Temporal and Spatial Variability of Nutrient Fluxes from Sediment in the Lower St. Johns River (S10-malecki213124-Poster)

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Abstract:

The 1972 Clean Water Act requires states to identify impaired water bodies and submit a listing to the U.S. Environmental Protection Agency. States are also required to establish total maximum daily loads (TMDLs), summing all source load allocations, with a safety margin for seasonal variability. The St. Johns River Water Management District is mandated to set TMDLs for nutrients in the Lower St. Johns River (LSJR). The nutrient flux between the sediment and water column needs to be determined to account for internal loading. Duplicate porewater equilibrators were deployed at four stations to determine soluble reactive phosphorus (SRP) and ammonium (NH4) fluxes. Intact cores were collected to determine changes in floodwater concentrations, soil oxygen demand, and sediment characterization. Flux of SRP ranged from 1.58 to 5.41 mg m-2d-1 in June, and 1.01 to 8.55 mg m-2d-1 in October, and 1.18 to 8.17 mg m-2d-1 in March. Flux of NH4 ranged from 4.70 to 10.69 mg m-2d-1 in June, and 4.48 to 11.56 mg m-2d-1 in October, and 4.18 to 11.33 mg m-2d-1 in March. Data provided by this research will aid modelers in determining TMDLs for the LSJR to prevent further degradation.

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Presentation Information:

Presentation Date: Wednesday, November 13, 2002
Presentation Time: 3:00-6:00 pm
Poster Board Number: 1705

Keywords:
internal cycling, phosphorus, sediment characterization, sediment oxygen demand