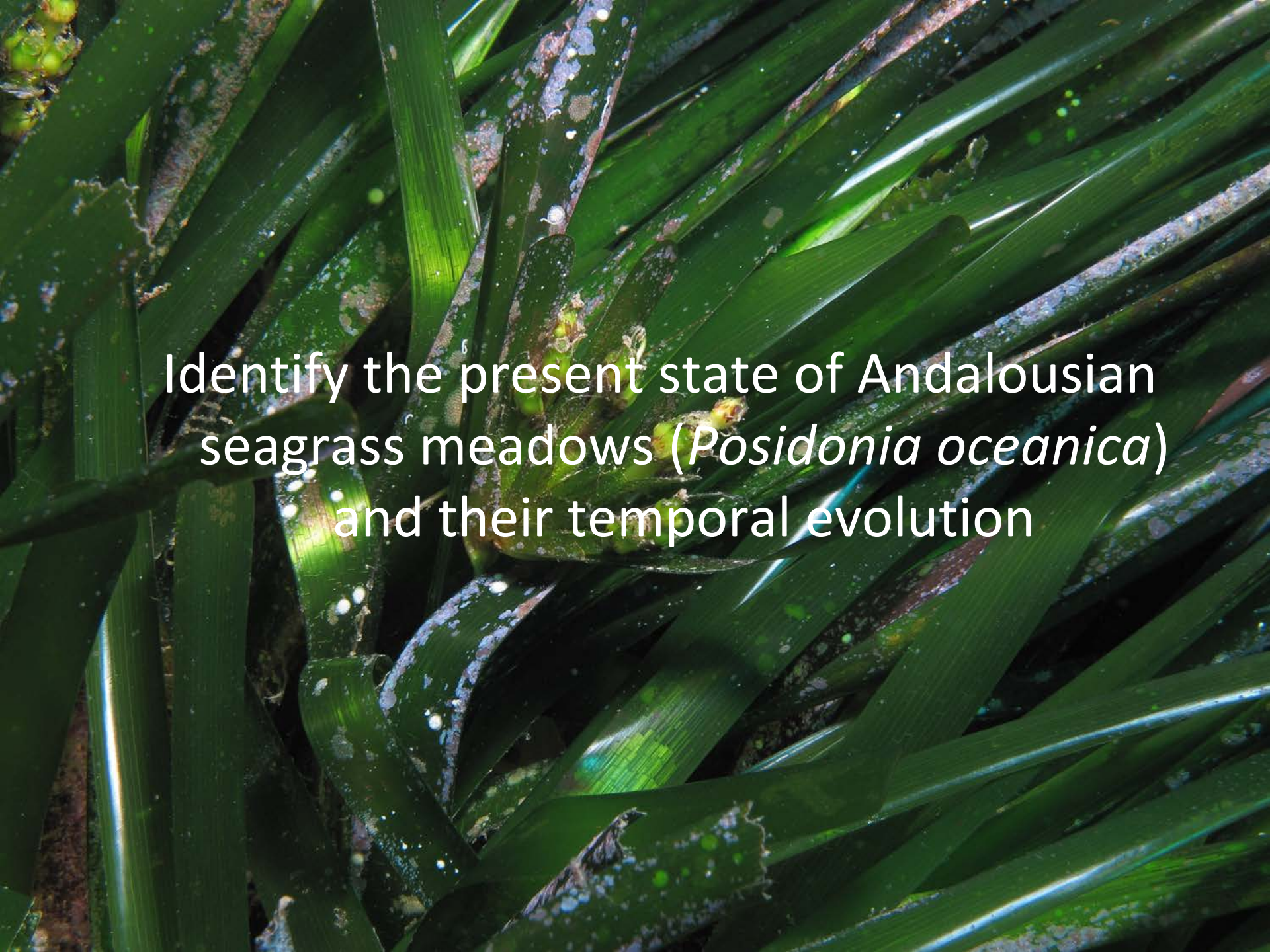
Circe

Federación Andaluza de Cofradías de Pescadores

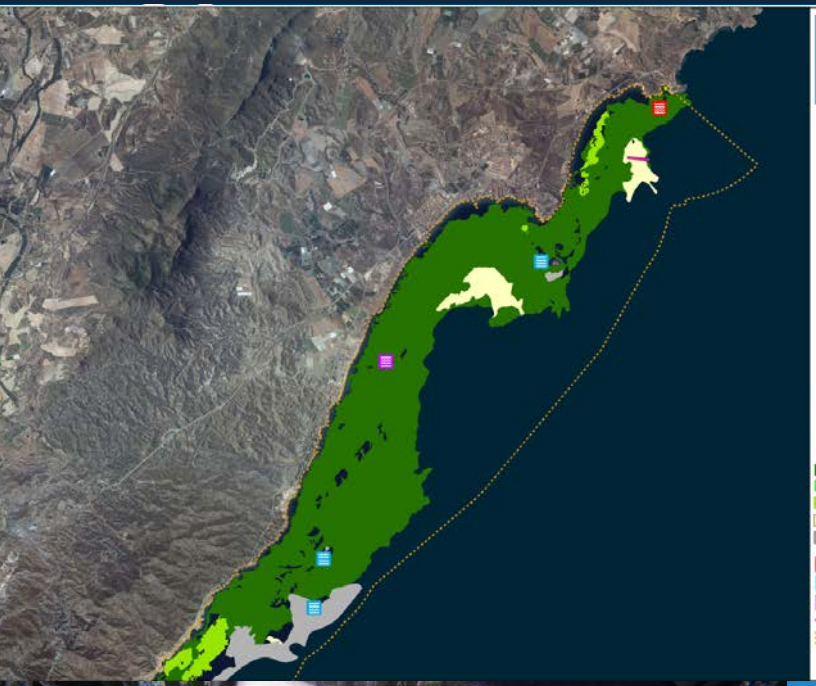
FAAPE
FEDERACION ANDALUZA DE ASOCIACIONES PESQUERAS

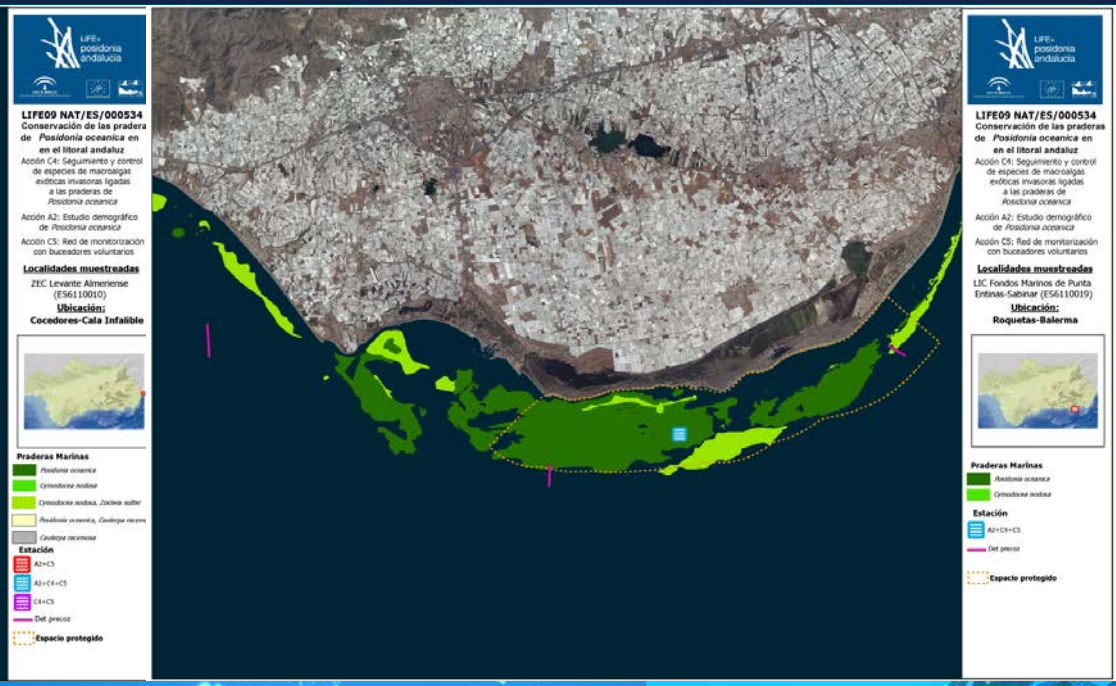
**Cofinanciador**

CEPSA


Identify the present state of Andalousian seagrass meadows (*Posidonia oceanica*) and their temporal evolution

# Cartography of *Posidonia oceanica*; create a monitoring network: demography and other parameters (POSIMED: Citizen science)






# TO REDUCE THE MAIN TRHEATS ON SEAGRASES IN ANDALUSIA

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# IAS: INITIAL OBJETIVES

1. **Update he map of the presence of invasive macroalgae** in the 9 SCIs (Mapping in detail the surface of *Caulerpa racemosa* in Isla de Terreros); **Early detection of marine IAS** network- **Control-erradication** actions. **Introduction routes** analyses.
2. **Monitoring the behaviour of *Caulerpa racemosa* in three control stations**.
3. **Prevention**. Most vulnerable SCI to macroalgae invasions were identified in the 9 SCIs included in the project.
4. **Definition of areas of exclusion NO**

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**1. Update cartography of invasive macroalgae** in the 9 SCI;

**Early detection** network-**Control-erradication** actions.

**Introduction routes** analyses.


**2008 : 4 has. Life project Proposal**

**2009: + 100 has.**

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**1. Update cartography of invasive macroalgae** in the 9 SCI;

**Early detection** network-**Control-erradication** actions.

**Introduction routes** analyses.


**Early detection** network-**Control-erradication** actions

**Cabo de Gata SCI- Special protected area**

**2012: focus of invasion of Caulerpa was detected- 4 $m^2$**

**2014: another focus in the same MPA- 2 $m^2$**

**These focus were eradicated by mechanical methods**

**<u>In both cases the specie reinvaded the treated areas</u>**

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**1. Update cartography of invasive macroalgae** in the 9 SCI;

**Early detection** network-**Control-erradication** actions.

**Introduction routes** analyses.

**Methods:**

**1. Underwater vacuum cleaner**

**2. Shading with black plastic**

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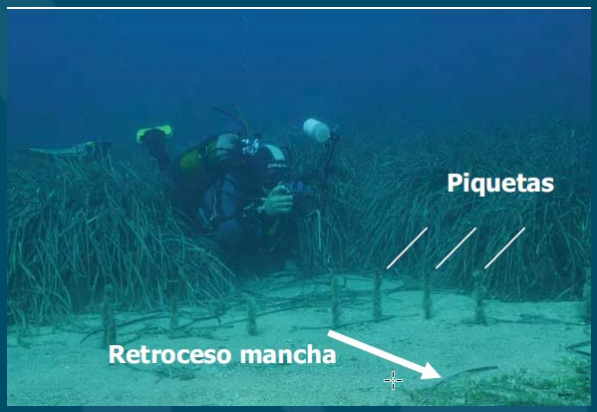
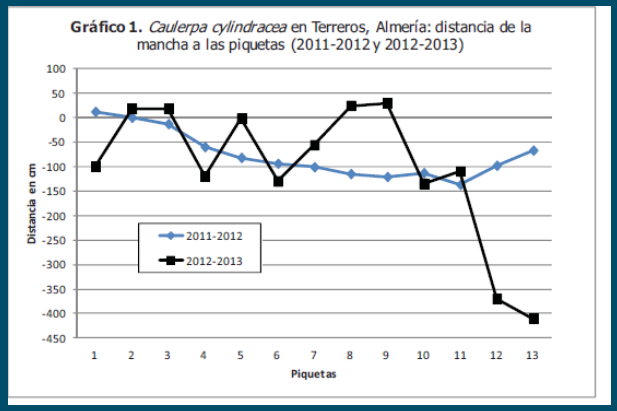
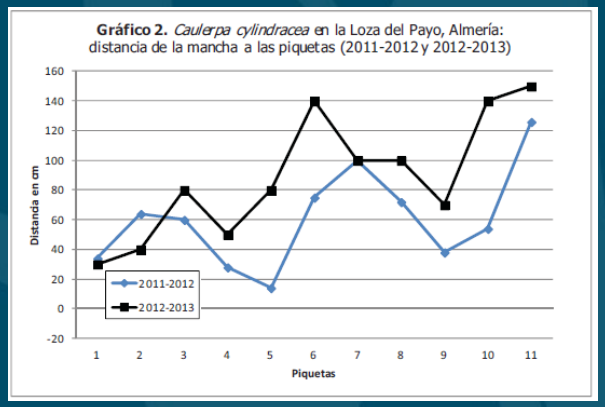
## 2. Monitoring the behaviour of *Caulerpa racemosa* in three control stations

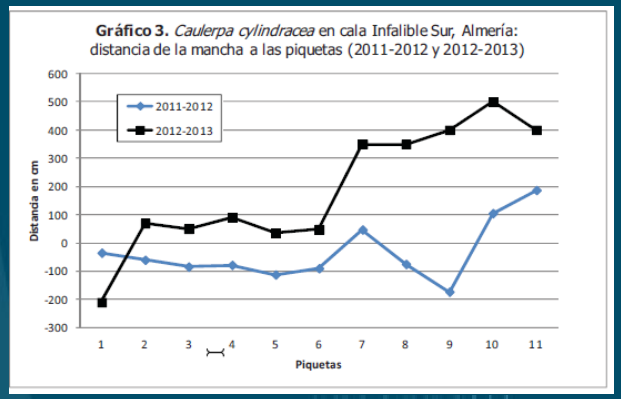



**Extreme variability between years!**

**There is not a clear behaviour of expansion in the limits of the patches**




But there is a clear expansion in the total area and in the bathymetric range

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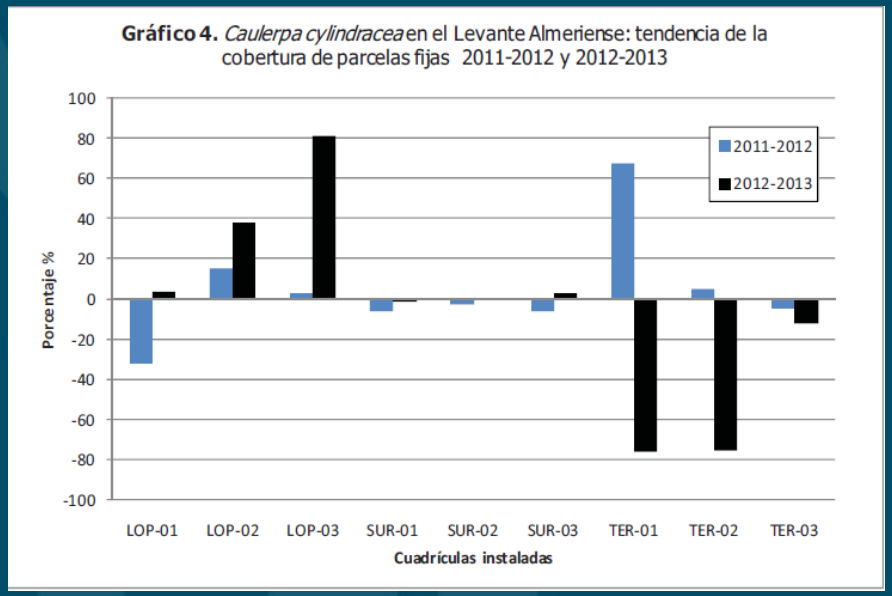
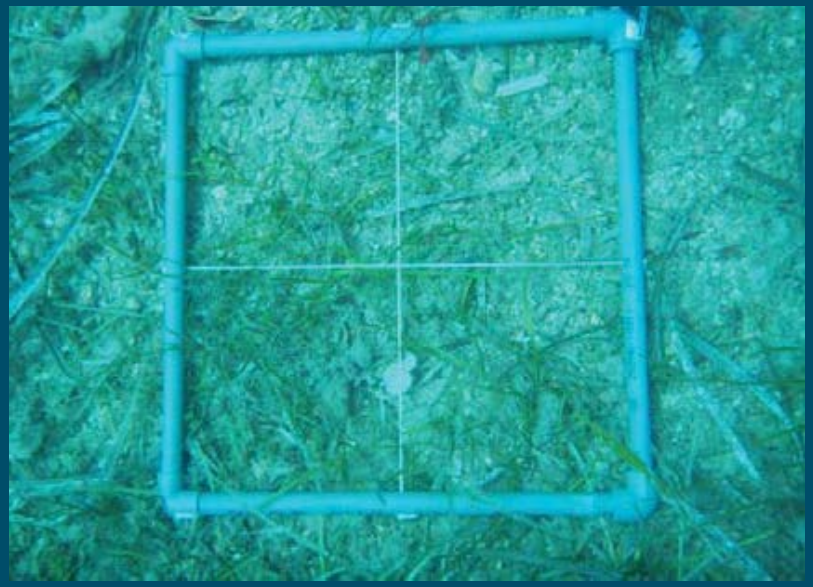
# 2. Monitoring the behaviour of *Caulerpa racemosa* in three control stations



**Extreme variability between stations!**

**Coverage evolution: There is not significant differences between years**

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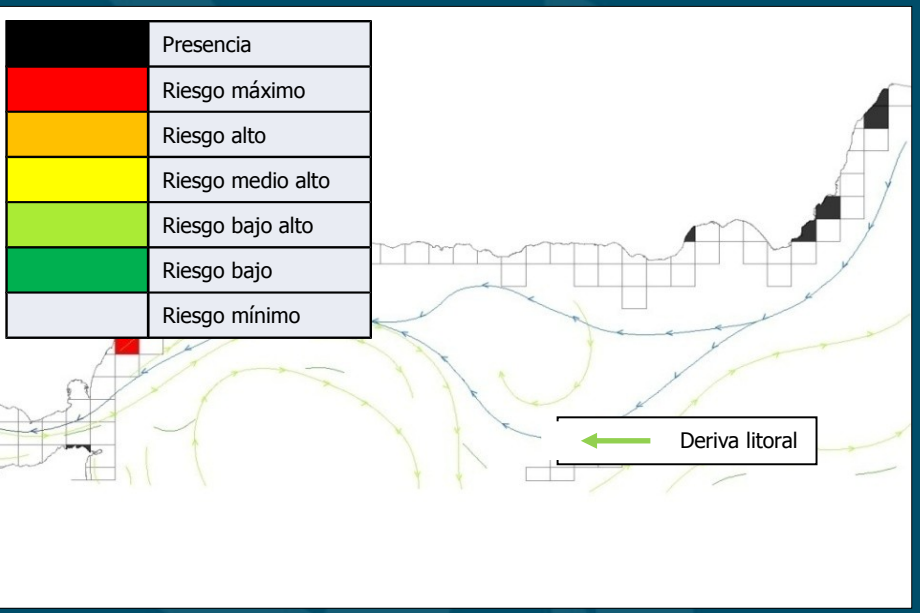
3. **Prevention**. Most vulnerable SCI to macroalgae invasions were identified in the 9 SCIs included in the project.

## Risk maps




- Distance to invaded focus
- Presence of commercial harbours
- Presence of nautic harbours and number of berths
- Types of fisheries in the fishing harbours
- Direct connection by *ferry* with a harbour infected
- Indirect connection by ferry with a harbour infected
- Ocean currents influence

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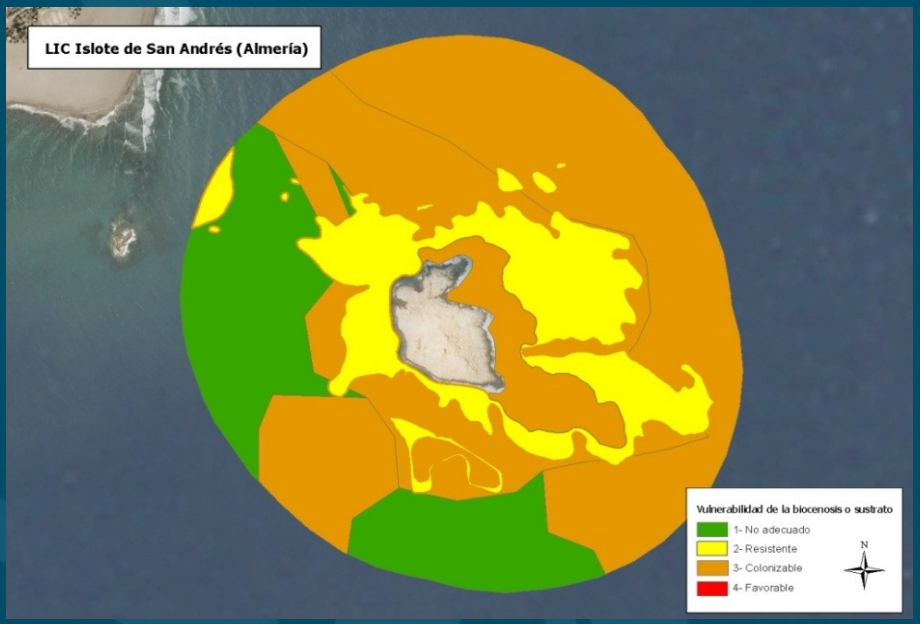
3. **Prevention**. Most vulnerable SCI to macroalgae invasions were identified in the 9 SCIs included in the project.




**Habitat study**. Substrate typologies: favourables habitats to *Caulerpa cylindracea*, considering the ecological requirements of this exotic specie

**Posidonia oceanica habitat Conectivity:** A fragmented habitat with larger areas of edge has more areas of opportunities to the invasive species settlement .

**Habitats with highest species richness** has higher abilities to compete with IAS for space and resources

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# Conclusions:

***Caulerpa cylindracea*:** shows no clear behaviour at the local scale: coverage and density were found to increase in some localities but to decrease in others, showing no apparent specific pattern.

In contrast, the propagation of this species and other macroalgae is indeed clear at the regional scale, as both the number of invaded localities and the area occupied by Caulerpa racemosa have increased in eastern Almeria. And during the course of the project the invasion progressed towards the south-west.

**The routes of introduction** of these species may be several (water currents, boats, remnants at depths lower than the limit of distribution of Posidonia…). The two attempts of early eradication carried out during the course of the project technically achieved the eradication of the foci of invasion in the short-term, but proved ineffective in the medium-term, since the cleared surfaces were re-colonized again within less than a year.

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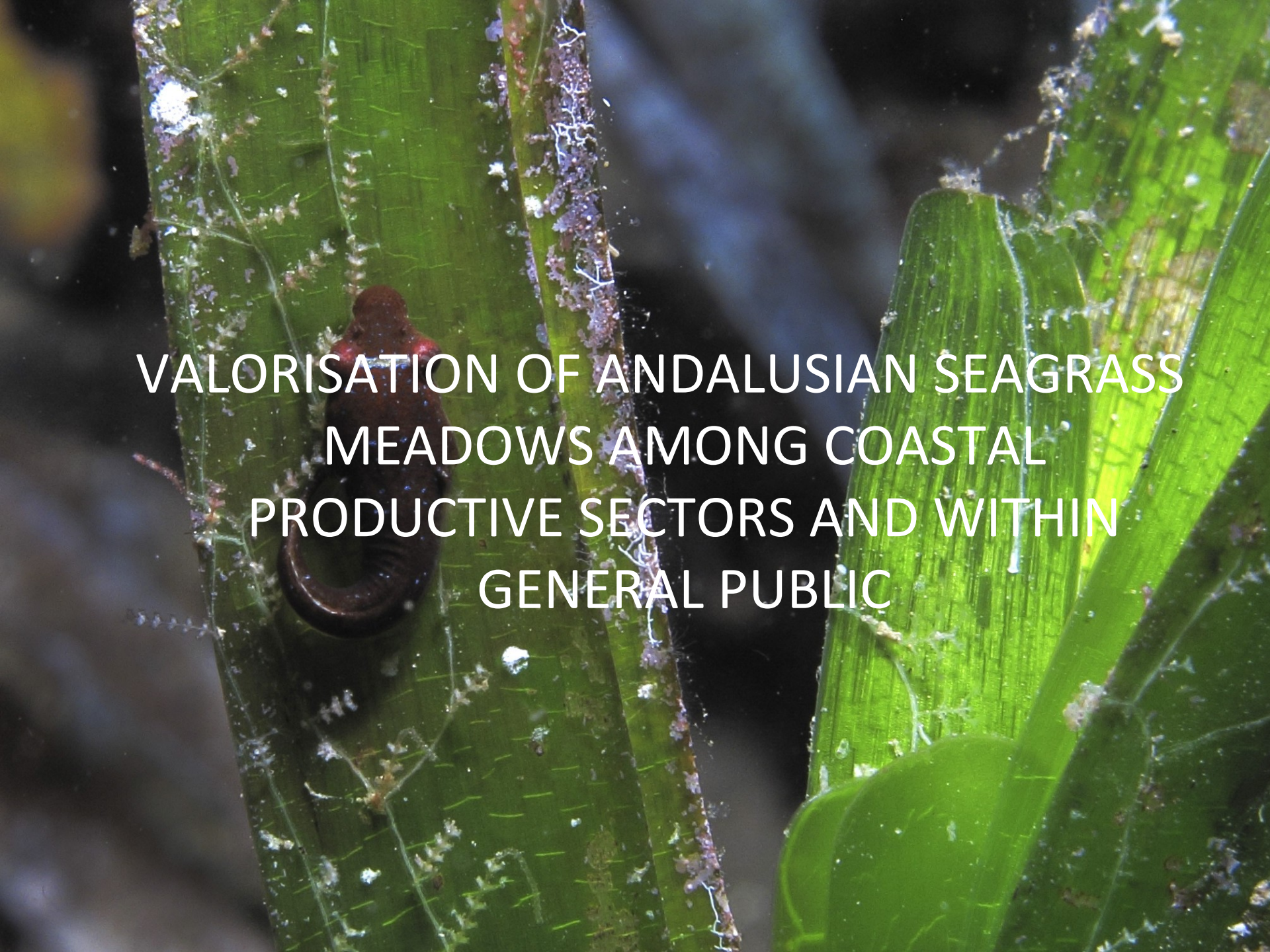
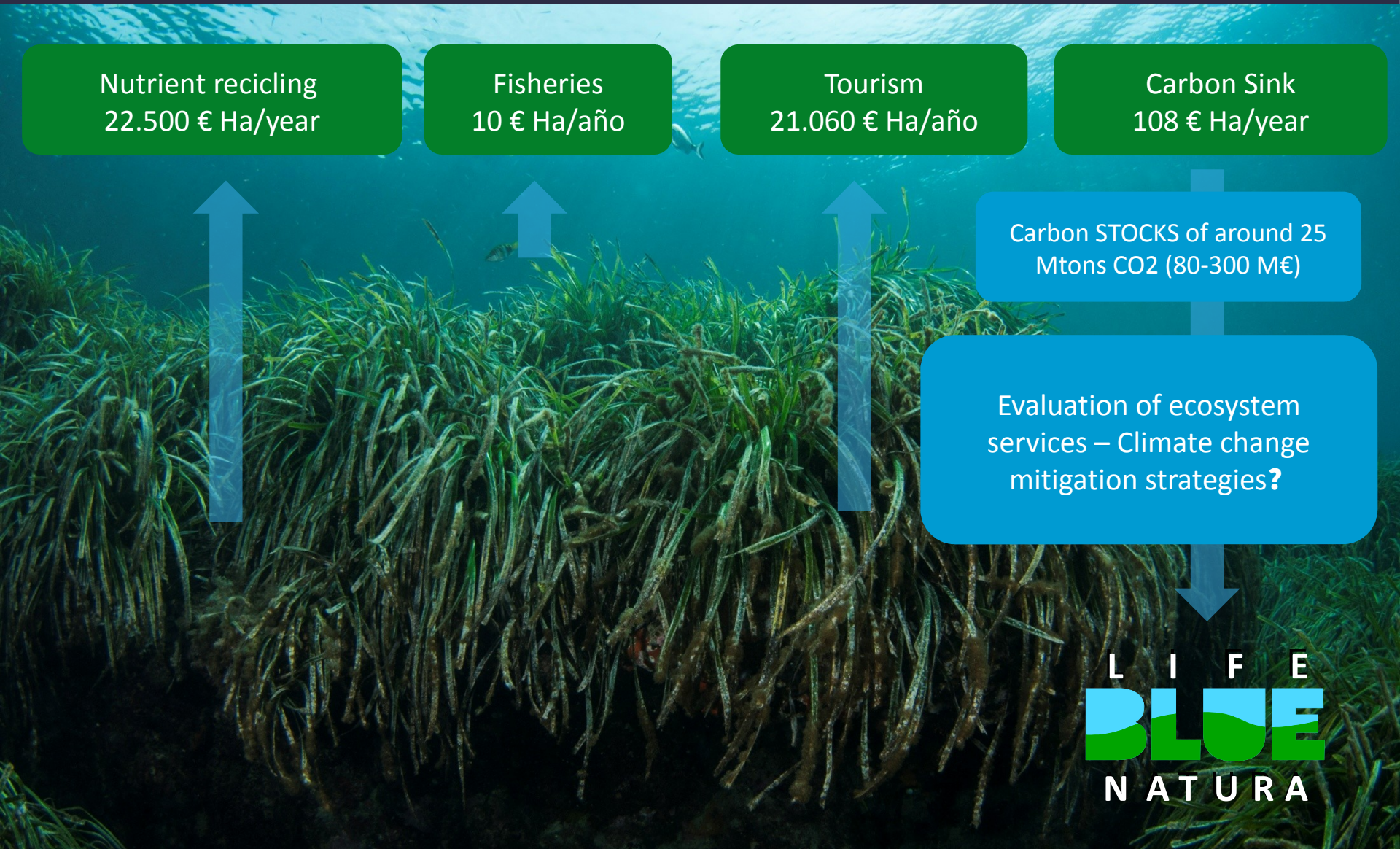


# VALORISATION OF ANDALUSIAN SEAGRASS MEADOWS AMONG COASTAL PRODUCTIVE SECTORS AND WITHIN GENERAL PUBLIC

# C1: Study of the socio-economic cost of an eventual loss of Posidonia meadows from the andalusian coasts



LIFE BLUE NATURA

# Life Blue Natura

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Socios beneficiarios:

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CONSEJERÍA DE MEDIO AMBIENTE
Y ORDENACIÓN DEL TERRITORIO
Agencia de Medio Ambiente y Agua

CSIC
Consejo Superior de Investigaciones Científicas

UICN

HyT

Cofinanciador:

CEPSA

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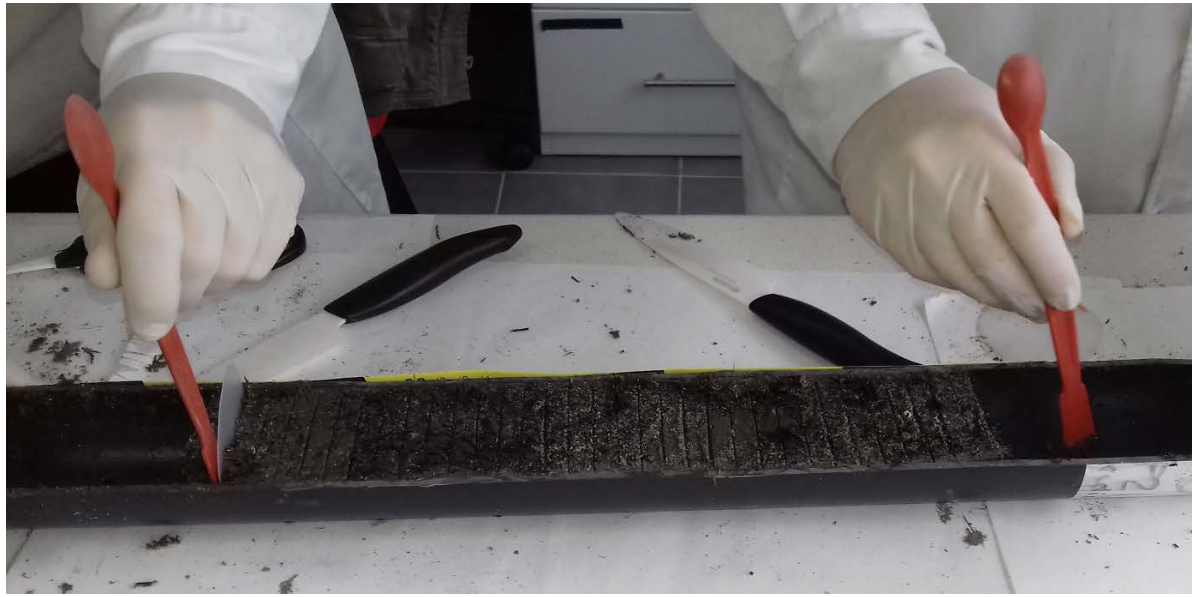
# JOIN BLUE NATURA AND COMBAT CLIMATE CHANGE

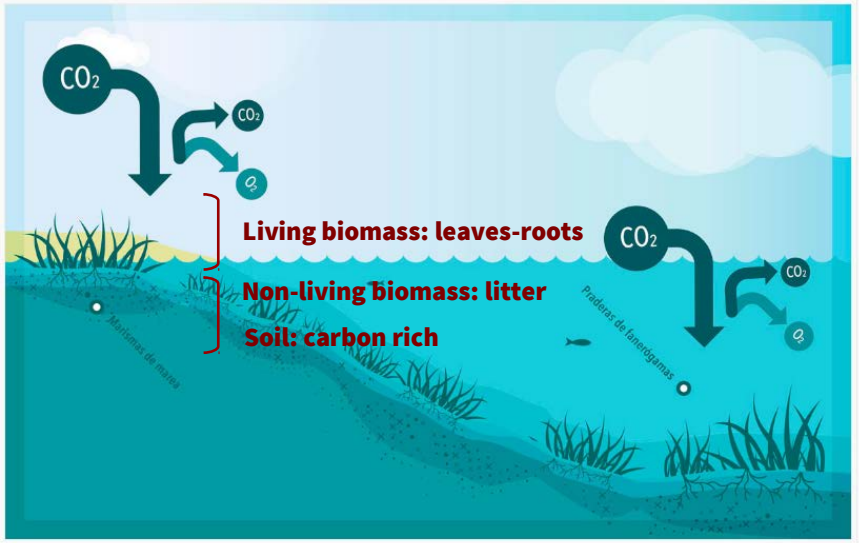
**In a blue carbon ecosystem, the soil is saturated with water keeping it in anaerobic state avoiding carbon oxidation and release back into the atmosphere**
**The carbon rich soil continually increase vertically at high rates resulting in continuous build up of carbon over time**



**Some *Posidonia oceanica* meadows have carbon rich soils more than 10 meters thick and more than 6.000 years**

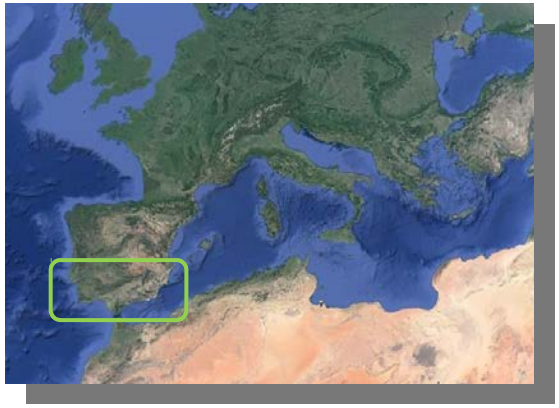
# THE ECOSYSTEM SERVICE: CARBON SINK AND CLIMATE CHANGE

Although the biomass of these organisms is much lower than those responsible for green carbon, it is estimated that they absorb almost the same amount of carbon annually as terrestrial photosynthetic organisms, thus **representing an extremely efficient and effective carbon sinks**.




The **protection of these ecosystems** responsible for the formation of blue carbon sink, could have a **significant impact on climate change by mitigating the effects of the increasing CO2 emissions**, both on a local and global scale.

# THE PROJECT: LIFE Blue Natura



**Andalucía (Southern Spain) has a significant extension of coastal marshes and seagrass meadows along the Atlantic and Mediterranean coasts.**

**The project will contribute:**

**1. to a better understanding of these carbon sink habitats in Andalusia, as well as to its characterization, state of conservation and evolution in the coming decades.**

**2. to finance conservation projects and the restoration of habitats of blue carbon sinks in ANDALUSIA assisting implementation of policies for mitigation and adaptation to climate change, and carbon offsetting markets**

LIFE BLUE NATURA

# JOIN BLUE NATURA AND COMBAT CLIMATE CHANGE

(LIFE2014/CCM/ES000957)

## Blue Carbon in Andalusia and its role in the mitigation of climate change

www.life-bluenatura.eu

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