ESTIMATION OF SEDIMENT AND NUTRIENT LOADS FROM MIXED LAND USE WATERSHEDS IN THE UPPER MISSISSIPPI RIVER BASIN AND THE ROLE OF WETLANDS IN REDUCING THEM.

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Abstract: We present results from our ongoing work examining the role of wetlands in the interception and processing of suspended sediment (SS), nitrogen (N) and phosphorus (P) loads from two suburbanizing watersheds near La Crosse, WI**.** Using field measurements, we estimated SS, N and P loads for each of two small (25 and 100 sq. km) watersheds and loads entering a native (NW) and constructed wetland (CW). Estimates of SS were based on both discrete pumped water samples and monitoring using Laser *In situ* Suspended Sediment Transmissometers (LISST -25X). Continuous *in situ* measurements of water quality (using YSI sondes outfitted with chlorophyll and turbidity probes) were also made. Spatial patterns of SS and C, N and P deposition in the CW were quantified using clay pads. Sediment denitrification (DN) and nitrification (NT) were estimated for the streams and wetlands using acetylene block. SS estimates made using each method will be described and contrasted. Estimates of sediment and nutrient loads will be described for periods of base flow, storm flow, season and annually. Spatial patterns of stream and wetland DN and NT rates and factors limiting rates will be presented and discussed. The amount of sediments and nutrients removed by the wetlands in relation to the loads estimated for the watersheds, will be compared and discussed.