

**REVISED TMDL IMPLEMENTATION PLAN
FOR
ECHECONNIE CREEK WATERSHED**

SEDIMENT (BIOTA IMPACTED)

in

**HARTLEY BRANCH
*CRAWFORD COUNTY, GEORGIA***

Developed by

Middle Georgia Regional Development Center

in coordination with the

Echeconnee Creek Advisory Committee

July 11, 2003

Echeconnee Creek Watershed Revised TMDL Implementation Plan

Overview

The stream segment under study is:

- Hartley Branch (from tributary to Deep Creek) Please see attached map.

Plan Preparation....All Creeks

The revised implementation plan for the Echeconnee Creek Watershed was developed by the Middle Georgia Regional Development Center (RDC) in conjunction with the Echeconnee Creek Advisory Committee. This committee included, but was not limited to, stakeholder representatives from the forestry industry, agriculture, the Georgia Forestry Commission, the Georgia Soil and Water Conservation Commission, the University of Georgia, the poultry industry, the Department of Natural Resources, County Commissioners, County staff, Ocmulgee RiverKeeper representatives, interested private citizens and property owners who owned 10 acres or more of property contiguous to the affected stream segment. The Middle Georgia RDC was under Georgia Environmental Protection Division (EPD) contract to prepare a TMDL implementation plan.

The Committee met over a series of three meetings to formulate the revised implementation plan. The first meeting and public hearing held on June 16, 2003 at the Crawford County Courthouse in Knoxville was primarily informational in nature (see attached agenda and accompanying minutes). The EPD brochure entitled “Watershed Wisdom – Georgia’s TMDL Program” was distributed to attendees. The video of the same title was shown as well. There were 12 persons who attended and participated in this first meeting (see attached sign-in sheet.)

The second meeting was held on June 30, 2003 at the Crawford County Courthouse in Knoxville (see attached agenda and accompanying minutes). In addition, a press release (see attached press release) was sent to the local papers to better inform the general public. This was published in the local paper, *The Georgia Post*, on June 26, 2003 (see attached article). There were 20 persons who attended and participated in this second meeting (see attached sign-in sheet.) Public comments were solicited and input was used to create the draft revised implementation plan.

The third and final meeting was held on July 9, 2003 at the Crawford County Courthouse in Knoxville to allow the committee to make final comments on the draft revised implementation plan before final submittal to EPD (see attached agenda and accompanying minutes.) There were 21 representatives who attended and participated in this third meeting (see attached sign-in sheet.)

Education/Outreach Activities (All Streams)

There were several possible education and outreach activities identified by the stakeholders through the three meetings:

- Local homeowners, possibly in connection with an Adopt-a-Stream program, to distribute a flyer with facts relating to Hartley Branch and lake water quality;
- *The Georgia Post* can run phone numbers and brief descriptions of EPD contacts utilizing the “Community Page;”
- Information pertaining to Hartley Branch can be placed on the Crawford County website;
- Possible distribution of pamphlets on water quality at County offices where permits are collected/tax and tag offices.
- Institution of an Adopt a Stream program(s);
- Local high school to continue education and public awareness through conservation class offered in conjunction with the Future Farmers of America organization;
- Georgia Forestry to offer classes to the public on issues such as forestry practices, BMPs, etc.;
- Crawford County (Commissioner’s Office and Planning & Zoning) to create a brochure on model driveway specifications and related information for distribution during the driveway permitting process;
- Press Releases resulting from the Department of Community Affairs’ Ocmulgee River Assessment Report; and
- Georgia DNR to distribute video and manual from Alabama RC&D to Crawford County concerning unpaved road practices, and may offer specific training to the County road crews.

TMDL Data Overview... Biota (Sediment)

The Biota Impacted designation indicates that studies have shown a modification of the biological community, more specifically, fish. In 1990, 1998, and 1999, the Department of Natural Resources (DNR) Wildlife Resources Division (WRD) conducted studies of fish populations. WRD used the Index of Biotic Integrity (IBI) and modified Index of Well-Being (IWB) to identify affected fish populations. Stream segments with fish populations rated as Poor or Very Poor were included in the Partially Supporting list. The cause of low IBI scores in the lack of fish habitat is presumably due to stream sedimentation. To determine the relationship between the in-stream water quality and the source loadings, each watershed was modeled. The analysis performed to develop sediment TMDLs for the 303(d) listed watersheds utilized the Universal Soil Loss Equation (USLE), which predicts the average annual soil loss caused by erosion.

A sustainable aquatic ecosystem requires a healthy habitat. A major disturbance to stream habitats is erosion and sedimentation. Through a source assessment analysis, non-point sources were considered to be most responsible for the elevated sediment loads in Hartley Branch. Non-point sources of sediment are diffuse sources that cannot be identified as entering the water body at a single location. These sources generally involve land use activities that contribute sediment to streams during a rainfall runoff event. Eroded soils from forests, cropland, mining sites, and other land can be transported to Georgia streams through runoff. Excessive sediment that reaches the water bodies can cause several changes to the stream. It can make the streams

shallower or wider, affecting the stream's temperature, dissolved oxygen, flow rate and velocity. It can affect the ability of the stream to assimilate pollutants. It can change the diversity of the fish populations and other biological communities. As sediment is carried into the stream, it can change the stream bottom and smother sensitive organisms.

Background....Hartley Branch - Sediment

The impacted segment of Hartley Branch is a one mile segment from the tributary to Deep Creek, located entirely in Crawford County. Hartley Branch is currently on the 303(d) list in the State of Georgia for violating the water quality standards for Biota (Sediment). The water use classification for Hartley Branch is fishing and it is found to be partially supporting this designated use.

The sampling point was on Richardson Mill Road (County Road 21), 8.25 miles east-southeast of the center of Roberta on May 12, 1999. Comments taken from the 305(b) report include:

“Pools and other instream cover were almost non-existent in Hartley Branch due to the heavy sediment load. Sand/sediment was entering the stream at two unpaved road crossings in the watershed. A local resident said the stream channel had been re-located after the 1994 flood.”

The water quality standard applicable for Hartley Branch Creek is: *“All waters shall be free from material related to municipal, industrial, or other discharges which produce turbidity, color, odor, or other objectionable conditions which interfere with legitimate water uses.”*

Hartley Branch has been determined to have a current sediment load of 2,057 tons a year. The Wasteload Allocation (WLA) assigned by the State to Hartley Branch for certain point sources allows for 0 tons of sediment. Hartley Branch has an assigned Load Allocation of 1,420 tons/yr, which when added to the WLA of 0 tons/yr, produces an approximate Total Load target of 1,420 tons/yr. As stated above, Hartley Branch's current sediment load has been determined to be 2,057 tons/yr, and therefore it would require a 30.9 percent reduction in sediment load to reach what is considered an acceptable limit for allowable pollutant loading.

The Biota TMDL states that land use percentages of note surrounding Hartley Branch include 78.99 percent forest uses, 5.05 percent “Pasture/Hay,” 9.12 percent “Row Crops,” and 5.47 percent “Transitional.” Committee members did not feel that these estimates were accurate or current, especially in terms of “Row Crops” and “Pasture/Hay.”

EPD has estimated that less than one percent of the sediment load originates from forest uses and 96.11 percent from “Row Crops.”

Possible Pollutant Sources...Hartley Branch

There were several possible sources contributing to the sediment impairment that were identified by the stakeholders through the three meetings:

Hartley Branch: Possible Sources of Sedimentation

- Loosened soil particles from **unpaved roadways** (Richardson Mill Road) carried away from the roadway, ditch and road bank by water, wind, or traffic - as well needed ditch maintenance for those ditches that are found along unpaved and paved roads;
- “**Legacy Sediment.**” Over the last century, there has been a dramatic decrease in the amount of land farmed in Georgia. Since 1950, there has been a 57 percent reduction in farmland. With the reduction in farmland, there has also been a decrease in the amount of soil erosion. This suggests that the sedimentation observed in the impaired stream segments may be legacy sediment resulting from past land use practices;
- **Unpaved driveways** off of both paved and unpaved portions of Richardson Mill Road;
- **Forest clearcutting, logging roads, subsoiling** and poor soil management practices;
- **Richardson Mill Road construction and paving** in 1999;
- Below the original testing point, but in the Hartley Branch segment, **recreational four wheelers** crossing creek at powerline easement; and
- **Undefined development** taking place currently upstream of Hartley Branch.

Regulatory and Voluntary Measures: Existing and Future...Hartley Branch

In addition to a host of federal and state laws administered by various agencies, there are a number of important local regulatory and voluntary actions, both existing and proposed, that may help to address the possible sources noted above. They are:

- Crawford County does not have an adopted soil and erosion control ordinance, but rather depends on the EPD for review and enforcement where developers of land disturbing activities greater than 1.1 acres must submit a SES plan for review. This will help to address loading sources that may originate from commercial and residential development. The NRCS is responsible for providing enforcement and compliance. Members called for better enforcement of SES laws by the County as there are no local enforcers. If pursued, Crawford County should specifically name personnel responsible for this measure. The County may want to consider the institution of impact fees to help assist in the funding of these and similar positions;
- Crawford County may entertain the possibility of adopting BMPs for unpaved road maintenance in 2004 that may assist with decreasing the amount of sediment load originating from unpaved roads. This may include the utilization of the publication entitled Recommended Practices Manual, A Guideline for Maintenance and Service of Unpaved Roads as a guide in maintaining unpaved roads and roadside ditches. This may or may not include the mitigation of stormwater velocity down dirt portion of Richardson Mill Road by installing check dams if feasible. Crawford County should specifically name personnel responsible for this measure;

- Crawford County intends to adopt the Part V Environmental Criteria as mandated by the Georgia Growth Planning Act during their next Comprehensive Plan updates in 2006. This will establish standards and procedures pertaining to the protection of river corridors, mountaintops, water supply, watersheds/reservoirs, groundwater recharge areas, and wetlands. Crawford County should specifically name personnel responsible for this measure;
- Various partners, including Adopt-A-Stream, will participate in public education measures, beginning with the TMDL Implementation Plan and continuing into the future through the use of Best Management Practices;
- The committee suggested Crawford County review their existing land use ordinances to assist in any measures that may mitigate sedimentation of county creeks. Crawford County should specifically name personnel responsible for this measure;
- The implementation of an Adopt-A-Stream program was also recommended. The program could be utilized by Crawford County through various organizations and groups throughout the watershed. The program could provide updates on current stream conditions in the future as the requisite funding and support are developed;
- The Georgia Forestry Commission operates a water quality program that includes the development of BMPs, BMP education programs, and BMP monitoring for compliance, including monthly BMP assurance examinations;
- Crawford County has an established Greenspace Program that advises the County on targeting general and specific areas to designate as greenspace, which may include acquisition of easements that can serve as buffers along streams to help dilute runoff. Crawford County should specifically name personnel responsible for this measure;
- A cooperative monitoring program would be useful in further discerning the actual sources of sediment load. The Georgia DNR, EPD, Crawford County, and Adopt-A-Stream and possibly local volunteers would conduct the program. It could also seek funding and cooperation for a watershed assessment and develop a program for implementation assessments of Hartley Branch;
- Local property owners should obtain a US Army Corps of Engineers dam permit to ensure that safe and environmentally friendly dams are being built as well as follow the Georgia Safe Dams Act regulations;
- Crawford County should institute a more stringent driveway permitting process, whereby resulting driveways might be periodically inspected by the County road superintendent for upkeep;
- Private property owner to stabilize lake crossing with fabric and/or vegetative cover;
- County to examine effects of runoff on cul-de-sac at end of Lake Richardson Drive; and
- Lake Richardson Property Owners to form an association to assist with education and keep a watch-out.

Schedule for Implementation... Hartley Branch

The following will be tentatively initiated and continued past 2003:

- Various public education measures by organizations and groups throughout the watershed;
- County to assess situation at cul-de-sac at end of Lake Richardson Drive;
- BMPs for the forestry community will continue to be promoted by the Georgia Forestry Commission and the Monthly BMP Assurance Examinations are set to begin this year; and
- The Crawford County Greenspace Committee will be apprised of the Revised TMDL plan and may modify their Greenspace goals accordingly.

The following will be tentatively initiated and continued past 2004:

- Crawford County will entertain the adoption of BMPs for unpaved road maintenance in areas in immediate proximity to creek and stream crossings;
- More stringent regulation of driveway permitting review and enforcement process by Crawford County;
- Crawford County to pursue local ordinance and local enforcement of State Erosion Control and Sedimentation Act;
- Possible formation of Lake Richardson Homeowners' Association; and
- Possible Adopt-A-Stream Program established.

The following will be tentatively initiated and continued past 2005:

- Crawford County will adopt Part V Environmental Criteria as part of its Comprehensive Plan update in 2006.

Monitoring Plan... Hartley Branch

Future monitoring for these streams will include the following:

- Department of Natural Resources-Environmental Protection Division – The “Stream Team” is scheduled to conduct more testing in the Ocmulgee River Basin in 2004. There is the potential for the creation of an Adopt-A-Stream, which, along with local government partners, may be able to collect additional data and augment the EPD’s testing efforts.

Criteria to Determine Substantial Progress...Hartley Branch

- Adoption by Crawford County of Part V Environmental Ordinances;
- Adoption by Crawford County of BMPs for unpaved road practices in immediate proximity to creek and stream crossings, particularly Richardson Mill Road;
- Initiated enforcement of SES ordinances by Crawford County;
- Continued Georgia Forestry outreach on BMPs and assurance examinations;
- Creation of Cooperative Monitoring Program by various partners;
- Creation of a Lake Richardson Homeowners' Association and associated education;

- County road crew actually trained on unpaved road best management practices by DNR staff;
- Creation of Adopt-A-Stream Program by various partners; and
- Decrease in pollutant levels in stream.

Funding Sources... Hartley Branch

- **Georgia Quality Growth Program:** State of Georgia and Crawford County - Crawford County is applying for a Georgia Department of Community Affairs' Quality Growth Program Grant to review their current land use ordinances.
- **US EPA Section 604(b) funds** - Federal grant funds administered by the Department of Natural Resources for the State of Georgia. Part of these funds allow regional development centers to perform further development of plans to study water quality problems, perform watershed evaluations, conduct strategic monitoring, and characterize pollution sources for 303(d) streams.
- **US EPA Watershed Surveys and Planning Program - Small Watershed Program** – This program provides planning assistance to local agencies for the development of coordinated water and related land resources programs in watersheds and river basins.
- **Georgia Greenspace Program:** State of Georgia and Crawford County - Funding awarded by the Georgia Greenspace Commission can be used to purchase riparian buffers along rivers and streams and wetlands. The preservation of these valuable ecological resources will help ensure they will continue to perform their natural functions related to water quality.
- **Clean Water Act Section 319 funds:** grant money which support a wide variety of activities including technical assistance, financial assistance, education, training, technology transfer, demonstration projects, and monitoring to assess the success of specific nonpoint source implementation projects.

Conclusion... Hartley Branch

Additional and more accurate data on actual sources of sediment loads to this stream segment will go far to helping partners to better define and more directly address the problems, although the Committee has identified numerous probable sources of elevated sediment runoff. Property owners present at the meetings felt strongly that the dirt portion of Richardson Mill Road and the ditches along both the paved and unpaved portions of the same road were primary sources of sediment loading of Hartley Branch. While there are some actions that can be taken by the County, there are some steps that local property owners can take that may not necessarily be a responsibility of government. These include taking better care of private driveways to prevent additional runoff and forming a homeowners' association to find common solutions to problems and enhance awareness/communication.

**STATE OF GEORGIA
TMDL IMPLEMENTATION PLAN
WATERSHED APPROACH
Ocmulgee River Basin**

Local Watershed Governments

Middle Georgia RDC
Lamar County
Monroe County
Crawford County

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

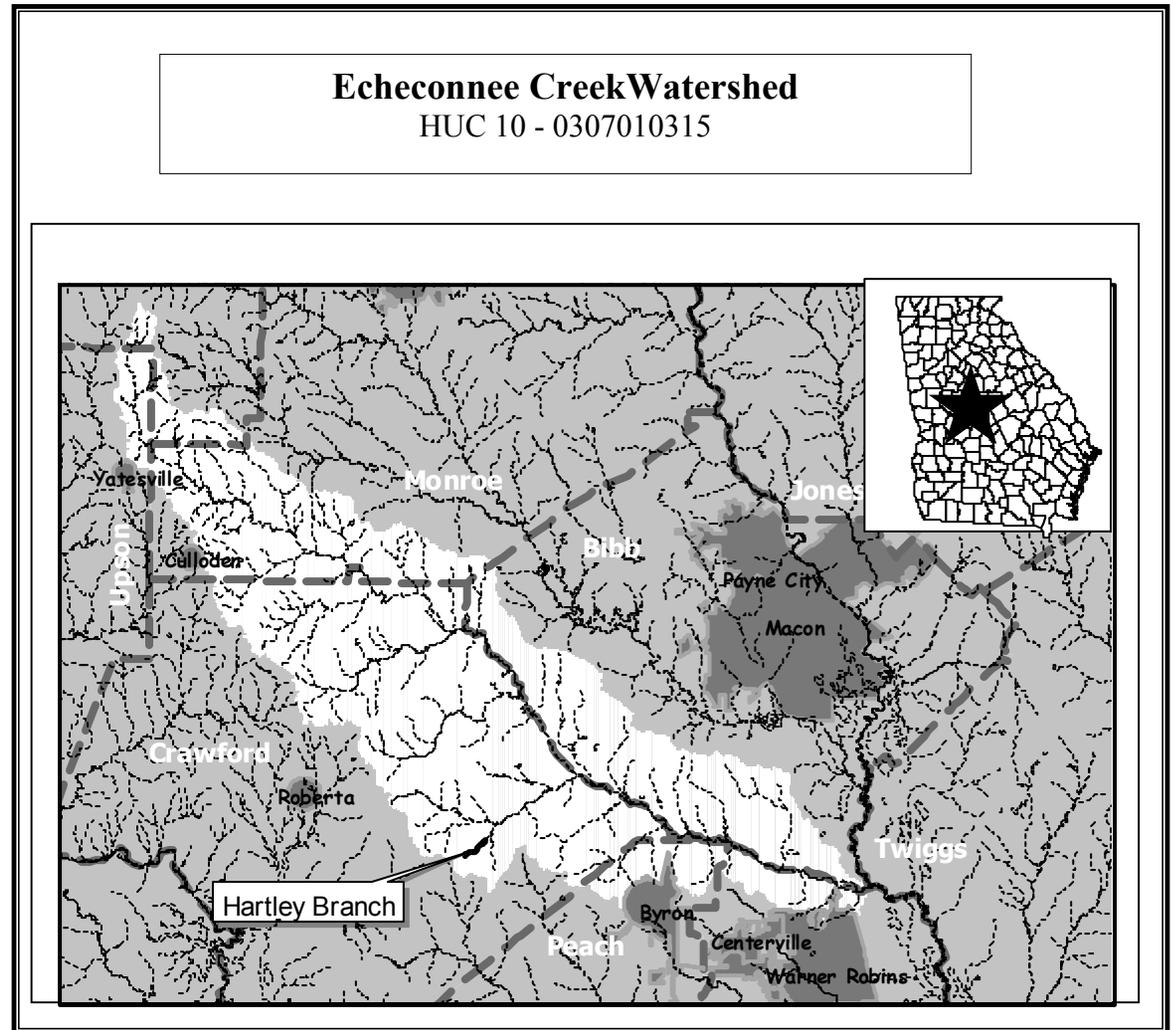


FIGURE 1

Impaired Waterbody*	Impaired Stream Location	Impairment
1. Hartley Branch	Tributary to Deep Creek	Bio (sediment)

*These Waterbody Numbers are referenced throughout the Implementation Plan.

Action Plan for Echeconnee Creek Watershed

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 checked="" type="checkbox"/> Habitat	<ul style="list-style-type: none"> Start or participate in an Adopt-A-Stream program Keep eyes open for sources of sediment runoff – e.g. poor soil erosion prevention practices in nearby development Learning more about erosion/sedimentation Cease mowing stream buffers Keep eyes open that existing riparian buffers are left undisturbed 	<ul style="list-style-type: none"> If involved in agriculture, follow related BMPs If involved in contracting/development, follow local Soil and Erosion Sedimentation laws If involved with unpaved road maintenance, adopting relevant BMPs If involved in forestry, follow forestry BMPs
<input type="checkbox"/> Fecal Coliform (FC)	<input type="checkbox"/> Urban	<input type="checkbox"/> Recreation		
<input checked="" type="checkbox"/> Sediment	<input type="checkbox"/> Agriculture	<input type="checkbox"/> Drinking Water		
<input type="checkbox"/> Metals	<input checked="" type="checkbox"/> Forestry	<input type="checkbox"/> Aesthetics		
<input type="checkbox"/> Fish Consumption Guidelines (FCG)	<input checked="" type="checkbox"/> Residential	<input checked="" type="checkbox"/> Other (Please List) Runoff Dirt Roads Legacy Sed.		
<input type="checkbox"/> Other (Please List)	<input checked="" type="checkbox"/> Other (Please List) Dirt Roads and Ditches			

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)
The Georgia Post newspaper	Public information about all watershed creeks	All Creeks	County & Region residents	07/03
Crawford County	Water quality information on County website	All Creeks	County & Region residents	12/03
Crawford County	Distribution of water quality pamphlets through County offices	All Creeks	County & City residents	06/04
Dept. of Community Affairs	Public education on DCA Ocmulgee River Assessment	All Creeks	County & Region residents	01/04
Local Partners	Establish Adopt-A-Stream programs in Crawford County	Hartley Branch	County & Region residents	12/05
Property Owners	Establish local Homeowner's Association to aid communication	Hartley Branch	Lake Richardson and are homeowners	12/03 -
Georgia DNR	Distribute educational materials on unpaved road practices	All creeks	County & Region residents	12/05

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
David Bennett, Deputy Exec. Director GA Soil & Water Conservation Comm.	P. O. Box 8024	Athens	GA	30603		
Dennis Brooks NRCS, USDA Service Center	205 East Jeffersonville	Madison	GA	30650	(706) 342-1315	
Ben Brown, Supervisor Piedmont Soil & Water Conservation Dis.	3014 Heritage Road, Suite 1	Milledgeville	GA	31061		
Harriet Bryant Water Resources Branch-Georgia EPD	4220 International Pkwy., Suite 101	Atlanta	GA	30354	(404) 675-1670	Harriet_Bryant@ mail.dnr.state.ga.us
Grady Calvert, Supervisor Piedmont Soil & Water Conservation Dis.	3014 Heritage Road, Suite 1	Milledgeville	GA	31061		
Ralph Crumley, Supervisor Piedmont Soil & Water Conservation Dis.	3014 Heritage Road, Suite 1	Milledgeville	GA	31061		
Joe Duckworth Cattlemen's Association	299 Barrows Ferry Road	Milledgeville	GA	31061		
Brent Dykes Ga. Soil & Water Conservation Comm.	3014 Heritage Road, Suite 1	Milledgeville	GA	31061	(478) 445-5766	bdykes@gaswcc.org
Mike Giles Georgia Poultry Federation	P. O. Box 763	Gainesville	GA	30503	(770) 532-0473	mike@gapf.org
John Grimes, Supervisor Piedmont Soil & Water Conservation Dis.	3014 Heritage Road, Suite 1	Milledgeville	GA	31061		
Nathan Klaus Georgia DNR - Nongame Wildlife	116 Rum Creek Drive	Forsyth	GA	31029	(478) 994-1438	naklaus@mindspring.com
Drew Marczak The Timber Company	P. O. Box 1069	Watkinsville	GA	30677		
Abit Massey, President Georgia Poultry Federation	Box 763	Gainesville	GA	30503		
Bill Meaks Poultry Science Dept.	University of Georgia	Athens	GA	30602	(706) 542-9182	bmeaks@UGA.edu
William J. Moore	355 Monticello Highway	Gray	GA	31032		

Don Morse, Program Dev. Coord. UGA Cooperative Extension Service	1109 Experiment Street Flynt Building, Room 227	Griffin	GA	30223-1797		
David Pitts, Supervisor Piedmont Soil & Water Conservation Dis.	3014 Heritage Road, Suite 1	Milledgeville	GA	31061		
Mark Risse, Extension Engineer UGA Cooperative Extension Service	Driftmier Engineer Building The University of Georgia	Athens	GA	30602		
William Segars, State Water Qual. Eng. College of Agriculture/Envir. Sciences	University of Georgia Plant Sciences Building	Athens	GA	30602		
Ronnie Shell, Refuge Manager Piedmont National Wildlife Refuge	718 Juliette Road	Round Oak	GA	31038	(478) 986-5441	piedmont@fws.gov
Robert Shulstead, Asst. Dean & Coord. College of Agriculture/Envir. Sciences	University of Georgia Conner Hall	Athens	GA	30602		
Wayne Tankersley, District Agent UGA Cooperative Extension Service	1109 Experiment Street Flynt Building, Room 227	Griffin	GA	30223-1797		
Mike Tanner, Chief Ranger Georgia Forestry Commission	2692 Highway 441 S.	Milledgeville	GA	31061		
David Thompson Cagles, Inc.	P. O. Box 570	Forsyth	GA	31029	(478) 994-5156	CagleFarmInc.@aol.com
Joe Thornton	676 North Cross Road	Gray	GA	31032		
Larry Walker Weyerhaeuser Company	P. O. Box 238	Oglethorpe	GA	31068	(478) 472-5269	Larry.Walker@Weyerhaeuser.com
Elizabeth Watts	50 Mays Street	Forsyth	GA	31029	(478) 994-6688	
Harold West Georgia Forestry Commission	119 Highway 49	Milledgeville	GA	31061	(478) 445-5164	hwest@gfc.state.ga.us
Tiffany Wharton Environmental Code Enforcement	P. O. Box 1359	Gray	GA	31032	(478) 986-6084	jjcclean@mylink.net
Wayne Williams, President Georgia Cattlemen's Association	1473 Hunting Club Road	Crawfordville	GA	30631		
John Wilson Ocmulgee Riverkeeper	2340 Clayton Street	Macon	GA	31204		
Tom Wooten, Chief Ranger Georgia Forestry Commission	302 Milledgeville Road	Eatonton	GA	31024		
Geneva A. Hudson	2521 Richardson Mill Road	Fort Valley	GA	31030		
Chris L. & Toby K. Campbell	2525 Richardson Mill Road	Fort Valley	GA	31030		
Donald O. & Annette Horn	2393 Richardson Mill Road	Fort Valley	GA	31030		

Danny K. Howard	4781 Fulton Mill Road	Macon	GA	31216
Marilyn M. Gallagher Ms. April Bakersmith	P. O. Box 1422	Fort Valley	GA	31030
Jack Elliott, Jr.	1421 Richardson Mill Road	Fort Valley	GA	31030
Eldries J. Colbert	P. O. Box 10391	Savannah	GA	31412
Joy Broadcasting	1110 Richardson Mill Road	Fort Valley	GA	31030
John W. Roberts	216 N. Lake Drive	Perry	GA	31069
Paul William, Jr.	2696 Richardson Mill Road	Fort Valley	GA	31030
James S. & Patricia Evans	2251 Richardson Mill Road	Fort Valley	GA	31030
Erica Akins Peacock	2366 Richardson Mill Road	Fort Valley	GA	31030
James A. & Margaret L. Lynn	108 Pine Ridge Drive	Byron	GA	31008
Wendell R. & Joann Barlow	192 Lake Richardson Drive	Fort Valley	GA	31030
Jeffrey B. & Rita Meadows	190 Lake Richardson Drive	Fort Valley	GA	31030
Bobby N. & Phyllis Crosby	222 Lake Richardson Drive	Fort Valley	GA	31030
Carroll M. & Rebecca M. Harrelson	238 Lake Richardson Drive	Fort Valley	GA	31030
Keith W. & Irene H. Langley	106 Howley Road	Bonaire	GA	31005
Susan L. Doan	114 Lake Richardson Drive	Fort Valley	GA	31030
William Todd Wilson	1246 S. Houston Lake Road	Warner Robins	GA	31088
Johnny & Keturah Rogers	2462 Richardson Mill Road	Fort Valley	GA	31030
Sara H. Dupree	57 Lake Richardson Drive	Fort Valley	GA	31030
Harvey Wright	135 Lake Richardson Drive	Fort Valley	GA	31030
Lisa M. Bassett	201 Lake Richardson Drive	Fort Valley	GA	31030
Michael S. Bryant	221 Lake Richardson Drive	Fort Valley	GA	31030
James A. & Dunita Lynne Berta, Sr.	265 Lake Richardson Drive	Fort Valley	GA	31030
James L. Holt	333 Lake Richardson Drive	Fort Valley	GA	31030
Lennie E. Crook	216 B Greeacre Lane	Cartersville	GA	30121
Greg Dent, Chairman Crawford County Commission	P. O. Box 1059	Roberta	GA	31078

David R. Bailey, Mayor	P. O. Box 278	Roberta	GA	31078	
Lucy Lynn	102 Lake Richardson Drive	Fort Valley	GA	31030	(478) 825-0478
John Geyman	66 Lake Richardson Drive	Fort Valley	GA	31030	(478) 827-0357
Aubrey Gordon	384 Lake Richardson Drive	Fort Valley	GA	31030	
Brenda Carroll Crawford County Development Authority	P. O. Box 343	Roberta	GA	31078	
David Simpson	Grace Road	Knoxville	GA	31078	
Patti Temple	P. O. Box 860	Roberta	GA	31078	

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)
Hartley Branch	Tributary to Deep Creek	1	Fishing	PS
Primary County	Secondary County	Second RDC	Source (Point/ Nonpoint)	
Crawford			Nonpoint	
Pollutants	Water Quality Standards	Required Reduction	TMDL ID	Date TMDL Established
Bio(sediment)	NA	30.9%		January 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*
(Bio) Sediment	Unpaved Roads	Loosened soil particles from unpaved roadways carried away from the roadway, ditch, and road bank by water, wind, or traffic, as well as ditches.	Hartley Branch
(Bio) Sediment	Commercial and Residential Development	Neglected silt fence and related structures allow unchecked sediment to leave disturbed areas after a storm event	Hartley Branch
(Bio) Sediment	Legacy Sediment	Velocity of runoff possibly disturbing latent legacy sediment.	Hartley Branch
(Bio) Sediment	Unpaved driveways	Unpaved, unregulated, and badly maintained private driveways in the Richardson Mill Road dirt portion area are contributing to the sediment problem.	Hartley Branch
(Bio) Sediment	Forest clear cutting, logging roads, and subsoiling	Possible past clear cutting without any regard for Georgia Forestry Commission BMPs	Hartley Branch
(Bio) Sediment	Undefined development upstream	Residents reported hearing large earth moving machines working upstream	Hartley Branch
(Bio) Sediment	1999 Richardson Mill Road construction	Road work in 1999 contributed to sediment.	Hartley Branch
(Bio) Sediment	Four wheel RV crossing of stream bed	Along power line crossing, four wheelers destroying bank downstream of testing.	Hartley Branch

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
Georgia Water Quality Act (OCGA 12-5-20)	Georgia 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	In progress	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio (Sediment)	Point and Non-Point Sources (FC), Commercial and Residential Development (Sediment)	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
Georgia EPD responsible for enforcement and compliance, for listed sources.	On-going		

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Georgia Growth Planning Act (OCGA 12-2-8) Part V Environmental Criteria	Georgia DNR, DCA, MGRDC, and local units of government	Authorized Georgia DNR to develop minimum planning standards and procedures that local jurisdictions could adopt and enforce pertaining to the protection of river corridors, mountain tops, water supply, watersheds/reservoirs, groundwater recharge areas, and wetlands. Silvicultural activities may be exempted from permitting requirements provided the activity complies with BMPs.	2006 (Part of Unified Planning Work Program)	Proposed	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio (Sediment)	Commercial and Residential development	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
Crawford County to adopt Part V Criteria at next Comprehensive Plan update	2006		

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Unpaved Road Maintenance BMPs	Crawford County	Crawford County to consider adoption of BMPs regarding unpaved road maintenance in immediate proximity of stream crossings	2004	Proposed	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio (Sediment)	Unpaved roads	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
County to consider implementation of BMPs as part of normal operating procedures, and training appropriate personnel.	2004		
Georgia DNR to provide training and/or materials, including a manual and video for motorgrader training	2004	-	

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Greenspace Program	Crawford County	Establish committee to advise county on targeting general and specific areas to designate as greenspace.	2005	On-going	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio, habitat, sediment, nutrients	Commercial and Residential development	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	

Committee to develop implementation plan and advise County on future purchases of suitable Greenspace property/easements. 2005

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Clean Water Act/Section 404	EPA/ Army Corps of Engineers	Requires permit to dredge and fill activities in lakes, rivers, and perennial and intermittent streams, wetlands, sloughs, and natural ponds. Requires normal forestry practices to adhere to BMPs and 15 baseline provisions for forest road construction and maintenance and agriculture in order to qualify for the silvaculture exemption from the permitting process.	1972, 1988	1986, In-progress	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio (Sediment)	Unstable dams	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
More stringent review and post review enforcement of private driveway regulations	Crawford County	Reviews location and plans for new private driveway installation to ensure driveway does not become a liability for the public sector.	2003	In progress	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio Sediment	Unpaved driveways	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
Plans and recommendations should be reviewed on a case-by-case basis and follow-up inspections done by the County Road Superintendent.	2003		

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Examination of cul-de-sac at end of Lake Richardson Drive	Crawford County	County to inspect and decide on best action to take and who responsible	2003	Underway	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio Sediment	Various	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
Bibb County to inspect and assess cul-de-sac	2003	2003	

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Review and amending of existing land use ordinances	Crawford County	Review of existing land use ordinances to assess relative effectiveness of ordinances at limiting the velocity and negative impacts of urban stormwater runoff.	2004	Proposed	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
(Bio) Sediment	Urban runoff	Hartley Branch	

Measurable Milestones	Schedule	Comments
Crawford County to review ordinances	2004	

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/Voluntary
Georgia Erosion and Sedimentation Act	Georgia DNR/EPD State Soil and Water Conservation Commission	Requires permits and plans for land-disturbing activities, plans to allow for control and treatment of any source of sediments and adequate sedimentation control facilities to retain sediment to preclude sedimentation of adjacent waters.	1975	In progress	Regulatory

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio (Sediment)	Commercial and Residential Development, and Mining (Sediment)	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
Legislation calls for the adoption of local procedures governing land-disturbing activities. DNR can adopt procedures if absent locally. Crawford County has no local enforcement or ordinance, should adopt enforcement and review. Currently the state is left to enforce.	On-going		

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/Projected Date	Status	Regulatory/Voluntary
Creation of an Adopt A Stream Program	Crawford County and local partners	Creation of grassroots volunteer organization that will assist in further public awareness and collecting additional stream data	2004	Not yet initiated	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio (Sediment) & Fecal Coliform	Various	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
Formation of separate AAS groups	2004		
Public Awareness and data collection program started	2005		

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/Projected Date	Status	Regulatory/Voluntary
Cooperative Monitoring Program	AAS, Crawford County	Additional sampling can be performed to better determine the actual sources	2004	Not yet initiated	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio - Sediment	Various	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
Actual sampling performed	2004		

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/Projected Date	Status	Regulatory/Voluntary
Creation of Lake Richardson Homeowners' Association	Local Property Owners	Creation of grassroots association to further public awareness and communicate needed issues	2004	Not yet initiated	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio Sediment		Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	
Creation of group	2004		

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status	Regulatory/ Voluntary
Georgia's Forestry Best Management Practices	Georgia Forestry Commission (matters involving enforcement are generally referred to Ga EPD)	Inform landowners, foresters, timber buyers, loggers, site preparation and reforestation contractors and others involved with silvicultural operations about commonsense, economical effective practices to minimize non-point sources and thermal pollution.	1989, 1997	In-progress	Voluntary

Pollutant(s) Affected	Sources of Pollutant(s)	Impacted Waterbodies*	Anticipated or Past Effectiveness
Bio (Sediment)	Silviculture	Hartley Branch	

Measurable Milestones	Schedule		Comments
	Start	End	

Regulation/Ordinance or Management Measure	Responsible Government, Organization or Entity	Description	Enacted/ Projected Date	Status
Georgia Forestry Commission Monthly BMP Assurance Examination	Georgia Forestry Commission (matters involving enforcement are generally referred to Ga EPD)	In an effort to document "reasonable assurance" that water quality will be proactively protected during regular ongoing silvicultural operations, the GFC will offer a monthly BMP assurance examination of active sites. All active or ongoing sites will be identified either through monthly air patrol flights, courthouse records, riding the roads, or notification of landowners. Sites located within watersheds of specific biota (sediment) impaired streams will be given a higher priority to identify and conduct examinations.	01/01/03	Proposed

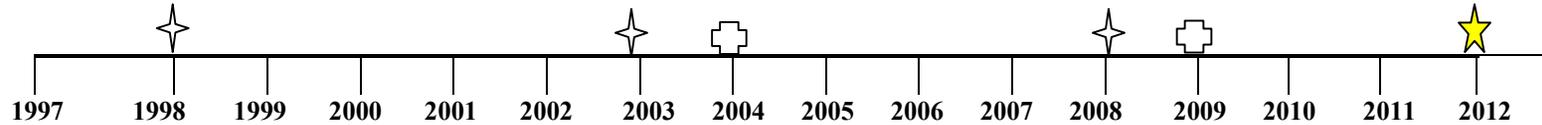
POTENTIAL FUNDING SOURCES

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*
Georgia Greenspace Program	Georgia Dept. of Natural Resources	Proposed	\$?	
Georgia Quality Growth Program	Georgia Dept. of Community Affairs	Proposed	\$25,000	
US EPA Section 604(b) grant funds	Georgia DNR/Middle Georgia RDC	Proposed	\$5,000	Hartley Branch
US EPA Watershed Surveys and Planning Program	US Environmental Protection Agency	Proposed	??	Hartley Branch
Section 319 program	US EPA	Proposed	\$?	Hartley Branch

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	
Additional Sampling	AAS, homeowners' association, local governments	Hartley Branch	Biota Sediment	Cooperative monitoring program could be created to better assess and identify sources, especially in conjunction with the Stream Team's efforts	2004	2004	Proposed
Additional Sampling	EPD "Stream Team"	Ocmulgee River Basin	Sediment	Stream Team will return to Ocmulgee Basin to perform additional testing	2004	2004	Proposed

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 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) Crawford County will be adopting the Part V Environmental Criteria in 2006. The County
And may consider the more stringent enforcement of a driveway permitting/inspection process and review of current land ordinances.

- Best management practices installed (agricultural, forestry, urban) Crawford County will consider the adoption of unpaved road BMPs. Georgia
Forestry will continue outreach efforts at BMPs and assurance examinations.

COMMENTS

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

TOGETHER WE CAN MAKE A DIFFERENCE!