

The availability of map resources for the distribution, degradation status and threats to sponge assemblages in the European Seas – initial baselines in the MERCES project

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Within the MERCES project (<http://www.merces-project.eu/>), one of the first objectives is to catalogue existing and available maps for marine habitats, along with their degradation status and restoration potential in the European Seas. In order to reach this objective, an extensive review has been performed and a catalogue compiled with mapping sources for (a) marine habitats, (b) degraded marine habitats, and (c) pressures and mechanisms that could potentially drive key-habitat changes in them. In its current form, the MERCES WP1 catalogue includes a total of approximately 900 entries with meta-data regarding various marine habitats, assemblages and marine areas. These entries include published records, web resources, and grey literature (i.e. project reports, technical documents, and unpublished data). Information about sponge assemblages covers only 6% of the catalogue's entries highlighting a potential gap in relevant broad-scale mapping initiatives. In half of the available sources (52%), sponge assemblages were found together with those of anthozoans (e.g. cold water corals, coral gardens, gorgonian forests), suggesting that these two biological features often co-exist and/or are treated together in broad-scale mapping initiatives. Available mapping sources for sponge assemblages mainly concern the deep-sea (53%) and sublittoral hard substrate habitats (31%) of the North-East Atlantic Ocean (55%) and the Mediterranean Sea (38%). More specifically, the main habitats/assemblages identified were deep-sea sponge aggregations and mixed coral/sponge fields, sublittoral rocky and coralligenous beds. Several information sources underline a significant – though not quantified – decline in deep sponge fields, along with recorded mortality events for the shallow ones. The most frequently highlighted threats for these assemblages are: bottom trawling, climate change, dumping, land-based activities, harvesting, minerals exploration, scientific research, and marine litter. Interestingly, most of the catalogue entries (71%) were derived from grey literature, indicating a valuable – yet often overlooked – source of information.

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World Register of marine Cave Species (WoRCS): a tool for evaluating sponge diversity in marine caves and anchialine systems of the world

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As reservoirs of sponge diversity, marine caves have attracted the interest of sponge researchers from around the world at an early stage. The need to compile all the existing largely scattered information on the sponge diversity of this unique ecosystem has been recently recognized and some regional overviews came out. The World Register of marine Cave Species – WoRCS (www.marinespecies.org/worcs), a Thematic Species Database of the World Register of Marine Species – WoRMS, offers a valuable resource for an integrated approach to this issue. The aim of WoRCS is to create a comprehensive taxonomic and ecological database of species known from marine caves and anchialine environments worldwide. Within this thematic database, the cave-related information is managed by the WoRCS thematic editors in collaboration with the taxonomic editors of WoRMS, who manage the taxonomic content. The database is an online open source and includes information on the biology, ecology, and distribution of all species. Data on sponge distribution in marine caves are linked to the Gazetteer of the Marine and Anchialine Systems of the World, which is part of the Marine Regions information system and includes geographical and geological information for all study areas. Currently, the database includes 1629 species belonging to 19 phyla as well as 573 relevant literature sources. With 423 accepted species, Porifera is the richest in species phylum of sessile metazoans in the database, covering 26% of the existing records. Demosponges predominate with 365 species, followed by 33 calcareans, 24 homoscleromorphs and 1 hexactinellid. In their attempt to catalogue the world sponge diversity in marine caves, the WoRCS thematic editors and collaborators have initiated an exhaustive overview of all sources, including unpublished data from their expeditions. Herein the followed methodology, available sources and tools along with preliminary results of this initiative are presented. The main goal of this initiative is to describe distribution patterns in this fragmented ecosystem, to highlight unique elements of sponge diversity and provide a baseline for future conservation actions.

Sponge biodiversity of the shallow sublittoral Antarctic Peninsula

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Currently the diversity and abundance of sponges on shallow Antarctic reefs is likely to have been significantly underestimated (Cardenas et al. 2016). The difficulty of identifying sponges *in situ* has led to them being recorded simply as 'Porifera' in many studies, despite often being the dominant phylum on Antarctic hard substrates. We collected sponge specimens from 22 sites (0-24m depth) spanning from King George Island, South Shetland Islands (62°12.185'S) to Jenny Island, Marguerite Bay (67°43.325'S). Sampling was undertaken by SCUBA which enabled study of the large boulders and bedrock walls, these tend to be particularly sponge rich and unlikely to be well sampled by remote methods. The survey was carried out from a 26.5m vessel which enabled access to sites inaccessible to larger vessels; these included little studied areas such as the Biscoe Islands. In total 309 specimens were collected encompassing 24 species of which four were new to science. Records of the appearance of sponge were obtained, including some which have not previously been