

TOTAL MAXIMUM DAILY LOAD  
IMPLEMENTATION PLAN

**DOCTOR'S CREEK**  
FECAL COLIFORM BACTERIA

*LONG COUNTY*  
*GEORGIA*



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**STATE OF GEORGIA  
TMDL IMPLEMENTATION PLAN  
FECAL COLIFORM  
FOR DOCTORS CREEK, LONG COUNTY, GEORGIA**

**Background**

Doctors Creek in Long County, Georgia has a beneficial water use classification of fishing and is currently listed as an impaired water body (see attached notice). Doctors Creek is located in the Altamaha River basin in southeastern Georgia. The creek is a tributary to the Altamaha River. The total area of the Doctors Creek watershed covers a majority of Long County.

Land use characteristics of the Doctors Creek watershed is predominantly Evergreen forest (49%) with the next most predominate land uses being Deciduous and Mixed forests (11% combined). There is very little development within the watershed. Residential development, commercial forestry and small “hobby” and some larger animal and agricultural operations exist within the watershed. The majority of residential dwellings in the watershed utilize septic systems. The creek is not easily accessible due to private property ownership, heavily wooded wetlands and lack of public access points.

The State of Georgia has identified a segment of Doctors Creek as violating the water quality standard criteria for fecal coliform bacteria. In 1999, fecal coliform bacteria data were collected from Doctors Creek at State Road 99 near Ludowici, Georgia (USGS Monitoring Station #02226060). As a result, a five-mile segment of Doctors Creek was added to the State’s 303(d) list and scheduled for a TMDL evaluation.

**Long County Facts**

Located between Liberty and McIntosh Counties in Coastal Georgia, Long County covers approximately 403 square miles. Ludowici is the only municipality and serves as the county seat of government. Major roads serving the county include US Route 84, US Route 301/US Route 25, State Route 57, State Route 196, and State Route 144. The Altamaha River is a major waterway that forms Long County’s southern boundary with Wayne County. Doctors Creek is located east, running southwest of Ludowici, and Beards Creek, which forms the county’s western border with Tattnall County, are other major waterways (see attached Major and Minor Waterways Map). Long County is surrounded by McIntosh County to the east, Liberty County to the north, Tattnall County to the west, and Wayne County to the south. The US Army’s Fort Stewart military installation, which covers part of five counties, extends into northern Long County and accounts for 10 percent of the county’s total land area.

Long County is more rural and undeveloped than other counties in the coastal region. The Long County Comprehensive Plan, last updated in 1994, estimates that **only two percent** of the county’s land area will be developed by 2015 for residential, commercial, or industrial purposes. As of 1994, approximately 15 percent of the county was utilized for agriculture or forestry, while 60 percent was classified as undeveloped. Agriculture is primarily confined to the northwest part of the county, south of Fort Stewart.

Presently, no industries are located in Long County. Commercial/service-related jobs are limited primarily to Ludowici. Approximately two-thirds of the county's working population commutes to jobs outside the county, including industries such as Rayonier in Jesup and Interstate Paper in Liberty County. However, the county is actively seeking economic development.

The creek covers over half of the Long County land area. Long County is one of the least developed and poorest counties in the state of Georgia. The coastal Georgia region, which includes Long County, consists of an interrelated system of productive coastal marine waters, barrier islands, estuaries, coastal marshlands, rivers, and associated upland areas. Long County, as well as other counties further to the west, provides brackish and freshwater marshes and swamps that extend inland up rivers and streams. These areas are generally flat and occupied by live oak, tupelo gum, and cypress swamps. These marshes and swamps serve to recharge the shallow groundwater aquifer and reduce the duration and magnitude of flood events.

Long County has more agriculture than its Coastal Georgia neighbors, second only to Bulloch County in the nine-county region. Long County agricultural commodities consist of beef cattle; poultry; fruit and vegetables, such as blueberries, cucumbers, Vidalia onions, peppers, squash, and watermelon; and row crops, such as tobacco, corn, cotton, soybeans, and small grains. In 1998, Long County agricultural operations produced the following:

- 2,406 acres of row crops, including 130 acres of tobacco (crop type varies each year)
- 231 acres of fruit and vegetables
- 1,600 head of beef cattle
- 2,839,960 chickens (20 poultry houses)

Long County's prime agricultural land, as determined by the Long County Cooperative Extension Service, is located primarily northwest of Ludowici (see attached Prime Agricultural Land Map).

The present discharge to septic systems in Long County for all uses is approximately .533 million gallons per day. This figure includes the following:

- .146 million gallons per day for residential uses associated with non-municipal community water systems
- .387 million gallons per day for residential uses associated with domestic and non-public wells

**Long County Future Total Septic System Discharge**

| <b>Projected Discharge<br/>(million gallons per day)</b> |             |             |             |             |
|--|-------------|-------------|-------------|-------------|
| <b>2000</b>  | <b>2010</b> | <b>2020</b> | <b>2030</b> | <b>2050</b> |
| 0.648  | 0.791       | 0.984       | 1.147       | 1.473       |

Source: Coastal Georgia RDC projection

Facts:

|   |  |
|---|--|
| <b>Area in Square Miles</b>             | <b>403.5</b>   |
| <b>Persons Per Square Mile (2000)</b>   | <b>25.7</b>  |
| <b>Total Population (2000)</b>          | <b>10,304</b>  |
| <b>Minority Population (2000)</b>       | <b>31.6%</b>   |
| <b>Rural Non-Farm Residents</b>         | <b>97.5%</b>   |
| <b>Rural Farm Residents</b>             | <b>2.5%</b>  |
| <b>Median Farm Size</b>                 | <b>122 acres</b>   |
| <b>Number Farms (1997)</b>              | <b>64</b>  |
| <b>Forest Land</b>                      | <b>90.8%</b>   |
| <b>1997 Persons Below Poverty Level</b> | <b>21.7%</b>   |
| <b>1999 Per Capita Personal Income</b>  | <b>\$13,819 (Lowest in State 1999, 159<sup>th</sup> out of 159 Counties)</b> |

*(Source: The 2001 Georgia County Guide, College of Agricultural and Environmental Sciences, College of Family and Consumer Sciences, The University of Georgia, Athens, Georgia)*

### **Source Assessment**

A source assessment characterizes the known and suspected sources of fecal coliform bacteria in the watershed for use in the water quality model, and the development of the TMDL. The general sources of fecal coliform bacteria are point and non-point sources. National Pollutant Discharge Elimination System (NPDES) permittees discharging treated domestic waste are the primary point sources of fecal coliform bacteria. There are no NPDES permittees discharging into Doctors Creek.

Non-point sources of fecal coliform bacteria are diffuse sources that cannot be identified as entering the water body at a single location. These sources generally involve land activities that contribute fecal coliform bacteria to streams during rainfall runoff events. Non-point sources of fecal coliform bacteria considered in the TMDL analysis include:

- Wildlife,
- Land Application of agricultural manure,
- Grazing animals,
- Leaking septic systems,
- Urban development and
- Animals having access to streams

### **Source Determination**

In April of 2002, Coastal Georgia Regional Development Center staff performed a detailed reconnaissance of the watershed to determine possible sources of fecal coliform contribution. The stream body is very inaccessible in most locations as there are heavily wooded wetlands, swamps and forests bordering most of the stream. Tax maps, satellite photography and USGS topographical maps and land use maps were employed to determine the types and locations of land uses within the watershed.

Given that there are no NPDES Point Source discharges to this stream, nonpoint sources were evaluated based upon visual inspection, photographs and mapped resources.

It was first noted that there is potential for very high numbers of wildlife in this watershed. The inaccessibility of humans, lack of development, ample supply of food and overall conducive environment suggests that the rates of wildlife in this watershed would be comparable to and probably in excess of most other watersheds within the state and region. Evidence of wildlife is readily available on the dirt roads in the area; tracks, droppings and animals can easily be seen with minimal effort while driving through the area. It was concluded that wildlife is potentially a major contributor to fecal coliform deposition in and around the stream area.

The second most easily recognizable source of fecal coliform pollution was livestock. Though there are few large concentrations of horses, cows or swine in the area, there are several small “hobby” farms having 2 to 10 animals with access to the stream or in locations where runoff to the stream would not be hindered.

Of note is one large livestock operation at the intersection of Highway 84 and Doctors Creek. At this location there is a Ranch that hosts regular rodeos. It is readily apparent that a good number of cows and horses have either direct access to the stream or are in close proximity and are in the wetlands surround the stream. It was concluded that this ranch/rodeo is potentially a significant contributor to fecal coliform deposition and loading.

There were no other noted large animal operations in the vicinity of the stream. However, inspection of watershed maps and land use maps did indicate that there were agricultural areas that may include some confined animal operations.

Landowners in Agricultural areas were listed as stakeholders and were supplied with information pertaining to best management practices, water quality issues and resources including funding sources for remedial measures.

In summation, it is apparent that this primarily undeveloped watershed has few manmade or man created contributions. Wildlife is assumed the most significant contributor with the operations at the ranch/rodeo near Highway 84 being a potential significant contributor and other agricultural animal operations nearest the stream channel as being somewhat significant contributors.

Further analysis by the Long County Health Department will provide useful information on septic systems in the watershed.

### **Requisite Reduction**

The TMDL allocation model results determine a 83 percent reduction in fecal loads in Doctors Creek watershed during the 30-day critical period may be achieved as a result of using parameters representing the implementation of best management practices.

### **Response**

Management practices that could be implemented to achieve this TMDL include adoption of Agricultural Best Management Practices (BMPs) including NRCS resource management

practices, reducing animal access to streams and identification and repair of leaking septic systems. These methods will address specific sources of contaminants that contribute to the fecal coliform loading via runoff. The prevailing focus to ensure a proactive strategy to mitigate fecal coliform loading in the watershed will necessitate addressing the reduction, prevention and retention of runoff from storm events to prevent the introduction of polluted runoff from agricultural operations directly into the stream channel.

The Georgia Soil and Water Conservation Commission (SWCC) is the lead agency for prevention of agricultural nonpoint pollution in the State. The SWCC develops nonpoint source water quality programs and conducts educational activities to promote conservation and protection of land and water resources devoted to agricultural use. Georgia's 40 Soil and Water Conservation Districts (SWCD) provide technical assistance to help local producers plan and establish needed soil and water conservation practices. There are several other local, State and Federal programs which target agricultural nonpoint sources of pollution. These include the Natural Resources Conservation Service (NRCS) which provides financial and technical assistance to landowners for implementation of animal waste management systems, grazing activities, plant materials, and other Best Management Practices (BMPs), the University of Georgia Cooperative Extension Service which collaborates with and trains farmers and staff from the other agricultural agencies in several areas, including pesticides handling certification, fertilizer application, and crop management, and Resource Conservation and Development Councils that encourage wise conservation of natural and human resources. Representatives from each organization have expressed their commitment to help achieve fecal coliform reductions in this watershed as part of an implementation strategy.

### **Strategy**

The implementation strategy for fecal coliform load reductions in Doctors Creek will require a great deal of public education. The primary concerns are with wildlife and agricultural animals having access to the stream.

There is little than can be done to address wildlife and as part of the TMDL development process it is recommended that further consideration be given to removing wildlife contribution from the requisite reduction percentage. Any removal of excessive numbers of animals in the watershed will be incumbent upon Georgia Department of Natural Resources Wildlife Protection Division controls.

Agricultural animals having access to the stream also pose a major threat to the quality of water within this watershed. It also poses complexity of regulatory concerns.

Public education on best management practices relating to animal operations will be the single most important measure to be taken. An Agricultural/Irrigation Technical Task Force has developed a BMP guide for farmers entitled "Agricultural Best Management Practices for Protecting Water Quality in Georgia." (BMP Guide). The BMP Guide is promoted by the SWCC and the NRCS through educational programs and BMP demonstration workshops. BMPs are also implemented through Federal cost share programs such as the Conservation Reserve Program, and disincentives such as revocation of financial assistance through the Farm Bill Sodbusters Program and Conservation Compliance Program.

Regarding animal facilities, the Georgia Environmental Protection Division (EPD) regulates handling of large agricultural and animal waste facilities through a permitting process. Section 6217 of the Coastal Zone Management Act requires each state to develop coastal nonpoint pollution programs to develop and implement management measures and state plans coordinated with state and local water quality plans and programs. The state plans must provide for identification of land uses, identification of critical coastal areas, management measures to be used in those areas, technical assistance measures, public participation opportunities, and administrative considerations.

The permitting process does not apply to all confined animal facilities that need to be addressed under the 6217 program. For example, the Georgia standard is a minimum of 700 dairy cows and 100,000 laying hens or broilers, while the §6217(g) measures apply to a minimum of 20 dairy cows and 5,000 laying hens or broilers (the small unit measure), and 70 dairy cows and 15,000 laying hens or broilers (the large unit measure).

Public education efforts and best management practices (UGA, Long County Cooperative Extension Agency, USDA- Natural Resource Conservation Service and Georgia Soil and Water Conservation Commission) will be utilized to encourage voluntary participation. Evaluation and monitoring of the effects will then either lead to stepped up efforts in the public education or stricter enforcement of regulations that are in place and measures in part resulting from anticipated NPDES Phase II regulations for Long County. After this first approach has been taken, if there is no improvement found it will be recommended that a wildlife survey be prepared and a plan developed to control excessive populations of wildlife within the watershed. (Deer Population estimated to be 30 to 45 animals per square mile.) This can be attained by managed hunts. A third and final phase will derive from a narrower determination of the continuing contributors. This final phase will focus on mitigation and elimination of the determined source of contribution in conjunction with increased efforts to eliminate agricultural animal access to the stream.

This approach allows the most effective measures to take place at the lowest cost. It encourages public participation and thereby ensures that the persons living within the watershed are better stewards. It also allows officials to take a step-wise approach to addressing existing problems and a better understanding of the problems that may be prevented proactively.

### **Process**

Coastal Georgia Regional Development Center (CGRDC) contracted with Georgia Environmental Protection Division (EPD) to work with stakeholders and develop an implementation plan to attain the necessary fecal reduction. CGRDC formed a Technical Advisory Committee, a Regional Water Resources Committee and a list of pertinent stakeholders. An orientation meeting was held on May 30, 2001 to provide the committees and the public with information regarding TMDLs and the role of CGRDC. A regional implementation strategy was developed.

Conforming to that strategy, CGRDC staff contacted the Regional Water Resources Committee, and Long County government regarding Doctors Creek. In April 2002 a watershed reconnaissance report was prepared by CGRDC staff. Meetings with representatives from Long

County government, the University of Georgia and Doctors Creek stakeholders group to obtain input on the implementation planning efforts.

Using gathered information a TMDL Implementation Plan was drafted for Doctors Creek. Public informational notices were made available and posted at Long County Courthouse (see copy attached). No further comments have been received.

Further, as part of an outreach program, CGRDC developed a Doctors Creek Stakeholder newsletter and distributed it to individuals, groups and governments in Long County and elsewhere (see copy attached).

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

Local Watershed Governments

Coastal Georgia RDC  
 Cities: Ludowici  
 Counties: Long

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.

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.

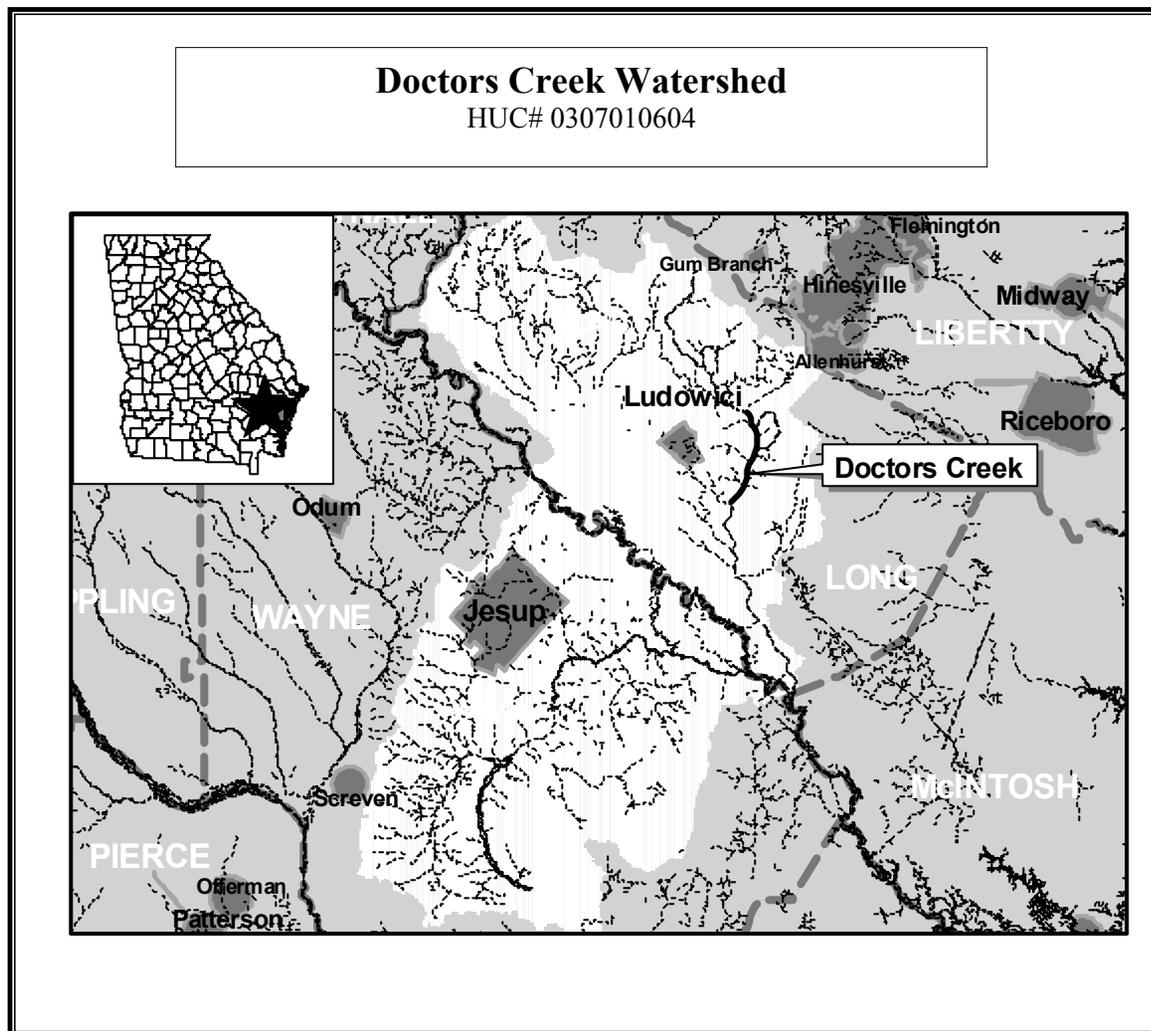


FIGURE 1

| Impaired Waterbody* | Impaired Stream Location | Impairment |
|---------------------|--------------------------|------------|
| 1. Doctors Creek    | Upstream Jones Creek     | FC         |
| 2.                  |                          |            |
| 3.                  |                          |            |

# Action Plan for Doctors Creek Watershed

| POLLUTANT:  | SOURCE:   | EFFECT:   | WHAT CAN I DO?             |                               |
|---|---|---|----------------------------|-------------------------------|
|   |   |   | At Home: Community, School | At Work: Business, Government |
| <input type="checkbox"/> Dissolved Oxygen (DO)<br><input checked="" type="checkbox"/> Fecal Coliform (FC)<br><input type="checkbox"/> Sediment<br><input type="checkbox"/> Metals<br><input type="checkbox"/> Fish Consumption Guidelines (FCG)<br><input type="checkbox"/> Other (Please List) | <input type="checkbox"/> Industrial<br><input type="checkbox"/> Urban<br><input checked="" type="checkbox"/> Agriculture<br><input type="checkbox"/> Forestry<br><input type="checkbox"/> Residential<br><input checked="" type="checkbox"/> Wildlife<br><input checked="" type="checkbox"/> Other (Please List) <ul style="list-style-type: none"> <li>▪ Animals having access to streams.</li> <li>▪ Livestock Grazing.</li> <li>▪ Leaking Septic Systems.</li> </ul> | <input type="checkbox"/> Habitat<br><input type="checkbox"/> Recreation<br><input type="checkbox"/> Drinking Water<br><input type="checkbox"/> Aesthetics<br><input type="checkbox"/> Other (Please List) |                            |                               |

## INFORMATION/EDUCATION/OUTREACH ACTIVITIES

An education/outreach component will be used to enhance public understanding of and participation in implementing the TMDL Implementation Plan. List of all previous and planned information/education/outreach activities.

| Entity   | Description  | Impacted Waterbodies*              | Target Audience             | Anticipated Dates (MM/YY)      |
|--|--|------------------------------------|-----------------------------|--------------------------------|
| Coastal Georgia Regional Development Center  | Doctors Creek Stakeholders Newsletter<br>Quarterly newsletter informing general public, local government officials and stakeholders as to the current status of Doctors Creek implementation planning, mitigation efforts, means of public involvement, best management practices applicable and resources available.  | Doctors Creek                      | All Stakeholders            | Fall 2002<br>Current (Ongoing) |
| University of Georgia, Institute of Ecology, Office of Public Service and Outreach | The Altamaha Initiative-<br>To help protect the ecological integrity of the Altamaha River Basin, by working with stakeholders to address natural resource concerns and human activities associated with water quality.  | Altamaha River Basin               | Altamaha River Stakeholders | Enacted 2001                   |
| Georgia Forestry Commission  | Forestry Water Quality Program-<br>Designated by EPD to be lead agency in forest water quality program. Led effort to develop BMPs, educational BMP programs, forestry complaint resolution process and BMP monitoring. Other cooperators include USFS, GA Forestry Association, University of Georgia, AF&PA, SWPA, etc. in educational efforts to educate forest community on BMPs through training workshops and demos. Biennial BMP monitoring: complaint investigation and mediation. | Doctors Creek & Throughout Georgia | Forestry Interests          | Current                        |
| Georgia Soil & Water Conservation Commission                                       | Provision of agricultural BMP information and sources of Funding.  | Doctors Creek                      | Agricultural Stakeholders   | Fall 2002<br>Current (Ongoing) |
| University of Georgia, Long County Cooperative Extension Agency                    | Provision of BMP information and sources of funding; collaborates with and trains farmers and staff from the other agricultural agencies in several areas, including pesticides handling certification, fertilizer application, and crop management  | Doctors Creek                      | All Stakeholders            | Fall 2002                      |
| USDA- Natural Resources Conservation Service (NRCS)                                | Provision of financial and technical assistance to landowners for implementation of animal waste management systems, grazing activities, plant materials, and other Best Management Practices (BMPs)   | Doctors Creek                      | Agricultural Stakeholders   | Current (Ongoing)              |

|  |  |               |                  |                   |
|--|--|---------------|------------------|-------------------|
| Coastal Georgia Resource Conservation and Development Councils                                 | Encourage wise conservation of natural and human resources through BMPs and education.           | Doctors Creek | All Stakeholders | Current (Ongoing) |
| University of Georgia, Marine Extension Service- Nonpoint Education for Local Officials (NELO) | Education of local government officials in BMPs and remediation efforts to reduce NPS pollution. | Doctors Creek | All Stakeholders | Current (Ongoing) |

## 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.

## SEE ATTACHED

**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) |
|----------------------|----------------------|---------------------|--------------------|--|
| <b>Doctors Creek</b> | Upstream Jones Creek | 5                   | Fishing            | NS   |

| Primary County | Secondary County | Second RDC | Source (Point/ Nonpoint) |
|----------------|------------------|------------|--------------------------|
| Long           |                  |            | NP                       |

| Pollutants                   | Water Quality Standards  | Required Reduction (%) | TMDL ID | Date TMDL Established |
|------------------------------|--|------------------------|---------|-----------------------|
| Fecal Coliform bacteria (FC) | 1000/ 100 ml (geometric mean Nov-April);<br>200/ 100 ml (geometric mean May-Oct) | 83 %                   |         | Feb. 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 )

| <b>Pollutant</b> | <b>Sources of Pollutants</b>     | <b>Description of Contribution To Impairment</b>  | <b>Impacted Waterbodies*</b> |
|------------------|----------------------------------|---|------------------------------|
| Fecal Coliform   | Wildlife                         | Through deposition of fecal matter in areas adjacent to stream and directly into the stream .             | Doctors Creek                |
| Fecal Coliform   | Land Application of Ag. Manure   | Manure and fecal coliform are transported via runoff to stream. (Very limited in Doctors Creek Watershed) | Doctors Creek                |
| Fecal Coliform   | Livestock Grazing                | Livestock in watershed deposit fecal matter on ground which can be transported via runoff into the stream | Doctors Creek                |
| Fecal Coliform   | Leaking Septic Systems           | Faulty Septic Systems allow their contents to leach into surrounding soils and groundwater.               | Doctors Creek                |
| Fecal Coliform   | Urban Development                | Urban runoff from impervious surfaces. (Very limited in Doctors Creek Watershed)                          |                              |
| Fecal Coliform   | Animals Having Access to Streams | Manure and fecal coliform are deposited in and near stream.   | Doctors Creek                |

## 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.

### EXISTING OR REQUIRED REGULATORY ACTIONS

| Regulation/Ordinance or Management Measure | Responsible Government, Organization or Entity   | Description   | Enacted/Projected Date | Status  | Regulatory/Voluntary |
|--|--|---|------------------------|---------|----------------------|
| EPA/Army Corps of Engineers                | Clean Water Act, Section 404, CFR Part 232.3   | Requires normal forestry practices adhere to BMPs and 15 baseline provisions for forest road construction and maintenance in and across waters of the U.S. including lakes, rivers, perennial and intermittent streams, wetlands, sloughs, and natural ponds in order to qualify for the silvicultural exemption from the permitting process. | 06/1988                | Current | Regulatory           |
| EPA/Army Corps of Engineers                | Memo to Field: Application of BMPs to mechanical silvicultural site preparation activities for the establishment of pine plantations in the Southeast. | Identifies certain wetlands that should not be subject to unpermitted mechanical silvicultural site preparation activities.   | 11/1995                | Current | Regulatory           |
| Georgia DNR and Local Governments          | Georgia Growth Planning Act (OCGA 12-2-8)  | Authorizes Georgia Department of Community Affairs to establish minimum planning standards and procedures that local city and county planning and zoning jurisdictions could adopt and enforce.   | 1991                   | Current | Regulatory/Voluntary |
| U.S. Department of Agriculture             | Federal Farm Bill  | Prohibits landowners from converting forested wetlands to agricultural uses. (Swampbuster Act)  |                        | Current | Regulatory           |

|   |  |   |                    |         |                          |
|---|--|---|--------------------|---------|--------------------------|
| Georgia DNR - EPD                           | Georgia Water Quality Control Act (OCGA 12-5-20) | 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               | Current | Regulatory               |
| Long County                                 | Subdivision Regulations                          | Requires open/green space buffers for new development.  | Newly Enacted 2002 | Active  | Regulatory               |
| Long County                                 | Soil Erosion and Sedimentation Control Ordinance | Long County Code allowing for permitting and enforcement of land disturbing activities.   |                    | Active  | Regulatory               |
| Long County                                 | Part V Environmental Protection Ordinances       | Wetlands Protection   |                    | Active  | Regulatory               |
| Long County Environmental Health Department | Septic Tank Installation and Design Standards    | Rules and Regulations as promulgated by On-Site Sewage Management Systems Chapter 290-5-26<br>Georgia DHR<br>Division of Public Health Environmental Health and Injury Control Branch<br>Environmental Services   |                    | Active  | Regulatory               |
| Georgia DNR, EPD                            | Altamaha River Basin Management Plan             | To provide relevant information of the characteristics of the Altamaha River basin, identify present and future water resource demands, present and facilitate the implementation of water quality protection efforts, and enhance stakeholder understanding and involvement in basin planning. | Available Mid-2003 |         | Regulatory/<br>Voluntary |

| Pollutant(s) Affected | Sources of Pollutant(s)   | Impacted Waterbodies* | Anticipated or Past Effectiveness |
|-----------------------|---|-----------------------|-----------------------------------|
| Multiple              | Forestry Practices  | All Waters of the US  | Somewhat Effective                |
| Multiple              | Forestry Practices  | All Waters of the US  | Somewhat Effective                |
| Multiple              | Urban Runoff / Land Use   | Waters of the State   | Very Effective                    |
| Multiple              | Agricultural  | Forested Wetlands     | Somewhat Effective                |
| Multiple              | Any including Point Source, intentional, unintentional/negligent<br>NPS | Waters of the State   | Somewhat Effective                |
| Multiple              | Urban Runoff  | Doctors Creek         | Somewhat Effective                |
| Multiple              | Urban Runoff  | Doctors Creek         | Somewhat Effective                |
| Multiple              | Multiple Sources  | Doctors Creek         | Somewhat Effective                |

|                |                     |                    |                    |
|----------------|---------------------|--------------------|--------------------|
| Fecal Coliform | Septic System Leaks | Doctors Creek      | Somewhat Effective |
| Multiple       | Multiple            | Altamaha Watershed | N/A                |

| Measurable Milestones                           | Schedule |     | Comments  |
|---|----------|-----|---|
|   | Start    | End |   |
| N/A   |          |     | Doctors Creek watershed is heavily forested by silvicultural operations. Though no specific source of fecal coliform pollution is linked to forestry practices in this watershed, there exists a potential. |
| N/A   |          |     | Doctors Creek watershed is heavily forested by silvicultural operations. Though no specific source of fecal coliform pollution is linked to forestry practices in this watershed, there exists a potential. |
| Land Use Policy                                 |          |     | Long County is one of the few remaining counties in Georgia to adopt a zoning scheme. The county is currently looking into appropriate land use policies that will allow it some enforcement provision.     |
| N/A   |          |     | This regulation will work to prevent agricultural pollutants from being further distributed into Waterbodies.   |
| Unknown   |          |     | With Enforcement could be Very Effective regulation of NPS.   |
| Ensures buffers in new Subdivision Development. |          |     | First regulation of this type on development in Long County.  |

|   |  |
|---|--|
| E&S Permitting for Development.                           | The E&S permitting and compliance could be more aggressive and could be very effective with greater enforcement. |
| Acreage of wetlands protected, measured by rates of loss. | Prevention of future loss of wetlands. Historic, recent and future loss rates yet to be determined.              |
| Number of applicants for permitted systems.               | Current design standards will insure that aging systems are more effective than older systems.                   |
| Undetermined until release of Management Plan             |  |

**EXISTING VOLUNTARY ACTIONS**

| <b>Management Measure</b>  | <b>Responsible Government, Organization or Entity</b> | <b>Description</b>  | <b>Enacted/<br/>Projected Date</b>        | <b>Status</b> | <b>Regulatory/<br/>Voluntary</b> |
|--|---|---|---|---------------|----------------------------------|
| Coastal Georgia Regional Development Center  | Doctors Creek Stakeholders                            | Quarterly newsletter informing general public, local government officials and stakeholders as to the current status of Doctors Creek implementation planning, mitigation efforts, means of public involvement, best management practices applicable and resources available.  | Fall 2002                                 | Issued        | Voluntary                        |
| University of Georgia, Institute of Ecology, Office of Public Service and Outreach | The Altamaha Initiative                               | To help protect the ecological integrity of the Altamaha River Basin, by working with stakeholders to address natural resource concerns and human activities associated with water quality.   | 2001                                      | Ended         | Voluntary                        |
| Georgia Forestry Commission  | Forestry Water Quality Program                        | Designated by EPD to be lead agency in forest water quality program. Led effort to develop BMPs, educational BMP programs, forestry complaint resolution process and BMP monitoring. Other cooperators include USFS, GA Forestry Association, University of Georgia, AF&PA, SWPA, etc. in educational efforts to educate forest community on BMPs through training workshops and demos. Biennial BMP monitoring: complaint investigation and mediation. | 1987<br>[Manual updated January 1, 1999.] | Current       | Voluntary                        |

| <b>Pollutant(s) Affected</b> | <b>Sources of Pollutant(s)</b> | <b>Impacted Waterbodies*</b> | <b>Anticipated or Past Effectiveness</b> |
|------------------------------|--------------------------------|------------------------------|--|
| Fecal Coliform               | Multiple                       | Doctors Creek                | Somewhat Effective                       |
| Multiple                     | Multiple                       | Altamaha Watershed           | Undetermined                             |
| Multiple                     | Forestry                       | Waters of the State          | Somewhat Effective                       |

| <b>Measurable Milestones</b>  | <b>Schedule</b> |            | <b>Comments</b>  |
|---|-----------------|------------|--|
|   | <b>Start</b>    | <b>End</b> |  |
| Numbers of Individuals contacting recommended sources in newsletter.      | Fall 2002       | Fall 2003  | This Newsletter will be revised and reissued Winter 2002 to update stakeholders on progress and implementation planning efforts. |
| <del>DOCTORS CREEK IMPLEMENTATION PLAN</del><br>Unknown<br>FECAL COLIFORM | 2001            |            | Initiative has ended. Revitalization of effort should be considered.   |
| Biennial BMP Monitoring   | Biennially      |            | GFC should issue a report of BMP effectiveness.  |

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

| <b>Funding Source</b> | <b>Responsible Authority</b> | <b>Status</b> | <b>Anticipated Funding Amount</b> | <b>Impacted Waterbodies*</b> |
|-----------------------|------------------------------|---------------|-----------------------------------|------------------------------|
| 319(h) Grant Program  | Georgia DNR, EPD             | N/A           | N/A                               | N/A                          |

### Other Potential Funding Sources

#### Agriculture

*U.S. Department of Agriculture*

- Conservation Reserve Program (FSA)
- Environmental Quality Incentives Program (NRCS)

#### Coastal Waters

*U.S. Department of Commerce*

- Coastal Services Center Cooperative Agreements (NOAA)
- Coastal Zone Management Administration/Implementation Awards (NOAA)
- National Sea Grant College Program (NOAA)

*U.S. Department of the Interior*

- Coastal Program (FWS)

*U.S. Environmental Protection Agency*

- National Estuary Program (NEP)

#### Economic Development

*U.S. Department of Agriculture*

- Water and Waste Disposal Systems for Rural Communities (RUS)

*U.S. Department of Commerce*

- Public Works and Development Facilities Program (EDA)

*U.S. Department of Housing and Urban Development*

- Community Development Block Grant Program (CPD)

#### Education and Research

*Corporation for National Service*

- Learn and Serve America Program

*U.S. Department of Agriculture*

- Sustainable Agriculture Research and Education (CSREES)
- Water Quality Special Research Grants Program (CSREES)

*U.S. Environmental Protection Agency*

Environmental Education Grants Program (OEE)  
Science to Achieve Results (ORD)

#### **Environmental Justice**

*U.S. Environmental Protection Agency*  
Environmental Justice Grants to Small Community Groups (OEJ)  
Environmental Justice Through Pollution Prevention Grants Program (OEJ)

#### **Forestry**

*U.S. Department of Agriculture*  
Cooperative Forestry Assistance Programs (FS)  
Forestry Incentives Program (NRCS)

#### **Monitoring**

*U.S. Environmental Protection Agency*  
Environmental Monitoring for Public Access and Community Tracking (OEI)

#### **Pollution Prevention and Control**

*Small Business Administration*  
Pollution Control Loans

*U.S. Department of the Interior*  
Clean Vessel Act Grant Program (FWS)

*U.S. Environmental Protection Agency*  
Chemical Emergency Preparedness and Prevention Technical Assistance Grants (CEPPO)  
Pesticide Environmental Stewardship Grants (OPPTS)  
Pollution Prevention Incentives for States (OPPTS)

#### **Water and Septic System**

*Georgia Environmental Facilities Authority*  
Georgia Fund  
Environmental Emergency Loans  
Construction Loans  
State Revolving Loan Fund

#### **Watershed and Drinking Water Source Protection**

*U.S. Department of Agriculture*  
Watershed Protection and Flood Prevention Program (NRCS)

*U.S. Department of Transportation*  
Transportation Equity Act for the 21st Century Funding Programs (FHWA)

*U.S. Department of the Interior*  
Land and Water Conservation Fund Grants to States (NPS)

*U.S. Environmental Protection Agency*  
Capitalization Grants for Clean Water State Revolving Fund (OWM)  
Capitalization Grants for Drinking Water State Revolving Fund (OGWDW)  
Great Lakes Program (GLNPO)  
Nonpoint Source Implementation Grants (319 Program) (OWOW)

Water Quality Cooperative Agreements (OWM)  
Watershed Assistance Grants (OWOW)

#### **Wetlands**

*U.S. Department of Agriculture*

Wetlands Reserve Program (NRCS)

*U.S. Department of the Interior*

Coastal Wetlands Planning, Protection, and Restoration Act Program (FWS)

National Coastal Wetlands Conservation Grant Program (FWS)

North American Wetlands Conservation Act Grants Program (FWS)

*U.S. Environmental Protection Agency*

Five-Star Restoration Program (OWOW)

Wetlands Program Development Grants (OWOW)

#### **Wildlife**

*National Fish and Wildlife Foundation*

Bring Back the Natives Grant Program

*U.S. Department of Agriculture*

Wildlife Habitat Incentives Program (NRCS)

*U.S. Department of Commerce*

Community-Based Restoration Program (NOAA)

Fisheries Development and Utilization Research and Development Grants and Cooperative Agreements Program (NOAA)

*U.S. Department of the Interior*

Partners for Fish and Wildlife Program (FWS)

Wildlife Conservation and Appreciation Program (FWS)

#### **Other**

*Georgia Department of Natural Resources*

Coastal Zone Management Program (CZM- CRD)

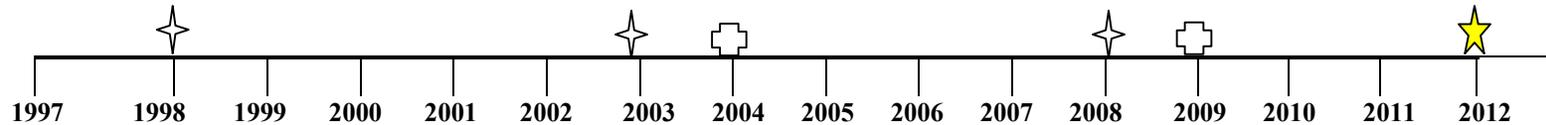
Coastal Incentive Grants

*Southeast Rural Community Assistance Project*

Loan Fund for Water, Wastewater, Housing & Economic Development

## 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          |                                      |
| TMDL Monitoring                                      | Georgia DNR, EPD     | Doctors Creek         | Fecal Coliform | Monitoring Data for State 303(d) Determination  | 1/20/1999  | 10/20/1999   | Previous                             |
| Phase II NPDES Requirements                          | Long County          | Doctors Creek         | Fecal Coliform | Extent of Watershed is within newly defined "urban" area for which NPDES Phase II requirements will address | 2003       | Undetermined | Proposed                             |
| Volunteer Monitoring                                 | Altamaha Riverkeeper | Doctors Creek         | Fecal Coliform | As requested to determine extent of problem.  | 11/2002    |              | 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) The creek will be monitored occasionally to determine levels of fecal coliform. Monitoring will occur prior to and after voluntary BMPs have been established.

*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.*

Upon satisfactory establishment of BMPs and outreach efforts have been made the stream will then again be monitored for fecal coliform. However, with a large percentage of the contribution being made by wildlife compliance with state standards may be unattainable.

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

- Regulatory controls or activities installed (ordinances, laws)

NPDES Phase II Requirements will be implemented in 2003 including Long County which will require the further establishment of stormwater management plans and long range monitoring.

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

Best Management Practices pertaining to keeping agricultural livestock from directly accessing the stream will be proposed.

## COMMENTS

Upon completion of a thorough reconnaissance report by Coastal Georgia RDC staff in April 2002, it was determined that the most probable sources of fecal coliform pollution were wildlife and direct access to stream by livestock at the Highway 84 bridge. A lot of research and guidance was sought to determine measures that could have an impact on the contribution by wildlife, none were offered or found.

Doctors Creek watershed is in one of the least developed /developable areas of Georgia. Few intrusions have been made in the direct stream vicinity due to large

expanses of wooded wetlands and swamp. No large urbanized areas exist near the stream, though the City of Ludowici is within the watershed.

The recommended most effective measures to remove the manmade sourcing of fecal coliform is for the GSWCC and NRCS to approach and explain “fencing out” techniques and funding mechanisms with owners of livestock that have access to the waterway.

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|                        |  |
|------------------------|--|
| Prepared By:           | John A. Henry, J.D.  |
| Agency:                | Coastal Georgia Regional Development Center                                  |
| Address:               | P.O. Box 1917  |
| City:                  | Brunswick ST: GA ZIP: 31521  |
| E-mail:                | <a href="mailto:jhenry@coastalgeorgiadc.org">jhenry@coastalgeorgiadc.org</a> |
| Date Submitted to EPD: | October 16, 2002   |

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

**TOGETHER WE CAN MAKE A DIFFERENCE!**

Doctors Creek  
Stakeholder List  
2002

| FIRST   | LAST         | ORGANIZATION  | ADDRESS                             | CITY       | STAT | ZIP   | PHONE         | E-MAIL   |
|---|--------------|---|-------------------------------------|------------|------|-------|---------------|--|
| <b>Doctors Creek Stakeholders (Land Owners)</b> |              |   |                                     |            |      |       |               |  |
| Nino  | Cicccone     | Stakeholder   | Rt. 1 Box 12J Cicccone Dr.          | Ludowici   | GA   | 31316 |               |  |
| Jessie  | DeLoach      | Stakeholder   | Rt. 3 Box 13A                       | Ludowici   | GA   | 31316 |               |  |
| Robert  | Skipper, Sr. | Stakeholder   | Rt. 1 Box 254-A                     | Ludowici   | GA   | 31316 |               |  |
| Daniel  | Skipper, Sr. | Stakeholder   | Rt. 1 Box 256                       | Ludowici   | GA   | 31316 |               |  |
| Leonard   | Owens        | Stakeholder   | Rt. 1 Box 254 A1A                   | Ludowici   | GA   | 31316 |               |  |
| W. Harrison                                     | Skipper      | Stakeholder   | Rt. 1 Box 255                       | Ludowici   | GA   | 31316 |               |  |
| Cindy   | Simmons      | Stakeholder   | Rt. 1 Box 247 A                     | Ludowici   | GA   | 31316 |               |  |
| Gary  | Stafford     | Stakeholder   | Rt. 1 Box 128 A                     | Ludowici   | GA   | 31316 |               |  |
| Cecil   | Stafford     | Stakeholder   | Rt. 1 Box 129-A                     | Ludowici   | GA   | 31316 |               |  |
| Suffronia                                       | Stafford     | Stakeholder   | Rt. 1 Box 130                       | Ludowici   | GA   | 31316 |               |  |
| Roy   | Smith        | Stakeholder   | Rt. 1 Box 269                       | Ludowici   | GA   | 31316 |               |  |
| Shawn   | McGowan      | Stakeholder   | P.O. Box 576                        | Ludowici   | GA   | 31316 |               |  |
| <b>DEPARTMENT OF NATURAL RESOURCES</b>          |              |   |                                     |            |      |       |               |  |
| Julie   | Van          | Department of Natural Resources - EPD Nonpoint Source Program | One Conservation Way                | Brunswick  | GA   | 31520 | 912-264-7284  | <a href="mailto:julie_vann@mail.dnr.state.ga.us">julie_vann@mail.dnr.state.ga.us</a>         |
| Jan   | Mackinnon    | DNR - Coastal Management Program                              | One Conservation Way                | Brunswick  | GA   | 31520 | 912-264-7218  |  |
| Jill  | Huntington   | DNR - Coastal Management Program                              | One Conservation Way                | Brunswick  | GA   | 31520 | 912-262-3053  |  |
| Phil  | Flournoy     | DNR - Georgia Coastal Resources Division                      | One Conservation Way                | Brunswick  | GA   | 31520 | 912-264-7218  |  |
| Brooks  | Good         | DNR - Georgia Coastal Resources Division                      | One Conservation Way                | Brunswick  | GA   | 31520 | 912-264-7218  | <a href="mailto:brooks_good@coastal.dnr.state.ga.us">brooks_good@coastal.dnr.state.ga.us</a> |
| Mork  | Winn         | DNR-EPD Water Protection Branch                               | 4220 International Pkwy. Suite 101  | Atlanta    | GA   | 30354 | 404-675-6236  |  |
| Pete  | Maye         | DNR - Georgia Coastal Resources Division                      | One Conservation Way                | Brunswick  | GA   | 31520 | 912-264-7284  |  |
| <b>AGRICULTURE</b>                              |              |   |                                     |            |      |       |               |  |
| Thomas  | Joyner       | GSWCC Statesboro Region VI Office                             | 117 Savannah Avenue                 | Statesboro | GA   | 30458 | 912-681-5241  | <a href="mailto:region6@qwins.campuscw.net">region6@qwins.campuscw.net</a>                   |
| Ginger  | Perdue       | Cooperative Extension Service                                 | P.O. Box 549                        | Ludowici   | GA   | 31316 | 912-545-9549  | <a href="mailto:uge3183@uga.edu">uge3183@uga.edu</a>   |
| Don   | White        | RC&D  | 502 E. General Stewart Way, Suite B | Hinesville | GA   | 31313 | 912- 876-6485 |  |
| William R.                                      | Causey       | USDA- NRCS  | 3608 Altama Ave.                    | Brunswick  | GA   | 31520 | 912-265-8092  |  |
| <b>FORESTRY</b>                                 |              |   |                                     |            |      |       |               |  |
| Willard   | Fell         | Georgia Forestry Commission                                   | 18899 US Hwy. 301 North             | Statesboro | GA   | 30461 | 912-681-0490  | <a href="mailto:wfell@afc.state.ga.us">wfell@afc.state.ga.us</a>                             |
| Rob   | Hicks        | The Timber Company (Georgia Pacific)                          | 903 Monck St.                       | Brunswick  | GA   | 31520 | 912-269-5981  | <a href="mailto:rob_hicks@ttcmail.com">rob_hicks@ttcmail.com</a>                             |
| <b>WATERSHED AND ENVIRONMENTAL GROUPS</b>       |              |   |                                     |            |      |       |               |  |
| James   | Holland      | Altamaha Riverkeeper  | P.O. Box 2642                       | Darien     | GA   | 31305 | 912-437-8164  | <a href="mailto:stewards@altamahariverkeeper.org">stewards@altamahariverkeeper.org</a>       |
| Beth  | Fraser       | Georgia Legal Watch   | 264 N. Jackson Street               | Athens     | GA   | 30601 | 706-546-9008  | <a href="mailto:GLW@GeorgiaLegalWatch.org">GLW@GeorgiaLegalWatch.org</a>                     |
| Maggie  | Kelly        | Georgia PIRG  | 1447 Peachtree St. NE, #304         | Atlanta    | GA   | 30309 | 404-892-3573  | <a href="mailto:mkpirg@juno.com">mkpirg@juno.com</a>   |
| Will  | Berson       | The Georgia Conservancy                                       | 428 Bull Street                     | Savannah   | GA   | 31401 | 912-447-5910  | <a href="mailto:tccoast@bellsouth.net">tccoast@bellsouth.net</a>                             |
|   |              | Coastal Group Sierra Club                                     | P.O. Box 16728                      | Savannah   | GA   | 31416 | 912-351-7436  | <a href="mailto:jim.darby@sierraclub.org">jim.darby@sierraclub.org</a>                       |
|   |              | Georgia Wildlife Federation                                   | 11600 Hazelbrand Road               | Covington  | GA   | 30014 | 770-787-7887  |  |
| David   | Kyler        | Center for a Sustainable Coast                                | 221 B Mallory Street                | St. Simons | GA   | 31522 | 912-638-3612  | <a href="mailto:susdev@gate.net">susdev@gate.net</a>   |

Doctors Creek  
Stakeholder List  
2002

| LOCAL GOVERNMENT      |                |  |                                      |               |    |       |              |  |  |
|-----------------------|----------------|--|--------------------------------------|---------------|----|-------|--------------|--|--|
| Randall               | Wilson         | Long County Commission                         | P.O. Box 476                         | Ludowici      | GA | 31316 | 912-545-2143 |  |  |
|                       |                | Long County Clerk                              | P.O. Box 476                         | Ludowici      | GA | 31316 | 912-545-2143 |  |  |
|                       |                | Long County Development Authority              | P.O. Box 476                         | Ludowici      | GA | 31316 | 912-545-2143 |  |  |
| Myrtice               | Warren         | City of Ludowici                               | P.O. Box 800                         | Ludowici      | GA | 31316 | 912-545-9611 |  |  |
| ADOPT-A-STREAM GROUPS |                |  |                                      |               |    |       |              |  |  |
| Michele               | Droszcz        | Georgia Adopt-A-Stream                         | 7 MLK Drive, SW Suite 643            | Atlanta       | GA | 30334 | 404-656-0099 | <a href="mailto:michele_droszcz@mail.dnr.state.ga.us">michele_droszcz@mail.dnr.state.ga.us</a> |  |
| Joe                   | Richardson     | Coastal and Southeast Georgia RTC              | Savannah State Univ. P.O. Box 20583  | Savannah      | GA | 31404 | 912-356-2809 | <a href="mailto:richards@tigerpaw.ssu.peachnet.edu">richards@tigerpaw.ssu.peachnet.edu</a>     |  |
| OTHER                 |                |  |                                      |               |    |       |              |  |  |
| Keith                 | Gates          | Marine Extension Service                       | 715 Bay Street                       | Brunswick     | GA | 31520 | 912-264-7268 | <a href="mailto:kgates@arches.uga.edu">kgates@arches.uga.edu</a>                               |  |
| Lee                   | Sutton         | UGA, NELO Program Coordinator                  | 715 Bay Street                       | Brunswick     | GA | 31520 | 912-264-7268 | <a href="mailto:lsutton@arches.uga.edu">lsutton@arches.uga.edu</a>                             |  |
| Ross                  | King           | ACCG   | 50 Hurt Plaza, Suite 1000            | Atlanta       | GA | 30303 | 404-522-5022 | <a href="mailto:rking@accg.org">rking@accg.org</a>   |  |
| Curtis                | Askeland, P.E. | Hussey, Gay, Bell & Deyoung, Inc.              | P.O. Box 14247                       | Savannah      | GA | 31416 | 912-354-6754 | <a href="mailto:caskeland@hgd.com">caskeland@hgd.com</a>                                       |  |
| Jim                   | Laplander      | City of Savannah, Water and Sewer Bureau       | P.O. Box 1027                        | Savannah      | GA | 31402 | 912-651-6510 | <a href="mailto:james_laplander@ci.savannah.ga.us">james_laplander@ci.savannah.ga.us</a>       |  |
| Dr. Herbert L.        | Windom         | Skidaway Institute of Oceanography             | 10 Ocean Science Circle              | Savannah      | GA | 31411 | 912-598-2490 | <a href="mailto:herb@skio.peachnet.edu">herb@skio.peachnet.edu</a>                             |  |
| Dr. James             | Reichard       | Dept. of Geology - Georgia Southern University | 1100 Herty Bldg.                     | Statesboro    | GA | 30460 | 912-681-5546 | <a href="mailto:jreich@gsaix2.cc.GaSoU.EDU">jreich@gsaix2.cc.GaSoU.EDU</a>                     |  |
| Dr. Gene              | Waters         | Ogeechee Technical College                     | One Joe Kennedy Blvd.                | Statesboro    | GA | 30458 | 912-681-5667 |  |  |
| Gary                  | Lewis          | CGRDC Board of Directors                       | 20 Morris Street                     | Statesboro    | GA | 30458 | 912-764-9270 |  |  |
| Gordon                | Alston         | CGRDC Board of Directors                       | P.O. Box 1036                        | Statesboro    | GA | 30459 | 912-764-9270 |  |  |
| Craig                 | Root           |  | P.O. Box 1110                        | St. Mary's    | GA | 31558 | 912-882-6262 |  |  |
| Dan                   | Coty           | CinDot   | 430 Picric Road                      | Brunswick     | GA | 31520 | 912-264-1792 |  |  |
| Charles               | Wilson         |  | 200 Driftwood #5                     | St. Simons Is | GA | 31522 | 912-634-8831 |  |  |
| Allen                 | Brown          | Century 21                                     | 123 General Screven Way              | Hinesville    | GA | 31313 | 912-368-2100 |  |  |
| Willie Fred           | Johnson        |  | P.O. Box 402                         | Ludowici      | GA | 31316 | 912-545-9611 |  |  |
| James                 | Otto           | Cetified Public Accountant                     | P.O. Box 463                         | Darien        | GA | 31305 | 912-437-5858 |  |  |
| Welby                 | Stayton        | USGS - Savannah Field Headquarters             | P.O. Box 8223                        | Savannah      | GA | 31401 | 912-652-4350 | <a href="mailto:w_stayton@usgs.gov">w_stayton@usgs.gov</a>                                     |  |
| Aimee                 | Gaddis         | UGA - Marine Extension Service                 | 715 Bay Street                       | Brunswick     | GA | 31520 | 912-264-7268 |  |  |
| David                 | Crosby         | U.S. Corps of Engineers                        | P.O. Box 889                         | Savannah      | GA | 31402 | 912-652-5968 |  |  |
| Eric                  | Nease          | Jordan, Jones & Goulding, Inc.                 | 6801 Governors Lake Pkwy             | Norcross      | GA | 30071 | 770-455-8555 | <a href="mailto:enease@jjg.com">enease@jjg.com</a>   |  |
| Chris                 | Stovall        | Thomas and Hutton Engineering Co.              | 50 Park of Commerce Way              | Savannah      | GA | 31405 | 912-234-5300 | <a href="mailto:stovall.c@thomas-hutton.com">stovall.c@thomas-hutton.com</a>                   |  |
| Mike                  | Demell         | Environmental Services, Inc.                   | 204 West St. Julian St.              | Savannah      | GA | 31401 | 912-236-4711 | <a href="mailto:mdemell@esinc.cc">mdemell@esinc.cc</a>   |  |
| Representative Jack   | Kingston       | First Congressional District, Georgia          | 805 Gloucester St. #304              | Brunswick     | GA | 31520 | 912-265-9010 | <a href="mailto:shiela.wood@mail.house.gov">shiela.wood@mail.house.gov</a>                     |  |
| Mimi                  | Witherington   | Senator Max Cleland's Office                   | 440 Mall Blvd. Suite A               | Savannah      | GA | 31406 | 912-352-8283 |  |  |
| Susan                 | Crow           | University of Georgia                          |                                      |               |    |       |              | <a href="mailto:scrow@arches.uga.edu">scrow@arches.uga.edu</a>                                 |  |
| District 9-3:         | Coastal        | Georgia Department of Public Health            | 1609 Newcastle Street                | Brunswick     | GA | 31520 | 912-264-3907 | <a href="mailto:gdphinfo@dhr.state.ga.us">gdphinfo@dhr.state.ga.us</a>                         |  |
| Ann                   | Purcell        |  | P.O. Box 1295                        | Rincon        | GA | 31326 | 404-657-8440 | <a href="mailto:apurcell@legis.state.ga.us">apurcell@legis.state.ga.us</a>                     |  |
| Teresa                | Cannannon      | Coastal Georgia RDC- Statesboro Office         | P.O. Box 2636                        | Statesboro    | GA | 30459 | 912-681-0926 | <a href="mailto:cardc@bulloch.net">cardc@bulloch.net</a>                                       |  |
| Tom                   | Fry            | DPW ENRD                                       | Building 1137 1550 Frank Cochran Dr. | Ft. Stewart   | GA | 31314 | 912-767-2010 |  |  |
|                       |                | <b>Technical Committee Member</b>              |                                      |               |    |       |              |  |  |
|                       |                | <b>Regional Advisory Committee Member</b>      |                                      |               |    |       |              |  |  |