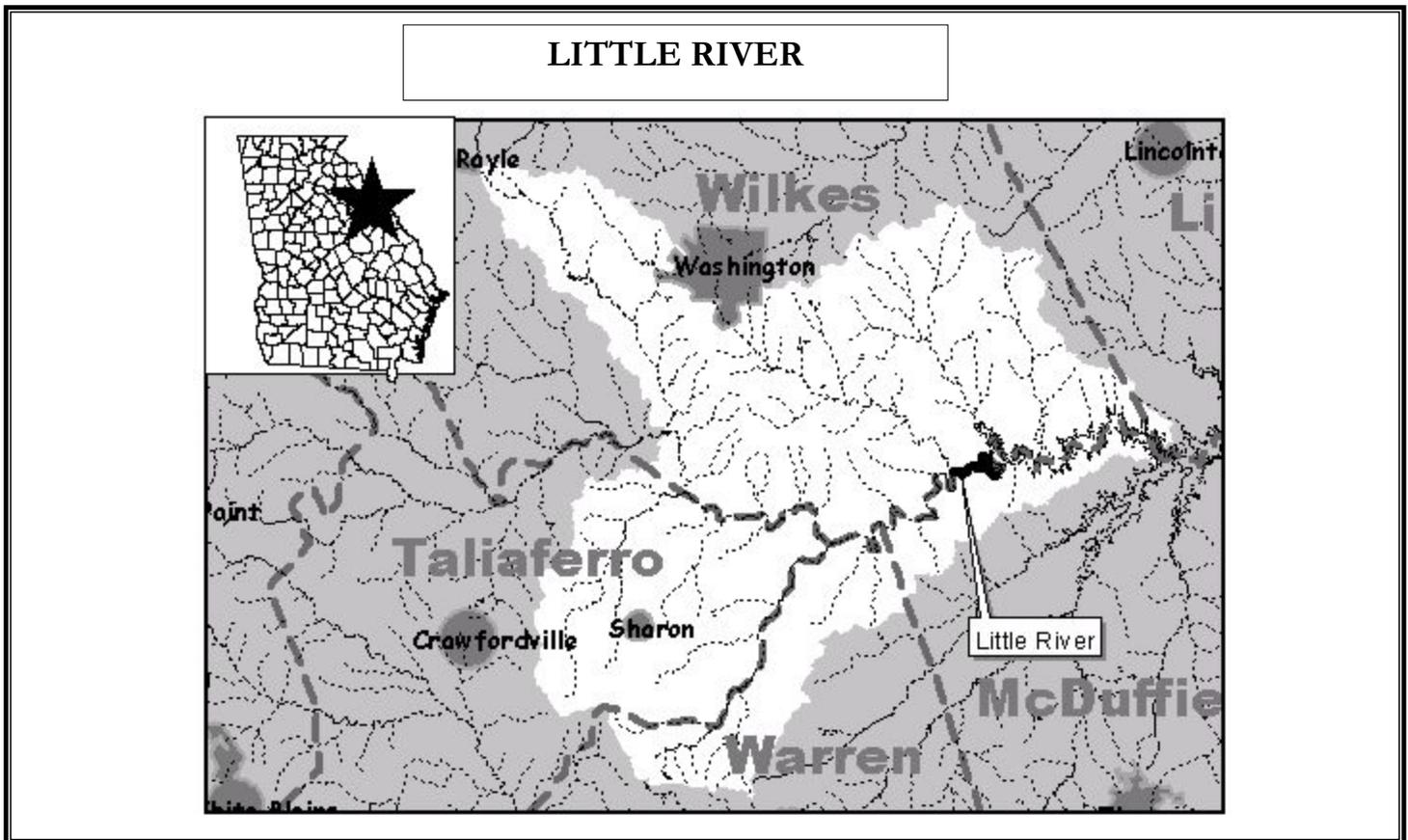


**STATE OF GEORGIA  
TMDL IMPLEMENTATION PLAN**

**LITTLE RIVER  
(Fecal Coliform)**

Prepared by  
**The Georgia Department of Natural Resources  
Environmental Protection Division  
Atlanta, GA**

TMDL Implementation Plans are platforms for establishing a course of actions to restore the quality of impaired water bodies in a watershed. They are intended as a continuing process that may be revised as new conditions and information warrant. Procedures will be developed to track and evaluate the implementation of the management practices and activities identified in the plans. Once restored, appropriate management practices and activities will be continued to maintain the water bodies. The overall goal of the Plan is to define a set of actions that will help achieve water quality standards in the state of Georgia. This plan was originally prepared as an implementation inventory by the Central Savannah River Area RDC with a Section 604(b) Grant. TMDL load allocation information has been updated to reflect the approved TMDL.



Impaired Waterbody*	Impaired Stream Location	River Basin	Miles/Area Impacted	Partially Supporting/ Not Supporting
Little River	Rocky Creek to Clarks Hill Lake	Savannah	8	Partially Supporting

STATE OF GEORGIA

TMDL IMPLEMENTATION PLAN FOR: Little River (STREAM) Fecal Coliform (PARAMETER) RIVER BASIN: Savannah  
 PLAN DATE: \_\_\_\_\_

Prepared by: <u>Shelby Powell</u>  Central Savannah River Area Regional Development Center Address: <u>P. O. Box 2800</u> City: <u>Augusta</u> State: <u>GA</u> Zip: <u>30914</u> e-mail: <u>spowell@csrardc.org</u> Date Submitted to EPD: _____		Or Prepared By: _____  Address: _____ City: _____ State: _____ Zip: _____ e-mail: _____ Date Submitted to EPD: _____	
General Information		Significant Stakeholders	
Obtain this information from the TMDL document or other information. When completed, this document will be a self-contained report independent of the TMDL document.		Identify local governments, agricultural organizations or significant land holders, commercial forestry organizations, businesses and industries, and local organizations including environmental groups with a major interest in this water body.	
TMDL ID (to be entered by EPD)	SAV0000004	Name/Organization	<b>SEE ATTACHED LIST OF STAKEHOLDERS IN APPENDIX A</b>
Water body name	Little River	Address	
HUC basin name	Savannah	City	State Zip
HUC-10 number	0306010502	Phone	e-mail
Primary county	Wilkes, McDuffie	Name/Organization	
Secondary county	Lincoln	Address	
Primary RDC	CSRA	City	State Zip
Secondary RDC	None	Phone	e-mail
Water body location	From Rocky Creek to Clark Hill Reservoir	Name/Organization	
		Address	
Miles or area impacted	8 miles	City	State Zip
Parameter addressed in plan	Fecal coliform	Phone	e-mail
Water use classification	Fishing	Name/Organization	
Degree of impairment	Partially supporting use <input checked="" type="checkbox"/>	Address	
	Not supporting use <input type="checkbox"/>	City	State Zip
Date TMDL approved by EPA		Phone	e-mail
Impairment due to: Urban Runoff	Point sources <input type="checkbox"/>	Name/Organization	
	Nonpoint sources <input checked="" type="checkbox"/>	Address	
	Both <input type="checkbox"/>	City	State Zip
<b>Point source-Form A; Nonpoint source-Form B; Both-Form A+B+C</b>		Phone	e-mail

If more, add to comments on last page.

FORM B

SUMMARY OF ALLOCATION MODEL RESULTS FROM TMDL DOCUMENT (existing load, target TMDL, and needed reduction)

EXISTING LOAD	TARGET TMDL	NEEDED REDUCTION
Unknown*	200 cfu/100 ml (May- October)	Unknown**
Unknown*	1000 cfu/100 ml (November-April)	Unknown**

\*TMDL document does not specify an existing load of fecal coliform

\*\*Unable to determine needed reduction due to lack of existing load data

I. IDENTIFY **NONPOINT SOURCE** CATEGORIES AND SUBCATEGORIES OR INDIVIDUAL SOURCES WHICH MUST BE CONTROLLED TO IMPLEMENT LOAD ALLOCATIONS:

List major nonpoint sources contributing to impairment including those identified in TMDL document.

SOURCE	DESCRIPTION OF CONTRIBUTION TO IMPAIRMENT	RECOMMENDED LOAD REDUCTION (FROM TMDL)
Wildlife	Large populations of a variety of wildlife species in the area	N/a
Recreational Vehicle and boat dumping	Reports of people dumping waste into the Little River from their RV's and/or boats	N/a
Septic tank leakage	Possible septic tank leakage in watershed due to lack of sanitary sewer system in most of the Little River HUC 12 watershed; however both Wilkes and McDuffie County Health Departments report that septic leakage has not been a widely-reported problem in the area.	N/a
Animal Agriculture	Limited number of cattle operations in the area may contribute minimally to the problem	N/a

II. DESCRIBE ANY REGULATORY OR VOLUNTARY ACTIONS INCLUDING MANAGEMENT MEASURES OR OTHER CONTROLS BY GOVERNMENTS OR INDIVIDUALS THAT WILL HELP ACHIEVE THE LOAD ALLOCATIONS IN THE TMDL:

Existing or required regulatory actions

<b>RESPONSIBLE GOVERNMENT, ORGANIZATION OR ENTITY</b>	<b>NAME OF REGULATION/ORDINANCE</b>	<b>DESCRIPTION</b>	<b>ENACTED OR PROJECTED DATE (mm/yy)</b>	<b>STATUS</b>
Georgia DNR, EPD	Savannah River Basin Management Plan 2000	Program to protect, enhance, and restore the waters of the Savannah River Basin by monitoring, regulating, allocating, and managing land uses in the river basin.	Mid-2001	Ongoing
Lincoln County	Wetlands Protection Ordinance	Establishes boundaries around wetlands within the county and limits types and density of development to protect water quality and habitats within these areas	April 2001	Active
Lincoln County	Groundwater Recharge Area Protection Ordinance	Limits density and types of land uses in groundwater recharge areas, including waste disposals and septic tank drainfields, to protect groundwater quality	April 2001	Active
Wilkes County	Wetlands Protection Ordinance	Establishes boundaries around wetlands within the county and limits types and density of development to protect water quality and habitats within these areas	Summer 2003	Projected
Wilkes County	Groundwater Recharge Area Protection Ordinance	Limits density and types of land uses in groundwater recharge areas, including waste disposals and septic tank drainfields, to protect groundwater quality	Summer 2003	Projected
Wilkes County	River Corridor Protection Ordinance	Established measures to guide and control growth in areas along the Broad and Little Rivers to protect the water quality and the river corridors' plant and wildlife habitats.	Summer 2003	Projected
Wilkes County	Water Supply Watershed Ordinance	Limits types and density of development that would impair the water supply watershed.	Summer 2003	Projected
McDuffie County	Water Supply Watershed Ordinance	Limits types and density of development that would impair the water supply watershed.	January 1998	Active

Existing or required regulatory actions (continued)

<b>RESPONSIBLE GOVERNMENT, ORGANIZATION OR ENTITY</b>	<b>NAME OF REGULATION/ORDINANCE</b>	<b>DESCRIPTION</b>	<b>ENACTED OR PROJECTED DATE (mm/yy)</b>	<b>STATUS</b>
McDuffie County	Wetlands Protection Ordinance	Establishes boundaries around wetlands within the county and limits types and density of development to protect water quality and habitats within these areas	Summer 2003	Projected
McDuffie County	River Corridor Protection Ordinance	Established measures to guide and control growth in areas along the Little River to protect the water quality and the river corridor's plant and wildlife habitats.	Summer 2003	Projected
McDuffie County	Groundwater Recharge Area Protection Ordinance	Limits density and types of land uses in groundwater recharge areas, including waste disposals and septic tank drainfields, to protect groundwater quality	Summer 2003	Projected

Existing voluntary actions

<b>RESPONSIBLE ORGANIZATION OR ENTITY</b>	<b>NAME OF ACTION</b>	<b>DESCRIPTION</b>	<b>ENACTED OR PROJECTED DATE (mm/yy)</b>	<b>STATUS</b>
Citizens of Wilkes, McDuffie Counties, Fort Discovery/ Wilkes & McDuffie School Systems	Adopt-A-Stream Program (ECO Partners)	A Georgia Department of Natural Resources, Environmental Protection Division, program designed to raise awareness about water quality through the public's support and action in monitoring and protecting water resources.	unknown	Ongoing
USDA Natural Resource Conservation Service and partners	Little River Conservation Priority Area	Focuses on protecting entire Little River watershed through partnerships with NRCS, local governments, UGA, and the public. Water sampling and analysis is currently performed by partnership with UGA.	1999	Active

Additional recommended regulatory or other measures which should be implemented to reduce the loads of the TMDL parameter

<b>ENTITY/ORGANIZATION RESPONSIBLE</b>	<b>NAME OF PROPOSED REGULATION/ORDINANCE/ OTHER</b>	<b>DESCRIPTION</b>	<b>ENACTED OR PROJECTED DATE (mm/yy)</b>	<b>STATUS</b>
Wilkes, Lincoln, and McDuffie County Schools	Enviroscape	A program to be implemented in the schools that educates children of the causes and effects of nonpoint source pollution. The program provides training for teachers, also.	TBA	TBA
County School Systems	River Kids Program	A statewide curriculum incorporated into the School System to exchange data and ideas.	TBA	TBA
Wilkes, McDuffie, Lincoln County or Other Interested Group	Septic Tank Survey	A survey should be conducted in the Little River Drainage Basin to determine the number and location of homes using septic tanks.	TBA	TBA
Wilkes, McDuffie, Lincoln County	Public Education Program on Septic Tank Issues	TV/radio/print ads explaining importance of repairing leaky septic tanks and properly maintaining septic tanks	TBA	TBA
Wilkes, McDuffie County	Septic to Sewer Incentive Program	An incentive program to encourage conversion of septic tank to City of Washington or City of Thomson sewer system, where feasible.	TBA	TBA
City of Washington, City of Thomson, City of Lincoln	Sanitary Sewer Maintenance	Plans to develop additional proactive measures to prevent spills and leaks from the sanitary sewer system.	TBA	TBA
Citizens of Wilkes, Lincoln, or McDuffie County	Local Sierra Club chapter	Group of citizens interested in protecting water bodies and other environmental resources	TBA	TBA
Wilkes, McDuffie, Lincoln County and City officials	Water Environment Federation training and involvement	WEF holds annual WEFTEC conference with workshops and technical sessions on water quality and wastewater treatment; also holds various other public training and information sessions throughout the year	TBA	TBA
Citizens of Wilkes, McDuffie, Lincoln County	Join or start a chapter of the Izaak Walton League of America	Organization concerned with environmental protection and conservation. Programs directed by IWLA include the Outdoor Ethics Program and Save Our Streams Program.	TBA	TBA
Fort Discovery, County Boards of Education	Teltrain Educational Program	Satellite program broadcasted by the National Science Center at Fort Discovery. Program is geared towards middle school children, and focuses on science, math, and technology subjects.	TBA	TBA

Additional recommended regulatory or other measures which should be implemented to reduce the loads of the TMDL parameter (continued)

ENTITY/ORGANIZATION RESPONSIBLE	NAME OF PROPOSED REGULATION/ORDINANCE/ OTHER	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Citizens of Wilkes, Lincoln, or McDuffie Counties	Waterkeepers program	Citizen-based group which focuses on water quality in a particular river; the group is active in Savannah River and other rivers around Georgia	TBA	TBA
County School Systems	Participate in Spirit Creek Educational Forest	Currently trains teachers on monitoring and testing methods using Spirit Creek in Richmond County as a training ground; program could expand to include fecal coliform testing	TBA	TBA

III. SCHEDULE FOR IMPLEMENTING MANAGEMENT MEASURES OR OTHER CONTROL ACTIONS:

These **must be implemented within five years** of when the implementation plan is accepted by EPA.

IMPLEMENTATION ACTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5
Form stakeholders group	X				
Organize implementation work with stakeholders and local officials to identify remedial measures and potential funding sources	X*	X*	X*	X*	X*
Identify sources of TMDL parameter	X	X	X	X	X
Develop management programs to control runoff including identification and implementation of BMPs (Phase I):	X**	X	X	X	X
Agriculture					
Forestry	X**	X	X	X	X
Urban	X**	X	X	X	X
Mining					
Organize and implement education and outreach programs		X	X	X	X
Detect and eliminate illicit discharges	X	X	X	X	X
Evaluate additional management controls needed	X	X	X	X	X
Monitor and evaluate results	X	X	X	X	X
Reassess TMDL allocations		X	X	X	X
Provide periodic status reports on implementation of remedial activities	X	X	X	X	X
If needed, begin process for Phase II (next 5 years) and subsequent phases					X

\*New remedial measures and potential funding sources will continue to be evaluated during the implementation period.

\*\*Programs and BMPs will be implemented as possible and as necessary throughout the 5-year period.

IV. PROJECTED ATTAINMENT DATE AND BASIS FOR THAT PROJECTION:

The projected attainment date is 10 years from acceptance of the implementation plan by EPA.

V. MEASURABLE MILESTONES:

- Number of management controls and activities already implemented 13
- Number of management controls and activities proposed in five-year work program 12
- Number of management controls and activities actually implemented in five-year work period                     (to be completed after 5 years)
- Stream sampled to identify areas of concern See monitoring plan

VI. MONITORING PLAN:

Monitoring data that placed stream on 303(d) list will be provided if requested.

Describe previous or current sampling activities or other surveys to detect sources or to measure effectiveness of management measures or other controls.

ORGANIZATION	TIME FRAME	PARAMETERS	PURPOSE	STATUS
EPD	Current	Fecal coliform	Monitoring of City of Washington Wastewater Treatment Plant	ongoing

Describe any planned or proposed sampling activities or other surveys. (Scheduled EPD sampling can be found in the Basin Planning document.)

ORGANIZATION	TIME FRAME	PARAMETERS	PURPOSE	STATUS
EPD			basin planning	Under development
Wilkes, McDuffie, and Lincoln Counties	Present until problem is resolved. Samples should represent the warm and cool season and should be taken on both dry and post-rain days.	Fecal coliform	To monitor levels of fecal coliform and to determine success of plan implementation.	Proposed; Counties involved should devise testing schedule and cost-sharing schedule.

## VII. CRITERIA TO DETERMINE WHETHER SUBSTANTIAL PROGRESS IS BEING MADE:

- Once initial testing has been performed, load reduction targets can be devised and used as goals.
- Categorical change in classification of the stream (delisting the stream is the goal)
- Regulatory controls or activities installed (ordinances, laws)-Monitor the number of controls implemented (both regulatory and voluntary) during the five-year implementation period.
- Best management practices installed (agricultural, forestry, urban) if necessary and appropriate
- Number and involvement of voluntary organizations formed by local governments and/or citizen groups

### COMMENTS

A local Sierra Club chapter has expressed concern about the number of new power plants proposed in the State of Georgia. The power plants may extract more water from the impaired water bodies than they return, which would raise the concentration of fecal coliform in the impaired sections.

# Little River Fecal Coliform Bacteria

## TMDL Implementation Plan

### BACKGROUND

The eight-mile segment of Little River east of Rocky Creek in McDuffie, Wilkes, and Lincoln Counties, Georgia has a beneficial water use classification of fishing and is currently listed as an impaired water body. The degree of impairment is classified as a partially supporting use and the TMDL for this eight-mile segment of Little River is set at a target level of 200 cfu/100 ml of water from May to October, and 1000 cfu/100 ml of water from November to April, levels that will allow the water body to achieve water quality standards necessary for the beneficial use classification of fishing.

A Total Maximum Daily Load (TMDL) is a calculation of the maximum amount of a pollutant, from both point and non-point source loading, that a water body can receive and still meet water quality standards. The Clean Water Act, Section 303, establishes the water quality standards and TMDL programs. TMDLs are the implementation of rules included in Section 303(d) of the Clean Water Act of 1972. The resulting inventory of impaired streams and water bodies – called the 303(d) list – provides a basis for decisions related to restoring water quality. Although some TMDLs are aimed at managing all sources of pollution which affect beneficial uses of water, the focus of the implementation plan discussed here relates primarily to non-point water sources, including contamination from diffuse sources such as agricultural and urban runoff.

Methods of measuring pathogens directly are costly and time-consuming. In most cases, indicator organisms are used instead of analyzing the pathogens themselves. These indicator organisms, or coliforms, are bacteria that also occur in human and animal waste, but generally are not pathogens themselves. In contrast to pathogens, the coliforms are easy to collect and count, and often provide at least an indication of whether or not fecal matter has entered the water body. The downside of

using indicator organisms like coliforms is that coliform tests are generally nonspecific; they do not distinguish between human and other animal coliform. However, at present, this is our most feasible source of indication.

The purpose of this plan is to reduce or eliminate the pollutants contained in the runoff into Little River, as well as the pollutants flowing directly into the river.

### **EXISTING FECAL COLIFORM MONITORING DATA**

The testing performed by EPD that ultimately resulted in Little River's inclusion on the 303(d) list of impaired water bodies was completed between 1991 and 1997. An eight-mile segment of Little River stretching from its confluence with Rocky Creek on the Wilkes County/McDuffie County border east to Clarks Hill Lake on the border of Lincoln County (see Appendix B) was found to be only partially supporting of its fishing use classification due to the unacceptably elevated levels of fecal coliform bacteria (see Appendix C). This testing, however, was not performed frequently enough to determine a meaningful geometric mean.

### **LAND USES**

The land surrounding the impaired portion of Little River is mostly undeveloped forest land with a few single-family residences. These residences are all on septic tanks with no access to a municipal sanitary sewer system. According to the Health Departments in Lincoln, McDuffie and Wilkes Counties, septic tank overflow or leakage is not a widespread problem around the Little River or its tributaries.

The City of Washington holds the only NPDES permit in the Little River subwatershed. The permit allows four million gallons per day to be discharged from the City's water pollution control plant. The City's treated wastewater flows into Rocky Creek, which flows directly into Little River at the beginning point of the impaired portion. This flow represents the only permitted point source for fecal coliform flowing

into the impaired portion of the Little River. One major spill occurred at the plant in 1996, which may have contributed to the elevated fecal coliform levels in Little River during some of the testing.

Further upstream, there are small cattle farms, but there are no widespread agricultural or animal farming operations in the subwatershed. None of the land uses around Little River appear to be major contributors to the fecal coliform problem.

## **STAKEHOLDER MEETINGS**

To look into the problem further, we notified local stakeholders of the problem. These stakeholders were notified through contact with the involved county officials, and through an advertisement published in each of the counties' newspapers. A meeting of the stakeholders was held both August 2, 2001 and August 6, 2001 to gather information about possible causes of the problem.

Shelby Powell, CSRA RDC Regional Planner and Mary Huffstetler, CSRA RDC Transportation Planner conducted this meeting. At the meeting, the goal of this plan was explained to the stakeholders, and stakeholders were invited to comment on ideas of sources of pollution and offer suggestions to reduce or prevent increases in fecal coliform bacteria. The main concern of residents at the meeting was the lack of sanitary sewer in the residential areas surrounding Little River and its tributaries. Other concerns were that the problem was coming from the wildlife population in the forested land surrounding the river and the recreational vehicle usage of the river. Some residents state that they have occasionally seen both boats and campers dumping waste directly into the river. Neither county officials nor NRCS officials had received complaints about this activity as of the date of this plan.

The stakeholders were invited on September 6, 2001 to an advertised public meeting to view the draft implementation plan. Several minor changes to language and terminology used in the plan were suggested, but overall the stakeholders were receptive to the implementation plan's ability to meet TMDL goals.

## **EXISTING REGULATORY AND VOLUNTARY MEASURES**

Lincoln County has already taken some regulatory measures to ensure clean water. In April 2001 Wetlands Protection Ordinance and a Groundwater Recharge Area Protection Ordinance were adopted. The Wetlands Protection Ordinance protects wetlands in Lincoln County from alterations that will significantly affect or reduce their primary functions for water quality, floodplain and erosion control, groundwater recharge, aesthetic nature, and wildlife habitat. This protection is achieved through land use controls on lands surrounding wetlands. Since there are several wetlands areas on the land in the Little River watershed, this ordinance inherently protects the water quality in Little River. The floodplain control measures contained in the ordinance also serve to indirectly control fecal coliform bacteria levels because of the direct correlation between fecal coliform bacteria levels and flow rates. Less unnatural flooding and water diversion means lower flow rates, and therefore, lower fecal coliform levels. Both Wilkes and McDuffie Counties will be required to adopt this type of ordinance by June 2003.

The Groundwater Recharge Area Protection Ordinance protects lands within recharge areas by limiting the number and density of septic tank drainfields, hazardous waste storage, disposal, and handling facilities, and chemical storage facilities. Some of the types of development regulated by this ordinance directly relate to fecal coliform levels. Thus, the enforcement of this ordinance keeps fecal coliform levels lower in groundwater recharge areas. Both Wilkes and McDuffie Counties will be required to adopt this type of ordinance by June 2003.

Wilkes County and McDuffie will each be required to adopt a River Corridor Protection Ordinance by June 2003 also. The River Corridor Protection Ordinance will protect land within 100 feet horizontally from the banks of the Broad and Little Rivers in Wilkes County and the Little River in McDuffie County. New construction will be prohibited in the river corridor except for single-family houses on two-acre or larger lots. Septic tanks and septic tank drainfields will be prohibited in the river corridor, as

will hazardous waste and solid waste landfills. These provisions will help to keep pollution flowing into the river at a minimum. Potential for fecal coliform bacteria loading caused by leaky septic tanks will be decreased by this ordinance.

Georgia is in the process of implementing a watershed approach to water resource management through River Basin Management Planning. River basin planning is the foundation for implementation of water protection strategies in Georgia. This approach provides the framework and schedule for actions to address the waters on the Georgia 303(d) list. The basin planning program is based on legislation in 1992 (O.C.G.A. 12-5-520) by the Georgia Assembly, which calls for EPD to develop river basin management plans for each of the major river basins in Georgia. The Savannah River Basin Management Plan is scheduled to be adopted in 2001.

The only permitted point source of fecal coliform bacteria levels in this segment of the Little River is the City of Washington NPDES permit. The permit for the City of Washington allows 4 million gallons per day to be dumped into Rocky Creek in Wilkes County. The only known spills from this source occurred in 1996. Therefore, this is probably not a significant source of the high level of fecal coliform bacteria. Rocky Creek is monitored by EPD for water quality because of this permit. If the monitoring continues as it should, the City of Washington should not become a major contributor to the fecal coliform bacteria levels in Rocky Creek or the Little River.

The citizens of Wilkes and McDuffie Counties have joined forces with the County school systems and Fort Discovery to participate in the Adopt-a-Stream program. The Georgia Adopt-A-Stream maintains four underlying principles: to increase public awareness of the state's non-point source pollution and water quality issues, to provide citizens with the tools and training to evaluate and protect their local waterways, to encourage partnerships between citizens and their local government, and to collect quality baseline water quality data. This program raises public awareness about water quality issues in addition to gaining action from volunteers to monitor and protect water resources within the county. Most of the streams in this particular program drain into

the Little River, so this program is indirectly helping to keep the river clean. Some monitoring is done through the Adopt-a-Stream program. Members of this effort have been involved since 1996. Their tests, however, did not measure fecal coliform bacteria levels specifically.

The Natural Resource Conservation Service (NRCS) has obtained a designation for the Little River as a Conservation Priority Area. Through partnerships with the University of Georgia Departments of Environmental Sciences and Engineering, water quality testing was performed in other areas of the watershed during a Section 319 project, but not specifically in Little River. It is unknown whether fecal coliform was one of the testing parameters at this time. This partnership began in 1999, and is expected to continue indefinitely. The funds that have been allocated for the Priority Area thus far are \$102,130 in 1999, \$67,397 in 2000, and \$70,000 in 2001. The NRCS focuses on water quality through encouraging such practices as Nutrient Management, Prescribe Grazing, Streambank Protection (primary fencing), and Waste Management. Other partners in the Conservation Priority Area are the Georgia Department of Natural Resources, the Georgia Cattlemen Association, the Georgia Forestry Commission, and the Savannah and Oconee River Resource Conservation and Development Commissions.

## **RECOMMENDED REGULATORY AND VOLUNTARY MEASURES**

Implementation of measures to address the TMDL involves the cooperation of all landowners and land users in the watershed; therefore, broad awareness and involvement are very important to the success of the implementation plan. The creation of more voluntary activist groups and voluntary actions on the part of the Wilkes, McDuffie, and Lincoln County governments could help to reduce the loading of fecal coliform bacteria in Little River as well as in other water bodies throughout the counties. For instance, the County governments could either collectively or individually initiate an educational campaign on issues of septic tanks. A public education program in the form of television advertisements, radio announcements, and print advertisements should

explain the importance of septic tank maintenance and repair. The advertisements should describe methods used to determine if a septic tank is leaking, and the proper steps in repairing the system. This would be a proactive approach to reducing potential fecal coliform loading from leaky septic tanks.

The counties could also conduct a septic tank survey to determine the number of septic tanks in the area, as well as the age and functionality of the septic tanks. This would help to identify problem areas of the county where septic leakage or overflow could be contributing to the fecal coliform problem. Where appropriate or feasible, incentives could be offered to encourage septic tank users to tap on to the sanitary sewer system. The cities in the counties that operate sanitary sewer systems could be proactive by developing measures to prevent spills and leaks from the sewer system. By identifying leakage in septic tanks and sewer lines early, more can be done to correct the problem, thus reducing fecal coliform levels from these sources.

The County Boards of Education can also get involved in the process of reducing fecal coliform bacteria by including educational programs in the curricula of local schools. The River Kids program has been successful in some Columbia County, Georgia schools, where children take water samples and learn how to keep water bodies clean as a part of their regular schoolwork (see Appendix D). Introducing water quality issues to children at a young age, and following up with the program through middle school and high school can lead to long-term action and dedication on the part of the citizens of all the counties.

Another educational opportunity exists in the Enviroscope program (see Appendix E). This program has several curricula that focus on issues such as general water quality and nonpoint source pollution, among others. This program involves teacher training and models for use in the classroom. This would be beneficial in teaching children the value of keeping an entire watershed clean at an early age.

The Spirit Creek Educational Forest is located in Richmond County<sup>1</sup>. This site trains teachers on monitoring and testing methods for a variety of parameters. The site does not currently have testing equipment for fecal coliform bacteria, but would be willing to obtain the necessary equipment if there was an interest in the community for such a program. The program uses Spirit Creek as a model for hands-on teacher training. The teachers can then carry their knowledge into other streams in the area, and teach students the value of water quality testing and monitoring with hands-on projects.

The National Science Center's Fort Discovery hosts a satellite television program called "Teltrain" that is used in middle school classrooms around the nation (see Appendix F). This program frequently focuses on science issues, and could be used as a vehicle to raise water quality awareness in area schools. This program could be used in conjunction with the River Kids program, the Enviroscope program, or other hands-on lessons focusing on water quality.

General citizen involvement is important in carrying out the strategies outlined in this plan. The Sierra Club is one citizen group that is often involved in environmental causes, and is active in many areas of the state. A group of interested local citizens could be a part of the Augusta chapter, or an entirely new chapter could be formed. The formation of this group would depend on local interest in water quality and other environmental issues. The Sierra Club chapter could promote the expansion of the Adopt-a-Stream program in Lincoln, Wilkes, and McDuffie Counties. The Sierra Club, with over 600,000 members nationally, has an active chapter in the Richmond and Columbia County area. The mission of the Sierra Club is as follows: explore, enjoy, and protect the wild places of the earth; practice and promote the responsible use of the earth's ecosystems and resources; educate and enlist humanity to protect and restore the quality of the natural and human environment; and use all lawful means to carry out these objectives.

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<sup>1</sup> To participate in this program, call Cathy Black at (706) 790-2351.

Another possibility for citizen involvement is in the Waterkeeper Alliance program<sup>2</sup>. This national program has local chapters made up of concerned citizens. The grass roots program is a sort of environmental “neighborhood watch” that enables citizens to be involved in keeping the water in their communities clean. The alliance has 70 chapters in North and Central America, including four in Georgia. This group would be a way for the citizens in the Little River watershed to become involved in the cleanliness of the river. Many other citizen-based groups exist throughout Georgia and the nation. Citizens of the involved counties could also form their own local group specializing in Little River water quality.

The Water Environment Federation (WEF) offers training and an annual WEFTEC conference (see appendix G). The conference offers training workshops and technical sessions on a wide variety of water quality topics, including TMDL issues, monitoring for water quality, watershed management, and stormwater management. WEF also offers various workshops and sessions throughout the year. These training sessions could be beneficial to city and county officials that deal with water quality issues, as well as teachers who wish to incorporate some environmental aspects into their lessons. Involvement with this organization could bring about awareness of water quality and give county officials tools to implement some strategies to ensure clean water throughout the county.

Another organization with water quality focus is the Izaak Walton League of America (IWLA) (see Appendix H). This organization focuses on environmental resource conservation and preservation. Their Save Our Stream (SOS) program is a grassroots river conservation program focusing on citizen involvement in watershed protection. This program is especially relevant, since the goal of this plan is to reduce fecal coliform levels in Little River. The IWLA also sponsors the Outdoor Ethics Program, which encourages responsible enjoyment of the outdoors. The stakeholders concerned about the illegal dumping of waste from boats and campers into the Little River may be

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<sup>2</sup> For more information on this program, see [www.keeper.org](http://www.keeper.org).

interested in this program. The County governments should support any efforts at involvement in either of these programs by citizens or public officials. The more awareness of the water quality problems there is in the community, the more likely it is that a solution to the problem can be reached.

The most important recommendation for reducing the levels of fecal coliform is that the river must be monitored consistently. Any of the above programs could be tied to water quality monitoring by school groups, concerned citizen groups, or county officials. The level of fecal coliform must be initially measured before any other action is taken to determine the severity of the problem. This knowledge will allow the counties and citizens to focus on the recommended programs that would be most useful.

#### **SCHEDULE FOR IMPLEMENTING MANAGEMENT MEASURES**

In order to establish an effective TMDL implementation plan, an implementation schedule must be carefully adhered to. A stakeholder group for the drainage basin of the impaired portion of the Little River has been established. This group has been instrumental in the identification of potential sources of fecal coliform in the Little River area and in the development of potential measures to reduce or eliminate the excessive levels of fecal coliform present in the river. A stakeholder group of landowners, government officials, environmental activists, and other concerned citizens has been identified to help pinpoint the problem and to help implement identified solutions and monitoring schedules.

During the first year, this group of stakeholders must actively work together to continue to identify remedial measures and potential funding sources necessary to implement these remedial measures. Initial management controls and any necessary best management practices or environmental protection measures must be established and initial implementation must begin in the first year. Educational programs in the schools and throughout the community must be implemented as soon as possible during the first year of the plan. Monitoring and status reports of any improvement or

worsening of the fecal coliform levels must be started within the first year. The monitoring must be strictly adhered to in order to gauge the level of fecal coliform in the water so that goals for reduction can be set and met.

After the stakeholders and community leaders have a firm grasp on the current fecal coliform levels based on the water quality monitoring schedule outlined in this plan, the rest of the community can get involved. The educational programs in the schools and throughout the community must be implemented as soon as possible during the second year of the plan. Management programs, best management practices, monitoring and evaluation of data, and periodic status reports must continue throughout the five-year implementation plan. Continuous evaluation, analysis, and reporting results are all imperative to the success of the implementation of the TMDL. If the fecal coliform levels do not fall below the target TMDL level, a more rigorous implementation plan should be developed in the final year of this five-year implementation period.

## **MONITORING PLAN**

Water quality monitoring is the most critical component in determining the success of the implementation plan. Monitoring helps determine compliance with regulations, major sources of loading, and the effect of the regulatory and voluntary measures implemented in the drainage basin. Water quality monitoring provides quantitative evidence of the success or failure of the implemented voluntary and regulatory measures. No two watersheds are alike; therefore, the actual monitoring of the particular watershed through water sampling and analysis, rather than relying on computer model data, is critical to determining the fecal coliform levels actually present in the impaired water body.

Levels of fecal coliform in Little River will be monitored by standard periodic grab sampling. The affected counties should develop a definitive sampling schedule, including sampling points and dates, as well as funding sources. The NRCS could

possibly help develop this schedule, since some sampling is already being performed in other areas of the watershed as part of the Conservation Priority Area partnership. Sampling should be scheduled, at a minimum, biannually. Samples should be taken once a week for an entire month in order to obtain the 30-day geometric mean. Set sampling sites should be established at a couple of locations along Little River, including the original sampling point used by EPD. Additional supplementary sampling points may be utilized by voluntary water quality monitoring organizations. Samples should be obtained at least once during the summer season (May through October) and once during the winter season (November through April) each year to provide a complete inventory of the conditions in the impaired segment of the Little River.

## **FUNDING SOURCES**

There are currently several funding sources available for the county to engage in a stable monitoring schedule. Section 319(h) grants from Section 319(h) of the Clean Water Act may be available for use by county governments. Other matching grants may be available through the Environmental Protection Agency's Office of Water for both non-point source mitigation and water quality testing. Appendix I contains details regarding this and other possible funding sources for the implementation of this plan. Further research into possible funding sources should be continually conducted over the five-year implementation period. Both county officials and the stakeholder group should conduct this research.

## **CRITERIA TO DETERMINE PROGRESS**

Progress on the implementation plan will be determined through quantitative analysis of water quality sampling results. Periodic monitoring will show the trends of fecal coliform levels throughout the five-year period. The number of regulatory controls or best management practices implemented in the Little River drainage basin will also

serve as a measure of progress. The implementation plan will be ultimately deemed successful if, at the end of the five-year implementation period, the fecal coliform levels in Little River are below the target levels recommended in the TMDL document and the stream is removed from the 303(d) list.

## **CONCLUSION**

The most important aspect of the implementation of the TMDL for fecal coliform is a strictly adhered-to, effective monitoring schedule. This monitoring schedule is necessary to provide a starting point for fecal coliform reduction. The land uses surrounding Little River do not appear to be major contributors to the elevated fecal coliform levels in the river. The problem is likely wildlife in the area, and possibly undetected septic or sewer leakage. Measures such as a septic tank survey and sewer line survey could identify possible problem areas. The one point source of pollution, the City of Washington wastewater discharge point, could be a minor contributor to the problem as well.

The local governments need to begin following a strict testing schedule to monitor the levels of fecal coliform bacteria over the next five years. The testing cycle should be performed at least biannually over a five-year period. The testing should follow EPD standards. One testing cycle should include testing specifically designated testing points one day a week for an entire month (or other 30-day period) to gain a 30-day geometric mean. By using designated testing sites officials should be able to identify areas of Little River with higher concentrations of fecal coliform bacteria, and use this data to determine other possible sources of the bacteria loading.

If the recommended regulatory and voluntary actions are carried out and the monitoring schedule is adhered to, the level of fecal coliform bacteria should be at an acceptable level prior to the conclusion of the five-year implementation period. Hopefully Little River will be removed from the 303(d) impaired water list at the conclusion of this implementation period.