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Low-Flow Characteristics of Streams in South Carolina

Open-File Report 2017–1110

U.S. Department of the Interior
U.S. Geological Survey

Cover. South Carolina Botanical Garden, Clemson, South Carolina. Photograph by Toby D. Feaster.

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RYAN K. ZINKE, Secretary

U.S. Geological Survey
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Conversion Factors

U.S. customary units to International System of Units

Multiply	By	To obtain
	Length	
foot (ft)	0.3048	meter (m)
mile (mi)	1.609	kilometer (km)
	Area	
square mile (mi^2)	2.590	square kilometer (km^2)
	Volume	
cubic foot (ft^3)	0.02832	cubic meter (m^3)
acre-foot (acre-ft)	1,233	cubic meter (m^3)
	Flow rate	
cubic foot per second (ft^3/s)	0.02832	cubic meter per second (m^3/s)
million gallons per day (Mgal/d)	0.04381	cubic meter per second (m^3/s)

Temperature in degrees Fahrenheit (°F) may be converted to degrees Celsius (°C) as °C = (°F – 32) / 1.8.

Datum

Vertical coordinate information is referenced to the National Geodetic Vertical Datum of 1929 (NGVD 29).

Horizontal coordinate information is referenced to the North American Datum of 1927 (NAD 27) or 1983 (NAD 83).

Elevation, as used in this report, refers to distance above the vertical datum.

Abbreviations

CR	continuous record
LPIII	log-Pearson Type III
MOVE.1	Maintenance of Variance Extension, Type 1
NCDENR	North Carolina Department of Environment and Natural Resources
NWIS	National Water Information System
PR	partial record
SCDHEC	South Carolina Department of Health and Environmental Control
SWSTAT	surface-water statistics
TMDL	total maximum daily load
USGS	U.S. Geological Survey
7Q2	annual minimum 7-day average streamflow with a 2-year recurrence interval
7Q10	annual minimum 7-day average streamflow with a 10-year recurrence interval

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Abstract

An ongoing understanding of streamflow characteristics of the rivers and streams in South Carolina is important for the protection and preservation of the State's water resources. Information concerning the low-flow characteristics of streams is especially important during critical flow periods, such as during the historic droughts that South Carolina has experienced in the past few decades.

Between 2008 and 2016, the U.S. Geological Survey, in cooperation with the South Carolina Department of Health and Environmental Control, updated low-flow statistics at 106 continuous-record streamgages operated by the U.S. Geological Survey for the eight major river basins in South Carolina. The low-flow frequency statistics included the annual minimum 1-, 3-, 7-, 14-, 30-, 60-, and 90-day mean flows with recurrence intervals of 2, 5, 10, 20, 30, and 50 years, depending on the length of record available at the streamflow-gaging station. Computations of daily mean flow durations for the 5-, 10-, 25-, 50-, 75-, 90-, and 95-percent probability of exceedance also were included.

This report summarizes the findings from publications generated during the 2008 to 2016 investigations. Trend analyses for the annual minimum 7-day average flows are provided as well as trend assessments of long-term annual precipitation data. Statewide variability in the annual minimum 7-day average flow is assessed at eight long-term (record lengths from 55 to 78 years) streamgages. If previous low-flow statistics were available, comparisons with the updated annual minimum 7-day average flow, having a 10-year recurrence interval, were made. In addition, methods for estimating low-flow statistics at ungaged locations near a gaged location are described.

Introduction

Low-flow stream statistics are used by South Carolina State agencies, such as the South Carolina Department of Health and Environmental Control (SCDHEC) and the South Carolina Department of Natural Resources, for various applications. These applications include determining waste load allocations for point sources, developing total maximum daily loads (TMDLs) for streams, determining the quantity of water that can be withdrawn safely from a particular stream, and preparing the State Water Plan. In addition, low-flow statistics are useful for improving the general level of understanding of natural and regulated stream systems. The droughts of the past few decades in South Carolina, such as 1998–2002 and 2007–08, have heightened awareness of the importance of having up-to-date statistics for use in making critical water-resources decisions (Mizzell, 2008; South Carolina Department of Natural Resources, 2017).

Because of the importance of these applications, it is critical to effectively measure and document low-flow stream conditions for use in updating low-flow statistics on a regular basis, preferably about every 10 years. Low-flow statistics, as defined in this report, are annual minimum daily mean streamflows averaged over designated periods (Riggs, 1972). The use of "average" with respect to the low-flow statistics in this report refers to the arithmetic mean.

In 2008, the U.S. Geological Survey (USGS), in cooperation with the SCDHEC, initiated a study to update low-flow statistics, which had not been systematically updated since 1987, at continuous-record streamflow-gaging stations, which hereafter also may be referred to simply as streamgages, operated by the USGS in South Carolina. The investigation originally was planned for a period of 5 years to coincide with the SCDHEC Watershed Water Quality Management Strategy, which is completed every 5 years (South Carolina Department of Health and Environmental Control, 2009; table 1), for monitoring and assessment of eight major river basins in South Carolina (fig. 1). In 2010, however, the schedule for updating the low-flow statistics was modified at the request of the SCDHEC. The basins that had not yet been updated were assessed by the USGS on a 2-year schedule with the results being published during the second year. This report summarizes the statewide results from the previous basin reports with a focus on estimates of the annual minimum 7-day average flow with a 10-year recurrence interval (7Q10) at streamgages as published in previous USGS Open-File Reports (fig. 1; table 2 (p. 28); Feaster and Guimaraes, 2009, 2012, 2014, 2016; Guimaraes and Feaster, 2010).

Table 1. South Carolina Department of Health and Environmental Control (SCDHEC) schedule for basin data analysis and statistics availability.

[From Feaster and Guimaraes, 2016]

SCDHEC basin name (fig. 1)	Data analysis, year[1]	Low-flow information published, year[1]
Pee Dee	2008	2009
Broad	2009	2010
Saluda and Edisto	2010 and 2011	2012
Catawba-Wateree and Santee	2012 and 2013	2014
Savannah and Salkehatchie	2014 and 2015	2016

[1]The year is the Federal fiscal year, which begins on October 1 and ends on September 30 and is designated by the calendar year in which the period ends. For example, fiscal year 2016 is the 12-month period from October 1, 2015, through September 30, 2016.

Purpose and Scope

The purpose of this report is to provide a summary of the results from the update of low-flow statistics at 106 continuous-record (CR) streamgages in the major river basins of South Carolina as documented by Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010). The low-flow characteristics from those investigations include the following number of CR streamgages from respective river basins: 17 from the Pee Dee River Basin; 25 from the Saluda, Congaree, and Edisto River Basins; 12 from the Catawba-Wateree and Santee River Basins; 28 from the Savannah and Salkehatchie River Basins; and 24 from the Broad River Basin. In those reports, and depending on the length of record available at the CR streamgages, estimates of annual minimum 1-, 3-, 7-, 14-, 30-, 60-, and 90-day average streamflow with recurrence intervals of 2, 5, l0, 20, 30, and 50 years are provided. In addition, daily flow durations for the 5-, 10-, 25-, 50-, 75-, 90-, and 95-percent probabilities of exceedance are presented for these streamgages. The scope of this report, however, will mainly focus on the 7Q10 flow statistic. Most of the technical information describing the analytical methods used for the analyses was taken from Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).

Previous Studies

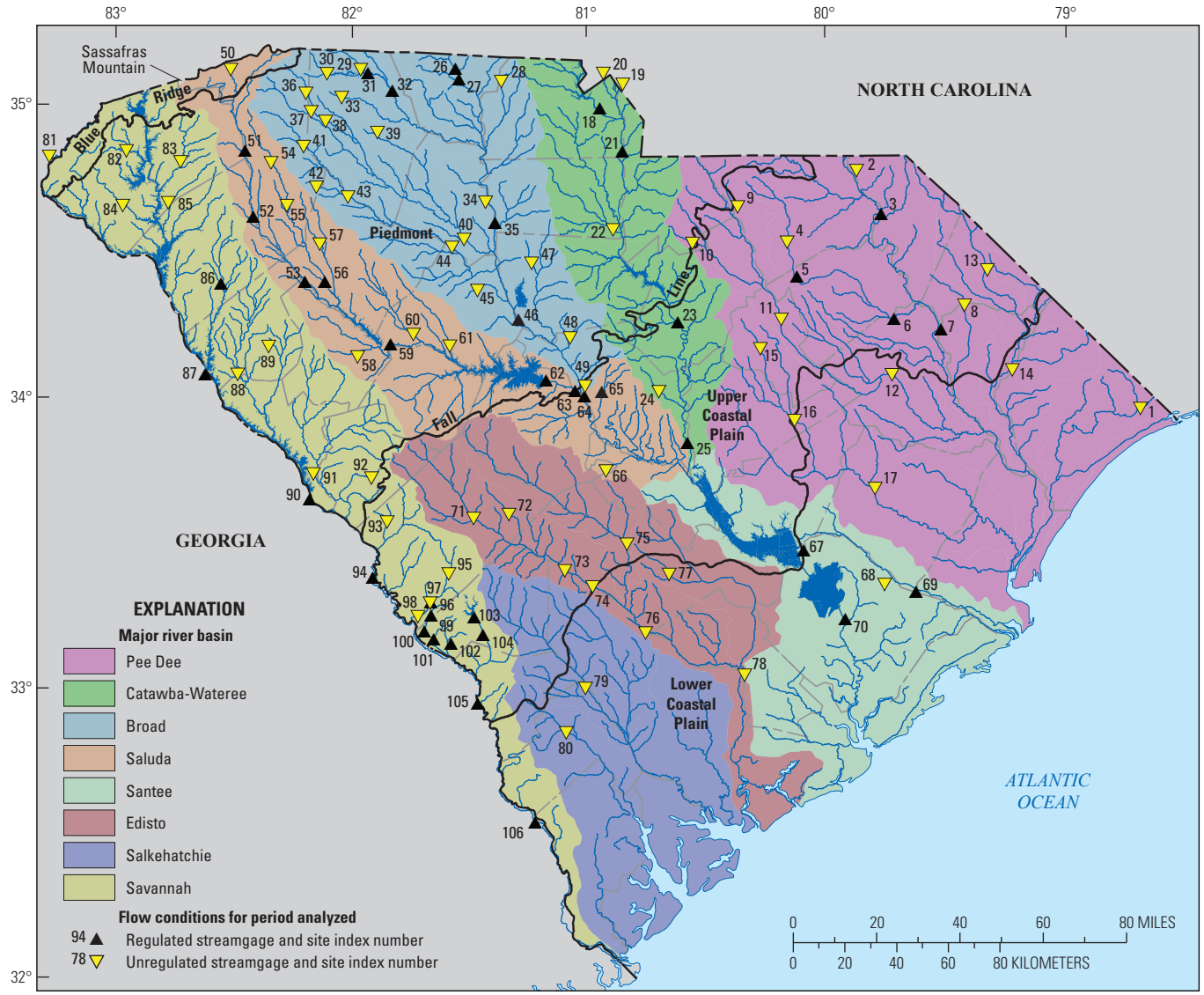
Previous reports by Stallings (1967), Johnson and others (1968), Bloxham and others (1970), Bloxham (1976, 1979, 1981), Barker (1986), Zalants (1991a, b), Feaster and Guimaraes (2009, 2012, 2014, 2016), and Guimaraes and Feaster (2010) described the low-flow frequency and flow-duration streamflows for selected CR streamgages in South Carolina. Brief descriptions of these reports follow.

Stallings (1967) presented low-flow statistics for 61 CR streamgages and 83 other sites where flow was measured during the 1954 drought. Johnson and others (1968) focused on the low-flow statistics of streams in Pickens County. Streamflow measurements during low-flow conditions from 1945 through 1967 were presented for 32 partial-record (PR) stations, which are stations that are only operated and quality assured for a specific flow regime such as low flows. The PR stations were correlated with one of four potential index streamgages to estimate annual minimum 7-day average streamflow with 2- and 10-year recurrence intervals (7Q2 and 7Q10, respectively).

Bloxham and others (1970) presented magnitude and frequency of low flows for nine CR streamgages in Spartanburg County, and streamflow measurements were presented for 63 sites. At 35 of the 63 sites, correlation methods were used with index streamgages to estimate the 7Q2 and 7Q10. Bloxham (1976) used data from six index streamgages from the upper Coastal Plain Physiographic Province to estimate the 7Q2 and 7Q10 at 54 PR stations and miscellaneous-measurement sites. Bloxham (1979) used data through the 1976 climate year[1] to compute low-flow frequency and flow-duration estimates at 71 CR streamgages in South Carolina.

Bloxham (1981) estimated the 7Q2 and 7Q10 at 113 PR stations in the Piedmont and lower Coastal Plain Provinces of South Carolina. Barker (1986) described 361 PR stations and provided the measurements that were made from August 1980 through July 1986. Zalants (1991a) provided estimates of the 7Q2 and 7Q10 at 564 PR stations and 27 CR streamgages on streams in the Blue Ridge, Piedmont, and upper Coastal Plain Provinces in South Carolina and parts of North Carolina and Georgia. Zalants (1991b) provided estimates of annual minimum 1-, 3-, 7-, 14-, 30-, 60-, and 90-day average streamflow with recurrence intervals of 2 to 50 years, depending on the length of record, for 55 CR streamgages in South Carolina for which at least 5 years of unregulated daily mean streamflow data were available through the 1986 climate year.

[1] The climate (or climatic) year is the 12-month period from April 1 through March 31 and is designated by the year in which the period begins.



Base from 1:500,000-scale hydrography dataset
and 1:250,000-scale watershed boundary dataset
U.S. Environmental Protection Agency level III Ecoregions, 1:250,000
Albers Equal Area projection; central meridian –96 00 00;
rotation angle –8.5; datum NAD27

Figure 1. The eight major river basins in South Carolina as defined by the South Carolina Department of Health and Environmental Control as well as continuous-record streamgages in South Carolina included for analysis in this investigation and as published in Feaster and Guimaraes (2009, 2012, 2014, 2016), and Guimaraes and Feaster (2010).

Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010) presented low-flow statistics for 17, 24, 25, 12, and 28 CR streamgages in the Pee Dee River, Broad River, Saluda-Congaree-Edisto, Catawba-Wateree and Santee River, and Savannah and Salkehatchie River Basins in South Carolina, respectively. Low-flow estimates for the Pee Dee River, Broad River, Saluda-Congaree-Edisto, and Catawba-Wateree and Santee River, and Savannah and Salkehatchie River Basins were computed by using daily mean flow data through climate years 2006, 2007, 2008, 2011, and 2013, respectively. In addition, daily flow durations of the 5- to 95-percent probabilities of exceedance were presented for most of these streamgages. Much of the general information for the current report was taken directly from Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).

Feaster and Cantrell (2010) provided a historical perspective on the use of the 7Q10 statistical flow in South Carolina water-quality management. As early as the S.C. Rules and Regulations of 1967, South Carolina adopted the 7Q10 as

the minimum streamflow for applying water-quality criteria. The 7Q10 almost certainly predates its widespread adoption in water-quality laws and regulations across the United States and remains the applicable critical flow condition for most of the water-quality criteria for South Carolina and many other states.

Description of the Study Area

The State of South Carolina encompasses 32,020 square miles (mi^2) in the Southeastern United States (U.S. Geological Survey, 2016). The study area encompasses most of the State with the exception of coastal areas where low flows are tidally influenced. Eight major river basins in South Carolina are designated by the SCDHEC (fig. 1; table 3; South Carolina Department of Health and Environmental Control, 2016): Broad, Catawba-Wateree, Edisto, Pee Dee, Salkehatchie, Saluda, Santee, and Savannah. For many of South Carolina's major rivers, streamflow is regulated to some degree by upstream reservoirs (Ruddy and Hitt, 1990).

Physical Setting

The State of South Carolina generally is divided into three major physiographic provinces: Blue Ridge, Piedmont, and Coastal Plain (fig. 1; Cooke, 1936). The Coastal Plain is further divided into the upper and lower Coastal Plain (Zalants, 1991a, b), which also is sometimes referred to as the inner and outer Coastal Plain (Bloxham, 1979; Campbell and Coes, 2010).

The Blue Ridge Province is a mountainous region that occupies about 2 percent of the State and has elevations ranging from 1,000 feet (ft) in the foothills to 3,554 ft at Sassafras Mountain (fig. 1; Wachob and others, 2009). Surface fractures in crystalline rock provide channels for runoff. Overlying the crystalline bedrock is a layer of weathered bedrock or saprolite. Although some rainfall infiltrates the saprolite layer, the steep-sided slopes and semipermeable soils in the region cause much of the rainfall to run off rapidly into stream channels (South Carolina Water Resources Commission, 1983).

Table 3. Major river basins in South Carolina.

[SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile]

SCDHEC-designated major river basin	Drainage area (mi^2)	Subordinate or contributing watersheds	Physiographic provinces
Broad	3,990	Enoree River, Tyger River, Broad River	Piedmont
Catawba-Wateree	2,324	Catawba River, Wateree River	Piedmont, upper Coastal Plain
Edisto	3,151	South Fork Edisto River, North Fork Edisto River, Four Hole Swamp, Edisto River	Upper and lower Coastal Plain
Pee Dee	7,848	Lynches River, Black River, Waccamaw River, Great Pee Dee River, Pee Dee Coastal Frontage	Piedmont, upper and lower Coastal Plain
Salkehatchie	2,860	Salkehatchie River, Coosaw River/Ashepoo River/St. Helena Sound, Broad River/Beaufort River/Port Royal Sound, Salkehatchie Coastal Frontage	Upper and lower Coastal Plain
Saluda	3,212	Saluda River, Congaree River	Blue Ridge, Piedmont, upper Coastal Plain
Santee	3,006	Santee River, Cooper River, Santee Coastal Frontage	Upper and lower Coastal Plain
Savannah	4,955	Tugaloo/Seneca Rivers, upper Savannah River, lower Savannah River	Blue Ridge, Piedmont, upper and lower Coastal Plain

The Piedmont Province is located between the Blue Ridge and Coastal Plain Provinces and encompasses about 35 percent of the State. Rolling hills, elongated ridges, and moderately deep to shallow valleys characterize the Piedmont with land-surface elevations ranging from 1,000 ft above sea level at the foothills of the Blue Ridge to about 400 ft at the Fall Line. The Fall Line is the name given to the boundary between the Piedmont and Coastal Plain regions (fig. 1). In general, this boundary is characterized by a series of rapids or falls where the streams tumble off the more resistant rocks of the Piedmont into the deeper valleys worn in the softer sediments of the Coastal Plain (Cooke, 1936). The Piedmont is underlain by fractured crystalline rock that consists of intrusive granite, gneiss, schist, and metamorphosed volcanic rock. Most overlying soil is made up of moderately to poorly permeable silty clay loams. Alluvial deposits of clay, silt, and sand are found along the valley floors (Bloxham, 1981).

Gradual slopes and rounded summits characterize the upper Coastal Plain, although there are several areas of intensely irregular terrain. Near the Fall Line, some hilltop elevations exceed 700 ft above sea level, but land-surface elevations commonly are less than 200 ft above sea level at the boundary of the lower Coastal Plain. Bloxham (1976) noted that the lower boundary of the upper Coastal Plain, which he referred to as the inner Coastal Plain, generally coincided with the Citronelle Escarpment (Doering, 1960), which marks the innermost sea-cut terraces of the Coastal Plain region. The upper portion of the upper Coastal Plain is known as the Sand Hills region and is characterized by long gentle slopes, rounded summits cut by stream valleys, and well-defined flood plains along the rivers. The Sand Hills are composed of primarily Cretaceous-age marine sands and clays, capped in places with Tertiary-age sands, deposited over the crystalline and metamorphic rocks of the Piedmont (Omernik, 1987).

Near the boundary with the upper Coastal Plain, the lower Coastal Plain land surface slopes from about 200 ft above sea level to the sea level at the coast. As compared to other areas of the State, topographic relief in the lower Coastal Plain is much less, causing small stream drainage patterns to have characteristics that are more erratic in the seaward direction. Large parts of the lower Coastal Plain river systems are swamplands. The highly permeable soils in this region are similar to those of the upper Coastal Plain, which readily absorbs rainfall and retards runoff to stream channels, causing streamflow to rise and fall gradually (Bloxham, 1981).

Climate

South Carolina is located at a relatively low latitude (32° to 35° North) with most of the State being at an elevation of 1,000 ft or less. The warm Gulf Stream current moves along the coastline, and the mountains to the north and west tend to block or delay many cold air masses. These factors combine to give South Carolina a pleasant, mild and humid climate (National Oceanic and Atmospheric Administration, 2016a). Annual average temperatures range from 67 degrees Fahrenheit (°F) at the coast to 58 °F at the edge of the mountains. In the mountains, temperature can vary widely due to elevation differences. The lowest temperature on record was –19 °F at Caesars Head on January 21, 1985. Record maximum summer temperatures at inland locations of the State have reached as high as 111 °F.

Principal influences on precipitation in South Carolina include storms moving inland from the Gulf of Mexico, the Caribbean Sea, and the Atlantic Ocean (U.S. Geological Survey, 1991). Other influences include local and upwind land surfaces, with the Appalachian Mountains exerting a major influence on the State's climate, as well as moisture from lake and reservoir evaporation. Generally, maximum precipitation occurs during March and July with minimum precipitation occurring during May and November (South Carolina Department of Natural Resources, 2016). The average statewide annual precipitation for South Carolina for the period 1895 to 2015 is 47.7 inches (fig. 2*A*; National Oceanic and Atmospheric Administration, 2016b). With respect to

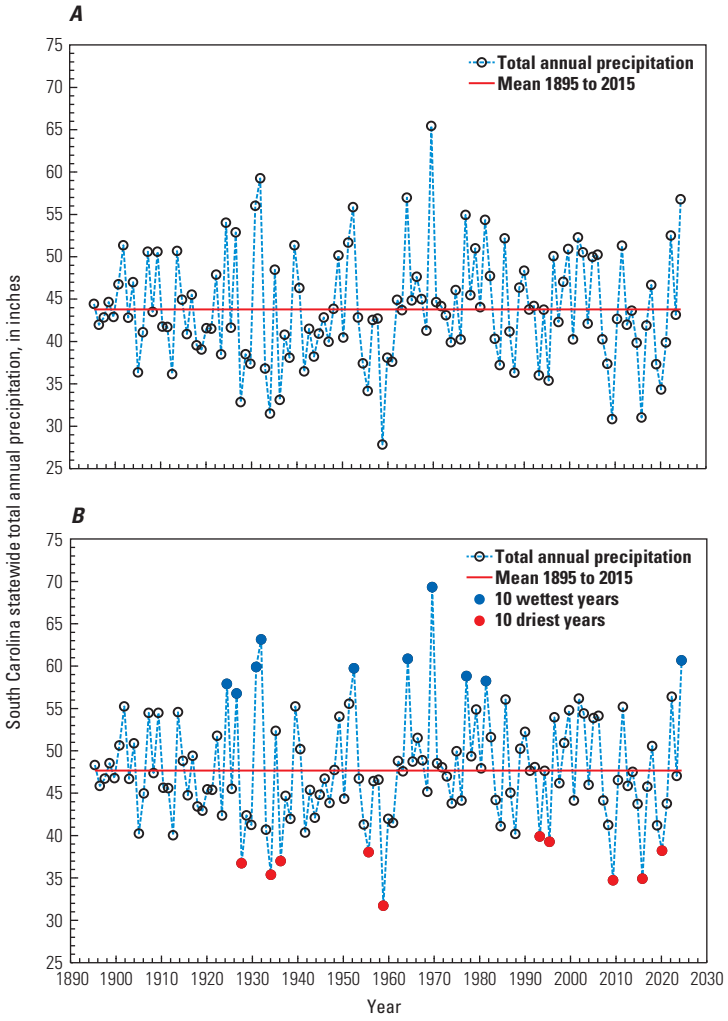


Figure 2. *A*, South Carolina statewide annual precipitation for 1895 to 2015 and *B*, the 10 driest and wettest years for the same period.

Table 4. The 10 driest and wettest calendar years in South Carolina for the statewide annual precipitation from 1895 to 2015.

[From National Oceanic and Atmospheric Administration, 2016b]

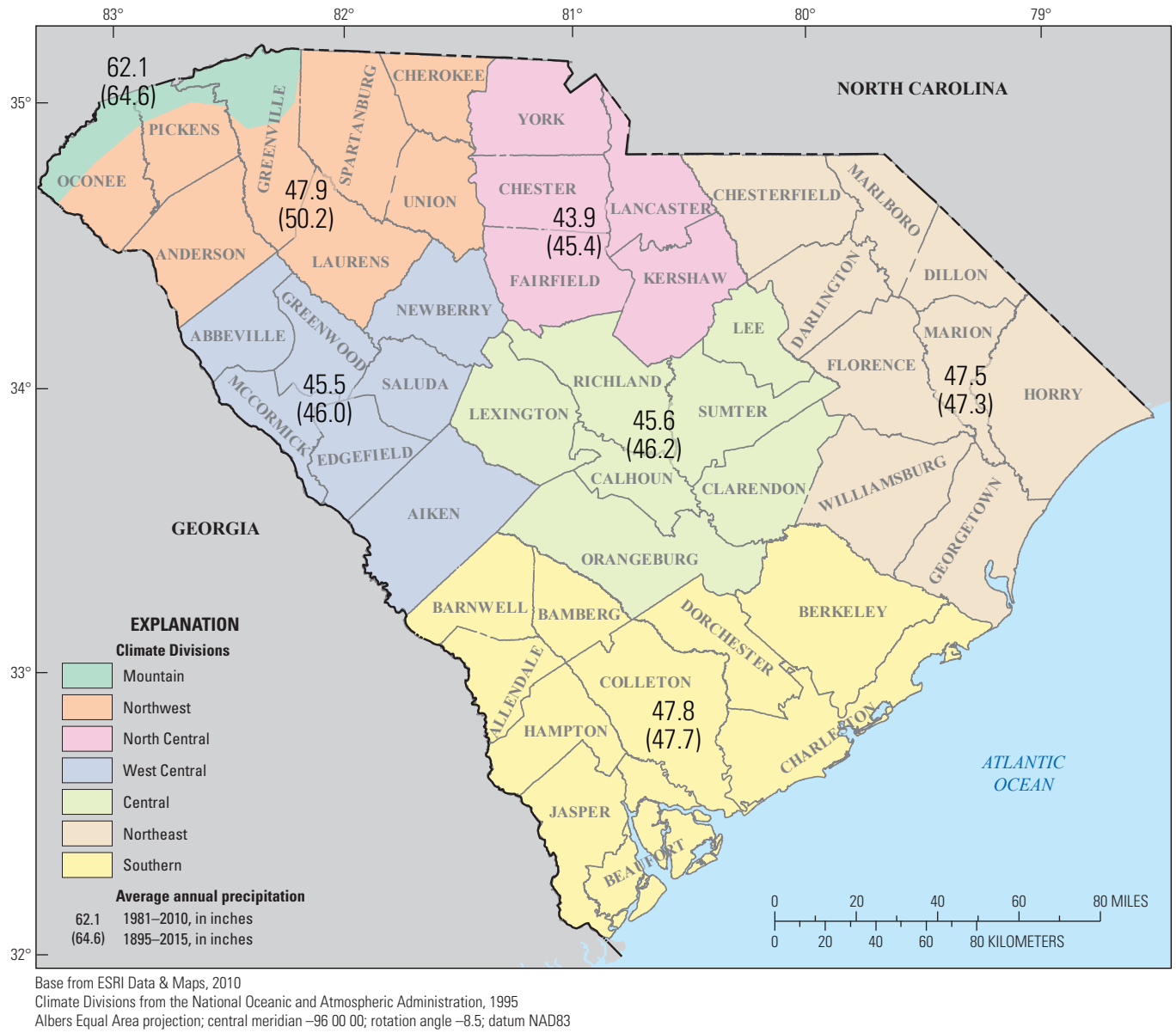
Driest			Wettest		
Rank from the driest year	Calendar year	Average total annual precipitation (inches)	Rank from the wettest year	Calendar year	Average total annual precipitation (inches)
1	1954	31.72	1	1964	69.32
2	2001	34.72	2	1929	63.14
3	2007	34.90	3	1959	60.86
4	1931	35.37	4	2015	60.66
5	1925	36.73	5	1928	59.89
6	1933	36.99	6	1948	59.74
7	1951	38.04	7	1971	58.82
8	2011	38.21	8	1975	58.23
9	1988	39.26	9	1922	57.90
10	1986	39.88	10	1924	56.77

the average statewide total annual precipitation, the 10 driest and wettest years for the period 1895 to 2015 are shown in table 4 (fig. 2*B*). The second and third driest years since 1895 occurred in 2001 and 2007, respectively, highlighting the historic drought periods that have occurred since the previous statewide update of low-flow statistics, which included data through March 1987 (Zalants, 1991b).

Climate normals are three-decade averages of climatological variables, which are produced once every 10 years (National Oceanic and Atmospheric Administration, 2016c). For the climate normal period from 1981 to 2010, average statewide total precipitation was 47.0 inches, which is just slightly less than the statewide total of 47.7 inches for the period 1895 to 2015. Across the seven climate divisions, or regions, in South Carolina (National Oceanic and Atmospheric Administration, 2016d), regional differences in annual precipitation from 1895 to 2015 ranged from 64.6 inches in the Mountain region to 45.4 inches in the North Central region (fig. 3). For the climate normal period from 1981 to 2010, the annual precipitation ranged from 62.1 inches in the Mountain region to 43.9 inches in the North Central region. These comparisons indicate that for those regions, the precipitation in recent years has been less than the long-term average precipitation. The same is true for the other inland regions. The Northeast and Southern regions, which are both bounded by the Atlantic Ocean, were the only two regions to show a slightly higher annual precipitation for the climate normal period from 1981 to 2010 compared to the long-term average from 1895 to 2015.

Low-Flow Characteristics

Knowledge of the low-flow characteristics of South Carolina streams is vital for water-resource managers in making planning, management, and permitting decisions. Having such up-to-date information helps inform decisions related to determining waste load allocations for point sources, developing TMDLs for streams, determining the quantity of water that can be withdrawn safely from a particular stream, and preparing the State Water Plan. By using daily mean flow records at USGS streamgages, low-flow statistics can be computed to estimate the magnitude and frequency of low-flow events. Low-flow frequency statistics, as defined in this report, are annual minimum daily mean streamflows averaged over designated periods (Riggs, 1972; Note: As stated previously, the use of "average" with respect to the low-flow statistics in refers to the arithmetic mean). For example, 7Q10 is one of the most commonly used low-flow statistic and is defined as the annual minimum 7-day average flow with a 10-year recurrence interval (as previously stated). In terms of probability of occurrence, there is a 1 in 10 chance (or 10-percent probability) that the annual minimum 7-day average streamflow in any single year will be equal to or less than the estimated 7Q10 value for a specific location (Riggs, 1968, 1972, 1985).



Base from ESRI Data & Maps, 2010
Climate Divisions from the National Oceanic and Atmospheric Administration, 1995
Albers Equal Area projection; central meridian –96 00 00; rotation angle –8.5; datum NAD83

Figure 3. South Carolina annual precipitation, by climate division, for the period 1895 to 2015 and the climate normal period 1981 to 2010.

Diversions

Diversions from natural streamflows occur for a variety of reasons. Some diversions are the result of drinking-water supply withdrawals, manufacturing, point-source discharges, and agricultural needs, such as irrigation. Diversions by manufacturers are sometimes confined to short distances along rivers. Water may be taken from the river channel, passed through the manufacturing plant for use in processing, cooling, or dilution of wastes, and then returned to the river. Therefore, in many cases, consumptive losses from diversions by manufacturers may be negligible (Ries, 1994). Thus, the effects of diversions to the streamflow regime of a river are variable and depend not only on where the diversions occur but also on the final outcome of the diverted water.

Ries (1994) noted that water diverted from a stream or adjacent aquifer for municipal supplies is returned to the basin as effluent from individual septic systems or from wastewater-treatment plants within the basin and generally causes little loss of water to the basin; however, such diversions may affect the temporal pattern of streamflows. Diversions from one basin to another (interbasin transfers) reduce streamflow in the donor basin and increase streamflow in the receiving basin. Diversions between subbasins of a larger basin can substantially affect streamflows within the subbasins, but if consumptive losses are negligible, streamflows in the larger basin

may be nearly unaffected. The various diversion scenarios described above indicate that an accurate accounting of all diversions in a basin may be difficult; therefore, most USGS low-flow analyses are based on the flow data as measured at the streamgage without adjustments for diversions as was the case for the low-flow statistics included in this report.

Frequency Statistics

Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010) described the details of the low-flow frequency analyses for USGS streamgages from each of the major river basins in South Carolina. For ease of reference, the highlights of those methods will be included in this report. In addition, the low-flow statistics previously published by Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010) have been compiled and are included at the back of this report in tables 5 (unregulated, p. 41) and 6 (regulated, p. 113). In this report, regulated flow refers to streamflow influenced by dam structures on the stream of interest and not flow diversions as might occur from surface-water withdrawals or discharges to the stream from wastewater-treatment facilities.

Low-flow frequency statistics were computed by fitting the logarithms of the annual minimum *N*-day average flows, where *N* can equal any number from 1 to 365, to a Pearson Type III frequency distribution (Riggs, 1972; Barnes, 1979), which is commonly referred to as a log-Pearson Type III (LPIII) distribution (Interagency Advisory Committee on Water Data, 1982). Daily mean streamflows were used for the frequency analyses and are available through the USGS National Water Information System database at https://waterdata.usgs.gov/al/nwis/sw/. The analyses were made using the Surface-Water Statistics (SWSTAT), version 5.0, computer program developed by the USGS (Hutchison, 1975; Lumb and others, 1990; Flynn and others, 1995). The SWSTAT program incorporates standard USGS methods for computing low-flow frequency statistics as described by Riggs (1972). In addition to the stand-alone version of SWSTAT, a beta version of the SW Toolbox program also was used in the analysis (Paul Hummel, Aqua Terra Consultants, written commun., September 26, 2014). The SW Toolbox incorporates the algorithms from SWSTAT into a more user-friendly computer package for doing statistical analyses.

Streamflow statistics computed at CR streamgages are based on historical streamflow records but can be useful for making decisions about the future if it can be reasonably assumed that the future streamflow patterns are likely to be relatively similar to historical streamflow patterns. Thus, streamflow statistics computed from records that capture a wide range of hydrologic conditions from a longer period of record are more desirable. Low-flow frequency statistics for this study were computed by fitting the logarithms (base 10) of the annual minimum 1-, 3-, 7-, 14-, 30-, 60-, and 90-day average streamflow to the LPIII distribution. Fitting the distribution requires calculating the mean, standard deviation, and skew coefficient of the logarithms of the *N*-day streamflow. Estimates of the *N*-day non-exceedance flows for a specified recurrence interval *T* are computed by using the following equation:

$$\log Q_T = \bar{X} + KS, \tag{1}$$

where

Q_T is the *N*-day low flow, in cubic feet per second, and *T* is the recurrence interval, in years;

$\bar{X}$ is the mean of the logarithms of the annual minimum *N*-day average streamflows;

K is a frequency factor that is a function of the recurrence interval and the coefficient of skew; and

S is the standard deviation of the logarithms of the annual minimum *N*-day average streamflows.

Low-flow statistics typically are presented as a set of non-exceedance probabilities or, alternatively, recurrence intervals along with the associated low-flow values. The non-exceedance probability is defined as the probability that a flow at a given streamgage will be equal to or less than the associated low-flow value once in a 1-year period and is expressed as a decimal fraction less than 1.0 or as a percentage less than 100. Recurrence interval is defined as the average interval of years (often referred to as the return period) during which flows at a given streamgage will be equal to or less than the associated low-flow value once. For example, a low-flow value at a given streamgage with a non-exceedance probability of 0.10 indicates that flows at that streamgage have a 10-percent chance of being equal to or less than the low-flow value once in any given year. Recurrence interval and non-exceedance probability are the mathematical inverses of one another; therefore, a flow with a non-exceedance probability of 0.10 has a recurrence interval of 1 divided by 0.10 or 10 years. Recurrence intervals, regardless of length, always refer to an average period of time (or years) in which flows at a given streamgage will be equal to or less than the associated low-flow value once. A 10-year recurrence interval does not imply that the low-flow value will have a non-exceedance every 10 years; it does indicate, however, that the average time between recurrences is equal to 10 years. Consequently, an observed interval between a non-exceedance of the 7Q10 may be as short as 1 year or may be considerably longer than 10 years.

As an example, figure 4*A* shows the annual minimum 7-day average flows for USGS streamgage 02177000 Chattooga River near Clayton, GA, for the 74-year period for climate years 1940 to 2013 as well as the 7Q10 estimate from those data, and figure 4*B* shows the frequency curve from the LPIII analysis of those data. From figure 4*A*, seven

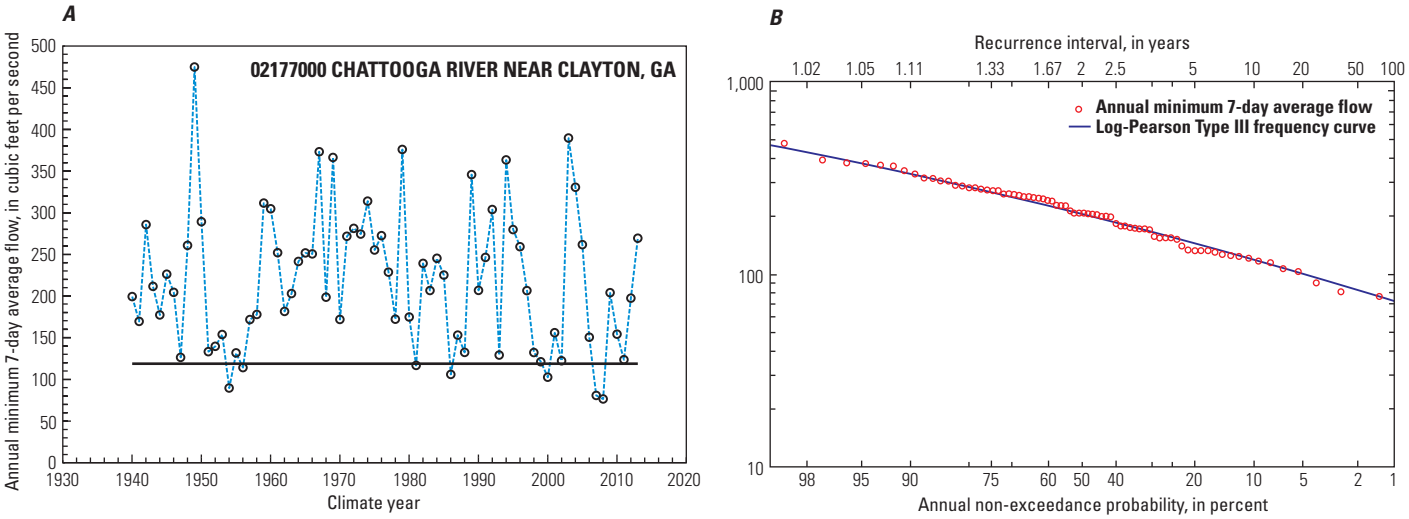


Figure 4. *A*, Annual minimum 7-day average flows and the 7Q10 estimate, and *B*, the log-Pearson Type III frequency curve for the annual minimum 7-day average flow for U.S. Geological Survey streamgage 02177000 Chattooga River near Clayton, GA.

of the annual minimum 7-day average flows fall below the 7Q10 estimate, but they are not evenly distributed. For the 3-year period from climate year 1954 to 1956, there were two exceedances; however, the next exceedance did not occur until 35 years later in 1981. Another exceedance occurred 5 years later in 1986, but the next exceedance did not occur until 14 years later in 2000. Climate years 2007 and 2008 had consecutive exceedances. For the 74 years of record, however, a total of seven values fell below the 7Q10 estimate, which equates to, on average, an exceedance once every 10 years.

For CR streamgages on regulated streams, low-flow characteristics also were assessed for long-term trends. If the assessment showed that the regulation patterns had been reasonably consistent and the LPIII distribution provided a reasonable fit of the data, low-flow statistics were computed for that period using similar techniques for the unregulated streamgages (Riggs, 1972). In cases where regulation patterns were shown to be highly variable and (or) where the LPIII distribution did not reasonably represent the data (fig. 5), tables of exceedance percentiles for consecutive 7-day average flows were generated in place of a frequency analysis for the streamgages. These exceedance percentiles should not be considered representative of a low-flow frequency, but are merely a representation of recorded 7-day average flows. Nonetheless, the data are useful for assessing the flow conditions for the period of record.

Flow-Duration Analysis

Flow durations represent the percentage of time that a specified streamflow is equaled or exceeded during a given period (Searcy, 1959). Flow durations are computed by sorting the individual daily mean flows for the period of record from the largest value to the smallest value and assigning each streamflow value a rank, starting from 1 to the largest value. The frequencies of exceedance are then computed using the Weibull formula for computing plotting position (Helsel and Hirsch, 1992):

$$P = 100 * [M / (n+1)], \quad (2)$$

where

P is the probability that a given flow will be equaled or exceeded (percentage of time),
M is the ranked position (dimensionless), and
n is the number of events for the period of record (dimensionless).

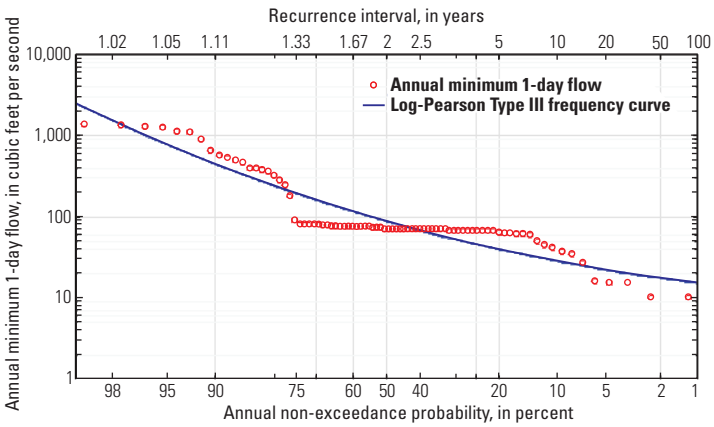


Figure 5. Example of a regulated streamgage for which the log-Pearson Type III frequency distribution does not adequately fit the logarithms of the annual minimum 1-day flows.

Flow durations are a summary of the past hydrologic events. Yet, if the streamflow during the period for which the duration curve is based is a sufficiently long period of record, the statistics can be used as an indicator of probable future conditions (Searcy, 1959). In order to compare flow durations at different streamgages or in different basins, flow-duration estimates can be normalized by drainage area to represent a streamflow per unit area. Again, it should be noted that the most useful comparisons will be those based on similar lengths of record from similar hydrologic periods. Flow durations for this report are presented in tabular form for the 5-, 10-, 25-, 50-, 75-, 90-, and 95-percent exceedances (tables 5 and 6) and were previously published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).

Statistical Analysis of Trends in Annual Minimum 7-Day Average Flows and Precipitation Data

Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010) detailed the quality-assurance and quality-control analyses that were completed for determining the annual minimum 7-day average streamflow. Part of that analysis included assessing trends in the annual minimum 7-day average streamflow at each streamgage by using the Kendall's tau test (Kendall, 1938; Helsel and Hirsch, 1992). Although not published, the results from those tests were referenced in the previous publications.

The Kendall's tau test provides an independent measure of the monotonic relation between the date and the annual minimum 7-day average streamflow. The null hypothesis for this test is that there is no monotonic trend between the two variables as determined from the calculated probability value (p-value). The p-value estimates the probability of rejecting the null hypothesis if it were true. In this study, a trend is considered to be statistically significant when the "p-value" is less than or equal to 0.05 meaning that there is less than a 5-percent chance of obtaining the sample result if the null hypothesis were true. When streamgages have a substantial number of annual minimum N-day average flows that are zero, the interpretation of the Kendall's Tau trend test results becomes tenuous at best because of ties in the data.

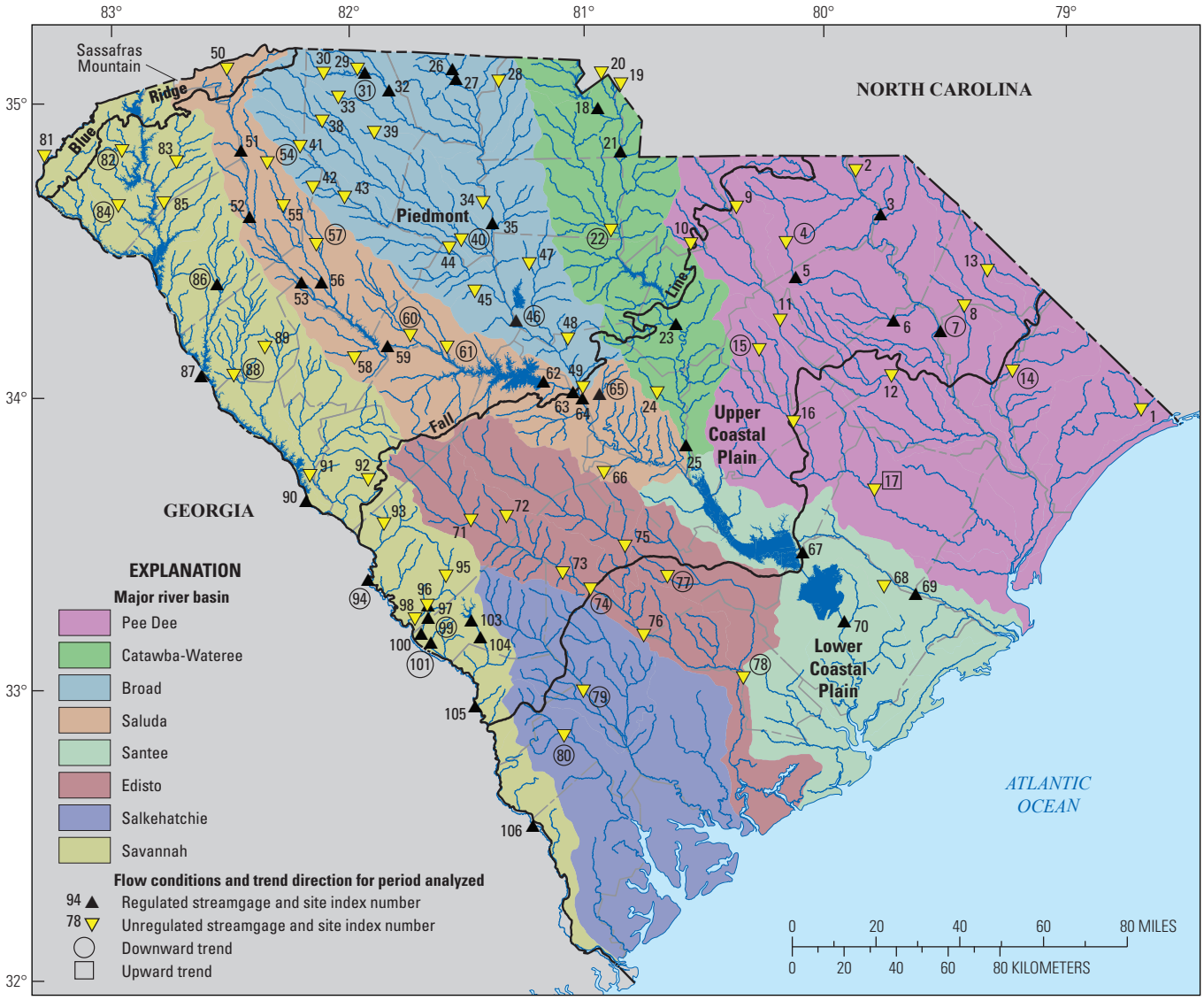
Interpretations of trend analyses for relatively short periods of record may only reflect a short-term condition and not necessarily be representative of an actual long-term change in the system. This is particularly true for relatively short-term records that begin or end in a historically low or high flow condition. If these periods are actually part of a short-term hydrologic regime and not reflective of a shift in long-term climate or basin conditions when viewed in terms of longer timeframes, the periods may just be part of a much longer-term oscillation (Lins and others, 2010). For long-term periods of record that also begin or end under extreme conditions (excessively wet or dry), the test may indicate a trend, but additional analysis that excludes the extreme events may indicate no significant trend.

For long-term unregulated streamgage records that do not begin or end in an extreme condition, trends may reflect changes in climate cycles, land-use changes, diversions, groundwater pumping, or other practices that may affect groundwater levels. At regulated streamgages, interpretations of trend analyses are more complex. Streamflow at regulated streamgages also are influenced by changes in climatic cycles, land use, diversions, and groundwater activities, but those changes can be mitigated, enhanced, or even offset by changes in regulation patterns. Trend assessments of the flow patterns can still be useful to help determine the suitability of a frequency analysis of data collected at regulated streamgages.

Kendall's Tau Trend Assessments for Unregulated Streamgages

For the annual minimum 7-day average flows at unregulated streamgages (or streamgages that are currently regulated but for which the frequency analysis was based on the unregulated period of record), 49 streamgages indicated no significant trend, 18 streamgages indicated a significant downward trend, and 1 streamgage indicated a significant upward trend (table 7, p. 150; fig. 6). The record lengths of the 49 streamgages that indicated no statistically significant trend ranged from 10 to 78 years with an average of 29 years and a median of 25 years. Of the 18 streamgages indicating a downtrend trend, the record lengths ranged from 14 to 70 years with an average of 40 years and a median of 35 years.

Figure 7 shows a plot of the annual minimum 7-day average flow at eight long-term streamgages across the selected South Carolina river basins by using the period of record included in the frequency analysis from the respective basin report (Feaster and Guimaraes, 2009, 2012, 2014, 2016, and Guimaraes and Feaster, 2010). A linear regression line also is included as a visual aid of the potential trend in the data. The trend analysis results for five of the eight long-term USGS streamgages indicates no significant trend (02132000, 02154500, 02173500, 02177000, and 02196000), two indicate a downward trend (02147500 and 02175500), and one indicates an upward trend (02136000). The plots of the annual minimum 7-day average flows for the eight long-term streamgages show similar patterns relating to the historic droughts in the early 1950s and 2000s. The plots also show the relatively wet period that occurred in the 1960s and 1970s.



Base from 1:500,000-scale hydrography dataset
and 1:250,000-scale watershed boundary dataset
U.S. Environmental Protection Agency level III Ecoregions, 1:250,000
Albers Equal Area projection; central meridian –96 00 00;
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Figure 6. The trend direction (downward, upward, or no trend) for the continuous-record streamgages in South Carolina for which a Kendall's tau trend assessment was made.

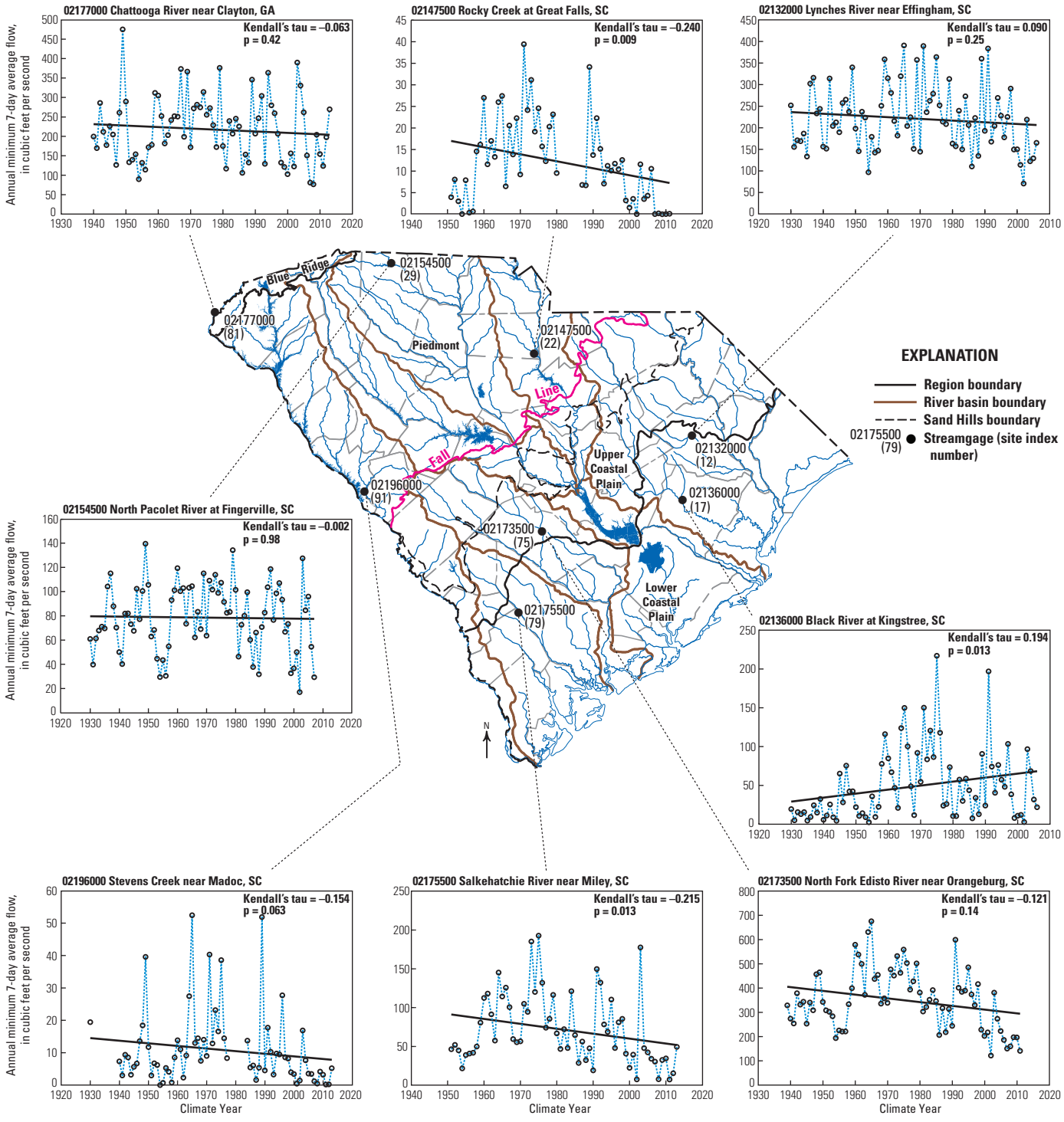


Figure 7. Annual minimum 7-day average flow and results of Kendall's tau statistical test for detection of trends for eight long-term streamgages in South Carolina.

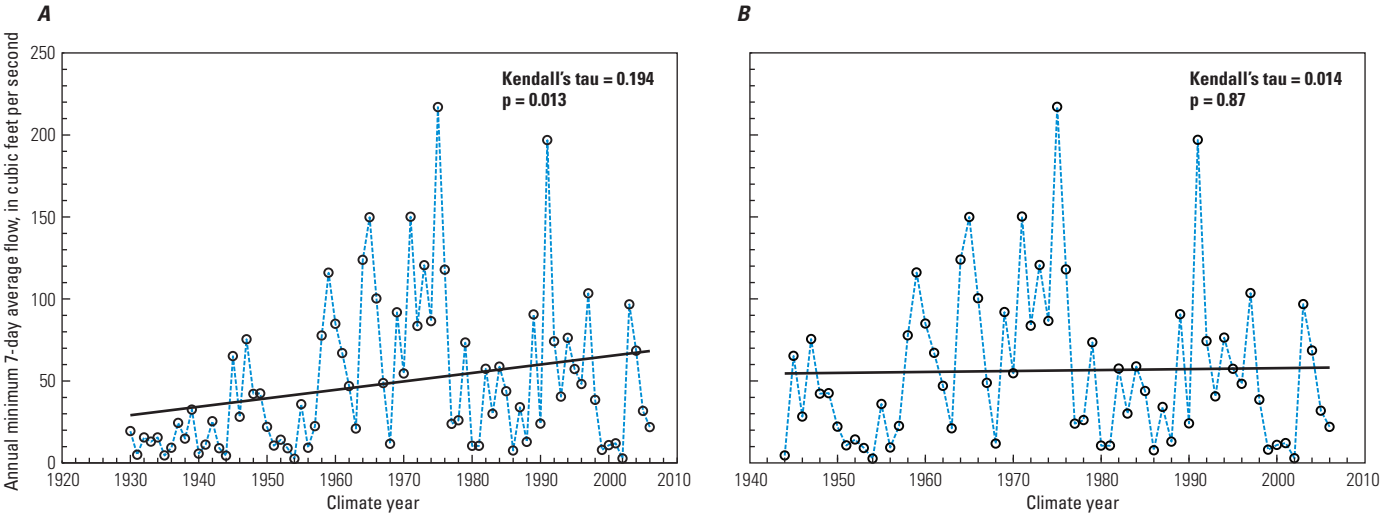


Figure 8. Annual minimum 7-day average flow and results of Kendall's tau statistical test for detection of trends for U.S. Geological Survey streamgage 02136000 Black River at Kingstree, SC, for *A*, the full period of record from climate year 1930 to 2006 and *B*, the truncated period of record from climate year 1944 to 2006.

USGS streamgage 02136000 Black River at Kingstree, SC, is a good example of a record that began in a historical low-flow period and, as a result, indicates an upward trend (p = 0.013; fig. 8*A*). However, if the trend analysis is computed excluding the low-flow period from climate year 1930 to 1943 and only including climate years 1944 to 2006, no significant trend is indicated (p = 0.87; fig. 8*B*). Another example is USGS streamgage 02147500 Rocky Creek at Great Falls, SC, for which the last 5 years of record shown in figure 9*A* were historically low and included a year with a zero flow and, consequently, indicates a downward trend (p = 0.009). If the trend analysis is done excluding climate years 2007 to 2011, no significant trend is indicated (p = 0.30; fig. 9*B*).

As noted previously, interpretations of trend analyses for relatively short records may only reflect a short-term condition and may not be representative of an actual long-term change in the system. This is particularly true for relatively short-term records that begin or end in a historically low- or high-flow condition. If these periods are actually part of a short-term hydrologic regime and not reflective of a shift in long-term climate or basin conditions when viewed in terms of longer timeframes, the periods may just be part of a much longer term oscillation (Lins and others, 2010). For example, USGS streamgage 02132000 Lynches River at Effingham, SC, is a long-term, unregulated streamgage with a record length of 77 years. Although a linear regression curve shows a slight

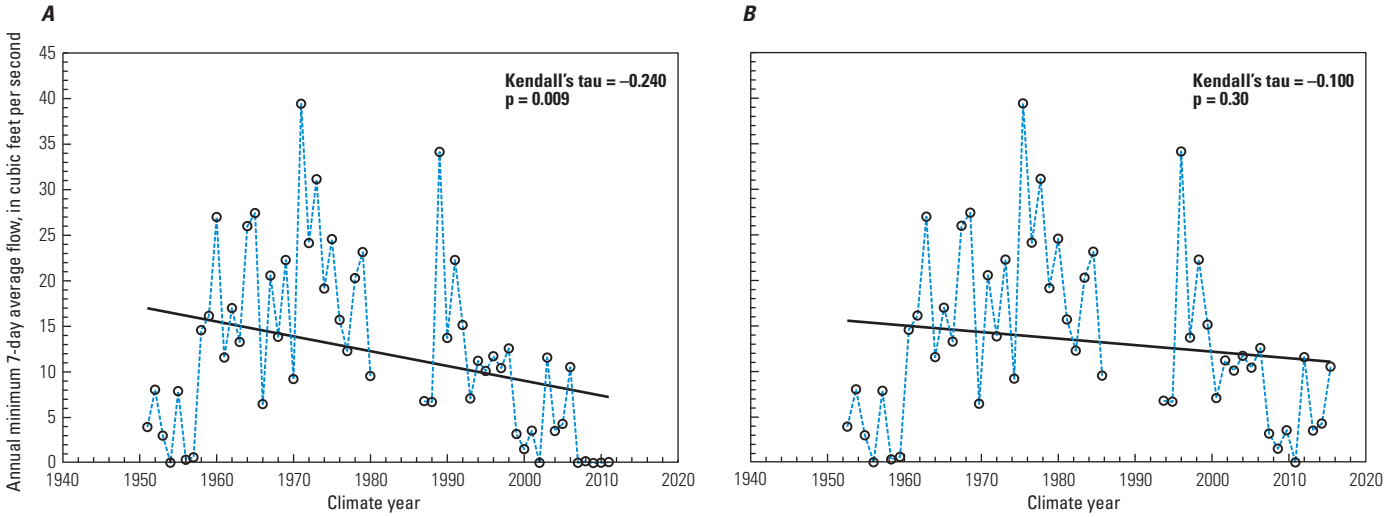


Figure 9. Annual minimum 7-day average flow and results of Kendall's tau statistical test for detection of trends for U.S. Geological Survey streamgage 02147500 Rocky Creek at Great Falls, SC, for *A*, the full period of record from climate year 1951 to 2011 and *B*, the truncated period of record from climate year 1951 to 2006.

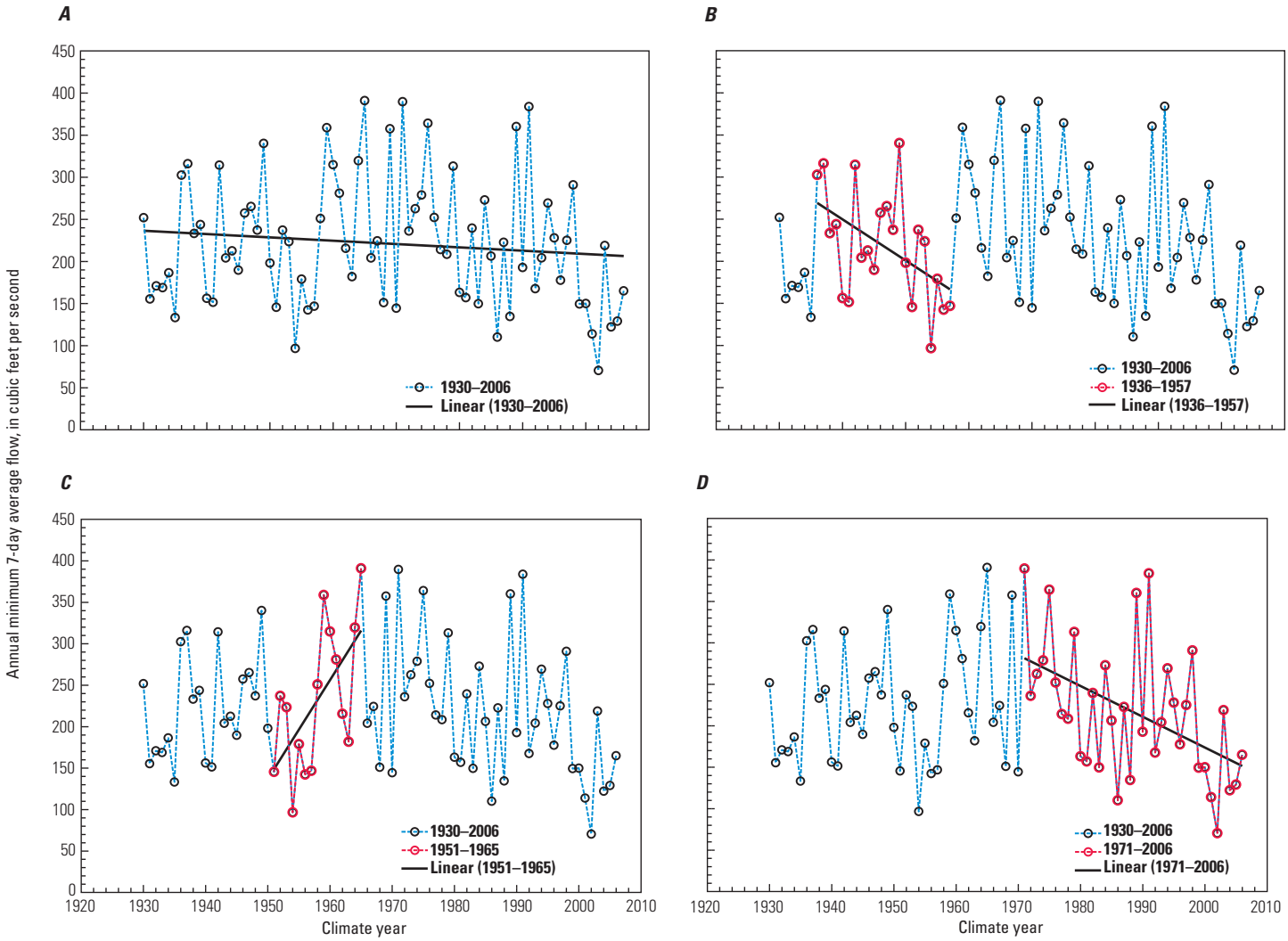


Figure 10. Selected periods of record at U.S. Geological Survey streamgage 02132000 Lynches River at Effingham, SC, for which a Kendall's tau statistical test for detection of trends was assessed: *A*, 1930 to 2006; *B*, 1936 to 1957; *C*, 1951 to 1965; and *D*, 1971 to 2006.

downward slope for climate year 1930 to 2006, the Kendall's tau analysis indicated no statistically significant trend (table 7; fig. 10*A*). To show how period of record and hydrologic conditions measured during the period of record can influence the trend assessment, a trend analysis for various subsets of that data was made. For the 22-year period from 1936 to 1957, the analysis indicated a downward trend (tau value of –0.36 with a p-value of 0.021; fig. 10*B*). An analysis of the 15-year period from 1951 to 1965 indicated a statistical significant upward trend (tau value of 0.43 and p-value of 0.026; fig. 10*C*). An analysis of the 36-year period from 1971 to 2006 indicated a statistical significant downward trend (tau value of –0.37 and p-value of 0.002; fig. 10*D*). This example highlights the reality that, over long periods, there are likely to be short-term trends in the hydrologic data that may not actually reflect a long-term change in the system and emphasizes the importance of long-term data-collection programs.

Kendall's Tau Trend Assessment for Regulated Streamgages

Interpretations of trend analyses are more complicated for regulated streams. Streamflow at regulated stations also is influenced by changes in climate or basin conditions; however, those changes can be mitigated, enhanced, or even offset by changes in regulation patterns. Nonetheless, assessments of flow patterns are useful along with other assessments to help determine the appropriateness of a frequency analysis at a regulated station.

Of the 26 stations in which streamflow was influenced by regulated conditions, Kendall's tau results indicated no statistically significant trend at 19 stations and a downward trend at 7 stations (table 7; fig. 6). There were an additional eight stations where regulated flow patterns were determined to be unsuitable for frequency analyses, and therefore, no trend analyses were completed (table 7). For those stations,

exceedance percentiles of annual minimum 7-day average flows and duration of daily mean flows are provided (table 6): 02146000, 02147020, 02148000, 02148315, 02171500, 02171700, 02172002, and 021973565.

Kendall's Tau Trend Assessment for Total Annual Precipitation by South Carolina Climate Divisions

A Kendall's tau trend assessment also was made of the total annual precipitation from 1895 to 2015 for the seven climate divisions in South Carolina (fig. 3; National Oceanic and Atmospheric Administration, 2016b). In addition to the total annual precipitation, figure 10 includes the mean annual precipitation (red line) as well as a linear regression line (black hatched), which provides a visual aid for the potential trend in the data. The results of the Kendall's tau assessment indicated no trend for any of the climate divisions. As was the case for the streamflow example in figure 9, various patterns for short-term trends periods are notable for precipitation (fig. 11).

Although no long-term trends are evident in the historical South Carolina total annual precipitation, there is certainly an upward trend in the State's population (fig. 12; U.S. Census Bureau, 2016), highlighting the substantial increase in users of a relatively stable natural resource. Future periods of below-normal precipitation, such as occurred in the 1950s or during 1998 to 2002, could result in lower streamflows because of the increasing number of users. As such, monitoring, managing, and encouraging conservation of South Carolina's water resources will continue to be vitally important to ensure long-term sustainability.

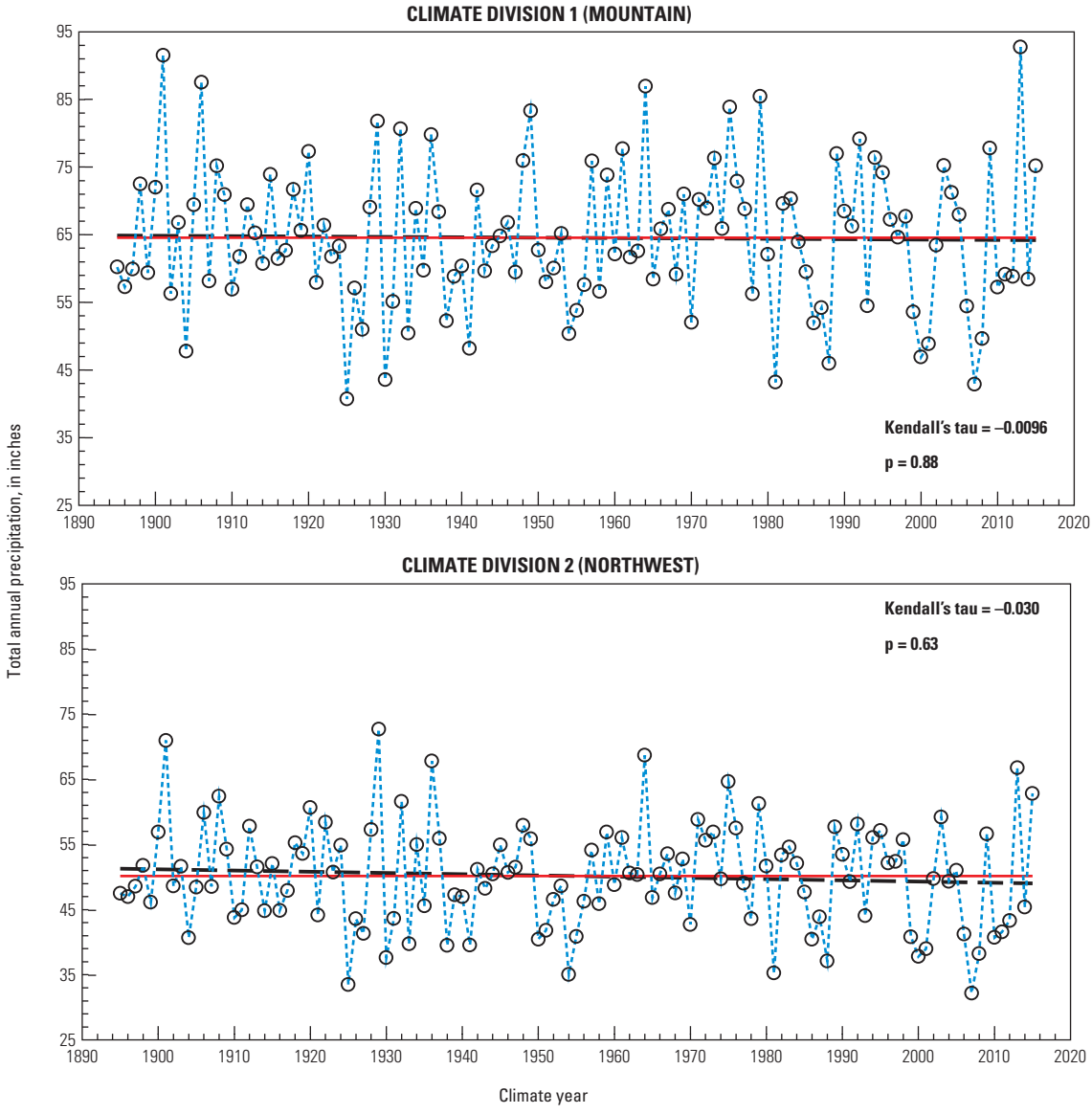


Figure 11. Annual precipitation for calendar years 1895 through 2015, and the results of Kendall's tau statistical test for detection of trends for those years for the climate divisions in South Carolina. The red line is the mean annual precipitation, and the black hatched line is the linear (total annual) regression.

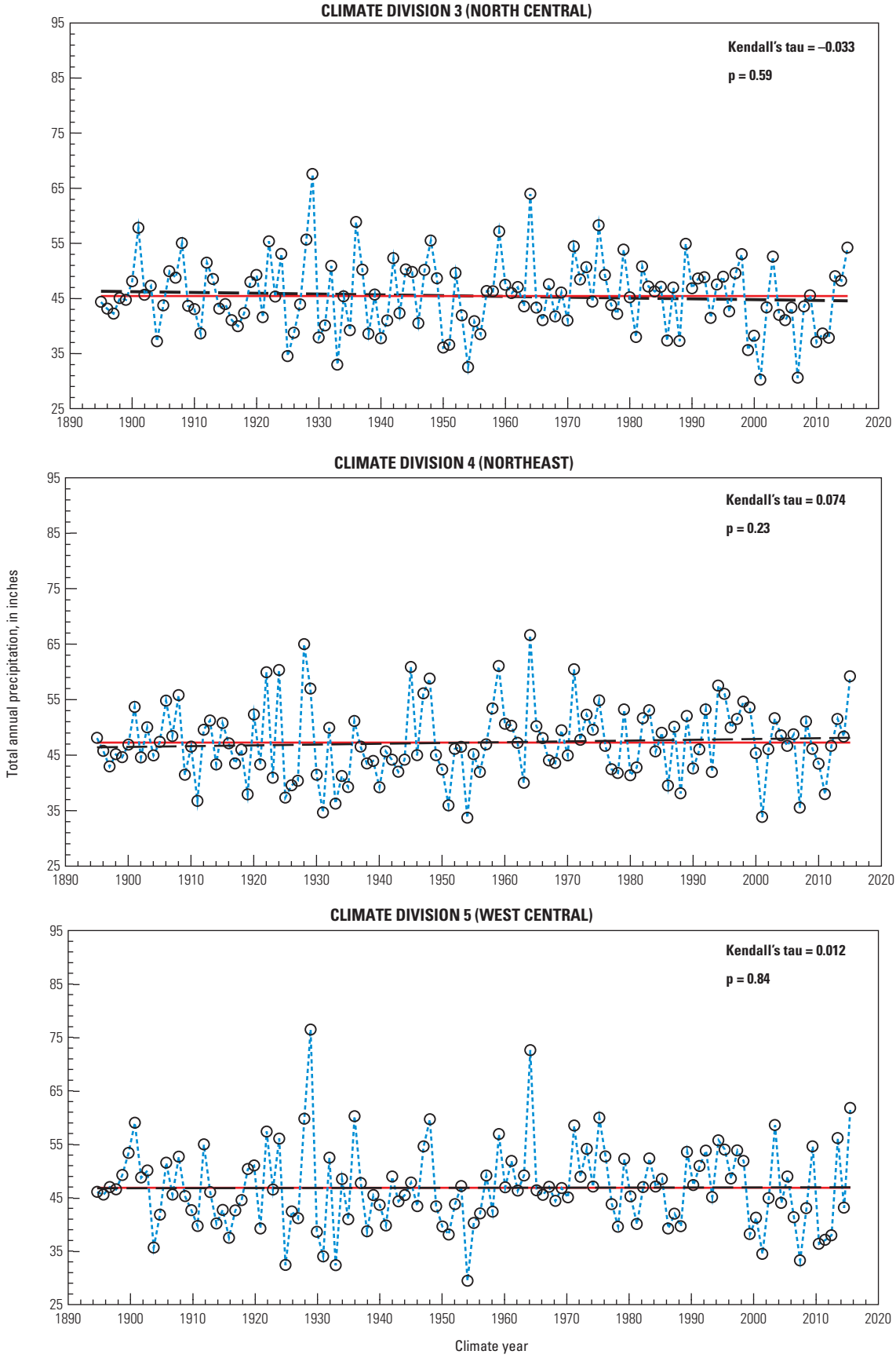


Figure 11.—Continued.

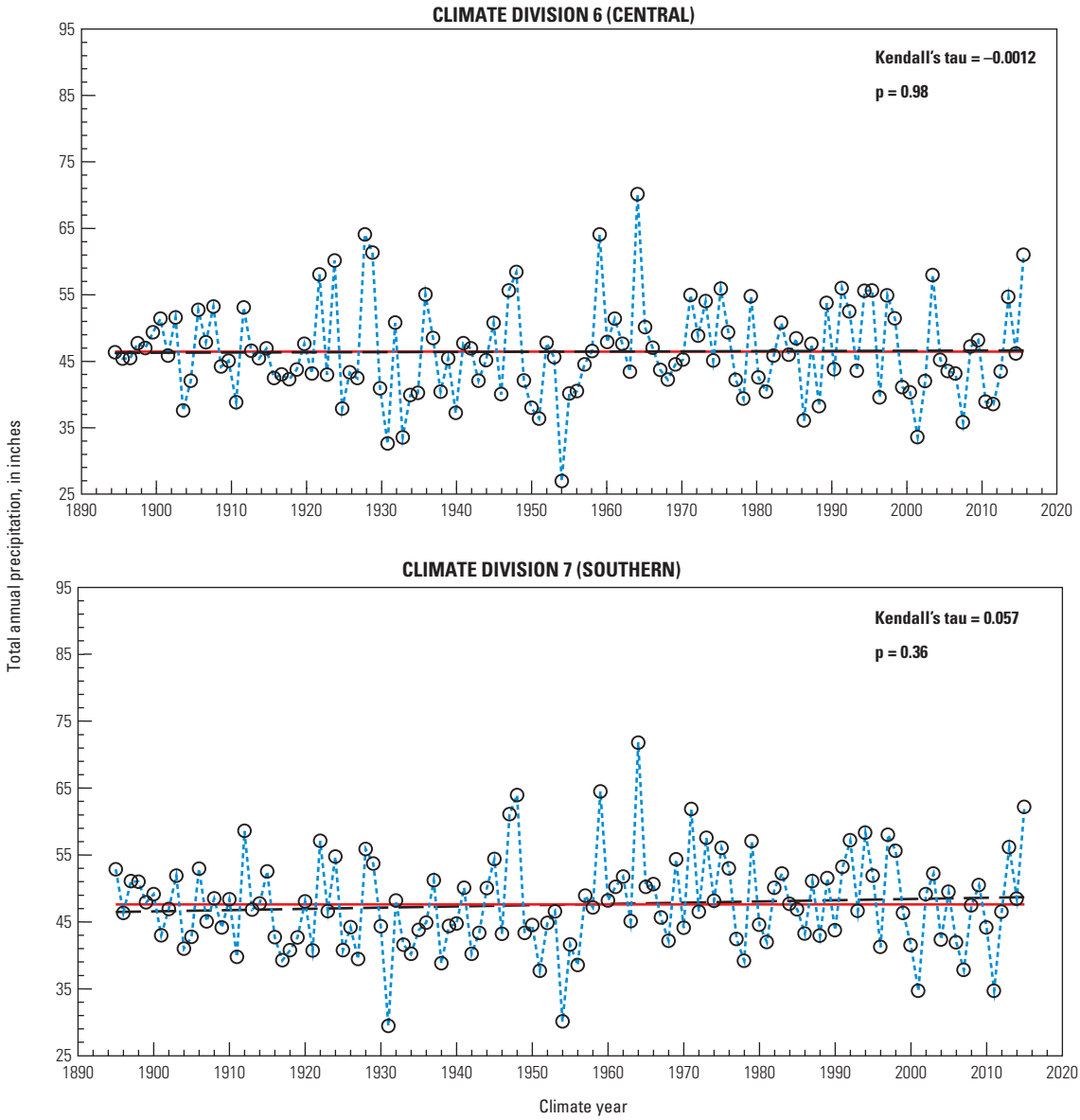


Figure 11.—Continued.

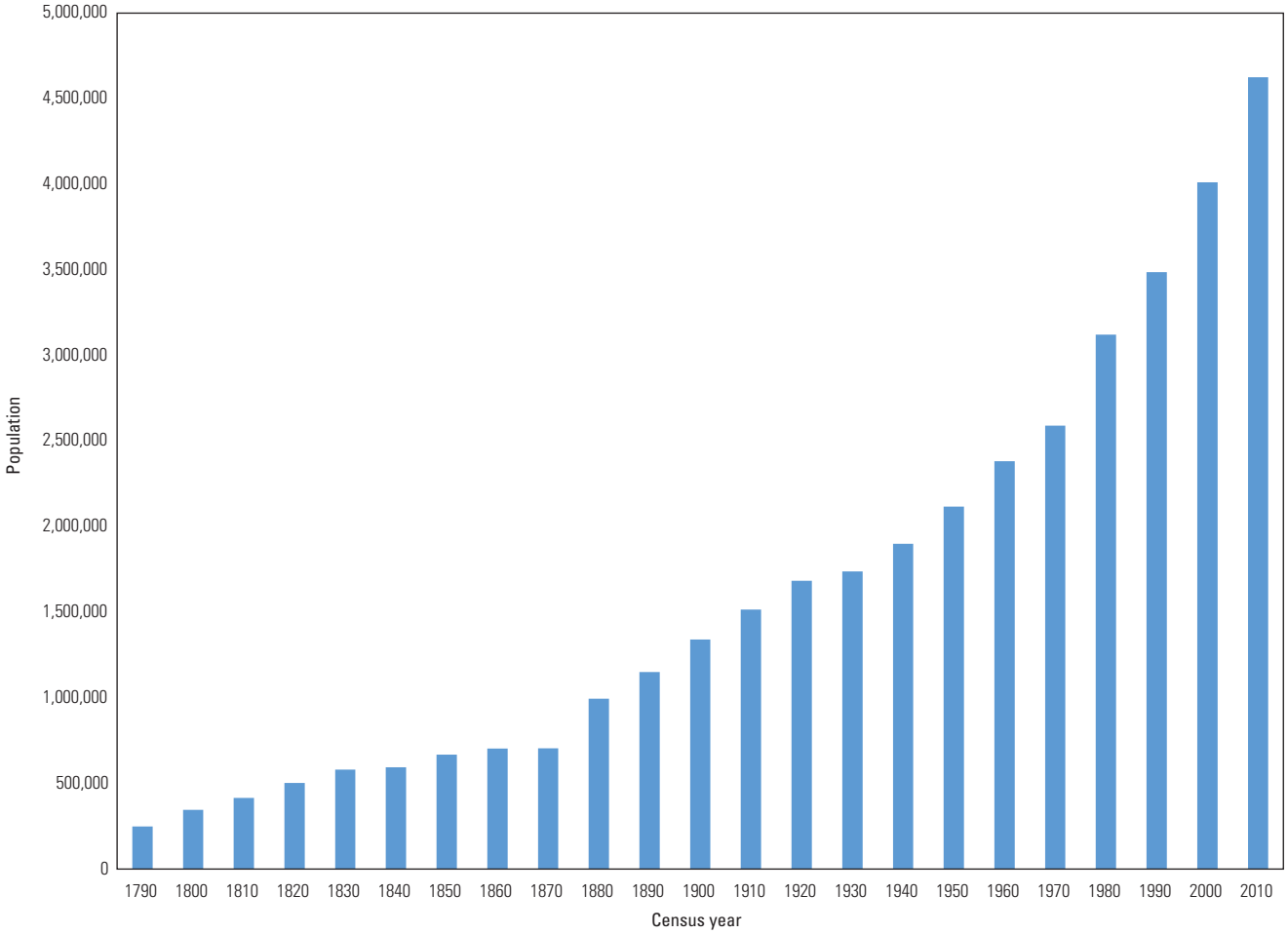


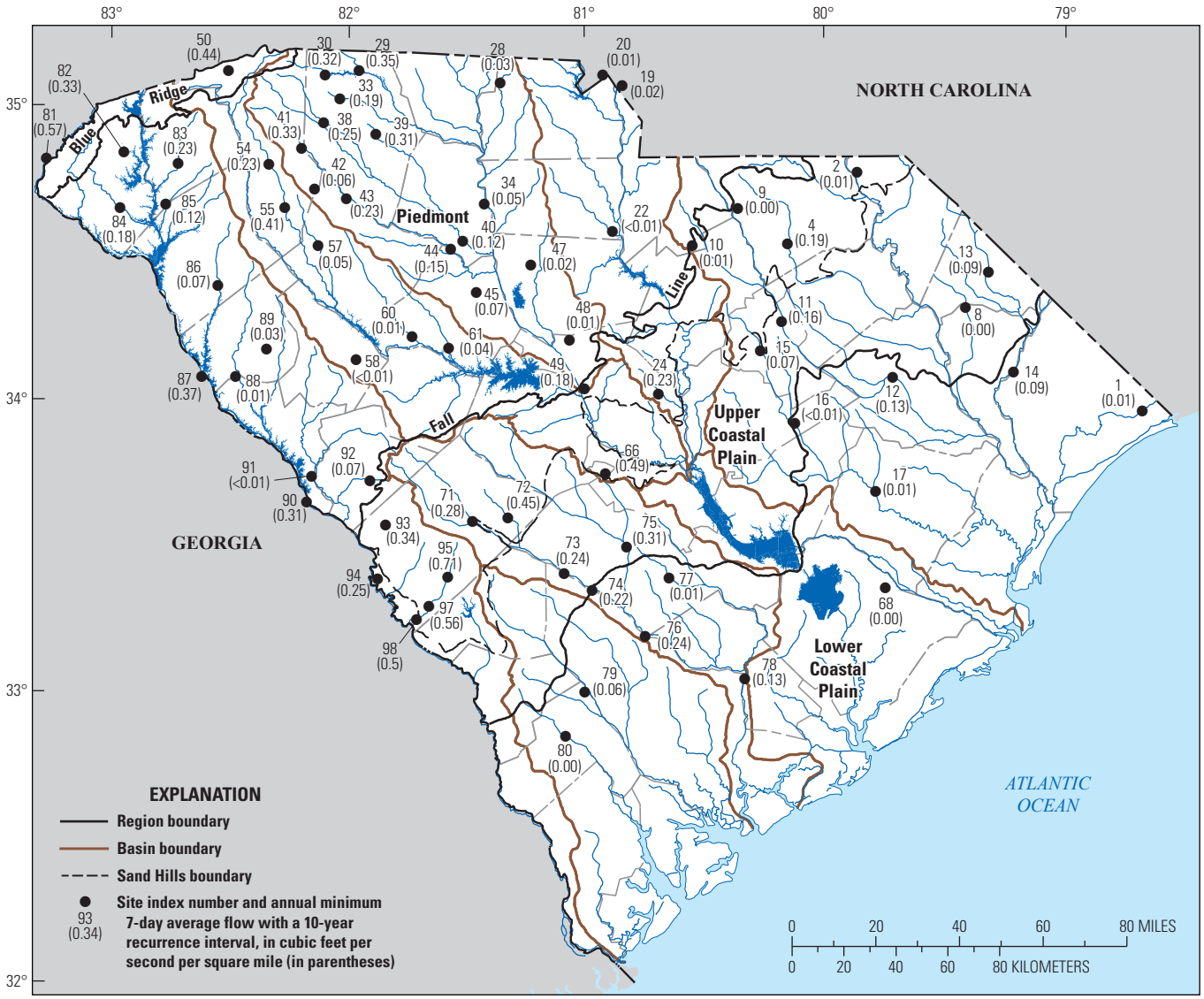
Figure 12. Total population for South Carolina from 1790 to 2010 (U.S. Census Bureau, 2016).

Flow Variability

Streamflow statistics are influenced by a number of factors, including length of record available for the analysis and hydrologic conditions measured during the period of record. Streamflow across South Carolina is influenced by regional differences related to the geologic, topographic, and climatic characteristics of the basin being monitored. In addition to the higher annual precipitation in the Blue Ridge region (fig. 3), the deeply incised streams tend to intercept the crystalline-rock aquifers, allowing for a well-sustained base flow from the groundwater discharge (Wachob and others, 2009). In the Piedmont region, the groundwater storage and base flow generally decrease from the upper to the lower part of the region due to the decrease in saprolite permeability, which retards rainwater infiltration, from the upper to the lower Piedmont. In addition, the streambeds tend to be less deeply incised than those in the Blue Ridge and are, therefore, more dependent on rainfall runoff with much less groundwater support.

In the upper Coastal Plain, the geologic formations are composed of loosely consolidated sediments overlain by coarse sand to sandy loam soils. The streams in this region tend to be deeply incised in these porous materials, which results in shallow groundwater aquifers above stream level. The soil conditions result in very little surface runoff in the region with streamflow being primarily a result of groundwater discharge, which results in well-sustained base flows (Wachob and others, 2009). Soils in the lower Coastal Plain also tend to be highly permeable, but low relief and shallow stream incisement result in minor groundwater storage in areas above the stream channels. As a result, the lower Coastal Plain streams tend to have poorly sustained base flows.

For the unregulated streamgages listed in table 5, the 7Q10 on a cubic foot per second per square mile basis ([ft^3/s]/mi^2) is shown at the streamgage locations in figure 13 (table 7). If the 7Q10 at a station was estimated to be zero, the 7Q10 per square mile is shown in figure 13 as zero. If the 7Q10 was greater than or equal to 0.01 ft^3/s but the 7Q10 per square mile was less than 0.01 (ft^3/s)/mi^2, the 7Q10 per square mile in figure 13 is shown as less than 0.01 (ft^3/s)/mi^2. The



Base from 1:500,000-scale hydrography dataset and 1:250,000-scale watershed boundary dataset
U.S. Environmental Protection Agency level III Ecoregions, 1:250,000
Albers Equal Area projection; central meridian –96 00 00; rotation angle –8.5; datum NAD27

Figure 13. Map of the unit annual minimum 7-day average flow with a 10-year recurrence interval (7Q10 divided by drainage area at the streamgage) at unregulated U.S. Geological Survey continuous-record streamgages in South Carolina, in cubic feet per second per square mile.

map provides a visual tool for quickly assessing the low-flow potential across South Carolina.

Flow variability across the physiographic regions also was compared using the annual minimum 7-day average flow statistics for the eight long-term streamgages previously discussed (fig. 4; tables 5, 7). The unit annual minimum 7-day average flows ($[ft^3/s]/mi^2$) for the recurrence intervals listed in table 5 were plotted for all unit values greater than or equal to 0.01 $(ft^3/s)/mi^2$ (fig. 14; table 7). USGS streamgage 02177000 Chattooga River near Clayton, GA, which completely drains from the Blue Ridge region (Gotvald and others, 2009), had the highest unit flow values. The second highest unit values occurred for streamgage 02154500 North Pacolet River at Fingerville, SC, which is located in the upper Piedmont region and drains 75 percent from the Piedmont region and 25 percent from the Blue Ridge region (Feaster and others, 2009). Streamgages 02147500 Rocky Creek at Great Falls, SC, and 02196000 Stevens Creek near Modoc, SC, drain predominantly from the lower Piedmont region and had the lowest unit values; the 10-, 20-, and 30-year recurrence

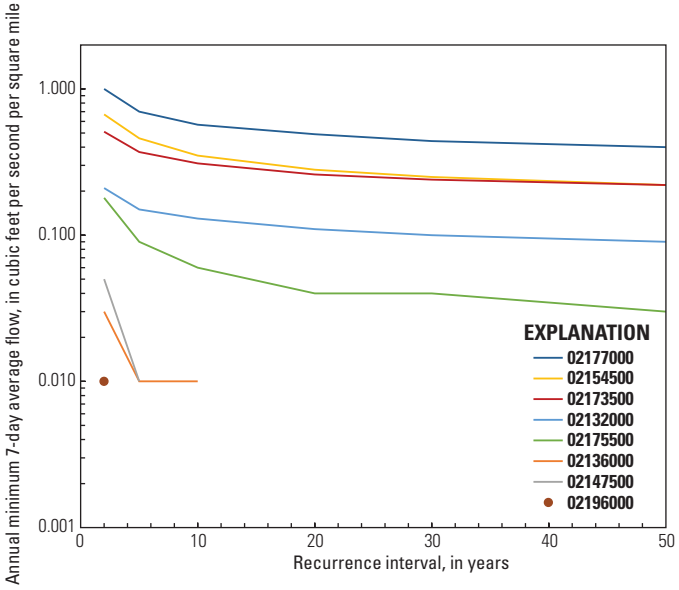


Figure 14. Annual minimum 7-day average unit flow, in cubic feet per second per square mile, for the 2-, 5-, 10-, 20-, 30-, and 50-year recurrence intervals for eight long-term streamgages in South Carolina.

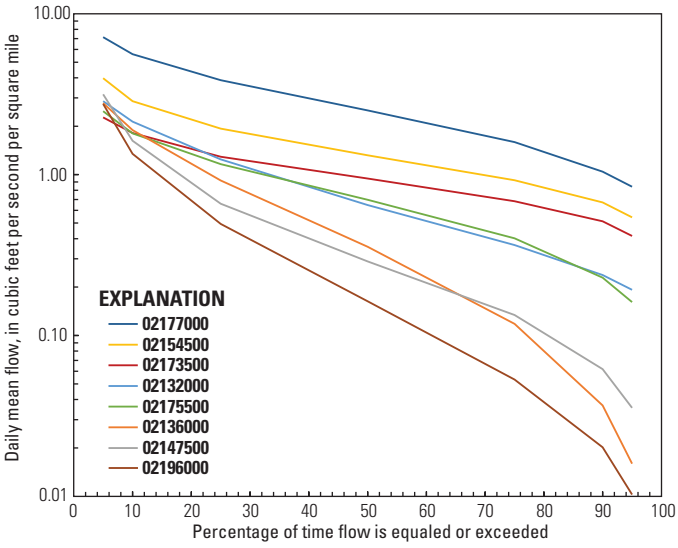


Figure 15. Duration of daily mean flow, in cubic feet per second per square mile, for eight long-term streamgages in South Carolina.

interval values for streamgage 02147500 and the 5-, 10-, 20-, 30- and 50-year recurrence interval values for streamgage 02196000 were less than 0.01 $(ft^3/s)/mi^2$. For streamgage 02147500, the 50-year recurrence interval for the unit annual minimum 7-day average flow was zero. About 22 percent of the drainage basin for streamgage 02132000 Lynches River at Effingham, SC, is from the lower Piedmont with the remaining 78 percent being split almost equally between the upper and lower Coastal Plain. Streamgage 02175500 Salkehatchie River near Miley, SC, drains from the Coastal Plain with about 8 percent of that being in the Sand Hills portion of the upper Coastal Plain. Streamgage 02132000, which has a larger percentage of its basin in the Sand Hills region compared to streamgage 02175500, has higher sustained unit flows than those from 02175500, which largely drains from the lower Coastal Plain. Of the long-term Coastal Plain CR streamgages, the low flows at 02136000 Black River at Kingstree, SC, appear to have only minor support from groundwater storage (Wachob and others, 2009).

In addition to comparing the annual minimum 7-day average flow unit values for the recurrence interval data from table 4, duration curves for the daily mean flow for the eight long-term CR streamgages also were compared (fig. 15). The shape of a flow-duration curve is determined by both hydrologic and geologic characteristics of the drainage basin (Searcy, 1959). A duration curve with a steep slope indicates highly variable streamflow conditions, which likely reflects substantial influence from direct runoff. Conversely, a duration curve with a relatively flat slope typically indicates the presence of surface-water or groundwater storage, which typically is more influential for the low (or base) flows. At the low end of the duration curve, a flat slope indicates a large amount of storage whereas a steep slope indicates a negligible amount.

For the eight long-term record streamgages for which the flow-duration curves were compared, similar patterns can be seen with respect to the regional differences in streamflow characteristics reflecting the geographical, topographical and climatic differences across the State. The Blue Ridge streamgage 02177000 Chattooga River near Clayton, GA, shows well-sustained flow patterns throughout the range of flow percentiles. The unit daily mean flow values tend to decrease in the transition from the upper to the lower Piedmont as indicated in the flow duration curve for streamgage 02196000 Stevens Creek near Modoc, SC, which has the lowest values for the 10 to 95 percentile flows, reflecting both the lower precipitation and minimal groundwater contribution to the stream. The duration curve for streamgage 02136000 Black River at Kingstree, SC, reflects the lower unit flow conditions for streams draining predominately from the lower Coastal Plain.

Comparison With Previously Published Low-Flow Statistics

The accuracy of low-flow statistics at streamgages is related to the lengths of records upon which the statistics are based and the hydrologic conditions measured during the period of record. As the period of record at a streamgage

gets longer, the more likely it will be that the record covers a broad range of hydrologic conditions and, consequently, the low-flow statistics will tend to be more reflective of long-term conditions. By using long-term records (U.S. Geological Survey, 2013), Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010) provided examples of how various periods of record at streamgages can influence the estimated 7Q10 value. In addition, for streamgages that had 7Q10 values previously published by Zalants (1991b) and (or) Bloxham (1979), the most recent previously published 7Q10 values were compared with the current values shown in tables 5 and 6. Those comparisons, which include 66 streamgages, have been compiled and are presented in table 8, p. 158.

To compare the most recent 7Q10 values for the unregulated stations with those previously published by Zalants (1991b) and (or) Bloxham (1979), the percentage change in calculated flow was computed as follows:

$$\text{Percentage change} = [(\text{current 7Q10} - \text{previous 7Q10}) / \text{previous 7Q10}] \times 100. \quad (3)$$

The percentage change indicates the percentage of change from the previously published 7Q10 value. A negative difference indicates that the 7Q10 value decreased from the previously published value, and conversely, a positive difference indicates that the 7Q10 value increased. For the unregulated streamgages, the percentage change ranged from –100 to 107 percent with a mean value of –17.3 percent and a median value of –14.5 percent. For small 7Q10 values, the percentage change can be deceptive. For instance, the streamgage that had a percentage change of –100 percent represented a 0.02 ft^3/s change in the 7Q10, and the streamgage that had a positive change of 107 percent represented a 0.16 ft^3/s increase in the 7Q10. Nonetheless, of the 48 unregulated streamgages compared, 37 had a negative percentage change, 8 had a positive percentage change, and 3 had a zero percentage change.

The last statewide systematic low-flow investigation in South Carolina included data through March 1987 (the 1986 climate year) (Zalants, 1991b). For many of the unregulated streamgages, the negative percentage change likely reflects the historic drought that occurred between 1998 and 2002 and more recent dry periods between 2006 and 2009 (South Carolina Department of Natural Resources, 2004, 2013; Wachob and others, 2009). Additionally, less severe dry periods also were reported in 1988, 1990, 1993 and 1995 (Mizzell, 2008).

For the regulated streamgages, the percentage change in the 7Q10 ranged from –51 to 39 percent with a mean of –15.6 percent and a median of –19.4 percent. Of the 18 streamgages compared, 11 had negative percentage changes, 3 had positive percentage changes, and 1 had a zero percentage change. For three of the regulated streamgages (02189000, 02197000, and 02198500), the percentage change was not computed because the previous 7Q10 estimates by Bloxham (1979) combined both regulated and unregulated flows in the frequency analysis.

Estimates of Low-flow Statistics at Ungaged Sites

Water-resource managers and engineers often need estimates of low-flow statistics at ungaged stream locations. Two methods commonly used to estimate statistics at ungaged locations are regression equations and the drainage-area ratio method. Because low flows are a groundwater phenomenon and, as such, are influenced by many factors, developing low-flow regional regression equations is typically more challenging (Funkhouser and others, 2008; Southard, 2013; Gotvald, 2017) than developing similar equations for flood flows, which tend to be dominated by the size of the drainage basin (Feaster and others, 2009, 2014). If the ungaged site is located near a streamgage (gaged location) for which low-flow statistics are available, the drainage-area ratio method is a reasonable option for transferring the low-flow estimate from the gaged location to the ungaged location.

The drainage-area ratio method assumes that the streamflow characteristics at the ungaged site are the same on a per unit area basis as the nearby streamgage. Consequently, it is important to consider the proximity of the streamgage to the ungaged site as well as similarities in drainage area size, other physical and climatic characteristics, and that anthropogenic influences are not a substantial factor (Ries and Friesz, 2000; Watson and others, 2005). As such, the drainage-area ratio method is most commonly applied, and will tend to be most accurate, when the streamgage is on the same stream as the ungaged site.

The drainage-area ratio equation is as follows:

$$Q_{DARu} = \left[\frac{DA_u}{DA_g}\right] Q_g, \quad (4)$$

where

Q_{DARu} is the drainage-area ratio low-flow frequency estimate at the ungaged site,
DA_u is the drainage area of the ungaged site,
DA_g is the drainage area of the gaged site, and
Q_g is the low-flow frequency estimate from the gaged site.

With respect to a reasonable drainage-area ratio that is appropriate for applying this method, a few researchers have tested the procedure and recommended ranges of drainage-area ratios. Koltun and Schwartz (1986) recommended a range of 0.85 to 1.15 for the ungaged to gaged drainage areas for Ohio streams. An investigation in Pennsylvania suggested use of ratios between 0.33 and 3.0 for Pennsylvania streams (Ries and Friesz, 2000). Ries and Friesz (2000) found that for Massachusetts streams, the drainage-area ratio method estimates were generally as accurate or more accurate than regression estimates when the drainage-area ratios for the

ungaged and gaged sites were between 0.3 and 1.5. In Idaho, Hortness (2006) found that the drainage-area ratios of 0.5 to 1.5 were reasonable, and in Iowa, Eash and Barnes (2012) recommended a range from 0.5 to 1.4. Southard (2013) found the drainage-area ratio range of 0.4 to 1.5 to be reasonable for Missouri streams.

Summary

From 2008 to 2016 and in cooperation with the South Carolina Department of Health and Environmental Control (SCDHEC), the U.S. Geological Survey (USGS) updated low-flow statistics at continuous-record streamgages for the SCDHEC-designated eight major river basins in South Carolina: Pee Dee, Catawba-Wateree, Broad, Saluda, Santee, Edisto, Salkehatchie, and Savannah. Based on the length of record available at the continuous-record streamgages, low-flow frequency statistics were estimated for consecutive 1-, 3-, 7-, 14-, 30-, 60-, and 90-day average minimum flows with recurrence intervals of 2, 5, l0, 20, 30, and 50 years. Additionally, daily flow durations for the 5-, 10-, 25-, 50-, 75-, 90-, and 95-percent probabilities of exceedance were computed for the streamgages.

For the streamgages included in those assessments, 66 streamgages had low-flow statistics for the annual minimum 7-day average streamflow with a 10-year recurrence interval (7Q10) that were previously published in USGS reports. For the unregulated streamgages, the percentage changes ranged from –100 to 107 percent with a mean value of –17.3 percent and a median value of –14.5 percent. For the regulated streamgages, the percentage changes ranged from –59 to 39 percent with a mean of –15.6 percent and a median of –19.4 percent. Prior to the current investigation, the most recent systematic study was based on streamflow data through March 1987. The decrease of the 7Q10 flow at many of the streamgages is likely due to historic low-flow periods that have occurred in the last few decades.

Trends in the annual minimum 7-day average flows for the unregulated streamgages indicated no statistically significant trends at 49 streamgages, 18 streamgages indicated a downward trend, and 1 streamgage indicated an upward trend. Trend assessments for relatively short records may only reflect a short-term condition. As such, trend assessments of long-term records (record lengths from 55 to 78 years) are more informative. Comparisons of trend assessments from eight long-term streamgages from across South Carolina were made. Five of the eight long-term streamgages indicated no statistically significant trend, two indicated a downward trend, and one indicated an upward trend. For two of the long-term streamgages that indicated a trend, it was shown that the trend was a result of the record beginning or ending in extreme conditions. For USGS streamgages 02136000 Black River at Kingstree, SC, and 02147500 Rocky Creek at Great Falls, SC, when the trend analyses were done excluding those extreme conditions, the trend test indicated no significant trend and thus, highlighted the importance of assessing and interpreting trends that may be a result of, or influenced by, such short-term conditions.

A trend assessment of statewide annual precipitation from 1895 to 2015 indicated no trend. Trend assessments also were made of the annual precipitation data from 1895 to 2015 for the seven climate divisions in South Carolina. No trend was indicated in the long-term precipitation data. For the climate divisions, comparisons were made of the mean precipitation from 1895 to 2015 to the mean for the climate normal period from 1981 to 2010. The results showed that five of the seven regions had lower mean values for the climate normal period. Only the Northeast and Southern climate divisions, which are both bounded by the Atlantic Ocean, indicated slightly higher mean precipitation for the 1981 to 2010 period.

A comparison was made of the variability in the annual minimum 7-day average flow with a 10-year recurrence interval and the flow duration curves at the eight long-term streamgages. The results showed that low flows are well sustained in the Blue Ridge, upper Piedmont, and upper Coastal Plain regions. Low flows in the lower Piedmont and lower Coastal Plain are not as well sustained likely indicating less influence from groundwater sources and in some cases, lower rainfall in those regions. In addition, a map of the low-flow estimates for the annual minimum 7-day average flow with a 10-year recurrence interval at the unregulated streamgages was provided. The map provides a visual tool for quickly assessing low-flow potential throughout the State.

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Glossary

Annual 7-day minimum The lowest mean value for any 7-consecutive-day period in a year. Annual 7-day minimum values in this report are for the climatic year.

Base flow Sustained flow of a stream in the absence of direct runoff. Base flow includes natural and human-induced streamflows. Natural base flow is sustained largely by groundwater discharge.

Climatic (climate) year The annual period from April 1 through March 31 used by the USGS for low-flow analyses at USGS continuous-record streamgages. A climatic year is designated by the year in which the period begins. For example, the 2013 climatic year is from April 1, 2013, through March 31, 2014. The year begins and ends during the period of increased streamflow so that all streamflow during a single dry season is included in annual values for that year.

Continuous-record streamgage A streamgage where continuous systematic observations of streamflow are obtained.

Discharge or **flow** The rate that matter passes through a cross section of a stream channel or other water body per unit of time. The term commonly refers to volume of water (including, unless otherwise stated, sediment or other constituents suspended or dissolved in the water) that passes a cross section on a stream channel, canal, pipeline, etc., within a given period of time (in cubic feet per second).

Drainage area The area of a stream at a specified location, measured in a horizontal plane, which is enclosed by a drainage divide.

Partial-record station A station that is operated and quality assured only for a specific flow regime such as high flow, peak flow, or low flow. With respect to low flows, the partial-record station is typically a location where base-flow measurements are made and correlated to a continuous-record streamgage.

Record Unit value or daily mean streamflow data that are collected continuously from streamgage locations, electronically stored, published, and archived according to USGS protocols.

Recurrence interval As applied to low-flow statistics, the recurrence interval (sometimes called the return period) is based on the probability that the given event will be equal to or less than the estimated value in any given year. Thus, for the 7Q10, there is a 0.10 or 10-percent probability that the annual minimum 7-day average flow in any 1 year will be less than the estimated 7Q10 value.

Runoff That part of precipitation contributing to streamflow. Runoff can originate as direct runoff or base flow.

Streamflow The discharge that occurs in a natural channel. Although the term “discharge” can be applied to the flow of a canal, the word “streamflow” uniquely describes the discharge in a surface stream course. The term “streamflow” is more general than “runoff” as streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Streamgage A site on a stream where continuous records of gage height are collected and for which streamflow records are computed.

Water year The annual period from October 1 through September 30 that is used by the USGS for the collection and processing of streamflow records. The water year is designated by the year in which the period ends. For example, the 2013 water year is October 1, 2012, through September 30, 2013.

Tables 2, 5, 6, 7, and 8

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).-

[USGS, U.S. Geological Survey; DMS, degrees minutes seconds; SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile; MOVE.1, Maintenance of Variance Extension, Type 1; ft^3/s, cubic foot per second; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	Latitude (DMS)	Longitude (DMS)	County	SCDHEC-designated basin	Hydrologic unit code	Drainage area (mi^2)
1	02110500	Waccamaw River near Longs, SC	335445	784255	Horry	Pee Dee	03040206	1,110
2	02129590	Whites Creek near Wallace, SC	344520	795300	Marlboro	Pee Dee	03040201	26.4
3	02130561	Pee Dee River near Bennettsville, SC	343622	794719	Marlboro	Pee Dee	03040201	7,600
4	02130900	Black Creek near McBee, SC	343050	801100	Chesterfield	Pee Dee	03040201	108
5	02130910	Black Creek near Hartsville, SC	342350	800900	Darlington	Pee Dee	03040201	173
6	02130980	Black Creek near Quinby, SC	341437	794442	Florence	Pee Dee	03040201	438
7	02131000	Pee Dee River at Peedee, SC	341215	793255	Florence-Marlboro	Pee Dee	03040201	8,830
8	02131150	Catfish Canal at Sellers, SC	341704	792632	Marion	Pee Dee	03040201	27.4
9	02131309	Fork Creek at Jefferson, SC	343819	802320	Chesterfield	Pee Dee	03040202	24.3
10	02131472	Hanging Rock Creek near Kershaw, SC	343058	803459	Lancaster	Pee Dee	03040202	23.9
11	02131500	Lynches River near Bishopville, SC	341500	801250	Lee	Pee Dee	03040202	675
12	02132000	Lynches River at Effingham, SC	340305	794515	Florence	Pee Dee	03040202	1,030
13	02132500	Little Pee Dee River near Dillon, SC	342417	792025	Dillon	Pee Dee	03040204	524
14	02135000	Little Pee Dee River at Galivants Ferry, SC	340325	791450	Horry-Marion	Pee Dee	03040204	2,790
15	02135300	Scape Ore Swamp near Bishopville, SC	340902	801818	Lee	Pee Dee	03040205	96
16	02135500	Black River near Gable, SC	335400	800955	Sumter	Pee Dee	03040205	401
17	02136000	Black River at Kingstree, SC	333940	795010	Williamsburg	Pee Dee	03040205	1,252
18	02146000	Catawba River near Rock Hill, SC	345905	805827	York	Catawba-Wateree and Santee	03050103	3,050
19	02146750	McAlpine Creek below McMullen Creek near Pineville, NC	350360	805212	Mecklenburg (NC)	Catawba-Wateree and Santee	03050103	92.4
20	0214678175	Steele Creek at Secondary Road 1441 near Pineville, NC	350618	805713	Mecklenburg (NC)	Catawba-Wateree and Santee	03050103	6.91

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

[USGS, U.S. Geological Survey; DMS, degrees minutes seconds; SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile; MOVE.1, Maintenance of Variance Extension, Type 1; ft^3/s, cubic foot per second; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	Period of record available	Period of record analyzed	Flow condition	Remarks
1	March 1950 to September 2007	April 1950 to March 2007	Unregulated	
2	October 1979 to September 1995	April 1980 to March 1995	Unregulated	There are two small ponds upstream but based on aerial photographs from Google Earth, they do not appear to have any control mechanisms for regulation. Site experiences periods of zero flow.
3	November 1990 to March 2007	April 1939 to March 2007	Regulated	MOVE.1 record augmentation using index station 02131000, Pee Dee River at Peedee, SC.
4	October 1959 to September 2007	April 1960 to March 2007	Unregulated	
5	October 1960 to September 2007	April 1981 to March 2007	Regulated	
6	October 2001 to September 2007	April 1960 to March 2007	Regulated	Flow regulated from dam at Lake Robinson. Partial-record type analysis: MOVE.1 record augmentation using index station 02130900, Black Creek near McBee, SC.
7	October 1938 to September 2007	April 1939 to March 2007	Regulated	Regulation from dams in North Carolina.
8	November 1966 to September 1992	April 1967 to March 1992	Unregulated	Site experiences periods of zero flow.
9	October 1976 to September 1997	April 1977 to March 1997	Unregulated	Site experiences periods of zero flow.
10	October 1980 to September 2003	April 1981 to March 2003	Unregulated	Some possible regulation by Kershaw City Reservoir located about 1 mile upstream.
11	October 1942 to September 1971, February 2002 to March 2007	April 1943 to March 1971, April 2002 to March 2007	Unregulated	
12	October 1929 to September 2007	April 1930 to March 2007	Unregulated	
13	April 1939 to September 1971	April 1939 to March 2007	Unregulated	MOVE.1 record augmentation using index station 02135000, Little Pee Dee River at Galivants Ferry, SC.
14	January 1942 to September 2007	April 1942 to March 2007	Unregulated	
15	July 1968 to October 2003	April 1969 to March 2003	Unregulated	
16	June 1951 to June 1966, April 1972 to September 1992	April 1952 to March 1966, April 1972 to March 1992	Unregulated	Site experiences periods of zero flow.
17	October 1929 to September 2007	April 1930 to March 2007	Unregulated	
18	October 1865 to September 1902, April 1942 to September 2012	April 1942 to March 2012	Regulated	Flow regulated by Lake Wylie. Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided.
19	April 1974 to September 2012	April 1974 to March 2012	Unregulated	
20	May 1998 to September 2012	May 1998 to March 2012	Unregulated	

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

[USGS, U.S. Geological Survey; DMS, degrees minutes seconds; SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile; MOVE.1, Maintenance of Variance Extension, Type 1; ft^3/s, cubic foot per second; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	Latitude (DMS)	Longitude (DMS)	County	SCDHEC-designated basin	Hydrologic unit code	Drainage area (mi^2)
21	02147020	Catawba River below Catawba, SC	345010	805247	York	Catawba-Wateree and Santee	03050103	3,540
22	02147500	Rocky Creek at Great Falls, SC	343355	805512	Chester	Catawba-Wateree and Santee	03050103	194
23	02148000	Wateree River near Camden, SC	341440	803915	Kershaw	Catawba-Wateree and Santee	03050104	5,070
24	02148300	Colonels Creek near Leesburg, SC	340025	804358	Richland	Catawba-Wateree and Santee	03050104	40.2
25	02148315	Wateree River below Eastover, SC	334942	803714	Richland	Catawba-Wateree and Santee	03050104	5,590
26	02153200	Broad River near Blacksburg, SC	350726	813517	Cherokee	Broad	03050105	1,290
27	02153500	Broad River near Gaffney, SC	350520	813420	Cherokee	Broad	03050105	1,490
28	02153780	Clarks Fork Creek near Smyrna, SC	350445	812317	York	Broad	03050105	24.1
29	02154500	North Pacolet River at Fingerville, SC	350715	815910	Spartanburg	Broad	03050105	116
30	02154790	South Pacolet River near Campobello, SC	350623	820747	Spartanburg	Broad	03050105	55.4
31	02155500	Pacolet River near Fingerville, SC	350635	815735	Spartanburg	Broad	03050105	212
32	021556525	Pacolet River below Lake Blalock near Cowpens, SC	350251	815121	Spartanburg	Broad	03050105	273
33	02156050	Lawsons Fork Creek at Dewey Plant near Inman, SC	350126	820403	Spartanburg	Broad	03050105	6.46
34	02156450	Neals Creek near Carlisle, SC	343953	812728	Union	Broad	03050106	12.3
35	02156500	Broad River near Carlisle, SC	343542	812517	Union	Broad	03050106	2,790
36	02157470	Middle Tyger River near Gramlin, SC	350220	821307	Spartanburg	Broad	03050107	34.7
37	02157490	Beaverdam Creek above Greer, SC	345831	821144	Spartanburg	Broad	03050107	15.9

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

[USGS, U.S. Geological Survey; DMS, degrees minutes seconds; SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile; MOVE.1, Maintenance of Variance Extension, Type 1; ft^3/s, cubic foot per second; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	Period of record available	Period of record analyzed	Flow condition	Remarks
21	January 1992 to September 1994, October 1995 to September 2012	October 1967 to September 1994, October 1995 to March 2012	Regulated	Flow regulated by Lake Wylie. Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided. Flow record combined with record at 02147000, Catawba River near Catawba, SC (October 1967 to January 1992).
22	March 1951 to September 1981, October 1986 to September 2012	April 1951 to March 1981, April 1987 to March 2012	Unregulated	Site experiences periods of zero flow.
23	October 1929 to September 1983, May 1984 to September 2012	October 1929 to September 1983, May 1984 to March 2012	Regulated	Flow regulated by powerplant at Wateree Reservoir. Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided.
24	September 1966 to September 1980, February 2004 to October 2007	April 1967 to March 1980, April 2004 to March 2007	Unregulated	
25	July 1968 to September 2012	July 1968 to March 2012	Regulated	Flow regulated by powerplant at Wateree Reservoir. Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided.
26	September 1997 to September 2008	April 1925 to March 2008	Regulated	Low to medium flows effected by hydroelectric plants upstream. MOVE.1 record augmentation using index station 02151500, Broad River near Boiling Springs, NC.
27	December 1938 to September 1971, June 1986 to September 1990	April 1939 to March 1971, April 1987 to March 1990	Regulated	Low to medium flows effected by hydroelectric plants upstream.
28	October 1980 to September 2002	April 1981 to March 2002	Unregulated	
29	April 1930 to September 2008	April 1930 to March 2008	Unregulated	
30	January 1989 to September 2008	April 1930 to March 2008	Unregulated	MOVE.1 record augmentation using index station 02154500, North Pacolet River at Fingerville, SC.
31	December 1929 to August 2006, October 2007 to September 2008	April 1930 to March 2006	Regulated	Some regulation by South Pacolet River Reservoir and Lake William C. Bowen. Some diurnal fluctuation caused by mill on North Pacolet River.
32	November 1993 to September 2008	November 1993 to March 2008	Regulated	Flows influenced by regulation from Lake Blalock. Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided.
33	October 1979 to July 2007	April 1980 to March 2006	Unregulated	
34	October 1980 to September 1996	April 1981 to March 1996	Unregulated	
35	October 1938 to September 2008	April 1939 to March 2008	Regulated	Some regulation at low and medium flow by powerplants above station.
36	February 2002 to September 2008	April 1930 to March 2008	Unregulated	Partial-record type analysis: MOVE.1 record augmentation using index station 02154500, North Pacolet River at Fingerville, SC.
37	March 2002 to September 2008	April 1995 to March 2008	Unregulated	Partial-record type analysis: MOVE.1 record augmentation using index station 02160381, Durbin Creek above Fountain Inn, SC.

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

[USGS, U.S. Geological Survey; DMS, degrees minutes seconds; SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile; MOVE.1, Maintenance of Variance Extension, Type 1; ft^3/s, cubic foot per second; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	Latitude (DMS)	Longitude (DMS)	County	SCDHEC-designated basin	Hydrologic unit code	Drainage area (mi^2)
38	02157500	Middle Tyger River at Lyman, SC	345635	820800	Spartanburg	Broad	03050107	68.3
39	02159810	Fairforest Creek below Spartanburg, SC	345419	815454	Spartanburg	Broad	03050107	23.6
40	02160105	Tyger River near Delta, SC	343207	813254	Union	Broad	03050107	759
41	02160326	Enoree River at Pelham, SC	345123	821335	Spartanburg	Broad	03050108	84.2
42	02160381	Durbin Creek above Fountain Inn, SC	344300	821026	Laurens	Broad	03050108	14
43	02160390	Enoree River near Woodruff, SC	344100	820224	Spartanburg	Broad	03050108	249
44	02160700	Enoree River at Whitmire, SC	343033	813554	Union	Broad	03050108	444
45	02160775	Hellers Creek near Pomaria, SC	342138	812932	Newberry	Broad	03050106	8.16
46	02161000	Broad River at Alston, SC	341435	811911	Fairfield	Broad	03050106	4,790
47	02161700	West Fork Little River near Salem Crossroads, SC	342708	811545	Fairfield	Broad	03050106	25.5
48	02162010	Cedar Creek near Blythewood, SC	341144	810613	Richland	Broad	03050106	48.9
49	02162093	Smith Branch at North Main Street at Columbia, SC	340138	810231	Richland	Broad	03050106	5.67
50	02162350	Middle Saluda River near Cleveland, SC	350712	823216	Greenville	Saluda-Congaree-Edisto	03050109	21
51	02162500	Saluda River near Greenville, SC	345032	822851	Pickens	Saluda-Congaree-Edisto	03050109	298
52	02163001	Saluda River near Williamston, SC	343653	822639	Greenville	Saluda-Congaree-Edisto	03050109	414
53	02163500	Saluda River near Ware Shoals, SC	342330	821325	Greenwood	Saluda-Congaree-Edisto	03050109	580
54	02164000	Reedy River near Greenville, SC	344800	822155	Greenville	Saluda-Congaree-Edisto	03050109	48.6
55	02164110	Reedy River above Fork Shoals, SC	343910	821752	Greenville	Saluda-Congaree-Edisto	03050109	110
56	021650905	Reedy River near Waterloo, SC	342329	820822	Laurens	Saluda-Congaree-Edisto	03050109	251
57	02165200	South Rabon Creek near Gray Court, SC	343112	820926	Laurens	Saluda-Congaree-Edisto	03050109	29.5
58	02166970	Ninety Six Creek near Ninety Six, SC	340757	815948	Greenwood	Saluda-Congaree-Edisto	03050109	17.4

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

[USGS, U.S. Geological Survey; DMS, degrees minutes seconds; SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile; MOVE.1, Maintenance of Variance Extension, Type 1; ft^3/s, cubic foot per second; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	Period of record available	Period of record analyzed	Flow condition	Remarks
38	February 1938 to September 1967	April 1930 to March 2008	Unregulated	MOVE.1 record augmentation using index station 02154500, North Pacolet River at Fingerville, SC.
39	May 1988 to April 1998	May 1988 to March 1998	Unregulated	
40	October 1973 to September 2008	April 1974 to March 2008	Unregulated	
41	March 1993 to September 2008	April 1974 to March 2008	Unregulated	MOVE.1 record augmentation using index station 02160700, Enoree River at Whitmire, SC
42	July 1994 to September 2008	April 1995 to March 2008	Unregulated	
43	February 1993 to September 2008	April 1974 to March 2008	Unregulated	MOVE.1 using index station 02160700, Enoree River at Whitmire, SC
44	October 1973 to September 2008	April 1974 to March 2008	Unregulated	
45	October 1980 to September 1994	April 1981 to March 1994	Unregulated	
46	October 1896 to December 1907, October 1980 to September 2008	April 1897 to March 1907, April 1926 to March 2008	Regulated	Some regulation at low to medium flows by upstream powerplants. Flows combined with station 02161500, Broad River at Richtex, SC (October 1925 to September 1983)
47	October 1980 to March 1998	April 1984 to March 1998	Unregulated	Flows less that 700 ft3/s prior to October 1983 are considered unreliable and, therefore, were not included in the frequency analysis.
48	December 1966 to September 1983, February 1985 to September 1996	April 1967 to March 1996	Unregulated	
49	July 1976 to September 2008	April 1977 to March 2008	Unregulated	
50	October 1980 to September 2003	April 1981 to March 2003	Unregulated	
51	January 1942 to September 1978, March 1990 to September 2009	April 1942 to March 1978, April 1990 to March 2009	Regulated	Some regulation at low to medium flows.
52	May 1995 to September 2009	April 1930 to March 1971, April 1996 to March 2009	Regulated	Some regulation at low to medium flows. Flows combined with station 02163000, Saluda River near Pelzer, SC (October 1929 to September 1971).
53	March 1939 to September 2009	April 1939 to March 2009	Regulated	Some regulation at low to medium flows.
54	November 1941 to September 1971, June 1987 to September 2009	April 1942 to March 1971, April 1988 to March 2009	Unregulated	
55	September 1993 to September 2009	April 1994 to March 2009	Unregulated	
56	November 2004 to September 2009	April 1988 to March 2009	Regulated	Some regulation at low to medium flows. Flows are combined with station 02165000, Reedy River near Ware Shoals, SC (April 1939 to March 2005).
57	January 1967 to September 1981, May 1990 to September 2009	April 1968 to March 1981, April 1991 to March 2009	Unregulated	
58	October 1980 to September 2001	April 1981 to March 2001	Unregulated	Site experiences periods of zero flow.

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

[USGS, U.S. Geological Survey; DMS, degrees minutes seconds; SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile; MOVE.1, Maintenance of Variance Extension, Type 1; ft^3/s, cubic foot per second; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	Latitude (DMS)	Longitude (DMS)	County	SCDHEC-designated basin	Hydrologic unit code	Drainage area (mi^2)
59	02167000	Saluda River at Chappells, SC	341028	815151	Saluda	Saluda-Congaree-Edisto	03050109	1,360
60	02167450	Little River near Silverstreet, SC	341234	814548	Newberry	Saluda-Congaree-Edisto	03050109	230
61	02167582	Bush River near Prosperity, SC	341007	813638	Newberry	Saluda-Congaree-Edisto	03050109	115
62	02168504	Saluda River below Lake Murray Dam near Columbia, SC	340303	811235	Lexington	Saluda-Congaree-Edisto	03050109	2,420
63	02169000	Saluda River near Columbia, SC	340050	810517	Richland	Saluda-Congaree-Edisto	03050109	2,520
64	02169500	Congaree River at Columbia, SC	335935	810300	Lexington	Saluda-Congaree-Edisto	03050110	7,850
65	02169570	Gills Creek at Columbia, SC	335922	805828	Richland	Saluda-Congaree-Edisto	03050110	59.6
66	02169630	Big Beaver Creek near St. Matthews, SC	334412	805730	Lexington	Saluda-Congaree-Edisto	03050110	10
67	02171500	Santee River near Pineville, SC	332715	800830	Berkeley	Catawba-Wateree and Santee	03050112	14,700
68	02171680	Wedboo Creek near Jamestown, SC	331950	794810	Berkeley	Catawba-Wateree and Santee	03050112	17.4
69	02171700	Santee River near Jamestown, SC	331817	794042	Berkeley	Catawba-Wateree and Santee	03050112	10,750
70	02172002	Lake Moultrie Tailrace Canal at Moncks Corner, SC	331254	795829	Berkeley	Catawba-Wateree and Santee	03050201	14,800
71	02172500	South Fork Edisto River near Montmorenci, SC	333435	813050	Aiken	Saluda-Congaree-Edisto	03050204	198
72	02172640	Dean Swamp near Salley, SC	333521	812157	Aiken	Saluda-Congaree-Edisto	03050204	31.2
73	02173000	South Fork Edisto River near Denmark, SC	332335	810800	Bamberg	Saluda-Congaree-Edisto	03050204	720
74	02173051	South Fork Edisto River near Bamberg, SC	332013	810108	Bamberg	Saluda-Congaree-Edisto	03050204	807
75	02173500	North Fork Edisto River at Orangeburg, SC	332900	805225	Orangeburg	Saluda-Congaree-Edisto	03050203	683
76	02174000	Edisto River near Branchville, SC	331035	804805	Bamberg	Saluda-Congaree-Edisto	03050205	1,720

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

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Site index number (fig. 1)	Period of record available	Period of record analyzed	Flow condition	Remarks
59	October 1926 to September 2009	April 1983 to March 2009	Regulated	The most recent period of record with relatively stable regulation was used in the frequency analysis.
60	March 1990 to September 2009	April 1991 to March 2009	Unregulated	
61	February 1990 to September 2009	April 1990 to March 2009	Unregulated	
62	October 1988 to September 2009	April 1989 to March 2009	Regulated	
63	August 1925 to September 2009	April 1989 to March 2009	Regulated	The most recent period of record with relatively stable regulation was used in the frequency analysis.
64	October 1939 to September 2009	April 1980 to March 2009	Regulated	The most recent period of record with relatively stable regulation was used in the frequency analysis.
65	October 1966 to September 2009	April 1967 to March 2009	Regulated	Natural flow subject to temporary influence from private lakes upstream.
66	July 1966 to September 1993	April 1967 to March 1993	Unregulated	
67	May 1942 to September 2012	May 1942 to March 2012	Regulated	Flow completely regulated by Lake Marion. Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided.
68	September 1966 to February 1972, February 1973 to September 1992	April 1967 to March 1992	Unregulated	Site experiences periods of zero flow.
69	October 1986 to September 2012	October 1986 to March 2012	Regulated	Flow affected by regulation from Lake Marion and rediversion from St. Stephens powerplant. Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided.
70	October 1978 to September 2000, October 2001 to September 2012	October 1978 to September 2000, October 2001 to March 2012	Regulated	Discharge affected by regulation from Lake Moultrie Pinopolis Dam. Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided.
71	April 1940 to September 1966	April 1940 to March 1966	Unregulated	MOVE.1 record augmentation using index station 02173000, South Fork Edisto River near Denmark, SC (April 1932 to March 1971, then April 1981 to March 2009).
72	October 1980 to March 1987, February 1988 to October 2000	April 1981 to March 1987, April 1988 to March 2000	Unregulated	
73	August 1931 to September 1971, October 1980 to September 2009	April 1932 to March 1971, April 1981 to March 2009	Unregulated	
74	April 1991 to September 2009	April 1932 to March 2009	Unregulated	MOVE.1 record augmentation using index station 02173000, South Fork Edisto River near Denmark, SC (April 1932 to March 1971, then April 1981 to March 2009).
75	December 1938 to September 2009	April 1939 to March 2009	Unregulated	
76	October 1945 to September 1996	April 1940 to March 1996	Unregulated	MOVE.1 record augmentation using index station 02175000, Edisto River near Givhans, SC (April 1940 to March 2009).

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

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Site index number (fig. 1)	USGS streamgage number	Streamgage name	Latitude (DMS)	Longitude (DMS)	County	SCDHEC-designated basin	Hydrologic unit code	Drainage area (mi^2)
77	02174250	Cow Castle Creek near Bowman, SC	332243	804200	Bamberg	Saluda-Congaree-Edisto	03050206	23.4
78	02175000	Edisto River near Givhans, SC	330140	802330	Dorchester	Saluda-Congaree-Edisto	03050205	2,730
79	02175500	Salkehatchie River near Miley, SC	325920	810310	Hampton	Savannah-Salkehatchie	03050207	341
80	02176500	Coosawhatchie River near Hampton, SC	325010	810755	Hampton	Savannah-Salkehatchie	03050208	203
81	02177000	Chattooga River near Clayton, GA	344850	831822	Oconee	Savannah-Salkehatchie	03060102	207
82	02185200	Little River near Walhalla, SC	345011	825848	Oconee	Savannah-Salkehatchie	03060101	72
83	02186000	Twelvemile Creek near Liberty, SC	344805	824455	Pickens	Savannah-Salkehatchie	03060101	106
84	02186645	Coneross Creek near Seneca, SC	343857	825930	Oconee	Savannah-Salkehatchie	03060101	65.4
85	02186699	Eighteemile Creek above Pendleton, SC	343932	824756	Anderson	Savannah-Salkehatchie	03060101	47
86	02187910	Rocky River near Starr, SC	342259	823439	Anderson	Savannah-Salkehatchie	03060103	111
87	02189000	Savannah River near Calhoun Falls, SC	340415	823830	Abbeville	Savannah-Salkehatchie	03060103	2,876
88	02192500	Little River near Mount Carmel, SC	340417	823003	McCormick	Savannah-Salkehatchie	03060103	217
89	02192830	Blue Hill Creek at Abbeville, SC	341003	822217	Abbeville	Savannah-Salkehatchie	03060103	3.24
90	02195000	Savannah River near Clarks Hill, SC	333840	821205	Columbia (GA)	Savannah-Salkehatchie	03060103	6,150
91	02196000	Stevens Creek near Modoc, SC	334345	821055	Edgefield	Savannah-Salkehatchie	03060107	545
92	02196250	Horn Creek near Colliers, SC	334255	815623	Edgefield	Savannah-Salkehatchie	03060107	13.9
93	02196689	Little Horse Creek near Graniteville, SC	333349	815227	Aiken	Savannah-Salkehatchie	03060106	26.6
94	02197000	Savannah River at Augusta, GA	332225	815635	Richmond (GA)	Savannah-Salkehatchie	03060106	7,510
95	02197300	Upper Three Runs near New Ellenton, SC	332305	813700	Aiken	Savannah-Salkehatchie	03060106	87

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

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Site index number (fig. 1)	Period of record available	Period of record analyzed	Flow condition	Remarks
77	October 1970 to September 1981, October 1995 to September 2009	April 1971 to March 1981, April 1996 to March 2009	Unregulated	Site experiences periods of zero flow.
78	January 1939 to September 2009	April 1940 to March 2009	Unregulated	
79	February 1951 to March 2014	February 1951 to March 2014	Unregulated	
80	February 1951 to March 2014	April 1951 to March 2014	Unregulated	Site experiences periods of zero flow.
81	October 1939 to March 2014	April 1940 to March 2014	Unregulated	
82	March 1967 to September 2003	April 1967 to March 2003	Unregulated	
83	August 1954 to September 1964, June 1989 to September 2001, October 2004 to March 2014	April 1955 to March 1964, April 1990 to March 2001, April 2005 to March 2014	Unregulated	
84	April 1989 to September 2003	April 1989 to March 2003	Unregulated	
85	May 1998 to July 2008	May 1998 to March 2008	Unregulated	
86	May 1989 to February 1996, October 1996 to October 2001, February 2003 to March 2004, October 2004 to March 2014	April 1990 to March 1995, April 1997 to March 2001, March 2005 to April 2014	Unregulated	Broadway Lake is located on Broadway Creek, which is a tributary to Rocky River, was completed in 1940 but does not appear to have any substantial storage capacity.
87	October 1896 to April 1898, April 1899 to September 1900, April 1930 to April 1932, April 1938 to September 1979	April 1897 to March 1898, April 1899 to March 1900, April 1930 to March 1932, April 1938 to March 1961	[1]Regulated	Regulated since 1962 by Lake Hartwell Dam and since 1985 by Richard B. Russell Dam. Frequency results represent pre-regulation conditions.
88	January 1940 to September 1970, September 1986 to October 2003, October 2004 to March 2014	April 1940 to March 1970, April 1987 to March 2003, March 2005 to April 2014	Unregulated	
89	February 1998 to August 2008	April 1998 to March 2008	Unregulated	Site experiences periods of zero flow.
90	May 1940 to June 1954	April 1941 to March 1953	[1]Regulated	Regulated since 1954 by J. Strom Thurmond Dam and since 1986 by Richard B. Russell Dam. Results represent pre-regulation conditions.
91	November 1929 to September 1931, February 1940 to September 1978, November 1983 to March 2014	April 1930 to March 1931, April 1940 to March 1978, April 1984 to March 2014	Unregulated	
92	October 1980 to September 1994	April 1981 to March 1994	Unregulated	
93	October 1989 to December 1999, March 2000 to April 2001	April 1990 to March 1999, April 2000 to March 2001	Unregulated	
94	October 1883 to December 1891, January 1896 to December 1906, January 1925 to March 2014	April 1884 to March 1891, April 1896 to March 1906, April 1925 to March 1951, April 1986 to March 2014	Unregulated (Regulated)	Regulated since about 1954 by J. Strom Thurmond Lake, 1962 by Lake Hartwell, and 1985 by Richard B. Russell Lake. Low-flow frequency statistics computed for both unregulated and regulated conditions.
95	June 1966 to September 2002	April 1967 to March 2002	Unregulated	

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

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Site index number (fig. 1)	USGS streamgage number	Streamgage name	Latitude (DMS)	Longitude (DMS)	County	SCDHEC-designated basin	Hydrologic unit code	Drainage area (mi^2)
96	02197309	Tims Branch at Road C at Savannah River Site, SC	331713	814149	Aiken	Savannah-Salkehatchie	03060106	17.5
97	02197310	Upper Three Runs above Road C at Savannah River Site, SC	331708	814140	Aiken	Savannah-Salkehatchie	03060106	176
98	02197315	Upper Three Runs at Road A at Savannah River Site, SC	331420	814442	Aiken	Savannah-Salkehatchie	03060106	203
99	02197342	Site No. 7 at Savannah River Site, SC	331440	814145	Barnwell	Savannah-Salkehatchie	03060106	12.5
100	02197344	Four Mile Creek at Road A-12.2 at Savannah River Site, SC	331121	814326	Barnwell	Savannah-Salkehatchie	03060106	22
101	02197348	Pen Branch at Road A-13.2 at Savannah River Site, SC	330934	814108	Barnwell	Savannah-Salkehatchie	03060106	21.2
102	021973565	Steel Creek at Road A at Savannah River Site, SC	330844	813744	Barnwell	Savannah-Salkehatchie	03030106	Undetermined
103	02197380	Lower Three Runs below Par Pond at Savannah River Site, SC	331407	813100	Barnwell	Savannah-Salkehatchie	03060106	34.9
104	02197400	Lower Three Runs near Snelling, SC	331035	812850	Barnwell	Savannah-Salkehatchie	03060106	59.3
105	02197500	Savannah River at Burtons Ferry Bridge near Millhaven, GA	325620	813010	Screven (GA)	Savannah-Salkehatchie	03060106	8,650
106	02198500	Savannah River near Clyo, GA	323141	811608	Effingham (GA)	Savannah-Salkehatchie	03060109	9,850

[1]Although the site is currently regulated, the analysis was based on pre-regulation data.

Table 2. Continuous-record streamgages in or near South Carolina for which low-frequency statistics were computed and published in Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).—Continued

[USGS, U.S. Geological Survey; DMS, degrees minutes seconds; SCDHEC, South Carolina Department of Health and Environmental Control; mi^2, square mile; MOVE.1, Maintenance of Variance Extension, Type 1; ft^3/s, cubic foot per second; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	Period of record available	Period of record analyzed	Flow condition	Remarks
96	March 1974 to September 1982, October 1984 to September 1996	April 1974 to March 1982, April 1985 to March 1996	Regulated	Flow regulated by Savannah River Site operations.
97	June 1974 to January 1998, December 1998 to September 2002	April 1975 to March 1997, April 1999 to March 2002	Unregulated	
98	June 1974 to January 1998, October 1998 to September 2002	April 1975 to March 1997, April 1999 to March 2002	Unregulated	
99	October 1972 to September 2002	April 1973 to March 2002	Regulated	Flow regulated by Savannah River Site operations.
100	November 1976 to September 2002	April 1986 to March 2002	Regulated	Flow regulated by Savannah River Site operations. Based on quality-assurance and quality-control assessments, the regulation patterns changed after climate year 1986. Therefore, only the record after April 1986 was used in the analysis.
101	November 1976 to September 2002	April 1988 to March 2002	Regulated	Flow regulated by Savannah River Site operations. Based on quality-assurance and quality-control assessments, the regulation patterns changed after climate year 1988. Therefore, only the record after April 1988 was used in the analysis.
102	March 1985 to September 2002	April 1985 to March 2002	Regulated	Only exceedance percentiles of annual 7-day minimum flows and duration of daily flow provided.
103	May 1974 to September 1982, February 1987 to September 2002	April 1975 to March 1982, April 1987 to March 2002	Regulated	Flow regulated by Savannah River Site operations.
104	March 1974 to September 2002	April 1974 to March 2002	Regulated	Flow regulated by Savannah River Site operations.
105	October 1939 to September 1970, October 1982 to October 2003, October 2004 to March 2014	April 1986 to March 2003, April 2005 to March 2014	Regulated	Regulated since about 1954 by J. Strom Thurmond Lake, 1962 by Lake Hartwell, and 1985 by Richard B. Russell Lake. The low-flow statistics represent the most recent period of relatively stable regulation.
106	October 1929 to September 1933, October 1937 to March 2014	April 1986 to March 2014	Regulated	Regulated since about 1954 by J. Strom Thurmond Lake, 1962 by Lake Hartwell, and 1985 by Richard B. Russell Lake. The low-flow statistics represent the most recent period of relatively stable regulation.

Table 5. Low-flow statistics for unregulated continuous-record streamflow-gaging stations in South Carolina as previously published by Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).

[lat, latitude; long, longitude; ft, foot; mi, mile; SCDHEC, South Carolina Department of Health and Environmental Control; USGS, U.S. Geological Survey; MOVE.1, Maintenance of Variance Extension, Type 1. The low-flow statistics are presented in the following pages in numerical order by station number]

STATION NUMBER AND NAME.--02110500 Waccamaw River near Longs, SC

LOCATION.--Lat 33º54'45'', long 78º42'55'', Horry County, Hydrologic Unit 03040206, on the upstream side of the upstream bridge on State Highway 9, 500 ft downstream from Buck Creek, 2.1 mi southeast of Longs, and at mile 85.4.

DRAINAGE AREA.--1,110 mi^2, approximately.

PERIOD OF RECORD.--March 1950 to September 2007.

PERIOD OF ANALYSIS.—April 1950 to March 2007.

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —57

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there is no significant regulation or diversion upstream in South Carolina. The potential exists for significant diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. Therefore, no adjustments were made to data used in the frequency analysis.

MAGNTIUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	36	36	39	44	61	109	186
5	15	15	16	18	24	38	63
10	8.4	9.2	9.9	11	14	21	34
20	5.1	5.9	6.5	7.3	9.1	13	19
30	3.9	4.6	5.1	5.8	7.1	9.4	14
50	2.8	3.5	3.9	4.6	5.5	6.8	9.8

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	4,360	3,120	1,680	713	195	56	30

STATION NAME AND NUMBER.—02129590 Whites Creek near Wallace, SC

LOCATION.—Lat 34^{0}45’20”, Long 79^{0}53’00”, Marlboro County, Hydrologic Unit 03040201, on the upstream side of bridge on U.S. Highway 1, 100 feet downstream from lake spillway and 2.9 miles northwest of Wallace, SC

DRAINAGE AREA.—26.4 mi^2.

PERIOD OF RECORD.—October 1979 to September 1995.

PERIOD OF ANALYSIS.—April 1980 to March 1995.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —15

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. There is some regulation upstream from small reservoirs**.** No adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	1.3	1.3	1.7	2.1	4.1	6.5	8.2
5	0.20	0.26	0.43	0.68	2.0	4.0	5.3
10	0.04	0.07	0.14	0.36	1.3	3.0	4.1
20	0.0	.0	.0	0.20	0.87	2.4	3.4

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	83	61	36	19	8.8	4.4	2.2

STATION NAME AND NUMBER.--02130900 Black Creek near McBee, SC

LOCATION.--Lat 34º30'50'', long 80º11'00'', Chesterfield County, Hydrologic Unit 03040201, near right bank, at downstream side of bridge on U.S. Highway 1, 0.2 mi upstream from Little Alligator Creek, 5.8 mi northeast of McBee, and at mile 59.1.

DRAINAGE AREA.--108 mi^2.

PERIOD OF RECORD.--October 1959 to September 2007.

PERIOD OF ANALYSIS.—April 1960 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —47

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Infrequent fluctuations at low flow caused by small lakes upstream may occur. No adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	34	35	37	41	47	60	71
5	22	23	24	27	31	40	47
10	18	19	20	22	25	32	37
20	15	16	17	19	22	26	31
30	14	14	15	17	20	24	28
50	12	13	14	16	18	21	25

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	340	269	192	126	72	44	34

STATION NAME AND NUMBER.--02131150 Catfish Canal at Sellers, SC

LOCATION.--Lat 34º17'04'', long 79º26'32'', Marion County, Hydrologic Unit 03040201, on right downstream wingwall of culvert on State Highway 38, 2.0 mi east of Sellers, 2.3 mi upstream from Stackhouse Creek, and at mile 25.6.

DRAINAGE AREA.--27.4 mi^2.

PERIOD OF RECORD.--November 1966 to September 1992.

PERIOD OF ANALYSIS.—April 1967 to March 1992.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —25

REMARKS.—Some seasonal diversion for agricultural use in the upper reaches of the stream. Based on review of withdrawal and discharge data provided by the SCDHEC, the potential exists for significant diversion upstream. However, adequate data are not available to quantify this diversion. Therefore, no adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	**Lowest average flow for indicated number of consecutive days (cubic feet per second)**						
	1	3	7	14	30	60	90
2	0.97	1.0	1.2	1.5	2.0	2.8	4.5
5	0.25	0.28	0.34	0.33	0.44	0.96	1.9
10	0.0	.0	.0	0.04	0.07	0.49	1.1
20	.0	.0	.0	.0	.0	0.26	0.65
30	.0	.0	0.	.0	.0	0.18	0.48

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	91	62	32	14	5.1	2.0	1.1

STATION NAME AND NUMBER.--02131309 Fork Creek at Jefferson, SC

LOCATION.--Lat 34º38’19’’, long 80º23’20’’, Chesterfield County, Hydrologic Unit 03040202, on upstream side, at center of span on State Highway 151 bridge, 1.0 mi south of intersection of State Highways 265 and 151, at Jefferson, SC.

DRAINAGE AREA. -- 24.3 mi^2.

PERIOD OF RECORD. -- October 1976 to September 1997.

PERIOD OF ANALYSIS.—April 1977 to March 1997.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —20

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.36	0.46	0.50	0.73	1.5	2.9	3.5
5	0.0	.0	0.05	0.15	0.54	0.89	1.6
10	.0	.0	.0	0.05	0.26	0.41	1.0
20	.0	.0	.0	.0	.0	0.20	0.71
30	.0	.0	.0	.0	.0	0.13	0.57

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	75	53	32	15	4.6	1.3	0.61

STATION NAME AND NUMBER.--02131472 Hanging Rock Creek near Kershaw, SC

LOCATION.--Lat 34º30’58’’, long 80º34’59’’, Lancaster County, Hydrologic Unit 03040202, on right downstream side of bridge on State Road 184, 2.1 miles south of Kershaw, and 4.0 miles upstream from mouth.

DRAINAGE AREA. – 23.9 mi^2.

PERIOD OF RECORD. – October 1980 to September 2003.

PERIOD OF ANALYSIS.-- April 1981 to March 2003.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —22

REMARKS—Some possible regulation by Kershaw City Reservoir located about 1 mile upstream. Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. No adjustment was made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.87	1.0	1.3	1.7	2.4	3.6	4.8
5	0.32	0.41	0.50	0.67	0.95	1.5	2.0
10	0.20	0.26	0.31	0.41	0.55	0.86	1.2
20	0.13	0.18	0.21	0.28	0.34	0.54	0.81
30	0.11	0.15	0.17	0.22	0.26	0.42	0.63

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	75	50	26	13	4.7	1.6	0.76

STATION NAME AND NUMBER.—02131500 Lynches River near Bishopville, SC

LOCATION.-- Lat 34º15’00’’, long 80º12’50’’, Lee County, Hydrologic Unit 03040202, near center span on downstream side of bridge on U.S. Highway 15, 1.0 mile upstream from Seaboard Coast Line Railroad bridge, 2.9 miles northeast of Bishopville, SC, 3.0 miles downstream from Bells Branch and at mile 89.5.

DRAINAGE AREA.--675 mi^2.

PERIOD OF RECORD.--October 1942 to September 1971, February 2002 to March 2007.

PERIOD OF ANALYSIS.—April 1943 to March 1971, April 2002 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —33

REMARKS.-- Period of record was extended to October 1929 through September 1942, and October 1971 through January 2002 by using streamgaging station 02132000, Lynches River at Effingham, SC, as an index station. The MOVE.1 technique was used to extend the record. Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Therefore, no adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	198	200	211	218	240	284	319
5	132	134	143	151	170	201	223
10	98	101	109	121	139	163	180
20	74	77	85	99	116	134	148
30	62	65	72	85	105	120	132
50	51	54	61	77	94	106	117

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	2,110	1,510	918	527	336	232	202

STATION NAME AND NUMBER.—02132000 Lynches River at Effingham, SC

LOCATION.-- Lat 34º03’15’’, long 79º45’15’’, Florence County, Hydrologic Unit 03040202, on left bank on downstream side of bridge on U.S. Highway 52, 75 feet upstream from Seaboard Coast Line Railroad bridge, 1.0 mile south of Effingham, SC, and at mile 43.4.

DRAINAGE AREA.—1,030 mi^2, approximately.

PERIOD OF RECORD.—October 1929 to September 2007.

PERIOD OF RECORD.—April 1930 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —77

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	201	204	213	228	260	311	357
5	148	150	156	167	184	216	246
10	125	127	131	140	152	177	200
20	108	109	113	120	129	150	169
30	99	101	104	110	118	136	153
50	91	92	95	100	107	123	138

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	2,950	2,200	1,280	667	376	245	198

STATION NAME AND NUMBER.—02132500 Little Pee Dee River near Dillon, SC

LOCATION.—Lat 34º24’17’’, long 79º20’25’’, Dillon County, Hydrologic Unit 03040204, on downstream side of bridge on State Highway 9, 1.9 miles southeast of Dillon, SC, 3.1 miles upstream from Maple Swamp, and at mile 88.3.

DRAINAGE AREA.—524 mi^2, approximately.

PERIOD OF RECORD.—April 1939 to September 1971.

PERIOD OF ANALYSIS.—April 1939 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —32 (35 additional years from record extension)

REMARKS.— Period of record was extended from October 1971 through March 2007 by using streamgaging station 02135000, Little Pee Dee River at Galivants Ferry, SC, as an index station. The MOVE.1 technique was used to extend the record. Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	96	100	108	119	146	190	230
5	56	59	66	71	87	114	140
10	40	43	49	53	64	84	104
20	30	33	38	40	48	63	80
30	26	28	32	34	41	53	68
50	22	24	27	29	34	44	58

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,540	1,180	729	417	225	137	103

STATION NAME AND NUMBER.—02135000 Little Pee Dee River at Galivants Ferry, SC

LOCATION.— Lat 34º03’25’’, long 79º14’50’’, Horry-Marion County line, Hydrologic Unit 03040204, near left bank on downstream side of bridge on U.S. Highway 501, at Galivants Ferry, SC, 1.0 mile downstream from Lake Swamp, and at mile 41.7.

DRAINAGE AREA.—2,790 mi^2, approximately.

PERIOD OF RECORD.—January 1942 to September 2007.

PERIOD OF ANALYSIS.—April 1942 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —65

REMARKS. —Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream in South Carolina. The potential exists for significant diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. Therefore, no adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	498	505	523	556	660	841	990
5	312	317	328	345	400	494	589
10	237	241	249	260	297	357	430
20	185	189	195	202	228	266	325
30	161	164	169	175	196	223	276
50	138	141	145	149	166	185	231

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	8,850	6,730	4,050	2,090	1,050	596	452

STATION NAME AND NUMBER.--02135300 Scape Ore Swamp near Bishopville, SC

LOCATION.--Lat 34º09'02'', long 80º18'18'', Lee County, Hydrologic Unit 03040205, on left bank, on downstream side of bridge on U.S. Highway 15, 0.1 mi downstream from Beaverdam Creek, 0.9 mi upstream from Seaboard Coast Line Railroad bridge, and 5.8 mi southwest of Bishopville.

DRAINAGE AREA.--96.0 mi^2.

PERIOD OF RECORD.--July 1968 to October 2003.

PERIOD OF ANALYSIS.—April 1969 to March 2003.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —34

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	12	12	13	14	18	26	32
5	7.5	7.7	8.2	9.2	11	16	20
10	5.9	6.1	6.5	7.3	8.5	12	15
20	4.8	5.0	5.3	6.0	6.8	9.3	12
30	4.4	4.6	4.8	5.4	6.1	8.1	11
50	3.8	4.0	4.2	4.8	5.3	7.1	9.7

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	260	199	129	72	31	17	12

STATION NAME AND NUMBER.—02135500 Black River near Gable, SC

LOCATION.-- Lat 33º54’00’’, long 80º09’55’’, Sumter County, Hydrologic Unit 03040205, near left bank on downstream side of McBride crossing on U.S. Highway 378, 1.0 mile downstream from Church Branch, 6.3 miles northwest of Gable, SC, and at mile 123.1.

DRAINAGE AREA.--401 mi^2.

PERIOD OF RECORD.—June 1951 to June 1966, April 1972 to September 1992.

PERIOD OF RECORD.—April 1952 to March 1966, April 1972 to March 1992.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —34

REMARKS.-- Period of record was extended for the periods October 1929 through September 1951, November 1966 through March 1972, and October 1992 through March 2007 by using streamgaging station 02136000, Black River at Kingstree, SC, as an index station. The MOVE.1 technique was used to extend the record. Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	8.9	9.4	12	16	29	51	97
5	1.6	1.9	3.0	4.1	8.1	17	32
10	0.12	0.52	1.0	1.6	3.4	7.9	14
20	0.00	0.00	0.00	0.52	1.2	3.3	5.7
30	0.00	0.00	0.00	0.11	0.30	1.0	3.5
50	0.00	0.00	0.00	0.00	0.00	0.00	0.75

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,240	867	456	241	89	25	11

STATION NAME AND NUMBER.--02136000 Black River at Kingstree, SC

LOCATION.--Lat 33º39'40'', long 79º50'10'', Williamsburg County, Hydrologic Unit 03040205, on left bank, at upstream side of bridge on U.S. Highway 52 at Kingstree, 1.0 mi downstream from Kingstree Swamp Canal, and at mile 86.7.

DRAINAGE AREA.--1,252 mi^2.

PERIOD OF RECORD.--October 1929 to September 2007. Gage-height records collected at same site since 1894 are contained in reports of National Weather Service.

PERIOD OF ANALYSIS.—April 1930 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —77

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, the potential exists for significant diversion upstream. However, adequate data are not available to quantify this diversion. Therefore, no adjustments for diversions were made.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	28	29	32	37	52	90	130
5	11	12	13	14	20	32	50
10	6.7	7.0	7.6	8.6	11	18	28
20	4.4	4.5	4.9	5.6	6.9	10	17
30	3.4	3.5	3.8	4.3	5.2	7.6	12
50	2.6	2.7	3.0	3.3	3.9	5.5	8.9

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	3,480	2,370	1,150	446	148	46	20

STATION NAME AND NUMBER.--02146750 McAlpine Creek below McMullen Creek near Pineville, NC

LOCATION.--Lat 35°03’59.39”, long 80°52’11.46” referenced to North American Datum of 1983, Mecklenburg County, NC, Hydrologic Unit 03050103, on right bank, 150 ft downstream from McMullen Creek, 735 ft upstream from effluent outfall, and 2.1 mi south of Pineville.

DRAINAGE AREA.—92.4 mi^2.

PERIOD OF RECORD.—April 1974 to September 2012.

PERIOD OF ANALYSIS.—April 1974 to March 2012.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —38

REMARKS.— The SCDHEC requested this station be analyzed along with 0214678175, Steele Creek at Secondary Road 1441 near Pineville, NC, in place of station 0214676115, McAlpine Creek at SR 2964 near Camp Cox, SC, and 02146800, Sugar Creek near Fort Mill, SC, due to those stations having substantial influence from upstream wastewater treatment plant discharges. On the basis of review of withdrawal and discharge data provided by the North Carolina Department of Environment and Natural Resources (NCDENR), there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	4.0	4.4	5.3	6.5	11	19	27
5	1.6	1.9	2.4	3.3	5.3	11	16
10	0.93	1.1	1.4	2.1	3.5	7.9	12
20	0.55	0.66	0.88	1.5	2.4	6.2	9.6
30	0.41	0.50	0.68	1.2	2.0	5.4	8.4
50	0.28	0.35	0.49	0.91	1.5	4.6	7.3

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	613	241	67	30	15	7.9	5.1

STATION NAME AND NUMBER.--0214678175 Steele Creek at Secondary Road 1441 near Pineville, NC

LOCATION.--Lat 35°06′18″, long 80°57′13″ referenced to North American Datum of 1983, Mecklenburg County, NC, Hydrologic Unit 03050103, on right bank, upstream from culvert on Secondary Road 1441 (Carowinds Boulevard), 4.5 mi west of Pineville.

DRAINAGE AREA.—6.91 mi^2.

PERIOD OF RECORD.—May 1998 to September 2012.

PERIOD OF ANALYSIS.—May 1998 to March 2012.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —14

REMARKS.—The SCDHEC requested this station be analyzed along with 02146750, McAlpine Creek below McMullen Creek near Pineville, NC, in place of station 0214676115, McAlpine Creek at SR 2964 near Camp Cox, SC, and 02146800, Sugar Creek near Fort Mill, SC, due to those stations having substantial influence from upstream wastewater treatment plant discharges. Station 0214678175 is an urbanized basin. On the basis of review of withdrawal and discharge data provided by NCDENR, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.15	0.17	0.20	0.32	0.59	1.5	2.0
5	0.09	0.10	0.11	0.19	0.32	0.91	1.2
10	0.06	0.07	0.08	0.13	0.23	0.69	0.90
20	0.05	0.05	0.06	0.10	0.17	0.55	0.71

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	28	12	3.8	1.5	0.64	0.35	0.25

STATION NAME AND NUMBER.--02147500 Rocky Creek at Great Falls, SC

LOCATION.--Lat 34°33′55″, long 80°55′12″ referenced to North American Datum of 1927, Chester County, SC, Hydrologic Unit 03050103, on left bank, 350 ft downstream from Turkey Branch, 1.0 mi west of Great Falls, and at river mile 1.8.

DRAINAGE AREA.--194 mi^2.

PERIOD OF RECORD.—March 1951 to September 1981, and October 1986 to September 2012.

PERIOD OF ANALYSIS.—April 1951 to March 1981, and April 1987 to March 2012.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —55

REMARKS.— On the basis of review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	8.1	8.2	8.9	12	17	22	27
5	0.97	0.88	1.3	2.2	4.2	8.2	11
10	0.06	0.11	0.29	0.64	1.5	4.3	6.1
20	0.0	0.0	0.05	0.19	0.53	2.3	3.6
30	0.0	0.0	0.01	0.09	0.29	1.6	2.6
50	0.0	0.0	0.0	0.04	0.13	1.1	1.8

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	612	315	128	56	26	12	6.9

STATION NAME AND NUMBER.--02148300 Colonels Creek near Leesburg, SC

LOCATION.--Lat 34°00′25″, long 80°43′58″ referenced to North American Datum of 1927, Richland County, SC, Hydrologic Unit 03050104, on SC Highway 262 bridge, 0.2 mi above Jumping Run Creek, and 1.9 mi southwest of Leesburg.

DRAINAGE AREA.—40.2 mi^2.

PERIOD OF RECORD.—September 1966 to September 1980, and February 2004 to October 2007.

PERIOD OF ANALYSIS.—April 1967 to March 1980, and April 2004 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —16

REMARKS.— No withdrawal or discharge data were available from the SCDHEC for this station. However, flow-duration curve analyses indicate that the effects of upstream point-source discharges may be substantial at lower flows.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	16	17	17	19	21	25	27
5	11	11	12	13	15	18	20
10	8.8	9.0	9.3	10	12	15	17
20	7.1	7.2	7.5	8.2	9.9	13	15

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	97	76	51	35	24	17	13

STATION NAME AND NUMBER.--02153780 Clarks Fork Creek near Smyrna, SC

LOCATION.--Lat 35º04'45'', long 81º23'17'', York County, Hydrologic Unit 03050105, near right bank, at downstream side of bridge on State Highway 55, 3.0 mi northeast of Smyrna, and 10.1 mi northwest of York.

DRAINAGE AREA.--24.1 mi^2.

PERIOD OF RECORD.--October 1980 to September 2002.

PERIOD OF ANALYSIS.—April 1981 to March 2002.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —21

REMARKS.— Based on review of diversion data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	1.9	1.9	2.1	2.4	3.2	4.2	5.0
5	0.70	0.81	0.99	1.1	1.7	2.2	2.9
10	0.38	0.51	0.66	0.77	1.1	1.5	2.1
20	0.22	0.34	0.46	0.55	0.82	1.1	1.6
30	0.16	0.27	0.39	0.46	0.69	0.92	1.4

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	54	34	20	11	6.1	3.1	1.8

STATION NAME AND NUMBER.--02154500 North Pacolet River at Fingerville, SC

LOCATION.--Lat 35º07’15’’, long 81º59’10’’, Spartanburg County, Hydrologic Unit 03050105, on right bank at McMillin Mill, about 400 feet downstream from Obed Creek, 1.4 mi south of Fingerville, and at mile 48.5.

DRAINAGE AREA. -- 116 mi^2.

PERIOD OF RECORD. -- April 1930 to September 2008.

PERIOD OF ANALYSIS.—April 1930 to March 2008.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —78

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. The potential exists for significant diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	72	75	78	82	90	102	112
5	48	50	53	56	63	71	79
10	37	39	41	45	50	57	63
20	29	31	33	36	41	47	49
30	26	27	29	32	37	42	47
50	22	23	25	27	32	37	41

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	461	332	224	153	107	78	63

STATION NAME AND NUMBER.--02154790 South Pacolet River near Campobello, SC

LOCATION.--Lat 35º06'23'', long 82º07'47'', Spartanburg County, Hydrologic Unit 03050105, on downstream side of bridge on Alverson Road, 1.1 mi upstream from Lake William C. Bowen, and 1.3 mi southeast of Campobello, SC.

DRAINAGE AREA. – 55.4 mi^2.

PERIOD OF RECORD. – January 1989 to September 2008.

PERIOD OF ANALYSIS.—April 1930 to March 2008. Period of record was extended to include climatic years 1930 to 1988 by using streamgaging station 02154500, North Pacolet River at Fingerville, SC, as an index station.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —19 (59 additional years from record extension)

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	31	32	34	35	39	45	52
5	21	22	23	25	28	32	36
10	17	17	18	20	22	26	29
20	13	14	14	16	18	21	24
30	12	12	13	14	16	19	21
50	9.9	10	11	12	14	17	18

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	240	166	108	72	50	35	29

STATION NAME AND NUMBER.—02156050 Lawsons Fork Creek at Dewey Plant near Inman, SC

LOCATION.-- Lat 35º01’26’’, long 82º04’03’’, Spartanburg County, Hydrologic Unit 03050105, on left bank at Milliken and Co. Dewey Plant, 1.8 mi southeast of Inman and 3.8 mi upstream from Meadow Creek.

DRAINAGE AREA.—6.46 mi^2.

PERIOD OF RECORD.—October 1979 to July 2007, annual maximum. Daily discharge records for October 2006 to July 2007, available in files of the U.S. Geological Survey.

PERIOD OF ANALYSIS.—April 1980 to March 2006.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —26

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	2.5	2.6	2.8	3.1	3.5	4.2	4.8
5	1.4	1.5	1.7	1.9	2.3	2.7	3.2
10	0.98	1.1	1.2	1.3	1.7	2.1	2.5
20	0.69	0.76	0.84	0.94	1.3	1.6	2.1
30	0.57	0.62	0.70	0.78	1.2	1.4	1.8

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	21	14	9.5	6.9	4.7	3.3	2.6

STATION NAME AND NUMBER.—02156450 Neals Creek near Carlisle, SC

LOCATION.—Lat 34º39’53’’, long 81º27’28’’, Union County, Hydrologic Unit 03050106, at center span, downstream side of bridge on County Road 86, 5.1 mile north of Carlisle, and 10.3 mi southeast of Union.

DRAINAGE AREA.—12.3 mi^2, approximately.

PERIOD OF RECORD.—October 1980 to September 1996.

PERIOD OF ANALYSIS.—April 1981 to March 1996.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —15

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.83	0.88	0.93	1.1	1.4	1.7	2.2
5	0.55	0.59	0.71	0.84	1.0	1.3	1.6
10	0.44	0.48	0.63	0.74	0.88	1.1	1.4
20	0.37	0.40	0.58	0.67	0.78	0.94	1.2

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	41	24	11	4.9	2.5	1.5	1.1

STATION NAME AND NUMBER.—02157470 Middle Tyger River near Gramlin, SC

LOCATION.-- Lat 35º02’20’’, long 82º13’07’’, Spartanburg County, Hydrologic Unit 03050107, on downstream side of County Road 75 bridge, approximately 5.5 mi southwest of Gramlin, and 1.5 mi upstream from Lyman Lake.

DRAINAGE AREA.—34.7 mi^2.

PERIOD OF RECORD.—February 2002 to September 2008.

PERIOD OF ANALYSIS.—April 1930 to March 2008. Because the period of record is more than 5 but less than 10 years, streamgaging station 02157470 was analyzed as if it was a partial-record station. Low-flow characteristics were estimated from a MOVE.1 correlation with streamgaging station 02154500, North Pacolet River at Fingerville, SC.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —6 (plus 72 additional years from the MOVE.1 correlation)

REMARKS.-- Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS	
Low-flow characteristic	**Flow (cubic feet per second)**
7-day, 2-year	27
7-day, 10-year	9.7

STATION NAME AND NUMBER.—02157490 Beaverdam Creek above Greer, SC

LOCATION.--Lat 34º58’31’’, long 82º11’44’’, Spartanburg County, Hydrologic Unit 03050107, on upstream side of SC Highway 357 bridge, approximately 0.5 mi upstream from Middle Tyger River, and 3.2 mi northwest of Greer.

DRAINAGE AREA.—15.9 mi^2.

PERIOD OF RECORD.—March 2002 to September 2008.

PERIOD OF ANALYSIS.—April 1995 to March 2008. Because the period of analysis is more than 5 but less than 10 years, streamgaging station 02157490 was analyzed as if it was a partial-record station. Low-flow characteristics were estimated from a MOVE.1 correlation with streamgaging station 02160381, Durbin Creek above Fountain Inn, SC.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —6 (plus 7 additional years from the MOVE.1 correlation)

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS	
Low-flow characteristic	**Flow (cubic feet per second)**
7-day, 2-year	9.8
7-day, 10-year	1.6

STATION NAME AND NUMBER.—02157500 Middle Tyger River at Lyman, SC

LOCATION.--Lat 34º56’35’’, long 82º08’00’’, Spartanburg County, Hydrologic Unit 03050107, 200 ft upstream from bridge at State Highway 292 at Lyman, 600 ft downstream from Southern Railway, and 0.8 mi northeast of Duncan.

DRAINAGE AREA.—68.3 mi^2.

PERIOD OF RECORD.—February 1938 to September 1967.

PERIOD OF ANALYSIS.—April 1930 to March 2008. Period of record was extended to include climatic years 1930 to 1937 and 1967 to 2007 by using streamgaging station 02154500, North Pacolet River at Fingerville, SC, as an index station.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —29 (48 additional years from record extension)

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	31	33	35	36	39	45	51
5	18	21	22	24	26	31	35
10	13	15	17	19	20	25	28
20	9.2	12	13	15	16	20	23
30	7.7	10	11	13	14	18	20
50	6.1	8.2	9.6	11	12	16	18

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	240	166	108	72	50	35	29

STATION NAME AND NUMBER.—02159810 Fairforest Creek below Spartanburg, SC

LOCATION.--Lat 34º54’19’’, long 81º54’54’’, Spartanburg County, Hydrologic Unit 03050107, on left bank at Spartanburg Sewage Treatment Plant, 0.5 mi downstream from State Highway 295, 0.7 mi south of Spartanburg, and 2.2 mi upstream from Beaverdam Creek.

DRAINAGE AREA.—23.6 mi^2.

PERIOD OF RECORD.—May 1988 to April 1998.

PERIOD OF ANALYSIS.—May 1988 to March 1998.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —10

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	8.9	9.1	9.6	11	13	16	18
5	7.2	7.4	8.0	8.8	10	13	14
10	6.4	6.7	7.2	7.9	8.8	11	13
20	5.8	6.1	6.6	7.2	7.8	9.6	11

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	123	70	35	22	15	11	9.7

STATION NAME AND NUMBER.—02160105 Tyger River near Delta, SC

LOCATION.--Lat 34º32’07’’, long 81º32’54’’, Union County, Hydrologic Unit 03050107, on upstream side of bridge on State Highway 72 and 121, 0.9 mi downstream from Seaboard Coast Line Railroad, 0.8 mi southeast of Delta, and at mile 9.0.

DRAINAGE AREA.—759 mi^2.

PERIOD OF RECORD.—October 1973 to September 2008.

PERIOD OF ANALYSIS.—April 1974 to March 2008.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —34

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	223	230	239	252	284	343	402
5	124	128	135	146	174	211	244
10	84	86	92	103	128	155	176
20	57	59	64	74	96	116	130
30	46	47	52	62	82	99	110
50	35	36	40	49	68	81	89

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	2,580	1,670	1,020	650	401	248	183

STATION NAME AND NUMBER.—02160326 Enoree River at Pelham, SC

LOCATION.--Lat 34º51’23’’, long 82º13’35’’, Spartanburg County, Hydrologic Unit 03050108, near left bank, on downstream side of bridge on SC Highway 14, 0.5 mi downstream from Brushy Creek, at Pelham, and at mile 81.2.

DRAINAGE AREA.—84.2 mi^2.

PERIOD OF RECORD.—March 1993 to September 2008.

PERIOD OF ANALYSIS.—April 1974 to March 2008. Period of record was extended to include climatic years 1974 to 1992 based on a MOVE.1 correlation with streamgaging station 02160700, Enoree River at Whitmire, SC.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —15 (19 additional years from MOVE.1 correlation)

REMARKS.— Based on review of withdrawal data provided by the SCDHEC, there are no significant withdrawals upstream. Based on review discharge data provided by the SCDHEC, the potential exists for significant point-source discharge upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	53	48	50	55	61	71	80
5	39	32	35	38	44	52	60
10	32	25	28	31	36	43	50
20	27	20	22	25	31	37	43
30	25	18	20	23	28	34	39
50	22	15	17	20	25	31	36

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	421	276	173	116	79	55	44

STATION NAME AND NUMBER.—02160381 Durbin Creek above Fountain Inn, SC

LOCATION.--Lat 34º43’00’’, long 82º10’26’’, Laurens County, Hydrologic Unit 03050108, at SC Highway 418 bridge, approximately 2.5 mi northeast of Fountain Inn.

DRAINAGE AREA.—14.0 mi^2.

PERIOD OF RECORD.—July 1994 to September 2008.

PERIOD OF ANALYSIS.—April 1995 to March 2008.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —13

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	2.7	2.9	3.3	3.7	4.7	5.9	6.7
5	1.1	1.3	1.6	1.9	2.5	3.4	4.3
10	0.59	0.72	0.90	1.1	1.6	2.3	3.2
20	0.31	0.40	0.51	0.67	1.0	1.5	2.4

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	35	24	15	9.9	6.5	4.0	2.7

STATION NAME AND NUMBER.—02160390 Enoree River near Woodruff, SC

LOCATION.--Lat 34º41’00’’, long 82º02’24’’, Spartanburg County, Hydrologic Unit 03050108, on downstream side of bridge on SC Highway 202, 0.7 mi downstream from Durbin Creek, and 0.4 mi south of Woodruff, and at mile 58.7.

DRAINAGE AREA.—249 mi^2.

PERIOD OF RECORD.—February 1993 to September 2008.

PERIOD OF ANALYSIS.—April 1974 to March 2008. Period of record was extended to include climatic years 1974 to 1992 based on a MOVE.1 correlation with streamgaging station 02160700, Enoree River at Whitmire, SC.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —15 (19 additional years from record extension)

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	107	104	110	118	131	157	176
5	75	71	74	81	93	113	129
10	60	55	58	64	76	93	108
20	48	44	46	51	64	79	91
30	43	39	41	46	58	73	83
50	37	34	35	39	51	65	75

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,000	660	416	274	179	124	96

STATION NAME AND NUMBER.—02160700 Enoree River at Whitmire, SC

LOCATION.--Lat 34º30’33’’, long 81º35’54’’, Union County, Hydrologic Unit 03050108, on left bank, at upstream side of bridge on U.S. Highway 176, 0.4 mi downstream from Seaboard Coast Line Railroad, 0.5 mi northeast of Whitmire, and at mile 19.2.

DRAINAGE AREA.—444 mi^2.

PERIOD OF RECORD.—October 1973 to September 2008.

PERIOD OF ANALYSIS.—April 1974 to March 2008.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —34

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	130	134	141	151	167	197	225
5	83	85	90	98	114	137	157
10	62	64	68	75	91	111	127
20	48	49	52	59	75	92	105
30	42	43	45	52	68	84	94
50	35	36	38	44	59	74	83

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,490	949	568	370	232	157	122

STATION NAME AND NUMBER.—02160775 Hellers Creek near Pomaria, SC

LOCATION.--Lat 34º21’38’’, long 81º29’32’’, Newberry County, Hydrologic Unit 03050106, on downstream side State Road 55 bridge, 7.8 mi northwest of Pomaria and 9.2 mi northeast of Newberry.

DRAINAGE AREA.—8.16 mi^2.

PERIOD OF RECORD.—October 1980 to September 1994.

PERIOD OF ANALYSIS.—April 1981 to March 1994.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —13

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.81	0.86	0.99	1.1	1.4	1.7	1.9
5	0.56	0.60	0.69	0.79	1.1	1.3	1.4
10	0.46	0.50	0.57	0.66	0.98	1.2	1.3
20	0.39	0.43	0.48	0.56	0.88	1.1	1.2

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	20	12	6.5	3.3	2.0	1.4	1.1

STATION NAME AND NUMBER.—02161700 West Fork Little River near Salem Crossroads, SC

LOCATION.--Lat 34º27’08’’, long 81º15’45’’, Fairfield County, Hydrologic Unit 03050106, right side of left channel, on upstream side of bridge on State Road 346, 3.0 mi northeast of Salem Crossroads and 12.0 mi northwest of Winnsboro.

DRAINAGE AREA.—25.5 mi^2.

PERIOD OF RECORD.—October 1980 to March 1998. All figures of discharge less than 700 cubic feet per second prior to October 1983 are unreliable and should not be used.

PERIOD OF ANALYSIS.—April 1984 to March 1998.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —14

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.94	0.99	1.1	1.3	1.8	2.4	2.9
5	0.59	0.61	0.69	0.94	1.3	1.6	1.9
10	0.46	0.48	0.56	0.84	1.1	1.3	1.6
20	0.38	0.39	0.47	0.78	0.90	1.1	1.5

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	84	43	17	7.0	3.1	1.7	1.2

STATION NAME AND NUMBER.—02162010 Cedar Creek near Blythewood, SC

LOCATION.--Lat 34º11’44’’, long 81º06’13’’, Richland County, Hydrologic Unit 03050106, on right bank, at downstream side of bridge on State Road 59, 0.2 mi above Williams Branch, 8.0 mi southwest of Blythewood, and at mile 6.9.

DRAINAGE AREA.—48.9 mi^2.

PERIOD OF RECORD.—December 1966 to September 1983; February 1985 to September 1996.

PERIOD OF ANALYSIS.—April 1967 to March 1996.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —29

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	**Lowest average flow for indicated number of consecutive days (cubic feet per second)**						
	1	3	7	14	30	60	90
2	2.2	2.3	2.6	3.3	4.3	5.7	7.5
5	0.77	0.82	0.99	1.4	2.0	3.3	4.7
10	0.39	0.42	0.52	0.73	1.2	2.3	3.5
20	0.20	0.23	0.29	0.40	0.77	1.7	2.7
30	0.14	0.16	0.20	0.28	0.60	1.5	2.4

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	147	74	32	14	6.9	3.4	2.3

STATION NAME AND NUMBER.—02162093 Smith Branch at North Main Street at Columbia, SC

LOCATION.--Lat 34º01’38’’, long 81º02’31’’, Richland County, Hydrologic Unit 03050106, on left bank, 15 ft upstream from culvert opening at North Main Street in Columbia.

DRAINAGE AREA.—5.67 mi^2.

PERIOD OF RECORD.—July 1976 to September 2008.

PERIOD OF ANALYSIS.—April 1977 to March 2008.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —31

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	1.3	1.4	1.5	1.7	2.2	3.2	4.0
5	1.0	1.1	1.2	1.3	1.7	2.4	2.8
10	0.88	0.92	1.0	1.2	1.5	2.1	2.4
20	0.78	0.81	0.88	1.1	1.3	1.9	2.0
30	0.73	0.76	0.82	1.0	1.3	1.8	1.9
50	0.67	0.69	0.75	0.95	1.2	1.7	1.7

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	37	18	6.3	3.5	2.3	1.7	1.4

STATION NAME AND NUMBER.—02162350 Middle Saluda River near Cleveland, SC

LOCATION.—Lat 35°07'12", Long 82°32'16", referenced to North American Datum of 1927, Greenville County, SC, Hydrologic Unit 03050109, at State Road 41 bridge, 3.9 mi north of Cleveland, and 5.0 mi east of Caesers Head.

DRAINAGE AREA.—21.0 mi^2, approximately.

PERIOD OF RECORD.—October 1980 to September 2003.

PERIOD OF ANALYSIS.—April 1981 to March 2003.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —22

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	16	16	17	18	20	23	25
5	11	11	11	12	14	16	18
10	8.8	9.0	9.3	10	11	13	15
20	7.4	7.6	7.9	8.5	9.4	11	13
30	6.7	7.0	7.2	7.8	8.7	9.6	10

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	135	104	70	44	27	18	15

STATION NAME AND NUMBER.—02164000 Reedy River near Greenville, SC

LOCATION.-- Lat 34º48’00’’, long 82º21’55’’, referenced to North American Datum of 1927, Greenville County, SC, Hydrologic Unit 03050109, on right bank, 375 ft downstream from bridge on Interstate Highway 85, 0.5 mi upstream from Brushy Creek, 2.5 mi upstream from dam at Conestee, 3.9 mi southeast of City Hall in Greenville, and at mile 48.5.

DRAINAGE AREA.—48.6 mi^2.

PERIOD OF RECORD.—November 1941 to September 1971, and June 1987 to September 2009.

PERIOD OF ANALYSIS.—April 1942 to March 1971, and April 1988 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —50

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	19	19	21	24	28	33	39
5	12	13	14	16	19	24	28
10	9.3	10	11	13	16	20	23
20	7.4	8.1	9.2	10	13	17	20
30	6.5	7.2	8.2	9.3	12	16	18
50	5.6	6.3	7.2	8.2	11	15	16

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	214	136	79	50	33	23	18

STATION NAME AND NUMBER.—02164110 Reedy River above Fork Shoals, SC

LOCATION.—Lat 34º39’10’’, long 82º17’52’’, referenced to North American Datum of 1927, Greenville County, SC, Hydrologic Unit 03050109, at Jenkins Bridge Road bridge, 0.1 mi northeast of intersection of Road 418 and Road 146, and 2.4 mi north of Fork Shoals and at mile 36.1.

DRAINAGE AREA.—110 mi^2.

PERIOD OF RECORD.—September 1993 to September 2009.

PERIOD OF ANALYSIS.—April 1994 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —15

REMARKS.—Based on review of withdrawal data provided by the SCDHEC, there are no significant withdrawals upstream. Based on review of point-source discharge data provided by the SCDHEC, the potential exists for significant discharge upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. Diversion into basin by the city of Greenville, SC, from the Saluda River upstream from station 02162500, Saluda River near Greenville, SC

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	69	71	73	77	85	99	113
5	51	52	55	58	66	76	85
10	42	43	45	49	56	65	71
20	36	36	38	42	49	57	60

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	510	306	189	136	98	73	61

STATION NAME AND NUMBER.—02165200 South Rabon Creek near Gray Court, SC

LOCATION.-- Lat 34º31’12’’, long 82º09’06’’, referenced to North American Datum of 1927, Laurens County, SC, Hydrologic Unit 03050109, at left bank, 125 ft upstream from U.S. Highway 76, 2.5 mi upstream from North Rabon Creek and 7.0 mi southwest of Gray Court.

DRAINAGE AREA.—29.5 mi^2.

PERIOD OF RECORD.—January 1967 to September 1981, and May 1990 to September 2009.

PERIOD OF ANALYSIS.—April 1968 to March 1981, and April 1991 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —31

REMARKS.--Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	9.0	9.2	9.6	11	12	13	14
5	3.0	3.1	3.4	4.0	5.6	7.1	8.2
10	1.3	1.3	1.5	1.8	3.1	4.3	5.6
20	0.51	0.55	0.63	0.79	1.7	2.6	3.9
30	0.29	0.32	0.36	0.46	1.1	1.9	3.1
50	0.15	0.17	0.20	0.26	0.72	1.3	2.4

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	85	57	37	24	15	8.9	5.6

STATION NAME AND NUMBER.—02166970 Ninety Six Creek near Ninety Six, SC

LOCATION.--Lat 34º07’57’’, long 81º59’48’’, referenced to North American Datum of 1927, Greenwood County, SC, Hydrologic Unit 03050109, 10.1 mi southeast of Greenwood, and at Road 288 bridge 3.3 mi southeast of Ninety Six, SC

DRAINAGE AREA.—17.4 mi^2.

PERIOD OF RECORD.—October 1980 to September 2001.

PERIOD OF ANALYSIS.—April 1981 to March 2001.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —20

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.27	0.29	0.36	0.37	0.46	0.70	1.1
5	0.10	0.11	0.10	0.13	0.18	0.28	0.42
10	0.06	0.06	0.04	0.07	0.12	0.17	0.25
20	0.0	0.0	0.02	0.04	0.08	0.11	0.16
30	0.0	0.0	0.01	0.03	0.06	0.09	0.12

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	52	21	8.9	3.8	1.2	0.41	0.21

STATION NAME AND NUMBER.—02167450 Little River near Silverstreet, SC

LOCATION.--Lat 34º12’34’’, long 81º45’48’’, referenced to North American Datum of 1927, Newberry County, SC, Hydrologic Unit 03050109, near center span on downstream side of bridge on U.S. Highway 34, 3.4 mi downstream from Mud Lick Creek, 2.8 mi upstream from mouth, 2.9 mi west of Silverstreet, SC.

DRAINAGE AREA.—230 mi^2.

PERIOD OF RECORD.—March 1990 to September 2009.

PERIOD OF ANALYSIS.—April 1991 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —18

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	16	16	17	20	25	33	38
5	4.5	4.9	5.9	7.6	11	16	19
10	2.0	2.2	2.9	4.1	6.6	10	12
20	0.89	1.1	1.5	2.4	4.0	6.9	8.1

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	524	297	153	82	45	21	13

STATION NAME AND NUMBER.—02167582 Bush River near Prosperity, SC

LOCATION.--Lat 34º10’07’’, long 81º36’38’’, referenced to North American Datum of 1927, Newberry County, SC, Hydrologic Unit 03050109, on downstream side of bridge on County Road 244, 5.2 mi southwest of Prosperity, and 7.2 mi south of the center of Newberry, SC.

DRAINAGE AREA.—115 mi^2.

PERIOD OF RECORD.—February 1990 to September 2009.

PERIOD OF ANALYSIS.—April 1990 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —19

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	10	11	12	13	16	21	24
5	5.9	6.4	6.9	7.6	9.5	12	13
10	4.3	4.6	5.0	5.5	6.9	8.3	9.3
20	3.2	3.5	3.8	4.1	5.2	6.0	6.8

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	362	181	83	42	23	13	8.6

STATION NAME AND NUMBER.—02169630 Big Beaver Creek near St. Matthews, SC

LOCATION.--Lat 33º44’12’’, long 80º57’30’’, referenced to North American Datum of 1927, Lexington County, SC, Hydrologic Unit 03050110, on downstream side of bridge on U.S. Highway 21, 0.1 mi below Rock Branch and 11.6 mi northwest of St. Matthews.

DRAINAGE AREA.—10.0 mi^2.

PERIOD OF RECORD.—July 1966 to September 1993.

PERIOD OF ANALYSIS.—April 1967 to March 1993.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —26

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	6.5	6.7	7.0	7.3	8.0	8.8	9.3
5	5.1	5.3	5.5	5.8	6.3	7.0	7.4
10	4.5	4.7	4.9	5.1	5.6	6.2	6.6
20	4.1	4.2	4.4	4.6	5.1	5.6	6.0
30	3.9	4.0	4.2	4.4	4.8	5.3	5.7

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	27	22	16	12	8.9	7.1	6.4

STATION NAME AND NUMBER.--02171680 Wedboo Creek near Jamestown, SC

LOCATION.--Lat 33°19’50”, long 79°48’10” referenced to North American Datum of 1983, Berkeley County, SC, Hydrologic Unit 03050112, at culvert on State Highway 45, 1.4 mi southeast of Alvin, 3.3 mi upstream from Santee River, and 7.5 mi northeast of Jamestown.

DRAINAGE AREA.—17.4 mi^2.

PERIOD OF RECORD.—September 1966 to February 1972, February 1973 to September 1992.

PERIOD OF ANALYSIS.—April 1967 to March 1992.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —25

REMARKS.—No known regulation or diversion upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.19	0.21	0.25	0.27	0.45	0.71	1.0
5	0.0	0.0	0.0	0.02	0.13	0.27	0.45
10	0.0	0.0	0.0	0.0	0.05	0.15	0.29
20	0.0	0.0	0.0	0.0	0.0	0.09	0.20
30	0.0	0.0	0.0	0.0	0.0	0.07	0.16

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	60	35	12	3.2	1.0	0.43	0.15

STATION NAME AND NUMBER.—02172500 South Fork Edisto River near Montmorenci, SC

LOCATION.--Lat 33º34’35’’, long 81º30’50’’, referenced to North American Datum of 1927, Aiken County, SC, Hydrologic Unit 03050204, near the center span on downstream side of bridge on State Highway 302, 0.4 mi upstream from Cedar Creek, 1.0 mi upstream from Shaw Creek, 7.6 mi northeast of Montmorenci, SC, and at mile 167.3.

DRAINAGE AREA.—198 mi^2.

PERIOD OF RECORD.—April 1940 to September 1966.

PERIOD OF ANALYSIS.—April 1940 to March 1966. Period of record was extended to include climatic years 1932 to 1939, 1966 to 1970, and 1981 to 2008 by using streamgaging station 02173000, South Fork Edisto River near Denmark, SC, as an index station. The MOVE.1 technique was used to augment the record.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —26 (41 additional years from the record extension)

REMARKS.—Based on review of discharge data provided by the SCDHEC, there are no significant point-source discharges upstream. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, with respect to adjusting the low-flow statistics, adequate data are not available to quantify this diversion.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	83	85	91	97	111	125	135
5	59	61	65	70	81	92	100
10	49	51	55	58	68	77	84
20	42	44	47	50	58	66	72

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	453	369	261	186	133	99	79

STATION NAME AND NUMBER.—02172640 Dean Swamp near Salley, SC

LOCATION.--Lat 33º35’21’’, long 81º21’57’’, referenced to North American Datum of 1927, Aiken County, SC, Hydrologic Unit 03050204, on dirt road, Richburg Villa, South of County Road 27, 1.2 mi south of intersection of County Roads 14 and 270.

DRAINAGE AREA.—31.2 mi^2.

PERIOD OF RECORD.—October 1980 to March 1987, then February 1988 to October 2000.

PERIOD OF ANALYSIS.—April 1981 to March 1987, then April 1988 to March 2000.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —18

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	17	18	18	19	20	22	22
5	15	15	15	16	18	19	19
10	13	14	14	14	16	17	17
20	12	13	13	13	15	16	16

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	36	32	27	24	20	18	16

STATION NAME AND NUMBER.—02173000 South Fork Edisto River near Denmark, SC

LOCATION.--Lat 33º23’35’’, long 81º08’00’’, referenced to North American Datum of 1927, Bamberg County, SC, Hydrologic Unit 03050204, on left bank on downstream side of bridge on U.S. Highway 321, 360 ft downstream from Seaboard Coast Line Railroad Bridge, 1.8 mi downstream from Little River, 4.8 mi north of Denmark, and at mile 136.6.

DRAINAGE AREA.—720 mi^2.

PERIOD OF RECORD.—August 1931 to September 1971, then October 1980 to September 2009.

PERIOD OF ANALYSIS.—April 1932 to March 1971, then April 1981 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —67

REMARKS.—Based on review of discharge data provided by the SCDHEC, there are no significant point-source discharges upstream. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	267	271	284	305	343	390	420
5	194	198	207	223	252	286	308
10	164	168	175	188	212	240	257
20	142	145	152	163	182	206	220
30	131	135	140	150	167	189	202
50	121	124	129	138	153	172	183

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,640	1,290	872	616	442	317	256

STATION NAME AND NUMBER.—02173051 South Fork Edisto River near Bamberg, SC

LOCATION.--Lat 33º20’13’’, long 81º01’08’’, referenced to North American Datum of 1927, Bamberg County, SC, Hydrologic Unit 03050204, on downstream side of upstream bridge, on U.S. Highway 301/601, 3.0 mi north of Bamberg, and at mile 127.2.

DRAINAGE AREA.—807 mi^2.

PERIOD OF RECORD.—April 1991 to September 2009.

PERIOD OF ANALYSIS.—April 1932 to March 2009. Period of record was extended to include climatic years 1932 to 1970 and 1981 to 1990 based on a MOVE.1 correlation with streamgaging station 02173000, South Fork Edisto River near Denmark, SC.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —18 (50 additional years from the MOVE.1 correlation)

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	277	281	299	331	388	461	510
5	195	199	211	232	271	316	349
10	163	165	175	191	221	256	279
20	139	142	150	163	185	212	231
30	128	131	137	148	168	191	208
50	117	119	125	135	151	171	184

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	2,550	1,940	1,220	796	521	349	271

STATION NAME AND NUMBER.—02173500 North Fork Edisto River at Orangeburg, SC

LOCATION.--Lat 33º29’00’’, long 80º52’25’’, referenced to North American Datum of 1927, Orangeburg County, SC, Hydrologic Unit 03050203, on left bank, under bridge on U.S. Highway 301 at Orangeburg, 0.5 mi upstream from Seaboard Coast Line Railroad bridge, 1.5 mi downstream from Caw Caw Swamp and at mile 22.1.

DRAINAGE AREA.—683 mi^2.

PERIOD OF RECORD.—December 1938 to September 2009.

PERIOD OF ANALYSIS.—April 1939 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —70

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustments were made to the data used in the frequency analysis. City of Orangeburg diverts municipal water supply upstream, but this diversion was determined to not be significant.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	331	336	347	365	396	441	473
5	239	242	252	265	292	324	346
10	198	201	209	221	244	271	288
20	167	170	178	188	209	232	245
30	153	155	162	171	191	212	223
50	137	140	147	155	173	193	202

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,550	1,240	883	646	467	350	284

STATION NAME AND NUMBER.—02174000 Edisto River near Branchville, SC

LOCATION.--Lat 33º10’35’’, long 80º48’05’’, referenced to North American Datum of 1927, Bamberg County, SC, Hydrologic Unit 03050205, 400 ft downstream from bridge on U.S. Highway 21 and 5.2 mi south of Branchville.

DRAINAGE AREA.—1,720 mi^2.

PERIOD OF RECORD.—October 1945 to September 1996.

PERIOD OF ANALYSIS.—April 1940 to March 2009. Period of record was augmented to include climatic years 1940 to 1944, and 1997 to 2009 by using streamgaging station 02175000, Edisto River near Givhans, SC, as an index station. The MOVE.1 technique was used to augment the record.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —50 (20 additional years from the record extension)

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	699	706	725	758	817	910	961
5	481	488	505	537	592	662	707
10	384	390	406	437	490	556	596
20	313	319	334	363	415	479	515
30	277	283	298	326	377	441	475
50	244	249	263	290	340	403	435

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	5,100	3,850	2,490	1,580	1,060	761	607

STATION NAME AND NUMBER.—02174250 Cow Castle Creek near Bowman, SC

LOCATION.--Lat 33º 22’ 43’’, long 80º 42’ 00’’, referenced to North American Datum of 1927, Bamberg County, SC, Hydrologic Unit 03050206, 400 ft downstream from bridge on U.S. Highway 21 and 5.2 mi south of Branchville.

DRAINAGE AREA.—23.4 mi^2.

PERIOD OF RECORD.—October 1970 to September 1981, and October 1995 to September 2009.

PERIOD OF ANALYSIS.—April 1971 to March 1981, and April 1996 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —23

REMARKS.—Based on review of discharge data provided by the SCDHEC, there are no significant point-source discharges upstream. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.77	0.83	0.94	1.1	1.5	2.0	2.6
5	0.33	0.37	0.43	0.53	0.79	0.98	1.2
10	0.19	0.22	0.26	0.33	0.52	0.68	0.84
20	0.08	0.10	0.11	0.15	0.26	0.50	0.61
30	0.0	0.0	0.0	0.0	0.0	0.43	0.51

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	69	43	18	6.9	2.7	1.4	0.87

STATION NAME AND NUMBER.—02175000 Edisto River near Givhans, SC

LOCATION.--Lat 33º01’40’’, long 80º23’30’’, referenced to North American Datum of 1927, Dorchester County, SC, Hydrologic Unit 03050205, on downstream side of bridge on State Highway 61, 2.3 mi downstream from Four Hole Swamp, 2.8 mi west of Givhans, and at mile 59.9.

DRAINAGE AREA.—2,730 mi^2.

PERIOD OF RECORD.—January 1939 to September 2009.

PERIOD OF ANALYSIS.—April 1940 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —69

REMARKS.—Based on review of discharge data provided by the SCDHEC, there are no significant point-source discharges upstream. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. City of Charleston diverts municipal water supply upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	625	634	649	677	738	859	968
5	422	428	439	459	504	566	626
10	332	337	347	364	403	450	491
20	268	272	281	296	331	370	399
30	236	239	248	262	296	332	355
50	206	209	217	230	262	295	314

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	7,330	5,240	3,050	1,700	1,000	670	524

STATION NAME AND NUMBER.--02175500 Salkehatchie River near Miley, SC

LOCATION.—Lat 32°59′20″, long 81°03′10″ referenced to North American Datum of 1927, Hampton County, SC, Hydrologic Unit 03050207, on downstream side of bridge on U.S. Highway 601, 2.4 mi downstream from Savannah Creek, 3.1 mi upstream from Hampton and Branchville Railroad bridge, 3.1 mi northwest of Miley, and at mile 68.0.
DRAINAGE AREA.—341 mi^2

PERIOD OF RECORD.—February 1951 to March 2014

PERIOD OF ANALYSIS.—April 1951 to March 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —63

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	57	58	63	71	91	115	136
5	27	28	32	40	55	73	85
10	16	18	21	28	41	56	65
20	10	11	15	21	31	45	51
30	7.6	8.9	12	18	27	40	45
50	5.5	6.6	9.1	15	23	34	39

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	846	615	396	238	137	78	55

STATION NAME AND NUMBER.--02176500 Coosawhatchie River near Hampton, SC

LOCATION.— Lat 32°50′10″, long 81°07′55″ referenced to North American Datum of 1927, Hampton County, SC, Hydrologic Unit 03050208, near left bank on downstream side of bridge on U.S. Highway 601, 1.6 mi downstream from Black Creek, 2.5 mi southwest of Hampton, and at mile 33.6.
DRAINAGE AREA.—203 mi^2

PERIOD OF RECORD.—February 1951 to March 2014

PERIOD OF ANALYSIS.—April 1951 to March 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —63

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.30	0.37	0.65	1.2	2.9	10	19
5	0.00	0.00	0.00	0.00	0.23	0.98	1.9
10	0.00	0.00	0.00	0.00	0.00	0.01	0.08
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00
30	0.00	0.00	0.00	0.00	0.00	0.00	0.00
50	0.00	0.00	0.00	0.00	0.00	0.00	0.00

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	640	434	199	57	11	1.4	0.0

STATION NAME AND NUMBER.--02177000 Chattooga River near Clayton, GA

LOCATION.—Lat 34°48′50″, long 83°18′22″ referenced to North American Datum of 1927, Oconee County, SC, Hydrologic Unit 03060102, on the left bank 150 feet downstream from bridge on US 76, 2.8 miles upstream from Stekoa Creek, 9.0 miles downstream from confluence with Warwoman Creek, 9.0 miles upstream from confluence with Tallulah River, and 7.0 miles southeast of Clayton.

DRAINAGE AREA.—207 mi^2

PERIOD OF RECORD.—October 1939 to March 2014

PERIOD OF ANALYSIS.—April 1940 to March 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —74

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	194	198	206	217	243	279	130
5	137	140	145	153	169	196	143
10	113	115	119	127	138	162	155
20	96	97	101	108	116	138	181
30	88	89	92	99	106	127	219
50	79	80	83	89	96	115	313

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,480	1,160	800	519	330	216	174

STATION NAME AND NUMBER.--02185200 Little River near Walhalla, SC

LOCATION.—Lat 34°50′11″, long 82°58′48″ referenced to North American Datum of 1927, Oconee County, SC, Hydrologic Unit 03060101, at downstream side of bridge on County Road 24, 0.5 mi downstream from Oconee Creek, 3.5 mi south of Salem, and 6.5 mi northeast of Walhalla.
DRAINAGE AREA.—72.0 mi^2

PERIOD OF RECORD.—March 1967 to September 2003

PERIOD OF ANALYSIS.—April 1967 to March 2003

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —36

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	55	56	59	63	68	78	88
5	32	33	34	38	43	51	58
10	22	22	24	27	32	40	46
20	15	16	17	20	25	31	37
30	12	13	14	16	21	28	32
50	9.5	10	11	13	18	24	28

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	385	292	204	138	90	61	46

STATION NAME AND NUMBER.--02186000 Twelvemile Creek near Liberty, SC

LOCATION.—Lat 34°48′05″, long 82°44′55″ referenced to North American Datum of 1927, Pickens County, SC, Hydrologic Unit 03060101, on State Highway 137, 0.8 mi downstream from Rices Creek, and 3.4 mi west of Liberty.

DRAINAGE AREA.—106 mi^2

PERIOD OF RECORD.—August 1954 to September 1964, June 1989 to September 2001, October 2004 to March 2014

PERIOD OF ANALYSIS.—April 1955 to March 1964, April 1990 to March 2001, April 2005 to March 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —26

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	55	56	58	62	70	78	86
5	31	31	33	36	42	48	54
10	22	22	24	27	31	36	42
20	16	17	18	20	24	28	33
30	14	14	15	17	21	25	29
50	11	12	13	15	17	21	25

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	434	306	202	133	88	57	41

STATION NAME AND NUMBER.--02186645 Coneross Creek near Seneca, SC

LOCATION.—Lat 34°38’57”, long 82°59’30” referenced to North American Datum of 1927, Oconee County, SC, Hydrologic Unit 03060101, on right bank, on downstream side of bridge on Country Road 63, approximately 0.6 mi north of junction with county roads 287 and 51 and approximately 3.0 mi southwest of Seneca.

DRAINAGE AREA.—65.4 mi^2

PERIOD OF RECORD.—April 1989 to September 2003

PERIOD OF ANALYSIS.—April 1989 to March 2003

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —14

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	35	36	37	40	44	50	56
5	17	18	19	21	25	30	34
10	10	11	12	14	17	21	25
20	6.0	6.3	7.2	8.7	11	15	19

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	322	201	120	80	56	38	25

STATION NAME AND NUMBER.--02186699 Eighteemile Creek above Pendleton, SC

LOCATION.—Lat 34°39’32”, long 82°47’56” referenced to North American Datum of 1927, Anderson County, SC, Hydrologic Unit 03060101, on downstream side of bridge on County Road 229, 1.0 mi northwest of Pendleton, and 1.5 mi southeast of Clemson.

DRAINAGE AREA.—47.0 mi^2

PERIOD OF RECORD.—May 1998 to July 2008

PERIOD OF ANALYSIS.—May 1998 to March 2008

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —10

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	15	16	17	18	21	24	28
5	7.7	8.0	8.4	9.4	13	16	18
10	5.1	5.3	5.6	6.4	9.5	13	15
20	3.5	3.7	3.9	4.5	7.3	11	12

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	114	85	60	42	28	18	14

STATION NAME AND NUMBER.--02187910 Rocky River near Starr, SC

LOCATION.—Lat 34°22′59″, long 82°34′39″ referenced to North American Datum of 1927, Anderson County, SC, Hydrologic Unit 03060103, at downstream side of bridge on State Road 244, 0.5 mi upstream from Beaver Creek, 2.5 mi upstream from Secession Lake, and 6.7 mi east of Starr.

DRAINAGE AREA.—111 mi^2

PERIOD OF RECORD.—May 1989 to February 1996, October 1996 to October 2001, February 2003 to March 2004, October 2004 to March 2014

PERIOD OF ANALYSIS.—April 1990 to March 1995, April 1997 to March 2001, March 2005 to April 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —18

REMARKS.—Broadway Lake is located on Broadway Creek, which is a tributary to Rocky River, was completed in 1940 and has a drainage area of 44.7 square miles, but does not appear to have any substantial storage capacity.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	19	19	20	23	27	33	37
5	9.4	9.8	10	12	15	19	23
10	6.4	6.7	7.3	8.6	11	14	17
20	4.7	4.9	5.4	6.4	8.2	11	13

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	340	220	128	80	49	26	17

STATION NAME AND NUMBER.--02189000 Savannah River near Calhoun Falls, SC

LOCATION.—Lat 34°04’15”, long 82°38’30” referenced to North American Datum of 1927, Abbeville County, SC, Hydrologic Unit 03060103, 150 ft upstream from State Highway 72, 1.0 mi downstream from Seaboard Coast Line Railroad, 1.5 mi downstream from Rocky River, and at mile 279.7.

DRAINAGE AREA.—2,876 mi^2

PERIOD OF RECORD.—October 1896 to April 1898, April 1899 to September 1900, April 1930 to April 1932, April 1938 to September 1979.

PERIOD OF ANALYSIS.—April 1897 to March 1898, April 1899 to March 1900, April 1930 to March 1932, April 1938 to March 1961

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —27

REMARKS.—Regulated since 1962 by Lake Hartwell Dam and since 1985 by Richard B. Russell Dam. Results represent pre-regulation conditions.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	1,190	1,420	1,780	1,920	2,070	2,330	2,470
5	847	1,010	1,290	1,410	1,620	1,810	1,950
10	711	843	1,060	1,180	1,430	1,590	1,740
20	617	726	897	1,010	1,280	1,440	1,600
30	573	671	818	933	1,220	1,360	1,530

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	11,000	8,320	5,580	3,750	2,640	1,960	1,640

STATION NAME AND NUMBER.--02192500 Little River near Mount Carmel, SC

LOCATION.—Lat 34°04′17″, long 82°30′03″ referenced to North American Datum of 1927, McCormick County, SC, Hydrologic Unit 03060103, on downstream side of bridge, on State Road 40 (Island Ford Road), 2.9 mi upstream from Calhoun Creek, and 4.6 mi north of Mount Carmel.

DRAINAGE AREA.—217 mi^2

PERIOD OF RECORD.—January 1940 to September 1970, September 1986 to October 2003, October 2004 to March 2014

PERIOD OF ANALYSIS.—April 1940 to March 1970, April 1987 to March 2003, March 2005 to April 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —55

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	21	21	24	27	33	49	51
5	5.0	5.4	6.1	7.5	10	15	18
10	1.8	1.9	2.2	2.9	4.1	5.2	8.4
20	0.57	0.64	0.75	1.0	1.6	1.7	4.0
30	0.23	0.26	0.32	0.45	0.73	0.84	2.5
50	0.02	0.02	0.02	0.04	0.07	0.36	1.5

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	582	343	182	96	52	26	12

STATION NAME AND NUMBER.--02192830 Blue Hill Creek at Abbeville, SC

LOCATION.—Lat 34°10’03”, long 82°22’17” referenced to North American Datum of 1927, Abbeville County, SC, Hydrologic Unit 03060103, on downstream side of footbridge behind the Milliken wastewater treatment facility, 0.3 mi downstream from SC Highway 72, and 1.4 mi upstream from Parker Creek.

DRAINAGE AREA.—3.24 mi^2

PERIOD OF RECORD.—February 1998 to August 2008

PERIOD OF ANALYSIS.—April 1998 to March 2008

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —10

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	0.27	0.30	0.34	0.37	0.50	0.83	1.0
5	0.11	0.10	0.15	0.17	0.26	0.42	0.54
10	0.00	0.05	0.09	0.11	0.18	0.27	0.36
20	0.00	0.03	0.06	0.08	0.13	0.18	0.25

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	10	5.8	2.5	1.5	0.83	0.47	0.30

STATION NAME AND NUMBER.--02195000 Savannah River near Clarks Hill, SC

LOCATION.—Lat 33°38’40”, long 82°12’05” referenced to North American Datum of 1927, Columbia County, GA, Hydrologic Unit 03060103, on right bank 1.2 miles downstream from J. Strom Thurmond Dam, 2.4 mi southwest of Clarks Hill, 2.5 mi upstream from Kiokee Creek, and at mile 221.1 upstream from Savannah, GA.

DRAINAGE AREA.—6,150 mi^2

PERIOD OF RECORD.—May 1940 to June 1954

PERIOD OF ANALYSIS.—April 1941 to March 1953

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —12

REMARKS.—Regulated since 1954 by J. Strom Thurmond Dam and since 1986 by Richard B. Russell Dam. Results represent pre-regulation conditions.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	1,940	2,230	2,650	2,980	3,300	3,750	3,980
5	1,480	1,810	2,110	2,400	2,690	2,960	3,100
10	1,330	1,690	1,920	2,190	2,470	2,670	2,770
20	1,230	1,620	1,800	2,060	2,330	2,470	2,540

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	23,200	15,300	9,480	5,830	3,960	3,060	2,600

STATION NAME AND NUMBER.--02196000 Stevens Creek near Modoc, SC

LOCATION.—Lat 33°43′45″, long 82°10′55″ referenced to North American Datum of 1927, Edgefield County, SC, Hydrologic Unit 03060107, on left bank, 15 ft upstream of bridge on State Highway 23, 1.4 mi east of Modoc, and 3.2 mi downstream from Turkey Creek.

DRAINAGE AREA.—545 mi^2

PERIOD OF RECORD.—November 1929 to September 1931, February 1940 to September 1978, November 1983 to March 2014

PERIOD OF ANALYSIS.—April 1930 to March 1931, April 1940 to March 1978, April 1984 to March 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —69

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	5.0	5.9	7.5	9.5	14	30	36
5	1.4	1.7	2.4	3.1	5.0	9.3	12
10	0.63	0.77	1.1	1.5	2.4	3.5	6.0
20	0.28	0.34	0.50	0.70	1.1	1.3	3.1
30	0.16	0.20	0.29	0.42	0.67	0.70	2.1
50	0.06	0.07	0.11	0.16	0.25	0.32	1.3

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,500	734	269	89	29	11	5.6

STATION NAME AND NUMBER.--02196250 Horn Creek near Colliers, SC

LOCATION.—Lat 33°42′55″, long 81°56′23″ referenced to North American Datum of 1927, Edgefield County, SC, Hydrologic Unit 03060107, on county road 76 bridge 5.1 miles south of Edgefield and 3.5 miles northeast of Ropers Crossroads.

DRAINAGE AREA.—13.9 mi^2

PERIOD OF RECORD.—October 1980 to September 1994

PERIOD OF ANALYSIS.—April 1981 to March 1994

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —13

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	2.2	2.3	2.4	2.6	3.1	3.9	4.4
5	1.3	1.3	1.4	1.5	2.0	2.5	3.0
10	0.94	0.96	1.0	1.1	1.5	1.9	2.4
20	0.72	0.74	0.76	0.85	1.2	1.5	2.0

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	40	25	15	8.3	5.3	3.4	2.4

STATION NAME AND NUMBER.--02196689 Little Horse Creek near Graniteville, SC

LOCATION.—Lat 33°33′49″, long 81°52′27″ referenced to North American Datum of 1927, Aiken County, SC, Hydrologic Unit 03060106, on County Road 104, 0.5 mi downstream from Hightower Creek, 1.0 mi upstream from Sudlow Lake, and 3.8 mi west of Graniteville.

DRAINAGE AREA.—26.6 mi^2

PERIOD OF RECORD.—October 1989 to December 1999, March 2000 to April 2001

PERIOD OF ANALYSIS.—April 1990 to March 1999, April 2000 to March 2001

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —10

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	9.4	12	14	15	18	20	22
5	6.0	9.0	10	12	14	16	18
10	4.7	7.7	9.1	10	12	14	16
20	3.8	6.8	8.2	9.2	11	13	15

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	63	52	39	29	22	16	13

STATION NAME AND NUMBER.--02197000 Savannah River at Augusta, GA

LOCATION.—Lat 33°22′25″, long 81°56′35″ referenced to North American Datum of 1927, Richmond County, GA, Hydrologic Unit 03060106, at New Savannah Bluff lock and dam, 0.2 mi upstream from Butler Creek, 12.0 mi downstream from Augusta, and at mile 187.4.

DRAINAGE AREA.—7,510 mi^2

PERIOD OF RECORD.—October 1883 to December 1891, January 1896 to December 1906, January 1925 to March 2014

PERIOD OF ANALYSIS.—April 1884 to March 1891, April 1896 to March 1906, April 1925 to March 1951

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —43

REMARKS.—Regulated since about 1954 by J.Strom Thurmond Lake, 1962 by Lake Hartwell, and 1985 by Richard B. Russell Lake. The low-flow statistics represent the pre-regulation period.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	2,320	2,640	2,920	3,190	3,560	4,080	4,520
5	1,650	1,940	2,170	2,360	2,650	3,020	3,310
10	1,390	1,650	1,860	2,010	2,250	2,550	2,780
20	1,200	1,440	1,630	1,760	1,960	2,210	2,390
30	1,110	1,340	1,520	1,640	1,820	2,050	2,200
50	1,020	1,240	1,400	1,510	1,670	1,870	2,000

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	29,800	20,100	10,900	6,830	4,490	3,240	2,690

STATION NAME AND NUMBER.--02197300 Upper Three Runs near New Ellenton, SC

LOCATION.—Lat 33°23′05″, long 81°37′00″ referenced to North American Datum of 1927, Aiken County, SC, Hydrologic Unit 03060106, at downstream side of bridge on U.S. Highway 278, 0.4 mi upstream from Johnson Fork Creek, and 4.6 mi southeast of New Ellenton.

DRAINAGE AREA.—87.0 mi^2

PERIOD OF RECORD.—June 1966 to September 2002

PERIOD OF ANALYSIS.—April 1967 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —35

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	76	77	79	81	85	89	91
5	65	66	67	70	73	77	79
10	59	60	62	64	67	71	73
20	55	56	57	59	63	66	68
30	52	53	55	57	61	63	66
50	50	51	53	54	58	60	63

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	149	130	114	100	86	72	67

STATION NAME AND NUMBER.--02197310 Upper Three Runs above Road C at Savannah River Site, SC

LOCATION.—Lat 33°17′08″, long 81°41′40″ referenced to North American Datum of 1927, Aiken County, SC, Hydrologic Unit 03060106, on right bank, 100 ft upstream from SRS Road C, 2.0 mi east of SRS Road 2, at Savannah River Site.

DRAINAGE AREA.—176 mi^2

PERIOD OF RECORD.—June 1974 to January 1998, December 1998 to September 2002

PERIOD OF ANALYSIS.—April 1975 to March 1997, April 1999 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —25

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	125	127	130	134	143	152	161
5	104	106	109	113	120	129	137
10	95	96	99	103	110	119	127
20	87	88	91	95	101	111	119
30	83	84	87	91	97	107	115

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	368	297	225	184	152	128	115

STATION NAME AND NUMBER.--02197315 Upper Three Runs at Road A at Savannah River Site, SC

LOCATION.—Lat 33°14′20″, long 81°44′42″ referenced to North American Datum of 1927, Aiken County, SC, Hydrologic Unit 03060106, near right bank, on downstream side of bridge at SRS Road A, 2.0 mi south of SRS Road 2, at Savannah River Site.

DRAINAGE AREA.—203 mi^2

PERIOD OF RECORD.—June 1974 to January 1998, October 1998 to September 2002

PERIOD OF ANALYSIS.—April 1975 to March 1997, April 1999 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —24

REMARKS.—

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	133	135	139	146	158	170	182
5	108	110	114	118	130	140	150
10	96	98	101	105	116	127	136
20	87	89	92	95	106	116	124
30	83	84	87	90	101	111	118

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	427	355	269	214	172	138	122

Table 6. Low-flow statistics for regulated continuous-record streamflow-gaging stations in South Carolina as previously published by Feaster and Guimaraes (2009, 2012, 2014, 2016) and Guimaraes and Feaster (2010).

[lat, latitude; long, longitude; ft, foot; mi, mile; SCDHEC, South Carolina Department of Health and Environmental Control; USGS, U.S. Geological Survey. The low-flow statistics are presented in the following pages in numerical order by station number. At stations affected by regulation, low-flow statistics were calculated if the streamflow data showed no significant trend. The low-flow statistics presented for regulated streams are relevant provided future regulation patterns remain similar to historic data and would not be applicable if the future regulation patterns were significantly altered.]

STATION NAME AND NUMBER.—02130561 Pee Dee River near Bennettsville, SC

LOCATION.— Lat 34º36’22’’, long 79º47’19’’, Marlboro County, Hydrologic Unit 03040201, inside the intake structure at Willamette Industries, 8.5 miles west of Bennettsville, SC.

DRAINAGE AREA.—7,600 mi^2, approximately.

PERIOD OF RECORD.—November 1990 to March 2007.

PERIOD OF ANALYSIS.—April 1939 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —15 (plus 52 additional years from the record extension)

REMARKS.— Station is regulated by dams in North Carolina, but trend analysis indicates that regulation patterns have not changed through the period of record. Low-flow frequencies only apply if regulation patterns do not significantly change in the future. Period of record was extended to April 1939 through March 2007 by using streamgaging station 02131000, Pee Dee River at Pee Dee, SC, as an index station. The MOVE.1 technique was used to extend the record. Based on review of withdrawal and discharge data provided by the SCDHEC, there is no significant regulation or diversion upstream in South Carolina. The potential exists for significant diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. Therefore, no adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	350	609	1,830	2,170	2,500	2,950	3,250
5	167	378	1,270	1,540	1,770	2,030	2,290
10	107	298	1,010	1,220	1,410	1,600	1,870
20	71	245	819	988	1,130	1,290	1,560
30	ND	ND	720	865	1,000	1,130	1,410
50	ND	ND	630	752	867	979	1,260

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	24,700	17,500	9,760	5,270	3,040	1,840	1,270

STATION NAME AND NUMBER.—02130910 Black Creek near Hartsville, SC

LOCATION.— Lat 34º23’50’’, long 80º09’00’’, Darlington County, Hydrologic Unit 03040201, on right bank 59 feet upstream from bridge on State Road 23, 1,000 feet downstream from H.B. Robinson Steam Electric Plant, 2.1 miles upstream from Beaverdam Creek, 4.6 miles west of Hartsville, SC.

DRAINAGE AREA.—173 mi^2.

PERIOD OF RECORD.—October 1960 to September 2007.

PERIOD OF ANALYSIS.—April 1981 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —26

REMARKS.—Station is regulated, but trend analysis indicates that regulation patterns have not changed from about 1980 through the period of record. Low-flow frequencies only apply if regulation patterns do not significantly change in the future. Based on review of withdrawal and discharge data provided by the SCDHEC, the potential exists for significant diversion upstream. However, adequate data are not available to quantify this diversion. Therefore, no adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	66	70	73	77	84	100	108
5	40	44	47	51	59	70	78
10	27	29	33	37	46	54	63
20	18	19	22	26	36	41	51
30	13	15	17	21	30	35	45
50	9.8	11	13	16	26	29	39

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	415	335	242	169	111	80	67

STATION NAME AND NUMBER.--02130980 Black Creek near Quinby, SC

LOCATION.--Lat 34º14’37’’, long 79º44’42’’, Florence County, Hydrologic Unit 03040201, on the left downstream side of the bridge on State Highway 26, 2.1 miles northeast of Florence, SC.

DRAINAGE AREA.-- 438 mi^2.

PERIOD OF RECORD.--October 2001 to September 2007.

PERIOD OF ANALYSIS.—April 1960 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —5 (47 additional years from the MOVE.1 correlation)

REMARKS.—Some regulation upstream. Because the period of analysis is more than 5 years but less than 10, streamgaging station 02130980 was analyzed as if it was a partial-record station. Low-flow characteristics were estimated from a MOVE.1 correlation with streamgaging station 02130900, Black Creek near McBee, SC. Based on review of withdrawal and discharge data provided by the SCDHEC, the potential exists for significant diversion upstream. However, adequate data are not available to quantify this diversion. Therefore, no adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS	
Low-flow characteristic	**Flow (cubic feet per second)**
7-day, 2-year	212
7-day, 10-year	112

STATION NAME AND NUMBER.—02131000 Pee Dee River at Pee Dee, SC

LOCATION.— Lat 34º12’15’’, long 79º32’55’’, Florence-Marlboro County line, Hydrologic Unit 03040201, at upstream side of upstream bridge on U.S. Highway 76 at Pee Dee, 0.2 mile downstream from Seaboard Coast Line Railroad bridge, 8.2 miles downstream from Black Creek, and at mile 100.2.

DRAINAGE AREA.—8,830 mi^2.

PERIOD OF RECORD.—October 1938 to September 2007.

PERIOD OF ANALYSIS.—April 1939 to March 2007.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —68

REMARKS.— Station is regulated by dams in North Carolina, but trend analysis indicates that regulation patterns have not changed through the period of record. Low-flow frequencies only apply if regulation patterns do not significantly change in the future. Based on review of withdrawal and discharge data provided by the SCDHEC, there is no significant regulation or diversion upstream in South Carolina. The potential exists for significant diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. Therefore, no adjustments were made to data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	1,490	1,880	2,590	2,990	3,350	3,920	4,250
5	1,080	1,330	1,800	2,080	2,330	2,720	3,030
10	910	1,100	1,440	1,640	1,840	2,160	2,490
20	787	925	1,170	1,310	1,460	1,750	2,090
30	726	841	1,030	1,140	1,280	1,540	1,900
50	666	759	903	984	1,100	1,340	1,700

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	25,800	19,900	12,400	6,990	4,350	2,830	2,110

STATION NAME AND NUMBER.—02146000 Catawba River near Rock Hill, SC

LOCATION.—Lat 34°59′05″, long 80°58′27″ referenced to North American Datum of 1927, York County, SC, Hydrologic Unit 03050103, near right bank, at upstream side of foot bridge and just downstream from U.S. Highway 21, 3.5 mi downstream from Lake Wylie Dam, 5.0 mi northeast of Rock Hill, 7.5 mi upstream from Sugar Creek, and at river mile 137.6.

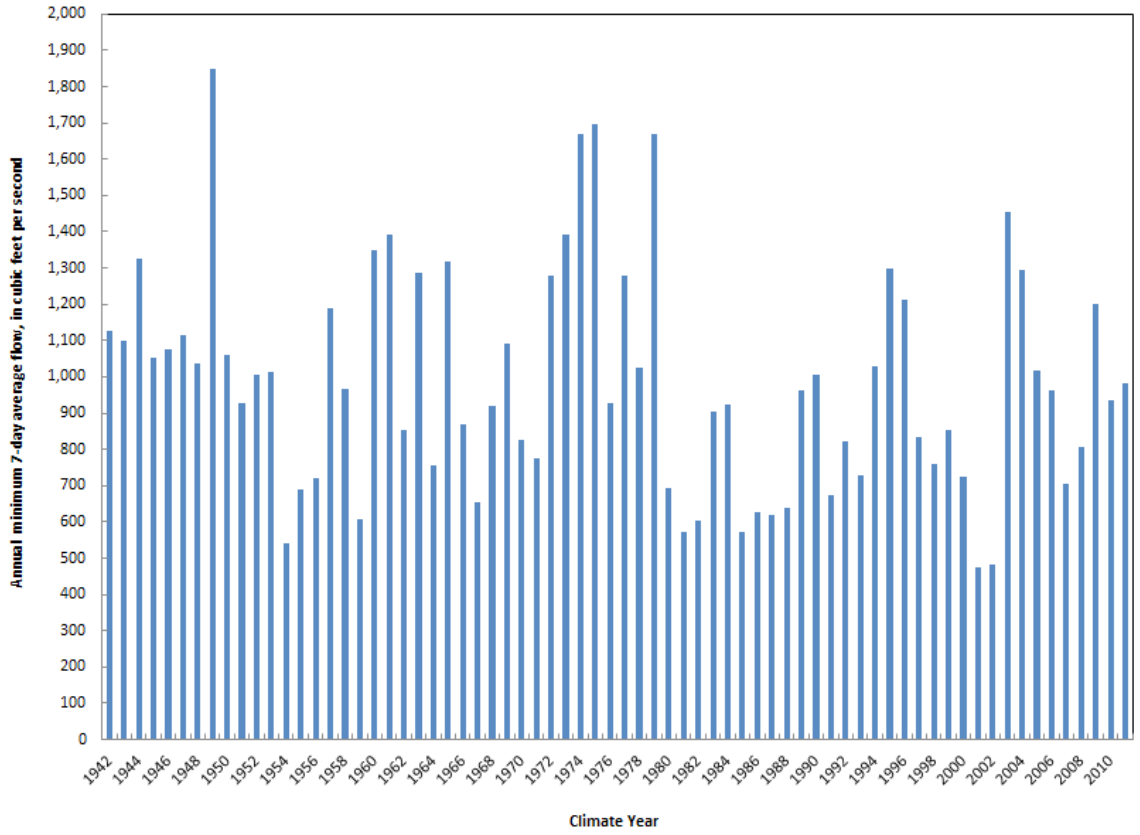
DRAINAGE AREA.—3,050 mi^2.

PERIOD OF RECORD.—October 1895 to September 1902, April 1942 to September 2012.

PERIOD OF ANALYSIS.—April 1942 to March 2012.

REMARKS.—Flow regulated by Lake Wylie (usable capacity, 2,520,500,000 ft^3).

ANNUAL MINIMUM 7-DAY AVERAGE FLOW



EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS											
Annual 7-day minimum flow exceeded for indicated percentiles (cubic feet per second)											
Percentile	5	10	20	30	40	50	60	70	80	90	95
Flow	1,670	1,390	1,280	1,100	1,020	963	884	785	696	609	557

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	10,000	8,380	5,650	3,090	1,320	860	718

STATION NAME AND NUMBER.—02147020 Catawba River below Catawba, SC

LOCATION.—Lat 34°50′10″, long 80°52′47″ referenced to North American Datum of 1927, York County, SC, Hydrologic Unit 03050103, on right bank, 1.5 mi downstream from Twelvemile Creek, 2.2 mi southeast of Catawba, and at river mile 121.3.

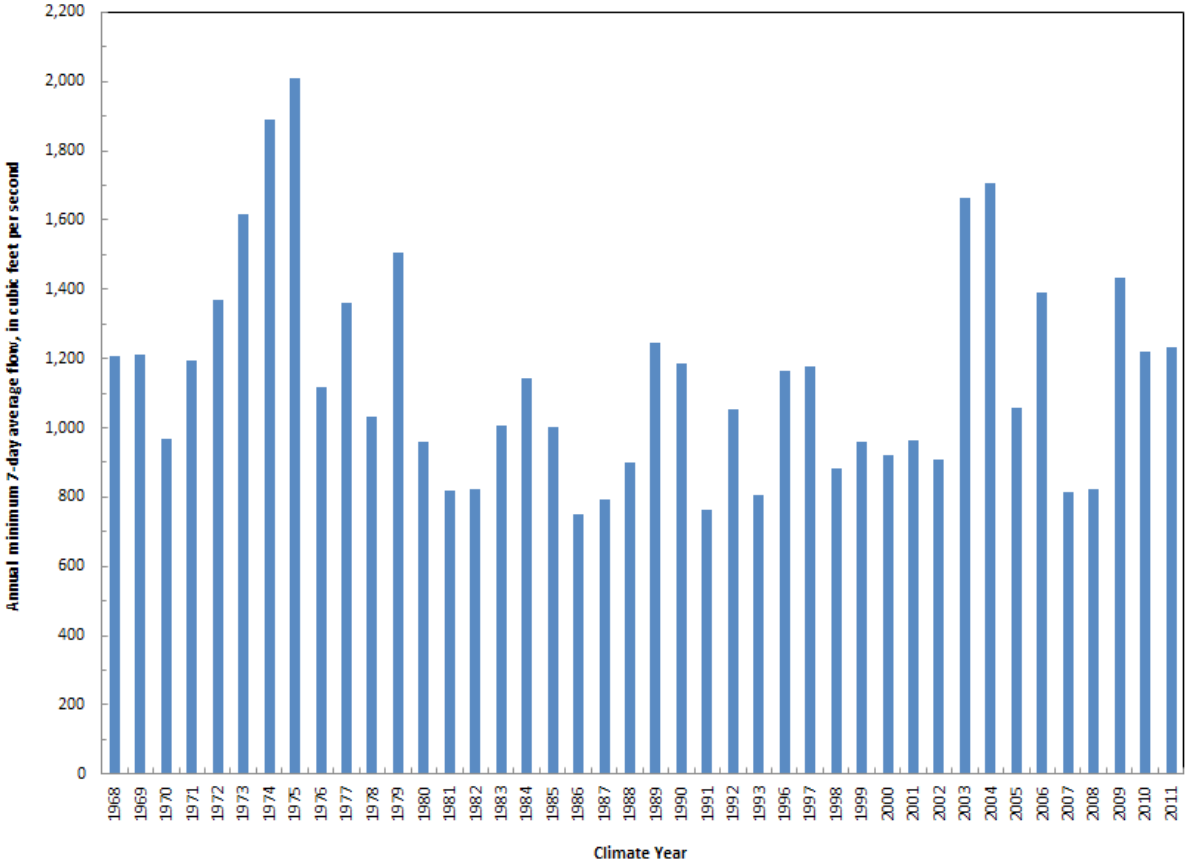
DRAINAGE AREA.—3,540 mi^2.

PERIOD OF RECORD.—January 1992 to September 1994 and October 1995 to September 2012.

PERIOD OF ANALYSIS.—October 1967 to September 1994 and October 1995 to March 2012.

REMARKS.—Because of minor differences in drainage areas (less than 1 percent), the record at 02147020 was combined with the record at 02147000, Catawba River near Catawba, SC (October 1967 to January 1992; drainage area = 3,530 mi^2). Flow regulated by Lake Wylie (usable capacity, 2,520,500,000 ft^3).

ANNUAL MINIMUM 7-DAY AVERAGE FLOW



EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS											
Annual 7-day minimum flow exceeded for indicated percentiles (cubic feet per second)											
Percentile	5	10	20	30	40	50	60	70	80	90	95
Flow	2,070	1,780	1,420	1,230	1,190	1,120	1,020	960	885	811	773

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	11,500	9,620	6,590	3,550	1,650	1,070	933

STATION NAME AND NUMBER.—02148000 Wateree River near Camden, SC

LOCATION.—Lat 34°14′40″, long 80°39′15″ referenced to North American Datum of 1927, Kershaw County, SC, Hydrologic Unit 03050104, on downstream side of pier of downstream bridge on U.S. Highway 1, 1,500 ft downstream from Five and Twenty Creek, 4,000 ft upstream from Seaboard Coast Line Railroad bridge, 2.2 mi west of Camden, 7.4 mi downstream from Wateree Dam, and at river mile 68.8.

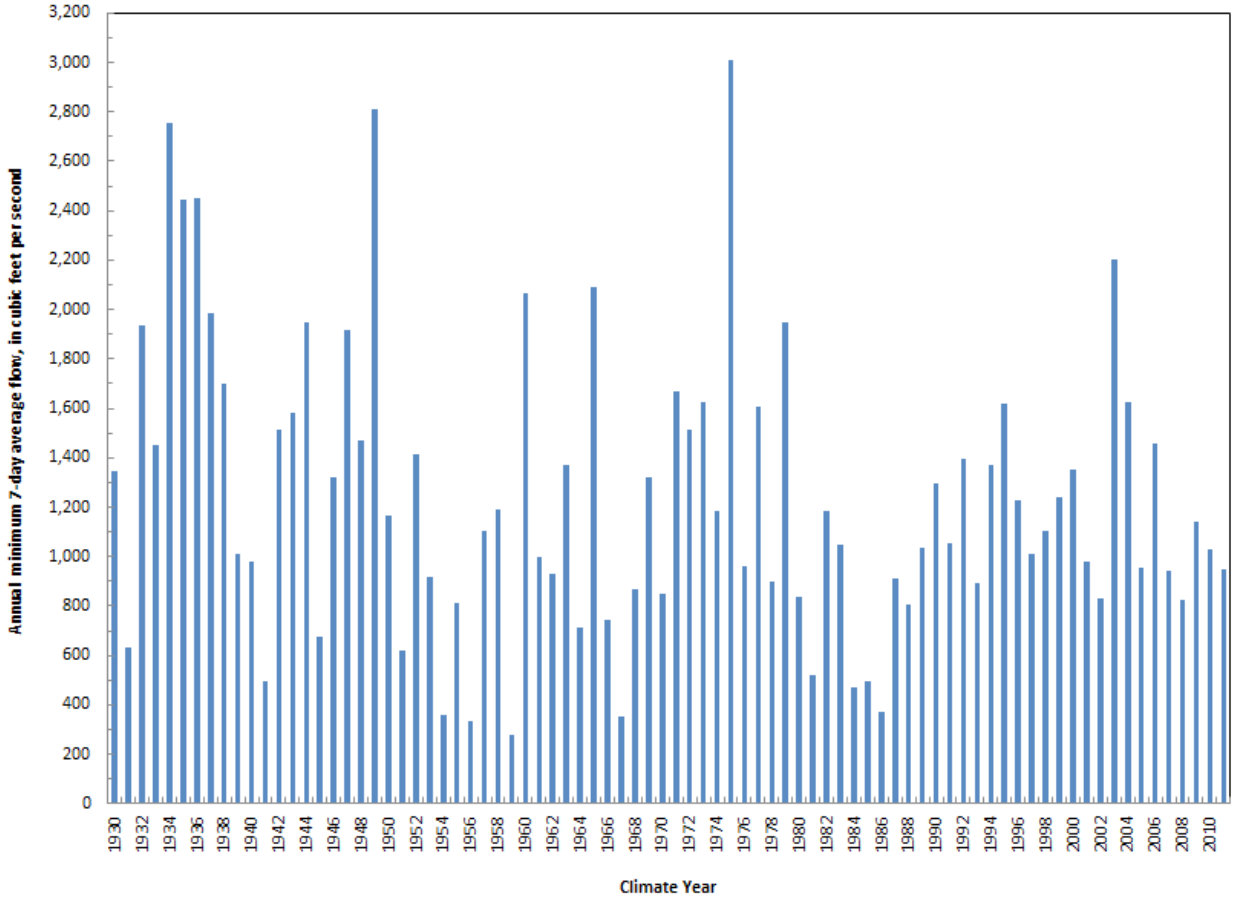
DRAINAGE AREA.—5,070 mi^2.

PERIOD OF RECORD.—October 1929 to September 1983, and May 1984 to September 2012.

PERIOD OF ANALYSIS.—October 1929 to September 1983, and May 1984 to March 2012.

REMARKS.—Flow regulated by powerplant at Wateree Reservoir (usable capacity, 2,794,000,000 ft^3).

ANNUAL MINIMUM 7-DAY AVERAGE FLOW



	EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS										
	Annual 7-day minimum flow exceeded for indicated percentiles (cubic feet per second)										
Percentile	5	10	20	30	40	50	60	70	80	90	95
Flow	2,690	2,080	1,640	1,460	1,320	1,140	1,010	922	824	506	359

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	15,400	12,700	7,830	4,550	2,160	1,140	711

STATION NAME AND NUMBER.—02148315 Wateree River below Eastover, SC

LOCATION.—Lat 33°49′42″, long 80°37′14″ referenced to North American Datum of 1927, Richland County, SC, Hydrologic Unit 03050104, on right bank, 1.3 mi upstream from Southern Railway bridge, 1.8 mi northeast of Wateree, 4.5 mi southeast of Eastover, and at river mile 10.8.

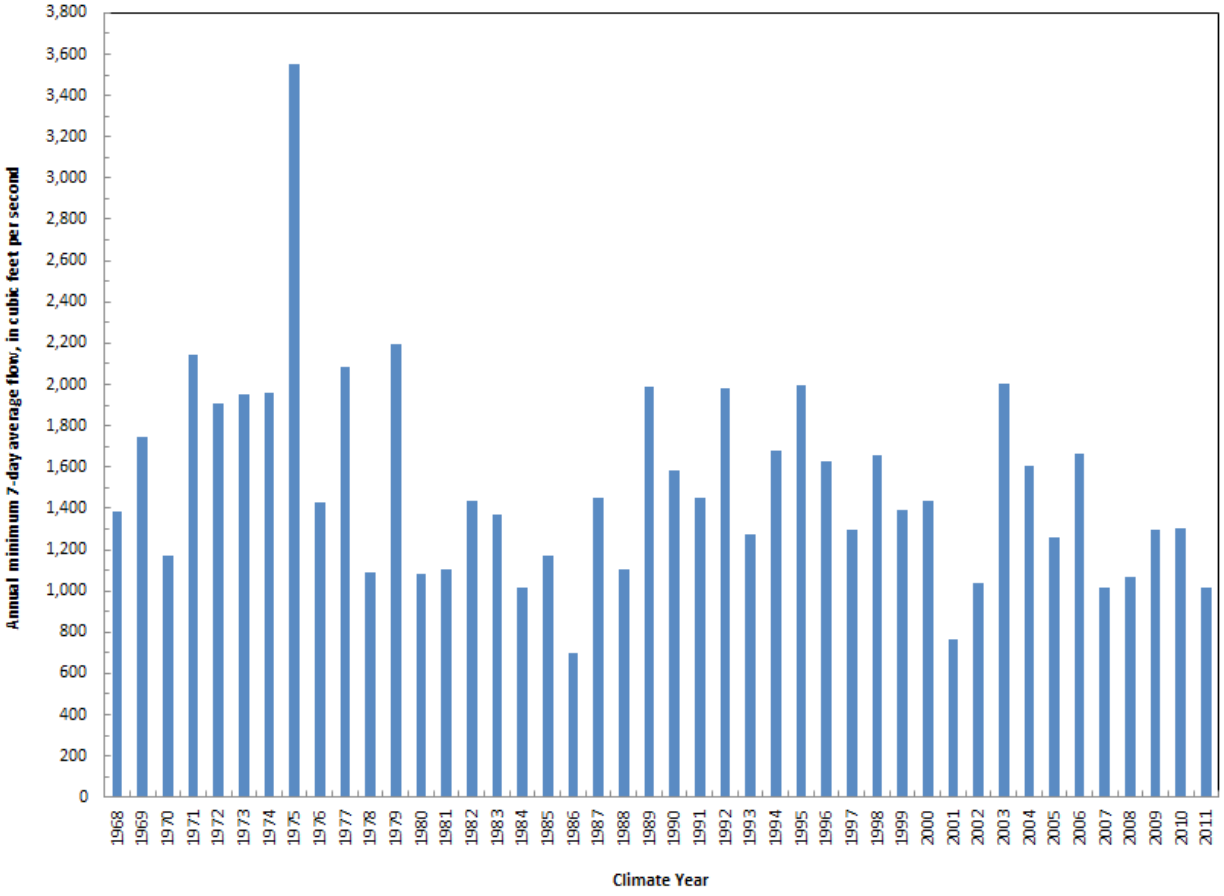
DRAINAGE AREA.—5,590 mi^2.

PERIOD OF RECORD.—July 1968 to September 2012.

PERIOD OF ANALYSIS.—July 1968 to March 2012.

REMARKS.—Flow regulated by powerplant at Wateree Reservoir (usable capacity, 2,794,000,000 ft^3). Flow represents only that portion of the flow confined to the main channel, which is less than about 10,000 ft^3/s. At times of high flow, bankfull capacity is exceeded in the intervening channel reach; therefore, daily mean flows greater than 10,000 ft^3/s are not determined and duration of daily flow analysis not made.

ANNUAL MINIMUM 7-DAY AVERAGE FLOW



EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS											
Annual 7-day minimum flow exceeded for indicated percentiles (cubic feet per second)											
Percentile	5	10	20	30	40	50	60	70	80	90	95
Flow	2,350	2,170	1,960	1,670	1,580	1,430	1,300	1,210	1,090	1,020	828

STATION NUMBER AND NAME,--02153200 Broad River near Blacksburg, SC

LOCATION.--Lat 35º07’26’’, long 81º35’17’’ referenced to North American Datum of 1927, Cherokee County, Hydrologic Unit 03050105, at upstream side of bridge on State Highway 18, 1.2 mi upstream from Buffalo Creek, 1.2 mi downstream from Gaston Shoals Reservoir, 3.2 mi west of Blacksburg, and at mile 275.2.

DRAINAGE AREA.--1,290 mi^2, approximately.

PERIOD OF RECORD.--September 1997 to September 2008.

PERIOD OF ANALYSIS.—April 1925 to March 2008. Period of record was extended to include climatic years 1925 to 1997 by using a MOVE.1 correlation with streamgaging station 02151500, Broad River near Boiling Springs, NC.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —10 (73 additional years from the MOVE.1 correlation)

REMARKS.— Based on review of withdrawal and discharge data was provided by the SCDHEC, there are no significant diversions upstream in South Carolina. The potential exists for significant diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNTIUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	417	607	710	851	920	1,070	1,190
5	199	348	438	552	606	690	782
10	123	243	320	421	468	529	604
20	79	173	239	327	369	415	480
30	61	143	200	281	320	360	418
50	45	114	164	239	275	308	361

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	5,240	3,800	2,510	1,680	1,130	756	586

STATION NAME AND NUMBER.—02153500 Broad River near Gaffney, SC

LOCATION.—Lat 35°05’20”, Long 81°34’20”, referenced to North American Datum of 1927, Cherokee County, Hydrologic Unit 03050105, on right bank at downstream side of bridge on U.S. Highway 29, 0.3 mi upstream from Cherokee Creek, 4.4 mi downstream from Gaston Shoals Dam, 4.5 mi east of Gaffney, and at mile 270.3.

DRAINAGE AREA.—1,490 mi^2, approximately.

PERIOD OF RECORD.—December 1938 to September 1971, June 1986 to September 1990. Monthly discharge only for some periods, published in WSP 1303. Discharges for July 12, 1896, to December 31, 1899, published in the 18th, 19th, and 21st Annual Reports, Part 4, have not been found to be reliable and should not be used.

PERIOD OF ANALYSIS.—April 1939 to March 1971, April 1987 to March 1990.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —35

REMARKS.— Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream in South Carolina. The potential exists for significant withdrawal diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	699	805	908	991	1,100	1,260	1,360
5	484	597	668	727	806	900	992
10	386	500	555	602	669	737	826
20	314	427	471	509	566	617	704
30	280	392	430	465	518	559	645
50	244	353	385	415	463	498	582

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	5,810	4,260	2,840	1,940	1,330	920	746

STATION NAME AND NUMBER.--02155500 Pacolet River near Fingerville, SC

LOCATION.—Lat 35º06’35’’, long 81º57’35’’, Spartanburg County, Hydrologic Unit 03050105, on right bank, 100 feet upstream from bridge on State Road 55, 0.2 mi downstream from confluence of North Pacolet and South Pacolet Rivers, 2.8 mi southeast of Fingerville, and at mile 46.5.

DRAINAGE AREA.—212 mi^2.

PERIOD OF RECORD. —December 1929 to August 2006, October 2007 to September 2008. Monthly discharges from some periods, published in WSP 1303.

REVISED RECORDS.—WSP 1303: 1930-39 (monthly and yearly runoff).

PERIOD OF ANALYSIS.—April 1930 to March 2006.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —76

REMARKS— Based on review of discharge data provided by the SCDHEC, there are no significant point-source discharges upstream. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, adequate data are not available to quantify this diversion. The potential also exists for significant diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	95	102	110	117	128	147	164
5	63	69	75	78	85	99	111
10	49	54	58	61	67	79	88
20	40	44	47	49	54	64	72
30	35	38	41	43	47	57	64
50	31	33	35	37	41	50	56

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	777	559	364	243	156	106	84

STATION NAME AND NUMBER.—021556525 Pacolet River below Lake Blalock near Cowpens, SC

LOCATION. —Lat 35º02’51’’, long 81º51’21’’, Spartanburg County, Hydrologic Unit 03050105, on right bank, 0.75 mi downstream from Lake Blalock Dam, and 3.5 mi northwest of Cowpens, SC.

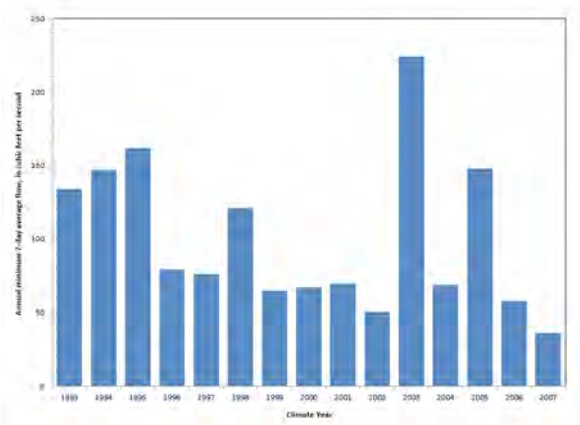
DRAINAGE AREA. —273 mi^2.

PERIOD OF RECORD. – November 1993 to September 2008.

PERIOD OF ANALYSIS.—November 1993 to March 2008.

REMARKS— Flow patterns from Lake Blalock changed from 2004–2006 when flow structures were added raising the pool elevation by 10 feet and a minimum outflow was required. A time-series plot of annual seven-day minimum flows is presented in lieu of frequency analysis results.

ANNUAL 7-DAY MINIMUM FLOWS AND PERCENTILES.



EXCEEDENCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS									
Annual 7-day minimum flow exceeded for indicated percentage of years (cubic feet per second)									
Percentile	10	20	30	40	50	60	70	80	90
Flow	162	148	121	79	73	69	67	58	51

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	798	578	382	243	137	75	65

STATION NAME AND NUMBER.—02156500 Broad River near Carlisle, SC

LOCATION.— Lat 34º35’42’’, long 81º25’17’’, Union County, Hydrologic Unit 03050106, on right bank at downstream side of bridge on State Highway 72, 1.3 mi upstream from Sandy River, 2.0 mi downstream from Seaboard Coast Line Railroad bridge, 2.5 mi east of Carlisle, 5.0 mi downstream from Neals Shoals Dam, and at mile 226.0.

DRAINAGE AREA.—2,790 mi^2, approximately.

PERIOD OF RECORD.—October 1938 to September 2008.

PERIOD OF ANALYSIS.—April 1939 to March 2008.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —69

REMARKS. —Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. The potential exists for significant diversion upstream in North Carolina. However, adequate data are not available from North Carolina to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	670	1,090	1,290	1,390	1,540	1,780	1,960
5	281	645	822	907	1,020	1,170	1,310
10	162	457	609	685	791	897	1,000
20	98	331	458	526	622	699	787
30	74	272	390	455	543	607	686
50	52	220	320	378	462	512	580

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	9,500	6,540	4,200	2,790	1,880	1,250	903

STATION NAME AND NUMBER.—02161000 Broad River at Alston, SC

LOCATION.—Lat 34º14’35”, long 81º19’11”, Fairfield County, Hydrologic Unit 03050106, on left bank at Southern Railway Alston-Peak trestle, 1.2 mi downstream from Parr Shoals Dam, and at mile 200.2.

DRAINAGE AREA.—4,790 mi^2.

PERIOD OF RECORD. —October 1896 to December 1907, and October 1980 to September 2008.

PERIOD OF ANALYSIS.—April 1897 to March 1907, April 1926 to March 2008.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —92

REMARKS.--- Daily mean flows are combined with streamgaging station 02161500, Broad River at Richtex, SC, (October 1925 through September 1983) to fill in the missing data. The drainage areas at the two stations are within 1.3 percent of each other. Based on review of withdrawal data provided by the SCDHEC, there are no significant withdrawals upstream. Based on review of discharge data provided by the SCDHEC, the potential exists for significant point-source discharge upstream. However, adequate data are not available to quantify this diversion. The potential also exists for significant diversion upstream in North Carolina. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	971	1,390	1,720	1,900	2,100	2,450	2,780
5	484	845	1,090	1,240	1,420	1,660	1,880
10	310	620	807	938	1,120	1,300	1,480
20	205	467	606	721	902	1,040	1,190
30	161	395	510	616	794	911	1,040
50	123	330	421	518	691	790	906

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	18,200	11,700	6,350	4,030	2,480	1,470	1,140

STATION NAME AND NUMBER.--02162500 Saluda River near Greenville, SC

LOCATION.—Lat 35º50’32’’, long 82º28’51’’, referenced to North American Datum of 1927, Pickens County, SC, Hydrologic Unit 03050109, on right bank 700 ft upstream from bridge on State Road 124, 1.6 mi downstream from Saluda Lake Dam, 2.4 mi upstream from Georges Creek, 4.6 mi west of city hall in Greenville, and at mile 132.0.

DRAINAGE AREA.—298 mi^2.

PERIOD OF RECORD.—January 1942 to September 1978, and March 1990 to September.

PERIOD OF ANALYSIS.—April 1942 to March 1978 and April 1990 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —55

REMARKS.—Based on review of discharge data provided by the SCDHEC, there are no significant point-source discharges upstream. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. Some regulation of low to medium flow by powerplants upstream. Greenville Water diverts water for municipal supply upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	173	195	217	232	255	289	322
5	101	114	135	146	166	189	211
10	72	81	99	109	128	146	164
20	54	59	75	83	101	116	131
30	45	49	64	72	88	102	116
50	37	40	53	60	75	88	100

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,410	1,100	753	495	321	223	162

STATION NAME AND NUMBER.--02163001 Saluda River near Williamston, SC

LOCATION.—Lat 34º 36’ 53’’, long 82º 26’ 39’’, referenced to North American Datum of 1927, Greenville County, SC, Hydrologic Unit 03050109, 1,300 ft downstream from Pelzer Mills dam, and 2 mi east of Williamston, SC.

DRAINAGE AREA.—414 mi^2.

PERIOD OF RECORD.—May 1995 to September 2009.

PERIOD OF ANALYSIS.—April 1930 to March 1971, and April 1996 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —55

REMARKS.—Daily mean flows are combined with streamgaging station 02163000, Saluda River near Pelzer, SC (October 1929 to September 1971) to extend the period of record. The drainage areas of the two stations are within 2.2 percent of each other. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. Some regulation of low to medium flow from upstream Pelzer Mills dam. Greenville Water diverts water for municipal supply upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	212	254	275	285	305	345	377
5	101	138	158	171	196	226	252
10	59	87	106	121	149	175	200
20	35	55	71	87	116	139	163
30	25	41	55	71	101	122	145
50	17	30	42	57	86	106	127

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	1,830	1,360	916	608	408	294	241

STATION NAME AND NUMBER.—02163500 Saluda River near Ware Shoals, SC

LOCATION.--Lat 34º23’30’’, long 82º13’25’’, referenced to North American Datum of 1927, Greenwood County, SC, Hydrologic Unit 03050109, on downstream side of U.S. Highway 25 bridge, 1.4 mi southeast of Ware Shoals, 1.8 mi downstream from Ware Shoals Dam, 5.7 mi upstream from Turkey Creek, and at mile 84.4.

DRAINAGE AREA.–580 mi^2.

PERIOD OF RECORD.–March 1939 to September 2009.

PERIOD OF ANALYSIS.—April 1939 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —70

REMARKS—Based on review of discharge data provided by the SCDHEC, there are no significant point-source discharges upstream. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. Some regulation of low to medium flow from upstream Ware Shoals Dam. City of Greenville diverts water for municipal water supply upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	203	263	309	338	373	426	470
5	99	150	183	207	238	276	314
10	61	105	130	150	180	211	247
20	38	76	94	112	140	166	199
30	29	63	78	93	121	144	176
50	21	50	63	77	102	123	154

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	2,360	1,750	1,140	724	474	302	238

STATION NAME AND NUMBER.—021650905 Reedy River near Waterloo, SC

LOCATION.— Lat 34º 23’ 29’’, long 82º 08’ 22’’, referenced to North American Datum of 1983, Laurens County, SC, Hydrologic Unit 03050109, at upstream from State Road S-30-36 bridge, 6.0 mi northwest of Waterloo, SC, 7.8 mi downstream from Boyd Mill Pond Dam.

DRAINAGE AREA.—251 mi^2.

PERIOD OF RECORD.—November 2004 to September 2009.

PERIOD OF ANALYSIS.—April 1988 to March 2009.

REMARKS.--Daily mean flows are combined with streamgaging station 02165000, Reedy River near Ware Shoals, SC (April 1939 to March 2005) to extend the period of record. The drainage areas of the two stations are within 6.0 percent of each other. Based on review of withdrawal data provided by the SCDHEC, there are no significant withdrawals upstream. Based on review of point-source discharge data provided by the SCDHEC, the potential exists for significant discharge upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. Some regulation of low to medium flow from upstream dams. Sewage effluent discharged into the Reedy River about 500 ft below station 02164000.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	54	75	88	102	121	151	162
5	38	52	61	72	84	101	109
10	32	42	50	59	67	79	86
20	27	35	42	50	55	63	70
30	25	32	38	44	49	56	61
50	22	29	34	40	43	48	54

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	900	634	375	256	157	90	66

STATION NAME AND NUMBER.—02167000 Saluda River at Chappells, SC

LOCATION.—Lat 34º 10 ‘28’’, long 81 º51 ‘51’’, referenced to North American Datum of 1927, Saluda County, SC, Hydrologic Unit 03050109, on downstream side of bridge on State Highway 39 at Chappells, 6.7 mi downstream from dam at Lake Greenwood, 9.8 mi upstream from Little River, and at mile 52.3.

DRAINAGE AREA.—1,360 mi^2.

PERIOD OF RECORD.—October 1926 to September 2009.

PERIOD OF ANALYSIS.—April 1983 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —26

REMARKS.—Based on review of discharge and withdrawal data provided by the SCDHEC, the potential exists for significant discharge and withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. Flow regulated since 1940 by Lake Greenwood, which has a usable capacity of approximately 7,640,000,000 ft^3.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	257	347	402	437	496	583	647
5	176	256	301	326	359	399	427
10	144	218	258	277	299	321	338
20	122	191	225	240	256	265	276
30	111	177	209	222	234	238	246

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	4,430	3,350	1,840	1,040	593	372	301

STATION NAME AND NUMBER.—02168504 Saluda River below Lake Murray Dam near Columbia, SC

LOCATION.—Lat 34º03’03’’, long 81º12’35’’, referenced to North American Datum of 1927, Lexington County, SC, Hydrologic Unit 03050109, on left bank, approximately 1,000 ft downstream from Lake Murray Dam on the Saluda River, and at mile 9.7.

DRAINAGE AREA.—2,420 mi^2.

PERIOD OF RECORD.—October 1988 to September 2009.

PERIOD OF ANALYSIS.—April 1989 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —20

REMARKS.—Based on review of discharge and withdrawal data provided by the SCDHEC, the potential exists for significant discharge and withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. Flow regulated since 1929 by Lake Murray, usable capacity 70,300,000,000 ft^3, and since 1940 by Lake Greenwood, which has a usable capacity of 7,640,000,000 ft^3. A minimum flow release agreement was established between South Carolina Department of Health and Environmental Control and the South Carolina Electric and Gas Company in April 1988 (Wade Cantrell, South Carolina Department of Health and Environmental Control, written commun., May 18, 2011).

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	248	318	382	440	571	704	889
5	192	236	285	334	400	465	550
10	168	199	240	288	340	376	423
20	151	171	205	254	301	317	339

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	8,430	5,290	2,710	1,290	544	424	322

STATION NAME AND NUMBER.—02169000 Saluda River near Columbia, SC

LOCATION.—Lat 34º00’50’’, long 81º05’17’’, referenced to North American Datum of 1927, Richland County, SC, Hydrologic Unit 03050109, on left bank 0.4 mi upstream from site of Old Saluda Mill, 1.6 mi upstream from confluence with the Broad River and 3.3 mi west of the State Capitol in Columbia, and at mile 1.67.

DRAINAGE AREA.—2,520 mi^2.

PERIOD OF RECORD.—August 1925 to September 2009.

PERIOD OF ANALYSIS.—April 1989 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —20

REMARKS.—Based on review of discharge and withdrawal data provided by the SCDHEC, the potential exists for significant discharge and withdrawal upstream. However, adequate data are not available to quantify this diversion. No adjustment was made to the data used in the frequency analysis. Flow regulated since 1929 by Lake Murray, usable capacity 70,300,000,000 ft^3, and since 1940 by Lake Greenwood, which has a usable capacity of 7,640,000,000 ft^3. A minimum flow release agreement was established between South Carolina Department of Health and Environmental Control and the South Carolina Electric and Gas Company in April 1988 (Wade Cantrell, South Carolina Department of Health and Environmental Control, written commun., May 18, 2011).

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	351	406	477	535	662	807	987
5	266	313	361	410	484	562	647
10	229	268	304	355	419	470	516
20	202	234	260	314	376	407	427

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	8,540	5,550	2,930	1,420	637	495	422

STATION NAME AND NUMBER.—02169500 Congaree River at Columbia, SC

LOCATION.—Lat 33º59’35’’, long 81º03’00’’, referenced to North American Datum of 1927, Lexington County, SC, Hydrologic Unit 03050110, on right bank at Columbia, 1,000 ft downstream from Gervais Street Bridge, 1.4 mi downstream from confluence of the Broad and Saluda Rivers, and at mile 174.8.

DRAINAGE AREA.—7,850 mi^2.

PERIOD OF RECORD.—October 1939 to September 2009.

PERIOD OF ANALYSIS.—April 1980 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —29

REMARKS.—Based on review of withdrawal and discharge data provided by the SCDHEC, there are no significant diversions upstream. Consequently, no adjustment was made to the data used in the frequency analysis. Flow regulated since 1929 by Lake Murray, usable capacity 70,300,000,000 ft^3, and since 1940 by Lake Greenwood, which has a usable capacity of 7,640,000,000 ft^3. Low to medium flow also regulated by powerplants on Broad River. Municipal supply for the city of Columbia diverted above station from Broad River.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	1,310	1,730	2,120	2,420	2,760	3,250	3,630
5	917	1,220	1,490	1,690	1,890	2,180	2,410
10	756	1,000	1,210	1,360	1,520	1,700	1,890
20	643	836	1,010	1,130	1,250	1,360	1,510
30	587	756	914	1,010	1,120	1,200	1,330

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	22,400	14,800	8,710	5,480	3,420	2,050	1,590

STATION NAME AND NUMBER.—02169570 Gills Creek at Columbia, SC

LOCATION.—Lat 33º59’22’’, long 80º58’28’’, referenced to North American Datum of 1927, Richland County, SC, Hydrologic Unit 03050110, on left bank, downstream side of bridge on U.S. Highways 378 and 76 (Devine Street) at Columbia, 0.75 mi downstream from Lake Katherine, and at mile 7.7.

DRAINAGE AREA.—59.6 mi^2.

PERIOD OF RECORD.—October 1966 to September 2009.

PERIOD OF ANALYSIS.—April 1967 to March 2009.

NUMBER OF CLIMATE YEARS IN ANALYSIS. —42

REMARKS.---Based on review of discharge data provided by the SCDHEC, there are no significant point-source discharges upstream. Based on review of withdrawal data provided by the SCDHEC, the potential exists for significant withdrawal upstream. However, adequate data are not available to quantify this diversion. Natural flow subject to temporary influence from private lakes upstream.

MAGNITUDE AND FREQUENCY OF ANNUAL LOW FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	8.4	9.0	10	12	17	23	29
5	4.5	4.9	5.5	6.8	9.2	13	17
10	3.1	3.4	3.9	4.9	6.4	9.6	13
20	2.2	2.5	2.8	3.7	4.7	7.3	9.6
30	1.8	2.0	2.3	3.1	3.9	6.3	8.2
50	1.4	1.6	1.9	2.6	3.2	5.3	7.0

DURATION OF DAILY FLOWS							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	217	147	83	45	25	13	9.4

STATION NAME AND NUMBER.—02171500 Santee River near Pineville, SC

LOCATION.—Lat 33°27′15″, long 80°08′30″ referenced to North American Datum of 1927, Berkeley County, SC, Hydrologic Unit 03050112, on right bank 2.4 mi downstream from Lake Marion Dam, 3.0 mi upstream from Dead River, 6.7 mi west of Pineville, and at mile 85.0.

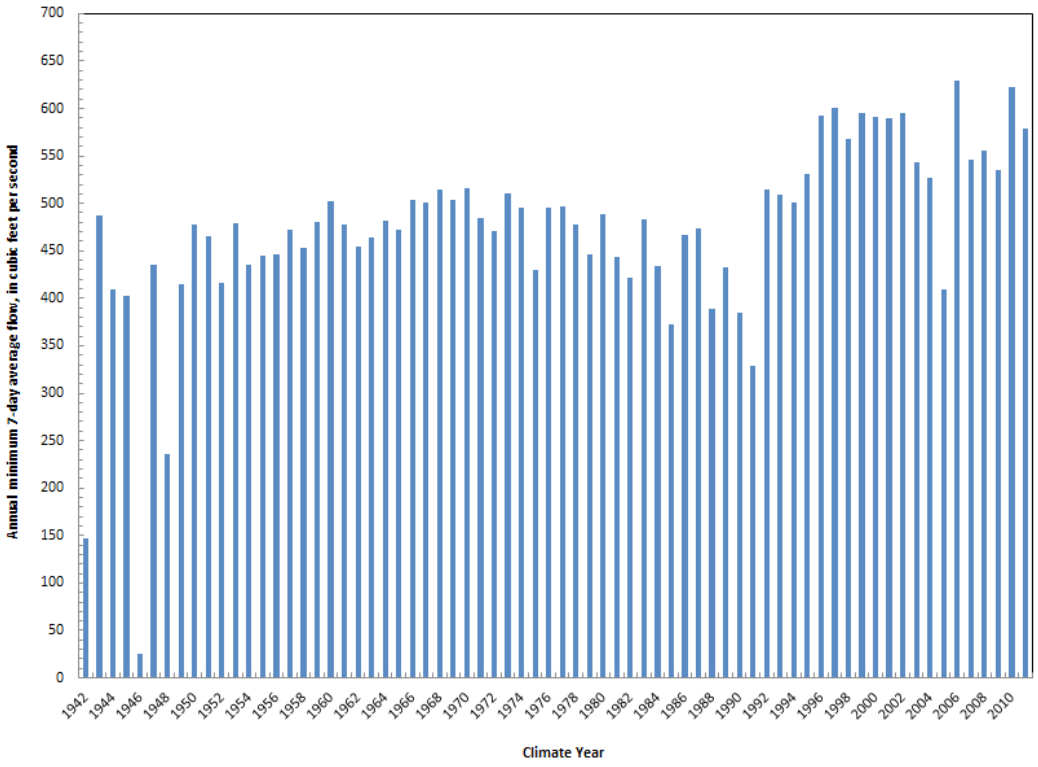
DRAINAGE AREA.—14,700 mi^2.

PERIOD OF RECORD.—May 1942 to September 2012.

PERIOD OF ANALYSIS.—May 1942 to March 2012.

REMARKS.—Flow records for 1987–2004 water years are computed by utilization of a one-dimensional unsteady flow simulation model (Schaffranek and others, 1981). Flow completely regulated by Lake Marion. Water is diverted above the station from Lake Marion through the Diversion Canal into Lake Moultrie for power generation and navigation, and then discharged into the Cooper River basin and lower Santee River. During periods of incomplete gage-height record, values of daily mean flow from Lake Marion Hydro and Spillway were obtained from the South Carolina Public Service Authority. These values are shown as estimated daily flows. Seepage from north dike of Lake Marion Dam bypasses station through Little River.

ANNUAL MINIMUM 7-DAY AVERAGE FLOW



EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS									
Annual 7-day minimum flow exceeded for indicated percentiles (cubic feet per second)									
Percentile	10	20	30	40	50	60	70	80	90
Flow	591	534	507	496	480	471	446	430	390

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	11,500	1,130	653	562	515	492	472

STATION NAME AND NUMBER.—02171700 Santee River near Jamestown, SC

LOCATION.—Lat 33°18′17″, long 79°40′42″ referenced to North American Datum of 1927, Berkeley County, SC, Hydrologic Unit 03050112, at downstream side of bridge on U.S. Highway 17A, 0.7 mi below Wittee Branch, 0.1 mi upstream from Seaboard Coastline Railroad, 1.5 mi northeast of Jamestown, and at river mile 36.4.

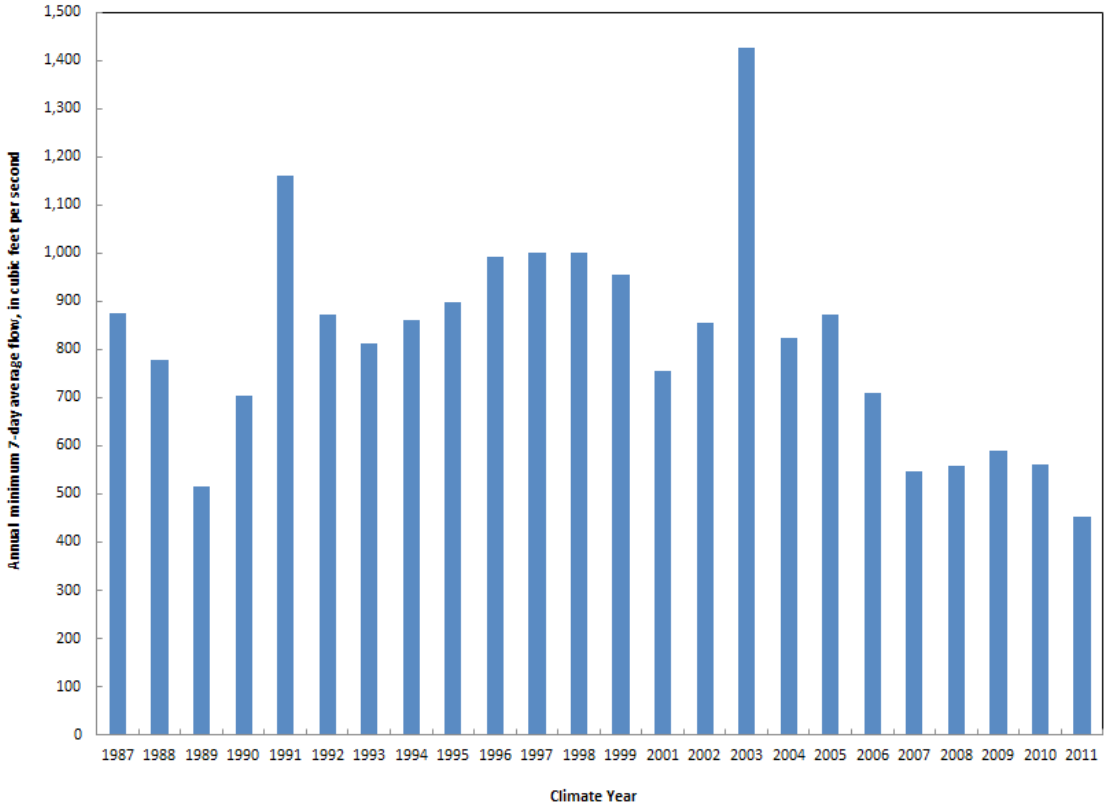
DRAINAGE AREA.—10,750 mi^2.

PERIOD OF RECORD.—October 1986 to September 2012.

PERIOD OF ANALYSIS.—October 1986 to March 2012.

REMARKS.—Flow affected by regulation from Lake Marion and rediversion from St. Stephens powerplant. Astronomical tides cause cycles of approximately 24.8 hours at this site during periods of low to medium flow. During periods of higher flow, the tidal influence is overcome by basin runoff. October 2005 to current year, tidal effects were removed from unit value flows using the Godin filter. Daily mean flow computed from filtered values. Flow records for 1987–2000 water years were computed by utilization of a one-dimensional flow simulation model (Schaffranek and others, 1981).

ANNUAL MINIMUM 7-DAY AVERAGE FLOW



EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS											
Annual 7-day minimum flow exceeded for indicated percentiles (cubic feet per second)											
Percentile	5	10	20	30	40	50	60	70	80	90	95
Flow	1,350	1,060	984	880	868	824	792	708	567	534	472

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	27,500	24,000	14,700	4,600	1,040	782	655

STATION NAME AND NUMBER.—02172002 Lake Moultrie Tailrace Canal at Moncks Corner, SC

LOCATION.—Lat 33°12′54″, long 79°58′29″ referenced to North American Datum of 1927, Berkeley County, SC, Hydrologic Unit 03050201, on upstream side of left fender pier, under U.S. Highway 52 bridge, 2.2 mi below Lake Moultrie Pinopolis Dam, and at river mile 45.8.

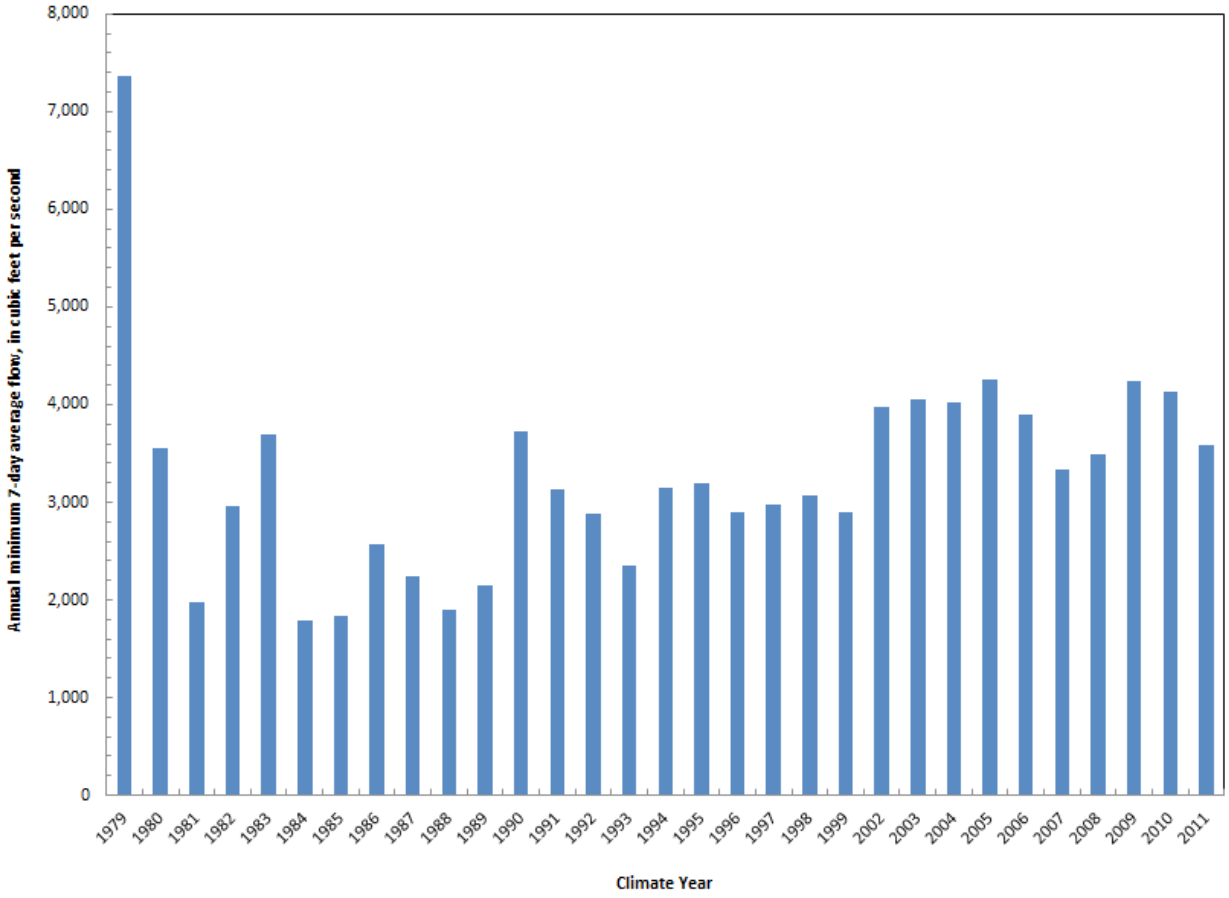
DRAINAGE AREA.—14,800 mi^2.

PERIOD OF RECORD.—October 1978 to September 2000 and October 2001 to September 2012.

PERIOD OF ANALYSIS.—October 1978 to September 2000 and October 2001 to March 2012.

REMARKS.—Discharge affected by regulation from Lake Moultrie Pinopolis Dam. Discharge records for the 1979–2001 water years computed by utilization of a one-dimensional unsteady flow simulation model (Schaffranek and others, 1981).

ANNUAL MINIMUM 7-DAY AVERAGE FLOW



EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS											
Annual 7-day minimum flow exceeded for indicated percentiles (cubic feet per second)											
Percentile	5	10	20	30	40	50	60	70	80	90	95
Flow	5,180	4,320	4,020	3,700	3,450	3,140	2,960	2,890	2,360	1,980	1,820

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	21,200	14,900	7,130	5,100	4,030	2,960	2,230

STATION NAME AND NUMBER.--02197000 Savannah River at Augusta, GA

LOCATION.—Lat 33°22′25″, long 81°56′35″ referenced to North American Datum of 1927, Richmond County, GA, Hydrologic Unit 03060106, at New Savannah Bluff lock and dam, 0.2 mi upstream from Butler Creek, 12.0 mi downstream from Augusta, and at mile 187.4.

DRAINAGE AREA.—7,510 mi^2

PERIOD OF RECORD.—October 1883 to December 1891, January 1896 to December 1906, January 1925 to March 2014

PERIOD OF ANALYSIS.—April 1986 to March 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —28

REMARKS.—Regulated since about 1954 by J.Strom Thurmond Lake, 1962 by Lake Hartwell, and 1985 by Richard B. Russell Lake. The low-flow statistics below represent the most recent period of relatively stable regulation.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	3,790	3,990	4,190	4,370	4,560	4,780	4,990
5	3,410	3,570	3,700	3,810	3,950	4,090	4,230
10	3,240	3,360	3,460	3,540	3,680	3,780	3,890
20	3,110	3,200	3,270	3,340	3,470	3,540	3,640
30	3,050	3,110	3,170	3,230	3,360	3,420	3,520

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	23,200	15,700	8,400	5,600	4,430	4,020	3,830

STATION NAME AND NUMBER.—02197309 Tims Branch at Road C at Savannah River Site, SC

LOCATION.—Lat 33°17′13″, long 81°41′49″ referenced to North American Datum of 1927, Aiken County, SC, Hydrologic Unit 03060106, on left upstream end of metal culvert, 30 ft northeast of SRS Road C and 300 ft northwest of Upper Three Runs Creek, at Savannah River Site.

DRAINAGE AREA.—17.5 mi^2

PERIOD OF RECORD.—March 1974 to September 1982, October 1984 to September 1996

PERIOD OF ANALYSIS.—April 1974 to March 1982, April 1985 to March 1996

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —17

REMARKS.—Flow regulated by Savannah River Site operations.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	2.7	2.8	2.9	3.1	3.3	3.8	4.2
5	1.9	2.0	2.1	2.2	2.5	2.9	3.3
10	1.5	1.6	1.7	1.8	2.1	2.5	2.9
20	1.2	1.3	1.4	1.5	1.8	2.2	2.6

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	12	9.1	6.4	4.9	3.9	3.0	2.6

STATION NAME AND NUMBER.—02197342 Site No. 7 at Savannah River Site, SC

LOCATION.—Lat 33°14′40″, long 81°41′45″ referenced to North American Datum of 1927, Barnwell County, SC, Hydrologic Unit 03060106, on right upstream end of concrete culvert pipe on Four Mile Creek at SRS Road A-7, 1.0 mi southwest of Area C, at Savannah River Site.

DRAINAGE AREA.—12.5 mi^2

PERIOD OF RECORD.—October 1972 to September 2002

PERIOD OF ANALYSIS.—April 1973 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —25

REMARKS.—Flow regulated by Savannah River Site operations.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	5.7	5.9	6.4	6.9	7.8	8.8	9.8
5	4.3	4.6	4.9	5.3	6.1	6.9	7.9
10	3.7	3.9	4.2	4.5	5.3	6.0	6.9
20	3.2	3.4	3.7	3.9	4.7	5.4	6.3
30	2.9	3.1	3.4	3.7	4.4	5.0	5.9

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	41	28	18	13	9.2	6.9	5.8

STATION NAME AND NUMBER.—02197344 Four Mile Creek at Road A-12.2 at Savannah River Site, SC

LOCATION.—Lat 33°11′21″, long 81°43′26″ referenced to North American Datum of 1927, Barnwell County, SC, Hydrologic Unit 03060106, on left downstream side of bridge on SRS Road A-12.2, 500 ft northwest of SRS Road A-13, 1.0 mi southeast of Area D, at Savannah River Site.

DRAINAGE AREA.—22.0 mi^2

PERIOD OF RECORD.—November 1976 to September 2002

PERIOD OF ANALYSIS.—April 1986 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —16

REMARKS.—Flow regulated by Savannah River Site operations. Based on quality-assurance and quality-control assessments, the regulation patterns changed after climate year 1986. Therefore, only the record after April 1986 was used in the analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	12	12	13	14	16	18	20
5	8.6	8.9	9.6	10	12	13	15
10	7.2	7.5	8.2	8.7	9.8	11	13
20	6.3	6.5	7.3	7.7	8.5	10	11

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	73	50	33	22	16	12	10

STATION NAME AND NUMBER.—02197348 Pen Branch at Road A-13.2 at Savannah River Site, SC

LOCATION.—Lat 33°09′34″, long 81°41′08″ referenced to North American Datum of 1927, Barnwell County, SC, Hydrologic Unit 03060106, on right downstream side of bridge on SRS Road A-13.2, 700 ft downstream from Seaboard Coastline Railroad bridge, 800 ft west of intersection of SRS Roads A-17 and A-17.1, at Savannah River Site.

DRAINAGE AREA.—21.2 mi^2

PERIOD OF RECORD.—November 1976 to September 2002

PERIOD OF ANALYSIS.—April 1988 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —14

REMARKS.—Flow regulated by Savannah River Site operations. Based on quality-assurance and quality-control assessments, the regulation patterns changed after climate year 1988. Therefore, only the record after April 1988 was used in the analysis.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	14	15	15	17	18	22	24
5	6.8	7.1	7.6	8.0	8.8	11	12
10	4.5	4.7	5.0	5.3	5.9	7.6	8.4
20	3.1	3.2	3.5	3.7	4.1	5.6	6.2

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	206	115	59	37	14	8.2	6.8

STATION NAME AND NUMBER.—021973565 Steel Creek at Road A at Savannah River Site, SC

LOCATION.—Lat 33°08′44″, long 81°37′44″ referenced to North American Datum of 1927, Barnwell County, SC, Hydrologic Unit 03060106, on right downstream side of bridge on SRS Road A, 160 ft downstream from Meyers Branch, at Savannah River Site.

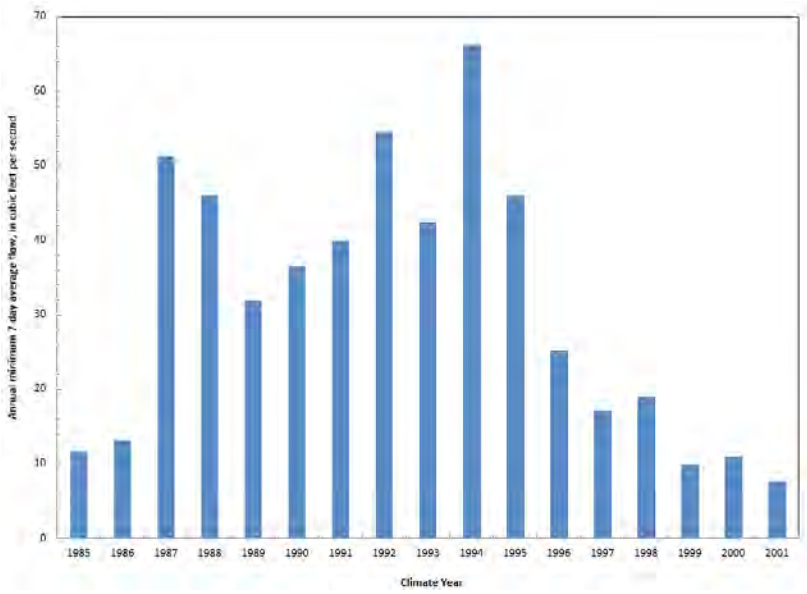
DRAINAGE AREA.—Undetermined

PERIOD OF RECORD.—March 1985 to September 2002

PERIOD OF ANALYSIS.—April 1985 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —17

REMARKS.—Flow regulated by Savannah River Site operations. Based on quality-assurance and quality-control assessments indicating numerous changes in regulation patterns, only exceedance percentiles of annual 7-day minimum flows and duration of daily flow were computed.



EXCEEDANCE PERCENTILES OF ANNUAL 7-DAY MINIMUM FLOWS									
Annual 7-day minimum flow exceeded for indicated percentiles (cubic feet per second)									
Percentile	10	20	30	40	50	60	70	80	90
Flow	57	48	44	39	32	20	15	11	9.4

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	387	332	127	73	28	15	12

STATION NAME AND NUMBER.—02197380 Lower Three Runs below Par Pond at Savannah River Site, SC

LOCATION.—Lat 33°14′07″, long 81°31′00″ referenced to North American Datum of 1927, Barnwell County, SC, Hydrologic Unit 03060106, on right upstream side of west bound bridge on SRS Road B, 200 ft downstream from spillway culvert below Par Pond, at Savannah River Site.

DRAINAGE AREA.—34.9 mi^2

PERIOD OF RECORD.—May 1974 to September 1982, February 1987 to September 2002

PERIOD OF ANALYSIS.—April 1975 to March 1982, April 1987 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —21

REMARKS.—Flow regulated by Savannah River Site operations.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	4.9	5.3	5.8	7.0	8.8	12	15
5	2.0	2.3	2.5	3.0	3.8	6.0	8.9
10	1.2	1.4	1.6	1.9	2.3	4.1	7.1
20	0.82	0.97	1.1	1.3	1.5	3.0	5.9
30	0.65	0.79	0.90	1.0	1.2	2.6	5.4

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	76	63	46	28	13	8.6	5.5

STATION NAME AND NUMBER.—02197400 Lower Three Runs near Snelling, SC

LOCATION.—Lat 33°10′35″, long 81°28′50″ referenced to North American Datum of 1927, Barnwell County, SC, Hydrologic Unit 03060106, near left bank at upstream side of bridge on State Road 20, 1.0 mi upstream from Patterson Branch and 4.7 mi south of Snelling.

DRAINAGE AREA.—59.3 mi^2

PERIOD OF RECORD.—March 1974 to September 2002

PERIOD OF ANALYSIS.—April 1974 to March 2002

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —26

REMARKS.—Flow regulated by Savannah River Site operations.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	23	24	25	27	31	36	42
5	17	17	18	20	22	26	30
10	14	15	16	17	19	22	25
20	13	13	14	15	17	19	22
30	12	13	13	14	16	18	20

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	181	144	96	65	38	27	23

STATION NAME AND NUMBER.--02197500 Savannah River at Burtons Ferry Bridge near Millhaven, GA

LOCATION.—Lat 32°56′20″, long 81°30′10″ referenced to North American Datum of 1927, Screven County, GA, Hydrologic Unit 03060106, on right bank 500 ft downstream from U.S. Highway 301 bridge, 2.0 mi downstream from Rocky Creek, 9.0 mi east of Millhaven, and at mile 118.7.

DRAINAGE AREA.—8,650 mi^2

PERIOD OF RECORD.—October 1939 to September 1970, October 1982 to October 2003, October 2004 to March 2014

PERIOD OF ANALYSIS.—April 1986 to March 2003, April 2005 to March 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —26

REMARKS.—Regulated since about 1954 by J. Strom Thurmond Lake, 1962 by Lake Hartwell, and 1985 by Richard B. Russell Lake. The low-flow statistics represent the most recent period of relatively stable regulation.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	4,470	4,550	4,690	4,850	5,080	5,350	5,590
5	4,100	4,140	4,220	4,330	4,460	4,620	4,740
10	3,930	3,960	4,020	4,090	4,180	4,290	4,370
20	3,810	3,820	3,860	3,920	3,970	4,040	4,080
30	3,760	3,760	3,800	3,840	3,860	3,920	3,950

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	25,400	18,300	9,660	6,480	5,200	4,640	4,430

STATION NAME AND NUMBER.--02198500 Savannah River near Clyo, GA

LOCATION.—Lat 32°31′41″, long 81°16′08″ referenced to North American Datum of 1927, Effingham County, GA, Hydrologic Unit 03060109, at Georgia-South Carolina State line, on downstream side of State Highway 119 bridge, 3.0 mi north of Clyo, and at river mile 61.4.

DRAINAGE AREA.—9,850 mi^2

PERIOD OF RECORD.—October 1929 to September 1933, October 1937 to March 2014

PERIOD OF ANALYSIS.—April 1986 to March 2014

NUMBER OF CLIMATE YEARS IN FREQUENCY ANALYSIS. —28

REMARKS.—Regulated since about 1954 by J. Strom Thurmond Lake, 1962 by Lake Hartwell, and 1985 by Richard B. Russell Lake. The low-flow statistics represent the most recent period of relatively stable regulation.

MAGNITUDE AND FREQUENCY OF ANNUAL FLOWS							
Recurrence intervals (years)	Lowest average flow for indicated number of consecutive days (cubic feet per second)						
	1	3	7	14	30	60	90
2	5,070	5,120	5,210	5,340	5,550	5,840	6,100
5	4,530	4,560	4,620	4,700	4,810	4,950	5,070
10	4,270	4,300	4,310	4,410	4,480	4,550	4,610
20	4,070	4,090	4,130	4,190	4,230	4,250	4,260
30	3,970	4,000	4,030	4,090	4,100	4,100	4,100

DURATION OF DAILY FLOW							
Flow equaled or exceeded for indicated percentage of time (cubic feet per second)							
Percentage	5	10	25	50	75	90	95
Flow	27,800	19,000	11,100	7,390	5,710	4,960	4,730

Table 7. Results of Kendall's tau statistical test for detection of trends in the annual minimum 7-day average flows at selected continuous-record streamgages in South Carolina.

[USGS, U.S. Geological Survey; mi^2, square mile; ft^3/s, cubic foot per second; $(ft^3/s)/mi^2$, cubic foot per second per square mile; SCDHEC, South Carolina Department of Health and Environmental Control; MOVE.1, Maintenance of Variance, Type 1; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	SCDHEC-designated basin	Flow condition	Drainage area (mi^2)	Period of record available
1	02110500	Waccamaw River at Longs, SC	Pee Dee	Unregulated	1,110	March 1950 to September 2007
2	02129590	Whites Creek near Wallace, SC	Pee Dee	Unregulated	26.4	October 1979 to September 1995
3	02130561	Pee Dee River near Bennettsville, SC	Pee Dee	Regulated	7,600	November 1990 to March 2007
4	02130900	Black Creek near Mc Bee, SC	Pee Dee	Unregulated	108	October 1959 to September 2007
5	02130910	Black Creek near Hartsville, SC	Pee Dee	Regulated	173	October 1960 to September 2007
7	02131000	Pee Dee River at Peedee, SC	Pee Dee	Regulated	8,830	October 1938 to September 2007
8	02131150	Catfish Canal at Sellers, SC	Pee Dee	Unregulated	27.4	November 1966 to September 1992
9	02131309	Fork Creek at Jefferson, SC	Pee Dee	Unregulated	24.3	October 1976 to September 1997
10	02131472	Hanging Rock Creek near Kershaw, SC	Pee Dee	Unregulated	23.9	October 1980 to September 2003
11	02131500	Lynches River near Bishopville, SC	Pee Dee	Unregulated	675	October 1942 to September 1971, February 2002 to March 2007
12	02132000	Lynches River near Effingham, SC	Pee Dee	Unregulated	1,030	October 1929 to September 2007
13	02132500	Little Pee Dee River near Dillon, SC	Pee Dee	Unregulated	524	April 1939 to September 1971
14	02135000	Little Pee Dee River at Galivants Ferry, SC	Pee Dee	Unregulated	2,790	January 1942 to September 2007
15	02135300	Scape Ore Swamp near Bishopville, SC	Pee Dee	Unregulated	96	July 1968 to October 2003
16	02135500	Black River near Gable, SC	Pee Dee	Unregulated	401	June 1951 to June 1966, April 1972 to September 1992
17	02136000	Black River at Kingstree, SC	Pee Dee	Unregulated	1,252	October 1929 to September 2007
19	02146750	McAlpine Creek below McMullen Creek near Pineville, NC	Catawba-Wateree-Santee	Unregulated	92.4	April 1974 to September 2012
20	0214678175	Steele Creek at Secondary Road 1441 near Pineville, NC	Catawba-Wateree-Santee	Unregulated	6.91	May 1998 to September 2012
22	02147500	Rocky Creek at Great Falls, SC	Catawba-Wateree-Santee	Unregulated	194	March 1951 to September 1981, October 1986 to September 2012
24	02148300	Colonels Creek near Leesburg, SC	Catawba-Wateree-Santee	Unregulated	40.2	September 1966 to September 1980, February 2004 to October 2007
26	02153200	Broad River near Blacksburg, SC	Broad	Regulated	1,290	September 1997 to September 2008
27	02153500	Broad River near Gaffney, SC	Broad	Regulated	1,490	December 1938 to September 1971, June 1986 to September 1990
28	02153780	Clarks Fork Creek near Smyrna, SC	Broad	Unregulated	24.1	October 1980 to September 2002
29	02154500	North Pacolet River at Fingerville, SC	Broad	Unregulated	116	April 1930 to September 2008
30	02154790	South Pacolet River near Campobello, SC	Broad	Unregulated	55.4	January 1989 to September 2008
31	02155500	Pacolet River near Fingerville, SC	Broad	Regulated	212	December 1929 to August 2006, October 2007 to September 2008
33	02156050	Lawsons Fork Creek at Dewey Plant near Inman, SC	Broad	Unregulated	6.46	October 1979 to July 2007
34	02156450	Neals Creek near Carlisle, SC	Broad	Unregulated	12.3	October 1980 to September 1996
35	02156500	Broad River near Carlisle, SC	Broad	Regulated	2,790	October 1938 to September 2008

Table 7. Results of Kendall's tau statistical test for detection of trends in the annual minimum 7-day average flows at selected continuous-record streamgages in South Carolina.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; ft^3/s, cubic foot per second; $(ft^3/s)/mi^2$, cubic foot per second per square mile; SCDHEC, South Carolina Department of Health and Environmental Control; MOVE.1, Maintenance of Variance, Type 1; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	Period of record analyzed	Number of climate years used in analysis	7Q10 (ft^3/s)	7Q10 per unit area ($[ft^3/s]/mi^2$)	Kendall's tau	P-value	Trend direction
1	April 1950 to March 2007	57	9.9	0.01	0.086	0.350	Not significant
2	April 1980 to March 1995	15	0.14	0.01	–0.086	0.660	Not significant
3	April 1939 to March 2007	16	1,010	0.12	–0.200	0.280	Not significant
4	April 1960 to March 2007	47	20	0.19	–0.322	0.001	Downward
5	April 1981 to March 2007	26	33	0.19	–0.157	0.261	Not significant
7	April 1939 to March 2007	68	1,440	0.16	-0.204	0.014	Downward
8	April 1967 to March 1992	25	0.00	0.00	–0.198	0.168	Not significant
9	April 1977 to March 1997	20	0.00	0.00	0.101	0.537	Not significant
10	April 1981 to March 2003	22	0.31	0.01	–0.074	0.632	Not significant
11	April 1943 to March 1971, April 2002 to March 2007	33	109	0.16	–0.064	0.598	Not significant
12	April 1930 to March 2007	77	131	0.13	–0.090	0.250	Not significant
13	April 1939 to March 2007	32	49	0.09	0.192	0.123	Not significant
14	April 1942 to March 2007	65	249	0.09	–0.275	0.001	Downward
15	April 1969 to March 2003	34	6.5	0.07	–0.341	0.004	Downward
16	April 1952 to March 1966, April 1972 to March 1992	34	1.0	<0.01	–0.113	0.350	Not significant
17	April 1930 to March 2007	77	7.6	0.01	0.194	0.013	Upward
19	April 1974 to March 2012	38	1.4	0.02	–0.112	0.321	Not significant
20	May 1998 to March 2012	14	0.08	0.01	–0.359	0.088	Not significant
22	April 1951 to March 1981, April 1987 to March 2012	55	0.29	<0.01	–0.240	0.009	Downward
24	April 1967 to March 1980, April 2004 to March 2007	16	9.3	0.23	–0.330	0.058	Not significant
26	April 1925 to March 2008	10	320	0.25	–0.022	0.929	Not significant
27	April 1939 to March 1971, April 1987 to March 1990	35	555	0.37	0.035	0.764	Not significant
28	April 1981 to March 2002	21	0.66	0.03	–0.248	0.116	Not significant
29	April 1930 to March 2008	78	41	0.35	0.002	0.983	Not significant
30	April 1930 to March 2008	19	18	0.32	–0.263	0.115	Not significant
31	April 1930 to March 2006	76	58	0.27	–0.175	0.024	Downward
33	April 1980 to March 2006	26	1.2	0.19	–0.162	0.235	Not significant
34	April 1981 to March 1996	15	0.63	0.05	–0.257	0.182	Not significant
35	April 1939 to March 2008	69	609	0.22	–0.093	0.257	Not significant

Table 7. Results of Kendall's tau statistical test for detection of trends in the annual minimum 7-day average flows at selected continuous-record streamgages in South Carolina.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; ft^3/s, cubic foot per second; $(ft^3/s)/mi^2$, cubic foot per second per square mile; SCDHEC, South Carolina Department of Health and Environmental Control; MOVE.1, Maintenance of Variance, Type 1; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	SCDHEC-designated basin	Flow condition	Drainage area (mi^2)	Period of record available
38	02157500	Middle Tyger River at Lyman, SC	Broad	Unregulated	68.3	February 1938 to September 1967
39	02159810	Fairforest Creek below Spartanburg, SC	Broad	Unregulated	23.6	May 1988 to April 1998
40	02160105	Tyger River near Delta, SC	Broad	Unregulated	759	October 1973 to September 2008
41	02160326	Enoree River at Pelham, SC	Broad	Unregulated	84.2	March 1993 to September 2008
42	02160381	Durbin Creek above Fountain Inn, SC	Broad	Unregulated	14	July 1994 to September 2008
43	02160390	Enoree River near Woodruff, SC	Broad	Unregulated	249	February 1993 to September 2008
44	02160700	Enoree River at Whitmire, SC	Broad	Unregulated	444	October 1973 to September 2008
45	02160775	Hellers Creek near Pomaria, SC	Broad	Unregulated	8.16	October 1980 to September 1994
46	02161000	[2]Broad River near Alston, SC	Broad	Regulated	4,790	October 1896 to December 1907, October 1980 to September 2008
47	02161700	West Fork Little River near Salem Crossroads, SC	Broad	Unregulated	25.5	October 1980 to March 1998
48	02162010	Cedar Creek near Blythewood, SC	Broad	Unregulated	48.9	December 1966 to September 1983, February 1985 to September 1996
49	02162093	Smith Branch at Columbia, SC	Broad	Unregulated	5.67	July 1976 to September 2008
50	02162350	Middle Saluda River at Saluda, SC	Saluda-Congaree-Edisto	Unregulated	21.0	October 1980 to September 2003
51	02162500	Saluda River near Greenville, SC	Saluda-Congaree-Edisto	Regulated	295	January 1942 to September 1978, March 1990 to September 2009
52	02163001	Saluda River near Williamston, SC	Saluda-Congaree-Edisto	Regulated	414	May 1995 to September 2009
53	02163500	Saluda River near Ware Shoals, SC	Saluda-Congaree-Edisto	Regulated	580	March 1939 to September 2009
54	02164000	Reedy River near Greenville, SC	Saluda-Congaree-Edisto	Unregulated	48.6	November 1941 to September 1971, June 1987 to September 2009
55	02164110	Reedy River above Fork Shoals, SC	Saluda-Congaree-Edisto	Unregulated	110	September 1993 to September 2009
56	021650905	Reedy River near Waterloo, SC	Saluda-Congaree-Edisto	Regulated	251	November 2004 to September 2009
57	02165200	South Rabon Creek near Gray Court, SC	Saluda-Congaree-Edisto	Unregulated	29.5	January 1967 to September 1981, May 1990 to September 2009
58	02166970	Ninety Six Creek near Ninety Six, SC	Saluda-Congaree-Edisto	Unregulated	17.4	October 1980 to September 2001
59	02167000	Saluda River at Chappells, SC	Saluda-Congaree-Edisto	Regulated	1,360	October 1926 to September 2009
60	02167450	Little River near Silverstreet, SC	Saluda-Congaree-Edisto	Unregulated	230	March 1990 to September 2009
61	02167582	Bush River near Prosperity, SC	Saluda-Congaree-Edisto	Unregulated	115	February 1990 to September 2009
62	02168504	Saluda River below Lake Murray Dam near Columbia,SC	Saluda-Congaree-Edisto	Regulated	2,420	October 1988 to September 2009
63	02169000	Saluda River near Columbia, SC	Saluda-Congaree-Edisto	Regulated	2,520	August 1925 to September 2009

Table 7. Results of Kendall's tau statistical test for detection of trends in the annual minimum 7-day average flows at selected continuous-record streamgages in South Carolina.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; ft^3/s, cubic foot per second; $(ft^3/s)/mi^2$, cubic foot per second per square mile; SCDHEC, South Carolina Department of Health and Environmental Control; MOVE.1, Maintenance of Variance, Type 1; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	Period of record analyzed	Number of climate years used in analysis	7Q10 (ft^3/s)	7Q10 per unit area ($[ft^3/s]/mi^2$)	Kendall's tau	P-value	Trend direction
38	April 1930 to March 2008	29	17	0.25	0.215	0.103	Not significant
39	May 1988 to March 1998	10	7.2	0.31	0.200	0.421	Not significant
40	April 1974 to March 2008	34	92	0.12	–0.351	0.004	Downward
41	April 1974 to March 2008	15	28	0.33	–0.105	0.586	Not significant
42	April 1995 to March 2008	13	0.90	0.06	–0.154	0.464	Not significant
43	April 1974 to March 2008	15	58	0.23	–0.238	0.216	Not significant
44	April 1974 to March 2008	34	68	0.15	–0.187	0.120	Not significant
45	April 1981 to March 1994	13	0.57	0.07	–0.154	0.464	Not significant
46	April 1897 to March 1907, April 1926 to March 2008	92	807	0.17	–0.161	0.024	Downward
47	April 1984 to March 1997	13	0.56	0.02	–0.370	0.076	Not significant
48	April 1967 to March 1996	29	0.52	0.01	–0.123	0.370	Not significant
49	April 1977 to March 2008	31	1.0	0.18	–0.030	0.812	Not significant
50	April 1981 to March 2003	22	9.3	0.44	–0.203	0.185	Not significant
51	April 1942 to March 1978 April 1990 to March 2009	55	99	0.34	–0.101	0.276	Not significant
52	April 1930 to March 1971, April 1996 to March 2009	55	106	0.26	–0.079	0.396	Not significant
53	April 1939 to March 2009	70	130	0.22	–0.051	0.533	Not significant
54	April 1942 to March 1971, April 1988 to March 2009	50	11	0.23	–0.292	0.003	Downward
55	April 1994 to March 2009	15	45	0.41	–0.350	0.059	Not significant
56	April 1988 to March 2009	20	50	0.20	–0.270	0.092	Not significant
57	April 1968 to March 1981, April 1991 to March 2009	31	1.5	0.05	–0.574	<0.0001	Downward
58	April 1981 to March 2001	20	0.04	<0.01	–0.200	0.205	Not significant
59	April 1983 to March 2009	26	258	0.19	0.003	0.980	Not significant
60	April 1991 to March 2009	18	2.9	0.01	–0.390	0.019	Downward
61	April 1990 to March 2009	19	5.0	0.04	–0.567	0.001	Downward
62	April 1989 to March 2009	20	240	0.10	–0.063	0.697	Not significant
63	April 1989 to March 2009	20	304	0.12	–0.274	0.092	Not significant

Table 7. Results of Kendall's tau statistical test for detection of trends in the annual minimum 7-day average flows at selected continuous-record streamgages in South Carolina.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; ft^3/s, cubic foot per second; $(ft^3/s)/mi^2$, cubic foot per second per square mile; SCDHEC, South Carolina Department of Health and Environmental Control; MOVE.1, Maintenance of Variance, Type 1; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	SCDHEC-designated basin	Flow condition	Drainage area (mi^2)	Period of record available
64	02169500	Congaree River at Columbia, SC	Saluda-Congaree-Edisto	Regulated	7,850	October 1939 to September 2009
65	02169570	Gills Creek at Columbia, SC	Saluda-Congaree-Edisto	Regulated	60	October 1966 to September 2009
66	02169630	Big Beaver Creek near St Matthews, SC	Saluda-Congaree-Edisto	Unregulated	10.0	July 1966 to September 1993
68	02171680	Wedboo Creek near Jamestown, SC	Catawba-Wateree-Santee	Unregulated	17.4	September 1966 to February 1972, February 1973 to September 1992
71	02172500	South Fork Edisto River near Montmorenci, SC	Saluda-Congaree-Edisto	Unregulated	198	April 1940 to September 1966
72	02172640	Dean Swamp near Salley, SC	Saluda-Congaree-Edisto	Unregulated	31.2	October 1980 to March 1987, February 1988 to October 2000
73	02173000	South Fork Edisto River near Denmark, SC	Saluda-Congaree-Edisto	Unregulated	720.0	August 1931 to September 1971, October 1980 to September 2009
74	02173051	South Fork Edisto River near Bamberg, SC	Saluda-Congaree-Edisto	Unregulated	807	April 1991 to September 2009
75	02173500	North Fork Edisto River near Orangeburg, SC	Saluda-Congaree-Edisto	Unregulated	683	December 1938 to September 2009
76	02174000	Edisto River near Branchville, SC	Saluda-Congaree-Edisto	Unregulated	1,720	October 1945 to September 1996
77	02174250	Cow Castle Creek near Bowman, SC	Saluda-Congaree-Edisto	Unregulated	23.4	October 1970 to September 1981, October 1995 to September 2009
78	02175000	Edisto River at Givhans, SC	Saluda-Congaree-Edisto	Unregulated	2,730	January 1939 to September 2009
79	02175500	Salkehatchie River near Miley, SC	Savannah-Salkehatchie	Unregulated	341	February 1951 to March 2014
80	02176500	Coosawhatchie River near Hampton, SC	Savannah-Salkehatchie	Unregulated	203	February 1951 to March 2014
81	02177000	Chattooga River near Clayton, GA	Savannah-Salkehatchie	Unregulated	207	October 1939 to March 2014
82	02185200	Little River near Walhalla, SC	Savannah-Salkehatchie	Unregulated	72	March 1967 to September 2003
83	02186000	Twelvemile Creek near Liberty, SC	Savannah-Salkehatchie	Unregulated	106	August 1954 to September 1964, June 1989 to September 2001, October 2004 to March 2014
84	02186645	Coneross Creek near Seneca, SC	Savannah-Salkehatchie	Unregulated	65.4	April 1989 to September 2003
85	02186699	Eighteenmile Creek above Pendelton, SC	Savannah-Salkehatchie	Unregulated	47	May 1998 to July 2008
86	02187910	Rocky River near Starr, SC	Savannah-Salkehatchie	Unregulated	111	May 1989 to February 1996, October 1996 to October 2001, February 2003 to March 2004, October 2004 to March 2014
87	02189000	Savannah River near Calhoun Falls, SC	Savannah-Salkehatchie	[1]Regulated	2,876	October 1896 to April 1898, April 1899 to September 1900, April 1930 to April 1932, April 1938 to September 1979

Table 7. Results of Kendall's tau statistical test for detection of trends in the annual minimum 7-day average flows at selected continuous-record streamgages in South Carolina.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; ft^3/s, cubic foot per second; $(ft^3/s)/mi^2$, cubic foot per second per square mile; SCDHEC, South Carolina Department of Health and Environmental Control; MOVE.1, Maintenance of Variance, Type 1; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	Period of record analyzed	Number of climate years used in analysis	7Q10 (ft^3/s)	7Q10 per unit area ($[ft^3/s]/mi^2$)	Kendall's tau	P-value	Trend direction
64	April 1980 to March 2009	29	1210	0.15	–0.143	0.277	Not significant
65	April 1967 to March 2009	42	3.9	0.07	–0.402	0.000	Downward
66	April 1967 to March 1993	26	4.9	0.49	0.020	0.884	Not significant
68	April 1967 to March 1912	23	0.00	0.00	0.211	0.149	Not significant
71	April 1940 to March 1966	26	55	0.28	0.182	0.193	Not significant
72	April 1981 to March 1987, April 1988 to March 2000	18	14	0.45	0.135	0.420	Not significant
73	April 1932 to March 1971, April 1981 to March 2009	67	175	0.24	–0.162	0.051	Not significant
74	April 1991 to March 2009	18	175	0.22	–0.621	0.000	Downward
75	April 1939 to March 2009	70	209	0.31	–0.121	0.140	Not significant
76	April 1946 to March 1996	50	406	0.24	0.035	0.715	Not significant
77	April 1971 to March 1981, April 1996 to March 2009	23	0.26	0.01	–0.399	0.008	Downward
78	April 1940 to March 2009	69	347	0.13	–0.220	0.007	Downward
79	February 1951 to March 2014	63	21	0.06	–0.215	0.013	Downward
80	April 1951 to March 2014	63	0.00	0.00	–0.190	0.031	Downward
81	April 1940 to March 2014	74	119	0.57	–0.063	0.425	Not significant
82	April 1967 to March 2003	36	24	0.33	–0.235	0.044	Downward
83	April 1955 to March 1964, April 1990 to March 2001, April 2005 to March 2014	26	24	0.23	–0.200	0.160	Not significant
84	April 1989 to March 2003	14	12	0.18	–0.464	0.021	Downward
85	May 1998 to March 2008	10	5.6	0.12	–0.200	0.421	Not significant
86	April 1990 to March 1995, April 1997 to March 2001, March 2005 to April 2014	18	7.3	0.07	–0.343	0.030	Downward
87	April 1897 to March 1898, April 1899 to March 1900, April 1930 to March 1932, April 1938 to March 1961	27	1,060	0.37	–0.133	0.330	Not significant

Table 7. Results of Kendall's tau statistical test for detection of trends in the annual minimum 7-day average flows at selected continuous-record streamgages in South Carolina.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; ft^3/s, cubic foot per second; $(ft^3/s)/mi^2$, cubic foot per second per square mile; SCDHEC, South Carolina Department of Health and Environmental Control; MOVE.1, Maintenance of Variance, Type 1; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	SCDHEC-designated basin	Flow condition	Drainage area (mi^2)	Period of record available
88	02192500	Little River near Mount Carmel, SC	Savannah-Salkehatchie	Unregulated	217	January 1940 to September 1970, September 1986 to October 2003, October 2004 to March 2014
89	02192830	Blue Hill Creek at Abbeville, SC	Savannah-Salkehatchie	Unregulated	3.24	February 1998 to August 2008
90	02195000	Savannah River near Clarks Hill, SC	Savannah-Salkehatchie	[1]Regulated	6,150	May 1940 to June 1954
91	02196000	Stevens Creek near Modoc, SC	Savannah-Salkehatchie	Unregulated	545	November 1929 to September 1931, February 1940 to September 1978, November 1983 to March 2014
92	02196250	Horn Creek near Colliers, SC	Savannah-Salkehatchie	Unregulated	13.9	October 1980 to September 1994
93	02196689	Little Horse Creek near Graniteville, SC	Savannah-Salkehatchie	Unregulated	26.6	October 1989 to December 1999, March 2000 to April 2001
94	02197000	Savannah River at Augusta, Ga.	Savannah-Salkehatchie	Regulated	7,510	October 1883 to December 1891, January 1896 to December 1906, January 1925 to March 2014
95	02197300	Upper Three Runs near New Ellenton, SC	Savannah-Salkehatchie	Unregulated	87	June 1966 to September 2002
96	02197309	Tims Branch at Road C (SRS), SC	Savannah-Salkehatchie	Regulated	17.5	March 1974 to September 1982, October 1984 to September 1996
97	02197310	Upper Three Runs above Road C at Savannah River Site, SC	Savannah-Salkehatchie	Unregulated	176	June 1974 to January 1998, December 1998 to September 2002
98	02197315	Upper Three Runs at Road A at Savannah River Site, SC	Savannah-Salkehatchie	Unregulated	203	June 1974 to January 1998, October 1998 to September 2002
99	02197342	Site No. 7 at Savannah River Site, SC	Savannah-Salkehatchie	Regulated	12.5	October 1972 to September 2002
100	02197344	Four Mile Creek at Road A-12.2 at Savannah River Site, SC	Savannah-Salkehatchie	Regulated	22	November 1976 to September 2002
101	02197348	Pen Branch at Road A13.2 at Savannah River Site, SC	Savannah-Salkehatchie	Regulated	21.1	November 1976 to September 2002
103	02197380	Lower Three Runs below Par Pond at Savannah River Site, SC	Savannah-Salkehatchie	Regulated	34.9	May 1974 to September 1982, February 1987 to September 2002
104	02197400	Lower Three Runs near Snelling, SC	Savannah-Salkehatchie	Regulated	59.3	March 1974 to September 2002
105	02197500	Savannah River at Burton Ferry Bridge near Millhaven, Ga.	Savannah-Salkehatchie	Regulated	8,650	October 1939 to September 1970, October 1982 to October 2003, October 2004 to March 2014
106	02198500	Savannah River near Clyo, Ga.	Savannah-Salkehatchie	Regulated	9,850	October 1929 to September 1933, October 1937 to March 2014

[1]Trend analysis was based on pre-regulation data.

[2]Data combined with station 02161500 Broad River at Richtex, SC.

Table 7. Results of Kendall's tau statistical test for detection of trends in the annual minimum 7-day average flows at selected continuous-record streamgages in South Carolina.—Continued

[USGS, U.S. Geological Survey; mi^2, square mile; ft^3/s, cubic foot per second; $(ft^3/s)/mi^2$, cubic foot per second per square mile; SCDHEC, South Carolina Department of Health and Environmental Control; MOVE.1, Maintenance of Variance, Type 1; SC, South Carolina; NC, North Carolina; GA, Georgia]

Site index number (fig. 1)	Period of record analyzed	Number of climate years used in analysis	7Q10 (ft^3/s)	7Q10 per unit area ($[ft^3/s]/mi^2$)	Kendall's tau	P-value	Trend direction
88	April 1940 to March 1970, April 1987 to March 2003, March 2005 to April 2014	55	2.2	0.01	–0.265	0.005	Downward
89	April 1998 to March 2008	10	0.09	0.03	–0.422	0.092	Not significant
90	April 1941 to March 1953	12	1,920	0.31	0.000	1.000	Not significant
91	April 1930 to March 1931, April 1940 to March 1978, April 1984 to March 2014	69	1.1	<0.01	–0.154	0.063	Not significant
92	April 1981 to March 1994	13	1.0	0.07	0.271	0.199	Not significant
93	April 1990 to March 1999, April 2000 to March 2001	10	9.1	0.34	–0.022	0.929	Not significant
94	April 1986 to March 2014	28	1,860	0.25	–0.410	0.002	Downward
95	April 1967 to March 2002	35	62	0.71	–0.184	0.122	Not significant
96	April 1974 to March 1982, April 1985 to March 1996	17	1.7	0.10	0.046	0.791	Not significant
97	April 1975 to March 1997, April 1999 to March 2002	25	99	0.56	–0.107	0.455	Not significant
98	April 1975 to March 1997, April 1999 to March 2002	24	101	0.50	–0.196	0.180	Not significant
99	April 1973 to March 2002	25	4.2	0.34	–0.271	0.048	Downward
100	April 1986 to March 2002	16	8.2	0.37	–0.279	0.136	Not significant
101	April 1988 to March 2002	14	5.0	0.24	–0.486	0.016	Downward
103	April 1975 to March 1982, April 1987 to March 2002	21	1.6	0.05	0.105	0.507	Not significant
104	April 1974 to March 2002	26	16	0.27	–0.191	0.172	Not significant
105	April 1986 to March 2003, April 2005 to March 2014	26	4,020	0.46	–0.089	0.523	Not significant
106	April 1986 to March 2014	28	4,310	0.44	–0.257	0.055	Not significant

Table 8. Differences between the annual minimum 7-day average streamflow with a 10-year recurrence interval from Feaster and Guimaraes (2009, 2012, 2014, and 2016) Guimaraes and Feaster (2010) and those previously published by Zalants (1991b) and (or) Bloxham (1979).

[USGS, U.S. Geological Survey; ft^3/s, cubic foot per second; SCDHEC, South Carolina Department of Health and Environmental Control; —, no estimate; ND, not determined; SC, South Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	Flow condition	Previous estimate from Bloxham (1979), in ft^3/s	Previous estimate from Zalants (1991b), in ft^3/s	Miscellaneous estimate, in ft^3/s (date)	Most recent estimate, in ft^3/s	Percentage difference from most recent estimate to previous estimate	SCDHEC-designated basin
1	02110500	Waccamaw River near Longs, SC	Unregulated	6.8	8.2	—	9.9	20.7	Pee Dee
2	02129590	Whites Creek near Wallace, SC	Unregulated	ND	0.25	—	0.14	–44.0	Pee Dee
4	02130900	Black Creek near McBee, SC	Unregulated	22	23	—	20	–13.0	Pee Dee
5	[a]02130910	Black Creek near Hartsville, SC	Regulated	67	ND	—	33	–50.7	Pee Dee
7	02131000	Pee Dee River at Pee Dee, SC	Regulated	1,500	ND	1,470 (July 5, 2005)	1,430	–2.7 (–4.7)[b]	Pee Dee
8	02131150	Catfish Canal at Sellers, SC	Unregulated	0.05	0.02	—	0.00	–100	Pee Dee
9	02131309	Fork Creek at Jefferson, SC	Unregulated	ND	0	—	0.00	0.00	Pee Dee
10	02131472	Hanging Rock Creek near Kershaw, SC	Unregulated	ND	0.15	—	0.31	107	Pee Dee
11	02131500	Lynches River near Bishopville, SC	Unregulated	140	ND	—	117	–16.4	Pee Dee
12	02132000	Lynches River at Effingham, SC	Unregulated	132	140	—	131	–6.4	Pee Dee
13	02132500	Little Pee Dee River near Dillon, SC	Unregulated	57	ND	—	49	–14.0	Pee Dee
14	02135000	Little Pee Dee River at Galivants Ferry, SC	Unregulated	315	310	—	249	–19.7	Pee Dee
15	02135300	Scape Ore Swamp near Bishopville, SC	Unregulated	6.7	6.6	—	6.5	–1.5	Pee Dee
16	02135500	Black River near Gable, SC	Unregulated	0.41	1.2	—	1.0	–16.7	Pee Dee
17	02136000	Black River near Kingstree, SC	Unregulated	5.7	7	—	7.6	8.6	Pee Dee
22	02147500	Rocky Creek at Great Falls, SC	Unregulated	1.8	1.0	—	0.29	–71.0	Catawba-Wateree-Santee
24	02148300	Colonels Creek near Leesburg, SC	Unregulated	11.5	13	—	9.3	–28.5	Catawba-Wateree-Santee
27	02153500	Broad River near Gaffney, SC	Regulated	540	540	—	555	2.8	Broad
28	02153780	Clarks Fork Creek near Smyrna, SC	Unregulated	ND	1.1	—	0.66	–40.0	Broad
29	02154500	North Pacolet River at Fingerville, SC	Unregulated	43	45	—	41	–8.9	Broad
31	02155500	Pacolet River near Fingerville, SC	Regulated	61	80	—	58	–27.5	Broad
33	02156050	Lawsons Fork Creek at Dewey Plant near Inman, SC	Unregulated	ND	0.95	—	1.2	26.3	Broad
34	02156450	Neals Creek near Carlisle, SC	Unregulated	ND	0.89	—	0.63	–29.4	Broad
35	02156500	Broad River near Carlisle, SC	Regulated	740	730	—	609	–16.6	Broad
38	02157500	Middle Tyger River at Lyman, SC	Unregulated	18	ND	—	17	–5.6	Broad
40	02160105	Tyger River near Delta, SC	Unregulated	ND	160	—	92	–42.5	Broad

Table 8. Differences between the annual minimum 7-day average streamflow with a 10-year recurrence interval from Feaster and Guimaraes (2009, 2012, 2014, and 2016) Guimaraes and Feaster (2010) and those previously published by Zalants (1991b) and (or) Bloxham (1979).—Continued

[USGS, U.S. Geological Survey; ft^3/s, cubic foot per second; SCDHEC, South Carolina Department of Health and Environmental Control; —, no estimate; ND, not determined; SC, South Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	Flow condition	Previous estimate from Bloxham (1979), in ft^3/s	Previous estimate from Zalants (1991b), in ft^3/s	Miscellaneous estimate, in ft^3/s (date)	Most recent estimate, in ft^3/s	Percentage difference from most recent estimate to previous estimate	SCDHEC-designated basin
44	02160700	Enoree River at Whitmire, SC	Unregulated	ND	80	—	68	–15.0	Broad
45	02160775	Hellers Creek near Pomaria, SC	Unregulated	ND	0.39	—	0.57	46.2	Broad
46	02161000	Broad River at Alston, SC	Regulated	ND	790	853 (March 6, 2007)	807	–5.4 (2.2)[c]	Broad
48	02162010	Cedar Creek near Blythewood, SC	Unregulated	0.5	0.53	—	0.52	–1.5	Broad
49	02162093	Smith Branch at Columbia, SC	Unregulated	ND	0.91	—	1.0	11.0	Broad
50	02162350	Middle Saluda River near Cleveland, SC	Unregulated	ND	11	—	9.3	–15.5	Saluda-Congaree-Edisto
51	02162500	Saluda River near Greenville, SC	Regulated	130	160	—	99	–38.1	Saluda-Congaree-Edisto
52	[d]02163001	Saluda River near WIlliamston, SC	Regulated	168	ND	—	106	–36.9	Saluda-Congaree-Edisto
53	02163500	Saluda River near Ware Shoals, SC	Regulated	190	190	—	130	–31.6	Saluda-Congaree-Edisto
54	02164000	Reedy River near Greenville, SC	Unregulated	16	16	—	11	–31.3	Saluda-Congaree-Edisto
56	[e]021650905	Reedy River near Waterloo, SC	Regulated	36	36	—	50	38.9	Saluda-Congaree-Edisto
57	02165200	South Rabon Creek near Gray Court, SC	Unregulated	6.4	7.8	—	1.5	–80.8	Saluda-Congaree-Edisto
58	02166970	Ninety-Six Creek near Ninety Six, SC	Unregulated	ND	0.25	—	0.04	–84.0	Saluda-Congaree-Edisto
59	02167000	Saluda River near Chappels, SC	Regulated	320	ND	—	258	–19.4	Saluda-Congaree-Edisto
63	02169000	Saluda River near Columbia, SC	Regulated	260	ND	—	304	16.9	Saluda-Congaree-Edisto
64	02169500	Congaree River at Columbia, SC	Regulated	1,800	ND	—	1,210	–32.8	Saluda-Congaree-Edisto
65	02169570	Gills Creek at Columbia, SC	Regulated	9.8	5.6	—	3.9	–30.4	Saluda-Congaree-Edisto
66	02169630	Big Beaver Creek near St. Mathews, SC	Unregulated	5.0	5.0	—	4.9	–2.0	Saluda-Congaree-Edisto

Table 8. Differences between the annual minimum 7-day average streamflow with a 10-year recurrence interval from Feaster and Guimaraes (2009, 2012, 2014, and 2016) Guimaraes and Feaster (2010) and those previously published by Zalants (1991b) and (or) Bloxham (1979).—Continued

[USGS, U.S. Geological Survey; ft^3/s, cubic foot per second; SCDHEC, South Carolina Department of Health and Environmental Control; —, no estimate; ND, not determined; SC, South Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	Flow condition	Previous estimate from Bloxham (1979), in ft^3/s	Previous estimate from Zalants (1991b), in ft^3/s	Miscellaneous estimate, in ft^3/s (date)	Most recent estimate, in ft^3/s	Percentage difference from most recent estimate to previous estimate	SCDHEC-designated basin
68	02171680	Wedboo Creek near Jamestown, SC	Unregulated	0.00	0.00	—	0.00	0.00	Catawba-Wateree-Santee
71	02172500	South Fork Edisto River near Montmorenci, SC	Unregulated	65	ND	—	55	–15.4	Saluda-Congaree-Edisto
72	02172640	Dean Swamp Creek near Salley, SC	Unregulated	ND	16	—	14	–12.5	Saluda-Congaree-Edisto
73	02173000	South Fork Edisto River near Denmark, SC	Unregulated	211	200	—	175	–12.5	Saluda-Congaree-Edisto
75	02173500	North Fork Edisto River near Orangeburg, SC	Unregulated	225	230	—	209	–9.1	Saluda-Congaree-Edisto
76	02174000	Edisto River near Branchville, SC	Unregulated	455	480	—	406	–15.4	Saluda-Congaree-Edisto
77	02174250	Cow Castle Creek near Bowman, SC	Unregulated	0.74	0.70	—	0.26	–62.9	Saluda-Congaree-Edisto
78	[f]02175000	Edisto River near Givhans, SC	Unregulated	442	500	—	347	–30.6	Saluda-Congaree-Edisto
79	02175500	Salkehatchie River near Miley, SC	Unregulated	33	37	—	21	–43.2	Savannah-Salkehatchie
80	02176500	Coosawhatchie River near Hampton, SC	Unregulated	0.03	0.00	—	0.00	0.00	Savannah-Salkehatchie
81	02177000	Chattooga River near Clayton, GA	Unregulated	124	130	—	119	–8.5	Savannah-Salkehatchie
82	02185200	Little River near Walhalla, SC	Unregulated	24	23	—	24	4.3	Savannah-Salkehatchie
83	02186000	Twelvemile Creek near Liberty, SC	Unregulated	33	ND	—	24	–27.3	Savannah-Salkehatchie
87	[g]02189000	Savannah River near Calhoun Falls, SC	Regulated	1,350	ND	—	1,060	ND	Savannah-Salkehatchie
88	02192500	Little River near Mt. Carmel, SC	Unregulated	7.2	ND	—	2.2	–69.4	Savannah-Salkehatchie
91	02196000	Stevens Creek near Modoc, SC	Unregulated	1.6	2.1	—	1.1	–47.6	Savannah-Salkehatchie

Table 8. Differences between the annual minimum 7-day average streamflow with a 10-year recurrence interval from Feaster and Guimaraes (2009, 2012, 2014, and 2016) Guimaraes and Feaster (2010) and those previously published by Zalants (1991b) and (or) Bloxham (1979).—Continued

[USGS, U.S. Geological Survey; ft^3/s, cubic foot per second; SCDHEC, South Carolina Department of Health and Environmental Control; —, no estimate; ND, not determined; SC, South Carolina; GA, Georgia]

Site index number (fig. 1)	USGS streamgage number	Streamgage name	Flow condition	Previous estimate from Bloxham (1979), in ft^3/s	Previous estimate from Zalants (1991b), in ft^3/s	Miscellaneous estimate, in ft^3/s (date)	Most recent estimate, in ft^3/s	Percentage difference from most recent estimate to previous estimate	SCDHEC-designated basin
92	02196250	Horn Creek near Colliers, SC	Unregulated	ND	1.3	—	1.0	–23.1	Savannah-Salkehatchie
94	[g]02197000	Savannah River at Augusta, GA	Regulated	4,700	ND	—	1,860	ND	Savannah-Salkehatchie
95	02197300	Upper Three Runs near New Ellenton, SC	Unregulated	58	56	—	62	10.7	Savannah-Salkehatchie
97	02197310	Upper Three Runs above Road C at Savannah River Site, SC	Unregulated	ND	100	—	99	–1.0	Savannah-Salkehatchie
104	02197400	Lower Three Runs near Snelling, SC	Regulated	ND	16	—	16	0.00	Savannah-Salkehatchie
106	[g]02198500	Savannah River near Clyo, GA	Regulated	5,800	ND	—	4,310	ND	Savannah-Salkehatchie

[a]Part of the annual minimum 7-day average flows used in the Bloxham (1979) analysis were not used in the current estimate because the quality-control and quality-assurance checks indicated that the regulation patterns had substantially changed after about 1980.

[b]Percentage difference between the current estimated and the estimate provided in Bloxham (1979).

[c]Percentage difference between the current estimated and the estimate provided in Zalants (1991b).

[d]Compared to streamgage 02163000, Saluda River near Pelzer, SC. Because of the proximity of the two stations, the similarity in drainage area, and the different period of record for the two stations, their records were combined.

[e]Compared to streamgage 02165000, Reedy River near Ware Shoals, SC. Because of the proximity of the two stations, the similarity in drainage area, and the different period of record for the two stations, their records were combined.

[f]In Zalants (1991b), the low flows were adjusted to account for diversions by the city of Charleston.

[g]The estimate in Bloxham (1979) combined both unregulated and regulated flows and thus was not compared with the current estimate.

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