

## 03050104-02

(*Wateree River*)

### General Description

Watershed 03050104-02 (formerly a portion of 03050104-030, and 040, 050, 060) is located in Kershaw, Lancaster, Fairfield, and Richland Counties and consists primarily of the **Wateree River** and its tributaries from the Lake Wateree dam to Twentyfive Mile Creek. The watershed occupies 202,806 acres of the Piedmont, Sandhills, and Upper Coastal Plain regions of South Carolina. Land use/land cover in the watershed includes: 62.9% forested land, 19.7% agricultural land, 10.2% urban land, 5.3% forested wetland (swamp), 0.9% barren land, 0.9% water, and 0.1% nonforested wetland (marsh).

The Wateree River flows out of the Lake Wateree dam and accepts drainage from Grannies Quarter Creek (Flat Rock Creek, Little Flat Rock Creek, Dry Branch), Sawneys Creek (Thorntree Creek, Bee Branch), Rocky Branch, Sanders Creek (Gum Swamp Creek), and Twentyfive Mile Creek. There are several ponds and lakes along the Sanders Creek drainage that include Vaughs Mill Pond, Colonial Lake, and Lake Shamokin. Twentyfive Mile Creek originates near the Town of Blythewood and accepts drainage from Simmons Creek, Ben Hood Branch, Round Top Branch, Rice Creek (Lake Columbia), Sandy Branch (Bridge Creek, Reedy Branch, Tuppler Branch), Rocky Branch, Flat Branch, and Bear Creek (Donnington Branch). Further downstream, Big Branch enters Twentyfive Mile Creek followed by Yankee Branch, Jim Branch (Spring Branch), Briar Branch, Dodge Branch, Horsepen Creek (Wolfpit Branch), Bell Branch (Rock Branch), Cook Run, Flat Branch, and Beaverdam Branch before draining into the Wateree River. There are a total of 749.0 stream miles and 1,261.1 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-077	BIO	FW	FLAT ROCK CREEK AT S-28-40
CW-078	BIO	FW	GRANNIES QUARTER CREEK AT S-28-58
CW-237	W/INT	FW	GRANNIES QUARTER CREEK AT SC 97
RS-08073	RS08	FW	UNNAMED CREEK TO SAWNEYS CREEK AT SC 34
CW-228	P/W/BIO	FW	SAWNEYS CREEK AT S-20-151
CW-079	W/INT	FW	SAWNEYS CREEK AT S-28-37
CW-710	BIO	FW	SANDERS CREEK AT SC 97
CW-229	P/W	FW	BEAR CREEK AT S-40-82
CW-080	S/INT/BIO	FW	TWENTYFIVE MILE CREEK AT S-28-05 3.7 MI W OF CAMDEN
(CW-019)	S/W	FW	WATEREE RIVER AT US 1

**Flat Rock Creek (CW-077)** – Aquatic life uses are fully supported based on macroinvertebrate community data.

**Grannies Quarter Creek** – There are two SCDHEC monitoring sites along Grannies Quarter Creek. Although macroinvertebrate communities appeared to be impacted at the upstream site (CW-078), the sample was considered to be not representative due to severe drought conditions

that existed during the sampling year. Aquatic life uses are fully supported at the downstream site (*CW-237*); however, there is a significant increasing trend in five-day biochemical oxygen demand. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

*Tributary to Sawneys Creek (RS-08073)* - Aquatic life uses are fully supported. Recreational uses are not supported due to fecal coliform bacteria excursions.

*Sawneys Creek* - There are two SCDHEC monitoring sites along Sawneys Creek. Although macroinvertebrate communities appeared to be impacted at the upstream site (*CW-228*), the sample was considered to be not representative due to severe drought conditions that existed during the sampling year. Recreational uses are not supported due to fecal coliform bacteria excursions, which are compounded by a significant increasing trend in fecal coliform bacteria. Aquatic life uses are fully supported at the downstream site (*CW-079*); however, there is a significant increasing trend in five-day biochemical oxygen demand. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

*Sanders Creek (CW-710)* - Aquatic life uses are fully supported based on macroinvertebrate community data.

*Bear Creek (CW-229)* - Aquatic life uses are fully supported. There is a significant increasing trend in pH. Recreational uses are not supported due to fecal coliform bacteria excursions.

*Twentyfive Mile Creek (CW-080)* - Aquatic life uses are partially supported based on macroinvertebrate community data. In addition, there are significant increasing trends in five-day biochemical oxygen demand and decreasing trends in dissolved oxygen concentration. Recreational uses are partially supported due to fecal coliform bacteria excursions.

*Wateree River (CW-019)* – Although CW-019 geographically resides in 03050104-03, the water quality reflects 03050104-02. Aquatic life uses are partially supported due to dissolved oxygen excursions. There is a significant increasing trend in pH. Significant decreasing trends in turbidity and fecal coliform bacteria suggest improving conditions for these parameters. Recreational uses are fully supported.

*A fish consumption advisory has been issued by the Department for mercury and includes the Wateree River within this watershed (see advisory p.91).*

***Natural Swimming Areas***

***FACILITY NAME  
RECEIVING STREAM***

***PERMIT #  
STATUS***

CAMP LONGRIDGE  
THORNTREE CREEK TRIBUTARY

20-N01  
ACTIVE

## Groundwater Quality

<u>Well #</u>	<u>Class</u>	<u>Aquifer</u>	<u>Location</u>
AMB-036	GB	MIDDENDORF	TOWN OF ELGIN

## NPDES Permitted Activities

### Active NPDES Facilities

<i>RECEIVING STREAM FACILITY NAME</i>	<i>NPDES# TYPE</i>
WATEREE RIVER KERSHAW COUNTY/LUGOFF WWTP	SC0039870 MINOR DOMESTIC
SANDERS CREEK TRIBUTARY NEW SOUTH LUMBER CO./CAMDEN PLANT	SC0047384 MINOR INDUSTRIAL
BEAR CREEK TRIBUTARY KENNECOTT RIDGEWAY FORMER GOLD MINE	SC0041378 MINOR INDUSTRIAL
LITTLE FLAT ROCK CREEK GEORGIA STONE IND., INC./KERSHAW PINK	SCG730155 MINOR INDUSTRIAL
RICE CREEK LINDE GAS LLC	SCG250219 MINOR INDUSTRIAL
RICE CREEK L DEAN WEAVER CONSTR. CO./HAGOOD MINE	SCG730394 MINOR INDUSTRIAL
GUM SWAMP CREEK CANTEY CONSTRUCTION INC./BUTTERNUT MINE	SCG730522 MINOR INDUSTRIAL
BEAR CREEK TRIBUTARY CAROLINA CERAMICS LLC/MOBLEY MINE	SCG730550 MINOR INDUSTRIAL
LITTLE FLAT ROCK CREEK WILLOW OAK QUARRY LLC/WILLOW OAK MINE	SCG731072 MINOR INDUSTRIAL

### Municipal Separate Storm Sewer Systems (MS4)

<i>RECEIVING STREAM MUNICIPALITY RESPONSIBLE PARTY IMPLEMENTING PARTY</i>	<i>NPDES# MS4 PHASE MS4 SIZE</i>
WATEREE RIVER ----- RICHLAND COUNTY RICHLAND COUNTY	SCS400001 PHASE I MEDIUM MS4
WATEREE RIVER TOWN OF ELGIN TOWN OF ELGIN KERSHAW COUNTY	SCR035501 PHASE II SMALL MS4
WATEREE RIVER UNINCORPORATED AREAS KERSHAW COUNTY KERSHAW COUNTY	SCR035502 PHASE II SMALL MS4

WATEREE RIVER  
UNINCORPORATED AREAS  
KERSHAW COUNTY  
KERSHAW COUNTY

SCR035502  
PHASE II  
SMALL MS4

WATEREE RIVER  
UNINCORPORATED AREAS  
RICHLAND COUNTY  
RICHLAND COUNTY

SCS400001  
PHASE I  
MEDIUM MS4

## **Nonpoint Source Management Program**

### ***Land Disposal Activities***

#### **Landfill Facilities**

<b><i>LANDFILL NAME</i></b>	<b><i>PERMIT #</i></b>
<b><i>FACILITY TYPE</i></b>	<b><i>STATUS</i></b>
EI DUPONT	283316-1601
INDUSTRIAL	INACTIVE
EI DUPONT	-----
INDUSTRIAL	INACTIVE
KERSHAW COUNTY LUGOFF/ELGIN	-----
MUNICIPAL	INACTIVE
LUGOFF/ELGIN SANITARY LANDFILL	-----
MUNICIPAL	INACTIVE
BF GOODRICH (THERMOID)	-----
MUNICIPAL	INACTIVE
BF GOODRICH	-----
INDUSTRIAL	INACTIVE
GULLEDGE COMPOSTING SITE	282443-3001
COMPOSTING	INACTIVE
TRAPP LCD & YT LANDFILL	402462-1701
C&D	INACTIVE

#### **Land Application Sites**

<b><i>LAND APPLICATION</i></b>	<b><i>PERMIT #</i></b>
<b><i>FACILITY NAME</i></b>	<b><i>TYPE</i></b>
SPRAYFIELD	ND0067008
FAIRFIELD HEALTHCARE CENTER	DOMESTIC
LAGOON	ND0069582
LINDE GAS LLC/BLYTHWOOD PLANT	INDUSTRIAL
LAGOON	ND0001546
HBD INDUSTRIES INC./ELGIN	INDUSTRIAL

#### ***Mining Activities***

<b><i>MINING COMPANY</i></b>	<b><i>PERMIT #</i></b>
<b><i>MINE NAME</i></b>	<b><i>MINERAL</i></b>
CANTEY CONSTRUCTION, INC.	1546-55
BUTTERNUT MINE	SAND

GEORGIA STONE IND., INC. KERSHAW PINK	0404-55 GRANITE
N.C. GRANITE CORP. PALMETTO QUARRIES #1	0487-55 GRANITE
EASTERN LAND & TIMBER INDUSTRIAL PARK MINE	0592-55 SAND
CAROLINA CERAMICS, INC. MOBLEY ROAD MINE	0403-79 SHALE
L. DEAN CONSTRUCTION CO., INC. LANGFORD	1417-79 SAND

## **Growth Potential**

There is a high potential for residential, commercial, and industrial growth in this watershed, which contains portions of the City of Camden and the Towns of Lugoff, Elgin, and Blythwood. There is an emphasis of growth along the U.S. Hwy 1 corridor between the Cities of Columbia and Camden. Sewer is provided to this area through a regional system located in Kershaw County. The City of Camden is in the process of upgrading the WWTP to 3.0 MGD to serve the growth in the area. A large portion of the watershed is river bottomland swamp forests, which are heavily forested for timber.

## **Watershed Protection and Restoration Strategies**

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

A TMDL was developed by SCDHEC and approved by EPA for *Sawneys Creek* water quality monitoring sites CW-228 and CW-079 to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The primary sources of fecal coliform to the stream were determined to be failed septic systems and cattle-in-stream. The TMDL states that a 73-78% reduction in fecal coliform loading from these sources is necessary for the stream to meet the recreational use standard.

A TMDL was developed by SCDHEC and approved by EPA for *Twentyfive Mile Creek* water quality monitoring site CW-080 to determine the maximum amount of fecal coliform bacteria it can receive from nonpoint sources and still meet water quality standards. The primary sources of fecal coliform to the stream were determined to be failed septic systems, cattle-in-stream, and runoff from pastures and developed land. The TMDL states that a 70% reduction in fecal coliform loading from these sources is necessary for the stream to meet the recreational use standard.

A TMDL was developed by SCDHEC using the load duration methodology and approved by the EPA for *Grannies Quarter Creek* in Kershaw and Lancaster Counties (monitoring site CW-237). The TMDL determines the maximum amount of fecal coliform bacteria that Grannies Quarter Creek at CW-237 can receive from pollution sources and still meet water quality standards. At the time the TMDL was approved there were no permitted continuous dischargers of fecal coliform in the watershed. At that time the only non-continuous discharger in the watershed with potential to discharge fecal coliform was SC DOT. Probable potential sources

of fecal coliform pollution in the watershed contributing to the impairment of Grannies Quarter Creek include livestock, failing septic systems, wildlife, and other agricultural sources. The TMDL requires a reduction of 68% in the current load to the creek to meet standards. For more detailed information on TMDLs, please visit [www.scdhec.gov/tmdl](http://www.scdhec.gov/tmdl).

### *Special Projects*

#### **Water Quality Model of the Upper Wateree River and Allocation of Oxygen Demand**

The Kershaw County Water and Sewer Authority contracted with the U.S. Geological Survey to conduct an extensive modeling study of the upper Wateree River. Model development was completed in 1999. The study included the characterization of streamflow and water quality in the river and the development of hydrodynamic and water quality computer simulation models to determine allowable loads for oxygen demanding substances. Together, the models are designed to predict water quality, especially dissolved oxygen levels, under various streamflow and loading conditions.

The USGS model was converted to a wasteload allocation tool and the allowable oxygen demand load to the upper Wateree River determined. The new model required an overall reduction of 27% from the previously permitted load. With input from the Central Midlands Council of Governments (CMCOG) and the Santee Lynches Regional Council of Governments (SLRCOG), the available load was allocated with the CMCOG's one discharge being allocated 31% of the load and the SLRCOG's five discharges being allocated 69% of the load. The agreed upon loadings have been incorporated into NPDES permits for the individual dischargers.

#### **COWASEE Basin Focus Area**

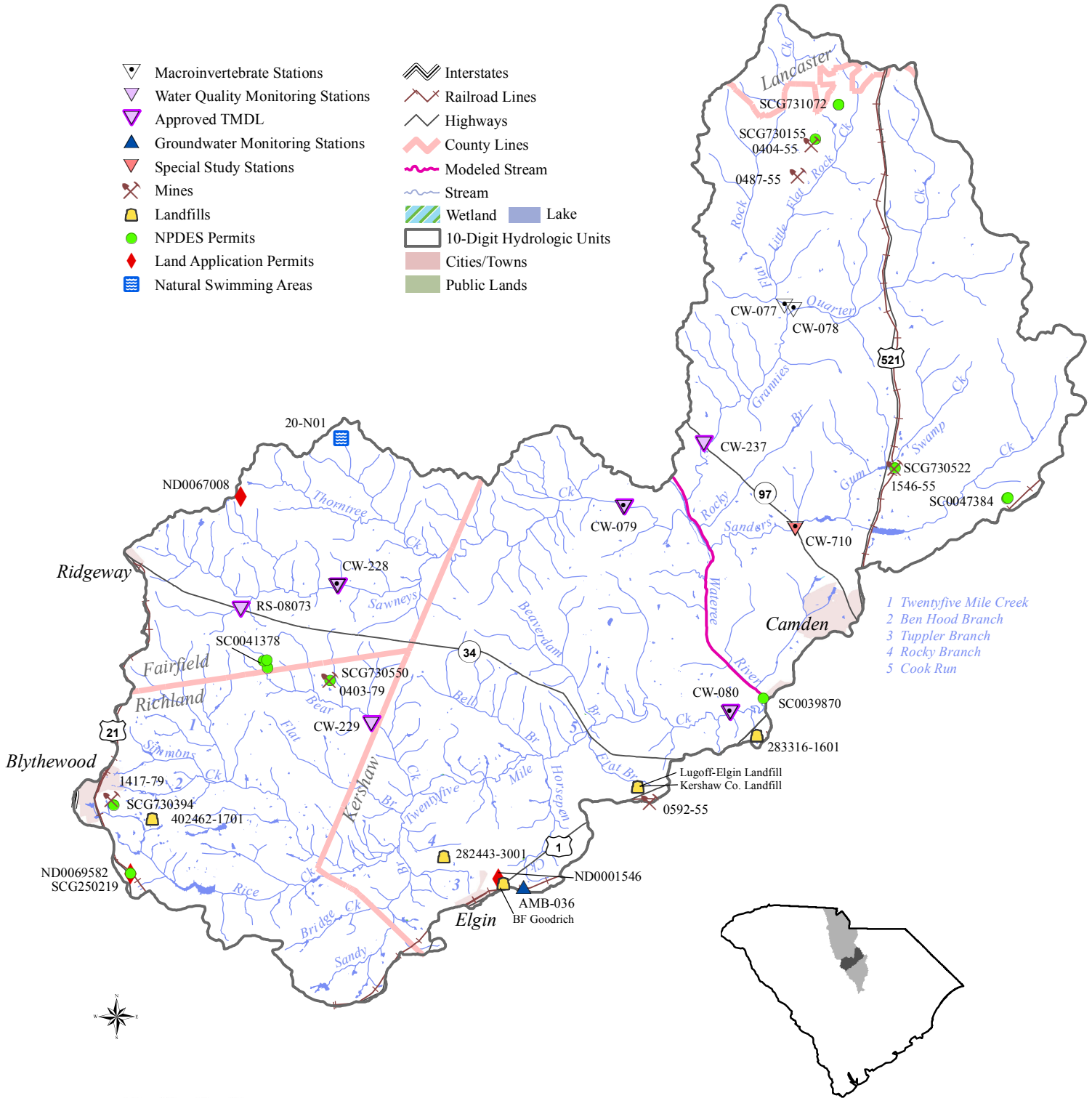
The COWASEE Basin covers over 215,000 acres in the midlands of South Carolina and includes the Congaree, Wateree and upper Santee River watersheds. Based on the ACE Basin focus area model, land trusts and other conservation organizations have come together to protect land in the COWASEE basin through land acquisition and conservation easements. The focus area is also a priority waterfowl restoration area where basin partners are implementing research and management to improve waterfowl habitat and populations. Organizations working in the COWASEE basin include the Congaree Land Trust, Ducks Unlimited, Friends of Congaree Swamp, the USDA Natural Resources Conservation Service, Richland County Conservation Commission, the South Carolina Department of Natural Resources, Sumter County Soil and Water Conservation District and The Conservation Fund.

#### **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.

# (Upper) Wateree River Watershed (03050104-02)

- |                                   |                           |              |
|-----------------------------------|---------------------------|--------------|
| Macroinvertebrate Stations        | Interstates               |              |
| Water Quality Monitoring Stations | Railroad Lines            |              |
| Approved TMDL                     | Highways                  |              |
| Groundwater Monitoring Stations   | County Lines              |              |
| Special Study Stations            | Modeled Stream            |              |
| Mines                             | Stream                    |              |
| Landfills                         | Wetland                   | Lake         |
| NPDES Permits                     | 10-Digit Hydrologic Units | Cities/Towns |
| Land Application Permits          | Public Lands              |              |
| Natural Swimming Areas            |                           |              |



- 1 Twentyfive Mile Creek
- 2 Ben Hood Branch
- 3 Tuppler Branch
- 4 Rocky Branch
- 5 Cook Run

