



Città di Custonaci



## EVALUATING MARINE CAVE BIODIVERSITY IN THE EASTERN MEDITERRANEAN SEA

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Marine caves have been surveyed for their biota in the Mediterranean Sea more extensively than in any other marine province. However, relevant biodiversity data from the eastern and southern Mediterranean coasts are generally scarce in relation to the well-studied caves of the western basin. The aim of this study was to (i) provide an assessment of the recorded biodiversity in marine cave ecosystems of the eastern Mediterranean basin (Aegean and Levantine ecoregions), (ii) evaluate existing knowledge for the local cave biodiversity in relation to that of the entire Mediterranean Sea, and (iii) highlight regional peculiarities and potential threats.

Original biodiversity data from marine caves of the Aegean Sea were coupled with a detailed bibliographic review. The analysis yielded a total of 525 taxa, corresponding to one fourth of the total marine cave biodiversity recorded in the Mediterranean Sea. Porifera (116), Mollusca (84), Polychaeta (79), Rhodophyta (53) and Osteichthyes (40) presented the highest number of species, while certain groups (i.e. macro-algae, hydrozoans, and bryozoans) were notably underrepresented (possibly understudied) in this area. Among the recorded species some were rare, including eastern Mediterranean endemics and protected species, and 46 (9%) were aliens, mostly of Indo-Pacific origin. Lessepsian migration and shipping were found to be the most likely pathways of introduction for the alien species. Meta-analysis revealed that data are scarce or lacking for some groups in certain areas. It was also evident that quantitative information describing the composition of marine cave communities in the eastern Mediterranean basin is practically inexistent.

Alien species are prominently present in certain eastern Mediterranean areas (25% of the recorded Levantine marine cave biota) and the lack of historic quantitative data on the structure of local cave communities makes it difficult to evaluate possible impacts. Further surveys and monitoring schemes in the Eastern Mediterranean are needed in order to (i) enhance scientific knowledge for the understudied cave habitat and (ii) assess regional individualities and potential impacts on the marine cave communities.