

Application of trace element and stable isotope distributions in ostracods to constrain the
Holocene

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Abstract

The nature of the evolution of the Black Sea from fresh to marine in the early Holocene retains two unanswered questions: the timing and time span of the reconnection with the Mediterranean Sea. Two models are proposed to answer this dilemma. The deep sill model suggests that the Black Sea always retained positive hydrological balance until the inflowing marine water gradually displaces freshwater in the deep basin. The shallow sill model features the isolation of the Black Sea from the Mediterranean until the global sea level reaches above the threshold depth of the sill and the marine inflow enters the basin more abruptly. Current research focuses on determining whether the inundation of the shelf was fresh or marine at the time of the reconnection to differentiate between the two models using mollusks. Proposed research will focus on studying the magnitude and timing of the fresh to saline shift in deeper cores using ostracod shells.
