



# Marine carbon sinks in Andalucía: a crucial ally to achieve regional mitigation goals



**Government:** Andalucía

**Region:** Europe

**Sector(s):** Resilience

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**60%**

of Andalucía's 11,803 hectares of seagrass is the 'Posidonia oceanica' species.

## Summary

The study and conservation of ecosystems and the services they provide has become a priority for policies at a national and European level. Yet when it comes to marine ecosystems, progress has been slow and difficult due to the complexity involved in obtaining basic environmental information, such as mapping, knowledge concerning the key factors involved in their dynamics as well as the intensity of their response to different pressures and threats.

Coastal habitats, such as marshes and seagrass meadows, are emerging as significant CO<sub>2</sub> sinks, both due to their capacity to sequester the gas into organic matter as well as the fact that it can remain in this form for thousands of years. In Andalucía, there are four species of seagrass that cover approximately 11,803 ha and the main seagrass species present is *Posidonia oceanica*, which covers 60% of the area.

Even though these ecosystems provide such valuable services, they are being lost at a rate four times greater than that of land forests. To tackle this issue, in 2015 Andalucía introduced the [LIFE Blue Natura](#) project to quantify the carbon deposits and sequestration rates of seagrass ecosystems in the region. Running until June 2021, the project seeks to showcase the importance of accurately defining and quantifying the role of these ecosystems as blue carbon sinks and assess which climate mitigation and environmental services they provide.

## 31.1 megatons

of organic carbon is accumulated in the soil sediments of Andalucía's seagrass meadows.

## Results

- For the first time, Andalucía has been able to successfully quantify the levels of CO<sub>2</sub> that can be removed from the atmosphere by seagrass meadows. Through the removal of carbon from the atmosphere, there is currently a total stock of 13.1 megatons of organic carbon accumulated in the soil sediments of the region's seagrass meadows and the annual "sink" capacity has been quantified as 14.384 tCO<sub>2</sub>.
- When assessing and quantifying the carbon sink capacity of coastal marshlands (Marismas de Odiel and Bahía de Cádiz) it was found that the average accumulated organic carbon in non-degraded coastal marshland soil sediments is 359 tCO<sub>2</sub>/ha. When assessing both study areas, the values regarding CO<sub>2</sub> sequestration reach 2.8MtCO<sub>2</sub>/year for Marismas de Odiel and 8ktCO<sub>2</sub>/year for Bahía de Cádiz.
- To deliver a thorough assessment of the mitigation services provided by seagrass ecosystems, the project has carried out a variety of events in order to reach out to different stakeholder groups. This includes organising scientific outreach days, training for developing blue carbon projects, meetings with legislators and businesses to deliver results achieved as well as meetings with the European Parliament Blue Carbon Working Group to share the project's progress and achievements.
- All the technical information, reports as well as dissemination products are available on the project's website [www.life-blunatura.eu](http://www.life-blunatura.eu).

## Enabling conditions

“ The Andalusian regional Law 8/2018 concerning **measures against climate change and for the transition towards a new energy model** outlines projects dedicated to emissions reduction and established the creation of the Andalucía Emissions Compensation System (AECS), which acknowledges commitment to the monitoring, tracking and reduction of greenhouse gas emissions.

The **Andalucía Emissions Compensation System** acknowledges commitment to the monitoring, tracking and reduction of GHG emissions.

AECS allows organisations to calculate their carbon footprint, prepare their emissions reduction plans and develop carbon fixation projects to offset any emissions that cannot be reduced through their plans. When deciding compensation reduction targets, these must be defined in measurable units: Carbon Adsorption Units (CAU). The CAU generated by these projects will determine if they reach the target conditions defined by different programmes. Compensation projects aim to increase Andalucía's carbon sink capacity. Organisations that wish to offset their emissions can do so through conservation and restoration projects for the *Posidonia oceanica* meadows in the Cabo de Gata Natural Park or in the degraded marsh areas of the Bahía de Cádiz Natural Park.

The project was coordinated by the Andalusian Regional Ministry for Agriculture, Fishery and Sustainable Development and co-funded by [CEPSA Foundation](#) and the [EU LIFE Programme](#). Project partners include the Andalusian Environment and Water Agency, the Spanish National Research Council, the International Union for Conservation of Nature and the [Asociación Hombre y Territorio](#).

## Challenges

- Seagrass (*Posidonia oceanica*) ecosystems have a very low growth rate which is equivalent to the rate at which they capture CO<sub>2</sub> from the atmosphere. When considering the high cost of conservation and restoration of the ecosystem, it makes it difficult for blue carbon sink projects to be financially profitable. Efforts must therefore be focused on conserving the carbon sinks that exist underneath these ecosystems.

- Due to the increasing pressures that affect marine and coastal ecosystems, when seeking to improve and/or restore their climate change mitigation effect efforts must be focused on making the public aware of the ecosystemic services they provide and encouraging them to take part in their protection.

## Key lessons learned

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- A high level of coordination is necessary to guarantee the success of any climate change project that involves marine/coastal ecosystems.
- To ensure the long-term success of this project and its effective replicability across other territories, awareness must be raised among stakeholders and they must also be involved and trained in the project topic and goals.
- National government involvement, through the Spanish Climate Change Office, was beneficial as it meant that the tools developed by the project could be assessed to determine whether they met the current national standards and obligations.
- On the regional level, the Andalusian government engaged decision makers and managers from the different departments involved with marine and coastal ecosystems affairs, as well as the public and the private sectors. This level of involvement and degree of knowledge acquired by each sector strongly supported the success of the project.
- One project partner, the IUCN, was responsible of reaching out on a EU scale, through the EU Parliament Working Group on Climate Change, Biodiversity and Sustainable Development with the organisation of an event to debate the role of Marine and Coastal Ecosystems in Climate Change mitigation and adaptation.

## Next steps

- The project concludes in the first half of 2021 and the main next step is to develop a work plan in order to continue engaging all sectors and stakeholders (private sector, administrations, etc.) in the medium term. The AECS will provide information and assessment techniques to stakeholders on the means available to calculate their CO<sub>2</sub> emissions and reductions in order to meet the requirements of current regulations and update them on new procedures and tools available.
- Two ecosystem restoration and conservation projects in coastal marshland and seagrass areas will be tested by the AECS in order to determine the blue carbon sink capacity they offer. The purpose is to define an Andalusian Certification Standard for seagrass and coastal marshland conservation and restoration projects which will determine and help certify the Carbon Adsorption Units they generate. A manual and guide is being drafted which will also include financial criteria in linking CAUs according to the current European Emissions Trading Scheme. This is expected to be released by the end of 2020.

## More information

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