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Comparison between molluscan life and death assemblages from tidal flats in the Persian (Arabian) Gulf

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Studies designed to compare living assemblages (LAs) and death assemblages (DAs) of marine invertebrate fauna are critical to assess how accurately fossil assemblages record information of the original living communities. In addition, since death assemblages are formed by accumulation and preservation of dead shells over long periods of time (time-averaged DAs), they can also be a useful tool to describe the biodiversity of an area with less sampling effort than that required in surveys focused on LAs. The current note presents an overview of our ongoing study on molluscan LAs and DAs from the Persian Gulf, a shallow sea located in the northwestern part of the tropical Indo-West Pacific biogeographic province. The investigation of a subtropical fauna is of special interest, since most of the studies on this subject have been conducted in temperate regions. In particular, our samples were retrieved from tidal flat settings, which are subjected to high temporal variations concerning salinity, oxygen content and temperature. Samples were taken at two localities in Dubai. Seven samples were collected from stations covering different sub-environments: upper intertidal (close to the algal mat zone), tidal flat in the proximity of a major channel, tidal channel, outer tidal flat, “beachrock” surface in the upper intertidal, and a tidal flat close to *Avicennia* shrubs (mangrove). Environmental parameters such as salinity, pH, and temperature of air and water, have been recorded. The samples consist of bulks of the uppermost 1–3 cm of sediment at the interface with sea water to avoid subfossil material as far as possible. The shell fraction > 1 mm is going to be sorted and segregated into morphospecies, and identified to species level whenever possible. Over 1,000 specimens are counted per sample. Until now, we finished sorting of one of the samples and found, as in many other studies, that most of the specimens belong to the DA. In this sample, however, there is still a good match between the DA and the LA. The most important taxa are the gastropods *Clypeomorus bifasciatus*, *Pirenella conica*, and, to a lesser extent, *Cerithidea cingulata* and *Acteocina mucronata*. The most important bivalve taxa are *Dosinia* sp., *Pillucina* cf. *vietnamica* and *Tellina arsinoensis*. We plan to use rarefied data to account for sample size differences, and species richness and evenness (Simpson- and Shannon-Wiener index) to describe the diversity and patterns of species abundance in the LAs and DAs. To evaluate the differences between stations and tidal flat sub-environments, we plan to use non-parametric ordination methods.