



Trace metal enrichment in macro-invertebrate habitats and biological feed-backs at geochemically distinct vent sites of the Mid-Atlantic Ridge

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This study describes chemical features of the aquatic environment with the emphasis on the total vs filter-passing fraction (FP) of heavy metals in microhabitats of two typical deep-sea vent organisms: the filter-feeder, symbiont-bearing *Bathymodiolus* and the grazer shrimps *Rimicaris/Mirocaris* from the Mid Atlantic Ridge (MAR). The concentration of ten trace elements: Al, Mn, Co, Cu, Mo, Cd, Fe, Zn, Pb and Hg in the water column of mixing zones was explored highlighting common and distinctive features among the 3 hydrothermal vent sites of the (MAR): Menez Gwen, Lucky Strike and Rainbow that are all geo-chemically different when looking at the undiluted hydrothermal fluid composition.

The drop off in the percentage of FP from total metal concentration in mussel and/or shrimp inhabited water samples as compared to non-inhabited areas may indicate an influence of vent organisms on their habitat's chemistry, which in turn may determine adaptational strategies to elevated levels of toxic heavy metals. Predominance of particulate fraction over the soluble metals, jointly with the morphological structure and elemental composition of typical particles in these vent habitats suggest a more limited metal bioavailability to vent organisms as previously thought.