



## **Coral Mass Mortality Associated to the Summer 2012 Seawater Temperature Anomalies in the Levantine Sea (Cyprus)**

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The island of Cyprus, located in the high-oligotrophic region of the eastern Mediterranean, provides an appealing ground for the study of coastal ecosystems under limiting and contrasting environmental conditions. If proper management strategies are to be enforced, the changes on the structure and functioning of marine ecosystems in response to natural and anthropogenic disturbances need to be considered. In this paper, we describe the 2012 coral mortality event along the coast of Cyprus, including selected sites where land-based human activities are likely to have a direct impact on coral habitats. The 2012 event seems to have been induced by prolonged seawater temperature increases during a period of several weeks in summer (in August and September), representing the highest warming event of the last 30 years in Cyprus. Using image-analysis software, *Cladocora caespitosa* colonies were evaluated by measuring and comparing the area-percentage of healthy tissue, affected tissue (bleached and freshly necrotic) and bare skeleton (older mortality events). The photographic record was acquired during and one month after the warming event through systematic diving transects. Additionally, a public call for collaboration was issued and recreational divers contributed with photographs of corals with different levels of affectation (from none to severe). At the nutrient-affected sites, macroalgae and other filter feeder organisms compete with corals for space, resulting in higher partial-tissue mortality. Despite this fact, coral colonies are more abundant in those sites, which might be explained by the anthropogenic change of naturally limiting conditions (oligotrophy) of Cypriot waters and the physiology of the particular coral species (auto- vs. heterotrophy). Our results suggest that corals under artificially induced conditions (more commonly found elsewhere in the Mediterranean) respond to environmental disturbances impaired by the macroalgae-dominated community. Monitoring of the coral colonies and the water quality at the observational sites will continue on a seasonal basis, in order to better understand these altered ecosystems and to contribute to the definition of management strategies.