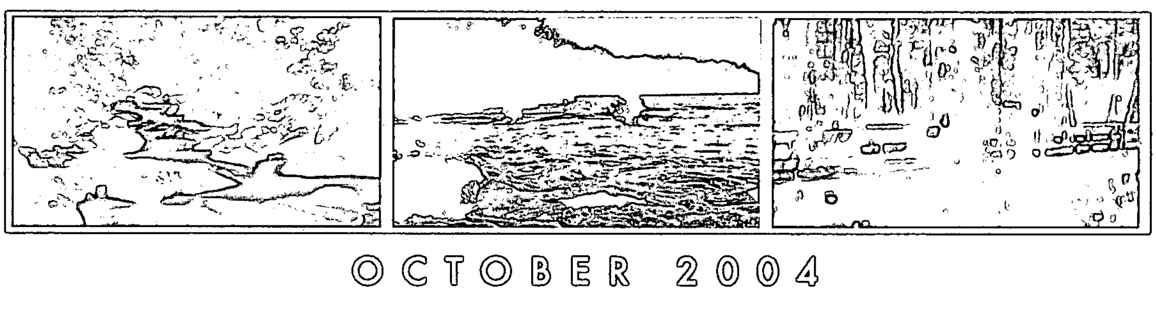
Sect 9.3 Ref 23

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL

WATERSHED
WATER QUALITY ASSESSMENT

SALUDA RIVER BASIN



OCTOBER 2004

PREFACE

In 1993, the South Carolina Department of Health and Environmental Control (SCDHEC) published the first in a series of five watershed management documents. The first in that series, Watershed Water Quality Management Strategy: Savannah-Salkehatchie Basin communicated SCDHEC's innovative watershed approach, summarizing water programs and water quality in the basins. The approach continues to evolve and improve.

The watershed documents facilitate broader participation in the water quality management process. Through these publications, SCDHEC shares water quality information with internal and external partners, providing a common foundation for water quality improvement efforts at the local watershed or large-scale, often interstate, river basin level.

Water quality data from the Saluda River Basin was collected from 1997 to 2001 and assessed during this third five-year watershed management cycle. This updated atlas provides summary information on a watershed basis, as well as geographical presentations of all permitted watershed activities. A waterbody index and facility indices allow the reader to locate information on specific waters and facilities of interest.

A brief summary of the water quality assessments included in the body of this document is provided following the Table of Contents. This summary lists all waters within the Saluda River Basin that fully support recreational and aquatic life uses, followed by those waters not supporting uses. In addition, the summaries list changes in use support status; those that have improved or degraded over the five years since the last strategy was written. More comprehensive information can be found in the individual watershed sections. The information provided is accurate to the best of our knowledge at the time of writing and will be updated in five years.

General information on Saluda River Basin Watershed Protection and Restoration Strategies can be found under that section on page 26, and more detailed information is located within the individual watershed

As SCDHEC continues basinwide and statewide water quality protection and improvement efforts, we are counting on the support and assistance of all stakeholders in the Saluda River Basin to participate in bringing about water quality improvements. We look forward to working with you.

If you have questions or comments regarding this document, or if you are seeking further information on the water quality in the Saluda Basin, please contact:

Watershed Strategy Coordinator
SCDHEC Bureau of Water
2600 Bull St.
Columbia, SC 29201
(803) 898-4300
www.scdhec.gov/water

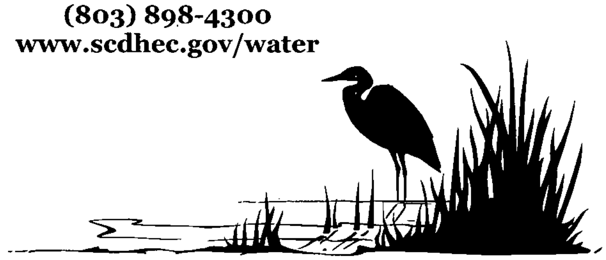


Table of Contents

Contributing photographers to the front cover include:
Ron Ahle, Michelle Alford, and the Congaree National Park.

This document should be cited as:

South Carolina Department of Health and Environmental Control. 2004. Watershed Water Quality Assessment: Saluda River Basin. Technical Report No.004-04. Bureau of Water, Columbia, S.C.

Water Quality Assessment Summary

Saluda River Basin

TERMS USED IN TABLES

AQUATIC LIFE USE SUPPORT (AL) - The degree to which aquatic life is protected is assessed by comparing important water quality characteristics and the concentrations of potentially toxic pollutants with standards. Aquatic life use support is based on the percentage of standards excursions at a sampling site.

For **dissolved oxygen** and **pH**:

If the percentage of standard excursions is 10% or less, then uses are ***fully supported***.

If the percentage of standard excursions is greater than 10% and less than or equal to 25%, then uses are ***partially supported***.

If the percentage of standard excursions is greater than 25%, uses are ***not supported*** (see p.12 for further information).

For **toxins** (heavy metals, priority pollutants, chlorine, ammonia):

If the acute aquatic life standard for any individual toxicant is not exceeded more than once, uses are ***fully supported***.

If the acute aquatic life standard is exceeded more than once (i.e., $\geq$ 2), but is less than or equal to 10% of the samples, uses are ***partially supported***.

If the acute aquatic life standard is exceeded more than once (i.e., $\geq$2), and is greater than 10% of the samples, aquatic life uses are ***not supported*** (see p.12 for further information).

For **turbidity** and waters with **numeric total phosphorus, total nitrogen, and cholorphyll-a**:

If the percentage of standard excursions is 25% or less, then uses are ***fully supported***.

If the percentage of standard excursions is greater than 25%, then uses are ***not supported*** (see p.13 for further information).

RECREATIONAL USE SUPPORT (REC) - The degree to which the swimmable goal of the Clean Water Act is attained (recreational use support) is based on the frequency of fecal coliform bacteria excursions, defined as greater than 400/100 ml for all surface water classes.

If 10% or less of the samples are greater than 400/100 ml, then recreational uses are said to be ***fully supported***.

If the percentage of standards excursions is greater than 10% and less than or equal to 25%, then recreational uses are said to be ***partially supported***.

If the percentage of standards excursions is greater than 25%, then recreational uses are said to be ***nonsupported*** (see p.14 for further information).

Excursion - The term excursion is used to describe a measurement that does not comply with the appropriate water quality standard.

Table 1. Fully Supported Sites in the Saluda River Basin

* = Station not evaluated for Recreational Support

Watershed	Waterbody Name	Station #	Improving Trends	Other Trends
03050109-010	North Saluda Reservoir	S-292	Decreasing Fecal Coliform	Increasing pH
	North Saluda River	S-088	Decreasing Total Phosphorus and Fecal Coliform	Decreasing Dissolved Oxygen; Increasing pH
03050109-020	Table Rock Reservoir	S-291	Decreasing Fecal Coliform	Increasing Total Phosphorus, pH
	South Saluda River	S-320		Increasing BOD_5
		S-771 *		
	Matthews Creek	S-086 *		
	Middle Saluda River	S-076 *		
		S-252	Decreasing Turbidity	Increasing pH
	Oil Camp Creek	S-317 *		
03050109-030	Lake Oolenoy	S-798		
03050109-040	Saluda River	S-119		Increasing Turbidity, pH
	Saluda Lake	S-314		
		RL-01015		
	Shoals Creek	S-866 *		
03050109-050	Georges Creek	S-865 *		
03050109-070	Big Creek	S-302	Decreasing BOD_5	Increasing pH
03050109-080	Mountain Creek	S-864 *		
	Lake Greenwood	S-303		
	Cane Creek	S-804 *		

Table 1. Fully Supported Sites in the Saluda River Basin

* = Station not evaluated for Recreational Support

Watershed	Waterbody Name	Station #	Improving Trends	Other Trends
03050109-090	Broad Mouth Creek	S-775 *		
03050109-120	Reedy River	S-021	Increasing Dissolved Oxygen; Decreasing Total Nitrogen	Decreasing pH
	Horse Creek	S-862 *		
	Walnut Creek	S-861 *		
03050109-130	South Rabon Creek	S-860 *		
	Mountain Creek	S-859 *		
	Lake Rabon	S-313		
		S-312		
		RL-01014		
		S-296	Decreasing BOD_5	Decreasing Dissolved Oxygen
03050109-140	Ninety Six Creek	S-093	Increasing Dissolved Oxygen; Decreasing Turbidity	
	Wilson Creek	S-233	Decreasing BOD_5, Turbidity, Total Phosphorus	
03050109-160	Little River	S-038	Decreasing Turbidity, Fecal Coliform	Increasing pH
		S-100 *		
		S-099	Decreasing BOD_5, Total Phosphorus	
03050109-180	Clouds Creek	S-113		
	Moores Creek	S-112*		
03050109-190	Lake Murray	S-213	Decreasing BOD_5	

Table 1. Fully Supported Sites in the Saluda River Basin

* = Station not evaluated for Recreational Support

Watershed	Waterbody Name	Station #	Improving Trends	Other Trends
		S-280	Decreasing Turbidity	Decreasing Dissolved Oxygen
		RL-01023		
		S-273	Decreasing Total Nitrogen, Fecal Coliform	
		S-274	Decreasing Fecal Coliform	Increasing Total Phosphorus
		S-204	Decreasing Turbidity, Fecal Coliform	Increasing pH, Total Phosphorus
03050109-210	Saluda River	S-298	Increasing Dissolved Oxygen; Decreasing BOD_5, Turbidity, Fecal Coliform	Increasing pH
03050110-010	Congaree River	C-074	Decreasing Fecal Coliform	Decreasing Dissolved Oxygen; Increasing pH
	Mill Creek	C-022	Decreasing BOD_5, Turbidity	
	Big Beaver Creek	C-010 *		
	Bates Mill Creek	RS-01041		
03050110-020	Congaree Creek	C-565 *		
		C-008	Increasing Dissolved Oxygen; Decreasing BOD_5, Turbidity	Increasing pH
		C-070	Decreasing Turbidity	
	Red Bank Creek	C-580 *		
		C-066		Increasing Fecal Coliform
	Second Creek	C-583 *		
03050110-030	Forest Lake	C-068	Decreasing Turbidity	
03050110-040	Sandy Run	C-009		
03050110-050	Cedar Creek	C-071 *		

Table 1. Fully Supported Sites in the Saluda River Basin

* = Station not evaluated for Recreational Support

Watershed	Waterbody Name	Station #	Improving Trends	Other Trends
		C-075	Decreasing BOD_5, Turbidity	Increasing pH
	Myers Creek	C-578 *		
03050110-070	Congaree River	C-007	Decreasing Turbidity, Total Phosphorus, Fecal Coliform	

ǂ For the most current station status, consult www.scdhec.gov\eqc\water and click on Watersheds & TMDLs; TMDL; and 303(d) list.

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050109-010	North Saluda River	S-004	AL	PS	Macroinvertebrates		Increasing pH
			REC	NS	Fecal Coliform		
		S-773*	AL	NS	Macroinvertebrates		
03050109-020	South Saluda River	S-087	REC	PS	Fecal Coliform		Increasing pH
		S-299	REC	PS	Fecal Coliform	Decreasing Turbidity	Increasing pH
	Middle Saluda River	S-077	AL	NS	Copper		Increasing BOD_5, pH
03050109-030	Oolenoy River	S-103	REC	PS	Fecal Coliform		
03050109-040	Saluda River	S-250	REC	PS	Fecal Coliform	Decreasing Total Nitrogen	Increasing pH, Fecal Coliform
		S-007	REC	PS	Fecal Coliform	Decreasing Total Nitrogen, BOD_5	Increasing pH, Fecal Coliform
	Mill Creek	S-315[T]	AL	NS	Copper and Chromium	Decreasing Total Phosphorus	Increasing BOD_5, pH, Fecal Coliform; Decreasing Dissolved Oxygen
			DW	NS	Chromium		
			REC	NS	Fecal Coliform		
	Saluda River Tributary	S-267	REC	PS	Fecal Coliform	Decreasing Total Phosphorus	Increasing Turbidity, pH
	Grove Creek	S-171	REC	NS	Fecal Coliform		Increasing pH
		S-774*	AL	PS	Macroinvertebrates		

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050109-050	Georges Creek	S-300	REC	NS	Fecal Coliform		Decreasing Dissolved Oxygen
	Georges Creek Tributary	S-005	REC	NS	Fecal Coliform	Increasing Dissolved Oxygen; Decreasing BOD_5, Turbidity	Increasing pH
03050109-060	Big Brushy Creek	S-301	AL	PS	Macroinvertebrates		
			REC	PS	Fecal Coliform		
03050109-080	Saluda River	S-125	REC	PS	Fecal Coliform		Decreasing Dissolved Oxygen; Increasing Total Phosphorus
	Turkey Creek	S-858 *	AL	PS	Macroinvertebrates		
	Lake Greenwood	S-024	AL	PS	pH		
		S-131	AL	NS	Total Phosphorus	Decreasing BOD_5, Total Nitrogen, Turbidity	Decreasing Dissolved Oxygen, pH
	Cane Creek	S-097	AL	NS	Dissolved Oxygen, Total Phosphorus		Decreasing Dissolved Oxygen, pH; Increasing Total Phosphorus, Fecal Coliform

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050109-090	Broad Mouth Creek	S-289	REC	NS	Fecal Coliform	Decreasing BOD_5, Total Phosphorus; Increasing Dissolved Oxygen	Increasing Fecal Coliform
		S-010	REC	NS	Fecal Coliform	Decreasing BOD_5, Total Phosphorus; Increasing Dissolved Oxygen	Increasing Turbidity, pH
		S-304	REC	PS	Fecal Coliform		
	Broad Mouth Creek Tributary	S-776*	AL	PS	Macroinvertebrates		
03050109-100	Reedy River	S-073	REC	NS	Fecal Coliform		Increasing Turbidity, Total Suspended Solids, pH, Fecal Coliform
		S-928*	AL	PS	Macroinvertebrates		
		S-319	REC	NS	Fecal Coliform		
		S-013	REC	NS	Fecal Coliform	Decreasing Total Nitrogen	Increasing Total Suspended Solids, pH
		S-018	REC	NS	Fecal Coliform	Decreasing BOD_5, Total Nitrogen, Total Suspended Solids, Turbidity; Increasing Dissolved Oxygen	Increasing pH

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050109-100	Reedy River	S-323	AL	NS	Copper		
			REC	NS	Fecal Coliform		
		S-072	REC	PS	Fecal Coliform	Decreasing BOD_5, Turbidity; Increasing Dissolved Oxygen	
	Langston Ck	S-264	REC	NS	Fecal Coliform		Increasing pH
	Brushy Creek	S-067	REC	NS	Fecal Coliform		
		S-867*	AL	PS	Macroinvertebrates		
	Rocky Creek	S-091	AL	PS	Macroinvertebrates	Decreasing BOD_5, Total Phosphorus, Turbidity	Increasing pH
			REC	NS	Fecal Coliform		
03050109-110	Huff Creek	S-863*	AL	PS	Macroinvertebrates		
		S-178	REC	NS	Fecal Coliform	Decreasing Total Phosphorus; Increasing Dissolved Oxygen	Increasing Turbidity, pH, Fecal Coliform
03050109-120	Reedy River	S-778*	AL	PS	Macroinvertebrates		
		S-070	REC	PS	Fecal Coliform		
	Boyd Mill Pond	S-311	AL	NS	pH, Total Phosphorus		

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050109-120	Reedy River Arm of Lake Greenwood	S-308	AL	NS	pH, Total Phosphorus		
		S-022	AL	NS	pH, Total Phosphorus	Decreasing BOD_5, Fecal Coliform	Decreasing Dissolved Oxygen, pH
03050109-130	North Rabon Ck	S-321	REC	NS	Fecal Coliform		
	South Rabon Ck	S-322	REC	NS	Fecal Coliform		
	Rabon Creek	S-096	REC	PS	Fecal Coliform		Decreasing pH; Increasing Fecal Coliform
	Rabon Creek Arm of Lake Greenwood	S-307	AL	PS	pH		
03050109-140	Ninety Six Creek	S-856*	AL	PS	Macroinvertebrates		
	Coronaca Creek	S-184*	AL	PS	Macroinvertebrates		
		S-092	AL	NS	Dissolved Oxygen, pH	Decreasing Fecal Coliform	Decreasing Dissolved Oxygen, pH
	Wilson Creek	S-235	AL	PS	Macroinvertebrates	Increasing Dissolved Oxygen; Decreasing BOD_5, Total Phosphorus, Turbidity, Fecal Coliform	
03050109-150	Saluda River	S-186	AL	PS	Copper	Decreasing BOD_5, Total Nitrogen, Fecal Coliform	Decreasing pH
		S-295	AL	NS	Copper	Decreasing Turbidity	Decreasing pH
		S-047	AL	PS	pH		Increasing pH

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050109-150	Saluda River Arm of Lake Murray	S-310	AL	NS	pH		
		S-223	AL	NS	pH, Total Phosphorus	Decreasing Total Nitrogen, Fecal Coliform	
	Beaverdam Creek	S-852*	AL	PS	Macroinvertebrates		
	Bush River[T]	S-042	AL	NS	Dissolved Oxygen	Decreasing BOD_5, Total Phosphorus, Total Nitrogen, TSS, Fecal Coliform	Decreasing Dissolved Oxygen
		S-046	REC	PS	Fecal Coliform	Decreasing BOD_5, Fecal Coliform	Increasing pH
		RS-01044	AL	PS	Macroinvertebrates		
		S-102	REC	PS	Fecal Coliform	Decreasing Turbidity, Fecal Coliform	
	Scott Creek	S-044	REC	NS	Fecal Coliform	Decreasing BOD_5, Turbidity, Fecal Coliform	Decreasing Dissolved Oxygen
	Bush River Arm of Lake Murray	S-309	AL	NS	pH, Total Phosphorus		
03050109-160	Little River	S-034	REC	NS	Fecal Coliform	Decreasing BOD_5, Total Nitrogen	Decreasing pH
		S-297	REC	NS	Fecal Coliform	Decreasing BOD_5, Fecal Coliform; Increasing Dissolved Oxygen	
		S-305	AL	PS	pH	Decreasing Fecal Coliform	

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050109-160	North Creek	S-135	REC	NS	Fecal Coliform	Decreasing BOD_5; Increasing Dissolved Oxygen	Decreasing pH; Increasing Fecal Coliform
03050109-170	Little Saluda River	S-050	AL	NS	Dissolved Oxygen	Decreasing BOD_5, Turbidity, Total Phosphorus, Fecal Coliform	Decreasing pH
			REC	NS	Fecal Coliform		
		S-123	AL	NS	Dissolved Oxygen	Decreasing BOD_5, Total Phosphorus, Total Nitrogen, Fecal Coliform	Decreasing pH
	Little Saluda River Arm of Lake Murray	S-222	AL	NS	pH, Total Phosphorus		
03050109-180	Clouds Creek	S-255	AL	NS	pH, Dissolved Oxygen	Decreasing Turbidity, Fecal Coliform	Decreasing pH
		S-324	AL	PS	pH		
03050109-190	Lake Murray	S-279	AL	NS	pH, Total Phosphorus		Increasing Total Phosphorus
		S-211	AL	PS	pH	Increasing Dissolved Oxygen	
		S-212	AL	PS	pH	Decreasing BOD_5	Increasing Turbidity
		CL-083	AL	PS	pH		
	Camping Creek	S-290	REC	PS	Fecal Coliform	Decreasing BOD_5, Total Phosphorus, TSS, Fecal Coliform	

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050109-200	Hollow Creek	S-306	AL	PS	pH		
			REC	NS	Fecal Coliform		
03050109-210	Saluda River	S-152	AL	PS	pH, Dissolved Oxygen	Decreasing BOD_5, Turbidity, Fecal Coliform	Increasing Total Phosphorus
		S-149	AL	PS	Dissolved Oxygen	Decreasing Turbidity	
			REC	PS	Fecal Coliform		
	Rawls Creek[T]	RS-01012	AL	PS	Macroinvertebrates		
			REC	PS	Fecal Coliform		
		S-287	REC	NS	Fecal Coliform	Decreasing BOD_5, Turbidity	Decreasing Dissolved Oxygen; Increasing, Fecal Coliform
	Lorick Branch	S-150	REC	NS	Fecal Coliform	Decreasing Turbidity, Total Phosphorus	
	Kinley Creek	S-260	AL	PS	Macroinvertebrates Dissolved Oxygen		Decreasing Dissolved Oxygen, pH
			REC	NS	Fecal Coliform		
	Twelvemile Creek	S-294	REC	NS	Fecal Coliform	Decreasing BOD_5	Increasing Total Nitrogen
	Fourteenmile Creek	S-848*	AL	PS	Macroinvertebrates		

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050110-010	Congaree River	CSB-001L	REC	PS	Fecal Coliform	Decreasing Turbidity, Fecal Coliform	
		CSB-001R	AL	NS	Zinc	Decreasing Turbidity, Total Suspended Solids	
	Mill Creek	C-021	REC	PS	Fecal Coliform	Increasing Dissolved Oxygen; Decreasing BOD_5, Fecal Coliform	Increasing Total Phosphorus
	Reeder Point Branch	C-073	AL	NS	Dissolved Oxygen, pH	Decreasing BOD_5	Increasing pH
			REC	NS	Fecal Coliform		
03050110-020	Red Bank Creek	C-067	REC	PS	Fecal Coliform	Decreasing Turbidity	
	Savana Branch	C-061	REC	PS	Fecal Coliform	Decreasing BOD_5, Turbidity	
	Sixmile Creek	C-005	AL	PS	Dissolved Oxygen	Decreasing BOD_5	Increasing Total Suspended Solids, Fecal Coliform
			REC	NS	Fecal Coliform		
	Lake Caroline	C-025	AL	NS	Total Phosphorus	Decreasing BOD_5, Turbidity	
			REC	NS	Fecal Coliform		

Table 2. Impaired Sites in the Saluda River Basin

REC=Recreational; AL=Aquatic Life; DW= Drinking Water; PS=Partially Supported Standards; NS=Nonsupported Standards; *=Station not evaluated for Recreational Support; T=TMDL Developed

Watershed	Waterbody Name	Station #	Use	Status	Water Quality Indicator	Improving Trends	Other Trends
03050110-030	Gills Creek	C-001	REC	NS	Fecal Coliform	Decreasing BOD_5, Total Suspended Solids, Total Phosphorus, Turbidity, Total Nitrogen	Decreasing Dissolved Oxygen; Increasing pH
		C-017	AL	PS	Dissolved Oxygen	Decreasing BOD_5, Total Suspended Solids, Total Phosphorus, Turbidity, Total Nitrogen, Fecal Coliform	Decreasing Dissolved Oxygen; Decreasing pH
			REC	PS	Fecal Coliform		
	Windsor Lake	C-048	AL	PS	Dissolved Oxygen, pH	Decreasing BOD_5, Turbidity	Decreasing Dissolved Oxygen, pH
03050110-050	Cedar Creek	C-069	REC	PS	Fecal Coliform	Decreasing BOD_5	
03050110-060	Toms Creek	C-579*	AL	PS	Macroinvertebrates		
		C-072	REC	PS	Fecal Coliform	Decreasing BOD_5, Turbidity	Increasing pH

‡ For the most current station status, consult www.scdhec.gov\eqc\water and click on Watersheds & TMDLs; TMDL; and 303(d) list.

Table 3. Changes in Use Support Status

Saluda River Basin Sites that Improved from 1997 to 2001

REC= Recreational; AL=Aquatic Life; FS=Fully Supported Standards; PS=Partially Supported Standards; NS=Nonsupported Standards

Watershed	Waterbody Name	Station #	Use	Status		Water Quality Indicator	
				1997	2001	1997	2001
03050109-030	Oolenoy River	S-103	REC	NS	PS	Fecal Coliform	Fecal Coliform
03050109-040	Saluda River	S-007	AL	NS	FS	Copper and Zinc	
	Saluda River Tributary	S-267	REC	NS	PS	Fecal Coliform	Fecal Coliform
03050109-070	Big Creek	S-302	AL	PS	FS	Macroinvertebrates	
			REC	PS	FS	Fecal Coliform	
03050109-080	Saluda River	S-125	AL	NS	FS	Pesticides	
	Lake Greenwood	S-131	REC	PS	FS	Fecal Coliform	
03050109-090	Broad Mouth Creek	S-304	REC	NS	PS	Fecal Coliform	Fecal Coliform
03050109-100	Reedy River	S-319	AL	NS	FS	Zinc	
		S-013	AL	NS	FS	Copper, Chromium	
		S-018	AL	NS	FS	Copper, Zinc, Chromium	
		S-072	REC	NS	PS	Fecal Coliform	Fecal Coliform
	Langston Creek	S-264	AL	NS	FS	Chromium	
03050109-120	Reedy River	S-021	REC	PS	FS	Fecal Coliform	
03050109-130	Rabon Creek Arm of Lake Greenwood	S-307	REC	PS	FS	Fecal Coliform	
03050109-140	Ninety Six Creek	S-093	AL	PS	FS	Copper	
			REC	PS	FS	Fecal Coliform	
	Wilson Creek	S-233	REC	PS	FS	Fecal Coliform	
		S-235	REC	PS	FS	Fecal Coliform	
03050109-150	Saluda River	S-186	AL	NS	PS	Copper, Zinc	Copper
	Bush River	S-042	REC	PS	FS	Fecal Coliform	
		S-046	REC	NS	PS	Fecal Coliform	Fecal Coliform
		S-102	REC	NS	PS	Fecal Coliform	Fecal Coliform
03050109-160	Little River	S-038	REC	PS	FS	Fecal Coliform	
		S-099	REC	NS	FS	Fecal Coliform	
		S-305	REC	NS	FS	Fecal Coliform	

Saluda River Basin Sites that Improved from 1997 to 2001

REC= Recreational; AL=Aquatic Life; FS=Fully Supported Standards; PS=Partially Supported Standards; NS=Nonsupported Standards

Watershed	Waterbody Name	Station #	Use	Status		Water Quality Indicator	
				1997	2001	1997	2001
03050109-170	Little Saluda River	S-123	REC	PS	FS	Fecal Coliform	
03050109-180	Moores Creek	S-112	AL	PS	FS	Macroinvertebrates	
03050109-190	Lake Murray	S-280	AL	NS	FS	Copper	
		S-273	AL	NS	FS	Copper	
		S-274	AL	NS	FS	Copper	
		S-204	AL	PS	FS	Copper	
	Camping Creek	S-290	AL	NS	FS	Copper, Zinc	
			REC	NS	PS	Fecal Coliform	Fecal Coliform
03050109-210	Saluda River	S-152	AL	NS	PS	pH, Dissolved Oxygen	pH, Dissolved Oxygen
		S-298	AL	NS	FS	Copper, Zinc	
			REC	PS	FS	Fecal Coliform	
	Rawls Creek	S-287	AL	NS	FS	Macroinvertebrates	
	Kinley Creek	S-260	AL	NS	PS	Macroinvertebrates	Macroinvertebrates Dissolved Oxygen
	Twelvemile Creek	S-294	AL	NS	FS	Copper, Zinc	
03050110-010	Congaree River	CSB-001L	AL	NS	FS	Copper, Zinc	
03050110-020	Congaree Creek	C-008	AL	NS	FS	Copper	
			REC	PS	FS	Fecal Coliform	
03050110-030	Gills Creek	C-017	AL	NS	PS	Zinc	Dissolved Oxygen
			REC	NS	PS	Fecal Coliform	Fecal Coliform
03050110-060	Toms Creek	C-072	REC	NS	PS	Fecal Coliform	Fecal Coliform

‡ For the most current station status, consult www.scdhec.gov\eqc\water and click on Watersheds & TMDLs; TMDL; and 303(d) list.

Table 4. Changes in Use Support Status

Saluda River Basin Sites that Degraded from 1997 to 2001

REC= Recreational; AL=Aquatic Life; FS=Fully Supported Standards; PS=Partially Supported Standards; NS=Nonsupported Standards

Watershed	Waterbody Name	Station #	Use	Status		Water Quality Indicator	
				1997	2001	1997	2001
03050109-010	North Saluda River	S-773	AL	FS	NS		Macroinvertebrates
		S-004	AL	FS	PS		Macroinvertebrates
03050109-020	Middle Saluda River	S-077	AL	FS	NS		Copper
03050109-080	Turkey Creek	S-858	AL	FS	PS		Macroinvertebrates
	Lake Greenwood	S-024	AL	FS	PS		pH
		S-131	AL	PS	NS	Zinc	Total Phosphorus
	Cane Creek	S-097	AL	FS	NS		Dissolved Oxygen, Total Phosphorus
03050109-100	Reedy River	S-073	REC	PS	NS	Fecal Coliform	Fecal Coliform
03050109-120	Reedy River Arm of Lake Greenwood	S-308	AL	PS	NS	PH, Nutrients	pH, Total Phosphorus
		S-022	AL	PS	NS	pH	pH, Total Phosphorus
03050109-130	North Rabon Creek	S-321	REC	PS	NS	Fecal Coliform	Fecal Coliform
	Rabon Creek Arm of Lake Greenwood	S-307	AL	FS	PS		pH
03050109-140	Ninety Six Creek	S-856	AL	FS	PS		Macroinvertebrates
03050109-150	Saluda River Arm of Lake Murray	S-223	AL	PS	NS	Copper	pH, Total Phosphorus
		S-310	AL	FS	NS		pH
	Saluda River	S-047	AL	FS	PS		pH
	Beaverdam Creek	S-852	AL	FS	PS		Macroinvertebrates
03050109-160	Little River	S-305	AL	FS	PS		pH
03050109-170	Little Saluda River	S-123	AL	PS	NS	Dissolved Oxygen	Dissolved Oxygen
	Little Saluda River arm of Lake Murray	S-222	AL	FS	NS		pH, Total Phosphorus
03050109-180	Clouds Creek	S-255	AL	FS	NS		Dissolved Oxygen, pH
03050109-190	Lake Murray	S-211	AL	FS	PS		pH
		S-212	AL	FS	PS		pH
03050109-200	Hollow Creek	S-306	AL	FS	PS		pH

Saluda River Basin Sites that Degraded from 1997 to 2001

REC= Recreational; AL=Aquatic Life; FS=Fully Supported Standards; PS=Partially Supported Standards; NS=Nonsupported Standards

Watershed	Waterbody Name	Station #	Use	Status		Water Quality Indicator	
				1997	2001	1997	2001
03050110-010	Congaree River	CSB-001L	REC	FS	PS		Fecal Coliform
	Reeder Point Branch	C-073	AL	PS	NS	Dissolved Oxygen	Dissolved Oxygen
03050110-020	Savana Branch	C-061	REC	FS	PS		Fecal Coliform
	Sixmile Creek	C-005	REC	PS	NS	Fecal Coliform	Fecal Coliform
	Lake Caroline	C-025	AL	FS	NS		Total Phosphorus
03050110-030	Windsor Lake	C-048	AL	FS	PS		Dissolved Oxygen, pH
03050110-050	Cedar Creek	C-069	REC	FS	PS		Fecal Coliform
03050110-060	Toms Creek	C-579	AL	FS	PS		Macroinvertebrates

‡ For the most current station status, consult www.scdhec.gov\eqc\water and click on Watersheds & TMDLs; TMDL; and 303(d) list.

Introduction

The South Carolina Department of Health and Environmental Control (SCDHEC or the Department) initiated its first watershed planning activities as a result of a U.S. Environmental Protection Agency (USEPA) grant in June of 1972. These activities were soon extended by requirements for a Continuing Planning Process under §303(e), "Federal Water Pollution Control Act Amendments of 1972", U.S. Public Law 92-500. In 1975, the SCDHEC published basin-planning reports for the four major basins in South Carolina. A related planning activity resulted from §208 of the Federal Water Pollution Control Act, which required states to prepare planning documents on an areawide basis. Areawide plans were completed in the late 1970's for the five designated areas of the State and for the nondesignated remainder of the State. The updated versions serve as information sources and guides for water quality management. The Continuing Planning Process, watershed assessments, and 208 plans are elements of South Carolina's overall water quality management plan.

The Bureau of Water emphasizes watershed planning to better coordinate river basin planning and water quality management. Watershed-based management allows the Department to address Congressional and Legislative mandates in a coordinated manner and to better utilize current resources. The watershed approach also improves communication between the Department, the regulated community, and the public on existing and future water quality issues.

Purpose of the Watershed Water Quality Assessment

A watershed is a geographic area into which the surrounding waters, sediments, and dissolved materials drain, and whose boundaries extend along surrounding topographic ridges. Watershed-based water quality management recognizes the interdependence of water quality related activities associated with a drainage basin including: monitoring, problem identification and prioritization, water quality modeling, planning, permitting, and other activities. The Bureau of Water's watershed approach integrates these and other activities by watershed, resulting in appropriately focused water quality protection efforts. While an important aspect of the program is water quality problem identification and solution, the emphasis is on problem prevention.

The Department has divided the State into five regions (areas consisting of one or more river basins), along hydrologic lines, which contain approximately the same number of NPDES permitted dischargers. A Watershed Water Quality Assessment (WWQA) will be created for each major river basin within the five regions and will be updated on a five-year rotational basis. This will allow for effective allocation and coordination of water quality activities and efficient use of available resources. The Departments Saluda River Basin includes the Saluda River Basin and the Congaree River Basin. The Saluda River Bain is subdivided into 21 watersheds or hydrologic units within South Carolina and includes the North Saluda River, the South Saluda River, the Oolenoy River, several sections of the Saluda River, the Reedy River, Lake Greenwood, the Little River, the Little Saluda River, and Lake Murray. The Congaree River Basin is subdivided into 7 watersheds or hydrologic units within South Carolina and includes the Congaree River and its major tributaries.

The hydrologic units used are from the 1999 USGS Hydrologic Unit Code for South Carolina, made in cooperation with the USDA Natural Resources Conservation Service and SCDHEC. In an effort to make these units more representative of actual hydrology, SCDHEC has proposed changes to the 1999 map affecting some boundaries in the Saluda River Basin. These changes have been provisionally approved by USGS pending a future statewide update. Appendix A. lists all SCDHEC geographic features (ie. stations, facilities) and any watershed boundary changes that may have occurred as a result of these provisional changes. All water quality related evaluations are made at the 11-digit watershed level. The stream names used are derived from USGS topographic maps. The National Hydrography Dataset (NHD) was the system used in the development of the digital hydrography and stream length estimates. NHD is based on the content of the USGS 1:100,000 scale Digital Line Graph (DLG) hydrography data, integrated with reach (stream) related information from the USEPA Reach File Version 3.0 (RF3) data. Based on the blue line streams of the USGS topo maps, it is likely that portions of the stream network in terms of perennial, intermittent, and ephemeral streams are not represented.

The watershed-based assessments fulfill a number of USEPA reporting requirements including various activities under §303(d), §305(b), §314, and §319 of the Clean Water Act (CWA). Section 303(d) requires a listing of waters located within a watershed that do not meet applicable water quality standards. Section 305(b) requires that the State biennially submit a report that includes a water quality description and analysis of all navigable waters to estimate environmental impacts. Section 314 requires that the State submit a biennial report that identifies, classifies, describes, and assesses the status and trends in water quality of publicly owned lakes. The watershed plan is also a logical evaluation, prioritization, and implementation tool for nonpoint source (§319) requirements. Nonpoint source best management practices (BMPs) can be selected by identifying water quality impairments and necessary controls, while considering all the activities occurring in the drainage basin.

The assessment also allows for more efficient issuance of National Pollutant Discharge Elimination System (NPDES) and State wastewater discharge permits. Proposed permit issuances within a watershed may be consolidated and presented to the public in groups, rather than one at a time, allowing the Department to realize a resource savings, and the public to realize an information advantage.

The Watershed Water Quality Assessment (WWQA) is a geographically-based document that describes, at the watershed level, water quality related activities that may potentially have an adverse impact on water quality. The Watershed Implementation Staff investigates the impaired streams mentioned in the WWQA to determine, where possible, the source of the impairment and recommends solutions to correct the problems. As part of this effort, the watershed staff is forging partnerships with various federal and state agencies, local governments, and community groups. In particular, the Department's Watershed Program and the Natural Resource Conservation Service (NRCS) district offices are working together to address some of the nonpoint source (NPS) concerns in the basin. By combining NRCS's local knowledge of land use and the Department's knowledge of water quality, we are able to build upon NRCS's close relationships with landowners and determine where NPS projects are needed. These projects may include educational campaigns or special water quality studies.

Factors Assessed in Watershed Evaluations

Surface Water Quality

SCDHEC's Bureau of Water and Bureau of Environmental Services ensure that the water in South Carolina is safe for drinking and recreation, and that it is suitable to support and maintain aquatic flora and fauna. Functions include planning, permitting, compliance assurance, enforcement, and monitoring. This section provides an overview of water quality evaluation and protection activities.

Monitoring

In an effort to evaluate the State's water quality, the Department operates and collects data from a statewide network of ambient monitoring sites. The ambient monitoring network is directed toward determining long-term water quality trends, assessing attainment of water quality standards, identifying locations in need of additional attention, and providing background data for planning and evaluating stream classifications and standards.

Ambient monitoring data are also used in the process of formulating permit limits for wastewater discharges with the goal of maintaining State and Federal water quality standards and criteria in the receiving streams in accordance with the goals of the Clean Water Act. These standards and criteria define the instream chemical concentrations that provide for protection and reproduction of aquatic flora and fauna, help determine support of the classified uses of each waterbody, and serve as instream limits for the regulation of wastewater discharges or other activities. In addition, by comparing the ambient monitoring network data to the State Water Quality Standards, these data are used in the preparation of the biennial §305(b) report to Congress, which provides a general summary of statewide water quality, and the §303(d) list of impaired waters with respect to attainment of classified uses.

Extensive revisions to SCDHEC's ambient water quality monitoring network were implemented in 2001. One of the primary purposes of the changes was to establish a network of permanent sites with a greater focus on watersheds. Another goal was to establish a more consistent sampling frequency and parameter coverage at the permanent sites. Thus while most of the previous sampling locations were maintained, the sampling frequency and parameter coverage at each may have changed.

The previous monitoring design was comprised of four main station types: primary (P), secondary (S), watershed (W), and biological (BIO) stations. The new station types include: Integrator (INT), Special Purpose (SPRP), Summer-Only (SUMM), Sediment-Only (SEDM), Random Stream for year ## (RS##), Random Lake for year ## (RL##), Random Tide Creek for year ## (RT##), or Random Open Water for year ## (RO##). *The station descriptions depicting any transition in station types and/or coverage during the study period are located in each watershed evaluation.*

Primary stations are sampled on a monthly basis year round. The static primary station network is operated statewide, and receives the most extensive parameter coverage, thus making it best suited for detecting long-term trends. Integrator Sites are the approximate equivalent under the new design. Integrator Sites target the furthest downstream access of each of the 11-digit watershed units in the state, as well as the major waterbodies that occur within these watershed units. Special Purpose Sites are also permanent, fixed-location sites, but represent locations of special interest to the Department that do not meet the location criteria of Integrator Sites.

Secondary stations are sampled monthly from May through October, a period critical to aquatic life, and characterized by higher water temperatures and lower flows. Secondary stations are located in areas where specific monitoring is warranted due to point source discharges, or in areas with a history of water quality problems. Secondary station parameter coverage is less extensive and more flexible than primary or watershed station coverages. The number and locations of secondary stations have greater annual variability than do those in the primary station network, and during a basin's target year may have parameter coverage and sampling frequency duplicating that of primary or watershed stations. Summer-Only Sites are the equivalent under the new design. There are very few Summer-Only Sites as they are intended to track specific reservoir eutrophication concerns.

Watershed stations are sampled on a monthly basis, year round, during a basin's target year. Additional watershed stations may be sampled monthly from May through October to augment the secondary station network. Watershed stations are located to provide more complete and representative coverage within the larger drainage basin, and to identify additional monitoring needs. Watershed stations have the same parameter coverage as primary stations. Under the new design, Watershed stations are locations with extensive historic monitoring data (e.g. primary or secondary monitoring sites under the previous design). Changes in water quality can be identified by comparison of the new data to the historic data.

A statewide Probability-Based, or random sampling, component is part of the new monitoring design. A probability-based monitoring design is a type of a survey design in which the population of interest is sampled in a fashion that allows statements to be made about the whole population based on a subsample, and produces an estimate of the accuracy of the assessment results. The advantage of the probability-based sampling design is that statistically valid statements about water quality can be made about large areas based on a relatively small subsample. Separate monitoring schemes have been developed for stream, lake/reservoir, and estuarine resources. Each year a new statewide set of probability-based random sites is selected for each waterbody type. Random Sites are sampled on a monthly basis for one year with the same parameter coverage as Integrator Sites. The data from those Random Sites located within this basin are included in this assessment.

Ambient biological trend monitoring is conducted to collect data to indicate general biological conditions of State waters that may be subject to a variety of point and nonpoint source impacts. Ambient biological sampling is also used to establish regional reference or "least impacted" sites from which to make comparisons in future monitoring. Additionally, special macroinvertebrate studies, in which stream specific comparisons among stations located upstream and downstream from a known discharge or nonpoint source area, are used to assess impact.

Qualitative sampling of macroinvertebrate communities is the primary bioassessment technique used in ambient biological trend monitoring. A habitat assessment of general stream habitat availability and a substrate characterization is conducted at each site. Annual ambient biological monitoring is conducted during low flow "worst case" conditions in July - September. Some coastal plain streams that have no flow conditions in the summer months may be sampled in the winter (January-March). This technique may also be used in special studies for the purpose of determining if, and to what extent, a wastewater discharge or nonpoint source runoff is impacting the receiving stream. A minimum of two sample locations, one upstream and one downstream from a discharge or runoff area, is collected. At least one downstream recovery station is also established when appropriate. Sampling methodology follows procedures described in Standard Operating Procedures, Biological Monitoring. Only sites described as 'BIO' will collect information on the macroinvertebrate communities used in the ambient biological trend monitoring.

Many pollutants may be components of point source discharges, but may be discharged in a discontinuous manner, or at such low concentrations that water column sampling for them is impractical. Some pollutants are also common in nonpoint source runoff, reaching waterways only after a heavy rainfall; therefore, in these situations, the best media for the detection of these chemicals are sediment and fish tissue where they may accumulate over time. Their impact may also affect the macroinvertebrate community.

Aquatic sediments represent a historical record of chronic conditions existing in the water column, and sediment samples are analyzed at selected monitoring sites. Pollutants bind to particulate organic matter in the water column and settle to the bottom where they become part of the sediment "record". Accumulated sediments not only reflect the impact of point source discharges, but also incorporate nonpoint source pollution washed into the stream during rain events. As a result, contaminant concentrations originating from irregular and highly variable sources are recorded in the sediment. The sediment concentrations at a particular location do not vary as rapidly with time as do the water column concentrations. Thus, the sediment record may be read at a later time, unrelated to the actual release time. Lakes act as settling basins for materials entering the lake system directly from a discharge or indirectly from the land surface washed into streams. Therefore, it is not unusual for lake sediment concentrations to be higher than sediment concentrations found in streams.

The ambient monitoring program has the capability of sampling a wide range of media and analyzing them for the presence or effects of contaminants. Ambient monitoring data from 128 stations were reviewed for the Saluda River Basin and 30 were reviewed for the Congaree River Basin.

Natural Swimming Areas

Although all waters of the State are protected for swimming, some areas are more popular than others and may require closer monitoring. Currently monitored areas are located and discussed in the appropriate watershed evaluations.

Classified Waters, Standards, and Natural Conditions

The waters of the State have been classified in regulation based on the desired uses of each waterbody. State standards for various parameters have been established to protect all uses within each classification. The water-use classifications that apply to this basin are as follows.

Class ORW, or "outstanding resource waters", are freshwaters or saltwaters that constitute an outstanding recreational or ecological resource, or those freshwaters suitable as a source for drinking water supply purposes, with treatment levels specified by the Department.

Class A were freshwaters that were suitable for primary contact recreation. This class was also suitable for uses listed as Class B. As of April 1992, Class A and Class B waters were reclassified as Class FW, which protects for primary contact recreation.

Class B were freshwaters that were suitable for secondary contact recreation and as a source for drinking water supply, after conventional treatment, in accordance with the requirements of the Department. These waters were suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class was also suitable for industrial and agricultural uses. The main difference between the Class A and B freshwater was the fecal coliform standard. Class A waters were not to exceed a geometric mean of 200/100ml, based on 5 consecutive samples during any 30 day period; nor were more than 10% of the total samples during any 30 day period to exceed 400/100ml. Class B waters were not to exceed a geometric mean of 1000/100ml, based on 5 consecutive samples during any 30 day period; nor were more than 20% of the total samples during any 30 day period to exceed 2000/100ml. As of April 1992, Class A and Class B waters were reclassified as Class FW, which protects for primary contact recreation.

Class FW, or "freshwaters", are freshwaters that are suitable for primary and secondary contact recreation and as a source for drinking water supply, after conventional treatment, in accordance with the requirements of the Department. These waters are suitable for fishing, and the survival and propagation of a balanced indigenous aquatic community of fauna and flora. This class is also suitable for industrial and agricultural uses.

Class Trout Waters is comprised of three types of water:

- **trout natural** waters, which are freshwaters suitable for supporting reproducing trout populations and a cold water balanced indigenous aquatic community of fauna and flora,
- **trout put, grow and take** waters, which are freshwaters suitable for supporting the growth of stocked trout populations and a balanced indigenous aquatic community of fauna and flora,
- **trout put and take** waters, which are freshwaters protected by the standards of Class FW.

Class GB, or "groundwaters", include all groundwaters of the State, unless classified otherwise, which meet the definition of underground sources of drinking water.

Site specific numeric standards (*) for surface waters may be established by the Department to replace the numeric standards found in Regulation 61-68 or to add new standards not contained in R.61-68. Establishment of such standards shall be subject to public participation and administrative procedures for adopting regulations. In addition, such site specific numeric standards shall not apply to tributary or downstream waters unless specifically described in the water classification listing in R.61-69.

The standards are used as instream water quality goals to maintain and improve water quality and also serve as the foundation of the Bureau of Water's program. They are used to determine permit limits for treated wastewater dischargers and any other activities that may impact water quality. Using mathematical Wasteload Allocation Models, the impact of a wastewater discharge on a receiving stream is predicted under critical conditions following R.61-68. These predictions are then used to set limits for different pollutants on the National Pollutant Discharge Elimination System (NPDES) permits issued by the Department. The NPDES permit limits are set so that, as long as a permittee (wastewater discharger) meets the established permit limits, the discharge should not cause a standards violation in the receiving stream. All discharges to the waters of the State are required to have an NPDES permit and must abide by those limits, under penalty of law.

Classifications are based on desired uses, not on natural or existing water quality, and are a legal means to obtain the necessary treatment of discharged wastewater to protect designated uses. Actual water quality may not have a bearing on a waterbody's classification. A waterbody may be reclassified if desired or existing public uses justify the reclassification and the water quality necessary to protect these uses is attainable. A classification change is an amendment to a State regulation and requires public participation, SCDHEC Board approval, and General Assembly approval.

Natural conditions may prevent a waterbody from meeting the water quality goals as set forth in the standards. The fact that a waterbody does not meet the specified numeric standards for a particular classification does not mean the waterbody is polluted or of poor quality. Certain types of waterbodies (ie. swamps, lakes, tidal creeks) may naturally have water quality lower than the numeric standards. A waterbody can have water quality conditions below standards due to natural causes and still meet its use classification. A site specific numeric standard may be established by the Department after being subjected to public participation and administrative procedures for adopting regulations. Site specific numeric standards apply only to the stream segment described in the water classification listing, not to tributaries or downstream unspecified waters.

Water Quality Indicators

Water quality data are used to describe the condition of a waterbody, to help understand why that condition exists, and to provide some clues as to how it may be improved. Water quality indicators include physical, chemical, and biological measurements. Copies of the Standard Operating Procedures used for these measurements are available from the Department's Bureau of Water and the Bureau of Environmental Services. The current State of S.C. Monitoring Strategy is available on our website at www.scdhec.gov/eqc/admin/html/eqcpubs.html#wqreports and describes what parameters are sampled, where they are sampled, and how frequently.

MACROINVERTEBRATE COMMUNITY

Macroinvertebrates are aquatic insects and other aquatic invertebrates associated with the substrates of waterbodies (including, but not limited to, streams, rivers, tidal creeks, and estuaries). Macroinvertebrates can be useful indicators of water quality because these communities respond to integrated stresses over time that reflect fluctuating environmental conditions. Community responses to various pollutants (e.g. organic, toxic, and sediment) may be assessed through interpretation of diversity, known organism tolerances, and in some cases, relative abundances and feeding types.

FISH TISSUE

Many pollutants occur in such low concentrations in the water column that they are usually below analytical detection limits. Over time many of these chemicals may accumulate in fish tissue to levels that are easily measured. By analyzing fish tissue it is possible to see what pollutants may be present in waterbodies at very low levels. This information can also be used to determine if consumption of the fish poses any undue human health concerns and to calculate consumption rates that are safe.

DISSOLVED OXYGEN

Oxygen is essential for the survival and propagation of aquatic organisms. If the amount of oxygen dissolved in water falls below the minimum requirements for survival, aquatic organisms or their eggs and larvae may die. A severe example is a fish kill. Dissolved oxygen (DO) varies greatly due to natural phenomena, resulting in daily and seasonal cycles. Different forms of pollution also can cause declines in DO.

Changes in DO levels can result from temperature changes or the activity of plants and other organisms present in a waterbody. The natural diurnal (daily) cycle of DO concentration is well documented. Dissolved oxygen concentrations are generally lowest in the morning, climbing throughout the day due to photosynthesis and peaking near dusk, then steadily declining during the hours of darkness.

There is also a seasonal DO cycle in which concentrations are greater in the colder, winter months and lower in the warmer, summer months. Streamflow (in freshwater) is generally lower during the summer and fall, and greatly affects flushing, reaeration, and the extent of saltwater intrusion, all of which affect dissolved oxygen values.

BIOCHEMICAL OXYGEN DEMAND

Five-day biochemical oxygen demand (BOD_5) is a measure of the amount of dissolved oxygen consumed by the decomposition of carbonaceous and nitrogenous matter in water over a five-day period. The BOD_5 test indicates the amount of biologically oxidizable carbon and nitrogen that is present in wastewater or in natural water. Matter containing carbon or nitrogen uses dissolved oxygen from the water as it decomposes, which can result in a dissolved oxygen decline. The quantity of BOD_5 discharged by point sources is limited through the National Pollutant Discharge Elimination System (NPDES) permits issued by the Department. The discharge of BOD_5 from a point source is restricted by the permits so as to maintain the applicable dissolved oxygen standard.

PH

pH is a measure of the hydrogen ion concentration of water, and is used to indicate degree of acidity. The pH scale ranges from 0 to 14 standard units (SU). A pH of 7 is considered neutral, with values less than 7 being acidic, and values greater than 7 being basic.

Low pH values are found in natural waters rich in dissolved organic matter, especially in Coastal Plain swamps and black water rivers. The tannic acid released from the decomposition of vegetation causes the tea coloration of the water and low pH.

High pH values in lakes during warmer months are associated with high phytoplankton (algae) densities. The relationship between phytoplankton and daily pH cycles is well established. Photosynthesis by phytoplankton consumes carbon dioxide during the day, which results in a rise in pH. In the dark, phytoplankton respiration releases carbon dioxide. In productive lakes, carbon dioxide decreases to very low levels, causing the pH to rise to 9-10 SU.

FECAL COLIFORM BACTERIA

Fecal coliform bacteria are present in the digestive tract and feces of all warm-blooded animals, including humans, poultry, livestock, and wild animal species. Fecal coliform bacteria are themselves generally not harmful, but their presence indicates that surface waters may contain pathogenic microbes.

Diseases that can be transmitted to humans through water contaminated by improperly treated human or animal waste are the primary concern. At present, it is difficult to distinguish between waters contaminated by animal waste and those contaminated by human waste.

Public health studies have established correlations between fecal coliform numbers in recreational and drinking waters and the risk of adverse health effects. Based on these relationships, the USEPA and SCDHEC have developed enforceable standards for surface waters to protect against adverse health effects from various recreational or drinking water uses. Proper waste disposal or sewage treatment prior to discharge to surface waters minimizes this type of pollution.

NUTRIENTS

Oxygen demanding materials and plant nutrients are common substances discharged to the environment by man's activities, through wastewater facilities and by agricultural, residential, and stormwater runoff. The most important plant nutrients, in terms of water quality, are phosphorus and nitrogen. In general, increasing nutrient concentrations are undesirable due to the potential for accelerated growth of aquatic plants, including algae.

The forms of nitrogen routinely analyzed at SCDHEC stations are ammonia and ammonium nitrogen (NH_3/NH_4), total Kjeldahl nitrogen (TKN), and nitrite and nitrate nitrogen (NO_2/NO_3). Ammonia and ammonium are readily used by plants. TKN is a measure of organic nitrogen and ammonia in a sample. Nitrate is the product of aerobic transformation of ammonia, and is the most common form used by aquatic plants. Nitrite is usually not present in significant amounts. Total nitrogen is the sum of TKN and NO_2/NO_3.

Total phosphorus (TP) is commonly measured to determine phosphorus concentrations in surface waters. TP includes all of the various forms of phosphorus (organic, inorganic, dissolved, and particulate) present in a sample.

CHLOROPHYLL *a*

Nuisance plant growth can create imbalances in the aquatic community, as well as aesthetic and access issues. Invasive growth of rooted aquatic vegetation can clog boat motors and create disagreeable conditions for swimming and water skiing. High densities of microscopic algae (phytoplankton) can cause wide fluctuations in pH and dissolved oxygen, and can cause undesirable shifts in the composition of aquatic life, or even fish kills. Chlorophyll *a* is a dominant photosynthetic pigment in plants and is used as an indicator of the density of phytoplankton in the water column. The process of cultural eutrophication, from increased plant nutrients, is particularly noticeable in lakes. Continuous flushing in streams prevents the development of significant phytoplankton populations and the resultant chemical changes in water quality.

TURBIDITY

Turbidity is an expression of the scattering and absorption of light through water. The presence of clay, silt, fine organic and inorganic matter, soluble colored organic compounds, and plankton and other microscopic organisms increases turbidity. Increasing turbidity can be an indication of increased runoff from land. It is an important consideration for drinking water as finished water has turbidity limits.

TOTAL SUSPENDED SOLIDS

Total Suspended Solids (TSS) are the suspended organic and inorganic particulate matter in water. Although increasing TSS can also be an indication of increased runoff from land, TSS differs from turbidity in that it is a measure of the mass of material in, rather than light transmittance through, a water sample. High TSS can adversely impact fish and fish food populations and damage invertebrate populations. There are no explicit State standards for TSS.

HEAVY METALS

Concentrations of cadmium, chromium, copper, lead, mercury, and nickel in water are routinely measured by the Department to compare to State standards intended to protect aquatic life and human health. These metals occur naturally in the environment, and many are essential trace elements for plants and animals. Human activities, such as land use changes and industrial and agricultural processes have resulted in an increased flux of metals from land to water. Atmospheric inputs are also recognized as important sources of metals to aquatic systems. Metals are released to the atmosphere from the burning of fossil fuels (coal, oil, gasoline), wastes (medical, industrial, municipal), and organic materials. The metals are then deposited on land and in waterways from the atmosphere via rainfall and attached to particulates (dry deposition).

Assessment Methodology

The Watershed Water Quality Assessment is a geographically-based document that describes, at the watershed level, water quality as well as conditions and activities related to water quality. Significant revisions to South Carolina's Water Quality Standards were effective on June 22, 2001. USEPA approved these standards for use in implementing the Clean Water Act on November 28, 2001. This section provides an explanation of the information assessment methodology used to generate the watershed-level summaries. Water quality data summaries used in this assessment are presented in Appendices B and C.

USE SUPPORT DETERMINATION

Physical, chemical, and biological data were evaluated, as described below, to determine if water quality met the water quality criteria established to protect the State classified uses defined in S.C. Regulation 61-68, *Water Classifications and Standards*. Some waters may exhibit characteristics outside the appropriate criteria due to natural conditions. Such natural conditions do not constitute a violation of the water quality criteria. To determine the appropriate classified uses and water quality criteria for specific waterbodies and locations, refer to S.C. Regulation 61-69, *Classified Waters*, in conjunction with S.C. Regulation 61-68.

At the majority of SCDHEC's surface water monitoring stations, samples for analysis are collected as surface grabs once per month, quarter, or year, depending on the parameter. Grab samples collected at a depth of 0.3 meters are considered to be a surface measurement. At most stations sampled by boat, dissolved oxygen and temperature are sampled as a water column profile, with measurements being made at a depth of 0.3 meters below the water surface and at one-meter intervals to the bottom or at 0.3 meters, mid-depth, and bottom. At stations sampled from bridges, these parameters are measured only at a depth of 0.3 meters. For the purpose of assessment, only surface samples are used in standards comparisons and trend assessments. Because of the inability to target individual high or low flow events on a statewide basis these data are considered to represent typical physical conditions and chemical concentrations in the waterbodies sampled. All water and sediment samples are collected and analyzed according to standard procedures (SCDHEC 1997, 2001).

Results from water quality samples can be compared to State and USEPA criteria, with some restrictions due to time of collection and sampling frequency. For certain parameters, the monthly sampling frequency employed in the ambient monitoring network is insufficient for strict interpretation of the standards. The USEPA does not define the sampling method or frequency other than indicating that it should be "representative". The grab sample method is considered to be representative for the purpose of indicating excursions relative to criteria, within certain considerations. A single grab sample is more representative of a one-hour average than a four-day average, more representative of a one-day average than a one-month average, and so on; thus, when inferences are drawn from grab samples relative to criteria, sampling frequency and the intent of the criteria must be weighed. When the sampling method or frequency does not agree with the intent of the particular criterion, any conclusion about water quality should be considered as only an indication of conditions, not as a proven circumstance.

Macroinvertebrate community structure is analyzed routinely, at selected stations, as a means of detecting adverse biological impacts on the aquatic fauna of the state's waters due to water quality conditions that may not be readily detectable in the water column chemistry.

This water quality assessment is based on the last complete five years of available quality assured physical, chemical, and biological data (1997 - 2001). Because of the data quality assurance and quality control process outcome, only total phosphorus data collected from 1996 through June 1998 were included in this assessment.

AQUATIC LIFE USE SUPPORT

One important goal of the Clean Water Act, the South Carolina Pollution Control Act, and the State Water Quality Classifications and Standards is to maintain the quality of surface waters to provide for the survival and propagation of a balanced indigenous aquatic community of fauna and flora. The degree to which aquatic life is protected (Aquatic Life Use Support) is assessed by comparing important water quality characteristics and the concentrations of potentially toxic pollutants with numeric criteria.

Support of aquatic life uses is determined based on the percentage of numeric criteria excursions and, where data are available, the composition and functional integrity of the biological community. The term excursion is used to describe a measured pollutant concentration that is outside of the acceptable range as defined by the appropriate criterion. Some waters may exhibit characteristics outside the appropriate criteria due to natural conditions. Such natural conditions do not constitute a violation of the water quality criteria. A number of waterbodies have been given waterbody-specific criteria for pH and dissolved oxygen, which reflect natural conditions. To determine the appropriate numeric criteria and classified uses for specific waterbodies and locations, please refer to S.C. Regulation 61-68, *Water Classifications and Standards* and S.C. Regulation 61-69, *Classified Waters.*

If the appropriate criterion for **dissolved oxygen and pH** are contravened in 10 percent or less of the samples, the criterion is said to be fully supported. If the percentage of criterion excursions is greater than 10 percent, but less than or equal to 25 percent, the criterion is partially supported, unless excursions are due to natural conditions. If there are more than 25 percent excursions, the criterion is not supported, unless excursions are due to natural conditions. The decision that criteria excursions are due to natural conditions is determined by consensus and/or the professional judgment of SCDHEC staff with specific local knowledge.

If the appropriate acute aquatic life criterion for any individual **toxicant (e.g. heavy metals, priority pollutants, ammonia)** is exceeded more than once in five years, representing more than 10 percent of the samples collected, the criterion is not supported. If the acute aquatic life criterion is exceeded more than once, but in less than or equal to 10 percent of the samples, the criterion is partially supported. The USEPA criteria to protect aquatic life for most toxicants are specified as a four-day average and a one-hour average, and have been adopted as state criteria. Because samples are collected as grab samples, and because of sampling frequency, comparisons to chronic toxicity criteria (four-day average concentration) are considered inappropriate; therefore, only the acute criterion (one-hour average) for the protection of aquatic life is used in the water quality assessment.

The total recoverable metals criteria for **heavy metals** are adjusted to account for solids partitioning following the approach set forth in the Office of Water Policy and Technical Guidance on Interpretation and Implementation of Aquatic Life Metals Criteria, October 1, 1993, by Martha G. Prothro, Acting Assistant Administrator for Water, available from the Water Resource center, USEPA, 401 M St., SW, mail code RC4100, Washington, DC 20460; and 40CFR131.36(b)(1). Under this approach, a default TSS value of 1 mg/L is used. Where the metals criteria are hardness based, a default value of 25 mg/L is used for waters where hardness is 25 mg/l or less.

If the appropriate criterion for **turbidity** in all waters, and for waters with **numeric total phosphorus, total nitrogen, and chlorophyll-a** criteria is exceeded in more than 25 percent of the samples, the criterion is not supported. If the criterion is exceeded in 25 percent of the samples or less, then the criterion is fully supported.

If the conclusion for any single parameter is that the criterion is "not supported", then it is concluded that aquatic life uses are not supported for that waterbody, at that monitoring location. If there are no criteria that are "not supported", but the conclusion for at least one parameter criterion is "partially supported", then the conclusion is aquatic life uses are partially supported. Regardless of the number of samples, no monitoring site will be listed as partially or not supporting for any pollutant based a single sample result because of the possibility of an anomalous event.

The goal of the standards for aquatic life uses is the protection of a balanced indigenous aquatic community; therefore, biological data is the ultimate deciding factor, regardless of chemical conditions. If biological data shows a healthy, balanced community, the use is considered supported even if chemical parameters do not meet the applicable criteria.

MACROINVERTEBRATE DATA INTERPRETATION

Macroinvertebrate community assessment data are used to directly determine Aquatic Life Use Support and to support determinations based on water chemistry data. Macroinvertebrate community data may also be used to evaluate potential impacts from the presence of sediment contaminants. Aquatic and semi-aquatic macroinvertebrates are identified to the lowest practical taxonomic level depending on the condition and maturity of specimens collected. The EPT Index and the North Carolina Biotic Index are the main indices used in analyzing macroinvertebrate data. To a lesser extent, taxa richness and total abundance may be used to help interpret data.

The EPT Index or the Ephemeroptera (mayflies) - Plecoptera (stoneflies) - Trichoptera (caddisflies) Index is the total taxa richness of these three generally pollution-sensitive orders. EPT values are compared with least impacted regional sites. The Biotic Index for a sample is the average pollution tolerance of all organisms collected, based on assigned taxonomic tolerance values. A database is currently being developed to establish significant EPT index levels to be used in conjunction with the Biotic Index to address aquatic life use support.

Taxa richness is the number of distinct taxa collected and is the simplest measure of diversity. High taxa richness is generally associated with high water quality. Increasing levels of pollution progressively eliminate the more sensitive taxa, resulting in lower taxa richness. Total abundance is the enumeration of all macroinvertebrates collected at a sampling location. When gross differences in abundance occur between stations, this metric may be considered as a potential indicator.

RECREATIONAL USE SUPPORT

Recreational use support is defined as the degree to which the swimmable goal of the Clean Water Act is attained and is based on the frequency of fecal coliform bacteria excursions. A fecal coliform excursion is defined as an occurrence of a bacteria concentration greater than 400/100 ml for all surface water classes. Comparisons to the bacteria geometric mean standard are not considered appropriate based on sampling frequency and the intent of the standard. If 10 percent or less of the samples are greater than 400/100 ml, then recreational uses are said to be fully supported. If the percentage of standards excursions is greater than 10 percent, but less than or equal to 25 percent, then recreational uses are said to be partially supported. If the percentage of excursions is greater than 25 percent, then it is considered to represent nonsupport of recreational uses.

FISH CONSUMPTION USE SUPPORT

The Department uses a risk-based approach to evaluate fish tissue data and to issue consumption advisories in affected waterbodies. This approach contrasts the average daily exposure dose to the reference dose (RfD). Using these relationships, fish tissue data are interpreted by determining the consumption rates that would not be likely to pose a health threat to adult males and nonpregnant adult females. Because an acceptable RfD for developmental neurotoxicity has not been developed, pregnant women, infants, and children are advised to avoid consumption of fish from any waterbody where a mercury advisory was issued.

Fish consumption use support is determined by the occurrence of advisories or bans on consumption for a waterbody. For the support of fish consumption uses, a fish consumption advisory indicates partial use support, a consumption ban indicates nonsupport of uses.

DRINKING WATER USE SUPPORT

Nonattainment of drinking water use is indicated if the median concentration of the ambient surface water data for any pollutant exceeds the appropriate drinking water Maximum Contaminant Level (MCL), based on a minimum of three samples. Where MCLs do not exist, SCDHEC may use or develop other criteria such that pollutant concentrations or amounts do not interfere with drinking water use, actual or intended, as determined by SCDHEC.

Additional Screening and Prioritization Tools

Evaluation of water quality data and other supplemental information facilitates watershed planning. Information from the following sources is used to develop watershed-based protection and prevention strategies.

LONG-TERM TREND ASSESSMENT

As part of the watershed water quality assessments, surface data from each station are analyzed for statistically significant long-term trends using the Seasonal Kendall Test Without Correction (SKWOC) for significant serial correlation, using procedures in the WQHYDRO computer package developed by Eric Aroner of WQHYDRO Consulting. Flows are not available for most stations, and the parametric concentrations are not flow-corrected. Seasonal Kendall's Tau Analysis is used to test for the presence of a statistically significant trend of a parameter, either increasing or decreasing, over a fifteen-year period. It indicates whether the concentration of a given parameter is exhibiting consistent change in one direction over the specified time period. A two sided test at $p=0.1$ is used to determine statistically significant trends, and the direction of trend. An estimate of the magnitude of any statistically significant trend is calculated.

A rigorous evaluation for trends in time-series data usually includes a test for autocorrelation. The data are not tested for autocorrelation prior to the trend analysis. It is felt that autocorrelation would not seriously compromise a general characterization of water quality trends based on such a long series of deseasonalized monthly samples.

One of the advantages of the seasonal Kendall test is that values reported as being below detection limits (DL) are valid data points in this nonparametric procedure, since they are all considered to be tied at the DL value. When the DL changed during the period of interest, all values are considered to be tied at the highest DL occurring during that period. Since it is possible to measure concentrations equal to the value of the DL, values less than DL are reduced by subtraction of a constant so that they remain tied with each other, but are less than the values equal to the DL. Since fecal coliform bacteria detection limits vary with sample dilution, there is no set DL; therefore, for values reported as less than some number, the value of the number is used.

For the purposes of this assessment, long-term trends in selected parameters were examined using data collected from 1986 through 2000. In 1992, a phosphate detergent ban was instituted in South Carolina; therefore, for total phosphorus, a second trend assessment is included for the available data from 1992 through 2000. For total phosphorus, it is this second time period that is reported in the text.

SEDIMENT SCREENING

There are no sediment standards; therefore, in order to identify sediments with elevated metals concentrations, percentiles are constructed using five years of statewide sediment data. Only values greater than the detection limit were used for chromium, copper, nickel, lead, and zinc. Because so few concentrations of cadmium and mercury are measured above the detection limit, all samples were pooled for these metals. A sediment metal concentration is considered to be high if it is in the top 10% of the pooled results, and very high if it is in the top 5%. Any analytical result above detection limits is flagged for pesticides, PCBs, and other priority pollutants. Sites with noted high metals concentrations or the occurrence of other contaminants above detection limits are prioritized for the collection of biological data, or additional monitoring and investigation, to verify the true situation.

For saltwater sediments, national studies have been conducted by the National Oceanic and Atmospheric Administration (NOAA) and the State of Florida that have developed Sediment Quality Guidelines (SQGs) for the United States and the southeastern region. These SQGs summarize all published toxicology and biomonitoring studies for a given contaminant and ranked them from lowest to highest concentration where an adverse effect was observed. The tenth percentile of the ranked data, from all published studies that reported an adverse effect, is termed the Effects Range Low (ERL) or Threshold Effects Level (TEL) and represents the threshold concentration for toxicity to occur. The median concentration where adverse effects in benthos are observed (the fiftieth percentile) is termed the Effects Range Median (ERM) or Probable Effects Levels (PEL). Measured sediment contaminant levels may be compared with ERLs/ERMs or TELs/PELs to predict potential probability for sediment bound contaminants to cause toxicity in benthic faunal communities. Saltwater sediment contaminant levels were compared with existing sediment quality guidelines by individual compound. Sites with sediments which had individual chemical contaminant concentrations which exceeded ERL/TEL and ERM/PEL guideline levels are identified to indicate that trace metal, pesticide, PAH or PCB concentrations exceeded levels potentially toxic to estuarine organisms.

Groundwater Quality

The state of South Carolina depends upon its groundwater resources to supply an estimated 40 percent of its residents. To monitor the ambient quality of this valuable resource, a network of existing public and private water supply wells has been established that provides groundwater quality data representing all of the State's major aquifers (see SCDHEC's Ambient Groundwater Quality Monitoring Network Report for listing of groundwater quality data). A great deal of monitoring is also being carried out at regulated sites with known or potential groundwater contamination (see SCDHEC's South Carolina Groundwater Contamination Inventory).

The ambient monitoring network has been designed to avoid wells in areas of known or potential contamination in order to analyze natural aquifer conditions. Information collected can then be used to identify variations in water chemistry among the major aquifers of South Carolina and give a general understanding of the groundwater conditions throughout the state at varying depths.

Wells sampled in the Saluda River Basin were drilled into one of two aquifers. All the wells above the Fall Line are completed in the Piedmont Bedrock Aquifer while wells below the Fall Line are completed in the Middendorf Aquifer. All well samples met state standards for Class GB groundwater (see section on Classified Waters, Standards, and Natural Conditions). The ambient monitoring well sites are indicated in the appropriate watershed evaluations and depicted on the watershed maps.

Piedmont Bedrock Aquifer

The Piedmont Bedrock Aquifer extends from the Fall Line to the Blue Ridge Mountains. The Piedmont bedrock consists of fractured crystalline rock overlain by a saprolitic regolith, and limited alluvial valley fill deposits. Most public and private wells are completed in the fractured crystalline bedrock. Yields from crystalline bedrock vary greatly among wells, depending primarily upon the existence of joints and fractures within the rock. If fractures do exist, yield and specific capacity further depend upon the size of fractures and degree of fracture interconnection. The overlying saprolite is hydraulically connected with the underlying bedrock and provides the primary source of recharge water to the bedrock aquifer. Yields of 4 to 170 gallons per minute (gpm) from the 30 network wells in the Piedmont bedrock have been recorded. This broad range in yield is an indicator of the great variability in the occurrence, size and interconnection of joints and other fractures that exist in this aquifer.

The primary cation and anion measured in water from the Piedmont bedrock aquifer is calcium and bicarbonate, respectively, although all of the major ions (sodium, potassium, calcium, magnesium, chlorine, bicarbonate, and sulfate) are present at detectable concentrations in most samples.

Saprolite Aquifer

Although the majority of South Carolina's Piedmont groundwater supplies come from the bedrock aquifer, the overlying regolith composed primarily of saprolitic soils is also a significant water producing unit. Saprolite is an in-place weathering product of the crystalline rock, which can be absent at some locations and over 150 feet thick in others. Because the saprolite has not been transported, many of the original structures of the parent bedrock (fractures, dikes, faults, foliations, etc.) are preserved and act to influence groundwater flow. Although there are many localized exceptions, saprolite in the South Carolina Piedmont is dominated by silt-sized particles, with varying amounts of sand and clay, depending upon the parent rocks original texture and mineralogy.

Because of its typically low hydraulic conductivity, saprolite generally provides low yielding wells and is normally suitable only for low-volume, domestic water demands. Saprolite aquifer wells are commonly installed with large-diameter (24 inch) boring equipment, and are more prone to contamination from bacteria and near-surface sources because of their characteristically shallow depth and construction methods (which often do not create an adequate surface seal). Nine saprolite wells have been included in the monitoring network. As described in the previous section, saprolite aquifer water chemistry is similar to water in the underlying bedrock aquifer, with calcium and bicarbonate being the dominant ions.

Middendorf Aquifer

The Middendorf Aquifer directly overlies the Bedrock Aquifer and stretches from the Fall Line, where it outcrops, to the Atlantic coast, where it exceeds depths of 3000 feet. The Middendorf Aquifer is the main provider of groundwater to numerous private and public wells in the lower portion of the Saluda River Basin. It is generally composed of fairly coarse sands and therefore is capable of yielding considerable amounts of water.

The sands that make up the Middendorf Aquifer are typically clean, containing relatively few heavy minerals or organics. The aquifer, especially in the exposed recharge areas, is highly leached of soluble minerals and recharge water approaches the chemistry of distilled water. Water tends to be soft, acidic, and low in dissolved solids, with locally high iron content. This tendency changes toward the coast due to minute amounts of minerals that slowly dissolve in the water as it flows and ages. As it reaches the coastal areas, the concentration is high enough to affect the water quality; however, the Middendorf Aquifer now lies beneath waters of similar quality and more easily reached aquifers.

NPDES Program

The Water Facilities Permitting Division and the Industrial, Agricultural, and Stormwater Permitting Division are responsible for drafting and issuing National Pollutant Discharge Elimination System (NPDES) permits. Facilities are defined as either "major" or "minor". For municipal permits, a facility is considered a "major" if it has a permitted flow of 1 MGD or more and is not a private facility. The determination for industrial facilities is based on facility and stream characteristics, including toxicity, amount of flow, BOD (biological oxygen demand) loading, proximity of drinking water source, potential to exceed stream standards, and potential effect on coastal waters.

Permitting Process

A completed draft permit is sent to the permittee, the SCDHEC District office, and if it is a major permit, to the USEPA for review. A public notice is issued when the permit draft is finalized. Comments from the public are considered and, if justified, a public hearing is arranged. Both oral and written comments are collected at the hearing, and after considering all information, the Department staff makes the decision whether to issue the permit as drafted, issue a modified permit, or to deny the permit. Everyone who participated in the process receives a notice of the final decision. A copy of the final permit will be sent to anyone who requests it. Staff decisions may be appealed according to the procedures in R.61-72 and the rule of the Administrative Law Court of South Carolina.

The permitting Divisions use general permits with statewide coverage for certain categories of discharges. Discharges covered under general permits include utility water, potable surface water treatment plants, potable groundwater treatment plants with iron removal, petroleum contaminated groundwater, mine dewatering activities, aquaculture facilities, bulk oil and gas terminals, hydrostatic test waters (oil & gas lines), and vehicle wash waters. Additional activities proposed for general permits include ready-mix concrete/concrete products and concentrated animal feeding operations. State Land application systems for land disposal and lagoons are also permitted.

Wasteload Allocation Process

A wasteload allocation (WLA) is the portion of a stream's assimilative capacity for a particular pollutant that is allocated to an existing or proposed point source discharge. Existing WLAs are updated during the basin review process and included in permits during the normal permit expiration and reissuance process. New WLAs are developed for proposed projects seeking a discharge permit or for existing discharges proposing to increase their effluent loading at the time of application. Wasteload allocations for oxygen demanding parameters and nutrients are developed by the Water Quality Modeling Section, and WLAs for toxic pollutants and metals are developed by the appropriate permitting division.

The ability of a stream to assimilate a particular pollutant is directly related to its physical and chemical characteristics. Various techniques are used to estimate this capacity. Simple mass balance/dilution calculations may be used for a particular conservative (nondecaying) pollutant while complex models may be used to determine the fate of nonconservative pollutants that degrade in the environment. Waste characteristics, available dilution, and the number of discharges in an area may, along with existing water quality, dictate the use of a simple or complex method of analysis. Projects that generally do not require complex modeling include: groundwater remediation, noncontact cooling water, mine dewatering, air washers, and filter backwash.

Streams are designated either effluent limited or water quality limited based on the level of treatment required of the dischargers to that particular portion of the stream. In cases where the USEPA published effluent guidelines and the minimum treatment levels required by law are sufficient to maintain instream water quality standards, the stream is said to be effluent limited. Streams lacking the assimilative capacity for a discharge at minimum treatment levels are said to be water quality limited. In cases where better than technology limits are required, water quality, not minimum requirements, controls the permit limits. The Department's Water Quality Modeling Section develops limits for numerous parameters including ammonia nitrogen (NH3-N), dissolved oxygen (DO), and five-day biochemical oxygen demand (BOD5). Limits for other parameters, including metals, toxics (including total residual chlorine), and nutrients are developed by the Water Facilities Permitting Division or the Industrial, Agricultural, and Stormwater Permitting Division in conjunction with support groups within the Department.

Nonpoint Source Management Program

Nonpoint source (NPS) water pollution, sometimes called "runoff pollution" or "polluted runoff" does not result from a discharge at a specific, single location (or point), but generally comes from diffuse, numerous sources. Runoff occurring after a rain event may transport sediment from plowed fields, construction sites, or logging operations, pesticides and fertilizers from farms and lawns, motor oil and grease deposited on roads and parking lots, or bacteria containing waste from agricultural animal facilities or malfunctioning septic systems. The rain moves the pollutants across the land to the nearest waterbody or storm drain where they may impact the water quality in creeks, rivers, lakes, estuaries, and wetlands. NPS pollution may also impact groundwater when it is allowed to seep or percolate into aquifers. Adverse effects of NPS pollution include physical destruction of aquatic habitat, fish kills, interference with or elimination of recreational uses of a waterbody (particularly lakes), closure of shellfish beds, reduced water supply or taste and odor problems in drinking water, and increased potential for flooding because waterbodies become choked with sediment.

Congress recognized the growing problem of nonpoint source pollution in the late 1980s, and added NPS provisions to the federal law. Section 319 of the 1987 Amendments to the Clean Water Act required states to assess the nonpoint source water pollution associated with surface and groundwater within their borders and then develop and implement a management strategy to control and abate the pollution. The first Assessment of Nonpoint Source Pollution in South Carolina accomplished this purpose. The Department's Bureau of Water manages the ongoing State NPS Management Program, which develops strategies and targets waterbodies for priority implementation of management projects. Section 319 funds various voluntary efforts, including watershed projects, which address many aspects of the pollution prevention management measure and provide education, outreach and technical assistance to various groups and agencies. Most of the projects are implemented by cooperating agencies.

Many land activities can individually or cumulatively contribute to NPS pollution. Eight categories of NPS pollution sources have been identified as contributing to water quality degradation in South Carolina: agriculture, forestry, urban areas, marinas and recreational boating, mining, hydrologic modification, wetlands and riparian areas disturbance, land disposal, and groundwater contamination. There are programs, both regulatory and voluntary, in-place that address all eight categories.

Agriculture

In South Carolina, pesticides, fertilizers, animal waste, and sediment are potential sources of agricultural NPS pollution. Agricultural activities also have the potential to directly impact the habitat of aquatic species through physical disturbances caused by livestock or equipment, and through the management of water. The State has laws and regulations that prevent NPS pollution from several agricultural sources including pesticides and animal waste. Funding programs including those under §319 grants from EPA, cost share funds from USDA under EQIP and CRP are used to implement best management practices that are not covered under regulations. Agriculture land acreage is quantified in the basin-wide and individual watershed evaluations.

Silviculture

Forests comprise a major portion of South Carolina's land base. Sixty-six percent, or 12.6 million acres, of the State's total land area is in timberland. Silvicultural practices associated with road access, harvest, and regeneration of timber present the most significant potential for NPS pollution. Silvicultural activities have the potential to degrade the State's waters through the addition of sediment, nutrients, organics, elevated temperature, and pesticides. Erosion and subsequent sedimentation are the most significant and widespread NPS problems associated with forestry practices. Sudden removal of large quantities of vegetation through harvesting or silvicultural practices can also increase leaching of nutrients from the soil system into surface waters and groundwaters. Programs to abate or control NPS pollution from forestry activities are primarily the responsibility of the S.C. Forestry Commission (SCFC) and the United States Department of Agriculture's Forest Service (USFS), with other agencies having supplementary programs. S.C. Forestry Commission provides monthly courtesy exams to SCDHEC's Division of Water Quality and to forest industries. If water quality was impacted by a forestry operation, SCDHEC may institute enforcement action under the South Carolina Pollution Control Act. The United States Department of Agriculture's Natural Resources Conservation Service (USDA-NRCS) also provides technical assistance to government, landowners, and land users. Forest land acreage is quantified in the basin-wide and individual watershed evaluations.

Urban Areas

Urbanization has been linked to the degradation of urban waterways. The major pollutants found in runoff from urban areas include sediment, nutrients, oxygen-demanding substances, heavy metals, petroleum hydrocarbons, pathogenic bacteria, and viruses. Suspended sediments constitute the largest mass of pollutant loadings to receiving waters from urban areas. Construction sites are a major source of sediment erosion. Nutrient and bacterial sources of contamination include fertilizer usage, pet wastes, leaves, grass clippings, and faulty septic tanks. Petroleum hydrocarbons result mostly from automobile sources. In the 1990's, the average statewide population growth was 15.1 percent, while the coastal counties had an increase of 28 percent, nearly double the State rate during the same time period. This continuing development and population growth has the potential to make urban runoff the most significant source of pollution in waters of the State in the future. Urban land acreage is quantified in the basin-wide and individual watershed evaluations.

SCDHEC has a number of statewide programs that address components of urban NPS pollution. The Bureau of Water administers four permitting programs that control runoff from new and existing urban sources. These include the Stormwater and Sediment Reduction program, Municipal Separate Storm Sewer System (MS4), Industrial NPDES Stormwater Permits, and the §401 water quality certification program (see p.27). Additional controls for urban runoff in the coastal zone are implemented by SCDHEC's Oceans and Coastal Resources Management (OCRM) through the State Coastal Zone Management Plan.

SCDHEC's Bureau of Environmental Health's Division of Onsite Wastewater Management administers the Onsite Sewage Disposal System program for the entire State, and oversees the permitting for the installation and management of septic systems. Although not associated with urban land use, this Division permits the septic systems of camping facilities if the facility is not on public sewer. The camp sewage is discharged into a public collection, treatment and disposal system if available, or an onsite wastewater treatment and disposal system (septic tank) is used.

Marinas and Recreational Boating

Potential adverse environmental impacts associated with marinas include dissolved oxygen deficiencies, high concentrations of toxic metals in aquatic organisms, and the potential to cause bacterial contamination of shellfish harvesting areas. In addition, marina construction activities can lead to the physical destruction of sensitive ecosystems and bottom-dwelling aquatic communities. Presently, there are more than 100 marinas in South Carolina, with 68 of them in the coastal zone. The U.S. Army Corps of Engineers and the SCDHEC are responsible for permitting marinas in South Carolina. Within SCDHEC, the two offices that have marina permitting authority are the Office of Ocean and Coastal Resource Management (SCDHEC OCRM) and the Office of Environmental Quality Control (SCDHEC Bureau of Water). SCDHEC OCRM issues critical area permits for marinas within the critical area of the coastal zone. SCDHEC Bureau of Water issues permits for marinas at all other locations within the State and issues §401 Water Quality Certifications (see p.27) for marinas statewide. The U.S. Coast Guard and the S.C. Department of Natural Resources are responsible for managing recreational boating activity.

Mining

South Carolina's mineral production consists of non-fuel minerals that provide raw materials for construction products and a precious metal industry. Portland cement clays (kaolin and brick), sand and gravel, and crushed stone represent the majority of the total mineral value. At the end of FY 2001-2002, there were 540 mining operations in South Carolina affecting more than 23,000 acres. Surface mining has the potential to generate NPS pollution during mineral exploration, mine development extraction, transportation, mining and processing, product storage, waste disposal, or reclamation. Potential nonpoint source impacts related to mining activities generally include hydrologic modification, erosion and sedimentation, water quality deterioration, fish and wildlife disturbances, and public nuisances.

The Department's Bureau of Land and Waste Management has primary regulatory responsibility for mining activities. Within the Bureau, the Division of Mining and Solid Waste Permitting is responsible for administering and implementing the S.C. Mining Act and its associated regulations. The Mining Act serves as part of an overall management plan for NPS pollution from active mines. Mining activities and locations are identified in the appropriate watershed evaluations.

Hydromodification

Hydrologic modification (or hydromodification) is defined as stream channelization, channel modification, and dam construction. These activities can negatively impact water quality, destroy or modify in-stream habitat and increase streambank and shoreline erosion. Two State permits, implemented by the SCDHEC, are involved in the implementation of management measures for hydromodification. A critical area permit is required for coastal waters, saltwater wetlands, and beaches defined as critical areas. A navigable waters permit is required for the remainder of the State. Implementation of State policy for dam construction is similar to control of other hydromodification projects in South Carolina, requiring the same State permits and certifications. In addition, dams require a State dam safety permit or a State stormwater management and sediment reduction permit. The Department must also issue Water Quality Certifications pursuant to §401 of the Federal Clean Water Act for dam construction and hydropower operations licensed by the Federal Energy Regulatory Commission.

Wetlands

Twenty-three percent of South Carolina is covered by 4.5 million acres of wetlands. The U.S. Army Corps of Engineers implements the federal program for regulating development in wetlands with guidelines established by EPA. The Corps delineates wetlands and determines which wetlands fall under regulatory jurisdiction and require a federal permit for development. The Wetlands Reserve Program, administered by the NRCS, is designed to restore and protect wetlands. At the state level, the primary focus of wetland regulation is the §401 Water Quality Certification. In the §401 certification process, applications for wetland alterations may be denied or modified due to the special nature of a wetland or the functions that a wetland provides. Wetland impacts must be compensated through restoration, enhancement, preservation, or creation and protected in perpetuity. Future development would be prohibited in these mitigated and legally protected areas. Knowledge of areas that are restricted from development due to mitigation or special water classification is useful in planning future development in a watershed. Wetland acreage is quantified in the basin-wide and individual watershed evaluations.

Land Disposal

Although modern solid waste disposal sites are considered point sources of pollution and regulated, leachate from sanitary landfills and dumps have the potential to pollute large portions of adjacent groundwater aquifers. Toxic compounds are commonly a part of the overall composition of landfill leachate, especially when the landfill has been used for the disposal of toxic chemicals. There are currently 140 permitted landfills in South Carolina. This total represents 35 municipal solid waste landfills (MSWLF), 62 industrial waste landfills, 41 construction and demolition (C&D) landfills, one sludge monofill, and one ash monofill. Regulatory authority over solid waste disposal activities resides with SCDHEC's Bureau of Land and Waste Management. All active and closed industrial and municipal solid waste landfills are identified in the appropriate watershed evaluations.

Land application of wastewater or its by products is a form of recycling because it allows recovery of elements needed for crop production. Land application of biosolids may be beneficial and environmentally sound when applied at the correct agronomic rate. Land applying biosolids can benefit farmers by offsetting the costs of fertilizer and lime while reducing the pressure on existing landfills. SCDHEC's Bureau of Water, Division of Water Monitoring, Assessment and Protection, Groundwater Quality Section conducts a program to prevent, monitor, and correct groundwater contamination from nonpoint source pollution from land application of wastewater biosolids, solids, animal manures, biosolids, and sewage sludge. Land application, which is not a discharge, requires a "no discharge" permit (ND). All active industrial and municipal land applications are identified in the appropriate watershed evaluations.

Groundwater Contamination

All aquifers in the State are potential Underground Sources of Drinking Water and are protected under the S.C. Water Classifications and Standards. Groundwaters are thus protected in a manner consistent with the SCDHEC groundwater protection strategy. Staff hydrogeologists implement a screening program for nonpoint source impacts from pits, ponds, and lagoons associated with the permitted storage, treatment, and disposal of industrial and municipal wastewaters. In cases where a groundwater impact has been identified in violation of S.C. Water Classifications and Standards, appropriate actions will be coordinated with the facility owner to ensure regulatory compliance. The hydrogeologist coordinates with the facility owner to implement source identification, contaminant extent assessments, initiation of contaminant remediation systems, and performance evaluations of corrective actions. In addition to releases from wastewater treatment systems, the staff evaluates releases from other nonpoint sources such as above ground tanks, nonregulated fuel oil tanks, spills and/or leaks. Sites with confirmed groundwater impact will be placed under a Consent Agreement or an Order. SCDHEC's South Carolina Groundwater Contamination Inventory quantifies the status of groundwater quality in South Carolina. The sites in the inventory are known groundwater contamination cases in the State, and are referenced by name and county, and updated annually.

Water Quantity

Any withdrawal of surface water or groundwater over 3 million gallons in any month is required to be reported to the Department (per the *Surface Water Withdrawal and Reporting Act* 49-4-10 and the *Groundwater Use and Reporting Act* 49-5-10). These data are compiled into an annual report of total water usage in the state (see SCDHEC's South Carolina Water Use Report). The report also breaks down water usage into categories of interest such as water supply, hydropower, agriculture, and irrigation. In Capacity Use Areas, which are of concern due to the significant groundwater use and subsequent lowering of groundwater levels in major aquifers, withdrawals over 3 million gallons in any month must receive a permit from the Department. Currently, no quantity permit is required for surface water withdrawals.

Interbasin Transfer of Water

According to The State Interbasin Transfer of Water Act, an interbasin transfer of water permit is required when any entity desires to withdraw, divert, pump, or cause directly the transfer of either 5% of the 7Q10 (seven day, ten year low flow), or one million gallons or more of water a day on any day, whichever is less, from one river basin and use or discharge all or any part of the water in a different river basin. The SCDHEC Board is empowered to negotiate agreements, accords, or compacts on behalf of and in the name of the State of South Carolina with other states or the United States, or both, with any agency, department, or commission of either, or both, relating to transfers of water that impact waters of this State, or are connected to or flowing into those waters. The Board is further empowered to represent this State in connection with water withdrawals, diversions, or transfers occurring in other states, which may affect this State.

Growth Potential and Planning

Land use and management can define the impacts to water quality in relation to point and nonpoint sources. Assessing the potential for an area to expand and grow allows for water quality planning to occur and, if appropriate, increased monitoring for potential impairment of water quality. Indicators used to predict growth potential include water and sewer service, road and highway accessibility, and population trends. These indicators and others were used as tools to determine areas within the Saluda River Basin having the greatest potential for impacts to water quality as a result of development.

SCDHEC's Strategic Plan for 2000-2005 (www.scdhec.gov/news/releases/pdf files/Stratpln.pdf) acknowledges that growth issues are best handled at the local government level. SCDHEC's role is to work with local governments and communities to help them understand the importance of planning for smart growth: buffers, greenspaces, mass transit, subdivision and roadway planning, bike paths and bike lanes, and park and ride lots. SCDHEC can also provide assistance in helping local entities access information and provide consultation on technical issues such as the establishment of buffers and watershed stormwater planning. Many counties in the Saluda River Basin lack countywide zoning ordinances; therefore, there is little local regulatory power to influence the direction or magnitude of regional growth. The majority of municipalities have zoning ordinances in place; however, much of the growth takes place just outside the municipal boundaries, where infrastructure is inadequate. Section 208 of the Clean Water Act serves to encourage and facilitate the development and implementation of areawide waste treatment management plans. The §208 Areawide Water Quality Management Plans were completed in great detail during the 1970's and have recently been updated. Information from the updated reports is used in the individual watershed evaluations. South Carolina's water quality management plans support consolidation of wastewater treatment facilities into larger regional systems.

Watershed boundaries extend along topographic ridges and drain surrounding surface waters. Roads are commonly built along ridge tops with the best drainage conditions. Cities often develop in proximity to ridges as a result of their plateau terrain. It is not uncommon, then, to find cities or road corridors located along watershed boundaries, and thus influencing or impacting several watersheds.

Watershed Protection and Restoration Strategies

SCDHEC's Bureau of Water is responsible for ensuring that South Carolina's water is safe for drinking and recreation, and suitable to support aquatic life. This section provides an overview of other important Bureau programs and strategies applied statewide to protect and restore water quality. The point and nonpoint source controls described previously assist with achieving these goals.

Under §303(d) of the Federal Clean Water Act, each state is required to provide a comprehensive inventory of impaired waters for which existing required pollution controls are not stringent enough to achieve State water quality standards or Federal Clean Water Act goals. This biennial list, commonly referred to as the "303(d) list", is the basis for targeting waterbodies for watershed-based solutions. A copy of the current §303(d) list can be obtained by contacting the Bureau of Water. Several Bureau programs address these impaired streams in an effort to restore them.

Total Maximum Daily Load

A Total Maximum Daily Load (TMDL) is the calculated maximum allowable pollutant loading to a waterbody at which water quality standards are maintained. A TMDL is made up of two main components, a load allocation and a wasteload allocation. A load allocation is the portion of the receiving water's loading capacity attributed to existing or future nonpoint sources or to natural background sources. The waste load allocation is the portion of a receiving water's loading capacity allocated to an existing or future point source.

A TMDL is a means for recommending controls needed to meet water quality standards in a particular water or watershed. Historically, the typical TMDL has been developed as a wasteload allocation, considering a particular waterbody segment, for a particular point source, to support setting effluent limitations. In order to address the combined cumulative impacts of all sources, broad watershed-based TMDLs are now being developed.

The TMDL process is linked to all other State water quality activities. Water quality impairments are identified through monitoring and assessment. Watershed-based investigations result in source identification and TMDL development. TMDLs form links between water quality standards and point and nonpoint source controls. Where TMDLs are established, they constitute the basis for NPDES permits and for strategies to reduce nonpoint source pollution. The effectiveness and adequacy of applied controls are evaluated through continued monitoring and assessment.

Funding for TMDL implementation is currently available with USEPA's §319 of the Clean Water Act grants. For more information, see the Bureau of Water web page www.scdhec.gov/water or call the Watershed Program at (803) 898-4300.

Antidegradation Implementation

The State's Antidegradation Policy as part of S.C. Regulation 61-68 is represented by a three-tiered approach to maintaining and protecting various levels of water quality and uses; streams included on the §303(d) list are addressed under Tier 1. Tier 1 antidegradation policies apply to all waters of the State and require that existing uses and the minimum level of water quality for those uses be maintained and protected. Tier 2 policies apply to high quality water where the water quality exceeds the mandatory minimum levels to support the Clean Water Act's goals of propagation of fish, shellfish, wildlife, and recreation in and on the water. The Department considers all the waters of the State as high quality waters. Tier 3 policies apply to the maintenance of water quality in waters that constitute an Outstanding National Resource Water and do not allow for any permanent permitted dischargers. Outstanding Resource Waters of the State are provided a higher level of protection than Tier 2, but do not meet the requirements of Tier 3.

Tier 1 protection will be implemented when applying numeric standards included in Regulation 61-68 for human health, aquatic life, and organoleptic protection as follows: if a waterbody has been affected by a parameter of concern causing it to be on the §303(d) list, then the Department will not allow a permitted net increase of loading for the parameter of concern unless the concentration will not contribute to a violation of water quality standards. This no net increase will be achieved by reallocation of existing total load(s) or by meeting applicable water quality standard(s) at the end-of-pipe. No discharge will be allowed to cause or contribute to further degradation of a §303(d) listed waterbody.

The Antidegradation Rules apply to both nonpoint source pollution and for point sources into impaired waters. Many activities contributing to nonpoint source pollution are controlled with voluntary measures. The Department implements permitting or certification programs for some of these activities and has the opportunity to ensure compliance with the Antidegradation Rules. The activities of primary concern are land development projects which are immediately adjacent to and discharge runoff or stormwater into impaired waters.

401 Water Quality Certification Program

If a Federal permit for a discharge into waters of the State, including wetlands, is required, the Department must issue Water Quality Certification pursuant to §401 of the Federal Clean Water Act. Certification is required for permits issued by the U.S. Army Corps of Engineers for construction in navigable waters and for deposition of dredged or fill material.

Regulation 61-101 presents administrative and technical guidance for the water quality certification program and requires SCDHEC to consider whether or not a project is water dependent; whether or not there are feasible alternatives which will have less adverse consequences on water quality and classified uses; the intended purpose of the project; and all potential water quality impacts of the project, both direct and indirect, over the life of the project. Any project with the potential to affect waters of the State must be conducted in such a manner to maintain the specified standards and classified and existing water uses.

As a routine part of the §401 Water Quality Certification review process, the waterbody in question is identified as impaired or not impaired according to the §303(d) list. If it is impaired, the parameter of concern is noted, along with any steps required to prevent further degradation of the water quality of that waterbody. In an effort to facilitate watershed restoration where appropriate, mitigation for unavoidable wetland impacts is encouraged in areas that improve §303(d) listed waters.

Stormwater Program

Stormwater discharges result from precipitation during rain events. Runoff washes pollutants associated with industrial activities (including construction activity), agricultural operations, and commercial and household sites directly into streams, or indirectly into drainage systems that eventually drain into streams. The SCDHEC Stormwater Permitting Program focuses on pollution prevention to reduce or eliminate stormwater pollution. The Department has general permitting authority for stormwater discharges associated with industrial activity, including construction. General NPDES permits SCR000000 and SCR100000 for industrial and construction activities, respectively, require permittees to develop and implement stormwater pollution prevention plans that establish best management practices to effectively reduce or eliminate the discharge of pollutants via stormwater runoff.

The Stormwater and Agricultural Permitting Section is responsible for issuing NPDES stormwater permits to prevent degradation of water quality as well as for issuing state sediment and erosion control permits for construction sites. The NPDES permit are issued under the authority of the federal Clean Water Act and the S.C. Pollution Control Act. The state sediment and erosion control permits are issued under the authority of two S.C. laws. The S.C. Erosion and Sediment Reduction Act of 1983 addresses construction on state owned or managed land. The S.C. Stormwater Management and Sediment Reduction Act of 1991 addresses construction on land that is not state owned or managed. Currently, NPDES permits are required for: construction sites 1 acre and greater; construction sites in the coastal area that are within 1/2 mile of a receiving water body; and construction sites less than 1 acre on a case-by-case basis where water quality is a concern. Permits are required under the state sediment and erosion control for construction sites that are greater than 2 acres; however, there are exemptions under the law and regulation. The State Sediment and Erosion Program is somewhat duplicative of the NDPES Stormwater Program. The state program created by the 1991 Act can be delegated to local governments. Until a local government becomes delegated, SCDHEC's Office of Ocean and Coastal Resource Management is delegated the State Sediment and Erosion Control Program in the coastal area. The Stormwater and Agricultural Permitting Section manages the NPDES Stormwater Program in all areas of the state and the State Sediment and Erosion Control Program in the areas of the state where the program is not delegated to another entity.

Regulation 61-9 requires a compilation of all existing State water quality data with STORET data being used as a baseline. If analysis indicates a decrease in water quality then corrective measures must be taken. The permittee will identify all impaired water bodies in a Stormwater Management Plan (SWMP). In addition, existing pollution discharge control methods will be identified and incorporated into the SWMP. Procedures, processes, and methods to control the discharge of pollutants from the municipal separate storm sewer system (MS4) into impaired waterbodies and publicly owned lakes included on the §303(d) list will be described in the SWMP. The effectiveness of these controls will be assessed and necessary corrective measures, if any, shall be developed and implemented.

Permits for municipal systems allow communities to design stormwater management programs that are suited for controlling pollutants in their jurisdiction. There are three population-based categories of municipal separate storms sewers: large municipal (population of 250,000 or greater), medium municipal (population of 100,000 or more but less than 250,000), and small municipal (population less than 100,000). Large and medium MS4s have been regulated since the 1990s. Those small MS4s within the boundaries of an urbanized area are called Regulated Small MS4s and were required to submit MS4 NPDES applications on or before March 10, 2003. MS4 NPDES Permits are required for all large, medium, and regulated small MS4s.

South Carolina Animal Feeding Operations Strategy

Among the general categories of pollution sources, agriculture ranks as the number one cause of stream and lake impairment nationwide. Many diseases can potentially be contracted from drinking water or coming into contact with waters contaminated with animal wastes. The Department uses S.C. Regulation 61-43: *Standards for the Permitting of Agricultural Animal Facilities* to address the permitting of animal feeding operations (AFOs). Implementing these regulations and their corresponding compliance efforts are a priority for the Department in order to reduce public health and environmental impacts from AFOs. There are approximately 1,100 active AFOs in S.C. While previously, there were no federally defined concentrated animal feeding operations (CAFOs) in operation in South Carolina, EPA modified the definition of a CAFO in the NPDES regulations in December 2002. These regulations have now been adopted in S.C. Based on the new federal CAFO definition, S.C. has approximately 200 CAFOs that require NPDES permits. Using the Watershed Program cycle and the division of the State into five regions, AFOs will be monitored and inspected by region. The §303(d) list will be used to prioritize the inspections. After all the inspections have been made in a region, the Department will move to the river basins in the next region in the watershed cycle. The Department is continuing to work in cooperation and coordination with the U.S. Department of Agriculture, the Natural Resources Conservation Service, the S.C. Department of Agriculture, the S.C. Soil and Water Conservation Districts, and the Clemson Extension Service.

Sanitary Sewer Overflow Strategy

Sanitary sewers are designed to collect municipal and industrial wastewater, with the allowance for some acceptable level of infiltration and inflow, and transport these flows to a treatment facility. When the sewer system is unable to carry these flows, the system becomes surcharged and an overflow will occur. Sanitary sewer overflows (SSOs) have existed since the introduction of separate sanitary sewers, and most are caused by inadequate operation, maintenance, and management of the collection system.

The Department encourages utilities to embrace the principals of EPA's capacity Management, Operations, and Maintenance (cMOM) program. Through this program utilities can ensure adequate funding and capacity as well as a proactive approach to operations and maintenance. Those that have implemented cMOM programs have been able to significantly reduce or eliminate overflows from their collection systems. Additionally, the Department has adopted requirements for operation and maintenance of sewer systems in Regulation 61-9, Water Pollution Control Permits.

The Department's approach has been to shift resources historically applied to treatment plant inspections to include evaluations of pump stations and collection systems where problems are suspected. To assist evaluators in identifying water quality violations related to SSOs, staff have utilized the 303(d) list of impaired waters to identify waters impacted by fecal coliform or other appropriate pollutants and correlate those with collection systems with incidences of SSOs. The Department's Enforcement Referral Procedures Document is to be used to determine when a collection system should be referred to enforcement for SSOs. The enforcement process allows for the Department to consider actions taken by the collection system such as: timely and proper notification, containment and mitigation of discharge, voluntarily conducting self evaluations, and requests for compliance assistance. The Department will take immediate action where it has been determined that SSOs have occurred and the collection system has not made timely and proper notification.

Referral Strategy for Effluent Violations

The Department has developed referral effluent violation guidelines to specifically address discharges into impaired waters. The goal of the referral guidelines is to reduce pollutant discharges into impaired waters in order to ultimately restore them to their full potential usage. To achieve this goal, enforcement actions are initiated earlier in an effort to improve the quality of waters that do not meet standards. If a stream is impaired by a pollutant and the permit limit for that pollutant is exceeded more than once in a running annual reporting period, formal enforcement action will be initiated against the discharger.

SCDHEC's Watershed Stewardship Programs

Public participation is an important component of the Department's Watershed Water Quality Management Program. Benefits to this interaction on the local level include improved public awareness about SCDHEC water programs, and increased local interest and participation in water quality improvement. Described below are some of the Department's water programs that encourage public interest and involvement in water quality. These programs and their contacts are listed on the Department's website at www.scdhec.gov/water.

Source Water Assessment Program

A safe, adequate source of drinking water is key to development of communities and the health of citizens. The Safe Drinking Water Act (SDWA) provides authority to protect sources of drinking water. As a result of the 1996 amendments to the SDWA, source water protection has become a national priority. States are required to develop a plan for assessment of source waters for all federally defined public groundwater and surface water systems.

The Source Water Assessment Program (SWAP) involves determining the boundaries of the areas that are the source of waters for public water systems. For groundwater systems, these areas are defined using groundwater flow models. For surface water systems, the 14-digit Hydrologic Unit Code watershed is the designated protection area (although certain areas within the basin will be segmented as being of greater vulnerability to contamination from overland flow, groundwater contributions to surface water, and direct spills into the surface water). Known and potential sources of contamination in the delineated area must be identified, and the inventoried sources evaluated to determine the susceptibility of public water systems to such contaminants. Assessments must be made available to the public.

Local involvement will be a critical factor in the success of the SWAP, and local government, citizen groups, environmental groups, water suppliers, and the Department must all work together to increase the general public's awareness of where drinking water comes from and how to better protect sources of drinking water. Implementation of source water protection activities will occur at the local level, and local authorities may wish to base zoning and land-use planning on the source water assessments. The SWAP will be a key part of the Department's watershed management approach. To avoid duplication, information gathered from existing regulatory programs and/or watershed protection efforts will be utilized (e.g., ambient monitoring programs, TMDLs, etc.).

Consumer Confidence Reports

The Consumer Confidence Report (CCR) is an annual water quality report required of all Community water systems. The rationale behind the CCR is that consumers have a right to know what is in their drinking water and where it comes from. These reports are to educate consumers and help them make informed choices that affect the health of themselves and their families. It is believed that educated consumers are more likely to protect their drinking water sources. All CCRs are to include the following basic components:

- the water source, its location, and the availability of source water assessment plan;

- information about the water system (name and telephone number of a contact person, opportunities for public participation, and information for non-English speaking populations if applicable);
- definitions of terms and abbreviations used in the report;
- table of detected contaminants including the known or likely source of the contaminants;
- the health effects language for Maximum Contaminant Level violations and an explanation of the violation;
- information on cryptosporidium, radon, and other contaminants if applicable; and
- educational information that includes an explanation of contaminants and their presence in drinking water, an advisory for immuno-compromised people, the Safe Drinking Water Hotline telephone number, and other statements about lead, arsenic, and nitrate if applicable.

Nonpoint Source Education

The goal of the Nonpoint Source Outreach Program is to educate the citizens of South Carolina about the sources of polluted runoff and techniques that can be used to reduce this runoff. The Program provides presentations on runoff pollution to community, church, civic, or professional groups; a variety of technical and nontechnical publications on runoff pollution and reduction techniques; *Turning the Tide*, a free, quarterly Nonpoint Source newsletter; and teacher training that includes the *Action for a Cleaner Tomorrow* curriculum and information on reducing polluted runoff. To arrange a presentation, order publications, or ask questions, contact the Nonpoint Source Education coordinator at 803-898-4300 or visit our website.

South Carolina Water Watch

South Carolina Water Watch is a unique effort to involve the public and local communities in water quality protection. The Water Watch program was developed to encourage South Carolina's citizens to become stewards of the State's lakes, rivers, streams, estuaries, and wetlands. Volunteers select a water resource on which to focus and perform activities aimed at protecting water quality, such as shoreline surveys, public education, and litter cleanups. The Water Watch coordinator assists participants with materials and training to help make projects successful. SCDHEC invites individuals, school groups, civic organizations, businesses, and local governments to learn about and protect the quality of our waterways by contacting the Water Watch coordinator at 803-898-4300 or visit our website.

Champions of the Environment

Champions of the Environment is a student recognition program that raises awareness of environmental issues. Nationally recognized for its innovative approach to environmental education, the program promotes hands-on learning by recognizing students working on exemplary environmental projects beyond the realm of the classroom. With scholarships and media coverage, Champions of the Environment encourages student initiative and self-esteem. The program promotes environmental awareness, leadership, conservation, creativity, and self-confidence through activities such as group projects, public speaking, and environmental research. Champions of the Environment is jointly sponsored by Dupont, International Paper, WIS-TV, and SCDHEC. For more information contact the Champions of the Environment coordinator at 803-898-4300 or visit our website.

Clean Water State Revolving Fund

Congress created the Clean Water State Revolving Fund (SRF) in 1987, to replace the §201 Construction Grants program. In doing so, 'state banks' were created to lend money for virtually any type of water pollution control infrastructure project. Project types include construction of wastewater treatment systems and nonpoint source pollution control. The interest rate on the loans is always below the current market rate. As repayments are made on the loans, funds are recycled to fund additional water protection projects. The vast majority of the SRF funds have been used for the construction of traditional municipal wastewater treatment systems. Because of its inherent flexibility, the SRF program is well suited to accommodate the watershed approach.

SRF loans are available to units of state, local, and regional government, and special purpose districts. South Carolina law prevents loans from being made directly to private organizations and individuals. Local governments such as cities and counties and other units of government such as Soil and Water Conservation Districts, Councils of Government, and Water and Sewer Districts are encouraged to apply for SRF loans for nonpoint source projects. Nonpoint source projects may include construction and maintenance of stormwater management facilities, establishment of a stormwater utility, purchase of land for wetlands and riparian zones, and implementation of source water protection assessments. For more information, contact the State Revolving Fund coordinator at 803-898-4300 or visit our website.

Citizen-Based Watershed Stewardship Programs

Upstate Forever

Based in Greenville, Upstate Forever promotes sensible growth and the protection of special places in the upstate region of South Carolina. Some of their activities include: preserving green spaces through the Upstate Forever Land Trust; monitoring the S.C. General Assembly on conservation related issues; educating the public on smart growth; working with local governments on water quality, air quality and green spaces issues; and partnering with watershed based groups such as the Saluda-Reedy Consortium.
http://www.upstateforever.org/index_flash.htm

Friends of the Reedy River (FORR)

Based in Greenville, The Friends of the Reedy River (FORR) is a 700-plus membership based, non-profit organization, dedicated to protecting and restoring the Reedy River and its tributaries. The volunteer driven organization was founded over ten years ago and continues to work to recover the river's natural, historic, cultural, and economic value. FORR operates as a land trust to protect sensitive wetlands and riverside forests through acquisitions of land and conservation easements on private property. FORR works to restore the natural beauty and value of the river, and has identified and catalogued damaged creeks and streams throughout the watershed. FORR acts as an advocate and speaks on behalf of the river to City and County Councils, Planning Boards, the Public Service Commission, the S.C. Legislature, and to various civic groups and schools. FORR works to protect the river from pollution and contaminants through the enforcement of water quality regulations when storm water run-off or pollution threatens the river's recovery. Each year, volunteers pull tons of trash from the river and its tributaries. Friends of the Reedy River has undertaken an extensive storm drain tagging program to educate the public on the connection of storm drains and water quality in the Reedy River watershed.
http://www.reedyriver.org/

Saluda Reedy Watershed Consortium

"The Saluda-Reedy Watershed Consortium is a collaborative effort by non-profit organizations, the private sector, universities, and state agencies to restore and protect the Saluda River and the Reedy River from their headwaters to Lake Greenwood". This group is assembling a comprehensive database of water quality information for the entire Saluda-Reedy Watershed. This information will be available for the public. They are also undertaking an extensive public outreach and education campaign. Ultimately this group intends to facilitate the restoration and protection of ecosystem integrity in key locations within the Saluda-Reedy watershed. http://www.saludareedy.org/news.asp

Lake Conestee Foundation

The Lake Conestee foundation works to stabilize and restore this urban lake located south of

Greenville on the Reedy River. Originally impounded in the early 19^{th} century, Lake Conestee has received generations of upstream pollutants. It is suspected to contain extensive contaminated sediments. As a condition of acquiring the property, the Foundation entered into an agreement with SCDHEC to obtain a voluntary clean up contract to obtain Superfund liability protection. In cooperation with state and federal partners, extensive analysis of the site has been accomplished and with local cooperation there are plans to upgrade the dam, establish an environmental education center, and acquire some additional adjacent properties for passive recreation.

Friends of Lake Greenwood and its Rivers

The Friends of Lake Greenwood and its Rivers advocate for water quality and lake stewardship among residents of Lake Greenwood, Greenwood County, and State agencies. They have been especially involved in issues relating to algal bloom control in the Reedy River arm of Lake Greenwood.

Lake Murray Association

The Lake Murray Association is comprised of a variety of lake users including shoreline residents, boaters, fishermen, and businesses. They work to educate the public on water quality and quantity issues and interact with state and federal agency personnel, elected officials, and the local hydroelectric utility (SCE&G) to protect and enhance Lake Murray's resources. They have had a secchi depth monitoring program and have sponsored displays at public events such as boat shows. The association has been a sponsor of 4H2O, a cooperative educational program, where middle school children are given "hands on" water quality related opportunities on and around the lake provided by association members and local natural resources professionals. http://www.lakemurrayassociation.com/

Lake Watch

Lake Watch is a Lake Murray watchdog group that maintains oversight of development and water quality issues on and around the lake. They interact with state and federal officials as well as the operator of the reservoir, SCE&G, to ensure that appropriate oversight of regulated activities occurs in the vicinity of Lake Murray.

Friends of Congaree Swamp

Friends of Congaree Swamp is an advocate for conservation and recreational interests in the Congaree National Park. They have worked to enhance the recognition, public awareness, and appreciation of the outstanding national resource that exists in the midlands of South Carolina. They have been involved in recreational enhancements, park clean ups, public education, and research in and around the Park area. http://www.friendsofcongaree.org/

Gills Creek Watershed Association

The Gills Creek Watershed Association was formed to advocate for the protection and preservation of water resources in the Gills Creek watershed, located in the City of Columbia. Neighborhood lake associations have been an integral part of the association's membership. The association has been working to obtain grants for water quality improvement projects and are working with local government officials on a variety of locally focused watershed issues such as litter.

Palmetto Paddlers

Palmetto Paddlers is a non-profit association dedicated to encouraging exploration of recreational waterways, preservation of waterways, and protection of the forests, parks, and wildlife occurring in watersheds. They promote the enjoyment and appreciation of wilderness cruising and whitewater sports. Palmetto paddlers have sponsored water quality education events. Members frequently weigh in on water quality related issues at public meetings and represent water quality and recreational interests on various river related committees and councils. http://www.palmettopaddlers.org/

Lower Saluda Scenic River Advisory Council

The Lower Saluda Scenic River Advisory Council guides the implementation of the Lower Saluda River Corridor Plan. The council works towards conserving the unique qualities of the river and its watershed. Water quality, riparian conservation, recreation, and safety are some of the issues the council is involved in. The council has taken the lead in nonpoint source runoff education in the adjoining Rawls Creek Watershed and has been a strong river advocate in negotiations surrounding wastewater planning in the Midlands region. The SCDNR administers the State Scenic River Program. http://water.dnr.state.sc.us/water/envaff/river/rivercor/lowersal.html

Trout Unlimited

South Carolina's Trout Unlimited chapter has been very active in water quality issues for many years. Besides fishing, the chapter interacts with personnel at state and federal agencies, as well as the private sector on water quality planning, regulation, and enforcement issues in several areas in the Saluda River Basin and the state. Member representatives speak at community public hearings and file comments on government decisions, which impact fishery resources. http://www.saludatu.addr.com/

River Alliance

The Columbia based River Alliance works to improve recreational opportunities on and near the river, preserve the natural riverine environment along the river bank, and protect the watershed draining to the Saluda, Broad, and Congaree Rivers. With municipal partners, the Alliance has constructed an extensive greenway along the Congaree and Broad Rivers enhancing the public's ability to experience the riparian environment. Community development is a fundamental part of the Alliances activities. http://www.riveralliance.org/

Saluda River Basin Description

The ***Saluda River Basin*** covers 2,523 square miles and contains 21 watersheds with geographic regions that extend from the Blue Ridge (mountain) through the Piedmont and into the Sand Hills. The Saluda River Basin encompasses 1,614,681 acres of which 65.6% is forested land, 20.7% is agricultural land, 6.9% is urban land, 3.9% is water, 2.0% is barren land, and 0.9% is forested wetland. The urban land is comprised of the Cities of Greenville and Columbia, and to a lesser extent the Cities of Laurens and Newberry. There are a total of 2,798.4 stream miles and 64,509.1 acres of lake waters in the Saluda River Basin.

The Oolenoy River flows into the South Saluda River, which merges with the North Saluda River to form the Saluda River. Downstream from the confluence, the Saluda River flows past the City of Greenville and is joined by Georges Creek, Big Brushy Creek, Big Creek, and Broad Mouth Creek before forming the headwaters of Lake Greenwood. The Reedy River is joined by Huff Creek and flows through Boyd Mill Pond before joining the Saluda River in the Lake Greenwood headwaters. Rabon Creek flows out of Lake Rabon and into the Reedy River arm of Lake Greenwood. Just downstream of the lake, Ninety Six Creek flows into the Saluda River near the Town of Greenwood. The Little River originates near the City of Laurens and drains into the Saluda River between Lakes Greenwood and Murray. The Saluda River together with the Little Saluda River and the Bush River then form the headwaters of Lake Murray. The Saluda River emerges from the Lake Murray dam and joins the Broad River Basin at the City of Columbia to form the Congaree River. The Broad River Basin is addressed in year five of the Bureau's five-year basin cycle.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources, and land uses in common. The physiographic regions defining the Saluda River Basin are as follows:

The **Blue Ridge** is an area of dissected (separated by erosion into many closely spaced valleys), rugged mountains with narrow valleys dominated by forests; elevations range from 1,000 to 3,300 feet.

The **Piedmont** is an area of gently rolling to hilly slopes with narrow stream valleys dominated by forests, farms and orchards; elevations range from 375 to 1,000 feet.

The **Sand Hills** are an area of gently sloping to strongly sloping uplands with a predominance of sandy areas and scrub vegetation; elevations range from 250 to 450 feet.

Land Use/Land Cover

General land use/land cover mapping for South Carolina was derived from the U.S. Geological Survey's National Land Cover Data (NLCD), based on nationwide Landsat Thematic Mapper (TM) multispectral satellite images (furnished through the Multi-Resolution Land Characteristics (MRLC) consortium, coordinated by USEPA) using image analysis software to inventory the Nation's land classes. The NLCD are developed by the USGS (EROS Data Center) using TM image interpretation, air photo interpretation, National Wetland Inventory data analysis, and ancillary data analysis.

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial, and residential uses, and vegetated portions of urban areas such as recreational grass lands and industrial facility lawns.

Agricultural/Grass land is characterized by row crops, pastures, orchards, vineyards, and hay land, and includes grass cover in fallow, scrub/shrub, forest clearcut and urban areas.

Forest land is characterized by deciduous and evergreen trees (or a mix of these), not including forests in wetland settings, generally greater than 6 meters (approximately 20 feet) in height, with tree canopy of 25-100% cover.

Forested Wetland is saturated bottomland, mostly hardwood, forests primarily composed of wooded swamps occupying river floodplains, moist marginal forests, and isolated low-lying wet areas, located predominantly in the Coastal Plain.

Nonforested Wetland is saturated marshland, most commonly located in coastal tidelands and in isolated freshwater inland areas, found predominantly in the Coastal Plain.

Barren land is characterized by a nonvegetated condition of the land, both natural (rock, beaches, nonvegetated flats) and man-induced (rock quarries, mines, and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh (inland) and saline (tidal) waters.

Soil Types

The dominant soil associations, or those soil series comprising, together, over 40% of the land area, were recorded for each watershed in percent descending order. The individual soil series for the Saluda River Basin are described as follows.

Appling soils are well drained, deep soils, brownish to red, firm clay in the main part of the subsoil, found on narrow to broad ridges.

Ashe soils are shallow to moderately deep, well drained to excessively drained soils in steep areas.

Cecil soils are deep, well drained, gently sloping to sloping soils that have red subsoil.

Davidson soils are deep, gently sloping to strongly sloping, well drained to somewhat poorly drained soils with a loamy surface layer and clayey subsoil.

Georgeville soils are gently sloping to sloping, well drained and moderately well drained soils.

Hayesville soils are moderately shallow to deep, well drained soils in gently sloping to steep areas, with red to yellow-brown subsoil.

Helena soils are gently sloping to sloping, moderately well drained to well drained soils.

Herndon soils are gently sloping to sloping, well drained and moderately well drained soils.

Hiwassee soils are well drained, moderately sloping soils with clayey subsoil, moderately deep.

Lakeland soils are well drained, sandy soils with a loamy subsoil and excessively drained soils.

Louisburg soils are well drained to excessively drained, shallow to deep soils, mainly red to yellowish-brown, friable to firm sandy clay loam to clay on narrow ridges and side slopes.

Madison soils are well drained, moderately sloping soils, with clayey subsoil, moderately deep.

Pacolet soils are well drained, moderately steep soils with clayey subsoil, moderately deep.

Tatum soils are dominantly sloping to steep, well drained to excessively drained soils, with a loamy subsoil, moderately deep or shallow to weathered rock.

Wilkes soils are dominantly strongly sloping to steep, well drained soils.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments that do erode. The range of K-factor values in the Saluda River Basin is from 0.22 to 0.43.

Fish Consumption Advisory

At the time of publication, a fish consumption advisory issued by SCDHEC is in effect for portions of the ***Saluda River*** advising people to limit the amount of some types of fish consumed from these waters. The advisory ***does not include*** Lake Greenwood or Lake Murray. Fish consumption advisories are updated annually in March. For background information and the most current advisories please visit the Bureau of Water homepage at http://www.scdhec.gov/water and click on "Advisories". For more information or a hard copy of the advisories, call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

Climate

Normal yearly rainfall in the Saluda River area during the period of 1971 to 2000 was 51.81 inches, according to South Carolina's **30-year** climatological record. Data compiled from National

Weather Service stations in Caesars Head, West Pelzer, Greenwood, Laurens, Chappells, Cleveland, Ware Shoals, Little Mountain, and Newberry were used to determine the general climate information for the Saluda River area. The highest seasonal rainfall occurred in the winter with 13.68 inches; 13.09, 13.00, and 12.05 inches of rain fell in the spring, summer, and fall, respectively. The average annual daily temperature was 59.7 °F. Winter temperatures averaged 42.4°F, spring temperatures averaged 59.2 °F and summer and fall mean temperatures were 76.4 °F and 60.6 °F, respectively.

Watershed Evaluations

03050109-010

(North Saluda River)

General Description

Watershed 03050109-010 is located in Greenville County and consists primarily of the ***North Saluda River*** and its tributaries. The watershed occupies 48,423 acres of the Blue Ridge and Piedmont regions of South Carolina. The predominant soil types consist of an association of the Ashe-Cecil series. The erodibility of the soil (K) averages 0.25 and the slope of the terrain averages 25%, with a range of 2-65%. Land use/land cover in the watershed includes: 89.2% forested land, 5.6% agricultural land, 3.0% urban land, 2.1% water, and 0.1% forested wetland (swamp).

The North Saluda River originates near the State boundary with North Carolina and flows through Poinsett Reservoir, which is also known as the North Saluda Reservoir. Tributaries of Poinsett Reservoir include: Brice Creek, Brushy Creek, Big Falls Creek (Falls Creek, Posey Creek, Guest Creek), and Little Falls Creek. The portion of the North Saluda River from its headwaters to and including Poinsett Reservoir (drinking water reservoir for the City of Greenville) and its tributaries are classified ORW. The North Saluda River flows out of Poinsett Reservoir and accepts drainage from Calahan Branch, Beaverdam Creek (Terry Creek, Short Branch), Sprigg Creek, Bull Creek, and Talley Creek. Another Beaverdam Creek enters the river near the Town of Marietta as does Whitmire Creek. The river and its tributaries downstream of Poinsett Reservoir are classified FW. There are a total of 93.6 stream miles and 1,108.7 acres of lake waters in this watershed. Pleasant Ridge State Park is located in this watershed.

Surface Water Quality

Station #	Type	Class	Description
S-292	P/W	ORW	POINSETT RESERVOIR AT WATER INTAKE
S-088	P/W	FW/ORW	NORTH SALUDA RIVER AT S-23-42, 5.2 MI NNW OF TIGERVILLE
S-773	BIO	FW	NORTH SALUDA RIVER AT U.S. ROUTE 25
S-004	S/INT/BIO	FW	NORTH SALUDA RIVER AT S-23-89

North Saluda Reservoir or Poinsett Reservoir (S-292) - Aquatic life uses are fully supported. There is a significant increasing trend in pH. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

North Saluda River - There are three SCDHEC monitoring stations along the North Saluda River. At the upstream site ***(S-088)***, aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen. There is a significant increasing trend in pH. A significant decreasing trend in total phosphorus suggests improving conditions for this parameter. P,P'DDE, a metabolite of DDT, was detected in the 1997 and 1999 sediment samples, and P,P'DDT and P,P'DDD were detected in the 1999 sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. A high concentration of zinc was measured in the 1999 sediment sample. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Aquatic life uses are not supported at the midstream site ***(S-773)*** based on macroinvertebrate community data. At the downstream site ***(S-004)***, aquatic life uses are partially supported based on macroinvertebrate community data. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. There is a significant increasing trend in pH. Recreational uses are not supported due to fecal coliform bacteria excursions.

Natural Swimming Areas

FACILITY NAME ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
PLEASANT RIDGE COUNTY PARK NORTH SALUDA RIVER TRIBUTARY	23-N13 ACTIVE
CAMP OLD INDIAN CALAHAN BRANCH	23-N08 ACTIVE

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
NORTH SALUDA RIVER JPS CONVERTER & INDUSTRIES PIPES #: B10 FLOW: 0.20	SCG250012 MINOR INDUSTRIAL
NORTH SALUDA RIVER WCRSA/SLATER/MARIETTA PIPE #: 001 FLOW: 0.672	SC0026883 MINOR DOMESTIC

Water Quantity

WATER USER ***WATERBODY***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
GREENVILLE WATER SYSTEM NORTH SALUDA RESERVOIR	60.0 90.0

Growth Potential

There is a low potential for development within this mountainous watershed, which contains a portion of the Town of Slater-Marietta. A portion of the watershed is protected by the City of Greenville and the Nature Conservancy as the Greenville Water Commission Watershed.

03050109-020

(South Saluda River)

General Description

Watershed 03050109-020 is located in Pickens and Greenville Counties and consists primarily of the ***South Saluda River*** and its tributaries. The watershed occupies 77,990 acres of the Blue Ridge region of South Carolina. The predominant soil types consist of an association of the Ashe-Hayesville series. The erodibility of the soil (K) averages 0.22 and the slope of the terrain averages 25%, with a range of 2-80%. Land use/land cover in the watershed includes: 94.6% forested land, 4.0% agricultural land, 0.7% water, 0.6% urban land, and 0.1% forested wetland (swamp).

The South Saluda River flows through Table Rock Reservoir and is joined by several tributaries before merging downstream with the North Saluda River. The headwaters of the South Saluda River accept drainage from Laurel Creek (Big Spring Creek, Rock Laurel Branch) and Flat Rock Creek before entering Table Rock Reservoir. Slicking Creek (Little Table Rock Creek, Chestnut Cove) and Galloway Branch flow directly into the reservoir. The South Saluda River and its tributaries, from the headwaters through and including Table Rock Reservoir, are classified ORW. Matthews Creek (Julian Creek) enters the South Saluda River below the reservoir followed by West Fork (Wattacoo Creek, Robinson Branch), Tall Pines Lakes, the Oolenoy River watershed, and Spain Creek. Julian Creek and Matthews Creek, from their headwaters to the end of State land in the Mountain Bridge area, are classified ORW. The South Saluda River is classified TPGT from the Table Rock Reservoir dam to the crossing of S.C. Hwy 8.

The most predominant tributary to the South Saluda River is the Middle Saluda River, which originates in Caesars Head State Park and accepts drainage from Coldspring Branch, Rock Branch, Buck Hollow, and Head Foremost Creek. Gap Creek (Falls Creek, Trammell Lake, Friddle Lake, Bluff Branch, Tankersly Branch, Peters Branch, Cherry Branch) enters the Middle Saluda River next followed by Oil Camp Creek, Jane Branch, Devils Fork Creek, Cox Creek (Grissom Branch), Mill Creek, Wolf Creek, and Spout Spring Branch. Coldspring Branch and the Middle Saluda River, from their headwaters to the end of State land, are classified ORW. Oil Camp Creek is classified ORW from its headwaters to the end of State land, and the remainder of the stream is classified TN. All of Head Foremost Creek is classified ORW, and Falls Creek is ORW from its headwaters to Lake Trammell. Lake Trammell and the remainder of Falls Creek are classified TN. The entire reach of Gap Creek, together with Rock Branch, and Buck Hollow are classified TN, and the Middle Saluda River is classified TN from the end of State land to Oil Camp Creek.

Peters Creek and Carpenter Creek flow into the South Saluda River downstream of the confluence with the Middle Saluda River. There are a total of 185.9 stream miles and 568.7 acres of lake waters in this watershed. With the exception of the ORW, TN, and TGPT streams mentioned above, the remaining streams are classified FW. Other natural resource areas in this watershed include Table Rock State Park, Caesars Head State Park, and Jones Gap State Park. A five-mile segment of the Middle Saluda River is protected under the South Carolina Scenic Rivers Program. Table Rock Reservoir is used for municipal purposes only by the Greenville Water Commission.

Surface Water Quality

Station #	Type	Class	Description
S-291	P/W	ORW	TABLE ROCK RESERVOIR AT WATER INTAKE
S-320	P/W	FW	SOUTH SALUDA RIVER AT S-39-113 (TABLE ROCK ROAD)
S-086	BIO	TN	MATTHEWS CREEK AT S-23-90
S-771	BIO	FW	SOUTH SALUDA RIVER AT SC ROUTE 11
S-087	S/W	FW	SOUTH SALUDA RIVER AT S-23-101
S-076	BIO	ORW	MIDDLE SALUDA RIVER AT JONES GAP STATE PARK
S-077	W	FW	MIDDLE SALUDA RIVER AT S-23-41
S-317	BIO	FW	OIL CAMP CREEK AT S-23-097
S-252	S/W	FW	MIDDLE SALUDA RIVER AT SC 288, 2.3 MILES WSW SLATER
S-299	W/INT	FW	SOUTH SALUDA RIVER AT SC 186

Table Rock Reservoir (S-291) - Aquatic life uses are fully supported; however, there is a significant increasing trend in total phosphorus concentration. There is a significant increasing trend in pH. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

South Saluda River - There are four SCDHEC monitoring sites along the South Saluda River. At the upstream site ***(S-320)***, aquatic life and recreational uses are fully supported; however, there is a significant increasing trend in five-day biochemical oxygen demand. Further downstream ***(S-771)***, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life uses are also fully supported at the next site downstream ***(S-087)***. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. There is a significant increasing trend in pH. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions. At the furthest downstream site ***(S-299)***, aquatic life uses are again fully supported. There is a significant increasing trend in pH at this site. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

Matthews Creek (S-086) - Aquatic life uses are fully supported based on macroinvertebrate data.

Middle Saluda River - There are three SCDHEC monitoring sites along the Middle Saluda River. At the upstream site ***(S-076)***, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life uses are not supported at the midstream site ***(S-077)*** due to occurrences of copper in excess of the aquatic life acute standards. There are also significant increasing trends in five-day biochemical oxygen demand and pH. Recreational uses are fully supported at this site. Aquatic life uses are fully supported at the downstream site ***(S-252)***. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. 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 at this site.

Oil Camp Creek (S-317) - Aquatic life uses are fully supported based on macroinvertebrate data.

Natural Swimming Areas

FACILITY NAME / *RECEIVING STREAM*	*PERMIT #* / *STATUS*
CAMP GREENVILLE MIDDLE SALUDA RIVER TRIBUTARY	23-N11 ACTIVE
PALMETTO BIBLE CAMP FRIDDLE LAKE/FALLS CREEK	23-N22 ACTIVE
CAMP WABAK GAP CREEK	23-N07 ACTIVE
AWANITA VALLEY MIDDLE SALUDA RIVER	23-N06 ACTIVE

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-108	GB	PIEDMONT BEDROCK	CAESAR'S HEAD

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / *FACILITY NAME* / *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* / *TYPE* / *COMMENT*
SOUTH SALUDA RIVER MILLIKEN & CO./GAYLEY PLANT PIPE #: 001 FLOW: 1.792	SC0003191 MAJOR INDUSTRIAL
MATTHEWS CREEK ASBURY HILLS CAMP & RETREAT PIPE #: 001 FLOW: 0.015 PIPE #: 001 FLOW: 0.04	SC0029742 MINOR DOMESTIC PROPOSED

Nonpoint Source Management Program

Mining Activities

MINING COMPANY / *MINE NAME*	*PERMIT #* / *MINERAL*
HENDRIX SAND COMPANY HENDRIX MINE INSTREAM DREDGING (SOUTH SALUDA RIVER)	0717-77 SAND
B & B SAND MARIETTA MINE #1	0640-45 SAND

Water Quantity

WATER USER / *WATERBODY*	*REGULATED CAPACITY (MGD)* / *PUMPING CAPACITY (MGD)*

GREENVILLE WATER SYSTEM (M)	30.0
TABLE ROCK RESERVOIR	45.0

Growth Potential

There is a low potential for development or intensive agriculture in this mountainous watershed, which is predominately protected as park and forest by Caesars Head and Table Rock State Parks. The primary uses of the watershed are recreation and preservation; however, some relatively small clear and selective cut timber harvesting activities occur on the private land holdings. U.S. 276 crosses the watershed, but very little development occurs along the thoroughfare to North Carolina.

Watershed Protection and Restoration Strategies

Special Projects

Assessing Water Quality in the Saluda River Watershed

Furman University has recently completed a three-year project that was to determine the sources of impairments on several tributaries and reaches of the Saluda River. These impairments include high fecal coliform counts detected in the watersheds of the **Middle Saluda River,** the **South Saluda River**, a small tributary to the Saluda River north of the Town of Pelzer, Broad Mouth Creek, Big Brushy Creek, the Bush River, Scotts Creek, and the Little River; high phosphorous concentrations found in the Bush River; low dissolved oxygen levels in Coronaca Creek; and an impaired macroinvertebrate community in Broad Mouth Creek. A stream sampling program was conducted in 2001, 2002, and 2003 with 182 sites sampled within the ten impaired areas. Each site was sampled from 3 to 7 times for water chemistry and for total coliform, *E. coli*, and heterotrophic bacterial counts. In addition, selected sites were sampled for fish abundance and diversity and for macroinvertebrate abundance and diversity.

03050109-030

(Oolenoy River)

General Description

Watershed 03050109-030 is located in Pickens County and consists primarily of the ***Oolenoy River*** and its tributaries. The watershed occupies 31,469 acres of the Blue Ridge and Piedmont regions of South Carolina. The predominant soil types consist of an association of the Pacolet-Ashe-Cecil series. The erodibility of the soil (K) averages 0.24 and the slope of the terrain averages 25%, with a range of 2-80%. Land use/land cover in the watershed includes: 95.2% forested land, 4.4% agricultural land, 0.3% water, and 0.1% urban land.

Tributaries of the Oolenoy River include Willis Creek, Emory Creek, Rachael Creek, Mill Creek, Carrick Creek (Green Creek, Pinnacle Lake, Oolenoy Lake), Adams Creek (Molly Branch), Weaver Creek (Burgess Creek, Cisson Creek), Hawk Creek, and Gowens Creek. Willis Creek and Emory Creek are classified ORW from their headwaters to the northern boundary of Table Rock Resort property. Green Creek and the headwaters of Carrick Creek through and including Pinnacle Lake are classified ORW, and the remaining streams in the watershed are classified FW. Table Rock State Park is another natural resource in the watershed. There are a total of 76.5 stream miles and 82.3 acres of lake waters in this watershed.

Surface Water Quality

Station #	Type	Class	Description
S-798	W	FW	LAKE OOLENOY AT DRAIN NEAR SPILLWAY AT SC 11
S-103	W/BIO	FW	OOLENOY RIVER AT S-39-47

Lake Oolenoy (S-798) – Lake Oolenoy is a 50-acre impoundment in Table Rock State Park, with a maximum depth of approximately 29.5 ft and an average depth of approximately 8.9 ft. The lake's watershed comprises 2.8 square miles. Aquatic life and recreational uses are fully supported.

The lake was treated in 1993 by the SCDNR with aquatic herbicides and stocked with triploid grass carp in an effort to control the submerged aquatic macrophytes. The stocking rate was 20 fish/vegetated acre, for a total of 700 fish. The lake was restocked in 1997 with 15 fish/vegetated acre in order to improve access to the lake. These efforts have been successful and further treatments have not been necessary.

Oolenoy River (S-103) – Aquatic life uses are fully supported based on macroinvertebrate community, physical and chemical data. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Table Rock State Park Swimming Lake - The lake was treated in 1993 by the SCDNR with aquatic herbicides in an attempt to control the aquatic plants that prevent access to the lake for swimming and boating. In addition, grass carp, a biological control agent, was introduced in 1993 at the stocking rate of

20 fish/vegetated acre for a total of 200 fish. These efforts have been successful and further treatments have not been necessary.

Natural Swimming Areas

FACILITY NAME *RECEIVING STREAM*	*PERMIT #* *STATUS*
WESLEYAN CAMP PINNACLE LAKE	39-N01 ACTIVE
TABLE ROCK STATE PARK MILL CREEK	39-N06 ACTIVE

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-071	GB	SAPROLITE	PICKENS SHALLOW
AMB-082	GB	PIEDMONT BEDROCK	PICKENS DEEP

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
CARRICK CREEK SCDPRT/TABLE ROCK STATE PARK PIPE #: 001 FLOW: 0.035	SC0024856 MINOR DOMESTIC

Growth Potential

There is an overall low potential for development or intensive agriculture in this watershed; however, there is a high potential for low density residential and tourist commercial development where Scenic S.C. Hwy. 11 crosses the watershed. Several small residential subdivisions have been constructed, and wastewater disposal for these new areas are by septic tanks. There are a few, relatively small, clear and selective cut timber harvesting activities occurring on the private land holdings along this watershed of mountains and rolling hills.

03050109-040

(Saluda River)

General Description

Watershed 03050109-040 is located in Pickens and Greenville Counties and consists primarily of the ***Saluda River*** and its tributaries from its origin to Big Creek. The watershed occupies 91,373 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Madison-Cecil-Davidson series. The erodibility of the soil (K) averages 0.24 and the slope of the terrain averages 25%, with a range of 2-80%. Land use/land cover in the watershed includes: 63.7% forested land, 20.6% agricultural land, 13.4% urban land, 1.0% forested wetland (swamp), 0.7% water, and 0.6% barren land.

The Saluda River is formed by the confluence of the North Saluda River and the South Saluda River Watersheds. Tributaries draining into the upper portion of this watershed include Shoal Creek, Armstrong Creek, Machine Creek (Doddies Creek), Rutledge Lake, and Coopers Creek. The Saluda River then flows through Saluda Lake in the City of Greenville, and is joined by Mill Creek and the Georges Creek watershed. Further downstream, Craven Creek, the Big Brushy Creek watershed, and Hurricane Creek drain into the river. Little Grove Creek and another Mill Creek join to form Grove Creek, which flows into the river at the base of the watershed. This watershed contains a total of 187.6 stream miles and 472.8 acres of lake waters, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-866	BIO	FW	SHOALS CREEK AT SR 140
S-250	P/W	FW	SALUDA RIVER AT FARR'S BRIDGE ON SC 183, 7MI NE OF EASLEY
S-314	W	FW	SALUDA LAKE, 0.5 MILES UPSTREAM OF LANDING
RL-01015	RL01	FW	SALUDA LAKE 5MI W OF GREENVILLE, 0.8MI NE OF WESTWOOD
S-315	P/W	FW	MILL CREEK AT BENT BRIDGE ROAD, BELOW CAROLINA PLATING
S-007	P/W	FW	SALUDA RIVER AT SC 81, SW OF GREENVILLE
S-267	S/W	FW	TRIB.TO SALUDA R. 300 YDS BELOW W.PELZER WWTP DSTR OF WOODCOCK RD
S-171	S/W	FW	GROVE CREEK BELOW JP STEVENS ESTES PLANT
S-774	BIO	FW	GROVE CREEK AT S-23-541
S-119	S/INT	FW	SALUDA RIVER AT S-04-178, 3.2 MILES SE WILLIAMSTON

Saluda River – There are three SCDHEC monitoring sites along this section of the Saluda River. At the upstream site ***(S-250)***, aquatic life uses are fully supported. There is a significant increasing trend in pH. A significant decreasing trend in total nitrogen concentration suggests improved conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria.

At the midstream site ***(S-007)***, aquatic life uses are fully supported. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. A very high concentration of chromium was measured in the 1999 sediment sample. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria. At the downstream site ***(S-119)***, aquatic life and recreational uses are fully supported; however, there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations.

Saluda Lake - Saluda Lake is a 500-acre impoundment on the Saluda River, with a maximum depth of approximately 40.0 ft and an average depth of approximately 7.9 ft. The lake's watershed comprises 263.0 square miles. There are two monitoring sites along Saluda Lake, and aquatic life and recreational uses are fully supported at both sites ***(S-314, RL-01015).***

Unnamed Saluda River Tributary (S-267) - Aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Mill Creek (S-315) - Aquatic life uses are not supported due to occurrences of chromium and copper in excess of the aquatic life acute standards. In addition, there is a significant decreasing trend in dissolved oxygen and a significant increasing trend in five-day biological oxygen demand. There is also a significant increasing trend in pH. Drinking water uses are not supported due to occurrences of chromium in excess of the drinking water MCL. Signs have been posted on this creek advising people to avoid swimming, wading, drinking, or other contact with water from the creek, and not to consume fish from the creek. This chromium is finding its way into the stream from groundwater contamination originating at the old Carolina Plating and Stamping site. A significant decreasing trend in total phosphorus concentration suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. In addition, there is a significant increasing trend in fecal coliform bacteria.

Grove Creek - There are two SCDHEC monitoring sites along Grove Creek. At the upstream site ***(S-171)***, aquatic life uses are fully supported. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. There is a significant increasing trend in pH. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. Aquatic life uses are partially supported at the downstream site ***(S-774)*** based on macroinvertebrate community data.

Shoal Creek (S-866) - Aquatic life uses are fully supported based on macroinvertebrate community data. *A fish consumption advisory has been issued by the Department for mercury and includes portions of a stream within this watershed* *(see advisory p.39).*

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
SALUDA RIVER DUKE ENERGY CORP./LEE STEAM STATION PIPES #: 001-004 FLOW: M/R	SC0002291 MAJOR INDUSTRIAL
SALUDA RIVER WCRSA/PIEDMONT PLANT PIPE #: 001 FLOW: 1.200 PIPE #: 001 FLOW: 5.0	SC0023906 MAJOR DOMESTIC PROPOSED
SALUDA RIVER WCRSA/SALUDA RIVER PLANT PIPE #: 001 FLOW: 0.500	SC0034568 MINOR DOMESTIC TO BE ELIMINATED
SALUDA RIVER TOWN OF PELZER PIPE #: 001 FLOW: 0.20	SC0040797 MINOR DOMESTIC
SALUDA RIVER WCRSA/GEORGES CREEK PLT PIPE #: 001 FLOW: 3.0 PIPE #: 001 FLOW: 5.0	SC0047309 MAJOR DOMESTIC PROPOSED
SALUDA RIVER TRIBUTARY VULCAN CONSTR. MATERIALS CO. PIPE #: 002 FLOW: M/R	SCG730245 MINOR INDUSTRIAL
SALUDA RIVER TRIBUTARY DAN RIVER INC./WHITE HORSE PLT PIPE #: F10, F11, F12 FLOW: 0.50	SCG250093 MINOR INDUSTRIAL
SALUDA RIVER TRIBUTARY TOWN OF WEST PELZER PIPE #: 001 FLOW: 0.200	SC0025194 MINOR DOMESTIC
SALUDA RIVER TRIBUTARY JC COX UTILITIES/FOREST HILL PIPE #: 001 FLOW: 0.008	SC0028525 MINOR DOMESTIC
SALUDA LAKE EASLEY COMBINED UTIL./DAN L. MOOORE PIPE #: 001-010 FLOW: M/R	SCG641007 MINOR DOMESTIC
SALUDA RIVER WCRSA/GROVE CREEK PLT PIPE #: 001 FLOW: 2.0	PROPOSED MAJOR DOMESTIC (RELOCATION OF DISCHARGE)
GROVE CREEK WCRSA/GROVE CREEK PLT PIPE #: 001 FLOW: 2.0	SC0024317 MAJOR DOMESTIC

GROVE CREEK TRIBUTARY CYTEC CARBON FILTERS LLC PIPE #: 001-005 FLOW: 0.50	SCG250197 MINOR INDUSTRIAL
GROVE CREEK TRIBUTARY DELTA MILLS/ESTES PLT PIPE #: F10, F11 FLOW: 0.50	SCG250143 MINOR INDUSTRIAL
GROVE CREEK TRIBUTARY UNITED UTILITES/VALLEY BROOK SD PIPE #: 001 FLOW: 0.06	SC0028673 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
PIEDMONT LANDFILL, PHASE I MUNICIPAL	DWP-009 CLOSED
PIEDMONT LANDFILL, PHASE II MUNICIPAL	DWP-074 CLOSED
PIEDMONT LANDFILL, PHASE III MUNICIPAL	DWP-095 CLOSED
BLACKBERRY VALLEY LANDFILL MUNICIPAL	DWP-107 CLOSED
GRACE ROAD LANDFILL MUNICIPAL	DWP-077 CLOSED

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
THOMAS SAND COMPANY RIVER ROAD PLANT INACTIVE INSTREAM DREDGING (SALUDA RIVER)	0908-07 SAND
KING ASPHALT SALUDA RIVER SITE	1328-07 SAND/RIVER
SALUDA LAKE ASSOC. SALUDA LAKE MINE	1103-77 SAND
VULCAN CONSTR. MATERIALS CO. LAKESIDE QUARRY	0064-45 GRANITE

Water Quantity

WATER USER ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
EASLEY COMBINED UTILITY SALUDA LAKE	10.1 15.1

Growth Potential

The Town of Pelzer and portions of the Towns of Berea, Parker, Welcome, Dunean, Gantt, Powderville, Golden Grove, Piedmont, and West Pelzer are located in this watershed. The upper area of the watershed has a fairly low potential for extensive development or intensive agricultural (other than orchards), except for nonintensive agricultural and low density residential activity along the Saluda River. The central and lower regions of the watershed have a relatively high potential for urban development; rail lines run through these areas along the Saluda River. Significant growth is projected along both sides of the Saluda River from S.C. 183 to Williamston. The Southern Connector combined with I-85 interchanges and highway improvements of U.S. 25 and S.C. 20 will continue to spur industrial and commercial growth. The Saluda River bisects the U.S. 123 high growth corridor between the Cities of Easley and Greenville.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

A TMDL was developed to determine the maximum amount of fecal coliform bacteria Mill Creek can receive from point and nonpoint sources and still meet water quality standards. Data from SCDHEC ambient monitoring station S-315 on Mill Creek shows that recreational uses are not supported due to violations of the 400/100 ml fecal coliform criterion. During the assessment period (1988-1992), 50% of the samples did not meet the fecal coliform criterion. Station S-315 is also considered impaired for aquatic life use based on observed elevated levels of zinc and chromium. However, this TMDL will address only the recreational use impairment. The target level of fecal coliform bacteria is 175 fecal coliforms/100ml. For the Mill Creek watershed, this is equivalent to a loading of 7.665 x 108 fecal coliforms/day.

Special Projects

Assessing Water Quality in the Saluda River Watershed

Furman University has recently completed a three-year project that was to determine the sources of impairments on several tributaries and reaches of the Saluda River. These impairments include high fecal coliform counts detected in the in Coronaca Creek; and an impaired macroinvertebrate community in Broad Mouth Creek. A stream sampling program was conducted in 2001, 2002, and 2003 with 182 sites sampled within the ten watersheds of the Middle Saluda River, the South Saluda River, **a small tributary to the Saluda River north of the Town of Pelzer**, Broad Mouth Creek, Big Brushy Creek, the Bush River, Scotts Creek, and the Little River; high phosphorous concentrations found in the Bush River; low dissolved oxygen levels impaired areas. Each site was sampled from 3 to 7 times for water chemistry and for total coliform, *E. coli*, and heterotrophic bacterial counts. In addition, selected sites were sampled for fish and macroinvertebrate abundance and diversity.

03050109-050

(Georges Creek)

General Description

Watershed 03050109-050 is located in Pickens County and consists primarily of ***Georges Creek*** and its tributaries. The watershed occupies 21,104 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.25 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 61.3% forested land, 23.0% agricultural land, 14.3% urban land, 0.9% forested wetland (swamp), 0.4% water, and 0.1% barren land.

The Georges Creek watershed drains into the Saluda River near the City of Greenville. Tributaries draining into Georges Creek include Mad Dog Branch, Burdine Creek (Georges Creek Lake), Hamilton Creek (Middle Creek, East Creek), Little Georges Creek, and Crayton Creek. There are a total of 39.5 stream miles and 169.9 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-005	S/W	FW	GEORGES CREEK TRIBUTARY AT S-39-192, 2.6 MILES NE OF EASLEY
S-865	BIO	FW	GEORGES CREEK AT ROAD ABOVE SR 36
S-300	W/INT	FW	GEORGES CREEK AT S-39-28

Georges Creek - There are two SCDHEC monitoring sites along Georges Creek. At the upstream site ***(S-865)***, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life uses are fully supported at the downstream site ***(S-300)***; however, there is a significant decreasing trend in dissolved oxygen. Recreational uses are not supported due to fecal coliform bacteria excursions.

Georges Creek Tributary (S-005) –Aquatic life uses are fully supported. There is a significant increasing trend in pH. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
GEORGES CREEK EASLEY/GEORGES CREEK LAGOON PIPE #: 001 FLOW: 0.82	SC0023043 MINOR DOMESTIC

BURDINE CREEK ALICE MANUFACTORING/ELLISON PLT PIPE #: 001 FLOW: 0.0004 PIPE #: 002 FLOW: 0.017	SC0001171 MINOR INDUSTRIAL EFFLUENT
HAMILTON CREEK HOLLINGSWORTH SACO LOWELL INC. PIPE #: 001 FLOW: 0.066	SC0001155 MAJOR INDUSTRIAL
HAMILTON CREEK TRIBUTARY EASLEY SITE TRUST PIPE #: 001 FLOW: 0.0144	SC0046396 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
HOLLINGSWORTH SACO LOWELL INC. INDUSTRIAL	IWP-144 ---------

Growth Potential

There is a high potential for urban development in this watershed, which contains a portion of the City of Easley. The area north and east of Easley to the Saluda River has been cited in the Appalachian Regional Development Plan as an infrastructure expansion area with potential for both industrial and residential growth. The area where U.S. 123 crosses this watershed is lined with strip shopping centers, fast food restaurants, and large parking areas. Behind this line of fast development are located both residential and industrial areas.

03050109-060

(Big Brushy Creek)

General Description

Watershed 03050109-060 is located in Pickens and Anderson Counties and consists primarily of ***Big Brushy Creek*** and its tributaries. The watershed occupies 23,652 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.26 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 48.7% forested land, 30.1% agricultural land, 19.9% urban land, 0.5% water, 0.4% barren land, and 0.4% forested wetland (swamp).

The Big Brushy Creek watershed drains into the Saluda River near the Town of Piedmont. Big Brushy Creek is formed by the confluence of Brushy Creek and Middle Branch (Hornbuckle Creek). Little Brushy Creek flows into Big Brushy Creek near the base of the watershed. This watershed contains a total of 44.6 stream miles and 110.3 acres of lake waters, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-301	W/INT/BIO	FW	BIG BRUSHY CREEK AT S-04-143

Big Brushy Creek (S-301) - Aquatic life uses are partially supported based on macroinvertebrate community data. Recreational uses are partially supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
MIDDLE BRANCH EASLEY COMBINED UTILITY/MIDDLE BRANCH PLT PIPE #: 001 FLOW: 3.5	SC0039853 MAJOR DOMESTIC

Growth Potential

Portions of the City of Easley and the Towns of Powderville and Piedmont are located in this watershed. The southern edge of the City of Easley and the I-85 corridor are high growth areas in the watershed. Other areas of potential growth are the presently unserved interstate interchanges, which have regional plans to be upgraded with water and sewer to encourage development. Regional wastewater facilities have been upgraded to allow for growth. There are also several industrial sites dispersed through the watershed.

Watershed Protection and Restoration Strategies

Special Projects

Assessing Water Quality in the Saluda River Watershed

Furman University has recently completed a three-year project that was to determine the sources of impairments on several tributaries and reaches of the Saluda River. These impairments include high fecal coliform counts detected in the in Coronaca Creek; and an impaired macroinvertebrate community in Broad Mouth Creek. A stream sampling program was conducted in 2001, 2002, and 2003 with 182 sites sampled within the ten watersheds of the Middle Saluda River, the South Saluda River, a small tributary to the Saluda River north of the Town of Pelzer, Broad Mouth Creek, **Big Brushy Creek**, the Bush River, Scotts Creek, and the Little River; high phosphorous concentrations found in the Bush River; low dissolved oxygen levels impaired areas. Each site was sampled from 3 to 7 times for water chemistry and for total coliform, *E. coli*, and heterotrophic bacterial counts. In addition, selected sites were sampled for fish and macroinvertebrate abundance and diversity.

0350109-070

(Big Creek)

General Description

Watershed 03050109-070 is located in Anderson County and consists primarily of ***Big Creek*** and its tributaries. The watershed occupies 12,536 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.26 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 46.0% forested land, 41.8% agricultural land, 10.7% urban land, 1.0% water, 0.4% forested wetland (swamp), and 0.1% barren land.

Big Creek flows through Big Creek Reservoir and is joined by Camp Creek (Camp Creek Reservoir), near the Town of Williamston, before draining into the Saluda River. This watershed contains a total of 24.7 stream miles and 130.0 acres of lake waters, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-302	W/INT/BIO	FW	BIG CREEK AT S-04-116

Big Creek (S-302) - Aquatic life uses are fully supported based on physical, chemical, and macroinvertebrate community data. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
ANDERSON COUNTY/BIG CREEK MUNICIPAL	041001-1101 ACTIVE

Growth Potential

Overall, there is a fairly low potential for intensive urban growth in this watershed, which contains portions of the Towns of West Pelzer and Williamston. The Town of Williamston, although not a high growth area, is expected to experience low to moderate growth. A rail line crosses the watershed running from Williamston to the Town of Pelzer (en route to the City of Greenville) and contributes to the growth in the area.

03050109-080

(Saluda River/Lake Greenwood)

General Description

Watershed 03050109-080 is located in Anderson, Greenville, Abbeville, Laurens, Greenwood, and Newberry Counties and consists primarily of the ***Saluda River*** and its tributaries from Big Creek to the ***Lake Greenwood*** dam. The watershed occupies 160,891 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Wilkes series. The erodibility of the soil (K) averages 0.25 and the slope of the terrain averages 15%, with a range of 2-45%. Land use/land cover in the watershed includes: 70.5% forested land, 16.2% agricultural land, 5.5% water, 4.5% barren land, 2.6% urban land, and 0.7% forested wetland (swamp).

This section of the Saluda River accepts drainage from Toney Creek, Mountain Creek, Little Creek, and the Broadmouth Creek watershed before forming Lake Greenwood. Turkey Creek accepts drainage from Goose Creek, Gibson Creek (Gypsy Creek), Dunns Creek, and Little Turkey Creek before forming an arm of Lake Greenwood. Mulberry Creek (Dudley Creek) and Camp Branch enters the Turkey Creek arm of the lake. Quarter Creek and Cane Creek drain into the main body of the lake. As a reach of the Saluda River, this watershed accepts the drainage of all streams entering the river upstream of the watershed. Another natural resource in this watershed is Greenwood State Park, which is located on the western shores of Lake Greenwood. Lake Greenwood is used for recreation, power generation, municipal purposes, and water supply. There are a total of 273.0 stream miles and 8,608.0 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-864	BIO	FW	Mountain Creek at SR 51
S-125	P/INT	FW	Saluda River at US 25 bypass, 1.5 miles ESE of Ware Shoals
S-858	BIO	FW	Turkey Creek at SR 96
S-024	W/INT	FW	Lake Greenwood headwaters, just upstream of S-30-33
S-131	P/W	FW	Lake Greenwood at US 221, 7.6 miles NNW of Ninety Six
S-804	BIO	FW	Cane Creek at S-30-19
S-097	S/W	FW	Lake Greenwood, Cane Creek arm at SC 72, 3.1 miles SW of Cross Hill
S-303	W/INT	FW	Lake Greenwood 200 feet upstream of dam

Saluda River (S-125) - Aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in total phosphorus concentration. Fluoranthene was detected in the 1997 sediment sample. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Mountain Creek (S-864) – Aquatic life uses are fully supported based on macroinvertebrate community data.

Turkey Creek (S-858) - Aquatic life uses are partially supported based on macroinvertebrate community data.

Lake Greenwood **-** Lake Greenwood is an 11,400-acre impoundment on the Saluda River, with a maximum depth of approximately 68.9 feet and an average depth of approximately 23.0 feet. The lake's watershed comprises 779.8 square miles. There are three SCDHEC monitoring sites along Lake Greenwood. At the furthest uplake site ***(S-024)***, aquatic life uses are partially supported due to pH excursions. Recreational uses are fully supported. At the next site downlake ***(S-131)***, aquatic life uses are not supported due to total phosphorus excursions. In addition, there were significant decreasing trends in dissolved oxygen concentration and pH. Significant decreasing trends in five-day biochemical oxygen demand, total nitrogen concentration, and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported at this site. At the furthest downlake site ***(S-303)***, aquatic life and recreational uses are fully supported. The lake was treated with aquatic herbicides from 1993-1995, and again in 1997, and in 1999-2003 by the SCDNR in an effort to control aquatic macrophytes in areas of greatest public use.

Cane Creek (S-804) **-** Aquatic life uses are fully supported based on macroinvertebrate community data. ***Cane Creek Arm of Lake Greenwood (S-097)*** **-** Aquatic life uses are not supported due to dissolved oxygen concentration and total phosphorus concentration excursions. In addition, there is a significant decreasing trend in dissolved oxygen concentration and a significant increasing trend in total phosphorus concentration. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. There is a significant decreasing trend in pH. Recreational uses are fully supported, but there is a significant increasing trend in fecal coliform bacteria.

A fish consumption advisory has been issued by the Department for mercury and includes portions of a stream within this watershed (see advisory p.39).

Natural Swimming Areas

FACILITY NAME / ***RECEIVING STREAM***	***PERMIT #*** / ***STATUS***
LAURENS BAPTIST CHURCH LAKE GREENWOOD	30-N03 ACTIVE
CAMP FELLOWSHIP LAKE GREENWOOD	30-N04 ACTIVE

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-068	GB	PIEDMONT BEDROCK	CHAPPELS

NPDES Program

Active NPDES Facilities

RECEIVING STREAM / FACILITY NAME / PERMITTED FLOW @ PIPE (MGD)	NPDES# / TYPE / COMMENT
SALUDA RIVER TOWN OF WARE SHOALS/DAIRY STREET PIPE #: 001 FLOW: 8.0	SC0020214 MAJOR DOMESTIC
SALUDA RIVER BELTON/DUCWORTH PIPE #: 001 FLOW: 2.5 PIPE #: 002, 003 FLOW: M/R	SC0045896 MAJOR DOMESTIC
SALUDA RIVER TOWN OF WILLIAMSTON PIPE #: 001 FLOW: 1.0	SC0046841 MAJOR DOMESTIC
LAKE GREENWOOD DRIFTWOOD PROPERTY OWNERS ASSOC. PIPE #: 001 FLOW: 0.02	SC0040380 MINOR DOMESTIC
LAKE GREENWOOD WR WISE WTP PIPE #: A10 FLOW: M/R	SCG250099 MINOR INDUSTRIAL
LAKE GREENWOOD WR WISE WTP PIPE #: 01A-C FLOW: M/R PIPE #: 02A-C FLOW: M/R PIPE #: 03A-C FLOW: M/R	SCG641009 MINOR INDUSTRIAL
CAMP BRANCH VULCAN CONSTR. MATERIALS CO./GRNWD QUARRY PIPE #: 01A-C FLOW: M/R PIPE #: 02A-C FLOW: M/R	SCG730051 MINOR INDUSTRIAL
CAMP BRANCH HANSON AGGREGATES SSE/GREENWOOD PIPE #: 01A-C FLOW: M/R PIPE #: 02A-C FLOW: M/R	SCG730252 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME / FACILITY TYPE	PERMIT # / STATUS
MONSANTO CO. INDUSTRIAL	------- CLOSED
RIEGEL TEXTILE CORP. INDUSTRIAL	IWP-040 CLOSED

RIEGEL TEXTILE CORP. LANDFILL INDUSTRIAL	IWP-180 CLOSED
THOMAS BUZHARDT PROPERTY INDUSTRIAL	IWP-222 ----------
RIDGE ROAD DUMP DOMESTIC	----------- CLOSED
MICHELIN AMERICA INDUSTRIAL	IWP-189; 303311-1601 --------

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
COOPER SAND & GRAVEL COMPANY, INC. SALUDA RIVER MINE	0242-07 SAND
THOMASON CONSTRUCTION TAYLOR MINE OCCASIONAL INSTREAM DIGGING W/DRAGLINE	0944-59 SAND
WR GRACE & CO. EZELL MINE	0987-59 VERMICULITE
WILSON BROTHERS SAND COMPANY, INC. BOLING MINE INSTREAM DREDGING W/DRAGLINE ON SANDBAR	0166-01 SAND
HANSON AGGREGATES SE, INC. WILSON QUARRY	1010-47 GRANITE
TARMAC MID-ATLANTIC, INC. GREENWOOD QUARRY	0134-47 GRANITE

Water Quantity

WATER USER ***STREAM***	***REGULATED CAPACITY (MGD)*** ***PUMPING CAPACITY (MGD)***
GREENWOOD CPW LAKE GREENWOOD	30.0 39.0
BELTON-HONEA PATH WATER AUTHORITY SALUDA RIVER	6.4 10.2

Growth Potential

There is a moderate potential for growth in this watershed, which contains the Town of Ware Shoals and portions of the Towns of Honea Path, Donalds, Hodges, Waterloo, Cross Hill, and Coronaca.

The Towns of Donalds, Hodges, and Ware Shoals are experiencing some growth due to their close proximity to the greater Greenwood area. U.S. 178 (U.S. 25) and rail lines connect the towns to the City of Greenwood, and the potential exists for some industrial growth due to the existing infrastructure. Infrastructure development in the Ware Shoals-Hodges area has encouraged residential and commercial growth. Lake Greenwood has experienced significant growth; however, the growth is expected to continue at a slower pace in the future. U.S. 221 and a major rail line cross this watershed. The major sewer interceptor connects Honea Path with Ware Shoals.

Watershed Protection and Restoration Strategies

Special Projects

The Saluda-Reedy River Consortium

The Saluda-Reedy River Consortium, a privately funded group, was formed in 2002 with the purpose of providing a holistic approach to preserving and improving water quality from the Saluda River headwaters downstream to Lake Greenwood. Using the watershed approach, the consortium is undertaking a comprehensive assessment of all water quality data and sponsoring original research with the aim of fully characterizing water quality conditions and needs. Using this information, the consortium will actively pursue watershed-wide water quality improvement measures.

03050109-090

(Broad Mouth Creek)

General Description

Watershed 03050109-090 is located in Anderson and Abbeville Counties and consists primarily of ***Broad Mouth Creek*** and its tributaries. The watershed occupies 21,785 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.26 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 57.0% forested land, 35.3% agricultural land, 6.8% urban land, 0.4% water, 0.3% forested wetland (swamp), and 0.2% barren land.

Broad Mouth Creek flows past the City of Belton and accepts the drainage of Chinquola Mill Creek (Still Branch), near the Town of Honea Path, before draining into the Saluda River. This watershed contains a total of 48.2 stream miles and 53.3 acres of lake waters, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-289	S/W	FW	BROAD MOUTH CREEK AT S-04-267, BELOW BELTON MARSHALL PLANT
S-776	BIO	FW	TRIBUTARY TO BROAD MOUTH CREEK AT S-04-205
S-010	S/W	FW	BROAD MOUTH CREEK AT US 76
S-775	BIO	FW	BROAD MOUTH CREEK AT S-04-81
S-304	W/INT	FW	BROAD MOUTH CREEK AT S-01-111

Broad Mouth Creek – There are four SCDHEC monitoring sites along Broad Mouth Creek. At the furthest upstream site ***(S-289)***, aquatic life uses are fully supported. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration, and a significant increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria.

Aquatic life uses are also fully supported further downstream ***(S-010)***; however, there is a significant increasing trend in turbidity. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration and an increasing trend in dissolved oxygen concentration suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

At the next site downstream ***(S-775)***, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life uses are again fully supported at the furthest downstream site ***(S-304)***, but recreational uses are partially supported due to fecal coliform bacteria excursions.

Unnamed tributary to Broad Mouth Creek (S-776) - Aquatic life uses are partially supported based on macroinvertebrate community data.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
BROAD MOUTH CREEK TRANSMONTAIGNE/BELTON/PIEDMONT PIPE #: 001 FLOW: M/R	SC0002887 MINOR INDUSTRIAL
BROAD MOUTH CREEK TRANSMONTAIGNE/BELTON SE PIPE #: F01, S01 FLOW: M/R	SCG340013 MINOR INDUSTRIAL
BROAD MOUTH CREEK MARATHON ASHLAND/BELTON PIPE #: F01, S01 FLOW: M/R	SCG340014 MINOR INDUSTRIAL
BROAD MOUTH CREEK COLONIAL PIPELINE/BELTON PIPE #: 001, 002 FLOW: M/R	SCG340020 MINOR INDUSTRIAL
BROAD MOUTH CREEK INGERSOLL-RAND CO. PIPE #: 001 FLOW: 0.123	SC0047520 MINOR INDUSTRIAL
BROAD MOUTH CREEK BELTON INDUSTRIES INC. PIPE #: 001, 002 FLOW: M/R	SC0000698 MINOR INDUSTRIAL

Growth Potential

There is a low to moderate potential for growth in this watershed, which contains portions of the City of Belton and the Town of Honea Path. The corridor that runs along U.S. 76 from Honea Path to Belton, and on to the Town of Williamston will continue to be a growth area.

Watershed Protection and Restoration Strategies

Special Projects

Assessing Water Quality in the Saluda River Watershed

Furman University has recently completed a three-year project that was to determine the sources of impairments on several tributaries and reaches of the Saluda River. These impairments include high fecal coliform counts detected in the watersheds of the Middle Saluda River, the South Saluda River, a small tributary to the Saluda River north of the Town of Pelzer, **Broad Mouth Creek**, Big Brushy Creek, the Bush River, Scotts Creek, and the Little River; high phosphorous concentrations found in the Bush River; low dissolved oxygen levels in Coronaca Creek; and an impaired macroinvertebrate community in **Broad Mouth Creek**. A stream sampling program was conducted in 2001, 2002, and 2003 with 182 sites sampled within the ten impaired areas. Each site was sampled from 3 to 7 times for water chemistry and for total coliform, *E. coli*, and heterotrophic bacterial counts. In addition, selected sites were sampled for fish abundance and diversity and for macroinvertebrate abundance and diversity.

03050109-100

(Reedy River)

General Description

Watershed 03050109-100 is located in Greenville County and consists primarily of the ***Reedy River*** and its tributaries from its origin to Huff Creek. The watershed occupies 73,754 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison series. The erodibility of the soil (K) averages 0.26 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 43.1% urban land, 42.8% forested land, 12.7% agricultural land, 0.6% forested wetland (swamp), 0.5% barren land, and 0.3% water.

The Reedy River originates near the Town of Travelers Rest and flows through the City of Greenville downstream to the Town of Fork Shoals, where it accepts the drainage of the Huff Creek watershed. Swan Lake, Little Creek, Langston Creek, Long Branch, Richland Creek, and Brushy Creek (Cow Creek) drain into the Reedy River as it flows through the City of Greenville. The river then accepts drainage from Marrow Bone Creek, flows through Conestee Lake, and accepts drainage from Laurel Creek near the Donaldson Industrial Park. Maddog Creek and Rocky Creek drain into the river further downstream. This watershed contains a total of 149.9 stream miles and 235.0 acres of lake waters, all classified FW. A portion of Paris Mountain State Park resides in this watershed.

Surface Water Quality

Station #	Type	Class	Description
S-073	P/W	FW	Reedy R. at unnumbered road off US 276, 3/4 mi. E of Travelers Rest
S-928	BIO	FW	Reedy River at SR 88
S-264	S/W	FW	Langston Creek at SC 253
S-319	W	FW	Reedy River at Rivers Street, Downtown Greenville
S-013	P/SPRP	FW	Reedy River at S-23-30, 3.9 miles SE of Greenville
S-067	S/W	FW	Brushy Creek on Green Street Ext, below Dunean Mill on SC 20
S-867	BIO	FW	Brushy Creek SR 30
S-018	P/I*	FW	Reedy River at S-23-448, 1.75 miles SE of Conestee
S-091	S/BIO/W	FW	Rocky Creek at S-23-453, 3.5 miles SW of Simpsonville
S-323	P/SPRP	FW	Reedy River at S-23-316 3.5 miles SSW of Mauldin
S-072	S/INT	FW	Reedy River on Hwy 418 at Fork Shoals

* This station was inactived during the study period, but is used for long term trend data.

Reedy River - There are seven SCDHEC monitoring sites along this section of the Reedy River. At the furthest upstream site ***(S-073)***, aquatic life uses are fully supported; however, there are significant increasing trends in turbidity and total suspended solids. There is a significant increasing trend in pH. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria. Aquatic life uses are partially supported at the next site downstream ***(S-928)*** based on macroinvertebrate community data.

Aquatic life uses are fully supported further downstream ***(S-319)***. Fluoranthene (a polycyclic aromatic hydrocarbon) was detected in the 1997 sediment sample. Recreational uses are not supported due to fecal coliform bacteria excursions. Further downstream ***(S-013)***, aquatic life uses are fully supported; however, there is a significant increasing trend in total suspended solids. There is a significant increasing trend in pH. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

At the next site downstream ***(S-018)***, aquatic life uses are fully supported. There was a significant decreasing trend in pH. A very high concentration of zinc was measured in the 1997 sediment sample. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand, turbidity, total nitrogen concentration, and total suspended solids suggest improving conditions for these parameters. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

At the next downstream site ***(S-323)***, aquatic life uses are not supported due to the occurrence of copper in excess of the aquatic life acute standards. Recreational uses are not supported due to fecal coliform excursions. At the furthest downstream site ***(S-072)***, aquatic life uses are fully supported. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

Langston Creek (S-264) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. 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.

Brushy Creek - There are two SCDHEC monitoring sites along Brushy Creek. At the upstream site ***(S-067)***, aquatic life uses are fully supported. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are not supported at this site due to fecal coliform bacteria excursions. Aquatic life uses are partially supported at the downstream site ***(S-867)*** based on macroinvertebrate community data.

Rocky Creek (S-091) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are partially supported based on macroinvertebrate community data. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total phosphorus concentration suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)	***NPDES# TYPE COMMENT***
REEDY RIVER WCRSA/LOWER REEDY RIVER PLT PIPE #: 001 FLOW: 7.50 PIPE #: 001 FLOW: 11.50 (PROPOSED)	SC0024261 MAJOR DOMESTIC
REEDY RIVER WCRSA/MAULDIN ROAD PLANT PIPE #: 001 FLOW: 27.0-70.0	SC0041211 MAJOR DOMESTIC BASED ON RIVER FLOW (HCR) UNTIL 2007, THEN 70.0 BASED ON 7Q10
ROCKY CREEK TRIBUTARY MCGEE BROTHERS CO., INC. PIPE #: 001 FLOW: 0.00036	SC0048071 MINOR INDUSTRIAL
LITTLE CREEK ALTAMONT MOBILE HOME VILLAGE PIPE #: 001 FLOW: 0.0135	SC0028533 MINOR DOMESTIC
BRUSHY CREEK TRIBUTARY METROMONT MATERIALS/WHITE HORSE PIPE #: 001 FLOW: M/R	SC0001295 MINOR INDUSTRIAL *PERMIT INACTIVATED 6/30/04*
BRUSHY CREEK TRIBUTARY COLLINS & AIKMAN/GREENVILLE PIPE #: 001 FLOW: 0.20	SCG250116 MINOR INDUSTRIAL
BRUSHY CREEK TRIBUTARY SOUTHERN WATER TREATMENT CO. PIPE #: 001 FLOW: 0.50	SCG250165 MINOR INDUSTRIAL
COW CREEK MILLIKEN & CO./JUDSON PLT PIPE #: 001 FLOW: M/R	SCG250026 MINOR INDUSTRIAL
MARROW BONE CREEK CRUCIBLE CHEMICAL CO. PIPE #: 001 FLOW: 0.50	SCG250139 MINOR INDUSTRIAL
LAUREL CREEK JOHN D. HOLLINGSWORTH ON WHEELS PIPE #: 01S FLOW: M/R	SC0033774 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME FACILITY TYPE	***PERMIT # STATUS***

CITY OF GREENVILLE LANDFILL DOMESTIC	231002-1101 ACTIVE
CITY OF GREENVILLE DOMESTIC	DWP-070 CLOSED
WCRSA INDUSTRIAL	IWP-152 ------------

Land Applications

LAND APPLICATION *FACILITY NAME*	*PERMIT #* *TYPE*
PERCOLATION/EVAPORTATION BASIN METROMONT MATERIALS/PARIS MTN	ND0082139 INDUSTRIAL

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
BURDETTE ENTERPRISES, INC. CONESTEE ROAD BORROW PIT	1101-45 SAND, SAND/CLAY

Growth Potential

There is a high potential for growth in this watershed, which contains portions of the Cities of Travelers Rest, Greenville, Mauldin, and Simpsonville. The City of Greenville has a very high potential to continue as an urban growth area, particularly in the area south of the city. Both the I-85 and I-385 corridors are in this watershed and contribute greatly to the growth. There are a large number of existing industrial sites near the I-385 corridor, together with the Donaldson Center and several rail lines to encourage more industrial growth. The two large regional wastewater treatment facilities in the area (Lower Reedy River Plant, Mauldin Road Plant) have dramatically increased in size and should spur industrial growth. Greenville County's zoning boundary will extend southward to S.C. 418 and should promote medium density development. Clemson University's proposed Automotive Research Park near I-85 and I-385 should promote industrial growth in the area as well.

03050109-110

(Huff Creek)

General Description

Watershed 03050109-110 is located in Greenville County and consists primarily of ***Huff Creek*** and its tributaries. The watershed occupies 22,837 acres of South Carolina's Piedmont region. The predominant soil types consist of an association of the Madison-Davidson-Cecil-Pacolet series. The erodibility of the soil (K) averages 0.26 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 45.4% forested land, 41.8% agricultural land, 10.8% urban land, 0.8% barren land, 0.8% water, and 0.4% forested wetland (swamp).

Huff Creek accepts drainage from Baker Creek (Trollingwood Lake) and Little Creek before flowing into the Reedy River at the Town of Fork Shoals. There are a total of 39.7 stream miles and 205.9 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-863	BIO	FW	HUFF CREEK AT SR 459
S-178	S/INT	FW	HUFF CREEK AT SC 418, 1.6 MILES NW OF FORK SHOALS

Huff Creek* -** There are two SCDHEC monitoring sites along Huff Creek. Aquatic life uses are partially supported at the upstream site ***(S-863) based on macroinvertebrate community data. At the downstream site ***(S-178)***, aquatic life uses are fully supported; however, there is a significant increasing trend in turbidity. There is a significant increasing trend in pH. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in total phosphorus concentration suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions. In addition, there is a significant increasing trend in fecal coliform bacteria.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)	NPDES# TYPE COMMENT
HUFF CREEK CROWN METRO INC. PIPE #: A10 FLOW: 0.50	SCG250091 MINOR INDUSTRIAL COOLING WATER
HUFF CREEK WCRSA/IDLEWILD TRUST PIPE #: 001 FLOW: 0.070	SC0023973 MINOR DOMESTIC

BAKER CREEK UNITED UTILITIES/TROLLINGWOOD SD PIPE #: 001 FLOW: 0.10	SC0026611 MINOR DOMESTIC PROPOSED EXP. TO 0.1 MGD
BAKER CREEK UNITED UTILITIES/CANTERBURY SD PIPE #: 001 FLOW: 0.08	SC0028941 MINOR DOMESTIC

Growth Potential

There is generally a low potential for development in this watershed. There are some industrial sites and land used for agricultural purposes. U.S. 25 to the City of Greenville runs along the western edge of the watershed. Greenville County's zoning boundary will extend southward to S.C. 418 and should promote medium density development.

03050109-120

(Reedy River/Lake Greenwood)

General Description

Watershed 03050109-120 is located in Greenville and Laurens Counties and consists primarily of the ***Reedy River*** and its tributaries from Huff Creek to ***Lake Greenwood***. The watershed occupies 79,267 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison-Davidson-Pacolet-Wilkes series. The erodibility of the soil (K) averages 0.26 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 70.0% forested land, 22.2% agricultural land, 5.1% barren land, 1.4% water, 0.9% urban land, and 0.4% forested wetland (swamp).

This section of the Reedy River accepts drainage from the upper Reedy River watershed, Martin Creek, and Horse Creek before flowing into and through Boyd Mill Pond. The river then accepts the drainage from Walnut Creek and forms an arm of Lake Greenwood. There are a total of 169.9 stream miles and 1,048.2 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-778	BIO	FW	REEDY RIVER AT SR 68
S-862	BIO	FW	HORSE CREEK AT SR 69
S-070	W	FW	REEDY RIVER AT US 76
S-311	S/SUMM	FW	BOYD MILL POND 0.6 KM W OF DAM
S-861	BIO	FW	WALNUT CREEK AT SR 64
S-021	P/INT	FW	REEDY RIVER AT S-30-06, E OF WARE SHOALS
S-308	S/SUMM	FW	LAKE GREENWOOD, REEDY RIVER ARM 150YDS ABOVE RABON CREEK
S-022	W	FW	LAKE GREENWOOD, REEDY RIVER ARM AT S-30-29

Reedy River - There are three SCDHEC monitoring sites along this section of the Reedy River. Aquatic life uses are partially supported at the upstream site ***(S-778)*** based on macroinvertebrate community data. Aquatic life uses are fully supported at the midstream site ***(S-070)***, but recreational uses are partially supported due to fecal coliform bacteria excursions. At the furthest downstream site ***(S-021)***, aquatic life uses are fully supported. There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are fully supported at this site.

Horse Creek (S-862) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Boyd Mill Pond (S-311) - Boyd Mill Pond is a 182-acre impoundment on the Reedy River, with a maximum depth of approximately 31.2 feet and an average depth of approximately 12.1 feet. The lake's watershed comprises 244.8 square miles. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations.

Aquatic life uses are not supported due to pH and total phosphorus concentration excursions. Recreational uses are fully supported.

Walnut Creek (S-861) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Reedy River Arm of Lake Greenwood – There are two SCDHEC monitoring sites along the Reedy River arm of Lake Greenwood. Aquatic life uses are not supported at the upstream site ***(S-308)*** due to pH and total phosphorus excursions. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are fully supported.

Aquatic life uses are not supported at the downstream site ***(S-022)*** due to pH and total phosphorus concentration excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. There is a significant decreasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported and there is a significant decreasing trend in fecal coliform bacteria, suggesting improving conditions for this parameter.

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-062	GB	SAPROLITE	FORK SHOALS SHALLOW

NPDES Program

Active NPDES Facilities

RECEIVING STREAM
FACILITY NAME
PERMITTED FLOW @ PIPE (MGD)

NPDES#
TYPE
COMMENT

REEDY RIVER
WR GRACE & CO./MADDEN-KERNELLS MINE
PIPE #: 01A-01C, 02A-02C FLOW: M/R

SCG730035
MINOR INDUSTRIAL

HORSE CREEK
VULCAN CONSTR. MATERIALS CO./PRINCETON QUARRY
PIPE #: 001-003 FLOW: M/R

SC0047414
MINOR INDUSTRIAL
PERMIT INACTIVATED 3/31/04

Nonpoint Source Management Program

Mining Activities

MINING COMPANY
MINE NAME

PERMIT #
MINERAL

WR GRACE & CO.
MADDEN-KERNELLS MINE

0565-59
VERMICULITE

VULCAN CONSTR. MATERIALS CO.
PRINCETON QUARRY

1072-45
GRANITE

Growth Potential

There is generally a low potential for growth in this watershed, which contains a portion of the Town of Waterloo. Some growth could result from the crossing of U.S. 76 to the City of Laurens and from U.S. 25 to the City of Greenville. Medium density residential areas should expand along the river in Laurens County.

03050109-130

(Rabon Creek/Lake Greenwood)

General Description

Watershed 03050109-130 is located in Greenville and Laurens Counties and consists primarily of ***Rabon Creek*** and its tributaries from its origin to Lake Greenwood. The watershed occupies 81,513 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Madison-Davidson-Louisburg series. The erodibility of the soil (K) averages 0.22 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 66.5% forested land, 29.1% agricultural land, 1.9% urban land, 1.3% barren land, 0.8% water, and 0.4% forested wetland (swamp).

South Rabon Creek (Payne Branch, Bullit Branch) and North Rabon Creek (Stoddard Creek, Pumpkin Branch, Mountain Creek, Lick Creek) originate near the Town of Fountain Inn, and join together to form Lake Rabon near the City of Laurens. Lake Rabon is managed by the City of Laurens CPW and is used as a drinking water supply. Rabon Creek (Dirty Creek, Burriss Creek) flows out of the Lake Rabon dam to form an arm of Lake Greenwood further downstream. There are a total of 172.3 stream miles and 842.1 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-859	BIO	FW	MOUNTAIN CREEK AT SR 77
S-321	W	FW	NORTH RABON CREEK AT S-30-32
S-313	W	FW	LAKE RABON, NORTH RABON CREEK ARM, 2.5 MILES UPSTREAM OF DAM
S-860	BIO	FW	SOUTH RABON CREEK AT SR 77
S-322	W	FW	SOUTH RABON CREEK ON DIRT ROAD BETWEEN SC 101 & S-30-76
S-312	W	FW	SOUTH RABON CREEK ARM OF LAKE RABON, DOWNSTREAM OF S-30-312
RL-01014	RL01	FW	LAKE RABON 7.6 MI W OF LAURENS
S-296	P/SPRP	FW	LAKE RABON 300 FEET UPSTREAM OF DAM
S-096	S/INT/BIO	FW	RABON CREEK AT S-30-54, 8.8 MILES NW OF CROSS HILL
S-307	W	FW	RABON CREEK ARM OF LAKE GREENWOOD, 0.8 KM N OF S-30-307

South Rabon Creek **-** There are two SCDHEC monitoring sites along South Rabon Creek. Aquatic life uses are fully supported at the upstream site ***(S-860)*** based on macroinvertebrate community data. At the downstream site ***(S-322)***, aquatic life uses are also fully supported, but recreational uses are not supported due to fecal coliform bacteria excursions.

North Rabon Creek (S-321) **-** Aquatic life uses are fully supported. Recreational uses are not supported due to fecal coliform bacteria excursions.

Mountain Creek (S-859) – Aquatic life uses are fully supported based on macroinvertebrate community data.

Lake Rabon **-** Lake Rabon is a 537-acre impoundment on Rabon Creek, with a maximum depth of approximately 27.2 feet and an average depth of approximately 13.1 feet. The lake's watershed comprises 89.7 square miles. There are four SCDHEC monitoring sites along Lake Rabon, and aquatic life and recreational uses are fully supported at all sites ***(S-313, S-312, RL-01014, and S-296)***. At the furthest downlake site ***(S-296)***, there is a significant decreasing trend in dissolved oxygen concentration. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. P,P'DDT and P,P'DDE, metabolites of DDT, were detected in the 1999 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment.

Rabon Creek (S-096) – Aquatic life uses are fully supported based on macroinvertebrate community data. There is a significant decreasing trend in pH. Recreational uses are partially supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria.

Rabon Creek Arm of Lake Greenwood (S-307) - Aquatic life uses are partially supported due to pH excursions. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
STODDARD CREEK VAN DORN DEMAG CORP. PIPE #: 001 FLOW: 0.0004	SCG250131 MINOR INDUSTRIAL
PAYNE BRANCH BBA FIBERWEB/SIMPSONVILLE PIPE #: 001 FLOW: 0.2	SCG250106 MINOR INDUSTRIAL
MOUNTAIN CREEK S & S WASHERETTE PIPE #: 001 FLOW: 0.006	SC0032298 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
SOUTHEASTERN ASSOC. INDUSTRIAL	IWP-077 ACTIVE

Land Applications

LAND APPLICATION FACILITY NAME	*PERMIT # TYPE*
SPRAYFIELD WEISNER SEPTIC TANK CO.	ND0072010 DOMESTIC

Water Quantity

WATER USER STREAM	*REGULATED CAPACITY (MGD) PUMPING CAPACITY (MGD)*
CITY OF LAURENS CPW LAKE RABON	9.3 17.3
CITY OF LAURENS CPW RABON CREEK	2.0 5.0

Growth Potential

This watershed contains portions of the Cities of Simpsonville, Fountain Inn, and Laurens and the Town of Gray Court. There is an increasing potential for growth along the I-385 corridor in the eastern portion of this watershed near the greater Laurens area. Many residential subdivisions and industrial sites are being constructed. Agricultural and silvicultural activities are prevalent in the western and central portion of the watershed. U.S. 76 crosses Lake Rabon and the watershed en route to Laurens.

03050109-140

(Ninety Six Creek)

General Description

Watershed 03050109-140 is located in Greenwood County and consists primarily of ***Ninety Six Creek*** and its tributaries. The watershed occupies 91,977 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Pacolet-Hiwassee series. The erodibility of the soil (K) averages 0.26 and the slope of the terrain averages 10%, with a range of 2-40%. Land use/land cover in the watershed includes: 70.9% forested land, 17.0% agricultural land, 10.6% urban land, 0.7% barren land, 0.4% forested wetland (swamp), and 0.4% water.

Six Mile Creek and Conally Branch drain into the headwaters of Ninety Six Creek. Henley Creek accepts drainage from Ropers Creek, Marion Creek (Marion Branch), and Tolbert Branch before draining into Ninety Six Creek near the Town of Ninety Six. Kate Fowler Branch enters Ninety Six Creek next followed by Wilson Creek. Rocky Creek (Turner Branch, Sample Branch) flows into Coronaca Creek near the Town of Coronaca, which in turn flows into Wilson Creek (Stockman Branch, Brightmans Creek) near the City of Greenwood. There are a total of 170.4 stream miles and 105.2 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-184	BIO	FW	CORONACA CREEK AT SC 221
S-092	S/W	FW	CORONACA CREEK AT S-24-100, 4 MI NW OF NINETY SIX
S-233	S/W	FW	WILSON CREEK AT S-24-101
S-235	S/W/BIO	FW	WILSON CREEK AT S-24-124
S-856	BIO	FW	NINETY SIX CREEK AT SR 42
S-093	P/INT	FW	NINETY SIX CREEK AT SC 702, 5.2 MILES ESE OF NINETY SIX

Ninety Six Creek – There are two SCDHEC monitoring stations along Ninety Six Creek. Aquatic life uses are partially supported at the upstream site ***(S-856)*** based on macroinvertebrate community data. At the downstream site ***(S-093)***, aquatic life uses are fully supported. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in turbidity suggest improving conditions for these parameters. Recreational uses are fully supported.

Coronaca Creek – There are two SCDHEC monitoring stations along Coronaca Creek. Aquatic life uses are partially supported at the upstream site ***(S-184)*** based on macroinvertebrate community data. At the downstream site ***(S-092)***, aquatic life uses are not supported due to dissolved oxygen concentration and pH excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. There is a significant decreasing trend in pH. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Wilson Creek **-** There are two SCDHEC monitoring stations along Wilson Creek. Prior to 2001, these were secondary monitoring stations and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are fully supported at the upstream site ***(S-233)***, but partially supported at the downstream site ***(S-235)*** based on macroinvertebrate community data. Significant increasing trends in dissolved oxygen concentration at ***S-235*** and decreasing trends in five-day biochemical oxygen demand, total phosphorus concentrations, and turbidity at both sites suggest improving conditions for these parameters. Recreational uses are fully supported at both sites, and significant decreasing trends in fecal coliform bacteria concentration suggest improving conditions for this parameter.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)	NPDES# TYPE COMMENT
NINETY SIX CREEK TOWN OF NINETY SIX WWTP PIPE #: 001 FLOW: 0.50 PIPE #: 001 FLOW: 0.75, 1.0, 1.5	SC0036048 MINOR DOMESTIC PROPOSED
CORONACA CREEK RURAL WATER/NORTHFALL ACRES SD PIPE #: 001 FLOW: 0.0364	SC0032191 MINOR DOMESTIC
WILSON CREEK CITY OF GREENWOOD/WILSON CREEK WWTP PIPE #: 001 FLOW: 12.0	SC0021709 MAJOR DOMESTIC
WILSON CREEK NINETY SIX CPW (PIER 96) WWTP PIPE #: 001 FLOW: 0.06	SC0042706 MINOR DOMESTIC
ROCKY CREEK GREENWOOD MILLS, INC./HARRIS PLANT PIPE #: 001 FLOW: 0.5	SCG250118 MINOR INDUSTRIAL
BRIGHTMANS CREEK GREENWOOD MILLS, INC./MATTHEWS PLT PIPE #: C10, C11 FLOW: 0.10 PIPE #: F10, F11 FLOW: 0.50	SCG250127 MINOR INDUSTRIAL
HENLEY CREEK EXXON CO. USA/SOUTH POINTE PIPE #: 001 FLOW: M/R	SCG830013 MINOR INDUSTRIAL
ROPERS CREEK UNITED UTILITIES/HIGHLAND FOREST SD PIPE #: 001 FLOW: 0.075	SC0034444 MINOR DOMESTIC

KATE FOWLER BRANCH GREENWOOD MILLS, INC./SLOAN PLANT PIPE #: C10 FLOW: 0.10	SCG250128 MINOR INDUSTRIAL
KATE FOWLER BRANCH GREENWOOD MILLS, INC./ADAMS PLANT PIPE #: C10, C11 FLOW: 0.10	SCG250126 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
SOUTHERN BRICK LANDFILL INDUSTRIAL	243327-1601 (IWP-237) --------
SOUTHERN BRICK LANDFILL INDUSTRIAL	IWP-002 --------

Growth Potential

This watershed contains the Town of Ninety Six and portions of the Towns of Hodges, Cokesbury, Coronaca, and the City of Greenwood. There is a moderate potential for industrial growth in the Ninety Six-Greenwood area due to existing infrastructure and continued residential and commercial development.

Watershed Protection and Restoration Strategies

Special Projects

Assessing Water Quality in the Saluda River Watershed

Furman University has recently completed a three-year project that was to determine the sources of impairments on several tributaries and reaches of the Saluda River. These impairments include high fecal coliform counts detected in the watersheds of the Middle Saluda River, the South Saluda River, a small tributary to the Saluda River north of the Town of Pelzer, Broad Mouth Creek, Big Brushy Creek, the Bush River, Scotts Creek, and the Little River; high phosphorous concentrations found in the Bush River; low dissolved oxygen levels in **Coronaca Creek**; and an impaired macroinvertebrate community in Broad Mouth Creek. A stream sampling program was conducted in 2001, 2002, and 2003 with 182 sites sampled within the ten impaired areas. Each site was sampled from 3 to 7 times for water chemistry and for total coliform, *E. coli*, and heterotrophic bacterial counts. In addition, selected sites were sampled for fish abundance and diversity and for macroinvertebrate abundance and diversity.

03050109-150

(Saluda River/Lake Murray)

General Description

Watershed 03050109-150 is located in Laurens, Newberry, Saluda, and Greenwood Counties and consists primarily of the ***Saluda River*** and its tributaries from the Lake Greenwood dam to the ***Lake Murray*** headwaters. The watershed occupies 182,441 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Pacolet-Wilkes-Herndon series. The erodibility of the soil (K) averages 0.28 and the slope of the terrain averages 15%, with a range of 2-45%. Land use/land cover in the watershed includes: 3.4% urban land, 27.0% agricultural land, 4.7% barren land, 62.5% forested land, 0.7% forested wetland (swamp), and 1.7% water.

This section of the Saluda River flows out of Lake Greenwood and is joined by Halfway Swamp (Thompsons Creek) and Sharps Branch near the Town of Chappells. Further downstream, Terrapin Creek and Mill Creek enter the river, followed by the Little River watershed, Rocky Branch, and Tosity Creek. Beaverdam Creek (Welch Creek) flows past the Town of Silverstreet and drains into the Saluda River arm of Lake Murray.

The Bush River originates near the City of Clinton where it accepts drainage from Shell Creek (Sand Creek). Further downstream, near the City of Newberry, Rocky Creek, Big Beaverdam Creek (Reedy Creek), and Scott Creek flow into the Bush River. The Bush River then accepts drainage from Timothy Creek (Kinards Creek, Dewalt Creek) near the Town of Prosperity and drains into the Saluda River arm of the lake. Big Creek enters the lake just downstream of the confluence of the Saluda and Bush Rivers. There are a total of 276.8 stream miles and 3,430.5 acres of lake waters in this watershed, all classified FW. As a reach of the Saluda River, this watershed accepts the drainage of all streams entering the river upstream of the watershed.

Surface Water Quality

Station #	Type	Class	Description
S-186	P/W	FW	SALUDA RIVER AT SC 34, 6.5 MILES ESE OF NINETY SIX
S-295	P/W	FW	SALUDA RIVER AT S.C. ROUTE 39
S-047	W/INT	FW	SALUDA RIVER AT SC 121
S-852	BIO	FW	BEAVERDAM CREEK AT SR 83
S-310	W/INT	FW	LAKE MURRAY, SALUDA RIVER ARM, 3.8 KM UPSTREAM OF SC 391
S-042	P/W	FW	BUSH RIVER AT SC 560 S OF JOANNA
S-046	S/W	FW	BUSH RIVER AT SC ROUTE 34
S-044	S/W	FW	SCOTT CREEK AT SC 34, SW OF NEWBERRY
RS-01044	RS01/BIO	FW	BUSH RIVER AT S-36-395 3 MI S OF NEWBERRY
S-102	W	FW	BUSH RIVER AT S-36-41, 8.5 MILES S OF NEWBERRY
S-309	S/SUMM	FW	LAKE MURRAY, BUSH RIVER ARM, 4.6 KM UPSTREAM OF SC 391
S-223	P/SPRP	FW	LAKE MURRAY AT SC 391 (BLACKS BRIDGE)

Saluda River - There are three SCDHEC monitoring sites along this section of the Saluda River. At the upstream site ***(S-186)***, aquatic life uses are partially supported due to occurrences of copper in excess of the aquatic life acute standards. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported at this site and a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

At the midstream site ***(S-295)***, aquatic life uses are not supported due to occurrences of copper in excess of the aquatic life acute standards. There is a significant decreasing trend in pH. Significant decreasing trends in turbidity suggest improving conditions for this parameter. Recreational uses are fully supported at this site. At the downstream site ***(S-047)***, aquatic life uses are partially supported due to pH excursions. There is a significant increasing trend in pH. Recreational uses are fully supported at this site.

Saluda River Arm of Lake Murray – There are two SCDHEC monitoring stations in this arm of Lake Murray. Aquatic life uses are not supported at the uplake site ***(S-310)*** due to pH excursions. Recreational uses are fully supported. At the downlake site ***(S-223)***, aquatic life uses are not supported due to pH and total phosphorus concentration excursions. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

Beaverdam Creek (S-852) - Aquatic life uses are partially supported based on macroinvertebrate community data.

Bush River - There are four monitoring sites along the Bush River. At the furthest upstream site ***(S-042)***, aquatic life uses are not supported due to dissolved oxygen excursions. In addition, there are significant decreasing trends in dissolved oxygen concentration. Significant decreasing trends in five-day biochemical oxygen demand, total phosphorus and total nitrogen concentrations, and total suspended solids suggest improving conditions for these parameters. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Further downstream ***(S-046)***, aquatic life uses are fully supported. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions; however a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

At the next site downstream ***(RS-01044)***, aquatic life uses are partially supported based on macroinvertebrate community data. Recreational uses are fully supported at this site. At the furthest downstream site ***(S-102)***, aquatic life uses are fully supported. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

Scott Creek (S-044) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are fully supported, but there is a significant decreasing trend in dissolved oxygen. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

Bush River Arm of Lake Murray (S-309) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are not supported due to pH and total phosphorus concentration excursions. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes portions of a stream within this watershed (see advisory p.39).

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
BUSH RIVER CITY OF CLINTON/GARY ST WWTP PIPE #: 01A-01C, 02A-02C, 03A-03C FLOW: M/R	SCG645004 MINOR DOMESTIC
BUSH RIVER CITY OF NEWBERRY/BUSH RIVER WWTP PIPE #: 001 FLOW: 3.22, 3.50, 4.80	SC0024490 MAJOR DOMESTIC TIER I, II, III
BUSH RIVER LAURENS COUNTY W&S/CLINTON-JOANNA PIPE #: 001 FLOW: 2.750	SC0037974 MAJOR DOMESTIC
BUSH RIVER NEWBERRY COUNTY W&SA/PLANT #1 PIPE #: 001 FLOW: 0.651	SC0040860 MINOR DOMESTIC Proposed to be eliminated to Newberry County/Cannons Creek WWTP in Broad River Basin.

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
CITY OF NEWBERRY LANDFILL DOMESTIC	DWP-023 CLOSED

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
RICHTEX CORP. HICKS MINE	0277-47 SHALE
RICHTEX CORP. BAUKNIGHT MINE	0155-81 SHALE

Water Quantity

WATER USER *STREAM*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (MGD)*
CITY OF NEWBERRY SALUDA RIVER	16.0 26.0

Growth Potential

This watershed contains the City of Newberry and portions of the City of Clinton and the Towns of Joanna, Prosperity, and Silverstreet. The growth along the Saluda arm of Lake Murray has been strong and is for the most part residential. The Town of Prosperity is serviced by the Newberry County Water and Sewer Authority, which discharges into Bush River. Bush River continues to be limited in terms of assimilative capacity, and Newberry County has proposed a larger regional facility, which would discharge within the Broad River Basin. This would in turn facilitate growth in the area.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

Portions of the Bush River have been placed on the South Carolina's 2000 303(d) list of impaired water bodies due to violations of the fecal coliform bacteria water quality standard. Fecal coliform bacteria are an indicator of possible contamination by fecal matter and are thus a public health concern due to the potential for exposure to pathogens through contact recreation. Monitoring stations S-046 and S-102 failed to attain recreational use support by exceeding the state standard of 400 colonies per 100ml sample. During the assessment period of 1994 through 1998 standards were exceeded in 31% of samples taken at S-046 and 35% of samples taken at S-102. The Clean Water Act requires that a Total Maximum Daily Load be developed for all pollutants causing impairment of Waters of the State. This TMDL was developed to determine the maximum amount of fecal coliform bacteria that the Bush River can receive from both point and nonpoint sources and still meet water quality standards. EPA's BASINS model and Watershed Characterization System were used to estimate the continuous in-stream concentration of fecal coliform bacteria. Based on this estimation, the sum of the allowable loads of fecal coliform bacteria pollution from all contributing point and nonpoint sources was calculated, taking into consideration seasonal variations. Conservative assumptions regarding pollutant sources in the watershed allow for a margin of safety to ensure that the water body can be used for recreational use purposes consistent with State and Federal water quality goals. Due to limits in source identification information, water quality data, land use, and other data limitations, this TMDL is only an initial estimate. This TMDL will begin the process of a phased implementation of measures that will ultimately result in achievement of fecal coliform bacteria standards in the Bush River. As implementation progresses, and/or more data are obtained, this TMDL may be revised accordingly to facilitate the most efficient remediation of fecal coliform bacterial pollution to the Bush River.

Special Projects

Assessing Water Quality in the Saluda River Watershed

Furman University has recently completed a three-year project that was to determine the sources of impairments on several tributaries and reaches of the Saluda River. These impairments include high fecal coliform counts detected in the watersheds of the Middle Saluda River, the South Saluda River, a small tributary to the Saluda River north of the Town of Pelzer, Broad Mouth Creek, Big Brushy Creek, the **Bush River, Scotts Creek**, and the Little River; high phosphorous concentrations found in the Bush River; low dissolved oxygen levels in Coronaca Creek; and an impaired macroinvertebrate community in Broad Mouth Creek. A stream sampling program was conducted in 2001, 2002, and 2003 with 182 sites sampled within the ten impaired areas. Each site was sampled from 3 to 7 times for water chemistry and for total coliform, *E. coli*, and heterotrophic bacterial counts. In addition, selected sites were sampled for fish abundance and diversity and for macroinvertebrate abundance and diversity.

TMDL Implementation on Bush River

A new effort to combat bacterial pollution in the Bush River, funded through SCDHEC's §319 grant, is underway. The Newberry Soil and Water Conservation District (SWCD), acting as lead organization, has initiated a three-year project that promises to implement bacteria runoff control measures in critical areas throughout the watershed. Reductions in fecal coliform bacteria were called for in the Bush River Total Maximum Daily Load (TMDL) developed by DHEC in 2001 (see above). If successful, the Bush River TMDL Project will result in improved water quality and consistent attainment of the water quality standard for fecal coliform. In the last SCDHEC Watershed Water Quality Assessment for the Saluda River Basin, the Bush River failed to meet water quality standards at two monitoring stations about thirty percent of the time. To correct this problem, the project sponsors will implement a combination of BMPs on a watershed scale that include detailed waste and grazing management procedures, engineered BMPs focusing on riparian zones, septic system upgrades including constructed wetlands, and an extensive educational campaign targeted towards homeowners. The Newberry SWCD has recruited a number of partners in this effort including the Laurens SWCD, USDA Natural Resources Conservation Service, Clemson Extension Service, the University of South Carolina, Rural Development Agency, Newberry Beef Cattlemen's Association, and the S.C. Department of Natural Resources. The Bush River TMDL Project, using the diverse expertise available in this partnership, should result in demonstrable improvement to the water quality in the Bush River.

03050109-160

(Little River)

General Description

Watershed 03050109-160 is located in Laurens and Newberry Counties and consists primarily of the ***Little River*** and its tributaries. The watershed occupies 147,154 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Cecil-Pacolet-Madison-Herndon series. The erodibility of the soil (K) averages 0.28 and the slope of the terrain averages 15%, with a range of 2-40%. Land use/land cover in the watershed includes: 71.3% forested land, 20.2% agricultural land, 4.4% barren land, 3.6% urban land, 0.3% forested wetland (swamp), and 0.2% water.

The Little River accepts drainage from Reedy Fork Creek in the City of Laurens and Burnt Mill Creek (Scout Branch) enters the river further downstream. North Creek, Beaverdam Creek, and Simmons Creek drain into the Little River next followed by Garrison Creek, Sandy Run Creek (Reeder Branch), Mechanic Creek, Mudlick Creek (Campbell Creek, North Campbell Creek, Mill Creek, Watkins Creek, Mills Creek, Pages Creek), Davenport Branch, Stephens Creek, and Turners Branch. There are a total of 244.5 stream miles and 178.8 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-034	P/W	FW	LITTLE RIVER AT U.S. BUS 76, IN LAURENS ABOVE WWTP
S-297	S/W	FW	LITTLE RIVER AT S.C. ROUTE 127
S-135	S/W	FW	NORTH CREEK AT U.S. 76, 2.8 MILES W OF CLINTON
S-038	W	FW	LITTLE RIVER AT S.C. 560
S-100	BIO	FW	LITTLE RIVER AT SR 48
S-099	S/SPRP	FW	LITTLE RIVER AT S-36-22, 8.3 MILES NW OF SILVERSTREET
S-305	W	FW	LITTLE RIVER AT S.C. 34

Little River - There are six SCDHEC monitoring sites along the Little River. At the furthest upstream site ***(S-034)***, aquatic life uses are fully supported. There is a significant decreasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand and total nitrogen concentration suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions. Further downstream ***(S-297)***, aquatic life uses are again fully supported. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

At the next site downstream ***(S-038)***, aquatic life uses are fully supported. 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, and a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter. Aquatic life uses are fully supported further downstream ***(S-100)*** based on macroinvertebrate community data.

At the next station downstream ***(S-099)***, aquatic life uses are again fully supported, and significant decreasing trends in five-day biochemical oxygen demand and total phosphorus concentration suggests improving conditions for these parameters. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are fully supported at this site. At the furthest downstream site ***(S-305)***, aquatic life uses are partially supported due to pH excursions. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

***North Creek (S-135)* -** Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are fully supported. There is a significant decreasing trend in pH. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions. In addition, there is a significant increasing trend in fecal coliform bacteria.

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)	***NPDES# TYPE COMMENT***
LITTLE RIVER COMM. OF PUBLIC WORKS/LAURENS PIPE #: 001 FLOW: 4.500	SC0020702 MAJOR DOMESTIC
LITTLE RIVER WR GRACE & CO./HUDGENS MINE PIPE #: 001 FLOW: M/R	SCG730030 MINOR INDUSTRIAL
DITCH TO LITTLE RIVER INTERNATIONAL PAPER/SILVERSTREET PIPE #: 001 FLOW: M/R	SC0022730 MINOR INDUSTRIAL
REEDY FORK CREEK CITY OF LAURENS WTP PIPE #: 001 FLOW: M/R	SCG645006 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME FACILITY TYPE	***PERMIT # STATUS***

ALSIMAG (GE CERAMICS) INDUSTRIAL	IWP-123 --------
LAURENS COUNTY DOMESTIC	301001-1101 (DWP-050) CLOSED
CITY OF LAURENS DUMP DOMESTIC	--------- CLOSED

Land Applications

LAND APPLICATION FACILITY NAME	***PERMIT # TYPE***
SPRAYFIELD DOUBLE M FARMS	ND0078191 DOMESTIC
SPRAYFIELD ISE NEWBERRY, INC.	ND0078158 INDUSTRIAL

Mining Activities

MINING COMPANY MINE NAME	***PERMIT # MINERAL***
WR GRACE & CO. HUDGENS MINE	0749-59 VERMICULITE
WR GRACE & CO. LEONARD MINE	0835-59 VERMICULITE
WR GRACE & CO. CUNNINGHAM	1226-59 VERMICULITE
CAROLINA VERMICULITE COMPANY, INC. KENNETH HANNA MINE	0642-59 VERMICULITE
CAROLINA VERMICULITE COMPANY, INC. WL PATTERSON MINE	1130-59 VERMICULITE
CAROLINA VERMICULITE COMPANY, INC. VERENES TRACT	1111-59 VERMICULITE
SOUTHERN BRICK COMPANY SPIGNER MINE	0828-71 CLAY

Water Quantity

WATER USER STREAM	***REGULATED CAPACITY (MGD) PUMPING CAPACITY (MGD)***
CITY OF LAURENS CPW REEDY FORK CREEK	1.5 3.5

Growth Potential

This watershed contains most of the City of Laurens and portions of the Towns of Watts Mill, Mountville, Crosshill, and Silverstreet. The City of Laurens is located in the northern portion of this watershed and has a high potential for growth. Factors that influence this growth include two major rail lines, U.S. 221, U.S. 76, and I-385. The Laurens County Industrial Park is a growth area in the predominately rural southern portion of the watershed. A large plastics plant is building in the watershed, near Laurens off S.C. 72, and should add to the industrial growth in the area.

Watershed Protection and Restoration Strategies

Special Projects

Assessing Water Quality in the Saluda River Watershed

Furman University has recently completed a three-year project that was to determine the sources of impairments on several tributaries and reaches of the Saluda River. These impairments include high fecal coliform counts detected in the watersheds of the Middle Saluda River, the South Saluda River, a small tributary to the Saluda River north of the Town of Pelzer, Broad Mouth Creek, Big Brushy Creek, the Bush River, Scotts Creek, and the **Little River**; high phosphorous concentrations found in the Bush River; low dissolved oxygen levels in Coronaca Creek; and an impaired macroinvertebrate community in Broad Mouth Creek. A stream sampling program was conducted in 2001, 2002, and 2003 with 182 sites sampled within the ten impaired areas. Each site was sampled from 3 to 7 times for water chemistry and for total coliform, *E. coli*, and heterotrophic bacterial counts. In addition, selected sites were sampled for fish abundance and diversity and for macroinvertebrate abundance and diversity.

03050109-170

(Little Saluda River/Lake Murray)

General Description

Watershed 03050109-170 is located in Saluda County and consists primarily of the ***Little Saluda River*** and its tributaries from its origin to Lake Murray. The watershed occupies 144,144 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Herndon-Tatum-Helena-Georgeville series. The erodibility of the soil (K) averages 0.43, the highest in the Saluda River Basin, and the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 64.1% forested land, 31.6% agricultural land, 1.4% water, 1.0% barren land, 1.0% urban land, and 0.9% forested wetland (swamp).

The Little Saluda River is formed by the confluence of Mine Creek (Little Mine Creek, Dry Creek) and Red Bank Creek (Penn Creek, Salem Branch) and flows through the Saluda Reservoir near the Town of Saluda. Further downstream, the Little Saluda River is joined by Canebrake Branch, Burnets Creek, and Richland Creek (Poplar Branch, Corley Branch). Big Creek (Dry Creek, Shiloh Branch, Persimmon Creek, Watermelon Branch) joins the Little Saluda River to form an arm of upper Lake Murray. Indian Creek and Dailey Creek flow into the Little Saluda River arm of Lake Murray forming small coves. There are a total of 247.6 stream miles and 2,313.5 acres of lake waters in this watershed, all classified FW. The western most corner of the watershed is within the Sumter National Forest.

Surface Water Quality

Station #	Type	Class	Description
S-050	S/W	FW	LITTLE SALUDA RIVER AT US 378, E OF SALUDA
S-123	P/INT	FW	LITTLE SALUDA RIVER AT S-41-39, 5.2 MILES NE OF SALUDA
S-222	W/SPRP	FW	LAKE MURRAY, LITTLE SALUDA RIVER ARM AT SC 391

Little Saluda River - There are two SCDHEC monitoring sites along the Little Saluda River. At the upstream site ***(S-050)***, aquatic life uses are not supported due to dissolved oxygen excursions. There is a significant decreasing trend in pH. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, and total phosphorus concentration suggest improving conditions for these parameters. P,P'DDE, a metabolite of DDT, was detected in the 1998 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Recreational uses are not supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

At the downstream site ***(S-123)***, aquatic life uses are not supported due to dissolved oxygen excursions. There is a significant decreasing trend in pH at this site. A high concentration of copper was measured in the 1997 sediment sample. Significant decreasing trends in five-day biochemical oxygen demand and total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

***Little Saluda River Arm of Lake Murray (S-222)* -** Aquatic life uses are not supported due to pH and total phosphorus excursions. Recreational uses are fully supported.

Natural Swimming Areas

FACILITY NAME *RECEIVING STREAM*	*PERMIT #* *STATUS*
CAMP BARSTOW LITTLE SALUDA RIVER ARM OF LAKE MURRAY	41-N01 ACTIVE

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
LITTLE SALUDA RIVER TOWN OF SALUDA PIPE #: 001 FLOW: 0.465	SC0022381 MINOR DOMESTIC

Growth Potential

Growth for the Town of Saluda, found in the center of this watershed, is limited due to water and sewer constraints. A portion of the Town of Ward also resides in the watershed. Saluda County connected into the Edgefield County Water and Sewer Authority's Regional Sewer Collection System, which should provide more potential for future growth. U.S. Hwys 178 and 378 run through the watershed, and together with existing industry may encourage growth in this area.

03050109-180

(Clouds Creek/Lake Murray)

General Description

Watershed 03050109-180 is located in Saluda and Lexington Counties and consists primarily of ***Clouds Creek*** and its tributaries from its origin to ***Lake Murray***. The watershed occupies 71,420 acres of the Piedmont and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Appling-Herndon-Tatum-Lakeland-Helena series. The erodibility of the soil (K) averages 0.24 and the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 65.0% forested land, 26.3% agricultural land, 4.3% forested wetland (swamp), 2.2% urban land, 1.0% barren land, 1.1% water, and 0.1% nonforested wetland (marsh).

The Clouds Creek watershed originates near the Town of Ridge Spring and drains into the Little Saluda River. Clouds Creek is joined by Peters Creek and Indian Creek before flowing through Asbill Pond. Downstream of the pond, Clouds Creek accepts the drainage of Jacobs Branch, Moores Creek (Dye Creek), Harris Branch, Warren Branch, Mack Branch, Flat Rock Branch, and Long Branch. West Creek originates near the Town of Batesburg, and accepts the drainage of Bates Branch, Gin Branch, and Lick Creek before entering Clouds Creek at the base of the watershed. Clapboard Branch and Beaverdam Creek enter Clouds Creek just as it drains into the Little Saluda River. There are a total of 140.0 stream miles and 881.1 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-112	BIO	FW	MOORES CREEK AT U.S.178
S-255	S/W	FW	CLOUDS CREEK AT S-41-26, 4 MILES NW OF BATESBURG
S-324	INT	FW	CLOUDS CREEK AT US 378
S-113	W	FW	CLOUDS CREEK AT S-41-25

Clouds Creek - There are three SCDHEC monitoring sites along Clouds Creek. Aquatic life uses are not supported at the upstream site **(S-255)** due to dissolved oxygen concentration and pH excursions. There is a significant decreasing trend in pH. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter. At the midstream site ***(S-324)***, aquatic life uses are partially supported due to pH excursions. Recreational uses are fully supported. At the downstream site **(S-113)**, aquatic life and recreational uses are fully supported.

Moores Creek (S-112) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-113	GB	PIEDMONT BEDROCK	AMICK POULTRY

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
HARRIS BRANCH AMICKS PROCESSING, INC. PIPE #: 001, 0.A FLOW: 0.5 0	SC0025585 MINOR INDUSTRIAL
GIN BRANCH COLUMBIA FARMS HATCHERY FEED PIPE #: A10 FLOW: 0.50	SCG250064 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Land Applications

LAND APPLICATION *FACILITY NAME*	*PERMIT #* *TYPE*
SLUDGE APPLICATION SITE CAROLINA BY-PRODUCTS/WARD DIV.	ND0076945 INDUSTRIAL

Growth Potential

There is a low potential for growth in this watershed, which contains the Towns of Batesburg-Leesville, Ridge Spring, and Monetta. The majority of the area still does not have water or sewer available.

03050109-190

(Saluda River/Lake Murray)

General Description

Watershed 03050109-190 is located in Newberry, Saluda, Lexington, and Richland Counties and consists primarily of the ***Saluda River*** and its tributaries from the ***Lake Murray*** headwaters to the dam. The watershed occupies 129,981 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Tatum-Georgeville-Herndon-Lakeland series. The erodibility of the soil (K) averages 0.28 and the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 54.3% forested land, 29.1% water, 11.7% agricultural land, 3.1% urban land, 1.1% forested wetland (swamp), 0.6% barren land, and 0.1% nonforested wetland (marsh).

The Saluda River watershed and the Little Saluda River watershed merge to form the headwaters of Lake Murray. Spring Creek, Hawleek Creek, Rocky Creek (Whetstone Creek), and Buffalo Creek flow into the waters of upper Lake Murray. Camping Creek (Susannah Branch, Snap Branch), Stevens Creek (Millers Branch), and Bear Creek (Rocky Branch, Stinking Creek) enter midlake on the northern shore, and the Hollow Creek watershed, Horse Creek (Little Horse Creek), Little Hollow Creek, Beaverdam Creek, Rocky Creek (Clemons Branch), Beech Creek, and Twentymile Creek enter midlake on the southern shore of the lake. Eighteenmile Creek drains into the lake near the dam. Lake Murray is owned and operated by SCE&G Company and is used for power production, recreation, and water supply. Billy Dreher State Park, located midlake on Billy Dreher Island is another natural resource in the watershed. There are a total of 71.5 stream miles (tributaries of Lake Murray) and 39,363.2 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-279	P/W	FW	Lake Murray at Marker 63
S-211	S/W	FW	Lake Murray, Hollands Landing off S-36-26
S-212	S/W	FW	Lake Murray, Macedonia Landing at end of S-36-26
S-290	P/W	FW	Camping Creek S-36-202 below GA Pacific
S-213	S/W	FW	Lake Murray at S-36-15
S-280	P/W	FW	Lake Murray at Marker 102
RL-01023	RL01	FW	Lake Murray 9.3 mi N of Gilbett, 0.75 mi NNE from end of S-32-443
S-273	P/SPRP	FW	Lake Murray at Marker 166
S-274	P/W	FW	Lake Murray at Marker 143
CL-083	INT	FW	Lake Murray Forebay equidistant from dam and shorelines
S-204	P/W	FW	Lake Murray at dam at spillway (Marker 1)

Lake Murray **-** Lake Murray is a 51,000-acre impoundment on the Saluda River, with a maximum depth of approximately 189.6 feet and an average depth of approximately 41.3 feet. The lake's watershed comprises 1,193.2 square miles. There are ten SCDHEC monitoring sites along the main body of Lake Murray. At the furthest uplake site **(S-279)**, aquatic life uses are not supported due to pH and total phosphorus excursions, compounded by a significant increasing trend in total phosphorus concentration. In sediment, high concentrations of chromium, copper, lead, nickel, and zinc were measured in 1997, and very high concentrations of chromium and cadmium were measured in 1998. Recreational uses are fully supported.

Prior to 2001, ***S-211, S-212, and S-213*** were secondary monitoring stations and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are partially supported at ***S-211*** due to pH excursions. A significant increasing trend in dissolved oxygen concentration suggests improving conditions for this parameter. At ***S-212***, aquatic life uses are partially supported due to pH excursions. In addition, there is a significant increasing trend in turbidity. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are fully supported at both sites. Aquatic life and recreational uses are fully supported at ***S-213***, and a significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter.

Aquatic life and recreational uses are fully supported at ***S-280***; however, there is a significant decreasing trend in dissolved oxygen concentration. A very high concentration of chromium was measured in the 1998 sediment sample, and a very high concentration of cadmium was measured in the 1999 sample. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Aquatic life and recreational uses are fully supported at ***RL-01023***.

Aquatic life uses are fully supported at ***S-273***. A very high concentration of cadmium was detected in the 1998 sediment sample, and high concentrations of copper and lead were measured in the 1997 sample. A significant decreasing trend in total nitrogen concentration suggests improving conditions for this parameter. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

At ***S-274***, aquatic life uses are fully supported; however, there is a significant increasing trend in total phosphorus. Very high concentrations of cadmium and chromium were measured in the 1998 sediment sample. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter. Aquatic life uses are partially supported at ***Cl-083*** due to pH excursions. Recreational uses are fully supported at this site.

Aquatic life uses are fully supported at ***S-204,*** but there are significant increasing trends in pH and total phosphorus concentration. High concentrations of nickel, lead, and copper were measured in the 1997 sediment sample, high concentrations of nickel and copper, and a very high concentration of cadmium were measured in the 1998 sample, and a high concentration of copper was measured in 1999. Also in sediments, P,P'DDD was detected in the 1998 sample. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Treatment for *Hydrilla* in selected areas of Lake Murray (84 acres) began in 1993 by SCDNR to reduce and/or remove *Hydrilla* in all areas affecting public access and use. In 1994, 980 acres were treated with herbicides, and 1,335 acres were treated in 1995, 1,098 acres in 1996, 182 acres in 1997, 148.5 acres in 1999, 673 acres in 2000, and 1,155 acres in 2001. In 2003, 64,500 sterile grass carp were added to the lake at a rate of 15 fish per vegetated acre. Better control is seen in the protected coves than in more open waters.

"No Discharge" Designation for Lake Murray

In May 2000, Lake Murray was designated a ***No Discharge*** lake for marine toilets due to the lake's role as a major water recreation area, a container of drinking water intakes, and as an area of increasingly intensive boating activities. The increasing number of houseboats and vessels moored and operated on the lake with marine toilets became a source of concern about potential degradation of the lake in the future. Federal and state law prohibits the discharge of untreated sewage into waters of the United States, but treated sewage from marine toilets previously has been permitted, provided it has undergone some treatment and disinfection. Because microorganisms can continue to thrive after rudimentary treatment by on-board marine toilets, discharges may be completely banned from such waterbodies to protect the public's health, safety, and welfare. Federal law allows states to completely ban discharges if it can be demonstrated that adequate and accessible pump out facilities are available. DHEC determined this to be the case with seven marinas around Lake Murray designated for treatment and disposal. The law banning discharges applies to large vessels with onboard toilets that previously were allowed to discharge treated wastes into the lake.

Camping Creek (S-290) **-** Aquatic life uses are fully supported, and significant decreasing trends in five-day biochemical oxygen demand, total phosphorus concentration, and total suspended solids suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-072	GB	PIEDMONT BEDROCK	BALLENTINE
AMB-064	GB	PIEDMONT BEDROCK	LITTLE MOUNTAIN

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
CAMPING CREEK NEWBERRY COUNTY W&SA/PLANT 2 PIPE #: 001 FLOW: 0.03	SC0044741 MINOR DOMESTIC PERMIT INACTIVATED 7/29/04 Eliminated to Newberry Co./Cannons Creek WWTP in Broad River Basin.
STEVENS CREEK THE RICECHILD GROUP/MII-DERA PIPE #: 001 FLOW: 0.0144	SC0032042 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Land Applications

LAND APPLICATION FACILITY NAME	*PERMIT # TYPE*
SPRAY IRRIGATION NCW&SA/BEDFORD WAY	ND0062219 DOMESTIC
TILE FIELD AAA UTILITIES/MALLARD BAY SD.	ND0019640 DOMESTIC
TILEFIELD NCW&SA/NEWBERRY SHORES	ND0060577 DOMESTIC
SPRAYFIELD NEWBERRY COUNTY W&SA/PLT#3	ND0003085 DOMESTIC
LOW PRESSURE IRRIGATION SYSTEM CWS/SMALL WOODS ESTATES	ND0007994 DOMESTIC

Water Quantity

WATER USER STREAM	*REGULATED CAPACITY (MGD) PUMPING CAPACITY (MGD)*
CITY OF COLUMBIA LAKE MURRAY	55.0 75.0
CITY OF WEST COLUMBIA LAKE MURRAY	13.5 18.0

Growth Potential

This watershed contains portions of the Towns of Prosperity, Little Mountain, Chapin, Summit and Lake Murray. There is and will be continued growth in areas bordering and surrounding Lake Murray. The widening of U.S. 378 to four lanes has increased the expansion rate along the Lexington side of the lake. U.S. 76 runs along the opposite shoreline of the lake, as does a rail line. The widening of I-26 toward the Chapin\Pomaria Exit is encouraging growth on both sides of the interstate.

Residential development continues to grow within the lake region. The area around the dam is the most developed and has water and sewer. The Richland County portion of the lake is also well developed and has several residential subdivisions where water and sewer are available. This will facilitate continued development along the shoreline as well as development along US 378. The Central Midlands Regional Council of Government has completed a §208 planning study, which includes population and growth projections for the area. S.C. 6 is undergoing a corridor study, and the portion crossing the dam (and the dam itself) will be widened.

The upper lake region in Newberry County is primarily rural: a few small subdivisions, some industry, and agricultural activities on a small scale. The Town of Prosperity is serviced by the Newberry County Water and Sewer Authority, which discharges into Bush River. Bush River continues to be limited in terms of assimilative capacity, and as such there has been discussion among various sewer providers in the county for a larger regional facility, which would discharge within this watershed, as well as some discussion for a single entity water and sewer provider for the lower part of Newberry County.

Lake Murray, as the main water-based recreational resource in the region, draws millions of visitors annually to its numerous parks, recreational areas, and waterways. All aspects of growth surrounding Lake Murray (tourist industry, residential development, agricultural activities) are expected to continue.

03050109-200

(Hollow Creek/Lake Murray)

General Description

Watershed 03050109-200 is located in Lexington County and consists primarily of ***Hollow Creek*** and its tributaries as they drain into ***Lake Murray***. The watershed occupies 35,360 acres of the Piedmont region of South Carolina. The predominant soil types consist of an association of the Appling-Lakeland-Tatum-Georgeville series. The erodibility of the soil (K) averages 0.24 and the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 59.9% forested land, 24.6% agricultural land, 11.8% water, 1.7% forested wetland (swamp), 1.4% urban land, 0.5% barren land, and 0.1% nonforested wetland (marsh).

Hollow Creek accepts drainage from Caney Branch and Little Creek before draining into the middle region of Lake Murray. There are a total of 35.5 stream miles and 4,092.4 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-306	W/INT	FW	HOLLOW CREEK AT S-32-54

Hollow Creek (S-306) – Aquatic life uses are partially supported due to pH excursions. Recreational uses are not supported due to fecal coliform bacteria excursions.

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-041	GB	MIDDENDORF	SUMMIT

NPDES Program

Active NPDES Facilities

There are currently no point source dischargers in this watershed.

Growth Potential

There is a low potential for growth in this watershed.

03050109-210

(Saluda River)

General Description

Watershed 03050109-210 is located in Lexington and Richland Counties and consists primarily of the lowest reach of the ***Saluda River*** and its tributaries from the Lake Murray dam to its confluence with the Broad River. The watershed occupies 65,609 acres of the Piedmont and Sandhill regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Tatum-Georgeville-Appling series. The erodibility of the soil (K) averages 0.24 and the slope of the terrain averages 7%, with a range of 2-25%. Land use/land cover in the watershed includes: 48.6% forested land, 25.6% urban land, 20.2% agricultural land, 2.8% forested wetland (swamp), 1.8% water, 0.9% barren land, and 0.1% nonforested wetland (marsh).

This lower section of the Saluda River flows out of the Lake Murray dam and merges downstream with the Broad River to form the Congaree River in the City of Columbia. The lower Saluda River is protected under the S.C. Scenic Rivers Act. Rawls Creek (Yost Creek, Koon Branch), Lorick Branch, and Kinley Creek drain into the Saluda River near the City of Irmo. Juniper Creek and Long Creek (Pine Branch, Hamburg Branch) join to form Twelvemile Creek near the Town of Gilbert. Twelvemile Creek accepts drainage from Hogpen Branch, Fall Branch, and Boggy Branch before flowing through the Town of Lexington to accept the drainage of Fourteenmile Creek (Long Branch) and enter the river. Some of the ponds encountered by Twelvemile Creek include: Barr Lake, Gibsons Pond, Lexington Mill Pond, and Corley Mill Pond. Stoop Creek, Senn Branch, and Double Branch enter the Saluda River just prior to its confluence with the Broad River. There are a total of 106.7 stream miles and 509.2 acres of lake waters in this watershed. The mainstem of this section of the Saluda River is classified TGPT* (*DO not less than daily average of 5 mg/l), and all other streams are classified FW.

Surface Water Quality

Station #	Type	Class	Description
S-152	S/W	TPGT	SALUDA RIVER JUST BELOW LAKE MURRAY DAM
RS-01012	RS01/BIO	FW	RAWLS CREEK AT S-32-175 0.25 MI W OF IRMO
S-287	S/W	FW	RAWLS CREEK AT S-32-107
S-150	S/W	FW	LORICK BRANCH AT POINT UPSTREAM OF JUNCTION WITH SALUDA RIVER
S-149	S/W	TPGT*	SALUDA RIVER AT MEPCO ELECTRIC PLANT WATER INTAKE
S-848	BIO	FW	FOURTEENMILE CREEK AT SR 28
S-294	P/W	FW	TWELVEMILE CREEK AT U.S. 378
S-260	S/W/BIO	FW	KINLEY CREEK AT S-32-36 (ST. ANDREWS ROAD) IN IRMO
S-298	P/INT	TPGT*	SALUDA RIVER AT USGS GAGING STATION, 1/2 MILE BELOW I-20

Saluda River - There are three SCDHEC monitoring sites along this section of the Saluda River. At the upstream site ***(S-152)***, aquatic life uses are partially supported due to dissolved oxygen and pH excursions, compounded by a significant increasing trend in total phosphorus concentration. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are fully supported and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

At the midstream site ***(S-149)***, aquatic life uses are partially supported due to dissolved oxygen excursions. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

At the downstream site ***(S-298)***, aquatic life uses are fully supported. There is a significant increasing trend in pH. Significant increasing trends in dissolved oxygen concentration and decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

Rawls Creek – There are two SCDHEC monitoring stations along Rawls Creek. At the upstream site ***(RS-01012)***, aquatic life uses are partially supported based on macroinvertebrate community data. Recreational uses are partially supported due to fecal coliform bacteria excursions. At the downstream site ***(S-287)***, aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen. Although some marginally low pH values were noted, they are believed to reflect natural conditions, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are not supported due to fecal coliform bacteria excursions, compounded by a significant increasing trend in fecal coliform bacteria concentration.

Lorick Branch (S-150) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are fully supported. Significant decreasing trends in turbidity and total phosphorus concentration suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Kinley Creek (S-260) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are partially supported based on macroinvertebrate community data and dissolved oxygen excursions. In addition, there are significant decreasing trends in dissolved oxygen concentration and pH. Recreational uses are not supported due to fecal coliform bacteria excursions.

Twelvemile Creek (S-294) - Aquatic life uses are fully supported; however, there is a significant increasing trend in total nitrogen concentration. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform bacteria excursions.

Fourteen Mile Creek (S-848) - Aquatic life uses are partially supported based on macroinvertebrate community data.

A fish consumption advisory has been issued by the Department for mercury and includes a stream within this watershed (see advisory p.39).

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-103	GB	TERTIARY SANDS	OAK GROVE ELEMENTARY SCHOOL

NPDES Program

Active NPDES Facilities

RECEIVING STREAM FACILITY NAME PERMITTED FLOW @ PIPE (MGD)	NPDES# TYPE COMMENT
SALUDA RIVER SCE&G/MCMEEKIN STEAM STATION PIPE #: 001-005, 02A FLOW: M/R	SC0002046 MAJOR INDUSTRIAL
SALUDA RIVER SCE&G/SALUDA HYDRO STATION PIPE #: 001-009 FLOW: M/R	SC0002071 MINOR INDUSTRIAL
SALUDA RIVER HONEYWELL NYLON/COLUMBIA SITE PIPE #: 001 FLOW: M/R	SC0003557 MAJOR INDUSTRIAL
SALUDA RIVER BC COMPONENTS, INC. PIPE #: 001 FLOW: M/R	SC0003425 MAJOR INDUSTRIAL *PERMIT INACTIVATED 6/16/04*
SALUDA RIVER WOODLAND UTILITIES PIPE #: 001 FLOW: 0.29	SC0029475 MINOR DOMESTIC TO BE ELIMINATED
SALUDA RIVER BUSH RIVER UTILITIES WWTP PIPE #: 001 FLOW: 0.4	SC0032743 MINOR DOMESTIC TO BE ELIMINATED
SALUDA RIVER CWS/I-20 REGIONAL SEWER SYSTEM PIPE #: 001 FLOW: 0.80	SC0035564 MINOR DOMESTIC
SALUDA RIVER CWS/FRIARSGATE SD PIPE #: 001 FLOW: 1.2	SC0036137 MINOR DOMESTIC
SALUDA RIVER RIVERBANKS ZOOLOGICAL PARK PIPE #: 001-005 FLOW: M/R	SC0037613 MINOR INDUSTRIAL

LORICK BRANCH BC COMPONENTS, INC. PIPE #: 002 FLOW: M/R	SC0003425 MAJOR INDUSTRIAL *PERMIT INACTIVATED 6/16/04*
KINLEY CREEK HONEYWELL NYLON/COLUMBIA SITE PIPE #: 002 FLOW: M/R	SC0003557 MAJOR INDUSTRIAL STORMWATER
TWELVEMILE CREEK TOWN OF LEXINGTON/COVENTRY WOODS SD PIPE #: 001 FLOW: 1.95	SC0026735 MAJOR DOMESTIC
FOURTEENMILE CREEK CWS/WATERGATE DEVELOPMENT PIPE #: 001 FLOW: 0.294	SC0027162 MINOR DOMESTIC
STOOP CREEK ALPINE UTILITIES, INC. PIPE #: 001 FLOW: 2.0	SC0029483 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
SCE&G McMEEKIN STATION INDUSTRIAL	IWP-220 ACTIVE
ALLIED FIBERS CORP. INDUSTRIAL	IWP-143 ACTIVE
MUSTARD COLEMAN CONSTRUCTION INDUSTRIAL	IWP-001 ACTIVE

Land Applications

LAND APPLICATION ***FACILITY NAME***	***PERMIT #*** ***TYPE***
SPRAY IRRIGATION GILBERT ELEMENTARY SCHOOL	ND0013587 DOMESTIC
SPRAY IRRIGATION LEXINGTON HIGH SCH./VOC.ED.CTR.	ND0067016 DOMESTIC
SPRAY IRRIGATION/TILEFIELD WINDY HILL SD	ND0067075 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
SOUTHEASTERN ASSOC. INC. LEXINGTON COUNTY #1 MINE	1097-63 SAND

BORAL BRICK, INC. CORLEY MILL ROAD	0028-63 SHALE

Water Quantity

WATER USER *STREAM*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (MGD)*
CITY OF WEST COLUMBIA SALUDA RIVER	6.0 13.0

Growth Potential

There is a high potential for future residential and industrial development in this watershed, which contains the Town of Lexington and portions of the Cities of Columbia and West Columbia, and the Towns of Gilbert, Summit, and Irmo. The area surrounding the Town of Lexington has grown rapidly during the past several years and the trend should continue. Several important highways run through the area including: S.C. 6, which runs from the Lake Murray dam south through the Town of Lexington, and U.S. 1 and U.S. 378, which run west from the City of West Columbia and intersects with Highway 6 in Lexington; I-20 also serves the area. The watershed's industrial corridor is one of the most economically attractive in the Midlands Area for future development. Once sewer is readily available, residential development is expected to increase. The regional sewer line along Fourteenmile Creek is now in operation.

The construction of a water plant on the shore of Lake Murray north of the Town of Lexington, has made available a water supply sufficient to support development. The City of West Columbia and Lexington County have extended major water mains in the area. Non-industrial dischargers in this basin are targeted for elimination with effluent transported to the City of Cayce's WWTP through a regional system. Components of the regional system have either been constructed, are presently being constructed, or are presently being designed. This will decrease discharge levels into the lower portion of the Saluda River.

Watershed Protection and Restoration Strategies

Total Maximum Daily Loads (TMDLs)

Levels of fecal coliform bacteria can be elevated in water bodies as the result of both point and nonpoint sources of pollution. Rawls Creek is currently in violation of the fecal coliform bacteria water quality standard, as more than 10% of the samples collected at station S-287 during 1994-1998 exceed the 400 colonies/100ml standard. Urban and forest are the two major land uses in the Rawls Creek watershed. Both can be sources of fecal coliform bacteria. Targeting urban land for reduction of bacteria is the most effective strategy for this watershed. The geometric mean for this site is 543 colonies/100ml. The target level of bacteria is 175 colonies/100ml, an urban reduction of 69%. Forested lands are not targeted for reduction, as there are currently no acceptable means of reducing fecal coliform sources within that land use. There are several tools available for implementing this TMDL, including an ongoing §319 funded project, as well as NPS pollution outreach activities and materials. SCDHEC will continue to monitor water quality in Rawls Creek to evaluate the effectiveness of these measures.

The Congaree River Basin Description

The ***Congaree River Basin*** encompasses 689 square miles and 7 watersheds. The Congaree River Basin is predominately within the Sandhills region of the State, but giving way to the Upper Coastal Plain region near its confluence with the Wateree River of the Catawba River Basin. Of the 441,007 acres in the Congaree River Basin, 51.7% is forested land, 16.9% is agricultural land, 15.8% is forested wetland (swamp), 10.8% is urban land, 2.8% is barren land, 1.6% is water, and 0.4% is nonforested wetland (marsh). The urban land percentage is comprised chiefly by the Greater Columbia Metropolitan area. The Broad River and Saluda River merge to form the Congaree River, which flows southeasterly for 50 miles and merges with the Wateree River to form the Santee River Basin. There are a total of 796.5 stream miles and 3,489.7 acres of lake waters in the Congaree River Basin. The Catawba River and Santee River Basins are addressed in year three of the Bureau's five-year basin cycle.

Physiographic Regions

The State of South Carolina has been divided into six Major Land Resource Areas (MLRAs) by the USDA Soil Conservation Service. The MLRAs are physiographic regions that have soils, climate, water resources, and land uses in common. The physiographic region that defines the Congaree River Basin is as follows:

The **Sand Hills** are an area of gently sloping to strongly sloping uplands with a predominance of sandy areas and scrub vegetation; elevations range from 250 to 450 feet.

The **Upper Coastal Plain** is an area of gentle slopes with increased dissection and moderate slopes in the northwestern section that contain the state's major farming areas; elevations range from 100 to 450 feet.

Land Use/Land Cover

General land use/land cover mapping for South Carolina was derived from the U.S. Geological Survey's National Land Cover Data (NLCD), based on nationwide Landsat Thematic Mapper (TM) multispectral satellite images (furnished through the Multi-Resolution Land Characteristics (MRLC) consortium, coordinated by USEPA) using image analysis software to inventory the Nation's land classes. The NLCD are developed by the USGS (EROS Data Center) using TM image interpretation, air photo interpretation, National Wetland Inventory data analysis, and ancillary data analysis.

Urban land is characterized by man-made structures and artificial surfaces related to industrial, commercial, and residential uses, and vegetated portions of urban areas such as recreational grass lands and industrial facility lawns.

Agricultural/Grass land is characterized by row crops, pastures, orchards, vineyards, and hay land, and includes grass cover in fallow, scrub/shrub, forest clearcut and urban areas.

Forest land is characterized by deciduous and evergreen trees (or a mix of these), not including forests in wetland settings, generally greater than 6 meters (approximately 20 feet) in height, with tree canopy of 25-100% cover.

Forested Wetland is saturated bottomland, mostly hardwood, forests primarily composed of wooded swamps occupying river floodplains, moist marginal forests, and isolated low-lying wet areas, located predominantly in the Coastal Plain.

Nonforested Wetland is saturated marshland, most commonly located in coastal tidelands and in isolated freshwater inland areas, found predominantly in the Coastal Plain.

Barren land is characterized by a nonvegetated condition of the land, both natural (rock, beaches, nonvegetated flats) and man-induced (rock quarries, mines, and areas cleared for construction in urban areas or clearcut forest areas).

Water (non-land) includes both fresh (inland) and saline (tidal) waters.

Soil Types

The dominant soil associations, or those soil series comprising, together, over 40% of the land area, were recorded for each watershed in percent descending order. The individual soil series for the Congaree River Basin are described as follows.

Alpin soils are well drained and excessively drained, sandy soils with a loamy or sandy subsoil.

Blaney soils are nearly level to strongly sloping, excessively drained and well drained soils, some sandy throughout and some with a loamy subsoil and a fragipan on coastal plains.

Chastain soils are poorly drained to well drained soils that are clayey or loamy throughout and are subject to flooding.

Chewacla soils are nearly level, somewhat poorly drained and well drained soils.

Congaree soils are nearly level, well drained soils that are predominantly loamy throughout, or flood plains.

Dothan soils are well drained, sandy soils with loamy subsoil.

Faceville soils are well drained, sandy soils with a loamy or clayey subsoil.

Fuquay soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Lakeland soils are well drained, sandy soils with a loamy subsoil and excessively drained soils.

Marlboro soils are well drained soils with a sandy or loamy surface layer and a loamy or clayey subsoil.

Norfolk soils are deep, well drained soils, with loamy subsoil, nearly level and gently sloping elevated uplands.

Pelion soils are well drained and moderately well drained soils that have a sandy surface layer and a loamy subsoil, many with a fragipan in the subsoil.

Tawcaw soils are poorly drained to well drained soils that are clayey or loamy throughout and are subject to flooding.

Vaucluse soils are well drained, loamy and sandy soils with clayey or loamy subsoil.

Slope and Erodibility

The definition of soil erodibility differs from that of soil erosion. Soil erosion may be more influenced by slope, rainstorm characteristics, cover, and land management than by soil properties. Soil erodibility refers to the properties of the soil itself, which cause it to erode more or less easily than others when all other factors are constant.

The soil erodibility factor, K, is the rate of soil loss per erosion index unit as measured on a unit plot, and represents an average value for a given soil reflecting the combined effects of all the soil properties that significantly influence the ease of soil erosion by rainfall and runoff if not protected. The K values closer to 1.0 represent higher soil erodibility and a greater need for best management practices to minimize erosion and contain those sediments that do erode. The range of K-factor values in the Congaree River Basin is from 0.06 to 0.20.

Fish Consumption Advisory

At the time of publication, a fish consumption advisory issued by SCDHEC is in effect for portions of the Congaree River, Sesquicentennial State Park Lake, and Windsor Lake advising people to limit the amount of some types of fish consumed from these waters. Fish consumption advisories are updated annually in March. For background information and the most current advisories please visit the Bureau of Water homepage at http://www.scdhec.gov/water and click on "Advisories". For more information or a hard copy of the advisories, call SCDHEC's Division of Health Hazard Evaluation toll-free at (888) 849-7241.

Climate

Normal yearly rainfall in the Congaree River area during the period of 1971 to 2000 was 47.61 inches, according to South Carolina's **30-year** climatological record. Data compiled from National Weather Service stations in Columbia at the Columbia Metropolitan Airport and the University of South Carolina were used to determine the general climate information for the Congaree River area. The highest seasonal rainfall occurred in the summer with 15.42 inches; 9.67, 11.78, and 10.74 inches of rain fell in the fall, winter, and spring, respectively. The average annual daily temperature was 64.9°F. Summer temperatures averaged 81.1 °F, and fall, winter, and spring mean temperatures were 65.7 °F, 48.0 °F, and 64.9 °F, respectively.

Watershed Evaluations

03050110-010

(Congaree River)

General Description

Watershed 03050110-010 is located in Richland, Lexington, and Calhoun Counties and consists primarily of the ***Congaree River*** and its tributaries from its origin to Cedar Creek. The watershed occupies 140,459 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Chewacla-Congaree-Blaney-Fuquay series. The erodibility of the soil (K) averages 0.17 and the slope of the terrain averages 5%, with a range of 0-15%. Land use/land cover in the watershed includes: 54.2% forested land, 21.8% forested wetland (swamp), 11.9% agricultural land, 7.4% urban land, 2.3% water, 2.0% barren land, and 0.4% nonforested wetland (marsh).

The Congaree River originates with the confluence of the Saluda River Basin and the Broad River Basin in the City of Columbia. There are a total of 269.7 stream miles and 643.2 acres of lake waters in this watershed, all classified FW. Rocky Branch flows into the Congaree River within the City of Columbia, followed by the Congaree Creek watershed, Dry Creek, and the Gills Creek watershed. Further downstream, Toms Branch (Silver Lake, Geiger Pond), Big Lake (Cow Cut), and Savany Hunt Creek enter the river. The river then accepts drainage from the Sandy Run watershed and Mill Creek (Reeder Point Branch, Black Lake, Adams Pond, Pinewood Lake, Ulmers Pond, Sunset Lake, Twin Lakes). Big Beaver Creek accepts drainage from Rock Branch, Branham Branch, Little Beaver Creek (Howell Branch, Falls Branch), and Congaree Spring Branch (Hildebrand Branch) before flowing into the Congaree River. Butlers Gut Creek connects Big Beaver Creek to Buyck Bottom Creek (Sikes Creek) and to the river. Bates Mill Creek (High Hill Creek, Speigner Branch, Dicks Swamp) drains into the river at the base of the watershed. There are numerous recreational lakes and river oxbows in this watershed such as Saylors Lake and Dead River. Another natural resource in the watershed is the Congaree National Park, a wetland preserve, which extends along the northeastern riverbank in the lower portion of the watershed.

Surface Water Quality

Station #	Type	Class	Description
CSB-001L	P/SEDM	FW	CONGAREE RIVER AT BLOSSOM ST (SALUDA RIVER)
CSB-001R	P/SEDM	FW	CONGAREE RIVER AT BLOSSOM ST (BROAD RIVER)
C-021	S/W	FW	MILL CREEK AT SC 262
C-022	S/W	FW	MILL CREEK AT US 76 AT PINEWOOD LAKE, 8 MILES SE OF COLUMBIA
C-074	P/INT	FW	CONGAREE RIVER -W BOUNDARY OF CONGAREE NATIONAL PARK
C-010	BIO	FW	BIG BEAVER CREEK AT US 176
C-073	S/W	FW	REEDER POINT BRANCH AT SC 48
RS-01041	RS01	FW	BATES MILL CREEK AT S-09-24, 4MI N OF ST. MATTHEWS

Congaree River - There are three SCDHEC monitoring sites along this section of the Congaree River. At the upstream site, reflecting Saluda River influence ***(CSB-001L)***, aquatic life uses are fully supported. In sediments, di-N-butylphthalate was measured in 1999. A significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are partially supported due to fecal coliform excursions; however, a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

Across the channel at the site reflecting Broad River influence ***(CSB-001R)***, aquatic life uses are not supported due to occurrences of zinc in excess of the aquatic life acute standards. Phenanthrene and di-N-butylphthalate were detected in the 1999 sediment sample. Significant decreasing trends in turbidity and total suspended solids suggest improving conditions for these parameters. At the downstream site ***(C-074)***, aquatic life uses are fully supported; however, there is a significant decreasing trend in dissolved oxygen concentration. There is a significant increasing trend in pH. Recreational uses are fully supported at both sites, and a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

Mill Creek - There are two SCDHEC monitoring sites along Mill Creek. Prior to 2001, these were secondary monitoring stations and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are fully supported at the upstream site ***(C-021)***; however, there is a significant increasing trend in total phosphorus concentration. A significant increasing trend in dissolved oxygen concentration and a significant decreasing trend in five-day biochemical oxygen demand suggest improving conditions for these parameters. Recreational uses are partially supported due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

At the downstream site ***(C-022)***, aquatic life and recreational uses are fully supported. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted at both sites, they were typical of values seen in such systems and were considered natural, not standards violations.

Reeder Point Branch (C-073) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are not supported due to dissolved oxygen concentration and pH excursions. There is a significant increasing trend in pH. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions.

Big Beaver Creek (C-010) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Bates Mill Creek (RS-01041) - Aquatic life uses are fully supported. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions are noted at this site, they are typical of values seen in such systems and considered natural, not standards violations. Recreational uses are fully supported.

A fish consumption advisory has been issued by the Department for mercury and includes portions of streams within this watershed (see advisory p.111).

Natural Swimming Areas

FACILITY NAME *RECEIVING STREAM*	*PERMIT #* *STATUS*
BOZARDS POND HIGH HILL CREEK	09-N03 ACTIVE

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-045	GB	MIDDENDORF	FT. JACKSON

NPDES Program

Active NPDES Facilities

RECEIVING STREAM *FACILITY NAME* *PERMITTED FLOW @ PIPE (MGD)*	*NPDES#* *TYPE* *COMMENT*
CONGAREE RIVER MARTIN MARIETTA AGGREGATES/CAYCE QUARRY PIPE #: 01A-01C, 02A-02C FLOW: M/R	SCG730263 MINOR INDUSTRIAL
CONGAREE RIVER VORIDIAN PIPE #: 001 FLOW: 100.82	SC0001333 MAJOR INDUSTRIAL
CONGAREE RIVER WESTINGHOUSE ELECTRIC LLC/COLUMBIA PIPE #: 001 FLOW: 0.130	SC0001848 MAJOR INDUSTRIAL
CONGAREE RIVER SCE&G/COLUMBIA HYDRO PLANT PIPE #: 001 FLOW: 0.067	SC0002062 MINOR INDUSTRIAL
CONGAREE RIVER CITY OF COLUMBIA/METRO PLANT PIPE #: 001 FLOW: 60.00	SC0020940 MAJOR DOMESTIC
CONGAREE RIVER CITY OF CAYCE WWTP PIPE #: 001 FLOW: 12.0 PIPE #: 001 FLOW: 16.0, 24.0	SC0024147 MAJOR DOMESTIC PROPOSED
CONGAREE RIVER DEVRO INC./CORIA DIV. PIPE #: 001 FLOW: 0.4	SC0033367 MINOR INDUSTRIAL

CONGAREE RIVER EAST RICHLAND COUNTY PSD/GILLS CK PLT PIPE #: 001 FLOW: 10.5 PIPE #: 001 FLOW: 13.0 PIPE #: 001 FLOW: 16.0	SC0038865 MAJOR DOMESTIC TIER I TIER II TIER III
CONGAREE RIVER CITY OF WEST COLUMBIA/WTP PIPE #: 001, 002 FLOW: M/R	SCG641005 MINOR DOMESTIC
CONGAREE RIVER SC DEPT. AGRIC./CALIBRATION STATION PIPE #: 001, 002 FLOW: M/R	SC0041386 MINOR INDUSTRIAL
DRY CREEK BROOKFOREST MOBILE HOME ESTATES PIPE #: 001 FLOW: 0.027	SC0031178 MINOR DOMESTIC
DRY CREEK TRIBUTARY BELLE MEADE SD PIPE #: 001 FLOW: 0.08	SC0030988 MINOR DOMESTIC
DRY CREEK TRIBUTARY PINEY GROVE UTILITIES/LLOYDWOOD SD PIPE #: 001 FLOW: 0.1548	SC0031402 MINOR DOMESTIC
ROCKY BRANCH VULCAN CONSTR. MATERIALS CO./COLA QUARRY PIPE #: 01A-01C, 02A-02C FLOW: M/R	SCG730054 MINOR INDUSTRIAL
TOMS BRANCH TCH PROPERTIES LLC PIPE #: 001 FLOW: 0.038	SC0031321 MINOR DOMESTIC
TOMS BRANCH ROLLING MEADOWS MHP/HERITAGE PIPE #: 001 FLOW: 0.0715	SC0033685 MINOR DOMESTIC
SAVANY HUNT CREEK SC DEPT OF TRANS./I-26 REST AREA PIPE #: 001 FLOW: 0.06 PIPE #: 001 FLOW: 0.10, 0.25, 0.35, 0.50	SC0040339 MINOR DOMESTIC PROPOSED

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME *FACILITY TYPE*	*PERMIT #* *STATUS*
FORT JACKSON DOMESTIC	DWP-098; DWP-910; 405001-1101 CLOSED
HUGER STREET DUMP DOMESTIC	------------ CLOSED
HEMLOCK ROAD DUMP DOMESTIC	------------ CLOSED

STADIUM ROAD DUMP DOMESTIC	------------ CLOSED
ROSEWOOD DRIVE DUMP DOMESTIC	------------ CLOSED
SOUTHEAST CONCRETE INDUSTRIAL	323335-1601; 322448-1601 (IWP-006) -----------
TAYLOR BROTHERS C&D DUMP C&D	------------ ------------
LEXINGTON COUNTY LANDFILL #1 DOMESTIC	DWP-030 CLOSED
GASTON DUMP DOMESTIC	------------ CLOSED
CAROLINA EASTMAN INDUSTRIAL	IWP-124 -----------
CALHOUN COUNTY SANITARY LANDFILL DOMESTIC	091001-1201;091001-1101 (DWP-045) -----------

Land Applications

LAND APPLICATION *FACILITY NAME*	*PERMIT #* *TYPE*
SLUDGE INJECTION BIO TECH, INC.	ND0069761 DOMESTIC

Mining Activities

MINING COMPANY *MINE NAME*	*PERMIT #* *MINERAL*
LANIER CONSTRUCTION CO., INC. LANIER ASPHALT PLANT	0124-63 SAND
LANIER CONSTRUCTION CO., INC. STROUD MINE	0946-63 SAND
FOSTER-DIXIANA CORP. SILICA PIT	0141-63 SAND
FOSTER-DIXIANA CORP. DIXIANA MINE	0140-63 SAND
VULCAN CONSTR. MATERIALS CO. COLUMBIA QUARRY	0133-79 GRANITE
COLUMBIA SILICA SAND, INC. TRUCK PIT	0009-63 SAND
BORAL BRICK, INC. ROOF MINE	0422-17 KAOLIN

Water Quantity

WATER USER *STREAM*	*REGULATED CAPACITY (MGD)* *PUMPING CAPACITY (MGD)*
CITY OF CAYCE CONGAREE RIVER	9.6 14.4

Growth Potential

There is an overall high potential for growth in this watershed, which contains a portion of the City of Columbia. There is a low to moderate potential for residential and industrial growth in the Olympia area of the City of Columbia, and high growth and development for the Congaree Vista area in the downtown area. The Three Rivers Greenway will increase recreational use in this area. Growth is also projected along the I-77 beltway around the city. The Olympia and Bluff Road areas contain heavy industrial development. Only the upper portion of the watershed, near the City of Columbia, has available water and sewer service. The City of Columbia is installing an effluent diffuser in the Congaree River to improve dilution of the treated effluent.

The Cities of West Columbia and Cayce are also located in this watershed. There are plans to extend water and sewer facilities capable of handling residential and industrial development within the next five to ten years. The area around Silver Lake is expected to undergo substantial residential and industrial development. The area south of the City of Cayce, along I-26 and U.S. 321, and the Bluff Road/Shop Road area in Columbia are expected to experience heavy growth. The area along U.S. 176 and U.S. 21 should experience moderate growth, primarily industrial.

03050110-020

(Congaree Creek)

General Description

Watershed 03050110-020 is located in Lexington County and consists primarily of ***Congaree Creek*** and its tributaries. The watershed occupies 91,334 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Lakeland-Blaney-Fuquay series. The erodibility of the soil (K) averages 0.10 and the slope of the terrain averages 5%, with a range of 2-15%. Land use/land cover in the watershed includes: 56.3% forested land, 16.2% urban land, 16.1% agricultural land, 6.0% forested wetland (swamp), 3.9% barren land, 1.3% water, and 0.2% nonforested wetland (marsh).

West Fork and East Fork join to form Scouter Branch, which flows through Redmond Pond and Shealy Pond to enter Congaree Creek. Congaree Creek then flows through Hunt Pond before accepting the drainage from Red Bank Creek (Turkey Creek, Crystal Lake, Lick Fork Branch, Pole Branch). Second Creek (Hunt Branch, Bear Creek, Reedy Branch) flows into First Creek, which then drains into Congaree Creek. Congaree Creek also accepts the drainage from Savana Branch (Pitts Lake), Sixmile Creek (Lake Caroline), and Dry Creek. There are a total of 119.8 stream miles and 770.7 acres of lake waters in this watershed, all classified FW. The Congaree Creek watershed drains into the Congaree River near the City of Cayce. Another natural resource in the watershed is the Peachtree Rock Nature Preserve, located at the headwaters of Hunt Branch.

Surface Water Quality

Station #	Type	Class	Description
C-580	BIO	FW	RED BANK CREEK AT ROAD CONNECTING SR 1260 & SR 243
C-066	S/W	FW	RED BANK CREEK AT S-32-244
C-067	S/W	FW	RED BANK CREEK AT SANDY SPRINGS ROAD BETWEEN S-32-104 & SC602
C-565	BIO	FW	CONGAREE CREEK AT SR 34
C-061	S/W/BIO	FW	SAVANA BRANCH AT S-32-72 1.7 MILES NNW OF SOUTH CONGAREE
C-008	P/W	FW	CONGAREE CREEK AT US 21, AT CAYCE WATER INTAKE
C-025	S/W	FW	LAKE CAROLINE SPILLWAY AT PLATT SPRINGS ROAD
C-005	S/W	FW	SIXMILE CREEK ON US 21, S OF CAYCE
C-070	W/INT	FW	CONGAREE CREEK AT S-32-66
C-583	BIO	FW	SECOND CREEK AT SR 647

Congaree Creek – There are three SCDHEC monitoring sites along Congaree Creek. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were typical values for these systems and were considered natural, not standards violations. Aquatic life uses are fully supported at the upstream site ***(C-565)*** based on macroinvertebrate community data. At the midstream site ***(C-008)***, aquatic life uses are fully supported. There is a significant increasing trend in pH, which suggests changing conditions in this portion of the stream. A significant increasing trend in dissolved oxygen concentration and significant decreasing trends in five-day biochemical oxygen demand and turbidity suggests improving conditions for these parameters. Recreational uses are fully supported at this site. Aquatic life and recreational uses are fully supported at the downstream site ***(C-070)***. A significant decreasing trend in turbidity suggests improving conditions for this parameter.

Red Bank Creek **-** There are three SCDHEC monitoring sites along Red Bank Creek. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were typical values for these systems and considered natural, not standards violations. At the upstream site ***(C-580)***, aquatic life uses are fully supported based on macroinvertebrate community data. Aquatic life uses are fully supported at the midstream site ***(C-066).*** Recreational uses are fully supported at this site; however, there is a significant increasing trend in fecal coliform bacteria concentration. Aquatic life uses are also fully supported at downstream site ***(C-067)*** and a significant decreasing trend in turbidity suggests improving conditions for this parameter. Recreational uses are partially supported at this site. Prior to 2001, ***C-066 and C-067*** were secondary monitoring stations and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations.

Savana Branch (C-061) **-** Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are fully supported based on macroinvertebrate community data. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were typical values for these systems and considered natural, not standards violations. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are partially supported, due to fecal coliform bacteria excursions.

Sixmile Creek (C-005) **-** Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are partially supported due to dissolved oxygen concentration excursions, compounded by a significant increasing trend in total suspended solids. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions occurred, they were typical of values seen in such systems and considered natural, not standards violations. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Recreational uses are not supported due to fecal coliform bacteria excursions. In addition, there is a significant increasing trend in fecal coliform bacteria.

Lake Caroline (C-025) **-** Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are not supported due to total phosphorus concentration excursions. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are not supported due to fecal coliform bacteria excursions.

Second Creek (C-583) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Natural Swimming Areas

FACILITY NAME ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
CONGAREE GIRL SCOUT CAMP WEST FORK	32-N05 ACTIVE
YMCA LEXINGTON CAMP RED BANK CREEK TRIBUTARY	32-N10 ACTIVE

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-042	GB	MIDDENDORF	HIDDEN VALLEY

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
RED BANK CREEK LEXINGTON COUNTY JOINT/OLD BARNWELL RD PIPE #: 001 FLOW: 0.8	SC0023680 MINOR DOMESTIC Proposed to be eliminated and tie into City of Cayce in 03050110-010
RED BANK CREEK TRIBUTARY CAROLINA MATERIAL/I-20 PIT PIPE #: 001 FLOW: M/R	SCG730168 MINOR INDUSTRIAL
FIRST CREEK CWS/GLENN VILLAGE II SD PIPE #: 001 FLOW: 0.1284	SC0030651 MINOR DOMESTIC
BEAR CREEK LEXINGTON COUNTY/EDMUND LANDFILL PIPE #: 001 FLOW: 0.028	SC0045110 MINOR INDUSTRIAL
SIXMILE CREEK SOLAR FARMS PIPE #: 001 FLOW: M/R	SC0039021 MINOR INDUSTRIAL
SIXMILE CREEK PARKWOOD OF CAROLINA PIPE #: 001 FLOW: 0.035	SC0030473 MINOR DOMESTIC PROPOSED TO BE TIED IN

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
LEXINGTON COUNTY TRANSFER STATION DOMESTIC	321001-1101 (DWP-127) CLOSED
LEXINGTON COUNTY LANDFILL C&D	321001-1201 (CWP-044) ACTIVE
12TH ST. EXTENTION LANDFILL C&D	322902-1301 ----------
CAROLINA MATERIALS CORP. C&D LF C&D	322611-1201 ----------
BRAKEFIELD CONSTRUCTION C&D	322617-1201 ------------
US SILICA LANDFILL INDUSTRIAL	IWP-063 ----------
OWEN ELECTRICAL STEEL CO. INDUSTRIAL	IWP-126 ----------
RED BANK DUMP DOMESTIC	---------- CLOSED
U.S. #1 FLEA MARKET INERT LANDFILL INDUSTRIAL	322447-1201 (NWP-003) CLOSED

Land Applications

LAND APPLICATION ***FACILITY NAME***	***PERMIT #*** ***TYPE***
SPRAYFIELD/TILEFIELD WINDY HILL WWTP	ND0067075 DOMESTIC

Mining Activities

MINING COMPANY ***MINE NAME***	***PERMIT #*** ***MINERAL***
MARTIN MARIETTA MATERIALS, INC. CAYCE QUARRY	0102-63 GRANITE
BOWERS LEASING COMPANY HUGHES MINE	0637-63 SAND
RICHTEX CORPORATION SOX MINE	0184-63 KAOLIN
CAROLINA MATERIALS CORPORATION I-20 PIT	0787-63 SAND

B&T SAND COMPANY, INC. BLEDSOE MINE	0947-63 SAND
CAROLINA MATERIALS CORPORATION RED BANK PIT	0608-63 SAND, SAND/CLAY
B&T SAND COMPANY, INC. HWY 6 MINE	0741-63 SAND
LEXINGTON COUNTY RED BANK PIT	0505-63 SAND, SAND/CLAY
B&T SAND COMPANY, INC. EDMUND MINE	0958-63 SAND
COLUMBIA SILICA SAND, INC. TINDAL MINE	0535-63 SAND
US SILICA COLUMBIA MINE	0150-63 SAND
COLUMBIA SILICA SAND, INC. SHULER MINE #2	0010-63 SAND
B&T SAND COMPANY, INC. NAZARETH	1211-63 SAND/CLAY
WILSON BROTHERS SMITH MINE	0934-63 SAND
FONDREN EARTH EXCAVATION FONDREN SOILS INC. PIT	0817-63 SAND/GRAVEL
FOSTER-DIXIANA SAND COMPANY GASTON MINE	1139-63 SAND

Growth Potential

There is a high potential for growth in this watershed, which contains the Towns of Red Bank, South Congaree, Pineridge, Springdale, Oak Grove, and portions of the Cities of Cayce and West Columbia. The growth is primarily in the form of commercial and residential uses. Expansion of the industrial base is also expected. There are several major highways bisecting the watershed, together with the Columbia Metropolitan Airport and a rail line to aid transportation related growth. Water is available in the urbanized areas and can be easily extended by the Cities of West Columbia and Cayce; however, sewer is not widely available and will require a major investment. Two Notch Road and Old Barnwell wastewater treatment plants (WWTP) (under Lexington County Joint Municipal Water and Sewer Commission) are targeted for elimination under the 208 Plan, with effluent transported to the City of Cayce's WWTP. The construction of the line to Cayce could have the effect of making sewer more readily available.

03050110-030

(Gills Creek)

General Description

Watershed 03050110-030 is located in Richland County and consists primarily of ***Gills Creek*** and its tributaries. The watershed occupies 47,681 acres of the Sandhills region of South Carolina. The predominant soil types consist of an association of the Alpin-Lakeland-Pelion-Norfolk series. The erodibility of the soil (K) averages 0.15 and the slope of the terrain averages 5%, with a range of 0-15%. Land use/land cover in the watershed includes: 39.3% forested land, 39.1% urban land, 10.2% agricultural land, 5.7% forested wetland (swamp), 3.7% barren land, 1.9% water, and 0.1% nonforested wetland (marsh).

Gills Creek flows through the northeastern section of the City of Columbia and drains into the Congaree River. Gills Creek originates near Sesquicentennial State Park and accepts the drainage of Bynum Creek (Rose Creek), Rowell Creek, and Mack Creek before flowing through Rockyford Lake and Forest Lake. Jackson Creek also originates near Sesquicentennial State Park and flows through Sesquicentennial Pond and Windsor Lake before accepting the drainage of Little Jackson Creek (Lightwood Knot Branch). Jackson Creek then flows through Carys Lakes (Arcadia Lakes) and Spring Lake to join Gills Creek in Forest Lake. Downstream of Forest Lake, Gills Creek accepts the drainage of Eightmile Branch and Pen Branch (Orphanage Branch) before flowing through Lake Katherine. Wildcat Creek (Semmes Lake, Fork Creek, Upper Legion Lake, Lower Legion Lake) drains into Gills Creek downstream of Lake Katherine. Gills Creek and its associated wetlands drain into the Congaree River. Several oxbow lakes, including Alligator Lake, drain into Gills Creek near the river. There are a total of 89.5 stream miles and 943.3 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
C-048	S/W	FW	WINDSOR LAKE SPILLWAY ON WINDSOR LAKE BLVD
C-068	P/W	FW	FOREST LAKE AT DAM
C-001	P/W	FW	GILLS CREEK AT BRIDGE ON US 76 (GARNERS FERRY ROAD)
C-017	P/INT	FW	GILLS CREEK AT SC 48 (BLUFF ROAD)

Gills Creek - There are two SCDHEC monitoring sites along Gills Creek. Both sites are within a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems and considered natural, not standards violations. At the upstream site ***(C-001)***, aquatic life uses are fully supported, but there is a significant decreasing trend in dissolved oxygen concentration. There is a significant increasing trend in pH. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, total dissolved solids, total phosphorus and total nitrogen concentrations suggest improving conditions for these parameters. The significant increasing trend in pH suggests changing conditions for this stream. Recreational uses are not supported at this site due to fecal coliform bacteria excursions.

At the downstream site ***(C-017)***, aquatic life uses are partially supported due to dissolved oxygen concentration excursions, compounded by a significant decreasing trend in dissolved oxygen concentration. In sediment, P,P'DDD was detected in 1997 sample, and P,P'DDD and P,P'DDE (metabolites of DDT) were detected in the 1997, 1999, and 2000 samples. Although the use of DDT was banned in 1973, it is very persistent in the environment. Fluoranthene, butylbenzylphthalate, and di-N-butylphthalate were detected in 1997. Di-N-butylphthalate was again measured in 1999, as were benzoic acid and dieldrin. High concentrations of nickel and zinc were measured in the sediments in 1998, and a very high concentration of cadmium was detected in 2000. Significant decreasing trends in five-day biochemical oxygen demand, turbidity, total suspended solids, total phosphorus concentration, and total nitrogen concentration suggest improving conditions for these parameters. The significant decreasing trend in pH suggests changing conditions for this stream. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions; however, a significant decreasing trend in fecal coliform bacteria suggests improving conditions for this parameter.

Sesquicentennial Pond - The pond was applied with aquatic herbicide in 1996 to improve public access to the lake. These efforts have been successful and further treatments have not been necessary.

Windsor Lake (C-048) - Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Aquatic life uses are partially supported due to dissolved oxygen concentration and pH excursions, compounded by significant decreasing trends in both parameters. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are fully supported.

Forest Lake (C-068) – Aquatic life and recreational uses are fully supported. This lake is located in a blackwater drainage system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems and were considered natural, not standards violations. A significant decreasing trend in turbidity suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes some lakes within this watershed (see advisory p.111).

Natural Swimming Areas

FACILITY NAME ***RECEIVING STREAM***	***PERMIT #*** ***STATUS***
SESQUICENTENIAL STATE PARK SESQUICENTENIAL STATE PARK LAKE	40-N16 ACTIVE

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-046	GB	MIDDENDORF	SPRING VALLEY

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
GILLS CREEK CENTRAL PRODUCTS CO. DBA IPG PIPE #: 001-007 FLOW: M/R	SCG250180 MINOR INDUSTRIAL
GILLS CREEK US ARMY/FT. JACKSON PIPE #: 007 FLOW: M/R	SC0003786 MINOR INDUSTRIAL
LAKE KATHERINE US ARMY/FT. JACKSON PIPE #: 006 FLOW: M/R	SC0003786 MINOR INDUSTRIAL
JACKSON CREEK AMPHENOL CORP. PIPE #: 001 FLOW: M/R	SC0046264 MINOR INDUSTRIAL

Nonpoint Source Management Program

Land Disposal Activities

Landfill Facilities

LANDFILL NAME ***FACILITY TYPE***	***PERMIT #*** ***STATUS***
ANCHOR CONTINENTAL, INC. INDUSTRIAL	IWP-200 ---------
ANCHOR CONTINENTAL, INC. INDUSTRIAL	IWP-108 CLOSED
ANCHOR CONTINENTAL, INC. INDUSTRIAL	IWP-137 CLOSED
BALDWIN ROAD C&D DUMP C&D LANDFILL	----------- CLOSED
CITY OF COLUMBIA C&D LANDFILL C&D LANDFILL	401002-1201 -----------
CITY OF COLUMBIA TRANSFER STATION DOMESTIC	401002-6001 ------------

Mining Activities

MINING COMPANY	*PERMIT #*
MINE NAME	*MINERAL*
THE JORDAN COMPANY	0545-79
CONGAREE SAND PIT	SAND

Growth Potential

There is a high potential for continued growth in this urban watershed, which contains a portion of the City of Columbia. Although primarily residential, there are a substantial number of commercial and industrial areas. Almost the entire watershed, which runs through the City of Columbia, has water and sewer readily available. Growth is also projected along the newly connected I-77 beltway around the city.

03050110-040

(Sandy Run)

General Description

Watershed 03050110-040 is located in Lexington and Calhoun Counties and consists primarily of ***Sandy Run*** and its tributaries. The watershed occupies 23,381 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Lakeland-Blaney-Fuquay series. The erodibility of the soil (K) averages 0.10 and the slope of the terrain averages 6%, with a range of 2-15%. Land use/land cover in the watershed includes: 72.6% forested land, 15.8% agricultural land, 6.9% forested wetland (swamp), 1.7% barren land, 1.6% urban land, 1.2% water, and 0.2% nonforested wetland (marsh).

Little Sandy Run flows into Sandy Run, which drains into the Congaree River. There are a total of 40.3 stream miles and 230.0 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
C-009	W/INT/BIO	FW	SANDY RUN AT U.S. 176

Sandy Run (C-009) **-** Aquatic life uses are fully supported based on macroinvertebrate community data. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems and considered natural, not standards violations. Recreational uses are fully supported.

NPDES Program

Active NPDES Facilities

There are currently no point source dischargers in this watershed.

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the Town of Gaston. The existing infrastructure of I-26 and US 176 and US 21 may encourage some industrial growth to the area. The construction of the line from the Town of Swansea to the City of Cayce Wastewater Treatment Plant goes through this watershed, and may provide growth.

03050110-050

(Cedar Creek)

General Description

Watershed 03050110-050 is located in Richland County and consists primarily of ***Cedar Creek*** and its tributaries. The watershed occupies 68,483 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Dothan-Norfolk-Chastain-Marlboro-Tawcaw series. The erodibility of the soil (K) averages 0.20 and the slope of the terrain averages 3%, with a range of 0-15%. Land use/land cover in the watershed includes: 44.0% forested land, 23.5% agricultural land, 23.3% forested wetland (swamp), 4.1% barren land, 3.8% urban land, 0.9% water, and 0.4% nonforested wetland (marsh).

The headwaters of Cedar Creek flow through Westons Pond, Harmons Pond, Morrells Pond, Clarkson Pond, and Duffies Pond before accepting the drainage of Reeves Branch and Myers Creek (Cabin Branch, Horsepen Branch, Goose Branch). After the confluence with Myers Creek, Cedar Creek flows through Wise Lake and Weston Lake and accepts drainage from Dry Branch before entering the Congaree River. The lower section of the watershed, from Wise Lake to the river, contains a large portion of the Congaree National Park, a wetland preserve. There are a total of 147.3 stream miles and 576.7 acres of lake waters in this watershed, all classified FW.

Surface Water Quality

Station #	Type	Class	Description
C-578	BIO	FW	MYERS CREEK AT SR 734
C-069	S/SEDM/BIO	FW	CEDAR CREEK AT S-40-66
C-071	BIO	FW	CEDAR CREEK AT S-40-734
C-075	P/INT	FW	CEDAR CREEK S OF S-40-734 AT OLD USGS GAGING PLATFORM

Cedar Creek **-** There are three SCDHEC monitoring sites along Cedar Creek. These sites are part of a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems and considered natural, not standards violations. At the upstream site ***(C-069)***, aquatic life uses are fully supported based on macroinvertebrate community data. A significant decreasing trend in five-day biochemical oxygen demand suggests improving conditions for this parameter. Prior to 2001, this was a secondary monitoring station and sampling was intentionally biased towards periods with potentially low dissolved oxygen concentrations. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions. At the midstream site ***(C-071)***, aquatic life uses are also fully supported based on macroinvertebrate community data. At the downstream site ***(C-075)***, aquatic life uses are fully supported. There is a significant increasing trend in pH, which suggests changing conditions in the stream. P,P'DDE, a metabolite of DDT, was detected in the 1997 sediment sample and P,P'DDT was detected in the 1997 and 1999 samples. Although the use of DDT was banned in 1973, it is very persistent in the environment. Di-N-butylphthalate and benzoic acid were detected in the 1999 sediment sample and a very high concentration of cadmium was measured in 2000. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggesting improving conditions for these parameters. Recreational uses are fully supported at this site.

Myers Creek (C-578) - Aquatic life uses are fully supported based on macroinvertebrate community data.

Groundwater Quality

Well #	Class	Aquifer	Location
AMB-047	GB	MIDDENDORF	HOPKINS

NPDES Program

Active NPDES Facilities

RECEIVING STREAM ***FACILITY NAME*** ***PERMITTED FLOW @ PIPE (MGD)***	***NPDES#*** ***TYPE*** ***COMMENT***
CEDAR CREEK SC AIR NATL. GUARD/MCENTIRE AB PIPE #: 001, 002 FLOW: M/R	SC0000701 MINOR INDUSTRIAL
CEDAR CREEK U.S. ARMY/FORT JACKSON PIPE #: 001 FLOW: 0.05	SC0003786 MINOR INDUSTRIAL
CEDAR CREEK CEDAR CREEK MHP PIPE #: 001 FLOW: 0.01575	SC0032018 MINOR DOMESTIC
CEDAR CREEK TRIBUTARY RICHLAND DISTRICT I/GADSDEN ELEM. PIPE #: 001 FLOW: 0.01	SC0031526 MINOR DOMESTIC
CABIN BRANCH PINEY GROVE UTILITIES/FRANKLIN PARK SD PIPE #: 001 FLOW: 0.04	SC0031399 MINOR DOMESTIC
CABIN BRANCH TRIBUTARY RICHLAND DISTRICT I/HOPKINS JR HIGH PIPE #: 001 FLOW: 0.025	SC0031500 MINOR DOMESTIC
HORSEPEN BRANCH RICHLAND DISTRICT I/HOPKINS ELEM. SCHOOL PIPE #: 001 FLOW: 0.012	SC0031496 MINOR DOMESTIC

Nonpoint Source Management Program

Land Disposal Activities

Land Applications

LAND APPLICATION FACILITY NAME	*PERMIT # TYPE*
SPRAYFIELD MANCHESTER FARMS	ND0068969 INDUSTRIAL

Growth Potential

There is a low to moderate growth potential for this watershed, which contains a portion of the City of Columbia. The area is predominately rural with small residential areas and an industry. U.S. Highway 378 and Bluff Road (Highway 48) cross the watershed, as does a rail line. The area adjacent to the City of Columbia (Garners Ferry/Leesburg Road) has the only available water and sewer service, and is the primary area of growth in the watershed. A waterline was extended to a portion of the Town of Hopkins due to contaminated groundwater.

03050110-060

(Toms Creek)

General Description

Watershed 03050110-060 is located in Richland County and consists primarily of ***Toms Creek*** and its tributaries. The watershed occupies 32,976 acres of the Sandhills and Upper Coastal Plain regions of South Carolina. The predominant soil types consist of an association of the Dothan-Norfolk-Vaucluse-Marlboro-Chastain series. The erodibility of the soil (K) averages 0.20 and the slope of the terrain averages 4%, with a range of 0-15%. Land use/land cover in the watershed includes: 51.4% forested land, 32.2% agricultural land, 13.4% forested wetland (swamp), 1.4% urban land, 0.8% water, 0.6% nonforested wetland (marsh), and 0.2% barren land.

Toms Creek watershed contains a total of 60.5 stream miles and 231.4 acres of lake waters, all classified FW. The headwaters of Toms Creek flow through Haithcock Pond and Westons Pond before being joined by Ray Branch. The creek then flows through Drafts Pond and accepts drainage from McKenzie Creek before flowing into the Congaree River. Another natural resource in the watershed is the Congaree National Park, which extends across the lower end of the watershed.

Surface Water Quality

Station #	Type	Class	Description
C-579	BIO	FW	TOMS CREEK AT POWER LINE & RR TRACK
C-072	P/INT	FW	TOMS CREEK AT SC 48

Toms Creek - There are two SCDHEC monitoring sites along Toms Creek. This is a blackwater system, characterized by naturally low pH and dissolved oxygen concentrations. Although pH excursions were noted, they were typical of values seen in such systems and considered natural, not standards violations. Aquatic life uses are partially supported at the upstream site ***(C-579)***, based on macroinvertebrate community data. At the downstream site ***(C-072)***, aquatic life uses are fully supported. There is a significant increasing trend in pH, which suggests changing conditions in this stream. In sediments, a very high concentration of cadmium was measured in 2000. Di-N-butylphthalate, benzoic acid, and P,P'DDD (a metabolite of DDT) were measured in the 1999 sediment sample. Although the use of DDT was banned in 1973, it is very persistent in the environment. Significant decreasing trends in five-day biochemical oxygen demand and turbidity suggest improving conditions for these parameters. Recreational uses are partially supported at this site due to fecal coliform bacteria excursions.

NPDES Program

There are currently no point source dischargers in this watershed.

Growth Potential

There is a low potential for growth in this watershed, which contains a portion of the Town of Eastover. U.S. 378 and Bluff Road cross the area, together with two rail lines. The area along Garners Ferry Road is the only area of potential growth.

03050110-070

(Congaree River)

General Description

Watershed 03050110-070 is located in Richland and Calhoun Counties and consists primarily of the lowest reach of the ***Congaree River*** and its tributaries from Toms Creek to its confluence with the Wateree River Basin. The watershed occupies 36,693 acres of the Upper Coastal Plain region of South Carolina. The predominant soil types consist of an association of the Marlboro-Chastain-Faceville-Tawcaw-Norfolk series. The erodibility of the soil (K) averages 0.20 and the slope of the terrain averages 3%, with a range of 0-6%. Land use/land cover in the watershed includes: 48.0% forested land, 24.9% forested wetland (swamp), 21.9% agricultural land, 2.2% barren land, 1.4% water, 1.0% nonforested wetland (marsh), and 0.6% urban land.

This section of the Congaree River incorporates a total of 69.4 stream miles and 94.4 acres of lake waters, all classified FW. Griffins Creek drains into Running Lake, which in turn flows through Little Lake, Big Lake, and into Running Creek. Running Creek drains into Singleton Creek, which flows through Bates Old River to reach the Congaree River. Buckhead Creek (True Blue Creek) enters the river further downstream. A small portion of the Congaree National Park is located near the top of the watershed, where the Toms Creek watershed enters. As a reach of the Congaree River, this watershed accepts the drainage of all streams entering the river upstream of the watershed.

Surface Water Quality

Station #	Type	Class	Description
C-007	P/INT	FW	CONGAREE RIVER AT US 601

Congaree River (C-007) – Aquatic life uses are fully supported. Significant decreasing trends in turbidity and total phosphorus concentrations suggest improving conditions for these parameters. Recreational uses are fully supported, and a significant decreasing trend in fecal coliform bacteria concentration suggests improving conditions for this parameter.

A fish consumption advisory has been issued by the Department for mercury and includes portions of streams within this watershed (see advisory p.111).

NPDES Program

There are currently no point source discharges in this watershed.

Growth Potential

There is a low potential for growth in this rural watershed, which contains a portion of the Town of Eastover. The construction of the Eastover/Richland County Regional WWTP on the Wateree River southeast of the Town of Eastover will provide some growth, including industrial, to the area.

Supplemental Literature

Bauer, K.M., W.M. Glauz and J.D. Flora. 1984. Methodologies for Determining Trends in Water Quality Data. Draft Copy of Appendix III in USEPA Guidance for Determining Trends in Water Quality Data.

Hirsch, R.M., J.R. Slack and R.A. Smith. 1982. Techniques of trend analysis for monthly water quality data. Water Resources Research 18:107-121.

North Carolina Department of Environmental Health and Natural Resources. 1995. Standard Operating Procedures: Biological Monitoring. Division of Environmental Management, Water Quality Section, Raleigh, NC.

Plafkin, James L., M.T. Barbour, K. D. Porter, S.K. Gross, and R.M. Hughes. 1989. Rapid Bioassessment Protocols for Use in Streams and Rivers: Benthic Macroinvertebrates and Fish. EPA/444/4-89-001, Washington, D.C.

Smith, R.A., R.M. Hirsch and J.R. Slack. 1982. A study of trends in total phosphorus measurements as NASQAN stations. U.S. Geological Survey Water Supply Paper 2190, Reston, VA.

Smith, R.A., R.B. Alexander, and M.G. Wolman. 1987. Water quality trends in the nation's rivers. Science 235:1607-1615.

South Carolina Department of Health and Environmental Control. 1991. Watershed Water Quality Management Strategy in South Carolina: Program description. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1991. South Carolina Lake Classification Survey 1991. Technical Report No. 006-91. Bureau of Water Pollution Control, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1995. Summary of Heavy Metals Concentrations in South Carolina Waters and Sediments January 1, 1989 - December 31, 1993. Technical Report 006-94. Bureau of Water Pollution Control, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1995. State Nonpoint Source Pollution Management Program. Bureau of Water Pollution Control, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1996. Watershed Water Quality Management Strategy - Catawba-Santee Basin. Technical Report 002-96. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1997. Watershed Water Quality Management Strategy - Pee Dee Basin. Technical Report 001-97. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1997. Watershed Water Quality Assessment - Savannah and Salkehatchie Basins. Technical Report 003-97. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1997. 208 Water Quality Management Plan - Plan Update for the Non-designated Area of South Carolina. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1997. Procedures and Quality Control Manual for Chemistry Laboratories. Bureau of Environmental Services, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1998. Watershed Water Quality Management Strategy - Broad Basin. Technical Report 001-98. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1998. Watershed Water Quality Assessment -Saluda River Basin. Technical Report 005-98. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1998. Watershed Water Quality Assessment - Edisto River Basin. Technical Report 006-98. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1999. Watershed Water Quality Assessment -Catawba River Basin. Technical Report 011-99. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 1999. Watershed Water Quality Assessment -Santee River Basin. Technical Report 012-99. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 2000. Watershed Water Quality Assessment –Pee Dee River Basin. Technical Report 015-00. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 2000. South Carolina Sanitary Sewer Overflow Compliance and Enforcement Document. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 2001. State of South Carolina Monitoring Strategy for Fiscal Year 2001. Technical Report 017-00. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 2001. Watershed Water Quality Assessment - Broad River Basin. Technical Report 001-01. Bureau of Water, Columbia, S.C

South Carolina Department of Health and Environmental Control. 2001. Environmental Investigations of Standard Operating and Quality Assurance Manual. Office of Environmental Quality Control, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 2001. South Carolina Ambient Ground Water Quality Monitoring Network. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 2001. Water Classifications and Standards (Regulation 61-68) and Classified waters (Regulation 61-69) for the State of South Carolina. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 2002. The State of South Carolina Water Quality Assessment Pursuant to Section 305(b) of the Federal Clean Water Act. Bureau of Water, Columbia, S.C.

South Carolina Department of Health and Environmental Control. 2002. South Carolina Groundwater Contamination Inventory. Bureau of Water, Columbia, S.C

South Carolina Department of Health and Environmental Control. 2003. Watershed Water Quality Assessment - Savannah River Basin. Technical Report 002-03. Bureau of Water, Columbia, S.C

South Carolina Department of Health and Environmental Control. 2003. Watershed Water Quality Assessment - Salkehatchie River Basin. Technical Report 003-03. Bureau of Water, Columbia, S.C

United States Environmental Protection Agency. 1986. Quality Criteria for Water 1986. Publication No. EPA 440/5-86-001. Office of Water Regulations and Standards, Washington, D.C.

United States Department of Agriculture, Soil Conservation Service. 1963-1990. Soil Surveys for selected Counties of South Carolina, Columbia, S.C.

United States Department of Agriculture and Purdue Agricultural Experiment Station. 1978. Predicting Rainfall Erosion Losses: A Guide to Conservation Planning. USDA, Agriculture Handbook Number 537.

United States Department of Agriculture, Soil Conservation Service. 1982. South Carolina Resources Inventory: A Summary Report From the 1982 National Resources Inventory. SCS, Columbia, S.C.

APPENDIX A.

Watershed Boundary Changes

Watershed Boundary Changes

SCDHEC Geographic Features		Original 11-digit HU Code	Revised 11-digit HU Code
Water Quality Monitoring Stations			
S-022		03050109080	03050109120
NPDES	***Pipe #***		
SC0038865	001	03050110030	03050110010

APPENDIX B.

Saluda River Basin

Ambient Water Quality Monitoring Site Descriptions

Station #	Type	Class	Description
03050109-010			
S-292	P/W	ORW	POINTSETT RESERVOIR AT WATER INTAKE
S-088	P/W	FW/ORW	NORTH SALUDA RIVER AT S-23-42
S-773	BIO	FW	NORTH SALUDA RIVER AT U.S. ROUTE 25
S-004	S/INT/BIO	FW	NORTH SALUDA RIVER AT S-23-89
03050109-020			
S-291	P/W	ORW	TABLE ROCK RESERVOIR AT WATER INTAKE
S-320	P/W	FW	SOUTH SALUDA RIVER AT S-39-113 (TABLE ROCK ROAD)
S-086	BIO	TN	MATTHEWS CREEK AT S-23-90
S-771	BIO	FW	SOUTH SALUDA RIVER AT SC ROUTE 11
S-087	S/W	FW	SOUTH SALUDA RIVER AT S-23-101
S-076	BIO	ORW	MIDDLE SALUDA RIVER AT JONES GAP STATE PARK
S-077	W	FW	MIDDLE SALUDA RIVER AT S-23-41
S-317	BIO	FW	OIL CAMP CREEK AT S-23-097
S-252	S/W	FW	MIDDLE SALUDA RIVER AT SC 288, 2.3 MILES WSW SLATER
S-299	W/INT	FW	SOUTH SALUDA RIVER AT SC 186
03050109-030			
S-798	W	FW	LAKE OOLENOY AT DRAIN NEAR SPILLWAY AT SC 11
S-103	W/BIO	FW	OOLENOY RIVER AT S-39-47
03050109-040			
S-866	BIO	FW	SHOALS CREEK AT SR 140
S-250	P/W	FW	SALUDA RIVER AT FARR'S BRIDGE ON SC 183
S-314	W	FW	SALUDA LAKE, 0.5 MILES UPSTREAM OF LANDING
RL-01015	RL01	FW	SALUDA LAKE, 5MI W OF GREENVILLE. 0.8MI NE OF WESTWOOD
S-315	P/W	FW	MILL CREEK AT BENT BRIDGE ROAD, BELOW CAROLINA PLATING
S-007	P/W	FW	SALUDA RIVER AT SC 81, SW OF GREENVILLE
S-267	S/W	FW	TRIB TO SALUDA R. 350 FT BELOW W.PELZER WWTP ON S-23-53
S-171	S/W	FW	GROVE CREEK BELOW JP STEVENS ESTES PLANT
S-774	BIO	FW	GROVE CREEK AT S-23-541
S-119	S/INT	FW	SALUDA RIVER AT S-04-178, 3.2 MILES SE WILLIAMSTON
03050109-050			
S-005	S/W	FW	GEORGES CREEK TRIBUTARY AT S-39-192, 2.6 MILES NE OF EASLEY
S-865	BIO	FW	GEORGES CREEK AT ROAD ABOVE SR 36
S-300	W/INT	FW	GEORGES CREEK AT S-39-28
03050109-060			
S-301	W/INT/BIO	FW	BIG BRUSHY CREEK AT S-04-143
03050109-070			
S-302	W/INT/BIO	FW	BIG CREEK AT S-04-116
03050109-080			
S-864	BIO	FW	MOUNTAIN CREEK AT SR 51
S-125	P/INT	FW	SALUDA RIVER AT US 25 BYPASS, 1.5 MILES ESE OF WARE SHOALS
S-858	BIO	FW	TURKEY CREEK AT SR 96
S-024	W/INT	FW	LAKE GREENWOOD HEADWATERS, JUST UPSTREAM OF S-30-33
S-131	P/W	FW	LAKE GREENWOOD AT US 221, 7.6 MILES NNW OF NINETY SIX

Station #	Type	Class	Description
03050109-080 (CONTINUED)			
S-804	BIO	FW	CANE CREEK AT S-30-19
S-097	S/W	FW	CANE CK ARM OF LAKE AT SC 72, 3.1 MI SW OF CROSS HILL
S-303	W/INT	FW	LAKE GREENWOOD 200 FEET UPSTREAM OF DAM
03050109-090			
S-289	S/W	FW	BROAD MOUTH CK AT S-04-267, BELOW BELTON MARSHALL PLANT
S-776	BIO	FW	TRIBUTARY TO BROAD MOUTH CREEK AT S-04-205
S-010	S/W	FW	BROAD MOUTH CREEK AT US 76
S-775	BIO	FW	BROAD MOUTH CREEK AT S-04-81
S-304	W/INT	FW	BROAD MOUTH CREEK AT S-01-111
03050109-100			
S-073	P/W	FW	REEDY R. AT ROAD OFF US 276, 3/4 MI. E OF TRAVELERS REST
S-928	BIO	FW	REEDY RIVER AT SR 88
S-264	S/W	FW	LANGSTON CREEK AT SC 253
S-319	W	FW	REEDY RIVER AT RIVERS STREET, DOWNTOWN GREENVILLE
S-013	P/SPRP	FW	REEDY RIVER AT S-23-30, 3.9 MILES SE OF GREENVILLE
S-067	S/W	FW	BRUSHY CREEK ON GREEN ST EXT, BELOW DUNEAN MILL ON SC 20
S-867	BIO	FW	BRUSHY CREEK SR 30
S-018	P/I	FW	REEDY RIVER AT S-23-448, 1.75 MILES SE OF CONESTEE
S-091	S/W/BIO	FW	ROCKY CREEK AT S-23-453, 3.5 MILES SW OF SIMPSONVILLE
S-323	P/SPRP	FW	REEDY RIVER AT S-23-316, 3.5 MILES SSW OF MAULDIN
S-072	S/INT	FW	REEDY RIVER ON HWY 418 AT FORK SHOALS
03050109-110			
S-863	BIO	FW	HUFF CREEK AT SR 459
S-178	S/INT	FW	HUFF CREEK AT SC 418, 1.6 MILES NW OF FORK SHOALS
03050109-120			
S-778	BIO	FW	REEDY RIVER AT SR 68
S-862	BIO	FW	HORSE CREEK AT SR 69
S-070	W	FW	REEDY RIVER AT US 76
S-311	S/SUMM	FW	BOYD MILL POND 0.5 MILES W OF DAM
S-861	BIO	FW	WALNUT CREEK AT SR 64
S-021	P/INT	FW	REEDY RIVER AT S-30-06, E OF WARE SHOALS
S-308	S/SUMM	FW	LAKE GREENWOOD, REEDY R. ARM, 150YDS ABOVE RABON CREEK
S-022	W	FW	REEDY FORK OF LAKE GREENWOOD AT S-30-29
03050109-130			
S-859	BIO	FW	MOUNTAIN CREEK AT SR 77
S-321	W	FW	NORTH RABON CREEK AT S-30-32
S-313	W	FW	LAKE RABON, NORTH RABON CREEK ARM, 2.5 MILES UPSTR. OF DAM
S-860	BIO	FW	SOUTH RABON CREEK AT SR 77
S-322	W	FW	SOUTH RABON CREEK ON DIRT ROAD BETWEEN SC 101 & S-30-76
S-312	W	FW	LAKE RABON, SOUTH RABON CREEK ARM, DOWNSTREAM OF S-30-312
RL-01014	RL01	FW	LAKE RABON, 7.6 MI W OF LAURENS
S-296	P/SPRP	FW	LAKE RABON 300 FEET UPSTREAM OF DAM
S-096	S/INT/BIO	FW	RABON CREEK AT S-30-54, 8.8 MILES NW OF CROSS HILL
S-307	W	FW	LAKE GREENWOOD, RABON CREEK ARM, 0.8 KM N OF S-30-307

Station #	Type	Class	Description
03050109-140			
S-184	BIO	FW	Coronaca Creek at SC 221
S-092	S/W	FW	Coronaca Creek at S-24-100, 4 MI NW OF 96
S-233	S/W	FW	Wilson Creek at S-24-101
S-235	S/W/BIO	FW	Wilson Creek at S-24-124
S-856	BIO	FW	Ninety Six Creek at SR 42
S-093	P/INT	FW	Ninety Six Creek at SC 702, 5.2 miles ESE of Ninety Six
03050109-150			
S-186	P/W	FW	Saluda River at SC 34, 6.5 miles ESE of Ninety Six
S-295	P/W	FW	Saluda River at S.C. Route 39
S-047	W/INT	FW	Saluda River at SC 121
S-852	BIO	FW	Beaverdam Creek at SC 121
S-310	W/INT	FW	Lake Murray, Saluda River arm, 3.8 km upstream of SC 391
S-042	P/W	FW	Bush River at SC 560 S of Joanna
S-046	S/W	FW	Bush River at SC Route 34
S-044	S/W	FW	Scott Creek at SC 34, SW of Newberry
RS-01044	RS01/BIO	FW	Bush River at S-36-395, 3 mi S of Newberry
S-102	W	FW	Bush River at S-36-41, 8.5 miles S of Newberry
S-309	S/SUMM	FW	Lake Murray, Bush River arm, 4.6 km upstream of SC 391
S-223	P/SPRP	FW	Lake Murray at SC 391 (Blacks Bridge)
03050109-160			
S-034	P/W	FW	Little River at US Bus 76, in Laurens above WWTP
S-297	S/W	FW	Little River at SC Route 127
S-135	S/W	FW	North Creek at US 76, 2.8 miles W of Clinton
S-038	W	FW	Little River at SC 560
S-100	BIO	FW	Little River at SR 48
S-099	S/SPRP	FW	Little River at S-36-22, 8.3 miles NW of Silverstreet
S-305	W	FW	Little River at SC 34
03050109-170			
S-050	S/W	FW	Little Saluda River at US 378, E of Saluda
S-123	P/INT	FW	Little Saluda River at S-41-39, 5.2 miles NE of Saluda
S-222	W/SPRP	FW	Lake Murray, Little Saluda River arm at SC 391
03050109-180			
S-112	BIO	FW	Moores Creek at U.S.178
S-255	S/W	FW	Clouds Creek at S-41-26, 4 miles NW of Batesburg
S-324	INT	FW	Clouds Creek at US 378
S-113	W	FW	Clouds Creek at S-41-25
03050109-190			
S-279	P/W	FW	Lake Murray at Marker 63
S-211	S/W	FW	Lake Murray, Hollands Landing off S-36-26
S-212	S/W	FW	Lake Murray, Macedonia Landing at end of S-36-26
S-290	P/W	FW	Camping Creek S-36-202 below GA Pacific
S-213	S/W	FW	Lake Murray at S-36-15
S-280	P/W	FW	Lake Murray at Marker 102
RL-01023	RL01	FW	L. Murray 9.3mi N of Gilbert, 0.75mi NNE from end of S-32-443
S-273	P/SPRP	FW	Lake Murray at Marker 166
S-274	P/W	FW	Lake Murray at Marker 143
CL-083	INT	FW	Lake Murray forebay equidistant from dam and shorelines
S-204	P/W	FW	Lake Murray at dam at spillway (Marker 1)

Station #	Type	Class	Description
03050109-200			
S-306	W/INT	FW	HOLLOW CREEK AT S-32-54
03050109-210			
S-152	S/INT	TPGT	SALUDA RIVER JUST BELOW LAKE MURRAY DAM
RS-01012	RS01/BIO	FW	RAWLS CREEK AT S-32-175, 0.25 MI W OF IRMO
S-287	S/W	FW	RAWLS CREEK AT S-32-107
S-150	S/W	FW	LORICK BRANCH AT POINT UPSTR OF JUNCTION WITH SALUDA RIVER
S-149	S/W	TPGT*	SALUDA RIVER AT MEPCO ELECTRIC PLANT WATER INTAKE
S-848	BIO	FW	FOURTEENMILE CREEK AT SR 28
S-294	P/W	FW	TWELVEMILE CREEK AT U.S. 378
S-260	S/W/BIO	FW	KINLEY CREEK AT S-32-36 (ST. ANDREWS ROAD) IN IRMO
S-298	P/INT	TPGT*	SALUDA RIVER AT USGS GAGING STATION, 1/2 MILE BELOW I-20

For further details concerning sampling frequency and parameters sampled, please visit our website at *www.scdhec.gov/eqc/admin/html/eqcpubs.html#wqreports* for the current State of S.C. Monitoring Strategy.

Water Quality Data

Spreadsheet Legend

Station Information:

STATION NUMBER Station ID

TYPE SCDHEC station type code

- **P** = Primary station, sampled monthly all year round
- **S** = Secondary station, sampled monthly May - October
- **P*** = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study
- **W** = Special watershed station added for the Saluda River Basin study
- **BIO** = Indicates macroinvertebrate community data assessed
- **INT** = Integrator Station (approximates a Primary station)
- **RL** = Random Lake station
- **RO** = Random Open water station
- **RS** = Random Stream station
- **RT** = Random Tide Creek station

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)	**NH3**	Ammonia (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	**CD**	Cadmium (ug/l)
pH	pH (SU)	**CR**	Chromium (ug/l)
TP	Total Phosphorus (mg/l)	**CU**	Copper (ug/l)
TN	Total Nitrogen (mg/l)	**PB**	Lead (ug/l)
TURB	Turbidity (NTU)	**HG**	Mercury (ug/l)
TSS	Total Suspended Solids (mg/l)	**NI**	Nickel (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)	**ZN**	Zinc (ug/l)

Statistical Abbreviations:

N	For *standards compliance*, number of surface samples collected between January 1997 and December 2001. For *trends*, number of surface samples collected between January 1984 and December 2001. For *total phosphorus*, an additional trend period of January 1992 to December 2001 is also reported.
EXC.	Number of samples contravening the appropriate standard
%	Percentage of samples contravening the appropriate standard
MEAN EXC.	Mean of samples that contravened the applied standard
MED	For *heavy metals with a human health criterion*, this is the median of all surface samples between January 1997 and December 2001. DL indicates that the median was the detection limit.
MAG	Magnitude of any statistically significant trend, ave. change/yr, expressed in parameter measurement units
GEO MEAN	Geometric mean of fecal coliform bacteria samples collected between January 1997 and December 2001

Key to Trends:

D	Statistically significant decreasing trend in parameter concentration
I	Statistically significant increasing trend in parameter concentration
*	No statistically significant trend
Blank	Insufficient data to test for long term trends

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION				DO	DO	DO	MEAN	TRENDS (87 -2001)					
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG
03050109010													
S-292	P	LAKE, N SALUDA RESERVOIR	ORW	68	0	0		*	203	0	*	173	0
S-088	P	N SALUDA RVR	FW/ORW	56	0	0		D	170	-0.066	*	171	0
S-773	BIO	N SALUDA RVR	FW										
S-004	S/BIO	N SALUDA RVR	FW	44	1	2	4.25	*	102	0	*	103	-0.017
03050109020													
S-291	P	LAKE, TABLE ROCK RESERVOIR	ORW	65	0	0		*	202	0	*	174	0
S-320	P	S SALUDA RVR	FW	55	1	2	0.70	*	34	0.01	I	36	0.251
S-086	BIO	MATHEWS CREEK	TN										
S-771	BIO	S SALUDA RVR	FW										
S-087	S	S SALUDA RVR	FW	35	0	0		*	91	-0.01	*	93	0
S-076	BIO	MIDDLE SALUDA RVR	FW										
S-077	SE	MIDDLE SALUDA RVR	FW	25	0	0		*	32	0.094	I	32	0.057
S-317	BIO	OIL CAMP CREEK	ORW										
S-252	S	MIDDLE SALUDA RVR	FW	35	0	0		*	90	0.009	*	91	0
S-299	SE	S SALUDA RVR	FW	25	0	0		*	33	0	*	32	0.033
03050109030													
S-798	SE	LAKE OOLENOY	FW	15	0	0							
S-103	SE/BIO	OOLENOY RVR	FW	25	0	0		*	34	0.052	*	35	0.058
03050109040													
S-866	BIO	SHOALS CK	FW										
S-250	P	LAKE, SALUDA LAKE	FW	57	0	0		*	176	-0.008	*	174	0
S-314	SE	LAKE, SALUDA LAKE	FW	26	1	4	4.00						
RL-01015	RL01	LAKE, SALUDA	FW	10	0	0							
S-315	P	MILL CK	FW	58	2	3	4.400	D	111	-0.051	I	111	0.025
S-007	P	SALUDA RVR	FW	58	0	0		*	175	0.014	D	175	-0.013
S-267	S	SALUDA RVR TRIB	FW	34	3	9	4.113	*	92	-0.017	*	88	-0.018
S-171	S	GROVE CK	FW	35	0	0		*	94	0.015	*	92	0
S-774	BIO	GROVE CK	FW										
S-119	S	SALUDA RVR	FW	36	0	0		*	96	0.009	*	98	0
03050109050													
S-005	S	GEORGES CK TRIB	FW	34	0	0		I	93	0.05	D	93	-0.05
S-865	BIO	GEORGES CREEK	FW										
S-300	SE	GEORGES CK	FW	26	0	0		D	33	-0.047	*	32	0
03050109060													
S-301	SE/BIO	BIG BRUSHY CK	FW	25	0	0		*	32	-0.016	*	31	-0.04
03050109070													
S-302	SE/BIO	BIG CK	FW	23	0	0		*	30	0.068	D	31	-0.145

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION				pH	pH	pH	MEAN	TRENDS (87-2001)			TURB	TURB	TURB	MEAN	TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	PH	N	MAG	N	EXC.	%	EXC.	TURB	N	MAG
03050109010																	
S-292	P	LAKE, N SALUDA RESERVOIR	ORW	68	1	1	5.94	I	192	0.021	58	0	0		*	170	0
S-088	P	N SALUDA RVR	FW/ORW	57	5	9	5.782	I	169	0.009	57	0	0		*	171	-0.036
S-773	BIO	N SALUDA RVR	FW														
S-004	S/BIO	N SALUDA RVR	FW	44	0	0		I	103	0.033	42	4	10	144.3	*	102	-0.135
03050109020																	
S-291	P	LAKE, TABLE ROCK RESERVOIR	ORW	64	1	2	5.85	I	191	0.037	57	0	0		*	172	0
S-320	P	S SALUDA RVR	FW	54	1	2	5.80	*	34	0.068	57	0	0		*	35	0.125
S-086	BIO	MATHEWS CREEK	TN														
S-771	BIO	S SALUDA RVR	FW														
S-087	S	S SALUDA RVR	FW	35	0	0		I	92	0.03	33	0	0		*	91	-0.057
S-076	BIO	MIDDLE SALUDA RVR	FW														
S-077	SE	MIDDLE SALUDA RVR	FW	25	0	0		I	32	0.1	24	0	0		*	31	-0.263
S-317	BIO	OIL CAMP CREEK	ORW														
S-252	S	MIDDLE SALUDA RVR	FW	35	1	3	5.97	I	91	0.023	33	1	3	140	D	90	-0.2
S-299	SE	S SALUDA RVR	FW	25	1	4	8.88	I	32	0.096	24	1	4	55	D	32	-0.743
03050109030																	
S-798	SE	LAKE OOLENOY	FW	15	0	0					16	0	0				
S-103	SE/BIO	OOLENOY RVR	FW	25	0	0		*	33	0.065	25	2	8	87.5	*	34	-0.683
03050109040																	
S-866	BIO	SHOALS CK	FW														
S-250	P	LAKE, SALUDA LAKE	FW	57	2	4	5.825	I	174	0.018	56	3	5	133.3	*	175	0
S-314	SE	LAKE, SALUDA LAKE	FW	25	1	4	8.52				19	1	5	51			
RL-01015	RL01	LAKE, SALUDA	FW	11	1	9	8.66				11	1	9	52			
S-315	P	MILL CK	FW	59	1	2	5.67	I	112	0.027	57	3	5	120.0	*	112	0
S-007	P	SALUDA RVR	FW	59	4	7	5.625	I	174	0.012	57	3	5	180.0	*	173	-0.033
S-267	S	SALUDA RVR TRIB	FW	35	0	0		I	92	0.025	31	3	10	100.0	I	89	0.479
S-171	S	GROVE CK	FW	35	1	3	5.96	I	94	0.017	33	3	9	93.3	*	90	0.2
S-774	BIO	GROVE CK	FW														
S-119	S	SALUDA RVR	FW	38	1	3	5.90	I	98	0.022	38	2	5	172.5	I	98	0.598
03050109050																	
S-005	S	GEORGES CK TRIB	FW	34	0	0		I	92	0.024	33	3	9	171.7	D	92	-0.806
S-865	BIO	GEORGES CREEK	FW														
S-300	SE	GEORGES CK	FW	26	0	0		*	33	0.038	22	3	14	161.7			
03050109060																	
S-301	SE/BIO	BIG BRUSHY CK	FW	25	0	0		*	32	0.023	23	4	17	88.8	*	30	-0.106
03050109070																	
S-302	SE/BIO	BIG CK	FW	24	0	0		I	30	0.053	23	1	4	160	*	30	-1.056

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION				TP	TP	TP	MEAN	TRENDS (92-2001)			TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TP	N	MAG	TP	N	MAG
03050109010													
S-292	P	LAKE, N SALUDA RESERVOIR	ORW	15	0	0		*	70	0	*	127	0
S-088	P	N SALUDA RVR	FW/ORW					D	68	-0.01	*	124	0
S-773	BIO	N SALUDA RVR	FW										
S-004	S/BIO	N SALUDA RVR	FW					*	45	0.003	*	75	0
03050109020													
S-291	P	LAKE, TABLE ROCK RESERVOIR	ORW	15	0	0		I	72	0	*	129	0
S-320	P	S SALUDA RVR	FW										
S-086	BIO	MATHEWS CREEK	TN										
S-771	BIO	S SALUDA RVR	FW										
S-087	S	S SALUDA RVR	FW					*	34	0	*	64	0
S-076	BIO	MIDDLE SALUDA RVR	FW										
S-077	SE	MIDDLE SALUDA RVR	FW										
S-317	BIO	OIL CAMP CREEK	ORW										
S-252	S	MIDDLE SALUDA RVR	FW					*	35	0.001	*	65	0
S-299	SE	S SALUDA RVR	FW										
03050109030													
S-798	SE	LAKE OOLENOY	FW	4	0	0							
S-103	SE/BIO	OOLENOY RVR	FW										
03050109040													
S-866	BIO	SHOALS CK	FW										
S-250	P	LAKE, SALUDA LAKE	FW	18	2	11	0.190	*	72	0	D	129	0
S-314	SE	LAKE, SALUDA LAKE	FW	8	0	0							
RL-01015	RL01	LAKE, SALUDA	FW										
S-315	P	MILL CK	FW					D	69	-0.007	D	69	-0.007
S-007	P	SALUDA RVR	FW					*	76	0	*	133	0
S-267	S	SALUDA RVR TRIB	FW					D	32	-0.129	D	61	-0.256
S-171	S	GROVE CK	FW					*	36	0.002	D	65	-0.016
S-774	BIO	GROVE CK	FW										
S-119	S	SALUDA RVR	FW					*	40	0.003	D	70	-0.002
03050109050													
S-005	S	GEORGES CK TRIB	FW					*	35	0	D	65	-0.006
S-865	BIO	GEORGES CREEK	FW										
S-300	SE	GEORGES CK	FW										
03050109060													
S-301	SE/BIO	BIG BRUSHY CK	FW										
03050109070													
S-302	SE/BIO	BIG CK	FW										

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION				TN	TN	TN	MEAN	TRENDS (87-2001)			CHL	CHL	CHL	MEAN	TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TN	N	MAG	N	EXC.	%	EXC.	TSS	N	MAG
03050109010																	
S-292	P	LAKE, N SALUDA RESERVOIR	ORW	52	4	8	0.585				24	0	0				
S-088	P	N SALUDA RVR	FW/ORW					*	86	-0.002							
S-773	BIO	N SALUDA RVR	FW														
S-004	S/BIO	N SALUDA RVR	FW														
03050109020																	
S-291	P	LAKE, TABLE ROCK RESERVOIR	ORW	53	2	4	1.365				7	0	0				
S-320	P	S SALUDA RVR	FW														
S-086	BIO	MATHEWS CREEK	TN														
S-771	BIO	S SALUDA RVR	FW														
S-087	S	S SALUDA RVR	FW														
S-076	BIO	MIDDLE SALUDA RVR	FW														
S-077	SE	MIDDLE SALUDA RVR	FW														
S-317	BIO	OIL CAMP CREEK	ORW														
S-252	S	MIDDLE SALUDA RVR	FW														
S-299	SE	S SALUDA RVR	FW														
03050109030																	
S-798	SE	LAKE OOLENOY	FW	12	0	0					2	0	0				
S-103	SE/BIO	OOLENOY RVR	FW														
03050109040																	
S-866	BIO	SHOALS CK	FW														
S-250	P	LAKE, SALUDA LAKE	FW	50	0	0		D	131	-0.009	6	0	0				
S-314	SE	LAKE, SALUDA LAKE	FW	16	0	0					9	0	0				
RL-01015	RL01	LAKE, SALUDA	FW	6	0	0					6	0	0				
S-315	P	MILL CK	FW					*	49	0.069							
S-007	P	SALUDA RVR	FW					D	122	-0.008							
S-267	S	SALUDA RVR TRIB	FW														
S-171	S	GROVE CK	FW														
S-774	BIO	GROVE CK	FW														
S-119	S	SALUDA RVR	FW														
03050109050																	
S-005	S	GEORGES CK TRIB	FW														
S-865	BIO	GEORGES CREEK	FW														
S-300	SE	GEORGES CK	FW														
03050109060																	
S-301	SE/BIO	BIG BRUSHY CK	FW														
03050109070																	
S-302	SE/BIO	BIG CK	FW														

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS (87-2001) BACT	N	MAG	NH3 N	NH3 EXC.	NH3 %	CD N	CD EXC.	CD %	MEAN EXC.
03050109010																		
S-292	P	LAKE, N SALUDA RESERVOIR	ORW	1.3	58	0	0		D	170	-0.111	49	0	0	20	0	0	
S-088	P	N SALUDA RVR	FW/ORW	2.0	56	1	2	1400.0	D	169	-0.142	50	0	0	20	0	0	
S-773	BIO	N SALUDA RVR	FW															
S-004	S/BIO	N SALUDA RVR	FW	261.8	44	19	43	1149.5	*	104	-4.186	20	0	0	8	0	0	
03050109020																		
S-291	P	LAKE, TABLE ROCK RESERVOIR	ORW	1.2	57	0	0		D	172	-0.125	48	0	0	20	0	0	
S-320	P	S SALUDA RVR	FW	19.1	57	1	2	550.0	*	35	-7.354	50	0	0	20	1	5	11
S-086	BIO	MATHEWS CREEK	TN															
S-771	BIO	S SALUDA RVR	FW															
S-087	S	S SALUDA RVR	FW	126.2	35	4	11	537.5	*	93	1.659	6	0	0	4	0	0	
S-076	BIO	MIDDLE SALUDA RVR	FW															
S-077	SE	MIDDLE SALUDA RVR	FW	34.3	25	1	4	1000.0	*	32	-0.882	18	0	0	9	1	11	11
S-317	BIO	OIL CAMP CREEK	ORW															
S-252	S	MIDDLE SALUDA RVR	FW	108.0	35	2	6	910.0	*	92	-2.742	6	0	0	4	0	0	
S-299	SE	S SALUDA RVR	FW	87.7	23	4	17	687.5	*	31	1.761	19	0	0	9	0	0	
03050109030																		
S-798	SE	LAKE OOLENOY	FW	7.2	14	0	0					11	0	0	5	0	0	
S-103	SE/BIO	OOLENOY RVR	FW	81.9	26	5	19	670.0	*	35	-2.403	19	0	0	9	0	0	
03050109040																		
S-866	BIO	SHOALS CK	FW															
S-250	P	LAKE, SALUDA LAKE	FW	121.9	56	9	16	763.3	I	174	4.721	49	0	0	19	1	5	30
S-314	SE	LAKE, SALUDA LAKE	FW	15.1	20	0	0					15	0	0	7	0	0	
RL-01015	RL01	LAKE, SALUDA	FW	10.2	11	0	0					5	0	0	4	0	0	
S-315	P	MILL CK	FW	401.6	57	31	54	1848.4	I	111	27.509	50	0	0	18	0	0	
S-007	P	SALUDA RVR	FW	156.2	58	9	16	1670.0	I	175	3.974	47	0	0	18	0	0	
S-267	S	SALUDA RVR TRIB	FW	202.0	33	7	21	2584.3	*	90	-8.045	6	0	0	4	0	0	
S-171	S	GROVE CK	FW	283.1	36	10	28	2244.0	*	94	8.319	6	0	0	4	0	0	
S-774	BIO	GROVE CK	FW															
S-119	S	SALUDA RVR	FW	99.7	39	1	3	2200.0	*	98	2.877	15	0	0	10	0	0	
03050109050																		
S-005	S	GEORGES CK TRIB	FW	282.0	34	19	56	1122.1	*	92	5.021	9	0	0	4	0	0	
S-865	BIO	GEORGES CREEK	FW															
S-300	SE	GEORGES CK	FW	298.5	25	8	32	2346.3	*	32	-17.866	21	0	0	9	0	0	
03050109060																		
S-301	SE/BIO	BIG BRUSHY CK	FW	137.1	24	3	13	983.3	*	31	-21.763	20	0	0	9	0	0	
03050109070																		
S-302	SE/BIO	BIG CK	FW	170.3	22	2	9	1320.0				18	0	0	9	0	0	

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CR N	CR EXC.	CR %	MEAN EXC.	CU N	CU EXC.	CU %	MEAN EXC.	PB N	PB EXC.	PB %	MEAN EXC.	HG N	HG EXC.	HG %
03050109010																		
S-292	P	LAKE, N SALUDA RESERVOIR	ORW	20	0	0		20	0	0		20	0	0		20	0	0
S-088	P	N SALUDA RVR	FW/ORW	20	0	0		20	0	0		20	0	0		20	0	0
S-773	BIO	N SALUDA RVR	FW															
S-004	S/BIO	N SALUDA RVR	FW	8	0	0		8	0	0		8	0	0		8	0	0
03050109020																		
S-291	P	LAKE, TABLE ROCK RESERVOIR	ORW	20	0	0		20	0	0		20	0	0		20	0	0
S-320	P	S SALUDA RVR	FW	20	0	0		20	1	5	13	20	0	0		20	0	0
S-086	BIO	MATHEWS CREEK	TN															
S-771	BIO	S SALUDA RVR	FW															
S-087	S	S SALUDA RVR	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-076	BIO	MIDDLE SALUDA RVR	FW															
S-077	SE	MIDDLE SALUDA RVR	FW	9	0	0		9	2	22	16.5	9	0	0		9	0	0
S-317	BIO	OIL CAMP CREEK	ORW															
S-252	S	MIDDLE SALUDA RVR	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-299	SE	S SALUDA RVR	FW	9	0	0		9	0	0		9	0	0		9	0	0
03050109030																		
S-798	SE	LAKE OOLENOY	FW	5	0	0		5	0	0		5	0	0		5	0	0
S-103	SE/BIO	OOLENOY RVR	FW	9	0	0		9	0	0		9	0	0		9	0	0
03050109040																		
S-866	BIO	SHOALS CK	FW															
S-250	P	LAKE, SALUDA LAKE	FW	19	0	0		19	1	5	30	19	0	0		19	0	0
S-314	SE	LAKE, SALUDA LAKE	FW	7	0	0		7	0	0		7	0	0		7	0	0
RL-01015	RL01	LAKE, SALUDA	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-315	P	MILL CK	FW	18	15	83	564	18	2	11	20.5	18	0	0		18	0	0
S-007	P	SALUDA RVR	FW	18	0	0		18	0	0		18	1	6	70	18	0	0
S-267	S	SALUDA RVR TRIB	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-171	S	GROVE CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-774	BIO	GROVE CK	FW															
S-119	S	SALUDA RVR	FW	10	0	0		10	0	0		10	0	0		10	0	0
03050109050																		
S-005	S	GEORGES CK TRIB	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-865	BIO	GEORGES CREEK	FW															
S-300	SE	GEORGES CK	FW	9	0	0		9	0	0		9	0	0		9	0	0
03050109060																		
S-301	SE/BIO	BIG BRUSHY CK	FW	9	0	0		9	0	0		9	0	0		9	0	0
03050109070																		
S-302	SE/BIO	BIG CK	FW	9	0	0		9	0	0		9	0	0		9	0	0

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	NI N	NI EXC.	NI %	MEAN EXC.	ZN N	ZN EXC.	ZN %	MEAN EXC.
	03050109010										
S-292	P	LAKE, N SALUDA RESERVOIR	ORW	20	0	0		20	0	0	
S-088	P	N SALUDA RVR	FW/ORW	20	0	0		20	0	0	
S-773	BIO	N SALUDA RVR	FW								
S-004	S/BIO	N SALUDA RVR	FW	8	0	0		8	0	0	
	03050109020										
S-291	P	LAKE, TABLE ROCK RESERVOIR	ORW	20	0	0		20	0	0	
S-320	P	S SALUDA RVR	FW	20	0	0		20	0	0	
S-086	BIO	MATHEWS CREEK	TN								
S-771	BIO	S SALUDA RVR	FW								
S-087	S	S SALUDA RVR	FW	4	0	0		4	0	0	
S-076	BIO	MIDDLE SALUDA RVR	FW								
S-077	SE	MIDDLE SALUDA RVR	FW	9	0	0		9	0	0	
S-317	BIO	OIL CAMP CREEK	ORW								
S-252	S	MIDDLE SALUDA RVR	FW	4	0	0		4	0	0	
S-299	SE	S SALUDA RVR	FW	9	0	0		9	0	0	
	03050109030										
S-798	SE	LAKE OOLENOY	FW	5	0	0		5	0	0	
S-103	SE/BIO	OOLENOY RVR	FW	9	0	0		9	0	0	
	03050109040										
S-866	BIO	SHOALS CK	FW								
S-250	P	LAKE, SALUDA LAKE	FW	19	0	0		19	0	0	
S-314	SE	LAKE, SALUDA LAKE	FW	7	0	0		7	0	0	
RL-01015	RL01	LAKE, SALUDA	FW	4	0	0		4	0	0	
S-315	P	MILL CK	FW	18	0	0		18	1	6	110
S-007	P	SALUDA RVR	FW	18	0	0		18	0	0	
S-267	S	SALUDA RVR TRIB	FW	4	0	0		4	0	0	
S-171	S	GROVE CK	FW	4	0	0		4	0	0	
S-774	BIO	GROVE CK	FW								
S-119	S	SALUDA RVR	FW	10	0	0		10	0	0	
	03050109050										
S-005	S	GEORGES CK TRIB	FW	4	0	0		4	0	0	
S-865	BIO	GEORGES CREEK	FW								
S-300	SE	GEORGES CK	FW	9	0	0		9	0	0	
	03050109060										
S-301	SE/BIO	BIG BRUSHY CK	FW	9	0	0		9	0	0	
	03050109070										
S-302	SE/BIO	BIG CK	FW	9	0	0		9	0	0	

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	DO N	DO EXC.	DO %	MEAN EXC.	TRENDS (87 -2001) DO	N	MAG	BOD	N	MAG
03050109080													
S-864	BIO	MOUNTAIN CREEK	FW										
S-125	P	SALUDA RVR	FW	58	0	0		D	178	-0.022	*	179	0
S-858	BIO	TURKEY CREEK	FW										
S-024	SE	LAKE GREENWOOD	FW	27	1	4	4.83	*	33	-0.048			
S-131	P	LAKE GREENWOOD	FW	57	1	2	3.90	D	179	-0.07	D	175	-0.062
S-804	BIO	CANE CK	FW										
S-097	S	LAKE GREENWOOD	FW	35	4	11	4.500	D	94	-0.077	*	95	0.011
S-303	SE	LAKE GREENWOOD	FW	29	0	0		*	35	-0.039			
03050109090													
S-289	S	BROAD MOUTH CK	FW	34	0	0		I	92	0.2	D	91	-0.332
S-776	BIO	BROAD MOUTH CK TRIB	FW										
S-010	S	BROAD MOUTH CK	FW	33	0	0		I	91	0.056	D	90	-0.029
S-775	BIO	BROAD MOUTH CK	FW										
S-304	SE	BROAD MOUTH CK	FW	23	0	0		*	30	-0.019	*	30	-0.01
03050109100													
S-073	P	REEDY RVR	FW	58	0	0		*	174	0.01	*	175	0
S-928	BIO	REEDY RVR											
S-264	S	LANGSTON CK	FW	35	0	0		*	91	0	*	92	-0.018
S-319	SE	REEDY RVR	FW	26	0	0		*	34	0.014	*	33	-0.032
S-013	P	REEDY RVR	FW	58	0	0		*	176	0.017	*	176	0
S-067	S	BRUSHY CK	FW	34	0	0		*	90	0.02	*	89	-0.011
S-867	BIO	BRUSHY CREEK	FW										
S-018	I*	REEDY RVR	FW	34	0	0		I	152	0.101	D	149	-0.323
S-323	P	REEDY RVR	FW	24	0	0							
S-091	S/BIO	ROCKY CK	FW	32	0	0		*	91	0	D	92	-0.029
S-072	S	REEDY RVR	FW	43	2	5	4.550	I	103	0.067	D	102	-0.199
03050109110													
S-863	BIO	HUFF CK	FW										
S-178	S	HUFF CK	FW	43	0	0		I	104	0.02	*	103	-0.014

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS (87-2001) PH	N	MAG	TURB N	TURB EXC.	TURB %	MEAN EXC.	TRENDS (87-2001) TURB	N	MAG
03050109080																	
S-864	BIO	MOUNTAIN CREEK	FW														
S-125	P	SALUDA RVR	FW	58	2	3	5.625	*	178	-0.006	58	6	10	115.0	*	179	0
S-858	BIO	TURKEY CREEK	FW														
S-024	SE	LAKE GREENWOOD	FW	27	4	15	8.878	*	33	0.094	17	1	6	80			
S-131	P	LAKE GREENWOOD	FW	56	3	5	6.840	D	178	-0.05	56	4	7	68.8	D	176	-0.112
S-804	BIO	CANE CK	FW														
S-097	S	LAKE GREENWOOD	FW	36	0	0		D	96	-0.033	34	4	12	142.8	*	94	0.37
S-303	SE	LAKE GREENWOOD	FW	27	2	7	8.840	*	33	0.074	19	0	0				
03050109090																	
S-289	S	BROAD MOUTH CK	FW	35	1	3	5.92	*	92	0	32	1	3	85	*	90	0
S-776	BIO	BROAD MOUTH CK TRIB	FW														
S-010	S	BROAD MOUTH CK	FW	33	0	0		I	90	0.019	33	1	3	80	I	91	0.337
S-775	BIO	BROAD MOUTH CK	FW														
S-304	SE	BROAD MOUTH CK	FW	23	0	0					22	1	5	170			
03050109100																	
S-073	P	REEDY RVR	FW	58	2	3	5.485	I	172	0.019	57	6	11	134.2	I	174	0.141
S-928	BIO	REEDY RVR															
S-264	S	LANGSTON CK	FW	35	0	0		I	92	0.016	33	0	0		*	90	0
S-319	SE	REEDY RVR	FW	26	0	0		*	34	0.044	24	2	8	142.5	*	32	-0.576
S-013	P	REEDY RVR	FW	58	0	0		I	175	0.011	57	11	19	194.1	*	175	0
S-067	S	BRUSHY CK	FW	35	1	3	5.80	*	93	0.004	32	2	6	85.0	*	90	-0.075
S-867	BIO	BRUSHY CREEK	FW														
S-018	I*	REEDY RVR	FW	34	0	0		D	151	-0.021	32	5	16	161.0	D	147	-0.798
S-323	P	REEDY RVR	FW	24	0	0					25	3	12	153.3			
S-091	S/BIO	ROCKY CK	FW	32	0	0		I	91	0.022	33	0	0		D	92	-0.181
S-072	S	REEDY RVR	FW	43	0	0		*	103	0.01	41	9	22	81.7	D	101	-0.396
03050109110																	
S-863	BIO	HUFF CK	FW														
S-178	S	HUFF CK	FW	43	1	2	5.90	I	104	0.021	41	4	10	82.5	I	102	0.249

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	TP N	TP EXC.	TP %	MEAN EXC.	TRENDS (92-2001) TP	N	MAG	TRENDS (87-2001) TP	N	MAG
03050109080													
S-864	BIO	MOUNTAIN CREEK	FW										
S-125	P	SALUDA RVR	FW					I	72	0.005	*	129	0
S-858	BIO	TURKEY CREEK	FW										
S-024	SE	LAKE GREENWOOD	FW	9	1	11	0.08						
S-131	P	LAKE GREENWOOD	FW	16	5	31	0.096	*	72	0	D	132	-0.002
S-804	BIO	CANE CK	FW										
S-097	S	LAKE GREENWOOD	FW	8	6	75	0.122	I	37	0.005	*	66	0
S-303	SE	LAKE GREENWOOD	FW	7	0	0							
03050109090													
S-289	S	BROAD MOUTH CK	FW					D	34	-0.029	D	64	-0.049
S-776	BIO	BROAD MOUTH CK TRIB	FW										
S-010	S	BROAD MOUTH CK	FW					D	34	-0.011	D	64	-0.015
S-775	BIO	BROAD MOUTH CK	FW										
S-304	SE	BROAD MOUTH CK	FW										
03050109100													
S-073	P	REEDY RVR	FW					*	73	0	*	132	0
S-928	BIO	REEDY RVR											
S-264	S	LANGSTON CK	FW					*	36	0	D	65	-0.002
S-319	SE	REEDY RVR	FW										
S-013	P	REEDY RVR	FW					*	74	0	*	131	0
S-067	S	BRUSHY CK	FW					*	33	0	D	63	-0.008
S-867	BIO	BRUSHY CREEK	FW										
S-018	I*	REEDY RVR	FW					*	75	-0.009	D	133	-0.062
S-323	P	REEDY RVR	FW										
S-091	S/BIO	ROCKY CK	FW					D	35	-0.005	D	65	-0.003
S-072	S	REEDY RVR	FW					*	46	-0.015	D	74	-0.046
03050109110													
S-863	BIO	HUFF CK	FW										
S-178	S	HUFF CK	FW					D	47	-0.004	D	76	-0.004

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	TN N	TN EXC.	TN %	MEAN EXC.	TRENDS (87-2001) TN	N	MAG	CHL N	CHL EXC.	CHL %	MEAN EXC.	TRENDS (87-2001) TSS	N	MAG
03050109080																	
S-864	BIO	MOUNTAIN CREEK	FW														
S-125	P	SALUDA RVR	FW					*	136	-0.003					*	157	0
S-858	BIO	TURKEY CREEK	FW														
S-024	SE	LAKE GREENWOOD	FW	13	0	0					17	0	0				
S-131	P	LAKE GREENWOOD	FW	52	0	0		D	127	-0.018	6	0	0				
S-804	BIO	CANE CK	FW														
S-097	S	LAKE GREENWOOD	FW	7	1	14	2.18				6	0	0				
S-303	SE	LAKE GREENWOOD	FW	13	0	0					12	0	0				
03050109090																	
S-289	S	BROAD MOUTH CK	FW														
S-776	BIO	BROAD MOUTH CK TRIB	FW														
S-010	S	BROAD MOUTH CK	FW														
S-775	BIO	BROAD MOUTH CK	FW														
S-304	SE	BROAD MOUTH CK	FW														
03050109100																	
S-073	P	REEDY RVR	FW					*	99	0.001					I	110	0.747
S-928	BIO	REEDY RVR															
S-264	S	LANGSTON CK	FW														
S-319	SE	REEDY RVR	FW														
S-013	P	REEDY RVR	FW					D	127	-0.015					I	107	0.191
S-067	S	BRUSHY CK	FW														
S-867	BIO	BRUSHY CREEK	FW														
S-018	I*	REEDY RVR	FW					D	135	-0.167					D	143	-0.695
S-323	P	REEDY RVR	FW														
S-091	S/BIO	ROCKY CK	FW														
S-072	S	REEDY RVR	FW														
03050109110																	
S-863	BIO	HUFF CK	FW														
S-178	S	HUFF CK	FW														

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS (87-2001) BACT	N	MAG	NH3 N	NH3 EXC.	NH3 %	CD N	CD EXC.	CD %	MEAN EXC.
03050109080																		
S-864	BIO	MOUNTAIN CREEK	FW															
S-125	P	SALUDA RVR	FW	89.1	57	8	14	1437.5	*	178	1.92	49	0	0	20	0	0	
S-858	BIO	TURKEY CREEK	FW															
S-024	SE	LAKE GREENWOOD	FW	12.5	17	0	0					14	0	0	6	0	0	
S-131	P	LAKE GREENWOOD	FW	10.5	57	0	0		*	176	-0.167	51	0	0	20	0	0	
S-804	BIO	CANE CK	FW															
S-097	S	LAKE GREENWOOD	FW	74.1	36	3	8	930.0	I	96	2.81	7	0	0	4	0	0	
S-303	SE	LAKE GREENWOOD	FW	4.9	18	0	0					14	0	0	6	0	0	
03050109090																		
S-289	S	BROAD MOUTH CK	FW	397.5	33	15	45	1356.7	I	90	17.362	6	0	0	4	0	0	
S-776	BIO	BROAD MOUTH CK TRIB	FW															
S-010	S	BROAD MOUTH CK	FW	518.1	31	16	52	1920.0	*	88	11.418	7	0	0	4	0	0	
S-775	BIO	BROAD MOUTH CK	FW															
S-304	SE	BROAD MOUTH CK	FW	313.7	23	4	17	1385.0	*	30	-13.7	16	0	0	9	0	0	
03050109100																		
S-073	P	REEDY RVR	FW	213.3	59	17	29	827.6	I	177	7.29	51	0	0	19	0	0	
S-928	BIO	REEDY RVR																
S-264	S	LANGSTON CK	FW	404.0	35	15	43	1368.7	*	93	-4.456	7	0	0	11	1	9	20
S-319	SE	REEDY RVR	FW	347.6	24	12	50	1443.3	*	32	-48.808	19	0	0	9	0	0	
S-013	P	REEDY RVR	FW	387.3	57	27	47	4450.0	*	175	0	51	0	0	18	0	0	
S-067	S	BRUSHY CK	FW	1015.1	34	26	76	3144.6	*	92	-20.06	4	0	0	4	0	0	
S-867	BIO	BRUSHY CREEK	FW															
S-018	I*	REEDY RVR	FW	288.3	33	14	42	1752.9	*	151	9.535	33	0	0	10	0	0	
S-323	P	REEDY RVR	FW	289.4	24	9	38	3227.8				20	1	5	8	0	0	
S-091	S/BIO	ROCKY CK	FW	614.3	34	23	68	1224.8	*	93	-2.54	6	0	0	4	0	0	
S-072	S	REEDY RVR	FW	255.6	44	11	25	2276.4	*	104	-12.403	20	0	0	9	0	0	
03050109110																		
S-863	BIO	HUFF CK	FW															
S-178	S	HUFF CK	FW	258.5	44	16	36	793.1	I	105	12.167	20	0	0	9	0	0	

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CR N	CR EXC.	CR %	MEAN EXC.	CU N	CU EXC.	CU %	MEAN EXC.	PB N	PB EXC.	PB %	MEAN EXC.	HG N	HG EXC.	HG %
	03050109080																	
S-864	BIO	MOUNTAIN CREEK	FW															
S-125	P	SALUDA RVR	FW	20	0	0		20	0	0		20	0	0		20	0	0
S-858	BIO	TURKEY CREEK	FW															
S-024	SE	LAKE GREENWOOD	FW	6	0	0		6	0	0		6	0	0		6	0	0
S-131	P	LAKE GREENWOOD	FW	20	0	0		20	0	0		20	0	0		20	0	0
S-804	BIO	CANE CK	FW															
S-097	S	LAKE GREENWOOD	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-303	SE	LAKE GREENWOOD	FW	6	0	0		6	0	0		6	0	0		6	0	0
	03050109090																	
S-289	S	BROAD MOUTH CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-776	BIO	BROAD MOUTH CK TRIB	FW															
S-010	S	BROAD MOUTH CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-775	BIO	BROAD MOUTH CK	FW															
S-304	SE	BROAD MOUTH CK	FW	9	0	0		9	0	0		9	0	0		9	0	0
	03050109100																	
S-073	P	REEDY RVR	FW	19	0	0		19	0	0		19	0	0		19	0	0
S-928	BIO	REEDY RVR																
S-264	S	LANGSTON CK	FW	11	0	0		11	1	9	22	11	0	0		11	0	0
S-319	SE	REEDY RVR	FW	9	0	0		9	1	11	20	9	0	0		9	0	0
S-013	P	REEDY RVR	FW	18	0	0		18	1	6	20	18	0	0		18	0	0
S-067	S	BRUSHY CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-867	BIO	BRUSHY CREEK	FW															
S-018	I*	REEDY RVR	FW	10	0	0		10	0	0		10	0	0		10	0	0
S-323	P	REEDY RVR	FW	8	0	0		8	3	38	20	8	0	0		8	0	0
S-091	S/BIO	ROCKY CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-072	S	REEDY RVR	FW	9	0	0		9	0	0		9	0	0		9	0	0
	03050109110																	
S-863	BIO	HUFF CK	FW															
S-178	S	HUFF CK	FW	9	0	0		9	0	0		9	0	0		9	0	0

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	NI N	NI EXC.	NI %	MEAN EXC.	ZN N	ZN EXC.	ZN %	MEAN EXC.
	03050109080										
S-864	BIO	MOUNTAIN CREEK	FW								
S-125	P	SALUDA RVR	FW	20	0	0		20	0	0	
S-858	BIO	TURKEY CREEK	FW								
S-024	SE	LAKE GREENWOOD	FW	6	0	0		6	0	0	
S-131	P	LAKE GREENWOOD	FW	20	0	0		20	0	0	
S-804	BIO	CANE CK	FW								
S-097	S	LAKE GREENWOOD	FW	4	0	0		4	0	0	
S-303	SE	LAKE GREENWOOD	FW	6	0	0		6	0	0	
	03050109090										
S-289	S	BROAD MOUTH CK	FW	4	0	0		4	0	0	
S-776	BIO	BROAD MOUTH CK TRIB	FW								
S-010	S	BROAD MOUTH CK	FW	4	0	0		4	0	0	
S-775	BIO	BROAD MOUTH CK	FW								
S-304	SE	BROAD MOUTH CK	FW	9	0	0		9	0	0	
	03050109100										
S-073	P	REEDY RVR	FW	19	0	0		19	0	0	
S-928	BIO	REEDY RVR									
S-264	S	LANGSTON CK	FW	11	0	0		11	0	0	
S-319	SE	REEDY RVR	FW	9	0	0		9	1	11	90
S-013	P	REEDY RVR	FW	18	0	0		18	1	6	100
S-067	S	BRUSHY CK	FW	4	0	0		4	0	0	
S-867	BIO	BRUSHY CREEK	FW								
S-018	I*	REEDY RVR	FW	10	0	0		10	1	10	90
S-323	P	REEDY RVR	FW	8	0	0		8	1	13	110
S-091	S/BIO	ROCKY CK	FW	4	0	0		4	0	0	
S-072	S	REEDY RVR	FW	9	0	0		9	1	11	90
	03050109110										
S-863	BIO	HUFF CK	FW								
S-178	S	HUFF CK	FW	9	0	0		9	0	0	

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION					DO	DO	DO	MEAN	TRENDS (87 -2001)					
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG
03050109120														
S-778	BIO	REEDY RVR												
S-862	BIO	HORSE CK	FW											
S-070	SE	REEDY RVR	FW		24	0	0							
S-311	S	LAKE, BOYD MILL POND	FW		30	0	0							
S-861	BIO	WALNUT CK	FW											
S-021	P	REEDY RVR	FW		58	0	0		I	177	0.028	*	179	0
S-308	S	LAKE GREENWOOD	FW		50	2	4	4.800						
S-022	SE	LAKE GREENWOOD	FW		27	0	0		D	88	-0.105	D	67	-0.07
03050109130														
S-859	BIO	MOUNTAIN CK	FW											
S-321	SE	N RABON CK	FW		24	0	0							
S-860	BIO	S. RABON CK	FW											
S-322	SE	S RABON CK	FW		24	0	0							
S-313	SE	LAKE RABON	FW		21	0	0							
S-312	SE	LAKE RABON	FW		22	0	0							
RL-01014	RL01	LAKE RABON	FW		12	0	0							
S-296	P	LAKE RABON	FW		59	0	0		D	30	-0.275	D	30	-0.17
S-096	S/BIO	RABON CK	FW		44	0	0		*	105	0	*	105	0
S-307	SE	LAKE GREENWOOD	FW		37	2	5	4.735						
03050109140														
S-184	BIO	CORONACA CK	FW											
S-092	S	CORONACA CK	FW		34	22	65	3.296	D	94	-0.109	*	92	0
S-233	S	WILSON CK	FW		33	1	3	4.10	*	92	0.04	D	89	-0.114
S-235	S/BIO	WILSON CK	FW		31	0	0		I	91	0.073	D	90	-0.055
S-856	BIO	NINETY SIX CK	FW											
S-093	P	NINETY SIX CK	FW		57	1	2	3.60	I	143	0.05	*	138	-0.01
03050109160														
S-034	P	LITTLE RVR	FW		55	0	0		*	172	0.014	D	176	-0.027
S-297	S	LITTLE RVR	FW		34	0	0		I	73	0.05	D	74	-0.098
S-135	S	NORTH CK	FW		34	0	0		I	92	0.075	D	94	-0.071
S-038	SE	LITTLE RVR	FW		24	0	0		*	30	0.065	*	32	0.028
S-099	S	LITTLE RVR	FW		35	1	3	3.55	*	93	0.025	D	90	-0.036
S-100	BIO	LITTLE RVR	FW											
S-305	SE	LITTLE RVR	FW		21	0	0							

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS (87-2001) PH	N	MAG	TURB N	TURB EXC.	TURB %	MEAN EXC.	TRENDS (87-2001) TURB	N	MAG
	03050109120																
S-778	BIO	REEDY RVR															
S-862	BIO	HORSE CK	FW														
S-070	SE	REEDY RVR	FW	24	0	0					24	4	17	92.5			
S-311	S	LAKE, BOYD MILL POND	FW	31	26	84	9.265				25	1	4	55			
S-861	BIO	WALNUT CK	FW														
S-021	P	REEDY RVR	FW	59	0	0		D	178	-0.017	58	6	10	95.0	*	177	0.122
S-308	S	LAKE GREENWOOD	FW	50	17	34	9.024				33	3	9	65.0			
S-022	SE	LAKE GREENWOOD	FW	27	7	26	8.956	D	86	-0.074	19	1	5	120	*	66	-0.134
	03050109130																
S-859	BIO	MOUNTAIN CK	FW														
S-321	SE	N RABON CK	FW	24	1	4	5.95				24	1	4	100			
S-860	BIO	S. RABON CK	FW														
S-322	SE	S RABON CK	FW	24	0	0					24	1	4	100			
S-313	SE	LAKE RABON	FW	22	1	5	8.58				18	0	0				
S-312	SE	LAKE RABON	FW	23	2	9	5.490				19	0	0				
RL-01014	RL01	LAKE RABON	FW	12	1	8	8.75				10	0	0				
S-296	P	LAKE RABON	FW	60	3	5	8.690	*	30	0.015	49	2	4	70.0			
S-096	S/BIO	RABON CK	FW	45	1	2	5.90	D	107	-0.023	42	1	2	55	*	104	-0.023
S-307	SE	LAKE GREENWOOD	FW	35	5	14	7.466				22	2	9	102.5			
	03050109140																
S-184	BIO	CORONACA CK	FW														
S-092	S	CORONACA CK	FW	34	6	18	5.830	D	94	-0.047	34	2	6	72.5	*	94	0
S-233	S	WILSON CK	FW	34	0	0		*	93	-0.005	34	2	6	85.0	D	93	-0.417
S-235	S/BIO	WILSON CK	FW	33	0	0		*	93	0	33	2	6	145.0	D	93	-0.466
S-856	BIO	NINETY SIX CK	FW														
S-093	P	NINETY SIX CK	FW	57	2	4	5.865	*	143	-0.01	57	6	11	136.7	D	143	-0.299
	03050109160																
S-034	P	LITTLE RVR	FW	58	1	2	5.55	D	176	-0.013	57	5	9	150.2	*	175	-0.167
S-297	S	LITTLE RVR	FW	34	0	0		*	74	-0.01	33	1	3	500	*	73	-0.321
S-135	S	NORTH CK	FW	35	0	0		D	94	-0.05	33	3	9	185.0	*	92	-0.014
S-038	SE	LITTLE RVR	FW	24	1	4	8.74	I	31	0.124	24	0	0		D	31	-1.052
S-099	S	LITTLE RVR	FW	35	0	0		*	93	0.011	35	0	0		*	92	-0.109
S-100	BIO	LITTLE RVR	FW														
S-305	SE	LITTLE RVR	FW	21	4	19	6.433				21	0	0				

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS		TP N	TP EXC.	TP %	MEAN EXC.	TRENDS (92-2001) TP	N	MAG		TRENDS (87-2001) TP	N	MAG
	03050109120														
S-778	BIO	REEDY RVR													
S-862	BIO	HORSE CK	FW												
S-070	SE	REEDY RVR	FW												
S-311	S	LAKE, BOYD MILL POND	FW		5	5	100	0.088							
S-861	BIO	WALNUT CK	FW												
S-021	P	REEDY RVR	FW						*	73	0		D	132	-0.024
S-308	S	LAKE GREENWOOD	FW		12	10	83	0.105							
S-022	SE	LAKE GREENWOOD	FW		8	3	38	0.097					D	67	-0.013
	03050109130														
S-859	BIO	MOUNTAIN CK	FW												
S-321	SE	N RABON CK	FW												
S-860	BIO	S. RABON CK	FW												
S-322	SE	S RABON CK	FW												
S-313	SE	LAKE RABON	FW		7	0	0								
S-312	SE	LAKE RABON	FW		7	0	0								
RL-01014	RL01	LAKE RABON	FW												
S-296	P	LAKE RABON	FW		12	1	8	0.08							
S-096	S/BIO	RABON CK	FW						*	46	0.003		*	75	0
S-307	SE	LAKE GREENWOOD	FW		12	3	25	0.143							
	03050109140														
S-184	BIO	CORONACA CK	FW												
S-092	S	CORONACA CK	FW						*	35	-0.004		D	62	-0.004
S-233	S	WILSON CK	FW						D	33	-0.194		D	61	-0.157
S-235	S/BIO	WILSON CK	FW						D	35	-0.065		D	64	-0.07
S-856	BIO	NINETY SIX CK	FW												
S-093	P	NINETY SIX CK	FW						*	68	-0.012		D	95	-0.025
	03050109160														
S-034	P	LITTLE RVR	FW						*	74	0		D	132	-0.001
S-297	S	LITTLE RVR	FW						*	36	-0.024		D	46	-0.023
S-135	S	NORTH CK	FW						*	37	-0.005		D	67	-0.004
S-038	SE	LITTLE RVR	FW												
S-099	S	LITTLE RVR	FW						D	34	-0.006		D	62	-0.006
S-100	BIO	LITTLE RVR	FW												
S-305	SE	LITTLE RVR	FW												

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION				TN	TN	TN	MEAN	TRENDS (87-2001)			CHL	CHL	CHL	MEAN	TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TN	N	MAG	N	EXC.	%	EXC.	TSS	N	MAG
03050109120																	
S-778	BIO	REEDY RVR															
S-862	BIO	HORSE CK	FW														
S-070	SE	REEDY RVR	FW														
S-311	S	LAKE, BOYD MILL POND	FW	21	5	24	1.566				24	5	21	66.7			
S-861	BIO	WALNUT CK	FW														
S-021	P	REEDY RVR	FW					D	141	-0.081							
S-308	S	LAKE GREENWOOD	FW	17	2	12	1.645				31	3	10	44.4			
S-022	SE	LAKE GREENWOOD	FW	13	0	0					12	0	0				
03050109130																	
S-859	BIO	MOUNTAIN CK	FW														
S-321	SE	N RABON CK	FW														
S-860	BIO	S. RABON CK	FW														
S-322	SE	S RABON CK	FW														
S-313	SE	LAKE RABON	FW	12	0	0					10	0	0				
S-312	SE	LAKE RABON	FW	12	0	0					11	0	0				
RL-01014	RL01	LAKE RABON	FW	6	0	0					6	0	0				
S-296	P	LAKE RABON	FW	45	0	0					24	0	0				
S-096	S/BIO	RABON CK	FW														
S-307	SE	LAKE GREENWOOD	FW	17	0	0					12	0	0				
03050109140																	
S-184	BIO	CORONACA CK	FW														
S-092	S	CORONACA CK	FW														
S-233	S	WILSON CK	FW														
S-235	S/BIO	WILSON CK	FW														
S-856	BIO	NINETY SIX CK	FW														
S-093	P	NINETY SIX CK	FW					*	79	0.169							
03050109160																	
S-034	P	LITTLE RVR	FW					D	131	-0.012							
S-297	S	LITTLE RVR	FW														
S-135	S	NORTH CK	FW														
S-038	SE	LITTLE RVR	FW														
S-099	S	LITTLE RVR	FW														
S-100	BIO	LITTLE RVR	FW														
S-305	SE	LITTLE RVR	FW														

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS (87-2001) BACT	N	MAG	NH3 N	NH3 EXC.	NH3 %	CD N	CD EXC.	CD %	MEAN EXC.
03050109120																		
S-778	BIO	REEDY RVR																
S-862	BIO	HORSE CK	FW															
S-070	SE	REEDY RVR	FW	203.7	24	5	21	1270.0				19	0	0	9	0	0	
S-311	S	LAKE, BOYD MILL POND	FW	6.2	26	0	0					22	0	0	2	0	0	
S-861	BIO	WALNUT CK	FW															
S-021	P	REEDY RVR	FW	79.0	59	3	5	2613.3	*	178	0.309	52	0	0	20	1	5	20
S-308	S	LAKE GREENWOOD	FW	12.8	33	2	6	610.0				18	0	0	7	0	0	
S-022	SE	LAKE GREENWOOD	FW	8.4	19	1	5	760.0	D	65	-0.565	14	0	0	6	1	17	12
03050109130																		
S-859	BIO	MOUNTAIN CK	FW															
S-321	SE	N RABON CK	FW	279.0	23	6	26	1556.7				19	0	0	9	0	0	
S-860	BIO	S. RABON CK	FW															
S-322	SE	S RABON CK	FW	322.7	24	9	38	790.0				19	0	0	9	0	0	
S-313	SE	LAKE RABON	FW	9.8	20	0	0					12	0	0	4	0	0	
S-312	SE	LAKE RABON	FW	7.5	21	0	0					12	0	0	4	0	0	
RL-01014	RL01	LAKE RABON	FW	4.3	12	0	0					5	0	0	4	0	0	
S-296	P	LAKE RABON	FW	4.9	50	1	2	600.0	*	30	0	45	0	0	17	0	0	
S-096	S/BIO	RABON CK	FW	158.9	45	6	13	1300.0	I	107	6.162	20	0	0	10	0	0	
S-307	SE	LAKE GREENWOOD	FW	31.5	23	2	9	1070.0				19	0	0	9	0	0	
03050109140																		
S-184	BIO	CORONACA CK	FW															
S-092	S	CORONACA CK	FW	73.4	34	1	3	440.0	D	93	-5.768	8	0	0	4	0	0	
S-233	S	WILSON CK	FW	58.4	34	1	3	450.0	D	92	-6.382	11	0	0	9	0	0	
S-235	S/BIO	WILSON CK	FW	89.1	32	2	6	515.0	D	91	-11.32	9	0	0	4	0	0	
S-856	BIO	NINETY SIX CK	FW															
S-093	P	NINETY SIX CK	FW	101.3	58	4	7	512.5	*	143	-2.861	52	0	0	19	0	0	
03050109160																		
S-034	P	LITTLE RVR	FW	315.8	56	25	45	1491.6	*	175	-1.625	50	0	0	21	1	5	20
S-297	S	LITTLE RVR	FW	387.2	33	14	42	2142.1	D	73	-55.178	6	0	0	4	0	0	
S-135	S	NORTH CK	FW	545.0	35	22	63	4084.5	I	93	29.705	6	0	0	4	0	0	
S-038	SE	LITTLE RVR	FW	157.0	28	1	4	600.0	D	35	-12.107	19	0	0	9	0	0	
S-099	S	LITTLE RVR	FW	176.6	37	3	8	1100.0	*	95	-7.536	7	0	0	6	0	0	
S-100	BIO	LITTLE RVR	FW															
S-305	SE	LITTLE RVR	FW	174.6	23	2	9	455.0	D	31	-24.403	14	0	0	6	0	0	

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CR N	CR EXC.	CR %	MEAN EXC.	CU N	CU EXC.	CU %	MEAN EXC.	PB N	PB EXC.	PB %	MEAN EXC.	HG N	HG EXC.	HG %
03050109120																		
S-778	BIO	REEDY RVR																
S-862	BIO	HORSE CK	FW															
S-070	SE	REEDY RVR	FW	9	0	0		9	0	0		9	0	0		9	0	0
S-311	S	LAKE, BOYD MILL POND	FW	2	0	0		2	0	0		2	0	0		2	0	0
S-861	BIO	WALNUT CK	FW															
S-021	P	REEDY RVR	FW	20	0	0		20	1	5	20	20	0	0		20	0	0
S-308	S	LAKE GREENWOOD	FW	7	0	0		7	0	0		7	0	0		7	0	0
S-022	SE	LAKE GREENWOOD	FW	7	0	0		7	1	14	12	7	0	0		7	0	0
03050109130																		
S-859	BIO	MOUNTAIN CK	FW															
S-321	SE	N RABON CK	FW	9	0	0		9	1	11	20	9	0	0		9	0	0
S-860	BIO	S. RABON CK	FW															
S-322	SE	S RABON CK	FW	9	0	0		9	0	0		9	0	0		9	0	0
S-313	SE	LAKE RABON	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-312	SE	LAKE RABON	FW	4	0	0		4	0	0		4	0	0		4	0	0
RL-01014	RL01	LAKE RABON	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-296	P	LAKE RABON	FW	17	0	0		17	0	0		17	0	0		17	0	0
S-096	S/BIO	RABON CK	FW	10	0	0		10	0	0		10	0	0		10	0	0
S-307	SE	LAKE GREENWOOD	FW	9	0	0		9	0	0		9	0	0		9	0	0
03050109140																		
S-184	BIO	CORONACA CK	FW															
S-092	S	CORONACA CK	FW	4	0	0		4	1	25	14	4	0	0		4	0	0
S-233	S	WILSON CK	FW	9	0	0		9	0	0		9	0	0		9	0	0
S-235	S/BIO	WILSON CK	FW	4	0	0		4	1	25	16	4	0	0		4	0	0
S-856	BIO	NINETY SIX CK	FW															
S-093	P	NINETY SIX CK	FW	19	0	0		19	1	5	17	19	0	0		19	0	0
03050109160																		
S-034	P	LITTLE RVR	FW	21	0	0		21	1	5	12	21	0	0		20	0	0
S-297	S	LITTLE RVR	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-135	S	NORTH CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-038	SE	LITTLE RVR	FW	9	0	0		9	0	0		9	0	0		9	0	0
S-099	S	LITTLE RVR	FW	6	0	0		6	0	0		6	0	0		6	0	0
S-100	BIO	LITTLE RVR	FW															
S-305	SE	LITTLE RVR	FW	6	0	0		6	0	0		6	0	0		6	0	0

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	NI N	NI EXC.	NI %	MEAN EXC.	ZN N	ZN EXC.	ZN %	MEAN EXC.
03050109120											
S-778	BIO	REEDY RVR									
S-862	BIO	HORSE CK	FW								
S-070	SE	REEDY RVR	FW	9	0	0		9	0	0	
S-311	S	LAKE, BOYD MILL POND	FW	2	0	0		2	0	0	
S-861	BIO	WALNUT CK	FW								
S-021	P	REEDY RVR	FW	20	0	0		20	1	5	100
S-308	S	LAKE GREENWOOD	FW	7	0	0		7	0	0	
S-022	SE	LAKE GREENWOOD	FW	7	0	0		7	0	0	
03050109130											
S-859	BIO	MOUNTAIN CK	FW								
S-321	SE	N RABON CK	FW	9	0	0		9	0	0	
S-860	BIO	S. RABON CK	FW								
S-322	SE	S RABON CK	FW	9	0	0		9	0	0	
S-313	SE	LAKE RABON	FW	4	0	0		4	0	0	
S-312	SE	LAKE RABON	FW	4	0	0		4	0	0	
RL-01014	RL01	LAKE RABON	FW	4	0	0		4	0	0	
S-296	P	LAKE RABON	FW	17	0	0		17	0	0	
S-096	S/BIO	RABON CK	FW	10	0	0		10	0	0	
S-307	SE	LAKE GREENWOOD	FW	9	0	0		9	0	0	
03050109140											
S-184	BIO	CORONACA CK	FW								
S-092	S	CORONACA CK	FW	4	0	0		4	0	0	
S-233	S	WILSON CK	FW	9	0	0		9	0	0	
S-235	S/BIO	WILSON CK	FW	4	0	0		4	0	0	
S-856	BIO	NINETY SIX CK	FW								
S-093	P	NINETY SIX CK	FW	19	0	0		19	0	0	
03050109160											
S-034	P	LITTLE RVR	FW	21	0	0		21	0	0	
S-297	S	LITTLE RVR	FW	4	0	0		4	0	0	
S-135	S	NORTH CK	FW	4	0	0		4	0	0	
S-038	SE	LITTLE RVR	FW	9	0	0		9	0	0	
S-099	S	LITTLE RVR	FW	6	0	0		6	0	0	
S-100	BIO	LITTLE RVR	FW								
S-305	SE	LITTLE RVR	FW	6	0	0		6	0	0	

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION					DO	DO	DO	MEAN	TRENDS (87 -2001)					
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG
	03050109150													
S-186	P	SALUDA RVR	FW		57	1	2	4.60	*	178	0.033	D	174	-0.02
S-295	P	SALUDA RVR	FW		58	0	0		*	161	0.025	*	157	0
S-047	SE	SALUDA RVR	FW		22	0	0		*	30	0.1			
S-852	BIO	BEAVERDAM CK	FW											
S-310	SE	LAKE MURRAY	FW		20	0	0							
S-042	P	BUSH RVR	FW		58	19	33	4.261	D	181	-0.163	D	173	-0.05
S-046	S	BUSH RVR	FW		35	0	0		*	81	-0.002	D	74	-0.082
S-044	S	SCOTT CK	FW		35	3	9	4.340	D	95	-0.089	D	92	-0.063
RS-01044	RS01/BIO	BUSH RVR	FW		11	0	0							
S-102	SE	BUSH RVR	FW		20	0	0		*	76	0.015	*	67	-0.03
S-309	S	LAKE MURRAY	FW		30	0	0							
S-223	P	LAKE MURRAY	FW		60	0	0		*	189	0.033	*	174	-0.008
	03050109170													
S-050	S	LITTLE SALUDA RVR	FW		31	14	45	3.757	*	92	0.054	D	95	-0.164
S-123	P	LITTLE SALUDA RVR	FW		55	21	38	3.631	*	175	0	D	172	-0.057
S-222	SE	LAKE MURRAY	FW		22	0	0		*	30	-0.067			
	03050109180													
S-112	BIO	MOORES CK	FW											
S-255	S	CLOUDS CK	FW		25	7	28	3.979	*	84	0	*	86	0.017
S-324	INT	CLOUDS CK	FW		12	0	0							
S-113	SE	CLOUDS CK	FW		20	0	0							
	03050109190													
S-279	P	LAKE MURRAY	FW		59	0	0		*	185	0.008	*	170	0
S-211	S	LAKE MURRAY	FW		34	0	0		I	92	0.057	*	91	-0.009
S-212	S	LAKE MURRAY	FW		34	0	0		*	93	0.032	D	92	-0.028
S-290	P	CAMPING CK	FW		58	2	3	2.450	*	174	-0.01	D	169	-0.075
S-213	S	LAKE MURRAY	FW		33	0	0		*	92	0.025	D	90	-0.035
S-280	P	LAKE MURRAY	FW		60	0	0		D	188	-0.025	*	167	0
RL-01023	RL01	LAKE MURRAY	FW		11	0	0							
S-273	P	LAKE MURRAY	FW		60	0	0		*	185	0.017	*	167	0
S-274	P	LAKE MURRAY	FW		60	0	0		*	187	0	*	170	-0.007
CL-083	INT	LAKE MURRAY	FW		11	0	0							
S-204	P	LAKE MURRAY	FW		60	1	2	4.50	*	191	-0.017	*	171	-0.011
	03050109200													
S-306	SE	HOLLOW CK	FW		19	0	0							

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION				pH	pH	pH	MEAN	TRENDS (87-2001)			TURB	TURB	TURB	MEAN	TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	PH	N	MAG	N	EXC.	%	EXC.	TURB	N	MAG
03050109150																	
S-186	P	SALUDA RVR	FW	57	3	5	5.747	D	178	-0.02	57	0	0		*	177	-0.071
S-295	P	SALUDA RVR	FW	59	2	3	5.925	D	162	-0.015	58	0	0		D	158	-0.1
S-047	SE	SALUDA RVR	FW	22	5	23	6.816	I	30	0.05	23	0	0		D	30	-0.209
S-852	BIO	BEAVERDAM CK	FW														
S-310	SE	LAKE MURRAY	FW	20	7	35	8.861				19	1	5	75			
S-042	P	BUSH RVR	FW	58	2	3	5.450	*	181	-0.01	57	0	0		D	171	-0.349
S-046	S	BUSH RVR	FW	35	1	3	5.59	I	81	0.014	35	1	3	90	*	75	-0.334
S-044	S	SCOTT CK	FW	35	2	6	5.785	*	95	0.005	35	2	6	56.5	D	94	-0.251
RS-01044	RS01/BIO	BUSH RVR	FW	11	0	0					12	0	0				
S-102	SE	BUSH RVR	FW	20	2	10	7.410	*	76	-0.02	21	0	0		D	68	-0.48
S-309	S	LAKE MURRAY	FW	30	20	67	8.773				26	0	0				
S-223	P	LAKE MURRAY	FW	60	16	27	8.824	*	186	0.012	56	2	4	65.0	*	169	-0.072
03050109170																	
S-050	S	LITTLE SALUDA RVR	FW	33	2	6	5.865	D	94	-0.021	34	1	3	100	D	94	-1.24
S-123	P	LITTLE SALUDA RVR	FW	57	3	5	5.730	D	177	-0.033	59	3	5	108.3	*	178	-0.333
S-222	SE	LAKE MURRAY	FW	22	4	18	8.683	*	30	-0.019	19	0	0				
03050109180																	
S-112	BIO	MOORES CK	FW														
S-255	S	CLOUDS CK	FW	27	4	15	5.855	D	86	-0.012	27	0	0		D	84	-0.391
S-324	INT	CLOUDS CK	FW	12	3	25	5.300				13	0	0				
S-113	SE	CLOUDS CK	FW	20	1	5	5.42				21	0	0				
03050109190																	
S-279	P	LAKE MURRAY	FW	60	11	18	8.806	*	184	0.01	56	1	2	70	*	167	-0.034
S-211	S	LAKE MURRAY	FW	34	4	12	8.760	*	92	0.031	36	0	0		*	91	-0.01
S-212	S	LAKE MURRAY	FW	34	4	12	8.715	*	92	0.024	36	0	0		I	92	0.113
S-290	P	CAMPING CK	FW	58	2	3	5.790	*	174	0.002	57	4	7	79.8	*	165	-0.141
S-213	S	LAKE MURRAY	FW	34	2	6	8.695	*	92	0.021	36	0	0		*	91	-0.012
S-280	P	LAKE MURRAY	FW	61	4	7	8.620	*	188	0.004	57	0	0		D	167	-0.05
RL-01023	RL01	LAKE MURRAY	FW	11	0	0					11	0	0				
S-273	P	LAKE MURRAY	FW	61	2	3	8.510	*	184	0.008	58	0	0		*	166	-0.02
S-274	P	LAKE MURRAY	FW	61	2	3	8.790	*	187	0.003	58	0	0		*	170	0
CL-083	INT	LAKE MURRAY	FW	11	2	18	8.650				10	0	0				
S-204	P	LAKE MURRAY	FW	60	5	8	8.812	I	188	0.02	57	0	0		D	169	-0.043
03050109200																	
S-306	SE	HOLLOW CK	FW	19	4	21	6.580				20	1	5	1400			

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	TP N	TP EXC.	TP %	MEAN EXC.	TRENDS (92-2001) TP	N	MAG	TRENDS (87-2001) TP	N	MAG
03050109150													
S-186	P	SALUDA RVR	FW					*	74	0	D	130	0
S-295	P	SALUDA RVR	FW					*	73	0	*	115	0
S-047	SE	SALUDA RVR	FW										
S-852	BIO	BEAVERDAM CK	FW										
S-310	SE	LAKE MURRAY	FW	10	1	10	0.07						
S-042	P	BUSH RVR	FW					D	72	-0.015	D	134	-0.04
S-046	S	BUSH RVR	FW					*	38	-0.002	D	54	-0.01
S-044	S	SCOTT CK	FW					*	38	0	D	66	-0.003
RS-01044	RS01/BIO	BUSH RVR	FW										
S-102	SE	BUSH RVR	FW								*	60	-0.02
S-309	S	LAKE MURRAY	FW	8	4	50	0.160						
S-223	P	LAKE MURRAY	FW	17	6	35	0.097	*	76	0	*	133	0
03050109170													
S-050	S	LITTLE SALUDA RVR	FW					D	37	-0.054	*	67	-0.01
S-123	P	LITTLE SALUDA RVR	FW					D	74	-0.008	D	132	-0.01
S-222	SE	LAKE MURRAY	FW	10	5	50	0.126						
03050109180													
S-112	BIO	MOORES CK	FW										
S-255	S	CLOUDS CK	FW					*	36	0.01	*	65	0
S-324	INT	CLOUDS CK	FW										
S-113	SE	CLOUDS CK	FW										
03050109190													
S-279	P	LAKE MURRAY	FW	16	7	44	0.089	I	75	0.002	*	130	0
S-211	S	LAKE MURRAY	FW	8	0	0		*	35	0	D	63	0
S-212	S	LAKE MURRAY	FW	8	0	0		*	35	0	*	64	0
S-290	P	CAMPING CK	FW					D	68	-0.007	D	124	-0.007
S-213	S	LAKE MURRAY	FW	8	0	0		*	32	0	*	60	0
S-280	P	LAKE MURRAY	FW	16	0	0		*	73	0	*	129	0
RL-01023	RL01	LAKE MURRAY	FW										
S-273	P	LAKE MURRAY	FW	17	0	0		*	72	0	*	126	0
S-274	P	LAKE MURRAY	FW	17	0	0		I	76	0	*	131	0
CL-083	INT	LAKE MURRAY	FW										
S-204	P	LAKE MURRAY	FW	16	0	0		I	74	0	*	129	0
03050109200													
S-306	SE	HOLLOW CK	FW										

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION				TN	TN	TN	MEAN	TRENDS (87-2001)			CHL	CHL	CHL	MEAN	TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	TN	N	MAG	N	EXC.	%	EXC.	TSS	N	MAG
03050109150																	
S-186	P	SALUDA RVR	FW					D	127	-0.016							
S-295	P	SALUDA RVR	FW					*	119	0.005							
S-047	SE	SALUDA RVR	FW														
S-852	BIO	BEAVERDAM CK	FW														
S-310	SE	LAKE MURRAY	FW	15	0	0					12	0	0				
S-042	P	BUSH RVR	FW					D	144	-0.106					D	109	-0.202
S-046	S	BUSH RVR	FW												*	61	0.142
S-044	S	SCOTT CK	FW														
RS-01044	RS01/BIO	BUSH RVR	FW														
S-102	SE	BUSH RVR	FW												*	36	0.201
S-309	S	LAKE MURRAY	FW	24	1	4	2.38				27	4	15	49.8			
S-223	P	LAKE MURRAY	FW	51	0	0		D	106	-0.01	28	1	4	43			
03050109170																	
S-050	S	LITTLE SALUDA RVR	FW					*	31	0.057							
S-123	P	LITTLE SALUDA RVR	FW					D	137	-0.057							
S-222	SE	LAKE MURRAY	FW	14	0	0					12	2	17	52.7			
03050109180																	
S-112	BIO	MOORES CK	FW														
S-255	S	CLOUDS CK	FW														
S-324	INT	CLOUDS CK	FW														
S-113	SE	CLOUDS CK	FW														
03050109190																	
S-279	P	LAKE MURRAY	FW	49	0	0		*	104	-0.006	27	0	0				
S-211	S	LAKE MURRAY	FW	5	0	0					4	0	0				
S-212	S	LAKE MURRAY	FW	5	0	0					5	0	0				
S-290	P	CAMPING CK	FW					*	124	-0.01					D	106	-0.418
S-213	S	LAKE MURRAY	FW	5	0	0					5	0	0				
S-280	P	LAKE MURRAY	FW	49	0	0		*	98	-0.006	27	0	0				
RL-01023	RL01	LAKE MURRAY	FW	5	0	0					6	0	0				
S-273	P	LAKE MURRAY	FW	52	0	0		D	101	-0.006	28	0	0				
S-274	P	LAKE MURRAY	FW	51	0	0		*	98	-0.003	27	0	0				
CL-083	INT	LAKE MURRAY	FW	4	0	0					6	0	0				
S-204	P	LAKE MURRAY	FW	51	0	0		*	104	-0.003	22	0	0				
03050109200																	
S-306	SE	HOLLOW CK	FW														

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION				GEO	BACT	BACT	BACT	MEAN	TRENDS (87-2001)			NH3	NH3	NH3	CD	CD	CD	MEAN
NUMBER	TYPE	WATERBODY NAME	CLASS	MEAN	N	EXC.	%	EXC.	BACT	N	MAG	N	EXC.	%	N	EXC.	%	EXC.
	03050109150																	
S-186	P	SALUDA RVR	FW	4.7	58	0	0		D	176	-0.144	52	0	0	20	0	0	
S-295	P	SALUDA RVR	FW	27.7	59	0	0		*	161	0.203	52	0	0	19	0	0	
S-047	SE	SALUDA RVR	FW	58.4	24	0	0		*	31	-2.466	15	0	0	8	0	0	
S-852	BIO	BEAVERDAM CK	FW															
S-310	SE	LAKE MURRAY	FW	4.9	23	0	0					15	0	0	4	0	0	
S-042	P	BUSH RVR	FW	102.8	61	3	5	1210.0	D	176	-23.906	51	0	0	20	0	0	
S-046	S	BUSH RVR	FW	277.7	38	8	21	15997.5	D	78	-15.035	7	0	0	4	0	0	
S-044	S	SCOTT CK	FW	374.7	38	16	42	5444.4	D	97	-82.817	6	0	0	4	0	0	
RS-01044	RS01/BIO	BUSH RVR	FW	177.8	14	1	7	2800.0				6	0	0	4	0	0	
S-102	SE	BUSH RVR	FW	212.9	22	3	14	526.7	D	71	-29.959	14	0	0	5	0	0	
S-309	S	LAKE MURRAY	FW	3.4	28	0	0					25	0	0	3	0	0	
S-223	P	LAKE MURRAY	FW	4.5	61	4	7	1632.5	D	175	-0.125	51	0	0	19	0	0	
	03050109170																	
S-050	S	LITTLE SALUDA RVR	FW	139.8	34	9	26	893.3	D	94	-35.178	20	0	0	3	0	0	
S-123	P	LITTLE SALUDA RVR	FW	76.9	59	5	8	666.0	D	177	-10.019	51	0	0	19	0	0	
S-222	SE	LAKE MURRAY	FW	4.5	24	1	4	500.0	*	32	-0.255	15	0	0	6	0	0	
	03050109180																	
S-112	BIO	MOORES CK	FW															
S-255	S	CLOUDS CK	FW	71.7	29	1	3	580.0	D	88	-9.366	7	0	0	2	0	0	
S-324	INT	CLOUDS CK	FW	37.6	14	0	0					8	0	0	5	0	0	
S-113	SE	CLOUDS CK	FW	32.5	21	0	0					15	0	0	7	0	0	
	03050109190																	
S-279	P	LAKE MURRAY	FW	3.4	60	5	8	566.0	*	174	0	50	0	0	19	0	0	
S-211	S	LAKE MURRAY	FW	7.0	37	0	0		*	93	0	5	0	0	3	0	0	
S-212	S	LAKE MURRAY	FW	5.2	38	0	0		*	95	0	5	0	0	3	0	0	
S-290	P	CAMPING CK	FW	140.7	61	11	18	3206.4	D	172	-86.25	52	0	0	18	0	0	
S-213	S	LAKE MURRAY	FW	5.2	38	0	0		*	94	-0.142	5	0	0	3	0	0	
S-280	P	LAKE MURRAY	FW	2.0	59	0	0		*	173	0	51	0	0	18	0	0	
RL-01023	RL01	LAKE MURRAY	FW	1.1	14	0	0					4	0	0	3	0	0	
S-273	P	LAKE MURRAY	FW	1.9	61	0	0		D	174	0	52	0	0	19	0	0	
S-274	P	LAKE MURRAY	FW	2.6	60	0	0		D	174	0	51	0	0	19	0	0	
CL-083	INT	LAKE MURRAY	FW	1.9	13	0	0					4	0	0	3	0	0	
S-204	P	LAKE MURRAY	FW	2.2	61	0	0		D	174	0	51	0	0	19	0	0	
	03050109200																	
S-306	SE	HOLLOW CK	FW	705.0	21	13	62	9657.7				15	0	0	7	0	0	

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CR N	CR EXC.	CR %	MEAN EXC.	CU N	CU EXC.	CU %	MEAN EXC.	PB N	PB EXC.	PB %	MEAN EXC.	HG N	HG EXC.	HG %
	03050109150																	
S-186	P	SALUDA RVR	FW	20	0	0		20	2	10	17.5	20	0	0		20	0	0
S-295	P	SALUDA RVR	FW	19	0	0		19	3	16	14	19	0	0		19	0	0
S-047	SE	SALUDA RVR	FW	8	0	0		8	0	0		8	0	0		8	0	0
S-852	BIO	BEAVERDAM CK	FW															
S-310	SE	LAKE MURRAY	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-042	P	BUSH RVR	FW	20	1	5	80	20	1	5	20	20	0	0		19	0	0
S-046	S	BUSH RVR	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-044	S	SCOTT CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
RS-01044	RS01/BIO	BUSH RVR	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-102	SE	BUSH RVR	FW	5	0	0		5	0	0		5	0	0		5	0	0
S-309	S	LAKE MURRAY	FW	3	0	0		3	0	0		3	0	0		3	0	0
S-223	P	LAKE MURRAY	FW	19	0	0		19	0	0		19	0	0		19	0	0
	03050109170																	
S-050	S	LITTLE SALUDA RVR	FW	4	0	0		4	0	0		4	0	0		4	0	0
S-123	P	LITTLE SALUDA RVR	FW	19	0	0		19	1	5	50	19	1	5	170	19	0	0
S-222	SE	LAKE MURRAY	FW	6	0	0		6	0	0		6	0	0		6	0	0
	03050109180																	
S-112	BIO	MOORES CK	FW															
S-255	S	CLOUDS CK	FW	2	0	0		2	0	0		2	0	0		2	0	0
S-324	INT	CLOUDS CK	FW	5	1	20	390	5	1	20	32	5	0	0		4	0	0
S-113	SE	CLOUDS CK	FW	7	0	0		7	0	0		7	0	0		7	0	0
	03050109190																	
S-279	P	LAKE MURRAY	FW	19	0	0		19	0	0		19	0	0		19	0	0
S-211	S	LAKE MURRAY	FW	3	0	0		3	0	0		3	0	0		3	0	0
S-212	S	LAKE MURRAY	FW	3	0	0		3	0	0		3	0	0		3	0	0
S-290	P	CAMPING CK	FW	18	0	0		18	0	0		18	0	0		18	0	0
S-213	S	LAKE MURRAY	FW	3	0	0		3	0	0		3	0	0		3	0	0
S-280	P	LAKE MURRAY	FW	19	0	0		19	0	0		19	0	0		19	0	0
RL-01023	RL01	LAKE MURRAY	FW	3	0	0		3	0	0		3	0	0		3	0	0
S-273	P	LAKE MURRAY	FW	19	0	0		19	0	0		19	0	0		19	0	0
S-274	P	LAKE MURRAY	FW	19	0	0		19	0	0		19	0	0		19	0	0
CL-083	INT	LAKE MURRAY	FW	3	0	0		3	0	0		3	0	0		3	0	0
S-204	P	LAKE MURRAY	FW	19	0	0		19	0	0		19	0	0		19	0	0
	03050109200																	
S-306	SE	HOLLOW CK	FW	7	0	0		7	0	0		7	0	0		7	0	0

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	NI N	NI EXC.	NI %	MEAN EXC.	ZN N	ZN EXC.	ZN %	MEAN EXC.
	03050109150										
S-186	P	SALUDA RVR	FW	20	0	0		20	0	0	
S-295	P	SALUDA RVR	FW	19	0	0		19	0	0	
S-047	SE	SALUDA RVR	FW	8	0	0		8	0	0	
S-852	BIO	BEAVERDAM CK	FW								
S-310	SE	LAKE MURRAY	FW	4	0	0		4	0	0	
S-042	P	BUSH RVR	FW	20	0	0		20	0	0	
S-046	S	BUSH RVR	FW	4	0	0		4	0	0	
S-044	S	SCOTT CK	FW	4	0	0		4	0	0	
RS-01044	RS01/BIO	BUSH RVR	FW	4	0	0		4	0	0	
S-102	SE	BUSH RVR	FW	5	0	0		5	0	0	
S-309	S	LAKE MURRAY	FW	3	0	0		3	0	0	
S-223	P	LAKE MURRAY	FW	19	0	0		19	0	0	
	03050109170										
S-050	S	LITTLE SALUDA RVR	FW	4	0	0		4	0	0	
S-123	P	LITTLE SALUDA RVR	FW	19	0	0		19	0	0	
S-222	SE	LAKE MURRAY	FW	6	0	0		6	0	0	
	03050109180										
S-112	BIO	MOORES CK	FW								
S-255	S	CLOUDS CK	FW	2	0	0		2	0	0	
S-324	INT	CLOUDS CK	FW	5	0	0		5	0	0	
S-113	SE	CLOUDS CK	FW	7	0	0		7	0	0	
	03050109190										
S-279	P	LAKE MURRAY	FW	19	0	0		19	0	0	
S-211	S	LAKE MURRAY	FW	3	0	0		3	0	0	
S-212	S	LAKE MURRAY	FW	3	0	0		3	0	0	
S-290	P	CAMPING CK	FW	18	0	0		18	0	0	
S-213	S	LAKE MURRAY	FW	3	0	0		3	0	0	
S-280	P	LAKE MURRAY	FW	19	0	0		19	0	0	
RL-01023	RL01	LAKE MURRAY	FW	3	0	0		3	0	0	
S-273	P	LAKE MURRAY	FW	19	0	0		19	0	0	
S-274	P	LAKE MURRAY	FW	19	0	0		19	0	0	
CL-083	INT	LAKE MURRAY	FW	3	0	0		3	0	0	
S-204	P	LAKE MURRAY	FW	19	0	0		19	0	0	
	03050109200										
S-306	SE	HOLLOW CK	FW	7	0	0		7	0	0	

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS		DO N	DO EXC.	DO %	MEAN EXC.	TRENDS (87 -2001) DO	N	MAG	BOD	N	MAG
	03050109210													
S-152	S	SALUDA RVR	TPGT*		31	5	16	3.240	*	88	0.077	D	88	-0.025
RS-01012	RS01/BIO	RAWLS CK	FW		9	1	11	3.29						
S-287	S	RAWLS CK	FW		32	2	6	3.320	D	91	-0.035	D	91	-0.084
S-150	S	LORICK BRANCH	FW		32	2	6	2.850	*	90	0	*	88	-0.02
S-149	S	SALUDA RVR	TPGT*		32	4	13	4.025	*	90	0.05	*	89	0.008
S-848	BIO	FOURTEEN MILE CK	FW											
S-294	P	TWELVEMILE CK	FW		55	1	2	3.70	*	155	0.029	D	151	-0.049
S-260	S/BIO	KINLEY CK	FW		33	5	15	3.348	D	112	-0.124	*	112	-0.045
S-298	P	SALUDA RVR	TPGT*		55	0	0		I	131	0.1	D	133	-0.039

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	pH N	pH EXC.	pH %	MEAN EXC.	TRENDS (87-2001) PH	N	MAG	TURB N	TURB EXC.	TURB %	MEAN EXC.	TRENDS (87-2001) TURB	N	MAG
03050109210																	
S-152	S	SALUDA RVR	TPGT*	31	4	13	5.760	*	88	-0.002	34	0	0		D	87	-0.101
RS-01012	RS01/BIO	RAWLS CK	FW	9	1	11	5.55				13	0	0				
S-287	S	RAWLS CK	FW	32	4	13	5.875	*	91	-0.003	35	2	6	62.5	D	91	-0.497
S-150	S	LORICK BRANCH	FW	32	2	6	7.280	*	90	0.01	35	0	0		D	88	-0.249
S-149	S	SALUDA RVR	TPGT*	32	1	3	5.96	*	90	0.008	34	1	3	20	D	90	-0.117
S-848	BIO	FOURTEEN MILE CK	FW														
S-294	P	TWELVEMILE CK	FW	55	5	9	6.902	*	156	0.014	56	2	4	182.8	*	151	-0.036
S-260	S/BIO	KINLEY CK	FW	33	0	0		D	112	-0.025	36	9	25	115.6	*	111	-0.033
S-298	P	SALUDA RVR	TPGT*	55	5	9	7.452	I	131	0.04	58	9	16	16.2	D	133	-0.188

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION					TP	TP	TP	MEAN	TRENDS (92-2001)				TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	TP	N	MAG		TP	N	MAG
	03050109210														
S-152	S	SALUDA RVR	TPGT*						I	34	0.003		*	62	0
RS-01012	RS01/BIO	RAWLS CK	FW												
S-287	S	RAWLS CK	FW						*	37	0		*	64	-0.002
S-150	S	LORICK BRANCH	FW						D	35	-0.015		D	63	-0.074
S-149	S	SALUDA RVR	TPGT*						*	35	0		D	64	-0.007
S-848	BIO	FOURTEEN MILE CK	FW												
S-294	P	TWELVEMILE CK	FW						*	73	0		D	111	-0.005
S-260	S/BIO	KINLEY CK	FW						*	36	0.005		D	85	-0.007
S-298	P	SALUDA RVR	TPGT*						*	73	0		D	91	-0.002

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION					TN	TN	TN	MEAN	TRENDS (87-2001)				CHL	CHL	CHL	MEAN		TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	TN	N	MAG		N	EXC.	%	EXC.		TSS	N	MAG
	03050109210																			
S-152	S	SALUDA RVR	TPGT*															*	58	0.028
RS-01012	RS01/BIO	RAWLS CK	FW																	
S-287	S	RAWLS CK	FW															*	62	0
S-150	S	LORICK BRANCH	FW															*	61	0
S-149	S	SALUDA RVR	TPGT*															*	61	0
S-848	BIO	FOURTEEN MILE CK	FW																	
S-294	P	TWELVEMILE CK	FW						I	122	0.045							*	124	0
S-260	S/BIO	KINLEY CK	FW						*	43	-0.023							*	62	0.118
S-298	P	SALUDA RVR	TPGT*						*	99	-0.01							*	107	0

SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS (87-2001) BACT	TRENDS (87-2001) N	TRENDS (87-2001) MAG	NH3 N	NH3 EXC.	NH3 %	CD N	CD EXC.	CD %	MEAN EXC.
	03050109210																	
S-152	S	SALUDA RVR	TPGT*	2.4	36	0	0		D	90	0	6	0	0	4	0	0	
RS-01012	RS01/BIO	RAWLS CK	FW	175.0	14	2	14	920.0				7	0	0	5	0	0	
S-287	S	RAWLS CK	FW	391.3	36	15	42	2907.3	I	93	12.888	7	0	0	4	0	0	
S-150	S	LORICK BRANCH	FW	343.6	36	17	47	2160.0	*	91	4.314	7	0	0	4	0	0	
S-149	S	SALUDA RVR	TPGT*	85.0	34	4	12	1030.0	*	91	0.492	6	0	0	4	0	0	
S-848	BIO	FOURTEEN MILE CK	FW															
S-294	P	TWELVEMILE CK	FW	197.5	58	13	22	1837.7	*	153	3.893	51	0	0	19	0	0	
S-260	S/BIO	KINLEY CK	FW	726.8	37	23	62	4058.3	D	113	-273.97	7	0	0	4	0	0	
S-298	P	SALUDA RVR	TPGT*	78.8	58	4	7	685.0	D	133	-4.093	51	0	0	20	0	0	

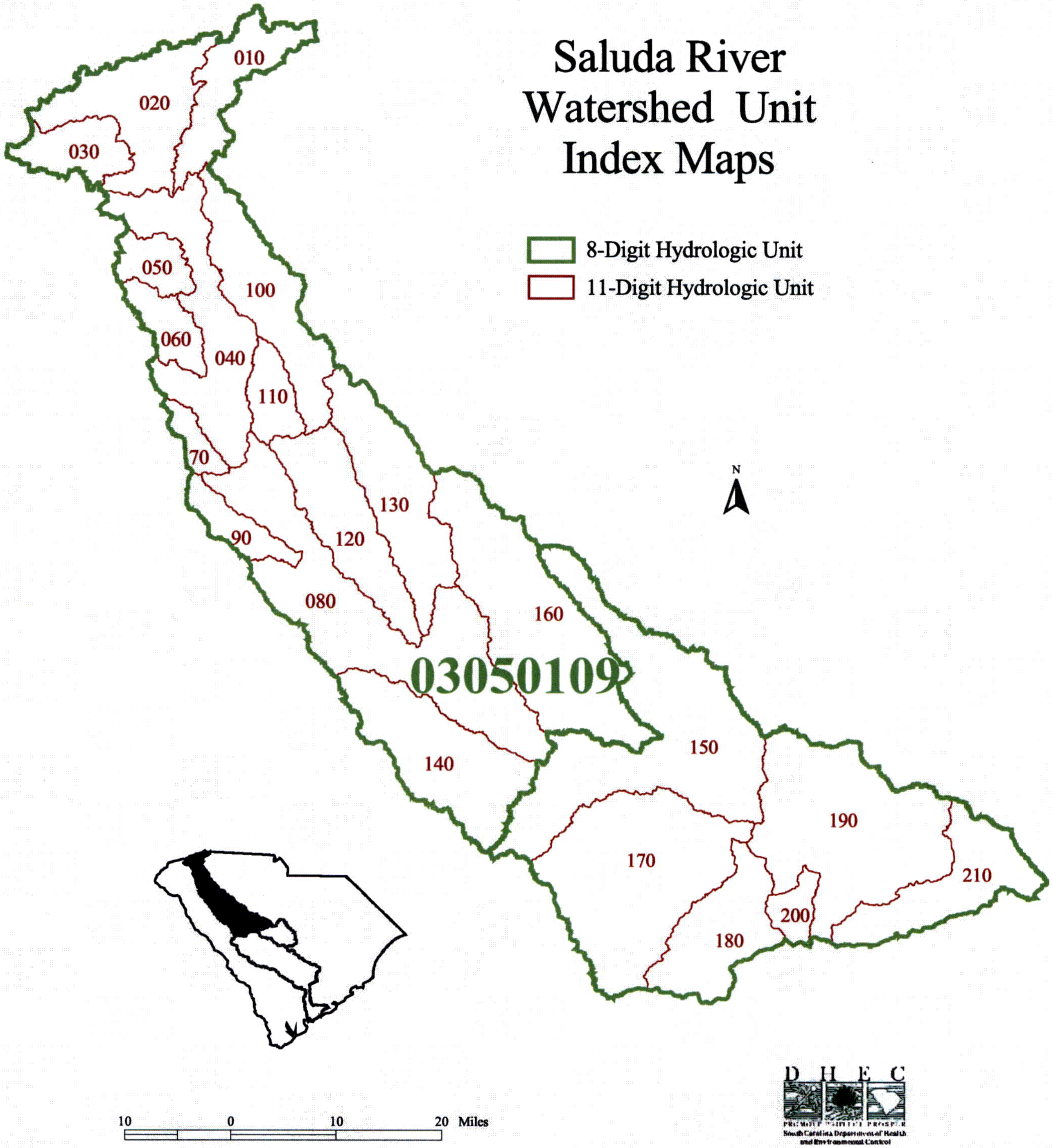
SALUDA RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CR N	CR EXC.	CR %	MEAN EXC.		CU N	CU EXC.	CU %	MEAN EXC.		PB N	PB EXC.	PB %	MEAN EXC.		HG N	HG EXC.	HG %
03050109210																					
S-152	S	SALUDA RVR	TPGT*	4	0	0			4	0	0			4	0	0			4	0	0
RS-01012	RS01/BIO	RAWLS CK	FW	5	0	0			5	0	0			5	0	0			5	0	0
S-287	S	RAWLS CK	FW	3	0	0			4	0	0			4	0	0			4	0	0
S-150	S	LORICK BRANCH	FW	4	0	0			4	0	0			4	0	0			4	0	0
S-149	S	SALUDA RVR	TPGT*	4	0	0			4	0	0			4	0	0			4	0	0
S-848	BIO	FOURTEEN MILE CK	FW																		
S-294	P	TWELVEMILE CK	FW	19	0	0			19	0	0			19	0	0			19	0	0
S-260	S/BIO	KINLEY CK	FW	4	0	0			4	0	0			4	0	0			4	0	0
S-298	P	SALUDA RVR	TPGT*	20	0	0			19	0	0			20	0	0			20	0	0

SALUDA RIVER BASIN WATER QUALITY SUMMARY

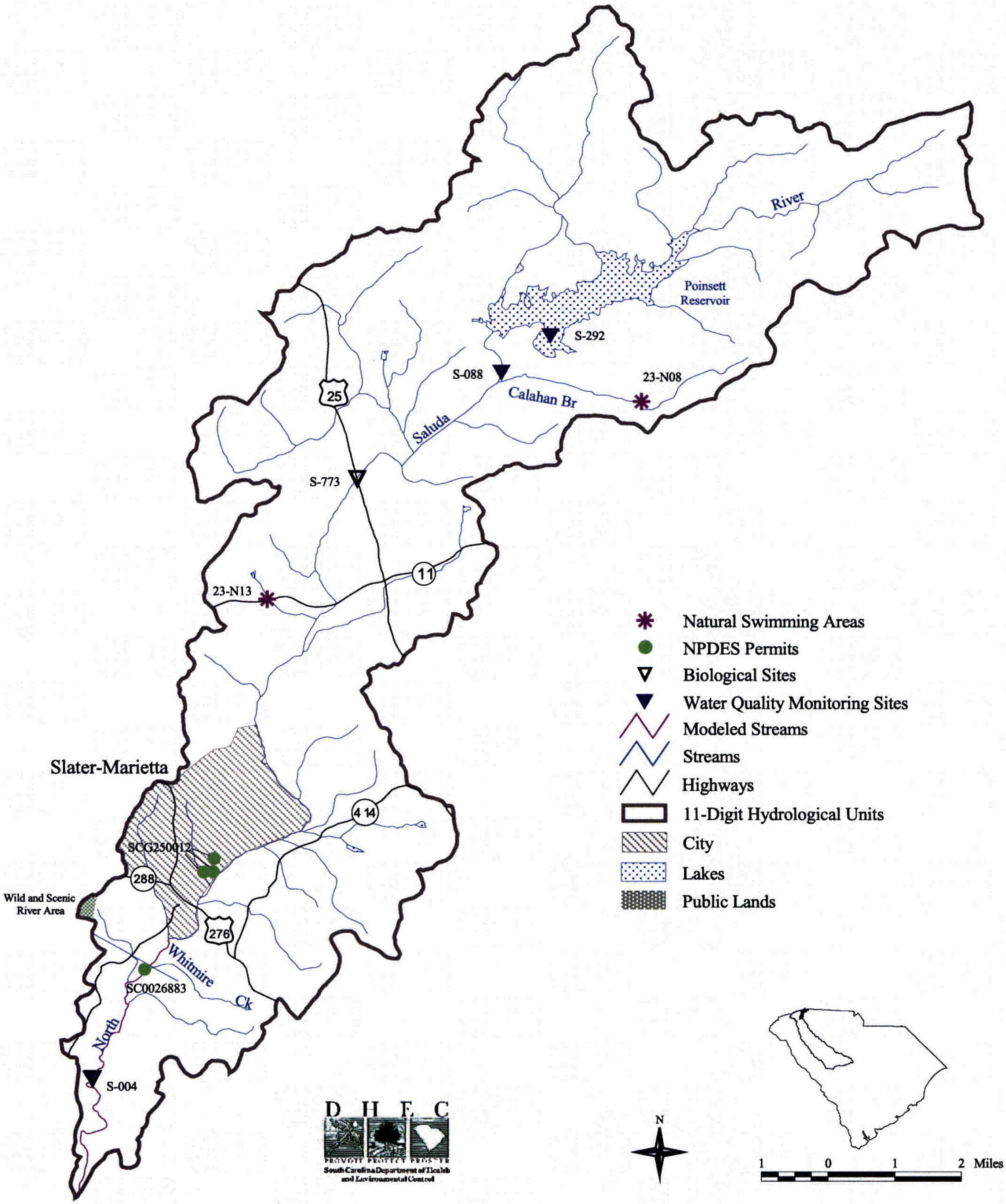
STATION NUMBER	TYPE	WATERBODY NAME	CLASS		NI N	NI EXC.	NI %	MEAN EXC.		ZN N	ZN EXC.	ZN %	MEAN EXC.
03050109210													
S-152	S	SALUDA RVR	TPGT*		4	0	0			4	0	0	
RS-01012	RS01/BIO	RAWLS CK	FW		5	0	0			5	0	0	
S-287	S	RAWLS CK	FW		4	0	0			4	0	0	
S-150	S	LORICK BRANCH	FW		4	0	0			4	0	0	
S-149	S	SALUDA RVR	TPGT*		4	0	0			4	0	0	
S-848	BIO	FOURTEEN MILE CK	FW										
S-294	P	TWELVEMILE CK	FW		19	0	0			19	0	0	
S-260	S/BIO	KINLEY CK	FW		4	0	0			4	0	0	
S-298	P	SALUDA RVR	TPGT*		19	0	0			19	0	0	

Saluda River Watershed Unit Index Maps

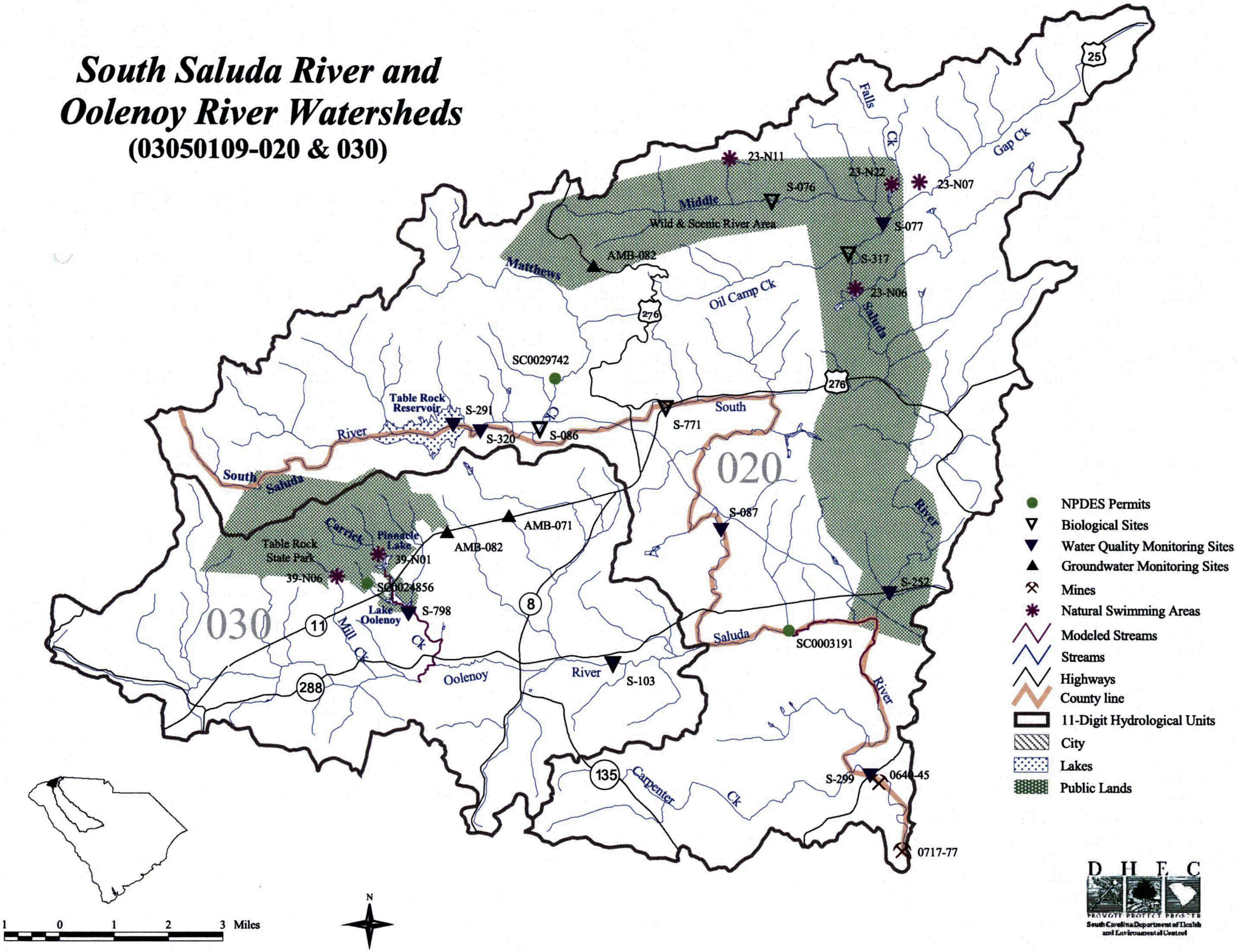


North Saluda River Watershed

(03050109-010)

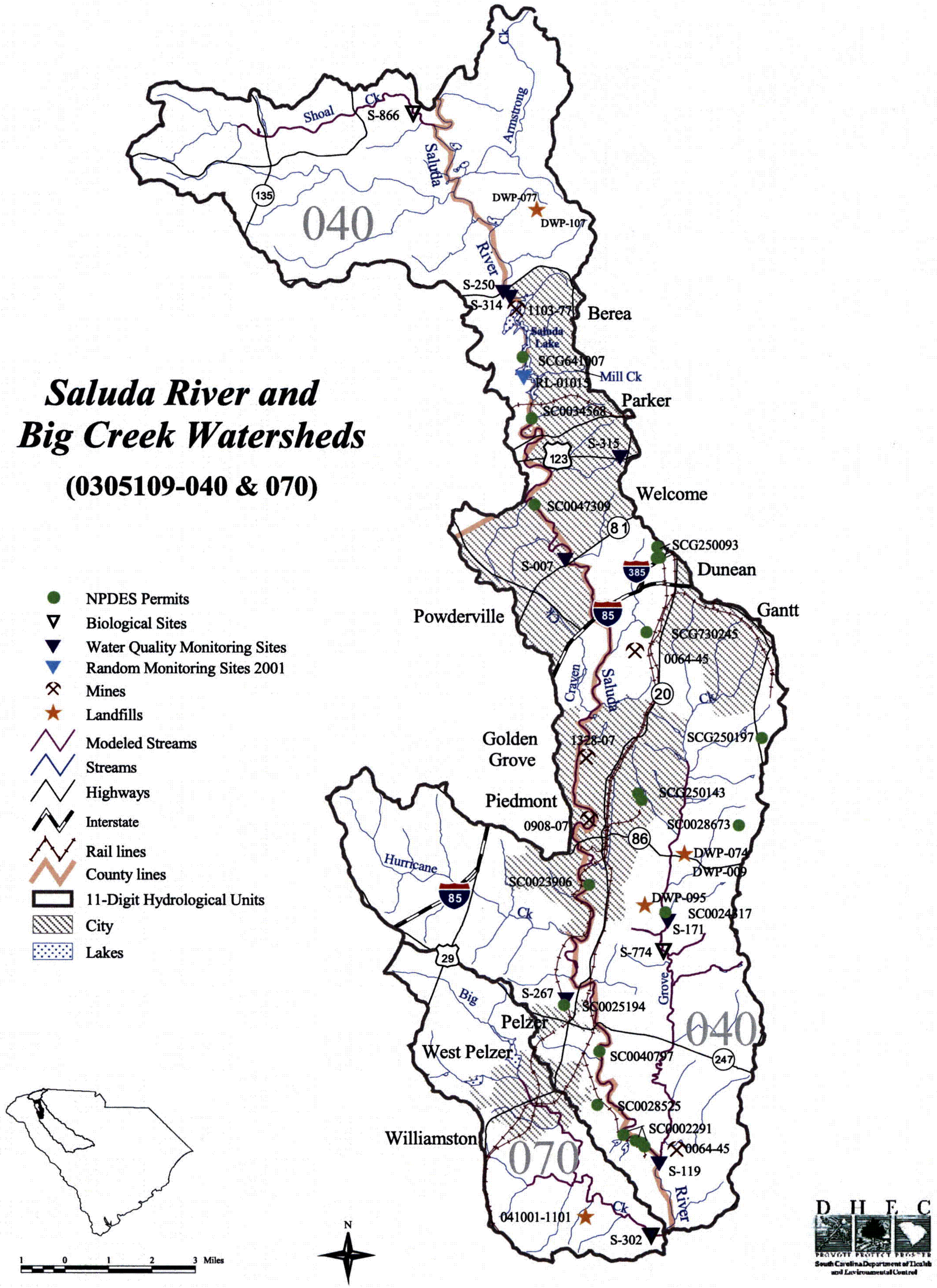


South Saluda River and Oolenoy River Watersheds
(03050109-020 & 030)

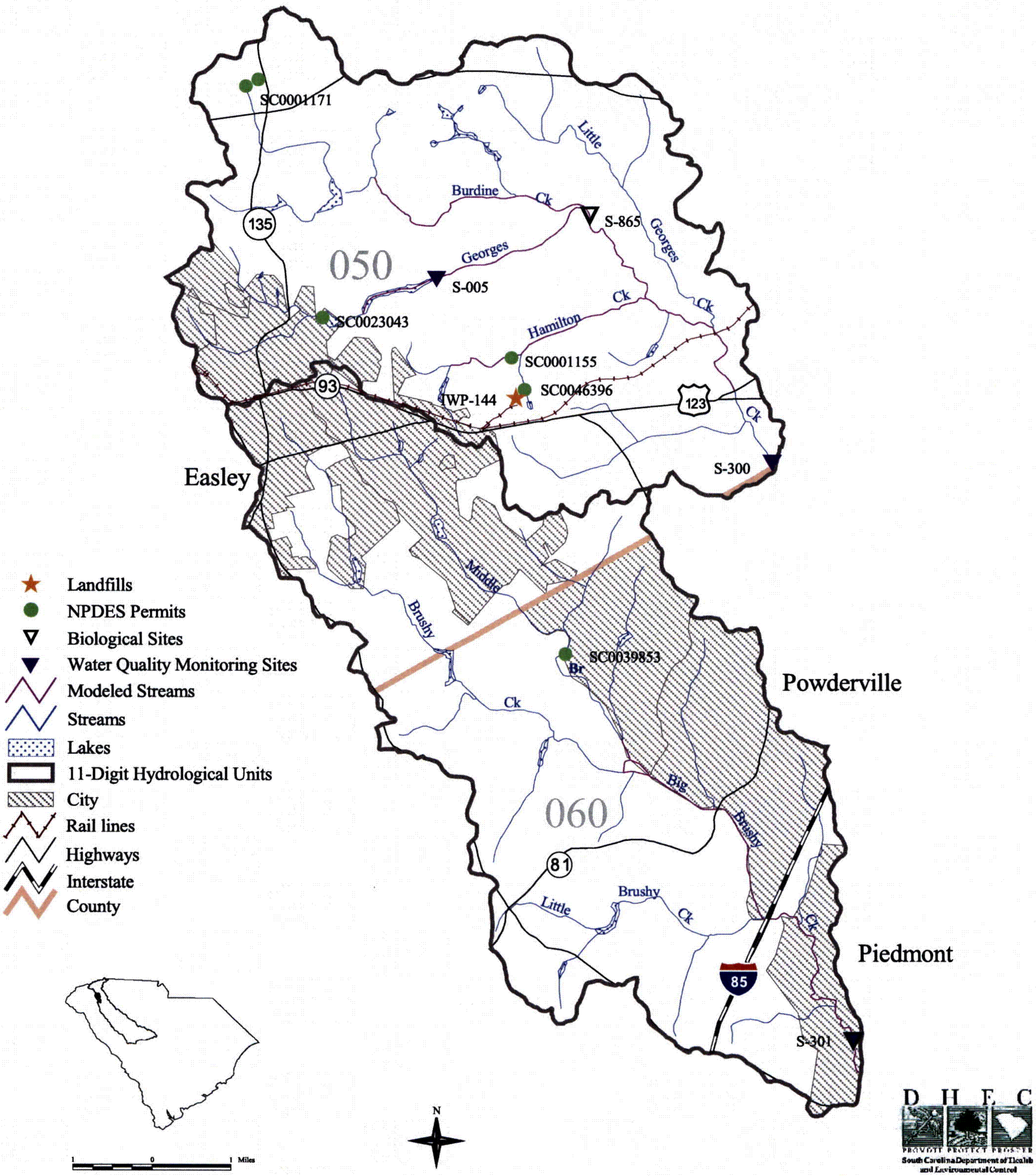


Saluda River and Big Creek Watersheds

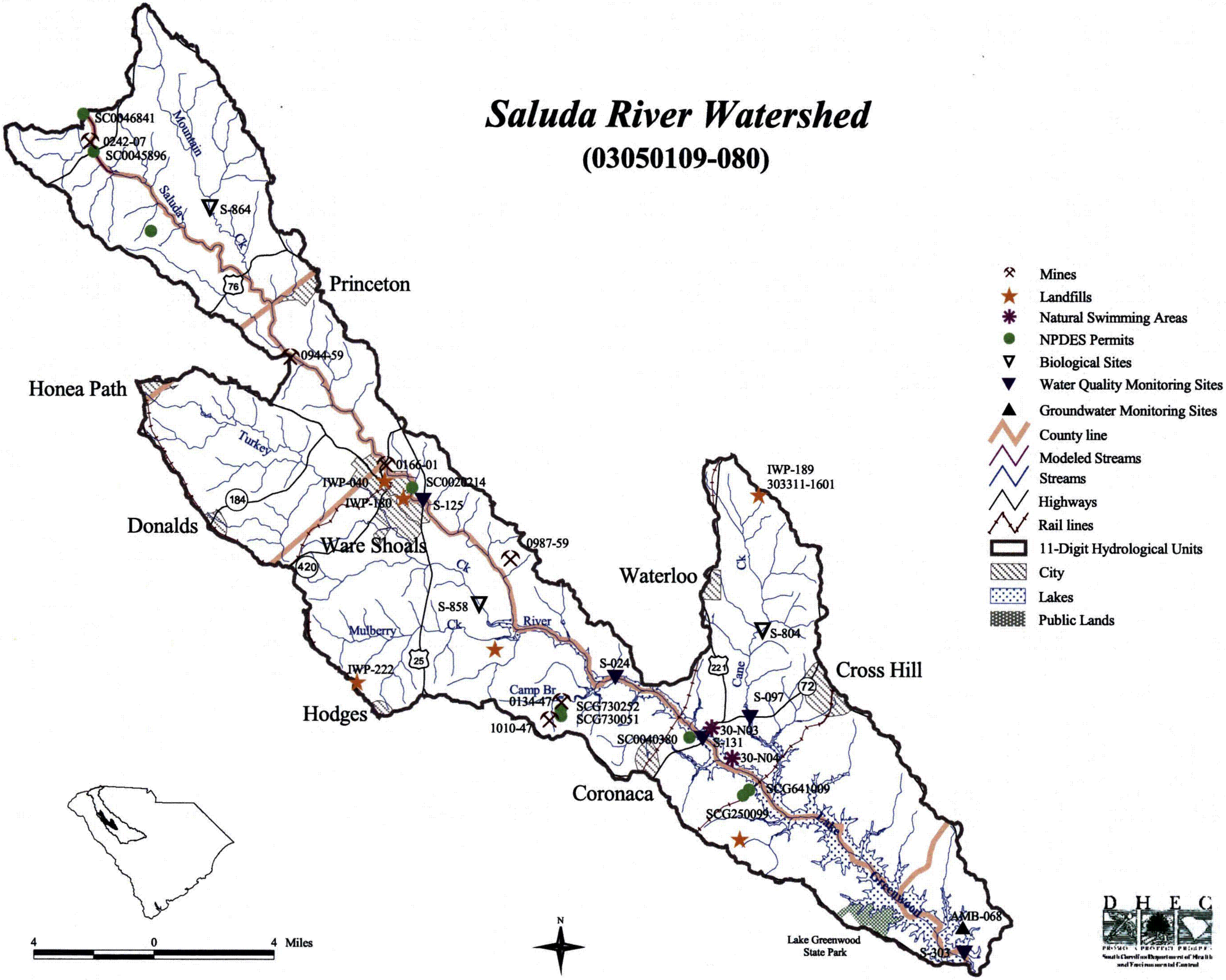
(0305109-040 & 070)

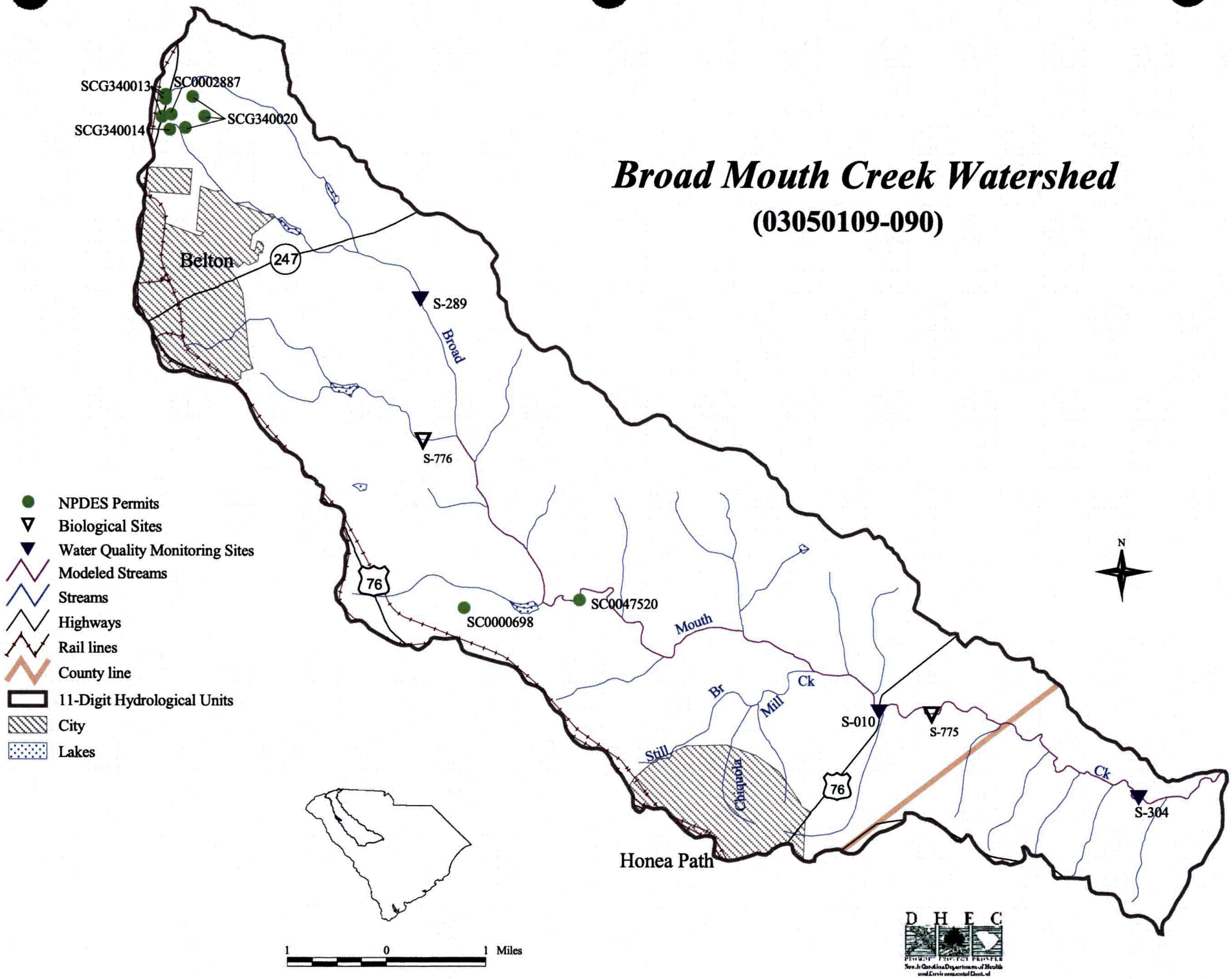


Georges Creek and Big Brushy Creek Watersheds
(03050109-050 & 060)

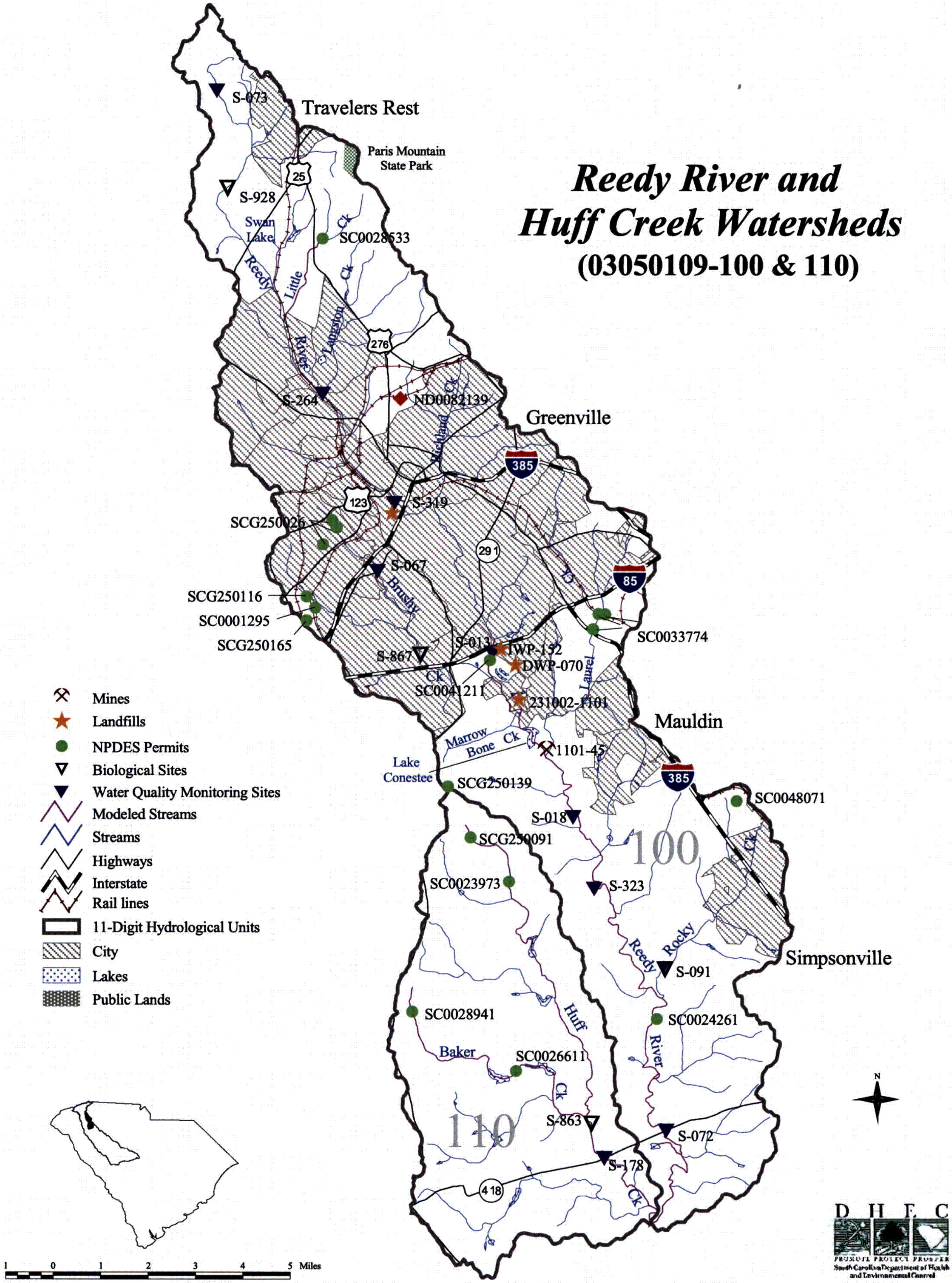


Saluda River Watershed
(03050109-080)



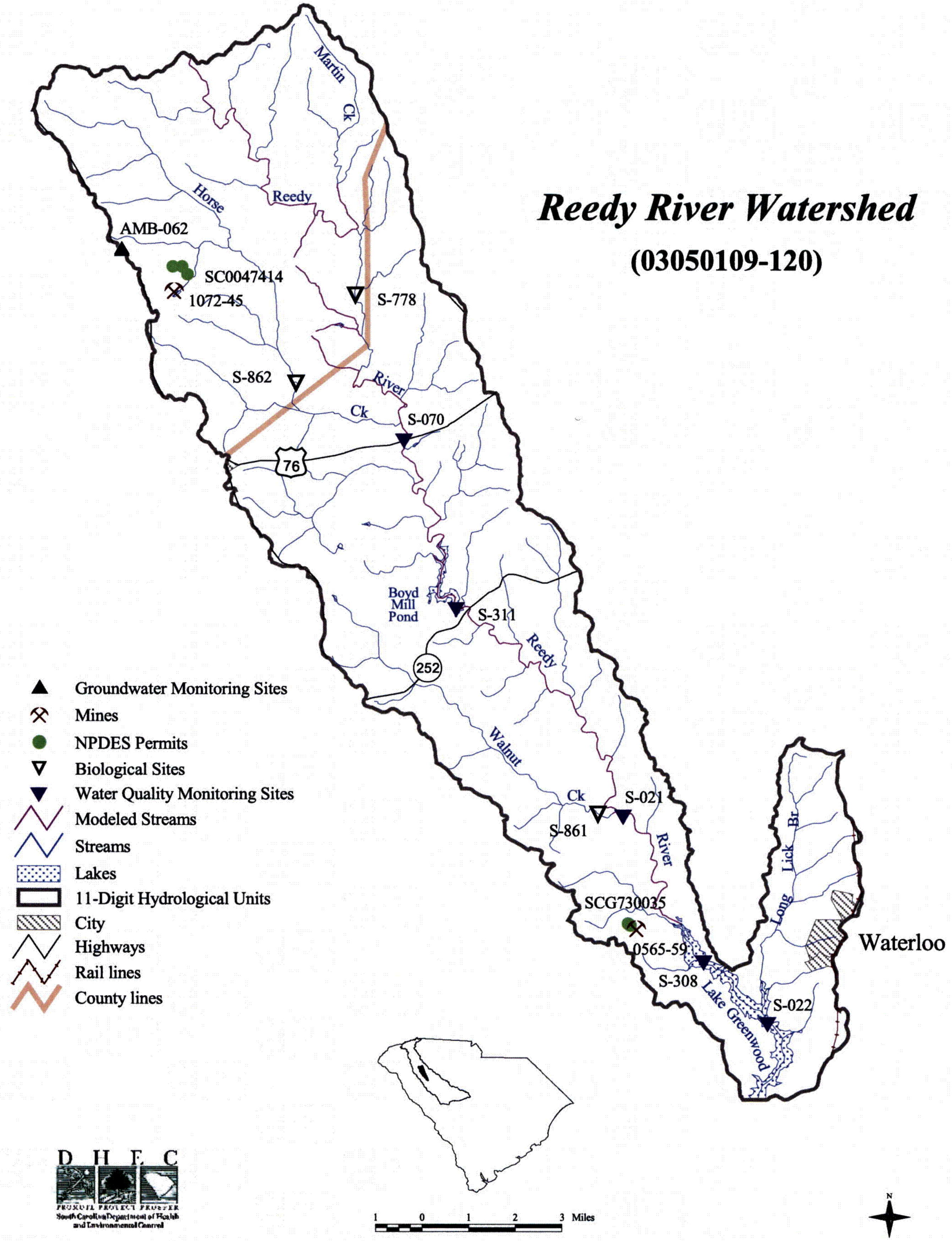

Broad Mouth Creek Watershed
(03050109-090)
SCG340013
SC0002887
SCG340020
SCG340014
Belton
247
S-289
Broad
S-776
76
SC0000698
SC0047520
Mouth
Br
Mill
Ck
Still
Chiquola
S-010
S-775
Ck
76
S-304
Honea Path
N
NPDES Permits
Biological Sites
Water Quality Monitoring Sites
Modeled Streams
Streams
Highways
Rail lines
County line
11-Digit Hydrological Units
City
Lakes
1
0
1 Miles
D H E C

Reedy River and Huff Creek Watersheds
(03050109-100 & 110)

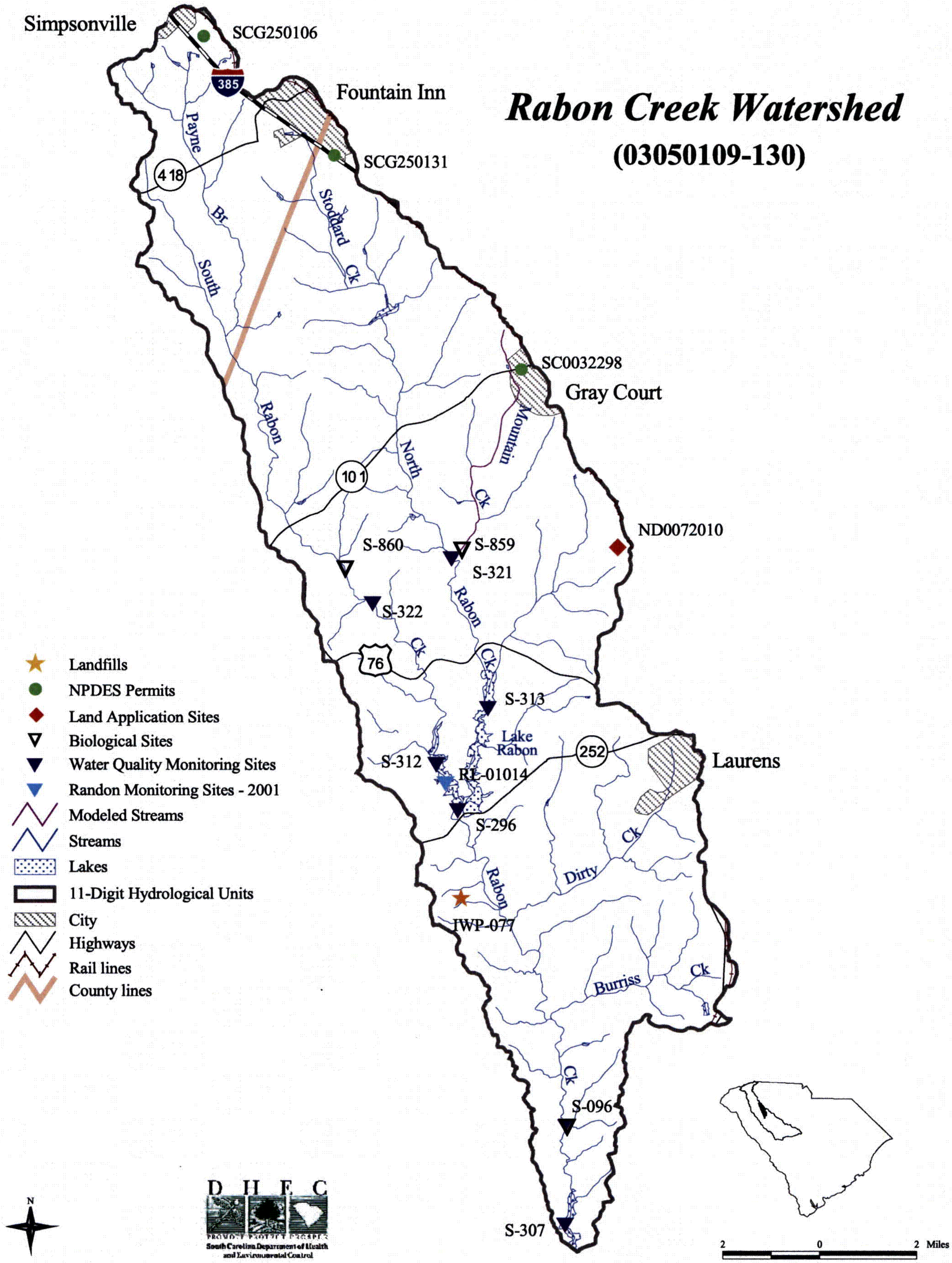


Reedy River Watershed

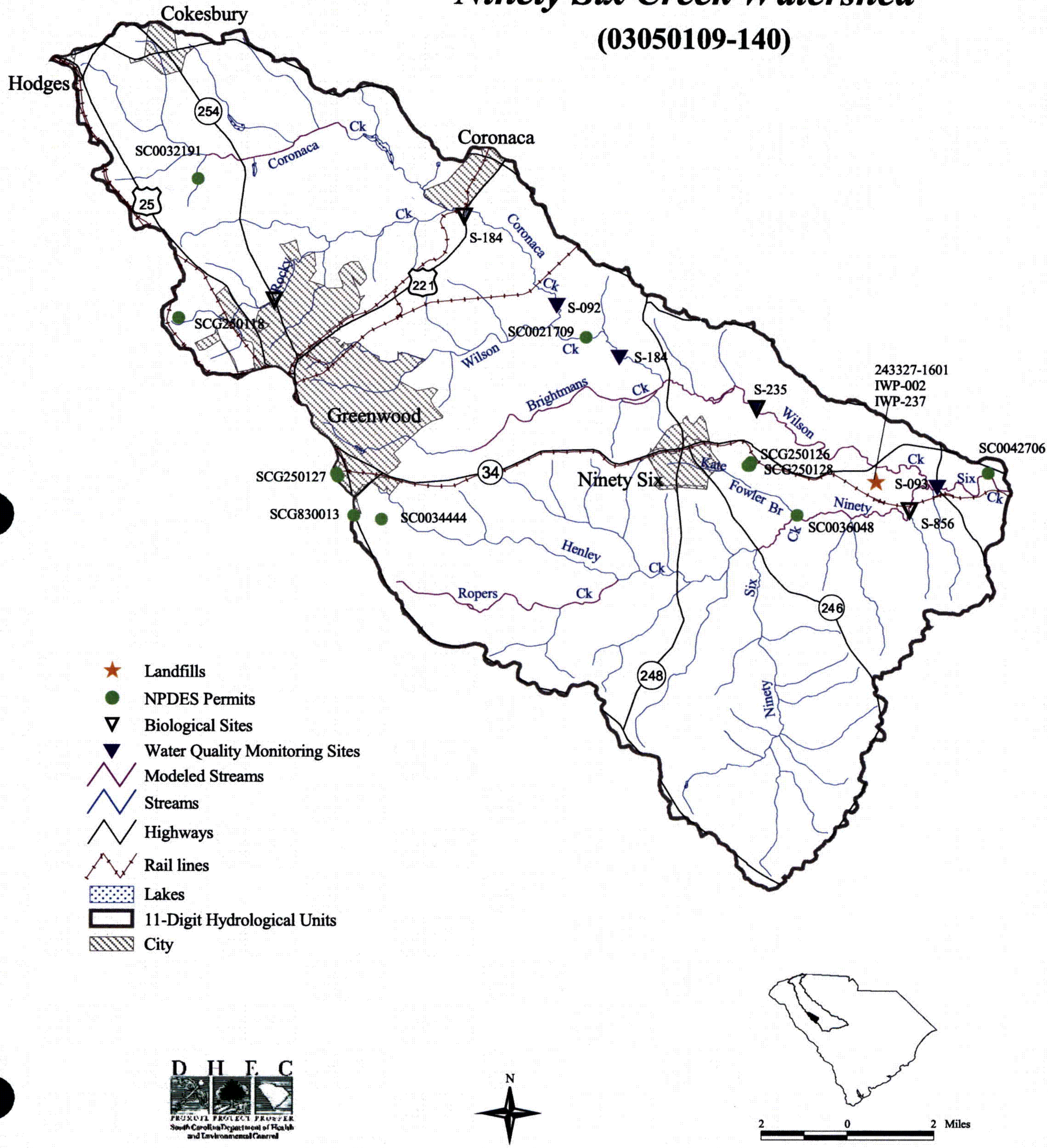
(03050109-120)

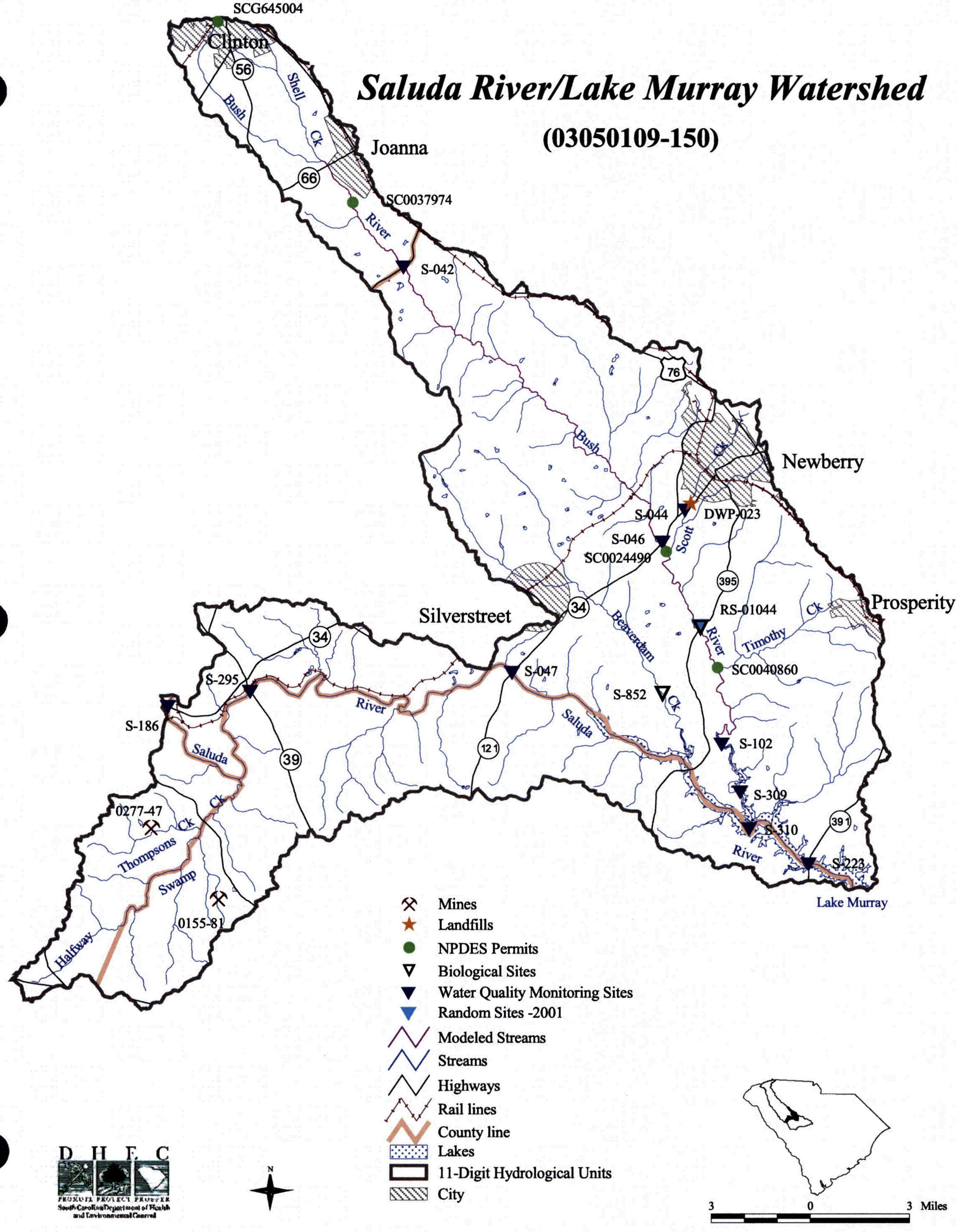


Rabon Creek Watershed
(03050109-130)

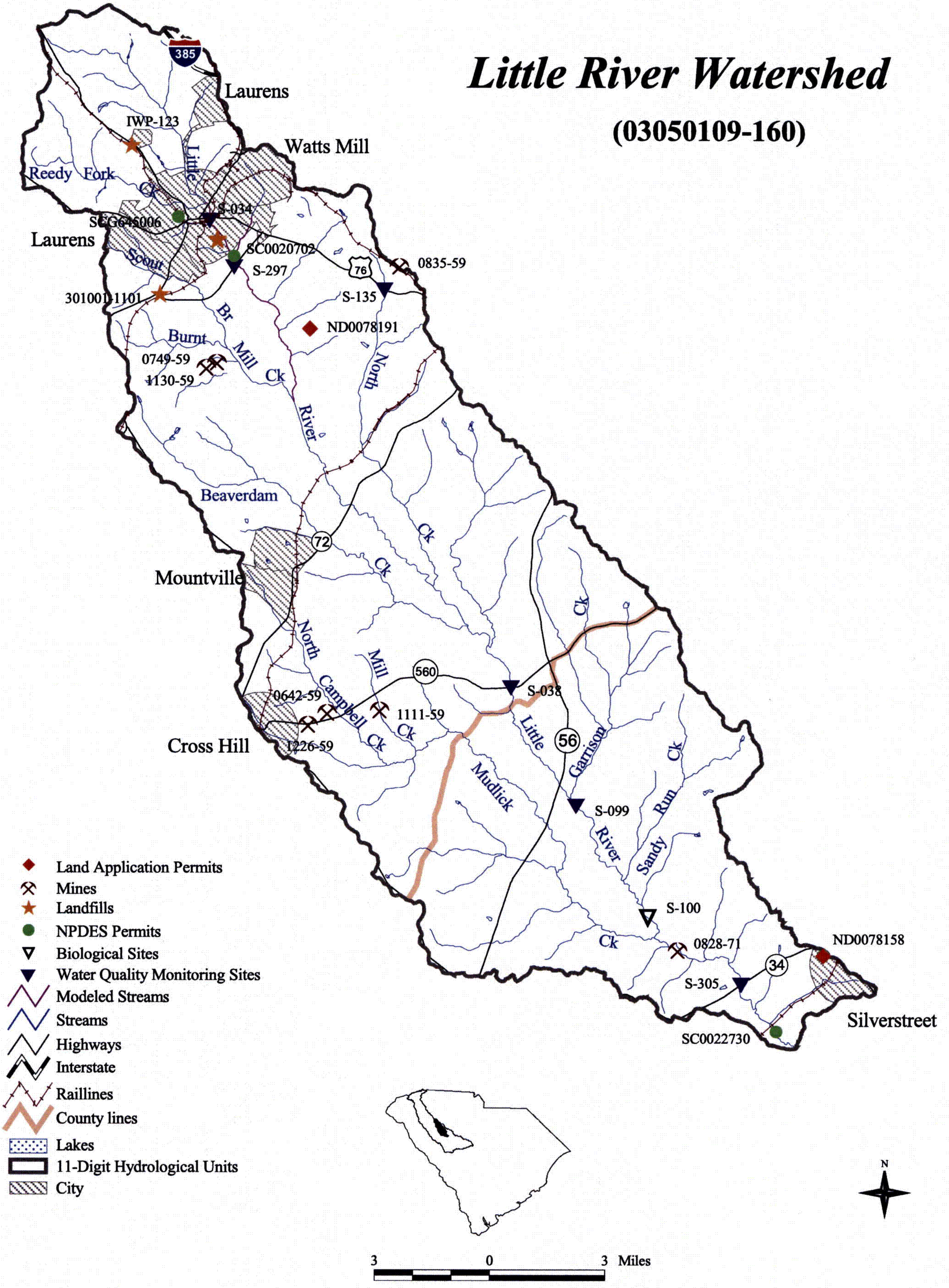


Ninety Six Creek Watershed
(03050109-140)





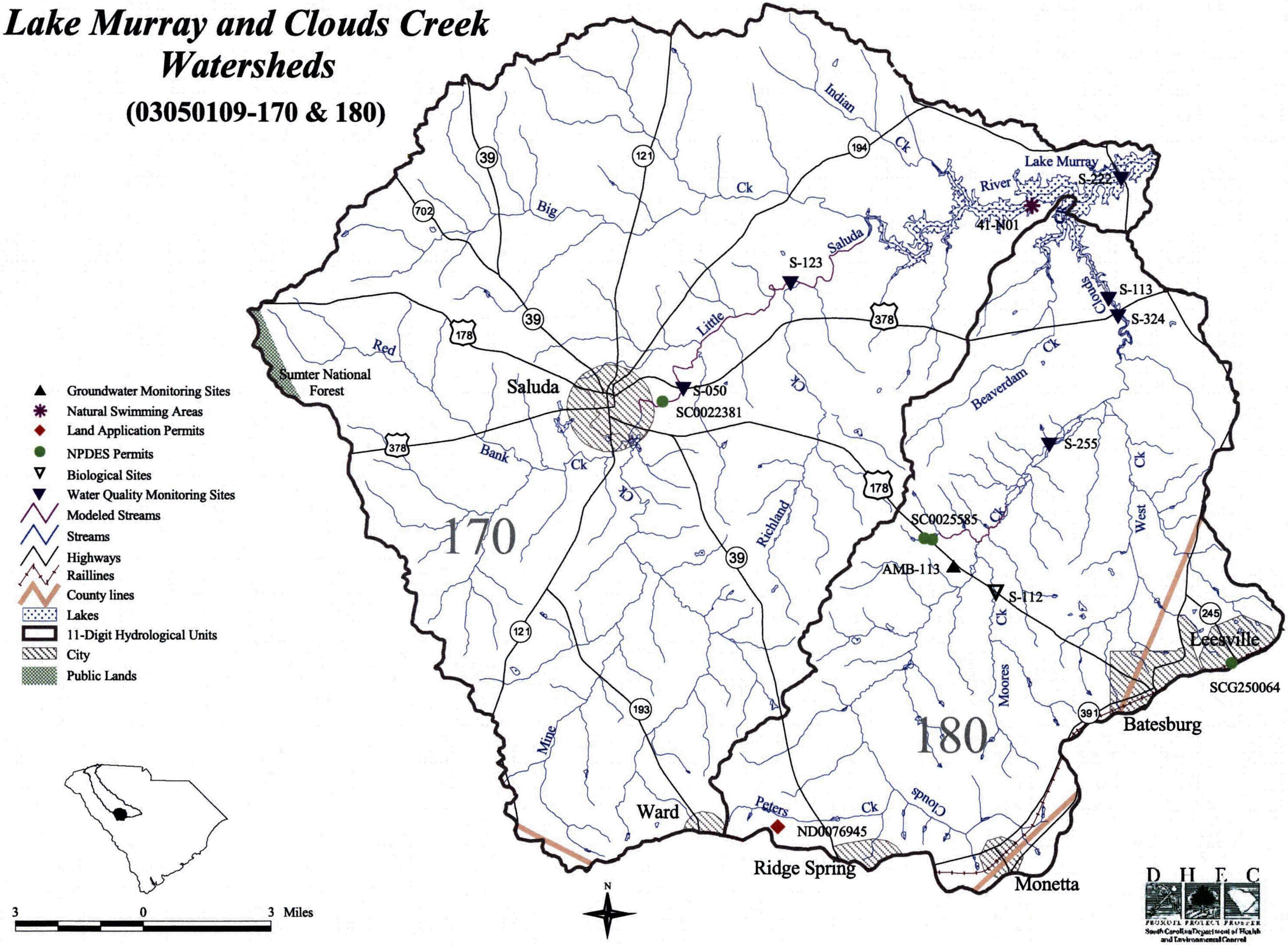
Saluda River/Lake Murray Watershed
(03050109-150)
SCG645004
Clinton
Joanna
SC0037974
S-042
Shell Ck
Bush Ck
River
Newberry
Prosperity
Silverstreet
S-044
DWP-023
S-046
SC0024490
Scott Ck
RS-01044
SC0040860
Timothy Ck
Beaverdam Ck
S-852
S-047
S-295
S-186
Saluda River
S-102
S-309
S-310
S-223
Lake Murray
0277-47
0155-81
Thompsons Ck
Swamp Ck
Halfway
Mines
Landfills
NPDES Permits
Biological Sites
Water Quality Monitoring Sites
Random Sites -2001
Modeled Streams
Streams
Highways
Rail lines
County line
Lakes
11-Digit Hydrological Units
City
DHEC
3 0 3 Miles



Little River Watershed
(03050109-160)
385
Laurens
IWP-123
Watts Mill
Little
Reedy Fork
Ck
S-034
SCG645006
Laurens
Scout
SC0020702
S-297
76
0835-59
S-135
301001-1101
Br
Burnt
Mill
Ck
ND0078191
0749-59
1130-59
North
River
Beaverdam
Ck
72
Ck
Mountville
North
Mill
Campbell
Ck
Ck
560
0642-59
1111-59
1226-59
Cross Hill
S-038
Ck
Little
Garrison
56
Mudlick
S-099
River
Sandy
Run
Ck
S-100
Ck
0828-71
ND0078158
34
S-305
Silverstreet
SC0022730
Land Application Permits
Mines
Landfills
NPDES Permits
Biological Sites
Water Quality Monitoring Sites
Modeled Streams
Streams
Highways
Interstate
Raillines
County lines
Lakes
11-Digit Hydrological Units
City
N
3
0
3 Miles

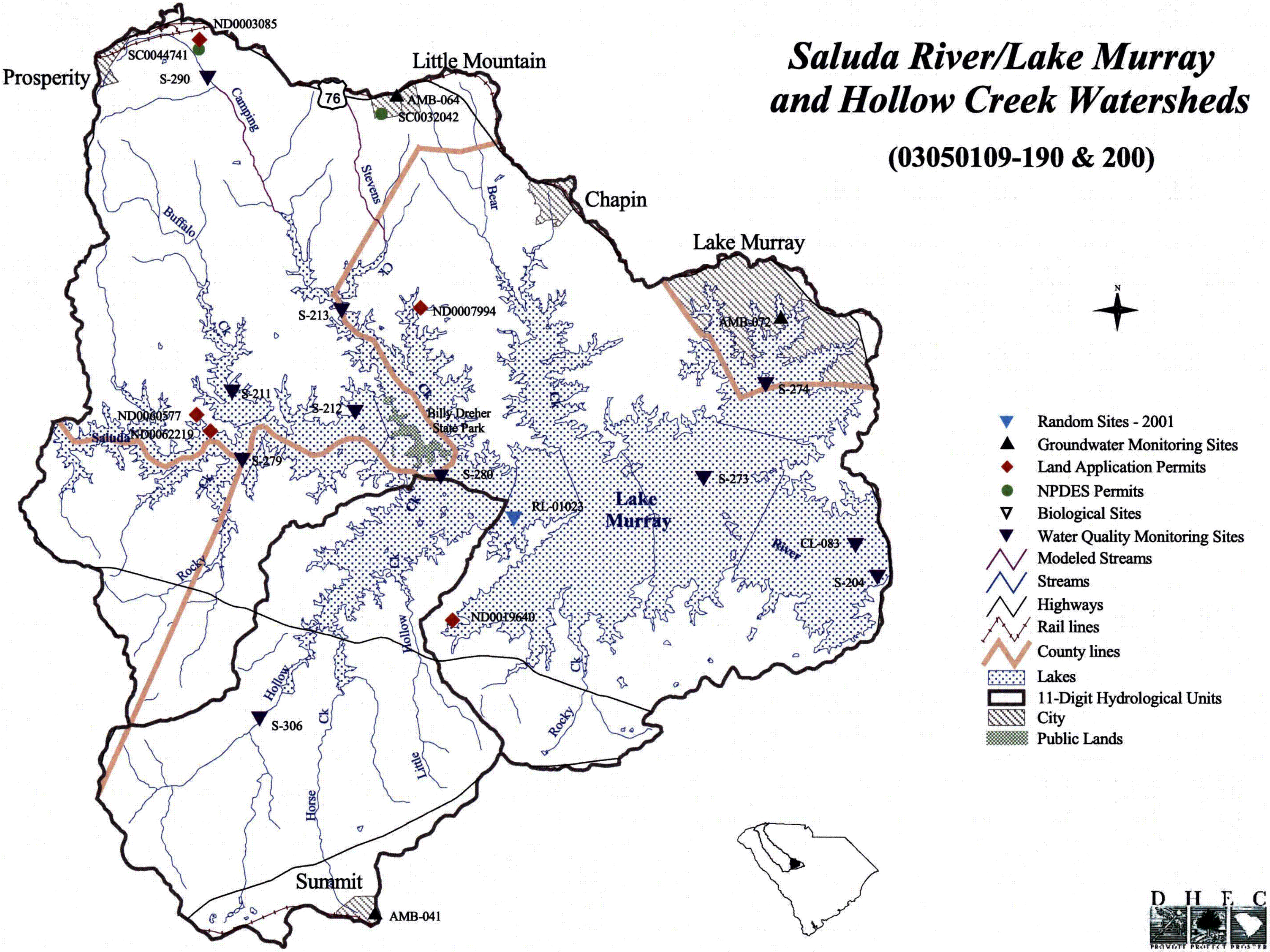
Little Saluda River/ Lake Murray and Clouds Creek Watersheds

(03050109-170 & 180)



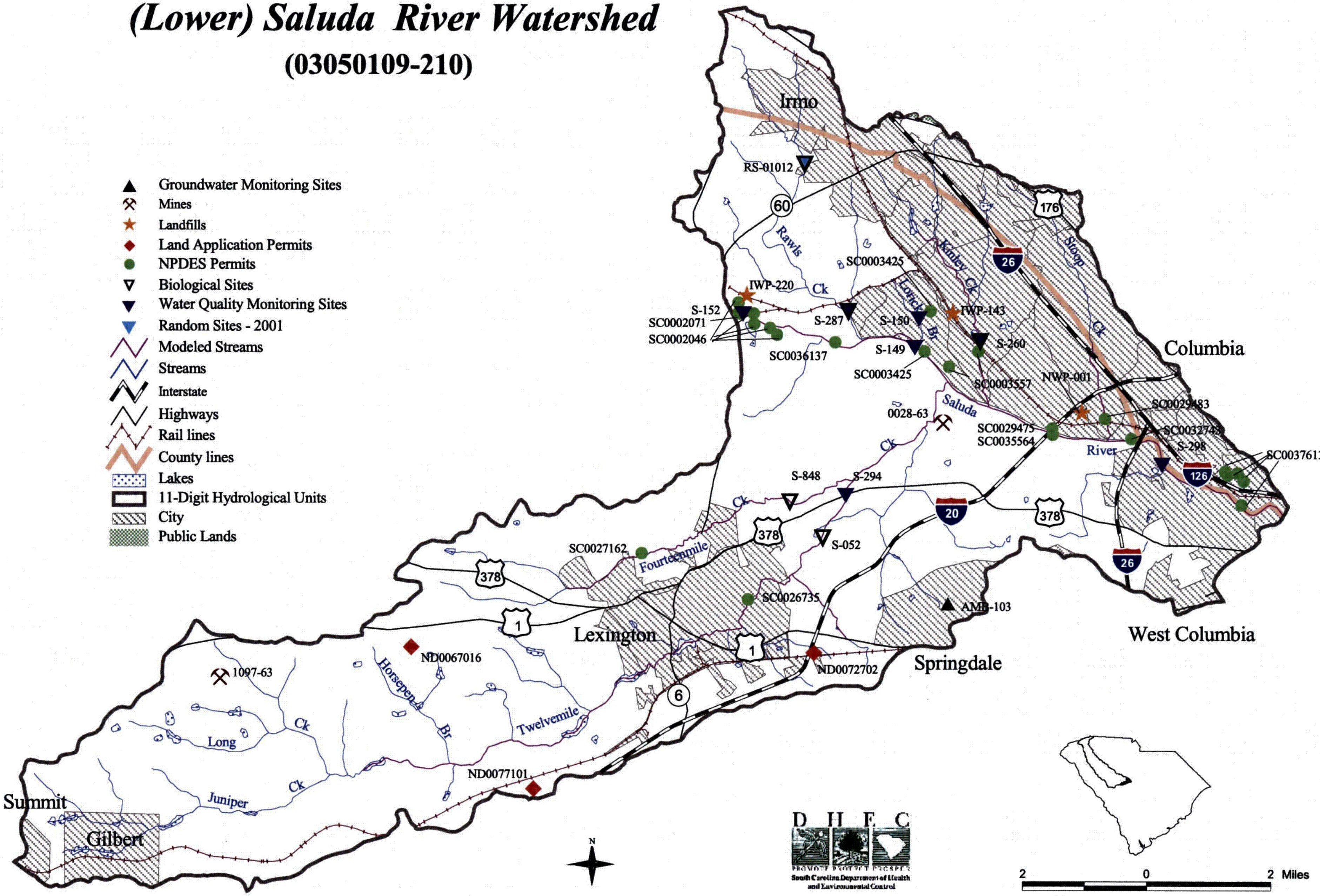
Saluda River/Lake Murray and Hollow Creek Watersheds

(03050109-190 & 200)



(Lower) Saluda River Watershed

(03050109-210)



APPENDIX C.

Congaree River Basin

Ambient Water Quality Monitoring Site Descriptions

Station #	Type	Class	Description
03050110-010			
CSB-001L	P/SEDM	FW	CONGAREE RIVER AT BLOSSOM ST (SALUDA RIVER)
CSB-001R	P/SEDM	FW	CONGAREE RIVER AT BLOSSOM ST (BROAD RIVER)
C-021	S/W	FW	MILL CREEK AT SC 262
C-022	S/W	FW	MILL CREEK AT US 76AT PINEWOOD LAKE, 8 MI SE OF COLUMBIA
C-074	P/INT	FW	CONGAREE RIVER -W BOUNDARY OF CONGAREE NATIONAL PARK
C-010	BIO	FW	BIG BEAVER CREEK AT US 176
C-073	S/W	FW	REEDER POINT BRANCH AT SC 48
RS-010141	RS01	FW	BATES MILL CREEK AT S-09-24, 4MI N OF ST. MATTHEWS
03050110-020			
C-580	BIO	FW	RED BANK CREEK AT ROAD CONNECTING SR 1260 & SR 243
C-066	S/W	FW	RED BANK CREEK AT S-32-244
C-067	S/W	FW	RED BANK CREEK AT SANDY SPRIGS ROAD BETW S-32-104 & SC 602
C-565	BIO	FW	CONGAREE CREEK AT SR 34
C-061	S/W/BIO	FW	SAVANA BRANCH AT S-32-72 1.7 MILES NNW OF SOUTH CONGAREE
C-008	P/W	FW	CONGAREE CREEK AT US 21, AT CAYCE WATER INTAKE
C-025	S/W	FW	LAKE CAROLINE SPILLWAY AT PLATT SPRINGS ROAD
C-005	S/W	FW	SIXMILE CREEK ON US 21, S OF CAYCE
C-070	W/INT	FW	CONGAREE CREEK AT S-32-66
C-583	BIO	FW	SECOND CREEK AT SR 647
03050110-030			
C-048	S/W	FW	WINDSOR LAKE SPILLWAY ON WINDSOR LAKE BLVD
C-068	P/W	FW	FOREST LAKE AT DAM
C-001	P/W	FW	GILLS CREEK AT BRIDGE ON US 76 (GARNERS FERRY ROAD)
C-017	P/INT	FW	GILLS CREEK AT SC 48 (BLUFF ROAD)
03050110-040			
C-009	W/INT/BIO	FW	SANDY RUN AT US 176
03050110-050			
C-578	BIO	FW	MYERS CREEK AT SR 734
C-069	S/SEDM/BIO	FW	CEDAR CREEK AT S-40-66
C-071	BIO	FW	CEDAR CREEK AT S-40-734
C-075	P/INT	FW	CEDAR CREEK S OF S-40-734 AT OLD USGS GAGING PLATFORM
03050110-060			
C-579	BIO	FW	TOMS CREEK AT POWER LINE & RR TRACK
C-072	P/INT	FW	TOMS CREEK AT SC 48
03050110-070			
C-007	P/INT	FW	CONGAREE RIVER AT US 601

For further details concerning sampling frequency and parameters sampled, please visit our website at *www.scdhec.gov/eqc/admin/html/eqcpubs.html#wqreports* for the current State of S.C. Monitoring Strategy.

Water Quality Data

Spreadsheet Legend

Station Information:

STATION NUMBER Station ID

TYPE SCDHEC station type code

- **P** = Primary station, sampled monthly all year round
- **S** = Secondary station, sampled monthly May - October
- **P*** = Secondary station upgraded to primary station parameter coverage and sampling frequency for basin study
- **W** = Special watershed station added for the Saluda River Basin study
- **BIO** = Indicates macroinvertebrate community data assessed
- **INT** = Integrator Station (approximates a Primary station)
- **RL** = Random Lake station
- **RO** = Random Open water station
- **RS** = Random Stream station
- **RT** = Random Tide Creek station

WATERBODY NAME Stream or Lake Name

CLASS Stream classification at the point where monitoring station is located

Parameter Abbreviations and Parameter Measurement Units:

DO	Dissolved Oxygen (mg/l)	**NH3**	Ammonia (mg/l)
BOD	Five-Day Biochemical Oxygen Demand (mg/l)	**CD**	Cadmium (ug/l)
pH	pH (SU)	**CR**	Chromium (ug/l)
TP	Total Phosphorus (mg/l)	**CU**	Copper (ug/l)
TN	Total Nitrogen (mg/l)	**PB**	Lead (ug/l)
TURB	Turbidity (NTU)	**HG**	Mercury (ug/l)
TSS	Total Suspended Solids (mg/l)	**NI**	Nickel (ug/l)
BACT	Fecal Coliform Bacteria (#/100 ml)	**ZN**	Zinc (ug/l)

Statistical Abbreviations:

N	For *standards compliance*, number of surface samples collected between January 1997 and December 2001. For *trends*, number of surface samples collected between January 1984 and December 2001. For *total phosphorus*, an additional trend period of January 1992 to December 2001 is also reported.
EXC.	Number of samples contravening the appropriate standard
%	Percentage of samples contravening the appropriate standard
MEAN EXC.	Mean of samples that contravened the applied standard
MED	For *heavy metals with a human health criterion*, this is the median of all surface samples between January 1997 and December 2001. DL indicates that the median was the detection limit.
MAG	Magnitude of any statistically significant trend, ave. change/yr, expressed in parameter measurement units
GEO MEAN	Geometric mean of fecal coliform bacteria samples collected between January 1997 and December 2001

Key to Trends:

D	Statistically significant decreasing trend in parameter concentration
I	Statistically significant increasing trend in parameter concentration
*	No statistically significant trend
Blank	Insufficient data to test for long term trends

CONGAREE RIVER BASIN WATER QUALITY SUMMARY

STATION					DO	DO	DO	MEAN	TRENDS (87 -2001)					
NUMBER	TYPE	WATERBODY NAME	CLASS		N	EXC.	%	EXC.	DO	N	MAG	BOD	N	MAG
03050110010														
CSB-001L	P	CONGAREE RVR	FW		45	0	0		*	158	0.01	*	157	0
CSB-001R	P	CONGAREE RVR	FW		45	0	0		*	159	0	*	158	0
C-021	S	MILL CK	FW		34	1	3	3.18	I	92	0.027	D	91	-0.054
C-022	S	MILL CK	FW		34	2	6	4.750	*	90	0.016	D	87	-0.05
C-073	S	REEDER POINT BRANCH	FW		34	10	29	2.775	*	50	-0.074	D	50	-0.268
C-074	P	CONGAREE RVR	FW		52	1	2	4.80	D	54	-0.155	*	54	0
C-010	BIO	BIG BEAVER CK	FW											
RS-01041	RS01	BATES MILL CK	FW		10	0	0							
03050110020														
C-580	BIO	RED BANK CK	FW											
C-066	S	RED BANK CK	FW		34	0	0		*	94	0.004	*	88	0
C-067	S	RED BANK CK	FW		34	0	0		*	93	0	*	88	0
C-565	BIO	CONGAREE CK	FW											
C-583	BIO	SECOND CREEK	FW											
C-061	S/BIO	SAVANA BRANCH	FW		34	0	0		*	93	0.005	D	89	-0.069
C-008	P	CONGAREE CK	FW		57	0	0		I	176	0.033	D	169	-0.033
C-025	S	LAKE CAROLINE	FW		34	0	0		*	95	0	D	87	-0.025
C-005	S	SIXMILE CK	FW		35	8	23	2.735	*	93	0	D	90	-0.042
C-070	SE	CONGAREE CK	FW		20	0	0							
03050110030														
C-048	S	LAKE, WINDSOR	FW		32	8	25	3.950	D	90	-0.102	D	91	-0.149
C-068	P	LAKE, FOREST	FW		57	1	2	4.00	*	172	0	*	170	0
C-001	P	GILLS CK	FW		57	3	5	4.050	D	183	-0.043	I	171	0.033
C-017	P	GILLS CK	FW		57	6	11	4.422	D	182	-0.049	D	172	-0.052
03050110040														
C-009	SE/BIO	SANDY RUN	FW		20	0	0							
03050110050														
C-578	BIO	MYERS CREEK	FW											
C-069	S/BIO	CEDAR CK	FW		23	0	0		*	80	0	D	77	-0.044
C-071	BIO	CEDAR CK	FW											
C-075	P	CEDAR CK	FW		57	1	2	4.50	*	58	-0.05	D	59	-0.106
03050110060														
C-072	P	TOMS CK	FW		56	0	0		*	63	-0.021	D	65	-0.048
C-579	BIO	TOMS CK	FW											
03050110070														
C-007	P	CONGAREE RVR	FW		59	0	0		*	172	-0.015	*	165	0

CONGAREE RIVER BASIN WATER QUALITY SUMMARY

STATION				pH	pH	pH	MEAN	TRENDS (87-2001)			TURB	TURB	TURB	MEAN	TRENDS (87-2001)		
NUMBER	TYPE	WATERBODY NAME	CLASS	N	EXC.	%	EXC.	PH	N	MAG	N	EXC.	%	EXC.	TURB	N	MAG
	03050110010																
CSB-001L	P	CONGAREE RVR	FW	46	0	0		*	159	0.015	46	2	4	87.0	D	158	-0.206
CSB-001R	P	CONGAREE RVR	FW	46	0	0		*	160	0.003	46	1	2	85	D	158	-0.259
C-021	S	MILL CK	FW	34	14	41	5.699	*	92	0.014	34	0	0		*	90	-0.128
C-022	S	MILL CK	FW	34	8	24	5.504	*	90	0.02	34	0	0		D	86	-0.112
C-073	S	REEDER POINT BRANCH	FW	34	5	15	6.934	I	50	0.108	33	0	0		*	49	-0.458
C-074	P	CONGAREE RVR	FW	53	2	4	5.335	I	55	0.212	53	3	6	91.7	*	55	-0.76
C-010	BIO	BIG BEAVER CK	FW														
RS-01041	RS01	BATES MILL CK	FW	10	3	30	5.503				11	0	0				
	03050110020																
C-580	BIO	RED BANK CK	FW														
C-066	S	RED BANK CK	FW	34	7	21	6.193	*	94	0	34	0	0		*	93	-0.061
C-067	S	RED BANK CK	FW	34	6	18	5.712	*	93	0.017	35	0	0		D	93	-0.089
C-565	BIO	CONGAREE CK	FW														
C-583	BIO	SECOND CREEK	FW														
C-061	S/BIO	SAVANA BRANCH	FW	34	4	12	5.770	*	93	0.017	35	0	0		D	94	-0.918
C-008	P	CONGAREE CK	FW	56	18	32	5.772	I	175	0.032	56	0	0		D	169	-0.124
C-025	S	LAKE CAROLINE	FW	34	3	9	5.780	*	95	0.003	34	0	0		D	91	-0.2
C-005	S	SIXMILE CK	FW	35	9	26	5.697	*	93	-0.012	34	0	0		*	91	-0.075
C-070	SE	CONGAREE CK	FW	20	9	45	6.904				22	1	5	94	D	30	-0.522
	03050110030																
C-048	S	LAKE, WINDSOR	FW	32	8	25	5.604	D	90	-0.031	33	0	0		D	90	-0.24
C-068	P	LAKE, FOREST	FW	57	8	14	6.525	*	173	0.003	57	0	0		D	169	-0.274
C-001	P	GILLS CK	FW	57	7	12	5.666	*	183	0.001	58	0	0		D	171	-0.494
C-017	P	GILLS CK	FW	57	8	14	5.594	*	182	-0.013	58	1	2	100	D	169	-0.674
	03050110040																
C-009	SE/BIO	SANDY RUN	FW	20	14	70	5.377				21	0	0				
	03050110050																
C-578	BIO	MYERS CREEK	FW														
C-069	S/BIO	CEDAR CK	FW	23	16	70	5.616	*	80	0.001	23	0	0		*	76	-0.045
C-071	BIO	CEDAR CK	FW														
C-075	P	CEDAR CK	FW	57	27	47	5.780	I	58	0.305	57	0	0		D	58	-0.231
	03050110060																
C-072	P	TOMS CK	FW	56	27	48	5.554	I	63	0.061	56	0	0		D	63	-0.145
C-579	BIO	TOMS CK	FW														
	03050110070																
C-007	P	CONGAREE RVR	FW	59	2	3	5.330	*	172	0.017	58	2	3	105.0	D	163	-0.305

CONGAREE RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS		TP N	TP EXC.	TP %	MEAN EXC.	TRENDS (92-2001) TP	N	MAG		TRENDS (87-2001) TP	N	MAG
03050110010															
CSB-001L	P	CONGAREE RVR	FW						*	72	0		D	128	-0.002
CSB-001R	P	CONGAREE RVR	FW						*	72	0		D	128	-0.001
C-021	S	MILL CK	FW						I	36	0		*	64	0
C-022	S	MILL CK	FW						*	33	-0.003		D	60	-0.002
C-073	S	REEDER POINT BRANCH	FW												
C-074	P	CONGAREE RVR	FW												
C-010	BIO	BIG BEAVER CK	FW												
RS-01041	RS01	BATES MILL CK	FW												
03050110020															
C-580	BIO	RED BANK CK	FW												
C-066	S	RED BANK CK	FW						*	36	0		*	65	0
C-067	S	RED BANK CK	FW						*	37	-0.002		*	65	0
C-565	BIO	CONGAREE CK	FW												
C-583	BIO	SECOND CREEK	FW												
C-061	S/BIO	SAVANA BRANCH	FW						*	38	0		D	67	-0.004
C-008	P	CONGAREE CK	FW						*	75	0		*	129	0
C-025	S	LAKE CAROLINE	FW		8	3	38	0.177	*	36	0		D	65	-0.007
C-005	S	SIXMILE CK	FW						*	36	0		D	65	-0.003
C-070	SE	CONGAREE CK	FW												
03050110030															
C-048	S	LAKE, WINDSOR	FW		7	1	14	0.07	*	36	0		D	64	-0.002
C-068	P	LAKE, FOREST	FW		16	0	0		*	71	0		D	129	-0.001
C-001	P	GILLS CK	FW						D	83	-0.004		D	139	-0.002
C-017	P	GILLS CK	FW						D	84	-0.004		D	139	-0.003
03050110040															
C-009	SE/BIO	SANDY RUN	FW												
03050110050															
C-578	BIO	MYERS CREEK	FW												
C-069	S/BIO	CEDAR CK	FW						*	34	0		*	61	0
C-071	BIO	CEDAR CK	FW												
C-075	P	CEDAR CK	FW												
03050110060															
C-072	P	TOMS CK	FW												
C-579	BIO	TOMS CK	FW												
03050110070															
C-007	P	CONGAREE RVR	FW						D	70	-0.002		D	125	-0.002

CONGAREE RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	TN N	TN EXC.	TN %	MEAN EXC.	TRENDS (87-2001) TN	N	MAG	CHL N	CHL EXC.	CHL %	MEAN EXC.	TRENDS (87-2001) TSS	N	MAG
03050110010																	
CSB-001L	P	CONGAREE RVR	FW					*	131	0.005					*	146	-0.063
CSB-001R	P	CONGAREE RVR	FW					*	131	0.006					D	146	-0.298
C-021	S	MILL CK	FW														
C-022	S	MILL CK	FW														
C-073	S	REEDER POINT BRANCH	FW														
C-074	P	CONGAREE RVR	FW								2	0	0		*	55	-0.6
C-010	BIO	BIG BEAVER CK	FW														
RS-01041	RS01	BATES MILL CK	FW														
03050110020																	
C-580	BIO	RED BANK CK	FW														
C-066	S	RED BANK CK	FW														
C-067	S	RED BANK CK	FW												*	58	-0.12
C-565	BIO	CONGAREE CK	FW														
C-583	BIO	SECOND CREEK	FW														
C-061	S/BIO	SAVANA BRANCH	FW												*	59	-0.014
C-008	P	CONGAREE CK	FW					*	128	0.005					*	106	-0.012
C-025	S	LAKE CAROLINE	FW	4	0	0					2	0	0				
C-005	S	SIXMILE CK	FW												I	62	0.383
C-070	SE	CONGAREE CK	FW														
03050110030																	
C-048	S	LAKE, WINDSOR	FW	5	0	0					2	0	0				
C-068	P	LAKE, FOREST	FW	51	0	0		*	91	-0.008	1	0	0				
C-001	P	GILLS CK	FW					D	148	-0.01					D	114	-0.67
C-017	P	GILLS CK	FW					D	145	-0.02					D	117	-0.743
03050110040																	
C-009	SE/BIO	SANDY RUN	FW														
03050110050																	
C-578	BIO	MYERS CREEK	FW														
C-069	S/BIO	CEDAR CK	FW														
C-071	BIO	CEDAR CK	FW														
C-075	P	CEDAR CK	FW														
03050110060																	
C-072	P	TOMS CK	FW					*	35	0.001							
C-579	BIO	TOMS CK	FW														
03050110070																	
C-007	P	CONGAREE RVR	FW					*	130	0.003	2	0	0		*	162	-0.104

CONGAREE RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	GEO MEAN	BACT N	BACT EXC.	BACT %	MEAN EXC.	TRENDS (87-2001) BACT	N	MAG	NH3 N	NH3 EXC.	NH3 %	CD N	CD EXC.	CD %	MEAN EXC.
03050110010																		
CSB-001L	P	CONGAREE RVR	FW	56.0	47	5	11	1224.0	D	159	-3.527	46	0	0	16	0	0	
CSB-001R	P	CONGAREE RVR	FW	53.2	47	3	6	1813.3	D	158	-5.336	47	0	0	16	0	0	
C-021	S	MILL CK	FW	90.8	38	4	11	2372.5	D	94	-15.983	6	0	0	4	0	0	
C-022	S	MILL CK	FW	35.1	37	1	3	670.0	*	90	1.127	6	0	0	3	0	0	
C-073	S	REEDER POINT BRANCH	FW	586.9	38	22	58	9729.5	*	54	0	7	0	0	4	0	0	
C-074	P	CONGAREE RVR	FW	60.7	54	5	9	1920.0	D	56	-6.395	47	0	0	18	0	0	
C-010	BIO	BIG BEAVER CK	FW															
RS-01041	RS01	BATES MILL CK	FW	118.7	13	1	8	470.0				6	0	0	4	0	0	
03050110020																		
C-580	BIO	RED BANK CK	FW															
C-066	S	RED BANK CK	FW	15.3	36	0	0		I	95	0.988	5	0	0	3	0	0	
C-067	S	RED BANK CK	FW	92.2	35	5	14	2486.0	*	92	1.08	5	0	0	3	0	0	
C-565	BIO	CONGAREE CK	FW															
C-583	BIO	SECOND CREEK	FW															
C-061	S/BIO	SAVANA BRANCH	FW	185.7	36	5	14	1054.0	*	95	4.147	5	0	0	3	0	0	
C-008	P	CONGAREE CK	FW	98.1	61	6	10	615.0	*	175	0	50	0	0	18	0	0	
C-025	S	LAKE CAROLINE	FW	396.5	35	15	43	1807.3	*	92	9.974	4	0	0	2	0	0	
C-005	S	SIXMILE CK	FW	250.4	38	10	26	1056.0	I	96	9.705	6	0	0	3	0	0	
C-070	SE	CONGAREE CK	FW	98.4	22	0	0		*	30	-7.662	15	0	0	6	0	0	
03050110030																		
C-048	S	LAKE, WINDSOR	FW	13.6	35	1	3	430.0	*	91	0.496	5	0	0	3	0	0	
C-068	P	LAKE, FOREST	FW	26.6	59	4	7	637.5	*	171	-0.311	51	0	0	21	1	5	20
C-001	P	GILLS CK	FW	278.3	61	18	30	4760.0	*	176	-2.686	53	0	0	21	0	0	
C-017	P	GILLS CK	FW	179.5	61	12	20	2167.5	D	179	-33.5	51	0	0	21	0	0	
03050110040																		
C-009	SE/BIO	SANDY RUN	FW	115.7	23	1	4	900.0	*	31	-6.89	16	0	0	7	0	0	
03050110050																		
C-578	BIO	MYERS CREEK	FW															
C-069	S/BIO	CEDAR CK	FW	139.7	23	3	13	1206.7	*	76	-1.426							
C-071	BIO	CEDAR CK	FW															
C-075	P	CEDAR CK	FW	58.6	61	4	7	975.0	*	62	-4.321	52	0	0	21	0	0	
03050110060																		
C-072	P	TOMS CK	FW	204.0	61	14	23	752.9	*	68	10.55	52	0	0	21	0	0	
C-579	BIO	TOMS CK	FW															
03050110070																		
C-007	P	CONGAREE RVR	FW	57.4	61	4	7	1070.0	D	168	-2.062	52	0	0	20	0	0	

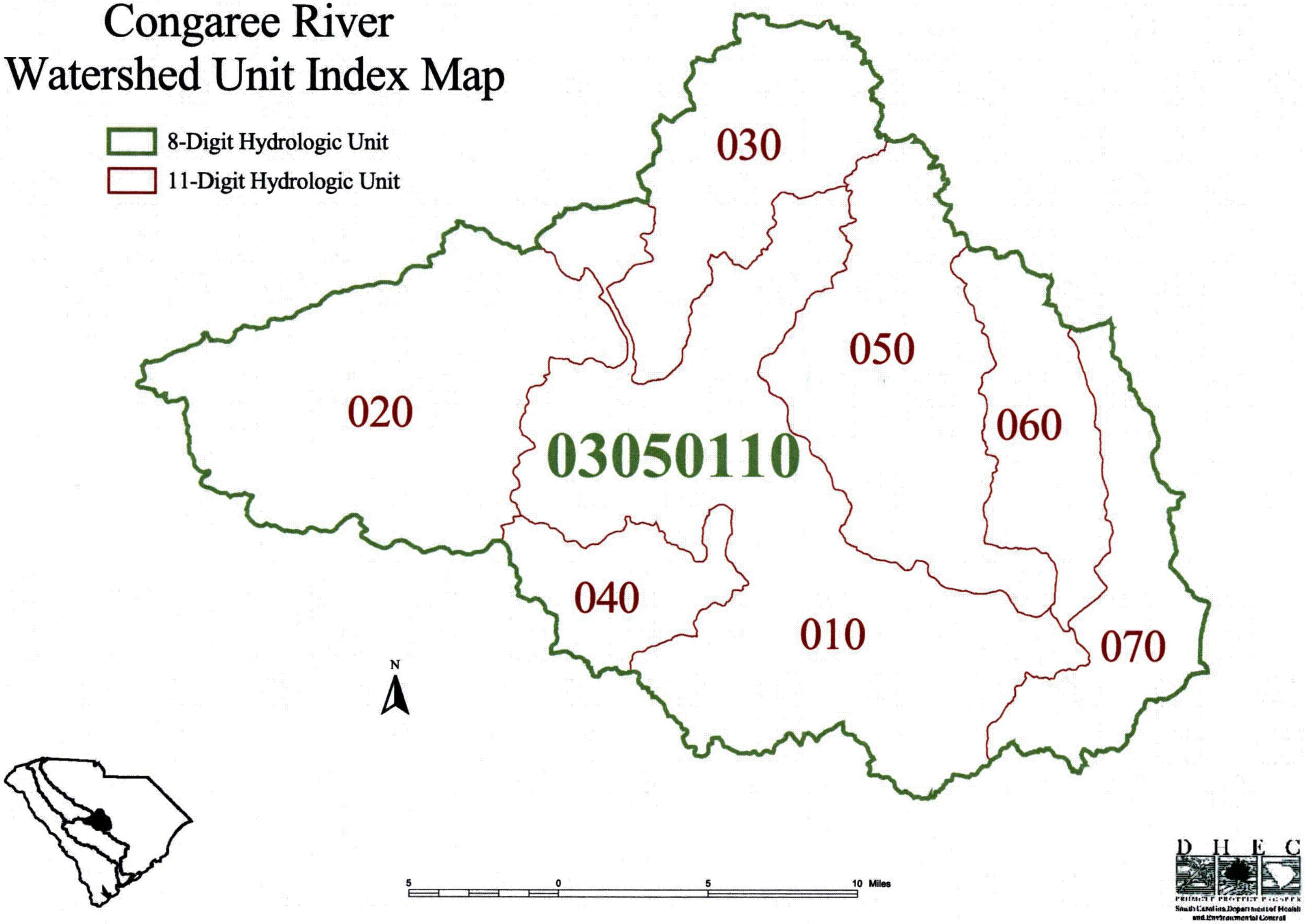
CONGAREE RIVER BASIN WATER QUALITY SUMMARY

STATION NUMBER	TYPE	WATERBODY NAME	CLASS	CR N	CR EXC.	CR %	MEAN EXC.	CU N	CU EXC.	CU %	MEAN EXC.	PB N	PB EXC.	PB %	MEAN EXC.	HG N	HG EXC.	HG %
	03050110010																	
CSB-001L	P	CONGAREE RVR	FW	16	0	0		16	0	0		16	0	0		16	0	0
CSB-001R	P	CONGAREE RVR	FW	16	0	0		16	1	6	20	16	0	0		16	0	0
C-021	S	MILL CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
C-022	S	MILL CK	FW	3	0	0		3	0	0		3	0	0		3	0	0
C-073	S	REEDER POINT BRANCH	FW	4	0	0		4	0	0		4	0	0		4	0	0
C-074	P	CONGAREE RVR	FW	18	0	0		18	1	6	46	18	0	0		18	0	0
C-010	BIO	BIG BEAVER CK	FW															
RS-01041	RS01	BATES MILL CK	FW	4	0	0		4	0	0		4	0	0		4	0	0
	03050110020																	
C-580	BIO	RED BANK CK	FW															
C-066	S	RED BANK CK	FW	3	0	0		3	0	0		3	0	0		3	0	0
C-067	S	RED BANK CK	FW	3	0	0		3	0	0		3	0	0		3	0	0
C-565	BIO	CONGAREE CK	FW															
C-583	BIO	SECOND CREEK	FW															
C-061	S/BIO	SAVANA BRANCH	FW	3	0	0		3	1	33	22	3	0	0		3	0	0
C-008	P	CONGAREE CK	FW	18	0	0		18	0	0		18	0	0		17	0	0
C-025	S	LAKE CAROLINE	FW	2	0	0		2	0	0		2	0	0		2	0	0
C-005	S	SIXMILE CK	FW	3	0	0		3	0	0		3	0	0		3	0	0
C-070	SE	CONGAREE CK	FW	6	0	0		6	0	0		6	0	0		6	0	0
	03050110030																	
C-048	S	LAKE, WINDSOR	FW	3	0	0		3	0	0		3	0	0		3	0	0
C-068	P	LAKE, FOREST	FW	21	0	0		21	0	0		21	0	0		21	0	0
C-001	P	GILLS CK	FW	21	0	0		21	1	5	40	21	0	0		21	0	0
C-017	P	GILLS CK	FW	21	0	0		21	0	0		21	0	0		21	0	0
	03050110040																	
C-009	SE/BIO	SANDY RUN	FW	7	0	0		7	1	14	20	7	0	0		7	0	0
	03050110050																	
C-578	BIO	MYERS CREEK	FW															
C-069	S/BIO	CEDAR CK	FW															
C-071	BIO	CEDAR CK	FW															
C-075	P	CEDAR CK	FW	21	0	0		21	1	5	23	21	0	0		21	0	0
	03050110060																	
C-072	P	TOMS CK	FW	21	0	0		21	0	0		21	0	0		20	0	0
C-579	BIO	TOMS CK	FW															
	03050110070																	
C-007	P	CONGAREE RVR	FW	20	0	0		20	0	0		20	0	0		20	0	0

CONGAREE RIVER BASIN WATER QUALITY SUMMARY

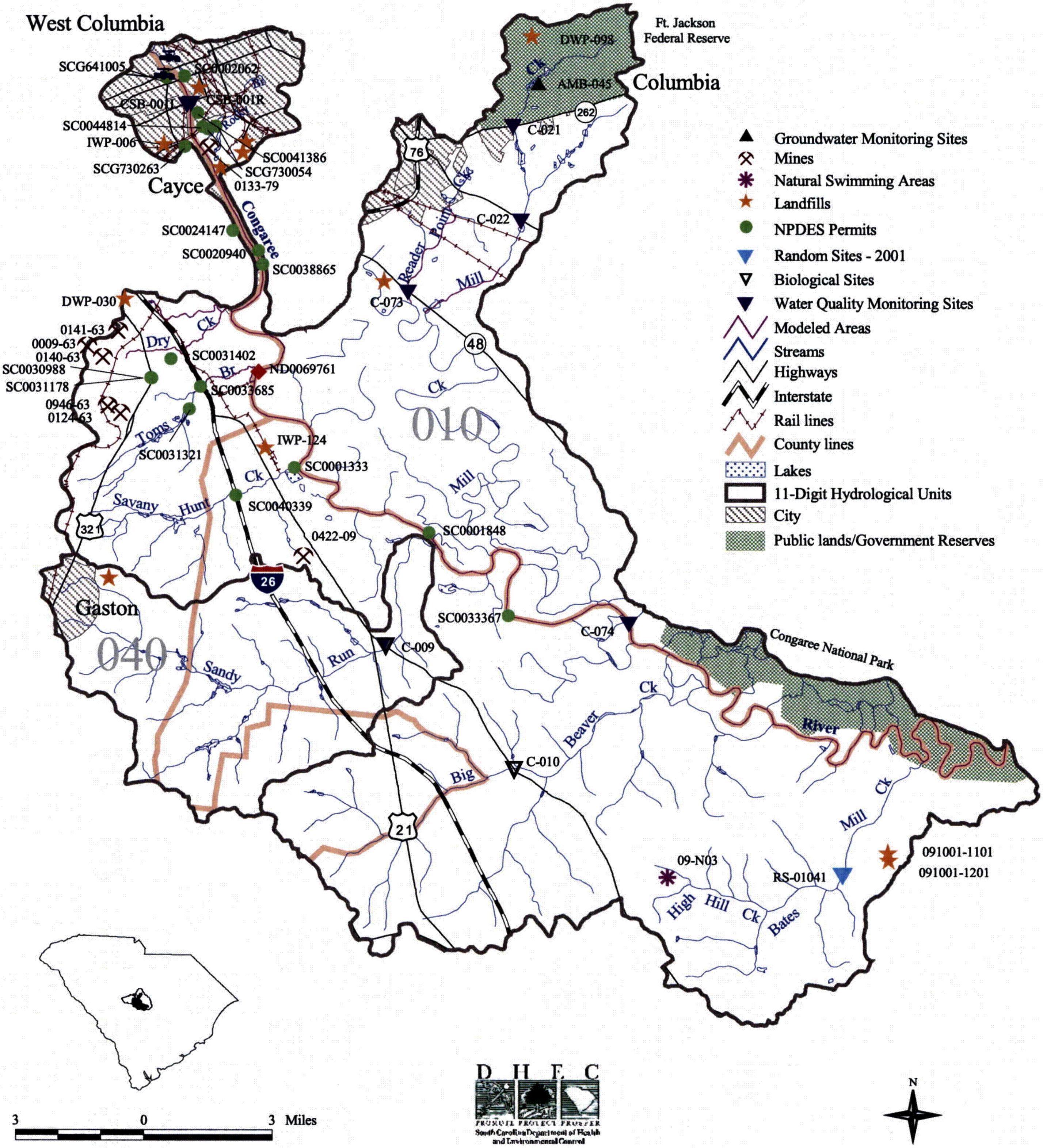
STATION NUMBER	TYPE	WATERBODY NAME	CLASS	NI N	NI EXC.	NI %	MEAN EXC.	ZN N	ZN EXC.	ZN %	MEAN EXC.
03050110010											
CSB-001L	P	CONGAREE RVR	FW	16	0	0		16	0	0	
CSB-001R	P	CONGAREE RVR	FW	16	0	0		16	2	13	205
C-021	S	MILL CK	FW	4	0	0		4	0	0	
C-022	S	MILL CK	FW	3	0	0		3	0	0	
C-073	S	REEDER POINT BRANCH	FW	4	0	0		4	0	0	
C-074	P	CONGAREE RVR	FW	18	0	0		18	0	0	
C-010	BIO	BIG BEAVER CK	FW								
RS-01041	RS01	BATES MILL CK	FW	4	0	0		4	0	0	
03050110020											
C-580	BIO	RED BANK CK	FW								
C-066	S	RED BANK CK	FW	3	0	0		3	0	0	
C-067	S	RED BANK CK	FW	3	0	0		3	0	0	
C-565	BIO	CONGAREE CK	FW								
C-583	BIO	SECOND CREEK	FW								
C-061	S/BIO	SAVANA BRANCH	FW	3	0	0		3	0	0	
C-008	P	CONGAREE CK	FW	18	0	0		18	0	0	
C-025	S	LAKE CAROLINE	FW	2	0	0		2	0	0	
C-005	S	SIXMILE CK	FW	3	0	0		3	0	0	
C-070	SE	CONGAREE CK	FW	6	0	0		6	0	0	
03050110030											
C-048	S	LAKE, WINDSOR	FW	3	0	0		3	0	0	
C-068	P	LAKE, FOREST	FW	21	0	0		21	1	5	100
C-001	P	GILLS CK	FW	21	0	0		21	1	5	110
C-017	P	GILLS CK	FW	21	0	0		21	0	0	
03050110040											
C-009	SE/BIO	SANDY RUN	FW	7	0	0		7	0	0	
03050110050											
C-578	BIO	MYERS CREEK	FW								
C-069	S/BIO	CEDAR CK	FW								
C-071	BIO	CEDAR CK	FW								
C-075	P	CEDAR CK	FW	21	0	0		21	0	0	
03050110060											
C-072	P	TOMS CK	FW	21	0	0		21	0	0	
C-579	BIO	TOMS CK	FW								
03050110070											
C-007	P	CONGAREE RVR	FW	20	0	0		20	0	0	

Congaree River Watershed Unit Index Map



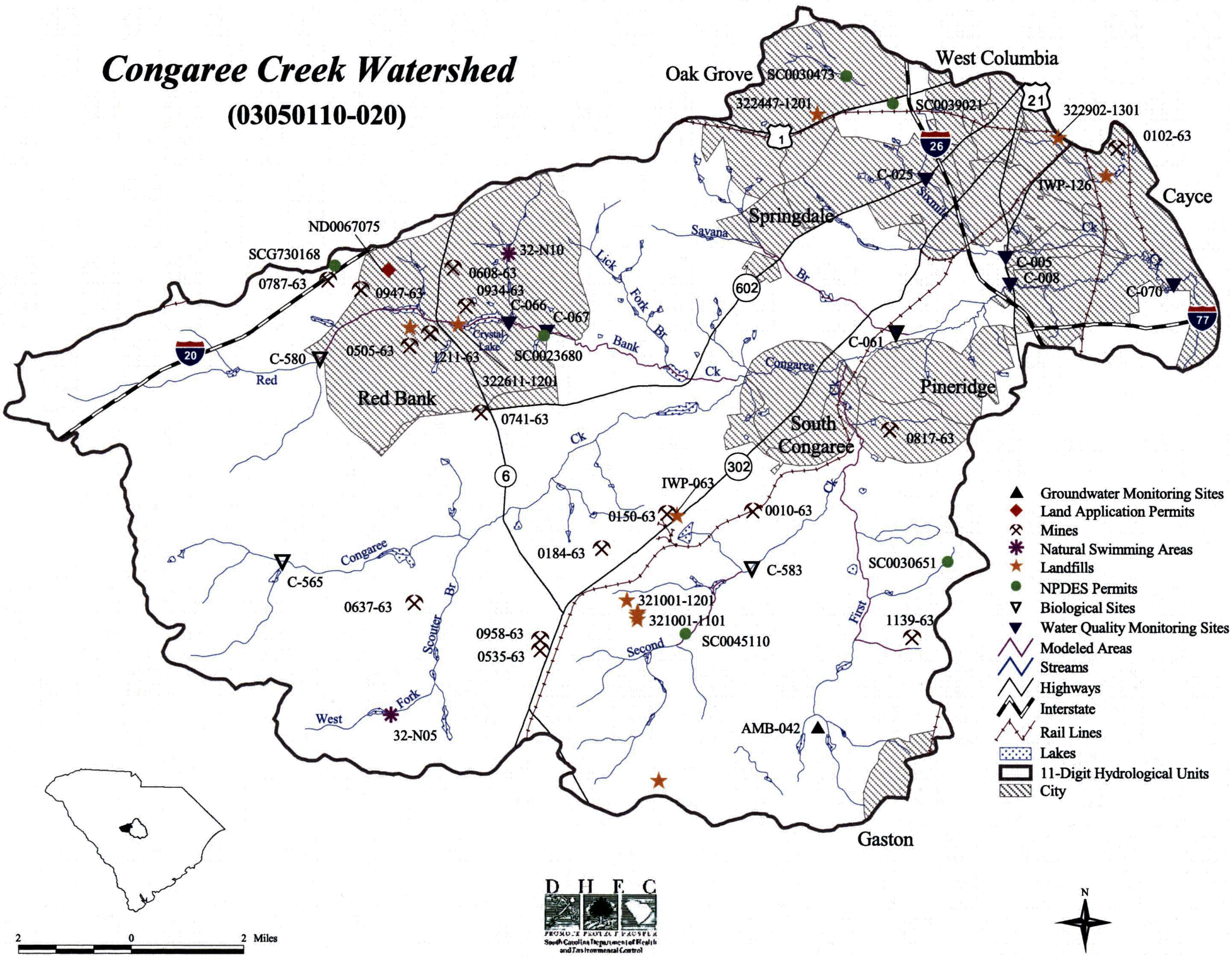
Congaree River and Sandy Run Watersheds

(03050110-010 & 040)



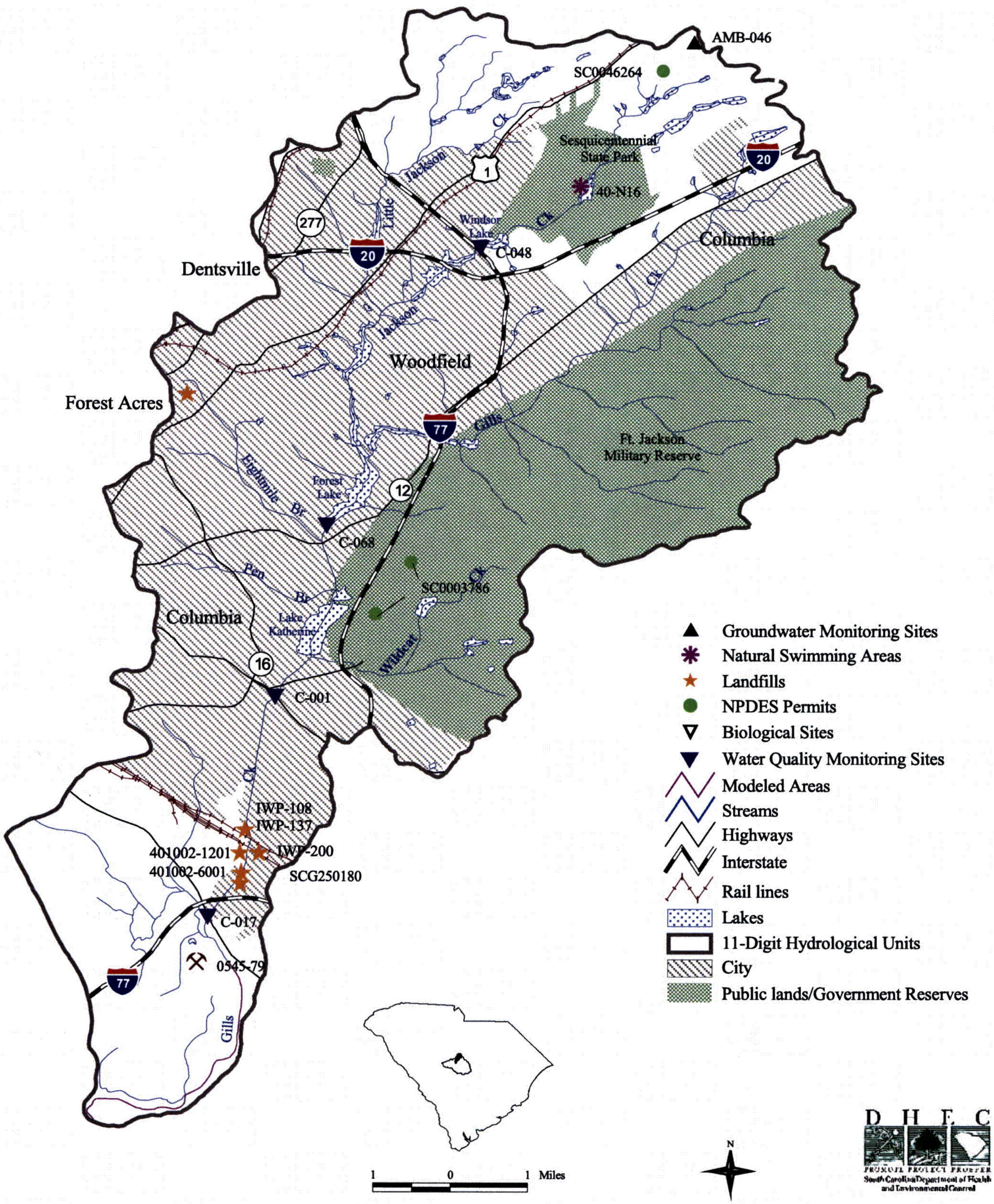
Congaree Creek Watershed

(03050110-020)



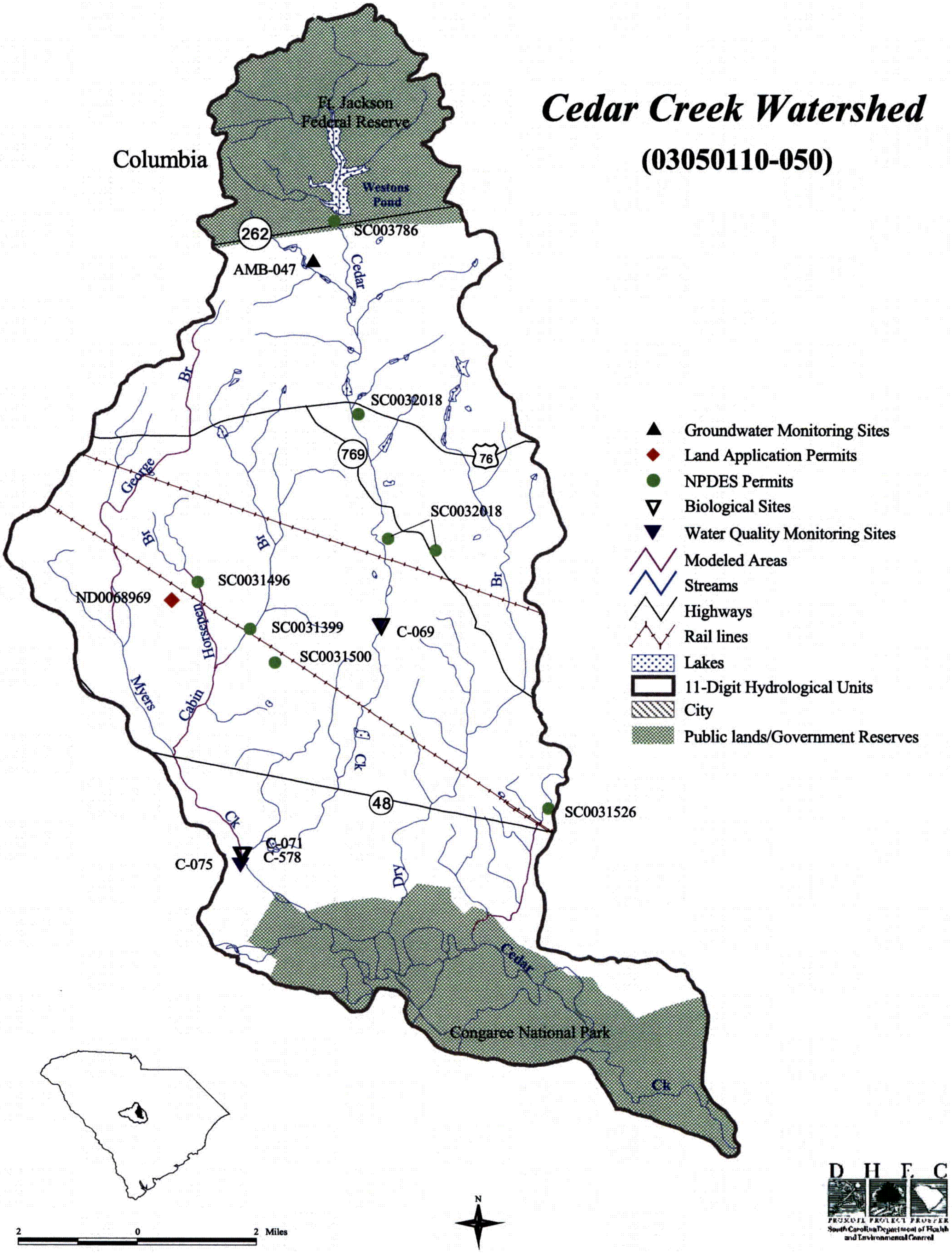
Gills Creek Watershed

(03050110-030)



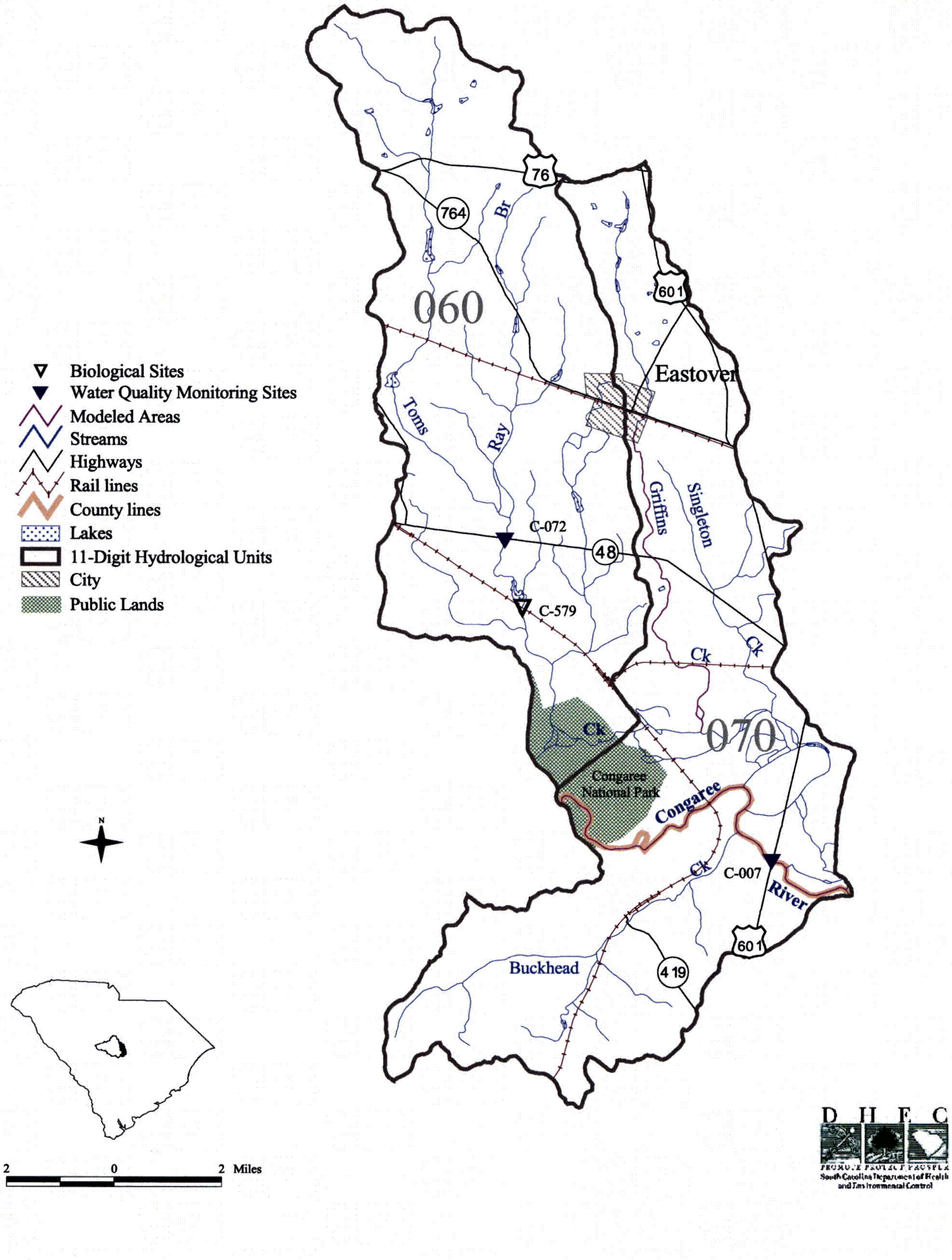
Cedar Creek Watershed

(03050110-050)



Toms Creek and Congaree River Watersheds

(03050110-060 & 070)



Waterbody Index

Facility Index

Facility Permit Number Index

Land Application

Mining

Natural SwimmingAreas

Landfills

D H E C

PROMOTE PROTECT PROSPER

www.scdhec.gov

Promoting and protecting the health of the public and the environment.

CR-006336 11/04

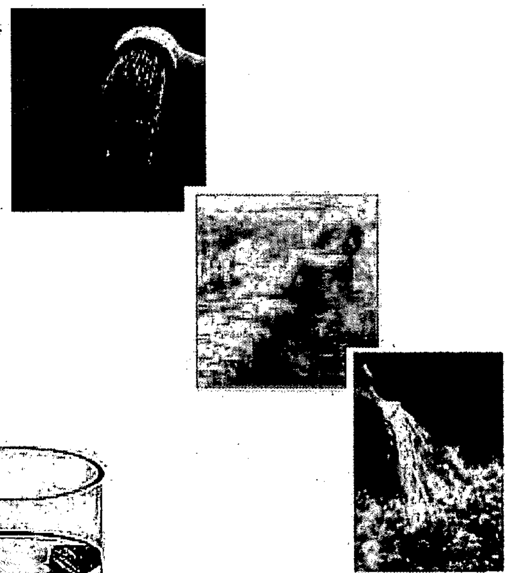
Sect 9.3 Ref. 24

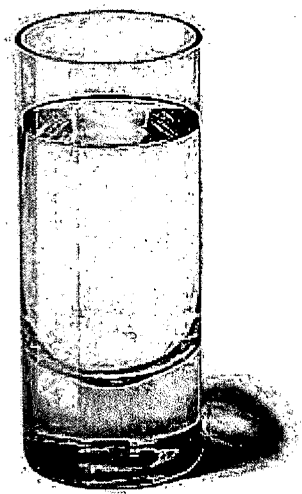
South Carolina Water Use Report

2004 Annual Summary

Bureau of Water

South Carolina Department of Health and Environmental Control





D H E C

PROMOTE PROTECT PROSPER

www.scdhec.net/water

PROMOTE PROTECT PROSPER

South Carolina Water Use Report
2004 Summary

South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, SC 29201

Compiled by:
Jack M. Childress
Paul L. Bristol, PG
Groundwater Management Section

Bureau of Water
Alton C. Boozer, Chief

Water Monitoring, Assessment, and Protection Division
David Baize, Director

Groundwater Management Section
Robert Devlin, Manager

Technical Document Number: 004-05

Bureau of Water
July 2005

Forward

The South Carolina Department of Health and Environmental Control (DHEC) is committed to the responsible management of South Carolina's water resources by encouraging continued conservation and reasonable use to ensure a sustainable supply for present and future demands. The South Carolina *Surface Water Withdrawal and Reporting Act*, §49-4-10 et. seq., and the South Carolina *Groundwater Use and Reporting Act*, §49-5-10 et. seq., require water users that withdraw three (3) million gallons or greater in any month to register with and report that use annually to the Water Use Program at DHEC.

Water Use data is used by the State of South Carolina to better define the distribution and demand for our surface and groundwater resources across the state. Data from the Water Use Program at DHEC is shared between other local, state, and federal regulatory and scientific agencies to establish a common understanding of the demands placed upon our water resources. This common database has proven critical in water management decisions and water use conflict resolution.

Statistics utilized in this report represent data obtained from registered users of the Water Use Program. Consumptive use from private domestic wells, small surface water irrigation intakes, facilities that do not meet the reporting threshold, or data from facilities failing to report their annual water use are not included in this annual summary.

If you have questions about this or previous Annual Water Use Reports, or would like to obtain further information about reported water withdrawals in South Carolina, please contact:

Water Use Program
SCDHEC Bureau of Water
2600 Bull Street
Columbia, SC 29201
www.scdhec.net/water

Table of Contents

Appendices

Table of Figures

Introduction

South Carolinians have enjoyed an available fresh water supply that is clean, abundant, easily attainable and, for all practical purposes, inexhaustible. In South Carolina today, close to 1.2 million people rely on groundwater and 2.8 million people rely on surface water for their drinking water and sundry uses. According to the U.S. Census Bureau, South Carolina will increase its population by 600,000 people by 2025 and the U.S. Department of Agriculture reports development converts approximately 100,000 acres per year to urban uses. This growth and development in the state has placed increasing demand on our water supplies. With limited and sporadic rainfall events, groundwater systems and surface water bodies under continuous natural discharge and human use (pumpage) showed steady and, at times, drastic water level declines with numerous waterways reaching record low flow conditions. Due to the low flow conditions, excursions of saltwater inland along coastal waterways threatened some surface water intakes. Some homeowners relying on shallow water wells have been forced to drill deeper wells or seek alternate sources of water supply.

In conjunction with natural conditions, the continued impact to groundwater systems through human induced contamination (physical and chemical) or natural impact demonstrate the vulnerability of this finite resource and the continuing need to closely monitor, manage and preserve the resource in South Carolina for current and future generations. The state General Assembly declared that,

"...the groundwater resources of the State be put to beneficial use to the fullest extent to which they [are] capable and to provide and maintain conditions which are conducive to the development and use of all water resources."

Consistent and accurate data collection is requisite in establishing water use trends and implementing reasonable management strategies. Water use reporting outside of designated Capacity Use Areas has been historically voluntary. As of January 1, 2001, anyone withdrawing groundwater or surface water in excess of three (3) million gallons per month (in any month) must register and report that use annually to the South Carolina Department of Health and Environmental Control (Department). Registration and reporting is now a requirement of law and the Department has authority to take enforcement action against those not reporting.

Purpose and Methodology

The purpose of the annual *South Carolina Water Use Report* is to summarily present reported water use in South Carolina by county and use category during calendar year 2004. The Department maintains and continually updates the water use and facility databases utilized in this report. Water use data were collected by annual reporting of water use by registered users, as required and mandated by state law, and are reported in **million gallons** unless stated otherwise.

South Carolina Climate

The climate in South Carolina is affected by many factors, notably its location in the mid-latitudes and its proximity to the Atlantic Ocean. During the summer, ocean current-driven air masses such as the Bermuda High routinely push tropical air from the Gulf of Florida upland from the coast. These warm, moist currents collide with cooler, drier air masses to generate rainfall, and at times, severe thunderstorms. In contrast, the Appalachian region in the northwest portion of the state experiences cooler temperatures, owing in part to orographic lifting of air masses and subsequent cooling effect provided by the increase in altitude. Altitude change also causes the additional phenomenon of down slope heating as air masses from the mountains settle and compress over the eastern Blue Ridge and Piedmont region. During the winter months, the highlands of the Blue Ridge escarpment deflect northerly cold air to the southwest, often lessening the impact of major cold fronts and winter storms.

The vast majority of the state is classified as humid subtropical except in the Blue Ridge physiographic province, where it is humid continental. Average temperature varies from the mid-50's in the mountains to low-60's along the coast. The average annual precipitation is approximately 48 inches, with an annual total in the mountains of 70 to 80 inches, an annual total in the Midlands of 42 to 47 inches and an annual total along the coast of 50 to 52 inches. According to the South Carolina State Climatology Office, no month in South Carolina averages less than two inches of precipitation, regardless of location within the state. Measurable snowfall is rare, occurring one to three times a year with accumulations seldom remaining more than a day or two. Since 1900 severe droughts have occurred statewide in 1925, 1933, 1954, 1977, 1983, 1986, 1990, 1993, and most recently 1998. The latest multiyear drought was one of the most severe in South Carolina's history, with average precipitation, groundwater levels, and stream flows at or near record lows. The drought that officially began in June 1998 abated in the late summer of 2002 with the onset of more seasonal (and in some locations torrential) precipitation for many parts of South Carolina.

South Carolina Geography and Hydrology

Geography and Physiography

South Carolina has a distinct natural beauty and an ecological diversity covering nearly 31,189 square miles, with approximately 30,111 square miles land area, 1,078 square miles inland or coastal waterways and 135 miles of coastline. The diversity we experience is resultant of climatic conditions, geology and three major physiographic regions: the Blue Ridge, the Piedmont and the Coastal Plain (**Figure 1**). The physiographic regions exhibit variations in topography, geology, hydrology and vegetation that directly affect the quantity, quality and availability of water resources in South Carolina.

Blue Ridge

The Blue Ridge physiographic province is located in the extreme northwest portion of Oconee and Pickens counties, and is distinguished from other parts of South Carolina by greater elevations (1,000 – 3,300 feet) and surface relief. Dissected mountains, rugged hills and thick forest regions characterize the land surface. Surface water in the Blue Ridge takes the form of high gradient creeks and streams and natural or man-made lakes, while groundwater occurs in the fractures of the bedrock and a thin veneer of soil and saprolite. In general, water quality of streams and groundwater is excellent in the Blue Ridge owing to the constant replenishment from abundant local rainfall.

Piedmont

The Piedmont physiographic province includes all counties, or portions of counties, northwest of and to the Fall Line, exclusive of those counties within the Blue Ridge province. Although similar to the Blue Ridge, the region demonstrates lower topographic relief, and therefore lower gradient streams, while elevations range from between 450 to 1000 feet above sea level. Counties in the Piedmont and Blue Ridge physiographic provinces depend primarily on the abundant regional rainfall that recharges lakes, reservoirs and major river systems. These surface water bodies constitute the primary source of water for public supply, industry, agriculture, and power production in the Piedmont Region.

Coastal Plain

The Coastal Plain physiographic province includes all counties, or portions of counties, extending from the Fall Line east to the Atlantic Ocean. Elevations of the exposed Coastal Plain range between 450 feet to sea level. Once below the Fall Line, rivers and streams assume a different character than found in the Piedmont. Where streams once rolled across exposed Piedmont rocks and tumbled down the occasional stretch of whitewater, the Coastal Plain dictates a slower pace and quiet meandering river channels with adjacent wetlands are common. Regional geology of the Coastal Plain is characterized by aquifers developed in layers of sands, silts, or high-permeability limestone confined by units of clay and silts or low-permeability limestone. The vast majority of South Carolina's water resources are contained as groundwater in the Coastal Plain, and in general, reliance on groundwater for irrigation, industrial uses, and public water supply increases dramatically east of the Fall Line (**Figure 7**). A generalized cross-section for the Coastal Plain aquifers is presented as **Figure 2**, and a brief outline of the major aquifers in South Carolina follows.

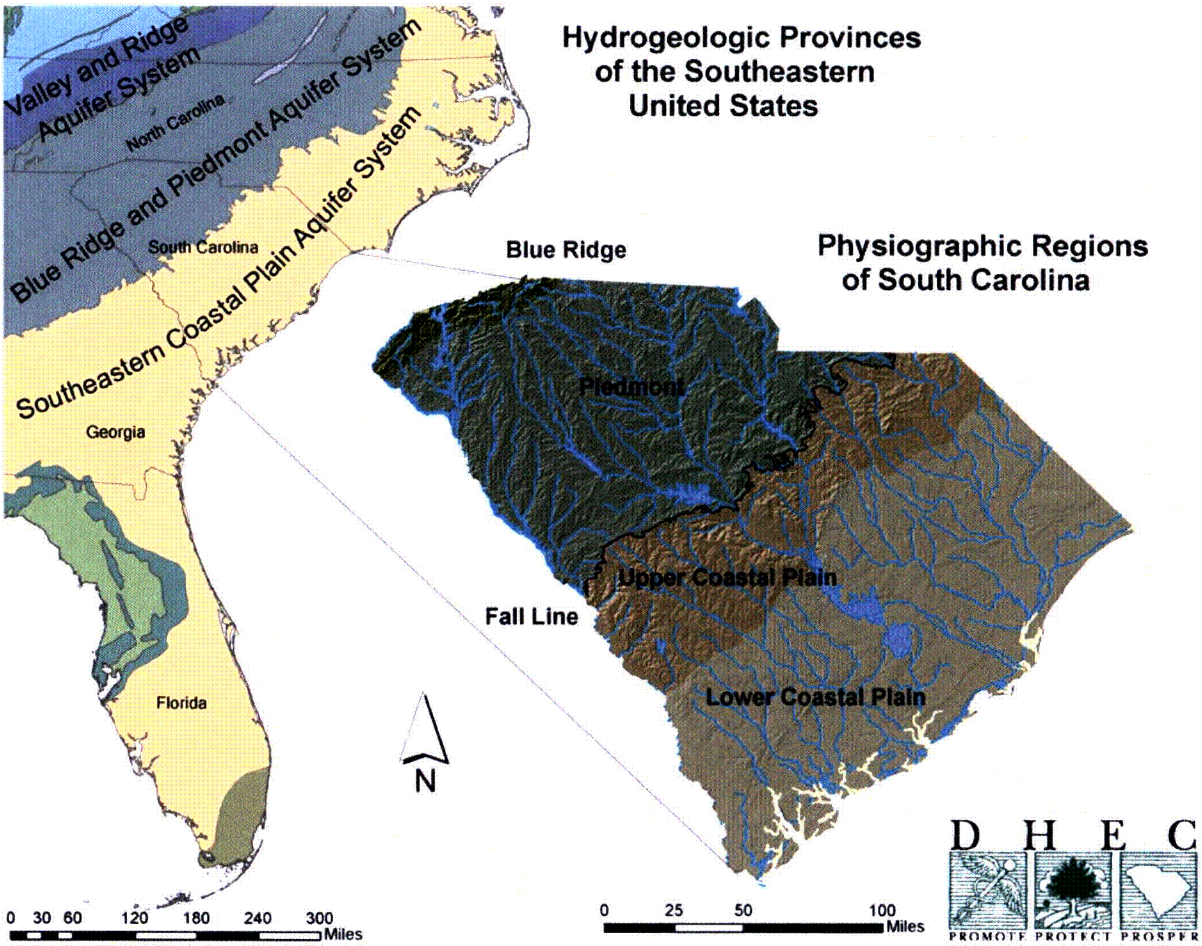


Figure 1: Hydrogeologic and Physiographic Setting for Water Use in South Carolina

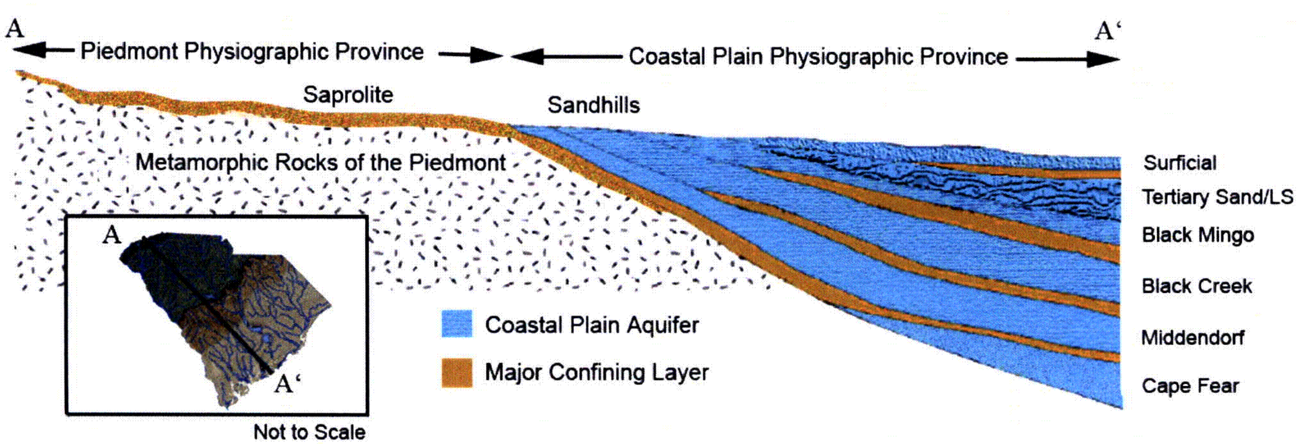


Figure 2: Generalized Hydrogeologic Cross-Section from the Blue Ridge through the Lower Coastal Plain in South Carolina

Groundwater Resources

Groundwater resources are found throughout the subsurface of South Carolina in varying quantities, qualities, and depths that reflect the nature of the geologic materials that host the respective aquifers. The following is a brief description of the State's major groundwater resources.

Crystalline Rock Aquifer System of the Blue Ridge and Piedmont

Geology of the Blue Ridge is typically characterized by clayey saprolite, ranging in depth from several feet to tens of feet, overlying metamorphic crystalline rock. The saprolite grades downward through a highly permeable transition zone to unaltered parent bedrock. Groundwater conditions of the bedrock are dependent on the number of fractures and degree of interconnection of the fracture systems. Groundwater moves slowly through the saprolite and discharges to surface water bodies, wells, or is released from storage to the underlying bedrock through fractures. Geology of the Piedmont is similar to that of the Blue Ridge, but the diminished relief allows for greater thickness of saprolite development. In general, wells in the Blue Ridge and Piedmont regions yield little water when compared to wells drilled in the Coastal Plain owing to the inherently low porosity and permeability of the crystalline rock present in the upstate.

Surficial Aquifer System

Shallow sands that comprise the Surficial aquifer are among the youngest of the Coastal Plain sediments and are found exclusively in the Lower Coastal Plain (**Figure 1**). This system is capable of producing water in modest amounts for irrigation and private drinking water supply, but is especially susceptible to contamination due to its shallow, unconfined nature. The Surficial sands are highly influenced by local precipitation and river stage and are especially prone to dramatic water level declines during times of drought.

Tertiary Limestone/Sand Aquifer System (Floridan Aquifer System)

In the southern half of the Coastal Plain, Tertiary aquifers consisting of sand grade southeastward into an ever thickening wedge of limestone. Development of the aquifer system is common in the Charleston, Dorchester, and Berkeley County area. Southwest of the Combahee and Salkehatchie Rivers, upper sections of the limestone become increasingly permeable owing to abundant voids created from dissolved marine fossils, and are capable of storing and supplying tremendous amounts of water. The majority of utilization of the aquifer occurs near the upper, highly permeable zone that supplies the majority of residential wells in Beaufort and Jasper Counties, and is the primary source of water for public supply, irrigation, and industry in the Low Country. This southern section of the Tertiary Limestone correlates regionally with the Upper Floridan Aquifer that extends from southern South Carolina to the southern keys of Florida.

Black Mingo Aquifer

Development of the Black Mingo is common in the vicinity of Charleston, Dorchester, and Berkeley counties, but has been largely overlooked south of Dorchester County owing to the increasingly prolific nature of the more shallow Tertiary Limestone (Floridan Aquifer System). Like the majority of Coastal Plain sediments, the nature of the aquifer differs dramatically from one area to the next. In the Charleston area, the aquifer is composed of permeable sand and limestone, while within the Upper Coastal Plain the Black Mingo is often a poorly producing aquifer composed of fine silt and clay, and therefore is unused in favor of the Middendorf or Tertiary Sand Aquifer.

Pee Dee Aquifer

The Pee Dee aquifer, where present, generally produces quality water at moderate rates. The aquifer matrix is composed of sand and silt separated by discontinuous intervals of clay. Development of the Pee Dee aquifer usually takes place in conjunction with the more prolific Black Creek aquifer and has become an excellent alternative to the often-overburdened Black

Creek for many uses, especially irrigation. The Pee Dee aquifer is most utilized in the northeast portion of the State, with the most demand centered between Florence and Horry Counties.

Black Creek Aquifer

Though present throughout much of the Coastal Plain, development of the Black Creek aquifer has been conducted primarily in the mid-to-northern portions of the Coastal Plain. The aquifer is composed of silt and fine sand with, with coarse sand in the Upper Coastal Plain. The Black Creek aquifer is an important source of water for public supply, irrigation, and industry from Marion County southeast to Georgetown County.

Middendorf Aquifer

The Middendorf Aquifer is a prolific source of water throughout the majority of the coastal plain and consists of coarse-grained fluvial sands near the Fall Line that grade to fine-grained marine sands and clay in the northern and eastern Lower Coastal Plain. The majority of the Pee Dee region, including Chesterfield, Darlington, Florence, and Marlboro Counties, as well as Orangeburg and Sumter Counties rely heavily on the Middendorf for irrigation, public supply, and industrial use. In the past decade, use of the Middendorf has increased along the southern coast in areas such as Charleston County.

Cape Fear Aquifer

Little information exists from this deep sand aquifer owing to the few wells that have penetrated the formation. In general, water quality from the Cape Fear aquifer is poor over much of its extent owing to ancient unflushed (connate) seawater and extensive mineralization. In South Carolina, the Cape Fear aquifer is largely unused.

Surface Water Resources

South Carolina's land surface is drained by eight (8) major river basins, all of which are critical to public water supply, irrigation, industry, and/or power generation. These major watersheds are shown as **Figure 3**, and a brief description of each major watershed follows.

Broad River Basin

The Broad River Watershed encompasses portions of North and South Carolina and drains the majority of Cherokee, Union, Spartanburg, and Greenville Counties. Portions of Chester, Fairfield, Richland and York counties are also included in the basin, and are drained by the Enoree, Pacolet, and Tyger Rivers, major tributary streams to the Broad River.

Catawba River Basin

Similar to the Broad River Basin, the watershed of the Catawba River drains counties in North and South Carolina east of a hydrologic divide in York, Chester, and Fairfield Counties. All or portions of the following counties lie within the basin: Chester, Fairfield, Kershaw, Lancaster, Richland, Sumter and York. The Catawba basin hosts Lake Wylie, Fishing Creek Reservoir, Lake Wateree, the Catawba and Wateree Rivers and associated tributary streams.

Edisto River Basin

The Edisto River Basin encompasses nearly all of Orangeburg County and portions of Aiken, Berkeley, Calhoun, Dorchester, and Lexington counties. The basin drains the central Coastal Plain and contains the North and South Forks of the Edisto River and tributaries, as well as numerous ecologically important wetland areas.

Pee Dee River Basin

The Pee Dee River Basin is the largest of South Carolina's watersheds and drains all or portions of Chesterfield, Darlington, Dillon, Georgetown, Horry, Kershaw, Lancaster, Lee, Marion, Marlboro, Williamsburg counties, and portions of southeastern North Carolina. The

Greater Pee Dee Watershed encompasses 5.1 million acres and includes the Pee Dee, Lynches, Waccamaw, and Sampit watersheds, as well as the Intracoastal Waterway and Winyah Bay.

Salkehatchie River Basin

The Salkehatchie basin is located entirely in the Coastal Plain and drains portions of Bamberg, Barnwell, Beaufort, Colleton, Hampton, and Jasper counties. The Coosawhatchie, Salkehatchie and Little Salkehatchie Rivers, along with their associated tributaries and local wetlands drain the basin and form tide-dominated distributary channels near the coast.

Saluda River Basin

The Saluda River Basin drains the central portion of South Carolina's Piedmont Region and encompasses major portions of Greenville and Pickens counties, as well as portions of Abbeville, Greenwood, Laurens, Lexington, Richland, and Saluda Counties. The basin includes all tributary streams to the Saluda River and Lakes Greenwood and Murray, the latter being a critical source for public water supply and hydroelectric power in central South Carolina.

Santee River Basin

The Santee River basin originates near the confluence of the Catawba and Broad River Basins and includes two of the State's largest reservoirs, Lake Marion and Lake Moultrie. These two major surface water resources are important power generating assets for the South Carolina. The basin drains Berkeley, Calhoun, Charleston, Clarendon, Dorchester, and small portions of Georgetown and Sumter Counties via tributaries of the Cooper, Santee and Ashley Rivers.

Savannah River Basin

The Savannah River Basin stretches from the Blue Ridge to the Atlantic Ocean and encompasses the border counties of South Carolina. The watershed drains major portions of Abbeville, Aiken, Allendale, Anderson, Edgefield, Greenwood, Hapton, McCormick, Oconee, and Pickens County, as well as adjacent counties in Georgia. The watershed includes the Savannah, Chatooga, Seneca, Little River, Stevens Creek, Rocky, and Tugaloo Rivers, and discharges approximately 8.0 billion gallons per day.

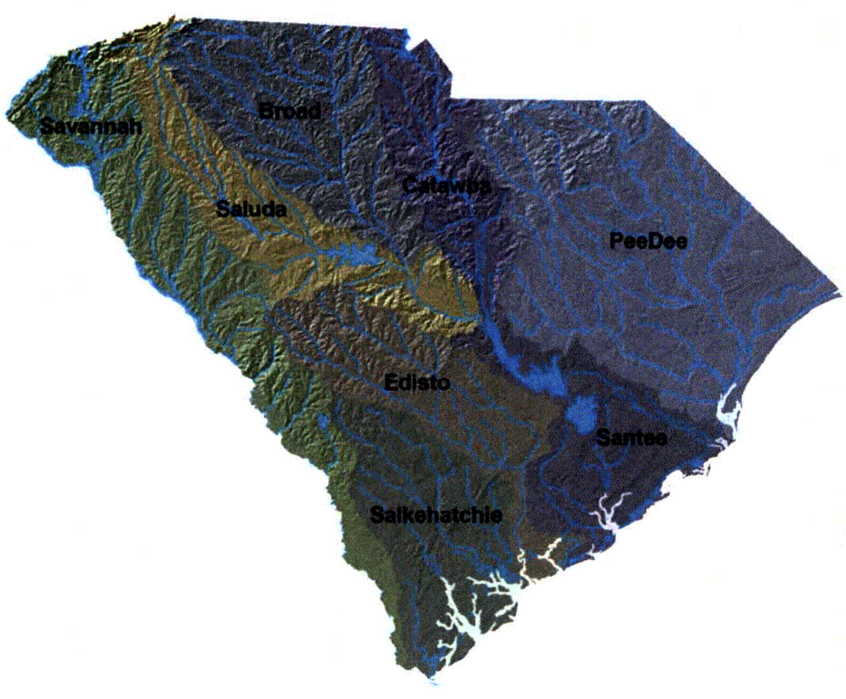


Figure 3: Major River Basins of South Carolina

Demographics

According to the 2000 Census, South Carolina's estimated population is 4,012,012. Approximately 54.6% of the population resides in an urban setting and approximately 45.4% reside in rural communities (**Figure 4**). South Carolina has approximately 25,000 farms, occupying 4,588,000 acres (7,170 square miles). Of this, approximately 2,500,000 acres (3,905 square miles) are cropland[1]. Major manufacturing industries are located along the I-26/I-85 corridor, specifically in the Greenville-Spartanburg Metropolitan Statistical Area (MSA), Columbia MSA, Charlotte-Gastonia-Rock Hill MSA and the Charleston MSA. Other manufacturing concentrations are located in the Augusta-Aiken MSA, and the Florence area[2]. South Carolina is served by 47 electric utilities and nine (9) generating utility companies with 51 power plants (206 generators) with a total rating capacity of 18,827.4 megawatts. Power production in the State (2004) totaled 94,363 million kilowatt hours[3].

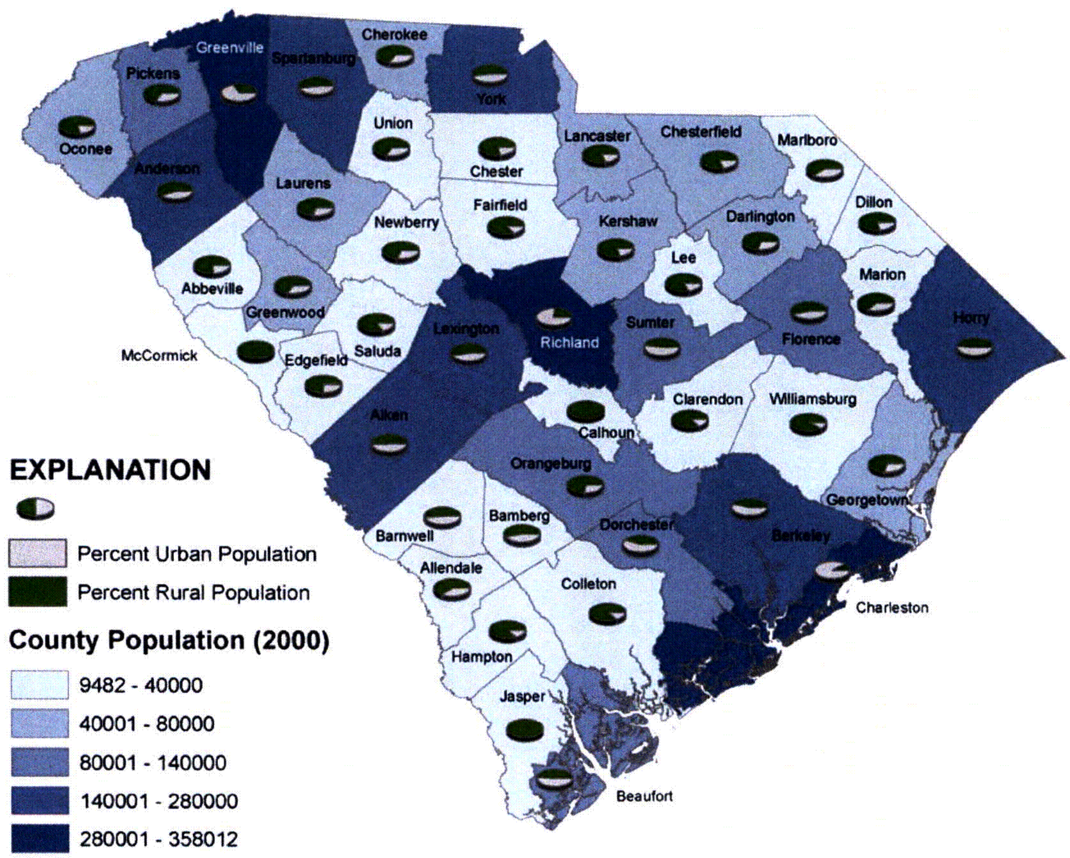


Figure 4: Population by County in South Carolina, 2000

[1] 1997 Census of Agriculture, Volume 1 Geographic Area Series, "Table 1. County Summary Highlights: 1997."

[2] S.C. Department of Commerce, 2000/2001 "South Carolina Industrial Directory."

[3] S.C. Budget and Control Board Statistical Abstract 2004

2004 Water Use Profile

Surface and Groundwater Use Summary by Category and County in South Carolina, 2004

The following section outlines all reported water use for the State of South Carolina for the calendar year 2004. Water use is summarized by category, and further tabulated on a county-by-county basis. Where appropriate, the spatial distribution of the magnitude of water use is demonstrated on an accompanying map with a breakdown chart of groundwater and surface water use as a percentage of total use for the category.

Reporting Water Withdrawers

For the reporting year 2004, South Carolina had registered 848 water withdrawers with 2425 sources, 481 surface water facilities with 712 sources and 536 groundwater facilities with 1,713 sources. It should be noted 169 facilities utilized both groundwater and surface water sources.

Water Use Category	Facilities	GW Source	SW Source
Golf Course	257	291	284
Water Supply	223	745	82
Irrigation	201	413	226
Industrial	94	209	55
Hydroelectric	30	1	31
Thermoelectric	19	13	22
Mining	12	13	4
Aquaculture	10	12	8
Other	2	16	NR
Total	**848**	**1713**	**712**

NR = None Reported

Total Reported Water Use

Total water use reported for 2004 was more than 18.8 trillion gallons from 848 reporting facilities. Surface water withdrawal from 481 facilities accounted for approximately 18.7 trillion gallons, approximately 99% of total water use. Groundwater withdrawal from 536 reporting facilities accounted for approximately 67.6 billion gallons or approximately 1%.

Water Use Category	Groundwater	Surface Water	Total	Percentage
Aquaculture	238.249	1,117.382	1,355.631	0.01%
Golf Courses	3,699.103	9,531.359	13,230.462	0.07%
Industrial	11,794.443	145,514.581	157,309.024	0.83%
Irrigation	13,992.558	10,127.311	24,119.869	0.13%
Mining	2,456.623	785.000	3,241.623	0.02%
Other	85.505	NR	85.505	0.0005%
Hydroelectric	1.181	15,202,999.340	15,203,000.521	80.68%
Thermoelectric	2,040.139	3,230,063.932	3,232,104.071	17.15%
Water Supply	39,764.832	169,699.471	209,464.303	1.11%

NR = None Reported

Water Use	1999	2000	2001	2002	2003	2004
Hydroelectric	12,160,642.62	10,281,681.91	9,796,267.91	11,415,081.44	18,958,207.77	15,203,000.521
Thermoelectric	2,326,627.77	2,240,508.37	1,624,984.88	2,467,042.32	3,558,474.88	3,232,104.071
Water Supply	221,911.79	148,265.21	193,525.29	212,402.79	197,088.27	209,464.303
Industrial	172,314.14	157,463.33	180,579.90	167,051.34	168,334.76	157,309.024
Irrigation	9,470.97	3,182.73	27,121.14	29,668.39	12,172.86	24,119.869
Golf Course	6,323.77	6,806.35	13,302.54	14,022.92	10,373.47	13,230.462
Mining	2,546.92	3,056.08	2,691.75	3,159.88	4,935.07	3,241.623
Aquaculture	35.97	13.67	865.17	2,283.95	1,451.98	1,355.631
Other	367.06	223.61	204.84	106.22	59.033	85.505
Total	14,900,241.01	12,841,201.26	11,839,543.42	14,310,819.25	22,911,098.09	18,843,911.009
Facilities	717	577	931	848	833	848

Water Use in Power Production

According to the 2001 Energy Use Profile, South Carolina has 9 power generating utility companies with 51 power plants containing 206 generators with a total rating capacity of 18,827.4 megawatts (2000). The type generators are as follows:

- 96- Hydraulic Turbine (conventional)
- 54- Gas Combustion Turbine
- 37- Steam Turbine (boiler)
- 16- Hydraulic Turbine (pump storage)
- 3- Internal Combustion (diesel)

The primary energy source for the generators is as follows:

- 112- Water
- 32- Diesel Fuel Oil
- 28- Coal
- 25- Natural Gas
- 7- Nuclear
- 2- Residual Fuel Oil

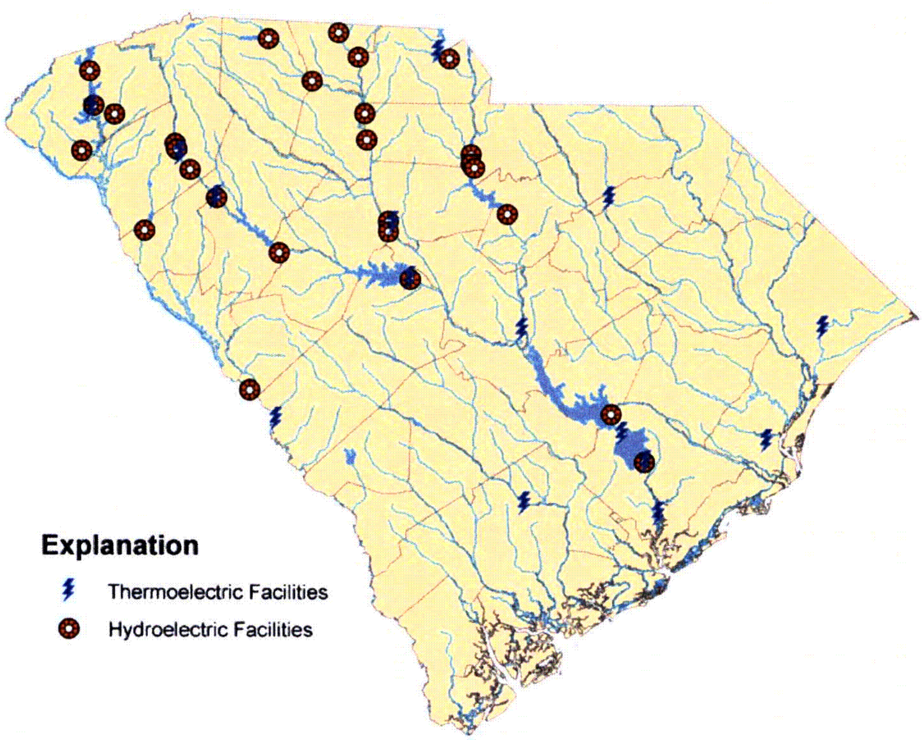


Figure 5: Distribution of Hydroelectric and Thermoelectric Facilities in South Carolina

Hydroelectric Water Use

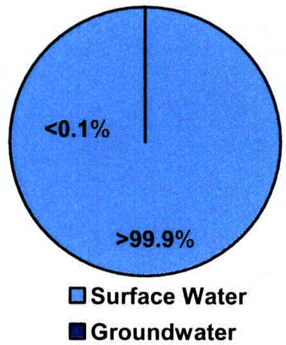
Hydroelectric facilities employ energy from flowing water to generate electricity. Hydroelectric facilities utilize *impoundments* (reservoirs), *diversion* (run-of river), *or pumped storage* (reversible turbines). Water use is typically non-consumptive flow-through, with temporary diversion from down stream users. Reported water use for 31 hydroelectric sources accounted for approximately 15.203 trillion gallons, approximately 82.44% of reported water use for power production and 80.68% of total reported water use for the year.

County	Surface Water	Groundwater	County Total
Abbeville	28,619.000	NR	28,619.000
Anderson	274.193	NR	274.193
Berkeley	1,213,836.312	1.181	1,213,837.493
Cherokee	455,113.000	NR	455,113.000
Chester	2,171,229.000	NR	2,171,229.000
Edgefield	999,809.310	NR	999,809.310
Fairfield	3,025,896.060	NR	3,025,896.060
Greenville	140,851.000	NR	140,851.000
Greenwood	317,017.000	NR	317,017.000
Kershaw	1,207,267.000	NR	1,207,267.000
Lancaster	1,093,794.000	NR	1,093,794.000
Laurens	149.400	NR	149.400
Lexington	201,784.930	NR	201,784.930
Oconee	12.200	NR	12.200
Pickens	2,611,758.000	NR	2,611,758.000
Richland	473,338.480	NR	473,338.480
Spartanburg	13,852.416	NR	13,852.416
Union	316,309.036	NR	316,309.036
York	932,089.000	NR	932,089.000

NR = None Reported

	Surface Water	Groundwater
Source Total:	15,202,999.337	1.181

Total Hydro Power Use (million gallons): 15,203,000.518



Average daily flow-through hydroelectric use for any of the 31 reporting facilities averaged 1.34 billion gallons of surface water per day in 2004

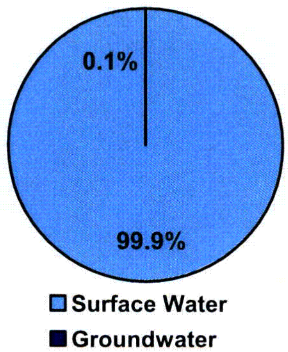
Thermoelectric Water Use

Thermoelectric facilities generate electricity by superheating water to steam then passing the steam under pressure to turbines. Boilers are fired by coal, nuclear power or residual fuel oil. Large volumes of cooling water are required to condense the steam to the liquid state. Reported water use for 19 thermoelectric sources accounted for more than 3.232 trillion gallons, approximately 17.56% of reported water use for power production and 17.15% of total reported water use for the year.

County	Surface Water	Groundwater	County Total
Aiken	46,744.000	NR	46,744.000
Anderson	37,417.276	NR	37,417.276
Berkeley	167,653.708	12.035	167,665.743
Cherokee	NR	1.326	1.326
Colleton	1,616.455	1.828	1,618.283
Darlington	285,140.000	363.509	285,503.509
Fairfield	246,543.778	NR	246,543.778
Georgetown	4,687.310	NR	4,687.310
Greenwood	116.137	NR	116.137
Horry	38,448.870	NR	38,448.870
Lexington	46,310.870	NR	46,310.870
Oconee	2,147,899.000	NR	2,147,899.000
Orangeburg	0.328	1,661.441	1,661.769
Richland	169,724.200	NR	169,724.200
York	37,762.000	NR	37,762.000

NR = None Reported

Thermoelectric Source Comparison



Average daily use for any thermoelectric facility (19 total) equaled 4.66 billion gallons of surface water per day

	Surface Water	Groundwater
Source Total:	3,230,063.932	2,036.985

Total Thermoelectric Use (million gallons):	**3,232,104.071**

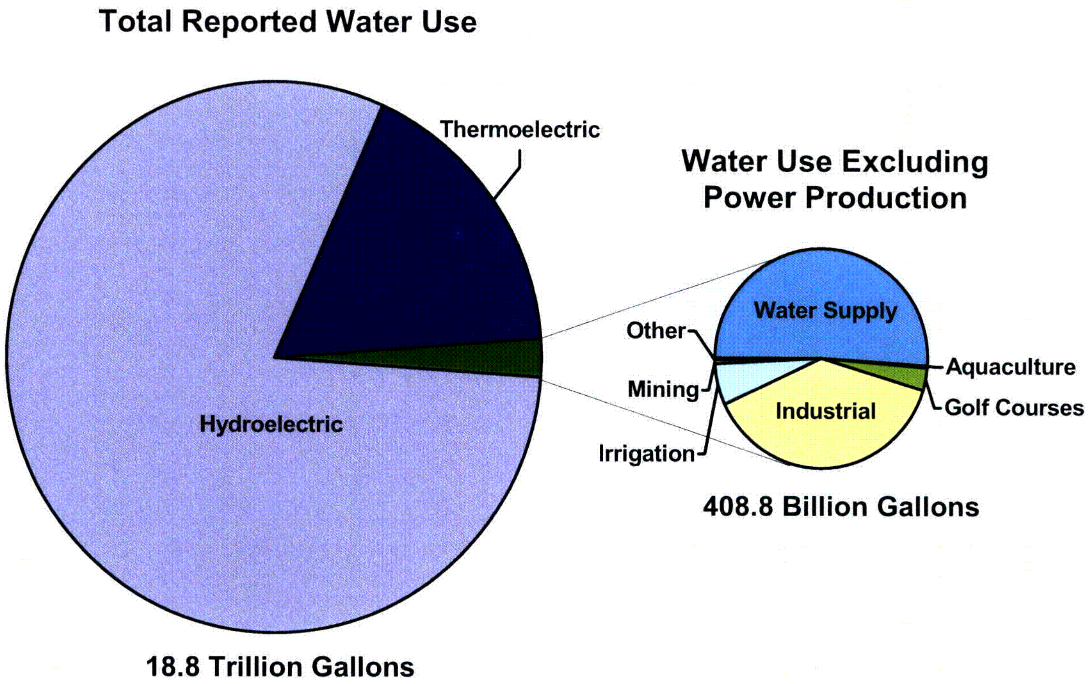


Figure 6: Reported Water Use by Category in South Carolina, 2004

Reported Water Use Excluding Power Production

During 2004, reported water use (excluding power production) totaled more than 408.8 billion gallons with surface water withdrawal accounting for 336.7 billion gallons or approximately 82.3%, and groundwater withdrawal accounting for 72.0 billion gallons or approximately 17.7%. Non-power production-oriented water use accounted for 2.2% of all reported water use in 2004.

	Groundwater	Surface Water	Total	Percentage of Total Non-Power Use
Aquaculture	238.249	1,117.38	1,355.63	0.33%
Golf Courses	3,699.10	9,531.36	13,230.46	3.24%
Industrial	11,794.44	145,514.58	157,309.02	38.48%
Irrigation	13,992.56	10,127.31	24,119.87	5.90%
Mining	2,456.62	785.00	3,241.62	0.79%
Other	85.505	NR	85.505	0.02%
Water Supply	39,764.83	169,699.47	209,464.30	51.24%
Total Non-Power Water Use			**408,806.42**	million gallons

NR = None Reported

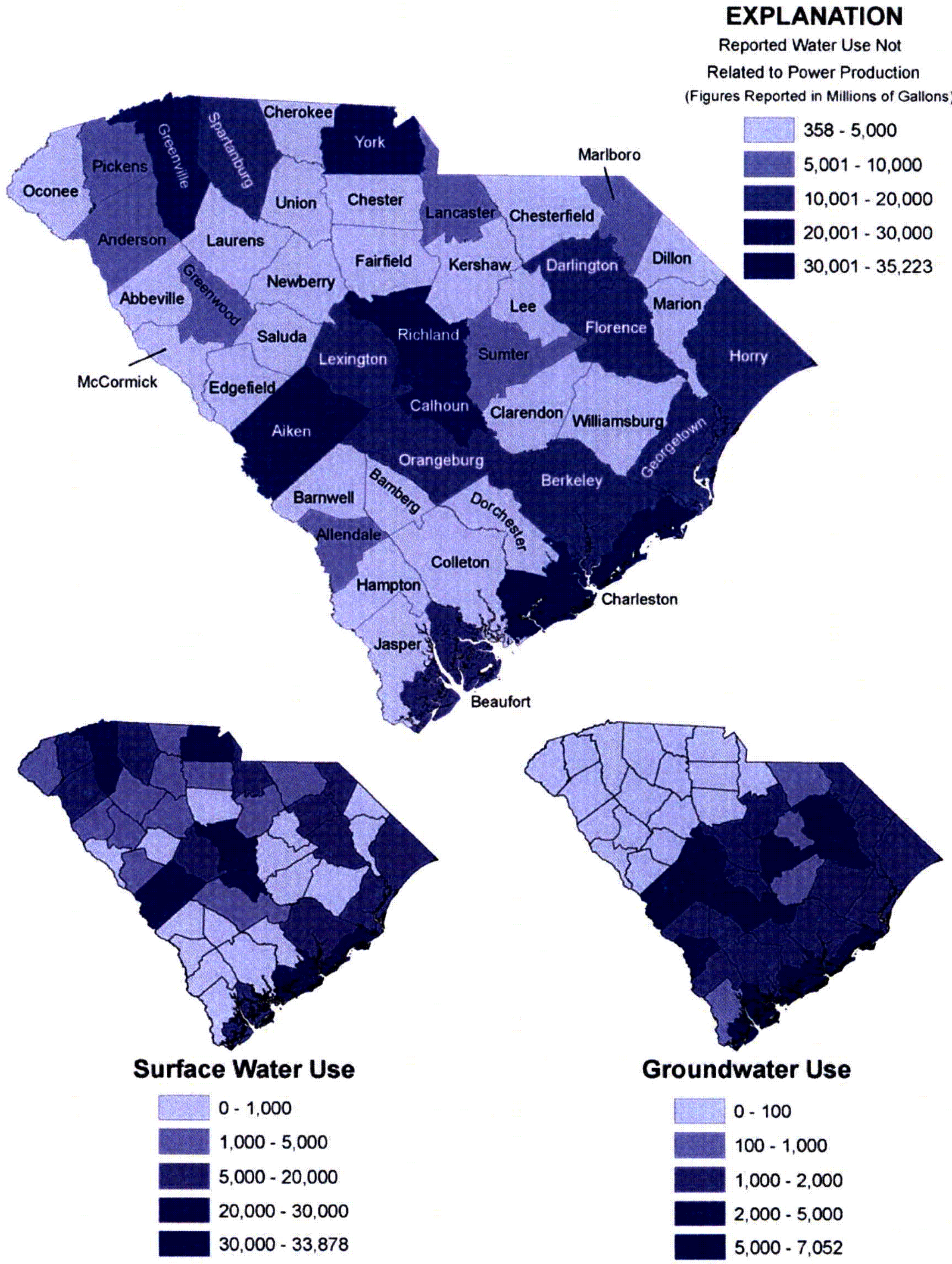


Figure 7: Distribution of Reported Water Usage Unrelated to Power Production, 2004. Figures in millions of gallons per year.

Water Supply

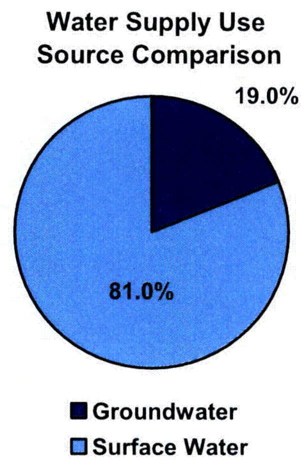
South Carolina has federally 1,551 defined public water systems, of which 685 are community water systems. The public water systems provide water to 3,450,928 citizens. Water withdrawal for public water supply from 223 reporting suppliers totaled 209.464 billion gallons, with 82 surface water sources accounting for 169.699 billion gallons and 745 groundwater sources accounting for 39.764 billion gallons.

County	Groundwater	Surface Water	County Total
Abbeville	2.798	1,017.236	1,020.034
Aiken	4,878.595	2,081.947	6,960.542
Allendale	408.135	NR	408.135
Anderson	NR	7,579.473	7,579.473
Bamberg	502.982	NR	502.982
Barnwell	1,085.024	NR	1,085.024
Beaufort	4,132.591	7,206.600	11,339.191
Berkeley	174.644	5,107.400	5,282.044
Calhoun	234.662	NR	234.662
Charleston	2,993.134	18,748.790	21,741.924
Cherokee	NR	3,536.200	3,536.200
Chester	NR	1,097.200	1,097.200
Chesterfield	618.460	1,028.890	1,647.350
Clarendon	729.432	NR	729.432
Colleton	809.169	NR	809.169
Darlington	2,505.969	NR	2,505.969
Dillon	1,706.404	NR	1,706.404
Dorchester	607.082	NR	607.082
Edgefield	NR	1,545.994	1,545.994
Fairfield	64.334	795.788	860.122
Florence	3,873.342	1,589.940	5,463.282
Georgetown	908.137	2,220.469	3,128.606
Greenville	38.137	23,801.700	23,839.837
Greenwood	27.127	4,900.928	4,928.055
Hampton	519.409	NR	519.409
Horry	951.496	14,045.400	14,996.896
Jasper	435.596	NR	435.596
Kershaw	674.355	1,818.655	2,493.010
Lancaster	NR	7,752.035	7,752.035
Laurens	NR	1,609.625	1,609.625
Lee	595.968	NR	595.968
Lexington	441.282	5,287.679	5,728.961
Marion	1,356.885	NR	1,356.885
Marlboro	983.436	NR	983.436
McCormick	NR	421.956	421.956
Newberry	30.956	2,270.162	2,301.118
Oconee	58.070	3,580.243	3,638.313
Orangeburg	675.943	3,007.440	3,683.383
Pickens	NR	3,982.405	3,982.405
Richland	334.976	23,259.800	23,594.776
Saluda	2.397	NR	2.397
Spartanburg	25.844	13,626.928	13,652.772
Sumter	5,675.104	NR	5,675.104
Union	NR	1,248.260	1,248.260
Williamsburg	689.090	NR	689.090
York	13.867	5,530.328	5,544.195

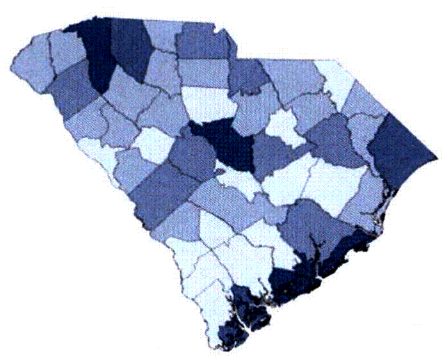
NR = None Reported

	Groundwater	Surface Water
Source Total:	39,764.832	169,699.471

Total Water Supply Use (millions of gallons):	**209,464.303**



Average daily use for any reporting water supply facility (223 total) in 2004 equaled 488,541 gallons of groundwater and 2,084,888 gallons of surface water per day.



Distribution of reported water supply water use in South Carolina, 2004. Darker shades indicate the highest use areas.

Industrial Use

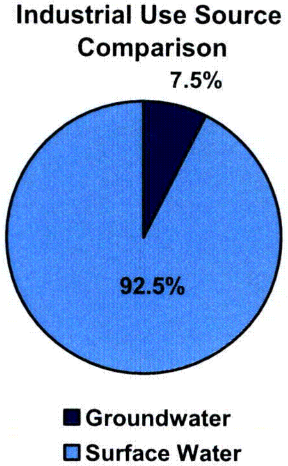
Water withdrawal for industrial use from 94 reporting industries totaled 157.309 billion gallons, with 55 surface water sources accounting for 145.514 billion gallons and 209 groundwater sources accounting for 11.794 billion gallons. Water use at industrial facilities is predominantly cooling water (contact and non-contact) with return to surface water systems through permitted NPDES discharges.

County	Groundwater	Surface Water	County Total
Aiken	1,450.483	19,383.065	20,833.548
Allendale	890.420	NR	890.420
Anderson	NR	57.300	57.300
Beaufort	143.902	NR	143.902
Berkeley	1,100.794	3,774.825	4,875.619
Calhoun	138.448	28,274.894	28,413.342
Charleston	33.722	9,624.900	9,658.622
Cherokee	NR	483.126	483.126
Chester	1.432	91.173	92.605
Darlington	1,896.045	7,768.653	9,664.698
Dorchester	916.381	174.455	1,090.836
Florence	798.964	7,202.600	8,001.564
Georgetown	110.301	11,288.732	11,399.033
Greenville	47.702	NR	47.702
Greenwood	NR	49.850	49.850
Hampton	393.200	NR	393.200
Horry	165.340	2.749	168.089
Kershaw	417.738	923.742	1,341.480
Lancaster	NR	1,010.530	1,010.530
Lexington	414.221	10,197.980	10,612.201
Marlboro	230.453	7,743.082	7,973.535
Oconee	NR	674.440	674.440
Orangeburg	701.127	154.767	855.894
Pickens	NR	3,044.110	3,044.110
Richland	677.192	10,263.504	10,940.696
Spartanburg	15.113	NR	15.113
Sumter	315.873	NR	315.873
Union	2.530	516.200	518.730
Williamsburg	929.368	NR	929.368
York	3.694	22,809.904	22,813.598

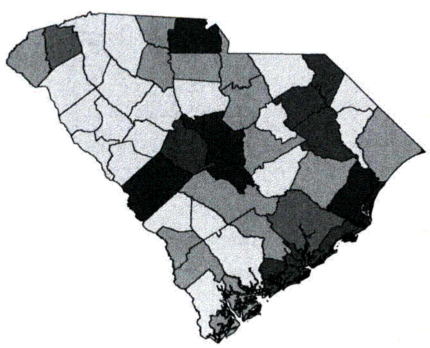
NR = None Reported

	Groundwater	Surface Water
Source Total:	11,794.443	145,514.581

Total Industrial Use (millions of gallons):	**157,309.024**



Average use for any reporting industrial facility (94 total) in 2004 equaled 343,761 gallons of groundwater and 4,241,171 gallons of surface water per day.



Distribution of reported industrial water use in South Carolina, 2004. Darker shades indicate the highest use areas.

Irrigation Use

Water withdrawal for irrigation use from 210 reporting entities totaled 24.119 billion gallons, with 226 surface water sources accounting for 10.127 billion gallons and 413 groundwater sources accounting for 13.992 billion gallons.

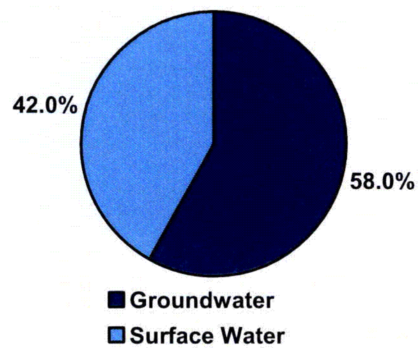
County	Groundwater	Surface Water	County Total
Aiken	484.652	1,020.000	1,504.652
Allendale	3,325.401	432.680	3,758.081
Bamberg	512.490	645.928	1,158.418
Barnwell	134.763	77.915	212.678
Beaufort	720.401	20.700	741.101
Berkeley	0.240	1093.194	1,093.434
Calhoun	853.542	141.543	995.085
Charleston	12.852	35.491	48.343
Chesterfield	238.797	NR	238.797
Clarendon	182.026	152.086	334.112
Colleton	929.700	265.000	1,194.700
Darlington	0.995	158.163	159.158
Dillon	34.900	NR	34.900
Edgefield	21.000	506.840	527.840
Florence	105.208	12.000	117.208
Georgetown	19.743	1,670.289	1,690.032
Greenville	NR	24.750	24.750
Greenwood	1.200	NR	1.200
Hampton	876.001	16.000	892.001
Horry	179.111	283.847	462.958
Jasper	270.970	NR	270.970
Lee	98.439	8.000	106.439
Lexington	1622.548	496.570	2,119.118
Marion	28.400	22.000	50.400
Marlboro	191.894	88.190	280.084
McCormick	NR	NR	NR
Newberry	60.700	125.700	186.400
Oconee	NR	282.850	282.850
Orangeburg	2,282.848	1,497.681	3,780.529
Pickens	NR	NR	NR
Richland	7.088	0.300	7.388
Saluda	NR	355.870	355.870
Spartanburg	NR	100.124	100.124
Sumter	796.649	586.850	1,383.499
Williamsburg	NR	4.300	4.300
York	NR	2.450	2.450

NR = None Reported

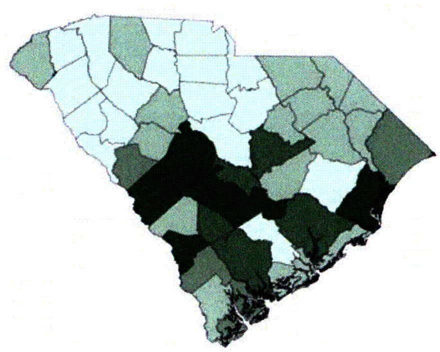
	Groundwater	Surface Water
Source Total:	13,992.558	10,127.311

Total Irrigation Use (millions of gallons):	**24,119.869**

Irrigation Use Source Comparison



Average use for any reporting irrigator (210 total) in 2004 equaled 190,717 gallons of groundwater and 138,035 gallons of surface water per day.



Distribution of reported irrigation water use in South Carolina, 2004. Darker shades indicate the highest use areas.

Golf Course Use

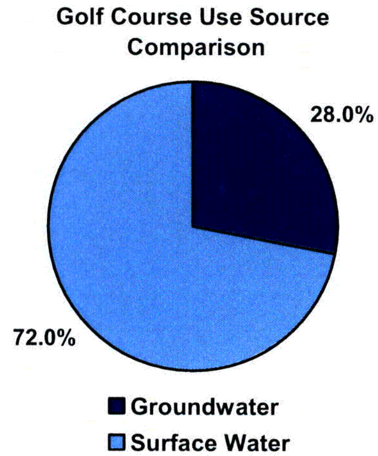
Water withdrawal from 254 reporting courses for golf course irrigation totaled 13.230 billion gallons, with 284 surface water sources accounting for 9.531 billion gallons and 291 groundwater sources accounting for 3.699 billion gallons.

County	Groundwater	Surface Water	County Total
Aiken	29.900	179.523	209.423
Anderson	NR	107.177	107.177
Barnwell	NR	59.178	59.178
Beaufort	1571.158	2150.114	3721.272
Berkeley	11.648	12.555	24.203
Calhoun	38.200	48.800	87.000
Charleston	766.056	226.615	992.671
Chester	18.000	14.000	32.000
Chesterfield	NR	222.230	222.230
Clarendon	24.950	30.820	55.770
Colleton	54.803	1.085	55.888
Darlington	10.600	95.849	106.449
Dorchester	29.000	NR	29.000
Edgefield	75.850	43.500	119.350
Florence	137.536	32.721	170.257
Georgetown	0.900	915.344	916.244
Greenville	3.674	255.429	259.103
Greenwood	6.980	47.645	54.625
Hampton	30.067	NR	30.067
Horry	607.426	3296.873	3904.299
Kershaw	47.561	57.470	105.031
Lancaster	1.224	2.700	3.924
Laurens	NR	54.612	54.612
Lexington	36.780	204.818	241.598
Marion	7.277	26.158	33.435
McCormick	NR	39.568	39.568
Newberry	NR	10.000	10.000
Oconee	NR	103.235	103.235
Orangeburg	20.105	93.528	113.633
Pickens	NR	406.088	406.088
Richland	22.239	341.138	363.377
Spartanburg	5.686	120.252	125.938
Sumter	82.703	200.493	283.196
Union	NR	8.750	8.750
York	58.780	123.091	181.871

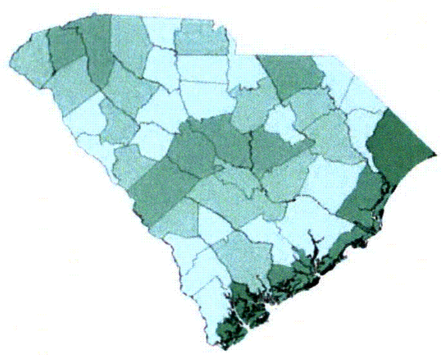
NR = None Reported

	Groundwater	Surface Water
Source Total:	3,699.103	9,531.359

Total Golf Course Use (million gallons):	13,230.462



Average daily use for any reporting golf course (254 total) in 2004 equaled 39,433 gallons of groundwater and 101,604 gallons of surface water per day.



Distribution of reported golf course water use in South Carolina, 2004. Darker shades indicate the highest use areas.

Mining Use

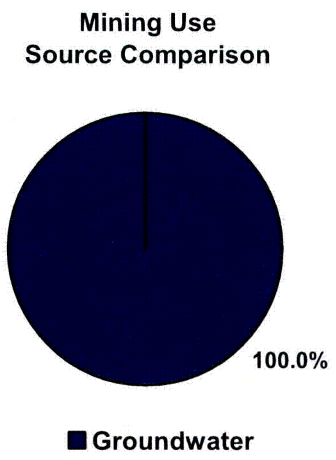
Water withdrawal associated with mining activities at 13 reporting facilities totaled 2.456 billion gallons, with groundwater accounting for all reported use.

County	Groundwater	Surface Water	County Total
Aiken	29.160	NR	29.160
Berkeley	2.654	NR	2.654
Lexington	464.850	NR	464.850
Orangeburg	1711.087	NR	1711.087
Richland	235.872	NR	235.872
York	13.000	NR	13.000

NR = None Reported

	Groundwater	Surface Water
Source Total:	2456.623	NR

Total Irrigation Use (million gallons):	**2456.623**



Aquaculture Use

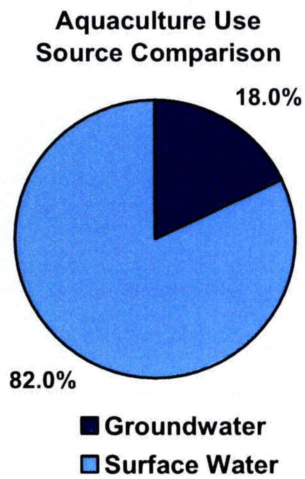
Water withdrawal from 10 reporting aquaculture-farming facilities totaled 1.320 billion gallons, with 12 surface water sources accounting for 1.312 billion gallons and 8 groundwater sources accounting for 238.249 million gallons.

County	Groundwater	Surface Water	County Total
Beaufort	5.984	78.234	84.218
Berkeley	2.961	94.492	97.453
Charleston	NR	895.620	895.620
Dillon	33.700	NR	33.700
Hampton	128.304	NR	128.304
Richland	67.300	13.900	81.200
Spartanburg	NR	35.136	35.136

NR = None Reported

	Groundwater	Surface Water
Source Total:	238.249	1082.246

Total Aquaculture Use (million gallons):	**1320.495**



Other Use

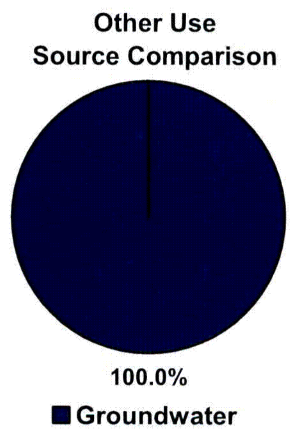
Water withdrawal for other, non-specific use from 2 reporting facilities totaled 85.505 million gallons, with groundwater accounting for all reported use.

County	Groundwater	Surface Water	County Total
Beaufort	41.430	NR	41.430
Horry	44.075	NR	44.075

NR = None Reported

	Groundwater	Surface Water
Source Total:	85.505	NR

Total Other Use (million gallons):	85.505



Appendix A: Surface and Groundwater Use Summary Tables

Surface Water Use Summary Table (Figures in Millions of Gallons)

County	County Total	Hydroelectric	Thermoelectric	Aquaculture	Golf Course	Industry	Irrigation	Mining	Water Supply
Abbeville	29,636.236	28,619.000	NR	NR	NR	NR	NR	NR	1,017.236
Aiken	69,408.535	NR	46,744.000	NR	179.523	19,383.065	1,020.000	NR	2,081.947
Allendale	432.680	NR	NR	NR	NR	NR	432.680	NR	NR
Anderson	45,435.419	274.193	37,417.276	NR	107.177	57.300	NR	NR	7,579.473
Bamberg	645.928	NR	NR	NR	NR	NR	645.928	NR	NR
Barnwell	137.093	NR	NR	NR	59.178	NR	77.915	NR	NR
Beaufort	9,455.648	NR	NR	78.234	2,150.114	NR	20.700	NR	7,206.600
Berkeley	1,391,572.486	1,213,836.312	167,653.708	94.492	12.555	3,774.825	1,093.194	NR	5,107.400
Calhoun	28,465.237	NR	NR	NR	48.800	28,274.894	141.543	NR	NR
Charleston	29,531.416	NR	NR	895.620	226.615	9,624.900	35.491	NR	18,748.790
Cherokee	459,132.326	455,113.000	NR	NR	NR	483.126	NR	NR	3,536.200
Chester	2,172,431.373	2,171,229.000	NR	NR	14.000	91.173	NR	NR	1,097.200
Chesterfield	1,251.120	NR	NR	NR	222.230	NR	NR	NR	1,028.890
Clarendon	182.906	NR	NR	NR	30.820	NR	152.086	NR	NR
Colleton	1,884.225	NR	1,616.455	NR	1.085	NR	265.000	1.685	NR
Darlington	293,162.665	NR	285,140.000	NR	95.849	7,768.653	158.163	NR	NR
Dorchester	174.455	NR	NR	NR	NR	174.455	NR	NR	NR
Edgefield	1,001,905.644	999,809.310	NR	NR	43.500	NR	506.840	NR	1,545.994
Fairfield	3,273,235.626	3,025,896.060	246,543.778	NR	NR	NR	NR	NR	795.788
Florence	8,837.261	NR	NR	NR	32.721	7,202.600	12.000	NR	1,589.940
Georgetown	20,782.144	NR	4,687.310	NR	915.344	11,288.732	1,670.289	NR	2,220.469
Greenville	164,932.879	140,851.000	NR	NR	255.429	NR	24.750	NR	23,801.700
Greenwood	322,131.560	317,017.000	116.137	NR	47.645	49.850	NR	NR	4,900.928
Hampton	16.000	NR	NR	NR	NR	NR	16.000	NR	NR
Horry	56,297.099	NR	38,448.870	NR	3,296.873	2.749	283.847	219.360	14,045.400
Jasper	0.000	NR	NR	NR	NR	NR	NR	NR	NR
Kershaw	1,210,066.867	1,207,267.000	NR	NR	57.470	923.742	NR	NR	1,818.655
Lancaster	1,102,559.265	1,093,794.000	NR	NR	2.700	1,010.530	NR	NR	7,752.035
Laurens	1,813.637	149.400	NR	NR	54.612	NR	NR	NR	1,609.625
Lee	8.000	NR	NR	NR	NR	NR	8.000	NR	NR
Lexington	264,846.802	201,784.930	46,310.870	NR	204.818	10,197.980	496.570	563.955	5,287.679
Marion	48.158	NR	NR	NR	26.158	NR	22.000	NR	NR
Marlboro	7,831.272	NR	NR	NR	NR	7,743.082	88.190	NR	NR
McCormick	461.524	NR	NR	NR	39.568	NR	NR	NR	421.956
Newberry	2,405.862	NR	NR	NR	10.000	NR	125.700	NR	2,270.162
Oconee	2,152,551.968	12.200	2,147,899.000	NR	103.235	674.440	282.850	NR	3,580.243
Orangeburg	4,753.744	NR	0.328	NR	93.528	154.767	1,497.681	NR	3,007.440
Pickens	2,619,190.603	2,611,758.000	NR	NR	406.088	3,044.110	NR	NR	3,982.405
Richland	676,941.322	473,338.480	169,724.200	13.900	341.138	10,263.504	0.300	NR	23,259.800
Saluda	355.870	NR	NR	NR	NR	NR	355.870	NR	NR
Spartanburg	27,734.856	13,852.416	NR	35.136	120.252	NR	100.124	NR	13,626.928
Sumter	787.343	NR	NR	NR	200.493	NR	586.850	NR	NR
Union	318,082.246	316,309.036	NR	NR	8.750	516.200	NR	NR	1,248.260
Williamsburg	4.300	NR	NR	NR	NR	NR	4.300	NR	NR
York	998,316.773	932,089.000	37,762.000	NR	123.091	22,809.904	2.450	NR	5,530.328
Grand Total:	**18,769,838.373**	**15,202,999.337**	**3,230,063.932**	**1,117.382**	**9,531.359**	**145,514.581**	**10,127.311**	**785.000**	**169,699.471**

NR = None Reported

Groundwater Use Summary Table (Figures in Millions of Gallons)

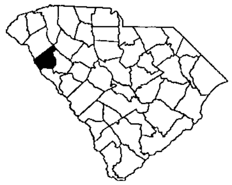
County	County Total	Hydroelectric	Thermoelectric	Aquaculture	Golf Course	Industry	Irrigation	Mining	Other	Water Supply
Abbeville	2.798	NR	NR	NR	NR	NR	NR	NR	NR	2.798
Aiken	6,872.790	NR	NR	NR	29.900	1,450.483	484.652	29.160	NR	4,878.595
Allendale	4,623.956	NR	NR	NR	NR	890.420	3,325.401	NR	NR	408.135
Bamberg	1,015.472	NR	NR	NR	NR	NR	512.490	NR	NR	502.982
Barnwell	1,219.787	NR	NR	NR	NR	NR	134.763	NR	NR	1,085.024
Beaufort	6,615.466	NR	NR	5.984	1,571.158	143.902	720.401	NR	41.430	4,132.591
Berkeley	1,306.157	1.181	12.035	2.961	11.648	1,100.794	0.240	2.654	NR	174.644
Calhoun	1,264.852	NR	NR	NR	38.200	138.448	853.542	NR	NR	234.662
Charleston	3,805.764	NR	NR	NR	766.056	33.722	12.852	NR	NR	2,993.134
Cherokee	1.326	NR	NR	NR	NR	NR	NR	NR	NR	NR
Chester	19.432	NR	NR	NR	18.000	1.432	NR	NR	NR	NR
Chesterfield	857.257	NR	NR	NR	NR	NR	238.797	NR	NR	618.460
Clarendon	936.408	NR	NR	NR	24.950	NR	182.026	NR	NR	729.432
Colleton	1,795.500	NR	1.828	NR	54.803	NR	929.700	NR	NR	809.169
Darlington	4,777.118	NR	363.509	NR	10.600	1,896.045	0.995	NR	NR	2,505.969
Dillon	1,775.004	NR	NR	33.700	NR	NR	34.900	NR	NR	1,706.404
Dorchester	1,552.463	NR	NR	NR	29.000	916.381	NR	NR	NR	607.082
Edgefield	96.850	NR	NR	NR	75.850	NR	21.000	NR	NR	NR
Fairfield	64.334	NR	NR	NR	NR	NR	NR	NR	NR	64.334
Florence	4,915.050	NR	NR	NR	137.536	798.964	105.208	NR	NR	3,873.342
Georgetown	1,039.081	NR	NR	NR	0.900	110.301	19.743	NR	NR	908.137
Greenville	89.513	NR	NR	NR	3.674	47.702	NR	NR	NR	38.137
Greenwood	35.307	NR	NR	NR	6.980	NR	1.200	NR	NR	27.127
Hampton	1,946.981	NR	NR	128.304	30.067	393.200	876.001	NR	NR	519.409
Horry	1,947.448	NR	NR	NR	607.426	165.340	179.111	NR	44.075	951.496
Jasper	706.566	NR	NR	NR	NR	NR	270.970	NR	NR	435.596
Kershaw	1,139.654	NR	NR	NR	47.561	417.738	NR	NR	NR	674.355
Lancaster	1.224	NR	NR	NR	1.224	NR	NR	NR	NR	NR
Lee	694.407	NR	NR	NR	NR	NR	98.439	NR	NR	595.968
Lexington	2,979.681	NR	NR	NR	36.780	414.221	1,622.548	464.850	NR	441.282
Marion	1,392.562	NR	NR	NR	7.277	NR	28.400	NR	NR	1,356.885
Marlboro	1,405.783	NR	NR	NR	NR	230.453	191.894	NR	NR	983.436
Newberry	91.656	NR	NR	NR	NR	NR	60.700	NR	NR	30.956
Oconee	58.070	NR	NR	NR	NR	NR	NR	NR	NR	58.070
Orangeburg	7,052.551	NR	1,661.441	NR	20.105	701.127	2,282.848	1,711.087	NR	675.943
Richland	1,344.667	NR	NR	67.300	22.239	677.192	7.088	235.872	NR	334.976
Saluda	2.397	NR	NR	NR	NR	NR	NR	NR	NR	2.397
Spartanburg	46.643	NR	NR	NR	5.686	15.113	NR	NR	NR	25.844
Sumter	6,870.329	NR	NR	NR	82.703	315.873	796.649	NR	NR	5,675.104
Union	2.530	NR	NR	NR	NR	2.530	NR	NR	NR	NR
Williamsburg	1,618.458	NR	NR	NR	NR	929.368	NR	NR	NR	689.090
York	89.341	NR	NR	NR	58.780	3.694	NR	13.000	NR	13.867
Grand Total:	**74,072.633**	**1.181**	**2,038.813**	**238.249**	**3,699.103**	**11,794.443**	**13,992.558**	**2,456.623**	**85.505**	**39,764.832**

NR = None Reported

Appendix B: Surface and Groundwater Use Summary by County in South Carolina, 2004

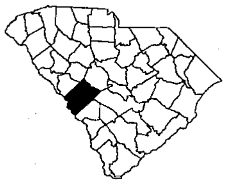
The following tables list reported surface water and groundwater withdrawals for the 2004 calendar year by county. Water usage data are shown by water use category and, in the case of power generation, includes surface water use that is typically considered non-consumptive. As presented throughout this report, all water use figures presented are in millions of gallons.

Abbeville County



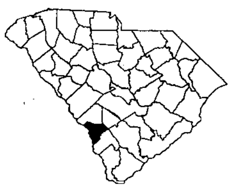
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	28619.000
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	NR
Water Supply:	2.798	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**2.798**	Water Supply:	1017.236
		Total:	**29636.236**

Aiken County



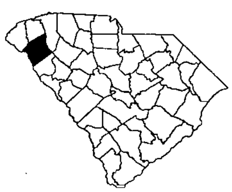
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	29.900	Golf Course:	179.523
Industrial:	1450.483	Hydroelectric:	NR
Irrigation:	484.652	Industrial:	19383.065
Mining:	29.160	Irrigation:	1020.000
Water Supply:	4878.595	Mining:	NR
Other:	NR	Thermal Power:	46744.000
Total:	**6872.790**	Water Supply:	2081.947
		Total:	**69408.535**

Allendale County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	890.420	Hydroelectric:	NR
Irrigation:	3325.401	Industrial:	NR
Mining:	NR	Irrigation:	432.68
Water Supply:	408.135	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**4623.956**	Water Supply:	NR
		Total:	**432.68**

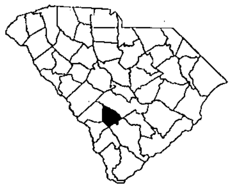
Anderson County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	107.177
Industrial:	NR	Hydroelectric:	274.193
Irrigation:	NR	Industrial:	57.300
Mining:	NR	Irrigation:	NR
Water Supply:	NR	Mining:	NR
Other:	NR	Thermal Power:	37417.276
Total:	**NR**	Water Supply:	7579.473
		Total:	**45435.419**

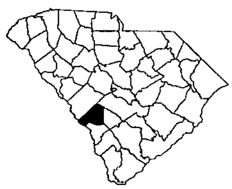
NR = None Reported

Bamberg County



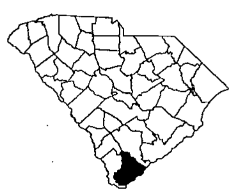
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	NR
Irrigation:	512.490	Industrial:	NR
Mining:	NR	Irrigation:	645.928
Water Supply:	502.982	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1015.472**	Water Supply:	NR
		Total:	**645.928**

Barnwell County



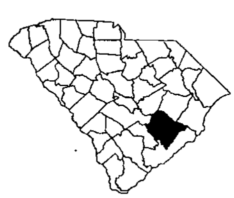
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	NR
Irrigation:	134.763	Industrial:	59.178
Mining:	NR	Irrigation:	77.915
Water Supply:	1085.024	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1219.787**	Water Supply:	NR
		Total:	**137.093**

Beaufort County



Groundwater Use		Surface Water Use	
Aquaculture:	5.984	Aquaculture:	78.234
Golf Course:	1571.158	Golf Course:	2150.114
Industrial:	143.902	Hydroelectric:	NR
Irrigation:	702.401	Industrial:	NR
Mining:	NR	Irrigation:	20.700
Water Supply:	4132.591	Mining:	NR
Other:	41.430	Thermal Power:	NR
Total:	**6615.166**	Water Supply:	7206.600
		Total:	**9455.648**

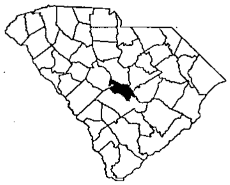
Berkeley County



Groundwater Use		Surface Water Use	
Aquaculture:	2.916	Aquaculture:	94.492
Golf Course:	11.648	Golf Course:	12.555
Industrial:	1100.794	Hydroelectric:	1213836.312
Irrigation:	0.240	Industrial:	3774.825
Mining:	02.654	Irrigation:	1093.194
Water Supply:	174.644	Mining:	NR
Hydroelectric:	1.181	Thermal Power:	167653.708
Thermal Power:	12.035	Water Supply:	5107.400
Total:	**1306.157**	**Total:**	**1391572.486**

NR = None Reported

Calhoun County

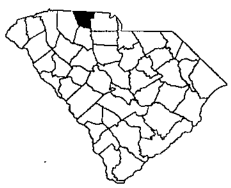


Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	38.200	Golf Course:	48.800
Industrial:	138.448	Hydroelectric:	NR
Irrigation:	853.542	Industrial:	28274.894
Mining:	NR	Irrigation:	141.543
Water Supply:	234.662	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1264.852**	Water Supply:	NR
		Total:	**28465.237**

Charleston County

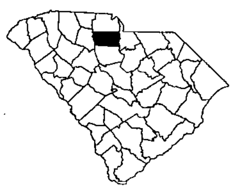
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	895.620
Golf Course:	766.056	Golf Course:	226.615
Industrial:	33.722	Hydroelectric:	NR
Irrigation:	12.852	Industrial:	9624.900
Mining:	NR	Irrigation:	35.491
Water Supply:	2993.134	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**3805.764**	Water Supply:	18748.790
		Total:	**29531.416**

Cherokee County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	455113.000
Irrigation:	NR	Industrial:	483.126
Mining:	NR	Irrigation:	NR
Water Supply:	NR	Mining:	NR
Thermal Power	1.326	Thermal Power:	NR
Total:	**1.326**	Water Supply:	3536.200
		Total:	**459132.326**

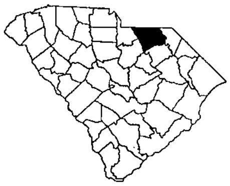
Chester County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	18.000	Golf Course:	14.000
Industrial:	1.432	Hydroelectric:	2171229.000
Irrigation:	NR	Industrial:	91.173
Mining:	NR	Irrigation:	NR
Water Supply:	NR	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	19.432	Water Supply:	1097.200
		Total:	**2172461.373**

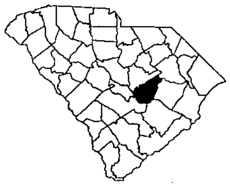
NR = None Reported

Chesterfield County



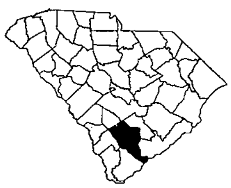
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	222.230
Industrial:	NR	Hydroelectric:	NR
Irrigation:	238.797	Industrial:	NR
Mining:	NR	Irrigation:	NR
Water Supply:	618..460	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	857.257	Water Supply:	1028.890
		Total:	**1251.120**

Clarendon County



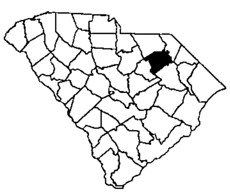
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	24.950	Golf Course:	30.820
Industrial:	NR	Hydroelectric:	NR
Irrigation:	182.026	Industrial:	NR
Mining:	NR	Irrigation:	152.086
Water Supply:	729.432	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	936.408	Water Supply:	NR
		Total:	182.906

Colleton County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	54.803	Golf Course:	1.085
Industrial:	NR	Hydroelectric:	NR
Irrigation:	929.700	Industrial:	NR
Mining:	NR	Irrigation:	265.000
Water Supply:	809.169	Mining:	1.685
Thermal Power	1.828	Thermal Power:	1616.455
Other:	NR	Water Supply:	NR
Total:	1795.500	**Total:**	**1884.225**

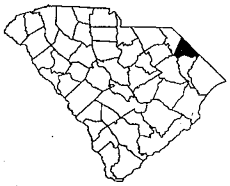
Darlington County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	10.600	Golf Course:	95.849
Industrial:	1896.045	Hydroelectric:	NR
Irrigation:	0.995	Industrial:	7768.653
Mining:	NR	Irrigation:	158.163
Nuclear Power:	363.509	Mining:	NR
Water Supply:	2505.969	Nuclear Power:	285140.000
Other:	0	Water Supply:	NR
Total:	**4777.118**	**Total:**	**293162.665**

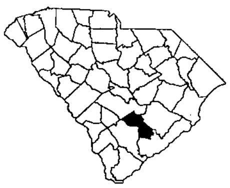
NR = None Reported

Dillon County



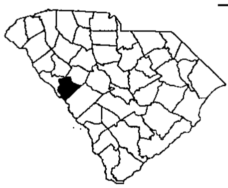
Groundwater Use		Surface Water Use	
Aquaculture:	33.700	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	NR
Irrigation:	34.900	Industrial:	NR
Mining:	NR	Irrigation:	NR
Water Supply:	1706.404	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1775.004**	Water Supply:	NR
		Total:	**NR**

Dorchester County



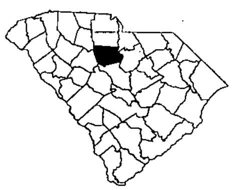
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	29.000	Golf Course:	NR
Industrial:	916.381	Hydroelectric:	NR
Irrigation:	NR	Industrial:	174.455
Mining:	NR	Irrigation:	NR
Water Supply:	607.082	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1552.463**	Water Supply:	NR
		Total:	**174.455**

Edgefield County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	75.850	Golf Course:	43.500
Industrial:	NR	Hydroelectric:	999809.310
Irrigation:	21.000	Industrial:	NR
Mining:	NR	Irrigation:	506.840
Water Supply:	NR	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**96.850**	Water Supply:	1545.994
		Total:	**1001905.644**

Fairfield County



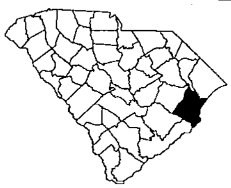
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	3025896.060
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	NR
Water Supply:	64.334	Mining:	NR
Other:	NR	Nuclear Power:	246543.778
Total:	64.334	Water Supply:	795.788
		Total:	**3273235.626**

NR = None Reported

Florence County

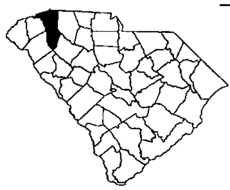
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	137.536	Golf Course:	32.721
Industrial:	798.964	Hydroelectric:	NR
Irrigation:	105.208	Industrial:	7202.600
Mining:	NR	Irrigation:	12.00
Water Supply:	3873.342	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**4915.050**	Water Supply:	1589.940
		Total:	**8837.261**

Georgetown County



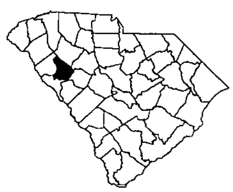
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	0.900	Golf Course:	915.344
Industrial:	110.301	Hydroelectric:	NR
Irrigation:	19.743	Industrial:	11288.732
Mining:	NR	Irrigation:	1670.289
Water Supply:	908.137	Mining:	NR
Other:	NR	Thermal Power:	4687.31
Total:	**1039.081**	Water Supply:	2220.469
		Total:	**20782.144**

Greenville County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	3.674	Golf Course:	255.429
Industrial:	47.702	Hydroelectric:	140851.000
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	24.750
Water Supply:	38.137	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**89.513**	Water Supply:	23801.700
		Total:	**164932.879**

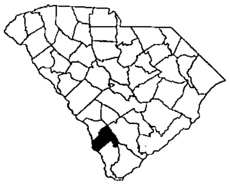
Greenwood County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	6.980	Golf Course:	47.645
Industrial:	NR	Hydroelectric:	317017.000
Irrigation:	1.200	Industrial:	49.850
Mining:	NR	Irrigation:	NR
Water Supply:	27.127	Mining:	NR
Other:	NR	Thermal Power:	116.137
Total:	**35.307**	Water Supply:	4900.928
		Total:	**3221131.560**

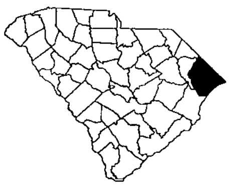
NR = None Reported

Hampton County



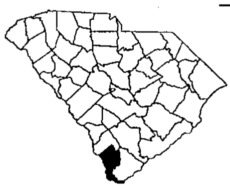
Groundwater Use		Surface Water Use	
Aquaculture:	128.304	Aquaculture:	NR
Golf Course:	30.067	Golf Course:	NR
Industrial:	383.200	Hydroelectric:	NR
Irrigation:	876.001	Industrial:	NR
Mining:	NR	Irrigation:	16.000
Water Supply:	519.409	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1946.981**	Water Supply:	NR
		Total:	**16.000**

Horry County



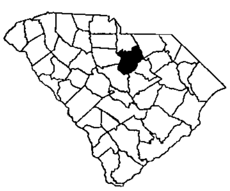
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	607.426	Golf Course:	3296.873
Industrial:	165.340	Hydroelectric:	NR
Irrigation:	179.111	Industrial:	2.749
Mining:	NR	Irrigation:	283.847
Water Supply:	951.496	Mining:	219.360
Other:	44.075	Thermal Power:	38448.870
Total:	**1947.448**	Water Supply:	14045.400
		Total:	**56297.009**

Jasper County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	NR
Irrigation:	270.970	Industrial:	NR
Mining:	NR	Irrigation:	NR
Water Supply:	435.596	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**706.566**	Water Supply:	NR
		Total:	**NR**

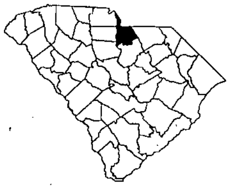
Kershaw County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	47.561	Golf Course:	57.470
Industrial:	417.738	Hydroelectric:	1207267.000
Irrigation:	NR	Industrial:	923.742
Mining:	NR	Irrigation:	NR
Water Supply:	674.355	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1139.654**	Water Supply:	1818.655
		Total:	**1210066.867**

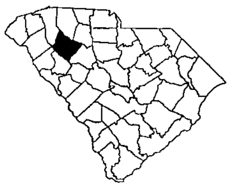
NR = None Reported

Lancaster County



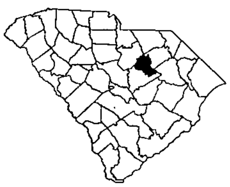
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	1.244	Golf Course:	54.612
Industrial:	NR	Hydroelectric:	1093794.000
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	NR
Water Supply:	NR	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1.244**	Water Supply:	1609.625
		Total:	**1102559.265**

Laurens County



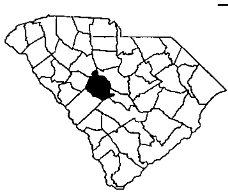
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	54.612
Industrial:	NR	Hydroelectric:	149.400
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	NR
Water Supply:	NR	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**NR**	Water Supply:	1609.625
		Total:	**1813.637**

Lee County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	NR
Irrigation:	98.439	Industrial:	NR
Mining:	NR	Irrigation:	8.000
Water Supply:	595.968	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**694.407**	Water Supply:	NR
		Total:	**8.000**

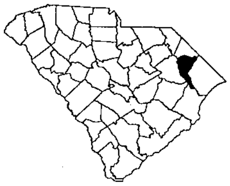
Lexington County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	36.780	Golf Course:	204.818
Industrial:	414.221	Hydroelectric:	201784.930
Irrigation:	1622.548	Industrial:	10197.980
Mining:	464.850	Irrigation:	496.570
Water Supply:	441.282	Mining:	563.955
Other:	NR	Thermal Power:	46310.870
Total:	**2979.681**	Water Supply:	5287.679
		Total:	**264846.802**

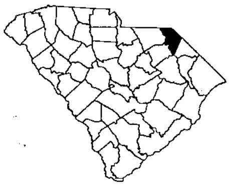
NR = None Reported

Marion County



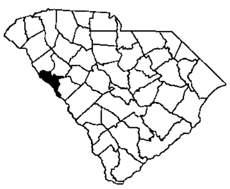
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	7.277	Golf Course:	26.158
Industrial:	NR	Hydroelectric:	NR
Irrigation:	28.400	Industrial:	NR
Mining:	NR	Irrigation:	22.000
Water Supply:	1356.885	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1392.562**	Water Supply:	NR
		Total:	**48.158**

Marlboro County



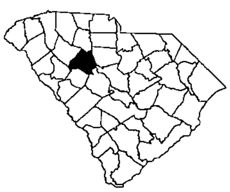
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	230.453	Hydroelectric:	NR
Irrigation:	191.894	Industrial:	7743.082
Mining:	NR	Irrigation:	88.190
Water Supply:	983.436	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**1405.783**	Water Supply:	NR
		Total::	**7831.272**

McCormick County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	39.568
Industrial:	NR	Hydroelectric:	NR
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	NR
Water Supply:	NR	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**NR**	Water Supply:	421.956
		Total:	**461.524**

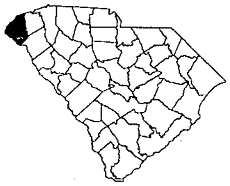
Newberry County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	10.000
Industrial:	NR	Hydroelectric:	NR
Irrigation:	60.700	Industrial:	NR
Mining:	NR	Irrigation:	125.700
Water Supply:	30.956	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**91.656**	Water Supply:	2270.162
		Total:	**2405.862**

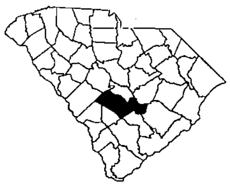
NR = None Reported

Oconee County



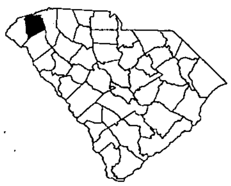
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	103.235
Industrial:	NR	Hydroelectric:	12.200
Irrigation:	NR	Industrial:	674.440
Mining:	NR	Irrigation:	282.85
Water Supply:	58.070	Mining:	NR
Other:	NR	Nuclear Power:	2147899.000
Total:	**58.070**	Water Supply:	3580.243
		Total:	**2152551.968**

Orangeburg County



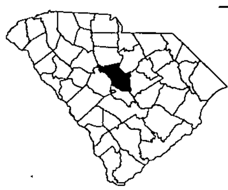
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	20.105	Golf Course:	93.528
Industrial:	701.127	Hydroelectric:	NR
Irrigation:	2282.848	Industrial:	154.767
Mining:	1711.087	Irrigation:	1497.681
Thermal Power:	1661.441	Mining:	NR
Water Supply:	675.943	Thermal Power:	0.328
Other:	NR	Water Supply:	3007.440
Total:	**7052.551**	**Total:**	**4753.744**

Pickens County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	406.088
Industrial:	NR	Hydroelectric:	2611758.000
Irrigation:	NR	Industrial:	3044.110
Mining:	NR	Irrigation:	NR
Water Supply:	NR	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**NR**	Water Supply:	3982.405
		Total:	**2619190.603**

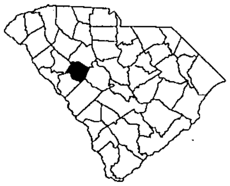
Richland County



Groundwater Use		Surface Water Use	
Aquaculture:	67.300	Aquaculture:	13.900
Golf Course:	22.239	Golf Course:	341.138
Industrial:	677.192	Hydroelectric:	473338.480
Irrigation:	7.088	Industrial:	10263.504
Mining:	235.872	Irrigation:	0.300
Water Supply:	334.976	Mining:	NR
Other:	NR	Thermal Power:	169724.200
Total:	**1344.667**	Water Supply:	23259.800
		Total:	**676941.322**

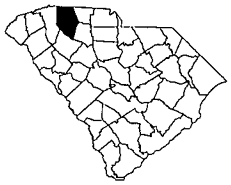
NR = None Reported

Saluda County



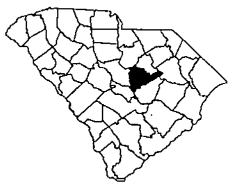
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	NR	Hydroelectric:	NR
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	355.870
Water Supply:	2.397	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**2.397**	Water Supply:	NR
		Total:	355.870

Spartanburg County



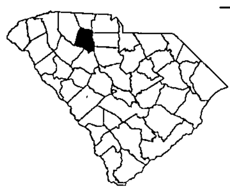
Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	35.136
Golf Course:	5.686	Golf Course:	120.252
Industrial:	15.113	Hydroelectric:	13852.416
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	100.124
Water Supply:	25.844	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**46.643**	Water Supply:	13626.928
		Other:	**27734.856**

Sumter County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	82.703	Golf Course:	200.496
Industrial:	315.873	Hydroelectric:	NR
Irrigation:	796.649	Industrial:	NR
Mining:	NR	Irrigation:	586.850
Water Supply:	5675.104	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**6870.329**	Water Supply:	NR
		Total:	**787.343**

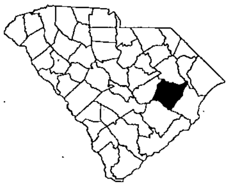
Union County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	8.750
Industrial:	2.530	Hydroelectric:	316309.036
Irrigation:	NR	Industrial:	516.200
Mining:	NR	Irrigation:	NR
Water Supply:	NR	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	**NR**	Water Supply:	1248.260
		Total:	**318082.246**

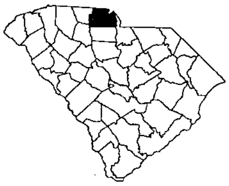
NR = None Reported

Williamsburg County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	NR	Golf Course:	NR
Industrial:	929.368	Hydroelectric:	NR
Irrigation:	NR	Industrial:	NR
Mining:	NR	Irrigation:	4.300
Water Supply:	689.090	Mining:	NR
Other:	NR	Thermal Power:	NR
Total:	1618.458	Water Supply:	NR
		Total:	**4.300**

York County



Groundwater Use		Surface Water Use	
Aquaculture:	NR	Aquaculture:	NR
Golf Course:	58.780	Golf Course:	123.091
Industrial:	3.694	Hydroelectric:	932089.000
Irrigation:	NR	Industrial:	22809.904
Mining:	13.00	Irrigation:	2.450
Water Supply:	13.867	Mining:	NR
Other:	NR	Nuclear Power:	37762.000
Total:	**89.341**	Water Supply:	5530.328
		Total:	**998316.773**

NR = None Reported

Appendix C: Population by County

Population and Projections by County

County	2000	2005	2010	2015	2020	2025
Abbeville	26,167	26,740	27,610	28,480	29,350	30,210
Aiken	142,552	153,900	163,950	174,000	184,060	194,110
Allendale	11,211	11,820	11,960	12,110	12,260	12,400
Anderson	165,740	172,120	180,280	188,440	196,590	204,750
Bamberg	16,658	16,130	15,740	15,340	14,950	14,560
Barnwell	23,478	24,350	25,390	26,440	27,490	28,540
Beaufort	120,937	132,760	146,440	160,110	173,790	187,460
Berkeley	142,651	156,610	167,520	178,420	189,330	200,230
Calhoun	15,185	15,570	16,350	17,130	17,910	18,690
Charleston	309,969	320,080	328,570	337,070	345,560	354,060
Cherokee	52,537	54,770	57,860	60,960	64,050	67,140
Chester	34,068	34,630	35,500	36,370	37,240	38,110
Chesterfield	42,768	43,100	44,310	45,520	46,730	47,940
Clarendon	32,502	33,300	34,650	35,990	37,330	38,680
Colleton	38,264	39,910	41,590	43,260	44,940	46,610
Darlington	67,394	67,910	69,260	70,610	71,960	73,310
Dillon	30,722	30,220	30,280	30,340	30,400	30,460
Dorchester	96,413	106,590	115,430	124,280	133,130	141,980
Edgefield	24,595	25,490	27,400	29,320	31,230	33,150
Fairfield	23,454	24,260	25,010	25,770	26,520	27,280
Florence	125,761	130,140	134,510	138,870	143,230	147,590
Georgetown	55,797	58,300	61,770	65,240	68,710	72,190
Greenville	379,616	397,580	421,210	444,840	468,470	492,100
Greenwood	66,271	68,590	71,170	73,750	76,330	78,910
Hampton	21,386	21,810	22,690	23,570	24,450	25,330
Horry	196,629	215,850	239,020	262,190	285,360	308,530
Jasper	20,678	21,390	23,000	24,610	26,220	27,830
Kershaw	52,647	55,300	58,880	62,460	66,040	69,620
Lancaster	61,351	61,940	63,940	65,950	67,950	69,950
Laurens	69,567	72,800	77,190	81,580	85,960	90,350
Lee	20,119	20,540	21,010	21,480	21,960	22,430
Lexington	216,014	233,060	252,580	272,090	291,600	311,120
McCormick	9,958	10,670	11,290	11,910	12,530	13,150
Marion	35,466	35,930	36,390	36,840	37,300	37,760
Marlboro	28,818	28,100	27,460	26,820	26,170	25,530
Newberry	36,108	37,270	38,530	39,790	41,050	42,320
Oconee	66,215	70,910	75,470	80,040	84,600	89,160
Orangeburg	91,582	94,260	96,890	99,510	102,140	104,770
Pickens	110,757	119,040	127,110	135,190	143,260	151,330
Richland	320,677	331,810	345,660	359,520	373,370	387,220
Saluda	19,181	19,400	20,090	20,790	21,480	22,180
Spartanburg	253,791	267,390	280,590	293,790	306,990	320,190
Sumter	104,646	112,030	116,100	120,180	124,260	128,330
Union	29,881	29,720	29,480	29,240	29,010	28,770
Williamsburg	37,217	36,960	36,820	36,680	36,540	36,400
York	164,614	177,420	192,290	207,160	222,030	236,900
South Carolina:	4,012,012	4,218,460	4,446,240	4,674,050	4,901,810	5,129,630

Appendix D: Glossary

Aquifer – A geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable material to yield significant quantities of water to wells and springs.

Aquaculture water use (water use category) – Water used for raising, farming and/or harvesting of organisms that live in water, such as fish, shrimp and other shellfish and vegetal matter (seaweed).

Consumptive water use – The amount of water withdrawn that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment.

Effluent (wastewater) – Water conveyed out of a wastewater treatment facility or other works used for the purpose of treating, stabilizing, or holding wastewater.

Evapotranspiration – Collective term, including water discharged to the atmosphere as a result of evaporation from the soil and surface-water bodies and plant transpiration.

Fall Line –

Farm – Any operation from which $1000.00 or more of agricultural products were sold or normally would be sold during the year.

Golf course irrigation (water use category) – Water applied to maintain golf course turf, including tee boxes, fairways, putting greens, associated practice areas and periphery aesthetic landscaping.

Groundwater – Generally, all subsurface water as distinct from surface water; specifically, that part of the subsurface water in the saturated zone.

Hydroelectric water use (water use category) – Water used in generating electricity where turbine generators are driven by falling water.

Industrial water use (water use category) – Water used for commercial and industrial purposes, including fabrication, processing, washing, in-plant conveyance and cooling.

Irrigated acreage – Acreage capable of being irrigated, with regard to availability of water, suitable soils and topography of land.

Irrigation water use (water use category) – Water that is used for agricultural and landscaping purposes including turf farming and livestock management.

Mining water use (water use category) – Water that is used for in conjunction with surface or subsurface mining of minerals or natural materials

Other use (water use category) – Any use of surface water or groundwater not specifically identified in any of the other categories.

Reclaimed water – Wastewater treatment plant effluent that has been diverted, intercepted, or otherwise conveyed for use before it reaches a natural waterway or aquifer.

Surface water – Water flowing or stored on the earth's surface such as a stream, lake, or reservoir.

Thermoelectric water use (water use category) – Water used in generating electricity from fossil fuel (coal, oil, natural gas), geothermal, biomass, solid waste, or nuclear energy.

Water supply (water use category) – Water withdrawn by public and private water suppliers and conveyed to users or groups of users. Water suppliers provide water for a variety of uses including domestic, commercial, industrial and public water use.

Water usage rates – As utilized in this report, measurements to quantitatively represent withdrawal over time; as in gallons per minute (gpm), gallons per day (gpd) and gallons per year (gpy).

Water use – Generally, water that is used for a specific purpose (i.e., domestic use, industrial, etc.). Broadly, human interaction with and influence on the hydrologic cycle, and includes water withdrawal, distribution, consumptive use, wastewater collection and return flow.

Withdrawal – The removal of surface water or groundwater from the natural hydrological system for use, including, but not limited to, water supply, industrial use, commercial use, domestic use, irrigation, livestock, power generation