WE183 Active Biomonitoring and DGT Passive Sampling: Holistic Assessment of metal bioavailability in sediments and associated risks K. De Schamphelaere, Universiteit Antwerpen / Department of Biology (SPHERE and ECOBE Research Groups); H. Hetjens, University of Antwerp / Department of Biolgy (SPHERE Research Group); J. Teuchies, E. Amato, L. Bervoets, University of Antwerp / Department of Biology (SPHERE Research Group); P. Meire, University of Antwerp / Departement of Biology (ECOBE Research Group); R. Blust, University of Antwerp / Department of Biology (SPHERE Research Group). Impacts of sediment metal contamination on aquatic ecosystems and their functioning remain a widespread problem. The ecotoxicological risk associated with metal contamination is dependent on metal speciation, sediment characteristics and the behavior and physiology of the affected organisms. Hence, bioavailable concentrations, rather than total metal concentrations, are often a critical factor in sediment risk assessment. Determination of bioaccumulation in organisms is a frequently used indicator for bioavailability. However, active and passive biomonitoring techniques are often time consuming and highly dependent on the exposed organisms, limiting comparability and standardization. Diffusive gradient in thin films (DGT) passive sampling is an innovative technique, allowing for the time-integrated measurement of potentially bioavailable metals in sediments or surface water. Divalent metals are selectively accumulated onto a Chelexembedded hydrogel layer, providing a measurement of labile and weakly-bound metals. To evaluate DGT passive sampling measurements as a possible indicator of bioaccumulation in organisms, a field experiment will be carried out in April 2018 on 6 locations in Flanders (Belgium), of which 3 freshwater and 3 brackish aquatic systems. Bioavailability of metals will be assessed by active biomonitoring through a 4 weeks exposure of caged macroinvertebrates, after which bioaccumulation will be determined. The organisms will be exposed both at the sediment water interface and in the water column. During a pilot study, carried out in November 2017, 3 bivalves and a polychaete worm are exposed in the Zenne river (north of Brussels) to test for their active biomonitoring applicability. During the 4 weeks exposure period, DGT passive samplers will be deployed 3 times for a period of 24h at the sediment water interface and in the water column. Relationships will be determined between the bioaccumulation in the exposed organisms and the determined DGT fluxes. Bioaccumulation and passive sampling measurements at the sediment water interface and in the water column will be evaluated. The experiment aims at establishing relationships between bioaccumulation in different macroinvertebrate species and passive sampling measurements, and further validating the DGT passive sampling technique as a monitoring tool for sediment quality assessments in both freshwater and brackish aquatic systems.