

STATE OF GEORGIA
TIER 2 TMDL IMPLEMENTATION PLAN **REVISION** __
 Pataula Creek
 Chattahoochee River Basin

Stewart County
 City of Richland
 City of Lumpkin

I. INTRODUCTION

Total Maximum Daily Load (TMDL) Implementation Plans are platforms for evaluating and tracking water quality protection and restoration. These plans have been designed to accommodate continual updates and revisions as new conditions and information warrant. In addition, field verification of watershed characteristics and listing data has been built into the preparation of the plans. The overall goal of the plans is to define a set of actions that will help achieve water quality standards in the state of Georgia.

This implementation plan addresses the general characteristics of the watershed, the sources of pollution, stakeholders and public involvement, and education/outreach activities. In addition, the plan describes regulatory and voluntary practices/control actions (*management measures*) to reduce pollutants, milestone schedules to show the development of the management measures (*measurable milestones*), and a monitoring plan to determine the efficiency of the management measures.

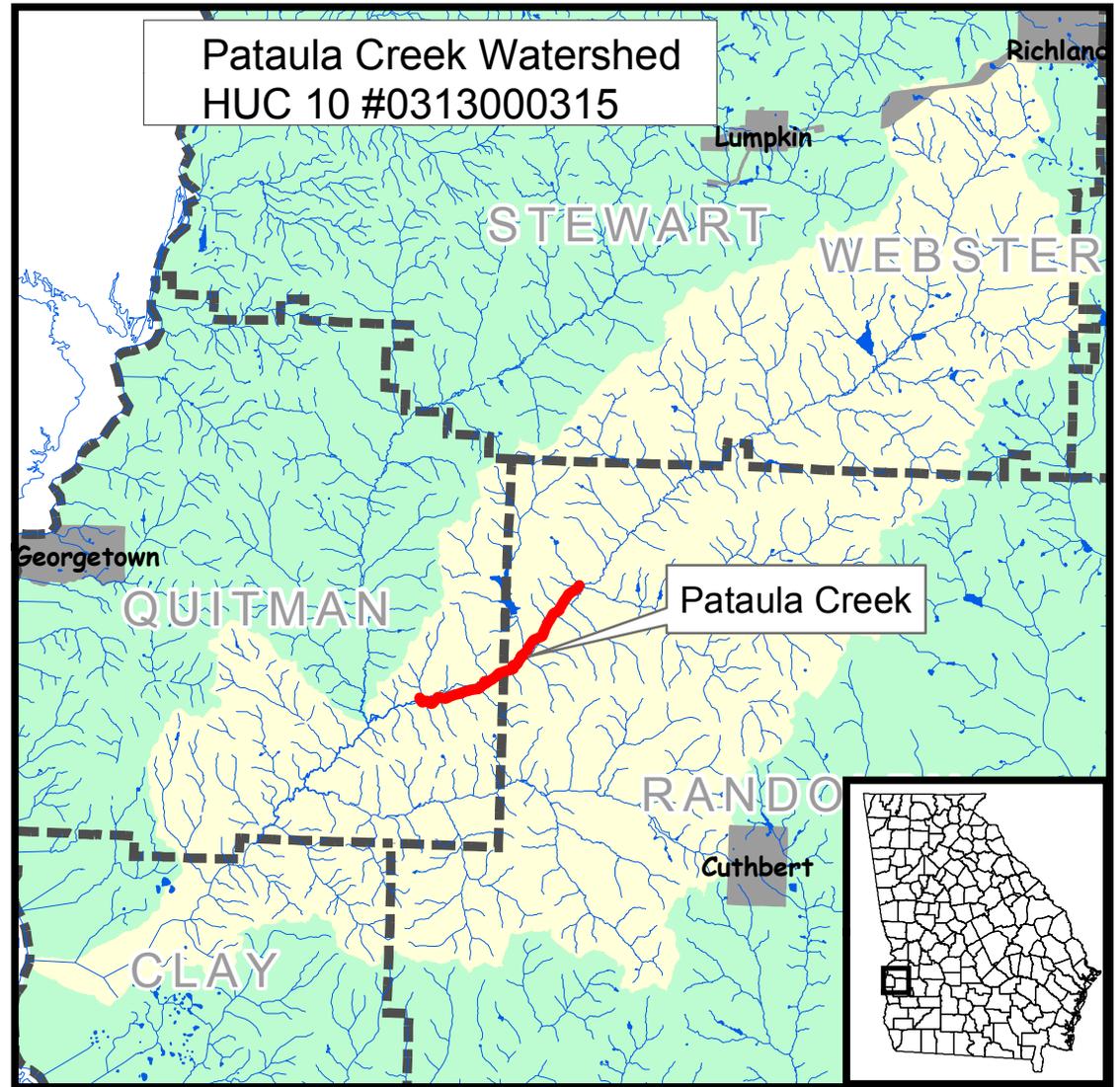


Table 1. IMPAIRMENTS

IMPAIRED STREAM SEGMENT	IMPAIRED SEGMENT LOCATION	IMPAIRMENT
Pataula Creek	Headwaters to Clear Creek	Biota (sediment)
Pataula Creek *	Hodchodkee Creek to W. F. George Lake	Fecal Coliform Bacteria

* Plan will be written by GA EPD

II. GENERAL INFORMATION ABOUT THE WATERSHED

Write a narrative describing the watershed, HUC 10# 0313000315. Include an updated overview of watershed characteristics. Identify new conditions and verify or correct information in the TMDL document using the most current data. Include the size and location of the watershed, political jurisdictions, and physical features, which could influence water quality. Describe the source and date of the latest land cover/use for the watershed. Describe and quantify major land uses and activities, which could influence water quality. See the instructions for more information on what to include.

The State of Georgia assesses its water bodies for compliance with water quality standards criteria as required by the Federal Clean Water Act (CWA). Assessed water bodies are placed into one of three categories; supporting, partially supporting or not supporting their designated uses depending on water quality assessment results. These water bodies are placed on Georgia's 305(b) list as required by that section of the CWA that addresses the assessment process, and are published every two years in *Water Quality in Georgia*.

Some of the 305(b) partially supporting and not supporting water bodies are also assigned to Georgia's 303(d) list, also named after the corresponding section of the CWA. Water bodies on the 303(d) list are required to have a Total Maximum Daily Load (TMDL) evaluation if water samples are found to exceed water quality standards for any of numerous contaminants. Pataula Creek has been designated partially supporting due to influx of sediment, leading to reduction of aquatic life in the area.

Pataula Creek HUC 10 # 0313000315 is comprised of approximately 5199 acres of adjoining property to the Headwaters of Pataula Creek. Many smaller tributaries combine to create the beginning of a significant body of water. This TMDL focuses on the 9-mile section that flows into Clear Creek and on to the main section of water called Pataula Creek. This main channel continues on, to empty into the Chattahoochee River.

The TMDL process establishes the allowable loading of pollutants or other quantifiable parameters for a water body based on the relationship between pollution sources and in-stream water quality conditions. This allows water quality-based controls to be developed to reduce pollution and restore and maintain water quality. Current water quality standards are set at no further degradation of fish life within the target area.

Stewart County is located in the rural southwest sector of the State. Much of the impairment contributions are Agriculture and Forestry practices, but no point source can be identified. Stewart County is heavily forested. Currently, the total land used for forestry equals 91% of Stewart County land area. The watershed area contains some productive farmland. Much of the adjoining properties, to the stream segment, is forested approximately 75-80% of the target area. The remaining land is conventional row crop agriculture, with limited numbers of livestock, and hay production. Within the stream segment area there are wildlife refuge and hunting preserves. These organizations are means to augment the lack of income for many landowners.

There are no development activities in the area; it is sparsely populated like much of the entire county. The entire target area contains no significant concentration of residential housing units.

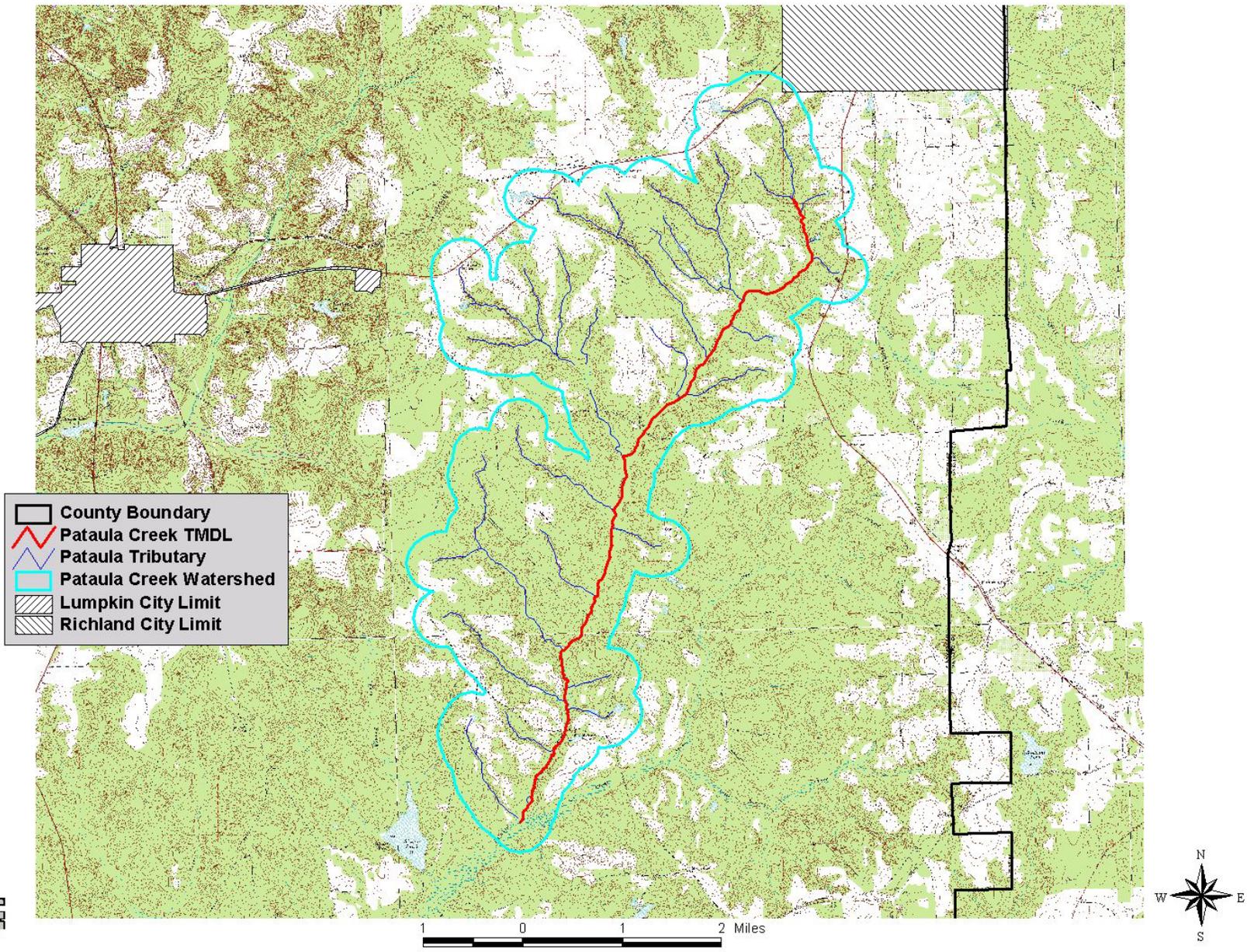
Realistically, major contributors of the impairment are non-point sources, such as storm water runoff and cannot be specifically identified. Current practices within the stream segment area can be augmented and/or improved to address the impairment of the Pataula Creek.

Recently, Stewart County has begun to adopt ground water recharge, river corridor, and wetland protection ordinances. At this time, the authorities have plans to develop and adopt these types of environmental protection mechanisms in 2005.

Owners of land contiguous to the impaired segment of Pataula Creek were identified from courthouse tax records. Local government officials, Farm Bureau officers, and forestry officials, and agricultural experts from the County Extension Office and National Resources and Conservation Service were also identified. Sixteen invitations were mailed to property owners and other stakeholders, inviting public participation in development of this document. Ten attended the Stewart County meeting; the findings and discussions were compiled and incorporated into the plan.

Funding sources for the TMDL protocol include Georgia EPD Watershed Assistance Grants, volunteer activities (such as Adopt-a-Stream), Water Quality Cooperative Agreements, and Non-point Source Implementation Grants 319(H).

Patuala Creek Watershed



Pataula Creek

STREAM SEGMENT NAME	LOCATION	MILES/AREA	DESIGNATED USE	PS/NS
Pataula Creek	Stewart County	9 miles	Fishing	PS

III. SOURCES AND CAUSES OF STREAM SEGMENT IMPAIRMENT LISTED IN TMDLs

After reviewing the TMDLs written for this stream, complete the following tables with **the information found in the TMDLs**. List each parameter for which the stream segment is impaired and the water quality standard violated. See the instructions for the water quality standards. Describe the sources and causes of each violation identified in the TMDLs.

Table 2. SOURCES OF IMPAIRMENT AS INDICATED IN TMDLs

PARAMETER 1	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED REDUCTION FROM TMDL
Biota(sediment)	No degradation of fish community	Non-point source runoff	
Biota(sediment)	No degradation of fish community	Agriculture	
Biota(sediment)	No degradation of fish community	Silviculture	

IV. IDENTIFICATION AND RANKING OF POTENTIAL SOURCES OR CAUSES OF IMPAIRMENT

INVESTIGATE AND EVALUATE the sources of impairment for each parameter listed in Table 2. Write a narrative describing efforts made or procedures used to verify the significance and extent of the sources or causes of each impairment listed in the TMDLs. Include:

- Involvement of stakeholder group
 - Field surveys
 - Review of land cover data
 - Evaluation of sources
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The stakeholders of the protocol were identified using the Stewart County tax records to pinpoint the landowners.

The relevant local officials were contacted and invited to share information with the participants of the process. The various representatives of the different conservation services were asked to give input and educate the landowners concerning the various programs in place to protect water resources.

All of the landowners were contacted by telephone and a series of letters. The stakeholders participated in a public forum, which allowed their input and decision process to be created. Results are included in the implementation plan.

A “wind shield” and site survey was conducted. The results and recommendations were addressed. The participants, in the forum, discussed and developed a ranking of issues to be addressed. This listing has been used to create a plan that has direct effect on the impairment and ensures that no further escalation of the problem develops.

As a result of the location of the stream segment and nature of the land use practices, intense reclamation is not feasible. Continued diligence on the part of the individual landowner along with minor changes should begin to have immediate impact on the repair of Pataula Creek.

To the extent possible, identify sources and quantify the extent of pollution in the stream segment for each of the parameters listed in Table 2 and evaluate the likely impact on the parameter load to the stream. This should follow research performed and described in preceding narrative and should correct or add information to the TMDLs. **The SOURCES SHOULD BE RANKED** from those having the most impact to those having the least impact. The estimated extent of contribution can be expressed as the area of the watershed affected, the stream miles affected, or the number of activities contributing to the problem. The magnitude of contribution should be estimated to be large, moderate, small, or negligible.

Table 3. CONCLUSIONS MADE OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

PARAMETER 1	POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION	ESTIMATED MAGNITUDE OF CONTRIBUTION	COMMENTS
Biota (sediment)	Storm water drainage at Dairy Road	6 miles	Moderate	
Biota (sediment)	Silviculture	Possible introduction of sediment from normal practices and stream crossings when BMPs are not followed	Moderate	
Biota (sediment)	Agriculture	Possible introduction of sediment from normal practices when BMPs are not followed	Light	

V. STAKEHOLDERS

PUBLIC INVOLVEMENT AND THE ACTIVE PARTICIPATION OF STAKEHOLDERS is essential to the process of preparing TMDL implementation plans and improving water quality. Stakeholders can provide valuable information and data regarding their community, impaired water bodies, potential causes of impairments, and management practices and activities which may be employed to reduce the impacts of the causes of impairment.

Describe outreach activities to advise and engage stakeholders in the TMDL implementation plan preparation process. Describe the stakeholder group employed or formed to address the impaired segments in the watershed. Summarize the results of the number of attendees and meetings and describe major findings, recommendations, and approvals.

Landowners, of the adjacent properties to the Pataula Creek, were identified using the Stewart County Tax records. They were then contacted by a series of letters and telephone calls.

Local government officials were contacted and informed of the process. Other stakeholders such as the conservation districts officials were asked to participate and educate the other stakeholders about on-going policies that have an effect on the target area.

A public forum was held and the stakeholders gave their opinions and input. The plan has incorporated the information gathered through this meeting and continuous interaction between the plan developer and the stakeholder.

A “windshield” and site survey was conducted. The possible sources of the impairment were identified and addressed during the course of the forum. Landowners gave their assurance of cooperation for participation in and the improvements of the protocol and stream segment.

Currently, The landowners are following and will continue to follow the Best Management Practices set out by the Forestry Commission and Soil and Water Conservation Commissions.

A ranking of possible sources are as follows:

County Drainage issues on Dairy Road

Water crossing on wildlife refuges and farms

Improving buffers around streams during silvicultural and agricultural practices

Ensure that no violation of environmental codes occur during timber harvesting

Report any such violation as soon as possible

Continue to use cover crops in off harvest times

List the watershed or advisory committee members of the stakeholder group for this segment in the following table.

Table 4. COMMITTEE MEMBERS

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Stonie Patterson	PO Box 575	Lumpkin	GA	31815	838-6769	
Willis Allen		Lumpkin	GA	31815		Willis2161@aol.com
Mark Allen		Lumpkin	GA	31815		Mallen4778@aol.com
Owen Stapleton	1696 Hwy 520	Weston	GA	31832	828-2727	
GW Jones		Richland	GA	31825	887-2584	
Rebecca Oliver	2722 Fernwood Ave.	Columbus	GA	31907	568-0592	
Betty Murrah	299 Wall St.	Richland	GA	31825	887-3433	
Bill James	1696 Hwy 520	Weston	GA	31832		
Dan Hallauer	19020 Ralston Street	Orlando	FL	32833		

In Appendix A, list the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

VI. MANAGEMENT MEASURES AND ACTIVITIES

Describe any management measures or activities that have been put into place or will be put into place including regulatory or voluntary actions or other controls by governments or individuals that specifically apply to the pollutant that will help achieve water quality standards. Include who will be responsible for the measure, how it will be funded, the status, the date it will be or was initiated, and a short description of how effective the measure is or will be.

Table 5. MANAGEMENT MEASURES AND ACTIVITIES

GENERAL MEASURES APPLICABLE TO ALL PARAMETERS

MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/ IMPLEMENTED	EFFECTIVENESS (Very, Moderate, Weak)
Zoning ordinance	Cities of Richland and Lumpkin	Regulates location of development in each city	City wide tax	active		very
Buffer zone	GA EPD	Mitigates impact of runoff	State wide tax	active	Enacted 2004	very
Best Management Practices	Silvicultural producers	Protects against damage of water resources		active		very
Best Management Practices	Agricultural producers	Protects against damage to water resources		active		very
Watershed protection ordinance	Stewart County Board of Commissioners	Protect against damage to the county water resources	County tax	scheduled	Should be implemented in 2005	very
River Corridor protection Ordinance	Stewart County Board of Commissioners	Protect against damage of the county's water resources	County tax	scheduled	Should be implemented in 2005	very
Wetland protection ordinance	Stewart County Board of Commissioners	Protect the county's wetlands	County tax	scheduled	Should be implemented 2005	very

MEASURES APPLICABLE TO INDIVIDUAL PARAMETERS

PARA-METER 1	MEASURE	RESPONSIBILITY	DESCRIPTION	SOURCE OF FUNDING	STATUS	ENACTED/IMPLEMENT-ED	EFFECTIVENESS (Very, Moderate, Weak)
Boita (sediment)	Improve drainage	Stewart County	Create silt catch basin at end of Dairy Road	County tax	scheduled		very
	Buffer zone	Land owners	Maintain and improve buffer zones along stream side		active		very
	Buffer zone	Forestry harvesters	Maintain integrity of buffer zones during harvestt		active		very
	Improve water crossing and drainage	Landowner/leasees of wildlife refuges	Maintain /improve current roadways, bridges, crossings and streamside buffer zones		active		very
	Use of cover crops during off harvest seasons	Landowners	Protect soil and water resources from degradation		active		moderate
	Disseminate information	Cooperative extension service	Consulting assistance, information on non-point source impacts on water quality		active	1914	moderate
	Promote BMP for agriculture	Soil and Water Conservation District	Provide leadership in the protection, conservation, and improvement of soil, water, and resources		active	1937	active
	USDA Natural Resources conservation Service (NRCS)	Environmental Quality Incentives Program and other T/A	Develop standards and specifications regarding conservation practices		active	1997	active
	Adopt-a-stream	Concerned citizens	Stream monitoring and sampling		projected		As needed

VII. MONITORING PLAN

The purposes of monitoring are to obtain more data, to determine the sources of pollution, to describe baseline conditions, and to evaluate the effects of management and activities on water quality. Describe any sampling activities or other surveys - active, planned or proposed - and their intended purpose. Reference the development and submission of a Sample Quality and Assurance Plan (SQAP) if monitoring for delisting purposes.

Table 6. MONITORING PLAN

PARAMETER (S) TO BE MONITORED	ORGANIZATION	STATUS (CURRENT, PROPOSED, PLANNED)	TIME FRAME		PURPOSE (If for delisting, date of SQAP submission)
			START	END	
Biota (sediment)	"Friends of Pataula"	proposed	2005	2015	
Biota (sediment)	Columbus State University	planned	2005	2015	
Biota (sediment)	DNR-EPD watershed planning& monitoring program	current	2000	2000	

VIII. PLANNED OUTREACH FOR IMPLEMENTATION

List and describe outreach activities, which will be conducted to support this plan and the implementation of it.

Table 7. PLANNED OUTREACH

RESPONSIBILITY	DESCRIPTION	AUDIENCE	DATE
Stewart County	Community wide drive for voluntary action and compliance, including education on the plan	Citizens of Stewart county	2005
Land owners within target area	Volunteer clean up of stream segment	Land owners	2005
Friends of Pataula	Clean up and monitoring of Pataula Creek	Concerned citizens	2005, 2006

IX. MILESTONES/ MEASURES OF PROGRESS OF BMPs AND OUTREACH

This table will be used to **track and report progress of management measures including BMPs and outreach**. Record milestone dates for:

- accomplishment of management practices or activities - outreach activities
- installation of BMPs

to attain water quality standards. Comment on the effectiveness of the management measure, how much support the measure was given by the community, what was learned, how the measure might be improved in the future, and any other observations made. This table can be "pulled out" of this template and used to report and track progress.

Table 8. MILESTONES

MANAGEMENT MEASURE	RESPONSIBLE ORGANIZATIONS	STATUS		COMMENT
		PROPOSED	INSTALLED	
Clean up and monitoring	Landowners, volunteer orgs.	2005	2006	This allows the directly responsible persons to participate and correct any problem on a volunteer basis
Installation of BMPs	Landowners/leasee	2005	2005	This mitigates and corrects the impact of previous practices that could have been contributors to the impairment
Water resource protection ordinances	Local Government	2004	2005	Provide enforceable means of protection for the County and it's natural resources
Education and call for volunteer actions	Local Government	2005	2008	Provides long term means of continued monitoring and maintenance of the stream segment

Prepared By:	Jason Bryan		
Agency:	Lower Chattahoochee Regional Development Center		
Address:	P.O. Box 1908		
City:	Columbus,	ST: GA	ZIP: 31902-1908
E-mail:	jbryan@lcrdc.org		
Date Submitted to EPD:6/28/2004			Revision:

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APPENDIX A.

STAKEHOLDERS

List the names, addresses, telephone numbers, and e-mail addresses for local governments, agricultural or commercial forestry organizations, significant landholders, businesses and industries, and local organizations including environmental groups and individuals with a major interest in this watershed.

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
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Bill James	1696 Hwy 520	Weston	GA	31832		
Dan Hallauer	19020 Ralston Street	Orlando	FL	32833		
City of Richland	PO Box 266	Richland	GA	31825	229 887-3323	
City of Lumpkin	PO Box 521	Lumpkin	GA	31815	229 838-4333	
Stewart County	PO Box 575	Lumpkin	GA	31825	229 838-6769	
USDA NRCS	128 E Forsyth Street	Americus	GA	31709-3676	229-924-4056	
GA Forestry Commission	Rt. 1 Box 172	Lumpkin	GA	31815	706 568-2158	ssmith@gfc.state.ga.us
GA Soil and Water Conservation Commission	PO 445	Albany	GA	31702	229 430-4408	

APPENDIX B.

UPDATES TO THIS PLAN

Describe any updates made to this plan. Include the date, section or table updated, and a summary of what was changed and why.
