

Public Abstract

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Title:Measuring and Modeling Suspended Sediment and Nutrient Yields in a Mixed-Land Use Watershed of the Central United States

Suspended sediments and nutrient pollutants are among the leading causes of water quality impairment in the United States. However, the effects of climate and land use on suspended sediment and nutrient transport is poorly understood particularly in watersheds with mixed-land uses (e.g. forested, agricultural, urban). To improve understanding, four years of daily water samples were collected from five stream sites on Hinkson Creek, an impaired stream located in Boone County, Missouri. Water samples were analyzed for suspended sediments and nutrients. Highly variable climate was observed during the four year study period (2010-2013) which contained record setting wet and dry years. The greatest suspended sediment and nutrient yields occurred during 2010 (record setting wet year) and least yields during 2012 (extreme drought year). Results indicated relationships between pollutant loading, annual total precipitation (positive correlate), urban land use (positive correlate), forested land use (negative correlate), and wetland land use (negative correlate). Results highlight the need for ongoing studies, and improved management practices designed to reduce suspended sediment and nutrient loading in mixed-land use watersheds.