

**Revised TMDL Implementation Plan
HUC 0307010110 - Little Sugar Creek
August, 2003**

HUC 0307010110 is located primarily in Morgan and Putnam counties. The City of Madison and the Town of Buckhead also have part of their jurisdictions in the watershed.

The stream segment of concern in this TMDL implementation plan is Little Sugar Creek from its headwaters to Lake Oconee. The primary jurisdiction that drains to the segment of concern is Morgan County. There is a very small portion of Putnam County in the watershed that drains to Little Sugar Creek.

The pollutant of concern for this implementation plan is fecal coliform. The stream is listed as “not supporting” its designated use.

Little Sugar Creek was listed on the Georgia 303(d) list of impaired water bodies after sampling events in 1999. A Total Maximum Daily Load was established by EPA for the entire Oconee River basin in February, 2002, that recommends a reduction in the fecal coliform loading on this segment of Little Sugar Creek of 73%.

A previous TMDL and TMDL implementation plan were prepared for Sugar Creek, also in Morgan County and lying within the same HUC. Little Sugar Creek was a tributary of Sugar Creek until Lake Oconee was filled. Now, the lake boundary is approximately where the confluence of the creeks once was.

Land use in the watershed is primarily forestry, agricultural and residential, but the area is undergoing moderate development. Portions of the City of Madison are within the watershed, draining to Sugar Creek. Also on Sugar Creek is one of Madison’s wastewater treatment plants.

Input from stakeholders indicated the following information about the watershed:

- Poultry farms usually have stack houses, NMP’s, utilize advice on land application rates of chicken manure, and setbacks and buffers on streams. Regulation of chicken litter distribution is expected soon.
- It is not known how many illicit connections to storm drains, failed septic tanks, or cases of outright lack of treatment there may be in the basin.
- There are several dairy production farms in the watershed, which are suspected of contributing significant fecal material to the streams. The use of recommended BMP’s is highly variable.

Implementation

There are several actions either in place or planned by the communities. Besides the agricultural initiatives mentioned above, local governments implement activities that should reduce fecal loading on streams in this watershed. These actions include the following.

The NRCS is administering a \$300,000 grant under §319 of the Clean Water Act designed to reduce agricultural pollution of Little Sugar Creek and Springfield Creek (a tributary of Little Sugar Creek). The program has been signing up partners for cost-shared BMP implementation since August, 2000, and participation has been good. Approximately half the funds have been obligated.

The Oconee River Resource Conservation and Development office has an ongoing project on Springfield Creek (a tributary of Little Sugar Creek) to develop agricultural BMP's. As part of that study, the University of Georgia has been collecting weekly water quality data. The project has been underway for more than a year and has at least 1½ more years to run. Their work includes, among other things, monitoring to determine the effectiveness of stream buffers on fecal coliform concentrations in runoff.

Other agriculture-related projects are active in the area, including the EQUIP program, implementation of nutrient management plans, and other activities of the NRCS and extension service. There are seven farms known in the Sugar Creek basin actively using BMP's to reduce all forms of pollution from their operations.

Morgan County has adopted a set of BMP's that are effective in reducing fecal loading, including a stormwater ordinance, illicit discharge ordinance, and other measures.

A table showing the status of many BMP's that have a positive effect on fecal coliform pollution is included below.

Specific sources of fecal coliform must be identified before action is required. Likely sources of fecal coliform identified are failed or absent septic tanks, illicit discharges, leaking sewer lines, agricultural runoff, agricultural pollution from cattle with direct access to streams, pet and kennel discharges, "hobby farms" keeping large animals in direct contact with the streams, and miscellaneous runoff from storm water from urbanized areas. The stakeholders recommended that the extent of the contribution from specific sources be identified before remedial action is begun.

The plan therefore identifies the following steps for load reduction:

- Continued implementation of recent and proposed ordinance adoptions and revisions.
- Detailed sampling of the streams to localize the sources of pollutant, beginning with a general survey and following on with more and more localized and detailed sampling until specific sources can be identified.

- Implementation of BMP's specific to the identified sources, including septic tank maintenance, sewer leak detection, Nutrient Management Plan implementation on the remaining agricultural operations, a kennel ordinance, a large-animal density ordinance (or equivalent provisions in existing zoning ordinances).
- Ongoing educational efforts will proceed under the auspices of Morgan County, Morgan County Health Department, the NRCS, and Agricultural Extension. These will include identifying and contacting "hobby farm" owners and educating them about stream buffers and limiting access; continued promotion of agricultural BMP's; distribution of brochures on septic tank maintenance.
- The effectiveness of the implementation plan should be evaluated after five years by incorporating the implementation activities that have taken place, updated land use information, and additional monitoring data into the BASINS model with which the TMDL was prepared.

Local Government Activities in the Lower Oconee Watershed

Codes: **E** = active/enforced **P** = planned **C** = considered **R** = rejected

Morgan Co.	
<i>Ordinance/Regs</i>	
Stormwater Ordinance	E
Local Soil E & S Control	E
Illicit Discharge Ordinance	E
Stream Buffer Ordinance	C
Impervious Surface Limits	E
Septic Tank Maintenance	E
Wetland Protection Ordinance	E
<i>Programs/ Other Activities:</i>	
Active Sewer Leak Detection	
Watershed Assessment Study	
SWAP Study	E
Wildlife Habitat Incentive Program	
Greenspace Program	
Watershed Protection Plan	E
River Corridor Protection	
Pollution Source Identification	P
Clean & Beautiful	E
Nutrient Man. Program/Equip, etc.	
Stormwater Utility	
Stream Bank Restoration	E
Conservation Subdivisions	E

**STATE OF GEORGIA
REVISED
TMDL IMPLEMENTATION PLAN
WATERSHED APPROACH
Oconee River Basin**

Local Watershed Governments

Northeast GeorgiaRDC
Morgan County
City of Madison
City of Buckhead

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. **With input from appropriate stakeholder groups, a TMDL Implementation Plan has been developed for a cluster of impaired streams and the corresponding pollutants.** The impaired streams are located in the same sub-basin identified by a HUC10 code (Figure 1).

This Implementation Plan addresses an action plan, education/outreach activities, stakeholders, pollutant sources, and potential funding sources affecting the sub-basin. In addition, the Plan describes (a) regulatory and voluntary practices/control actions (*management measures*) to reduce target pollutants, (b) milestone schedules to show the development of the management measures (*measurable milestones*), (c) a monitoring plan to determine the efficiency of the management measures and measurable milestones, and (d) criteria to determine whether substantial progress is being made towards reducing pollutants in impaired waterbodies. 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. Following this section is information regarding individual segments.

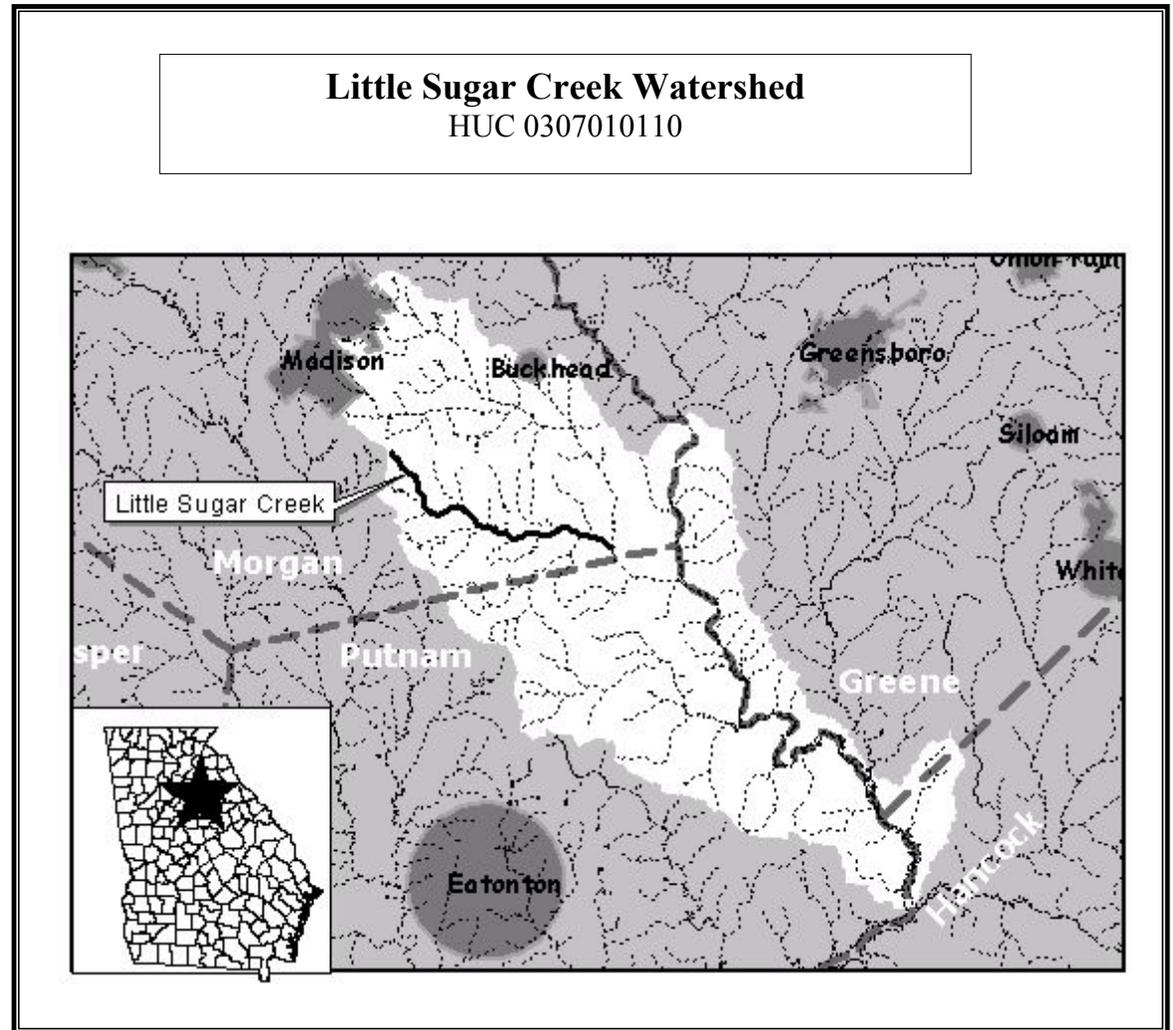


FIGURE 1

Impaired Waterbody*	Impaired Stream Location	Impairment
1. Little Sugar Creek	Headwaters to Lake Oconee	Fecal Coliform

*These Waterbody Numbers are referenced throughout the Implementation Plan.

Action Plan for Little Sugar Creek Watershed

Little Sugar Creek Watershed
HUC 0307010110

POLLUTANT:	SOURCE:	EFFECT:	WHAT CAN I DO?	
			At Home: Community, School	At Work: Business, Government
<input type="checkbox"/> Dissolved Oxygen (DO)	<input type="checkbox"/> Industrial	<input type="checkbox"/> Habitat		
<input checked="" type="checkbox"/> Fecal Coliform (FC)	<input type="checkbox"/> Urban	<input checked="" type="checkbox"/> Recreation		
<input type="checkbox"/> Sediment	<input checked="" type="checkbox"/> Agriculture	<input checked="" type="checkbox"/> Drinking Water		
<input type="checkbox"/> Metals	<input type="checkbox"/> Forestry	<input type="checkbox"/> Aesthetics		
<input type="checkbox"/> Fish Consumption Guidelines (FCG)	<input type="checkbox"/> Residential	<input type="checkbox"/> Other (Please List)		
<input type="checkbox"/> Other (Please List)	<input type="checkbox"/> Other (Please List)			

INFORMATION/EDUCATION/OUTREACH ACTIVITIES

An education/outreach component will be used to enhance public understanding of and participation in implementing the TMDL Implementation Plan.

List of all previous and planned information/education/outreach activities.

Responsible Organization Or Entity	Description	Impacted Waterbodies*	Target Audience	Anticipated Dates (MM/YY)
Natural Resource Conservation Service (NRCS)	Provides leadership in a partnership effort to help people conserve, maintain, and improve our natural resources and environment	1	Private land owners	Continuous
Morgan County, Morgan County Health Dept., City of Madison	Advisement to property owners of potential problems with septic tanks, requirements for septic tank maintenance, notification of identified septic tank problems when they are discovered.	1	Urban and rural residences.	09/03 and ongoing.

WATER BODIES/STREAMS COVERED IN THIS PLAN:

These impaired streams are located in the same sub-basin identified by a HUC10 code. Most of the information contained in this section comes from the 303(d) list and has been completed by employees of the EPD Water Protection Branch. Data that placed stream on 303(d) list will be provided upon request.

Waterbody Name #1	Location	Miles/Area Impacted	Use Classification	Partially Supporting/ Not Supporting (PS/NS)
Little Sugar Creek	Headwaters to Lake Oconee	9	Fishing	Not Supporting
Primary County	Secondary County	Second RDC	Source (Point/ Nonpoint)	
Morgan			Nonpoint	
Pollutants	Water Quality Standards	Required Reduction	TMDL ID	Date TMDL Established
Fecal Coliform	1,000 per 100 ml (geometric mean Nov-April) 200 per 100 ml (geometric mean May-Oct)	74%		February 2002

POLLUTANT SOURCES

It is important to recognize the potential source(s) causing water quality impairment. Each source must be controlled to comply with target TMDL/Load Allocations for each pollutant. Included is a description of how the sources contribute to the impairment and the waterbody that is impaired.

List of major nonpoint source categories and sub-categories or individual sources (Urban Runoff, Agriculture, Forestry, Municipal Sewage Treatment Plant)

Pollutant	Sources of Pollutants	Description of Contribution To Impairment	Impacted Waterbodies*
Fecal coliform	Agriculture	Cattle with direct access to streams, high impact areas with runoff directly connected to streams.	1
Fecal coliform	Urban/Residential	Leaking or damaged sewer lines, urban runoff, storm sewers, illicit discharges, leaking or failed septic tanks	1

MANAGEMENT MEASURES, MEASURABLE MILESTONES AND SCHEDULE

(i.e. Local codes and ordinances, Erosion and Sedimentation Control, Storm Water Management, Local water resource monitoring)

The following table lists management measures that have been or will be implemented to achieve water quality standards and the load reductions established in the TMDL. The management measures, including regulatory or voluntary actions or other controls by governments or individuals, specifically apply to the pollutant and the waterbody for which the TMDL was written. A description is provided of how these management measures are/will be accomplished through reliable and effective delivery mechanisms, and how these management measures are/will help achieve the target TMDL. Included is the source of the pollutant, anticipated/past effectiveness of the management measure (very effective, somewhat effective, not effective), the current status (i.e. enforced, in-progress, planning), and measurable milestones and schedule. Milestones are used to measure progress in attaining water quality standards and to determine whether management measures are being implemented.

Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Land Development Ordinances	Morgan County, City of Madison, Town of Buckhead	Subdivision ordinances, zoning ordinances, buffer ordinances, stormwater ordinances, provide for minimum setbacks and natural vegetated buffers on streams and stormwater management.	Current	Enforced	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Urban runoff, septic tanks	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
All new development will meet setback and riparian buffer requirements.	Current	Ongoing	Riparian buffers are somewhat effective in reducing FC loads. Setback of septic tank drain fields is more effective. Stormwater ordinances very effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Permitting and inspection of septic tanks	Morgan County Health Dept.	Issues permits for new septic tanks. Responds to complaints of septic tank failures. Prevents septic tank pump-out into streams.	Ongoing	Enforced	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Residential septic tanks	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
All new septic tanks are permitted after inspection	Ongoing	Ongoing	Program is effective for new septic tanks. No control over existing sites.
Department responds to all complaints of failed septic tanks.	Ongoing	Ongoing	Program is effective only for systems where complaints are filed. Available remedial action limited to fines

Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Targeted sampling for E. coli	Morgan County, Morgan County Health Dept.	Systematic sampling of streams to identify sources of E. coli using methodology developed by the University of Georgia and supported by the Northeast Georgia Regional Development Center and Georgia EPD.	2004	Planned	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Septic, sewer leaks, agriculture, urban runoff.	1	Very effective in identifying sources.

Measurable Milestones	Schedule		Comments
	Start	End	
By 2005, the geographic areas of greatest concern will be identified for all listed streams in the watershed	01/04	12/04	

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Cattle farming BMP's	NRCS, Extension Service	Promotes BMP's to reduce direct contact. The EQUIP program, nutrient management plans, and other programs are available to farmers with some monetary assistance (cost sharing).	Ongoing	Ongoing	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Animals with direct access to streams, heavy use areas with runoff direct to streams.	1,2	Very effective where implemented.

Measurable Milestones	Schedule		Comments
	Start	End	
80% of agricultural operations will have implemented some or all BMP's targeted to reduce fecal coliform by 2014.	Ongoing	2014	BMP's are proven to be very effective where implemented. Barriers include cost to the property owner and lack of education.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Oconee River Basin Management Plan	Georgia EPD	Detailed management plan for the Oconee River Basin. The purpose of the plan is to develop and implement a river basin planning program to protect, enhance, and restore waters for the State of Georgia, which will provide for effective monitoring, allocation, use, regulation, and management of water resources.	Existing	To be revised 2003	Regulatory/ Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Multiple	1,2	Very effective

Measurable Milestones	Schedule		Comments
	Start	End	
• Prepare/Update Draft River Basin Plan	2002	2003	Plan revision due in 2003.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Georgia Water Quality Control Act (OCGA 12-5-20)	GA DNR EPD	Makes it unlawful to discharge excessive pollutants (sediments, nutrients, pesticides, animal waste, etc.) into waters of the State in amounts harmful to public health, safety, or welfare, or to animals, birds, or aquatic life or the physical destruction of stream habitats	1964	Enforced	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Fecal coliform	Multiple	1,2	Very effective

Measurable Milestones	Schedule		Comments
	Start	End	
EPD acts on complaints from affected parties	Ongoing	Ongoing	Detailed geographic coverage of tributaries and reaches of concern to identify specific sources
Detailed sampling of streams and tributaries	2003	2004	

CRITERIA TO DETERMINE WHETHER SUBSTANTIAL PROGRESS IS BEING MADE

The following set of criteria will be used to determine whether any substantial progress is being made towards reducing pollutants in impaired waterbodies and attaining water quality standards. Discussion on each criteria is recorded in the space provided. Additional relevant criteria are presented in comments.

Percent of concentration or load change (monitoring program) _____

If modeling of the basin in 2008 (five year anniversary) shows a 20% decline in fecal coliform loadings, the plan will be successful. At ten years of implementation, the streams should all be de-listed for fecal coliform.

If monitoring results show that it is unlikely that the TMDL will be adequate to meet water quality standards, revision of the TMDL may be necessary.

- Categorical change in classification of the stream (delisting the stream is the goal) _____

Significant reductions in fecal coliform loading should result in reduction of Little Sugar Creek from “not supporting” to “partially supporting” its designated use.

- Regulatory controls or activities installed (ordinances, laws) _____

All new development will follow land development ordinances, including riparian buffer, setback, erosion and sediment control, and stormwater management practices. All new septic tanks will be permitted after inspection and appropriate testing.

- Best management practices installed (agricultural, forestry, urban) _____

By the plan target year of 2014, 100% of farms should be operating under BMP’s recommended by the NRCS and Extension Service.

All future residential and commercial development will have adequate septic tank systems, approved alternative wastewater disposal technologies, or connection to a sewerage system.

COMMENTS

Little Sugar Creek Watershed
HUC 0307010110

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**Environmental Protection Division of the Department of Natural Resources,
State of Georgia.**