

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

TMDL: Total Maximum Daily Load (TMDL) Evaluation for Eighty-Seven Stream Segments in the Chattahoochee River Basin for Bacteria

ATTAINS TMDL ID: GAR4_23_12_06

LOCATION: Baker, Calhoun, Chattahoochee, Clay, Clayton, Colquitt, Coweta, Crawford, Crisp, Decatur, Dooly, Dougherty, Early, Fayette, Fulton, Grady, Henry, Houston, Lamar, Lee, Macon, Marion, Meriwether, Miller, Mitchell, Monroe, Peach, Pike, Randolph, Schley, Seminole, and Spalding Counties, Georgia

STATUS: Final

IMPAIRMENT/POLLUTANT: Thirty-seven waterbodies (see next page) in the Chattahoochee River Basin are not meeting water quality criteria for fecal coliform and are not supporting the designated use of Fishing, Recreation, and/or Drinking Water. Fifty additional stream segments were updated. Forty-seven of these segments have the designated use of Fishing, one has the designated uses of Fishing and Recreation, and two segments have the designated uses of Fishing and Drinking Water. They were included in previously approved TMDLs dated 1998 which addressed fecal coliform exceedances. A TMDL was submitted by the Georgia Environmental Protection Division (GAEPD) that provides fecal coliform, enterococci and *E. coli* loads to address the impairments.

BACKGROUND: The GAEPD submitted the final *TMDL Evaluation for Eighty-Seven Stream Segments in the Chattahoochee River Basin for Bacteria* (the “TMDL,” “Submission,” or “Report”) with a submittal letter requesting review and approval to the EPA Region 4 dated December 5, 2023. The EPA reviewed a draft of this TMDL during the Fall 2023 public comment period.

The submission included:

- Submittal letter
- *TMDL Evaluation for Eighty-Seven Stream Segments in the Chattahoochee River Basin for Bacteria*
- Water Quality Monitoring Data

REVIEWER: Bonita C. Johnson, johnson.bonita@epa.gov

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Waterbodies Addressed in this TMDL Approval Action:

**Table 2 of the Report: Stream Segments Listed on the 2022 303(d) List for Bacteria in the
Chattahoochee River Basin**

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use
Anneewakee Creek	Lake Monroe to Chattahoochee River	GAR031300020304	5	Fishing
Brush Creek	Tributary to West Point Lake	GAR031300020605	10	Fishing
Chattahoochee River	Dicks Creek to Johns Creek	GAR031300010913	12	Drinking Water, Recreation, Fishing
Coheelee Creek	Chancy Mill Creek to Chattahoochee River	GAR031300040502	5	Fishing
Cooper Creek	Headwaters to Bull Creek - Columbus	GAR031300030107	8.3	Fishing
Crawford Creek	Headwaters to Sulphur Creek	GAR031300021010	7.1	Fishing
Deer Creek	Headwaters to Centralhatchee Creek	GAR031300020422	9.6	Fishing
Denny Creek	Headwaters to Centralhatchee Creek	GAR031300020433	4	Fishing
Dozier Creek	Headwaters to Randall Creek	GAR031300030311	7	Fishing
East Trammel Branch	Headwaters to Yellowjacket Creek	GAR031300020716	3	Fishing
Flatrock Creek	Tributary to Bull Creek - Columbus	GAR031300030110	3	Fishing
Fort Creek	Headwaters to Dowdell Creek	GAR031300021216	3	Fishing
Glade Branch	Headwaters to Town Creek	GAR031300010514	2	Fishing
Hannahatchee Creek	Ben Owens Creek to Bussey Branch	GAR031300030704	7	Fishing
Hillabahatchee Creek	Alabama State line to Red Oak Creek	GAR031300020613	4.8	Fishing

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use
Hillabahatchee Creek	Red Oak Creek to Tollieson Branch, Franklin	GAR031300020614	13.3	Fishing
House Creek	Headwaters to Sand Creek	GAR031300021015	11	Fishing
Lick Log Creek	Lake Romona to Mill Creek	GAR031300020218	2	Fishing
Milligan Creek	Headwaters to Pond 0.9 miles upstream of the Heard County Line	GAR031300020428	5	Fishing
North Prong Kolomoki Creek	Tributary 1 mile downstream of Bluffton Highway to Kolomoki Creek	GAR031300040205	5	Fishing
Pataula Creek	Beaver Creek to Brier Creek	GAR031300031507	2.8	Fishing
Sand Creek	Headwaters to House Creek	GAR031300021018	9	Fishing
Standing Boy Creek	Striblin Creek to Mobleys Lake	GAR031300021308	5	Fishing
Tar River	Headwaters to Montarella Lake	GAR031300030204	4	Fishing
Tate Creek	Headwaters to Chestatee River	GAR031300010512	4	Fishing
Town Branch	Lake Val-Do Mar to Mud Creek - Villa Rica	GAR031300020211	2.9	Fishing
Town Creek	Alabama State line to tributary 0.5 miles upstream of Arrington Rd	GAR031300020611	2.7	Fishing
Town Creek	Tributary 0.5 miles upstream of Arrington Rd to Little Creek	GAR031300020612	4	Fishing
Tributary to Bull Creek	Headwaters to Bull Creek	GAR031300030121	2	Fishing
Tributary to Cemochechobee Creek	Headwaters to Cemochechobee Creek	GAR031300040107	3	Fishing

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use
Tributary to Lick Log Creek	Headwaters to Lick Log Creek	GAR031300020224	1.8	Fishing
Tributary to Mountain Creek	Callaway Gardens WPCP to Mountain Creek	GAR031300021103	2	Fishing
Tributary to Mulberry Creek	Oak View Home WPCP to Mulberry Creek	GAR031300021219	3	Fishing
Tributary to Mulberry Creek	Headwaters to Oak View Home WPCP	GAR031300021220	0.1	Fishing
White Sulfur Creek	Headwaters to Sulphur Creek	GAR031300021006	9	Fishing
Whitewater Creek	Headwaters to tributary 0.5 miles upstream Heard/Troup County Line	GAR031300020804	7.5	Fishing
Whitewater Creek	Tributary 0.5 miles upstream Heard/Troup County Line to West Point Lake	GAR031300020805	3.8	Fishing

Table 3 of the Report: Stream Segments with Updated TMDLs for Bacteria in the Chattahoochee River Basin

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use	Original TMDL Action ID Number, Agency, and Year
Acorn Creek	Headwaters to the Chattahoochee River	GAR031300020401	6.5	Fishing	1 US EPA 1998
Baldwin Creek	Headwaters to Little Bear Creek	GAR031300020308	3.8	Fishing	49 US EPA 1998
Bear Creek	Dorsett Shoals Rd. to Little Bear Creek	GAR031300020313	3.5	Fishing	73 US EPA 1998

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use	Original TMDL Action ID Number, Agency, and Year
Big Creek	Tributary to Lake Lanier	GAR031300010813	2	Fishing	107 US EPA 1998
Billy Creek (Previously Nancy Long Creek/Billy Creek)	Strickland Lake to the Dog River	GAR031300020310	4.2	Fishing	846 US EPA 1998
Cedar Creek	Browns Creek to the Chattahoochee River (Formerly Coweta County)	GAR031300020420	6	Fishing	230 US EPA 1998
Centralhatchee Creek	Headwaters to the Chattahoochee River	GAR031300020421	19	Fishing	237 US EPA 1998
Chattahoochee River	SR255 to Soquee River	GAR031300010105	11	Recreation, Fishing	247 US EPA 1998
Chestatee River	Yahoola Creek to Lake Lanier	GAR031300010704	9	Fishing	261 US EPA 1998
Dixie Creek	Headwaters to West Point Lake - LaGrange	GAR031300020709	3.4	Fishing	376 US EPA 1998
Drag Nasty Creek	Tributary to W. F. George	GAR031300031301	7	Fishing	381 US EPA 1998
Etta Vista Creek	Tributary to Lake Lanier (Gainesville)	GAR031300010817	1	Fishing	423 US EPA 1998
Flat Shoals Creek	Tributary at Stovall Road to Big Branch	GAR031300021019	19	Fishing	439 US EPA 1998
Flat Shoals Creek	Big Branch to Lake Harding	GAR031300021020	9	Fishing	439 US EPA 1998

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use	Original TMDL Action ID Number, Agency, and Year
Flowery Branch	Tributary to Lake Lanier	GAR031300010812	1	Fishing	445 US EPA 1998
Fourmile Creek	Lake Lanier Tributary	GAR031300010809	3	Fishing	452 US EPA 1998
Hannahatchee Creek	U.S. Hwy 27 to Lake W. F. George	GAR031300030701	14	Fishing	517 US EPA 1998
House Creek	Headwaters to Anneewakee Creek	GAR031300020334	2.4	Fishing	546 US EPA 1998
James Creek	Daves Creek to the Chattahoochee River	GAR031300010902	2	Fishing	570 US EPA 1998
Lee Branch	Tributary to Troup Branch - LaGrange	GAR031300020908	1	Fishing	670 US EPA 1998
Limestone Creek	Headwaters to Brenau Lake	GAR031300010301	0.9	Fishing	684 US EPA 1998
Little Bear Creek	Annewakee Lake to Bear Creek	GAR031300020305	3.7	Fishing	692 US EPA 1998
Longwood Park Creek	Tributary to Lake Lanier (Gainesville)	GAR031300010816	1	Fishing	725 US EPA 1998
Mossy Creek	Totherow Rd. near Clermont to Chattahoochee River	GAR031300010303	7	Fishing	823 US EPA 1998
New River	Mountain Creek to West Point Lake - Corinth	GAR031300020508	4.4	Fishing	859 US EPA 1998
Panther Creek	Headwaters to Cedar Creek	GAR031300020408	3.2	Fishing	903 US EPA 1998

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use	Original TMDL Action ID Number, Agency, and Year
Park Branch	Tributary to Troup Branch - LaGrange	GAR031300020907	2	Fishing	908 US EPA 1998
Pepperell Creek	Headwaters to tributary 0.55 miles upstream of Shoal Creek, LaGrange	GAR031300020702	2	Fishing	922 US EPA 1998
Rock Creek	Headwaters to Lake Lanier (Gainesville)	GAR031300010814	0.5	Fishing	1009 US EPA 1998
Sawnee Creek	Lake Lanier Tributary	GAR031300010804	2	Fishing	1057 US EPA 1998
Six Mile Creek	Headwaters to Lake Lanier	GAR031300010805	2	Fishing	1080 US EPA 1998
Slaughterhouse Creek	Tributary to Lake Lanier (Gainesville)	GAR031300010815	0.7	Fishing	1086 US EPA 1998
Snake Creek	Little Snake Creek to Crews Creek	GAR031300020341	1.1	Fishing	1091 US EPA 1998
Snake Creek	Crews Creek to GA Hwy 5	GAR031300020342	7.2	Fishing, Drinking Water	1091 US EPA 1998
Snake Creek	GA Hwy 5 to the Chattahoochee River	GAR031300020343	5	Fishing, Drinking Water	1091 US EPA 1998
South Fork Balus Creek	Headwaters to Balus Creek (Gainesville)	GAR031300010806	2	Fishing	1100 US EPA 1998
South Fork Limestone Creek/Limestone Creek	Headwaters to Limestone Creek Arm of Lake Lanier	GAR031300010304	2	Fishing	1105 US EPA 1998

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use	Original TMDL Action ID Number, Agency, and Year
Taylor Creek	Headwaters to Lake Lanier	GAR031300010701	3	Fishing	1185 US EPA 1998
Toto Creek	Headwaters to Lake Lanier	GAR031300010702	1.2	Fishing	1205 US EPA 1998
Tributary to Limestone Creek	Breneau Lake to Limestone Creek	GAR031300010318	1	Fishing	183 US EPA 1998
Tributary to West Fork Little River	Headwaters to West Fork Little River in Clermont	GAR031300010407	1.7	Fishing	1213 US EPA 1998
Troup Branch	Tributary to Blue John Creek - LaGrange	GAR031300020904	1	Fishing	1224 US EPA 1998
Two Mile Creek	Headwaters to Lake Lanier	GAR031300010807	5	Fishing	1242 US EPA 1998
Wahoo Creek	SR 52 to Lake Lanier	GAR031300010403	5	Fishing	1628 US EPA 1998
Wahoo Creek	Downstream Arnco Mills Lake	GAR031300020412	5	Fishing	1285 US EPA 1998
West Fork Little River	Headwaters to Jim Hood Road above Lake Lanier	GAR031300010404	12	Fishing	1722 US EPA 1998
Whooping Creek	Headwaters to Carthbody Creek	GAR031300020430	8	Fishing	1331 US EPA 1998
Whooping Creek	Carthbody Creek to the Chattahoochee River	GAR031300020431	5	Fishing	1331 US EPA 1998
Wolf Creek	Headwaters to Chattahoochee River	GAR031300020321	10	Fishing	1347 US EPA 1998

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment	Location	Assessment Unit ID	Segment Length (miles)	Designated Use	Original TMDL Action ID Number, Agency, and Year
Yellowjacket Creek	Hogansville to West Point Lake	GAR031300020714	5	Fishing	1355 US EPA 1998

Location of Waters Addressed in this TMDL Approval Action:

A map of waterbodies is included below.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

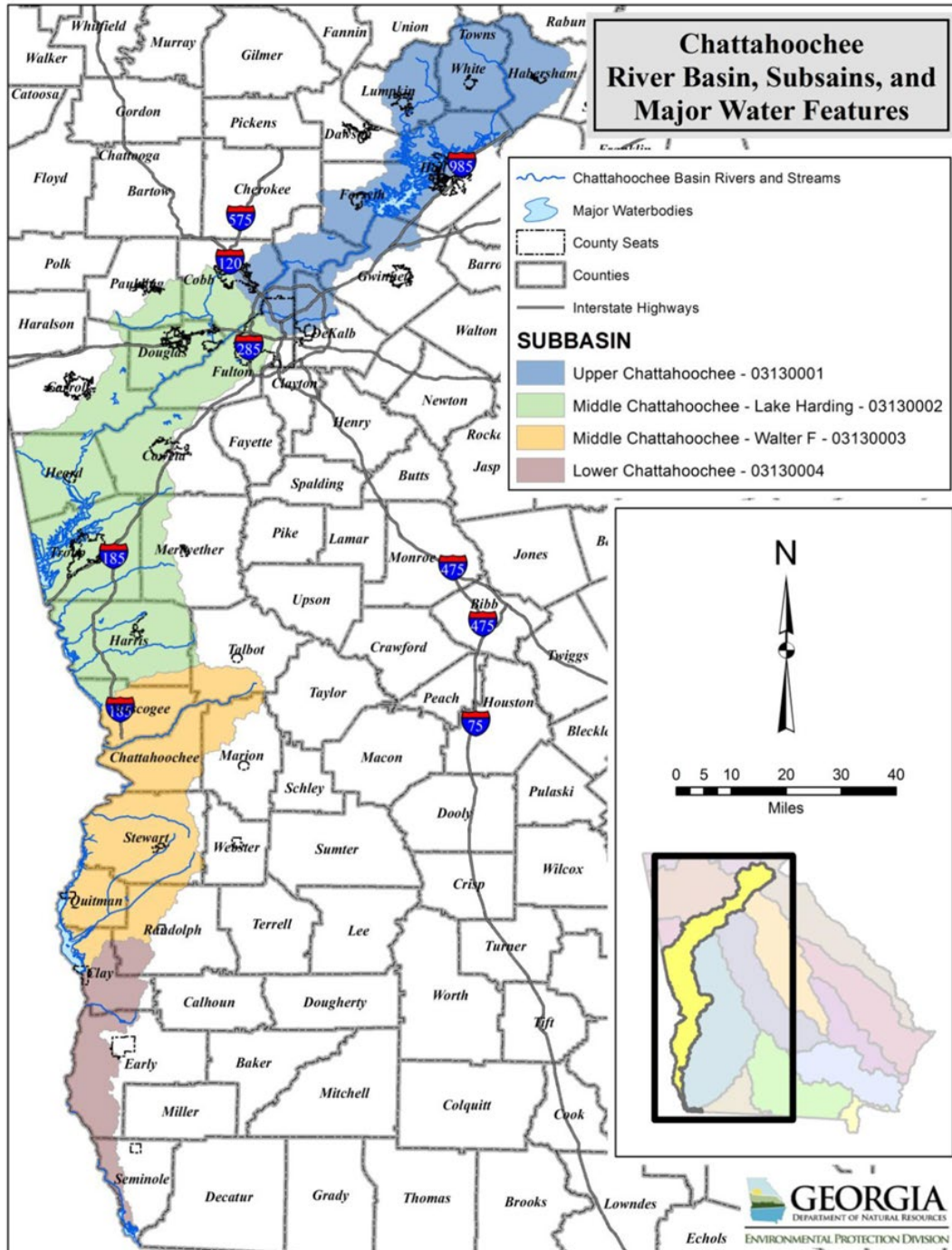


Figure 2 of the Report: Major Political Boundaries, Water Features, and U.S.G.S. 8-digit HUCs

EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA

This document contains the EPA's review of the above-referenced TMDL. This TMDL review document includes TMDL review guidelines that summarize currently effective statutory and regulatory requirements relating to TMDLs. These TMDL review guidelines are not themselves regulations. Any differences between these guidelines and the EPA's TMDL regulations should be resolved in favor of the regulations themselves. The italicized sections of this document describe the EPA's statutory and regulatory requirements for approvable TMDLs. The sections in regular type reflect the EPA's analysis of the state/tribes' compliance with these requirements.

Section 303(d) of the CWA and the EPA's implementing regulations at 40 CFR Part 130 set out the statutory and regulatory requirements for approvable TMDLs. The following information is generally necessary for the EPA to determine if a submitted TMDL fulfills the legal requirements for approval under section 303(d) and the EPA regulations and should be included in the submittal package. Use of the verb "must" below denotes information that is required to be submitted because it relates to elements of the TMDL required by the CWA and by regulation.

1. Description of Waterbody, Pollutant of Concern, and Pollutant Sources

*The TMDL analytical document must identify the waterbody as it appears on the state/tribe's 303(d) list, including the pollutant of concern. The TMDL submittal must include a description of the point and nonpoint sources of the pollutant of concern, including the magnitude and location of the sources. Where it is possible to separate natural background from nonpoint sources, a description of the natural background must be provided, including the magnitude and location of the source(s). Such information is necessary for the EPA's review of the load and wasteload allocations, which is required by regulation. The TMDL submittal should also contain a description of any important assumptions made in developing the TMDL, such as: (1) the assumed distribution of land use in the watershed; (2) population characteristics, wildlife resources, and other relevant information affecting the characterization of the pollutant of concern and its allocation to sources; (3) present and future growth trends, if taken into consideration in preparing the TMDL; and, (4) explanation and analytical basis for expressing the TMDL through surrogate measures, if applicable. Surrogate measures are parameters such as percent fines and turbidity for sediment impairments, or chlorophyll *a* and phosphorus loadings for excess algae.*

The GAEPD listed 37 stream segments in the Chattahoochee River Basin on the 2022 303(d) List due to exceedances of the fecal coliform criteria. Fifty additional segments that were included in previously approved TMDLs in 1998 which addressed fecal coliform exceedances were updated in the Report. Fecal coliform data used for the development of TMDLs were collected during the calendar years 2013 through 2021 by the GAEPD as part of the trend monitoring program. The Report contains a summary of sampling dates and station locations in Table 5, along with raw data in Appendix A. Potential causes of the impairments include urban runoff, nonpoint, and point sources.

The Chattahoochee River Basin is located primarily in west Georgia and east Alabama, with a small portion in north Florida. It occupies an area of 8,707 square miles, of which 6,002 square miles lie in Georgia. The Chattahoochee River Basin falls within the Blue Ridge, Piedmont, and Coastal Plain Ecoregions that extend throughout the southeastern United States. The Chattahoochee River originates in the southeast corner of Union County, in north Georgia, within the Blue Ridge Mountains. The river flows southwest to Lake Sidney Lanier, then through the Atlanta metropolitan area to West Point Lake where it forms the border between Georgia and Alabama. It continues flowing south through Lake Harding, Lake Oliver, and Walter F. George Reservoir. The river finally converges with the Flint River in Lake Seminole, at the Georgia-Florida border. The outflow from Lake Seminole forms the Apalachicola River in Florida, which ultimately discharges to the Gulf of Mexico.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

The land use characteristics of the Chattahoochee River Basin watersheds were determined using data from the Georgia Land Use Trends (GLUT) for Year 2015. This raster land use trend product was developed by the University of Georgia – Natural Resources Spatial Analysis Laboratory (NARSAL) and follows land use trends for years 1974, 1985, 1991, 1998, 2001, 2005, 2008 and 2015. Table 4 of the Report lists the watershed land use distribution for the drainage areas of the stream segments.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Table 1 of the Report: Chattahoochee River Basin Land Coverage

Stream Segment and Assessment Unit ID	Land Uses (acres)													Total
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	
Anneewakee Creek GAR031300020304	14.2	69.4	5184.9	2057.6	1468.9	380.5	6124.8	0.0	614.0	3138.7	255.3	0.0	2.0	19312.1
	0.1%	0.4%	26.8%	10.7%	7.6%	2.0%	31.7%	0.0%	3.2%	16.3%	1.3%	0.0%	0.0%	100%
Brush Creek GAR031300020605	1.8	20.5	320.0	10.9	0.7	1160.9	8584.9	0.0	1363.3	634.5	635.6	0.0	4.2	12841.3
	0.0%	0.2%	2.5%	0.1%	0.0%	9.0%	66.9%	0.0%	10.6%	4.9%	4.9%	0.0%	0.0%	100%
Chattahoochee River GAR031300010913	2409.2	37100.2	63830.9	26138.1	13104.2	16650.7	420330.1	2602.2	90912.0	81787.3	3799.0	0.0	40.0	760307.6
	0.3%	4.9%	8.4%	3.4%	1.7%	2.2%	55.3%	0.3%	12.0%	10.8%	0.5%	0.0%	0.0%	100%
Coheelee Creek GAR031300040502	1.6	18.2	76.9	14.2	7.6	290.2	5546.8	4360.3	1076.4	411.4	1736.5	2.7	6.9	13549.6
	0.0%	0.1%	0.6%	0.1%	0.1%	2.1%	40.9%	32.2%	7.9%	3.0%	12.8%	0.0%	0.1%	100%
Cooper Creek GAR031300030107	7.6	40.3	2222.2	1617.3	604.7	45.4	772.4	51.8	51.6	957.4	11.1	0.0	1.8	6383.4
	0.1%	0.6%	34.8%	25.3%	9.5%	0.7%	12.1%	0.8%	0.8%	15.0%	0.2%	0.0%	0.0%	100%
Crawford Creek GAR031300021010	2.0	111.4	292.0	34.5	12.5	564.9	8658.9	57.4	1238.3	720.6	691.9	0.0	1.8	12386.1
	0.0%	0.9%	2.4%	0.3%	0.1%	4.6%	69.9%	0.5%	10.0%	5.8%	5.6%	0.0%	0.0%	100%
Deer Creek GAR031300020422	0.7	6.4	258.9	19.3	8.0	510.4	3719.1	17.1	2369.0	406.1	3.1	0.0	0.0	7318.1
	0.0%	0.1%	3.5%	0.3%	0.1%	7.0%	50.8%	0.2%	32.4%	5.5%	0.0%	0.0%	0.0%	100%
Denny Creek	0.0	1.6	49.6	13.6	3.6	35.8	1652.6	36.5	340.3	104.7	0.9	0.0	0.0	2239.1

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													Total
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	
GAR031300020433	0.0%	0.1%	2.2%	0.6%	0.2%	1.6%	73.8%	1.6%	15.2%	4.7%	0.0%	0.0%	0.0%	100%
Dozier Creek	2.9	14.2	481.3	237.3	8.2	107.2	3425.3	162.6	44.9	410.1	594.0	0.0	4.7	5492.7
GAR031300030311	0.1%	0.3%	8.8%	4.3%	0.1%	2.0%	62.4%	3.0%	0.8%	7.5%	10.8%	0.0%	0.1%	100%
East Trammel Branch	3.3	12.2	30.7	5.6	2.2	93.6	1183.1	97.9	407.7	95.9	41.1	0.0	0.0	1973.3
GAR031300020716	0.2%	0.6%	1.6%	0.3%	0.1%	4.7%	60.0%	5.0%	20.7%	4.9%	2.1%	0.0%	0.0%	100%
Flatrock Creek	3.8	129.2	853.3	728.3	245.3	96.7	2650.7	68.7	381.9	569.6	257.5	0.0	2.4	6010.9
GAR031300030110	0.1%	2.1%	14.2%	12.1%	4.1%	1.6%	44.1%	1.1%	6.4%	9.5%	4.3%	0.0%	0.0%	100%
Fort Creek	2.0	8.5	56.5	7.8	8.9	42.9	1561.2	0.0	290.7	146.1	72.1	0.0	0.9	2197.5
GAR031300021216	0.1%	0.4%	2.6%	0.4%	0.4%	2.0%	71.0%	0.0%	13.2%	6.6%	3.3%	0.0%	0.0%	100%
Glade Branch	0.0	3.3	18.0	1.6	0.0	6.0	485.3	7.3	245.3	77.4	0.0	0.0	0.0	844.2
GAR031300010514	0.0%	0.4%	2.1%	0.2%	0.0%	0.7%	57.5%	0.9%	29.1%	9.2%	0.0%	0.0%	0.0%	100%
Hannahatchee Creek	0.0	0.9	112.1	22.5	9.6	416.3	14145.0	441.5	436.1	299.8	886.2	0.4	0.0	16770.4
GAR031300030704	0.0%	0.0%	0.7%	0.1%	0.1%	2.5%	84.3%	2.6%	2.6%	1.8%	5.3%	0.0%	0.0%	100%
Hillabahatchee Creek	0.0	8.7	83.0	8.2	2.0	234.8	5350.4	1.6	626.5	160.3	2.4	0.0	0.0	6477.9
GAR031300020613	0.0%	0.1%	1.3%	0.1%	0.0%	3.6%	82.6%	0.0%	9.7%	2.5%	0.0%	0.0%	0.0%	100%
Hillabahatchee Creek	3.3	68.5	685.6	30.7	12.7	3063.3	33978.4	8.9	4220.6	1806.1	474.4	0.0	11.1	44363.6

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	Total
GAR031300020614	0.0%	0.2%	1.5%	0.1%	0.0%	6.9%	76.6%	0.0%	9.5%	4.1%	1.1%	0.0%	0.0%	100%
House Creek	6.4	159.7	631.4	48.9	6.9	1090.8	12061.8	75.4	3482.9	955.9	1208.9	0.0	4.0	19733.1
GAR031300021015	0.0%	0.8%	3.2%	0.2%	0.0%	5.5%	61.1%	0.4%	17.7%	4.8%	6.1%	0.0%	0.0%	100%
Lick Log Creek	12.2	158.6	2536.2	229.3	67.8	523.7	5577.0	0.2	2132.1	1897.7	771.9	0.0	11.3	13918.1
GAR031300020218	0.1%	1.1%	18.2%	1.6%	0.5%	3.8%	40.1%	0.0%	15.3%	13.6%	5.5%	0.0%	0.1%	100%
Milligan Creek	0.0	2.2	125.2	33.8	9.1	126.8	1748.0	11.8	651.2	195.5	2.4	0.0	0.0	2906.0
GAR031300020428	0.0%	0.1%	4.3%	1.2%	0.3%	4.4%	60.2%	0.4%	22.4%	6.7%	0.1%	0.0%	0.0%	100%
North Prong Kolomoki Creek	7.8	16.7	138.8	6.2	1.1	492.6	8619.8	3773.8	1366.4	532.6	875.8	5.1	28.2	15865.0
GAR031300040205	0.0%	0.1%	0.9%	0.0%	0.0%	3.1%	54.3%	23.8%	8.6%	3.4%	5.5%	0.0%	0.2%	100%
Pataula Creek	9.1	186.4	161.7	28.7	3.3	1917.7	33803.6	4105.2	2245.3	1049.3	3952.4	1.8	2.9	47467.3
GAR031300031507	0.0%	0.4%	0.3%	0.1%	0.0%	4.0%	71.2%	8.6%	4.7%	2.2%	8.3%	0.0%	0.0%	100%
Sand Creek	1.1	23.8	98.1	2.7	0.0	383.2	3824.5	1.3	657.4	217.1	171.2	0.0	0.0	5380.4
GAR031300021018	0.0%	0.4%	1.8%	0.0%	0.0%	7.1%	71.1%	0.0%	12.2%	4.0%	3.2%	0.0%	0.0%	100%
Standing Boy Creek	13.3	133.4	850.9	64.3	21.3	489.3	11061.3	0.0	1617.0	1267.4	730.6	0.0	19.6	16268.4
GAR031300021308	0.1%	0.8%	5.2%	0.4%	0.1%	3.0%	68.0%	0.0%	9.9%	7.8%	4.5%	0.0%	0.1%	100%
Tar River	1.8	21.8	66.5	19.1	29.6	369.4	1220.9	40.7	72.1	107.2	38.5	0.0	0.0	1987.5

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	Total
GAR031300030204	0.1%	1.1%	3.3%	1.0%	1.5%	18.6%	61.4%	2.0%	3.6%	5.4%	1.9%	0.0%	0.0%	100%
Tate Creek	0.0	17.8	12.7	8.2	3.8	22.5	2622.3	0.0	288.9	386.5	4.4	0.0	0.0	3367.1
GAR031300010512	0.0%	0.5%	0.4%	0.2%	0.1%	0.7%	77.9%	0.0%	8.6%	11.5%	0.1%	0.0%	0.0%	100%
Town Branch	7.6	70.3	601.1	295.1	87.4	216.8	1548.3	0.7	154.6	558.9	176.1	0.0	0.0	3716.9
GAR031300020211	0.2%	1.9%	16.2%	7.9%	2.4%	5.8%	41.7%	0.0%	4.2%	15.0%	4.7%	0.0%	0.0%	100%
Town Creek	1.6	5.8	55.4	5.1	3.1	91.8	2251.5	2.4	577.1	170.6	6.0	0.0	0.0	3170.5
GAR031300020611	0.0%	0.2%	1.7%	0.2%	0.1%	2.9%	71.0%	0.1%	18.2%	5.4%	0.2%	0.0%	0.0%	100%
Town Creek	2.4	5.8	118.3	9.8	3.8	226.2	6247.3	2.4	890.2	396.1	42.9	0.0	3.6	7948.8
GAR031300020612	0.0%	0.1%	1.5%	0.1%	0.0%	2.8%	78.6%	0.0%	11.2%	5.0%	0.5%	0.0%	0.0%	100%
Tributary to Bull Creek	0.0	0.0	489.5	67.6	44.5	8.7	68.7	0.0	18.2	115.9	0.4	0.2	0.0	813.7
GAR031300030121	0.0%	0.0%	60.2%	8.3%	5.5%	1.1%	8.4%	0.0%	2.2%	14.2%	0.1%	0.0%	0.0%	100%
Tributary to Cemochechobee Creek	0.0	0.0	3.1	0.0	0.0	62.5	1317.9	7.3	51.4	28.5	35.4	0.0	0.0	1506.1
GAR031300040107	0.0%	0.0%	0.2%	0.0%	0.0%	4.1%	87.5%	0.5%	3.4%	1.9%	2.3%	0.0%	0.0%	100%
Tributary to Lick Log Creek	0.2	2.2	78.1	7.1	0.0	39.8	333.8	0.0	79.2	60.9	13.3	0.0	0.0	614.7
GAR031300020224	0.0%	0.4%	12.7%	1.2%	0.0%	6.5%	54.3%	0.0%	12.9%	9.9%	2.2%	0.0%	0.0%	100%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													Total
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	
Tributary to Mountain Creek GAR031300021103	2.2	45.4	47.1	35.1	17.6	17.8	264.9	0.2	15.1	349.4	2.9	0.0	0.0	797.7
	0.3%	5.7%	5.9%	4.4%	2.2%	2.2%	33.2%	0.0%	1.9%	43.8%	0.4%	0.0%	0.0%	100%
Tributary to Mulberry Creek GAR031300021219	1.1	9.1	66.9	4.9	2.2	147.0	1000.1	0.0	76.1	120.8	67.6	0.0	0.0	1495.8
	0.1%	0.6%	4.5%	0.3%	0.1%	9.8%	66.9%	0.0%	5.1%	8.1%	4.5%	0.0%	0.0%	100%
Tributary to Mulberry Creek GAR031300021220	0.0	0.0	10.0	1.8	2.0	6.0	6.9	0.0	3.3	11.6	0.0	0.0	0.0	41.6
	0.0%	0.0%	24.1%	4.3%	4.8%	14.4%	16.6%	0.0%	8.0%	27.8%	0.0%	0.0%	0.0%	100%
White Sulfur Creek GAR031300021006	8.5	58.3	318.7	52.7	32.5	959.2	11072.4	303.8	2004.0	755.7	1444.5	0.0	24.7	17034.8
	0.0%	0.3%	1.9%	0.3%	0.2%	5.6%	65.0%	1.8%	11.8%	4.4%	8.5%	0.0%	0.1%	100%
Whitewater Creek GAR031300020804	0.0	12.0	160.8	1.1	0.9	1192.7	4619.8	0.0	420.5	214.4	517.5	0.0	0.9	7159.8
	0.0%	0.2%	2.2%	0.0%	0.0%	16.7%	64.5%	0.0%	5.9%	3.0%	7.2%	0.0%	0.0%	100%
Whitewater Creek GAR031300020805	0.0	18.0	224.8	2.9	0.9	1770.5	10098.1	0.0	574.7	403.0	1122.9	0.0	0.9	14235.7
	0.0%	0.1%	1.6%	0.0%	0.0%	12.4%	70.9%	0.0%	4.0%	2.8%	7.9%	0.0%	0.0%	100%
Updated TMDLs														
Acorn Creek GAR031300020401	0.9	2.2	212.2	38.0	11.6	292.7	5741.1	0.0	467.7	441.5	102.3	0.0	0.0	7310.1
	0.0%	0.0%	2.9%	0.5%	0.2%	4.0%	78.5%	0.0%	6.4%	6.0%	1.4%	0.0%	0.0%	100%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	Total
Baldwin Creek	0.0	0.0	310.0	28.0	11.3	23.6	853.3	0.0	57.2	254.6	0.4	0.0	0.0	1538.5
GAR031300020308	0.0%	0.0%	20.2%	1.8%	0.7%	1.5%	55.5%	0.0%	3.7%	16.6%	0.0%	0.0%	0.0%	100%
Bear Creek	0.4	22.7	940.5	147.7	51.8	59.2	1778.9	0.0	166.4	727.5	0.2	0.0	0.0	3895.2
GAR031300020313	0.0%	0.6%	24.1%	3.8%	1.3%	1.5%	45.7%	0.0%	4.3%	18.7%	0.0%	0.0%	0.0%	100%
Big Creek	0.0	0.0	655.8	266.0	118.3	65.2	782.8	0.0	270.2	310.2	15.6	0.0	0.0	2484.2
GAR031300010813	0.0%	0.0%	26.4%	10.7%	4.8%	2.6%	31.5%	0.0%	10.9%	12.5%	0.6%	0.0%	0.0%	100%
Billy Creek (Previously Nancy Long Crk/Billy Crk)	0.0	12.7	105.2	7.6	1.1	123.4	1823.9	0.0	326.9	149.9	0.0	0.0	0.0	2550.6
GAR031300020310	0.0%	0.5%	4.1%	0.3%	0.0%	4.8%	71.5%	0.0%	12.8%	5.9%	0.0%	0.0%	0.0%	100%
Cedar Creek	14.9	803.7	2216.4	164.6	31.4	1314.4	20616.0	14.7	3641.3	2713.4	1822.5	0.0	31.4	33398.4
GAR031300020420	0.0%	2.4%	6.6%	0.5%	0.1%	3.9%	61.7%	0.0%	10.9%	8.1%	5.5%	0.0%	0.1%	100%
Centralhatchee Creek	4.7	57.2	1188.3	245.3	76.7	1567.0	23738.2	164.6	8987.6	1914.4	91.8	0.0	0.0	38035.8
GAR031300020421	0.0%	0.2%	3.1%	0.6%	0.2%	4.1%	62.4%	0.4%	23.6%	5.0%	0.2%	0.0%	0.0%	100%
Chattahoochee River	12.2	336.3	1523.4	300.2	88.7	1442.5	81207.3	176.4	6171.2	8015.1	245.7	0.0	4.0	99604.0
GAR031300010105	0.0%	0.3%	1.5%	0.3%	0.1%	1.4%	81.5%	0.2%	6.2%	8.0%	0.2%	0.0%	0.0%	100%
Chestatee River	5.6	373.8	3245.0	929.4	473.7	1963.5	116643.5	228.2	12523.1	13269.2	334.7	0.0	0.0	150390.2
GAR031300010704	0.0%	0.2%	2.2%	0.6%	0.3%	1.3%	77.6%	0.2%	8.3%	8.8%	0.2%	0.0%	0.0%	100%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	Total
Dixie Creek	0.0	8.9	548.9	172.4	184.1	68.7	738.8	0.0	145.0	341.6	33.6	0.0	0.0	2242.0
GAR031300020709	0.0%	0.4%	24.5%	7.7%	8.2%	3.1%	33.0%	0.0%	6.5%	15.2%	1.5%	0.0%	0.0%	100%
Drag Nasty Creek	2.7	14.9	51.8	6.4	0.0	150.8	5051.0	1297.2	763.9	233.5	526.2	1.3	0.2	8100.1
GAR031300031301	0.0%	0.2%	0.6%	0.1%	0.0%	1.9%	62.4%	16.0%	9.4%	2.9%	6.5%	0.0%	0.0%	100%
Etta Vista Creek	0.0	0.0	18.9	9.8	0.7	2.9	81.8	0.0	0.0	44.5	0.0	0.0	0.0	158.6
GAR031300010817	0.0%	0.0%	11.9%	6.2%	0.4%	1.8%	51.6%	0.0%	0.0%	28.1%	0.0%	0.0%	0.0%	100%
Flat Shoals Creek	74.7	727.7	3351.9	299.3	122.8	8338.5	79155.7	716.8	24211.5	6340.7	7911.9	0.0	83.8	131338.7
GAR031300021019	0.1%	0.6%	2.6%	0.2%	0.1%	6.3%	60.3%	0.5%	18.4%	4.8%	6.0%	0.0%	0.1%	100%
Flat Shoals Creek	81.2	743.2	3600.8	337.4	154.1	9069.5	87033.2	716.3	25052.8	6686.3	8111.6	0.0	85.0	141674.7
GAR031300021020	0.1%	0.5%	2.5%	0.2%	0.1%	6.4%	61.4%	0.5%	17.7%	4.7%	5.7%	0.0%	0.1%	100%
Flowery Branch	0.0	1.1	331.6	271.3	168.8	31.4	358.9	0.0	108.8	132.8	3.8	0.0	0.0	1408.4
GAR031300010812	0.0%	0.1%	23.5%	19.3%	12.0%	2.2%	25.5%	0.0%	7.7%	9.4%	0.3%	0.0%	0.0%	100%
Fourmile Creek	4.2	0.9	368.7	54.5	12.9	126.3	2018.9	0.2	1808.7	644.5	36.9	0.0	0.0	5102.4
GAR031300010809	0.1%	0.0%	7.2%	1.1%	0.3%	2.5%	39.6%	0.0%	35.4%	12.6%	0.7%	0.0%	0.0%	100%
Hannahatchee Creek	3.1	81.4	452.4	99.0	17.6	1707.8	79333.6	1212.9	1648.8	2131.0	5501.6	23.1	12.7	92225.0
GAR031300030701	0.0%	0.1%	0.5%	0.1%	0.0%	1.9%	86.0%	1.3%	1.8%	2.3%	6.0%	0.0%	0.0%	100%
House Creek	2.9	2.2	259.1	150.6	364.5	6.4	164.6	0.0	63.4	148.3	1.6	0.0	0.0	1163.6

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	Total
GAR031300020334	0.2%	0.2%	22.3%	12.9%	31.3%	0.6%	14.1%	0.0%	5.4%	12.7%	0.1%	0.0%	0.0%	100%
James Creek	6.0	34.9	2569.8	1347.3	373.6	181.5	2971.6	0.0	443.5	1462.2	24.7	0.0	0.0	9697.1
GAR031300010902	0.1%	0.4%	26.5%	13.9%	3.9%	1.9%	30.6%	0.0%	4.6%	15.1%	0.3%	0.0%	0.0%	100%
Lee Branch	0.7	1.3	148.8	55.4	55.8	12.7	38.7	0.0	15.8	73.4	7.8	0.0	0.0	410.3
GAR031300020908	0.2%	0.3%	36.3%	13.5%	13.6%	3.1%	9.4%	0.0%	3.8%	17.9%	1.9%	0.0%	0.0%	100%
Limestone Creek	0.0	0.0	40.0	30.0	40.9	5.3	83.4	0.0	2.7	21.1	0.0	0.0	0.0	223.5
GAR031300010301	0.0%	0.0%	17.9%	13.4%	18.3%	2.4%	37.3%	0.0%	1.2%	9.5%	0.0%	0.0%	0.0%	100%
Little Bear Creek	0.4	32.7	967.0	216.4	50.0	121.7	3663.1	0.0	174.4	1008.1	22.9	0.0	0.0	6256.6
GAR031300020305	0.0%	0.5%	15.5%	3.5%	0.8%	1.9%	58.5%	0.0%	2.8%	16.1%	0.4%	0.0%	0.0%	100%
Longwood Park Creek	0.0	0.0	43.6	8.7	2.4	2.7	39.6	0.0	2.7	40.3	0.0	0.0	0.0	139.9
GAR031300010816	0.0%	0.0%	31.2%	6.2%	1.7%	1.9%	28.3%	0.0%	1.9%	28.8%	0.0%	0.0%	0.0%	100%
Mossy Creek	10.7	30.7	1059.3	315.4	181.7	576.4	9492.9	501.1	5111.1	1890.4	36.3	0.0	0.2	19206.0
GAR031300010303	0.1%	0.2%	5.5%	1.6%	0.9%	3.0%	49.4%	2.6%	26.6%	9.8%	0.2%	0.0%	0.0%	100%
New River	50.7	1057.3	4017.8	687.6	553.3	3830.8	47226.0	5.3	11869.9	4734.6	6201.5	0.0	13.3	80331.5
GAR031300020508	0.1%	1.3%	5.0%	0.9%	0.7%	4.8%	58.8%	0.0%	14.8%	5.9%	7.7%	0.0%	0.0%	100%
Panther Creek	0.2	14.9	139.2	2.4	1.1	60.3	2073.6	0.0	300.0	209.9	174.6	0.0	0.9	2977.2
GAR031300020408	0.0%	0.5%	4.7%	0.1%	0.0%	2.0%	69.6%	0.0%	10.1%	7.1%	5.9%	0.0%	0.0%	100%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	Total
Park Branch	1.6	1.1	242.0	98.1	47.4	2.2	11.1	0.2	23.1	59.2	0.9	0.0	0.0	486.8
GAR031300020907	0.3%	0.2%	49.7%	20.1%	9.7%	0.5%	2.3%	0.0%	4.8%	12.2%	0.2%	0.0%	0.0%	100%
Rock Creek	0.0	0.2	29.1	0.0	0.0	0.2	31.8	0.0	0.0	38.3	0.0	0.0	0.0	99.6
GAR031300010814	0.0%	0.2%	29.2%	0.0%	0.0%	0.2%	31.9%	0.0%	0.0%	38.4%	0.0%	0.0%	0.0%	100%
Sawnee Creek	0.2	3.3	525.1	186.8	71.4	98.7	1292.1	0.0	366.7	429.2	10.0	0.0	0.0	2983.7
GAR031300010804	0.0%	0.1%	17.6%	6.3%	2.4%	3.3%	43.3%	0.0%	12.3%	14.4%	0.3%	0.0%	0.0%	100%
Six Mile Creek	14.9	10.7	171.5	79.0	66.1	91.0	764.8	0.0	707.4	191.3	0.2	0.0	0.0	2188.6
GAR031300010805	0.7%	0.5%	7.8%	3.6%	3.0%	4.2%	34.9%	0.0%	32.3%	8.7%	0.0%	0.0%	0.0%	100%
Slaughterhouse Creek	0.0	0.0	105.0	42.0	48.5	7.6	89.4	0.0	0.0	92.7	0.0	0.0	0.0	385.2
GAR031300010815	0.0%	0.0%	27.3%	10.9%	12.6%	2.0%	23.2%	0.0%	0.0%	24.1%	0.0%	0.0%	0.0%	100%
Snake Creek	8.9	322.5	1218.3	135.9	57.6	1253.4	13312.8	2.0	2358.3	1346.2	97.4	0.0	0.0	20113.2
GAR031300020341	0.0%	1.6%	6.1%	0.7%	0.3%	6.2%	66.2%	0.0%	11.7%	6.7%	0.5%	0.0%	0.0%	100%
Snake Creek	10.7	717.7	1573.4	183.3	69.6	1539.9	18849.5	3.6	2965.4	1974.0	295.3	0.0	4.2	28186.6
GAR031300020343	0.0%	2.5%	5.6%	0.7%	0.2%	5.5%	66.9%	0.0%	10.5%	7.0%	1.0%	0.0%	0.0%	100%
Snake Creek	10.7	741.5	1720.9	192.4	69.8	1699.8	21362.6	144.1	3074.2	2162.3	519.5	0.0	10.0	31707.7
GAR031300020342	0.0%	2.3%	5.4%	0.6%	0.2%	5.4%	67.4%	0.5%	9.7%	6.8%	1.6%	0.0%	0.0%	100%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	Total
South Fork Balus Creek	0.9	0.0	409.0	212.8	198.8	38.3	440.6	0.0	258.2	296.2	0.0	0.0	0.0	1854.8
GAR031300010806	0.0%	0.0%	22.1%	11.5%	10.7%	2.1%	23.8%	0.0%	13.9%	16.0%	0.0%	0.0%	0.0%	100%
South Fork Limestone Creek/ Limestone Creek	0.9	3.1	610.0	395.9	255.1	46.7	630.5	0.0	58.9	391.9	1.6	0.0	0.0	2394.5
GAR031300010304	0.0%	0.1%	25.5%	16.5%	10.7%	2.0%	26.3%	0.0%	2.5%	16.4%	0.1%	0.0%	0.0%	100%
Taylor Creek	2.2	8.5	135.4	16.9	4.9	83.2	1303.7	0.0	432.6	300.0	6.2	0.0	0.0	2293.6
GAR031300010701	0.1%	0.4%	5.9%	0.7%	0.2%	3.6%	56.8%	0.0%	18.9%	13.1%	0.3%	0.0%	0.0%	100%
Toto Creek	0.4	0.2	72.1	14.5	4.9	24.2	243.7	0.0	37.8	176.1	0.0	0.0	0.0	589.6
GAR031300010702	0.1%	0.0%	12.2%	2.5%	0.8%	4.1%	41.3%	0.0%	6.4%	29.9%	0.0%	0.0%	0.0%	100%
Tributary to Limestone Creek	0.0	0.0	275.8	157.7	108.1	26.9	233.7	0.0	16.5	201.7	1.6	0.0	0.0	1021.9
GAR031300010318	0.0%	0.0%	27.0%	15.4%	10.6%	2.6%	22.9%	0.0%	1.6%	19.7%	0.2%	0.0%	0.0%	100%
Tributary to West Fork Little River	0.0	0.0	8.9	4.4	0.0	10.2	194.6	0.0	180.8	36.9	0.0	0.0	0.0	435.9
GAR031300010407	0.0%	0.0%	2.0%	1.0%	0.0%	2.3%	44.6%	0.0%	41.5%	8.5%	0.0%	0.0%	0.0%	100%
Troup Branch	2.2	2.4	528.6	207.7	195.7	38.7	196.8	0.2	57.8	194.4	19.1	0.0	0.0	1443.8
GAR031300020904	0.2%	0.2%	36.6%	14.4%	13.6%	2.7%	13.6%	0.0%	4.0%	13.5%	1.3%	0.0%	0.0%	100%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Stream Segment and Assessment Unit ID	Land Uses (acres)													
	Beaches, Dunes, Mud	Open Water	Developed, Low Intensity	Developed, Medium Intensity	Developed, High Intensity	Transitional, Clearcut, Sparse	Forest	Row Crops	Pasture, Hay	Other Grasses (Developed Open Space, Utility Swaths, Golf Courses)	Forested Wetlands	Non-Forested Wetlands (Salt/Brackish)	Non-Forested Wetlands (Freshwater)	Total
Two Mile Creek	0.2	2.7	227.5	33.1	22.7	33.8	1366.6	0.0	694.5	459.2	22.9	0.0	0.0	2863.3
GAR031300010807	0.0%	0.1%	7.9%	1.2%	0.8%	1.2%	47.7%	0.0%	24.3%	16.0%	0.8%	0.0%	0.0%	100%
Wahoo Creek	2.2	14.5	328.5	71.2	30.2	540.4	9864.3	95.0	3904.4	1139.3	59.6	0.0	0.0	16049.6
GAR031300010403	0.0%	0.1%	2.0%	0.4%	0.2%	3.4%	61.5%	0.6%	24.3%	7.1%	0.4%	0.0%	0.0%	100%
Wahoo Creek	10.7	170.6	3067.7	1124.7	1007.4	698.8	10275.5	3.6	2357.6	2736.8	987.7	0.0	20.7	22461.7
GAR031300020412	0.0%	0.8%	13.7%	5.0%	4.5%	3.1%	45.7%	0.0%	10.5%	12.2%	4.4%	0.0%	0.1%	100%
West Fork Little River	3.3	17.6	673.4	94.1	35.1	373.2	5927.9	254.6	4728.1	1116.9	16.9	0.0	0.0	13241.2
GAR031300010404	0.0%	0.1%	5.1%	0.7%	0.3%	2.8%	44.8%	1.9%	35.7%	8.4%	0.1%	0.0%	0.0%	100%
Whooping Creek	7.6	62.7	646.7	76.1	32.7	483.5	4579.3	0.9	1480.5	754.8	44.7	0.0	0.0	8169.5
GAR031300020430	0.1%	0.8%	7.9%	0.9%	0.4%	5.9%	56.1%	0.0%	18.1%	9.2%	0.5%	0.0%	0.0%	100%
Whooping Creek	7.6	80.1	1148.4	121.7	54.5	921.6	12487.5	50.7	3736.2	1553.0	65.2	0.0	0.0	20226.4
GAR031300020431	0.0%	0.4%	5.7%	0.6%	0.3%	4.6%	61.7%	0.3%	18.5%	7.7%	0.3%	0.0%	0.0%	100.0%
Wolf Creek	1.3	47.4	456.4	24.5	5.6	364.1	7449.3	0.0	1396.6	759.7	325.4	0.0	1.6	10831.7
GAR031300020321	0.0%	0.4%	4.2%	0.2%	0.1%	3.4%	68.8%	0.0%	12.9%	7.0%	3.0%	0.0%	0.0%	100.0%
Yellowjacket Creek	30.0	315.1	2469.3	398.5	197.0	3928.4	34930.9	202.2	8512.2	3074.4	4340.3	0.0	65.2	58463.4
GAR031300020714	0.1%	0.5%	4.2%	0.7%	0.3%	6.7%	59.7%	0.3%	14.6%	5.3%	7.4%	0.0%	0.1%	100%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Permitted wastewater treatment facilities are considered point sources and include Publicly Owned Treatment Works (POTWs) and Non-POTWs. Pollutants discharged from wastewater treatment plants can contribute bacteria to receiving waters. As of 2023, there are 27 National Pollutant Discharge Elimination System (NPDES) permitted discharges located in the watershed that could potentially impact the listed streams for fecal coliform bacteria. Additionally, there are four Non-POTW facilities, without bacteria permit limits, that discharge to listed stream segments in the Chattahoochee River Basin. Table 6 of the Report, provided below, includes the permitted POTWs that discharge fecal coliform into the Chattahoochee River Basin. Table 7 of the Report provides the Non-POTW facilities without bacteria limits.

The collection, conveyance, and discharge of diffuse stormwater to local waterbodies by a public entity are regulated in Georgia by NPDES Municipal Separate Storm Sewer Systems (MS4) permits. Small MS4s serving urbanized areas are required to obtain a stormwater permit under the Phase II stormwater regulations. An urbanized area is defined as an area with a residential population of at least 10,000 people and an overall population density of at least 1,000 people per square mile. All municipal Phase II permittees are authorized to discharge under Storm Water General Permit GAG610000. Department of Defense facilities are authorized to discharge under Storm Water General Permit GAG480000. GDOT owned or operated facilities are authorized to discharge under Storm Water General Permit GAR041000. Under these general permits, each permittee must design and implement a Storm Water Management Plan that incorporates best management practices (BMPs) that focus on public education and involvement, illicit discharge detection and elimination, construction site runoff control, post-construction storm water management, and pollution prevention in municipal operations. Table 8 of the Report provides the Phase II counties or communities covered by MS4 permits in the Chattahoochee River Basin. There are 21 permitted MS4s that discharge into or upstream of a stream segment not supporting its designated use for bacteria.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Table 2 of the Report: NPDES Facilities Discharging Fecal Coliform in the Chattahoochee River Basin

Facility Name	NPDES Permit No.	Receiving Stream	303(d) Listed Segment(s)	Actual Discharge (2016–2021)		NPDES Permit Limits		Number of Spills ^c
				Avg. Monthly Flow (MGD) ^a	Avg. Monthly fecal coliform (#/100mL) ^b	Avg. Monthly Flow (MGD)	Avg. Monthly fecal coliform (#/100mL)	
ABP Enterprises, LLC (Arbor Village WPCP)	GA0031526	Unnamed Tributary to Little Anneewakee Creek	Anneewakee Creek GAR031300020304	0.01	6.79	0.02	200	0
Buford, City of (Southside WPCP)	GA0023167	Suwanee Creek	Chattahoochee River GAR031300010913	1.6	24.58	3	23	5
Buford, City of (Westside WPCP)	GA0023175	Richland Creek	Chattahoochee River GAR031300010913	0.14	28.48	0.25	200	5
CGR Georgia LLC (Callaway Resort & Gardens WPCP)	GA0022527	Unnamed tributary to Mountain Creek	Tributary to Mountain Creek GAR031300021103	0.12	22.53	0.5	200	0
Flowery Branch, City of (Flowery Branch WPCP)	GA0031933	Lake Lanier	Chattahoochee River GAR031300010913	0.32	2.9	2.2	200	0
Forsyth County Department of Water & Sewer (Dick Creek WRF)	GA0038563	Dick Creek	Chattahoochee River GAR031300010913	0.43	1.76	0.76	23	0
Forsyth County Department of Water and Sewer (Fowler & Shakerag WRF)	GA0038954	Chattahoochee River	Chattahoochee River GAR031300010913	1.77	1.75	10	200	44
Forsyth County Department of Water and Sewer (James Creek WRF)	GA0050238	James Creek	Chattahoochee River GAR031300010913	0.84	1.23	2.55	23	1
Gainesville, City of (Flat Creek WRF)	GA0021156	Flat Creek to Lake Sidney Lanier	Chattahoochee River GAR031300010913	7.66	2.65	12	23	19

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Facility Name	NPDES Permit No.	Receiving Stream	303(d) Listed Segment(s)	Actual Discharge (2016–2021)		NPDES Permit Limits		Number of Spills ^c
				Avg. Monthly Flow (MGD) ^a	Avg. Monthly fecal coliform (#/100mL) ^b	Avg. Monthly Flow (MGD)	Avg. Monthly fecal coliform (#/100mL)	
Greenleaf Investment Partners L026D, LLC (Dixie Mobile Home Park WPCP)	GA0023043	Unnamed Tributary to Flat Creek	Chattahoochee River GAR031300010913	0.001	16.9	0.0043	200	0
Gwinnett County Board of Commissioners (F. Wayne Hill WRC)	GA0038130	Lake Sidney Lanier	Chattahoochee River GAR031300010913	33.5	1	50	2	0
Koch Foods of Pine Mountain Valley	GA0001317	Fort Creek	Fort Creek GAR031300021216	0.61	26.06	-	200	0
Lanier Islands Resort (Lake Lanier Islands Resort WPCP)	GA0049115	Lake Lanier	Chattahoochee River GAR031300010913	0.05	1.59	0.35	200	0
Oak View Home, Inc (Oak View Home WPCP)	GA0031208	Unnamed tributary to Mulberry Creek	Tributary to Mulberry Creek GAR031300021219	0.006	905.67	0.014	200	0
R Home Rentals, LLC. (Acres of Shade Mobile Home Park WPCP)	GAG550151	Striblin Creek	Standing Boy Creek GAR031300021308	0.00135	239.95	0.00225	200	0
Shady Grove Mobile Home Park WPCP	GA0023469	Unnamed tributary to Balus Creek to Lake Lanier	Chattahoochee River GAR031300010913	ND	ND	0.0029	200	0
Villa Rica, City of (North Sweetwater WPCP)	GA0027171	Unnamed tributary to Town Branch	Town Branch GAR031300020211	0.35	3.27	0.52	200	0
Updated TMDLs								
Cleveland, City of (Cleveland WPCP)	GA0036820	Tesnatee Creek	Chestatee River GAR031300010704	0.45	6.73	0.75	200	12
Coweta County (Arnall/Sargent WPCP)	GA0000299	Wahoo Creek	Wahoo Creek GAR031300020412	0.03	20.14	0.06	200	0
Coweta County Water & Sewer Authority	GA0000311	Wahoo Creek	Wahoo Creek GAR031300020412	0.05	25.75	0.10	200	0

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Facility Name	NPDES Permit No.	Receiving Stream	303(d) Listed Segment(s)	Actual Discharge (2016–2021)		NPDES Permit Limits		Number of Spills ^c
				Avg. Monthly Flow (MGD) ^a	Avg. Monthly fecal coliform (#/100mL) ^b	Avg. Monthly Flow (MGD)	Avg. Monthly fecal coliform (#/100mL)	
(Arco WPCP)								
Dahlonega, City of (Dahlonega WPCP)	GA0026077	Yahoola Creek	Chestatee River GAR031300010704	0.71	5.72	1.44	200	8
Forsyth County Department of Water and Sewer (James Creek WRF)	GA0050238	James Creek	James Creek GAR031300010902	0.84	1.23	2.55	23	1
Grantville, City of (Pine Street Pond # 2 WPCP)	GA0033201	Unnamed tributary to Messiers Creek	New River GAR031300020508	0.02	8.25	0.04	200	0
Grantville, City of (Meriwether Street WPCP - Pond #3)	GA0033219	Unnamed tributary to Yellow Jacket Creek	Yellowjacket Creek GAR031300020714	0.02	13.82	0.05	200	0
Haggai Realty LLC (Oak Grove Mobile Home Park WPCP)	GA0034207	Unnamed tributary to Cane Creek	Chestatee River GAR031300010704	0.002	253.06	.005	200	0
Hogansville, City of (Hogansville WPCP)	GA0050218	Yellow Jacket Creek	Yellowjacket Creek GAR031300020714	0.38	3.59	1.50	200	1
Mountain Lakes Water & Sewer Authority, Inc. (Mountain Lake Resort WPCP)	GA0046400	Lake Qualatchee	Chestatee River GAR031300010704	0.007	38.00	0.009	200	1
Newnan Utilities (Mineral Springs WPCP)	GA0021423	Mineral Springs Branch	New River GAR031300020508	0.68	3.92	4.00	23	0
Newnan Utilities (Wahoo Creek WPCP)	GA0031721	Unnamed tributary to Wahoo Creek	Wahoo Creek GAR031300020412	2.31	4.09	3.00	200	5
Pentagon Properties, Inc (Cedar Village Manufactured Home Community WPCP)	GA0038512	Unnamed Tributary to Whooping Creek	Whooping Creek GAR031300020430 Whooping Creek GAR031300020431	0.01	358.73	0.03	200	0
Pine Lakes Mobile Home Park, LLC (Pine Lakes WPCP)	GA0035271	Bear Creek	Bear Creek GAR031300020313	0.02	33.83	0.05	200	0

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Facility Name	NPDES Permit No.	Receiving Stream	303(d) Listed Segment(s)	Actual Discharge (2016–2021)		NPDES Permit Limits		Number of Spills ^c
				Avg. Monthly Flow (MGD) ^a	Avg. Monthly fecal coliform (#/100mL) ^b	Avg. Monthly Flow (MGD)	Avg. Monthly fecal coliform (#/100mL)	
Pine Mountain, Town of (Pine Mountain WPCP)	GA0025691	Turkey Creek	Flat Shoals Creek GAR031300021019 Flat Shoals Creek GAR031300021020	0.09	66.73	0.30	200	5
Shady Grove Mobile Home Park WPCP	GA0023469	Unnamed tributary to Balus Creek to Lake Lanier	South Fork Balus Creek GAR031300010806	ND	ND	.0029	200	0

Source: GAEPD – Discharge Monitoring Report (DMR data from ICIS-NPDES)

Notes: ^a - Values shown are the average of the monthly average flows reported in DMRs.

^b - Values shown are the annual average of the monthly geometric means.

^c - From GAPDES self-reported spill monitoring system.

ND - Facility was not discharging during this period.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

**Table 7 of the Report: NPDES Non-POTW Facilities without Bacteria Permit Limits that Discharge to 303(d)
Listed Stream Segments in the Chattahoochee River Basin**

Facility Name	NPDES Permit No.	Receiving Stream	303(d) Listed Segment(s)
Buford Trout Hatchery	GA0026174	Chattahoochee River	Chattahoochee River GAR031300010913
Georgia Stone Products, LLC (Forsyth Quarry)	GA0050276	Unnamed tributaries to Six Mile Creek	Chattahoochee River GAR031300010913
Thomas Concrete of Georgia, Inc. (Suwanee Plant)	GA0050311	Unnamed tributary of Suwanee Creek	Chattahoochee River GAR031300010913
Revised TMDLs			
Georgia Stone Products, LLC (Forsyth Quarry)	GA0050276	Unnamed tributaries to Six Mile Creek	Six Mile Creek
			GAR031300010805

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

In general, nonpoint sources are those that cannot be identified as entering a waterbody through a discrete conveyance at a single location. Typical nonpoint sources of bacteria include:

- Wildlife
- Agricultural Livestock
 - Animal grazing
 - Animal access to streams
 - Application of manure to pastureland and cropland
- Urban Development
 - Leaking sanitary sewer lines
 - Leaking septic systems
 - Land Application Systems
 - Landfills

Based on information in the Report provided by the Wildlife Resources Division of the Georgia Department of Natural Resources (DNR), the greatest wildlife sources of bacteria are the animals that spend a large portion of their time in or around aquatic habitats. Of these, waterfowl, especially ducks and geese, are considered the most significant source because they are typically found in large numbers on the water surface. Other animals regularly found around aquatic environments include racoons, beavers, muskrats, and to a lesser extent, river otters and minks. Recently, rapidly expanding feral swine populations have become a substantial presence in the floodplain areas of the major rivers in Georgia. White-tailed deer populations are also abundant throughout the Chattahoochee River Basin. Feces deposited on the land surface can result in the introduction of bacteria to streams during runoff events. Between storm events, considerable decomposition of the fecal matter might occur, resulting in a decrease in the associated bacteria numbers.

Agricultural livestock are also potential sources of bacteria to streams in the Chattahoochee River Basin. Livestock oftentimes have direct access to streams that pass through their pastures and like wildlife, they deposit feces onto land surfaces that can be transported during storm events to nearby streams. Table 10 of the Report provides the estimated number of beef cattle, dairy cattle, goats, horses, swine, sheep, and chickens reported by county.

Bacteria from urban areas are attributable to domestic animals, leaks and overflows from sanitary sewer systems, illicit discharges, leaking septic systems, runoff from improper disposal of waste materials, and leachate from both operational and closed landfills. Bacteria enter streams by direct wash off from the land surface, or the runoff may be diverted to a stormwater collection system and discharged through a discrete outlet structure. A portion of the bacteria contributions in the Chattahoochee River Basin may be attributed to failure of septic systems and illicit discharges of raw sewage. Table 11 of the Report provides the estimated number of septic systems in counties within the Chattahoochee River Basin.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Some communities and industries use land application treatment for wastewater disposal. These facilities are required through land application system (LAS) permits to dispose of their treated wastewater by land application, and to operate as non-discharging systems that do not contribute wastewater effluent runoff to surface waters. However, sometimes the soil's percolation rate is exceeded when the wastewater is applied. This results in runoff which can contribute bacteria to nearby surface waters. Runoff of stormwater might also carry surface residual containing bacteria. According to the Report, 24 LASs were identified that could potentially impact the stream segments in this TMDL.

Leachate from landfills may contain bacteria that could at some point reach surface waters. Sanitary or municipal landfills are the most likely to serve as a source of bacteria. These types of landfills receive household wastes, animal manure, hatchery and poultry processing plant wastes, dead animals, and other types of wastes. Older sanitary landfills were not lined, and most have been closed. Those that remain active and have not been lined operate as construction/demolition waste landfills. Currently active sanitary landfills are lined and have leachate collection systems. All landfills, excluding inert landfills, are now required to install environmental monitoring systems for groundwater and methane sampling. According to the Report, there are 24 landfills operating in the Chattahoochee River Basin and they are included in Table 14 of the Report.

Assessment: The EPA concludes that the GAEPD has adequately identified the impaired water bodies, the pollutant of concern, and the magnitude and location of the pollutant sources.

2. Description of the Applicable Water Quality Standards and Numeric Water Quality Target

The TMDL submittal must include a description of the applicable state/tribe water quality standard, including the designated use(s) of the waterbody, the applicable numeric or narrative water quality criterion, and the statewide antidegradation policy. Such information is necessary for the EPA's review of the load and wasteload allocations which are required by regulation. A numeric water quality target for the TMDL (a quantitative value used to measure whether or not the applicable water quality standard is attained) must be identified. If the TMDL is based on a target other than a numeric water quality criterion, then a numeric expression, usually site specific, must be developed from a narrative criterion and a description of the process used to derive the target must be included in the submittal.

The GAEPD placed 37 stream segments in the Chattahoochee River Basin on the 303(d) list of impaired waters for not supporting the designated use of Fishing, Recreation, and/or Drinking Water due to exceedances of the fecal coliform water quality criteria. Fifty additional segments that were included in previously approved TMDLs in 1998 which addressed fecal coliform exceedances were updated in the Report. Forty-seven of these segments have the designated use of Fishing, one has the designated uses of Fishing and Recreation, and two segments have the designated uses of Fishing and Drinking Water. The TMDL target is based on the water quality standards. The applicable standards at the time of listing are as follows:

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

(c) Fishing: Propagation of Fish, Shellfish, Game and Other Aquatic Life; secondary contact recreation in and on the water; or for any other use requiring water of a lower quality.

(i) Bacteria:

1. For the months of May through October, when water contact recreation activities are expected to occur, fecal coliform not to exceed a geometric mean of 200 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. Should water quality and sanitary studies show fecal coliform levels from non-human sources exceed 200 counts per 100 mL (geometric mean) occasionally, then the allowable geometric mean fecal coliform shall not exceed 300 counts per 100 mL in lakes and reservoirs and 500 counts per 100 mL in free-flowing freshwater streams. For the months of November through April, fecal coliform not to exceed a geometric mean of 1,000 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours and not to exceed a maximum of 4,000 counts per 100 mL for any sample. The State does not encourage swimming in these surface waters since a number of factors which are beyond the control of any State regulatory agency contribute to elevated levels of bacteria.
2. For waters designated as shellfish growing areas by the Georgia DNR Coastal Resources Division, the requirements will be consistent with those established by the State and Federal agencies responsible for the National Shellfish Sanitation Program. The requirements are found in National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish, 2007 Revision (or most recent version), Interstate Shellfish Sanitation Conference, U.S. Food and Drug Administration.

In January 2022, the Georgia DNR Board adopted new bacteria criteria for Fishing and Drinking Water designated uses using the bacterial indicators *E. coli* and enterococci. These bacteria are better indicators for human health illnesses. The adopted criteria have a risk level equivalent to the illness rate (8 per 1000 swimmers) as the previously established criteria. EPA approved the proposed standards August 31, 2022. Since this TMDL was written after EPA approved the new bacteria criteria, the TMDL will use both bacterial indicators. The use classification water quality standards for bacteria, as stated in the *State of Georgia's Rules and Regulations for Water Quality Control*, Chapter 391-3-6-.03(6)(c)(i) (GAEPD, 2022), are:

(c) Fishing: Propagation of Fish, Shellfish, Game and Other Aquatic Life; primary contact recreation in and on the water for the months of May – October, secondary contact recreation in and on the water for the months of November – April; or for any other use requiring water of a lower quality.

(i) Bacteria:

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

1. Estuarine waters:

For the months of May through October, when primary water contact recreation activities are expected to occur, culturable enterococci not to exceed a geometric mean of 35 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. There shall be no greater than a ten percent excursion frequency of an enterococci statistical threshold value (STV) of 130 counts per 100 mL the same 30-day interval.

For the months of November through April, culturable enterococci not to exceed a geometric mean of 74 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. There shall be no greater than a ten percent excursion frequency of an enterococci statistical threshold value (STV) of 273 counts per 100 mL in the same 30-day interval.

2. All other fishing waters:

For the months of May through October, when primary water contact recreation activities are expected to occur, culturable *E. coli* not to exceed a geometric mean of 126 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. There shall be no greater than a ten percent excursion frequency of an *E. coli* statistical threshold value (STV) of 410 counts per 100 mL in the same 30-day interval.

For the months of November through April, culturable *E. coli* not to exceed a geometric mean of 265 counts per 100 mL based on at least four samples collected from a given sampling site over a 30-day period at intervals not less than 24 hours. There shall be no greater than a ten percent excursion frequency of an *E. coli* statistical threshold value (STV) of 861 counts per 100 mL in the same 30-day interval.

3. The State does not encourage swimming in these surface waters since a number of factors which are beyond the control of any State regulatory agency contribute to elevated levels of bacteria.

4. For waters designated as shellfish growing areas by the Georgia DNR Coastal Resources Division, the requirements will be consistent with those established by the State and Federal agencies responsible for the National Shellfish Sanitation Program. The requirements are found in National Shellfish Sanitation Program Guide for the Control of Molluscan Shellfish, 2007 Revision (or most recent version), Interstate Shellfish Sanitation Conference, U.S. Food and Drug Administration.

EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA

Assessment: The EPA concludes that Georgia has properly addressed its water quality standard when setting a numeric water quality target.

3. Loading Capacity - Linking Water Quality and Pollutant Sources

As described in the EPA guidance, a TMDL identifies the loading capacity of a waterbody for a particular pollutant. The EPA regulations define loading capacity as the greatest amount of loading that a water can receive without violating water quality standards (40 CFR section 130.2(f)). The loadings are required to be expressed as either mass-per-time, toxicity, or other appropriate measure (40 CFR section 130.2(i)). The TMDL submittal must identify the waterbody's loading capacity for the applicable pollutant and describe the rationale for the method used to establish the cause-and-effect relationship between the numeric target and the identified pollutant sources. In most instances, this method will be a water quality model. Supporting documentation for the TMDL analysis must also be contained in the submittal, including the basis for assumptions, strengths and weaknesses in the analytical process, results from water quality modeling, etc. Such information is necessary for the EPA's review of the load and wasteload allocations, which is required by regulation.

In many circumstances, a critical condition must be described and related to physical conditions in the waterbody as part of the analysis of loading capacity (40 CFR section 130.7(c)(1)). The critical condition can be thought of as the "worst case" scenario of environmental conditions in the waterbody in which the loading expressed in the TMDL for the pollutant of concern will continue to meet water quality standards. Critical conditions are the combination of environmental factors (e.g., flow, temperature, etc.) that results in attaining and maintaining the water quality criterion and has an acceptably low frequency of occurrence. Critical conditions are important because they describe the factors that combine to cause a violation of water quality standards and will help in identifying the actions that may have to be undertaken to meet water quality standards.

The TMDLs for these segments in the Chattahoochee River Basin were developed using loading curve analyses. The loading curves refer to the linear lines obtained from plotting flow (Q) against load. Load is calculated by multiplying flow by the numeric water quality criteria with appropriate conversion factors. Summer and winter criteria were used to form two load curves. Along with these curves, the measured fecal coliform loads calculated using geometric fecal coliform means and arithmetic flow means were plotted and identified as summer or winter samples for comparison to the respective season load curves. The point with the largest exceedance from the corresponding load curve determined the critical loading value and the TMDL value. From the critical loading value and the TMDL value, percent reduction values were calculated to reduce all currently measured values to be at or below the water quality criteria.

For the segments with updated TMDLs, the original 303(d) listing was based on spill data that is no longer available. Therefore, a current critical load and percent reduction cannot be calculated. However, the annual average flow was determined using USGS StreamStats and was then used to calculate the TMDL. The average flows for the streams with updated TMDLs are given in Table A-1 in Appendix A of the Report.

Section 4 of the Report includes the GAEPD method for determination of loading capacity. The GAEPD used field measurements and water quality data from USGS gauges near listed stream segments that had similar watershed characteristics, including land use, slope, and drainage area. The stream flows

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

were estimated by multiplying the gauged flows by the ratio of the listed stream drainage areas to the gauged stream drainage areas. This information is included in Table 14 of the Report.

The critical condition for nonpoint source fecal coliform loading is an extended dry period followed by a rainfall runoff event. During the dry weather period, fecal coliform bacteria build up on the land surface and are washed away by rainfall. The critical condition for point source loading occurs during periods of low streamflow when dilution is minimized. Both conditions are represented in the TMDL analysis. The GAEPD collected fecal coliform samples in both winter and summer sufficient to calculate at least one geometric mean for each monitoring period. Critical conditions are accounted for in the load duration curve analysis by the inclusion of data collected in the winter and summer.

The current critical loads were determined using fecal coliform data collected within a 30-day period to calculate the geometric means and multiplying these values by the arithmetic means of the flows measured at the time the water quality samples were collected. Georgia's instream bacteria standards are based on a geometric mean of samples collected over a 30-day period, with samples collected at least 24 hours apart. To reflect this in the load calculation, the bacteria loads are expressed as 30-day accumulated loads with units of counts per 30 days. This is described by the equation below:

$$L_{\text{critical}} = C_{\text{geomean}} \times Q_{\text{mean}}$$

Where:

- L_{critical} = current critical bacteria load
- C_{geomean} = bacteria concentration as a 30-day geometric mean
- Q_{mean} = stream flow as an arithmetic mean

The current estimated critical load is dependent on the fecal coliform concentrations and stream flows measured during the sampling events. The number of events sampled is usually 16 per year. Thus, these loads do not represent the full range of flow conditions or loading rates that can occur. Therefore, it must be kept in mind that the current critical loads used only represent the worst-case scenario that occurred during the sampling period.

The maximum bacteria load at which the instream bacteria criteria will be met can be determined using a variation of the equation above. By setting C equal to the seasonal, instream bacteria standard, the load will equal the TMDL. However, the TMDL is dependent on stream flow. Figures in Appendix A graphically illustrate that the TMDL is a continuum for the range of flows (Q) that can occur in the stream over time. There are two TMDL curves shown in these figures. One represents the summer TMDL for the period May through October when the 30-day geometric mean standard is 200 counts/100 mL. The second curve represents the winter TMDL for the period November through April when the 30-day geometric mean standard is 1,000 counts/100 mL. The equations for these two TMDL curves are:

$$\text{TMDL}_{\text{summer}} = 200 \text{ counts/100 mL (as a 30-day geometric mean)} \times Q$$

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

$$\text{TMDL}_{\text{winter}} = 1,000 \text{ counts/100 mL (as a 30-day geometric mean)} \times Q$$

The graphs show the relationship between the current critical load (L_{critical}) and the TMDL. The TMDL for a given stream segment is the load for the mean flow corresponding to the current critical load. This is the point where the current load exceeds the TMDL curve by the greatest amount. This critical TMDL can be represented by the following equation:

$$\text{TMDL}_{\text{critical}} = C_{\text{standard}} \times Q_{\text{mean}}$$

Where:

- $\text{TMDL}_{\text{critical}}$ = critical bacteria TMDL load
- C_{standard} = seasonal bacteria standard (as a 30-day geometric mean)
 - summer - 200 counts/100 mL as fecal coliform
 - winter - 1,000 counts/100 mL as fecal coliform
- Q_{mean} = stream flow as an arithmetic mean

A 30-day geometric mean load that plots above the respective seasonal TMDL curve represents an exceedance of the instream bacteria standard. The difference between the current critical load and the TMDL curve represents the load reduction required for the stream segment to meet the appropriate instream bacteria standard. There is also a single sample maximum criterion of 4,000 counts per 100 mL for fecal coliform. If a single sample exceeds the maximum criterion, and the seasonal geometric mean criteria is also exceeded, then the TMDL is based on the criteria exceedance requiring the largest load reduction.

For future *E. coli* TMDLs, one curve will represent the summer TMDL for the period May through October when the 30-day geometric mean standard is 126 counts/100 mL. The second curve will represent the winter TMDL for the period November through April when the 30-day geometric mean standard is 265 counts/100 mL. The equations for these two TMDL curves are:

$$\text{TMDL}_{\text{summer}} = 126 \text{ counts/100 mL (as a 30-day geometric mean)} \times Q$$

$$\text{TMDL}_{\text{winter}} = 265 \text{ counts/100 mL (as a 30-day geometric mean)} \times Q$$

The TMDL for a given stream segment is the load for the mean flow corresponding to the current critical fecal coliform load. This is the point where the current fecal coliform load exceeds the fecal coliform TMDL curve by the greatest amount. This critical TMDL can be represented by the following equation:

$$\text{TMDL}_{\text{critical}} = C_{\text{standard}} \times Q_{\text{mean}}$$

Where:

- $\text{TMDL}_{\text{critical}}$ = critical bacteria TMDL load

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

and maintain the applicable water quality standard. The TMDL is based on a reasonable approach for establishing the relationship between pollutant loading and water quality.

4. Load Allocation (LA)

The EPA regulations require that a TMDL include LAs, which identify the portion of the loading capacity allocated to existing and future nonpoint sources and to natural background (40 CFR section 130.2(g)). Load allocations may range from reasonably accurate estimates to gross allotments (40 CFR section 130.2(g)). Where it is possible to separate natural background from nonpoint sources, load allocations should be described separately for background and for nonpoint sources.

If the TMDL concludes that there are no nonpoint sources and/or natural background, or the TMDL recommends a zero load allocation, the LA must be expressed as zero. If the TMDL recommends a zero LA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero LA implies an allocation only to point sources will result in attainment of the applicable water quality standard, and all nonpoint and background sources will be removed.

The load allocation is the portion of the receiving water's loading capacity that is attributed to existing or future nonpoint sources or to natural background sources. Nonpoint sources are identified in 40 CFR 130.6 as follows:

- Residual waste;
- Land disposal;
- Agricultural and silvicultural;
- Mines;
- Construction;
- Saltwater intrusion; and
- Urban stormwater (non-permitted).

The LA is calculated as the remaining portion of the TMDL load available after allocating the Wasteload Allocation (WLA), WLAs from stormwater discharges (WLA_{sw}), and the Margin of Safety (MOS) using the following equation:

$$LA = TMDL - (\sum WLA + \sum WLA_{sw} + MOS)$$

Section 3.2 of the Report details the nonpoint sources of fecal coliform in the Chattahoochee River Basin. They include agricultural and wildlife sources, urban development, leaking sanitary sewer lines and septic systems, LAS, and landfills. According to the Report, at the time that the TMDL was developed, it was not possible to partition the various sources of load allocations (LAs). In the future, after additional data has been collected, it may be possible to partition the LA by source. The LAs and necessary percent reductions are included below in Table 16 of the Report.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Table 16 of the Report: Bacteria Loads and Required Load Reductions

Assessment Unit ID	Stream Segment	Description	Bacterial Indicator	Current Load (counts/30 days)	TMDL Components					Reduction Required
					WLA (counts/30 days) ⁽¹⁾	WLA _{sw} (counts/30 days)	LA (counts/30 days)	MOS (counts/30 days)	TMDL (counts/30 days)	
GAR031300020304	Anneewakee Creek	Lake Monroe to Chattahoochee River	Fecal coliform	4.79E+11	2.34E+07	1.47E+11	1.97E+11	3.83E+10	3.83E+11	20.10%
			<i>E. coli</i>	(³)	1.48E+07	9.26E+10	1.24E+11	2.41E+10	2.41E+11	Undetermined (²)
GAR031300020605	Brush Creek	Tributary to West Point Lake	Fecal coliform	3.42E+11			1.34E+11	1.49E+10	1.49E+11	56.5%
			<i>E. coli</i>	(³)			8.44E+10	9.38E+09	9.38E+10	Undetermined (²)
GAR031300010913	Chattahoochee River	Dicks Creek to Johns Creek	Fecal coliform	1.71E+16	1.81E+10	2.25E+14	4.58E+14	7.58E+13	7.58E+14	95.6%
			<i>E. coli</i>	(³)	5.99E+10	2.30E+13	4.69E+13	7.77E+12	7.77E+13	Undetermined (²)
GAR031300040502	Coheele Creek	Chancy Mill Creek to Chattahoochee River	Fecal coliform	4.60E+11			5.40E+10	6.00E+09	6.00E+10	87.0%
			<i>E. coli</i>	(³)			3.40E+10	3.78E+09	3.78E+10	Undetermined (²)
GAR031300030107	Cooper Creek	Headwaters to Bull Creek - Columbus	Fecal coliform	6.94E+11		4.76E+10	3.24E+10	8.90E+09	8.90E+10	87.2%
			<i>E. coli</i>	(³)		3.00E+10	2.04E+10	5.61E+09	5.61E+10	Undetermined (²)
GAR031300021010	Crawford Creek	Headwaters to Sulphur Creek	Fecal coliform	2.62E+11			1.40E+11	1.56E+10	1.56E+11	40.7%
			<i>E. coli</i>	(³)			8.82E+10	9.80E+09	9.80E+10	Undetermined (²)
GAR031300020422	Deer Creek	Headwaters to Centralhatchee Creek	Fecal coliform	3.66E+11			7.60E+10	8.45E+09	8.45E+10	77.0%
			<i>E. coli</i>	(³)			4.79E+10	5.32E+09	5.32E+10	Undetermined (²)
GAR031300020433	Denny Creek	Headwaters to Centralhatchee Creek	Fecal coliform	3.57E+10			2.86E+10	3.17E+09	3.17E+10	11.2%
			<i>E. coli</i>	(³)			1.80E+10	2.00E+09	2.00E+10	Undetermined (²)
GAR031300030311	Dozier Creek	Headwaters to Randall Creek	Fecal coliform	7.48E+10		2.46E+09	2.26E+10	2.78E+09	2.78E+10	62.8%
			<i>E. coli</i>	(³)		1.55E+09	1.42E+10	1.75E+09	1.75E+10	Undetermined (²)
GAR031300020716	East Trammel Branch	Headwaters to Yellowjacket Creek	Fecal coliform	9.57E+09			5.13E+09	5.70E+08	5.70E+09	40.4%
			<i>E. coli</i>	(³)			3.23E+09	3.59E+08	3.59E+09	Undetermined (²)
GAR031300030110	Flatrock Creek	Tributary to Bull Creek - Columbus	Fecal coliform	3.42E+11		7.58E+09	2.98E+10	4.15E+09	4.15E+10	87.9%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment Unit ID	Stream Segment	Description	Bacterial Indicator	Current Load (counts/30 days)	TMDL Components					Reduction Required
					WLA (counts/30 days) ⁽¹⁾	WLA _{sw} (counts/30 days)	LA (counts/30 days)	MOS (counts/30 days)	TMDL (counts/30 days)	
			<i>E. coli</i>	(3)		4.78E+09	1.87E+10	2.61E+09	2.61E+10	Undetermined ⁽²⁾
GAR031300021216	Fort Creek	Headwaters to Dowdell Creek	Fecal coliform	8.08E+09	1.03E+09		4.68E+09	6.35E+08	6.35E+09	21.4%
			<i>E. coli</i>	(3)	6.49E+08		2.95E+09	4.00E+08	4.00E+09	Undetermined ⁽²⁾
GAR031300010514	Glade Branch	Headwaters to Town Creek	Fecal coliform	8.07E+10			1.32E+10	1.47E+09	1.47E+10	81.8%
			<i>E. coli</i>	(3)			8.33E+09	9.25E+08	9.25E+09	Undetermined ⁽²⁾
GAR031300030704	Hannahatchee Creek	Ben Owens Creek to Bussey Branch	Fecal coliform	1.08E+12			1.35E+11	1.50E+10	1.50E+11	86.1%
			<i>E. coli</i>	(3)			8.51E+10	9.45E+09	9.45E+10	Undetermined ⁽²⁾
GAR031300020613	Hillabahatchee Creek	Alabama State line to Red Oak Creek	Fecal coliform	1.36E+14			3.06E+12	3.40E+11	3.40E+12	97.5%
			<i>E. coli</i>	(3)			1.93E+12	2.14E+11	2.14E+12	Undetermined ⁽²⁾
GAR031300020614	Hillabahatchee Creek	Red Oak Creek to Tollieson Branch, Franklin	Fecal coliform	2.33E+13			8.40E+14	9.33E+13	9.33E+14	97.5%
			<i>E. coli</i>	(3)			5.29E+14	5.88E+13	5.88E+14	Undetermined ⁽²⁾
GAR031300021015	House Creek	Headwaters to Sand Creek	Fecal coliform	1.47E+11			1.57E+10	1.74E+09	1.74E+10	88.1%
			<i>E. coli</i>	(3)			9.86E+09	1.10E+09	1.10E+10	Undetermined ⁽²⁾
GAR031300020218	Lick Log Creek	Lake Romona to Mill Creek	Fecal coliform	3.40E+11		9.73E+09	1.29E+11	1.54E+10	1.54E+11	54.6%
			<i>E. coli</i>	(3)		6.13E+09	8.15E+10	9.73E+09	9.73E+10	Undetermined ⁽²⁾
GAR031300020428	Milligan Creek	Headwaters to Pond 0.9 miles upstream of the Heard County Line	Fecal coliform	6.50E+10			3.60E+10	4.00E+09	4.00E+10	38.5%
			<i>E. coli</i>	(3)			2.27E+10	2.52E+09	2.52E+10	Undetermined ⁽²⁾
GAR031300040205	North Prong Kolomoki Creek	Tributary 1 mile downstream of Bluffton Highway to Kolomoki Creek	Fecal coliform	1.89E+11			9.33E+10	1.04E+10	1.04E+11	45.1%
			<i>E. coli</i>	(3)			5.87E+10	6.53E+09	6.53E+10	Undetermined ⁽²⁾
GAR031300031507	Pataula Creek	Beaver Creek to Brier Creek	Fecal coliform	1.30E+12			3.84E+11	4.27E+10	4.27E+11	67.1%
			<i>E. coli</i>	(3)			2.42E+11	2.69E+10	2.69E+11	Undetermined ⁽²⁾
GAR031300021018	Sand Creek	Headwaters to House Creek	Fecal coliform	3.14E+10			4.81E+09	5.34E+08	5.34E+09	83.0%
			<i>E. coli</i>	(3)			3.03E+09	3.37E+08	3.37E+09	Undetermined ⁽²⁾
GAR031300021308	Standing Boy Creek	Striblin Creek to Mobleys Lake	Fecal coliform	2.95E+12	2.64E+06		3.18E+11	3.54E+10	3.54E+11	88.0%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment Unit ID	Stream Segment	Description	Bacterial Indicator	Current Load (counts/30 days)	TMDL Components					Reduction Required
					WLA (counts/30 days) ⁽¹⁾	WLA _{sw} (counts/30 days)	LA (counts/30 days)	MOS (counts/30 days)	TMDL (counts/30 days)	
			<i>E. coli</i>	(³)	1.66E+06		2.01E+11	2.23E+10	2.23E+11	Undetermined (²)
GAR031300030204	Tar River	Headwaters to Montarella Lake	Fecal coliform	1.75E+10			1.28E+10	1.42E+09	1.42E+10	18.5%
			<i>E. coli</i>	(³)			8.08E+09	8.97E+08	8.97E+09	Undetermined (²)
GAR031300010512	Tate Creek	Headwaters to Chestatee River	Fecal coliform	3.57E+10			2.86E+10	3.17E+09	3.17E+10	11.2%
			<i>E. coli</i>	(³)			1.80E+10	2.00E+09	2.00E+10	Undetermined (²)
GAR031300020211	Town Branch	Lake Val-Do Mar to Mud Creek - Villa Rica	Fecal coliform	3.89E+10	6.09E+08	1.50E+10	1.61E+10	3.52E+09	3.52E+10	9.6%
			<i>E. coli</i>	(³)	3.84E+08	9.45E+09	1.01E+10	2.22E+09	2.22E+10	Undetermined (²)
GAR031300020611	Town Creek	Alabama State line to tributary 0.5 miles upstream of Arrington Rd	Fecal coliform	2.03E+13			4.56E+11	5.06E+10	5.06E+11	97.5%
			<i>E. coli</i>	(³)			2.87E+11	3.19E+10	3.19E+11	Undetermined (²)
GAR031300020612	Town Creek	Tributary 0.5 miles upstream of Arrington Rd to Little Creek	Fecal coliform	5.07E+13			1.14E+12	1.27E+11	1.27E+12	97.5%
			<i>E. coli</i>	(³)			7.19E+11	7.99E+10	7.99E+11	Undetermined (²)
GAR031300030121	Tributary to Bull Creek	Headwaters to Bull Creek	Fecal coliform	3.09E+10		2.22E+09	1.31E+09	3.92E+08	3.92E+09	87.3%
			<i>E. coli</i>	(³)		1.40E+09	8.23E+08	2.47E+08	2.47E+09	Undetermined (²)
GAR031300040107	Tributary to Cemochechobee Creek	Headwaters to Cemochechobee Creek	Fecal coliform	2.89E+10			1.79E+10	1.99E+09	1.99E+10	31.2%
			<i>E. coli</i>	(³)			1.13E+10	1.25E+09	1.25E+10	Undetermined (²)
GAR031300020224	Tributary to Lick Log Creek	Headwaters to Lick Log Creek	Fecal coliform	9.97E+09		9.05E+07	8.33E+08	1.03E+08	1.03E+09	0.0%
			<i>E. coli</i>	(³)		5.70E+07	5.25E+08	6.46E+07	6.46E+08	Undetermined (²)
GAR031300021103	Tributary to Mountain Creek	Callaway Gardens WPCP to Mountain Creek	Fecal coliform	6.91E+10	5.86E+08		8.40E+09	9.98E+08	9.98E+09	85.6%
			<i>E. coli</i>	(³)	3.69E+08		5.29E+09	6.29E+08	6.29E+09	Undetermined (²)
GAR031300021219	Tributary to Mulberry Creek	Oak View Home WPCP to Mulberry Creek	Fecal coliform	1.03E+09	1.64E+07		1.78E+08	2.16E+07	2.16E+08	79.0%
			<i>E. coli</i>	(³)	1.03E+07		1.12E+08	1.36E+07	1.36E+08	Undetermined (²)
GAR031300021220	Tributary to Mulberry Creek	Headwaters to Oak View Home WPCP	Fecal coliform	2.18E+10			7.85E+09	8.73E+08	8.73E+09	59.9%
			<i>E. coli</i>	(³)			4.95E+09	5.50E+08	5.50E+09	Undetermined (²)

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment Unit ID	Stream Segment	Description	Bacterial Indicator	Current Load (counts/30 days)	TMDL Components					Reduction Required
					WLA (counts/30 days) ⁽¹⁾	WLA _{sw} (counts/30 days)	LA (counts/30 days)	MOS (counts/30 days)	TMDL (counts/30 days)	
GAR031300021006	White Sulfur Creek	Headwaters to Sulphur Creek	Fecal coliform	8.36E+11			1.93E+11	2.15E+10	2.15E+11	74.3%
			<i>E. coli</i>	(3)			1.22E+11	1.35E+10	1.35E+11	Undetermined ⁽²⁾
GAR031300020804	Whitewater Creek	Headwaters to tributary 0.5 miles upstream Heard/Troup County Line	Fecal coliform	7.06E+10			2.30E+10	2.55E+09	2.55E+10	63.8%
			<i>E. coli</i>	(3)			1.45E+10	1.61E+09	1.61E+10	Undetermined ⁽²⁾
GAR031300020805	Whitewater Creek	Tributary 0.5 miles upstream Heard/Troup County Line to West Point Lake	Fecal coliform	1.40E+11			4.57E+10	5.08E+09	5.08E+10	63.8%
			<i>E. coli</i>	(3)			2.88E+10	3.20E+09	3.20E+10	Undetermined ⁽²⁾
Updated TMDLs⁽⁴⁾										
GAR031300020401	Acorn Creek	Headwaters to the Chattahoochee River	Fecal coliform	5.62E+10			9.20E+10	1.02E+10	1.02E+11	0%
			<i>E. coli</i>	(3)			5.80E+10	6.44E+09	6.44E+10	Undetermined ⁽²⁾
GAR031300020308	Baldwin Creek	Headwaters to Little Bear Creek	Fecal coliform	3.90E+10		5.76E+09	1.55E+10	2.36E+09	2.36E+10	39%
			<i>E. coli</i>	(3)		3.63E+09	9.76E+09	1.49E+09	1.49E+10	Undetermined ⁽²⁾
GAR031300020313	Bear Creek	Dorsett Shoals Rd. to Little Bear Creek	Fecal coliform	6.15E+10	5.86E+07	2.64E+10	5.87E+10	9.46E+09	9.46E+10	0%
			<i>E. coli</i>	(3)	3.69E+07	1.66E+10	3.70E+10	5.96E+09	5.96E+10	Undetermined ⁽²⁾
GAR031300010813	Big Creek	Tributary to Lake Lanier	Fecal coliform	6.07E+10			3.58E+10	3.98E+09	3.98E+10	34%
			<i>E. coli</i>	(3)			2.26E+10	2.51E+09	2.51E+10	Undetermined ⁽²⁾
GAR031300020310	Billy Creek (Previously Nancy Long Creek/Billy Creek)	Strickland Lake to the Dog River	Fecal coliform	1.60E+10			3.39E+10	3.77E+09	3.77E+10	0%
			<i>E. coli</i>	(3)			2.14E+10	2.38E+09	2.38E+10	Undetermined ⁽²⁾
GAR031300020420	Cedar Creek	Browns Creek to the Chattahoochee River (Formerly Coweta County)	Fecal coliform	2.91E+10		8.57E+09	3.94E+11	4.47E+10	4.47E+11	0%
			<i>E. coli</i>	(3)		5.40E+09	2.48E+11	2.82E+10	2.82E+11	Undetermined ⁽²⁾

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment Unit ID	Stream Segment	Description	Bacterial Indicator	Current Load (counts/30 days)	TMDL Components					Reduction Required
					WLA (counts/30 days) ⁽¹⁾	WLA _{sw} (counts/30 days)	LA (counts/30 days)	MOS (counts/30 days)	TMDL (counts/30 days)	
GAR031300020421	Centralhatchee Creek	Headwaters to the Chattahoochee River	Fecal coliform	3.07E+11			5.03E+11	5.59E+10	5.59E+11	0%
			<i>E. coli</i>	(3)			3.17E+11	3.52E+10	3.52E+11	Undetermined ⁽²⁾
GAR031300010105	Chattahoochee River	SR255 to Soquee River	Fecal coliform	3.57E+12			2.85E+12	3.17E+11	3.17E+12	11%
			<i>E. coli</i>	(3)			1.80E+12	2.00E+11	2.00E+12	Undetermined ⁽²⁾
GAR031300010704	Chestatee River	Yahoola Creek to Lake Lanier	Fecal coliform	4.85E+12	2.58E+09		3.79E+12	4.22E+11	4.22E+12	13%
			<i>E. coli</i>	(3)	1.63E+09		2.39E+12	2.66E+11	2.66E+12	Undetermined ⁽²⁾
GAR031300020709	Dixie Creek	Headwaters to West Point Lake - LaGrange	Fecal coliform	3.07E+10			2.89E+10	3.21E+09	3.21E+10	0%
			Enterococci	(3)			1.82E+10	2.02E+09	2.02E+10	Undetermined ⁽²⁾
GAR031300031301	Drag Nasty Creek	Tributary to W. F. George	Fecal coliform	2.33E+11			9.11E+10	1.01E+10	1.01E+11	57%
			<i>E. coli</i>	(3)			5.74E+10	6.38E+09	6.38E+10	Undetermined ⁽²⁾
GAR031300010817	Etta Vista Creek	Tributary to Lake Lanier (Gainesville)	Fecal coliform	2.86E+09		7.70E+08	1.57E+09	2.60E+08	2.60E+09	9%
			<i>E. coli</i>	(3)		4.85E+08	9.87E+08	1.64E+08	1.64E+09	Undetermined ⁽²⁾
GAR031300021019	Flat Shoals Creek	Tributary at Stovall Road to Big Branch	Fecal coliform	2.43E+12	3.51E+08		1.47E+12	1.64E+11	1.64E+12	33%
			<i>E. coli</i>	(3)	2.21E+08		9.27E+11	1.03E+11	1.03E+12	Undetermined ⁽²⁾
GAR031300021020	Flat Shoals Creek	Big Branch to Lake Harding	Fecal coliform	2.64E+12	3.51E+08		1.60E+12	1.78E+11	1.78E+12	33%
			<i>E. coli</i>	(3)	2.21E+08		1.01E+12	1.12E+11	1.12E+12	Undetermined ⁽²⁾
GAR031300010812	Flowery Branch	Tributary to Lake Lanier	Fecal coliform	3.87E+10		9.22E+09	1.13E+10	2.28E+09	2.28E+10	41%
			<i>E. coli</i>	(3)		5.81E+09	7.11E+09	1.44E+09	1.44E+10	Undetermined ⁽²⁾
GAR031300010809	Fourmile Creek	Lake Lanier Tributary	Fecal coliform	9.28E+10		6.20E+09	7.49E+10	9.01E+09	9.01E+10	3%
			<i>E. coli</i>	(3)		3.90E+09	4.72E+10	5.68E+09	5.68E+10	Undetermined ⁽²⁾
GAR031300030701	Hannahatchee Creek	U.S. Hwy 27 to Lake W. F. George	Fecal coliform	4.76E+11			7.80E+11	8.66E+10	8.66E+11	0%
			<i>E. coli</i>	(3)			4.91E+11	5.46E+10	5.46E+11	Undetermined ⁽²⁾

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment Unit ID	Stream Segment	Description	Bacterial Indicator	Current Load (counts/30 days)	TMDL Components					Reduction Required	
					WLA (counts/30 days) ⁽¹⁾	WLA _{sw} (counts/30 days)	LA (counts/30 days)	MOS (counts/30 days)	TMDL (counts/30 days)		
GAR031300020334	House Creek	Headwaters to Anneewakee Creek	Fecal coliform	1.81E+10			9.17E+09	7.05E+09	1.80E+09	1.80E+10	0%
			<i>E. coli</i>	(3)			5.77E+09	4.44E+09	1.14E+09	1.14E+10	Undetermined ⁽²⁾
GAR031300010902	James Creek	Daves Creek to the Chattahoochee River	Fecal coliform	8.49E+10	3.43E+08	5.22E+10	8.64E+10	1.54E+10	1.54E+11	0%	
			<i>E. coli</i>	(3)	1.88E+09	3.23E+10	5.34E+10	9.73E+09	9.73E+10	Undetermined ⁽²⁾	
GAR031300020908	Lee Branch	Tributary to Troup Branch - LaGrange	Fecal coliform	1.02E+10			5.32E+09	5.91E+08	5.91E+09	42%	
			<i>E. coli</i>	(3)			3.35E+09	3.73E+08	3.73E+09	Undetermined ⁽²⁾	
GAR031300010301	Limestone Creek	Headwaters to Brenau Lake	Fecal coliform	4.48E+09		1.44E+09	1.92E+09	3.73E+08	3.73E+09	17%	
			<i>E. coli</i>	(3)		9.04E+08	1.21E+09	2.35E+08	2.35E+09	Undetermined ⁽²⁾	
GAR031300020305	Little Bear Creek	Anneewakee Lake to Bear Creek	Fecal coliform	9.70E+10		1.42E+10	7.09E+10	9.46E+09	9.46E+10	2%	
			<i>E. coli</i>	(3)		8.98E+09	4.47E+10	5.96E+09	5.96E+10	Undetermined ⁽²⁾	
GAR031300010816	Longwood Park Creek	Tributary to Lake Lanier (Gainesville)	Fecal coliform	2.29E+09		1.03E+09	1.02E+09	2.29E+08	2.29E+09	0%	
			<i>E. coli</i>	(3)		6.51E+08	6.45E+08	1.44E+08	1.44E+09	Undetermined ⁽²⁾	
GAR031300010303	Mossy Creek	Totherow Rd. near Clermont to Chattahoochee River	Fecal coliform	2.55E+11			4.18E+11	4.64E+10	4.64E+11	0%	
			<i>E. coli</i>	(3)			2.63E+11	2.92E+10	2.92E+11	Undetermined ⁽²⁾	
GAR031300020508	New River	Mountain Creek to West Point Lake - Corinth	Fecal coliform	1.13E+12	5.86E+08	2.62E+10	9.41E+11	1.08E+11	1.08E+12	5%	
			<i>E. coli</i>	(3)	2.98E+09	1.64E+10	5.90E+11	6.77E+10	6.77E+11	Undetermined ⁽²⁾	
GAR031300020408	Panther Creek	Headwaters to Cedar Creek	Fecal coliform	3.02E+10		3.04E+07	3.62E+10	4.03E+09	4.03E+10	0%	
			<i>E. coli</i>	(3)		1.92E+07	2.28E+10	2.54E+09	2.54E+10	Undetermined ⁽²⁾	
GAR031300020907	Park Branch	Tributary to Troup Branch - LaGrange	Fecal coliform	6.33E+09			6.33E+09	7.03E+08	7.03E+09	0%	
			<i>E. coli</i>	(3)			3.99E+09	4.43E+08	4.43E+09	Undetermined ⁽²⁾	
GAR031300020702	Pepperell Creek	Headwaters to tributary 0.55 miles upstream of Shoal Creek, LaGrange	Fecal coliform	1.26E+10			1.51E+10	1.68E+09	1.68E+10	0%	
			<i>E. coli</i>	(3)			9.53E+09	1.06E+09	1.06E+10	Undetermined ⁽²⁾	

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment Unit ID	Stream Segment	Description	Bacterial Indicator	Current Load (counts/30 days)	TMDL Components					Reduction Required
					WLA (counts/30 days) ⁽¹⁾	WLA _{sw} (counts/30 days)	LA (counts/30 days)	MOS (counts/30 days)	TMDL (counts/30 days)	
GAR031300010814	Rock Creek	Headwaters to Lake Lanier (Gainesville)	Fecal coliform	1.52E+09		7.39E+08	7.40E+08	1.64E+08	1.64E+09	0%
			<i>E. coli</i>	(3)		4.66E+08	4.66E+08	1.04E+08	1.04E+09	Undetermined ⁽²⁾
GAR031300010804	Sawnee Creek	Lake Lanier Tributary	Fecal coliform	5.59E+10		9.54E+09	3.42E+10	4.86E+09	4.86E+10	13%
			<i>E. coli</i>	(3)		6.01E+09	2.15E+10	3.06E+09	3.06E+10	Undetermined ⁽²⁾
GAR031300010805	Six Mile Creek	Headwaters to Lake Lanier	Fecal coliform	6.04E+10		2.59E+08	3.44E+10	3.85E+09	3.85E+10	36%
			<i>E. coli</i>	(3)		1.63E+08	2.16E+10	2.42E+09	2.42E+10	Undetermined ⁽²⁾
GAR031300010815	Slaughterhouse Creek	Tributary to Lake Lanier (Gainesville)	Fecal coliform	3.45E+09		3.04E+09	2.60E+09	6.28E+08	6.28E+09	0%
			<i>E. coli</i>	(3)		1.92E+09	1.64E+09	3.95E+08	3.95E+09	Undetermined ⁽²⁾
GAR031300020341	Snake Creek	Little Snake Creek to Crews Creek	Fecal coliform	2.92E+11			2.63E+11	2.92E+10	2.92E+11	0%
			<i>E. coli</i>	(3)			1.66E+11	1.84E+10	1.84E+11	Undetermined ⁽²⁾
GAR031300020342	Snake Creek	Crews Creek to GA Hwy 5	Fecal coliform	4.05E+11			3.65E+11	4.05E+10	4.05E+11	0%
			<i>E. coli</i>	(3)			2.30E+11	2.55E+10	2.55E+11	Undetermined ⁽²⁾
GAR031300020343	Snake Creek	GA Hwy 5 to the Chattahoochee River	Fecal coliform	4.54E+11			4.09E+11	4.54E+10	4.54E+11	0%
			<i>E. coli</i>	(3)			2.58E+11	2.86E+10	2.86E+11	Undetermined ⁽²⁾
GAR031300010806	South Fork Balus Creek	Headwaters to Balus Creek (Gainesville)	Fecal coliform	6.62E+10	3.40E+06	1.10E+10	1.67E+10	3.08E+09	3.08E+10	53%
			<i>E. coli</i>	(3)	2.14E+06	6.93E+09	1.05E+10	1.94E+09	1.94E+10	Undetermined ⁽²⁾
GAR031300010304	South Fork Limestone Creek/Limestone Creek	Headwaters to Limestone Creek Arm of Lake Lanier	Fecal coliform	5.00E+10		1.76E+10	1.84E+10	4.00E+09	4.00E+10	20%
			<i>E. coli</i>	(3)		1.11E+10	1.16E+10	2.52E+09	2.52E+10	Undetermined ⁽²⁾
GAR031300010701	Taylor Creek	Headwaters to Lake Lanier	Fecal coliform	2.29E+10		8.41E+07	3.75E+10	4.17E+09	4.17E+10	0%
			<i>E. coli</i>	(3)		5.30E+07	2.36E+10	2.63E+09	2.63E+10	Undetermined ⁽²⁾
GAR031300010702	Toto Creek	Headwaters to Lake Lanier	Fecal coliform	7.38E+09			4.96E+09	1.14E+09	1.14E+10	0%

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment Unit ID	Stream Segment	Description	Bacterial Indicator	Current Load (counts/30 days)	TMDL Components					Reduction Required
					WLA (counts/30 days) ⁽¹⁾	WLASw (counts/30 days)	LA (counts/30 days)	MOS (counts/30 days)	TMDL (counts/30 days)	
			<i>E. coli</i>	(3)			3.13E+09	7.15E+08	7.15E+09	Undetermined ⁽²⁾
GAR031300010318	Tributary to Limestone Creek	Breneau Lake to Limestone Creek	Fecal coliform	2.06E+10		5.26E+09	1.55E+10	1.72E+09	1.72E+10	17%
			<i>E. coli</i>	(3)		3.31E+09	9.74E+09	1.08E+09	1.08E+10	Undetermined ⁽²⁾
GAR031300010407	Tributary to West Fork Little River	Headwaters to West Fork Little River in Clermont	Fecal coliform	1.31E+10			9.40E+09	1.04E+09	1.04E+10	20%
			<i>E. coli</i>	(3)			5.92E+09	6.58E+08	6.58E+09	Undetermined ⁽²⁾
GAR031300020904	Troup Branch	Tributary to Blue John Creek - LaGrange	Fecal coliform	2.58E+10			1.86E+10	2.07E+09	2.07E+10	20%
			<i>E. coli</i>	(3)			1.17E+10	1.30E+09	1.30E+10	Undetermined ⁽²⁾
GAR031300010807	Two Mile Creek	Headwaters to Lake Lanier	Fecal coliform	7.55E+10		1.73E+09	4.36E+10	5.03E+09	5.03E+10	33%
			<i>E. coli</i>	(3)		1.09E+09	2.75E+10	3.17E+09	3.17E+10	Undetermined ⁽²⁾
GAR031300010403	Wahoo Creek	SR 52 to Lake Lanier	Fecal coliform	9.23E+11			3.04E+11	3.48E+10	3.48E+11	62%
			<i>E. coli</i>	(3)			1.92E+11	2.19E+10	2.19E+11	Undetermined ⁽²⁾
GAR031300020412	Wahoo Creek	Downstream Arnco Mills Lake	Fecal coliform	7.53E+11	3.70E+09	9.13E+09	2.66E+11	3.01E+10	3.01E+11	60%
			<i>E. coli</i>	(3)	2.33E+09	5.75E+09	1.67E+11	1.90E+10	1.90E+11	Undetermined ⁽²⁾
GAR031300010404	West Fork Little River	Headwaters to Jim Hood Road above Lake Lanier	Fecal coliform	3.47E+11		1.72E+09	2.48E+11	2.78E+10	2.78E+11	20%
			<i>E. coli</i>	(3)		1.09E+09	1.56E+11	1.75E+10	1.75E+11	Undetermined ⁽²⁾
GAR031300020430	Whooping Creek	Headwaters to Carthbody Creek	Fecal coliform	1.72E+11	3.86E+07		1.07E+11	1.19E+10	1.19E+11	31%
			<i>E. coli</i>	(3)	2.43E+07		6.74E+10	7.49E+09	7.49E+10	Undetermined ⁽²⁾
GAR031300020431	Whooping Creek	Carthbody Creek to the Chattahoochee River	Fecal coliform	4.19E+11	3.86E+07		2.60E+11	2.89E+10	2.89E+11	31%
			<i>E. coli</i>	(3)	2.43E+07		1.64E+11	1.82E+10	1.82E+11	Undetermined ⁽²⁾
GAR031300020321	Wolf Creek	Headwaters to Chattahoochee River	Fecal coliform	1.00E+11			1.39E+11	1.54E+10	1.54E+11	0%
			<i>E. coli</i>	(3)			8.76E+10	9.73E+09	9.73E+10	Undetermined ⁽²⁾
GAR031300020714	Yellowjacket Creek	Hogansville to West Point Lake	Fecal coliform	8.79E+11	1.82E+09		6.86E+11	7.65E+10	7.65E+11	13%
			<i>E. coli</i>	(3)	1.14E+09		4.32E+11	4.82E+10	4.82E+11	Undetermined ⁽²⁾

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

- (1) The assigned bacterial load from the NPDES permitted facility for WLA was determined as the product of the permitted flow and bacteria permit limit.
- (2) Percent reduction could not be determined due to absence of current load calculation.
- (3) Critical loading could not be determined due to no samples collected.
- (4) The original EPA TMDL model was run for a critical time period using the "calibrated" fecal and flow parameters. The model run resulted in a summer fecal coliform 30-day geometric mean concentration. The existing load was calculated using this concentration times the annual flow.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment: The EPA concludes that the LAs provided in the Report are reasonable and will result in attainment of the water quality standards.

5. Wasteload Allocation (WLA)

The EPA regulations require that a TMDL include WLAs, which identify the portion of the loading capacity allocated to existing and future point sources (40 CFR section 130.2(h)). If no point sources are present or if the TMDL recommends a zero WLA for point sources, the WLA must be expressed as zero. If the TMDL recommends a zero WLA after considering all pollutant sources, there must be a discussion of the reasoning behind this decision, since a zero WLA implies an allocation only to nonpoint sources and background will result in attainment of the applicable water quality standard, and all point sources will be removed.

In preparing the wasteload allocations, it is not necessary that each individual point source be assigned a portion of the allocation of pollutant loading capacity. When the source is a minor discharger of the pollutant of concern or if the source is contained within an aggregated general permit, an aggregated WLA can be assigned to the group of facilities. However, it is necessary to allocate the loading capacity among individual point sources as necessary to meet the water quality standard.

The TMDL submittal should also discuss whether a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur. In such cases, the state/tribe will need to demonstrate reasonable assurance that the nonpoint source reductions will occur within a reasonable time.

The wasteload allocation (WLA) is the portion of the receiving water's loading capacity that is allocated to existing or future point sources. WLAs are provided to the point sources from POTW and Non-POTW wastewater treatment systems with NPDES end-of-pipe effluent limits established to meet the applicable water quality standard. In addition, the permits for these point sources include routine monitoring and reporting requirements. In most cases, the WLAs are calculated based on permitted or design flow and permitted bacteria concentration. If there is a new facility or a facility expands its capacity and the permitted flow increases, the WLA for the facility will be the permitted flow times the appropriate water quality criteria, either 200 counts/100 mL for fecal coliform or 126 counts/100 mL for *E. coli* as a 30-day geometric mean. Facilities that currently have bacteria limits in the Chattahoochee River Basin are shown in Table 6 of the Report.

Non-POTW facilities that discharge sanitary wastewater directly or sanitary waste streams commingled with other waste streams will be given a bacteria effluent limit in their permit. Potential WLAs for existing Non-POTW discharges without bacteria permit limits would be the facility design flow multiplied by the appropriate bacteria criterion, either 200 counts/100 mL for fecal coliform or 126 counts/100 mL for *E. coli* as a 30-day geometric mean. For these facilities, it is not known if their discharge contains any bacteria at levels that would exceed the instream water quality criteria because of the type of treatment processes employed. Therefore, existing Non-POTW facilities may be required to submit bacteria data with their NPDES permit renewal application. The GAEPD will evaluate these data and determine if a permit limit for bacteria is needed. According to the Report, there are currently four known existing Non-POTW discharge without bacteria permit limits in the contributing watersheds. They are included in Table 7 of the Report.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

State and federal rules define stormwater discharges covered by NPDES permits as point sources. However, stormwater discharges are from diffuse sources and there are multiple stormwater outfalls. Stormwater sources are different from traditional NPDES permitted sources in four respects: (1) they do not produce a continuous discharge; (2) their pollutant loading depends on the intensity, duration, and frequency of rainfall events, over which the permittee has no control; (3) the activities contributing to the pollutant loading may include the various allowable activities of others, and control of these activities is not solely within the discretion of the permittee; and (4) they do not have wastewater treatment plants that control specific pollutants to meet numerical limits.

According to the Report, the intent of stormwater NPDES permits is not to treat the water after collection, but to reduce the exposure of stormwater to pollutants by implementing various controls. It would be infeasible and prohibitively expensive to control pollutant discharges from each stormwater outfall. Therefore, stormwater NPDES permits require the establishment of controls or Best Management Practices (BMPs) to reduce the pollutants entering the environment.

The WLAs from stormwater discharges (WLASw) associated with MS4s are estimated based on the percentage of urban area in each watershed covered by the MS4 stormwater permit. At this time, the portion of each watershed that goes directly to a permitted storm sewer or is non-permitted sheet flow or diffuse runoff has not been clearly defined. Thus, it is assumed that approximately 70 percent of stormwater runoff from the regulated urban area is collected by the MS4s. This can be represented by the following equation:

$$WLA_{SW} = Q_{WLASw} \times C_{standard}$$

where: WLA_{SW} = Wasteload Allocation for permitted stormwater runoff from all MS4 urban areas

Q_{WLASw} = Runoff from all MS4 urban areas conveyed through permitted storm water structures

$$Q_{WLASw} = \Sigma Q_{urban} \times 0.7$$

ΣQ_{urban} = Sum of all storm water runoff from MS4 urban

$C_{standard}$ = seasonal fecal coliform standard (as a 30-day geometric mean)
summer – 200 counts/100 mL as fecal coliform
winter – 1000 counts/100 mL as fecal coliform

For stormwater permits, compliance with the terms and conditions of the permit is effective implementation of the WLA to the Maximum Extent Practicable (MEP) and demonstrates consistency with the assumptions and requirements of the TMDL. The GAEPD acknowledges that progress with the assumptions and requirements of the TMDL by stormwater permittees may take one or more permit iterations. Achieving the TMDL reductions may constitute compliance with a management plan, provided the MEP definition is met, even where the numeric percent reduction may not be achieved so long as reasonable progress is made toward attainment of water quality standards using an iterative BMP process.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment: EPA concludes that the WLAs provided in the Report are reasonable and will result in the attainment of water quality standards. This is because the TMDL accounts for all point sources discharging to impaired segments in the watershed and provides WLAs that require that bacteria loads comply with water quality criteria (TMDL targets) for existing sources.

6. Margin of Safety (MOS)

The statute and regulations require that a TMDL include a margin of safety to account for any lack of knowledge concerning the relationship between load and wasteload allocations and water quality [CWA section 303(d)(1)(C), 40 CFR section 130.7(c)(1)]. The EPA 1991 guidance explains that the MOS may be implicit, i.e., incorporated into the TMDL through conservative assumptions in the analysis, or explicit, i.e., expressed in the TMDL as loadings set aside for the MOS. If the MOS is implicit, the conservative assumptions in the analysis that account for the MOS must be described. If the MOS is explicit, the loading set aside for the MOS must be identified.

The MOS is a required component of TMDL development. There are two basic methods for incorporating the MOS: (1) implicitly incorporate the MOS using conservative modeling assumptions to develop allocations; or (2) explicitly specify a portion of the TMDL as the MOS and use the remainder for allocations. The GAEPD used an explicit MOS equal to 10% of the calculated TMDL value to develop the bacteria TMDLs for the Chattahoochee River Basin. The MOS values are included in Table 16 of the Report.

Assessment: The EPA concludes that the TMDL incorporates an adequate margin of safety.

7. Seasonal Variation

The statute and regulations require that a TMDL be established with consideration of seasonal variations. The method chosen for including seasonal variations in the TMDL must be described [CWA section 303(d)(1)(C), 40 CFR section 130.7(c)(1)].

The GAEPD bacteria criteria are seasonal. One set of criteria applies to the summer season, while a different set applies to the winter season. To account for seasonal variations, the critical loads for each listed segment were determined from sampling data obtained during both summer and winter seasons, when possible. The TMDL and percent reduction is based on the season in which the critical load occurred. The TMDLs for each season, for any given flow, are presented as equations in Section 5.5 of the Report.

Assessment: The EPA concludes the TMDL allocations ensure protection of water quality standards throughout all seasons.

8. Monitoring Plan to Track TMDL Effectiveness

The EPA's 1991 document, Guidance for Water Quality-Based Decisions: The TMDL Process (EPA 440/4-91-001), recommends a monitoring plan to track the effectiveness of a TMDL, particularly when a TMDL involves both point and nonpoint sources, and the WLA is based on an assumption that nonpoint source load reductions will occur. Such a TMDL

EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA

should provide assurances that nonpoint source controls will achieve expected load reductions, and such a TMDL should include a monitoring plan that describes the additional data to be collected to determine if the load reductions provided for in the TMDL are occurring and leading to attainment of water quality standards.

According to the Report, water quality monitoring is conducted at several locations across Georgia each year. Monitoring sites are added as necessary to verify the 303(d) stream segment listings, possible sources, allocations, and source reductions. Waterbodies that have MS4s may be impacted by additional NPDES related requirements including monitoring to identify and eliminate causes and contributions to impairment, such as illicit discharges.

The GAEPD encourages local governments and municipalities to develop and continue water quality monitoring programs. These programs can help pinpoint various bacteria sources, as well as verify the 303(d) stream segment listings. This will be particularly valuable for those segments where listing was based on limited data. In addition, regularly scheduled sampling will determine if there has been some improvement in the water quality of the listed stream segments. The GAEPD is available to assist in providing technical guidance regarding the preparation of monitoring plans and Sampling Quality Assurance Plans.

Assessment: Although not a required element of the EPA's TMDL approval process, Georgia provided a recommended monitoring plan to evaluate the progress toward attainment of water quality standards. The EPA is taking no action on the monitoring plan.

9. Implementation Plans

On August 8, 1997, Bob Perciasepe (the EPA Assistant Administrator for the Office of Water) issued a memorandum, "New Policies for Establishing and Implementing Total Maximum Daily Loads (TMDLs)," that directs regions to work in partnership with states/tribes to achieve nonpoint source load allocations established for 303(d)-listed waters impaired solely or primarily by nonpoint sources. To this end, the memorandum asks that regions assist states/tribes in developing implementation plans that include reasonable assurances that the nonpoint source load allocations established in TMDLs for waters impaired solely or primarily by nonpoint sources will in fact be achieved. The memorandum also includes a discussion of renewed focus on the public participation process and recognition of other relevant watershed management processes used in the TMDL process. Although implementation plans are not approved by the EPA, they help establish the basis for the EPA's approval of TMDLs.

Section 7.5 of the Report lays out an initial TMDL implementation plan. The main parts of this plan are source assessment, current management practice recommendations, and future plans to continually develop implementation plans. The plan identifies applicable State-wide programs and activities that may be employed to manage point and nonpoint sources of bacteria loads for segments in the Chattahoochee River Basin. Local watershed planning and management initiatives will be fostered, supported, or developed through a variety of mechanisms. Implementation may be addressed by watershed-based plans or other assessments funded by Section 319(h) grants, the local development of watershed protection plans, or targeted outreach initiated by the GAEPD. These initiatives will supplement or possibly replace this initial implementation plan. Implementation actions should also be guided by the recommended management practices and actions contained within each applicable

EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA

Regional Water Plan developed as part of Georgia’s Comprehensive State-wide Water Management Plan. (Georgia Water Council, 2008).

The GAEPD is the lead agency for the State’s Nonpoint Source Management Program. They work with local governments and agricultural and forestry agencies, such as the Georgia Department of Agriculture, the Natural Resource Conservation Service (NRCS), the Georgia Soil and Water Conservation Commission (GSWCC), and the Georgia Forestry Commission (GFC), to foster implementation of BMPs that address nonpoint source pollution. The following management practices are recommended to reduce bacteria loads to stream segments:

- Sustained compliance with NPDES MS4 permit requirements, where applicable
- Compliance with future NPDES treated wastewater permit requirements
- Compliance with future NPDES Industrial General Permit requirements, including where applicable, achieving benchmark levels for monitored constituents
- Ensure storm water management plans are in place and being implemented by the local governments, and by the industrial facilities located in the watershed
- Adoption of NRCS Conservation Practices for primarily agricultural lands
- Further development and streamlining of local jurisdictional mechanisms for identifying, reporting, and correcting illicit connections, breaks, and other sanitary sewer system problems
- Continue efforts to increase public awareness and education regarding the impact of human activities on water quality, ranging from industrial and municipal discharges to individual’s activities in residential neighborhoods
- Adoption of local ordinances (i.e. septic tanks, stormwater, etc.) that address local water quality
- Continue working with federal, state, and local agencies and owners of sites where cleanup measures are necessary, and in developing control measures to prevent future releases of constituents of concern
- Application of BMPs appropriate to both urban and rural land uses, where applicable
- Ongoing public education efforts on the sources of bacteria and common-sense approaches to lessen the impact of this contaminant on surface waters.

Assessment: Although not a required element of the TMDL approval, Georgia discussed how information derived from the TMDL analysis process can be used to support implementation of the TMDL. The EPA is taking no action on the implementation portion of the Submission.

10. Reasonable Assurances

The EPA guidance calls for reasonable assurances when TMDLs are developed for waters impaired by both point and nonpoint sources. In a water impaired by both point and nonpoint sources, where a point source is given a less stringent wasteload allocation based on an assumption that nonpoint source load reductions will occur, reasonable assurance that the nonpoint source reductions will happen must be explained in order for the TMDL to be approvable. This information is necessary for the EPA to determine that the load and wasteload allocations will achieve water quality standards.

EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA

In a waterbody impaired solely by nonpoint sources, reasonable assurances that load reductions will be achieved are not required in order for a TMDL to be approvable. However, for such nonpoint source-only waters, states/tribes are strongly encouraged to provide reasonable assurances regarding achievement of load allocations in the implementation plans described in section 9, above. As described in the August 8, 1997 Perciasepe memorandum, such reasonable assurances should be included in state/tribe's implementation plans and "may be non-regulatory, regulatory, or incentive-based, consistent with applicable laws and programs."

When permitted discharges exist, they will be regulated through the NPDES permitting process described in the Report. These facilities are given criteria end-of-pipe permit limits which ensure that they do not cause or contribute to a water quality violation. Through their NPDES permitting process, the GAEPD will determine whether a new discharger has a reasonable potential of discharging fecal coliform levels equal to or greater than the total allocated load. The GAEPD will use its EPA-approved 2003 NPDES Reasonable Potential Procedures to determine the specific requirements, monitoring requirements, and effluent limitations that should be included in a facility's NPDES permit.

As mentioned in Section 9 of this document, the GAEPD is working with local governments and agricultural and forestry agencies, such as the NRCS, the GSWCC, and the GFC, to foster the implementation of BMPs to address nonpoint sources. In addition, public education efforts will be targeted to individual stakeholders to provide information regarding the use of BMPs to protect water quality. The GAEPD will continue efforts to increase awareness and educate the public about the impact of human activities on water quality.

Assessment: The EPA considered the reasonable assurances contained in the Report. Point sources are required to comply with their NPDES permits, which must include the requirements and assumptions of the TMDL. Reductions for nonpoint sources are expected to occur as a result of the programs already in place and additional approaches outlined in the Report. Future non-MS4 point sources have to meet the criteria at the point of discharge in order to meet the regulatory definition of "not causing or contributing to a water quality violation."

11. Public Participation

The EPA policy is that there must be full and meaningful public participation in the TMDL development process. Each state/tribe must, therefore, provide for public participation consistent with its own continuing planning process and public participation requirements (40 CFR section 130.7(c)(1)(ii)). In guidance, the EPA has explained that final TMDLs submitted to the EPA for review and approval must describe the state/tribe's public participation process, including a summary of significant comments and the state/tribe's responses to those comments. When the EPA establishes a TMDL, the EPA regulations require the EPA to publish a notice seeking public comment (40 CFR section 130.7(d)(2)).

Inadequate public participation could be a basis for disapproving a TMDL; however, where the EPA determines that a state/tribe has not provided adequate public participation, the EPA may defer its approval action until adequate public participation has been provided for, either by the state/tribe or by the EPA.

The public comment period began on October 5, 2023 and closed on November 24, 2023.

**EPA TOTAL MAXIMUM DAILY LOAD REVIEW DOCUMENT
EIGHTY-SEVEN SEGMENTS IN THE CHATTAHOOCHEE RIVER BASIN – BACTERIA**

Assessment: The EPA concludes that the State involved the public during the development of the TMDL, provided adequate opportunities for the public to comment on the Report, and no comments were received.

12. Submittal Letter

A submittal letter should be included with the TMDL analytical document, and should specify whether the TMDL is being submitted for a technical review or is a final submittal. Each final TMDL submitted to the EPA must be accompanied by a submittal letter that explicitly states that the submittal is a final TMDL submitted under section 303(d) of the CWA for the EPA review and approval. This clearly establishes the state/tribe's intent to submit, and the EPA's duty to review, the TMDL under the statute. The submittal letter, whether for technical review or final submittal, should contain such information as the name and location of the waterbody and the pollutant(s) of concern.

Assessment: A letter with the appropriate information was included with the final submission from the GAEPD, dated December 5, 2023, and signed by Dr. Elizabeth Booth, Watershed Planning and Monitoring Program Manager.

13. Conclusion

After a full and complete review, the EPA finds that the *TMDL Evaluation for Eighty-Seven Segments in the Chattahoochee River Basin for Bacteria* satisfies all the elements of an approvable TMDL. This **APPROVAL** is for TMDLs addressing 87 waterbodies for use impairments due to bacteria.