

Cold-water corals in the Cap de Creus canyon, northwestern Mediterranean: size structure, morphological plasticity and bathymetrical distribution

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In the last decade, occurrence of alive assemblages of Cold-water corals (CWC) have been reported for the Eastern (e.g. Sta. Maria di Leuca, Adriatic Sea and the Bari canyon among others) and Western (Gulf of Lions: Cap de Creus, Cassidaigne and Lacaze-Duthiers canyons) Mediterranean basins. An extense CWC community inhabits the southern wall of the Cap de Creus canyon. This community is mainly formed by *Madrepora oculata* colonies, with occurrence of a few colonies of *Lophelia pertusa* and *Dendrophyllia cornigera*. *Madrepola oculata* reach in the canyon maximal densities up to 11 colonies per square meter, and it is distributed in small patches of a few colonies which aggregate into larger patches on the rocky bottom of the southern wall of the canyon head (Orejas et al. 2009). The observed patches of *Madrepora oculata* included mainly large size colonies (20-40 cm diameter), with few records of small colonies. Most *Madrepora oculata* colonies were located on rocky walls, whereas just isolated exemplars were observed on the top of rocky boulders or on the edge of rocky outcrops. Almost all *Madrepora* colonies displayed a "cauliflower-like" form, however with presence of some exemplars with a "fan-like" form; this last morphotype was mainly located on the rocky outcrops's edges. The analysis of the bathymetrical distribution of the three CWC species, showed that *M. oculata* and *D. cornigera* occurs at similar depth ranges, between 160 and 320 m depth for *M. oculata*, and between 160 and 200 m depth for *Dendrophyllia cornigera*; the few recorded colonies of *Lophelia pertusa* were located between 220 and 300 m depth. The main aim of this study is to contribute to get more insight in several unknown aspects of the ecology of the CWC communities of the Mediterranean Sea. The study and quantification of parameters such as shape, orientation, substrate preference and bathymetrical distribution would help to better understand the main drivers that determine the occurrence of CWC.