REAL TIME MONITORING OF NITROGEN, CARBON, AND SUSPENDED SEDIMENT FLUX IN TWO SUBBASINS OF THE CHOPTANK RIVER WATERSHED

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Intensive water quality monitoring of agricultural watersheds can provide important information on the effects of land cover and effectiveness of conservation practices designed to mitigate water quality concerns associated with agricultural production. For this study, robust water quality monitoring systems designed to measure nitrate, organic carbon and sediment concentrations using in situ UV-Vis spectrometer probes were deployed in two tributaries of the Choptank Watershed, Maryland. For accurate flux measurements, each monitoring system was co-located at USGS gage stations (USGS 01491000 and 01491500) defining what we have termed as the Greensboro and Tuckahoe sub-basins, respectively, within the headwater region of the Choptank River Watershed. These sub-basins have similar amounts of cropland but Greensboro has considerably more wetland area and greater percentage of cropland on hydric soil. Comparison of nitrate and carbon fluxes from these sub-basins will improve understanding of current and historical wetland function in agricultural landscapes and impacts of wetland drainage and restoration on nutrient export from watersheds. We hypothesize that carbon fluxes provide good indication of wetland connectivity to the stream network and can thereby provide information on important ecosystem services provided by wetlands within agricultural settings.

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