TMDL IMPLEMENTATION PLAN
SATILLA RIVER BASIN
Overview of Big Creek Watershed Plan

The Big Creek watershed (HUC10 # 0307020107) is located in the Satilla River basin in Southeast Georgia's Brantley and Pierce Counties. The local governments involved in improving the Big Creek Watershed are the counties of Brantley, Pierce, and Ware and the cities of Hoboken and Waycross. Also involved in the effort are the Southeast Georgia Regional Development Center (SEGa RDC) in Waycross and the Georgia Department of Natural Resources' Environmental Protection Division (GADNR-EPD).

Having been determined to be an impaired water body by the State of Georgia, the Big Creek watershed from South Prong Big Creek to the Satilla River is classified as *not supporting* its designation as fishing water and has an impacted area of five miles. The Total Maximum Daily Load (TMDL) Implementation Plan for the Big Creek watershed is a collaborative effort of the GADNR-EPD and the SEGa RDC. A TMDL is the calculation of the maximum amount of a particular pollutant that a water body, river, or stream can receive and still be safe, healthy, and meet Georgia water quality standards.

According to the Big Creek Watershed Total Maximum Daily Load (TMDL) Implementation Plan, the water bodies suffer from one impairment, Dissolved Oxygen (DO). To improve the water quality of Big Creek, the TMDL Implementation Plan suggests a 20% reduction in non-point source contamination resulting in a decrease in the water body's total organic carbon, total nitrogen, and total phosphorus.

Contributors to Impaired Dissolved Oxygen in Big Creek

There are numerous nonpoint sources of oxygen demanding substances in the Big Creek watershed. These sources include surface storm runoff of agriculture, residential, golf courses, and forestry fertilizer and chemicals as well as runoff containing organic material from agricultural and silvicultural developments and operations. Also, broadcast spreading of inorganic/organic materials, leaking septic systems, rural development, runoff from feedlots, improper trash disposal, laundry and automotive care products, and land disturbing activities are contributing to the DO impairment in Big Creek.

In addition to the aforementioned sources, many Southeast Georgia streams, including Big Creek, are slow-flowing, "blackwater" bodies. The dark water coloration is due to adjacent wetland areas having organically rich bottom sediments that flow to the stream, as well as leaf litterfall. These factors also have an effect on DO.

Developing the Plan and Stakeholder Involvement

The SEGaRDC has worked closely with GADNR-EPD to develop the TMDL Implementation Plan for the Big Creek watershed. Each agency has been diligent in making sure that the strategy includes an action plan, education/outreach activities, stakeholders, pollutant sources, and potential funding resources. Stakeholders, including local government officials, landowners, industrial representatives and interest groups, have played a vital role in the plan's preparation. In fact, needed input was received during a public meeting in Nahunta on September 19, 2002. Also involved in this endeavor and present at the public meeting was a representative of the Adopt-a-Stream program. Stakeholders offer valuable information and data regarding their community and the impaired water bodies and can provide insight and/or implement management measures.

Monitoring Plan

The monitoring plan will determine the effectiveness of the target TMDL and the management measures being implemented to meet water quality standards. Water quality testing is

scheduled to begin in 2003. Also, a tire program to reduce the illegal dumping of tires as well as a voluntary septic system inspection program are both proposed to begin in 2005.

Management Practices

The Implementation Plan 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 Dissolved Oxygen in the Big Creek watershed. The following management practices are included in the TMDL Implementation Plan:

- Septic tank management program
- Automotive product care disposal and management program
- Lawn, garden, and agriculture poison care disposal and management program
- Household cleaner care disposal and management program
- Spill/discharge control and cleanup program
- Domesticated and commercial animal/livestock excrement disposal and management program
- Stream management zones
- Nutrient management program
- Pesticides management program

Projected Attainment Date

The projected date to attain and maintain water quality standards in the Big Creek watershed is 2012, which is within 10 years of the acceptance of the TMDL Implementation Plan by the Environmental Protection Division.

Conclusion

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. Through this intergovernmental partnership and the collaboration with the private stakeholders, the Big Creek watershed TMDL Implementation Plan is sure to succeed.

STATE OF GEORGIA

TMDL IMPLEMENTATION PLAN
WATERSHED APPROACH
SATILLA RIVER BASIN

Local Watershed Governments
SOUTHEAST GEORGIA RDC
Brantley County
City of Hoboken
Ware County
City of Waycross

TMDL Implementation Plans are platforms for establishing a course of action to restore the quality of impaired waterbodies 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 waterbodies. **With input from appropriate stakeholder groups, a TMDL Implementation Plan has been developed for a cluster of impaired waterbodies/streams and the corresponding pollutants.** The impaired waterbodies are located in the same watershed/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 resources affecting the watershed. 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 impaired streams.

Big Creek Watershed
HUC10 #0307020107

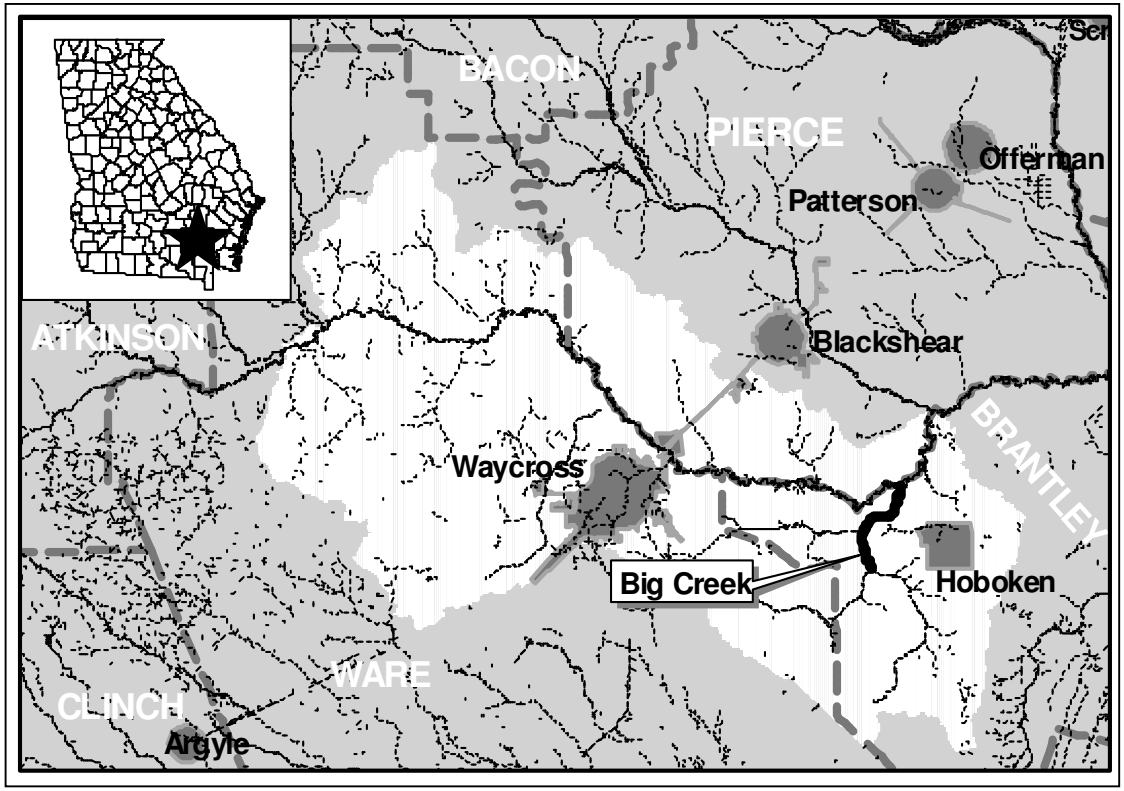

Figure 1

Impaired Waterbody*	Impaired Stream Location	Impairment
1. Big Creek	South Prong Big Creek to Satilla River	Dissolved Oxygen (DO)

*These Waterbody Numbers are referenced throughout the Implementation Plan.

Action Plan for Big Creek Watershed

Watershed: Big Creek
HUC10: #0307020107

POLLUTANT:	SOURCE:	EFFECT:	WHAT CAN I DO?	
			At Home: Community, School	At Work: Business, Government
X Dissolved Oxygen (DO) __ Fecal Coliform (FC) __ Sediment __ Metals __ Fish Consumption Guidelines (FCG) __ Other (Please List)	X Industrial X Urban X Agriculture X Forestry X Residential X Other (Please List) (1) The Lakes Golf Course at Walker State Park. (2) Laura Walker State Park a surrounding facilities. (3) Wetlands (4) Forested Areas (5) Terrain	X Habitat X Recreation X Drinking Water X Aesthetics __ Other (Please List)	**Septic Tank Management**: a. Prevent soil contamination. b. Prevent waste runoff. c. Routine and regular maintenance of septic system. **Pet Excrement Disposal**: a. Properly dispose of pet excrement. **Automotive Care**: a. Regular maintenance, check for leaks and the proper disposal of fluids at approved locations. **Lawn and Garden Care**: a. Proper yard maintenance. b. Proper disposal of organic and non-organic yard by products. c. Proper precautions and correct usage of chemical and fertilizers. **Household Cleaners:** a. Proper disposal of household chemicals. b. Correct usage of chemicals. **Sewer management:** a. Routine visual inspections and report leaks if noted. **Spill/Discharge Control and Cleanup:** a. Control and cleanup spills according to instruction of manufacture. **Miscellaneous Product Care:** a. Control and cleanup spills according to instruction of manufacture. **Trash Pickup**: a. Visually inspect containers and report damage or leaks b. Keep container secure at all times c. Ensure that trash is picked up on a regular schedule.	**Automotive Care**: a. Regular maintenance of fleet vehicles, check for leaks and the proper disposal of fluids at approved locations. **Lawn and Garden Care**: Ensure that contracted lawn services adhere to: a. Proper yard maintenance. b. Proper disposal of organic and non-organic yard by products. c. Proper precautions and correct usage of chemical and fertilizers. **Commercial Chemical Cleaners:** a. Proper disposal of commercial chemicals. b. Correct usage of chemicals. c. Inform all employees of MDSS. **Sewer management:** a. Routine visual inspections and report leaks if noted. **Spill/Discharge Control and Cleanup:** a. Control and cleanup spills according to instruction of manufacture. **Miscellaneous Product Care:** a. Control and cleanup spills according to instruction of manufacture. **Trash Pickup**: a. Visually inspect containers and report damage or leaks b. Keep container secure at all times c. Ensure that trash is picked up on a regular schedule. **Agriculture**: **Best Management Practices (BMPs)** a. Waste storage structure-Utilize and store waste b. Filter Strips-Reduce soil erosion, filter runoff and provide wildlife habitat. c. Nutrient Management-Prevent over-application of nutrients, protect against soil contamination. **Forestry**: **Best Management Practices (BMPs)** a. Streamside Management Zones (SMZS) b. Road building-Prevents soil erosion

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)
Dr. Joe Richard, Gloria Taylor, and Save Our Satilla	Adopt-A-Stream Program	1	Citizens	11/2002
Southeast Georgia Regional Development Center	Ordinance/Regulation Review for the City of Hoboken, City of Waycross, Ware County, Pierce County, and Brantley County	1	Local Governments	Ongoing
EPD	Best Management Practices (BMPs) for Industry	1	Business Community	Ongoing
EPD	BMPs for Water Quality	1	Business Community	Ongoing
Georgia Forestry Commission	BMPs for Forestry	1	Forestry Industry/Private Land Owners	Ongoing
NRCS, 7 Rivers RC&D	BMPs for Agricultural	1	Farming Community	Ongoing
University of Georgia Extension Agent	BMPs for Agricultural	1	Farming Community	Ongoing
Southeast Georgia Regional Development Center (RDC), DNR/EPD	Southeast Georgia RDC is assisting local governments with a Water Committee. The Committee has been operational for 9 months. One project that the committee would like to undertake is educational videotape for Residential and Urban BMPs. The committee believes that the key to quality water is behavior modification through education. This will be collaborative effort between DNR/EPD, Southeast Georgia RDC, Water Committee and Local Governments.	1	Local Governments and Citizens	12/2004
Save Our Satilla	Satilla River Basin Environmental Group	1	Citizens	On-going
Dr. Joe Richard, Gloria Taylor, and Save Our Satilla	Adopt-A-Stream Program	1	Citizens	11/2002
EPD	Best Management Practices (BMPs) for Industry	1	Business Community	Ongoing
Southeast Georgia Regional Development Center	Southeast Georgia RDC is seeking assistance from Julie Vann , Coastal Conservation Resources, in the seeking of grants to delineate and identify malfunctioning septic systems for replacement and/or repair.	1	Local government and Citizens	12/2002

STAKEHOLDERS

EPD encourages public involvement and the active participation of stakeholders in the process of improving water quality. Stakeholders can provide valuable information and data regarding their community and the impaired water bodies and can provide insight and/or implement management measures.

List of local governments, agricultural organizations or significant landholders, commercial forestry organizations, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

Name/Organization	Address	City	State	Zip	Phone	E-Mail
Chip Sasser	1200 Truman St.	Waycross	GA	31501	912-283-1906	N/A
William Thrift	Rt1. Box 182	Nahunta	GA	31533	N/A	N/A
Dan Smith	P.O. Box 173	Nahunta	GA	31553	912-462-5157	N/A
Charlie Summerlin	Rt.1 Box 2276	Waycross	GA	31503	N/A	N/A
David DePlalo	P.O. Box 1793	Nahunta	GA	31553	N/A	N/A
Linton Herrin	R.R. 3 Box 175	Nahunta	GA	31553	912-462-8169	N/A
Cynthia Gwinn	R.T. 3 497B	Hortense	GA	31543	912-778-6170	N/A
Marlo Zloggs	R.T. 3 488-D	Hortense	GA	31543	N/A	N/A
James Keene	P.O. Box 281	Waynesville	GA	31566	N/A	N/A
Dr. Doug Traver, Hunting Club Owner	2110 Pineforest	Douglas	GA	31533		
Jack Sandow, River Keeper	Rt1 Box 113 Camp Rd.	Hoboken	GA	31542	912-458-2256	N/A
Patti Sandow, River Keeper	Rt. 1 Box 113 Camp Rd.	Hoboken	GA	31542	912-458-2256	N/A
Harry Riggins, Brantley County Chairman	Rt1 Box 36A	Nahunta	GA	31553	912-462-5256	N/A
Cathy Byrd, Save Our Satilla	Rt1 Box 215D	Waynesville	GA	31566	912-778-4521	N/A
David Holt	Rt1 Box 215D	Waynesville	GA	31566	912-778-4521	N/A
Ben Sasser	1200 Truman St.	Waycross	GA	31501	912-283-1906	N/A
Kenneth Willis	P.O. Box 211	Nahunta	GA	31553	912-462-6157	N/A
Minnie Smith	Rt1 Box 211-A2	Waynesville	GA	31566	N/A	N/A
Jimmy Smith	Rt1 Box 211-A2	Waynesville	GA	31566	N/A	N/A
Irma Marchman	Rt1 Box 210-B	Waynesville	GA	31566	N/A	N/A
Bobby Rowell	Rt1 Box 147	Nahunta	GA	31553	912-462-5068	honeybee@btconline.net
Lucille Parker	Rt2 Box 109-A	Nahunta	GA	31533	N/A	N/A
Mitchell Ray	506 Rose Lane	Douglas	GA			
Gloria Taylor, Save Our Satilla	RR3 Box 497-B	Hortense	GA	31543	912-778-6144	N/A
Robert Gibson	RR3 Box 497-B	Hortense	GA	31543	912-778-4619	N/A
Danny Highsmith	RR3 Box 488-D	Hortense	GA	31543	N/A	N/A

Name/Organization	Address	City	State	Zip	Phone	E-Mail
Gilbert Lee	P.O. Box 1338	Nahunta	GA	31533	912-462-8484	N/A
Mildred Lee	P.O. Box 1338	Nahunta	GA	31533	912-462-8484	N/A
Marvin Peeples, City of Nahunta Mayor	P.O. Box 156	Nahunta	GA	31533	912-462-5631	N/A
Linda Scheel	1717 County Rd. 220 #3501	Orange Park	FL	32003	N/A	N/A
Elizabeth Revell, Iluka Mines	P.O. Box 1923	Yulee	FL	32024	N/A	N/A
Kevin P. McArthur	P.O. Box 1167	Waycross	GA	31502	912-338-9931	N/A
Rob Hicks, Plum Creek Timber	903 Monck St.	Brunswick	GA	31520	N/A	N/A
Paul Harris	239 N.E. Park Ave.	Baxley	GA	31513	N/A	N/A
Harold Harbert	Georgia Adopt-A-Stream	DNR	N/A	N/A	N/A	N/A
Chris Cottrell	306 W. 6th St.	Woodbine	GA	31569	N/A	N/A
Bill Scheel	1223 Warner Rd	Green Cove Spring	FL	32043	N/A	N/A
Ted Goodman, Iluka Mines	2233 Park Ave., Suite 200	Orange Park	FL	32073	N/A	N/A
Laura E. Freund	RR2 Box 47-B-26	Nahunta	GA	31553	912-462-8088	N/A
Barry Chesser	Rt2 Box 21-1	Nahunta	GA	31553	912-462-6220	N/A
Jeanie Boland, Brantley County Development Authority	P.O. Box 87	Nahunta	GA	31553	912-458-2893	N/A
Bill Wikoff, International Paper	153 River Ridge Rd.	Brunswick	GA	31523	N/A	N/A
Kim Morris-Zareke	Georgia Adopt-A-Stream	DNR	N/A	N/A	N/A	N/A

Watershed: Big Creek
HUC10: #0307020107

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 the streams on the 303(d) list will be provided upon request.

Waterbody Name #1	Location	Miles/Area Impacted	Use Classification	Partially Supporting/ Not Supporting (PS/NS)
Big Creek	South Prong Big Creek to Satilla River	5 miles	Fishing	NS

Primary County	Secondary County	Second RDC	Source (Point/ Nonpoint)
Brantley	Pierce		Nonpoint

Pollutants	Water Quality Standards	Required Load Reduction	TMDL ID	Date TMDL Established
Contributing to DO	DO: 5 mg/L (daily)-4 mg/L (minimum) Natural Water Quality Standard DO: 3.226 mg/L (minimum)	Nonpoint: 20% TOC, TN, TP		December 2001

TOC=Total Organic Carbon (lb/yr), TN=Total Nitrogen (lb/yr), TP=Total Phosphorus (lb/yr)

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*
Dissolved Oxygen	Leaking Septic Systems	Effluent leakage due to overflowing sewage systems and leaking collection lines.	1
Dissolved Oxygen	Rural and Urban Development	Unchecked runoff through storm water sewers: (1) Discharges of sanitary waste and (2) Improper disposal of waste materials	1
Dissolved Oxygen	Land Disturbing activities	Unchecked runoff from developing/developed sites: (1) Discharges of sanitary waste, (2) Improper disposal of waste materials and (3) Introduction of sediments into waterways. (Sediments change the mechanics of the waterway by reducing flow rates)	1
Dissolved Oxygen	Residential, Golf Courses, Agricultural and Forestry Chemical/Fertilizer applications	Residential Chemical/Fertilizer (Nitrates and Phosphates) runoff increases the natural eutrophication rates in streams and creeks, and contributes to DO by producing a carbonaceous chemical reacting with O^2.	1
Dissolved Oxygen	Organic Materials From Lawns, Golf Courses, City and County right-of-ways	Yard trimmings, leaves, branches and chipping materials are not properly secured or disposed are washed away into nearby drainage systems and/or waterways.	1
Dissolved Oxygen	Parking Areas and Roads: Residential, The City of Folkston and Homeland	Automobile fluids leaking onto hard or soft surfaces are not properly treated and disposed of. During routine maintenance of surface (cleansing) or precipitation these substances are washed away into nearby drainage systems and/or waterways.	1
Dissolved Oxygen	Laundry Care Products	Nitrates and Phosphates are emptied into the septic system, unto ground, or deposited into unapproved drainage/septic systems. During periods of precipitation these chemicals are washed away into nearby drainage systems and/or waterways.	1
Dissolved Oxygen/	Spill/Discharge of Raw Sewage	Spillage and unauthorized discharges are not properly contained and/or decontaminated correctly are left on surface(s) to be washed away during periods of precipitation or routine maintenance (washing) of vehicles or other collection apparatuses or containers.	1

Watershed: Big Creek
HUC10: #0307020107

Pollutant	Sources of Pollutants	Description of Contribution To Impairment	Impacted Waterbodies*
Dissolved Oxygen	Improper Methods of Trash Collection and Disposal	Spillage and incorrect disposal techniques place substances on surfaces to be washed into drainage system or waterway during precipitation or routine maintenance of vehicles or other collection apparatuses.	1
Dissolved Oxygen	Automotive Product Care	Fluids, materials associated with auto repairs and chemical absorbent materials are not properly disposed of are placed on surfaces to be washed into drainage system or dumped illegal into drainage systems.	1
Dissolved Oxygen	Organic Materials from Agricultural and Silvicultural Developments and Operations	Runoff from hay fields, row crop production, leaves, branches and chipping materials that are not properly secured or disposed are washed away into nearby drainage systems and/or waterways.	1
Dissolved Oxygen	Wetlands	Wetland areas often contribute to high organic (leaf litterfall, decomposing plants) loading, slow flows (due to minimum topographical relief) and elevated temperatures in a surface water system that result in conditions where the dissolved oxygen is naturally lower and cannot meet the numeric criteria without reductions in the natural nutrient and carbon loads. Usually reduction in natural forest or wetlands contributions is not feasible, practicable or desirable through conventional best management practices.	1
Dissolved Oxygen	Lateral Leaf Litter	Decreases in Oxygen due to decomposition of organic materials	1
Dissolved Oxygen	Direct Leaf Litter	Direct introduction of leafs falling into waterways from overhanging branches, limbs and trees. These leaves settle at the bottom and require further breakdown by aerobic microorganisms.	1
Dissolved Oxygen	Broadcasting of Organic Materials	Introduced into waterways by runoff and wind. Organic materials need aerobic microorganisms to further breakdown the materials lending to decreased oxygen in the impacted waterway.	1
Dissolved Oxygen	Feedlot Operations	Animals are confirmed in large groups in limit space. Large amounts of animals waste are produced. Maintenance, daily cleansing of feedlot, occurs daily to eliminate health problems. Pollutant may enter waterway either by runoff from overflowing lagoons or by runoff from piled manure that is left uncovered.	1

Watershed: Big Creek
HUC10: #0307020107

Pollutant	Sources of Pollutants	Description of Contribution To Impairment	Impacted Waterbodies*
Dissolved Oxygen	Broadcasting of Organic Materials	Introduced into waterways by runoff and wind. Organic materials need aerobic microorganisms to further breakdown the materials lending to decreased oxygen in the impacted waterway.	1
Dissolved Oxygen	Forested Woodlands	Heavily forested and wetlands areas often contribute to high organic (leaf litterfall, decomposing plants) loading and slow flows (due to minimum topographic relief) in a surface water system that result in conditions where the dissolved oxygen is naturally lower and cannot meet the numeric criteria without reductions in the natural nutrient and carbon loads. Usually reduction in natural forest or wetlands contributions is not feasible, practicable or desirable through conventional best management practices.	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.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
CAFO Permits	Georgia DNR EPD	Permitting requirements for concentrated animal feeding operations	1999	Enforced	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Containment lagoons	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Compliance with regulations to control water pollution including identification and implementation of Best Management Practices	1999	Continuous	Comprehensive Nutrient Management Plan

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Georgia Water Quality Control Act Georgia Groundwater Use Act Georgia Erosion & Sedimentation Act Georgia Comprehensive Planning Act Georgia River Basin Management Planning Act	Georgia DNR EPD	Laws authorizating Georgia EPD to control water pollution, eliminate phosphate detergents and regulate sludge disposal; to require permits for agricultural ground and surface water withdrawals; to prohibit siltation of state waters by land disturbing activities and require undisturbed buffers along state waters; to require land-use plans that include controls to protect drinking water supply sources and wetlands; to require river basin management plans on a rotation schedule for all major river basins.	11/64	Enforced	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Ungoverned point source discharge and nonpoint source runoff pollution loads.	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Compliance with regulations to control water pollution including identification and implementation of Best Management Practices	11/64	Continuous	N/A

Watershed: Big Creek
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Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Septic Tank Management Program	Southeast Georgia Regional Development Center (RDC), Julie Vann, Coastal Conservation Resources, and Brantley County Governmental	Routine septic system maintenance prevents soil contamination, waste runoff and improves soil and water quality.	1/2003	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Dissolved Oxygen	Effluent from malfunctioning septic systems	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	1/2003	Continuous	Southeast Georgia RDC will work with Coastal Conservation Resources and Brantley County to apply for 319(h) grants to delineate and repair or replace malfunctioning septic systems.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Automotive Product Care Disposal and Management Program	Individual	Encourages individuals to properly dispose of materials that are related to the repair and routine maintenance of automobiles.	12/2004	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Car washes, mechanical repair and maintenance shops, and individual home auto maintenance and/or repair.	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	12/2004	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Lawn, Garden and Agricultural Poison Care Disposal and Management Program	Individual	Encourages individuals to properly dispose of lawn and garden chemicals.	12/2004	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Lawn, Garden and Agricultural Herbicides and Pesticides.	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	12/2004	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Household Cleaner Care Disposal and Management Program	Individual	Encourages individuals to properly dispose of household chemicals.	12/2004	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Household Chemicals	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	12/2004	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Spill/Discharge Control and Cleanup Program	Individual	Encourages individuals to cleanup or control and to report spills.	12/2004	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Surface Spills or Uncontrolled Discharges	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	12/2004	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
BMP Monitoring	GFC	Within watershed will conduct monthly aerial BMP evaluations to identify recent forestry practices and conduct BMP audit.	01/2003	Current	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Silviculture Activities	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	01/2002	Continuous	N/A

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Nutrient Management Program	NRCS, Seven Rivers RC&D, and University of Georgia Extension Agent	Encourages and educates farmers on the correct usage and amount of fertilizers to maintain high yield and to lessen the impact of Nitrates and Phosphates on waterways. Reduces NP source of pollution.	01/1991	In-Progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Nitrates and Phosphates	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	01/1991	Continuous	University of Georgia Extension Agent and NRCS must provide educational opportunities if BMP is to remain effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Pesticides Management Program	NRCS, Seven Rivers RC&D, and University of Georgia Extension Agent	Encourages and educates farmers on the correct usage and amount of fertilizers to maintain high yield and to lessen the impact of nitrates and phosphates to waterways. Reduces NP source of pollution.	01/1991	In-Progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Pesticides	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	01/1991	Continuous	University of Georgia Extension Agent and NRCS must provide educational opportunities if BMP is to remain effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Streamside Management Zones	NRCS and Georgia Forestry Commission	Educates foresters to identify sensitive areas and applicable BMPs to be used during stream crossing, harvesting, site preparation, reforestation, and herbicide applications. Reduces NP source of pollution by reducing the amount of leaf litter, wood products and chemicals introduced into the waterways.	01/1991	In-progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Leaf litter, wood products and oxygen dissolving chemical.	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	01/1991	Continuous	NRCS and GFC must provide educational opportunities if BMP is to remain effective..

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Domesticated and Commercial Animal/Livestock Excrement Disposal and Management Program	Individual	Encourages individuals to correctly dispose and manage excrement from animals/livestock excrement.	2006	Planning	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Domesticated animals and Commercial Livestock Production	1	Effective if BMP is implemented

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	2006	Continuous	University of Georgia Extension Agent must provide educational opportunities if BMP is to become effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status (In-progress, Planning, Enforced)	Regulatory/ Voluntary
Agricultural Best Management Practices (BMPs)	NRCS (7 Rivers RC&D) and University of Georgia Extension Service	Leads effort in agricultural water Quality program, develops agricultural BMPs educational and monitoring efforts.	1987	In-progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Animal facility runoff, pesticide/herbicide management, irrigation runoff management and manure applications.	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	1987	Continuous	University of Georgia Extension Agent and NRCS must provide continuous opportunities if BMP is to remain effective.

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status (In-progress, Planning, Enforced)	Regulatory/ Voluntary
Nutrient Management Program	NRCS (7 Rivers RC&D) and University of Georgia Extension Service	Encourages and educates farmers on the correct usage and amount of fertilizers to maintain high yield and to lessen the impacts of nitrates and phosphates to waterways. Reduces NPS of pollution.	1991	In-progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
DO	Natural fertilizers and Manmade fertilizers	1	Effective

Measurable Milestones	Schedule		Comments
	Start	End	
Reduction in the measured amount of pollutants that contribute to impaired Dissolved Oxygen in impacted waterway.	1991	Continuous	University of Georgia Extension Agent and NRCS must provide educational opportunities if BMP is to remain effective.

POTENTIAL FUNDING SOURCES

The identification and discussion of dedicated funding is important in determining the economic feasibility of the above-mentioned management measures.

Funding Source	Responsible Authority	Status	Anticipated Funding Amount	Impacted Waterbodies*
Section 319 (h) of the Clean Water Act	EPA/State of Georgia	Must Apply	N/A	1
Greenspace Funds	Georgia Department of Natural Resources	Must Apply	N/A	1
Small Business Technical Assistance Program	Georgia Department of Natural Resources (EPD)	Must Request Assistance	Undetermined-Free Technical Assistance	1
Environmental Quality Incentive Program (EQIP)	NRCS	Must Apply	N/A	1
Unified Watershed Assessment program	NRCS	Must Apply	N/A	1
Conservation Reserve Enhancement Plan	NRCS	Must Apply	N/A	1
Section 604(b) Grants	Georgia Department of Natural Resources`	Must Apply	N/A	1

Watershed: Big Creek
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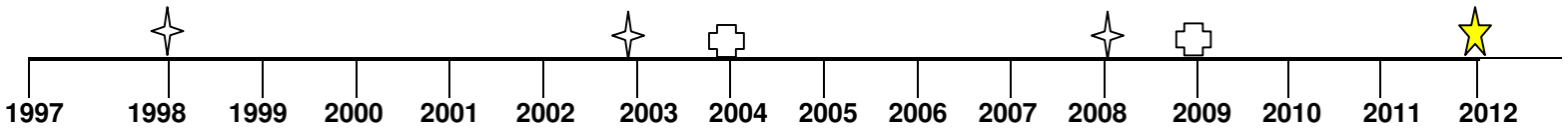
PROJECTED ATTAINMENT DATE

The projected date to attain and maintain water quality standards in this watershed is 10 years from acceptance of the TMDL Implementation Plan by EPD.



EPD Monitoring
Evaluate TMDL & Attainment Date
Project Attainment

MONITORING PLAN

The purpose of this monitoring plan is to determine the effectiveness of the target TMDL and the management measures being implemented to meet water quality standards. List of previous, current or planned/proposed sampling activities or other surveys. Monitoring data that placed stream on 303(d) list will be provided if requested.

Name Of Regulation/ Ordinance Or Management Measure	Organization	Impacted Waterbodies*	Pollutants	Purpose/Description	Time Frame		Status (Previous, Current, Proposed)
					Start	End	
NPDES Permit GA0033774	Georgia Environmental Protection Division (EPD)	1	DO	Closed, drained and filled Brantley County High School WPCP	1997	1997	Previous
Septic System Inspection	EPD and Southeast Health Unit	1	DO	This voluntary inspection program will identify malfunctioning septic systems and encourage routine maintenance of septic systems. This programs depends on the successfulness of Southeast Georgia RDC and Coastal Conservation Resources finding funding for program.	12/2005	Continuous	Proposed
TMDL Evaluation	GA EPD/USGS	1	DO	Monitoring data for Georgia 305(b)/303(d) List	1998	1998	Previous
Water Quality Testing	GA EPD	1	DO	Assessment of water quality	2003	2003	Proposed
BMP Monitoring	GFC	1	DO	Within watershed will conduct monthly aerial BMP evaluations to identify recent forestry practices and conduct BMP audit.	01/2003	Continuous	Current

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Name Of Regulation/ Ordinance Or Management Measure	Organization	Impacted Waterbodies*	Pollutants	Purpose/Description	Time Frame		Status (Previous, Current, Proposed)
					Start	End	
Comprehensive Nutrient Management Plan	Georgia DNR/EPD	1	DO	Component of general CAFO/LAS permits to identify and describe practices that are to be implemented to assure compliance with the limitations and conditions of the permit.	2002	Continuous	Current
Water Quality Testing	Adopt-A-Stream	1	DO	Adopt-A-Stream Unit will follow established Adopt-A-Stream guidelines when performing water monitoring.	10/2002	Continuous	Proposed

Watershed: Big Creek
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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 criterion is recorded in the space provided. Additional relevant criteria are presented in comments.

- Percent of concentration or load change (monitoring program)

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)

- Regulatory controls or activities installed (ordinances, laws)

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

COMMENTS

Watershed: Big Creek
HUC10: #0307020107

Prepared By: Fredrick E. Carpenter
Agency: Southeast Georgia Regional Development Center
Address: 1725 South GA Parkway, West
City: Waycross ST: GA ZIP: 31503
E-mail: fecsegardc@accessatc.net

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

TOGETHER WE CAN MAKE A DIFFERENCE!

Watershed: Big Creek
HUC10: #0307020107

Department Use Only:

Implementation Plan	Impaired Waterbodies			
	1	2	3	4
Action Plan				
Education/Outreach Activities				
Stakeholders				
Pollutant Sources Identified				
Description of Management Measures				
Measurable Milestones and Schedule				
Potential Funding Sources				
Monitoring Plan				
Criteria To Determine Whether Substantial Progress Is Being Made				
Supporting Documents				