



## PRIME Project

### Posidonia Residues Integrated Management for Eco-sustainability



Compost

waste management

recovery of waste

organic waste

## PROJECT DESCRIPTION

The **P.R.I.M.E** project had the objective of defining an **Integrated Management System of beached posidonia residues** capable of combining the environmental protection needs of the marine and coastal ecosystem with the management of biomass waste and their potential reuse in agriculture. The phenomenon of posidonia residues **stranding** has always been perceived as a problem that creates inconvenience for citizens, swimmers, managers of bathing establishments and finally for the Municipalities struggling with the collection of beached biomass.

The problem is extremely significant for administrators of coastal municipalities who, required to clean and dispose, can cause damage to coastal ecosystems in the absence of defined guidelines on the appropriate intervention methods and the management of posidonia residues. PRIME aimed to identify the correct management methods for beached biomass by analyzing every single case of accumulation of residues and testing the use of this material, in combination with other organic residues, as a soil amendment and fertilizer for agricultural land and horticulture. Studies have been conducted also on other possible uses of this biomass. Among these, possible use in relation to the stabilization of coastal dunes.



## OBJECTIVES

The ultimate goal of the project was to reduce the environmental impact and the costs associated with the removal of beached posidonia residues through the recovery, composting and agronomic enhancement of the residues. In this regard it is worth remembering the **ministerial circular no. 8123/2006** of the Ministry for Environment concerning beached posidonia management, which reaffirms the opportunity to leave on site the accumulations of stranded biomass in consideration of its ecological environmental role.

The above circular evidences also the possible conflict between the proposed form of management and the use of beaches for tourism purposes; based on this it suggests three possible intervention strategies to be chosen from time to time in relation to the specificity of the given place and the socio-economic situation:

- maintaining on site the residues;
- displacement of the accumulated residues;
- permanent removal and transfer to landfill.

The provision represented an important starting point of the project for the definition of interventions to be adopted for the management of beached biomass.

## PROJECT PHASES



The project was articulated in the following main actions:

- **analysis and direct evaluation** of the aspects related to the problem of stranding and the state of health of the seagrass meadows. **5 pilot sites**, located in Puglia, were identified (Torre Canne, Ugento, Torre Colimena, Lido dei Messapi, Mola di Bari, Bari), in which to conduct the demonstration activities. The identified areas were differentiated on the basis of the different environmental conditions capable of influencing the quantity and quality of the accumulations. The pilot sites monitored the physical and biological parameters of the oceanic posidonia meadows and carried out direct surveys on the beached plant residues;
- **improvement of the collection operations** of the beached aquatic plant aimed at eliminating sand and salt in order to make possible an **agricultural reuse** of the residues. **LCA (Life Cycle Assessment)** was also carried out as a guidance for the integrated posidonia residue management system.

The elimination of sandy residues from plants also served to reduce the impact on the coastal ecosystem and the weight of the material. In this regard, three prototypes have been designed and manufactured for the processing of the beached material:

- **rotative de-sanding sieving** with sea water;
- **bio-grinder** for on-site shredding;
- **dryer** for drying the residues and eliminating salt.

Some experimental tests of solar drying and reduction of the saline load by the only atmospheric agents (sun and rain) were then carried out through the temporary storage of the biomass in special areas identified by the Municipality of Mola di Bari:

- **realization of composting operations** of posidonia residues and demonstration tests for the agronomic valorization of the compost as a soil conditioner or substrate to replace peat for the nursery sector;
- **training and communication**: the training activities gave rise to the establishment of a register of "Certified technicians for the sustainable management of beached posidonia".

## PROJECT RESULTS

P.R.I.M.E was an initiative that developed an **Integrated Management System** which aligns the need for environmental protection with the management of beached posidonia residues and its reuse as compost. The project showed how to reduce the environmental impact of stranded biomass by transforming waste into a resource in a **circular economy** perspective promoted by the European Commission. Systems have been developed to reduce the high level of sand and salt in biomass with prototype machinery, so as to make it possible to reuse it as agricultural soil conditioner and/ or substrate in horticultural nurseries.

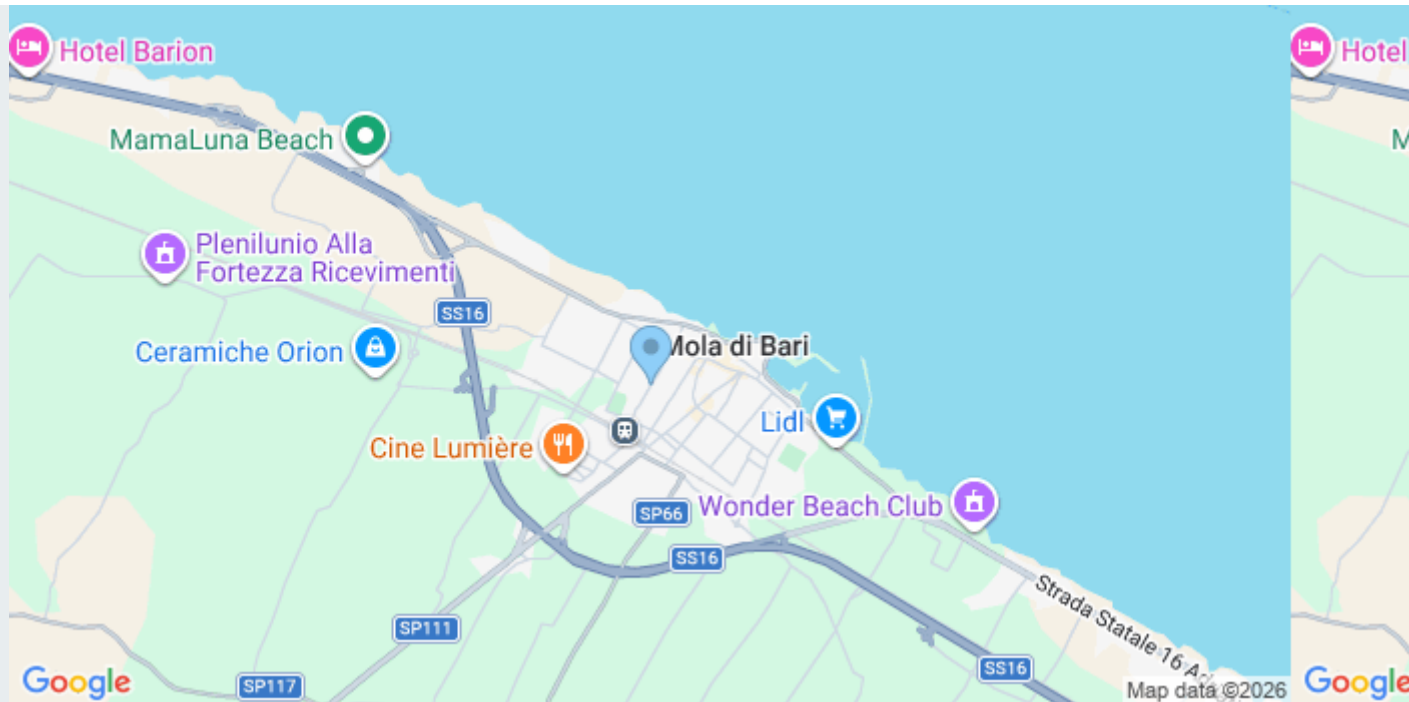
The main achievements were:

- elaboration of a [Decalogue for the correct management of beached posidonia](#);
- **implementation of composting operations** with posidonia matrix by 3 companies ([ASECO](#); [TERSAN](#); [PROGEVA](#));
- a [study](#) developed with LCA methodology to assess the **environmental impact** of beached posidonia residues;
- **creation** of prototypes – dryer, grinder and sieving prototype - for the treatment of posidonia, that can be further improved and replicated;
- **implementation of a Decision Support System (DSS)**, a software - available on request - useful for local administrations for choosing the best solutions to manage and use beached biomass;
- **elaboration** of a [Manual for the PRIME Guidelines](#), addressed to public administrations, which collects the results regarding the treatment and transformation of the residues, as well as the use and valorisation in agriculture of the obtained products;
- **organization** of a training course which gave then rise to the creation of a register of certified technicians for the management of beached posidonia.

The **Municipality of Ugento** (LE) has started the collection of beached material for composting. The initiative raised great interest as a result also of the information campaign promoted by P.R.I.M.E which involved local authorities, regions, and other countries such as Spain (Ibiza).



The project has been awarded **Best LIFE Environment**.



#### Acronym

P.R.I.M.E

#### Number of reference

LIFE09 ENV/IT/000061

#### Reference Programme

[LIFE](#)

#### Beneficiary Coordinator

Comune di Mola di Bari

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#### EU contribution

568.455,00

#### Call Year

2009

#### Start Year

2010

#### End Year

2013

#### Beneficiary headquarters

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#### Region

Puglia

#### Description

Comune di Mola di Bari, Provincia di Bari, Regione Puglia