

## 03050104-01

(*Wateree River/Lake Wateree*)

### General Description

Watershed 03050104-01 (formerly 03050104-010, 020) is located in Fairfield, Lancaster, and Kershaw Counties and consists primarily of the *Wateree River* and its tributaries from Big Wateree Creek to the Lake Wateree dam. The watershed occupies 246,371 acres of the Piedmont region of South Carolina. Land use/land cover in the watershed includes: 78.1% forested land, 10.6% agricultural land, 5.1% water, 3.3% urban land, 2.0% forested wetland (swamp), and 0.9% barren land.

The Catawba River flows out of the Cedar Creek Dam and is joined by Cedar Creek (Bell Branch, Rocky Creek, Gar Creek), McDowell Creek, Crooked Creek, and Big Wateree Creek (Wall Creek, Willow Swamp Branch, Gaydens Creek, Scabber Branch, Hogfork Branch, Little Wateree Creek). The confluence with Big Wateree Creek forms the headwaters of the Wateree River and Lake Wateree. Duke Power Company oversees operation of Lake Wateree, which is used for power generation, water supply, and recreational purposes. Little Wateree Creek originates near the Town of Winnsboro and accepts drainage from Horse Creek, McCulley Creek, Ready Creek, Minton Creek (White Oak Branch), and Horse Branch before flowing into the Big Wateree Creek arm of Lake Wateree. Langley Branch enters the lake just downstream of the confluence, followed by Taylor Creek, Dutchmans Creek (Cedar Fork, Lots Fork), and Singleton Creek (McDow Creek, Rocky Branch). Moving downlake, the lake accepts drainage from Rochelle Creek, June Creek, Fox Creek, Beaver Creek (Tranham Creek, Showerbath Branch, Little Beaver Creek), Stillhouse Branch, Colonel Creek, and White Oak Creek. Lake Wateree State Park, located near Dutchmans Creek, is another natural resource in the area. There are a total of 971.7 stream miles and 12,085.2 acres of lake waters in this watershed, all classified FW.

### Surface Water Quality

<u>Station #</u>	<u>Type</u>	<u>Class</u>	<u>Description</u>
CW-231	W/INT	FW	LAKE WATEREE HEADWATERS, 50 YDS DS OF CEDAR CREEK CONFL
CW-040	S/W	FW	LITTLE WATEREE CREEK AT S-20-41 5 MI E OF WINNSBORO
CW-072	W/INT	FW	BIG WATEREE CREEK AT US 21
CW-692	BIO	FW	DUTCHMANS CREEK AT S-20-21
CW-208	P/W	FW	LAKE WATEREE AT S-20-101, 11 MI ENE OF WINNSBORO
RL-08035	RL08	FW	LAKE WATEREE, DUTCHMANS CK ARM, 0.4 MI E OF S-20-101 BRIDGE
RS-07059	RS-07/	FW	TRANHAM CREEK AT S-29-763, 6.5MI WSW OF KERSHAW
CW-076	BIO	FW	BEAVER CREEK AT S-28-13
CW-207	P/W	FW	LAKE WATEREE AT END OF S-20-291
CW-209	P/W	FW	LAKE WATEREE AT SMALL ISLAND 2.3 MI N OF DAM
CL-089	INT	FW	LAKE WATEREE IN FOREBAY EQUIDISTANT FROM DAM & SHORELINES

*Lake Wateree* – There are six SCDHEC monitoring sites along Lake Wateree and recreational uses are fully supported at all sites. At the furthest upstream site, *CW-231*, aquatic life uses are not supported due to total phosphorus excursions. In addition, there are significant increasing trends in five-day biochemical oxygen demand and total nitrogen concentration, and significant decreasing trends in dissolved oxygen concentration. Although dissolved oxygen excursions occurred at this site, they were typical of values seen in lake systems and were considered natural, not standards violations.

Significant decreasing trends in turbidity, total phosphorus concentration, and total suspended solids suggest improving conditions for these parameters at this site. Moving downstream to **CW-208**, aquatic life uses are partially supported due to pH excursions. There is a significant increasing trend in pH. Significant increasing trends in dissolved oxygen concentration and decreasing trends in turbidity and total phosphorus concentration suggest improving conditions for these parameters at this site. Continuing downstream to **RL-08035**, aquatic life uses are not supported due to total phosphorus and pH excursions.

At **CW-207**, aquatic life uses are fully supported and significant decreasing trends in turbidity, total phosphorus concentration, total nitrogen concentration, and fecal coliform bacteria concentration suggest improving conditions for these parameters at this site. There is a significant increasing trend in pH at this site. At **CW-209**, aquatic life uses are partially supported due to pH excursions. There is a significant increasing trend in pH at this site. Significant decreasing trends in turbidity, total phosphorus concentration, total nitrogen concentration, total suspended solids, and fecal coliform bacteria concentration suggest improving conditions for these parameters at this site. At the furthest downstream site, **CL-089**, aquatic life uses are partially supported due to dissolved oxygen and pH excursions. In addition, there is a significant increasing trend in five-day biochemical oxygen demand. Significant decreasing trends total phosphorus concentration and total nitrogen concentration suggest improving conditions for these parameters at this site.

**Little Wateree Creek (CW-040)** - Aquatic life uses are not supported due to occurrences of zinc in excess of the aquatic life criterion. In addition, there is a significant increasing trend in total phosphorus concentration. There is a significant increasing trend in pH. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are fully supported.

**Big Wateree Creek (CW-072)** – Aquatic life uses are partially supported due to dissolved oxygen excursions. In addition, there is a significant increasing trend in five-day biochemical oxygen demand. There is a significant decreasing trend in pH. Recreational uses are not supported; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

**Dutchmans Creek (CW-692)** – Although macroinvertebrate communities appeared to be impacted at this site, the sample was considered to be not representative due to severe drought conditions that existed during the sampling year.

**Tranham Creek (RS-07059)** - Although macroinvertebrate communities appeared to be impacted at this site, the sample was considered to be not representative due to severe drought conditions that existed during the sampling year. Recreational uses are partially supported due to fecal coliform bacteria excursions.

**Beaver Creek (CW-076)** - Although macroinvertebrate communities appeared to be impacted at this site, the sample was considered to be not representative due to severe drought conditions that existed during the sampling year.

A fish consumption advisory has been issued by the Department for PCBs and includes Lake Wateree within this watershed. For background information and the most current advisories please visit [www.scdhec.gov/fish](http://www.scdhec.gov/fish).

**Natural Swimming Areas**

	<i>FACILITY NAME</i>	<i>STA</i>	<i>PERMIT #</i>
	<i>RECEIVING STREAM</i>		<i>TUS</i>
G	WHITE OAK CONFERENCE CENTER AYDENS CREEK	20-1002 A	N CTIVE

**Groundwater Quality**

<u>Well #</u>	<u>Class</u>	<u>Aquifer</u>	<u>Location</u>
AMB-059	GB	PIEDMONT BEDROCK	LAKE WATEREE STATE PARK

**NPDES Permitted Activities**

**Active NPDES Facilities**

<i>RECEIVING STREAM</i>	<i>NP</i>	<i>DES#</i>
<i>FACILITY NAME</i>	<i>TYP</i>	<i>E</i>
LAKE WATEREE NOSOCA PINES RANCH		SC0033651 MINOR DOMESTIC
LAKE WATEREE US AIR FORCE/WATEREE RECREATION		SC0044440 MINOR INDUSTRIAL
BIG WATEREE CREEK WHITE OAK CONFERENCE CENTER		SC0035980 MINOR DOMESTIC
BEAVER CREEK TRIBUTARY GEORGIA STONE IND., INC./KERSHAW QUARRY		SCG730215 MINOR INDUSTRIAL

**Nonpoint Source Permitted Activities**

**Mining Activities**

<i>MINING COMPANY</i>	<i>PERMIT</i>	<i>MIN</i>	<i>#</i>
<i>MINE NAME</i>			<i>ERAL</i>
FAIRFIELD COUNTY CARLISLE PIT	0336-39		SAND
NEW ENGLAND STONE IND., INC. KERSHAW MINE	0556-55 GR		ANITE
CAROLINA QUARRIES CONGAREE QUARRY	0405-57 G		RANITE

## Water Quantity

<i>WATER USER STREAM</i>	<i>R</i>	<i>REGULATED CAP. (MGD) PUMPING CAP. (MGD)</i>
LUGOFF-ELGIN WATER AUTHORITY LAKE WATEREE	12.	6 18.6
CITY OF CAMDEN LAKE WATEREE		9.0 12.0

## Growth Potential

There is a moderate potential for continued residential and commercial development adjacent to Lake Wateree and the Town of Winnsboro. Public water is available along S.C. Hwy 34, which runs between the Towns of Winnsboro and Ridgeway, and plans are being developed to extend public sewer along this corridor. There is a low potential for growth in the rural portions of the watershed. I-77 and S.C. Hwy 200 cross in the watershed and some commercial/industrial growth has occurred around the intersection. Water and sewer service is available along S.C. Hwy 200 from the Town of Winnsboro to I-77. Another area of minor growth is the Blackstock area north of Winnsboro on U.S. Hwy 321.

## Watershed Protection and Restoration

### *Total Maximum Daily Loads (TMDLs)*

A TMDL was developed by SCDHEC and approved by EPA for *Big Wateree Creek* (CW-072) for violations of the fecal coliform bacteria and turbidity standards. The primary sources of fecal coliform to the stream were runoff from agricultural activities, cattle-in-stream, and failing septic systems. The TMDL states that an 80% reduction in fecal coliform loading from agricultural sources is necessary for the stream to meet the recreational use standard. The probable sources of turbidity in the stream are the resuspension of sediment in the streambed and bank erosion. Because turbidity is not a concentration and therefore cannot be expressed as a load, total suspended solids (TSS) was used as a surrogate. The TMDL states that a 70% reduction in TSS loading is necessary for the stream to meet the aquatic life use standard. Implementation of the Big Wateree Creek fecal coliform TMDL should bring about the reductions necessary to improve water quality for turbidity also. For more detailed information on TMDLs, please visit [www.scdhec.gov/tmdl](http://www.scdhec.gov/tmdl).

### *Special Projects*

#### **TMDL Implementation for Fecal Coliform and Turbidity in the Big Wateree Creek Watershed**

The targeted area in the Big Wateree Creek Watershed involves the waters above sampling station CW-072, and has been documented by SCDHEC as violating the water quality standard for fecal coliform bacteria and turbidity. Total Maximum Daily Loads (TMDLs) have since been developed and approved for this area for both parameters of concern. Based on guidelines set by SCDHEC, the objective of this project is to lower fecal coliform and turbidity loading, attainable within the allotted 319 funding, by 80% and 70%, respectively, so that water quality standards are attained. The project will work to obtain this goal by educating local landowners about sources of fecal coliform and turbidity loading and implementing Best Management Practices (BMPs) within the area of concern.

### **NPS Assessment and TMDL Development for Nutrients in the Catawba River Basin**

SCDHEC continues to address nutrient loading concerns in the impaired reservoirs (Fishing Creek, Great Falls, and Cedar Creek Reservoirs and Lake Wateree) of the lower Catawba-Wateree Basin using the WARMF (Watershed Analysis Risk Management Framework) water quality model. This watershed model was updated previously through 2005, but changes in phosphorus loading, land use, and population made the model out dated in terms of the model time period. Significant changes in the watershed since 2005 include new phosphorus limits on the three Charlotte-Mecklenburg WWTPs in the Sugar Creek watershed, closing of two major industrial dischargers in the South Carolina portion of the basin, and a significant increase in population and developed land use in the Charlotte – Rock Hill area. In late 2012 SCDHEC began an update of the model that will incorporate these changes in the watershed and make the model as current as feasible. SCDHEC intends to use the updated model for nutrients and pH TMDLs by determining new Wasteload Allocations for point source dischargers and Municipal Separate Storm Sewer Systems (MS4s) and Load Allocations for the nonpoint sources within the Basin.

### **Catawba River Water Supply Project Expansion**

The Catawba River Water Supply Project (CRWSP) is a joint venture between Lancaster County in South Carolina and Union County in North Carolina, which provides drinking water to the majority of both counties. To better manage water supplies during drought conditions, the CRWSP plans to expand its off-river reservoir to provide additional storage and less reliance on Catawba River flows.

### **Kershaw County Manure Composting Demonstration Project**

At the time of publication, Kershaw County has nearly completed a nonpoint source pollution demonstration project designed to address the fecal coliform issues in Kershaw County. The pilot program seeks to demonstrate that composting horse manure can be an easy and effective solution to fecal coliform contamination of surface waters. The end result will be a sustainable BMP technique to reduce microbial contaminant transport to surface waters in Kershaw County that can be transferred elsewhere in the County and in South Carolina.