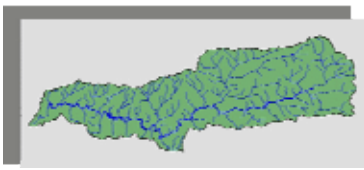

Saugahatchee Watershed Management Plan

Semi-Annual Report
(October 1, 2007 – March 31, 2008)

prepared for the

Alabama Department of Environmental Management
(Cooperative Agreement C70591009)

and

U.S. Environmental Protection Agency, Region 4

by

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1. Executive Summary

1. Phase 1 Implementation of the Saugahatchee Watershed Management Plan (SWaMP; ADEM Cooperative Agreement C70591009 - FY04 CWA Section 319(h) Nonpoint Source Grant Workplan Project #20) involves the first three years of implementation of a nine-year, stakeholder-driven watershed management plan for the Saugahatchee Creek Watershed. It is funded, in part, by the U.S. Environmental Protection Agency (EPA), Region 4, and the Alabama Department of Environmental Management (ADEM), and is coordinated through the Auburn University Department of Fisheries and Allied Aquacultures (AUFAA). Project funding began in January 2007. This semi-annual report covers activities from October 2007 through March 2008.

2. SWaMP funding of strategic on-the-ground best management practices (BMPs) was initiated, and four projects have been approved for funding by the 14-member SWaMP Steering Committee. Primary project collaborators include: a) the City of Auburn, b) AU Biosystems Engineering, c) Opelika Middle School, and d) North Woods, Inc. (a local developer). Projects are both structural and nonstructural, addressing stream bank restoration, wetland construction, rain catchment, education and community outreach. SWaMP coordinators have had meetings and communications regarding four additional projects, a silviculture BMP workshop, an unpaved-roads BMP workshop, and a lawn care workshop.

3. SWaMP Coordinators have communicated regularly with SWaMP stakeholders via email and via the recently-launched new SWaMP website at www.swamp.auburn.edu.

4. SWaMP Director and Coordinators gave presentations at a Clean Water Partnership meeting, at six community outreach meetings (League of Women Voters, Opelika Middle School, Society for the Advancement of Management, Save Our Saugahatchee, Inc., Treasure Foresters and Cattlemen Association) and at two conferences – the 2008 ADEM Nonpoint Source Pollution Conference in Montgomery and the Alabama Rivers Alliance 2008 Watershed Leadership Conference at Weeks Bay.

5. SWaMP outreach efforts included hosting an education/outreach booth at a community event - the 2007 Loachapoka Syrup Soppin'. Other efforts included participation at various meetings (Saugahatchee Creek TMDL meeting, etc.), launch of a revamped SWaMP website (www.swamp.auburn.edu, new features include an online calendar and blog), and assisting in community-based watershed management efforts (watershed-level E. coli sampling in December 2007, Auburn-Opelika area stream clean up in March 2008).

6. SWaMP publication efforts included the printing of SWaMP tri-fold brochures (about 1000), writing a SWaMP newspaper insert that was submitted to the Alabama Clean Water Partnership for distribution/publication in area newspapers, and interviews and submissions for articles in the Opelika-Auburn News.

7. Partnering and leveraging activities have included collaboration with other 319(h) projects, and with other AU environmental initiatives; and seeking funding from other sources for expansion of SWaMP Project objectives through grant-writing and through collaborative efforts.

8. The Auburn University School of Forestry and Wildlife Sciences (AUSFWS) continued the water quality study (ten sample events) of select catchments experiencing varying degrees of development to document effects of conversions of land use in the Auburn/Opelika area, and as a basis for an outreach program to education stakeholders regarding the benefits of the water quality services approach to maintaining clean water. Reconnaissance of additional catchments to include in the study was done, and Solinst gages were installed in streams for measuring stream discharge.

2. Project Milestones

Project Milestones from October, 2007 - March 31, 2008.

No.	Activities and Practices to Assure That Project Implementation is Timely and Reasonable	Responsible Entity*
1	**Activity: Analyze existing data for Saugahatchee Creek (timeline: 12 mo).** Data analyses were conducted in FY 2007, and it was determined that nonpoint source phosphorus concentrations from urban subwatersheds were about three times higher than that of rural subwatersheds.	AUFAA
2	**Activity: Identify areas for BMP installation (timeline: 12 mo).** Aerial photography and land cover maps are being collected and inventoried.	AUSFWS, NRCS
3	**Activity: Conduct meetings with landowners to promote SWaMP (timeline: 12 mo).** A landowner meeting was conducted for the lower Saugahatchee Watershed (Reeltown/Notasulga area) in collaboration with ACES, NRCS and the Forestry Planning Committee. Follow-up farm visits were made by Tommy Futral, and sites are being evaluated for possible SWaMP funding.	SWaMP, NRCS
4	**Activity: Conduct meetings with city leaders, citizen groups etc. to promote SWaMP (timeline: 12 mo).** SWaMP coordinators conducted seven stakeholder meetings from 9/2006 – 9/31/2007; and also had two meetings with collaborators of two other Section 319(h) projects.	SWaMP Coordinator, Cities of Auburn and Opelika, Counties
5	**Activity: Installation of gages, data retrieval and determination of nutrient/ sediment loading of select catchments (timeline: 36 mo)** AUFAA and AUSFWS made five reconnaissance trips to locate new catchment streams for inclusion in the catchment study; five planning/evaluation meetings were held to find and finalize catchments; gages were ordered for stream gaging.	AUFAA, AUSFWS
6	**Activity: Analyze Current Watershed land use/ land cover conditions using Landsat satellite imagery (timeline: 24 mo).** Analysis of remotely-sensed imagery for the generation of a current land use/land cover map of the Saugahatchee Watershed is being initiated in collaboration with Auburn University Department of Geology and Geography.	AUFAA
7	**Activity: Conduct follow-up meetings with landowners to determine individual landowner BMP needs (timeline: 24 mo).** Several farm visits have been conducted in the lower Saugahatchee Watershed.	SWaMP Coordinator, NRCS
8	**Activity: Conduct 2 workshops on the use of proper BMPs for construction and maintenance of unpaved roads (timeline: 24 mo).** Planning on a workshop on proper maintenance of unpaved roads has been initiated.	SWaMP Coordinator, NRCS, Counties, ADEM
9	**Activity: Evaluate how land use change from rural to urban affects nutrient and sediment loading (timeline: 36 mo).** AUSFWS continued water quality analyses of streams draining select catchments with varying degrees of development on 10 dates from 10/18/07-3/10/08.	AUSFWS
10	**Activity: Develop land use change costs-and- benefits tool that can be used by planners and other decision-makers (timeline: 36 mo).** Tool will be developed after completion of field data collection and analysis.	AUSFWS

11	**Activity: Install 70 storm drain markers per year and 10 watershed signs (timeline: 36 mo).** SWaMP assisted AU Sustainability Initiative and the City of Auburn in installing 250 storm drain markers in the Auburn area in FY 2007.	SWaMP Coordinator, Cities of Auburn and Opelika, Counties
12	**Activity: Conduct 3 tours for foresters to demonstrate proper use of silviculture BMPs (timeline: 36 mo).** No tours of proper silviculture BMPs were conducted during this reporting period.	SWaMP Coordinator, AL Forestry Commission, AL Forestry Association, MeadWestvaco Inc.
13	**Activity: Begin installation of 6 specific BMPs in rural areas (timeline: 36 mo).** A meeting with rural landowners was conducted in February 2008 in Notasulga, AL to promote SWaMP efforts and inform stakeholders of the rural Lower Saugahatchee Watershed on how to apply for SWaMP project funding through completion and submission of the SWaMP Water Quality Improvement Project Application Guidance form to the SWaMP Steering Committee for project evaluation. No rural projects were funded during this reporting period.	NRCS, ACES, Landowners
14	**Activity: Begin installation of 6 specific BMPs in urban areas (timeline: 36 mo).** SWaMP coordinators had meetings/communications regarding several possible projects. Four urban-area projects were approved for SWaMP funding during this reporting period.	Cities of Auburn and Opelika
15	**Activity: Calculate Post-BMP load reductions by modeling (timeline: 36 mo).** Post-BMP load reductions will be calculated after BMPs are installed.	AUFAA

*Responsible entities: AUFAA=AU Department of Fisheries and Allied Aquacultures; AUSFWS=AU School of Forestry and Wildlife Sciences; NRCS=Natural Resources Conservation Service; ACES= Alabama Cooperative Extension System.

3. SWaMP Personnel at Auburn University

William (Bill) Deutsch, Ph.D.

Project Director - Bill has been a Research Fellow in AU Department of Fisheries and Allied Aquacultures since 1990. In addition to serving as Project Director of SWaMP, he is the Program Manager of the Alabama Water Watch Program, which currently has about 65 active citizen volunteer monitoring groups statewide. He has served as Director of the Tallapoosa Watershed Project, an integrated (research, education and outreach components) project funded by USDA-CSREES, for the past four years. He also works through the International Center for Aquaculture and Aquatic Environments to direct the Global Water Watch Program, which conducts environmental studies and trainings with several international projects.

Graeme Lockaby, Ph.D.

Director of Water Quality Services Investigations and Outreach - Graeme is serving multiple roles at AU as Professor of the AU School of Forestry and Wildlife Sciences, Associate Dean for Research and Co-Director of the Center for Forest Sustainability. He is widely known and acclaimed for his academic contributions to the understanding of the ecology of floodplain forests. In addition to his teaching and research efforts and his work as an associate dean, he has also led interdisciplinary efforts that examine the interplay among ecological, sociological, and economic factors as they affect and are affected by landscape change.

Eric Reutebuch, M.S.

Project Co-coordinator – Eric has worked with the Rivers and Reservoirs Group and Alabama Water Watch Program at AU for the past 18 years. He has served as Project Coordinator for the USDA-CSREES Tallapoosa Watershed Project for the past four years. His work with AWW primarily involves writing publications that feature AWW groups, their local issues, their water monitoring data and how they are using the data to better manage their local watersheds. In addition to publishing responsibilities, he travels around the state to conduct data interpretation sessions with local citizen monitoring groups.

Wendy Seesock, M.S.

Project Co-coordinator – Wendy has served as Director of the Rivers and Reservoirs Group Laboratory at AU since 1980. She has also served as Assistant Curator of the AU Ichthyological Museum, member of the Board of Directors of the Midsouth Aquatic Plant Management Society, Inc., member of the Alabama Fisheries Association Eutrophication Committee and the Alabama Fisheries Association Steering Committee.

Christopher Anderson, Ph.D.

Coordinator of Water Quality Services Investigations and Outreach – Chris works as a Post Doctoral Fellow in the AU School of Forestry and Wildlife Sciences. His fellowship is funded by the AU Center for Forest Sustainability and he has worked on research and outreach related to land use and water quality, coastal wetland ecology, and restoration ecology.

4. SWaMP Progress Report

The Saugahatchee Creek Watershed (USGS hydrologic unit code 03150110030) encompasses a 220 square mile area located in the Lower Tallapoosa River Basin in east-central Alabama, primarily in Lee and Tallapoosa counties. Approximately 76% of the watershed is forested, while 12% is used for pastures and row crops, and 8% is in urban/developed areas according to a USGS 2001 land use analysis. The upper watershed is undergoing rapid transition from forest/agricultural land to urban/developed land. Saugahatchee Creek has two segments, the Pepperell Branch and the Saugahatchee Creek Embayment (where the creek enters Yates Lake) currently on the ADEM 303(d) list of impaired streams for receiving excess nutrients, primarily phosphorus. The embayment is also listed for receiving excessive organic matter and problems with low dissolved oxygen.

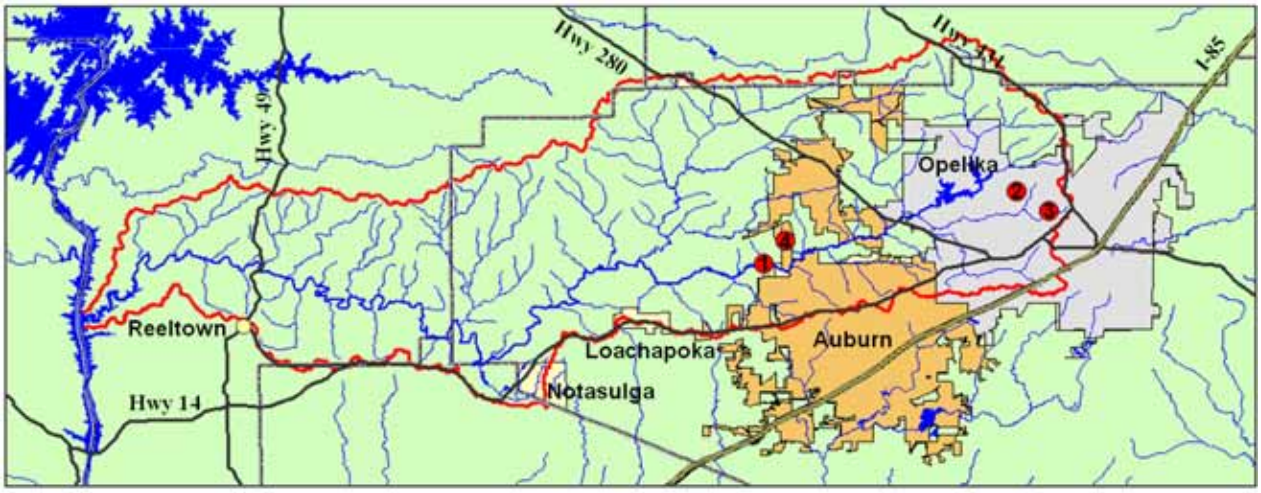
The Phase 1 Implementation of the Saugahatchee Watershed Management Plan (SWaMP) began in early 2007. SWaMP efforts began much earlier in 2004, when AWW received a small grant to develop a watershed management plan to clean up Saugahatchee Creek. A diverse SWaMP stakeholder group was formed to assist and advise in drafting the watershed plan to reduce nonpoint source phosphorus loading into the creek. SWaMP stakeholders include representatives from ADEM, Alabama Cooperative Extension System (ACES), Alabama Forestry Commission, Alabama Soil and Water Conservation Committee, Alabama Water Watch (AWW), Auburn University Fisheries Department (AUFAA), Auburn University School of Forestry and Wildlife Sciences (AUSFWS), Auburn University Sustainability Initiative, City of Auburn, City of Opelika, Lee County Commission, Lower Tallapoosa River Basin Clean Water Partnership (LTRBCWP), MeadWestvaco, Inc., Natural Resources Conservation Service (NRCS), Save Our Saugahatchee, Inc. (SOS) and WestPoint Home, Inc. Recent additions to the SWaMP stakeholder group include Keep Opelika Beautiful (KOB), Hydro-Engineering Solutions, Inc. (Auburn-area engineering firm), Opelika Middle School, and North Woods, Inc. (local developer). The stakeholder group completed the Saugahatchee Watershed Management Plan in 2005, following an 18-month process of more than 20 meetings, and submitted an application for funding Phase 1 Implementation of SWaMP, the first 3 years of the 9-year plan.

The goal of Phase 1 Implementation of SWaMP is to achieve a 15% reduction in nutrients (primarily phosphorus) entering the Saugahatchee Embayment from nonpoint sources. The goal of implementation of the entire 9-year SWaMP plan is a 39% nutrient load reduction into the embayment and restoration of its waters to fully support its use classifications of Public Water Supply, Swimming, and Fish and Wildlife.

Efforts during this reporting period focused on promoting SWaMP through numerous meetings, presentations, and publications, and launching a redesigned SWaMP webpage (www.swamp.auburn.edu pictured at right) that features an online calendar of events, blog of watershed highlights, and extensive information about SWaMP and the Saugahatchee Watershed. Additional efforts included seeking out priority sites for on-the-ground projects for possible funding from SWaMP, evaluating proposals and approving four on-the-ground projects for SWaMP funding; additional reconnaissance of sites for the AU Forestry catchment study and installation of stream gages at select sites; and conducting monthly water quality sampling on Yates Lake and the Saugahatchee Embayment through leveraged support.

SWaMP received applications for four on-the-ground projects, listed below, that were approved by the fourteen-member SWaMP Steering Committee for SWaMP funding during this reporting period (see table and map below, Appendix A and SWaMP blog for project details).

SWaMP-Funded Projects		
Project	**Location (Lat, Lon)**	**Amount**
1. Saugahatchee Bank Stabilization Project	N32.6337, W85.5283	$15,000
2. Harvesting rainwater from rooftops – Trinity Christian School, Opelika	N32.6681, W85.3893	$18,300
3. Opelika Municipal Park Stream Improvement Project	N32.6594, W85.3824	$10,748
4. Camden Ridge Constructed Wetlands Project	N32.6430, W 85.5169	$17,000



Map of SWaMP-funded projects in the Saugahatchee Creek Watershed.

Saugahatchee bank stabilization project.

Camden Ridge constructed wetlands project.

SWaMP coordinators have had meetings and communications regarding four additional projects, a silviculture BMP workshop, an unpaved-roads BMP workshop, and a lawn care workshop. A tour of the nearly-completed Saugahatchee Bank Stabilization Project was taken (see details on the SWaMP web blog at www.aces.edu/dept/fisheries/aww/swamp/swamp-blog/?p=5) for project documentation.

Flow measurements and water quality analyses for total dissolved solids, pH, total suspended solids, fluoride, chloride, nitrite, nitrate, sulfate, sodium, ammonium, potassium, calcium, total nitrogen and organic carbon were conducted on the AU Forestry catchment streams on ten dates during this reporting period. Additional reconnaissance for new catchments was conducted and Solinst Levelogger stream gages were installed at select sites for continuous measuring of stream discharge.

A SWaMP project update was presented at a Lower Tallapoosa River Basin Clean Water Partnership meeting in October 2007. Presentations on the SWaMP project were also been given to governmental and citizen groups, including presentations to the League of Women Voters, Opelika Middle School, Society for the Advancement of Management, Save Our Saugahatchee, Inc., Treasure Foresters and Cattlemen Association

SWaMP presentations were made at two professional conferences, at the ADEM 19th Annual Nonpoint Source Conference in Montgomery, AL in January 2008, and at the Alabama Rivers Alliance Watershed Leadership Conference at Camp Beckwith on Weeks Bay in March 2008.

Education/outreach efforts have included the distribution of publications, *Saugahatchee Creek Watershed – Past, Present & Future*, (produced under the initial planning grant) and the SWaMP tri-fold brochure, at stakeholder meetings and outreach events such as the 2007 Loachapoka Syrup Soppin'.

SWaMP assisted in other education/outreach efforts including assisting two local citizen volunteer monitoring groups, Save Our Saugahatchee (SOS) and Friends of Chewacla Creek and Uphapee Watershed (CHEWUP), in watershed-level bacteria assessments of streams in the Auburn/Opelika area in December 2007; and a Saugahatchee Watershed stream cleanup involving SWaMP, CHEWUP, Keep Opelika Beautiful and Covenant Presbyterian Church. SWaMP also coordinated a watershed fly-over for observing land use changes from the air, supported by SouthWings, Inc. (www.southwings.org, a nonprofit organization which assists watershed groups throughout the South).

Saugahatchee Embayment entering Yates Lake, shot from SouthWings plane on March 24, 2008.
PHOTO: Hunter Nichols

Leveraged efforts included monthly water quality sampling (dissolved oxygen, water temperature, specific conductance, phosphorus, total suspended solids, Secchi disk visibility and chlorophyll) of three sites, Yates Dam forebay and two sites in the Saugahatchee Embayment. Sampling efforts were funded through the AU Department of Fisheries and Allied Aquacultures.

5. Appendices

A. SWaMP-Funded Projects

B. Articles about SWaMP

APPENDIX A – SWaMP-Funded Projects

Project Number 1 (approved 11/26/2007)

Applicant:	Water Resource Management Department, City of Auburn, Alabama		
Address:	1501 W. Samford Avenue Auburn, Alabama 36832		
Title of Proposed Project:	Saugahatchee Bank Stabilization Project		
Objective of the Project:	To re-establish, to the maximum extent practical, the original footings of the outside streambank of a wide meander on the Saugahatchee Creek along the Northside SS Interceptor ROW. This project will also serve to protect the City's Northside SS Interceptor Line, which runs parallel to Saugahatchee Creek. Additionally, this project will provide an opportunity to demonstrate and promote natural channel design techniques used for permanent bank stabilization.		
NPS problem to be addressed: Project in Saugahatchee Watershed Y / N - _____	It is estimated that the southern stream bank of the project site has migrated 20-30 lateral feet south, compromising the integrity of the Northside SS Interceptor. Approximately 1,500-2,000 cubic yards of sediment have eroded from the project reach within the last 15 years. This project proposes to minimize the loss of sediment and further protect the Northside SS Interceptor through natural channel design techniques.		
Cost Estimate of Entire Project : Amount Requested from SWaMP: Matching Funds or In Kind Estimate:	Total cost: $75,000 **Requested amount: $15,000** Match/In Kind amount: $60,000		
Benefits Expected	Reduction in sediment load into Saugahatchee Creek, reduction in nutrient load in Saugahatchee Creek through sediment load reduction, protection for Northside SS Interceptor, and provide educational opportunities of natural design techniques and stream riparian zone restoration.		
Contact Person	Matt Dunn	Phone: 334-501-3077	Date: 10/2/2007

Project Number 2 (approved 2/11/2008)

Applicant:	Kyung H. Yoo, Phil S. Kim, Bryan Duncan
Address:	Dept. of Biosystems Engineering #208 T.E. Corley Building Auburn University, Auburn, AL 36849
Title of Proposed Project:	Harvesting rainwater from rooftops to reduce nutrient runoff and sediment loss due to overland flow
Objective(s) of the Project:	The overall objective of this project is to develop a demonstration site for harvesting rainwater from a large rooftop to reduce nutrient and sediment movement due to overland flow to an adjacent, permanent, tributary of the Saugahatchee drainage system. Specific objectives are: 1. Design and install an RCR (Roof Catchment of Rainwater) system at a school in the Saugahatchee watershed. 2. Monitor the performance of the system to determine its effectiveness. 3. Develop and implement a program for education/demonstration targeting institutions, students and the general public on the benefits of RCR as a BMP (Best Management Practice) for reducing nutrient and sediment losses and helping remediation of nonpoint source pollution problems.
NPS problem to be addressed: Project location in Saugahatchee Watershed:	Catching rainwater from rooftops reduces overland flow from rainfall to nearby streams and storm drains. The reduced overland flow means lower carrying capacity for nutrients and other water pollutants, thus contributing to improvement of water quality in the Saugahatchee Creek. Using the harvested water as an alternative water source for a variety of non-potable uses, increases turnover rate and total volume of the harvested and stored water, further reducing overland runoff. An additional benefit is reduced potential for soil erosion and sediment transport in the vicinity of the building supporting the RCR system. The project site will be located at a school in Opelika, Alabama.
Cost Estimate of Entire Project : Amount Requested from SWaMP: Matching Funds or In Kind Estimate:	Total cost:$44,860 **Requested amount: $18,300** Match/In Kind amount: $26,560
Benefits Expected:	1. Contributions to the reduction of nutrients and sediment flowing into the Saugahatchee drainage system. 2. Reduced soil erosion potential in the vicinity of the RCR system. 3. Conservation of water through creation of a non-potable water source. 4. Education of students and the general public on RCR systems as a BMP for environmental protection and water conservation, leading to future widespread adoption of RCR technology in the Saugahatchee watershed, and a concomitant reduction of nutrient runoff .

Project Number 3 (approved 2/27/2008)

Applicant:	Opelika Middle School		
Address:	1206 DENSON DRIVE OPELIKA, AL 36801		
Title of Proposed Project:	Opelika Municipal Park Stream Improvement Project		
Objective(s) of the Project:	Improve stream conditions through enhancement of Rocky Brook riparian corridor as it flows through Municipal Park, City of Opelika.		
NPS problem to be addressed: Project location in Saugahatchee Watershed:	Sediment and nutrients Yes		
Cost Estimate of Entire Project : Amount Requested from SWaMP: Matching Funds or In Kind Estimate:	Total cost: $13,628 **Requested amount: $10,748** Match/In Kind amount: $2,880		
Benefits Expected:	Sediment loading will be decreased as a result of stabilized eroding stream bank and nutrient/sediment loading will be decreased by improving floodplain filter function through increased riparian vegetation.		
Contact Person:	Farrell Seymore	Phone: (334) 745-9726	Date: 2/22/2008

Project Number 4 (approved 3/6/2008)

Applicant:	North Woods, Inc Jay Conner		
Address:	PO BOX 3070 739 Opelika Road Auburn, Alabama 36831-3070		
Title of Proposed Project:	Camden Ridge Constructed Wetlands Project		
Objective(s) of the Project:	Convert an approximate 1 acre of detention pond into a functional wetland for filtering the watershed and provide a learning kiosk for the public which will overlook the wetland. Also, to educate Camden Ridge Neighborhood about nonpoint source pollution from lawns and driveways, and how to minimize it.		
NPS problem to be addressed: Project location in Saugahatchee Watershed:	The constructed wetland will help remove nutrient and sediment loadings from the stream due to the developed neighborhood upstream of the project. Yes, See Attached Map		
Cost Estimate of Entire Project : Amount Requested from SWaMP: Matching Funds or In Kind Estimate:	Total cost: $40,000.00 Requested amount: $17,000.00 Match/In Kind amount: $25,000.00		
Benefits Expected:	Removal of nutrients, sediment, creation of habitat for removal of mosquito larva, aesthetic improvement of landscape, provide for education of the general public provide hands on experience for college students, and act as a demonstration for other subdivision landscapers.		
Contact Person:	Jay Conner	Phone: 821-1470	Date: 3-04-2008

APPENDIX B - Articles about SWaMP

The Opelika-Auburn News. March 13, 2008.

ADEM, local partners help revive streams

By KATIE STALLCUP

Published: March 13, 2008

The Alabama Department of Environmental Management is working with local partners to create healthier streams in Opelika and Auburn.

The state agency has administered more than $1 million in federal funds to help rebuild streams and improve the water quality of three local watersheds, ADEM spokesman Scott Hughes said.

Moore's Mill Creek

The section of creek that winds through the Moore's Mill residential area will be rebuilt to include bends and a wider streambed to slow water and erosion, Hughes said.

"Excessive sediment is a big issue in this watershed," he said. "(Because of impervious building material), a lot of water is not filtering to the ground like it does naturally when you have grass. Water goes through the creek in a fast manner, causing a lot of erosion and eating away of the banks ... We're hoping to reduce sediment loads by over 90 percent."

Along with rebuilding the stream, an educational program will teach businesses to be more aware of how developments impact water quality, Hughes said.

Saugahatchee Creek

One of the main problems Saugahatchee Creek faces is high levels of nutrients like nitrogen and phosphorus in the water, Hughes said. The nutrients, which come from runoff carrying chemicals and fertilizer, can affect a stream's health.

"We have a very active watershed group in the Saugahatchee Creek area," Hughes said. "They've been very active in developing a watershed development plan."

The plan, called Saugahatchee Watershed Management Plan (SWaMP) was the result of a group of stakeholders formed in 2004.

"Then, the group submitted an application to ADEM for a grant to implement the plan co-coordinator Eric Reutebuch said.

Part of the project included repairing a badly eroded section of the creek near a wastewater treatment plant. The repair not only prevented further erosion but also protected a threatened sewer line, Reutebuch said.

More work on the watershed has still to be done, including streams that feed into the creek, he said.

Town Creek

An example of stream renovation success is Town Creek, Hughes said. Like Moore's Mill Creek, Town Creek was re-routed to take a healthier, windier path.

While there's still some planting to be done, the project has been a success, Extension Agent Eve Brantley said.

"Our creek is looking great," Brantley said. "The full cooperation of many different partners, that in itself I think is a great success. And I believe we achieved our goal, which was to improve stream health and conditions around one of our local creeks."