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Fate and Transport of Various Nonpoint Pollutants in North Florida Watersheds: Current Research and Future Directions

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Abstract:

The watersheds and ecosystems in northern Florida are increasingly being impacted by sediment, nutrient, and pathogen loadings emanating from upstream agricultural and rapidly urbanizing watersheds. These watersheds feed into the Gulf of Mexico, thus adding to existing concerns regarding water quality in the Gulf. Our current research aims to identify these pollutant sources definitively, and to determine the fate and transport of the pollutants as well as their resulting impacts on coastal water quality. Three watersheds are included in this effort: 1) Apalachicola River watershed (FL portion). The Apalachicola River is listed as impaired for a variety of pollutants including sediment, nutrients, and bacteria. Fecal coliform counts as high as 2800 cfu/100ml have been recorded this watershed, while phosphorus levels have often exceeded the EPA standard of 10 μ g/l. 2) Juniper Creek Watershed. Juniper Creek is listed as impaired for coliform bacteria with levels often exceeding the 400cfu/100ml fecal coliform criteria. Bacterial contamination in this watershed is as a result of livestock production accounting for over ninety eight percent of the loads. 3) The Suwannee River watershed. This watershed experiences a series of extreme high flow and low flow periods with exceedingly high concentration of pollutants occurring during low flow periods. This poster presents results from preliminary analyses in these watersheds, and discusses on-going work and some future directions.

Impact Statement:

The watersheds evaluated in these projects feed into the Gulf of Mexico, adding to current concerns regarding water quality in the Gulf. The Gulf is the largest source of shellfish in the US, accounting for over 50% (\$100 million/year) of oysters produced in the country. Further, the coastal areas of northern Florida are home to a diverse variety of aquatic and wildlife species, thus leading to further water quality concerns. This work will provide information that will aid watershed planners, state and federal agencies, and agricultural producers in system management and timing of operations, while also providing the data and tools necessary for further water quality research in the area.

Category: Watershed Assessment and Restoration

Type of Presentation: Poster Presentation