

# Functional and structural responses of harpacticoid copepods to anoxia in the Northern Adriatic: an experimental approach

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To study the effects of anoxia on the functioning of meiobenthic communities in the Northern Adriatic, Gulf of Trieste, an *in situ* experiment was conducted. Anoxia was created artificially with the use of an Experimental Anoxia Generating Unit (EAGU). Nematodes were found as most abundant taxon, followed by harpacticoid copepods. Nematodes densities were not affected by treatment (anoxia/normoxia) nor by sediment depth. On the other hand, harpacticoid copepod densities differed significantly depending on treatment and sediment depth. Also harpacticoid copepod families composition was affected by anoxia and by sediment depth layer, but anyhow Ectinosomatidae and Cletodidae were most abundant in both normoxic and anoxic samples. In addition, the functional responses of harpacticoid copepods to anoxia were tested in a lab experiment with additional <sup>13</sup>C prelabelled diatoms in order to test (1) if there was any difference in food uptake by copepods under normoxic and anoxic conditions and (2) whether initial feeding of copepods on diatoms could result into a better survival of harpacticoid copepods in anoxic conditions. Independent of the addition of diatoms, there was a higher survival rate in normoxic conditions than in anoxic conditions. The supply of additional food did not result into a higher survival rate of copepods in anoxic conditions. The results indicate a strong effect of anoxia on harpacticoid copepods, both on structural and functional aspects. The lack of the effect of additional food on the survival rate of copepods in anoxic conditions could be explained by the fact that grazing on diatoms by copepods stopped in anoxic conditions.