



Città di Custonaci



COVERAGE AND DIVERSITY OF SESSILE BENTHOS IN A SEMI-SUBMERGED MARINE CAVE (AEGEAN SEA): DOES POSITION MATTER?

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Various morphological types of marine caves have been identified across the Mediterranean rocky coasts. Morphological complexity inside caves creates abiotic gradients, which are reflected in the spatial heterogeneity of sessile benthos. To date, distinct patterns of biotic zonation have been described in different cave types of the northwestern and central Mediterranean basin. Relevant studies mainly investigate differentiation across the longitudinal cave axis, in relation to the distance from the entrance.

As part of a broader recent attempt to study cave biotic zonation in the Aegean ecoregion, we investigated the spatial variability of sessile benthos in a tunnel-shaped semi-submerged cave of the northern Aegean Sea. The studied cave is located on Agios Efstratios Island, which is part of the Greek Natura network (GR4110002 Site of Community Importance). A non-destructive photographic method and advanced image processing software (photoQuad) was used for the study of benthic communities. A total of 63 photoquadrats (25 x 25 cm) were photographed at 3 different positions (3 quadrats on each vertical wall, left and right, and 3 on the floor) in seven distinct cave sectors. Image analysis, along with identifications of sponges from additional qualitative samples, revealed the presence of 47 taxa, 26 of which were classified in the phylum Porifera, 10 were macroalgae (mainly Rhodophyta), 5 Anthozoa, 3 Bryozoa, 1 Foraminifera, 1 Polychaeta, and 1 Tunicata. Different patterns were observed between the walls and the floor with regard to the biotic coverage and diversity indices. Specifically, we observed a decline of the mean biotic coverage from the entrances to the inner part of the cave. The floor exhibited strong sedimentation and was therefore differentiated from the walls. Species richness, Shannon-Wiener diversity and evenness showed similar fluctuation patterns on the opposite walls, but were differentiated on the floor, where lower values of the aforementioned indices were recorded. Similarity analysis separated the luminous entrance floors from the rest of the photoquadrats, revealing groups that roughly corresponded to the sciaphilic algal-dominated entrance zone and the intermediate semidark cave sectors where sessile invertebrates dominated; in the latter zone local variations were observed due to the development of different invertebrate facies (e.g. sponges, scleractinians and encrusting bryozoans).