Increasing the capacity of the carbon reservoirs of Posidonia meadows by reducing erosion and conservation actions

Ulla Mauno - Carbonsink

S E A F O R E S T L I F E

- **LIFE project:** under "climate change mitigation" sub-programme
- **Duration**: 01/09/2018 - 31/12/2023
- **Budget info**: Total amount of 3,025,382 Euro (% EC Co-funding: 60,00 %)
- **Target**:
  - Increase the capacity of carbon reservoirs of Posidonia oceanica meadows, a marine plant that plays an important role as carbon sink for the Mediterranean and climate change mitigation
  - Especially targeting to resolve the problematic "wild anchorage" of the boats inside the Posidonia oceanica meadows

- **Area:** Within three Italian National Parks and the respective Protected Marine Areas

- **Implementors**: Coordinating Beneficiary (D.R.E.AM. Italia) + 9 associated beneficiaries

D.R.E.AM. ITALIA
UNIVERSITÀ DEGLI STUDI DELLA Tuscia
Parco Nazionale del Cilento, Vallo di Diano e Alburni
WATER RIGHT FOUNDATION
ISPRA
Istituto Superiore per la Protezione e la Ricerca Ambientale
PARAGON EUROPE
PARCO NAZIONALE DEL ASINARA
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PARCO NAZIONALE DELL'ARCIPELAGO DI LA MADDALENA
Sistema Nazionale per la Protezione dell'Ambiente
Consiglio Nazionale delle Ricerche

Sea Forest Life

P A R T N E R S

- Coordinating beneficiary D.R.E.AM. Italia
- Associated beneficaries
  - ISTITUTO SUPERIORE PER LA PROTEZIONE E LA RICERCA AMBIENTALE (ISPRA)
  - CONSIGLIO NAZIONALE DELLE RICERCHE (CNR)
  - **CARBONSINK GROUP S.R.L**
  - UNIVERSITY OF TUSCIA
  - WATER RIGHT FOUNDATION
  - PARAGON EUROPE (Malta)
  - ARCHIPELAGO OF LA MADDALENA NATIONAL PARK
  - ASINARA NATIONAL PARK
  - CILENTO, VALLO DI DIANO AND ALBURNI NATIONAL PARK

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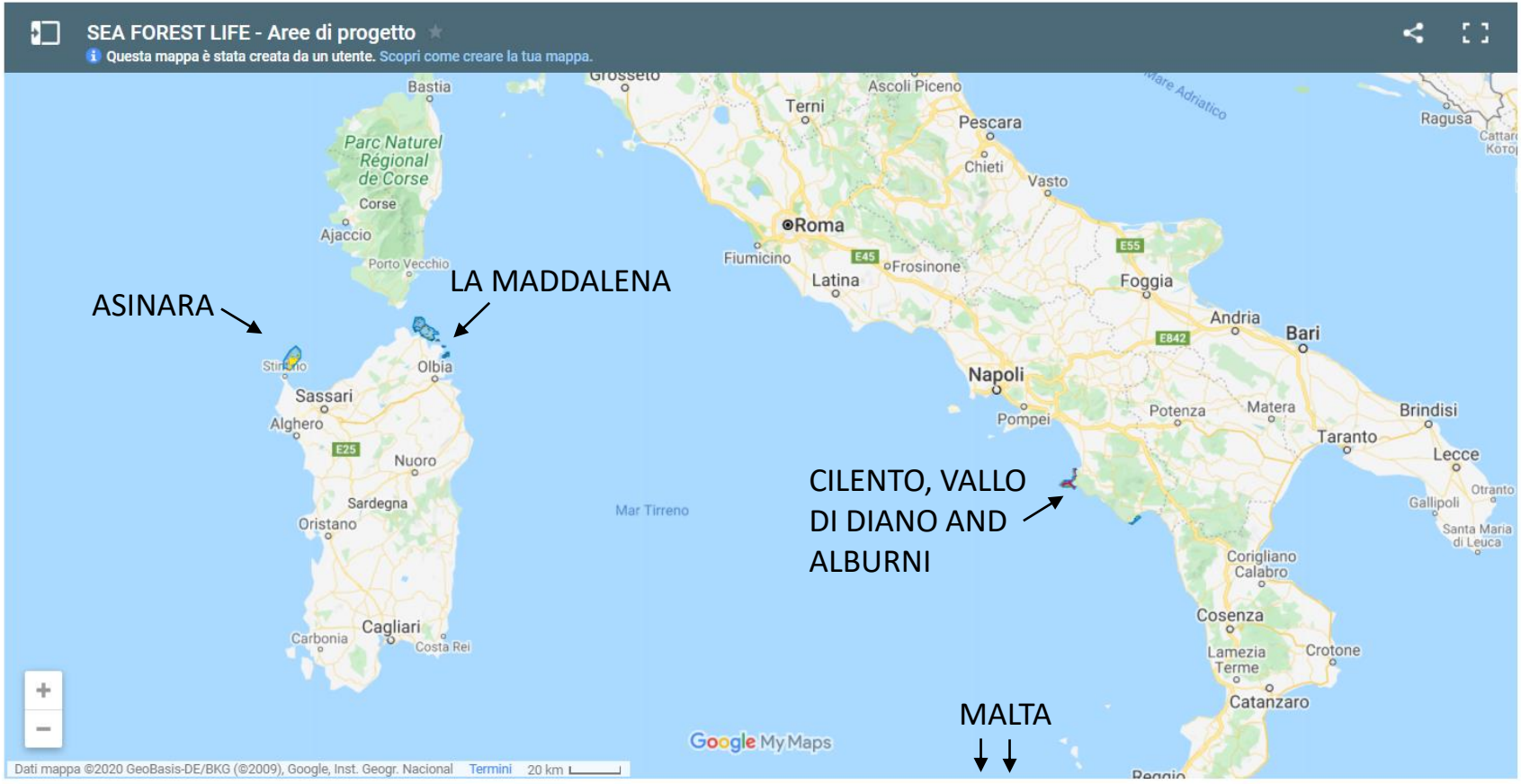
S T U D Y A R E A S


SEA FOREST LIFE - Aree di progetto
Questa mappa è stata creata da un utente. Scopri come creare la tua mappa.
ASINARA
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MALTA
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Ascoli Piceno
Terni
Grosseto
Ragusa
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Corse
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Sassari
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Nuoro
Sardegna
Oristano
Cagliari
Carbonia
Costa Rei
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Andria
Pompei
Potenza
Matera
Brindisi
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Termini
20 km

P O S I D O N I A O C E A N I C A

- **Endemic seagrass** plant of the Mediterranean Sea
- **Key species** of the coastal marine ecosystem, covering around 3% (around 38,000 km^2) of the entire Mediterranean
- Lives in sandy or detrital bottoms to which it adheres by means of the rhizomes, generally in 1-30 meters depth
- Forms vast grasslands, the **Posidonia meadows**, which have a high density (> 700 plants/m^2)
- Unique ability to produce oxygen and capture carbon dioxide

Posidonia Oceanica

P O S I D O N I A M E A D O W N S

- Posidonia meadows provide **habitat, shelter and nutrition** for many species

- Fallen leaves accumulate along the beaches causing accumulations called "banquettes" which are **protecting the sandy coasts**

- Formation of structures called “matte” consisting interlaced remnants of roots, rhizomes and entangled sediment which are **excellent carbon stocks**

Accumulation of Posidonia on the beach, Archipelago of La Maddalena National Park (SS). Photo M. Miozzo

THREATS TO POSIDONIA

- Despite being **protected** by national and international laws, Posidonia meadows are disappearing especially due to human activities
- Already lost 29% of the Posidonia meadows in the world, in some areas equal to 90% of its original extension
- **Pollution** which damages the grasslands through chemical substances or the high turbidity of the water
- **Trawling** activities illegally in Posidonia meadows
- "**Wild anchoring"** of pleasure boats on Posidonia meadows

Photo A. Politis

O B J E C T I V E S

Increase of the capacity of the carbon reservoirs of Posidonia oceanica meadows through erosion reduction and subsequent consolidation of the habitat 1120*: Posidonia oceanica meadows

1) **Quantify carbon** deposits and capture rates of phanerogams meadows habitat

2) **Analyze future** developments, carbon loss ratio, potential carbon fixation and accumulation rates; the relationship between carbon emission and sequestration in degradation and erosion formations

3) **Define a regional standard** for the evaluation of carbon dioxide of the phanerogams meadows habitat

4) **Identify good practices** for the defense of these formations and their carbon sinks and their expansion

5) **Stimulate dialogue at national level** to activate a network of companies and organizations involved in the carbon trading market;

6) **Engage the network** of Italian marine protected areas, in order to promote **transfer** projects of the technical results

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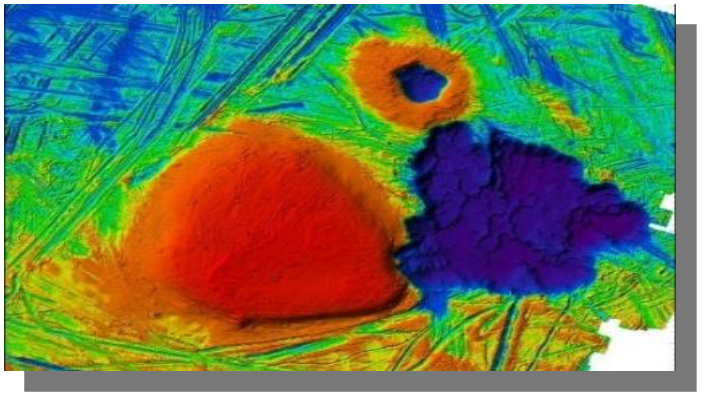
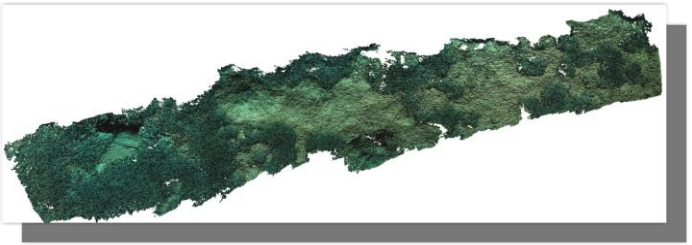
MAIN ACTIVITIES (1/4)

Define a **specific standard** for the evaluation of carbon dioxide of the Posidonia meadows habitat

- Quantification of **carbon stock** and its changes within the study area of three National Parks
  - Updating cartography using high-definition multispectral imagery
  - Implementing the InVEST (Integrated Valuation of Ecosystem Services and Tradeoffs) Coastal Blue Carbon

- Definition of the conservation and restoration **actions** which can be certified with the future standard





MAIN ACTIVITIES (2/4)

- **3 management plans** for anchoring and mooring to reduce the impacts on the meadows in collaboration with the managing bodies of the National Parks

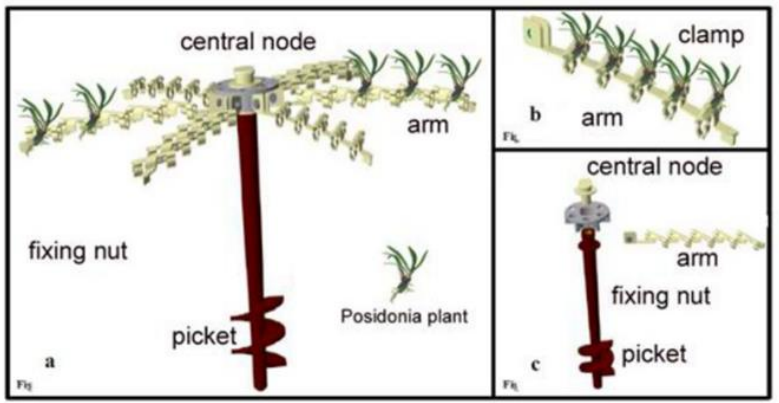
- Installation of **120 sustainable mooring** facilities outside the meadows and removal of the 120 old facilities

- **An application for mobile devices** to make the plan available for users visiting the protected areas
  - Map of the available free anchor areas and the mooring fields
  - Alerts if the boat is in area where navigation and anchoring is prohibited, or if specific protection measures are to be followed

MAIN ACTIVITIES (3/4)

120 sites for piloting the **re-vegetation** of Posidonia within the old mooring sites

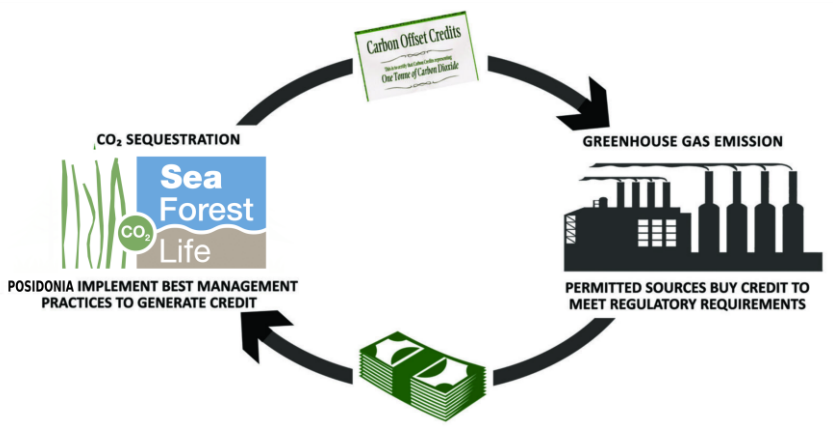
- Seeds and sprouts collected (also with the help of volunteers, schools, associations)
- Placed in cages built specifically and positioned at sea for creation of nursery
- Once sprouted will be replanted



MAIN ACTIVITIES (4/4)

Enhance the use of the **Climate Finance** for conservation and restoration of Posidonia meadows → currently no structured mechanisms to valorize the carbon stocks (“Blue carbon”) of Posidonia meadows in Italy

- **Application of the new regional standard** and emission reduction methodology to quantify the impacts of the SeaForest LIFE activities on carbon stock
- Creation of a **regional carbon market and IT-platform** for exchanging the carbon credits generated by the SeaForest LIFE project activities
- In the second phase may be extended to cover Malta and other Mediterranean countries and to be eligible also to be scaled up to new the protected marine areas



Thank you!

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