Poster Number

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Topic	Effect assessment
Title	**Experiments Measuring Copper Bioavailability in Oxic and Spiked Sediments**
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Summary: Metal partitioning and bioavailability in sediments has been primarily linked to sulfides and organic carbon, yet metals can also sorb to Fe oxides in aerobic sediments. Our research aims to improve metal bioavailability models for stream ecosystems by incorporating an oxic partitioning component. Two reference sediments, with differing binding capacities, were spiked with five concentrations each of Cu and aged under flow-through conditions in the lab while concurrently exposing *Hyalella azteca* to those sediments to measure changes in toxicity as the sediment ages. Frequent temporal sampling produced a fine scale understanding of geochemical and toxicological dynamics in the sediment, and ultimately determined the length of time necessary for lab-spiked sediments to reach a steady-state in an oxic environment. Metal release from spiked sediments rapidly decreased through time when exposed to flowing waters. As predicted, toxicity declined during the equilibration as Cu was absorbed to Fe oxides in sediments and made less available for uptake by *H. azteca*. Comparison of flume-aged sediments to freshly-spiked sediments at the same Cu concentrations (28 day *H. azteca* growth assay) revealed lower EC20s in the freshly-spiked sediments. The flume aged sediments may be used as surrogates for field contaminated stream sediments, allowing for more accurate predictions of effects under natural conditions.