ABSTRACT

THESIS: The Effects on Stormwater Runoff in Relation to Nutrient Loads in the Upper White River

STUDENT: Kristi Todd

DEGREE: Master of Science

COLLEGE: Sciences and Humanities

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This study investigated temporal changes in nutrient concentrations and other water quality parameters at one sampling location at Muncie, Indiana in the Upper White River Watershed. Baseline sampling was conducted weekly over a six-month period in 2012 and focused on the analysis of total suspended solids and different forms of nitrogen and phosphorus. Three storm events were also investigated to understand how storm water runoff affected nutrient concentrations and other water quality parameters. It was hypothesized that storm events would temporarily increase nutrient concentrations in the river. Overall, nutrient concentrations increased during the initial stages of storm events and subsequently decreased at a rate slower than discharge. Concentrations measured exceeded recommended limits suggesting that these contaminants could cause eutrophication at downstream locations. These data suggest that improved or increased best management practices should be implemented in the Upper White River Watershed to control the inputs of nutrients into the river.