

GEOPHYSICAL, GEOLOGICAL AND LYMNOLGIC STUDIES OF BAFI LAKE, AN ANCIENT GULF OF THE AEGEAN SEA

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Abstract

Lakes are perfect constituents of climatic, environmental and geologic changes and geophysical lake studies are exceptionally important to reveal their formation process. Lakes may record regional responses about some environmental processes and a combination of such records about origin of lake can contribute to a better understanding variations about shore studies. Bafa Lake in Mugla, Turkey is among the best examples of such an alluvial set lake in the Aegean Sea and it is one of the least spoiled watery areas at the shore, in Turkey.

Keywords: Geophysics, Hydrography, Aegean Sea, Sedimentation

Bafa Lake was one of the busiest bays of the Aegean Sea (Gulf of Latmos) in the seventh century B.C. [1]. The sediments brought to the lake is initially fed by the floods from the Big Meander River (Büyük Menderes) slowly pull away the bay from the Aegean sea by the first century A.C. [2]. From late antiquity, alluvials that brought by Big Meander River is closed the connection of the Latmos Gulf step by step and transformed the gulf to a lake (Fig. 1) [3]. Bafa Lake is one of Turkey's most important historical and protected area which also has cultural and archaeological resource value by having the ancient city of Latmos. So this area is under protection of the government as an open air museum and a nature park.

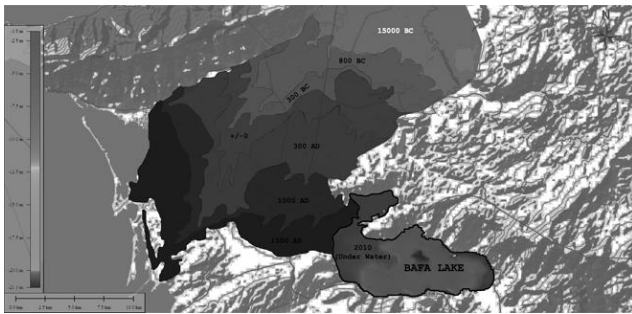


Fig. 1. Periodic progression of the Big Meander River Delta

We examined the Lake in geophysical, geomorphological and physico-chemical aspects. In this context, depth measurements and bathymetric mapping, side scan sonar studies which used to determined the morphology of the lake, water column physicochemical parameters and microbiological assays and sediment grab samples to determine bottom sediments were studied (Fig. 2).

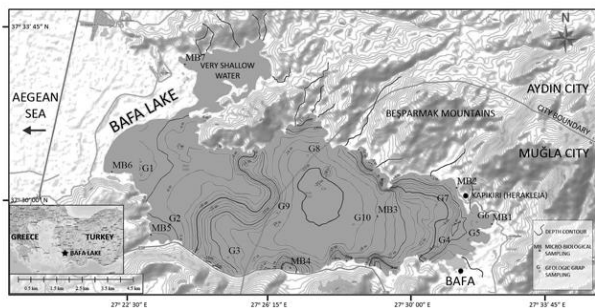


Fig. 2. Representation of Bafa Lake's location and depth contours with sediment sampling locations.

Results showed us how a river can transform a gulf into a lake by changing it's geology, morphology and echology and gave us a huge knowledge about similarly affected environments future, destinies.

References

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