



## **Holocene Environmental Reconstruction of Lake Bafa (SW, Anatolia) by Statistical Analyses of Ostracod and Benthic Foraminifer Assemblages**

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Sediment archives provide crucial information about past climate and environment conditions, and are commonly investigated by using different proxies (e.g. sediment properties, geochemistry, and fossil assemblages). In dynamic coastal environments, changing processes make the proxy interpretation difficult to reconstruct complex environmental settings. Here, we present proxy analyses from sediment cores from Lake Bafa a brackish-water ecosystem in situated in SW Anatolia. The coring site was initially connected to the Aegean Sea from so-called Latmian Gulf. However, due to the delta progradation of River Büyük Menderes, the site was isolated from the open sea and a closed lake system established. Palaeo-shorelines have been previously studied by applying different proxies (e.g. sedimentological, micro-faunistical, palynological methods) on sediment cores taken from alluvial fan and delta parts of the river.

In our study, we used mainly the abundant microfossil assemblages of ostracods and benthic foraminifera, which are reliable and supplementary proxies in brackish study sites. We identified 57 ostracod species in Lake Bafa, and evaluated statistically their occurrence throughout the core. Based on hierarchical clustering analysis of Ostracoda, we characterize five distinct environments in Lake Bafa during the Holocene: (1) (252-294 cm) Shallow marine environment in which some species (e.g. *Semicytherura sulcata*) live in shallow marine waters, (2) (203-245 cm) full marine environment with the presence of polyhaline *Leptocythere ramosa*, and some other distinct marine species (e.g. *Buntonia sublata*) found only in this cluster, (3) (189-196 cm) coastal marine environment with altering salinity (17-21 ‰ inferred from the Mediterranean-based species of *Cytheromorpha variabilis*, *Hiltermannicythere rubra*, *Bosquetina carinella*, and *Acanthocytheris hystrix*, (4) (105-182 cm) transitional (marine to brackish-water) environment in which some species such as *Bairdia mediterranean*, *Xestoleberis dispar*, and *Fabaeformiscandona cf. pokorny* are found, (5) (1-98 cm) Brackish water environment including some ostracoda species such as *Fabaeformiscandona wegelini*, *Loxoconcha elliptica*, *Darwinula stewensoni* and *Cyprideis torosa*.

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