



Distribution of living larger benthic foraminifera in littoral environments of the United Arab Emirates

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The distribution of larger benthic foraminifera in Recent littoral environment of the United Arab Emirates (Abu Dhabi and Western regions) was investigated with the aim of understanding the response of those foraminifera to an increase in water salinity.

For this purpose, 100 sediment samples from nearshore shelf, beach-front, channel, lagoon, and intertidal environment were collected. Sampling was undertaken at a water depth shallower than 15 m in water with a temperature of 22 to 35°C, a salinity ranging from 40 to 60‰ and a pH of 8. Samples were stained with rose Bengal at the moment of sample collection in order to identify living specimens.

The most abundant epiphytic larger benthic foraminifera in the studied area were *Peneroplis pertusus* and *P. planatus* with less common *Spirolina areatina*, *S. aciculate* and *Sorites marginalis*. The living specimens of the above mentioned species with normal test growing were particularly abundant in the nearshore shelf and lagoonal samples collected on seaweed. Dead specimens were concentrated in the coarser sediments of the beach-front, probably transported from nearby environments.

Shallow coastal ponds are located in the upper intertidal zone and have a maximum salinity of 60‰ and contain abundant detached seagrass. Samples collected from these ponds possess a living foraminifera assemblage dominated by *Peneroplis pertusus* and *P. planatus*. High percentages (up to 50% of the stained assemblage) of *Peneroplis* presented abnormality in test growth, such as the presence of multiple apertures with reduced size, deformation in the general shape of the test, irregular suture lines and abnormal coiling. The high percentage of abnormal tests reflects natural environmental stress mainly caused by high and variable salinity. The unique presence of living epiphytic species, suggests that epiphytic foraminifera may be transported into the pond together with seagrass and continued to live in the pond. This hypothesis is supported by the fact that all of the foraminifera with abnormal test growth were adults and exhibiting a normal proloculus and normal growth of the earlier chambers.