Orange Creek Basin 2009 Project Update Summary

The Orange Creek Basin Management Action Plan (BMAP), adopted by DEP in 2008 by Secretarial Order, lists projects that will result in reductions of nutrient and fecal coliforms bacteria loadings needed to meet total maximum daily loads (TMDLs) developed for:

- Lake Wauberg (nutrient);
- Newnans Lake (nutrient);
- Orange Lake (nutrient);
- Alachua Sink (nutrient);
- Sweetwater Branch (fecal coliforms);
- Tumblin Creek (fecal coliforms); and
- Hogtown Creek (fecal coliforms).

One of the requirements of the BMAP is the annual reporting of the status of adopted projects and submission of new projects for inclusion in future revisions of the BMAP. The first reporting period is 2008 through 2009 and this update provides a summary for that time period.

Introduction

The Orange Creek Basin BMAP was prepared as a collaborative effort by members of the Orange Creek Basin Working Group (Working Group) which includes representatives from St. Johns River Water Management District, DEP, other state agencies, local governments, and community interests. Table 1 identifies the membership of the working group.

Table 1. Membership of the Orange Creek Basin Working Group

Alachua County (Public Works and Environmental Protection Departments)	City of Gainesville (Public Works)
Fish and Wildlife Conservation Commission (FWC)	Department of Transportation (DOT)
Gainesville Regional Utilities (GRU)	University of Florida
DEP Northeast District Office	DEP Bureau of Invasive Plant Management
St. Johns River Water Management District (SJRWMD)	Marion County Clean Water Program
Paynes Prairie Preserve State Park	Alachua County Health Department
Department of Agriculture and Consumer Services (Office of Agricultural Water Policy and Division of Forestry)	Florida Forestry Association
Private timber interests	
Alachua County and Gainesville citizen environmental advisory committees	Community groups, including Sustainable Alachua County, Suwannee St. Johns Sierra Club, and Women for Wise Growth.

Over 100 projects were adopted in the BMAP and were contributed by 11 different agencies. Projects range from construction of stormwater treatment ponds to purchase of land for conservation or restoration. They are classified in the following categories (number of projects in category):

- Structural BMPs—Quantifiable Load Reductions Currently Quantified (7)
- Structural BMPs—Load Reductions Not Currently Quantified (8)
- Agricultural BMPs (7)
- Restoration and Water Quality Improvement Projects (15)
- Regulations, Ordinances, and Guidelines (1)
- Special Studies and Planning Efforts (34)
- Education and Outreach Efforts (5)
- Basic Stormwater Management Program Implementation (11)
- Conservation Land Acquisition / BMP Land Acquisition (17)
- Wastewater Infrastructure Management, Maintenance, Repair, and Upgrade (14)

Maintenance and management of infrastructure, education outreach, and land conservation and restoration activities are included because they serve an important role within the BMAP. With the exception of the wastewater discharge into Alachua Sink, most nutrient and fecal bacteria come from non point sources. Preventative activities such as land purchase for conservation purposes, maintenance of infrastructure, or education activities used to influence behavior are effective ways to manage non point source pollution.

Members of the Basin Working Group made a commitment to support the implementation of the BMAP. This support takes the form of developing and tracking projects that will reduce nutrient and bacteria loadings and providing assistance with a monitoring plan.

The monitoring plan requires the continued sampling of each impaired waterbody at a frequency adequate enough to provide sufficient data for evaluation. The monitoring plan states as its primary and secondary objectives:

Primary Objectives

1. Identify and track water quality trends in BMAP waterbodies to determine if water quality standards are being achieved; and
2. Where feasible, measure the effectiveness of specific BMPs in reducing external loadings of target pollutants.

Secondary Objectives

1. Measure reductions in watershed loadings of TMDL target pollutants; and
2. Refine understanding of the type and relative magnitude of pollutant loading sources.

Results from the monitoring plan are used to adjust management actions or propose new actions that will lead to improved water quality and ultimately attainment of TMDLs.

Project Summary

Members of the working group reported on 119 projects and proposed 10 projects to be added to the BMAP.

Status of Adopted Projects

Of the total number of projects, 68 are complete, 46 are in progress, 1 is cancelled, 2 are behind schedule, and 2 are on hold. Many of the projects completed were begun before the BMAP was adopted. The down turn in the economy has had an effect, though minor, on current activities by causing the delay of several projects.

The largest project is the Paynes Prairie Sheetflow Restoration designed to meet the reductions of TN loading from wastewater and urban stormwater needed for Alachua Sink. About 30 percent of project design is complete. The project is not formally adopted into the BMAP, but is under consideration for addition in the next revision of the BMAP. Total estimated cost of this project is $24 million and when completed will provide substantial benefits beyond meeting the TMDL.

Projects relating to the evaluation of fecal coliform bacteria "Hot Spots" have been completed. Stakeholders continue to investigate and remediate locations with high bacteria counts through a "Hot Spots" partnership made up of stakeholders from Gainesville Regional Utilities, Alachua County Environmental Protection Department (EPD), City of Gainesville Public Works, and Alachua County Health Department. Several of the proposed new projects address additional questions raised during BMAP development about possible sources of bacteria and the ongoing work of the "Hot Spots" partnership.

Finding out where nutrients are coming from that have caused the decline in Newnans Lake's water quality remains one of the focal points of studies and discussion. A Pollutant Load Reduction Goal (PLRG) has been completed for the lake by the St. Johns River Water Management District (SJRWMD). External loadings estimated in the Newnans Lake PLRG are comparable to the TMDL developed by DEP. The District is completing a study to identify nutrient sources in the Newnans Lake watershed. Potential sources of phosphorus exposure and erosion of phosphatic soils within the Hawthorn Formation, including large ditches dug at Gainesville Airport, as well as past and current agriculture operations Budget reductions have caused delays in PLRG development for Orange and Lochloosa Lake.

New Projects

New projects are proposed in response to the continued need to remediate pollutant sources, better define sources, or preserve and restore land to protect lakes and streams. Projects

are proposed by EPD, DEP and SJRWMD, and the Fish and Wildlife Conservation Commission (FWC). They will be adopted into the BMAP when it is revised.

Alachua County Environmental Protection Department is continuing with social marketing public education campaigns funded by the Gainesville Clean Water partnership. Campaign topics include pet waste (bacteria and nutrient source) and landscaping debris (nutrient source). EPD is also pursuing studies to better understand the role of structural stormwater Best Management Practices as fecal coliform bacteria sources. DEP, EPD, and SJRWMD are following up with drilling boreholes to better estimate the depth to the Hawthorn Formation and the potential contribution of that formation to total phosphorus loading into Newnans Lake. FWC is restoring land around Orange Lake where trees burnt in 2001.

Next Steps

The Orange Creek Basin Working Group has been meeting since fall 2008 on a two meeting per year schedule and will continue with that frequency of meetings through the remainder of 2010 and into 2011. The purpose of biannual meetings is to provide a forum for follow-up on adopted projects and discussion of new ideas. It is anticipated that as new projects are proposed and new water quality information processed, revisions to the current BMAP will be needed. At that stage an increased frequency of meetings is recommended.

Major focus of the Working Group over the past two years has been on completing the implementation of fecal coliform TMDLs, investigating potential nutrient sources for Newnans Lake, and the Paynes Prairie Sheetflow Restoration. Planned for the next year is the finalization of fecal coliform bacteria reduction strategy.

Over the next year the SJRWMD will incorporate the new data on nutrient sources for Newnans Lake to refine the lake's water and nutrient budgets. A more refined nutrient budget will assist the Working Group in assigning specific loading reduction to watershed projects and provide better information for the revision of the BMAP. The next two lakes needing further investigation into sources of nutrients are Orange Lake and Lake Wauberg.

Work continues on the Paynes Prairie Sheetflow Restoration Project as new challenges to project completion arise. This project is under consideration for adoption into the BMAP when the plan is revised.

The third Impaired Waters evaluation and updated 303(d) listing in this basin is scheduled for late spring/early summer 2012. The updated list may add new impairments and refine the schedule for completing TMDLs identified in previous evaluations. It also provides an opportunity to apply the information learned from investigations and methods developed to address current TMDLs to new water quality problems in a faster manner.