LIVING IN CLOSE QUARTERS: EPIBIONTS ON DENDROPHYLLIA RAMEA DEEP-WATER CORALS (CYPRUS AND MENORCA CHANNEL)

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Abstract
In sharp contrast to shallow and/or tropical coral habitats, the role of deep-water corals (DWC) as habitat providers is not well known and even less understood. For this purpose, epibions on the deep-water coral Dendrophyllia ramea were studied from samples collected in Cyprus and compared to those from Menorca Channel. A total of 63 species were found; bryozoans (ca. 60%) and serpulid polychaetes (ca. 10%) dominated the assemblage of species. Cyprus (48 species in total) and Menorca (22) corals shared few epizoic species (7). Several of these species were previously thought absent from the Levantine basin. These results are important contributions to the knowledge on the deep-water epibiotic biodiversity of the Levantine Basin and the Mediterranean Sea in general.

Keywords: Biodiversity, Deep sea corals, Bryozoa, Deep sea ecology, Levantine Basin

Introduction
Coral communities are habitats known to host rich assemblages of associated organisms sometimes in complex relationships with the host. The structural complexity offered by deep-water coral (DWC) habitats allows for the development of diverse associated communities that usually result in considerably higher biodiversity than the surrounding environment [1]. Inherent difficulties to study DWC communities limit the expansion of our knowledge on their associations and composition. In consequence, every coral sample brought up from the deep is a priceless source of information. The epifauna associated to the DWC coral Dendrophyllia ramea is described here for the first time for specimens from Cyprus and compared to D. ramea from the Western Mediterranean.

Methods
Colonies (n=8) and branches of colonies (n=5) of D. ramea were collected by longline fishermen and ROV surveys in Cyprus (150 to 200m depth). Samples (dry or frozen), including other material (e.g. monofilament lines) attached to the corals, were inspected using a stereomicroscope and selected epibions were prepared for scanning electron microscope (SEM). Relative position, abundance (% cover) and diversity of major taxa on D. ramea colonies from Cyprus was compared to those of one conspecific colony from Menorca Channel (ca. 240m).

Results
Sixty-three taxa in total were found; the majority (ca. 57%, n=36) were bryozoans followed by serpulid polychaetes (ca. 11%). Other groups (pooled together 32%), such as corals, sponges, brachiopods, foraminifera, and calcareous algae were less represented. More than 60% (n=41) of the species were found only in Cyprus; few (11%, n=7) co-occur in both areas. Sponges were entirely absent from the samples from Cyprus. In contrast, the scleractinian coral Stenocyathus veriformis was found only on D. ramea from Cyprus (three colonies). In general, upright branches with live polyps and exposed sides had significantly fewer epibions (<5% cover) compared with dead portions of the same colony. Epibions’ cover was higher (>40%) on those sides as well as in the basal sections (Fig. 1A) and the monofilament fishing lines (Fig. 1B).

Discussion and Conclusions
All species in the examined material are known as habitual epibions of a variety of coral species. This is the first contribution for the deep-water biodiversity of epibions in the Levantine Basin. Many of the species (ca. 45%) were not reported for Cyprus, nor for any other DWC in the Levantine area, even though their depth range of distribution range extends to shallow habitats (<50m). Although all epibions found are indicative of some environmental conditions, bryozoans and sponges strongly respond to environmental factors such as oligotrophy and sedimentation. These results suggest that generalizations regarding DWC habitats and their associated communities in the Mediterranean are not to be taken lightly. The deep-

Fig. 1. (A) Epizoans: Escharina vulgaris (Ev), Megerlia truncata (Mt), Placostegus tridentatus (Pt), Vermilopis influndibulum (Vi), Jania fimbriata (Jf). (B) Bryozoan Smitioidea marmorea with oviscels and avicularia.

References