

Poster Number

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Topic	Exposure assessment
Title	Metal Release from Contaminated Sediments during Resuspension Events
Poster submitter	Dr Kevin FARLEY
Organization	Manhattan College, United State of America
Authors	Kevin FARLEY, Patricia T. HEEGLE, Kevin J. RADER, Richard F. CARBONARO

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Summary: The presence of sulphides in sediments has been shown to play an important role in sequestering metals (e.g., Cd, Cu, Ni, Pb, Zn) and in limiting metal bioavailability. This effect has been considered in regulatory decision-making through static or “snap-shot” measures of simultaneously extractable metals (SEM) and acid volatile sulphide (AVS) ratios. A potential weakness in this approach is the oxidation of metal sulphides and associated changes in metal bioavailability that are likely to occur during sediment resuspension events (e.g., due to episodic storms, propeller-induced disturbances and dredging activities). A reactive-transport model was therefore developed using the TICKET framework and was applied in evaluating metal release during resuspension in laboratory chamber studies. Overall results show that the TICKET model provides an appropriate framework for evaluating the complexities of metal behaviour during resuspension events. Results also show that metal release and bioavailability during resuspension are intricately linked to metal sulphide oxidation rates, pH buffering, and metal binding to natural organic matter and oxide surfaces. Based on these findings, SEM/AVS, BLM and other regulatory assessment tools should be considered in a more dynamic framework to properly address the potential impacts of metals during sediment resuspension events.