



Oceans Past

Multidisciplinary Perspectives on the History of Marine
Animal Populations



**Oceans Past – Multidisciplinary Perspectives on the History
of Marine Animal Populations
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Salinization and Establishment of Coccolith Populations in the Black Sea

The sediment core data indicated three major environmental periods as defined by the salinity, the interface depth, and coccolith population. The first phase extending from the last glacial maximum (Neoeuxian) to 5660 yrs. BP, was characterized fresh and oxic marine condition and some fresh water diatom remains. Since, Black Sea's last relatively connection to the world oceans (5660 yrs. BP.), a very interesting history of establishment of marine conditions and hence organisms has occurred. Its progressive salinisation helped the establishment of, among others, the coccolithophorid *Braarudosphaera bigelowi* in bottom sediments. *Emiliana huxleyi* first appeared in the Black Sea between 1600-1700 ys ago when the surface salinity reached to 11‰. Although compared to this sea the Black Sea is an impoverished version, the number of adapting species is increasing gradually, in a process known as "Mediterranisation". The depth of the oxic/anoxic water interface has changed gradually up to its current position. The data also identify three distinct dry/cold periods, which apparently coincide with dramatic changes in sea level and coccolith-based production. A gradual salinisation of the Black Sea during the following millennia created a distinct zonation in salinity with a thin layer of less saline (18‰) waters at the surface and Mediterranean influenced saline waters (22‰) in the bottom. Due to an absence of vertical mixing of waters, these deep waters down to 2200 m are devoid of oxygen and as a result the Black Sea contains the largest anoxic waters of the planet.