



Tidal flat molluscan life and death assemblages from the Persian (Arabian) Gulf

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The comparison of life assemblages (LAs) and death assemblages (DAs) of marine invertebrate fauna is of great importance to analyze how accurately fossil assemblages provide information on the original living communities. Furthermore, since death assemblages are originated by accumulation and preservation of dead shells subjected to time averaging, they can also be used to describe the biodiversity of an area with less sampling effort than that required in surveys focused exclusively on LAs. The current note presents an overview of our study on molluscan LAs and DAs from the Persian Gulf, a shallow sea situated in the northwestern part of the tropical Indo-West Pacific biogeographic province. The study of a subtropical fauna is especially interesting, because most of the research on this subject has been conducted in temperate regions. In particular, our samples were retrieved from tidal flat settings, which undergo high temporal variations as regards salinity, oxygen content and temperature. Samples were collected from two localities in Dubai. Seven samples were taken from stations which cover 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 has been sorted and segregated into morphospecies, and identified to species level whenever possible. Over 1000 specimens have been counted per sample. We 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 bifasciata*, *Pirenella conica*, and, to a lesser extent, *Cerithidea cingulata* and *Tornatina* sp. The most important bivalve taxa are *Dosinia* cf. *ceylonica*., *Pillucina vietnamica* and *Tellina arsinoensis*. We used 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 used non-parametric ordination methods.