South Carolina
Department of Health and Environmental Control

Total Maximum Daily Load Development for Calabash Branch: Station CW-134 Fecal Coliform Bacteria

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Bureau of Water

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D H E C

PROMOTE PROTECT PROSPER

South Carolina Department of Health
and Environmental Control

Abstract

A TMDL was developed for Calabash Branch, a small, largely urban stream in York County, SC. This stream was placed on South Carolina's 303(d) list of waters that are impaired, because 37 % of water samples in the 1996-2000 reference period exceeded the standard for fecal coliform. A mass-balance approach was used to determine the loads. The load from urban runoff was calculated using Schueler's simple method. The primary source of fecal coliform into the stream was determined to be runoff from the urban land in the watershed.

The TMDL for Calabash Branch was calculated to be 6.85E+09 cfu/day. To reach the target load a reduction in the existing load of 74 % would be required.

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Calabash Branch (HUC 03050101-190-010)

1.0 INTRODUCTION:

1.1 Background

Levels of fecal coliform bacteria can be elevated in water bodies as the result of both point and nonpoint sources of pollution. Section 303(d) of the Clean Water Act and EPA's Water Quality Planning and Management Regulations (40 CFR Part 130) require states to develop total maximum daily loads (TMDLs) for water bodies that are not meeting designated uses under technology-based pollution controls. The TMDL process establishes the allowable loadings of pollutants or other quantifiable parameters for a water body based on the relationship between pollution sources and in stream water quality conditions so that states can establish water quality-based controls to reduce pollution and restore and maintain the quality of water resources (USEPA 1991).

1.2 Watershed Description

Calabash Branch is a small creek in York County, in the upper Piedmont region of South Carolina (Figure 1). The branch is a tributary of Allison Creek, which drains into Lake Wylie. The area of the watershed is 5.3 km^2 (1300 acres). A portion of the town of Clover is in the watershed. Approximately 1900 people lived in the watershed in 2000. Of these about 250 lived in the un-sewered part of the watershed. Calabash Branch has a single monitoring station (CW-134), which is located at S-46-414 south of Clover. This TMDL applies to the watershed upstream of this road.

The Town of Clover operated a WWTP on Calabash Branch until 1997. At that time the town began sending its sewage to Gastonia, NC for treatment.

The predominant land uses (NLCD) in the watershed in the early 1990's were forest (38.7 %), developed (33.4 %), pasture/hay (12.6 %), and cropland (11 %); see Table 1 and Figure 2. A windshield survey of the watershed in June 2003 found most of the cropland had reverted to forest or housing development. Aside from several small pastures with horses there was no active pasture. This watershed has then essentially one land use that would contribute to fecal coliform contamination of Calabash Branch, developed land. With the rapid growth in the Charlotte, NC region, the percent of developed land is likely to continue to increase.

1.3 Water Quality Standard

The impaired stream segment, Calabash Branch, is designated as Class Freshwater. Waters of this class are described as follows:

> "Freshwaters suitable for primary and secondary contact recreation and as a source for drinking water supply after conventional treatment in accordance with the requirements of the Department. Suitable for fishing and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. Suitable also for industrial and agricultural uses." (R.61-68)

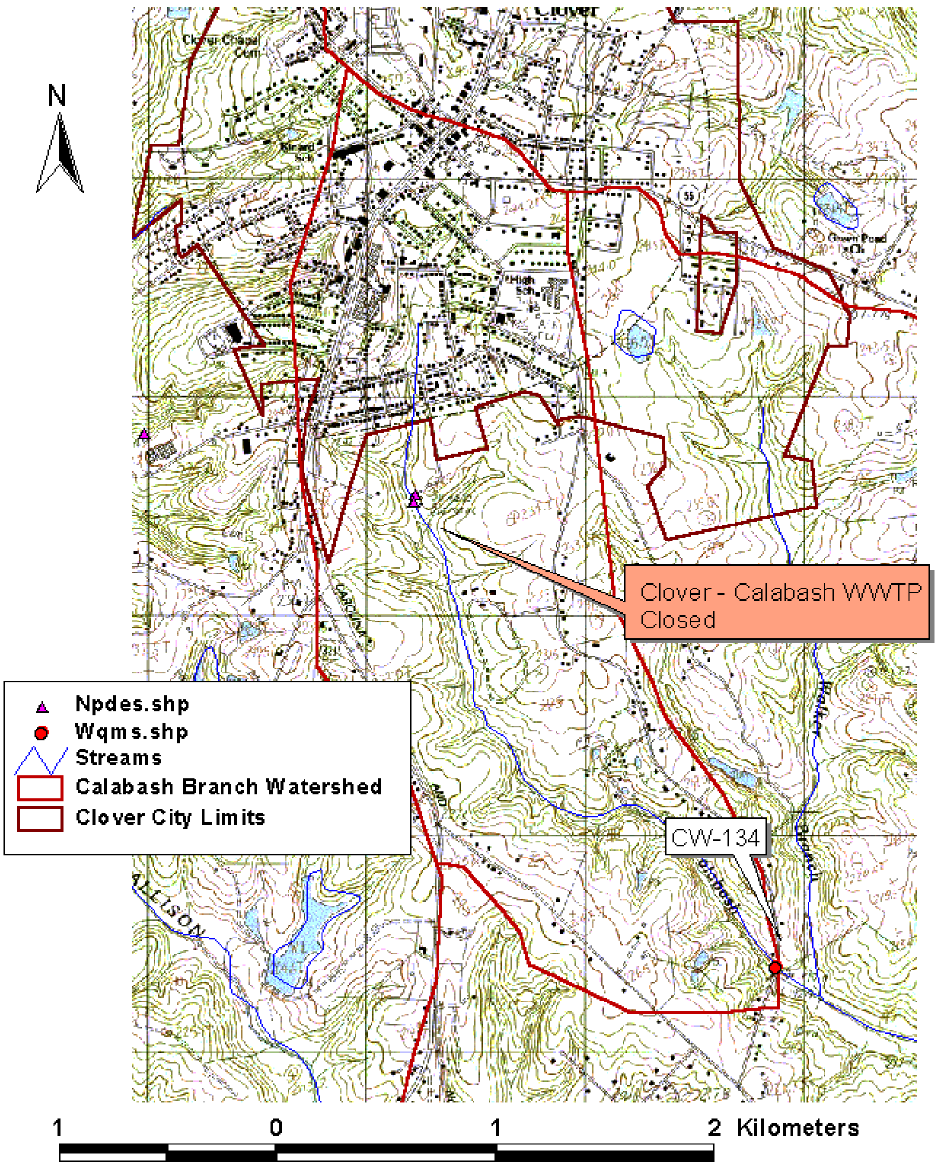

Figure 1. Map of the Calabash Branch watershed.

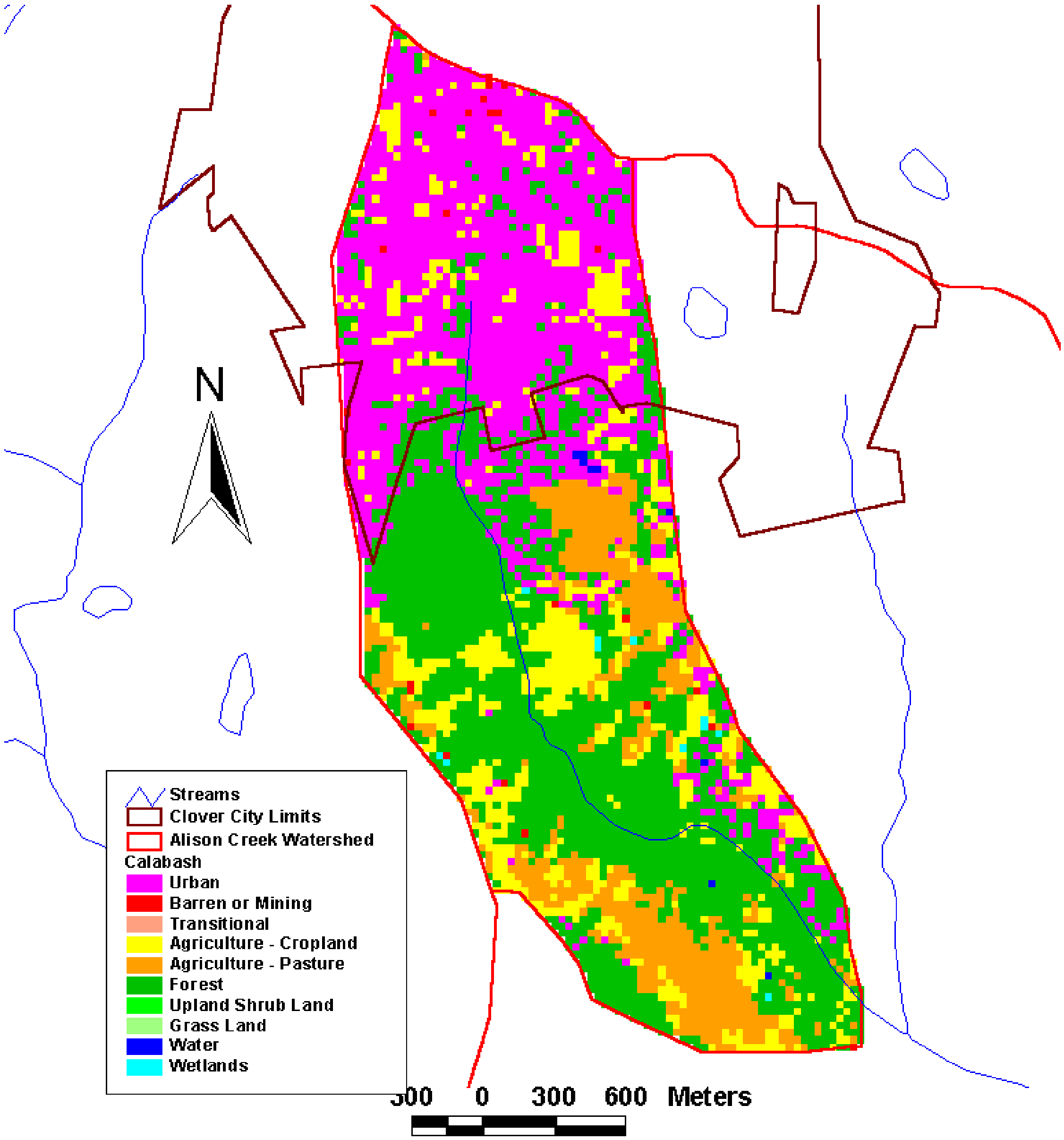

Figure 2. Map showing land uses in the Calabash Branch watershed.

South Carolina's standard for fecal coliform in Freshwater is:

> "Not to exceed a geometric mean of 200/100 ml, based on five consecutive samples during any 30 day period; nor shall more than 10% of the total samples during any 30 day period exceed 400/100 ml."(R.61-68).

Table 1. Land uses in the Calabash Branch watershed.

Land Use		Area (hectares)		Percent
Water		0.8		0.2%
Residential LI		91.8		17.5%
Residential HI		25.7		4.9%
Commercial, Ind, Trans		58.4		11.1%
Developed Total			**175.86**	**33.4%**
Bare Rock, Sand,Clay		2.3		0.4%
Deciduous Forest		85.9		16.3%
Evergreen Forest		71.5		13.6%
Mixed Forest		46.2		8.8%
Forest - Total			**203.49**	**38.7%**
Pasture/Hay		**66.2**		**12.6%**
Row Crops		**57.7**		**11.0%**
Grass (Parks, lawns)		18.6		3.5%
Woody Wetlands		0.9		0.2%
Emergent Herbaceous Wetlands		0.1		0.0%
Wetlands - Total			0.99	0.2%
Total Area		**525.9**		**100.0%**

2.0 WATER QUALITY ASSESSMENT

An assessment of water quality data collected in 1996 through 2000 at water quality monitoring station CW-134 indicated that Calabash Branch is impaired for recreational use. In addition to being listed on the 2002 303(d) list, Calabash Branch was also on the 1998 and 2000 lists. Waters in which no more than 10% of the samples collected over a five year period are greater than 400 fecal coliform counts or cfu / 100 ml are considered to comply with the South Carolina water quality standard for fecal coliform bacteria. Waters with more than 10 percent of samples greater than 400 cfu/ 100 ml are considered impaired by fecal coliform bacteria and are placed on South Carolina's 303(d) list. During the assessment period (1996-2000), 37 % of the samples did not meet the fecal coliform criterion at CW-134. Fecal coliform data from the creek are provided in Appendix A.

There is not a clear indication that precipitation increases fecal coliform concentrations in Calabash Branch. As can be seen in Figure 3 high fecal coliform concentrations occur at the whole range of precipitation values. The rainfall amounts represent the sum of rainfall on the day of sampling and

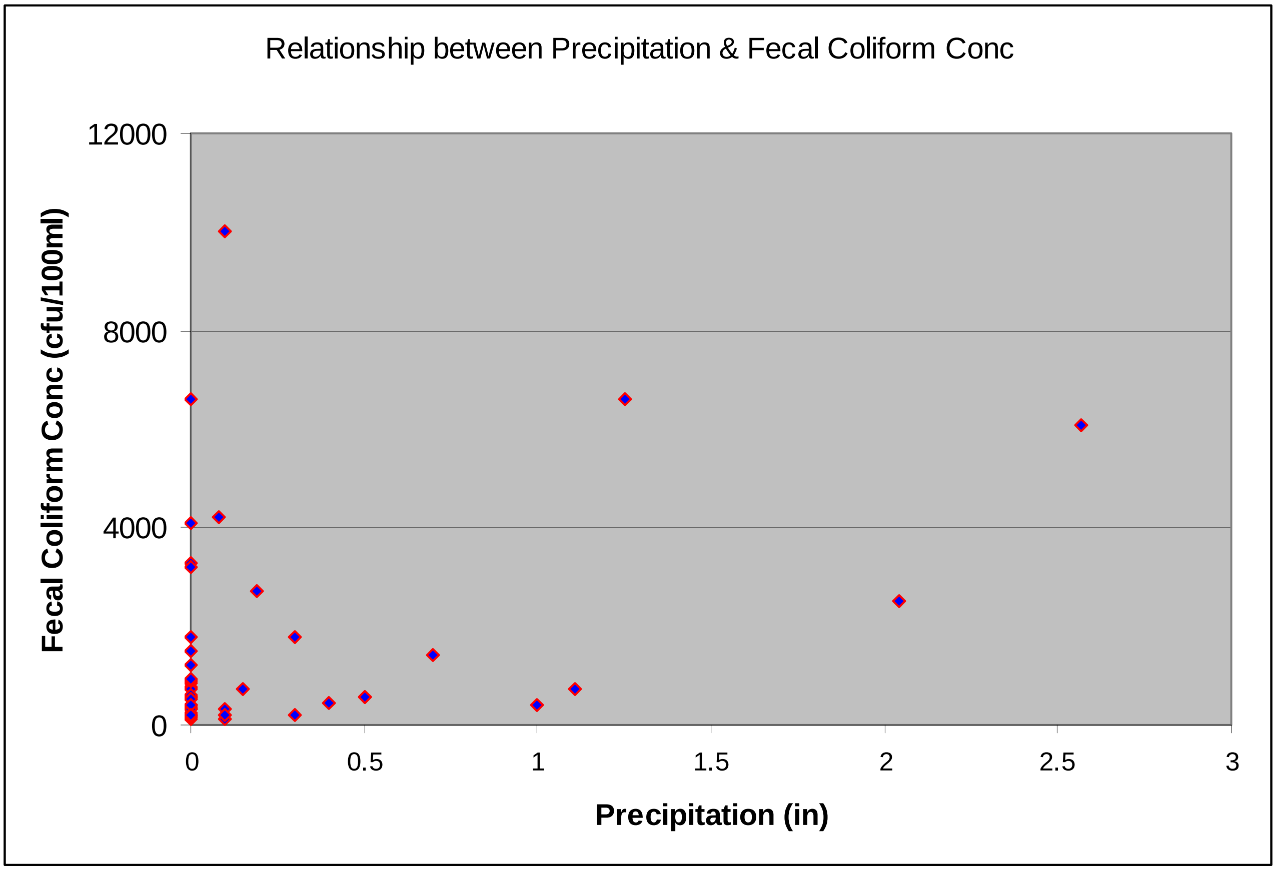

Figure 3. Comparison between precipitation and fecal coliform concentration in Calabash Branch.

the two previous days, as measured at Charlotte, NC. This suggests that continuous sources of fecal coliform bacteria, such as failing septic systems, leaking sewer lines, or direct discharges are contributing to the impairment.

3.0 SOURCE ASSESSMENT AND LOAD ALLOCATION

Fecal coliform bacteria enter surface waters from both point and nonpoint sources. Poorly treated municipal sewage has been a major source of fecal coliform, but with improved treatment and enforcement this is not usually the case now. All point sources must have a NPDES permit. In South Carolina NPDES permittees that discharge sanitary wastewater must meet the state standard for fecal coliform.

3.1 Point Sources in the Calabash Branch Watershed

There is no currently operating NPDES facility (point source) in this watershed. The Town of Clover maintained a WWTP on Calabash Branch until 1997. Though this facility may have contributed to impairment of this stream, violations of the fecal coliform standard continue since the facility closed. During the 6-year period (1991-1996) prior to the shut down of the WWTP, 85 % of samples exceeded the standard. In the 3-year period (1998-2000) following closure, the excursion rate dropped to 39 %. The 1998-2000 period was a period of drought, which probably reduced standard violations due to runoff.

3.2 Nonpoint Sources in Calabash Branch Watershed

3.2.1 Wildlife

Wildlife (mammals and birds) contribute a low level of fecal coliform to surface waters. Wildlife wastes are carried into nearby streams by runoff during rainfall or by direct deposit. Deer are the largest and most prominent wild animals in this area. The SC Department of Natural Resources (Charles Ruth, DNR Deer Project Supervisor, personal communication, 2000) has estimated a density of 30 deer/mi^2 for this area. Other wildlife, particularly water birds, can be important contributors of fecal coliform bacteria. For this TMDL wildlife are considered as contributors to background with a concentration of 30 cfu/100ml (Table 2).

3.2.2 Failing Septic Systems

The number of households and people that are not served by sewer lines was estimated using a GIS. The 2000 census database layer was compared to a sewer line data layer theme and the boundaries of the Calabash Branch watershed. The population and number of houses using septic systems were entered into a spreadsheet for single land use TMDLs. Based on Horsley and Witten (1996), the average waste flow per person was assumed to be 70 gal/capita/day. Septic systems were assumed to have a failure rate of 20 % (Schueler, 1999). Other assumptions were that all wastewater reached the stream and the concentration of fecal coliform in that wastewater was 10^4 cfu/100ml (Horsley and Witten, 1996). Failing septic systems are a significant source of fecal coliform loading to Calabash Branch, but not the major contributor. Calculations of failing septic systems are given in Appendix B Table B-2. The estimated loading values from failing septic systems are given in Table 2.

3.2.3 Leaking or overflowing sewers

Most of these watersheds are sewered and sewer lines are adjacent to the creeks along most of their length. A cursory examination of the Sanitary Sewer Overflow database indicates that there have been overflows in the area. For this TMDL an average daily input to the creek of 10 gal of wastewater with a fecal coliform concentration of 3×10^6 cfu /100 ml was assumed. This level would make leaking or overflowing sewers the third most important fecal coliform source. The closeness of sewer lines to the stream channels would tend to reduce attenuation of the fecal coliform bacteria from any leaks or overflows.

There was no available local data for leaking and overflowing sanitary sewers. A minimal daily flow of 10 gal was estimated for these sources. A middle range concentration of 3×10^6 cfu/100ml for raw sewage from the protocol (EPA, 1999) was chosen for this potential source.

Leaks and overflows from sanitary sewers are potential, but little known, source of fecal coliform pollution to streams. They are not likely to be the most important source. The estimated flow of 10 gal of wastewater is an educated guess and is not large enough to significantly affect the required reductions in loading. As part of implementation further investigation of these sources would be prudent. The calculation of leaking sewer lines is provided in Appendix B Table B-2. The estimated load is provided in Table 2.

3.2.4 Urban Runoff

Urbanized or developed land typically generates an increased loading for pollutants relative to forest and other undeveloped land uses. Dogs, cats, and other pets are the primary source of fecal coliform deposited on the urban landscape. Impervious surfaces increase the amount of runoff relative to predevelopment. The increased storm runoff washes more of this fecal material into streams directly or through the storm sewers. This source is estimated by the >simple method= of Schueler (1987) using a concentration for fecal coliform from the literature (USEPA, 2001). This source is the largest contributor to the load going into Calabash Branch, accounting for 93% of the existing load, according to this method. The analysis of precipitation and fecal coliform concentrations in Calabash Branch indicates that runoff is not the only source of loading to the creek. It is likely then that failing septic systems and/or leaking and overflowing sanitary sewers may be under estimated as sources of fecal coliform bacteria.

Table 2. Existing loads to Calabash Branch at CW-134.

Loading Source	Method	Load
Background	Literature	1.03E+08
Failing Septic Systems	Calculation	1.38E+09
Leaking & Overflowing Sewers	Calculation	1.14E+09
Urban Runoff	Simple Method	2.25E+10
Total Existing Load		2.51E+10

4.0 METHODS

This TMDL was developed using the mass-balance approach. The mass load in the creek was estimated to be about 2.2 E+10 cfu/day by multiplying the warm season average stream flow (1.4 cfs) by the geometric mean fecal coliform concentration for the warm season (631 cfu/100ml). The median concentration was 560 cfu/100ml. Loads were estimated from identified sources and adjusted until the sum of the sources was approximately equal to estimated mass load.

Flow for Calabash Branch was estimated from the ratio of drainage areas and the flow for Long Creek (Gaston County, NC) from 1/1/1953 to 9/30/2001 (USGS gauging station 0214400). The flows for the months of May through October were averaged over the period.

4.1 Schueler's Simple Method

Urban storm runoff was estimated using the Schueler 'simple method' of calculating a load from urban land (Schueler, 1987). The simple method was described in the Sawmill Branch – Dorchester Creek Fecal Coliform TMDL (SCDHEC 2003). This method is useful for a small watershed like Calabash Branch (526 hectares or 1300 acres) where urban land is the contributing land use. Calabash has no flow data. Many assumptions are required due to the lack of data.

The simple method uses precipitation and percentage of impervious area to estimate the runoff. The amount of warm season storm runoff from the urban land in the Calabash Branch watershed was calculated using this method. The spreadsheet showing the calculation is given in Appendix B Table B-3. Monthly precipitation data was from Charlotte, NC for the period of 1948-1997. The impervious area percentage was estimated to be 35%.

From the estimated runoff quantity and fecal coliform concentration, the loading from urban runoff was calculated as shown in Appendix B Table B-4. The fecal coliform concentration was estimated to be 1200 cfu/100ml; this value is on the lower end of the range in the *Protocol for Developing Pathogen TMDLs* (EPA, 2001). This value was adjusted until the sum of loading was similar to that calculated form the average flow and geometric mean fecal coliform concentration in the branch. The amount of urban land contributing to the runoff to the branch was 534 acres.

4.2 Calculation of Other Sources

Loading from the other sources, background, failing septic systems, and leaking / overflowing sewer lines, was estimated as was described in Chapter 3. These calculations are shown in Table B-5 in Appendix B. This table also includes all the sources and sums them for the existing load. The urban runoff source accounts for 90 % of the existing load.

5.0 TMDL DEVELOPMENT

5.1 Critical Conditions

Novotny & Olem (1994) found statistically lower fecal coliform counts in cold weather urban runoff samples than in warmer weather urban runoff. To substantiate this, winter and summer fecal coliform values were compared at ambient water quality monitoring stations in the Piedmont Region in South Carolina impacted by nonpoint sources. This analysis revealed similar or higher values in the summer than the winter. Therefore, the warm season (May-October), which is also the most likely time for contact recreation, is considered critical conditions. This can be explained by the nature of storm events in the summer versus the winter. Thunderstorms are typical in the summer months. This pattern of rainfall allows for the accumulation and washing off of fecal coliforms into the streams resulting in spikes of fecal coliform concentrations. In the winter, long slow rain events are more typical. This pattern of rainfall does not allow for the high build-up of coliform that characterizes the summer. Rather, coliform bacteria are washed into the stream at a more even rate. This, coupled with the increased winter flows that provide more dilution, results in lower fecal coliform concentrations.

5.2 Seasonality

The discussion of critical conditions indicated that the warm weather months tend to have higher fecal coliform concentrations. Basing this TMDL on the warm weather months will also protect the stream during the cold weather months when base flows tend to be higher and fecal coliform concentrations in runoff lower.

6.0 TOTAL MAXIMUM DAILY LOAD

A total maximum daily load (TMDL) for a given pollutant and water body is comprised of the sum of individual wasteload allocations (WLAs) for point sources, and load allocations (LAs) for both nonpoint sources and natural background levels. In addition, the TMDL must include a margin of safety (MOS), either implicitly or explicitly, to account for the uncertainty in the relationship between pollutant loads and the quality of the receiving water body. Conceptually, this definition is represented by the equation:

$$\text{TMDL} = 3\ \text{WLAs} + 3\ \text{LAs} + \text{MOS}$$

The TMDL is the total amount of pollutant that can be assimilated by the receiving water body while still achieving water quality standards. In TMDL development, allowable loadings from all pollutant sources that cumulatively amount to no more than the TMDL must be established and thereby provide the basis to establish water quality-based controls.

For most pollutants, TMDLs are expressed as a mass load (e.g., kilograms per day). For bacteria, however, TMDLs are expressed in terms of cfu or organism counts (or resulting concentration), in accordance with 40 CFR 130.2(l).

6.1 Waste Load Allocations

There is no Waste Load Allocation for Calabash Branch because there is no NPDES permitted discharger.

6.2 Load Allocations

The load allocation was determined by multiplying the target concentration (190 cfu/100ml) by the average flow. The load allocation for Calabash Branch is 6.51 E+09 cfu/day for CW-134. The calculation is provided in Table B-6 in Appendix B.

6.3 Margin of Safety

The explicit margin of safety is 5% of the geometric mean standard or 10 cfu/ 100ml. For CW-134 this is equivalent to 3.43 E+08 cfu/day**.** Through the use of conservative assumptions in the analytical method the margin of safety also has an implicit component. Conservative assumptions include basing TMDL on warm season conditions and using upper range fecal coliform concentrations in calculations of the existing load.

6.4 TMDL

$$\mathbf{TMDL = 3WLA + 3LA + MOS}$$

Table 3. TMDL components for Calabash Branch.

Impaired Station	WLA cfu/day	LA cfu/day	MOS cfu/day	TMDL cfu/day	Target cfu/day	Percent Reduction
CW-134	NA	6.51×10^{9}	3.43×10^{8}	6.85×10^{9}	6.51×10^{9}	74.1 %

The target loading value is the load to the creek that it can receive and meet the water quality standard. It is simply the TMDL minus the MOS. The target loading for Calabash Branch requires a reduction of 74 % from the current load of 2.51 E+10 cfu/day for CW-134.

7.0 IMPLEMENTATION

As discussed in the *Implementation Plan for Achieving Total Maximum Daily Load Reductions From Nonpoint Sources for the State of South Carolina* (SCDHEC,1998), South Carolina has several tools available for implementing this nonpoint source TMDL. SCDHEC will work with the existing agencies in the area to provide nonpoint source education in the Calabash Branch Watershed. Local sources of nonpoint source education and assistance include Clemson Extension Service, the Natural Resource Conservation Service (NRCS), the York County Soil and Water Conservation Services, and the South Carolina Department of Natural Resources.

SCDHEC is empowered under the State Pollution Control Act to perform investigations of and pursue enforcement for activities and conditions which threaten the quality of waters of the state. In addition, other interested parties (universities, local watershed groups, etc.) may apply for section 319 grants to install BMPs that will reduce fecal coliform loading to Calabash Branch. TMDL implementation projects are given highest priority for 319 funding.

In addition to the resources cited above for the implementation of this TMDL in the Calabash Branch Watershed, Clemson Extension has developed a Home-A-Syst handbook that can help urban or rural homeowners reduce sources of NPS pollution on their property. This document guides homeowners through a self-assessment, including information on proper maintenance practices for septic tanks. SCDHEC also employs a nonpoint source educator who can assist with distribution of these tools as well as provide additional BMP information.

Using existing authorities and mechanisms, these measures will be implemented in the Calabash Branch Watershed in order to bring about a 74 % reduction in fecal coliform bacteria loading to the branch. DHEC will continue to monitor, according to the basin monitoring schedule, the effectiveness of implementation measures and evaluate stream water quality as the implementation strategy progresses.

8.0 REFERENCES

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APPENDIX A Fecal Coliform Data

CW-134 Calabash Branch at S-91-414, South of Clover

Date	Time	FC (fcu/100 ml)
8-May-90	1448	220
11-Jun-90	1350	430
11-Jul-90	1315	580
1-Aug-90	1300	350
5-Sep-90	1217	860
2-Oct-90	1355	780
6-May-91	1215	6600
26-Jun-91	1055	2700
15-Jul-91	1135	740
29-Aug-91	1025	10000
23-Sep-91	1040	320
10-Oct-91	1145	420
5-May-92	1140	550
3-Jun-92	1205	320
7-Jul-92	1120	340
4-Aug-92	1133	570
2-Sep-92	1105	1800
8-Oct-92	1120	2500
20-May-93	1350	580
15-Jun-93	1230	3300
20-Jul-93	1100	4200
4-Aug-93	1140	420
14-Sep-93	1035	1500
21-Oct-93	1145	1200
31-May-94	1020	720
7-Jun-94	1026	6600
7-Jul-94	1404	730
18-Aug-94	1000	6100
21-Sep-94	1426	620
6-Oct-94	1025	420
24-May-95	1430	240
20-Jun-95	1040	1400
12-Jul-95	1355	1800
15-Aug-95	1100	3200
7-Sep-95	1129	880
10-Oct-95	1020	520
22-May-96	1050	320
18-Jun-96	1050	920
12-Sep-96	1038	4100
22-May-97	1100	190
4-Jun-97	1135	560
7-Jul-97	1115	140
26-Aug-97	1440	170
3-Sep-97	1135	150
22-Oct-97	1105	110
21-May-98	1030	200
16-Jun-98	1350	340
22-Jul-98	1246	530
6-Aug-98	1045	390
10-Sep-98	1055	220
29-Oct-98	1405	210
11-May-99		110
24-Jun-99		0
15-Jul-99		120
18-Aug-99		2900
27-Sep-99		6700
21-Oct-99		740
15-May-00		340
22-Jun-00		300
17-Jul-00		1700
31-Aug-00		520
19-Sep-00		5600
26-Oct-00		80

APPENDIX B Calculations

Table B-1. Estimated Failing Septic Systems in Calabash Branch Watershed

Failure Rate of Septic Systems: 20.00%

Sub-Water sheds	Total Popu-lation	# of Households	# of Failing Septic Systems	Pop served by Failing Septic Systems	Septic Flow (gal/day)	Septic Flow (l/day)	Septic Flow (cfs)	FC Flux Rate (cfu/day)
Calabash	260	73	14.6	52.0	3640	13777.4	0.006	1.38E+09
			0.0	0.0	0	0	0	0.00E+00

Note: Population and household data from 2000 Census

Fecal Coliform concentration in discharge assumed to be 10000 cfu/100ml
Septic system overcharge rate is assumed to be 70 gal/day/person

Table B-2. Estimated Loading from leaking sewer lines and sanitary sewer overflows in Calabash Branch Watershed

Sub-Water sheds	Quantity of Leakage & Overflows (gal/day)	Flow (l/day)	F C Conc of Waste water (cfu/100ml)		FC Flux Rate (cfu/day)	
Calabash	10	37.85	3.0E+06		1.14E+09	

Table B-3. Calculation of urban runoff (from Schueler,).

Runoff Calculations

Runoff - Warm Season	=	**Rainfall * -warm season**	**Fraction of events producing runoff**	*	**Runoff Coeffi-cient ***		**Runoff Coeff**	**% Impervious**
in		in						
Runoff built-up	=	21.51 x	0.8 x		0.365 =	**6.28** **inches**	0.365	35

Rainfall is Mean of May-Oct 1948-97 data for Charlotte, NC

*** Note: Runoff Coeff is function of % impervious surface as follows:**

Rc = 0.05 + 0.009 x I

Area of Urbanized Land Contributing Runoff: 0.834 mi^2

Table B-4 Stormwater Loading Calculations from Schueler, 1997

Loading daily (cfu / day)	**=**	**Conversion Factor ***	**x**	**Warm Season Runoff ** (in)**	**x**	**Conc (cfu/ 100 ml)**	**x**	**Area in land use (acres)**		**Loading (cfu / day)**
Existing: Loading Built-up										
Calabash Branch	=	5.60E+03	**x**	6.28	**x**	1,200	**x**	534	**=**	**2.25E+10**

*** Conversion factor changes units and Load to cfu/day**

**** Number of days represented by runoff:** **184**
(eg annual = 365; warm season = 184)

Table B-5 Load Calculations for the existing load in Calabash Branch at CW-134 (HUC 03050101-190-010).

Existing Loading							
Sources:	**Type**	**Permit #**	**Flow**		**Conc**	**Load**	**Method**
			(cfs)	**(L/day)**	**(cfu/**	**(cfu**	**of calc**
					100ml)	**/day)**	**Loading**
Calabash Branch							
Failing Septic Systems	NPS	N/A	0.0056	1.4E+04	1.E+04	1.38E+09	% of septic systems
Stormwater - Built-up	NPS	N/A	NA	NA	NA	2.25E+10	Schueler's Simple Method
Leak/O-flowing Sewers			2E-05	3.8E+01	3.0E+06	1.14E+09	Estimated
Background	NPS		1.4	3.4E+06	30	1.03E+08	Conc x Flow
Total						2.51E+10	

Table B-6. Load Calculations for the TMDL load in Calabash Branch at CW-134 (HUC 03050101-190-010).

TMDL Loading				**Target conc is 190 cfu/100ml (5 % MOS)**			
Allocations			**Flow**		**Conc**	**Load**	**Percent**
			(cfs)	**(L/sec)**	**(cfu/**	**(cfu**	**Reduction**
Calabash Branch					**100ml)**	**/day)**	**(cfu/day)**
Load Allocations			1.40	39.6	190	6.51E+09	
Wasteload Allocations			0	0.0	200	0.00E+00	
Target Loads						6.51E+09	74.1%

APPENDIX C Public Participation

The following notice was published in *The* (Rock Hill) *Herald* newspaper on August 11, 2003, sent to a list of persons whom had requested to be notified of TMDL notices, and placed on the department web site.

PUBLIC NOTICE

AVAILABILITY OF PROPOSED TOTAL MAXIMUM DAILY LOADS FOR WATERS AND POLLUTANTS OF CONCERN IN THE STATE OF SOUTH CAROLINA

Allison Creek, York County and Calabash Branch, York County

Section 303(d)(1) of the Clean Water Act (CWA), 33 U.S.C. §1313(d)(1)(C), and the implementing regulation of the US Environmental Protection Agency (EPA, 40 C.F.R. § 130.7(c)(1), require the establishment of total maximum daily loads (TMDLs) for waters identified as impaired pursuant to §303(d)(1)(A) of the CWA. Each of these TMDLs is to be established at a level necessary to implement applicable water quality standards with seasonal variations and a margin of safety, to account for lack of knowledge concerning the relationship between effluent limitations and water quality. At this time, the South Carolina Department of Health and Environmental Control (DHEC) has developed proposed TMDLs for the §303(d)(1)(A) waters:

Allison Creek, York County, Fecal Coliform Bacteria, 03050101-190-010; Calabash Branch, York County, Fecal Coliform Bacteria, 03050101-190-010.

Upon review of any public comment and revision, if necessary, the Department will submit these TMDLs to EPA for approval as final TMDLs.

Persons wishing to comment on the proposed TMDLs or to offer new data regarding the proposed TMDLs are invited to submit the same in writing no later than September 10, 2003, to:

South Carolina Department of Health and Environmental Control / Bureau of Water / 2600 Bull St. / Columbia, S.C. 29201 / Attn: Mark Giffin

Mr. Giffin's phone number is 803-898-4203. His E-mail address is giffinma@dhec.sc.gov. Interested persons may also call Kathy Stecker at 803-898-4011 or e-mail her at steckemk@dhec.sc.gov.

Copies of individual TMDLs can be obtained by calling, writing, or e-mailing Mr. Giffin at the address above or from the Bureau of Water web site: <http://www.scdhec.net/water/>. The administrative record, including technical information, data and analyses supporting the proposed TMDLs, are available for review. Requests to review this information must be submitted in writing to DHEC's Freedom of Information Office at 2600 Bull Street, Columbia, SC 29201 or requests can be submitted via FAX to the Freedom of Information Office at 803.898.3816. Reproduction of documents is available at a cost of $0.25 per page.