# Mercury in Wetlands: Retention and Potential Long-Term Methylation and Export. (S10-yavitt091231-Oral)

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### Abstract:

Several studies suggest that wetlands play a crucial role in the biogeochemical cycling of mercury (Hg) by harboring bacteria that methylate Hg into a neurotoxin (MeHg) or demethylate it to volatile Hg, and by having high concentrations of dissolved organic carbon (DOC) that facilitate Hg transport. Are some types of wetlands more important than others? In the Adirondack Park region of New York State, total Hg concentrations in wetland pore waters were significantly greater in riparian wetlands (10.6 ng/L) than in peatforming wetlands (< 5 ng/L) dominated by either Carex sedges or low shrubs and Sphagnum (bog moss). Mercury might accumulate in riparian wetlands because they receive water from both uplands and low-order streams. The highest rates of microbial activity occurred in sedge-derived peat, presumably fueled by the freshest organic matter; although, microbial sulfate reduction that methylates Hg occurred mostly in riparian wetlands. Sites located away from streams had microbial methane production, where demethylation occurs. Overall, riparian wetlands appear to control Hg dynamics in mixed forest and wetland watersheds.

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