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BIODIVERSITY MANAGEMENT CONSIDERATIONS IN THE FIRST DESIGNATED MARINE S.C.I. IN THE MALTESE ISLANDS

CONSIDERAZIONI SULLA GESTIONE DELLA BIODIVERSITÁ NEL PRIMO S.I.C. IN ACQUE MALTESI

Abstract *– The European Commission recognized in 2008 the area known as Rdum Majjiesa, encompassing a marine and coastal area in the northwest of the island of Malta, as the first marine Site of Community Importance (SCI) for the Maltese Islands. A management strategy for the conservation of biodiversity features and for the regulation of anthropogenic activity within the area was formulated, consisting of fifty-three different management actions.*

Keywords: *SCI, Malta, biodiversity.*

Introduction - Despite the Maltese Islands have a submerged area (up to 100 m) of 1.940 km^2, which is equivalent to over six times the terrestrial extent, till 2007 no marine protected areas had been formally designated in the Maltese Islands, with the marine area around Filfla (an islet located ca. 5 km off Malta) being the only one to enjoy some form of formal protection (Schembri, 1999). Technical Report 5.4 of the Malta Structure Plan listed the biotic and geomorphological features which render a marine area of scientific value (Schembri, 1991), whilst Technical Report 5.2 of the same plan outlined the potential marine parks and reserves of the Maltese Islands and had identified fourteen different sites as candidates for 'Marine Conservation Areas' (Role, 1991). This inventory included a marine area along the north-western coast of Malta, extending from il-Blata to Ras il-Wahx (Fig. 1), whose extent was slightly revised at a later stage and which became the focus of a CAMP project in the Maltese Islands. In 1993, the Ministry for Environment in Malta requested the assistance of RAC/SPA (Regional Activity Centre for Specially Protected Areas and Biodiversity in the Mediterranean) to assess the possibility of having Marine Protected Areas in the Maltese Islands. Twenty-seven marine areas and sixteen coastal sites were identified as candidate Marine Protected Areas according to guidelines issued by RAC/SPA for the 1982 Geneva Protocol on Mediterranean Specially Protected Areas (Schembri, 1994). Based on the results of the CAMP Malta Survey, the area from il-Blata to Ras il-Wahx was included in the Regional project for the development of marine and coastal protected areas in the Mediterranean (MedMPA Project), also under the UNEP-MAP framework, coordinated by the RAC/SPA. The zoning design preceding the management plan for the area was conducted by the Italian partners in the MedMPA project - Istituto Centrale per la Ricerca Applicata al Mare (ICRAM – Agnesi *et al*., 2003).

Through Commission Decision of 28 March 2008 adopting, pursuant to Council Directive 92/43/EEC, a first updated list of Sites of Community Importance for the Mediterranean biogeographical region (notified under document number C(2008)1148 (2008/335/EC), the EU has accepted the Rdum Majjiesa-Ras ir-Raheb area to be designated as a SCI, besides which, just one other local marine Special Area of Conservation (SAC) exists, in the marine area off Dwejra in Gozo. Malta will be updating the national list of potential Sites of Community Interest in accordance

with the timeframes set by the Natura 2000 Rolling Plan, as adopted by the EC Habitats Committee (set up through the EC Habitats Directive, Directive 92/43/EEC).

Materials and methods – Fig. 1 gives the location of the marine area within the Rdum Majjiesa SCI. The seabed area enclosed extends for 8.5 km^2, with the outer boundary following the 50 m contour, whilst the coastline enclosed within the S.C.I. stretches for 11 km.

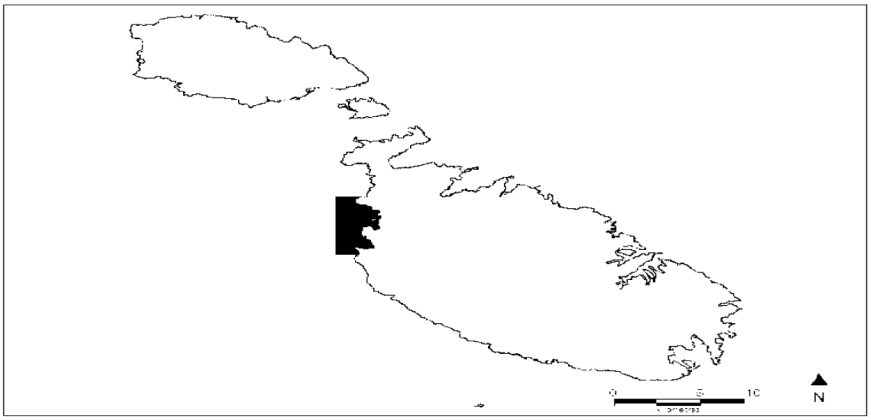

Fig. 1 - Location of the Rdum Majjiesa S.C.I. in Maltese waters (source: Grech, 2002).
Localizzazione del S.I.C. Rdum Majjiesa nelle acque maltesi (fonte: Grech, 2002).

The methodology adopted during the marine benthic survey is described in Pirotta & Schembri (2000) and consisted of a three-tiered approach: a preliminary SCUBA diving survey, a bathymetric survey by means of GPS and echo-sounder devices and a benthic survey by means of snorkeling and SCUBA diving techniques. Approximately 45 stations were established out at sea, at a distance of between 50 m to 150 m from the shoreline. 5-35 m depth waters were surveyed by means of multi-directional belt transects, in which divers swam for some distance from each station in different successive directions along bathymetric contours. DOV's (Diver-Operated Vehicles) were used to survey the longer transects. Shallow water areas up to a depth of 4 m, within sandy coves and bays and inlets were sampled by means of both SCUBA diving and snorkeling multidirectional transects, whilst marine areas deeper than 35 m were sampled by spot dives along anchored shot-lines. 4.75 km^2 of the marine area indicated in Fig. 1 were effectively surveyed.

The data collected from these surveys were used to produce two sets of maps (1:2,500 scale), one set showing the major geomorphologic features (bottom types) of the entire area, and a second set showing the major biotic assemblages present in the study area. A synoptic version of these maps was also produced at a scale of 1:10,000. The data collected during the bathymetric and benthic surveys was also used to produce a map of the major seascapes present in the study area at a scale of 1:10,000.

Results - The seabed within the designated S.C.I. is highly heterogeneous, resulting from the interplay between geology and marine and bioerosional processes, with the main geomorphologic characteristics of the study area including boulder screes, blue clay slopes, shoreline/vertical cliffs, wave-cut terraces and shore platforms, cobble

beaches, submerged caves, coves and bays, shoals and sheer drop-offs. Classification and nomenclature of the benthic assemblages follows the scheme used by the UNEP's SPA/RAC (1999). The principal habitats present in the study area are: stones and pebbles, hard bottom and rocks, *Posidonia oceanica* meadows, find sands with more or less mud and coarse sands with more or less mud. Well-lit benthic areas were dominated by photophilic algal species, whilst semi-shaded areas and undersides of boulders were dominated by sciaphilic assemblages, dominated by rhodophytes, with the occasional presence of sponges, sabellids, bryozoans and the orange stone-coral *Astroides calycularis.* Crevices within drop-offs were colonized by a variety of echinoderm species, namely *Centrostephanus longispinus* and *Echinaster sepositus*, whilst boring sponges (*Cliona* spp., mainly) were also observed within this assemblage. Large swathes of the seabed were dominated by nine different ecomorphoses of *P. oceanica*, forming thicker mattes on soft sediment. In some places, the matte functioned as "barrier reefs" and protected the sand bottom from the effects of strong currents and waves. Another abundant sea grass in the study area was *Cymodocea nodosa* which was mainly encountered within the biocoenosis of fine sands.

Protected marine species recorded within the designated S.C.I. include *Pinna nobilis* and *Lithophaga lithophaga* (listed in Annex IV of Habitats Directive; in Annex II of SPAMI Protocol and in Appendix II of Bern Convention), *Cystoseira spinosa* var. *tenuoir* and *Ophidianus ophidiaster* (Annex II of Berne Convention and Annex II of SPAMI Protocol), *Aplysina areophoba* (Annex II of SPAMI Protocol) and *A. calycularis* (Annex II of SPAMI Protocol and Appendix II of Bern Convention). In addition, *P. oceanica* meadows are listed as a priority habitat under the Habitats Directive; other macrofaunal species, of economic importance, were observed within the surveyed area, including *Octopus vulgaris.*

Conclusions – Adaptive management of biodiversity features within the MPA precincts was adopted. Such management is defined as 'a cyclic, learning-oriented approach to the management of complex environmental systems that are characterized by high levels of uncertainty about system processes and the potential ecological, social and economic impacts of different management options' (Jacobson, 2003).

The following anthropic activities are operative within the MPA's precincts:

(1) Bathing, the area is characterized by a number of popular sandy beaches
(2) SCUBA diving and snorkeling
(3) Professional and recreational fishing
(4) Anchoring and boat traffic
(5) Coastal constructions, including temporary summer residences and tourist facilities

In order to minimize the impacts of such activities, fifty-three different management actions were formulated, divided into three different tiers: a) twenty-five actions related to the protection of biodiversity, b) twenty-four to the actuation of sustainable low-impact tourism activities and c) four related to the regulation of fishing activities within the MPA area. Each management action was accorded to a priority level, which ranged from low to medium to high, in correspondence with its efficacy in promoting the management objectives for the area.

The zoning protocol for the S.C.I. area contemplates three major zones: (1) the no entry-no take areas, where the maximum protection level is applied and where all forms of access or take are prohibited (located in zones of maximum sensitivity to disturb); (2) the entry-no take areas, consisting of areas where take is prohibited and forms of access are regulated (these are areas where underwater visitors can bets appreciate the effects of protection measures on fish populations and benthic

communities); (3) general protection areas, corresponding to the minimum level of protection and where, even though there are no specific restrictions, activities are regulated and are directed towards achieving sustainability. Lack of enforcement of designated management measures remains the most serious threat to biodiversity conservation at the Rdum Majjiesa SCI.

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