
LIFE BaHAR for N2K (LIFE12 NAT/MT/000845)

ACTION A2: Data Analysis and Interpretation



Report on the third analysis following the second surveying phase carried out through Action A3

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Summary

The Life+ Benthic Habitat Research for marine Natura 2000 site designation (LIFE BaHAR for N2K) project is an EU LIFE+ research programme that aims to conduct research on benthic habitats in Maltese waters to support designation of marine Natura 2000 sites. The project comprises the collation of existing information on marine benthic habitats in Maltese waters, the carrying out of scientific surveys in areas where knowledge gaps are identified, and the analysis of the data collected during these surveys in order to map the distribution of three habitat types listed in Annex I of the Habitats Directive: sandbanks, reefs and marine caves. Action A2 is led by the Department of Biology (DoB) of the University of Malta (UoM), and concerns analysing and interpreting data generated during the LIFE BaHAR for N2K project. The present report presents the analysis of findings following the second marine habitat surveys carried out through Action A3 in the summer of 2016, and as such constitutes the deliverable of the third Action A2 analysis: “Report containing analysis of second phase of A3 surveys and final recommendation of prioritised habitats for protection.”

In summary, analysis of the data collected during the Action A3 surveys resulted in the following main findings with regards to the three habitats of interest for the LIFE BaHAR for N2K project:

Reefs

- Identification of new areas with extensive and diverse cold water coral assemblages at depths of 300 m to 1000 m extending some 70 km along the Malta Graben, including antipatharian coral (*Leiopathes glaberrima*) forests at 200 m to 400 m, and predominantly white corals (*Madrepora oculata*, and to a lesser extent *Lophelia pertusa*) in waters deeper than 500 m. In some areas at depths of 800 m to 1000 m the seabed is dominated by the alcyonacean *Callogorgia verticillata*, together with other less abundant habitat-forming and associated species (especially sponges, cnidarians, echinoderms, molluscs, crustaceans and fish).
- Discovery of a dead (possibly fossil) lithistid sponge reef located north of Gozo at a depth of ca. 300 m, and extending over a 7 km long area, serving as a substratum for several living species including sponges, cnidarians and bryozoans.
- Identification of areas with dead coral frameworks, one site with a boulder field at 100 m depth, and sporadic sites with rocky outcrops covered by coralline concretions at depths of 60 m to 120 m, supporting benthic faunal assemblages that comprise a range of sponges, cnidarians, echinoderms, molluscs and crustaceans which, however, were less species rich than the assemblages recorded from areas with either living cold water corals or the lithistid reef.
- Characterisation of infralittoral algal assemblages and associated fauna found on the submarine part of emergent vertical rock faces at depths between 2 m to 35 m.
- The main threats and pressures on typical species found in the reef habitats surveyed during the Action A3 surveys were due to marine litter, in particular lost/discarded fishing gear. The overall conservation status of reef habitats is, however, considered to be favourable.

Sandbanks

- The results indicate that sandbanks in the Maltese Islands tend to be present in very shallow waters, at depths ranging from ca. 0.02 m to 2.00 m. The surveyed sandbanks had variable dimensions, with lengths ranging from ca. 11 m to 180 m, and widths ranging from ca. 1.5 m to 17 m, were permanently submerged, and surrounded by deeper water. They were thus consistent with the description of Habitat 1110 given in the Interpretation Manual of European Union habitats in the physical sense.
- No macroflora, and thus no *Cymodocea nodosa*, were recorded on any of the surveyed sandbanks. Instead, associations with *C. nodosa* were found throughout the infralittoral, down to ca. 45 m. *C. nodosa* is thus clearly not limited to the environmental conditions created by sandbanks in the Maltese Islands, is not generally present where such conditions occur, and is therefore not a useful indicator species for this habitat type.

Caves

- A total 37 emergent and 52 fully submerged caves were recorded in inshore areas during the LIFE BaHAR surveys, which varied in both size and structure from small caves measuring only a few metres, to large fissures and extensive tunnel systems penetrating deeply into the rock. Large caves showed a marked zonation from the cave entrance to the inner end of the cave, and generally three distinct zones could be distinguished: (i) an outer section where some light penetrates and allows the growth of photophilic algae at the mouth and progressively more sciaphilic species are present further inwards from the mouth; (ii) a tenebrous middle section dominated by sessile invertebrates such as a few sponges, hydroids, brachiopods, corals, tubicolous polychaetes, bryozoans, and foraminifera together with a few highly sciaphilic algae (mostly encrusting corallines); and (iii) a completely dark inner section, or dark side chambers, largely devoid of sessile organisms.
- New records of a total of 17 deep-water caves, mostly located west and north of Gozo at depths between 205 m to 450 m, but that also include a cave recorded at the edge of the Malta Graben at 795 m, were made. Typical species found at the entrance of such deep-water caves were recorded, although the ROV was not able to penetrate into the caves to record footage of biotic assemblages found within.
- The main threats and pressures on typical species found in the cave habitats surveyed during the Action A3 surveys were due to marine litter, in particular plastics accumulating inside caves. The overall conservation status of cave habitats is however considered to be favourable.

Three inshore sites were identified as hosting areas that have the potential to be proposed as Sites of Community Importance (SCI) based on the analysis of information collected under Actions A1 and A3. In order of priority these are:

- (i) a site bordering the northwestern coast of Gozo;
- (ii) a site bordering the southwestern coast of Malta;
- (iii) a site bordering the southern coast of Gozo.

The sites were selected to protect the large number of emergent as well as submerged caves (Habitat 8330), and reefs (Habitat 1170) that are present. The species assemblages present in these habitats are typical of cave and reef habitats found in the Maltese Islands, and *Centrostephanus longispinus* (listed in Annex IV of the Habitats Directive) was recorded from these sites.

Five offshore sites were identified as hosting areas that have the potential to be proposed as Sites of Community Importance (SCI). In order of priority these are:

- (i) a site bordering the southwestern limit of the 25 nautical mile FMZ surrounding the Maltese Islands;
- (ii) a site bordering the eastern edge of the Malta Graben;
- (iii) a site bordering the western edge of the Malta Graben;
- (iv) a site located to the north of Gozo;
- (v) a site bordering the northwestern limit of the FMZ, which also lies along the eastern edge of the Malta Graben.

The sites were selected to protect deep-sea caves (Habitat 8330) and offshore reef habitats (Habitat 1170) also taking into consideration habitats which are not included in the Habitats Directive but which are listed in the UNEP/MAP/RAC-SPA "*Reference list of marine habitat types for the selection of sites to be included in the national inventories of natural sites of conservation interest*", since Malta and the EU collectively are party to the Barcelona Convention and its protocols. The species assemblages associated with these habitats are typical of offshore habitats found in the deep sea around the Maltese Islands. *Corallium rubrum* and *Centrostephanus longispinus* (listed in Annex V and Annex IV of the Habitats Directive respectively) were recorded from these sites.