

# Establishment of a Marine Park and its ecological restoration - PT

## 1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space
- SUSTAINABLE ECONOMIC GROWTH: Balancing economic, social, cultural development whilst enhancing environment

## 2. Key Approaches

- Integration
- Participation
- Knowledge-based
- Socio-economic
- Technical

## 3. Experiences that can be exchanged

The establishment of a marine protected area, its ecological restoration and the devolvement of a model of collaborative governance.

## 4. Overview of the case

The first Marine Park in Portugal was established in 1998, enclosing an area of high marine biodiversity. Once covered by extensive seagrass meadows, this important habitat, drastically reduced due to human activities such as bottom fishing and anchoring of boats, is now the target of an ecological restoration programme. There has been some strong resistance to the restrictions imposed in the area from the fishing sector. These conflicts are being tackled by programmes aiming to increase the awareness and developed a model for collaborative governance for the Park and shared responsibility between the stakeholders.

## 5. Context and Objectives

### a) Context

The Marine Park Luiz Saldanha (MPLS) was established 40km south of Lisbon in 1998 and was the first of its kind in Portugal. It occupies an area around 53 km<sup>2</sup> and 38 km along the coast from the rocky shores nearby the Sado estuary's mouth to the area just North of Cape Espichel. It is integrated in the Natural Park of Arrábida which was established in 1976 and occupies an area of 10.800 ha inland. Both these terrestrial and marine areas were proposed as Natura 2000 sites.

This marine area is known for its high biodiversity, which is unique in Portugal and throughout Europe, with over 1100 known species of marine flora and fauna, associated both with the Mediterranean and subtropical waters as well as the more temperate northern ones. The richness in both diversity and abundance is also the reason why the area has been an important site for fisheries over the centuries. Sesimbra, the most important settlement in the MPLS area, is a fishing village with a long cultural tradition linked to the sea. However, since the sixties, the village has turned into a summer vacation place and tourism has become one of the main economic drivers of the area, adding to the pressure on the coast.

The high fishing effort exerted in this area together with other nautical activities have greatly affected this ecosystem: previously widely dispersed throughout the shores of Arrábida, the seagrass meadows (*Zostera* spp.) have been reduced during the second half of the 20th century, mainly due to bottom trawling fishing techniques and anchoring of fishing and

recreational boats. Consequently, the weakening of this supporting habitat for nursery and refuge is thought to have had a negative impact not only on the biodiversity but also on the productivity of the area.

Since the initial version of the Management Plan that regulates the activities within the MPLS there has been strong opposition from the fishing sector, and other local users, regarding the restrictions on fishing inside the area. Generally, in Portuguese Marine Protected Areas (MPAs) there is weak governance and limited participation of stakeholders in the management.

## **b) Objectives**

The aim of establishing the MPLS was to preserve the high biodiversity of this area but also to safeguard its role in the marine ecosystems and consequently the sustainability of the fishing resources it supports and provides. The project Biomares intends to undertake a programme of restoration and to help develop measures to preserve the seagrass meadows of the area, while increasing public awareness and providing information about the importance, values and the activities ongoing in the area. The project MarGov aims to develop a collaborative governance model for the MPLS and provide guidelines that can also be applied to other MPAs. It aims to engage and empower the stakeholders, articulate knowledge and “know-how” that can lead to new collaborative solutions and develop a platform for supporting integrated management. This is expected to pave the path for long-term collaborative relations and reducing the conflicts.

# **6. Implementation of the ICZM Approach (i.e. management, tools, resources)**

## **a) Project Management**

The Institute for Nature Conservation and Biodiversity is the governmental body responsible for nature conservation and biodiversity policies, and for the management of Protected Areas. Biomares is coordinated by the Centre of Marine Sciences of Algarve (CCMAR) and has other national and international research centres and institutes as partners. MarGov is coordinated by a group of researchers from the New University of Lisbon but it involves a wider group of institutions, associations and collaborators.

## **b) ICZM tools**

- Establishment and regulation of the Marine Park: With the establishment of the MPLS in 1998, it was agreed between the stakeholders involved that the use of two types of fishing techniques would be banned from the area. Later, in 2005, the MPLS area was divided in zones with different levels of protection: total, partial and complementary. This division and the regulation of the human activities in the different zones were published in the Management Plan for the Natural Park of Arrábida, in which the MPLS is integrated. This document foresees a gradual regime of restrictions to fishing and other activities in the area, until its definitive status in 2009.
- Restoration of seagrass meadows: The ecological restoration is based in the re-population, recovery and preservation of the areas once covered by seagrass. This was promoted by direct transplantation of plants from other populations but also through dispersion of seeds from flowering individuals. The transplanted material and flowers came mainly from the Ria Formosa lagoon, in the south of Portugal. The genetic composition of the donor populations was evaluated and considered in the individuals transplanted to assure a high genetic diversity in the recovering meadows. In order to minimize the effect of boat anchoring on the seabed, a system of moorings consisting of fixed anchors with turnbuckle and swivel, and a surface buoy to avoid the cables from dragging over the sea floor, are planned to be installed during 2009 in the Portinho da Arrábida bay.
- Monitoring: The area in recovery is periodically monitored to assess the success and effect of the transplanting and seeding actions, as well as the effect of the Management Plan regulating the park. This monitoring is focused on the seagrass meadows but also on the presence and abundance of marine fauna.
- Parallel studies: The restoration project was accompanied by parallel studies, such as a comprehensive mapping and characterization of the sea-bottom habitats of the area until the depth of 100 m, the characterization of the fishing fleet operating and fishing gears used in the area. In order to evaluate fishermen's perception regarding the MPLS questionnaire surveys were carried out among this sector.
- Governance model and stakeholder participation: The model developed by MarGov will be based in shared responsibilities between stakeholders, including the users of the MPLS (e.g. fishermen) but also institutional and local authorities. This programme has 3 phases: 1. A preliminary diagnosis and establishment of the baseline, which includes the identification of the stakeholders and the mapping of the conflicts; 2. The structuring and steering of the participatory and collaborative processes; 3. The elaboration of the process for awareness and education; and finally,

4. The elaboration of the proposal for the collaborative management. A GIS platform will be built and will constitute a key tool to support the participatory process and long-term management actions. This tool will allow the collection and sharing of the information resulting from the diagnosis and the participatory workshops and forums. The platform will also integrate outputs of a dynamic conflict simulation model, management alternatives and prospective scenarios.

## 7. Cost and resources

Biomares was funded by the LIFE and a private company SECIL, with a total budget of approximately € 2.365.000. 12 persons are working full-time in the project actions, but a total of 35 persons are involved in the project activities. MarGov was awarded with € 100,000 by the Foundation Calouste Gulbenkian and the Oceanarium of Lisboa and its team is composed by 20 professionals coming from areas such as public participation, conflict management, biology, conservation, biodiversity, environmental management and technologies of information.

## 8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

Monitoring reveals that the transplantation is successful, with an average rate of survival of the plants above 30% - the usual survival rate associated with this type of approach. Preliminary data suggests that the most strictly protected area has a higher number of fish when compared to more permissive areas but also that their biomass is increasing. Since the beginning of the project the number of species registered in the area has also increased. 100 environmentally friendly moorings are already in place and has been actively used by the MPLS users. Divers, who are very enthusiastic about the increases in fish in the area.

Collaborative negotiation techniques with the stakeholders are providing added value to the sustainable management of the area by empowering the local agents. The overall target is to create the key conditions for the development of a collaborative governance model for the area. Two participatory forums have already been carried out, one targeting the general population and the other involving the fishermen. Activities with children in different school levels are also taking place aimed at restoring the identity that was once associated with the sea.

## 9. Success and Fail factors

The knowledge resulting from the mapping and characterization of the sea-bottom of the area can support the identification of new sites for fishing and compensate for the restricted areas. Furthermore, the exploitation of these sites will most likely benefit from the protection level of biologically fundamental areas within the Park.

Since the development of the management plan, the fisherman felt their opinion and interests were not being considered and there has been a strong opposition together with the local municipalities. These perceptions were clear in the results from the inquiries among fisherman in the area. On the other hand, the major environmental associations in Portugal supported the government decision for the creation of the Marine Protected Area. However, the rules for the Park Management issued afterwards have generated a lot of controversy.

The number of staff working for ICNB and the Marine Park is considered insufficient to support ongoing projects in the area but also in measures of control and enforcement and for education activities. Lack of efficiency from the institutions regarding the organisation of activities in the Marine Park, such as the placement of information boards.

## 10. Unforeseen outcomes

The seagrass restoration seems to be hindered by the presence and competition of an exotic red algae (*Asparagopsis armata*) but also the intense pressure of herbivores such as sea-urchins and the fish salema (*Sarpa salpa*).

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## 13. Sources

- Projecto BIOMARES Life06/NAT/P/192 – Non-technical reports 1 (2008) & 2 (2009). Centro de Ciências do Mar (CCMAR), Universidade do Algarve, Portugal. Available online on the website of the project. (Available in Portuguese and English)
- Institute for Nature Conservation and Biodiversity (ICBN):
- <http://portal.icn.pt/ICNPortal/vPT/Artigos/Files/Parque+Marinho.htm?res=1280x1024>
- Regulation of the Management Plan for the Natural Park of Arrábida (2005). (In Portuguese).
- <http://www.ccmар.ualg.pt/biomares>
- <http://margov.isegi.unl.pt>



BIOMARES Non\_technical\_report\_n1\_2008 (1.52 MB) 



BIOMARES relatorio\_nao\_tecnico\_n2\_2009\_PT (1.63 MB) 



Regulation of the Management Plan for the Natural Park of Arrábida 2005 (940.57 KB) 