

2D redox zonation in a sediment colonized by tube-dwelling amphipods

E. METZGER^{1*}, A. NICOL^{1,2}, J.B. CHAMPILOU¹, T. JAUFFRAIS³, C. CHOQUEL¹, P. LAUNEAU¹, A. MOURET¹

(*correspondence: edouard.metzger@univ-angers.fr)

¹UMR CNRS 6112 LPG-BIAF, Angers University, Nantes University, France

²BayCEER, University of Bayreuth, Germany

³LEAD-NC, IFREMER, New Caledonia

South Brittany shelf is fed by La Vilaine and La Loire riverine particles generating a mosaic of benthic habitats. In a bathymetric fringe between 20 and 40 meters depth, muddy sediments are colonized by a tube-dwelling amphipod: *Haploops sp.* Recent studies in the area showed that *Haploops* colonies are somehow linked to the presence of pockmarks generated by methane degassing. In order to better understand the link between *Haploops* and methane, a multidisciplinary project including marine geophysicists, geochemists and biologists was funded by the French region Pays de la Loire: the HOOPLA-WEAMEC project. The present study focuses on the influence of tube mats on nutrient benthic exchanges and advective transport within the sediment and its consequence on the lateral heterogeneity of porewater chemistry. A colonized sediment was compared to a bare one and 2D-DET (diffusive equilibrium in thin films) probes were deployed. Dissolved iron, manganese, nitrate, ammonium and phosphorus were mapped at a millimetre resolution showing a complex interplay between chemical species.

