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Meiobenthic communities of hypoxic conditions of the Bosporus Strait (Black Sea)

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The anoxic Black Sea water mass is separated from the oxic zone by a layer, several tens of meters thick, where oxygen concentrations decrease to 0.1–0.3 ml•L-1 (= 4.5-13.5 μM L-1) and hydrogen sulfide levels increase correspondingly. Where the oxic/anoxic interface in the water column impinges on the seafloor, it creates a strong benthic gradient in oxygen and hydrogen sulphide concentrations. This O2/H2S-transition zone is highly dynamic, characterized by varying concentrations of oxygen and hydrogen sulfide in the bottom water, and oscillates above and below its average depth. The taxonomic composition and distribution of benthic fauna inhabiting the depth zone where the oxic/anoxic interface zone meets the sea floor is of special interest. New samples of were collected during RV Arar of (ITU, Turkey) during 9-21 November 2009 within the framework of the (HYPOX) in the Istanbul Strait's (Bosporus) outlet area of the Black Sea.

The meiobenthos present between 75 and 300 m included the following 21 taxa: Ciliophora, Gromiida, Foraminifera (soft-shell and hard-shell forms), Coelenterata, Nematoda, Kinorhyncha, Oligochaeta, Polychaeta, Turbellaria, Nemertini, Harpacticoida, Ostracoda, Cumacea, Amphipoda, Tanaidacea, Acari, Tardigrada, Bivalvia, Gastropoda, Ophiuroidea and Tunicata. Among these the Nematoda are dominant.

Meiobenthos distributed homogeneously in the horizontal layers at the depths 75 - 300m. The peak of meiobenthos maximum is located at the depth of 75 m. The break point on the curve of the taxa richness marked at the 120m depth. Biodiversity at the major taxon level declines with increasing water depth, although the decrease is not linear and there are minor peaks at 90 and 120 m.

Maximum concentrations of meiofauna are usually found in the surface layers of bottom sediments. The vertical distribution of meiobenthos in the upper 9 cm of sediment has been analyzed at different water depths in the study area. Overall, the 0-2 cm layer contained 99% of total meiobenthos abundance in the studied area.