Saugahatchee Creek Watershed
Past, Present, & Future

October 2005
About This Publication

The purpose of this publication is to raise awareness about the Saugahatchee Creek Watershed, including its geography, ecology, history and future course. The report has been compiled with input from a diverse stakeholder group, including representatives of government, industry, academia and community organizations. It was written as part of a project to develop a comprehensive Saugahatchee Creek Watershed Management Plan, called SWaMP. The project was funded through a Clean Water Act Section 319(h) nonpoint source grant provided by the Alabama Department of Environmental Management (ADEM) and the U.S. Environmental Protection Agency, Region 4. All interested persons are invited to become personally involved with SWaMP in an effort to restore and protect the Saugahatchee Creek Watershed.

Contributors:
The following stakeholders, referred to as the SWaMP Group, were the primary contributors to this report:

- Auburn University Fisheries Department
- Alabama Water Watch
- City of Auburn
- City of Opelika
- Lower Tallapoosa Clean Water Partnership
- MeadWestvaco, Inc.
- Natural Resources Conservation Service
- Save Our Saugahatchee, Inc.
- WestPoint Stevens, Inc.

Shoal Lilies blooming in Saugahatchee Creek

The citizen group, Save Our Saugahatchee, conducting a cleanup of Saugahatchee Creek, April 2000

Cover photos:
Top left: Covered bridge formerly at Hayes Mill Crossing. PHOTO: Lee County Historical Society.
Top right: Turtles on a rock at Golden Mill Bridge.
Bottom center: Saugahatchee Creek at Lee County Road 65.
Unlabeled photos and graphics are from the Alabama Water Watch program at Auburn University.
Saugahatchee Watershed… Facts and Figures

Alabama is divided into several physiographic regions based on its diverse geology. Nearly all of the Saugahatchee Creek Watershed is in the Piedmont Region (see map below). Piedmont soils are relatively infertile and high in clay (especially red clay) content. This is why Saugahatchee Creek water is often red when sediment enters the creek during heavy rainfalls.

A watershed is the total land area drained by a river or a stream. Watersheds come in many sizes, and very large watersheds are called basins.

The Saugahatchee Creek Watershed is part of the Alabama-Coosa-Tallapoosa Basin, which is part of the even larger Mobile Basin. It originates in Chambers and Lee counties, and runs westward through parts of Macon and Tallapoosa counties to its termination north of Tallassee at Yates Lake.

Saugahatchee Creek is one of the largest creeks in the Lower Tallapoosa Sub-basin. The area of the watershed is approximately 220 square miles (138,740 acres) and the creek is about 70 miles long.

Small watersheds are contained within larger watersheds like small bowls stacked within larger bowls. The scientific way of expressing this hierarchy of watershed sizes is the Hydrologic Unit Code (HUC). Examples of HUCs are:

- HUC 6 – 031501: Coosa and Tallapoosa basins
- HUC 8 – 03150110: Lower Tallapoosa Sub-basin
- HUC 11 – 03150110030: Saugahatchee Watershed
Life Along the Creek

- People have inhabited the Saugahatchee Watershed since prehistoric times. Early in the historic era, the indigenous groups were collectively called the Upper Creeks. Names of three major towns in the watershed were derived from the Creek Indian language (see map below). The name “Saugahatchee,” meaning “rattling river,” also came from the Creeks. Several variations of this name have been used: Saugahatchie, Sougahatchee, Souchaghatchee, Sowkeehatchee, Sougohatche.

- Europeans began exploring the area as early as the 16th century. The Spanish explorer, Hernando De Soto, passed a few miles south of what is now Loachapoka around 1520. In the first half of the 19th century, settlers moved into the watershed in large numbers. The Treaty of Cusseta ceded the Creeks’ land to the United States in March 1832. Conflicts between the Creeks and the newly arrived settlers increased and this resulted in the forced movement of the majority of the Creeks to allotted land in Oklahoma in late 1836. In this same year Loachapoka became home to European settlers. The towns of Auburn (founded in 1839) and Opelika (founded in 1854) grew rapidly, but Loachapoka became the early center of commerce when the railroad from Montgomery came in 1845. As a result, Loachapoka became much larger than Auburn in the 19th century.

- The Civil War had a devastating effect on the prosperous towns in the Saugahatchee Watershed. Loachapoka recovered and remained larger than Auburn or Opelika until the 1870s, when a fire destroyed much of the town, and a new railroad connected Opelika with Birmingham. These events ended Loachapoka’s prominence as a trading center and it is a small town today.
Farming remained important to the residents of the watershed following the Civil War, and into the first part of the twentieth century, however, “boll weevils, exhausted land, and cankerworms blighted any hopes for agriculture prosperity” (Dr. Elizabeth Schafer, Loachapoka historian).

Industrial development, brought by firms like Pepperell Manufacturing Company (1925), created job opportunities and a new challenge for maintaining watershed health. Other factors affecting water quality include urban growth in Auburn and Opelika, and a change in agricultural practices from row crops to tree farming. Although watershed quality is now primarily affected by urban areas, impacts from rural lands remain.

Is the Saugahatchee Creek better or worse today than it was in the past? Bob Mount, a naturalist, wrote this about the changes in Saugahatchee Creek in the last 50 years (Opelika-Auburn News, March 1996):

“Both Pepperell Branch and Saugahatchee Creek are in much better condition now than during the 1950s, when about the only aquatic animals occurring in them were rat-tailed maggots, sewage fly larvae, wiggle-tails, and mush worms (tubificid larvae). The odor of Pepperell Branch was horrendous, and on still summer nights, it dominated the olfactory ambience for up to a mile in every direction. Some patrons of the drive-in theater that occupied a site on the Opelika-Auburn Road at that time would burn incense in their cars to mask the odor of ‘Stink Creek.’ Saugahatchee Creek flowed through a largely uninhabited area and received almost no attention during that era. Today numerous people live close to the stream and many use it for recreation - canoeing, fishing, swimming. Along some stretches are rapids, and fascinating plant and animal life, including otters and alligators, ...”

Other people rightfully point to the fact that our rapidly growing population and its accompanying urban development have more recently impacted the creek with increased sediments and excess runoff of nutrients and other contaminants from the landscape.

Thus, the answer to whether the creek has become better or worse depends on one’s perspective, the type of impact, and the timeframe.

Loachapoka Bridge in 1918 on the Loachapoka-Waverly Road (now Lee County Road 188). The bridge washed away before 1920. PHOTO: Mrs. Era James

RIVER OTTER, Lontra canadensis, is found throughout most of the Saugahatchee Watershed. PHOTO: U.S. Fish and Wildlife Service

AMERICAN ALLIGATOR, Alligator mississippiensis, occurs in the Saugahatchee Creek, and is regularly seen by canoeists. It is a federally and state protected species.
Land Use Patterns

Land use in the Saugahatchee Watershed has undergone dramatic changes over the last two centuries, particularly in recent years.

The maps above depict land use of the Saugahatchee Watershed derived from Landsat Satellite images. Analysis of the two images revealed significant changes in land use from 1993 to 2001. These changes are presented as a percent of the whole Saugahatchee Watershed in the table to the left. Note that the greatest changes were in Forest (decline of 17%), Transitional Land (increase of 10%) and Urban (increase of 4%). Although much of the forest decline may be temporary, and this land may be replanted in trees, the urban growth will have a lasting effect on watershed condition.

What will the watershed map look like in the future?
**Forest** (Forest, Transitional Land)

Two-thirds of the Saugahatchee Watershed is covered by forests which filter and purify water, conserve soil, and enhance wildlife. Much of this forestland is in a regular 40-50 year harvest-replant cycle. Transitional Lands on the land use maps consist mostly of harvested areas and areas in the early stages (1-3 years) of regrowth. The proper use of Forestry Best Management Practices (BMPs) outlined in *Alabama's Best Management Practices For Forestry* ([www.forestry.state.al.us/bmps.htm](http://www.forestry.state.al.us/bmps.htm)) should reduce sediment and nutrient (nitrogen and phosphorus) loading from forestlands into Saugahatchee Creek, however, education and vigilance are required to make the benefits of BMPs a reality.

**Urban/Suburban**

Urban centers impact water quality by such things as storm water runoff and soil erosion from construction sites. By decreasing tree cover to make room for homes and paved roads (impervious surfaces), water infiltration decreases and runoff often increases. Urban centers also have demanding water needs and produce large volumes of wastewater. As rapid growth continues in the Saugahatchee Watershed, water demands will increase.

**Agriculture** (Tilled, Pasture, Grassland)

Agriculture in the Saugahatchee Watershed has undergone a dramatic transition in the past 100 years from row crop production (primarily cotton and corn) to pine plantations and pastureland, used for livestock grazing and hay production. In its heyday, cotton occupied as much as 30,000 acres (22%) of the Saugahatchee Watershed. The Natural Resources Conservation Service (NRCS) has developed extensive resources to promote the implementation of Agriculture BMPs that minimize environmental impacts of agricultural activities ([www.al.nrcs.usda.gov/technical](http://www.al.nrcs.usda.gov/technical)). More recently, agricultural lands are turning into subdivisions, shopping malls and parking lots.

**Wetland**

Wetlands cover a significant portion of the southeastern United States and support a diverse population of plants and animals. They receive stream overflow from floodwaters, which helps to reduce erosion and creates habitat for fishes, amphibians and other animals. They are also valuable for filtering runoff that enters the groundwater and for recycling nutrients. Wetlands are not naturally abundant in the Saugahatchee Watershed, therefore, the ones that exist need to be protected.
Current Watershed Issues

Rapid changes in the Saugahatchee Watershed are impacting water quality. Specific concerns include:

Population Growth

- As a result of the 2000 census, the Opelika-Auburn area was designated a Metropolitan Statistical Area (MSA) indicating that the area now has a population exceeding 100,000. Growth projections estimate that the population in the Opelika-Auburn MSA will increase by 56% from 2000 to 2025 (source: Center for Business and Economic Research, University of Alabama, 2001).

- Urban sprawl or Smart Growth? – How can Planning Commissions, City Councils, developers, contractors and landowners lessen the negative impacts of urban development on the watershed?

Wastewater Treatment and Sediment

- With increased population comes increased water consumption and wastewater. Saugahatchee Creek already has two segments impaired by excess nutrients, and stricter discharge regulations (TMDLs) are being developed by ADEM. The cities of Auburn and Opelika, therefore, need to consider alternatives for treating and discharging wastewater to the Saugahatchee. Alternatives include additional facilities, advanced treatment to remove nutrients and moving some treated wastewater from the Saugahatchee to Chewacla Creek (discharge moved from the North Auburn Wastewater Treatment Plant to the South Auburn Plant).

- The equivalent of about 1,150 dump truck loads of sediment empties into Saugahatchee Creek each year (Auburn University study). Will new erosion and sediment control ordinances and efforts of the ALOA (City of Auburn, Lee County, City of Opelika and Auburn University) Citizen Advisory Group be sufficient to reduce the amount of sediment entering the Creek?

Failed silt fence at a construction site

Properly functioning silt fences
**Quarries and Mining**

- Granite is a raw material that is abundant in the Saugahatchee Watershed and has been quarried in the past. A new granite quarry was established in 2003 about 2.5 miles west of Loachapoka. This quarry is permitted by the state to operate to within approximately 50 feet of Saugahatchee Creek. How will quarries and mining affect stream water quality and quantity?

**Impervious Surfaces**

- An increasing amount of the Saugahatchee Watershed is being blanketed with asphalt, concrete and metal (parking lots, roads, driveways, buildings). These materials are impervious surfaces that do not allow water to infiltrate into the soil. As impervious surfaces increase across the watershed, the volume of runoff following a rain event also increases. This increased runoff can cause flooding and increased erosion/sedimentation as well as extensive damage to roads, bridges, stream channels, and habitat of fish and other aquatic organisms. Alternative materials, such as permeable concrete parking areas, are beginning to be installed in the watershed.

**Biodiversity and Invasive Species**

- The southeastern U.S. is a hotspot for plant and animal biodiversity. Alabama is home to about 3,400 plant species, 73 amphibians, 81 reptiles, 420 birds, 180 mussels (59% of North America’s mussel species), 320 freshwater fishes (one-third of fishes in the lower 48 states) and 60 mammals. Many of these plants and animals are found in the Saugahatchee Watershed. As urban/suburban development swells municipal boundaries into rural areas, plant and animal habitat shrinks. Soil eroded from barren lands washes into streams and disrupts the habitat of fishes and other aquatic creatures.

- Invasive species, such as Asian carp, Asian clams and exotic plants (*Salvinia molesta*, giant water fern) have all been accidentally introduced into Saugahatchee Creek and threaten native species.
Local Watershed Protection Activities

Everyone who lives, works or has an interest in the Saugahatchee Creek is a stakeholder in the watershed. Stakeholders may be categorized into three groups: Citizen, Government, and Business and Industry. Following are descriptions of what these groups are doing to protect the Saugahatchee Watershed.

Citizen

Save Our Saugahatchee, Inc. (S.O.S.)

S.O.S. is a non-profit corporation formed in 1997 in response to citizen concerns over point and nonpoint source pollution of Saugahatchee Creek. S.O.S. is one of the more than 230 volunteer citizen groups trained and certified by Alabama Water Watch (AWW), who have tested the waters of about 700 waterbodies statewide. The mission of S.O.S. is "to preserve, protect and restore the Saugahatchee Watershed so that it can be enjoyed by everyone for recreation, environmental education and ecological uses."

S.O.S. member, Cindy Mirarchi, demonstrates a watershed model called an Enviroscape to teach citizens about runoff and water pollution.

- S.O.S. members are citizens from communities throughout the Saugahatchee Watershed, including Opelika, Auburn, Loachapoka, Notasulga and Reeltown. They are active in the following areas:
  - Monthly monitoring at ten stream sites throughout the watershed for six water quality parameters, and submission of more than 700 data records to AWW.
  - Promoting environmental education through presentations to local schools, civic groups and other organizations.
  - Reporting conditions that degrade water quality in Saugahatchee Creek to city and state officials.
  - Conducting an annual stream cleanup (photo on page 2).
  - Hosting an annual presentation by AWW staff to discuss citizen and agency watershed data to determine if stream water quality is getting better or worse.

Average alkalinity at nine sites from the headwaters to Yates Lake. S.O.S. data (220 measurements, 1997-2001), documented effects of industrial/municipal discharges on the creek. Average alkalinity increased five-fold from site 1 to site 3, downstream of Pepperell Branch, and several stream miles were required for recovery to normal levels. Vertical lines on bars represent the range of values.
Dissolved oxygen trend (blue dashed line). Dissolved oxygen levels at the North Donahue Bridge site on Saugahatchee Creek have improved over the past eight years (www.alabamawaterwatch.org, click on ‘Water Data’ link).

Government

Alabama Department of Environmental Management (ADEM)

ADEM is the state agency that regulates the water quality of streams, lakes and reservoirs in Alabama, and has conducted many water quality studies in the Saugahatchee Watershed. The Pepperell Branch was placed on ADEM’s 303(d) list of impaired streams in 1992, and the Saugahatchee Embayment was put on the list in 1996. Waterbodies on the 303(d) list are polluted to the point that they no longer support their use classification, such as Fish and Wildlife, Public Water Supply or Swimming. ADEM develops plans called Total Maximum Daily Loads (TMDLs) that set limits on the amount of pollution discharged into 303(d)-listed waterbodies. The TMDLs for the Pepperell Branch and Saugahatchee Embayment are designed to return them to a condition supporting a Fish and Wildlife status (the embayment is also classified as Public Water Supply and Swimming).

City of Auburn

The City of Auburn is dedicated to doing its part in the protection and restoration of the Saugahatchee Creek Watershed. The city actively participates in many environmental groups in the area, such as the ALOA Citizen Advisory Committee (to develop and review storm water-related policies and public education), S.O.S. and the Lower Tallapoosa River Basin Clean Water Partnership. All of these groups work to protect the Saugahatchee Creek and many other waterways in Lee County and surrounding area.

- The City of Auburn adopted an Erosion and Sediment Control Policy in 2003, aimed at reducing sediment runoff from construction sites in the Lee County area (http://www.auburnalabama.org/pubworks/erosionpolicy.html).
The City recently constructed the Tacoma Street and White Street Bioretention Facilities. These ponds catch storm runoff and then utilize soil, plants and trees to filter pollutants from the water.

The City assisted with the Lee County Water Festival to educate 4th grade students about the importance of conservation of water resources. Approximately 1,500 students attended the first year. The City also expanded its Earth Day celebration to a full week of activities to provide citizens with information and activities related to conservation of our environment.

City of Opelika
The City of Opelika and its planning jurisdiction encompass much of the headwaters of Saugahatchee Creek. The employees, citizens and associated stakeholders of Opelika are committed to sustainable preservation, which is reflected in four protective efforts:

1) Wastewater treatment. Opelika's wastewater treatment facilities protect water quality throughout the headwaters of Saugahatchee Creek. The wastewater treatment professionals carefully monitor their facilities for maximum efficiency to insure compliance with federal and state water quality standards.

2) Drinking water. The Opelika Utilities Board continues its watershed protection initiatives to guarantee safe, clean drinking water for generations to come. About two-thirds of the city's drinking water comes from Saugahatchee Lake, which lies on the northwest side of town.

3) Storm water management. Opelika partnered with the City of Auburn, Lee County, Auburn University, ADEM and public stakeholders to develop Erosion and Sediment Control (ESC) standards that reduce sediment deposition into local streams. ESC standards are now required for all development in the Saugahatchee headwaters.

4) Management of development. The City has proactively advanced local watershed protection by strengthening development standards in its Subdivision Regulations. These standards protect water quality beyond the city's political boundaries to its three-mile extended planning jurisdiction.
Natural Resources Conservation Service (NRCS)

The NRCS is an agency of the U.S. Department of Agriculture that works at the local level to help people conserve soil, water and other natural resources on private lands. The NRCS works with citizens in local Soil and Water Conservation Districts to establish conservation priorities. Activities of the NRCS include:

- Assisting landowners with water quality improvement projects through the Environmental Quality Incentives Program (EQIP) and Conservation Reserve Program (CRP) (www.al.nrcs.usda.gov/programs).
- Providing technical assistance to landowners to help develop conservation systems uniquely suited to a community or individual farms or ranches (www.al.nrcs.usda.gov/technical).
- Providing environmental and conservation education programs and materials to students and teachers at schools in the Saugahatchee Watershed.
- Sponsoring the annual Lee County Water Festival, an interactive educational learning experience consisting of hands-on activities for all fourth-graders in the county.

Business and Industry

WestPoint Stevens, Inc. (WPS)

In 1948, Pepperell Manufacturing (later WPS) and the City of Opelika jointly participated in the construction of Saugahatchee Lake to supply water to both the city and WPS Opelika Finishing Plant. In August 2005, WestPoint Home, Inc. (WPH) purchased the assets of WPS and continues to use Saugahatchee Lake as the major source of its process water in Opelika.

- Currently, all three WPH facilities send their domestic wastewater to the City of Opelika for treatment. A portion of the industrial discharge from the Opelika Finishing and Griffutex plants also goes to the city, while the bulk of the industrial discharge from WPH Opelika Finishing Plant and Opelika Mill is treated onsite and discharged into Pepperell Branch. Non-contact cooling water from Griffutex and all storm water from the entire complex are also discharged into Pepperell Branch.
● WPS continued to improve the efficiency of its wastewater treatment plant, and has recently upgraded cold weather treatment efficiency and color removal. In June 2004, tertiary treatment was added in the form of a two-stage constructed wetland system to further improve treatment efficiency and nutrient removal.

● WPS also took steps to protect the Pepperell Branch corridor downstream of their facility by establishing an environmental buffer zone along a 15-mile section of Pepperell Branch. This formal covenant will prevent any further development from encroaching on the riparian zone of Pepperell Branch in this area.

● WPS partially funded a comprehensive study of Saugahatchee Creek that was conducted by the Auburn University Fisheries Department, to assist ADEM in the development of a TMDL for stream protection.

● WPS was a charter member of the Lower Tallapoosa River Clean Water Partnership, S.O.S. and the SWaMP group. WPS hosted tours of its wastewater treatment facility for numerous groups and worked closely with S.O.S. on issues that affect the watershed.

MeadWestvaco, Inc.
MeadWestvaco owns and manages approximately 14,000 acres of forest (about 10% of the total acreage) in the Saugahatchee Watershed to provide pine pulpwood for the production of packaging coated board. The company adheres to Alabama's Forestry Best Management Practices (BMPs), and is a certified member of the Sustainable Forestry Initiative. MeadWestvaco’s efforts to protect water quality include:

● Tree harvests are designed to leave undisturbed streamside management zones (SMZ) along intermittent and perennial streams to provide buffers that filter runoff, prevent stream sedimentation and provide stream shading. Loggers are trained to avoid disturbing soil inside SMZs. Harvesting activities are monitored by foresters to ensure compliance with BMPs.

● Stream crossings and roads are designed, constructed, and managed to prevent soil movement into streams.

● After-harvest inspections are conducted to ensure that skid trails are properly reclaimed, and that no extensive patches of bare soil remain exposed.

● Throughout harvest and regeneration, woody residue and organic matter are left on the sites to reduce erosion from bare soil, maintain soil nutrient sources and enhance habitat diversity for wildlife and plants.
Scientific Studies in the Watershed

- More than a dozen major scientific studies have been conducted in the Saugahatchee Watershed by universities and government agencies.

- Early studies focused on heavy metals (lead, mercury, cadmium and others), DDT and other persistent pesticides (Bayne et al. 1983. Final Report on A Study of the Effects of Environmental Contaminants on Wildlife Populations). Although heavy metals and persistent pesticides were not a problem in the Saugahatchee Creek at that time, high nutrients (nitrogen and phosphorus), excessive amounts of organic waste from municipal and industrial (point source) discharges and low dissolved oxygen (DO) were reported in the upper reaches of the creek.

- Current concerns are focused on nonpoint source pollution (runoff from fields, streets, parking lots), particularly erosion and sedimentation, high concentrations of nutrients and organic matter, and low DO.

The Auburn University Fisheries Department conducted a comprehensive two-year study during 2001-02 to determine nutrient and sediment loading in Saugahatchee Creek (see report at www.alearn.info/natural-resources/ riversandstreams.php). Findings included:

- 38 low DO readings (< 5 ppm, the minimum level of DO to support healthy fish and wildlife populations) were recorded in tributaries and the creek, mostly in the upper watershed.

- Total phosphorus (TP, an important nutrient that promotes proliferation of algae) and total suspended solids (TSS, primarily eroded soil in the water) increased stepwise from the headwaters downstream to Yates Lake (see graph at left).

- TP was mostly from point sources in the upper watershed, but was from both point and nonpoint sources in the lower watershed. TSS (sediment) was almost entirely from nonpoint sources throughout the watershed.

**Total phosphorus (TP) and total suspended solids (TSS) loads measured at eight sites on Saugahatchee Creek during 2001-02. Error bars equal ± standard deviation. 1 metric ton = 1.1 US ton. ADEM sites (Yates-1, Yates-2) are shown on Yates Lake (graph on next page).**
Analysis of a plant pigment called chlorophyll a (an estimator of algal biomass and the trophic state or enrichment of a waterbody) showed that concentrations in the Saugahatchee Embayment were markedly higher than in Yates Lake. The elevated algal biomass in the embayment, along with high levels of organic matter and low dissolved oxygen, are the primary reasons why this section of the Saugahatchee Creek is on ADEM’s 303(d) list.

Growing season chlorophyll a concentrations measured in Yates Lake dam forebay (ADEM site Yates-1) and in the Saugahatchee Embayment (ADEM site Yates-2, see map on previous page). 2004 average is of AU and ADEM data, all others are ADEM data. Vertical lines crossing points represent the range of values.

At the Saugahatchee Embayment, the flow of the creek slows and the stream nutrients (phosphorus and nitrogen) are expressed biologically as algae. An algal plume may be seen extending from the embayment into Yates Lake (photo at left). Algal biomass at Yates dam forebay from 1990-2004 has been relatively stable (blue line on graph above), in the lower mesotrophic range (moderate nutrient levels) while the Saugahatchee Embayment values (green line above) have been in the eutrophic range (nutrient-rich with turbid, green waters).

Major sources of organic matter in the creek are discharges from industrial and municipal wastewater treatment plants. Organic matter (or organic enrichment) can be estimated by measuring the biochemical oxygen demand (BOD) of the water. As organic matter decays in water, BOD depletes the stream and lake of dissolved oxygen, which can stress fish and other aquatic organisms. As the population of Auburn and Opelika increases, so does the volume of treated wastewater discharged into Saugahatchee Creek, which in turn has caused increased BOD (see graph at right).

Four-year trend in BOD in Saugahatchee Creek measured at Lee County Road 188. 2001-02 averages are of AU data, 2004 is of ADEM data. Vertical lines crossing points represent the range of values.
Watershed Management Strategies

Alabama Clean Water Partnership (ACWP)
The ACWP was created in 2000 to coordinate stakeholders for the restoration and protection of river basins statewide in accordance with the Clean Water Act. The ACWP is a coalition of public and private sectors, companies, civic organizations and governing bodies working together to protect and preserve water resources and aquatic ecosystems. Management plans for the major river basins are being developed that represent the diverse interests of all stakeholders. The basin plans will also include several sub-basin plans. For example, the Tallapoosa Basin Plan is made up of the Upper, Middle, and Lower Sub-basin Plans. The Saugahatchee Watershed Management Plan (SWaMP) was developed as a more specific component of the Lower Tallapoosa Sub-Basin Plan.

Saugahatchee Watershed Management Group
The stakeholder group began meeting in February 2004 to develop a Saugahatchee Watershed Management Plan (SWaMP). The first draft of the Plan was completed and submitted to ADEM in February 2005. Other agencies, such as the Soil and Water Conservation District, Alabama Forestry Commission and Alabama Department of Public Health, are expected to join the SWaMP group and all stakeholders are welcome to participate. Goals of the plan are to reduce nutrient and sediment loads into Saugahatchee Creek in order to restore stream water quality to healthy levels for people, fish and wildlife. Funding to implement the Plan is being pursued from several sources, including ADEM and members of the SWaMP group.

All watershed management plans that are implemented with EPA/ADEM funds must address nine elements listed below. These elements provide assurance that nonpoint source pollution load reductions will be achieved, and that public funds to address impaired waters are used effectively. All of these elements have been incorporated into SWaMP.

1. Identification of causes and sources of water pollution problems.
2. Development of load (nutrient and/or sediment) reduction estimates needed to restore the waterbody's water quality.
3. Description of nonpoint source pollution management measures needed in the watershed.
4. Estimation of technical and financial assistance needed to achieve load reductions.
5. Development of an adequate information/education component to the plan.
7. Establishment of measurable milestones to determine if nonpoint source management measures are yielding desired load reductions.
8. Development of criteria for determining if load reductions are being achieved.
The SWaMP Approach

The Plan is divided into three general categories of action strategies for watershed management:

Assessment and Evaluation of Problems

- Install stream gages to measure daily flow, along with in-stream nutrient and sediment loading.
- Analyze streambed sediments from the headwaters of Saugahatchee Creek downstream to Yates Lake to determine nutrient content and sources.
- Assess condition of urban streams and the potential for remediation if impairments are found.

Rural Strategies

- Identify and install terraces, ponds and other structures on farms and pastures for erosion control and reduction of nutrient runoff.
- Conduct workshops for county employees on BMPs for unpaved road maintenance.
- Conduct study-tours for private landowners to demonstrate proper forestry BMPs.

Urban Strategies

- Conduct lawn care and landscaping workshops for training in the reduction of sediment, pesticide and nutrient runoff into streams.
- Revitalize urban forests, especially restoring stream bank vegetation that protects water quality.
- Establish pilot projects of bioretention ponds and rain gardens for the treatment of storm water runoff.

For more information on SWaMP, visit the Alabama Water Watch website (www.alabamawaterwatch.org) and click on the ‘Related Projects’ link, or call the AWW Office at (888) 844-4785 (toll-free).
Vision for the Saugahatchee Watershed

A successful watershed management plan integrates components called the “3 P’s”

- **Partnerships** of stakeholders representing major sectors of government, industry and the community.
- **Practical** steps that are cost-effective and lead to measurable improvements in water quality.
- **Political** will which involves the support and direction of elected officials with the authority to institutionalize a sustainable watershed management plan.

What is the future for the Saugahatchee Creek Watershed? We know that population growth will increase for several years, leading to significant changes in the watershed. The creek will continue to be vital for the development of Auburn, Opelika and other communities within the watershed, providing drinking water, wastewater treatment, irrigation, recreational opportunities, and other important functions. Decisions made today will affect the condition of the watershed in the future.

The **SWaMP Vision**

- The Saugahatchee Creek Watershed will be managed to support population growth and economic development in an ecologically sound manner, with improving water quality and sustainable land use.

- The rapidly expanding urban centers in the headwaters of Saugahatchee Creek will increasingly make development decisions and plans with the entire watershed (including downstream users, aquatic biodiversity and the quality of the creek embayment) in mind.

- The stakeholder partnerships of governmental agencies, industry, business and citizen groups will become stronger and serve as a statewide model for participatory watershed management.

- The residents of the watershed will become aware and appreciative of the economic, aesthetic, recreational, cultural and ecological benefits of Saugahatchee Creek.
For more information about Alabama’s waterways and how to get involved in protecting your watershed, contact:

Alabama Department of Conservation and Natural Resources
334-242-3486  www.dcnr.state.al.us

Alabama Department of Environmental Management
334-271-7700  www.adem.state.al.us

Alabama Clean Water Partnership
www.cleanwaterpartnership.org

Alabama Water Watch
888-844-4785  www.alabamawaterwatch.org

Natural Resources Conservation Service
334-887-4500  www.al.nrcs.usda.gov

U.S. Environmental Protection Agency (Region 4)
404-562-9900  www.epa.gov/region4

Citizens can do much to protect their watershed by:

- Becoming aware of key water issues
- Persuading neighbors to reduce pollution
- Raising local awareness about watersheds
- Participating in watershed-based protection plans including the TMDL process
- Becoming part of a citizen group
- Being the “eyes and ears” for lake and stream changes and pollution
- Advocating for policy changes and enforcement

This publication was produced by the Alabama Water Watch staff of the Auburn University Department of Fisheries and Allied Aquacultures, with SWaMP stakeholder input.

Editors:  Ron Estridge, Eric Reutebuch, Bill Deutsch  (AU Fisheries)  
Reviewers:  Norman Blakey (ADEM), Wendy Seesock (AU Fisheries) 

Alabama Water Watch is a citizen volunteer water quality monitoring program that provides training, data management, information exchange and other means of support for the public to become personally involved in water issues.  AWW is funded in part by the U.S. Environmental Protection Agency (Region 4), the Alabama Department of Environmental Management, the Alabama Agricultural Experiment Station and the Alabama Cooperative Extension System.

Alabama Water Watch, Department of Fisheries and Allied Aquacultures, 250 Upchurch Hall, Auburn University, AL  36849-5419. Telephone:  (888) 844-4785, Fax: (334) 844-9208  
E-mail:  awwprog@auburn.edu