STATE OF GEORGIA
TIER 2 TMDL Implementation Plan (Revision # 1)
Segment Name: Nevils Creek
Date: June 15, 2007
River Basin: Ogeechee River Basin
Local Watershed Governments: Bulloch County

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 (Best Management Practices, or BMPs) to reduce pollutants, milestone schedules to show development of the BMPs (*measurable milestones*), and a monitoring plan to determine BMP effectiveness.

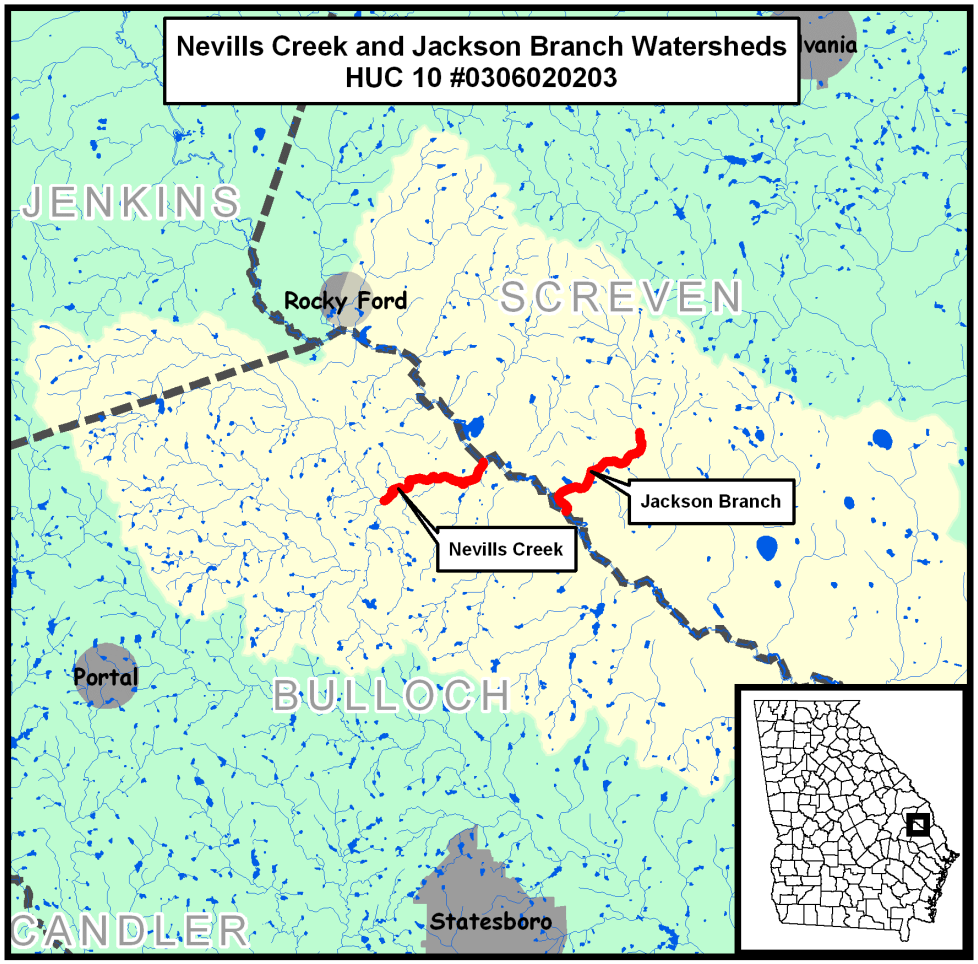


Table 1. IMPAIRED SEGMENTS IN THE HUC 10 WATERSHED

IMPAIRED SEGMENT	IMPAIRED SEGMENT LOCATION	EXTENT (mi/ac)	CRITERIA VIOLATED	EVALUATION
Jackson Branch	Downstream King Finishing Company from SR17 to Ogeechee River, Dover	1 miles	Fecal Coliform	Not Supporting
Jackson Branch	Upstream King Finishing Company from SR17 to Co. Rd. 39, Dover	2 miles	Fecal Coliform	Partially Supporting
Nevils Creek*	Bay Gall Creek to Ogeechee River near Rocky Ford	3 miles	Dissolved Oxygen*	Not Supporting
Nevils Creek	Bay Gall Creek to Ogeechee River near Rocky Ford	3 miles	Fecal Coliform	Not Supporting
Ogeechee River*	Hwy. 102 to U.S. Hwy 301	98 miles	Trophic-Weighted Residue (Hg)*	Partially Supporting

* Plan to be done by EPD

II. GENERAL INFORMATION ABOUT THE HUC 10 AND THE SPECIFIC SEGMENT WATERSHED

Following is a review of watershed characteristics including its size and location, political jurisdictions, physical features, land uses, and identified potential sources of pollutants that could cause or contribute to violations of water quality standards addressed in this TMDL Implementation Plan. New conditions or changes in information contained in the previous TMDL Implementation Plan should be in **bold** and underlined.

Nevils Creek is a 3-mile segment located in Bulloch County, north of Statesboro near the Bulloch/Screven County Line. It begins at the confluence of Banks Creek and a tributary of Bay Gall Creek, and flows north until it joins the Ogeechee River at the Screven-Bulloch County line near the City of Rocky Ford.

According to the 2005 EPA *Total Maximum Daily Load Evaluation for Twenty-one Stream Segments in the Ogeechee River Basin for Fecal Coliform,* the total land coverage in the stream segment watershed is 34,042 acres, and the land use categories include the following:

- 13,622 acres, or 40% of forest lands;
- 13,264 acres, or 38.9% of agriculture lands (row crops);
- 3,493 acres, or 10.2% of woody wetlands;
- 2,255 acres, or 6.6% of lands described as transitional lands;
- 1,129 acres, or 3.3% of pasture lands; and
- Less than 1%, or 279 acres are comprised of open water, residential uses, commercial/industrial uses, barren land, other grasses (urban, recreational), and emergent herbaceous wetlands.

Nevils Creek was sampled at Bulloch County Road 578 near Rocky Ford, Georgia in 2002.

A field survey on February 26, 2007 was conducted at the bridge crossing on Old River Road strictly for the impaired segment; however the team visited other stream segments that flow into Nevils Creek (Banks Creek and Bay Gall Creek). These proved important because there are obvious degraded stream conditions at Bank Creek near Old Mallard Pond Road, where cattle and swine have full access to the stream and show signs of them denuding the land. There was also an old mill pond located around 300 yards from the bridge that feeds the Banks Creek tributary. This pond is three to four feet deep and provides habitat to a large number of waterfowl and other birds. NRCS officials also stated that there are bald eagles present near this pond.

The field surveys back up the data provided in the 2005 land coverage report, as most of the accessible area consisted of forests, undeveloped land, land devoted strictly to agricultural uses (row crops), and sparse residential development consisting of large lots used for row crops and agricultural livestock. The Bulloch County Comprehensive Plan, due in 2009, should be able to provide more up-to-date information on existing land use and plans for future development of the county, which may be useful in updating this implementation plan

Bulloch County is the Local Issuing Authority for Erosion and Sedimentation permitting of land disturbing activities and permits are administered through the Bulloch County Building Office.

III. CAUSES AND SOURCES OF SEGMENT IMPAIRMENT(S) LISTED IN TMDLs

Table 2 provides information contained in the current TMDL for the impaired water body. This includes the name and location of the impaired segment, the water quality criteria violated, and the wasteload and load allocations determined in the TMDL. Potential sources described in the TMDL may include domestic treatment facilities (M), industrial treatment facilities (I), urban runoff and sources (UR), and other nonpoint or unknown (NP) sources. By definition, "wasteload allocations" (WLA) are established for municipal and industrial treatment facilities and storm water discharges in permitted areas (WLAsw), while "load allocations" (LA) are established for nonpoint sources. **Wasteload allocations are assigned by EPD during the NPDES permitting process. They are not part of EPD's TMDL implementation planning process, which deals solely with non-point sources of pollutants.**

Table 2. WASTE LOAD AND LOAD ALLOCATIONS AND TMDLS FOR THE IMPAIRED SEGMENT

STREAM SEGMENT NAME	LOCATION	CRITERIA VIOLATED	WLA	WLAsw	LA	TMDL
Nevills Creek	Bay Gall Creek to Ogeechee River near Rocky Ford	Fecal Coliform	N/A	N/A	3.53E+12	3.93E+12

Table 3 also contains information presented in the TMDLs that this plan is designed to address. This includes the criteria responsible for the impairment(s), the specific water quality standard(s) violated, potential sources/causes of impairment, and the needed reduction in source loads estimated in the TMDL.

Table 3. SOURCES OF IMPAIRMENT INDICATED IN THE TMDLs

CRITERIA VIOLATED	WQ STANDARD	SOURCES OF IMPAIRMENT	NEEDED % REDUCTION (FROM THE TMDL)
Fecal Coliform Bacteria (FC)	1,000 per 100 ml (geometric mean Nov-April) 200 per 100 ml (geometric mean May-Oct)	Wildlife Agricultural Livestock • Animal Grazing • Animal Access to Stream • Application of Manure to pastureland and cropland Urban Development • Leaking sanitary sewer lines • Leaking septic systems • Land Application Systems • Landfills • Illicit discharging (from straight piping or commercial waste trucks	2 percent

IV. IDENTIFICATION AND RANKING OF POTENTIAL SOURCES OF IMPAIRMENT

This section identifies and describes, in order of importance, the extent and relative contributions from sources of pollutants listed in Table 2 and identified through this TMDL implementation planning process. This description includes information presented in the current TMDL or TMDL implementation plan and/or collected during the TMDL implementation planning process that either verifies or alters estimates of contributions from the sources listed in the TMDL and repeated in Table 2.

In the Nonpoint Source Assessment, the TMDLs lists three potential sources of impairments: wildlife, agricultural livestock, and urban development. Visual field surveys were conducted to evaluate the stream condition and the presence of any of these potential sources of impairments. Aerial photos provided by Georgia EPD show that the buffers are predominantly intact along the impaired stream segment, with the adjacent land coverage along the length of the corridor showing very little signs of disturbance or development. The stream buffer did look good except in areas where the stream was located near agricultural lands.

Wildlife may be regarded as the largest contributor of fecal coliform bacteria within the segment watershed. Wild hogs and beavers are located throughout the Lower Ogeechee River Basin. The waterfowl and other wildlife activity at the old mill pond could also be a hot zone, but any action there may be limited due to possible bald eagle activity in the area.

Within the segment watershed and adjacent to the impaired segment corridor, there are extensive signs of agricultural activity, some observed to be row crops and others as small scale cattle/swine pasture lands that allow animals access to the stream. Through discussion with the Georgia Soil

and Water Conservation Commission (GSWCC), Natural Resources Conservation Service (NRCS), and Resource Conservation & Development (RC&D) regional representatives, the application of manure to pastureland and cropland is not a practice that occurs in this watershed, and is thus eliminated from the nonpoint source assessment for the purpose of this implementation plan.

Leaking or failing septic systems, the potential for straight piping, and illegal pump outs from commercial waste haulers could also be possible activities contributing to fecal coliform loads in the watershed. The Bulloch County Environmental Health Office issues permits for septic system installations, but states that they only issue permits in this portion of the county on a very limited basis. They said that there are a very little number of septic systems installed the area. A 50-foot setback is required for all systems to be located near a water body. According to the Environmental Health Office, failing septic systems are usually identified through personal complaint, and with the limited development in the area, a failing system may not be identified or reported for a while. There is little to no monitoring of the systems installed in Bulloch County. At least three aerobic treatment units (ATUs) have been observed in the watershed. ATUs are a type of onsite septic disposal system that pre-treats wastewater by adding air to break down the organic matter, reduce pathogens, and transform nutrients.

Table 4 ranks potential sources of water quality impairments in order of importance as determined through this TMDL implementation planning process. A "rating scale" of 0.5 to 5 has been developed for this activity. "Rating A" is an estimate of the geographic extent of each potential nonpoint source as a percentage of the contributing watershed area, percent of stream miles affected, or number of acres. "Rating B" is an estimate of the relative contribution from each major source of the pollutant causing the impairment. The overall relative "Impact Ratings" for each source is calculated by multiplying Rating A by Rating B.

The following table provides guidance for rating the estimated extent (Rating A) and portion of the contribution (Rating B) from each potential source and cause.

Rating A: Estimated Geographic Extent of the Source or Cause in the Contributing Watershed	**Rating B:** Estimated Portion of Contribution from the Source to the Pollutant Load Causing the Impairment	**Rating**
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	0.5
Scattered or low (approximately 5-20%)	Scattered or low (approximately 5-20%)	1
Medium (approximately 20-50%)	Medium (approximately 20-50%)	3
Widespread or high (approximately 50% or more)	Widespread or high (approximately 50% or more)	5
Unknown	Unknown	UNK

Comments on the source of information used to determine the extent or contribution are entered in the applicable columns in Table 4. Appropriate management actions (i.e. watershed assessments, increased water quality monitoring, etc.) are suggested where available information is deemed inadequate to estimate the extent and relative contribution of significant potential sources.

Table 4. EVALUATION OF POTENTIAL SOURCES OF STREAM SEGMENT IMPAIRMENT

CRITERION: Fecal Coliform

POTENTIAL SOURCES	ESTIMATED EXTENT OF CONTRIBUTION		ESTIMATED PORTION OF CONTRIBUTION		*IMPACT RATING (A X B)*
	Comments	*Rating (A)*	Comments	*Rating (B)*	
Wildlife	Throughout.	3	Reports of large wild hog and beaver populations located within the Lower Ogeechee River Basin. There were signs of beavers (gnawing on trees) in the watershed. Old mill pond that feeds Banks Creek provides excellent habitat for waterfowl and other wildlife.	3	9
Agricultural Livestock	Throughout.	3	Mostly small scale swine and cattle operations observed but all these appeared to have limited fencing in place to prevent access to the streams. The stream buffers were also more degraded near the pasturelands, which could create a potential loss of filtering capacity due to loss of wetlands, but hardly any degradation of the buffer was observed near lands used for row crops.	1	3
Leaking or Failing Septic Systems or straight piping, illegal discharge of	Throughout, although very sparse.	.5	Estimated to be low in the watershed – lots are large – and a limited number of permits are issued by the environmental health office. Future development expected to be low in the watershed since a large amount of the land is owned by only a few families.	1	.5

V. STAKEHOLDERS

Public involvement through the stakeholder process is a vital component of TMDL implementation planning. Stakeholders with local knowledge can provide valuable information regarding their communities, impaired waters, potential sources of impairments, and BMPs that might be employed to improve water quality. This section describes outreach activities engaging local stakeholders in the TMDL implementation plan preparation process, including the number of attendees, meeting dates, and major findings, and recommendations.

The first stakeholder meeting was announced through public notice published in the local newspaper, the Sylvania Telephone, as well as through invitation letters addressed to a group of initially identified stakeholders that included local officials, members of the Natural Resources Conservation Service, environmental and special interest groups, and representatives from the Coastal Health district. The meeting will be held on Thursday, May 31, 2007, from 6:00-8:00 p.m. at the Bulloch County Center for Agriculture, 151 Langston Chapel Road in Statesboro.

The CGRDC presented information on the TMDL planning process and the development of the plan. Ten people were in attendance, which included two representatives from the Screven County Extension Service, four from the NRCS, one from the Central Savannah River RC&D, one from GSWCC, one representing Screven County (Public Works Director), and the Executive Director of the Ogeechee-Canoochee Riverkeeper. No one specifically representing Bulloch County was present at this meeting.

We encouraged input from those who are familiar with the watershed and how to address the potential nonpoint source contributors of fecal coliform bacteria. Through discussion with the group, a potential nonpoint source – the application of manure to pastureland/cropland – was eliminated.

The group also said that Bulloch County is going through another severe drought. Portions of the segment watershed were described as dry – with no water in the creek beds – just a few months after the visual surveys in February. Potential sources of fecal coliform bacteria were also described to come from an old mill pond located in the watershed. It is a haven for waterfowl and other wildlife, but is located on private property and there were reported bald eagles in the area.

Additional meetings and outreach activities are expected to occur during the month of August.

Following is a list of advisory committee or watershed group members who participated in this TMDL implementation planning process.

Table 5. STAKEHOLDER ADVISORY GROUP MEMBERS

NAME/ORG	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Tom Joyner - GSWCC	151 Langston Chapel Rd	Statesboro	GA	30458	912-681-5241	tjoyner@gaswcc.org
Rahn Milligan - GSWCC	151 Langston Chapel Rd	Statesboro	GA	30458	912-681-5241	rmilligan@gaswcc.org
Glyn Thrift - NRCS	151 Langston Chapel Rd	Statesboro	GA	30458	912-871-2600	glyn.thrift@ga.usda.gov
Gene Oliver – RC&D	185 Richard Davis Dr, Suite 201	Richmond Hill	GA	31324	912-459-2070	gene.oliver@ga.usda.gov
Austin Blackburn - NRCS	216 Mims Rd	Sylvania	GA	30567	912-564-2207	austin.blackburn@ga.usda.gov
Jason Gatch - NRCS	151 Langston Chapel Rd	Statesboro	GA	30458	912-871-2600	jason.gatch@ga.usda.gov

Major stakeholders in the watershed are listed in Appendix A.

VI. MANAGEMENT MEASURES AND ACTIVITIES

Table 6A identifies significant BMPs that either have been or may be implemented in the future to address sources of impairment. The BMPs are in Column 1, organization responsible for implementation in Column 2, description of the measure(s) in Column 3, and sources of funding or other resources in Column 4. Column 5 contains one of the following status codes: (A) installed and active; (AE) active and will be enhanced or expanded; (R) required by law, regulation or permit conditions; (P) currently proposed, but not required; (NR) new recommendation; or (NE) enhanced existing recommendation. Column 6 shows the approximate date when the measure has or will be implemented. Column 7 contains an "extent" rating for the BMP or the percentage of individual sources to which the BMP has or will be applied (see the following table). Column 8 is an estimated BMP "effectiveness" rating that may be either provided by local experts or derived from technical guidance information. The following table provides guidance for rating the estimated management measure "extent" and "effectiveness" of each significant potential source.

BMP Extent (Percentage of Sources to Which the BMP Has or Will Be Applied)	**BMP Effectiveness** (Percent Removal of Pollutant by the BMP)	**Rating**
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	.5
Scattered or low (approximately 5-20%)	Low to medium (approximately 5-25%)	1
Medium (approximately 20-50%)	Medium to High (approximately 25-75%)	3
Widespread or high (approximately 50% or more)	High (approximately 75% or more)	5
Unknown	Unknown	UNK

Table 6A. MANAGEMENT MEASURES AND ACTIVITIES

GENERAL AND SPECIFIC MEASURES APPLICABLE TO ALL PARAMETERS

BEST MANAGEMENT PRACTICE (1)	RESPONSIBILITY (2)	DESCRIPTION (3)	SOURCES OF FUNDING & RESOURCES (4)	STATUS CODE (5)	TARGET DATE (6)	EXTENT RATING (7)	EFFECT. RATING (8)
Federal Clean Water Act, Section 305(b) and 303(d)	USEPA, Georgia DNR/EPD, Local/County Government	The congressional objective of the CWA "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 305 (the *National Water Quality Inventory*) requires states to report progress in restoring impaired waters to EPA on a biennial basis. Section 303(d) requires states to identify 'impaired' waters, submit a list to EPA every two years, and develop TMDLs for these waters.	Federal, State	A	1972	3	UNK
Georgia Water Quality Control Act (OCGA 12-5-20)	Georgia Department of Natural Resources Environmental Protection Division	Makes it unlawful to discharge excessive pollutants (sediments, nutrients, pesticides, animal wastes, 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	State	A	1964	1	UNK

		habitats.					
Georgia Planning Act, Part 5	Local/County Government	Coordinated Planning Program, managed by Georgia DCA, assigns local governments Environmental Planning Criteria (set by Georgia DNR) to include in local long-term comprehensive plans: • Water Supply Watersheds • Groundwater • Wetlands • Protected Rivers • Protected Mountains Program also requires local governments to identify Developments of Regional Impact (DRI) and develop plans to protect and manage Regional Impact Resources (RIR).	Local/County Governments Impact Fees (proposed amendments are under review)	AE	1992	1	UNK
Georgia River Basin Management Planning Act, Georgia Code Section 12-5-521	Georgia DNR/EPD	River Basin Management Plans describe strategies and measures necessary for local governments, businesses, and citizen groups to educate the general public on matters involving the environmental and ecological concerns specific to the river basin; improve water quality and reduce pollution at the source; improve aquatic habitat and reestablish native species of fish; restore and protect wildlife habitat; and provide recreational benefits.	State, Local/County Government	A	2001 Ogeechee River Basin	UNK	unk
Georgia Erosion & Sedimentation Control Act, Construction Permit, 2003 Amendment	Local/County Government, Georgia DNR/EPD, Georgia Soil & Water Conservation Commission	Local/county government certified by Georgia EPD as Local Issuing Authority for land-disturbing activities. Requires Erosion & Sedimentation Control Plan incorporating best management practices plus "Qualified Personnel" Training and Certification Program adopted from Georgia Soil & Water Conservation Commission. Certification of on-site "Qualified Personnel" to ensure proper design, construction and maintenance of standard E & S control measures and storm water management practices.	State, Local/County Government	A	2003	UNK	UNK
Construction Storm Water Discharge NPDES Permit	Georgia DNR/EPD, Bulloch County	General storm water discharge permit for stand-alone construction sites; infrastructure projects; and common developments. Requires implementation of Erosion, Sedimentation and Pollution Control Plan plus monitoring of discharge for compliance with Georgia's in-stream water quality standards.	State	A	UNK	1	1

New Development Ordinance Revisions	Local/County Government	Review current local Erosion & Sediment Control ordinances and modify as appropriate. Include requirements for professionals involved in erosion and sediment control design and construction to be certified by the county. Require pollution prevention at the construction site through preparation of Erosion, Sedimentation & Pollution Control Plan to address issues such as trash, construction debris, leaking vehicles, storage of chemicals, etc. Subdivision ordinances addressing channel protection and conservation will provide further guidelines for construction activities.	Local/County Government	A	UNK	UNK	UNK
Regulation of On-Site Sewage Management Systems, IAW O.C.G.A. 290-5-26	Georgia DHR, County Board of Health	Rules and regulations for installation and repair of on-site sewage management systems.	State, County Board of Health	A	UNK	UNK	UNK
Section 319(h) Nonpoint Source Implementation Grant	Georgia Environmental Protection Division	Funds distributed through a competitive process to public agencies, regional development centers, State colleges and universities, and State agencies. Eligible projects include TMDL or Watershed Management Plan Implementation, BMP Demonstrations, and Information and Education.	Federal and State Cost Share Program. Recipient must provide 40% match.	A	1987	UNK	UNK
Federal Farm Bill (Swampbuster Ag)	United States Department of Agriculture / National Resources Conservation Services	Prohibits landowners participating in federal price support programs from converting forested wetlands to agriculture.	Federal	A	1985	UNK	UNK
Water Bank Act	United States Department of Agriculture / National Resources Conservation Services	To preserve, restore and improve wetlands of the Nation and thereby to conserve surface waters to preserve and improve habitat for migratory waterfowl and other wildlife resources to retire lands not in agricultural production to enhance the natural beauty of the landscape and to promote comprehensive and total water management planning.10-year contracts with landowners to preserve wetlands and retire adjoining agricultural lands.	Federal Annual payments may be made to participating owners, and the costs of conservation measures may be shared. Total annual payments to owners were limited to $10 million in any year.	A	1970 Amended 1980 and 1984	UNK	UNK
Georgia Best Management	Georgia Department of Agriculture /	Informs those involved in the agricultural business of effective practices to minimize	State	A	UNK	UNK	UNK

Practices	Georgia Environmental Protection Division for enforcement action.	nonpoint source pollution.					
Georgia Rules and Regulations for Water Quality Control Chapter 391-3-6-.20 &. 21	Georgia Department of Agriculture / Georgia Environmental Protection Division for enforcement action.	Outlines the Swine and non-swine Feeding Operation Permit Requirements for Concentrated Animal Feeding Operations (CAFOs) with more than 300 animal units. CAFOs of more than 300 but equal to or less than 1000 animal units receive a land application system (LAS) permit. Larger CAFOs with more than 1000 but less than 3000 must obtain an NPDES permit from EPD.		A	2005	UNK	UNK
National Pollutant Discharge Elimination System (NPDES) Permit Regulations for CAFOS (40 CFR Part 122 & 412)	Environmental Protection Agency and Georgia Environmental Protection Division	Permitting program created under the Clean Water Act to protect and improve water quality by regulating Concentrated Animal Feeding Operations (CAFOs) and providing minimum permit requirements for CAFOs of more than 1000 animal units.	Federal and State	A	2006	UNK	UNK
Chapter 40-13-8 Animal Manure Handlers Rules of Georgia Department of Agriculture Animal Industry Division	Georgia Department of Agriculture	This requires that persons engaged in removing animal manure from livestock/poultry production areas, transporting animal manure on public roadways, or depositing animal manure to a premise other than its point of origin obtain a permit and follow rules to control animal disease, and outlines regulations for transportation, equipment and storage.	State	A	2003	.5	.5
Farm Bill 2002	United States Department of Agriculture / National Resources Conservation Services	Enhances long-term quality of our environment and conservation of our natural resources. This bill provides several opportunities for receiving grants to improve water quality.	Federal Cost-Share and Incentive Programs.	A	202	UNK	UNK
Conservation of Private Grazing Land Program	United States Department of Agriculture / National Resources Conservation Services	This technical assistance will offer opportunities for: better grazing land management; projects for improving water quality include: protecting soil from erosive wind and water; conserving water; providing habitat for wildlife; sustaining forage and grazing plants.	Federal (Farm Bill 2002) This is not a Cost-Share Program.	A	2002	UNK	UNK
Conservation Security Program	Natural Resources Conservation	This is the first program that rewards farmers and ranchers for high levels of	Federal (Farm Bill 2002) Cost Share There is three tiers of	A	2002	UNK	UNK

(CSP)	Services	environmental stewardship. Producers on cropland, orchards, vineyards, pasture and range may apply for CSP regardless of size, type of operation, or crops produced. Land in other cost share programs is not eligible. An enhancement example is to install a riparian buffer.	involvement, which result in different expectations and cost share opportunities.				
Environmental Quality Incentives Program (EQIP)	Natural Resources Conservation Services	Voluntary program that provides technical and cost share assistance for protection of ground and surface water, erosion control, air quality, wildlife habitat, and plant health.	Federal (Farm Bill 2002) 50% cost share with possible additional incentive payments	A	2002	UNK	UNK
Wetlands Reserve Program (WRP)	Natural Resources Conservation Services	Provides technical and financial assistance to landowners to enhance degraded wetlands degraded by farming or draining. There are three options with WRP to receive funds that have differing time agreements and easements resulting in different cost share. In all programs participants control access to the land, may lease or use land for hunting, fishing, and other passive recreational activities. Compatible uses are allowed as long as the do not degrade the wetland.	Federal (Farm Bill 2002) Cost Share 1. Permanent Easement :Pays appraised value of land ($2,000/ acre cap) and 100% of costs of restoration. 2. 30-Year Easement: Pays 75% of appraised value of land and 75% of restoration costs. 3. Restoration Cost Share Agreement: Pays 75% of restoration costs, no easement on the property.	A	2002	UNK	UNK
Conservation Reserve Program (CRP)	Natural Resources Conservation Services / USDA Farm Services Agency	Provides technical assistance, rental payments and cost share funding to address specific natural resource concerns including: protection if ground and surface waters, soil erosion and wildlife habitat. Eligible practices include tree planting, grassed waterways, wildlife habitat buffers, and shallow water area for wildlife and filter strips.	Federal Annual rental payment for land taken out of production and 50% cost share for practice installation.	A	1986	UNK	UNK
GSWCC BMP Manual for Georgia Agriculture	State/Local/Private landowners	Manual provides the agriculture community with knowledge of the best management practices (BMPs) that work to protect surface water quality as well as to help agency personnel educate farmers about BMPs and their usefulness. It is a compilation of conservation practices that address surface water quality and includes an estimate of the effectiveness and relative cost of each BMP.	State/local	A	2007	UNK (Possibly high)	UNK

GENERAL AND SPECIFIC MEASURES APPLICABLE TO FECAL COLIFORM

BEST MANAGEMENT PRACTICE (1)	RESPONSIBILITY (2)	DESCRIPTION (3)	SOURCES OF FUNDING & RESOURCES (4)	STATUS CODE (5)	TARGET DATE (6)	EXTENT RATING (7)	EFFECT. RATING (8)
River Corridor Protection Ordinance	Bulloch County	Establishes River Corridor Protection in local zoning ordinance, Limits development activities within the 100 ft buffer, to include septic system drainfields; Applicable to land disturbing activities near the Ogeechee River	Bulloch County	A	1999	UNK	UNK
Federal Clean Water Act, Section 305(b) and 303(d)	USEPA, Georgia DNR/EPD, Local/County Government	The congressional objective of the CWA "is to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." Section 305 (the *National Water Quality Inventory*) requires states to report progress in restoring impaired waters to EPA on a biennial basis. Section 303(d) requires states to identify 'impaired' waters, submit a list to EPA every two years, and develop TMDLs for these waters.	Federal, State	A	1972	UNK	UNK
Georgia Best Management Practices	Georgia Department of Agriculture / Georgia Environmental Protection Division for enforcement action.	Informs those involved in the agricultural business of effective practices to minimize nonpoint source pollution.	State	A	UNK	UNK	UNK
Soil Erosion and Sedimentation Control	Bulloch County	Limits land disturbing activities within the 25 ft buffer	Bulloch County	A	Amended 2003	1	1
District Wide Septic System Maintenance Program	Bulloch County Environmental Health, Southeast Georgia Health District, Bulloch County, CGRDC	Inventory septic systems in the unincorporated county, education and outreach, develop a maintenance and inspection schedule	319 Program (initial phases), homeowners	NR	2009	UNK	UNK
Fencing along pasturelands to prevent domestic livestock from accessing streams in the watershed	Bulloch County (ordinance), NRCS, GSWCC, RC&D, private landowners	Educate landowners, identify funding opportunities, reconstruct buffers, construction of fencing	319 Program	NR	2008	UNK	UNK
Section 319(h) Nonpoint Source Implementation	Georgia Environmental Protection Division	Funds distributed through a competitive process to public agencies, regional development centers, State colleges and	Federal and State Cost Share Program. Recipient must provide 40% match.	A	1987	UNK	UNK

Grant		universities, and State agencies. Eligible projects include TMDL or Watershed Management Plan Implementation, BMP Demonstrations, and Information and Education.					
Wild Hog Management Assistance	USDA Wildlife Services (Athens)	Developed programs to reduce or eliminate localized wild hog populations.	State, local	NR		1	UNK
Bulloch County Comprehensive Plan Update	Bulloch County, State	Development of the comprehensive plan should consider the water quality issues, with special consideration on those impaired streams (and their watersheds) that are listed on the 305(b)/303(d) list.	Bulloch County	R, NR	2009	UNK	UNK
Bulloch County Community Greenspace Plan	Bulloch County	Identify areas in the county that need to be preserved from future development. Bulloch County and Statesboro commit to promote the permanent protection of 88,628 acres of greenspace, which constitutes 20 percent of the geographic area of the county by 2032.	State, local	A	2001	UNK	UNK
Develop Nevils Creek Watershed Assessment and Protection Plan	Bulloch County, state, CGRDC	Provide an up-to-date assessment of conditions in the watershed. May also help to update and verify success of the TMDL Implementation Plan.	State, local	NR	2010	5	5
Commercial Waste Transporter Law (12-15-21); Regulation of Commercial Waste Originators, Pumpers, Transporters, Processors, and Disposal Facilities (391-3-6-.24)	State, (Pollution Prevention Assistance Division), Local, DHR	Provide minimum uniform statewide regulations for the purpose of regulating transporters that collect and/or dispose of commercial waste; to prevent the improper disposal of commercial wastes; to provide a commercial waste transporter permit that is accepted statewide; and to provide for fees for the cost of permitting and inspecting transporter vehicles.	State, local	A	2005	UNK	UNK

Work Sheet for Table 6B is designed to evaluate the capacity of existing, proposed, or pending BMPs to achieve nonpoint source load reductions specified in the TMDL as well as other BMPs that might be implemented to further reduce pollutant loadings from significant sources. This approach is intended to provide a usable local guide to adopt BMPs for achieving water quality goals, establishing priorities for grant or loan programs, and identifying priorities for local watershed assessments and protection plans.

Columns 1 and 2 contain significant potential sources and their corresponding impact ratings (from Table 3). Column 3 lists significant BMPs applicable to each significant source (from Table 6A). Column 4 is a very brief "evaluation summary", developed in conjunction with local stakeholders, of whether existing or proposed BMPs will achieve load reductions identified in the TMDL. Column 5 contains a summary of additional information needed to further determine significant sources and their relative contributions, and could contain recommendations for water

quality monitoring, watershed assessments, or additional data acquisition. If current or proposed management measures are judged inadequate to achieve the load reductions for significant sources identified in the TMDL, additional management measures that could effectively reduce pollutant loads should be listed in “Additional Information / Measures Needed” (Column 5) and included as new enhanced existing recommendations (NE) or new recommendations (NR) under “Status Code (5)” in Table 6B and under “Milestones” (Table 9).

Work Sheet for Table 6B. EVALUATION OF GENERAL AND SPECIFIC MANAGEMENT MEASURES AND ACTIVITIES APPLICABLE TO EACH CRITERION

APPLICABLE TO FECAL COLIFORM

SIGNIFICANT POTENTIAL SOURCES (1) (From Table 3)	**IMPACT RATING (2)** (From Table 3)	**APPLICABLE BMPs (3)** (From Table 6A)	**EVALUATION SUMMARY (4)**	**ADDITIONAL INFORMATION / MEASURES NEEDED (5)**
Wildlife	9	Wild Hog Management Assistance	Reducing wild hog population could possibly reduce fecal coliform loads and allow for natural buffer and wetlands restoration to occur.	Develop watershed assessment and protection plan.
				Additional monitoring in the watershed is needed. Case study: Perform water quality sampling at the old mill pond and at points downstream and upstream of the pond.
				Dumping of animal carcasses in or near stream segments, especially deer carcasses, has been a problem in the Lower Ogeechee River Basin, although this activity was not observed or reported in this watershed.
Agricultural Livestock	3	Several NRCS sponsored measures.	Many could be applicable to provide education and assistance for fencing to prevent stream access and buffer restoration. This may be a sensitive issue due to possible conflicting attitudes of the property owners within the watershed.	Perform a wetlands inventory in the watershed and identify potential for loss of filtering capacity.
Leaking or Failing Septic Systems or straight piping, illegal discharging	.5	Regulation of On-Site Sewage Management Systems, IAW O.C.G.A. 290-5-26	Ensures that system design and installation guidelines are met; however, system malfunctions may not be corrected for long periods of time.	District Wide Septic System Maintenance Program (Proposed)
		Commercial Waste Transporter Law (12-15-21)	Illegal pumping (emptying) of waste transport trucks (septic sludge, fats, oils, and grease) into the rural streams and creeks may not necessarily be a practice in Bulloch County, but local officials should ensure that the applicable state laws are followed and establish local ordinances if needed.	Incorporate local regulations similar to the state regulations for commercial waste transporters.

Table 6B identifies new enhancements to existing measures (NE) or new recommended measures (NR) that could improve or supplement current or proposed management measures listed in Table 6A, where current and required measures have been judged inadequate for achieving the load reductions from significant sources identified in the TMDL. After further evaluation generated in the Work Sheet for Table 6B, the additional

management measures proposed in Table 6B have been determined more effective in reducing pollutant loads from the most likely sources of impairment. The BMPs are listed in Column 1, organization responsible for implementation in Column 2, description of the measure(s) in Column 3, and sources of funding or other resources in Column 4. Column 5 contains one of the following status codes: (NE) enhanced existing measure or (NR) new recommended measure. Column 6 shows the approximate date when the measure has or will be implemented. Column 7 contains an "extent" rating for the BMP or the percentage of individual sources to which the BMP could be applied (see the following table). Column 8 is an estimated BMP "effectiveness" rating that may be either provided by local experts or derived from technical guidance information. The following table provides guidance for rating the estimated management measure "extent" and "effectiveness" of each significant potential source.

BMP Extent (Percentage of Sources to Which the BMP Has or Will Be Applied)	**BMP Effectiveness** (Percent Removal of Pollutant by the BMP)	**Rating**
None or negligible (approximately 0-5%)	None or negligible (approximately 0-5%)	.5
Scattered or low (approximately 5-20%)	Low to medium (approximately 5-25%)	1
Medium (approximately 20-50%)	Medium to High (approximately 25-75%)	3
Widespread or high (approximately 50% or more)	High (approximately 75% or more)	5
Unknown	Unknown	UNK

Table 6B. RECOMMENDED ADDITIONAL MANAGEMENT MEASURES AND ACTIVITIES TO ACHIEVE LOAD REDUCTIONS (COMPILED FROM TABLE 6A AND COLUMN 5 IN WORK SHEET FOR TABLE 6B)

APPLICABLE TO CRITERION: Fecal Coliform

BEST MANAGEMENT PRACTICE (1)	RESPONSIBILITY (2)	DESCRIPTION (3)	SOURCES OF FUNDING & RESOURCES (4)	STATUS CODE (5)	TARGET DATE (6)	EXTENT RATING (7)	EFFECT. RATING (8)
District-wide Septic System Maintenance Program	Bulloch County Environmental Health, Southeast Georgia Health District, Bulloch County	Inventory septic systems in the unincorporated county, education and outreach, develop a maintenance and inspection schedule	319 Program (initial phases), homeowners	NR	2009	1	1
Establish fencing to prevent domestic livestock from accessing streams	Bulloch County (ordinance), NRCS, GSWCC, private landowners	Educate landowners, identify funding opportunities, perform wetlands assessment, reconstruct buffers, construction of fencing	319 Program, cost share	NR	2009	3	3
Additional monitoring in the segment watershed	Bulloch County, CGRDC	Obtain local or regional SQAP approval. Develop case study for the old mill pond – perform sampling on site and at points downstream and upstream of the pond.	State, local	NR	2009	UNK	UNK
Outreach – Education – Publication	State, RDC, local, NRCS, Bulloch County Extension Service	Develop program to educate hunters and property owners to discourage the placement (illegal dumping) of animal (both wild game and domestic) carcasses in or near bodies of water, specifically streams	State, Federal, local	NR	2010	UNK	UNK

		on the 305(b)/303(d) list. Publication in Georgia Outdoor News, Georgia Outdoor News Network, local paper.					

VII. MONITORING PLAN

Water quality monitoring serves several purposes, including obtaining data to determine sources of pollution, supporting management decisions, describing baseline conditions, and evaluating the effects of management measures on water quality. This section describes parameters to be monitored, status, whether monitoring is required for watershed assessments or storm water permits, and the intended purpose. Submittal of a Sampling and Quality Assurance Plan (SQAP) for EPD approval is mandatory if monitoring data is to be used in support of listing decisions.

Water quality data used to evaluate the criteria violated are less than five years old? Yes [ ] No [ ].

Table 7. MONITORING PLAN

PARAMETER (S) TO BE MONITORED	RESPONSIBLE ENTITY	STATUS (CURRENT, PROPOSED, OR RECOMMENDED)	TIME FRAME		PURPOSE (If for listing assessment, date of SQAP submission)
			START	END	
Fecal Coliform	EPD, USGS	Current	Every 5 years		Ongoing monitoring for listing, delisting or impaired streams
Multiple	Bulloch County, CGRDC, other regional organization	Proposed	2008	2017	Obtain SQAP approval to perform monitoring in order to support/revise the Implementation Plan and listing/delisting purposes.

VIII. PLANNED OUTREACH FOR IMPLEMENTATION

Table 8 lists and describes outreach activities that will be conducted to support this implementation plan, or help to improve water quality in the segment watershed. Identify either the projected start date or completion date. At a minimum, this is to include all education/outreach activities defined in the contractual Scope of Work for TMDL Implementation Plan development or revisions.

Table 8. PLANNED OUTREACH FOR IMPLEMENTATION

RESPONSIBILTY	DESCRIPTION	AUDIENCE	START OR COMOPLETION DATE
CGRDC, Bulloch County, NRCS, stakeholders	Develop educational program describing the importance of protecting water quality and ways to do so by changing agricultural land use practices. Identify sources of funding for BMP demonstration projects in the Nevils Creek watershed or for the Lower Ogeechee River Basin.	Private property owners, local government officials	2008 funding cycle.
CGRDC, Bulloch County	Develop outreach program concerning stream cleanup efforts to be used as volunteer credits for graduation.	Board of Education, teachers, students and parents of the local school system	Proposed
Bulloch County, CGRDC	Obtain a SQAP and submit water quality sample results to EPD.	EPD, local	Proposed
State, CGRDC, local, NRCS, County Extension Service	Education on the potential adverse impacts that the dumping of animal carcasses in water bodies may have on water quality.	Hunters, land owners, concerned citizens	Proposed
Bulloch County/Citizens of Bulloch County	Adopt-A-Stream Program. Efforts to raise public awareness about water quality to enlist the public support and action in monitoring and protecting water resources.	Concerned residents	Proposed

IX. MILESTONES AND MEASURES OF PROGESS FOR BEST MANAGEMENT PRACTICES (BMPs) AND OUTREACH

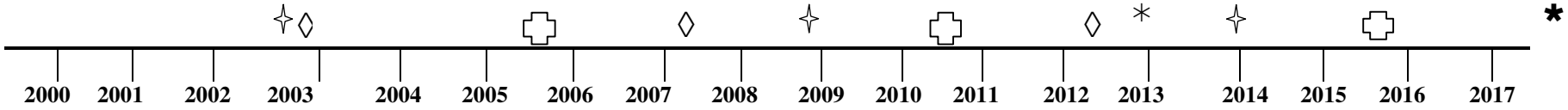
Table 9 tracks and reports progress of significant management measures identified in Tables 6A, 6B, and other sections of this plan, including outreach, additional monitoring and assessments, and enhancement or installation of BMPs. Significant activities and the target dates of accomplishment are listed under STATUS, and comments are provided on the effectiveness of the management measure, the degree of community support, what was learned, how the measure might be improved in the future, and other pertinent observations.

Table 9. MILESTONES AND MEASURES OF PROGRESS

BEST MANAGEMENT PRACTICE	RESPONSIBLE ORGANIZATION	STATUS PROPOSED	STATUS INSTALLED	COMMENT
Obtain local/regional SQAP	Bulloch County, CGRDC	2008		Ensure that monitoring samples would be approved by EPD for listing/delisting purposes.
Install Fencing to eliminate livestock access to stream and restore buffers	NRCS, Bulloch County, landowners	2009		Develop project application so that funding would be for a basin-wide (Lower Ogeechee River Basin) BMP demonstration (if determined most effective)

PROJECTED ATTAINMENT DATE

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



✧ Projected EPD Basin Group Monitoring
New TMDLs Completed

◊ Revised or Updated TMDL Implementation Plan Received by EPD

✠ Evaluation of Implementation Plan/water Quality Improvement

✳ Project Attainment for Plans Prepared in 2002

✱ Project Attainment for Plans Prepared in 2007

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Date Submitted to EPD:	6/15/2007			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/ORGANIZATION	ADDRESS	CITY	STATE	ZIP	PHONE	E-MAIL
Wesley Harris, Bulloch County Cooperative Extension Office	151 Langston Chapel Rd Suite 600	Statesboro	GA	30458	912-871-6130	wlharris@uga.edu
Thomas Joyner, GSWCC, Statesboro Region VI Office	151 Langston Chapel Rd	Statesboro	GA	30458	912-681-5241	
Gene Oliver Coastal Georgia RC&D	185 Richard Davis Dr Suite 201	Richmond Hill	GA	31324	912-459-2070	
Central Savannah River RC&D	3456 D Peach Orchard Rd	Augusta	GA	30906	706-798-7967	
Bulloch County Commission	P.O. Box 347	Statesboro	GA	30459	912-764-6245	
Willard Fell, Georgia Forestry Commission	18899 US Hwy 301 North	Statesboro	GA	30461	912-681-0490	
Patty McIntosh, The Georgia Conservancy	428 Bull St.	Savannah	GA	31401	912-447-5910	pmcintosh@gaconservancy.org
Chandra Brown, Executive Director, Ogeechee-Canoochee Riverkeeper	P.O. Box 1925	Statesboro	GA	30459	912-764-2017	
Pete Wall – Ogeechee Cattlemen's Association	986 Boyd School Rd	Sylvania	GA	30467	912-857-4542	
Brad Wiggins, Bulloch County Environmental Health	P.O. Box 2009	Statesboro	GA	30458-5212		
Tom Couch, Bulloch	P.O. Box 347	Statesboro	GA	30459	912-764-6245	tmcouch@bulloch.net

County Manager						
Gary Lewis, CGRDC Board of Directors	20 Morris Street	Statesboro	GA	30458		
George Jackson, CGRDC Board of Directors	4007 Carolina Trail	Statesboro	GA	30458		
Ray Mosley, CGRDC Board of Directors	P.O. Box 336	Portal	GA	30450		
Walter Gibson, CGRDC Board of Directors	67 Golf Club Circle	Statesboro	GA	30458		waltgibson@nctv.com

APPENDIX B.

UPDATES TO THIS PLAN

If this is a major or minor revision of an existing plan, this section will describe the date, section or table updated, and a summary of what was changed and why. Georgia EPD has developed guidelines for revising existing TMDL implementation plans.

This a new tier 2 implementation plan.

APPENDIX C. FIELD SURVEYS, NOTES, PHOTOGRAPHS, AND MAPS.

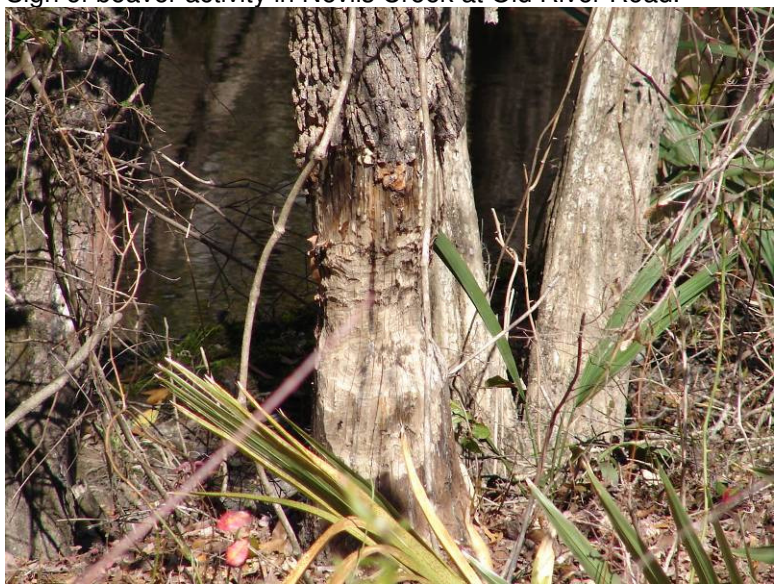
Denuding of land near Banks Creek where animals access stream.

Low level at Banks Creek near Mallard Pond Road.

Bay Gall Creek at Nevils Creek Church Road.

Nevils Creek at Old River Road Bridge.

Sign of beaver activity in Nevils Creek at Old River Road.



Algae and hydrilla present in Banks Creek near Mallard Pond Road.

The surveys for the Nevils Creek watershed began at two tributaries – Banks Creek and Bay Gall Creek – that were predetermined to experience pressure from agricultural activity, particularly livestock. Banks Creek at Old Mallard Pond Road showed signs of animal access (swine) and extreme stripping of areas adjacent to, and within the stream channel. The levels were low and there the streambed is downhill from a well-used "hog wallow." Also, an old mill pond was located about 300 yards from the Old Mallard Pond Bridge site, that provided good habitat for waterfowl and other birds. This area is a high potential for 319 project funding to provide fencing and buffer reconstruction. Nevils Creek near Old River Road was highly forested, but also contained a large amount of land for agriculture use (row crops) that was a few hundred yards from the stream.