(Projects funded under the Call 2014 onwards must use this format)

LIFE Project Number

LIFE14 CCM/ES/000957

Final Report

Covering the project activities from 01/08/2015 to 20/12/2021

Reporting Date[1]

20/03/2022

LIFE PROJECT NAME or Acronym

LIFE Blue Natura

Data Project

Project location:	Andalucia, Spain
Project start date:	01/08/2015
Project end date:	20/12/2021
Total budget:	€ 2.513.792
EU contribution:	€ 1.508.275
(%) of eligible costs:	60 %

Data Beneficiary

Name Beneficiary:	Consejería de Medio Ambiente y Ordenación del Territorio. Junta de Andalucía
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Project Website:	www.life-bluenatura.eu

[1] Include the reporting date as foreseen in part C2 of Annex II of the Grant Agreement

1. Table of contents

2. List of key-words and abbreviations

AG: Advisory Group
AMAYA: Agencia de Medio Ambiente y Agua. Andalusian Environment and Water Agency
ASLO: Association for the Sciences of Limnology and Oceanography
BC: Blue Carbon
BCI: International Blue Carbon Scientific Working Group
CEAB-CSIC: Centro Superior de Investigaciones Científicas. Spanish National Research Council
CC: Climate Change
CAGPDS: Regional Ministry of Agriculture, Livestock, Fisheries and Sustainable development.
CONAMA: The National Environmental Congress
D: Deliverable (official)
EU: European Union
EASME/CINEA: Agency
GHG: Greenhouse gases
HYT: Asociación Hombre y Territorio. Man and Territory Association
IMA: Andalusian Environmental Report
IUCN: International Union for Conservation of Nature -MED
MOU: Memorandum of understanding
MPA: Marine protected area
OM: Organic matter
POSIMED: Posidonia monitoring network
REDIAM. Environmental data-network-regional government
SACE: Andalusia Emissions Offset System (AECS)
SIPNA: Natural Heritage information System of Andalusia
UDA: Absorption Units
UNFCC: United Nations Framework Convention on Climate Change

3. Executive Summary

In July 2015, the European Commission approved the Project Life Blue Natura.

The project has the following primary objectives:

1. Quantify the carbon deposits and the sequestration rates of seagrass meadows and marsh habitats in Andalusia, placing an emphasis on what is accumulated under floor (actions A1, A2, A3, C1 and C2).

2. Analyse the development of the above over the coming decades; from the carbon loss rate to the potential carbon fixation and accumulation rates, and the emission/sequestration ratio of carbon from the damaged zones into the atmosphere. The aim is to use this information to define and make an approximate evaluation of the environmental services created by these habitats to mitigate climate change (actions C1 and C2).

3. Explore and encourage already existing initiatives to finance conservation and restoration projects of blue carbon sink-habitats with policies for mitigating and adapting to climate change, with special attention to carbon emissions trading or carbon markets (actions C3 and C5).

4. Create the necessary legal regulations, with maximum guarantees of being replicated at an international level, which will in practice allow these conservation projects to be included in the aforementioned markets. One of the specific objectives in the proposal is the development of key regulations such as standards for verifying carbon credits, drafting carbon offset projects, or creating project catalogues (C4, C6 and C7).

5. The innovative nature of the project means it is necessary to set ambitious objectives in relation to capacity building, awareness raising and dissemination online. Besides communication activities, awareness and capacity building included in the proposal, special efforts will be made to involve key stakeholders who can guarantee the development of blue carbon conservation projects in the future (public and private sector) (actions E).

The project management bodies are the Follow-up Commission, the Communication Team and the Management team, formed by the director, the coordinator and one financial technician. The project started in October with the first Steering Committee meeting (October 2015), and after this, the project has held eleven Steering Committee meetings (April 2016, November 2016, June 2017, November 2017, June 2018, February 2019, July 2019, April 2020, November 2020, July 2021 and September 2021) and several meetings of the project Management team as well as bilateral and multilateral meetings of this team with the project partners. Networking has been a key objective from the start of the project, given its innovative nature. Specifically, the Project Coordinator and the beneficiary partners have networked with more than 20 projects: Life projects and others marine biodiversity and Climate change related European projects.

In regard to Preparatory actions, the sampling missions and the habitat mapping and characterisation have been completed (Actions A, A2 and A3). In 2016, the two Volunteer Campaigns (2015 and 2016) have finished (Action A1). At the end of these campaigns, there was the Marine Citizen Science Experience, where 195 volunteer divers participated in this sampling and learning activity while 1,200 people who applied to participate are included in the database of participants and will receive the official newsletter for the

project. The assessment of these activities was very satisfactory, according to the results of the 195 surveys conducted. Also, 12 dive centres have collaborated with the dives.

Regarding the Conservation Actions, CSIC has completed Actions C1 and C2. Because CSIC completed Actions A2 and A3 with remaining, CSIC proposes to extend Action A3 until October 2018 and Actions C1 and C2 until December 2019 to cover additional objectives or to deliver more detailed results. Thanks to this extension of Actions A3, C1 and C2, CSIC also performed several activities to help with the publication and dissemination of the Life Blue Natura approach, methods, and results.

The platform meeting discussion worked very well (c6) in line with the progress of the field work. During the first meeting, discussions were held regarding progress and obstacles to existing carbon projects and the potential for integrating blue carbon into inventories, as well as what needs to be done to move forward. During the second meeting, in November 2018, the group worked on several phases of the selection of criteria that will be used for the Blue carbon projects in coastal marshes. In the last meeting of the Platform (C6) in October 2020, the *Posidonia* viability assessment results were presented (different market options scenarios and certification times, types of interventions, and costs/revenues).

C3 viability assessments for projects were completed. The results were seen positive in terms of viability for the development of blue carbon offset projects in coastal wetlands according to the work and typologies carried out. Nonetheless for Posidonia meadows, results showed the difficulties of its viability with the current application, as the carbon credits resulting from interventions (avoding/sequestration) will not balance the income received from carbon markets, even considering prizes relatively higher than usual. These results will be review in actions C4 and C7.

The Manual for the creation of Blue Carbon Projects in Europe and the Mediterranean (C5) presents the methodological steps to identify, assess, and set-up a blue carbon project on the ground –including how to structure projects to be funded through carbon finance market. It provides guidance how to optimize effort allocation in obtaining data from the field and obtain robust estimates within the boundaries of blue carbon offset projects as well as essential elements for restoration implementation.

The development of key regulations, the “Andalusian carbon credit certification standard-Action C4” was finished in June 2021 and the Catalogue of projects for the conservation of *Posidonia* and tidal marshes -Action C7” were published in November 2021. In 2021 several meetings between the Project partners, the climate change office and the external assistance team (Ecoterrae) took place to discuss the contents of both documents. One of the most debated issues was the design of the *absortions calculator*, which is crucial tool to ensure feasibility of the blue carbon projects. This tool finally provides a better calculation of absortions associated with the execution/implementation of the projects, which takes into account, for instance, carbon typologies such as *dissolved organic carbon* (DOC). The projects that are included in the Catalogue and were presented to the decision board of the Junta de Andalucía regional government (December 2021) are: 1. *Bay of Cadiz Saltmarshes project*. Tipology: saltmarshes restoration. Area: 365 has. Absoprtions: 106.367 t CO2. Budget: 345. 044 euros. tCO2 cost: 3,24 euros/t CO2; 2. *Posidonia oceanica* in the Natural Park of Cabo de Gata_Níjar. Tipology: seagrasses meadow conservation actions. Area: 11 has. Absorptions: 684,49 t CO2. Budget: 273.060 €. tCO2 cost: 399 euros/t CO2.

The Communication Actions had worked very well, although the final website was not launched until the end of 2016. There has been a temporary website since the beginning of the project including the main information on the project, which helped to promote the project, its actions and partners and to generate a growing social network to be informed about the project's actions.

The Audiovisuals (E1) procedures have been completed in April 2018, and the first audiovisuals was finished in June 2018. HyT in order to avoid any potential effects on the project due to this significant delay, has posted 25 videos of its own: 22 to its Youtube channel with its own resources, with more than 17.100 displays; and 3 videos to be used specifically in the itinerant campaign. The second and the third audiovisuals were finished in 2021.

The educational material (Kioto EDUCA), one of the deliverables included in the project proposal, was presented to the Communication team in April 2017 and has been sent to the administrative procedures needed to be included in the Junta de Andalusia Official Programme.

The first Scientific/Technical meeting (E2) meeting was held on the 21st and 22nd of November, 2016, in La Térmica, Malaga, Spain. The First Scientific Conference also offered time to improve networking with other Life Projects such as Life Admiclim from Delta del Ebro, Life SHARA (Sharing Awareness and Governance of Adaptation to Climate Change in Spain) and the RESMARIS Life project from Cape Carbonara, Sardinia. The second scientific-technical seminars on coastal carbon sinks "The value of Blue Carbon Ecosystems for Climate Change Adaptation and Mitigation" was held on the 9-10th December 2020 online. The contributions were focus on: Knowledge about the value of coastal wetlands and seagrasses for adaptation and mitigation climate change; experiences and initiatives of restoration and conservations initiatives on coastal wetland and seagrass across EU and the Mediterranean, particularly those with adaptation and mitigation value.

The first and second workshops for managers and technicians (Action E3) ware held on the 16th, 17th and 18th September 2019 in Huelva and on the 15th -17th September 2020 online. The workshops were aimed at European participants interested in the conservation and restoration of coastal ecosystems (particularly seagrass beds and wetlands) or in the area of climate change, including technicians and managers of natural resources and protected areas, environmental consultancies, researchers and associations.

The workshop (E4) "El carbono azul en el corazón de un clima saludable: Una nueva hoja de ruta a través de los nuevos mecanismos de compensación y la conservación del mar" (Blue Carbon, at the Heart of a Healthy Climate: A new route map using mechanisms at the forefront of compensation and marine conservation) took place in November 25th at Malaga. This workshop was presented as an opportunity to establish a public-private sector dialogue about the voluntary carbon market, identify opportunities, boundaries and risks and as a way to get to know the first tools developed in Andalucía (Standard and Catalogue). This workshop was attended by more than 60 individuals in person, 23 of these representing the business sector. 172 people attended through various online channels and more than 862 streaming visits were received. In the July 2021 Steering Committee meeting it was decided to organise and deliver local meetings to support this regional workshop, so as to further promote and facilitate the engagement of sectors that are nearer to the implementation areas of the first projects. Consequently, two meetings took place, one in the Natural Park of Cabo de Gata and a second in the park Bahía de Cádiz. To this date,

and as a result of these efforts and the continuous engagement of the Climate Change Office, we have received letter of interests from 2 enterprises for the implementation of the projects included in the Catalogue (the first administrative step).

The organization of the field visit for media (Action E5) had the objective of presenting the main results of the project, mainly in relation to the design of the first two blue carbon offset projects to incorporate into the voluntary CO2 market within the framework of the Andalusian Law on Climate Change. Companies are invited to participate in financing actions for these two projects. The field visit consisted of a day where 24 journalists from the scientific, environmental and economic fields were contacted. A general invitation was also included for 5 members of the Spanish Association of Scientific Communication. In total, 11 journalists confirmed attendance, mostly national, including an international media outlet (France Press). The visit took place on November 26 in the Bay of Cádiz.

The itinerant Campaign E6 started in March 2018. 45 meetings and visits have been completed in order to organize different locations to visit within the project area. To maintain the itinerant campaign alive (action E6), all the materials will continue to be on display in the different visitor centers of the natural parks involved in the project.

During the project, two different Life Blue Natura project monographs were edited. The first one, to be included in the Andalusian Environment Report (2019, IMA Junta de Andalucía) and the second, is a special edition in the specialized journal Quercus (December, 2020). Finally, in 2021 the thematic of the scientific-technological journals Chronicae Naturae (Action E7) was published, with contributions that included the main scientific results of the project. In addition, the Layman with 500 printed books has been sent to more than 200 different organizations.

In March 2016, the Commission published the Life Projects Level Outcome Indicators General Guidance document. Just after this publication, the project revised the outcome indicators at the Project level and we entered all the new values in the new Commission Interface. The values were validated by the Life Monitoring Team in June 2016.

4. Introduction

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 in these fields has been rather 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, including *Posidonia oceanica* meadows, are emerging as significant CO2 sinks, both due to their capacity of sequestration of this gas into organic matter as well as the fact that it can remain in this form during millennia.

Even though these ecosystems provide such valuable services, as well as many others associated to coastal vegetation, these habitats are being lost at a rate 4 times greater than that of land forests. This project seeks to showcase the importance of accurately defining and quantifying their role as blue carbon sinks and assess which environmental services

they provide, by means of the tools and policies related to climate change currently available (Policy for offsetting greenhouse gas emissions).

In order to deliver a thorough assessment of the mitigation services provided by blue carbon ecosystems, the project has carried out a variety of events in order to reach out to different communities of stakeholders, such as organising scientific outreach days, organising a panel of experts to follow up and provide guidance to the project, specific training events for preparing and drafting blue carbon projects, meetings with legislators and the business sector in order to deliver results achieved as well as meetings with the European Parliament Blue Carbon Working Group in order to share the project's progress and achievements as well as its impacts concerning the applicable legislative framework.

The Andalusian legal framework: the Andalusian regional Law 8/2018 concerning *measures against climate change and for the transition towards a new energy model in Andalusia* defines the figure of compensation projects within the section dedicated to emissions mitigation. This law establishes the creation of the Andalusia Emissions Offset System (AECS), a voluntary instrument available for natural or legal persons who wish to register their commitment to monitoring, notifying and reducing greenhouse gas emissions and show their willingness to contribute against climate change. This allows organisations to calculate their carbon footprint, prepare their reduction plans and develop carbon fixation projects to offset emissions that cannot be reduced through their plans. This is registered by AECS. Compensation reduction targets are determined by the Carbon Adsorption Units generated by these projects. The offsetting planned under the SACE is to be carried out through projects of afforestation, reforestation, and conservation of existing forests, coastal ecosystems, seagrass meadows and wetlands, as well as those conserving or increasing the organic matter content of the soil in the fields of forestry or agriculture. This mechanism creates the possibility of offsetting CO2 emissions through the execution of these types of projects, including for the first-time blue carbon projects.

Main results:

- Assessment and quantification of the carbon sink capacity of seagrass meadows: In Andalusia there are four species of seagrass that cover approximately 11.803 ha, The stock of organic carbon found in the first meter of sediment is equivalent to 13.1 Megatons of CO2. Posidonia oceanica covers 60% of the extension indicated and is responsible for 97,4% of the CO2 stocked in the sediments. The annual "sink" capacity of the seagrass meadows of Andalusia adds up to a total of 14.384 tCO2, which is converted into organic carbon resistant to degradation, 95.5% of which results from P. oceanica.

- Assessment and quantification of the carbon sink capacity of coastal marshlands ("Marismas de Odiel" and "Bahía de Cádiz"): The average accumulated organic carbon found in the first meter of sediment in non-degraded coastal marshland soils is of 359 tCO2/ha. The highest values found are between 424 and 565 tCO2/ha for marshlands which account for the highest carbon sediment flux and stocks. Many factors may affect the GHEG flux, negatively impacting and degrading the amount of carbon stored in sediments. The ones which have resulted most severe are vegetation cover degradation, soil erosion, eutrophication and desiccation. These can result in the degradation of accumulated organic matter, resulting in the release of CO2 as well as other GHEG, such as methane and NOx. When assessing the

stock capacity and CO2 flux in both study areas, the values obtained, according to their respective areas, reach 2.8MtCO2/year for "Marismas de Odiel" and 8ktCO2/year for "Bahía de Cádiz".

- The Andalusian Blue Carbon Credit Certification Standard has been approved. Organisations who wish to offset their emissions (article 37. Law 8/2018) will be able to 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. Both projects are included in the official Catalogue of the Andalusian Emissions Compensation System (SACE) to serve as a testing opportunity for the Andalusian Emissions Compensation System in order to determine the blue carbon sink capacity they offer as coastal marshland and seagrass areas.

- The project has an important responsibility to transfer knowledge, methods and good-practices to other regions in Spain and Europe. UICN's objectives also include facilitating dialogue at the national level in regard to incorporating Blue Carbon (BC) as part of the National inventories. The results from the first advisory group meeting, as well as further analysis and discussions, make clear that to move forward with this objective, UICN needs to open the discussion to other EU countries and further identify the opportunities, limits and risks for design policies in the integration of BC into EU and national strategies. Therefore, UICN holded one first seminar in Brussels with the assistance of IUCN colleagues from the offices in Brussels and Bonn to develop this action and have more direct contact with the EU delegates that may be interested.

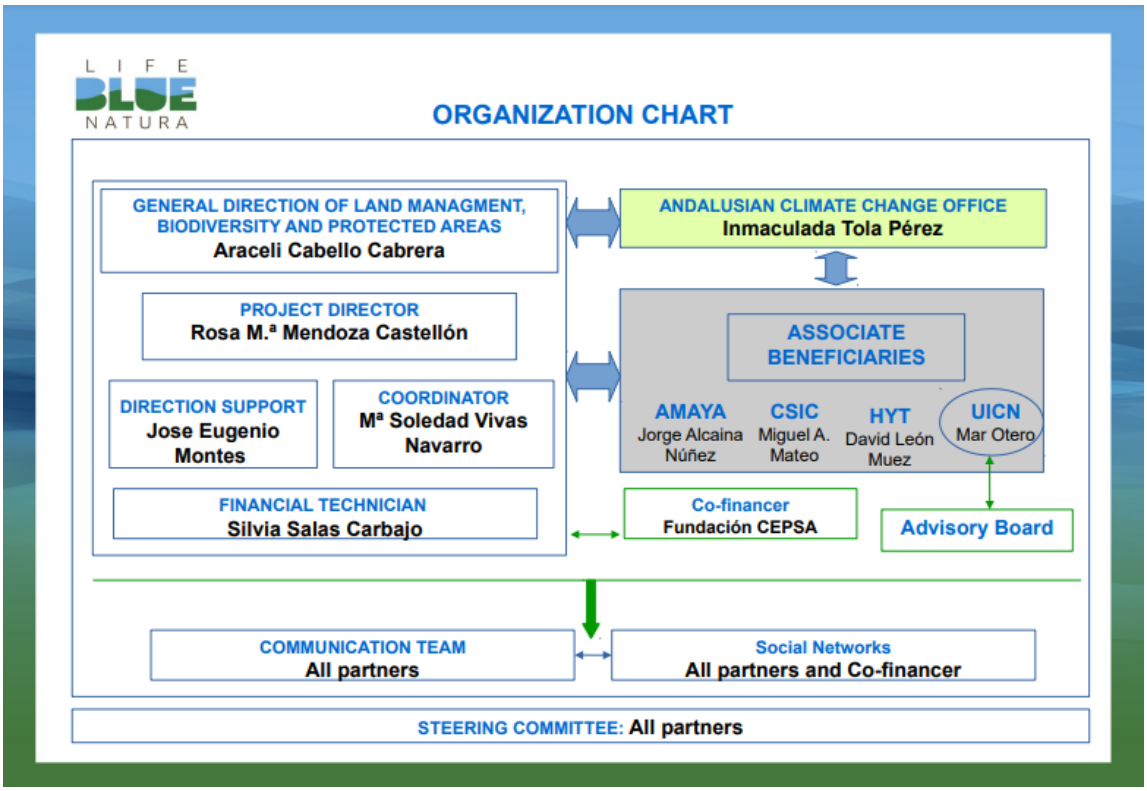
- "Manual for the creation of Blue Carbon projects in Europe and the Mediterranean" The manual, over its 145 pages, presents the role of natural carbon sinks (blue carbon ecosystems) in climate change mitigation efforts, policy and methodological steps to identify, assess, and set-up a blue carbon project on the ground –including how to structure projects to be funded through carbon finance market. It provides guidance how to optimize effort allocation in obtaining data from the field and obtain robust estimates within the boundaries of blue carbon offset projects as well as essential elements for restoration implementation. Since its publication, the Manual has become a baseline for upcoming blue carbon projects (from science to offsetting) at Mediterranean and EU level by different conservation and research groups.

5. Administrative part

The project management process:

The project has a Director, a Direction support, a Coordinator and a Financial technician. The Andalusian Climate Change Office has worked closely with this team during the project. The project has conducted eleven Steering Committee meetings and from the beginning the project has organised several meetings between the Coordinating beneficiary (General Direction of land management, biodiversity and protected areas and the) and Associated beneficiaries but also external assistances (Action D1, C4 and C7), These results are reflected in **Annex F1.1.**, where in addition to the attendees, the main conclusions agreed by participants for a better implementation of the works can be read.

The Communication team was created in the first Steering Committee in October 2015. Each partner is represented in this team and their main work during the first 12 months were discussed and approved on the 2 nd Steering Committee, April 2016: contents of the Communication Plan, logo design and corporative image of the project. As a result of the Plan, HyT presented in July 2016 the First Social Network Plan. This Plan sets targets for the period July-December 2016. This Social Network Plan is reviewed every six months, so all the partners are noticed about the evolution of the communication actions. On these reviews (usually coincident with the official partners meeting of the project, so face to face acts) the partners team organize the next sixth months communication strategy). These Social Network Plan reviews allow to update the 2.0 communication actions and maintain the followers and interest increasing.



Communication with the Agency and Monitoring team

Activity reports: the Project has complied with the approved Schedule. Progress report 30/09/2016; Progress report 30/06/2017; Midterm report 30/09/2018; Progress report 01/10/2019; Progress report 18/12/2020; and Final report 20/03/2022.

The Monitoring team has completed 6 Missions: April 4/5, 2016 (Almería); November 18, 2016 (Málaga); November 23/24, 2017 (EASME- Málaga); February 13, 2019 (EASME-Almería); September 19, 2019 (Seville); and February 17, 2021 (On-Line).

The answers to the Agency letters received are included in the **Annex 5.1.**

Amendments to the GA:

	Justification	Project end date	Extension date	Letter
Amendment nº1	Change the co-financer business name from CEPSA to CEPSA Foundation; CSIC-CEAB: minimal changed in external assistance; UICN and HYT: Changed in "other cost" CMAOT-HYT: minimal changed	31/12/2019	30/09/2020	Ares (2017) 4310706. Included in Letter Ref. Ares (2017) 4573295- 09/19/2017
Amendment nº2	New financial identification form/request	31/12/2019		Ref. Ares (2018) 4197899_10/08/2018. Letter Amendment nº2
Amendment nº3	Modification of the definition of conditions for natural persons, submission of VAT certificate and threshold for submission of the certificate on the financial statements	31/12/2019		Ref. easme.b3 (2018) Letter Amendment nº3
Amendment nº4	Modification the Forms Al, C2 and C3 as set out in Annex II of the grant agreement, the name of the coordinating beneficiary, the legal representative ofthe coordinating beneficiary and the duration of the project.	31/12/2019	09/20/2020	Ref. Ares (2019) 5093289-05/08/2019 Letter Amendment nº4
Amendment nº5	Modification the Forms A1, C2 and C3 as set out in Annex II of the grant agreement and the duration of the project in Art. I.2.2 of the grant agreement is extended	20/09/2020	20/04/2021	Ref Ares (2020) 5130748 30/09/2020 Letter Amendment nº 5
Amendment nº6	Modification the Forms A1, C2 and C3 as set out in Annex II of the grant agreement and the duration of the project in Art. I.2.2 of the grant agreement is extended	20/04/2021	20/12/2021	Ref Ares (2021) 2704932 22/04/2021. Letter Anedment nº 6 to Grant Agreement LIFE14CCM/ES/000957-LIFE Blue Natura
Amendment nº7	Modification the bank account details in Article I.5 of the grant agreement and the legal representative of the coordinating beneficiary	20/12/2021		Ref Ares (2022) 730726-01_02_2022

6. Technical part

6.1. Technical progress, per Action

6.1.1. ACTION A1. HABITAT MAPPING AND CHARACTERISATION

Action Nº	BUDGET	TOTAL COST	%
A1. HABITAT MAPPING AND CHARACTERISATION	302.460 €	265.114,87 €	88%

No significant technical deviations are to be reported. All objectives of the action have been accomplished successfully. The final cost has been 12 % less (more) than that planned. The categories of personnel, external assistance and travel were on target, but consumables fell below the planned cost. The results were completed successfully, even after the delays detected in the A3.1. Cartography of saltmarshes thanks to the close coordination between the teams involved: AMAYA, CAGPDS, CSIC, avoided any further consequences.

A1.1. *Posidonia oceanica* meadows

- Status of the sub-action A1.1: COMPLETED
  Foreseen start date: September 2015
  Actual start date: September 2015
  Foreseen end date: December 2017
  Actual end date: June 2018

		2015				2016				2017				2018				2019				2020				2021			
A1	HABITAT MAPPING AND CHARACTERISATION . A1.3 Tidal salt marshes	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Cartography and thematic maps												x					x											
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

This action has three different objectives:

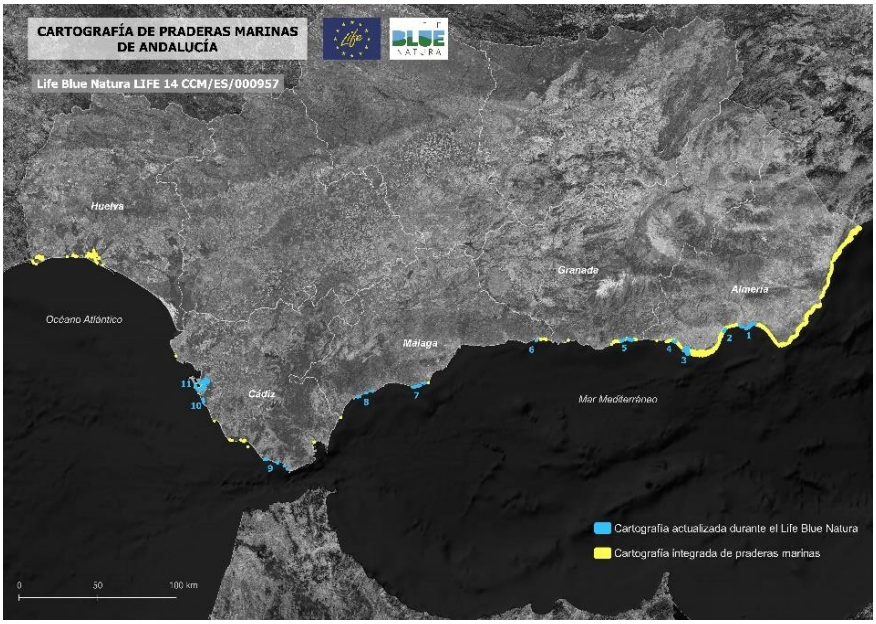
- Current distribution
- Potential area
- Evolution

CURRENT DISTRIBUTION:

For the elaboration of the Thematic Seagrass meadows Cartography, the following phases have been carried out:

Phase I: **New cartography works.**

The project planned to map 4.451 ha in areas without information (outside MPA) and in areas with low reliability for different reasons. Final results in this sub-action were 5.012 ha mapped so we have exceeded this objective in 561 ha with the same budget. Different logistical problems made it difficult to finish this work at the end of 2017 (boat availability). The works were completed in June 2018.



Map 1. Life Blue Natura cartography in Andalucía (2016-2018). María Teresa Carreto, Agustín Barrajón Domenech, Diego Moreno, José Miguel Remón, Julio De la Rosa, Manuel Fernández-Casado, Mari Carmen Arroyo, Elena Díaz-Almela y Soledad Vivas. Cartografía temática de praderas de angiospermas marinas para la obtención de información de los stocks de carbono azul en Andalucía. *Chronica naturae*, 8: 57-110 (2021)

Phase II. **Integrated Cartography with all the information sources available at regional level.**

When there was overlapping of data, we have made a prioritization of information related to the date and the quality of the sources. The criteria were: first Life Blue Natura cartography, second Life Posidonia cartography (2012) and third Ecocartography (Spanish Ministry, 2008). After this prioritization the invalid areas were eliminated and a new shape with the integrated information were created.

Phase III. **Cross these results with information about the substrate type under the seagrass Meadows**

The next step was to cross these results with information about the substrate type under the seagrass Meadows. For the carbon stocks calculations, it is important to know which kind of substrate there are under the meadows. As a rule, the meadows which are located on fine substrates could have larger quantity of carbon sink than those allocated on rock-substrates. The integrated seagrass meadows shape was crossed with a substrate shape and a unique shape with both information was created.

Phase IV. **Cross the results with information about the substrate type with the bathymetry layer**

The next step was to cross these results with information about the substrate type under the seagrass Meadows with bathymetry layer. The final results were the meadows*substrate shape divided in 5 to 5 meters ranges. This final shape (**Annex A1.2_Final report)** will allow to calculate the stocks and fluxes of BC for Andalusian considering all the existing and sampled meadows typologies.

Phase V: Surface calculation in detail

When the shape is generated, the area occupied by each of the different 12 classes defined for Seagrass meadows is calculated plus substrate plus bathymetric ranges.

Table A1.1_1: Seagrass Meadows surfaces (ha)

Province	N.°Zone Blue Natura	Surface mapped (ha)	Habitat / Specie	Meadows surface per habitat/ specie (ha)	% meadow in the area	Total meadow surface (ha)	%total meadow in the area
Almeria	1	1.600	*Cymodocea nodosa*	308,74	19,3%	398,80	24,9%
			Dead matte *Posidonia oceanica*	1,73	0,1%		
			Posidonia oceanica	88,33	5,5%		
	2	87	Dead matte *Posidonia oceanica*	23,62	27,2%	51,17	58,8%
			Posidonia oceanica degraded	27,55	31,7%		
	3	1.200	*Cymodocea nodosa*	15,15	1,3%	520,93	43,4%
			Dead matte *Posidonia oceanica*	1,33	0,1%		
			Posidonia oceanica	340,96	28,4%		
			Posidonia oceanica mixed substrate	99,66	8,3%		
			Posidonia oceanica & *Cymodocea nodosa*	63,83	5,3%		
	4	850	*Posidonia oceanica*	29,00	3,4%	29,00	3,4%
Granada	5	400	*Cymodocea nodosa*	1,05	0,3%	71,45	17,9%
			Dead mat *Posidonia oceanica*	2,37	0,6%		
			Posidonia oceanica degraded	68,03	17,0%		
Málaga	6	233	*Posidonia oceanica*	0,36	0,2%	0,36	0,2%
	7	328	*Cymodocea nodosa*	0,23	0,1%	6,51	2,0%
			Dead mat *Posidonia oceanica*	1,26	0,4%		
			Posidonia oceanica	5,02	1,5%		
	8	314	*Posidonia oceanica*	3,60	1,1%	3,60	1,1%
Cádiz	9	554	*Cymodocea nodosa*	89,43	16,1%	89,43	16,1%
	10	22	*Zostera noltei*	2,20	10,0%	2,20	10,0%
	11	1.527	*Zostera noltei*	425,77	27,9%	425,77	27,9%
Total		**7.115**		**1.599,22**		**1.599,22**	

POTENTIAL AREA

There are not historic data about the ancient extension of the seagrass in Andalusia (as in general in other areas in the world), before the cartographies made with sonar during the beginning of the 21st century. Although it is possible that the potential areas of presence of *Posidonia* meadows are greater than what can be thought, it is considered here that the most correct thing is to consider as such the degraded areas, the dead meadows (with traces of rhizomes without leaves, called "dead matte"), and the sand holes integrated into existing meadows.

In addition, since in the ecological succession the *Cymodocea nodosa* meadows are a step prior to the climax stage, the *Posidonia oceanica* meadows, the areas with presence of the first species could be considered also as potential for the second species (in mediterranean meadows).

So, in table A1.2. we have an accurate quantification for:

- Degradated areas.
- *Cymodocea nodosa* (mediterranean)
- Dead medows

Table A1.1_2: Seagrass Meadows Surfaces-Potential area (ha)

Habitat / Species	POTENCIAL AREA	Surface (ha)	%	Total Surface (ha)	%
Mata muerta de *Posidonia oceanica*	SI	131,25	*1,12*		
Posidonia oceanica		5.197,76	*44,23*		
Posidonia oceanica en fondo mixto		99,66	*0,85*		
Posidonia oceanica en regresión	SI	629,62	*5,36*	7.097,90	*60,40*
Posidonia oceanica y *Caulerpa cylindracea*		42,19	*0,36*		
Posidonia oceanica y *Cymodocea nodosa*	SI	939,78	*8,00*		
Posidonia oceanica, Cymodocea nodosa y *Zostera* sp.	SI	57,64	*0,49*		
Cymodocea nodosa		4.179,05	*35,56*	4.179,14	*35,56*
Cymodocea nodosa y mata muerta de *P. oceanica*	SI	0,09	*0,00*		
Cymodocea nodosa y *Zostera noltei*		0,34	*0,00*	474,07	*4,03*
Zostera noltei		473,73	*4,03*		
Zostera marina		0,09	*0,00*	0,09	*0,0008*
Total Resultado	**1.758,38**	**11.751,20**	***100,00***	**11.751,20**	***100,00***

EVOLUTION

The evolution of the seagrass meadows can be evaluated by integrating the available information: on the one hand the cartographies that include degraded areas, dead matte and sand holes, and on the other hand the results of the monitoring network (POSIMED) with fixed stations in 35 *Posidonia* beds along the coast of Andalucía (17 of which are included in volunteering campaings), which has data series from at least 2012 for most of the sampling points. These data series have values of density, linear coverage and per grid, leaf length, burial, demography and density of inflorescences (if present).

With all this information of the integrated cartography and the data series of the monitoring network, the trends of each zone can be established. These results, together with the information obtained from drill core samples in different types of meadow and substrate, can be worked with mathematical models by the CSIC team, to know the carbon stock.

The volunteering campaigns were coordinated between HyT and the technical group of marine management of Andalusia (CAGPDS).

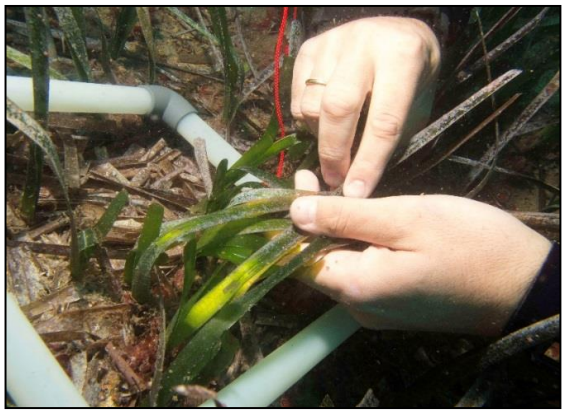
In the 2015 volunteering campaign, 94 divers participated in the 17 stations visited. 12 dive centres collaborated in the campaign. The assessment of the activity was very satisfactory, regarding the conducted surveys (**Annex A1.1_Midterm report).**

In the 2016 volunteering campaign, 101 divers participated in the 17 stations visited. 13 dive centres collaborated in the campaigns. The assessment of the activity was very satisfactory, regarding the conducted surveys (**Annex A1.3_Midterm report**).

All data collected are then filtered in order to obtain a reliable value on each variable. The filtering method is based on the comparison of data dispersion between “expert” and “non-expert” measurers. These data are sent to the coordinating beneficiary to be included in REDIAM (environment data network- regional government).

Just for the “density” variable, a total of 727 (2015) and 670 (2016) data were obtained in the 17 locations (counting the “experts” and the “volunteers” data). Almost a 72% of the data are finally valid for the management. These provides a very valuable result for this citizen science action, which has involved to 195 volunteers (**Annex A1.3._Final report).**

Photographs. Measurement of different parameters of seagrass meadows: grid of 20x20 cm for density, counting *Posidonia* shoots, linear coverage with 25 m tape, and demography with shoots marked with nylon clamp.



Deliverable A1.1.	DEADLINE	COMPLETED	REPORTED
Cartography HIC1120*. D	30/11/2017	30/06/2018	Annex A1.1. Final report 20/03/2022
Thematics maps. D	30/11/2017	30/06/2018	Annex A1.1. Final report 20/03/2022

Other relevant Annexes	REPORTED
Seagrasses Cartography SHAPE	Annex A1.2. Final report 20/0432022
POSIMED results 2009-2019	Annex A1.3. Final report 20/0432022

A1.2. Other seagrass meadows

- Status of the sub-action A1.2: COMPLETED
  Foreseen start date: October 2016
  Actual start date: October 2016
  Foreseen end date: December 2017
  Actual end date: June 2018

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
A1	HABITAT MAPPING AND CHARACTERISATION A1.2 Others seagrass meadows																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Cartography and thematic maps												x		x														
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

The integrated and thematic cartography for *Posidonia oceanica* (Action 1.1.) included *Cymodocea nodosa* meadows and *Zostera* spp. meadows.

The new cartography included in the project was also completed. Results in this sub-action were 2.103 ha mapped (Table A1.1._1). Different logistical problems made it

difficult to finish this work at the end of 2017 (boat availability). The works were completed in June 2018.

Deliverable A1.2.	DEADLINE	COMPLETED	REPORTED
Cartography Cymodocea. D	30/11/2017	30/06/2018	Annex A1.1. Final report 20/03/2022
Cartography Bay of Cádiz. D	30/11/2017	30/06/2018	Annex A1.1. Final report 20/03/2022
Cartography Odiel Zostera. D	30/11/2017	30/06/2018	Annex A1.1. Final report 20/03/2022

A1.3. Tidal salt marshes

- Status of the sub-action A1.3: COMPLETED
  Foreseen start date: September 2016
  Actual start date: September 2016
  Foreseen end date: December 2017
  Actual end date: March 2019

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
A1	HABITAT MAPPING AND CHARACTERISATION. A1.1 *Posidonia oceanica meadows*																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Cartography and thematic maps												x		x														
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

The final objective was the realization of a surface calculation of each of the classes proposed in order to apply the values obtained in the CEAB-CSIC campaign carried out in October 2016, and thereby make a reliable estimate of the blue carbon holding capacity of this tidal marsh. For the elaboration of the Thematic Cartography the following phases have been carried out:

Phase I. Analysis of available information

ODIEL: In this phase we have analysed the different available cartographic sources, this has included 23 different sources (raster and vector), from the Environmental Information Network of Andalusia (REDIAM), Universities, Research projects, as well as new products generated expressly for this analysis. A detailed list of these cartographic sources is given in **Annex A.1.1._Final report.**

The previous analysis includes the unification of resolution criteria, quality of information and discarding of the sources that did not meet the minimum criteria to be used.Taking into account the idiosyncrasy of the marsh, with almost no difference in level, it has been necessary to resort to cartographic bases elaborated with Biological (Vegetatively Based), Physical and Mixed criteria.

BAY OF CADIZ: Working meeting with AMAyA team to compile cartographic material of the SIPNA (Natural Heritage Information System of Andalusia) at a scale of 1:10000, which includes a cover of vegetation, uses and Habitats of Community Interest of the Bay of Cádiz. Likewise, an on-line editing GIS tool has been provided that allows the revision and improvement of said cartography and query of samples taken within the framework of Vege10 natural vegetation mapping.

Start of review of said coverage, for the detection of inconsistencies between cartography and sampling, improvement of cartography and update of detected changes (e.g. communications network, salt works, pipelines, etc.)

According to our methodology, during this phase a field sampling was conducted *in situ* (vegetation variables and photos). This information was used to correct and improve the mistakes detected in Vege10 official cartography 2005 (scale 1:10000).

Orthoimages at high and low tide with the subcontracted company (SPASA, Servicios Politécnicos Aéreos, SA) were deliver: https://descargasrediam.cica.es/repo/s/RUR?path=%2F01_CARACTERIZACION_TERRITORIO%2F02_BASES_REF_ORTOFOTOS_ORTOIMAGENES%2F01_ORTOFOTOS%2F02_PROYECTOS_LOCALES%2F2018_07_CA_Bahia_V217_of

Phase II: Definition of criteria for classes

These criteria were presented at the Meeting of the Blue Carbon Projects Advisory Group, held in Cadiz on March 6 and 7, 2018 (**Annex F1.1._Final report**) and the final criteria were included in the **Annex A1.6._Midterm Report**.

Phase V: Tide analysis and Preparation of cartography

After defining the sources and calculations of the tide levels necessary to apply the criteria, we proceed to the cartographic analysis. On the cartographic bases of HICs and vegetation, the attributes related to the final classes were assigned to the available cartographic bases:

Odiel

- **Low Marsh (LM)- Mean Marsh (MM)-High marsh (HM)**: Assigned to species or HICs that correspond to the criteria defined as low marsh.
- **Mixed**: Assigned to species or HICs that can correspond to several of the defined classes and require a segmentation associated with the dimension to assign it to a specific class. In this category there were mixed polygons LM-MM and MM-HM.
- **No Marsh (NM):** Assigned to species or HICs that correspond to interior and continental ecosystems and, therefore, not marsh related.
- **Beach (BE):** Assigned to species or HICs that correspond to areas of sandy substrate. They are not included in the NM class because they have species that could capture blue carbon, although this would require a new sampling campaign to obtain values for these ecotones.
- **Excluding (EX):** Areas with significant anthropic influence that have lost their capacity to capture carbon.

Bay of Cadiz

- **Tidal spouts**
- **Low Marsh (LM)- Mean Marsh (MM)-High marsh (HM)**: Assigned to species or HICs that correspond to the criteria defined as low marsh.
- **Active saltflat**
- **Abandoned Saltflat**: with daily tidal influence, variable tidal influence and without tidal influence
- **Transformed Saltflat**: Aquaculture

- **Opportunity areas**.

Phase V: Surface calculation in detail

Once the model is generated, the area occupied by each of the different classes defined is calculated. Also, in the Bay of Cadiz were generated complemented cartography (HICs and SIPNA-update) The final result is shown in the following table and the thematic maps are included in **Annex A1.6._Midterm report (Odiel) and Annex A1.1. Final report (Bay of Cádiz).**

ODIEL	Surface (Ha)
Low marsh	1.501,48
Mean marsh	1.029,20
High marsh	1.045,48
No marsh	69,34
Beaches	159,92

BAY OF CADIZ	Surface (Ha)
Tidal spout	876,87
Low marsh	2.437,21
Mean marsh	595,96
High marsh	396,71
Active saltflat	2.244,97
Abandoned saltflat	2.333,09
Transformed saltflat (aquaculture)	2.409,73
Other degraded saltflat	1.315,30
Opportunity areas	222,90

Deliverable A1.3.	DEADLINE	COMPLETED	REPORTED
Thematic map Odiel. D	30/11/2017	30/03/2018	Annex A1.6. Midterm report 30/04/2018
Thematic map Bahía de Cádiz. D	30/11/2017	30/03/2019	Annex A1.1. Final report 20/03/2022

Final Indicators A1.1, A1.2., A1.3.:

7.115 ha were mapped/4.451 ha planned (160%)
17 stations visited in POSIMED/2015
94 volunteer divers participated
17 stations visited in POSIMED 2016
101 volunteer divers participated
At the end of the action, 195 divers have participated in this sampling and learning activity
1200 people are included in the database of participants

6.1.2. ACTION A2. SAMPLING DESING AND IMPLEMENTATION FOR THE EVALUATION OF CARBON STOCKS AND FLUXES IN SEAGRASS MEADOWS

- Status of the action A2: <u>COMPLETED</u>
  Foreseen start date: July 2016
  Actual start date: February 2016
  Foreseen end date: December 2017
  Actual end date: February 2018

Action Nº	BUDGET	TOTAL COST	%
A2. SAMPLING DESING AND IMPLEMENTATION FOR THE EVALUATION OF CARBON STOCKS AND FLUXES IN SEAGRASS MEADOWS	253.654 €	144.005,92 €	57%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
A2	SAMPLING DESIGN AND THE IMPLEMENTATION FOR THE EVALUATION OF CARBON STOCKS AND CARBON FLUXES IN ANDALUSIAN SEAGRASS MEADOWS																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Lab result report												x	x															
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

No significant technical deviations are to be reported. All objectives of the action have been accomplished successfully. All planed sites have been visited and all core samples were obtained. The number of cores sampled exceeded those planned (69 instead of the 54 planned), helping to a better understanding of the spatial variability of the blue carbon stocks and fluxes. The lower expense occurred in this action with respect to foreseen budget derives from the lower need of labour than expected. The participation of external collaborators in most of the missions and the invaluable help from the other partners of the project, allowed for a substantial reduction in the hours and travels dedicated to the action. The same rational and the fact that one of the missions was onboard a research vessel, resulted also in a lower expense in travel and subsistence. The disagreement in External Assistance is due to a confusion in the allocation of the costs associated to the research vessel. This expense was assigned to Other Costs (reflected in a higher expense in this section than foreseen).

The first sampling mission took place between September the 28th and October the 12th, 2016. **Annex A2-A3.3_Progress Report 30062017** shows the mission report. All seagrass meadows included in the mission were visited and sampled successfully with the exception of those at the Parque Natural del Estrecho and those of Málaga and Granada, as a consequence of prevailing rough marine conditions during part of the first field mission (**Annex A2-A3.3_Progress Report 30062017**).

During this first mission we enjoyed the technical assistance of the project partners from CAGPDS, AMAyA and HyT, who enthusiastically helped in some of the sampling events both at the sea and at the saltmarsh, contributing with human and technical resources (the CAGPDS vessel Isla de Tarifa was used two days); CSIC collaborated in the Posimed field mission, which partially coincided in time and space

with the A2-A3 action first mission, by giving a talk about the *Posidonia* ecosystem services (and especially the mitigation and adaptation services) to volunteer divers. All these collaborations are detailed in **Annex A2-A3.3_Progress Report 30062017**, as well as in action A1. Partners, especially CAGPDS, CEPSA and HyT also covered the first A2-A3 field mission in the media and social networks. CSIC also echoed or posted news about the sampling on the GAME-Team Blog, as well as in our social networks (facebook and twitter pages of GAME-CSIC and of the project). Links to such posts and news are integrated in the action E1 report section. We were also helped by collaborators external to the CSIC: Dr. Fay Belshe, from the Department of Ecology of the Leibniz Centre for Tropical Marine Research (ZMT), within the framework of a CEAB - German DAAD grant, who has a high expertise in the modelling of carbon stocks and fluxes, Dr. Oscar Serrano Grass, a seagrass blue carbon world class expert, and Ms. Karina Inoztrosa, with a great experience in seagrass coring and field sampling logistics, both coming from Australia (Edith-Cowan University).

For most stations, two out of three of the cores collected at each station were subsampled at fixed core depths during the sampling mission, while 1/3 of the cores (at least one per station) were brought intact to the laboratory and split in longitudinal halves. One of the halves was scanned (hemicore-β) and later kept as log material, at 3ºC, in a cold, dark chamber. The other halve (hemicores-α) was subsampled each 2 cm. Some hemicores-α were subsampled in more detail (every cm).

From November 2016 to September 2017, the GAME-CSIC team also worked in the organization of the second and last A2 field sampling mission, which took place between the 11th and the 22th October 2017. This field mission focused on the intermediate and deeper seagrass meadows stations, as well as the *Posidonia* stations that could not be reached in the first sampling mission (Aguamarga, Melicena and Calaburras). From the 11th to the 19th October 2017, the mission was conducted on board of the r/v. García del Cid. The contracted vibrocore sampling helped us to get long (3 to 5.5 meters) cores in deep (18-20m) and intermediate (11-15m) stations. This allowed us to sample the complete carbon sink vertical profile, a key and unprecedented action to explore the maximum accumulation capacity of blue carbon by this species. These samplings were complemented in all intermediate stations, as well as in many deep stations with 1 to 2 manual cores. In total we obtained 13 vibrocores and 33 manual cores (0.5 to 1.5 meters long). 22 of those cores were subsampled on board. The rest were transported for scanning and subsampling in the laboratory. Three Biomass samples plus plant samples for isotopes were also obtained at all the vegetated stations, and l6 to 12 long-shoot samples for lepidochronology were also taken in *P. oceanica* meadows. In October the 15th, at Aguamarga, the intense easterly wind did not allow the team to sample with the vibrocore, so only manual cores were sampled that day. Two days later, the 17th, the wind peaked again preventing the team to sample at the Punta Entinas station (the category of *Posidonia* meadow growing on rocks), so that day the team took manual cores in a shallow area in the sheltered adjacent bay of Almerimar. At that site, we found *Posidonia* meadows growing on sparse ancient mats, which seemed to be suffering a process of erosion. In October the 20th the mission was carried out from land to sample in a shallow *P. oceanica* meadow growing on rocks (only biomass), and in Calaburras (Málaga), in order to compensate for the lack of samples on rocky substrate that we wated to study in Punta Entinas. At Calaburras the team also sampled an ancient dead matte of Posidonia, colonized by algae and by the smaller seagrass *Cymodocea nodosa*.

As in the previous field mission, we enjoyed the collaboration of the AMAyA experienced marine technicians, who helped us to establish the locations of the sampling stations. During the field mission, the partners AMAyA and CAGPDS helped us to refine the exact sampling sites to visit in Aguamarga and Roquetas.

Two communication events were celebrated during the field mission: At Aguamarga, AMAyA, CAGPDS and IUCN partners came on board of r/v García del Cid from the Isla de Tarifa CAGPDS boat, and brought Canal Sur TV journalists to make a TV broadcast about the project and the field mission. In October the 19th, 3 groups of students from the University of Málaga came on board at the Málaga port to visit the research vessel and learn about the Life Blue Natura objectives and methodology.

Between October the 23th 2017 and February the 28th 2018, all the cores collected were opened, scanned and subsampled. The vibrocores were subsampled each 10 cm along the first meter, and at a minimum of 3 levels in the deeper sections, depending on the sediment type. We obtained 1120 subsamples, which added to the 1255 seagrass sediment subsamples collected on the first field mission, making a total of 2375 subsamples to analyse.

We have obtained 126% of the cores programmed, in all the meadow types envisaged. Thus, we can consider this action as successfully completed.

Final Indicators A2.:

69 cores collected of 54 cores planned (128%)

Deliverable	DEADLINE	COMPLETED	REPORTED
Complete Lab-samplig report. D	31/12/2017	28/02/2018	Annex A2. Midterm report 30/04/2018

Other relevant Annexes	REPORTED
Mission plan_ Final report	Annex A2-A3.2 Midterm report 30/04/2018

6.1.3. ACTION A3. SAMPLING DESING AND IMPLEMENTATION FOR THE EVALUATION OF CARBON STOCKS AND FLUXES IN COASTAL SALT MARSHES

- Status of the action A3: COMPLETED
  Foreseen start date: July 2016
  Actual start date: February 2016
  Foreseen end date: December 2017
  Actual (or anticipated) end date: December 2018

Action Nº	BUDGET	TOTAL COST	%
A2. SAMPLING DESING AND IMPLEMENTATION FOR THE EVALUATION OF CARBON STOCKS AND FLUXES IN COASTAL SALT MARSHES	189.163 €	94.134,49 €	51%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
A3	SAMPLING DESIGN AND THE IMPLEMENTATION FOR THE EVALUATION OF CARBON STOCKS AND CARBON FLUXES IN COASTAL SALT MARSHES																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Lab result report												x				x												
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

No significant technical deviations are to be reported. All objectives of the action have been accomplished successfully. This action was described in the agreement as a pilot attempt to characterize two Andalusian saltmarshes. The field observations and the outcome of the study of the samples from the sampling mission showed that the saltmarshes visited had a much larger variety of typologies than initially thought, most of them owing to human uses and impacts. So, a 1-yr extension of the action was requested to allow for a second field mission to cover those new typologies that would allow for a better upscaling of the results. Nine new saltmarsh typologies were covered, and 17 more cores taken. Similarly, as in A2, the lower expense occurred in this action with respect to foreseen budget derives from the lower need of labour than expected. The participation of external collaborators in most of the missions and the invaluable help from the other partners of the project, allowed for a substantial reduction in the hours and travels dedicated to the action.

The first sampling mission took place between September the 28th and October the 12th, 2016. **Annex A2-A3.3_Progres report 30062017** shows the mission report. All the saltmarshes and saltmarsh conditions planned in the project were visited and sampled. The total number of cores that were to cover all the salt-marsh conditions initially aimed as for the annex C of the grant agreement was of 54. We sampled 53 in total because the conditions in the dry marshes were highly homogeneous and 1 of the planned replicates was considered superfluous.

Two thirds of the cores were subsampled at fixed core depths during the sampling mission, while 1/3 of the cores (at least one per station) were brought intact to the laboratory and split in longitudinal halves. One of the halves was scanned (hemicore-β) and kept as log material, at 3ºC, in a cold chamber. The other halve (hemicores-α) was subsampled each 2 cm.

No additional sampling was considered necessary at the time of the initial planning of the project, because it was defined as a 'pilot' approach. However, during the mission in October, we observed and were reported of a much wider variety of typologies of saltmarshes according to various uses of these ecosystems. And these typologies were not anecdotical but quantitatively relevant. Also, the processing of the samples of the first mission showed a much higher spatial variability of the carbon stocks and fluxes than expected. So it was decided the high interest of increasing the sampling effort, in order to properly cover the spatial variability of the natural carbon sink at Odiel saltmarsh, to facilitate the upscaling of the local carbon sink and stocks.

We consider highly relevant to sample additional stations at the medium-saltmarsh, situated in an area further away from the river mouth, and from the river main channel. Additionally, the results from action C6 suggest great opportunities of developing carbon projects through saltmarsh recovery in abandoned salt-flats (also called Salinas). This relevance was reinforced by the virtual lack of information in the literature (to our best knowledge), about the effect of salt exploitation in the saltmarsh sediment carbon sink.

In autums 2018, CSIC performed a complementary field mission to Odiel saltmarsh, in order to sample in additional medium marsh areas, within different hydrodynamic conditions and histories, as well as in various types and areas of operating and abandoned Salinas. The end of the action was postponed to December 2018. Nine new saltmarsh typologies were visited and 17 additional cores sampled the 23rd/November to 2nd December 2018.

Final Indicators A3.:

70 cores collected of 54 cores planned (130 %)

Deliverable	DEADLINE	COMPLETED	REPORTED
Complete Lab-sampling report. D	31/12/2017	31/12/2017	Annex A2. Midterm report 30/04/2018

Other relevant Annexes	REPORTED
Mission plan	Annex A2-A3.2 Midterm report 30/04/2018

6.1.4. ACTION C1. ANALYSIS AND ESTIMATION OF CARBON STOCKS AND FLUXES IN ANDALUSIAN POSIDONIA AND OTHER SEAGRASS

- Status of the action C1: COMPLETED
  Foreseen start date: July 2017
  Actual start date: August 2016
  Foreseen end date: December 2018
  Actual (or anticipated) end date: September 2019

Action Nº	BUDGET	TOTAL COST	%
C1. ANALYSIS AND ESTIMATION OF CARBON STOCKS AND FLUXES IN ANDALUSIAN POSIDONIA AND OTHER SEAGRASS	187.194 €	297.441,47 €	159%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
C1	ANALYSIS AND ESTIMATION OF CARBON STOCKS AND FLUXES IN ANDALUSIAN POSIDONIA AND OTHER SEAGRASS MEADOWS																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Final results report C1																x			x									
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

No significant technical deviations are to be reported. All objectives of the action have been accomplished successfully. All analyses and calculations foreseen have been performed and reported in detail. A modification was requested to add further aims to this action. These new aims allowed for the detailed assessment of the natural variability in seagrass meadows carbon stocks and fluxes and to produce cartographic outputs of these two variables in Andalusian coasts. It also allowed to measure the effects of meadow degradation and re-colonization on these carbon stocks and fluxes and established the recent decadal trend of 17 P. oceanica meadows, providing key information for establishing the baseline in carbon stocks and fluxes for eventual carbon compensation projects. This action shows a higher expense than expected as a consequence of the much higher labour effort needed to cope with the processing of the overwhelming number of samples taken from the field, and the also time for processing than expected. Due to a wrong assignment of the analytical costs (^{14}C and ^{210}Pb dating, and elemental and isotopic C and N analyses) to the Consumables section, the External Assistance of this action appears with 'no budget' but with high expenses. This imbalance is clearly offset in the Consumables section, where the budgeted expenses are much higher than the actual expenses.

This action started in August 2016, designing in detail the core subsampling effort and the analysis strategy (**Annex C1-C2.1_Midterm Report)**, based in the action plan exposed in the project form C and on the most recent scientific and technical advances.

As a standard procedure in this field, analyses were performed on one half the cores, keeping the twin half as a backup or for future additional analyses.

X rays fluorescence (XRF) and magnetic susceptibility analysis: all cores collected in the first field mission were analysed for their elemental contents and their magnetic susceptibility. These are proxies to the past sedimentary history and environmental conditions, which give clues to the origin and processes involved in the formation of

the carbon stock. The knowledge derived, helps to understand how future changes in environmental conditions will affect the evolution of the sink.

Each of the 2375 subsamples collected during the first and second field missions were wet- and dry-weighed, and their bulk density calculated, a parameter needed for estimating carbon stocks and fluxes. After producing detailed laboratory protocols (**Annex C1-C2.2_Midterm Report**), we proceeded to subsample treatment and analysis).

Granulometry: the general strategy was to analyse in every centimetre the granulometry of each core along the first 30 cm, and one out of two along the remaining length of the core, although for some key cores, we analysed centimetrically the entire length. Thus, out of the 1255 seagrass sediment subsamples obtained from the first field mission, 863 were analysed for grain size distribution.

Organic Matter content: the general strategy was the same as above: to analyse in every centimetre the organic matter (OM) of each core along the first 30 cm, and one out of two along the remaining length of the core, although for some key cores, we analysed centimetrically the entire length. Organic matter was determined using the Loss On Ignition method (LOI).

Carbon and Nitrogen organic content, and Stable Isotopic ratios: the strategy was to analyse 6 to 12 subsamples along each core, and then estimate the carbon content for the rest of core subsamples through regression analysis of OM content and of the Organic Carbon content (C_{org}), which are strongly correlated. Before the analysis, each subsample aliquot was weighted, digested with Hydrochloric acid (1M) in order to eliminate inorganic carbon (carbonates, $CaCO_3$), and weighted again. The carbonate content was also estimated from this weight difference. Part of the digested sample was encapsulated and sent to another CSIC laboratory in Granada, with the necessary equipment for the determination of the C_{org}.

^{210}Pb dating: In order to estimate the flux of carbon to the sink during the most recent (<100 yr) period of meadow life, we used the top 30 cm of 59 cores for ^{210}Pb dating at the facilities of the Unit of Radiation Physics from the Universidad Autónoma de Barcelona. Aliquots of ground sediment from the first 30 cm of one complete core per tation (15 subsamples per core), were submitted and were successfully accomplished.

Carbon dating: To complete the chronological model of the cores, to estimate the global millenary carbon accumulation rates, the same cores selected for ^{210}Pb dating were also dated using the ^{14}C technique (AMS ^{14}C). One sample 30 cm below the top of the cores and one at the bottom were examined for seagrass organic debris. These debris were sent to Direct AMS, at Seattle, USA. This laboratory offerd the best service out of the 3 that were invited to a public bid (mandatory). All ^{14}C datings were successfully accomplished.

Plant samples:

Lepidochronology: this technique was used to refine and cross-check the carbon sequestration rates by *P. oceanica* meadows during the most recent periods (2-3 last decades). For that, the leaf-sheats attached to vertical plant rhizomes are counted and

measured, and annual cycles are detected. All the shoots collected from Posidonia stations in all field missions have been analysed.

Plant biomass: Plant biomass samples allow us to estimate the organic carbon stock present in the living plants, i.e., before entering the long-term sink. Despite this carbon compartment of the stock is negligible compared to the sedimentary one, we opted to measure it in order to comply the requirements of the international standards (VCS) for wet land carbon offset projects. The plant biomass samples (3 per station) were separated in their aerial (leaves) and belowground organs (rhizomes and roots), dried and weighted. All the biomass samples have been processed.

Plant isotopic signals: During the missions, samples of the most conspicuous primary producers (seagrasses and algae) were collected for the determination of their isotopic signals in order to estimate the local contribution to sediment carbon stocks and fluxes. All samples have been processed.

At this stage, given the wealth of samples and of information, we proposed to extent this action until September 2019, to deliver more detailed information on the temporal and spatial variability of carbon stocks and fluxes, as well as their expected evolution depending on different seagrass conservation scenarios. It also allowed to measure the effects of meadow degradation and re-colonization on these carbon stocks and fluxes and established the recent decadal trend of 17 *P. oceanica* meadows, providing key information for establishing the baseline in carbon stocks and fluxes for eventual carbon compensation projects.

Among all seagrass species in Andalusia, *Posidonia oceanica* should be the target, at large, for any conservation or restoration carbon offset project. It holds 94.4 % of all the CO_2 stored in the sediments of Andalusian seagrasses (1133.6 tCO_2/ha; 8847.2 $ktCO_2$ in the entire Community). The annual input of CO_2 to the sink (average for the last 100 years) is 9.2 $ktCO_2$ for all Andalusian seagrasses, of which 78.8 % is attributed to *P. oceanica*. Full details are given in **Annex C1.1._Final Report, Annex C1.2._Final Report & Annex C1.3._ Final Report.**

During the course of the project, the efforts to send the message to the general public have been abundant and effective and now, in the last year of the project, with all the planned field data collected, analyzed, and reported, it was considered timely to organize a high-level scientific event where to present the project and its main results. To this end, we chose the largest annual meeting on aquatic sciences: that organized by the Association for the Sciences of Limnology and Oceanography (see below). In this year's edition (San Juan, Puerto Rico), and to maximize the impact of our participation, we organized a day-long special session on blue carbon, a workshop for the discussion on the current hottest topics in the field, and also presented 4 oral papers on the project. Below, we have reported all the details of our attendance to the meeting including workshop, orals, and posters summaries contributed to the session, as well as the full presentations of all Life Blue Natura contributions with their corresponding extended abstracts. The impact of this meeting has extended in time and these days we are working in a high-level publication entitled "Red Flags in Blue Carbon Research" to summarize the main concerns (at conceptual, methodological, and policy levels) associated to blue carbon science. At this meeting, we made 4 oral presentations delivering the main results of the project and presenting in detail its structure and successes with the aim of helping other colleagues over the world to replicate our

successful experience. The special session was chaired by Dr. Miguel A. Mateo, IP of the LIFE BN partner CSIC. Full details of this event are given in **Annex C1.4. Final Report.**

In October 2019, we organized the first international Blue Carbon hands-on course to transfer the wealth of knowledge acquired from our activities in LIFE Blue Natura. This was an extremely successful 16-hours event that served to train researchers from all over the world. A full report of the course is attached under **Annex C1.5. Final Report.**

Deliverable	DEADLINE	COMPLETED	REPORTED
Final report. D	30/10/2018	30/09/2019	Annex C1.1. Final report 20/03/2022

Other relevant Annexes	REPORTED
Detailed subsampling and análisis strategy	Annex C1-C2.1 Midterm report 30/04/2018
Analysys protocols	Annex C1-C2.2 Midterm report 30/04/2018
Current data-base UPDATE	Annex C1-C2.3 Midterm report 30/04/2018
Stocks and fluxes maps	Annex C1.2. Final report 20/03/2022
Scientific publications.	Annex C1.3. Final report 20/03/2022
Aslo meeting report	Annex C1.4. Final report 20/03/2022
International Blue Carbon Course	Annex C.1.5. Final Report 20/03/2022

6.1.5. ACTION C2. ANALYSIS AND ESTIMATION OF CARBON STOCKS AND FLUXES IN COASTAL SALT MARSHES

- Status of the action C2: COMPLETED
  Foreseen start date: July 2017
  Actual start date: August 2016
  Foreseen end date: December 2018
  Actual (or anticipated) end date: September 2019

Action Nº	BUDGET	TOTAL COST	%
ACTIONS C2. ANALYSIS AND ESTIMATION OF CARBON STOCKS AND FLUXES IN COASTAL SALT MARSHES	165.921 €	258.154,73 €	156%

		2015				2016				2017				2018				2019				2020				2021			
C2	ANALYSIS AND ESTIMATION OF CARBON STOCKS AND FLUXES IN COASTAL SALT MARSHES	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Final results report C2																x		x										
	Deliverable 2: Extra results in coastal salt marshes-better understanding extreme variability																			x									
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

No significant technical deviations are to be reported. All objectives of the action have been accomplished successfully. All analyses and calculations foreseen have been performed and reported in detail. A modification was requested to add further aims to this action. These new aims allowed for the detailed assessment of the natural variability in Andalusian saltmarshes carbon stocks and fluxes and to produce cartographic outputs of these two variables. Nine new typologies of saltmarsh and 17 new cores were taken to study the impact of human uses in the blue carbon stock (desiccation, re-wetting, salinas, re-vegetation, effect of erosive dynamics, etc.). Similarly, as in action C1, this action shows a higher expense than expected as a consequence of the much higher labour effort needed to cope with the processing of the overwhelming number of samples taken from the field, and the also time for processing than expected. Due to a wrong assignment of the analytical costs (^{14}C and ^{210}Pb dating, and elemental and isotopic C and N analyses) to the Consumables section, the External Assistance of this action appears with 'no budget' but with high expenses. This imbalance is clearly offset in the Consumables section, where the budgeted expenses are much higher than the actual expenses.

As for action C1, this action started in August 2016, designing in detail the core subsampling and types of analyses to be performed. Between November 2016 and June 2017, the team finished with the core sub-samplings and initiated subsamples treatment and analysis, after the refining the analysis strategy (A**nnex C1-C2.1_Midterm Report**) and the establishment of detailed laboratory protocols (**Annex C1-C2.2._ Midterm Report**), adapted to our objectives. The works for this action had for objective the detailed quantification of the stocks and fluxes of blue carbon in two Andalusian saltmarshes, Odiel and Bahía de Cádiz, by the analysis of the organic and inorganic carbon content along the cores obtained, among other relevant explanatory variables (such as those indicating the actual source of the carbon accumulated.

As a standard procedure in this field, analyses were performed on one half the cores, keeping the twin half as a backup or for future additional analyses.

X rays fluorescence (XRF) and magnetic susceptibility analysis, Granulometry, organic matter, C and N elemental and isotopic content. Each of the 943 sediment subsamples collected during the first field mission were processed and analysed in the way described for seagrass sediment subsamples (see action C1). Samples were analysed at the Geology Faculty of the University of Barcelona.

^{210}Pb dating: Aliquots of grinded sediment from the first 30 cm of one complete core per station (15 subsamples per station, 135 subsamples in total) were dated at the Unit of Radiation Physics from the Universidad Autónoma de Barcelona, using the ^{210}Pb technique.

Carbon dating: 43 samples of saltmarsh organic debris were dated to complete the chronological model of the cores, to estimate the global millenary carbon accumulation rates, the same cores selected for 210Pb dating were also dated using the 14C technique (AMS 14C). See action C1 for more information.

Plant samples: The plant biomass samples (3 per station) were separated in their aerial (leaves) and belowground organs (rhizomes and roots), dried and weighted. All the biomass samples have been processed.

Plant isotopic signals: 49 plant samples were collected for the determination of their isotopic signals in order to estimate the local contribution to sediment carbon stocks and fluxes. All samples have been processed.

As a result of this action we have succeeded in assessing the natural variability in carbon stocks and fluxes of Cadiz and Odiel saltmarshes, and produced cartographies of these carbon stocks and fluxes at both sites. We have also measured the effects of different land-use changes (desiccation, re-wetting, salinas, re-vegetation, as well as the effect of erosive dynamics) in saltmarsh carbon stocks and fluxes.

Using all marsh typologies studied in the project, the organic carbon stocks accumulated in the top meter of natural saltmarsh soils in Andalusia ranged from 498.2 ± 105.2 tCO_2/ha, in the medium marsh to 177.5 ± 86.1 tCO_2/ha in mid-low marsh vegetated with *Sarcocornia* spp., under erosive dynamics. The average carbon stock in the top meter of Andalusian saltmarshes is 317.5 2 ± 124.9 tCO_2/ha (13 stations). As a quick reference, the average carbon stock of healthy Andalusian *P. oceanica* meadows is 1509.2 ± 1388.3 tCO_2 ha^{-1} (N= 9 stations), also for the top meter, that is, nearly 3 times higher than in saltmarshes, although also with greater spatial variability. Despite this comparison, given the complexity of restoring seagrass meadows, the initial statement in this section still holds. At healthy saltmarshes, this stock has been accumulating during the last century at an average rate of 1.42 ± 1.50 tCO_2 ha^{-1} yr^{-1} , ranging from negative values (positive if we consider the IPCC convention, to signify GHG inputs to the atmosphere) in the eroding low un-vegetated marsh of Los Toruños (Cadiz Bay) or Isla de Enmedio to 4.6 ± 3.4 tCO_2 ha^{-1} yr^{-1} in the Odiel vegetated mid marsh of El Manto, respectively. These rates are very similar to those of healthy *P. oceanica* seagrass meadows in Andalusia, that averaged 1.8 tCO_2 ± 0.4 ha^{-1} yr^{-1}. Scaling up these numbers by assigning the corresponding stocks and fluxes obtained in the field to the total area occupied, the total stocks in the first meter sediment and average annual

fluxes in the last century for both saltmarsh sites are of 2.14 $MtCO_2$ and 5.5 $ktCO_2$ yr^{-1}, respectively. The interest of this number alone is simply the fact that they are the extant CO_2 tons in the marshes studied, i.e., the reference value upon which to evaluate progression or regression future trends. In other words, these would be the stocks and fluxes to be protected in Cadiz Bay and Odiel Natural Parks and/or to be used to design reforestation compensation projects (**Annex C2.1._Final Report.).**
A series of maps on carbon fluxes and stocks have been prepared and provided for the project LIFE Blue Natura study area. **Annex C2.2._Final Report & C.2.3. Final Report.**

In October 2019, we organized the first international Blue Carbon hands-on course to transfer the wealth of knowledge acquired from our activities in LIFE Blue Natura. This was an extremely successful 16-hours event that served to train researchers from all over the world. A full report of the course is attached under **Annex C1.5. Final Report.**

Deliverable	DEADLINE	COMPLETED	REPORTED
Final report. Update C2 y A3. D	30/10/2018	30/09/2019	Annex C.2.1. Final report 20/03/2022
Final report C2. D	30/10/2018	30/09/2019	Annex C.2.1. Final report 20/03/2022

Other relevant Annexes	REPORTED
Detailed subsampling and análisis strategy	Annex C1-C2.1 Midterm report 30/04/2018
Analysys protocols	Annex C1-C2.2 Midterm report 30/04/2018
Current data-base UPDATE	Annex C1-C2.3 Midterm report 30/04/2018
Stocks and fluxes maps	Annex C2.2. Final report 20/03/2022
Scientific publications.	Annex C2.3. Final report 20/03/2022

306.1.6. ACTION C3. ECONOMIC ASSESMENT OF ANDALUSIA'S BLUE CARBON

- Status of the sub-action C3: COMPLETED
  Foreseen start date: January 2018
  Actual start date: January 2018
  Foreseen end date: October 2020
  Actual end date: June 2021

Action Nº	BUDGET	TOTAL COST	%
C3. ECONOMIC ASSESMENT OF ANDALUSIA'S BLUE CARBON	74.670 €	101.073,10 €	135%

		2015				2016				2017				2018				2019				2020				2021			
C3	ECONOMIC ASSESMENT OF ANDALUSIA'S BLUE CARBON	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Milestone 1: Final report																								o		o		
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 100% with the finalisation of the economic assessment report in the second trimester of 2021. The cost of the activity has exceeded 35% of the planned cost. The categories of personnel remain as initially proposed but with a larger budget invested in external assistance to develop the works according to the outcomes of the platform of experts and a greater variety of pilot cases than initially planned (7 pilot cases studied- 3 pilot cases planned in the proposal) (action C6). This assessment study also includes analysing in more detailed water restoration actions and a revision with the updated Verra standard after its first initial publication. The final result has significantly exceeded the expected results detailed in the proposal, providing the range of possibilities for the new Andalucía standard and the identification of projects that first enter the catalogue (C4 and C7).

This action aims to conduct a feasibility study on the potential projects (for marshes and seagrasses) that would become offer on the Andalusian System of Compensation of Emissions or of other international Voluntary Markets. The action is also based on the results and data collected from the field sampling (C1 and C2) on C fluxes and stocks developed in the first 3 years of the project.

The first step developed in this regard was to examine the type of incentives for private sector involvement with an analysis of the relative efficiency of various incentive-based policies and financing mechanisms developed in different countries to involve private business and institutions in coastal conservation. This work was developed with the assistance of a consultancy and also pursued the goal to provide an overview of the governance structure as well on these mechanisms. The work involved the preparation and dissemination of an online enquiry on existing projects and initiatives working on blue carbon and the mechanisms used (see **Annex C3.1._Midterm Report**). The feedback results from this enquiry, although limited, were interesting to showcase some examples. The report of the incentives study can be found in the **Annex C3.2._Midterm Report** and feed the initial discussions in Action C6.

Through the different meetings organized by IUCN with the expert platform (C6) were identified the potential sites to conduct the feasibility studies for the preparation of

carbon offset projects in saltmarshes and Posidonia meadows for the Parks of Odiel, Cadiz and Almeria. The results from these studies were presented in the different meetings of the platform in 2019 and 2020.

The C3 viability assessments for the pilot projects continued. For the coastal marshes of Odiel and Cadiz, in 2020 this work involved the performance of technical assistance that complemented the previous work carried out in the preliminary assessment, adjusting the results to the implementation of different actions aimed at the improvement of hydrodynamics, through the improvement of connectivity with the main channels and the establishment of a drainage network, in different types of marshlands and locations in the Bay of Cádiz and the Marismas del Odiel. For the Posidonia viability assessment, the initial work was completed to fine tune the data with different market options scenarios and certification times, types of interventions, and costs/revenues. These results were then presented in the last meeting of the Platform (C6) in October 2020. This meeting counted with the participation of standard members of the Platform (e.g. project partners, consultancies from forest offset projects, National CC office), consultant members that are engaged in C4 activity (development of standard) as well as other regional CC and Environment offices that are under preparation of similar approaches.
The recommendations from the platform provided key inputs to bring the finalisation of the work of the C3. The results were seen positive in terms of viability for the development of blue carbon offset projects in coastal wetlands according to the work and typologies carried out. Nonetheless for Posidonia meadows, results showed the difficulties of its viability with the current application, as the carbon credits resulting from interventions (avoiding/sequestration) will not balance the income received from carbon markets, even considering prizes relatively higher than usual. These results were key to see how actions in C4 and C7 will need to be addressed for both blue carbon ecosystems, and with further considerations for the typologies of Posidonia projects with a standard. Further work will later need to evaluate and discuss key strategies for the selling of credits, certification processes, commitments, etc, with the aim to bring recommendations at the decision making level of Andalucia region, Spain as well as European level.

A short brief of these results were later shown in the action C5 (Manual) and in the Chronica Naturae journal. They were also be used to scheme the material to be produced (as well as C4 and C7) for the actions E4 and E5 (meetings with decision makers, business and journalists) next March 2021.

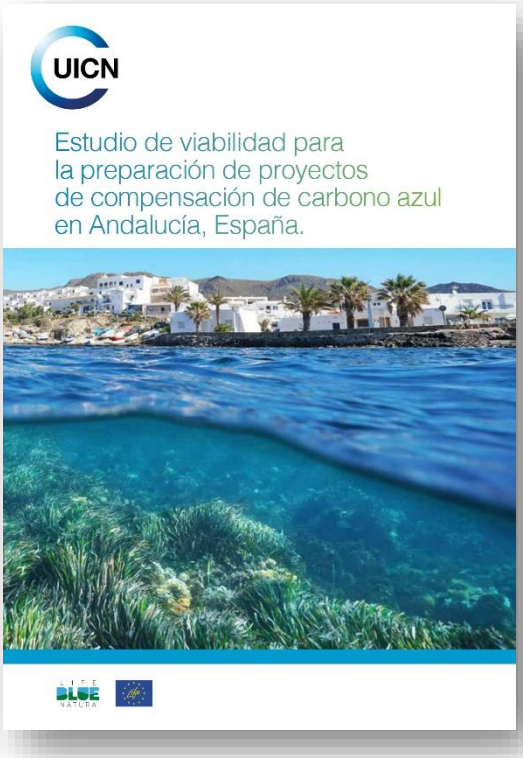
We finalised this work in 2021 with the feasibility economic assessment publication both English and Spanish versions (See **Annex C3. Final Report**). During this later phase the work involved conducting a final throughout review of the different outcomes (for seagrass and wetlands), fine-tuning and standardization the terminology used by each case study as well as the data information generated. We then worked in the lay-out of the document with a designer.

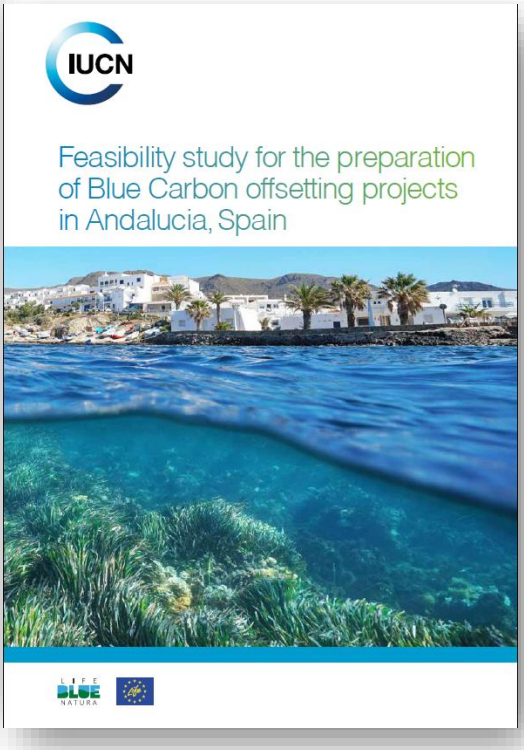
The final output of this work is the first assessment developed for blue carbon offset projects for both ecosystems in Europe using the Verra VSC Carbon Standard VM0033 in addition, VM0024. It replicates the structure of a Project Description Document for the carbon credits that could be generated through offsetting projects traded on a voluntary carbon market. It made a detailed comparative analysis with various types of

interventions and scenarios (various habitats, intervention areas, different times and costs of the validation/verification processes, etc).

The results of this assessment report were the based in the development of the new Andalucia standard for blue carbon (action C4), and the selection of the first projects that would become part of the SACE catalogue (action C7) as discussed in C6.

The first projects selected for the catalogue, one area in the Cabo de Gata-Nijar Natural Park and the second one as the combination of areas in Cadiz Bay, were first analysed in this study.





Milestone	DEADLINE	COMPLETED	REPORTED
Feasibility study for the preparation of Blue Carbon offsetting projects in Andalucia, Sapin. M	01/10/2020	31/03/2021	Annex C3. Final report 20/03/2022

Other relevant Annexes	REPORTED
Economic assessment of Andalusia's Blue Carbon study	Annex C3. Final report 20/03/2022
Only enquery on market incentives and financial instruments	Annex C3.1. Midterm report 30/04/2018
Draft incentives	Annex C3.2. Midterm report 30/04/2018

6.1.7. ACTION C4. ELABORATION OF AN ANDALUSIAN CARBON CREDIT CERTIFICATION STANDARD: SEAGRASS MEADOWS AND TIDAL SALT MARSHES

- **Status of the sub-action C4**.: <u>COMPLETED</u>
  Foreseen start date: May 2018
  Actual start date: May 2018
  Foreseen end date: December 2019
  Actual (or anticipated) end date: July 2021

Action Nº	BUDGET	TOTAL COST	%
ACTION C4. ELABORATION OF AN ANDALUSIAN CARBON CREDIT CERTIFICATION STANDARD: SEAGRASS MEADOWS AND TIDAL SALT MARSHES	102.000 €	59.193,50 €	58%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
C4	ELABORATION OF AN ANDALUSIAN CARBON CREDIT CERTIFICATION STANDARD: SEAGRASS MEADOWS AND TIDAL SALT MARSHES																												
	Overall project Schedule			S				P			P					M				P					P				F
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 100%. Action completed with the publication of the Andalusian Blue Carbon credit certification Standard. The costs of the work were 42% less that the initial budget planned. This budget relates to under expenditure in external assistance.

This action aims the realization of an "Andalusian carbon credit certification standard" by an external assistance (Ecoterrae-Verico-University of Cadiz). The standard was completed in June 2021 (**Annex C4_Final Report).**

The Standard aims to provide to the agents involved in the development of blue carbon projects in Andalusia with clear guidance on the minimum requirements, administrative guidelines and methodological alternatives for the design, implementation and monitoring of conservation/restoration projects for seagrass meadows and tidal marshes, as well as all other types of projects included in the scope of this Standard.

The scope covers all those activities related to the generation of carbon credits (Absorption Units, hereinafter UDAs) linked to CO_2 removals originated from the emission offset projects contemplated in Law 8/2018 of 8 October 1. Each UDA is the amount of CO_2 absorbed certified through an absorption project, equivalent to one tonne of CO_2.

In general, the implementation of Standard absorption projects shall not be required by any applicable legal requirements or sectoral regulations

Participation in the Standard is voluntary and implies acceptance of the technical, administrative and methodological provisions defined in the Standard

This Standard scope does not include carbon footprint assessments or carbon neutrality declarations.

The Standard defines its objectives in three fundamental aspects:

a) To provide requirements applicable to all project types within the scope of the Standard and to provide specific guidance to facilitate and promote a clear and common understanding of all elements involved in the Standard.

b) To guarantee the quality and uniformity of the information included in the description of the projects and of all those elements linked to their monitoring.

c) Ensure the overall efficiency and integrity of the Standard, ensuring implementation cost containment and consistency and reliability of information associated with the life of projects.

Methodological tool to calculate absorptions

The other major part of the work consisted in developing a tool and a calculation methodology to be applied to conservation, restoration, or (re)forestation projects in ecosystems dominated by seagrass meadows and/or tidal marshes. The implementation of projects that conserve, restore, or (re)forest these ecosystems will allow carbon to be captured in a continuous way and for long periods of time; among other benefits, such projects will help to mitigate climate change. The methodology is based on calculating the reduction of greenhouse gas (GHG) emissions that takes place when going from the current situation (base scenario) to a future situation (project scenario), after a project of the type indicated above is implemented. The project should lead to a substantial improvement in the surrounding communities, favouring either an increase in carbon capture in the various reservoirs that the ecosystem has (biomass, soil, dissolved organic carbon, etc.), and/or a reduction in GHG emissions (CO2, methane, and nitrous oxide) with respect to the base scenario conditions. Projects that do not achieve a net reduction in GHG emissions relative to baseline conditions will not be eligible. The calculation tool is designed using several spreadsheets to calculate CO2 emissions/captures in the base scenario and in the project scenario; the tool takes variations in the carbon stock that each of the reservoirs under analysis experiences into account. To do this, values for the different parameters used in the calculation tool must be entered. These values must be taken from databases that accompany the calculation tool, or they could be taken from published data that has proven to be reliable, or from direct measurements carried out on the site where the project will be developed. If data that does not come from the tool databases is used, a detailed report must be included justifying the assumptions, calculations, equations, methodologies, etc. that have been used to confirm the veracity of the data and the calculations made

	REPORTED
Other relevant Annexes	
Andalusian carbon credit certification standard	Annex C4. Final report 20/03/2022

6.1.8. ACTION C5. DEVELOPMENT OF A GUIDE FOR CERTIFICATION OF PROJECTS OF BLUE CARNON GENERATED BY CONSERVATION OR REGENERATION ACTIONS OF SEAGRASS MEADOWS AND TIDAL SALT MARSHES

- Status of the sub-action C5.: <u>COMPLETED</u>
  Foreseen start date: September 2017
  Actual start date: September 2017
  Foreseen end date: December 2020
  Actual end date: June 2021

Action Nº	BUDGET	TOTAL COST	%
C5. DEVELOPMENT OF A GUIDE FOR CERTIFICATION OF PROJECTS OF BLUE CARNON GENERATED BY CONSERVATION OR REGENRATION ACTIONS OF SEAGRASS MEADOWS AND TIDAL SALT MARSHES	83.140 €	69.335,27 €	83%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
C5	DEVELOPMENT OF A GUIDE FOR CERTIFICATION OF PROJECTS OF BLUE CARBON GENERATED BY CONSERVATION OR REGENERATION ACTIONS OF SEAGRASS MEADOWS AND TIDAL SALT MARSHES																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Manual (spanish)																								x		x		
	Deliverable 2: Manual (english)																								x		x		
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 100%. Action completed with the publication of the guide for blue carbon projects in both languages, English and Spanish by June 2021.The costs of the work were 17% less that the initial budget planned. This budget relates to under expenditure in travel and external assistance.

This guide was developed by IUCN. With the experience acquired during the course of this Life project, this action aimed to develop a practical guide on to carry out carbon projects for the conservation/regeneration of seagrass beds and saltmarshes. It was intended to provide knowledge-based guidance for developing project interventions using the carbon finance mechanisms to improve seagrass and coastal wetland conditions for climate change mitigation and adaptation. The guide should also aimed to include background information on climate change situation and policies as well to establish the bases of the different carbon markets and how potential projects could generate actual emission reductions (with an inventory of the amount of carbon that would be “stored” in the project area).

The preparation of the guide has started analyzing the background on climate change, and the Kyoto Protocol, as a basis of the different carbon markets (the regulated market and the voluntary market). Following the adoption of the Paris Agreement at the COP21 to the UNFCCC and COP22 in Marrakesh and the following one in Glasgow with the integration of flexible market mechanisms, updates we also re-examined particularly regarding the carbon offsetting mechanisms.

Participation in several meetings such as the Scientific Symposium in Corsica (July 2017) followed by the International Blue Carbon Scientific Working Group (BCI) meeting held in October 2017 in Ibiza, were invaluable opportunities to discuss and have an overview of the status of blue carbon science for Mediterranean and European ecosystems, as well as policy challenges of blue carbon projects.

The finalization of this publication "*Manual for the creation of Blue Carbon projects in Europe and the Mediterranean*" in both languages (English and Spanish) was finalized and published by June 2021. The manual, over its 145 pages, presents the role of natural carbon sinks (blue carbon ecosystems) in climate change mitigation efforts, policy and methodological steps to identify, assess, and set-up a blue carbon project on the ground –including how to structure projects to be funded through carbon finance market. It provides guidance how to optimize effort allocation in obtaining data from the field and obtain robust estimates within the boundaries of blue carbon offset projects as well as essential elements for restoration implementation.

Complementary to this, it gives the steps to follow in the cycle of a project through the design process, collection of information, validation and verification of carbon offset credits within the voluntary market. Moreover, it can be used for other interventions such as addressing how to robustly quantify blue carbon stocks to identify gains and losses and inform national greenhouse gas inventories.

To enhance capacity on how to structure projects to be funded through carbon finance, the manual provides an overview and detailed information on carbon financing mechanisms and tools with (i) background information on carbon markets, baseline-and-credit mechanisms, carbon certification standards, commercialisation of carbon credits, and existing blue carbon projects; (ii) tools to assess blue carbon project eligibility/feasibility, including methodological assessment, costs and revenue streams, ownership and rights, and additional considerations; (iii) detailed explanation of the carbon project certification process from the drafting of a project idea note to the issuance of carbon credits; and (iv) consideration of double counting and host country commitments to international treaties.

Careful considerations were taken during this final phase on the preparation of graphics to explain difficult concepts in a simpler manner. It also involved conceptualization of works related to offsetting certification process, data collection, calculations, safeguarding principles (as discussed in action C6), field and lab work preparation (as experienced from C1 and C2), and restoration techniques (as outputs from E3 activities). Since its publication, the Manual has become a baseline for upcoming blue carbon projects (from science to offsetting) at Mediterranean and EU level by different conservation and research groups.

Deliverable	DEADLINE	COMPLETED	REPORTED
Manual para el inventario y la formulación de proyectos de carbono azul. D	10/11/2020	31/06/2021	Annex C5.1. Final report 20/03/2022
Manual for the creation of blue Carbon projects. D	10/11/2020	31/06/2021	Annex C5.2. Final report 20/03/2022

6.1.9. ACTION C6. DIALOGUE AND PORTOFOLIO OF CARBON OFFSET PROJECTS FOR THE CONSERVATION AND REGENERATION OF BLUE CARBON

- Status of the sub-action C6.: <u>COMPLETED</u>
  Foreseen start date: December 2015
  Actual start date: February 2016
  Foreseen end date: December 2020
  Actual end date: December 2021

Action Nº	BUDGET	TOTAL COST	%
C6. DIALOGUE AND PORTOFOLIO OF CARBON OFFSET PROJECTS FOR THE CONSERVATION AND REGENERATION OF BLUE CARBON	80.216 €	59.033,82 €	74%

		2015				2016				2017				2018				2019				2020				2021			
C6	DIALOGUE AND PORTOFOLIO OF CARBON OFFSET PROJECTS FOR THE CONSERVATION AND REGENERATION OF BLUE CARBON	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1. Report Blue carbon National-regional review																							x					
	Deliv. 2. Portofolio of Carbon offset projecs																							x					
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 100%. The cost of the final works has been 74% of the planned cost with underspent budget assigned to the travel category unconsumed. The results of the work carried out by IUCN have significantly exceeded the expected results detailed in the proposal, particularly those related to policy integration and transferability in 2021.

This activity was initiated by the constitution of an Advisory Group as a platform for dialogue, consultation and follow up in the preparation and future implementation of blue carbon offset projects. The first meeting of the Advisory Group (AG) was carried out the 16th September in Málaga in 2016. It was the meeting devoted to set up the scene of the goals of the project, present the status of the carbon market situation at national/regional and international level and agreement between participants the objectives of the group. The second meeting of the AG was organised the 6-7th March 2017 with the main objective of discuss the guidelines and criteria for the identification of Blue Carbon offset projects and define the standard projects in the wetlands, as well as possible target companies that could be interested in these types of projects. This was facilitated as the draft results of the activities of A1 were being finalised.
Reports of the different meetings of the platform over the duration of the project and their agendas are included in **Annex C6.2. Final Report.**

The group worked over several steps the selection of criteria that will be used to define Blue carbon projects in coastal marshes. For this, reference was made to the economic instruments as a tool for reducing GHG emissions, to the standards for offsets and the standard process for the definition of a project for the absorption of GHG emissions. A set of criteria for the future carbon offsets projects were also discussed. Once the criteria were agreed among participants, several principles for coastal wetlands in the European Atlantic and Mediterranean context were decided. This was followed by presentations

and a extend discussion on a series potential pilot areas in the Bay of Cadiz and Odiel marshes. Projects in those areas aimed to have the focus on recovering of salt pans, restoration of tidal flow, earthworks, land rending and replantation. It is also agreed that the pilot projects should involve a simple action and include a social part to favor the population's awareness. The importance of abandoned salt pans and the unknown Carbon storage value that these areas might have been also highlighted as potential places for further works. External consultancy helped to gather information related to the evaluation of existing market incentives to promote coastal (blue carbon) conservation projects as incentives for private sector involvement. Inputs from this work were also presented briefly in the second meeting of the AG.
Following annual or biannual meetings in 2018 and 2019 presenting the progress discussed the limitations of the projects and challenges they face, lines of work, and quantification principles of the absorptions. In addition, discussed were held to examine the recent approval of the Andalusian Law on Climate Change, the EU regulation of land use and changes in land use for 2021-2030, or the functioning of the national carbon footprint registry with the advances and challenges in different autonomous communities.
These works allowed a common reflection in relation to the structure that Bluenatura projects should have, the data coming from the field studies, the buffer and risks of projects and land tenue rights in the case of wetlands.

In 2020 and 2021 the subjects of the meetings were to review the results of the feasibility study of blue carbon offset projects (action C3), discuss recommendations for the development of the Standard, final selection of projects and feedback on questions related to the configuration of the SACE (Andalusian Compensation System). During 2021, we prepared the final report of this activity and discussed over several meetings the ongoing documentation and the progress on the activities C4 and C7 managed by the Junta of Andalucía, Climate change office.

The action C6 also provided the scope to contribute to the materialization of regional programmes and national climate change mitigation actions. Contributing to this objective, IUCN stated information for the inclusion of actions on blue carbon ecosystem conservation, monitoring and restoration at the Post-2020 SAPBIO Strategy under the Barcelona Convention and its monitoring programmes for all Mediterranean countries. This work was finalised at COP22 in Antalya, Turkey clearly showing the integration of the outcomes produced by the project into Mediterranean policies allowing also its future replicability and transferability.

Deliverable	DEADLINE	COMPLETED	REPORTED
El Carbono azul en los inventarios nacionales y en los mercados de carbono. D	01/10/2020	01/10/2020	Annex C6.1. Final report 20/03/2022
Portofolio of Carbon offset projects. D	15/10/2020	15/10/2020	Annex C6.2. Final report 20/03/2022

6.1.10. ACTION C7. PROJECTS CATALOGUE

- Status of the sub-action C7.: <u>COMPLETED</u>
  Foreseen start date: September 2017
  Actual start date: September 2017
  Foreseen end date: December 2019
  Actual (or anticipated) end date: December 2021

Action Nº	BUDGET	TOTAL COST	%
C7. PROJECTS CATALOGUE	48.000 €	16.333,91 €	34%

		2015				2016				2017				2018				2019				2020				2021			
C7	CATALOGUE OF PROJECTS FOR CONSERVATION OF POSIDONIA	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P						P				F
	Deliverable 1: Posidonia/salt marshes conservation projects																			x										x
	Milestone 1: 2/3 projects have been registered																				o									o
	STABLISHED PROJECT TIMETABLE																													
	FINAL REPORT 20032022																													

Final achievement 100%. Action completed with the publication of the Projects Catalogue in the Andalusian Climate Change Portal. The costs of the work were 64% less that the initial budget planned. This budget relates to under expenditure in external assistance.

BAY OF CADIZ PROJECT (Annex C7_ Final Report)

ACTIONS: The areas display an advanced state of degradation and altered tidal rhythms as a result of their almost complete disconnection from the tidal system, or due to the presence of basins and barriers for aquaculture and the saline industry.

The aim is to restore natural tidal flow and thus recover the tidal marshes' innate capacity to capture sediment and organic matter (carbon).

AREA: 365 ha

RESULTS: Ex-ante estimates of the absorptions generated by the project: 106.367 t CO2 (50 years)

BUDGET: 345.042 € (3,24 €/tCO2)

Las Aletas: 175.990 €
Río Guadalete: 169.052 €

POSIDONIA PROJECT (Annex C7_ Final Report)

ACTIONS: The selected areas of meadow within the Cabo de Gata-Níjar Natural Park are affected by unregulated anchoring structures in the form of concrete blocks and other associated elements.

The project aims to manage this activity through the implementation of an ecological buoy field, in addition to the restoration of the affected underwater meadows in order to improve blue carbon sequestration.

AREA: 11 ha

RESULTS: Ex-ante estimates of the absorptions generated by the project: 685 t CO2 (50 years).

BUDGET: 273,060 € (423 €/tCO2)

Deliverable	DEADLINE	COMPLETED	REPORTED
Posidonia/Saltmarshes Conservation projects. D	01/10/2021	20/12/2020	Annex C7. Final report 20/03/2022

Milestone	DEADLINE	COMPLETED	REPORTED
Registered Projects	20/12/2021	20/12/2021	-

6.1.11. ACTION D1. PROJECT INDICATORS

- Status of the action D1: <u>COMPLETED</u>
  Foreseen start date: September 2015
  Actual start date: March 2016
  Foreseen end date: December 2021
  Actual (or anticipated) end date: December 2021

Action Nº	BUDGET	TOTAL COST	%
D1. PROJECTS INDICATORS	72.000 €	42.349,98 €	59%

		2015				2016				2017				2018				2019				2020				2021			
D1	IMPACT INDICATORS.	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Milestone 1. Final Indicators table					o					o																		
	Deliverable 1. Initial report								x		x				x														
	Deliverable 2. Intermediate report 1										x					x													
	Deliverable 3. Intermediate report 2															x	x												
	Deliverable 4. Intermediate report 3																							x					
	Milestone 2: Final report																												x
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 100%. Action completed with the publication of the final results obtained from the indicators' system. The costs of the work were 59% less that the initial budget planned. This budget relates to under expenditure in external assistance.

The project must contemplate analyzing tasks of the impact that the project has generated. For these, it is necessary to design, apply and monitor an impact indicators' system, that will mainly assure the fulfillment of the specific objectives established for the project.
To fulfill this, the CAGPDS has hired Atlántida S.A. to work on the services mentioned above, for its offer was selected during the hiring process "negotiated without advertising".
The final results obtained from the indicators' system (**Annex D1. Final Report**) are quite high in some cases, such as those related to politics and the economic sector, and also in the use of digital tools and achieving loyalty from key actors to obtain transference and replicability in the future.
The management of marine habitats, blue carbon sinks, throughout the development of the project, has had a greater number of trained managers, thanks to the project's actions, besides the workshops and conferences that were able to broadcast the importance of these habitats and their functionality in blue carbon sequestration. This results in an improvement of capacity for the Administration to manage these areas, as well as involving many sectors of society, not only in knowing about blue carbon but in participating in the initiatives.
The interest that the project achieved, has also been visible in the educational community that participated in several of its activities, resulting in positive surveys regarding the importance of blue carbon, with the expectation of including blue carbon in educational material and as part of the schools' curricula in the future.
It is worth mentioning, that the transversal impact expected from LIFE Blue Natura, will be able to produce improvements in governance, specifically in the management of marine habitats that act as blue carbon sinks, while at the same time improving the

livelihood of the population, through the conservation of these habitats and its ecosystem services, such as employment generation, financial sustainability and improvement of knowledge.
Having said this, the awareness/communication activities have been considered as the most successful ones and those able to generate the greatest impact on the Andalusian society for which these activities are designed for.
In relation to socio-economic and governance improvements, these will depend greatly on that the generated change inertia continues; mainly that there will be meetings spaces between companies and administrations, and that the higher management capacity that the administrations will have acquired, can be valued through these participate events.
With this in mind, it is highly recommendable to maintain and boost the communication and awareness strategy within the LIFE Blue Natura framework, including scientific conferences, workshops and courses that talk about the importance of this project.

Deliverable	DEADLINE	COMPLETED	REPORTED
Initial report D1. D	01/06/2016	30/04/2018	Annex D1.2. Midterm report 30/04/2018
Intermediate Report. D1.I D	01/06/17	30/09/18	Annex D1. Final report 20/03/2022
Intermediate Report D1.II D	30/09/18	31/07/19	Annex D1. Final report 20/03/2022
Final Report D1. D	10/09/20	20/12/21	Annex D1. Final report 20/03/2022

6.1.12. ACTION E1. COMMUNICATION CAMPAING

Action Nº	BUDGET	TOTAL COST	%
E1. COMMUNICATION CAMPAING	72.430 €	76.831,98 €	106%

		2015				2016				2017				2018				2019				2020				2021			
E1	COMMUNICATION CAMPAING	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Delv.1: Communication Plan				x		x																						
	Delv. 2. 1 audiovisual: Climate change and Blue natura Project								x						x														
	Delv. 3. 2 audiovisual: Instruments replication																				x	x							
	Delv. 4. 2 audiovisual: Project actions																	x											x
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

A significant effort since the beginning of the project has been done to increase awareness and information about the objectives of the Life Blue Natura project: news, interviews, reports and dissemination actions have focused on the project objectives and scheduled activities. Also, the social networks of the project (Facebook, twitter, Instagram, YouTube) have been continuously active to keep the interest awaken. Website, which is also linked to social networks updates, has been a useful tool for query and getting information; also, the newsletter of the project has been often sent to subscribers. The evolution of the communication actions indicators (exposed below) is a good tool to check this interest and the community created. Deviation is referred to the maintenance of communication actions (website, social media, interviews) during the two extensions of the project (2021). As an example, during October from 4th to 10th, the sixth stop of the European SailGP sailing competition took place in Cádiz. Life Blue Natura project was very active during those days with several communication, educational and field activities.

E1.1.Communication Plan

- Status of the sub-action E1.1.: COMPLETED
  Foreseen start date: October 2015
  Actual start date: October 2015
  Foreseen end date: December 2015
  Actual end date: May 2016

The communication plan has been developed by "Descubre Comunicación", with the support of the communication team, and more intensively by the Director and the Coordinator of the project (see **Annex F.1.2.**). In addition to the Plan, the company has developed the project identity (logos etc.). All the Communications tools and the final Plan document have been delivered by the company in May 2016. This 5-months delay with respect to the project timetable did not affect the good execution of the rest of actions of the project.

E1.2. Communication team

- Status of the sub-action E1.2.: COMPLETED
  Foreseen start date: October 2015
  Actual start date: October 2015
  Foreseen end date: October 2015
  Actual (or anticipated) end date: October 2015

It was created in October 2015**.** Works developed have been based mainly on the approval of the corporate entity and in the evaluation of the contents of the *Communication Plan* and the *Social Network Plans.*

E 1.3. Web

- Status of the sub-action E1.3.: COMPLETED
  Foreseen start date: September 2015
  Actual start date: September 2015
  Foreseen end date: December 2021
  Actual end date: December 2021

A domain (www.life-bluenatura.eu) was acquired since the first month of the project. A temporal website was then constructed with a description of the project objectives and beneficiaries, as well as an official newsletter subscription form.

Since this time, this tool was useful to inform about the project and to obtain newsletter subscriptions. So, it was linked to Facebook and YouTube accounts, and leaded to the social networks. This helped to aware the project at its beginnings and created an important social network and newsletter database for the official website launching.

Definitive website suffered a slight delay because of a budget internal adjustment, derived from the communication plan recommendations. At the end of 2016 the website was launched.

The web, with a very attractive design, looks for the attention and information about blue carbon sinks in Andalusia: several schemes, images and gifs have been created to explain the technical information of the project. The web is directly linked to social networks, so visitors can check last updates immediately.

Website has a private (internal) area, the intranet, where beneficiaries upload, download and share information, reports, photos and everything related to the communication and project actions. This area is being used by all the beneficiaries and by the cofinancier. (**Annex E1.3_Midterm Report**)

E 1.4. Design and implementation of an initial "staging" campaign of the BLUE NATURA Project.

- Status of the sub-action E1.4.: COMPLETED
  Foreseen start date: October 2015
  Actual start date: October 2015
  Foreseen end date: December 2021
  Actual end date: December 2021

The *Communication Plan* organized the structure of the communication actions; From this plan, a 6-month *Social Network Plans* were recommended, in order to organize the communication actions of the project and mainly the social networks relationships among all the beneficiaries. since then, each beneficiary has had an organized structure to launch information related to the project, in the same way that the rest of the beneficiaries have shared that information, to increase the dissemination.

Due to the Communication Plan instructions, a budget modification was performed, affecting several characteristics of the E1 and E6 actions: the website characteristics, number and effort on social network and dissemination personnel dedication were increased (further explanation in **Annex 5.1. F1.1. Budget June 2016. Midterm report)**

These modifications allowed to start and update the twitter and instagram social networks accounts, among other communication activities.

Social networks are currently (21 December 2021) at these levels:

- Facebook account has 1614 followers, with a scope about 300.000 views and interactions: https://www.facebook.com/lifebluenatura/
- Twitter account has 655 followers with a scope about 40.000 views and interactions. https://twitter.com/lifebluenatura
- Youtube channel has 29 videos posted, with a scope about 20.000 views https://www.youtube.com/channel/UCQwqK9fRIPTXJZgeES0DNlw
- Instagram channel has 593 follower, with a scope about 5.000 views and interactions https://www.instagram.com/lifebluenatura/

Anyway, radio, television and press have been informing about the project, its beneficiaries and the LIFE PROGRAMME supporting from the beginning. An attached table of dissemination actions is available (**Annex. E1.4. Final Report**). In parallel, communication efforts have been focused on scholar, academic and research guilds: at least 60 communications have been developed in Master classes, Symposiums and Congress and conference or meetings. These actions have widely extended the range of targeted persons.

As a specific communication action, HyT recorded several videos with different stakeholders (researchers, politicians, divers, population even kids) joining the project throughout the slogan "*Join Blue Natura and Combat Climate Change*": these short videos bring closer the project to population and allow external experts or collaborators to support the project. 15 different "supports" have been edited, including partners of the project and researchers from National and International Universities. One of these supports is made by the elder volunteer of POSIMED campaign, Carmen, 74 years old. All videos can be sight in the YouTube channel of the project.

Several communication materials (**Annex E1.5_Midterm Report**) have been edited and have been distributed in different activities where the project has taken part. These are the materials: General flyer of the project; Folder of the project; Pen (2 versions) with logos and slogan; Paper with logos and slogan; Flag (3 copies); Roll up; Placard to be placed in locations with many visits.

The external assistance for audiovisuals was signed in April 2018. In September 2016, the project had one deliverable linked to this external assistance (First audiovisual Climate change and Blue natura project). This deliverable was subject to a delay until June 2018. To avoid this delay affecting the project communication objectives, HyT

edited 25 videos: 22 videos were posted in Youtube or Facebook, these videos were also used in the itinerant campaign.

Deliverable	DEADLINE	COMPLETED	REPORTED
Communication Plan	01/12/2015	01/12/2015	Annex E1.1. Progress report 30/09/2016
Audiovisuals Nº1. D	01/09/2016	01/09/2016	Annex E1.2 Final report 20/03/2022
Audiovisuals Nº2 (En-Es). D	15/05/2019	15/05/2019	Annex E1.3 Final report 20/03/2022
Audiovisuals Nº3 (En-Es). D	21/09/2020	31/01/2021	Annex E1.4 Final report 20/03/2022

Milestone	DEADLINE	COMPLETED	REPORTED
Webpage	01/11/2015	01/12/2016	-

Other relevant Annexes	REPORTED
Disemination acctions table	Annex E1.1. Final report 20/03/2022
Social networks plans	Annex E1.2. Midterm report 30/04/2018
Intranet	Annex E1.3. Midterm report 30/04/2018
Communication materials	Annex E1.5. Midterm report 30/04/2018

Progress ACTION E1: Sub-actions: E1.1, E1.2., E1.3., E1.4.

Number of ads, news: 276, with a scope about 300.000 views
Number of interviews: 20, with a scope about 3.500.000 views
Number of website visits. 27.416 different visitors with a scope about 95.000
Number of Facebook followers: 1614
Number of twitter followers: 655
Number of Instagram followers: 593
Number of newsletter subscriptions: At 17st March 2018, 1432 people are registered to the newsletter
Number of videos. 29 (Life Blue Natura Youtube channel)
Number of subscriptions to YouTube channel: 31

6.1.13. ACTION E2. SCIENTIFIC-TECNICAL CONFERENCE ON CONSERVATION OF COASTAL CARBON SINKS.

- Status of the sub-action E2: COMPLETED
  Foreseen start date: September 2015
  Actual start date: September 2015
  Foreseen end date: December 2020
  Actual end date: June 2021

Action Nº	BUDGET	TOTAL COST	%
ACTION E2. SCIENTIFIC-TECNICAL CONFERENCE ON CONSERVATION OF COASTAL CARBON SINKS.	137.635 €	83.110,03 €	60%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
E2	FIRST SCIENTIFIC-THECNICAL MEETING ABOUT CARBON SINK. CONSERVATION OF CARBON SINK.																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Final results report																								×				
	Milestone 2: First meeting						×																						
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 100%. The activity E2 was executed following the schedule of the project with two scientific-technical meetings, first one presential in 2016 and the second one in 2020 online. The work is full adjusted to the categories of personnel and external assistance and leaving remaining money assigned to the travel, external assistance and consumable category unconsumed due to the development of the second conference online because the pandemic.

This action was planned for two periods, the first to end on the third - fourth quarter of 2016 and the second, for the period in 2019. The first meeting was carried out the 21 to 22 November 2016 in La Térmica, Malaga, Spain. The final agenda of the meeting, the participants as well as the outcome report are attached to this report **(Annex E2._Final Report).**

The two-day meeting received the participation of more than 85 participants from scientific institutions, administrators and other stakeholders to discuss the current knowledge about these ecosystems in the face of climate change, from the ecological and socio-economic perspectives. Bringing the experiences of different international and national projects and initiatives on aspects of policy, knowledge of ecosystem services and their values, as well as the results and future prospects for Blue Carbon ecosystems as tools for mitigation and adaptation to climate change, it also provided an overview of the research on blue carbon in Europe together with how to promote their conservation and restoration. Three Life projects representatives also participated in the meeting to see potential synergies and opportunities: Life Admiclim from Delta del Ebro, Life SHARA (Sharing Awareness and Governance of Adaptation to Climate Change in Spain) and Life project RESMARIS from Cape Carbonara, Sardinia.

To enhance future participation and integration with other related market initiatives, UICN participated in several encounters such as the 28th November in the CONAMA congress during the session on “Carbon sinks and their role to achieve neutral footprint on climate.

The second scientific-technical seminars on coastal carbon sinks “The value of Blue Carbon Ecosystems for Climate Change Adaptation and Mitigation” (Action E2) was held on the 9-10th December 2020 online. The contributions were focus on: Knowledge about the value of coastal wetlands and seagrasses for adaptation and mitigation climate change; experiences and initiatives of restoration and conservations initiatives on coastal wetland and seagrass across EU and the Mediterranean, particularly those with adaptation and mitigation value. Nearly 140 inquiries were received to participate in the seminar and 105 were confirmed to participate. Ultimately, over 70-51 participants participated in each of the 2 days event, respectively. Presenters include experiences gather from different Life and Interreg projects as well as other initiatives and results driven by other schemes (e.g. regulatory process). Similarities and complementarities were also discussed and will drive further discussions. A summary report of the meeting will be produced in 2021.

During the 2021 reporting period, the work involved the preparation of the report, finalization of payments, and travel to the Steering Committee in Almeria.

Deliverable	DEADLINE	COMPLETED	REPORTED
Final report first conference. D	01/12/2020	03/07/2017	Annex E2.1. Midterm report 30/04/2018
Final report second conference. D	01/12/2020	31/12/2020	Annex E.2. Final report 20/03/2022

Milestone	DEADLINE	COMPLETED	REPORTED
First meeting	30/06/2016	21/11/2016	-

Other relevant Annexes	REPORTED
Conference materials	Annex E2.1. Midterm report 30/04/2018

6.1.14. ACTION E3. WORKSHOPS FOR MANAGERS AND TECHNICIANS TO DEVELOPMENT FIELD INVENTORIES AND REPORTING AND PROJECTS

- Status of the sub-action E3: COMPLETED
  Foreseen start date: June 2017
  Actual start date: June 2017
  Foreseen end date: September 2020
  Actual end date: May 2021

Action Nº	BUDGET	TOTAL COST	%
ACTION E3. WORKSHOPS FOR MANAGERS AND TECHNICIANS TO DEVELOPMENT FIELD INVENTORIES AND REPORTING AND PROJECTS	102.896 €	92.783,05 €	90%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
E3	WORKSHOPS FOR MANAGERS AND TECHNICIANS TO DEVELOPMENT FIELD INVENTORIES AND REPORTING AND PROJECTS																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Final results report																							x					
	Deliverable 2: Manual and material of training																							x					
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 100%. The first workshop was held on the 16-18th September 2019 in Huelva. The 2nd Training workshop in coastal wetlands and seagrass meadows restoration, based in Blue Carbon actions was held between 15th- 17th September 2020 online due to the situation with Covid 19 pandemic.

The first workshop was held on the 16th, 17th and 18th September 2019 in Huelva, Spain and was aimed at participants interested in the conservation and restoration of coastal ecosystems (particularly seagrass beds and wetlands) or in the area of climate change, including technicians and managers of natural resources and protected areas, environmental consultancies, researchers and associations. The objective of this first training workshop for managers and technical experts in the development of blue carbon projects was to develop the capacity of the participants to understand how blue carbon can be measured and utilized to promote conservation and restoration of coastal ecosystems. Specifically, it explored and provided:

- Applications behind the blue carbon concept and its potential to promote the value for conservation and restoration of coastal wetlands and seagrasses in Europe;
- Overview on methods for assessing carbon stocks and emissions from blue carbon ecosystems; and
- Guidance for developing and implementing blue carbon projects: understand the necessary documentation, monitoring, and verification costs for the development of these projects.

The scientific session related to measuring carbon sequestration and carbon stocks was provided from experts from CSIC Blanes while the technical session on carbon markets

was developed with a consultancy assistance. **Annex E3.1._Final Report** included the report results from this activity.

Workshop organized by IUCN for managers and technical experts in the development of Blue Carbon projects.

The second workshop for managers and technicians (Action E3) was held on the 15th - 17th September 2020 online. Initially, the event was to be developed face to face in the Parque Natural de la Bahía de Cádiz, Spain, but due to the unforeseen consequences of the Covid-19 pandemic situation, the workshop had to be redesigned and was ultimately carried out online using the platform Zoom. This three-day workshop was designed for environmental consultants, technicians and environmental managers of private and public enterprises, protected areas, organizations and municipalities, interested in coastal ecosystem restoration. The objective was to develop the capacity of participants in different actions, that adding to restoring and protecting these important ecosystems, serve to capture CO2, helping, therefore, to mitigate global climate change. Nearly 80 inquiries to participate in this workshop were received from both within and outside of the Mediterranean and EU region. Ultimately, over 55 participants from 17 countries took part at the end in the training, mostly Spanish and EU participants (France, Belgium, Portugal, Italy, Holland, Greece, Malta and UK) but also from Turkey, Albania, Tunisia, Egypt and Morocco.

During the 2021 reporting period, the work involved the finalisation of the report, payments, preparation of certificates for attendees and reports and of social media outreach.

Deliverable	DEADLINE	COMPLETED	REPORTED
Final report 2 workshops. D	30/09/2020	30/09/2020	Annex E3.1. Final report 20/03/2022
Manual and materials. D	30/09/2020	30/09/2020	Annex E.3.2. Final report 20/03/2022

6.1.15. ACTION E4. SEMINARS FOR POLICY MANAGERS AND PRIVAT SECTOR

- Status of the sub-action E4: COMPLETED
  Foreseen start date: October 2018
  Actual start date: October 2018
  Foreseen end date: October 2021
  Actual end date: December 2021

Action Nº	BUDGET	TOTAL COST	%
E4. POLITIC AND PRIVAT SECTOR SEMINARS	55.906 €	81.014,73 €	145%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
E4	SEMINARS FOR POLICY MANAGERS AND PRIVATE SECTOR																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Final results reports																												x
	Deliverable 2: Toolkit																								x				x
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 150%. The first of this seminar was the event held at the European Parliament in Brussels in 2018. Following to this and with the final outcomes of the project was organised the described in this action Seminar for policy makers and the private sector the 25th November in Malaga as a hybrid event, allowing for both online and in-person participation. The results from this work developed by IUCN, despite the Covid related situations, have significantly exceeded the expected results detailed in the proposal. Finally, to enhance these results two local workshops (not planned) were held in the areas of the blue carbon projects.

The 27th November 2018 at the European Parliament, IUCN organized the seminar "Blue Carbon in EU Climate Policy" with the assistance of European Parliament Intergroup on "Climate Change, Biodiversity & Sustainable Development". This event, co-chaired by previous MEPs Ricardo Serrão Santos and Maria Spyraki, aimed to provide a forum for discussing on the role of these coastal and marine ecosystems for climate mitigation and adaptation. With a panel of speakers with different perspectives (from science, conservation, policy, industry and climate change), the discussion reiterated the urgency to act and the need for an enhance collaboration between governments, private sector and NGOs, as well as investments (see **Annex E4.2. Final Report**)

The seminar, called "*Blue carbon at the heart of a healthy climate: A new roadmap through new compensation mechanisms and the conservation of the sea*", was held on 25 November 2021 in Malaga as a hybrid event, allowing for both online and in-person participation.

In addition, a toolkit with several documents were prepared for seminar participants and interested institutions (5 factsheets, a Manual for investors, an infographics).

The conference was opened by the General Director of Environmental Quality and Climate Change, Junta de Andalucía and the Director of IUCN Centre for Mediterranean Cooperation. This welcome was continued by the General Director of

the Spanish Office of Climate Change of the Ministry, who offered the attendees an overview of the results of the COP26 that had recently taken place in Glasgow. More than 60 people attended the seminar in person with 23 participants representing the business sector. 172 people attended and more than 862 streaming visits were received through the different online channels.

The participants were able to learn about the first projects to be placed in the SACE (in Cabo de Gata and Bahía de Cádiz).Some of the participating companies showed great interest in learning more about the two projects presented and the generation of other such projects, and remained awaiting the completion and implementation of the SACE tool.

In December, two local meetings were held in the areas of the blue carbon projects (Catalogue): Bahía de Cádiz Natural Park and Cabo de Gata - Níjar Natural Park. The objective of these workshops was to present the GHG emission compensation projects associated with blue carbon, proposed in each natural area in order to encourage the involvement and participation of the main interest groups in each territory. For the elaboration of these workshops, with collaboration of the directors of each natural area, the interested entities were identified and invited to participate in them. In the workshops, firstly, an informative part was carried out on the legal framework of climate change mitigation policies in Andalusia, the LIFE BLUE NATURA project and the compensation projects developed in each natural space. The second part of each workshop was a dynamic of participation among the attendees in order to gather their opinions about the project and the aspects that they thought would facilitate their involvement and participation. In general, the evaluation has been very positive and, in both natural spaces, both the business sector and other social agents consider that this initiative can contribute to the conservation of the territory and generate new economic opportunities linked to blue carbon (**Annex E4.3._Final Report**).

The three commitment letters received from the private sector (**Annex 6.4. Final Report**) are positive results of these efforts.

Deliverable	DEADLINE	COMPLETED	REPORTED
Toolkit Seminars. D	15/12/2020	01/11/2021	Annex E4.1. Final report 20/03/2022
Final report. D	20/10/2021	31/12/2021	Annex E.4.2. Final report 20/03/2022
Local workshops Policy makers private sector	20/10/2021	31/12/2021	Annex E.4.3. Final report 20/03/2022

Other relevant Annexes	REPORTED
Cartas de Adhesión	Annex E4.4. Final report 30/04/2018

6.1.16. ACTION E5. WORKSHOPS FOR SPECIALIZED MEDIA

- Status of the sub-action E5: COMPLETED
  Foreseen start date: July 2017
  Actual start date: July 2017
  Foreseen end date: October 2021
  Actual end date: December 2021

Action Nº	BUDGET	TOTAL COST	%
E5. WORKSHOPS FOR SPECIALIZED MEDIA	36.580 €	25.207,51 €	69%

		2015				2016				2017				2018				2019				2020				2021			
E5	WORKSHOPS FOR SPECIALIZED MEDIA	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Media Kit										x							x											x
	Deliverable 2: Results report																												x
	Milestone 1: Start of the workshop																												x
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 100%. The outcomes of this activity with the final workshop visit for general and specialised media have a large impact in different online, radio, TV and printed media such as specialised magazines in the economic sector and national newspapers.

One of the main conclusions agreed by participants in the Second Steering Committee in 2017 was the need of first Mediakit (Action E5). This document would make easier the understanding of technical issues by professional journalists interesting in the project and so on would make easier to achieve the communication objectives of the project. The first Mediakit was finished and is present in this report (**Annex E5.1._Final Report**).

To continue working in this action and preparing different communication tools for journalists, we developed infographic poster (**Annex E5.2._Final Report**) for the occasion of the UNFCCC COP 23. The information presented intended to explain the role of blue carbon ecosystems as natural capital for mitigating climate change and the activities that are being generated by the project towards this goal. The was followed with a reception *Celebrating successes of nature-based solutions in coastal ecosystems*, hosted by the Blue Carbon Initiative and International Partnership for Blue Carbon Monday. We also worked with the action E1, to review press releases and communication through social media that could be reached by digital press. The media kit was also distributed to those journalists that wanted to understand more on the subject.

On November 26th 2021 in the Bay of Cádiz was organized the field workshop for media that had the objective of presenting the main results of the project, mainly in relation to the design of the first two blue carbon offset projects to incorporate into the voluntary CO2 market within the framework of the Andalusian Law on Climate Change. The field visit consisted of a day where 24 journalists from the scientific, environmental and economic fields were contacted. A general invitation was also included for 5 members of the Spanish Association of Scientific Communication. In

total, 11 journalists confirmed attendance, mostly national, including an international media outlet.

For the field visit, various materials and documents were prepared for journalists and were delivered during the event, including the Media kit on carbon projects and the descriptive sheets of the 2 projects (**Annex E5.2._Final Report**).

The media coverage after this workshop was very large and included agency news such as Efeverde, radio, regional TV stations and national and local newspapers. A report of this was is included in Annex.**E5.2._Final Report**.

Deliverable	DEADLINE	COMPLETED	REPORTED
Mediakit Specialized media. D	15/12/2020	15/01/2019	Annex E5.1. Progress report 30/06/2017
Mediakit Specialized media. Update. D	15/12/2020	01/11/2021	Annex E5.1. Final report 20/03/2022
Final report. D	20/10/2021	31/12/2021	Annex E.5.2. Final report 20/03/2022

Milestone	DEADLINE	COMPLETED	REPORTED
Start of the workshop	15/10/2021	26/11/2021	-

6.1.15. ACTION E6. DISSEMINATION ITINERANT CAMPAING

- Status of the action E6.: COMPLETED
  Foreseen start date: August 2016
  Actual start date: August 2016
  Foreseen end date: July 2019
  Actual (or anticipated) end date: July 2019

Action Nº	BUDGET	TOTAL COST	%
E6. DISSEMINATION ITINERANT CAMPAING	45.210 €	48.711,48 €	108%

		2015				2016				2017				2018				2019				2020				2021			
E6	DIVULGATION ITINERANT CAMPAING	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M			x	P					P				F
	Deliverable 1: Final results reports (5)																			x									
	Deliverable 2: Material Kioto Educa									x	x																		
	Milestone 1: Campaing start date								o					o															
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Dissemination campaign was projected as an itinerant and general public exhibition showing the relevant information and materials of the project: blue carbon and mitigation concepts, focus habitats, actions and activities projected, interviews and information. This exhibition was complemented with meetings, interviews, field excursions and visit to educative centers. Deviation is referred to the maintenance of actions during the project extensions. During October from 4th to 10th, the sixth stop of the European SailGP sailing competition took place in Cádiz. Life Blue Natura project was very active during those days with several communication, educational and field activities.

A series of materials related to the project (videos, photos, field samples, flyers, posters and merchandising materials) besides activities were generated. To achieve this, in August 2016 a company for the design and edition of materials was hired.

POSIMED volunteering campaigns (action A1) finished in December 2016, and CEAB-CSIC blue carbon monitoring sampling campaigns finished in autumn-winter 2017; besides, results from different meetings conducted by IUCN and related to policy, conservation proposals and catalogues extracted from these meetings were currently being obtained. All these activities were documented by Hombre y Territorio throughout the E1 (communication) action, so an important photo and video database was generated. Moreover, during the CEAB-CSIC and POSIMED campaigns several transparent cores were collected, to be used for the exhibition.

Because these, many of the information generated for the project was still being obtained at the proposed start, the action responsible beneficiary (with the agreement of the Director and Coordinator of the project) decided to delay the starting of the itinerant campagin to a most advanced phase of the project: spring 2018.

The general scheme of the exhibition was approved by the director and coordinator of the project, and was presented to the communication team in the Steering committee of June 2017). We designed a model to be showed to general and scholar public, including videos, models and interactive activities. The content of the itinerant campaign was composed by several materials (**Annex E6.3_Miterm Report & Annex 6.1._Final Report**)

- TV, showing images, videos and interviews related to the project
- General Roll up, containing the image of the project
- 2 specific roll ups for youth and children information
- A photocall with an attractive photo of the project to be used as a reclaim and a gift of the exhibition.
- Sample of sediment cores obtained during the CEAB-CSIC campaigns
- 2 types of flyers, focused on general and youth public
- A poster to be located in scholar centers and different places.
- Model of the habitats and the blue carbon concepts (playmobil scheme)
- Photo exhibition
- Interactive and playful activities, mainly for youth and children:
- Binocular, for blue carbon observation
- Underwater seeking game
- Kit of biological samples
- Kit of blue carbon samples,
- A real core (from a seagrass) with an estimate of historic dates.
- A sheet metal machine, with the slogan of the project.

In a parallel way, a logbook of the itinerant campaign was created to collect the opinions and comments of visitors, including those scholar groups responsible. This logbook is a useful tool for visitors counting even for collecting the comments, which are then used in social networks to create interest in the exhibition **Annex 6.2._Final Report**).

Respecting the KIOTO EDUCA materials (TERRAL Programme), a guide for educational use related to blue carbon was created (**Annex E6.1._Midterm Report**): this guide, in Spanish and English, was intended to be incorporated to the Andalusian Climate Change Educational Activities (TERRAL-KIOTO EDUCA Programme) for the 2017-2018 scholar timetable. Included into the E6 activities, and uploaded into the website as a resource, was also announced by newsletter and social networks even sent to the teachers who participated in the campaign.

Deliverable	DEADLINE	COMPLETED	REPORTED
Kioto educa material	01/07/2017	19/03/2018	Annex E6.1. Midterm report 30/04/2018
Final report Itinerant capmpaing	01/07/2019	05/09/2019	Annex E6.1 Final report 20/03/2022

Milestone	DEADLINE	COMPLETED	REPORTED
Itinerant campaign	01/10/2016	01/03/2018	-

Other relevant Annexes	REPORTED
Material Itinerant campaing	Annex E6.3. Midterm report 30/04/2018
Material Itinerant campaing	Annex E6.2 Final report 20/03/2022

6.1.16. ACTION E7. THECNICAL PUBLICATIONS OF THE PROJECT. MONOGRAPHIC SCIENTIFIC TEHCNICAL.

- Status of the sub-action E7: COMPLETED
  Foreseen start date: April 2019
  Actual start date: April 2019
  Foreseen end date: October 2020
  Actual (or anticipated) end date: March 2021

Action Nº	BUDGET	TOTAL COST	%
E7. THECNICAL PUBLICATIONS OF THE PROJECT. MONOGRAPHIC SCIENTIFIC TEHCNICAL	6.130 €	8.895,88 €	145%

		2015				2016				2017				2018				2019				2020				2021			
		I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
E7	TECHNICAL PUBLICATIONS OF THE PROJECT. MONOGRAPHIC SCIENTIFIC TECHNICAL																												
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Monographic edition																								x	x			
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

During the intermediate-final phase of the project, a scientific-technical monograph was proposed to aware the technical and research aspects associated with the project. Chronica naturae is an open access and online journal publishing studies and researches from several institutions (Universities, Research Centres, managers, Foundations) since 2011. The journal is indexed in some of the most important open access online bibliography search tools (DOAJ, DIALNET, Google Scholar). Deviation is referred to the delay in the final generation of the journal because of the extensions of the project and the increasing volume of work derived from the different articles. Although the percentage may seem high, the original budget was not high, so the actual costs of deviation is scarce.

During the fifth Steering Committee a delay of this deliverable was proposed. It was no reasonable to publish a Scientific Monographic based in the project results if some of the results (ie C1 and C2) were not yet achieved This decision was sent to EASME in the Midterm report by the coordinator beneficiary. After the online publish, a print run of copies was published and distributed to several stakeholders and interested entities, researchers and managers. The two extensions of the project delayed the articles content and the increasing volume of work derived from the different articles. Online access: http://www.hombreyterritorio.org/chronica_naturae/num8/num8-indice.html

Deliverable	DEADLINE	COMPLETED	REPORTED
Chronica naturae	31/10/2020	31/03/2021	Annex E7. Final report 20/03/2022

6.1.17. ACTION E8. NETWORKING

- Status of the action E8.: COMPLETED
  Foreseen start date: January 2016
  Actual start date: January 2016
  Foreseen end date: December 2021
  Actual (or anticipated) end date: December 2021

		2015				2016				2017				2018				2019				2020				2021			
E8	NETWORKING	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Milestone 1: First meeting						o																						
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

By the end of 2021, the project participated in more than 89 meetings (**Annex F1.3._Final Report**). Here, we would highlight:

During the first scientific conference, three Life projects participated to see potential synergies and opportunities: Life Admiclim from Delta del Ebro, Life SHARA (Sharing Awareness and Governance of Adaptation to Climate Change in Spain) and Life project RESMARIS from Cape Carbonara, Sardinia. As a result of this meeting interaction a collaborator of the Hombre y Territorio partner is participating in the RefMaris Life project in Cerdeña (Italy) learning about restoration of damaged meadows methodologies

UICN participated the 28th November in the CONAMA congress during the session on "Carbon sinks and their role to achieve neutral footprint on climate.

In May (2017), the Life Blue Project participated in the Ecosystem Services Conference (Antwerp, September 2016). This platform was a first encounter resulting in the participation of Life Blue Natura project, with other 55 different Life Projects, in the meeting on Ecosystem Services that was held in May in Tallinn. Life Blue Natura project was a good example on how to apply Ecosystem Services in decision making and the discussions went extremely well and were received with great interest by the representatives of the Commission and Agency.

LIFE Blue Natura project was selected also by the Organizing Committee for the Symposium on Interdisciplinarity in the 'Global Change' track (Corsica, July 2017). CSIC presented a general contribution of the project and UICN had participated in specific Blue Carbon workshop.

Barcelona (23/10/2017). Bridging the Science-Practice-Policy Gap in Mediterranean Biodiversity Protection. Panacea Project. "Life Blue Natura: experience related to implement policy/decision making".

Ibiza (9/10/2017). International Blue Carbon Initiative Scientific Working Group. "Andalusian Law of Climate Change and the future market on Blue Carbon offset"

Bonn (13/11/2017). COP23. "European POSIDONIA SEAGRASS // COASTAL MARSHES as natural capital for mitigating CLIMATE CHANGE in Andalusia, Spain"

Tartu (15/09/2018) LIFE Platform meeting “Volunteering for Nature Conservation” The meeting was hosted by the Estonian Fund for Nature, as the coordinating beneficiary of the project LIFE MIRES ESTONIA, and supported by the AwaRaEst LIFE Capacity Building Project. The main goal of the meeting is to share experiences, to discuss lessons learned and to identify steps to take in order to increase the impact of volunteers in nature conservation. We will also explore international cooperation possibilities and discuss future networking.

Puerto Rico (21/02/2019) – ASLO. CSIC organized a day-long special session on blue carbon, a workshop for the discussion on the current hottest topics in the field, and also presented 4 oral papers on the project. **Annex C1.4. Final Report.**

Roma 30/09/2019- Life SeaForest: conservare la Posidonia oceanica per contrastare i cambiamenti climatici. The SeaForest LIFE project foresees the quantification of carbon deposits and their rate of change related to habitat degradation due to pleasure boat’s anchors and moorings.

La Rochelle 22-23 March 2022 – LIFE Platform meeting –La Rochelle – France. Marine protected area management experiences towards strictly protected areas. Economical session: LIFE BLUE NATURA PROJECT: the voluntary blue carbon (offsetting) market.

Other relevant Annexes	REPORTED
Presentations	Annex E8. Final report 20/03/2020

Progress ACTION E9

Number of relationships with other projects: + 20
Number of relationships with other Life Projects: + 100 (Life Platforms)

6.1.17. ACTION E9. LAYMAN & NOTICEBOARDS

- Status of the action E8.: <u>COMPLETED</u>
  Foreseen start date: October 2021
  Actual start date: October 2021
  Foreseen end date: December 2021
  Actual end date: December 2021

Action Nº	BUDGET	TOTAL COST	%
E9. LAYMAN & NOTICEBOARDS	18.275 €	31.684,00 €	173%

		2015				2016				2017				2018				2019				2020				2021			
E9	LAYMAN AND NOTICE BOARDS	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Layman report																				x								x
	Milestone 1: 500 reports have been edited																				o								o
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

Final achievement 150%. Action completed with the publication of Layman Report and others monographic publications with similar scope. The noticeboards were also completed and were placed at the main implementation sites of the project.

NOTICEBOARDS

Three noticeboards were placed in: 1. Natural Park of Cabo de Gata, 2. Odiel Saltmarshes and 3. Bay of Cadiz saltmarshes. **Annex E9.2. Final Report**.

QUERCUS

The seventh monitoring committee approved the publication of a monographic issue of the journal Quercus. The issue was raised of whether this format would overlap with the scientific-technical monographic to be produced by HyT (E7). In the end it was

decided that, although there may be a slight overlap, two monographs will only serve to enhance results: one with a more scientific-technical profile (E7) and the other more technical-educational (Quercus). Furthermore, it should be noted that their target audiences also differ significantly, with Quercus boasting an outreach capacity with great potential for positive impact on the project's results.

LAYMAN

The CAGPDS (Regional Ministry of Agriculture, Fisheries and Rural Development) tendered the contract for the publication of the monograph with the main results of the project, which was finally published in December 2020: https: //www.revistaquercus.es/noticia/7876/especiales-quercus/espcial-life-blue-natura.html.

CAGPDS, through an external contract, completed the Layman Report in December 2021 with the participation of all project partners. 500 copies were published, 200 of which have been sent to a range of institutions and organisations related to the aims of the project and the general field.

Deliverable	DEADLINE	COMPLETED	REPORTED
Layman. D	08/10/2021	20/12/2021	Annex E9.1. Final report 20/03/2022

Milestone	DEADLINE	COMPLETED	REPORTED
500 books	08/10/2021	20/12/2021	-

Other relevant Annexes	REPORTED
Noticeboards	Annex E9.2. Final report 20/03/2020
Other publications	Annex E9.3. Final report 20/03/2020
Mailing	Annex E9.4. Final report 20/03/2020

6.1.18. ACTION F1. PROJECT MANAGEMENT: CMAOT Y AMAYA

- Status of the action F1.: COMPLETED
  Foreseen start date: August 2015
  Actual start date: August 2015
  Foreseen end date: December 2021
  Actual (or anticipated) end date: December 2021

		2015				2016				2017				2018				2019				2020				2021			
F1	PROJECT MANAGEMENT: CMAOT Y AMAYA	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Carbon footprint report																x												x
	Milestone 1/2: First monitoring Comission				o																								
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

The Project management is structured according to the next organization chart:

Project Director: Rosa Mª Mendoza Castellon is a civil servant in the Regional Ministry Agriculture, Livestock, Fisheries and Sustainable development of Andalusia (CAGPDS).

Direction support: Jose Eugenio Montes is a civil servant in the Regional Ministry of Agriculture, Livestock, Fisheries and Sustainable development of Andalusia.

Project Coordinador: Mª Soledad Vivas Navarro is a technician in AMAYA.

Financial technician: Silvia Salas, AMAYA technician with 50% of dedication to the project.

Andalusian Climate Change Office: Inmaculada Tola is a civil servant in the Regional Ministry of Environment and Territory of the Government of Andalusia.

The project has conducted twelve Steering Committee meetings and from the beginning the project has organised several meetings between the Coordinating beneficiary (General Direction of land management, biodiversity and protected areas and the) and Associated beneficiaries but also external assistances (Action D1, C4 and C7), These results are reflected in **Annex F1.1._Final Report & Annex F1.2._Final Report**, where in addition to the attendees, the main conclusions agreed by participants for a better implementation of the works can be read.

The CAGPDS has completed a Footprint evaluation. The implementation of the LIFE project generated a total of 215.51 t CO2 -eq (ratio obtained from 0.10 kg CO2 -eq/€).

Deliverable	DEADLINE	COMPLETED	REPORTED
Footprint report. D	27/08/2021	20/12/2021	Annex F1.4. Final report 20/03/2022

Milestone	DEADLINE	COMPLETED	REPORTED
First Steering Committe	01/10/2015	07/10/2015	-

Other relevant Annexes	REPORTED
Minutes Steering Committes	Annex F1.1. Final report 20/03/2022
Steering committes	Annex F1.2. Final report 20/03/2022
List of Project presentation	Annex F1.3. Final report 20/03/2022

6.1.19. ACTION F2. PROJECT MONITORING: INDICATORS.

- Status of the action F2.: <u>COMPLETED</u>
  Foreseen start date: September 2015
  Actual start date: March 2016
  Foreseen end date: December 2021
  Actual (or anticipated) end date: December 2021

		2015				2016				2017				2018				2019				2020				2021			
F2	MONITORING OF PROJECT: INDICATORS.	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

The monitoring and results of the qualitative and quantitative outcomes project indicators are detail in **Annex. D1.1.** We propose not to include in this action any mention about the progress of the outcome indicators and leave this action only to evaluate the progress indicators, which shall be updated at least every six months.

The monitoring and results of these progress indicators are included in this report in each section of the actions A, C and E.

6.1.19. ACTION F4. PLAN POST-LIFE

- Status of the action F4.: <u>COMPLETED</u>
  Foreseen start date: June 2021
  Actual start date: September 2021
  Foreseen end date: October 2021
  Actual end date: December 2021

		2015				2016				2017				2018				2019				2020				2021			
F4	AFTER-LIFE PLAN	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV	I	II	III	IV
	Overall project Schedule			S				P			P					M				P					P				F
	Deliverable 1: Plan post-Life																												x
	STABLISHED PROJECT TIMETABLE																												
	FINAL REPORT 20032022																												

The Post-Life Plan has been designed in accordance with the programme guidelines. This plan includes the actions which project partners are obliged to fulfil over the next 5 years (programme of measures), organised into the following aims:

Objetive 1. Improve scientific knowledge of stock and flux quantification.

Objetive 2. Promote the implementation of carbon offset projects in voluntary markets (on a regional, national and European level).

Objetive 3. Improve the state of conservation of coastal ecosystems in Andalusia and nationwide.

Objetive 4. Raise public awareness about the importance of the fight against climate change and nature-based solutions.

Deliverable	DEADLINE	COMPLETED	REPORTED
Plan post-Life. D	15/10/2021	20/12/2021	Annex F4. Final report 20/03/2022

6.2. Main deviations, problems and corrective actions implemented

No significant deviations are to be reported. All objectives of the projects have been accomplished successfully.

Minor deviation: additional tasks under action A3, C1 and C2 (**Annex 9.1. Midterm Report**) were accepted in Ref. Ares (2018)4346188 – 22/08/2018. This extension has significantly increased the project's impact in terms of technical results to be applied in the new regulations (SACE), and also in terms of the transferability and dissemination of the Life Blue Natura approach, methods and results.

7 amendments have been approved:

	Justification	Project end date	Extension date	Letter
Amendment nº1	Change the co-financer business name from CEPSA to CEPSA Foundation; CSIC-CEAB: minimal changed in external assistance; UICN and HYT: Changed in "other cost" CMAOT-HYT: minimal changed	31/12/2019	30/09/2020	Ares (2017) 4310706. Included in Letter Ref. Ares (2017) 4573295- 09/19/2017
Amendment nº2	New financial identification form/request	31/12/2019		Ref. Ares (2018) 4197899_10/08/2018. Letter Amendment nº2
Amendment nº3	Modification of the definition of conditions for natural persons, submission of VAT certificate and threshold for submission of the certificate on the financial statements	31/12/2019		Ref. easme.b3 (2018) Letter Amendment nº3
Amendment nº4	Modification the Forms Al, C2 and C3 as set out in Annex II of the grant agreement, the name of the coordinating beneficiary, the legal representative ofthe coordinating beneficiary and the duration of the project.	31/12/2019	09/20/2020	Ref. Ares (2019) 5093289-05/08/2019 Letter Amendment nº4
Amendment nº5	Modification the Forms A1, C2 and C3 as set out in Annex II of the grant agreement and the duration of the project in Art. I.2.2 of the grant agreement is extended	20/09/2020	20/04/2021	Ref Ares (2020) 5130748 30/09/2020 Letter Amendment nº 5
Amendment nº6	Modification the Forms A1, C2 and C3 as set out in Annex II of the grant agreement and the duration of the project in Art. I.2.2 of the grant agreement is extended	20/04/2021	20/12/2021	Ref Ares (2021) 2704932 22/04/2021. Letter Anedment nº 6 to Grant Agreement LIFE14CCM/ES/000957- LIFE Blue Natura
Amendment nº7	Modification the bank account details in Article I.5 of the grant agreement and the legal representative of the coordinating beneficiary	20/12/2021		Ref Ares (2022) 730726-01_02_2022

6.3.Evaluation of Project Implementation

ACTION		FORESEEN INTHE REVISED PROPOSAL	ACHIEVED	EVALUATION
A1	HABITAT MAPPING AND CHARACTERISATION. A1.1 *Posidonia oceanica meadows*	OBJETIVES: to know the extent of different conservation typologies within this habitat EXPECTED RESULTS: thematic maps *Posidonia oceanica and other seagrass meadows*	160%	This action is considered successfully completed. 7.115 ha were mapped/4.451 ha planned (160%). The thematic maps for *Posidonia oceanica* and other seagrass meadows are finished.
A1	HABITAT MAPPING AND CHARACTERISATION A1.2 Others seagrass meadows	OBJETIVES: to know the extent of different conservation typologies within this habitat EXPECTED RESULTS: thematic maps *Posidonia oceanica and other seagrass meadows*	160%	This action is considered successfully completed. 7.115 ha were mapped/4.451 ha planned (160%). The thematic maps for *Posidonia oceanica* and other seagrass meadows are finished.
A1	HABITAT MAPPING AND CHARACTERISATION . A1.3 Tidal salt marshes	OBJETIVES: to know the extent of different conservation typologies within this habitat EXPECTED RESULTS: thematic maps of tidal salt marshes in bahía de Cádiz and Odiel	100%	This action is considered successfully completed. The thematic maps in Odiel and in Bay of Cadiz Tidal Salt marshes are finished.
A2	SAMPLING DESIGN AND THE IMPLEMENTATION FOR THE EVALUATION OF CARBON STOCKS AND CARBON FLUXES IN ANDALUSIAN SEAGRASS MEADOWS	OBJETIVES: obtain a representative sample planning EXPECTED RESULTS: 54 cores in Posidonia oceanica sink.	128%	This action is considered successfully completed. All seagrass meadows included in the mission were visited and sampled successfully. Finally, we have obtained 128% of the cores programmed (69 cores/54 planned), in all the meadow types envisaged.
A3	SAMPLING DESIGN AND THE IMPLEMENTATION FOR THE EVALUATION OF CARBON STOCKS AND CARBON FLUXES IN COASTAL SALT MARSHES	OBJETIVES: obtain a representative sample planning EXPECTED RESULTS: 54 cores in tidal salt marshes	130%	This action is considered successfully completed. All the saltmarshes and saltmarsh conditions planned in the project were visited and sampled. Finally, we have obtained 130% of the cores programmed (70/54 planned), in all the salt marshes types envisaged.
C1	ANALYSIS AND ESTIMATION OF CARBON STOCKS AND FLUXES IN ANDALUSIAN POSIDONIA AND OTHER SEAGRASS MEADOWS	OBJETIVES: to know the capabilitie of seagrass meadows to capture and store CO_2 from the atmosphere EXPECTED RESULTS: Stocks and fluxes to seagrass meadows carbon sinks in Andalusian	128%	This action is considered successfully completed. An extension of the duration of this action was requested to allow for the detailed assessment of the natural variability in seagrass meadows carbon stocks and fluxes and to produce cartographic outputs of these two variables in Andalusian coasts. It also allowed to measure the effects of meadow degradation and re-colonization on these carbon stocks and fluxes and established the recent decadal trend of 17 P. oceanica meadows, providing key information for establishing the baseline in carbon stock sand fluxes for eventual carbon compensation projects. Stocks and fluxes maps were edited (REDIAM).
C2	ANALYSIS AND ESTIMATION OF CARBON STOCKS AND FLUXES IN COASTAL SALT MARSHES	OBJETIVES: to know the capabilitie of tidal salt marshes to capture and store CO_2 from the atmosphere EXPECTED RESULTS: Stocks and fluxes to seagrass meadows carbon sinks in Andalusian	130%	This action is considered successfully completed. An extension of the duration of this action was requested to allow for the detailed assessment of the natural variability in Andalusian saltmarshes carbon stocks and fluxes and to produce cartographic outputs of these two variables. Nine new typologies of saltmarsh and 17 new cores were taken to study the impact of human uses in the blue carbon stock (desiccation, re-wetting, salinas, re-vegetation, effect of erosive dynamics, etc.). Stocks and fluxes maps were edited (REDIAM).
C3	ECONOMIC ASSESMENT OF ANDALUSIA'S BLUE CARBON	OBJETIVES: economic feasibility studies for conservation/restoration blue carbon projects in Andalusian EXPECTED RESULTS: market studies for 1. *Posidonia oceanica* conservation project; 2. other phanergams conservation project; and 3. Tidal salt marshes restoration project.	100%	This action is considered successfully completed. C3 viability assessments for projects were completed: Odiel saltmarshes (3 areas), Bay of Cádiz saltmarshes (3 áreas) and PN Cabo de Gata-Níjar (*Posidonia oceanica*).
C4	ELABORATION OF AN ANDALUSIAN CARBON CREDIT CERTIFICATION STANDARD: SEAGRASS MEADOWS AND TIDAL SALT MARSHES	OBJETIVES: create a neccesary tool for the new regulation: Andalusian Climate Change Law. EXPECTED RESULTS: Certification Standard for blue carbon projects	100%	This action is considered successfully completed. The development of key regulations, the "Andalusian carbon credit certification standard-Action C4" was finished + absortions calculator and these documents were published in the Andalusian Climate Change Portal.
C5	DEVELOPMENT OF A GUIDE FOR CERTIFICATION OF PROJECTS OF BLUE CARBON GENERATED BY CONSERVATION OR REGENERATION ACTIONS OF SEAGRASS MEADOWS AND TIDAL SALT MARSHES	OBJETIVES: create a practical tool target for different sectors (profesionals, technicians, public servers, universities, and local associations) to better understand how to propose Blue Carbon projects EXPECTED RESULTS: Guide for Certification of Projects of Blue Carbon	100%	This action is considered successfully completed with the publication of the guide for blue carbon projects in both languages (English-Spanish). The Manual for the creation of Blue Carbon Projects in Europe and the Mediterranean has become a baseline for upcoming blue carbon projects (from science to offsetting) at Mediterranean and EU level by different conservation and research groups
C6	DIALOGUE AND PORTOFOLIO OF CARBON OFFSET PROJECTS FOR THE CONSERVATION AND REGENERATION OF BLUE CARBON	OBJETIVES: create a plattform to involve stakeholders EXPECTED RESULTS: improve the national and international dialogue, define criteria for blue carbon pilot projects, improve the participation of private companies and local entities as well.	100%	This action is considered successfully completed. The first meeting of the Advisory Group (AG) was carried out the 16th September in Málaga in 2016; The second meeting of the AG was organised the 6-7th March 2017. In 2020 and 2021 the subjects of the meetings were to review the results of the feasibility study of blue carbon offset projects (action C3), discuss recommendations for the ed evelopment of the Standard, final selection of projects and feedback on questions related to the configuration of the SACE (Andalusian Compensation System).
C7	PROJECTS CATALOGUE	OBJETIVES: create a plattform to involve stakeholders EXPECTED RESULTS: improve the national and international dialogue, define criteria for blue carbon pilot projects, improve the participation of private companies and local entities as well.	100%	This action is considered successfully completed. The projects that are included in the Catalogue and were presented to the decision board of the Junta de Andalucía regional government (December 2021) are: 1. *Bay of Cadiz Saltmarshes project*. Tipology: saltmarshes restoration. Area: 365 has. Absoprtions: 106.367 t CO2. Budget: 345. 044 euros. tCO2 cost: 3,24 euros/t CO2; 2. *Posidonia oceanica* in the Natural Park of Cabo de Gata_Níjar. Tipology: seagrasses meadow conservation actions. Area: 11 has. Absorptions: 684,49 t CO2. Budget: 273.060 €. tCO2 cost: 399 euros/t CO2. The Catalogue is available in the Andalusian Climate Change Portal.
D1	IMPACT INDICATORS.	OBJETIVES: to evaluate the impact of the project at different levels: conservation, governance, capacity building, climate change mitigation, etc EXPECTED RESULTS: create an Impact Indicators' System for the project and a methology to evaluate the impact of the project during and after the end.	100%	This action is considered successfully completed. We have design and evaluate the Life Blue Natura Impact Indicators' System for the 2015-2021 period.
E1	COMMUNICATION CAMPAING	OBJETIVES: to develop different kind of communication actions using different platforms: very importat will be the communication 2.0 EXPECTED RESULTS: to achieve a change of perception in the citizen about what is blue carbon and the environmetal services created by coastal habitats and their potential role in climate change mitigation strategies	100%	The indicators show that the project communication actions has worked very well. Final Indicators: Number of ads, news: 276, with a scope about 300.000 views; Number of interviews: 20, with a scope about 3.500.000 views; Number of website visits. 27.416 different visitors with a scope about 95.000; Number of Facebook followers: 1614; Number of twitter followers: 655; Number of Instagram followers: 593; Number of newsletter subscriptions: At 17st March 2018, 1432 people are registered to the newsletter; Number of videos. 29 (Life Blue Natura Youtube channel); Number of subscriptions to YouTube channel: 31
E2	FIRST SCIENTIFIC-THECNICAL MEETING ABOUT CARBON SINK. CONSERVATION OF CARBON SINK.	OBJETIVES: a better understanding of blue sink habitats: seagrass meadows and marshes EXPECTED RESULTS: the involvement of experts and interested sectors in two specific meetings.	100%	This action is considered successfully completed. The activity E2 was executed following the schedule of the project with two scientific-technical meetings, first one presential in 2016 and the second one in 2020 online
E3	WORKSHOPS FOR MANAGERS AND TECHNICIANS TO DEVELOPMENT FIELD INVENTORIES AND REPORTING AND PROJECTS	OBJETIVES: The objective was to develop the capacity of managers and technicians in different actions, that adding to restoring and protecting these important ecosystems, serve to capture CO_2, helping, therefore, to mitigate global climate change EXPECTED RESULTS: the involvement of technicians and managers in two specific workshops.	100%	This action is considered successfully completed. Over 93 participants from 17 countries took part at the end in the training, mostly Spanish and EU participants (France, Belgium, Portugal, Italy, Holland, Greece, Malta and UK) but also from Turkey, Albania, Tunisia, Egypt and Morocco. 150 % over KPI indicators (at the end: 60).
E4	SEMINARS FOR POLICY MANAGERS AND PRIVAT SECTOR	OBJETIVES: The objetive was to establish a public-private sector dialogue about the voluntary carbon market, identify opportunities, boundaries and risks and as a way to get to know the first tools developed in Andalucía (Standard and Catalogue) EXPECTED RESULTS: the involvement of policy managers and privat sector in the Seminars.	150%	This action is considered successfully completed. The 27th November 2018 at the European Parliament, IUCN organized the seminar "Blue Carbon in EU Climate Policy" with the assistance of European Parliament Intergroup on "Climate Change, Biodiversity & Sustainable Development". The second seminar, called *"Blue carbon at the heart of a healthy climate: A new roadmap through new compensation mechanisms and the conservation of the sea"*, was held on 25 November 2021 in Malaga. Two local meetings was held in the areas of the blue carbon projects (Catalogue). 172 (regional seminar) + 26 (local meetings) people attended the seminars/meetings= 198 individuals. 300 % over KPI indicators (at the end: 60).
E5	WORKSHOPS FOR SPECIALIZED MEDIA	OBJETIVES: improve climate change knowledege in specialized media sector EXPECTED RESULTS: increase climate change knowledge in specialized media sector, to achieve a better and more accurate approach in the media.	100%	This action is considered successfully completed. The field visit consisted of a day where 11 journalists from the scientific, environmental and economic fields were confirmed. The project has has achieved 266 publications in the media.
E6	DIVULGATION ITINERANT CAMPAING	OBJETIVES: improve awareness about Climate Change issues in general population and specifically in the educational sector. EXPECTED RESULTS: increase awareness in general population and specifically in educational sector.	150%	This action is considered successfully completed. The disemination campaign was projected as an itinerant and general public exhibition showing the relevant information and materials of the project: blue carbon and mitigation concepts, focus habitats, actions and activities projected, interviews and information. This exhibition was complemented with meetings, interviews, field excursions and visit to educative centers. Deviation is referred to the maintenance of actions during the project extensions. During October from 4th to 10th, the sixth stop of the European SailGP sailing competition took place in Cádiz. 4,515 pupils over 2000 % KPI indicators (at the end: 200)
E7	THECNICAL PUBLICATIONS OF THE PROJECT. MONOGRAPHIC SCIENTIFIC TEHCNICAL	OBJETIVES: improve awareness about Climate Change issues in general population and specifically in the educational sector. EXPECTED RESULTS: increase awareness in general population and specifically in educational sector.	100%	This action is considered successfully completed.
E8	NETWORKING	OBJETIVES AND EXPECTED RESULTS: create technical and positive sinergies with another projects	100%	The evaluation is positive. The project has been invited to differet events (Easme meetings, Life projects meetings, etc).
E9	LAYMAN AND NOTICEBOARDS	OBJETIVES AND EXPECTED RESULTS: create technical and positive sinergies with another projects	150%	This action is considered successfully completed. We have included other publications such the Quercus monographic and the IMA2019 monographic.
F1	PROJECT MANAGEMENT: CMAOT Y AMAYA	OBJETIVES AND EXPECTED RESULTS: the project management ensuring:1) a good coordination between the partners; and, 2) a correct and coherent adjuste of the incurred cost.	100%	The evaluation is positive. The relation and coordination among partners is continuous, and the different instructions transfer from the project manager team to the partners have been well recevied.
F2	MONITORING OF PROJECT: INDICATORS.	OBJETIVES AND EXPECTED RESULTS: the evaluation of the project progress	100%	The evaluation is positive.

6.4. Analysis of benefits

Analysis of benefits					
ENTITY	**DOCUMENT**	**LIFE BN TEAM**	**URL**	**STATE**	**SCOPE**
Environmental benefits					
Impact on related policies					
MITERD	Spanish guideline for the management and conservation of seagrasses	Draft document review. Submission of a technical report requesting that the reference to the LIFE Blue Natura project be included in the Ecosystem Services-CO2 sequestration annex.	Annex 6.4. Final Report.	Draft	National
MITERD	Directive 2014/89/EU of the European parliament and of the council of 23 July 2014 establishing a framework for maritime spatial planning	Review draft documents. Submission of a technical report requesting that Ecosystem Services- CO2 sequestration/Life Blue natura results be included in the diagnosis.	Annex 6.4. Final Report.	Draft	National
MITERD	EU Marine Strategy Framework Directive (MSFD). Second Cycle.	Second cycle documents review. Measurements programme: BIO74. Marine ecosystem carbon sequestration service. LIFE Blue Natura results should be transfer to other regions in Spain; CSIC presentation in the Workshop: Ecosystem Services in Marine strategies.Miterd.	Annex 6.4. Final Report.	Draft	National
CAGPDS	Decree (draft): PORN y los PRUG de los Parques Naturales Bahía de Cádiz y La Breña y Marismas del Barbate, el PORN del Parque Natural del Estrecho y del Paraje Natural Playa de Los Lances y el PRUG del Parque Natural del Estrecho y Medidas de Gestión para la ZEC y se modifican el Decreto 90/2006, de 18 de abril y el Decreto 1/2017, de 10 de enero (Borrador 1, marzo 2020)	Collaboration with the team in charge of the redaction of these documents. Transfer of LIFE Blue Natura results.	https://www.cma.junta-andalucia.es/medioambiente/portal/web/guest/landing-page-%C3%ADndice/-/asset_publisher/zX2ouZa4r1Rl/content/proyecto-de-decreto-por-el-que-se-aprueban-los-porn-y-los-prug-de-los-parques-naturales-bah-c3-ada-de-c-c3-a1diz-y-la-bre-c3-b1a-y-marismas-del-barbat/	Draft	Regional
Economics benefits					
Bussines opprotunity, regional developtment					
CAGPDS	E4: Meetings with stakeholders: privat sector and MPAs managers;	The Andalusian Climate Change Office has held meetings with promoters to finalize administrative steps (commitments letters). The result has been 3 commitments letters to the date of delivery of the FR	Annex 6.4. Final Report.	In progress	Regional
External	Creation of new companies (2) and new lines of work in companies (min. 3)	The amendments to the Law included in Decree-Law 26/2021, of December 14, have consisted of enabling the transfer of UDAs, opening the door to a voluntary offseting market.	https://www.boe.es/buscar/act.php?id=BOJA-b-2021-90434	Completed	Regional
Jobs created					
LIFE project	3 Jobs created Life project	3 employeers has been created (Full time employment)		Completed	Regional
LIFE project	Catalogue blue carbon projects	The Catalogue- SACE will allow the development of at least two projects in the short term with a total budget of €618,000, which will allow the creation of new jobs.	https://www.cma.junta-andalucia.es/medioambiente/portal/web/ca	Planned	Regional
Social benefits					
Employment, health					
CSIC	Doctoral thesis, master thesis and others student training	The CSIC partner has developed its work associated with the academic field directing doctoral students and other students in their scientific training, which is undoubtedly a benefit for society.		Completed	International
CAGPDS	Projects social benefits: included as mandatory in the Standard	The Andalusian standard includes the need for projects to develop actions for the benefit of local populations.		Planned	Regional
Replicability, transferability and cooperation					
CAGPDS-OACC	ECC Working Group - Mitigation and Inventory Technical Group - Carbon Footprint offseting Subgroup	Direct OACC-team participation		In progress	National
CAGPDS-OACC	Projects colaborations LIFE: LIFE SEAFOREST; WETLANDS4CLIMATE	Direct LIFE BLUE NATURA-team participation. All partners		In progress	European
CSIC	Training Croacia (Univ. El Zadar): monitoring methodologies and blue carbon markets_ MedPan	Direct CSIC/CEAB-team participation.		Completed	European
CSIC	ASLO special session: SS09 Blue Carbon: from the ecosystem to the markets. ASLO 2019: Aquatic Sciences Meeting. Planet Water, Challenges and Successes. San Juan de Puerto Rico (USA) 24/02/2019 – 01/03/2019.	Direct CSIC/CEAB-team participation.		Completed	International
CSIC	Advisory board Cotech- Promethée project- elaboration of a Blue Carbon Label	Direct CSIC/CEAB-team participation.		In progress	European
CSIC	Collaboration with the Blue Carbon Ocean company in Barcelona through the drafting of a Posidonia meadow restoration project.	Direct CSIC/CEAB-team participation.		In progress	National
CSIC	LIFE Projects colaboration: LIFE IP INTEMARES: RN2000 Ecosystem services evaluation	Direct CSIC/CEAB-team participation.		In progress	National
UICN	European Parliament Intergroup on "Climate Change, Biodiversity & Sustainable Development".	Direct UICN-team participation. Organiser of the event		In progress	European
UICN	Horizon Restcoast	Direct UICN-team participation.		In progress	International
UICN	Manual/Standard and Catalogue- replication/transfer	Direct LIFE Blue Natura-team participation (CAGPDS-IUCN).		In progress	International
Best practice lessons					
CAGPDS-OACC	The Andalusian Offseting System (SACE) as "Good Practices" in the European Committee of the Regions	Direct OACC-team participation	r.europa.eu/EN/regions/Pages/eir-map.aspx?view=stories&type=	Published	International
Policy implications (Regional, National and European Legislation)					
CAGPDS-OACC	Decree 234/2021, de 13 de octubre, por el que se aprueba el Plan Andaluz de Acción por el Clima. Linea Estratégica Transversal TF4 – Medida TF4.M8	Direct OACC-team participation	https://juntadeandalucia.es/boja/2021/587/1	Approved	Regional
CAGPDS-OACC	Decree-Law 2/2020, de 9 de marzo, de mejora y simplificación de la regulación para el fomento de la actividad productiva de Andalucía (artículo 27. simplificó el funcionamiento del denominado Sistema Andaluz de Compensación de Emisiones y amplió las posibilidades de participación)	Direct OACC-team participation	https://www.boe.es/buscar/doc.php?id=BOJA-b-2020-90058	Approved	Regional
CAGPDS	Decree-law 26/2021, de 14 de diciembre, por el que se adoptan medidas de simplificación administrativa y mejora de la calidad regulatoria para la reactivación económica en Andalucía	Direct OACC-team participation	https://www.boe.es/buscar/act.php?id=BOJA-b-2021-90434	Approved	Regional
CAGPDS-OACC	Reference in the Governing Council of the development of the blue carbon projects in Bahía de Cádiz and Cabo de Gata	Direct OACC-team participation	s://juntadeandalucia.es/organismos/consejo/sesion/detalle/231573	Approved	Regional
CAGPDS	Publication on the Climate Change Portal: Standard and Catalogue	Direct OACC-team participation	ortal/web/cambio-climatico/indice/-/asset_publisher/hdxWUGtQGk	Approved	Regional
UICN	European Parliament Intergroup on "Climate Change, Biodiversity & Sustainable Development": Transfer of knowledge to the members of the European Parlament.	Direct UICN-team participation. Organiser of the event		In progress	Europeo
UICN	Carbon sinks and monitoring tasks in the Barcelona Convention (Post2020 SAB/BIO Programme, IMAP)	Direct UICN-team participation.	nep.org/unepmap/events/meeting/COP22-Barcelona-Convention-M	In progress	Internacional

7. Key Project-level Indicators

PROJECT AREA/MARINE WATER INDICATOR/NATURE AND BIODIVERSITY

1.5 Project area/length

	Specific Context	Add the main thrust of the project actions. Only add one main thrust.	At the beginning	At the end	5 Years beyond	Units	Comments	Choose the Type of project action(s) targeting the main project outcome(s) within the project area
PROPOSAL	N/A	Conservation or improvement of the status of an area or segment	0	0	0	ha	2 Catalogue projects: restoration/conservation area (has)	Legally binding acts
FINAL REPORT	N/A	Conservation or improvement of the status of an area or segment	0	0	376	ha	2 Catalogue projects: restoration/conservation area (has)	Legally binding acts

2.4 Environmental status - marine, coastal or transitional waters

	Specific Context	Choose the Attribute(s) to sea floor integrity addressed.	At the beginning	At the end	5 Years beyond	Units	Comments
PROPOSAL	Marine Atlantic	Sea floor integrity (modification of structure or function in the area affected)	0	0	0		1 Catalogue project: Bay of Cádiz restoration area (has)
PROPOSAL	Marine Mediterranean	Sea floor integrity (modification of structure or function in the area affected)	0	0	0		1 Catalogue project: Posidonia oceanica restoration/conservation area (has)
FINAL REPORT	Marine Atlantic	Sea floor integrity (modification of structure or function in the area affected)	0	0	365	ha	1 Catalogue project: Bay of Cádiz restoration area (has)
FINAL REPORT	Marine Mediterranean	Sea floor integrity (modification of structure or function in the area affected)	0	0	11	ha	1 Catalogue project: Posidonia oceanica restoration/conservation area (has)

1.5. Life Blue Natura project will develop conservation projects (greenhouses gasses emissions offsetting projects) to be implemented after the Life Project. After the project (up to 5 years) and thanks to the implementation of these projects included in the Andalusian Catalogue (SACE) we will influence the conservation status of 376 ha (Bay of Cádiz project: 365 ha + Posidonia project: 11 ha).

2.4. Life Blue Natura project will develop conservation projects (greenhouses gasses emissions offsetting projects) to be implemented after the Life Project. After the project (up to 5 years) and thanks to the implementation of these projects included in the Andalusian Catalogue (SACE) we will influence the sea floor integrity of 376 ha: Marine Atlantic Bay of Cádiz project: 365 ha; Marine Mediterranean Posidonia project: 11 ha.

CLIMATE CHANGE MITIGATION INDICATORS

8.2 Carbon sequestration

	Specific Context	Choose the Type of carbon storage sinks.	At the beginning	At the end	5 Years beyond	Units	Comments	Choose the Type(s) of sequestration measures taken.
PROPOSAL	N/A	Carbon capture and storage site (CCS)	0	4600	4600	kg/ha/year		kg CO2 stored per ha per year (Carbon sequestration)
FINAL REPORT	N/A	Carbon capture and storage site (CCS)	0	0	5694	kg/ha/year	The amount of is CO2 capture that we will win thanks to the implementation of the projects included in the Catalogue (SACE). Period: 50 years.	kg CO2 stored per ha per year (Carbon sequestration)

8.2. The amount of CO2 that we will win thanks to the implementation of the projects included in the Catalogue (SACE). BAY OF CADIZ PROJECT: Ex-ante estimates of the absorptions generated by the project: 106.367 t CO2 (50 years); POSIDONIA

PROJECT: Ex-ante estimates of the absorptions generated by the project: 685 t CO2 (50 years). Total t CO2: 106367+685= 107.052 t CO2. area=376 ha; period= 50 years.

GOVERNANCE INDICATORS

10.1.2 Supervisory/enforcement bodies involved

	Specific Context	Choose from the list supervisory / enforcement bodies which are involved in/concerned with the	At the beginning	At the end	5 Years beyond	Units	Comments
PROPOSAL	N/A	Regional authorities	0	1	1	Number of supervisory / enforcement bodies	
FINAL REPORT	N/A	Regional authorities	0	2	2	Number of supervisory / enforcement bodies	OECC; Ministry for the ecological transition and the demographic challenge

10.1.3 Risk-based compliance/enforcement system put in place/completed

	Specific Context	Choose the Types of activities within the system(s) put in place	At the beginning	At the end	5 Years beyond	Units	Comments
PROPOSAL	N/A	Increased compliance capacities	0	1	1	number of risk-based compliance / enforcement systems implemented	
FINAL REPORT	N/A	Increased compliance capacities	0	3	3	number of risk-based compliance / enforcement systems	

10.2 Involvement of non-governmental organisations (NGOs) and other stakeholders in project activities

	Specific Context	Choose the NGO and any other type(s) of stakeholders involved due	At the beginning	At the end	5 Years beyond	Units	Choose the Territorial level(s) at which stakeholders are involved.
PROPOSAL	N/A	NGO	0	10	10	number of stakeholders involved due to the project	National level, EU level
FINAL REPORT	N/A	NGO	0	14	14	number of stakeholders involved due to the project	National level, EU level

10.1.2. The project has met the target in 10.1.2. involving the Spanish Climate Change office and the department of Biodiversity and Forest in the Ministry for the Ecological Transition and the Demographic Challenge (MITECO).

10.1.3. The project has met the target in 10.1.2. with the publication of the: 1) Decree 234 2021, 13th October, Plan Andaluz de Acción por el Clima is approved. Linea Estratégica Transversal TF4. Medida TF4. M8; 2) Decree Law 2 2020, 9th March, de mejora y simplificación de la regulación para el fomento de la actividad productiva de Andalucía (articule 27); 3) Decree law 26 2021, 14 December, por el que se adoptan medidas de simplificación administrativa y mejora de la calidad regulatoria para la reactivación económica en Andalucía.

10.2. And also, the project has achieved good results regarding NGO participation in different actions (Asociación Amigos del Mar de la Costa Tropical; Aula del Mar de Málaga; Mare Nostrum Network; Fundación CONAMA; Asociación Posidonia; El árbol de las piruletas; CUASS; Observadores del Mar; Asociación GARUM; FAMAR; DIverciencia; Mares sin Huella; Asociación Oceánidas; Submon).

INFORMATION AND AWARENESS RAISING TO THE GENERAL PUBLIC INDICATORS

11.1 Website (mandatory)

	Specific Context	Website (mandatory)	At the beginning	At the end	5 Years beyond	Units	Comments
PROPOSAL	N/A	No. of individuals	0	60000	70000		
	N/A	No. of unique visits	0	40000	55000		
	N/A	Average visit duration (minutes)	0	2	2		
	N/A	No. Downloads	0	25000	30000		
	N/A	No. of unique visits	0	27416	35000		

11.2 Other tools for reaching/raising awareness of the general public

	Specific Context	Other tools for reaching/raising	At the beginning	At the end	5 Years beyond	Units	Comments
PROPOSAL	N/A	Publications/reports	0	5	5		
	N/A	Events/exhibitions	0	30	40		
	N/A	Print media	0	30	40		
	N/A	Other media (video/broadcast)	0	25	25		
	N/A	Hotline/information centre	0	0	0		
	N/A	Displayed information (poster, information boards)	0	10	10		
FINAL REPORT	N/A	Publications/reports	0	17	20		Newsletter (7); 6 scientific publications; IMA2019; Quercus, Revista DS, UICN NBS;
	N/A	Events/exhibitions	0	87	120		

11.3 Surveys carried out regarding awareness of the environmental/climate problem addressed (only mandatory for information and awareness projects)

	Specific Context	Choose the General public and/or type(s) of stakeholders surveyed.	At the beginning	At the end	5 Years beyond	Units	Comments
PROPOSAL	N/A	Individuals	0	150	150	number of individuals surveyed who are aware of the environmental and/or climate action issue addressed	
	N/A	Individuals	0	200	200	number of individuals surveyed	
	N/A	Other	0	80	80	number of individuals surveyed who are aware of the environmental and/or climate action issue addressed	
FINAL REPORT	N/A	Individuals	0	1019	1019	number of individuals surveyed who are aware of the environmental and/or climate action issue addressed	Volunteers divers in POSIMED campaign; Surveys associated to E6 (710); E4 (23); D1 (81)

11.1. The project has deviated slightly in the web impact indicator. However, we think that the "unique web visits" indicator has a satisfactory value: 27416.

11.2. Regarding "other tools", we have exceeded the validated targets in number of events, exhibitions and publication reports.

11.3. The number of surveys carried out in relation to various project actions (A1, E6, E4 o D1) exceeds the original objective.

CAPACITY BUILDING INDICATORS

12.1 Networking (mandatory)

	Specific Context	Choose the Target audience.	At the beginning	At the end	5 Years beyond	Units	Comments	Choose the Networking tools used.
PROPOSAL	N/A	Members of interest groups	0	60	60	No. of individuals		Platform meetings
FINAL REPORT	N/A	Members of interest groups	0	190	190	No. of individuals	E2	Platform meetings

12.2 Professional training or education

	Specific Context	Choose the Target audience.	At the beginning	At the end	5 Years beyond	Units	Comments	Choose the Training/education tools
PROPOSAL	N/A	Pupils (of school age)	0	200	700	No. of individuals		Other training or educational events
	N/A	Professionals	0	15	15	No. of individuals		Workshops
	N/A	Professionals	0	20	40	No. of individuals		Other training or educational events.
	N/A	Professionals	0	60	60	No. of individuals		Workshops
FINAL REPORT	N/A	Pupils (of school age)	0	4515	5863	No. of individuals	Regional Education programme	Other training or educational events
	N/A	Professionals	0	227	295	No. of individuals	Training managers (93 individuals); training policy -makers and private sector (198 individuals); training media (11 individuals); training teachers (25 individuals)	Workshops

12.1. The project has achieved good results regarding involve interest groups due to the effort made by UICN, in addition to the use of online formats, increasing accessibility and improving overall participation in all project events.

12.2. We have significantly exceeded the number of students (200 to 4515) originally expected to participate in the itinerant campaign, thanks to a concerted effort from HyT. With regard to teacher other professional training (managers, media, directors and policy makers), the impact of this action significantly exceeded expectations, once again as a result of an online format, particularly in the case of the last E4 event. A decrease from 15 to 11 journalists was registered, although the media impact of the conferences still exceeded original expectations (22 publications including in newspapers such as el País or la Razón).

JOBS INDICATORS

13. Jobs

	Specific Context	At the beginning	At the end	5 Years beyond	Units	Comments	Choose the Sex of the employee(s).	Choose the Specificities of the employees.
PROPOSAL	N/A	0	8	8	No. of FTE		Female	
	N/A	0	15	15	No. of FTE		Male	
FINAL REPORT	N/A	0	3	3	No. of FTE		Female	Biologist
	N/A	0	0	0	No. of FTE		Male	

13. 3 female employees (CSIC) considering only additional jobs (FTE).

CONTRIBUTION TO ECONOMIC GROWTH INDICATORS

14.1 Running cost/operating costs during the project and expected in case of continuation/replication/transfer after the project period

	Specific Context	At the beginning	At the end	5 Years beyond	Units	Comments
PROPOSAL	N/A	0	2513792		€	
FINAL REPORT	N/A	0	2297597	2915699	€	

14.2.4 Cost reduction expected in case of continuation/ replication/transfer after the project end

	Specific Context	5 Years beyond	Units	Comments
PROPOSAL	N/A	102.000	€	
FINAL REPORT		146950	€	This is the cost of the Standard of certification, the Manual E5 and the Catalogue C7

14.3 Future funding

	Specific Context	Choose the Type of funding.	5 Years beyond	Units	Comments
PROPOSAL	N/A	Securities emission (green bonds, notes, etc.)	0	€	
FINAL REPORT	N/A	Beneficiary own contribution	226532	€	CAGPDS, AMAYA

14.1. The project has been completed at a total cost of €2,297,597, €216,195 less than planned. The objectives have met in their entirety. 5 years beyond: 2,297,597 euros Running cost during the project plus the cost of the 2 Blue Carbon project included in the Andalusian Project Catalogue 618,102 euros.

14.2.4. This indicator had been calculated by adding together the total cost of 3 of the project's products: the Standard, the catalogue and the manual. The sharing of these tools would mean direct cost reduction for the implementation of future projects related to the development of blue carbon emission compensation systems.

14.3. This is an estimation of the future funding necessary to maintain the CAGPPDS and AMAYA efforts after Life Project (it is a 30 % of CAGPDS-AMAYA incurred costs during the project).