WetLands 4CLIMATE

Mediterranean wetlands management and restoration as carbon sinks

www.wetlands4climate.eu · info@wetlands4climate.eu

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CON LA CONTRIBUCIÓN DEL INSTRUMENTO FINANCIERO LIFE DE LA UNIÓN EUROPEA

LIFE Wetlands4Climate

Coordinating Beneficiary:

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València Clima i Energia

Financers:

- LIFE Program EU;
- Ministerio Transición Ecológica & Reto Demográfico throug Fundación Biodiversidad;
- Agencia Estatal de Investigación del Gobierno de España;
- Conselleria de Agricultura Desarrollo Rural, Emergencia Climática y Transición Ecológica de la Generalitat Valenciana;
- Regidoría de Conservación de Áreas Naturales Devesa-Albufera Ayuntamiento de València;
- Ayuntamiento de Torreblanca
- Naturgy

Total Budget:

2,165,389 Euro (55% financed by EU)

Period of implementation

October 2020 to June 2024

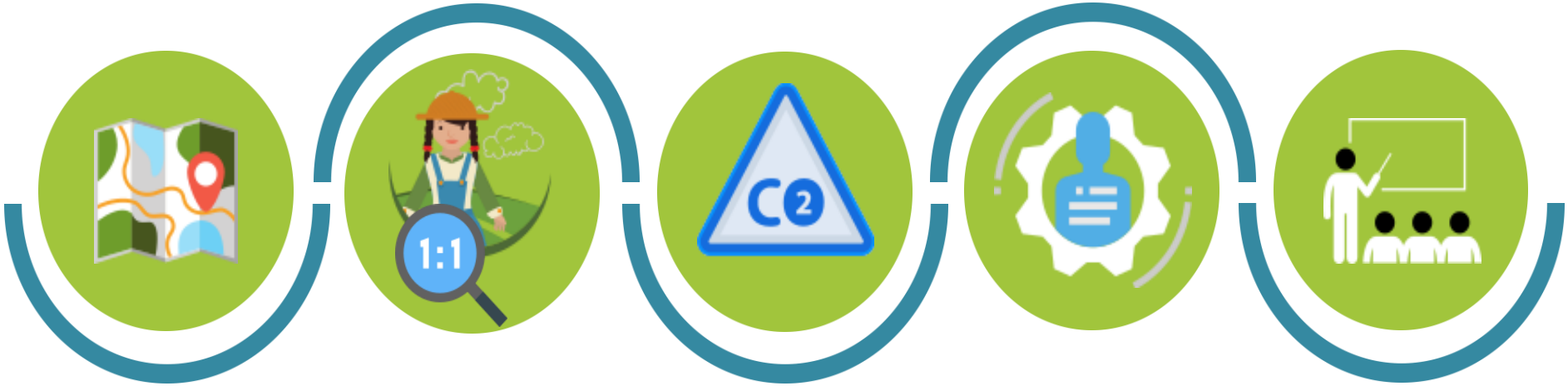
OBJECTIVES & SCOPE

- To establish **management guidelines for Mediterranean wetland** so that they function as **carbon sinks while maintaining their ecological integrity,** and providing ecosystem services of a healthy ecosystem, through the design of an experimental protocol in pilot wetlands (management actions: for vegetation, soil and water).

- To **transfer results** to other wetlands through, political advocacy, communication, awareness and training campaigns.

- To **involve the private sector** in financing mitigation to climate change through the development of a specific methodology for Voluntary Carbon Market.

Process step by step:



1) Selection of wetlands for testing restoration and their mitigation potential

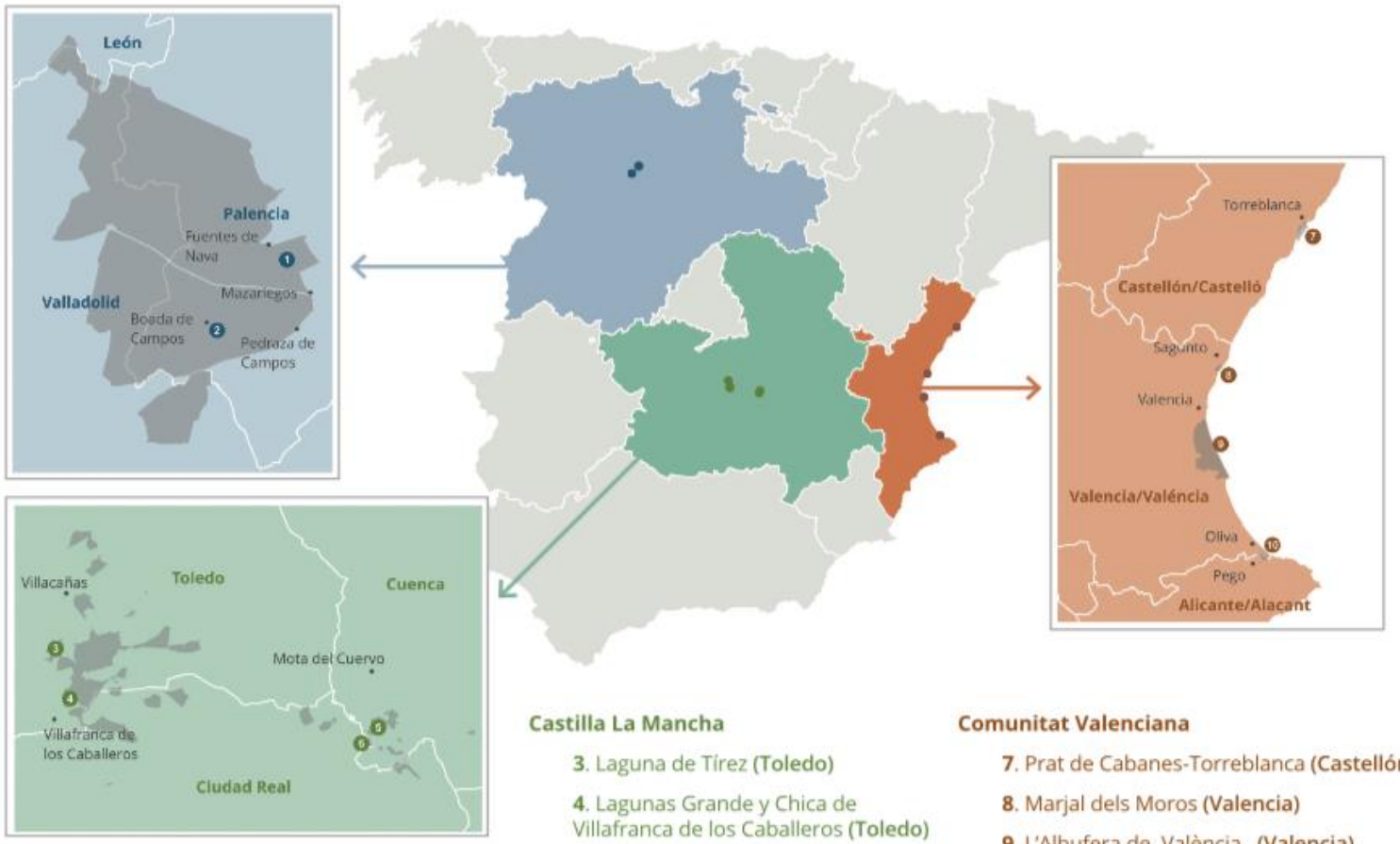
2) Field actions developments and measurements

3) Protocol for the verification and certification of credits

4) Transfer (policies, networks; training

5) Education, communication and awareness

1) Selection of wetlands for testing restoration and their mitigation potential



NATURA 2000 NETWORK AREA

Castilla y León

1. Laguna de La Nava (**Palencia**)
2. Laguna de Boada (**Palencia**)

Castilla La Mancha

3. Laguna de Tírez (**Toledo**)
4. Lagunas Grande y Chica de Villafranca de los Caballeros (**Toledo**)
5. Laguna de Manjavacas (**Cuenca**)
6. Laguna de Alcahozo (**Ciudad Real**)

Comunitat Valenciana

7. Prat de Cabanes-Torreblanca (**Castellón**)
8. Marjal dels Moros (**Valencia**)
9. L'Albufera de València (**Valencia**)
10. Marjal de Pego-Oliva (**Alicante y Valencia**)

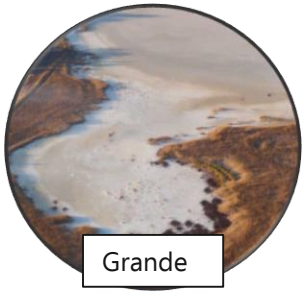
1) Selection of wetlands for testing restoration and their mitigation potential

Freshwater wetlands of Castilla y León


La Nava

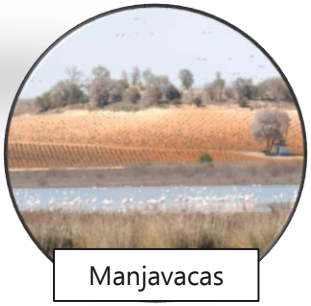

Boada

Saline Wetlands of Castilla-La Mancha


Grande


Tirez


Alcahozo de Pedro Muñoz


Manjavacas

Coastal Wetlands of C. Valenciana


Marjal de Pego-Oliva


Mallada Mata del Fang

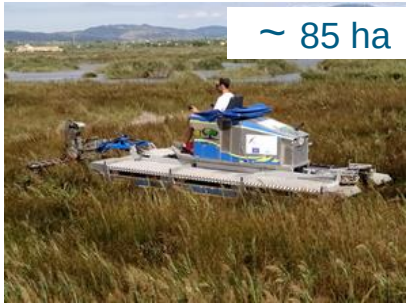

Marjal del Moro

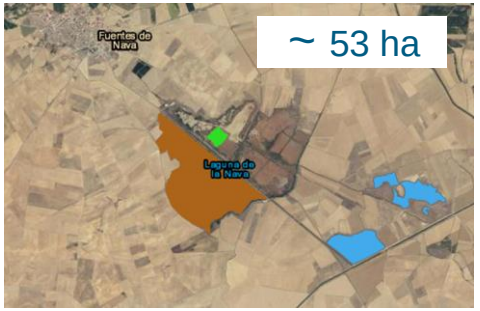

Prat de Cabanes-Torreblanca

2) Field actions development and measurement: linking measures to management methods; drawing up guidelines, inspiring management procedures and policies, and training managers (implementation and replication)

FGN

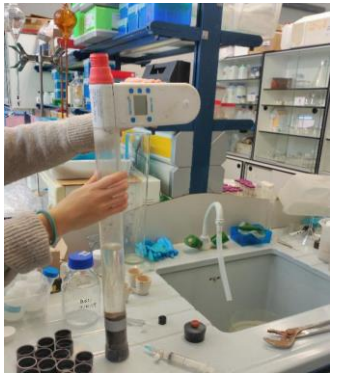
- Management actions: vegetation, soil and water management





UVEG

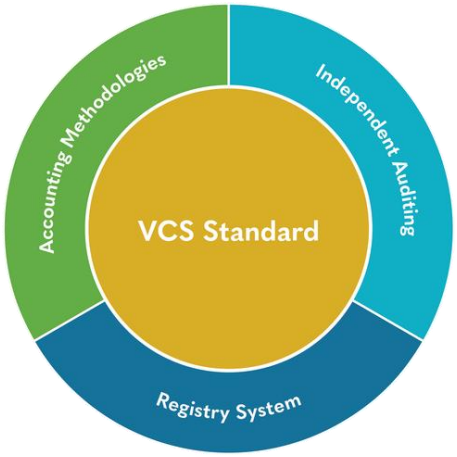
- Characterization and Carbon cycle measurement

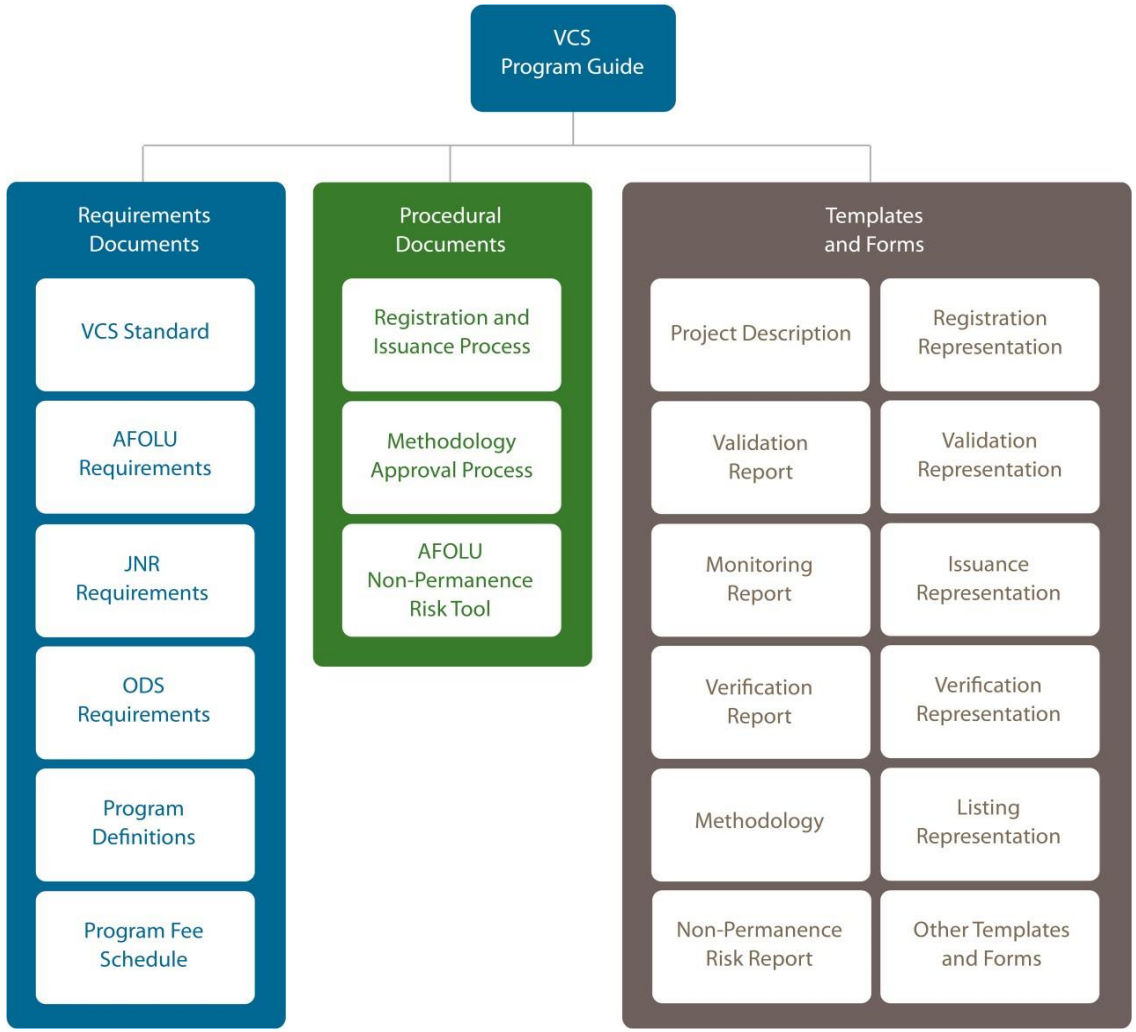


3) Protocol for carbon credits verification and certification

National voluntary carbon Market MITECO/OECC, CO2 Absorption projects

CALCULO COMPENSO REDUZCO





4) Transfer, replication (training)

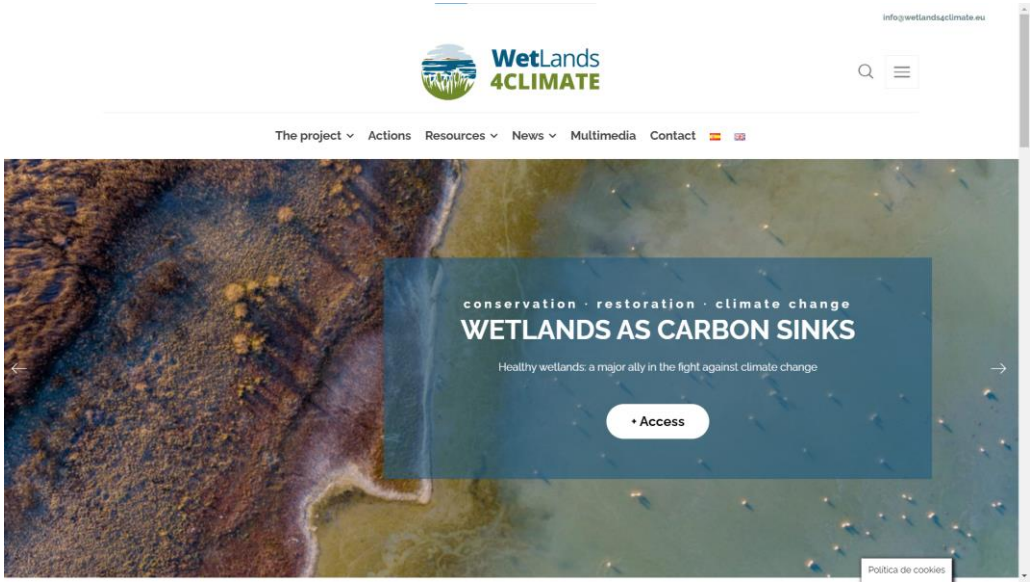
Transfer National, Regional and European level: MITECO, OECC, IPCC (LULUCF)
Networks (Wetlands International, RAMSAR, MedWet ...)

Training of Wetlands managers

5) Education, communications and awareness

www.wetlands4climate.eu

Suscribe to our Newsletter!



Social Networks; Exhibition (12 panels),videos (14) environmental education workshops (500) and participation in conferences (50) with more than 15.000 attendees + scholars+ visits to exhibition

Why are wetlands so important as carbon sinks?

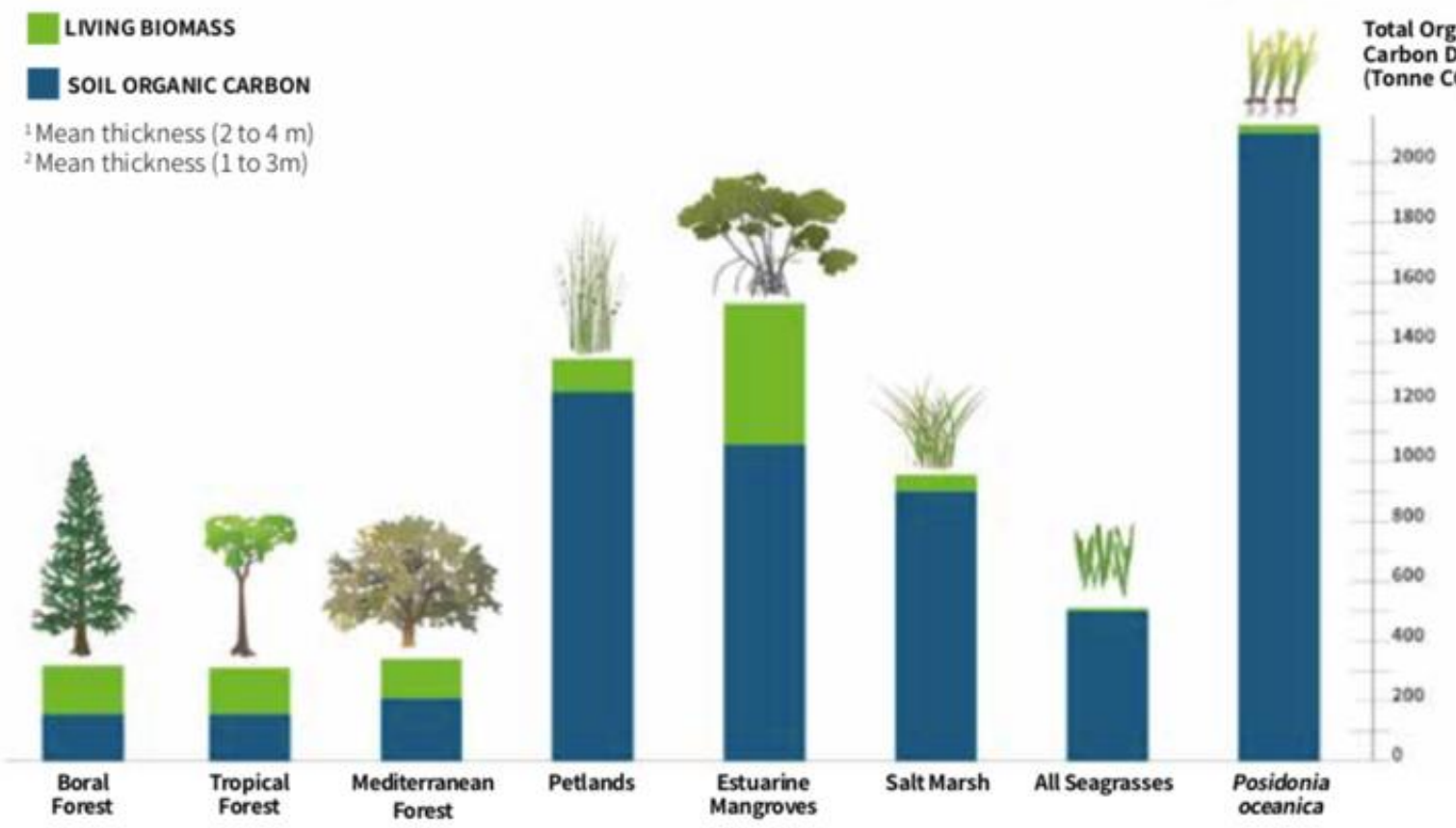


Figure 5: Comparison of soil C_{org} storage in the top metre of the soil with total ecosystem C_{org} storage for major ecosystem types. Here, the seagrass *Posidonia oceanica* is a unique seagrass in terms of the quantity of organic carbon that can be stored in its sediments and matte. Soil Data: Top meter sediment [12, 111, 112, 113].

The importance of wetlands for long-term carbon sequestration is particularly significant when compared to terrestrial ecosystems.

Carbon stored in the soils can remain there for centuries

Source: UICN (2021). Manual para la creación de proyectos de carbono azul en Europa y en el Mediterráneo. Otero, M. (Ed)., http://life-bluenatura.eu/

Considering Mediterranean Wetlands in carbon sequestration?

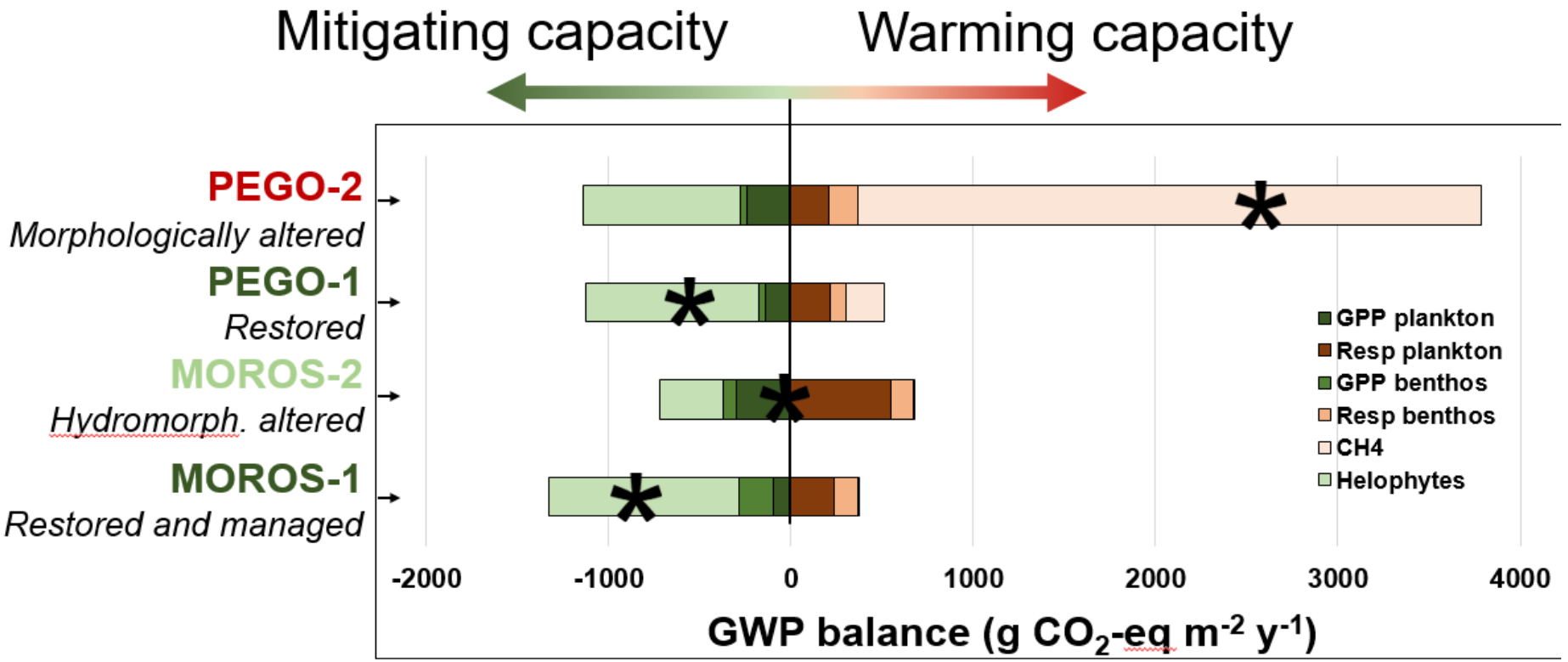
Well preserved wetlands are important habitats in terms of carbon sequestration and storage.

Wetlands (mainly peatlands) have the highest carbon stocks of any terrestrial habitat making them a key ecosystem for carbon storage. They contain 30% of total organic soil carbon despite covering only around 5-8% of the world's area[1].

Comparison of the **carbon sequestration rates per hectare** of different wetlands:

- Permanent Freshwater and brackish marshes, typical wetland type of the Mediterranean Spanish coast, show a high capacity for C capture, especially in the restored sites **(maximum 950 g C m−2 yr−1) (9,5 t ha−1yr−1)** with a paramount role of helophytes (2)
- Some global estimates indicate that salt marshes rank among the most effective ecosystems in carbon sequestration with an average of 242.2 g C m−2 yr−1 (3)
- While long-term carbon sequestrations rates in peatlands are on average 26.6 g C m−2 yr−1 (4)

INFLUENCE OF CONSERVATION STATUS ON CARBON BALANCES AND MITIGATION



Morant, …& Camacho. *Inland Waters* (2020). https://doi.org/10.1080/20442041.2020.1772033

Lessons learnt and transferabiity

- **Restoring the biodiversity value** of the wetland should be the primary objective
- It is important to assess the **factors affecting the success of restoration for carbon benefits**, including site conditions, the time needed to achieve restoration, the costs and benefits of restoration actions, the permanence of carbon gains, and how to monitor carbon flows
- The **feasibility of restoration** considering the current state of the ecosystem, its context, and potential to recover.

Lessons learnt and transferabiity

- **Site condition or conservation status**: the degradation or restoration level influence the C balance and GHG exchanges and, consequently, determine the mitigating/warming role of Mediterranean wetlands on a short to medium time scale. Hydro-morphological alterations and water pollution may convert healthy ecosystems contributing to C sequestration and climate change mitigation into C emitting ecosystems.
- **Wetland management measures** could significantly influence the carbon balance, being able to strengthen the carbon retention capacity, but also reverse this function and increase carbon emissions into the atmosphere.
- There is a general **lack of information** on carbon stocks and flows in managed systems and the effects of management measures on carbon fluxes are not well documented. This lack of information is covered by LIFE Weltands4Climate, results will be available at the end of 2023.

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Cofinanciadores:

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Conselleria d'Agricultura, Desenvolupament Rural, Emergència Climàtica i Transició Ecològica

AJUNTAMENT DE VALÈNCIA
CONSERVACIÓ D'ÀREES NATURALS I DEVESA-ALBUFERA

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Naturgy