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## BASELINE ECOLOGICAL DATA COLLECTION FROM THE MARINE AREA AROUND FILFLA (MALTA, CENTRAL MEDITERRANEAN SEA)

### *CAMPIONAMENTO PRELIMINARE IN UN'AREA MARINA ATTORNO L'ISOLOTTO DI FILFLA (MALTA, MEDITERRANEO CENTRALE)*

**Abstract** - Acoustic and limited video sampling were carried out in a 1.1 nautical mile-radius area around Filfla, an islet 4.4 to the south-west of Malta, to characterize the benthos and the habitat type distribution. In addition, identified priority areas were sampled during SCUBA diving surveys. A total of 173 species were recorded during the current survey. Rhodophytes were the most represented (29 species), followed by molluscs (25 species). The biotic assemblages recorded from the marine area around Filfla are generally representative of those found in Maltese inshore waters.

**Key-words:** mapping, scuba diving, benthos, biotopes.

**Introduction** - The islet of Filfla lies 4.4 km off the south-west coast of Malta. The islet is declared as a Nature Reserve under the Filfla Nature Reserve Act (Act XV of 1988), a Bird Sanctuary (LN 41 of 2003), an Area of Ecological Importance and a Site of Scientific Importance (GN 827 of 2002), and a candidate Special Area of Conservation of International Importance (LN 257 of 2003 and GN 877 of 2003), a Special Protected Area under the Special Protected Areas and Biodiversity Protocol of the Barcelona Convention and an Important Bird Area (IBA). Only one study concerning the marine area around Filfla has been conducted to date (Borg *et al.*, 1997). In 2004, the Malta Environment and Planning Authority (MEPA) managed to secure funds from the European Regional Development Fund (ERDF), for carrying out marine scientific surveys in the area around Filfla.

**Materials and methods** - Surveying was conducted in April-May 2006. Since the survey area was relatively small, 100% coverage high-resolution GeoSwath interferometric bathymetric data and backscatter imagery was achieved. Concurrently, a single beam RoxAnn acoustic ground discrimination system (AGDS) for remote sensing was run to glean information on the hardness and roughness characteristics of the survey area. 71 video camera drops were carried out to identify biotopes in the areas beyond the range of divers. A bucket grab and a 1mm mesh were also used to collect and later isolate infauna, from coarse sediment. Diving surveys were also conducted, mainly for ground truthing purposes. Easily identifiable macrofaunal and macrofloral species were identified in situ and recorded semi-quantitatively, using the SACFOR abundance scales, whilst specimens from species which could not be identified in situ were collected and identified later in the laboratory.

**Results** - The survey area reached a maximum depth of 145 m. Remote video sampling fragmented the survey area into 16 different biotic assemblages, whose distribu-

tion was mapped and which, on the basis of the substrate, can be broadly divided into reef, maerl and coralline pebble, and sand and muddy sand biotopes. Ground truthing (diving) summarized these biotic assemblages into six major assemblages. Four of these were algal-dominated (i.e. biotope 1 = lower mediolittoral and upper infralittoral scoured limestone boulders and cobbles with *Laurencia* sp. and barnacles; biotope 2 = upper infralittoral scoured limestone bedrock and boulders with sparse algal turf; biotope 3 = upper infralittoral upward facing limestone bedrock and boulders, dominated by *Cystoseira* spp. and *Sargassum vulgare*; biotope 4 = middle infralittoral vertical bedrock cliff dominated by green algae and *Peysonnelia squamaria*) and two were dominated by sponges, bryozoans and corals (biotope 5 = shaded vertical and overhanging limestone in the mid-infralittoral and biotope 6 = cave, overhangs and arches in the lower infralittoral). A total of 173 species were recorded during the current survey. Of these, some species are protected completely and/or listed as species whose exploitation should be regulated in various national, regional and/or international treaties, including *Posidonia oceanica*, *Palinurus elephas*, *Cystoseria spinosa*, *Ophidianus ophidiaster*, *Paracentrotus lividus* and *Centrostephanus longispinus*. Rhodophytes were the most represented (29 species), followed by molluscs (25 species) and phaeophytes (19 species). A number of biotopes and biocenosis listed in Annex I of the Habitats Directive and/or eligible for inclusion in the SPAMI list also recorded within the survey area, namely corallineaceous biocenosis, large facies with bryozoans, submerged or partially submerged caves, reefs, maerl, *Sargassum* spp. associations, *Cystoseira spinosa* associations and *Posidonia oceanica* meadows, the latter being listed as a priority habitat under the Habitats Directive.

**Conclusions** - Multiseasonal sampling, as well as more intensive sampling of epibiota, will undoubtedly increase the number of species recorded from around Filfla. Schembri (1994) stated that the benthic communities around Filfla are rather poor in diversity and richness when compared to other areas which are equally remote and unpolluted. Nonetheless Schembri (1994) recognized the area as being an important candidate for declaration as a marine protected area. Borg *et al.* (1997) attributes the poor diversity in the area to the use of explosives (for fishing purposes) and spear-fishing using SCUBA equipment on site. Despite this, the relative remoteness of the islet and its environs ensure that recovery of the same assemblages is possible, given that certain management measures are taken.

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