



Using river metabolism monitoring to quantify sediment budgets in river stretches

Tom Gallé and Viola Huck

CRTE, CRP Henri Tudor, Esch-sur-Alzette, Luxembourg (tom.galle@tudor.lu/+352425991-555)

Sediments play an important role in river ecosystems as a food source and pollutant mediator: they can figure as pollutant sinks but can also transfer these pollutants to the food web if the sediments serve as subsidy and the pollutants are bioavailable. Hence it is important to quantify the dynamics of sediment budgets and their quality during the seasons. As rivers are hydrologically dynamic and sediment deposits very patchy, representative samplings are an unresolved challenge in sediment research. This poster presents a method relying on the well established river metabolism introduced by Odum, which allow for the calculation of Gross Primary Production (GPP) and Ecosystem Respiration (ER) in river stretches from continuous oxygen recordings. In addition sediments were re-suspended in a dozen spots in these 200 m long stretches and analyzed further in the laboratory. The main parameter investigated was the 24h Biological Oxygen Demand (BOD) of the sediment samples which is related to organic carbon content and other parameters reflecting the lability of the organic matter (chlorophylls, sugars, phospholipids). This poster shows the dynamics of metabolism parameters and sediment characteristics over one vegetative season in two differently polluted Luxembourgish rivers and proposes a method to quantify the sediment budgets by relating BOD and ER measurements.