Florida Department of Transportation Research

Maintenance Practices for Stormwater Runoff - Phase 2

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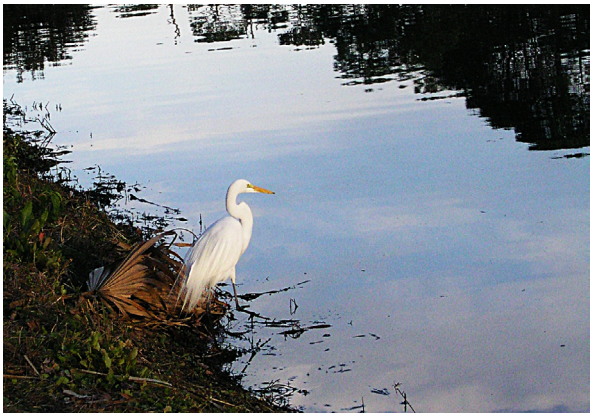
Current Situation

As rainfall moves across or through the ground, it picks up and transfers pollutants, which eventually end up in streams, rivers, lakes, wetlands, and aquifers. Pollutants can directly impact receiving waters, or they can promote excess vegetation, which robs water of oxygen and suffocates waterborne creatures. As Florida's population and development increase, the amount of runoff and the pollutants it carries increase, threatening the health of receiving water bodies and Florida's water supply and, in turn, the health of its inhabitants, environment, and economy.



Much of Florida's economy – the state's natural beauty, recreation, and water for drinking and crops – depends on the quality of its water resources.

Research Objectives

University of Central Florida researchers sought to catalog additional best management practices (BMPs) for managing stormwater runoff and to identify continuing maintenance practices required to keep the BMPs operating at peak performance.

Project Activities

Seven wet detention ponds with severe maintenance issues were selected across the state. Maintenance problems ranged from excess vegetation along the bank and intense algal blooms to bank erosion and sediment accumulation. Intensive field campaigns were performed to ascertain pollutant levels throughout the water column and in the sediment. An extensive list of potential problem pollutants included nutrients, pesticides, polycyclic aromatic hydrocarbons, *E. coli,* suspended solids, and heavy metals. Analysis of the samples conclusively indicated that excess nutrients were the primary problem shared by the ponds, which corresponds with the U.S. Environmental Protection Agency and Florida Department of Environmental Protection findings for Florida that the most common form of surface water impairment in Florida is attributable to excessive nutrients.

For each detention pond, one or more additional BMPs were installed, based on the pond's maintenance and pollutant issues, and management plans to support the BMPs were designed. Ponds were sampled for over a year to determine the effectiveness of the additional BMPs and management plans. Knowledge developed in the project was included in a handbook, *Maintenance Practices for Stormwater Runoff.*

Project Benefits

The findings of this project will assist agencies throughout the state in protecting Florida's water resources from increasing development and more intensive land use. Protecting water resources is critical to guaranteeing the continued health of the Florida's environment and economy.

For more information, please see dot.state.fl.us/research-center.