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Insights into the benthic communities response to the inflow of Black Sea mesotrophic waters in the North Aegean Sea

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Abstract

The effects of the Dardanelles inflow of buoyant, modified Black Sea waters (BSW) of low salinity and temperature, on the meio- and macrobenthic communities of the north Aegean ecosystem was investigated during two cruises in October 2013 and March 2014. Sediment samples were collected from two stations subjected to the BSW effect, one shallow and one deep north of the Dardanelles Straits, and from two stations of similar bathymetry, which were considered to be outside the influence of BSW and were located to the south of the Dardanelles Straits. Results suggest that there is an effect of the BSW on benthos, as both meiofaunal and macrofaunal standing stocks were lower at the most distant, and therefore least affected from the inflow, station, and higher at the station of similar bathymetry which was affected the most by the BSW inflow. Univariate and multivariate non-parametric analyses (nMDS, PERMANOVA) provided further support, indicating differences between the two areas (North vs. South) in the case of the deep stations, while differences between depth categories were evident in the area outside the BSW influence zone. Distance-based linear modeling (DISTLM) indicated that meiofauna correlated with proxies of food availability and sediment characteristics. Macrofauna on the other hand, showed a rather high significant correlation

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