

TMDL IMPLEMENTATION PLAN FOR FISHING CREEK

Introduction

Fishing Creek is in the Oconee River Basin. The lower stream segment, from McWhorter Creek to Lake Oconee, is listed on the §303(d) list for the State of Georgia for not meeting the water quality standard for fecal coliform to support its classification of fishing. It is one of four stream segments being addressed within Greene County simultaneously. The U.S. Environmental Protection Agency developed a total maximum daily load estimate (TMDL) for the creek, based on a prediction of a 30-day geometric mean of 152.14 cfu/100ml and suggested a reduction of 10% in runoff loading from agriculture and urban sources and no reduction of fecal coliform in groundwater/interflow. A recent (October, 1998) revision suggests a reduction of 10% for agriculture and no reduction necessary for urban sources. Sources modeled for reduction in the TMDL were Urban, Forest, and Agriculture.

The purpose of this implementation plan is to identify and eliminate sources of fecal coliform in the drainage basin in order to meet the fecal coliform water quality standard.

Overview

The drainage basin of Fishing Creek lies primarily within the boundaries of Greene County with a smaller area in Oglethorpe County; it covers approximately 24,400 acres.

Land use in the basin was determined in the TMDL to be 0.4% urban pervious, 0.4% urban impervious, 92% forest, and 6.4% agricultural. Small portions of the Town of Maxeys and the unincorporated community of Penfield lie in the very upper reaches of the basin. There are a few, scattered residences in the basin. The remainder of the basin is covered with forest. There are no known agricultural operations in the basin. It has been inferred locally that misinterpretation of satellite imagery led to the inclusion of agricultural land uses. The drainage is described as particularly rugged and empty terrain. A significant portion of the basin is in the Oconee National Forest. There are no current timbering operations, and local reports indicate that there have not been for several years. Richland Creek has extensive swamps and wetlands created by some of the worst soil erosion experienced in Georgia during the 19th and early 20th centuries and augmented today by a very healthy beaver population.

None of the area is served by sewer. Any residences rely on septic tanks. The possibility that some of the very few residences in the drainage have not installed septic systems of any kind must be considered.

Possible sources of fecal coliform in the basin include malfunctioning septic tanks; illicit direct discharge of residential wastewater into tributary streams; and animal waste (livestock, pets, and wildlife). Consideration must be given, also to two possibilities: the contribution of fecal coliform to the stream from the extensive beaver population and the wetlands associated with them, which harbor substantial wintering flocks of ducks and geese, and hunters.

Greene County's population is increased during deer season by approximately 5,000 persons each weekend. The fishing creek drainage is a popular area for hunting, and, in the off-season, for off-road vehicle use and camping. The hunting and off-roading culture in Greene County includes the frequent practice of gathering in "hunting camps," where dozens or even scores of people may concentrate at night. There is anecdotal evidence from the county health inspector of sites with several acres with surface or minimally subsurface waste material distributed over the area. There is also anecdotal evidence that in such remote areas, it is customary practice to butcher deer at or near the kill site rather than transport the entire carcass, and that the preferred location to do this is in or near a stream. It is speculated that the practice could introduce fecal coliform to tributaries.

Pinpointing individual sources typically requires extensive analysis and monitoring of the stream and its tributaries during both wet and dry weather conditions.

Current Activities

The Greene County Health Department has been aggressively reducing fecal coliform discharges for approximately eighteen months. Failed and absent septic systems are being addressed through education and, in extreme cases, legal action. The long-standing practice in the county of discharging septic tank pumping trucks ("honey wagons") into the headwaters of streams has been eliminated.

Agriculture-related projects are active in the county, including the EQUIP program, implementation of nutrient management plans, and other activities of the NRCS and extension service. As stated above, few or no cattle or chicken operations are known in this basin at this time, but future operations, or those that have been overlooked, have these agricultural BMP programs available to them.

Future Activities

Watershed Team Formation

A Greene County Watersheds Task Force will be formed to work on fecal coliform reduction in this basin as well as others in the county. Currently, the task force consists of representatives from the City of Greensboro WTP facility and the city manager's office; Greene County Board of Commissioners and Department of Public Works; Natural Resources Conservation Service; Cooperative Extension Service; Greene County Board of Health (Health Department); and the environmental codes enforcement officer.

In addition to the working task force, a stakeholders' group will be formed of persons with an interest in the watershed. One meeting has been held with stakeholders, which was attended by approximately 20 people. The Upper Oconee Watershed Network, Georgia Legal Watch/Community Watershed Project, several farmers, and interested members of the

community attended and expressed interest in continuing to participate. Additional groups and individuals will be contacted and invited to participate in the overall county effort and the Fishing Creek effort specifically. This group will identify areas of concern, offer input to and feedback on plans, participate in outreach and education, and recruit support from the community. The U.S. Forest Service, hunt clubs, and the land owners leasing to them will be included in the case of Fishing Creek. Oglethorpe County and the Town of Maxeys will also be added.

Public Education

The task force and stakeholders' group will identify or develop materials to use in a public education campaign to inform citizens of the need to reduce sources of waste that might produce fecal coliform and minimize the exposure of storm water to these sources. The campaign will begin immediately and will inform the public of steps they can take to reduce possible sources. The task force will also decide where, when, and how to disseminate this information.

Compiling Additional Information

Among the first steps in implementing this plan will be to compile additional data. Information needed will include, but not be limited to: collection of existing stream sample data; survey of agricultural practices in the basin; survey of residences in the basin; collection of data from the health department on the condition of septic systems in the drainage.

Monitoring

All existing data on fecal coliform concentrations in Fishing Creek will be compiled. Additional monitoring may be needed. The task force, with help from the stakeholders' group, will determine the specifics for baseline monitoring (such as selecting the locations, frequency, and conditions of monitoring), seek funding from local, state, and federal sources, and conduct the baseline monitoring as needed (provided that funding can be secured). Sampling costs, if carried out by county staff and tested in-house, are estimated to be approximately \$200 per sample. The purpose of the monitoring will be to identify the sources of fecal coliform in the basin in order to target them for abatement. The task force will consider setting up the BASINS/NPSF water quality model, with the assistance of the Northeast Georgia Regional Development Center, to incorporate and better analyze the monitoring data.

The Georgia EPD is scheduled to conduct monitoring of the Oconee Basin in 2004 in support of its 5-year River Basin Management Plan cycle. In addition, the task force may participate in additional monitoring in 2004 - 2005 to determine the effectiveness of implementation plan activities.

Source Identification

After analyzing the monitoring data, the task force will seek to identify and rank potential

sources of fecal coliform. It is anticipated that the stakeholders' group will be valuable in this step. Possible human activity-related sources in the drainage include illegal wastewater discharges, septic tank failures, hunting and camping activities, and agricultural activities in and near streams.

Pollution Reduction Strategies

Failing or absent on-site septic tank systems will be addressed through the local health department and Board of Health, which are responsible for regulating septic systems. The number of septic tanks in the basin is unknown, as is their rate of failure. If failing septic tank systems are found, prompt action will be taken to eliminate them. Public education will play a major role in finding and fixing substandard waste water systems. The task force will evaluate the need for and feasibility of adopting a septic tank inspection ordinance.

Agriculture in the basin will be evaluated with the help of the NRCS, County Extension Office, and the Soil and Water Conservation District. Once sources are identified, task force members will work through specific property owners to implement fecal coliform-reducing best management practices (BMP's).

Public education and outreach will be an important part of the strategy. Informing visitors, residents and businesses about the fecal coliform violation is a necessary step to recruiting their support and changing individual behaviors. Outreach will include information about on-site septic systems, agricultural BMP's, outdoor sanitary practices, and other non-point source pollution prevention. Strategies could include brochures distributed by hunt clubs or hunting licensing offices (DNR), information distributed by land owners at leasing, presentations at civic clubs, stream walk's, and stream clean-ups. Agricultural education is far ahead of education of the urban and suburban populations, and will be continued through the Soil and Water District, NRCS, and Extension Service.

Phase I Implementation

Funding options will be explored by the task force. The Clean Water Act §319 funds, state revolving loan fund, Georgia Environmental Facilities (GEFA) grants and loans, Community Development Block Grants, and local funds are sources to explore. There are several private foundations in the county, and they may be approached for funding of selected projects. Human resources are available through the Greensboro public works department, county offices, and farmers' groups and will be explored.

Once funding is established, the task force members will pursue measures to reduce the contributions of the sources identified.

Monitoring Progress

After implementation of the strategies has continued for a reasonable length of time, monitoring will be repeated to determine the extent of improvement. The purpose will be to have Fishing

Creek removed from the §303(d) list for fecal coliform if monitoring shows compliance with the standard.

Subsequent Phases

If the second round of monitoring shows that the stream remains in violation of the fecal coliform standard, then the previous steps will be repeated until acceptable water quality is attained.

Reporting

The task force will write an annual report on progress on the TMDL implementation plan and will prepare a final report showing that water quality compliance has been achieved.

Ongoing Maintenance, Monitoring, and Follow-up

The task force will develop a strategy for maintaining the water quality standard in the future. It will also devise a method of monitoring to assure that standards are indeed maintained.

This plan may be modified according to experience and circumstances.

STATE OF GEORGIA

TMDL IMPLEMENTATION PLAN FOR: Fishing Creek (Fecal coliform)
(STREAM)

RIVER BASIN: Oconee

(PARAMETER)

PLAN DATE:

03/26/01

Prepared by: Joseph Tichy Northeast Georgia Regional Development Center Address: 305 Research Drive City: Athens State: Georgia Zip: 30605 e-mail: jtichy@negrdc.org Date Submitted to EPD: _____		Or Prepared By: _____ Address: _____ City: _____ State: _____ Zip: _____ e-mail: _____ Date Submitted to EPD: _____					
General Information 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.		Significant Stakeholders 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)	OCO0000006	Name/Organization	Greene County Board of Commissioners				
Water body name	Fishing Creek	Address	113 North Main Street, Suite 306				
HUC basin name	Upper Oconee	City	Greensboro	State	GA	Zip	30642
HUC numbers	030701010702 030701010703	Phone	706-453-7716			e-mail	
Primary county	Greene	Name/Organization	Greene County Board of Health				
Secondary county	N/A	Address					
Primary RDC	Northeast Georgia	City		State		Zip	
Secondary RDC	N/A	Phone	706-453-7561			e-mail	regulatomr@yahoo.com
Water body location		Name/Organization	Georgia Legal Watch/Community Watershed Project				
		Address	264 North Jackson Street				
Miles or area impacted	10.68 mi.	City	Athens	State	GA	Zip	30601
Parameter addressed in plan	Fecal coliform	Phone	706-546-9008			e-mail	glw@georgialegalwatch.org
Water use classification	Fishing	Name/Organization	Upper Oconee Watershed Network				
Degree of impairment	Partially supporting use <input type="checkbox"/>	Address	P.O. Box 531				
	Not supporting use <input checked="" type="checkbox"/>	City	Athens	State	GA	Zip	30603
Date TMDL approved by EPA		Phone				e-mail	upperoconee@yahoo.com
Impairment due to	Point sources <input type="checkbox"/>	Name/Organization	Natural Resource Conservation Service				
	Nonpoint sources <input checked="" type="checkbox"/>	Address	1600 Main St.				

	Both	X	City	Greensboro	State	GA	Zip	30642
Point source-Form A; Nonpoint source-Form B; Both-Form A+B+C			Phone	706-453-7021			e-mail	

See also accompanying list.

FORM B

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

EXISTING LOAD	TARGET TMDL	NEEDED REDUCTION
152.14 cfu/100ml	150 cfu/100ml	2.14 cfu/100ml (1.14%)

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)
Urban Pervious	Wildlife waste from runoff; failed septic tanks, miscellaneous runoff	10%
Urban Impervious	As above; failed or poorly designed septic systems.	10%
Forest Pervious	Wildlife waste runoff, hunting and off-roading camps	0%
Agriculture Pervious	Livestock waste in runoff and in stream	10%

II. DESCRIBE ANY REGULATORY OR VOLUNTARY ACTIONS INCLUDING MANAGEMENT MEASURES OR OTHER CONTROLS BY GOVERNMENTS OR INDIVIDUALS THAT SPECIFICALLY APPLY TO THE POLLUTANT AND THE WATERBODY FOR WHICH THE TMDL WAS WRITTEN, THAT WILL BE ACCOMPLISHED THROUGH RELIABLE AND EFFECTIVE DELIVERY MECHANISMS, AND THAT WILL HELP ACHIEVE THE LOAD ALLOCATIONS IN THE TMDL:

See the attachment for more instructions.

Existing or required regulatory actions

RESPONSIBLE GOVERNMENT, ORGANIZATION OR ENTITY	NAME OF REGULATION/ORDINANCE	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Greene County Health Dept.	Septic Tank Permitting; regulates septic tank	Requires permitting of septic tanks, soil testing, installation code. Prevents	Unknown	Ongoing

	pumping	dumping septic pump-out in streams.		
Greene County & Greensboro Planning Depts.	Land Development Ordinances	No requirements for storm water detention	Unknown	Ongoing

Existing voluntary actions

RESPONSIBLE ORGANIZATION OR ENTITY	NAME OF ACTION	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Community Watershed Project	Education & Research	Brochures, stream walks, Annual "River Rendezvous"; press articles; not yet active in Greene County	Ongoing	Ongoing
Agricultural practitioners	Cattle & chicken BMP's	Stream fencing, nutrient management, heavy use area improvements, etc.	Ongoing	Not known for this basin
NRCS, Coop. Ext. Ser, SSWCD, et al.	Agricultural BMP's and planning	Promoting BMP's mentioned above; cost sharing program for volunteere farms	Ongoing	Not known for this basin
NRCS, Extension Serv, S&WCD	Multiple programs	Promoting programs on nutrient management, herd management, etc.	Ongoing	Ongoing

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

ENTITY/ORGANIZATION RESPONSIBLE	NAME OF PROPOSED REGULATION/ORDINANCE/ OTHER	DESCRIPTION	ENACTED OR PROJECTED DATE (mm/yy)	STATUS
Greene County, County Health Department	Monitoring	Monitoring regime TBA to identify specific sources	08/01	Under discussion
Greene County, Health Dept.	Septic Tank Inspection ordinance	Provision to require septic tank inspection either at regular intervals or on sale of property.	2002	To be considered by TF
Health Dept., other TF members	Illicit connections	Identify any illicit connections of fecal sources to drainage system	2002 +	Under consideration
Agricultural practitioners/NRCS/Soil & Water Conservation	Installation and use of BMP's	Encourage use of agricultural BMP's on case by case basis. BMP's include fencing, watering alternatives, heavy use area improvements, nutrient management, etc.	2001 +	Ongoing
DNR Game & Fish, land owners, hunt	Education	Provide education on TMDL and outdoor camping/hiking sanitary practices	2002 & ongoing	To be considered

clubs, civic clubs				by TF

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

These must be implemented as expeditiously as practicable 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			
Identify sources of TMDL parameter	X	X			
Develop management programs to control runoff including identification and implementation of BMPs (Phase I):					
Agriculture		X	X	X	X
Forestry					
Urban		X	X	X	X
Hunting		X	X	X	X
Organize and implement education and outreach programs	X	X	X	X	X
Detect and eliminate illicit discharges		X	X	X	
Evaluate additional management controls needed		X	X		
Monitor and evaluate results				X	X
Reassess TMDL allocations					X
Provide periodic status reports on implementation of remedial activities and review/modify implementation plan		X	X	X	X
If needed, begin process for Phase II (next 5 years) and subsequent phases					X

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 5

- Number of management controls and activities proposed in five-year work program 5

- 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 developed See monitoring plan to be
- Other _____
- Other _____

VI. MONITORING PLAN:

The monitoring plan will be determined in first phase of implementation.

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
USGS	Jan - Dec, 1999	FC	General water quality monitoring	Completed

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	2004	TBD	River basin planning	Planned
Greene County, County Health (Task Force)	2001 – 2005	FC	Support for TMDL implementation	TBD pending ability to secure funding from local, state, federal sources

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

- % concentration or load change (monitoring program)
- Categorical change in classification of the stream (delisting the stream is the goal)
- Regulatory controls or activities installed (ordinances, laws)
- Best management practices installed (agricultural, forestry, urban)

COMMENTS
