Estimated Water Use, By County, in North Carolina, 1995

By Douglas A. Walters

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CONVERSION FACTORS

Multiply	by	To obtain
	Flow	
gallons per day (gal/d)	0.003785	cubic meter per day
million gallons per day (Mgal/d)	0.04381	cubic meter per second
	Energy	
kilowatt-hour (kWh)	3,600,000	joule

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ABSTRACT

Data on water use in North Carolina were compiled for 1995 as part of a cooperative agreement between the U.S. Geological Survey and the Division of Water Resources of the North Carolina Department of Environment and Natural Resources. Data were compiled from a number of Federal, State, and private sources for the offstream water-use categories of public supply, domestic, commercial, industrial, mining, livestock, irrigation, and thermoelectric-power generation. Data also were collected for instream use from hydroelectric facilities.

Total withdrawals (fresh and saline) during 1995 were an estimated 9,286 million gallons per day for the offstream water-use categories. About 94 percent of the water withdrawn was from surface water. Thermoelectric-power generation accounted for 80 percent of all withdrawals. Instream water use for hydroelectric-power generation totaled about 56,400 million gallons per day. Each water-use category is summarized in this report by county and source of water supply.

INTRODUCTION

North Carolina has seemingly abundant water resources; however, population growth and increases in municipal, industrial, agricultural, and recreational water use have placed increasing demands on the State's water supply. Although years of plentiful rainfall generally provide adequate water supplies to meet most demands during years of drought, conflicts may arise in some places that require rationing and other conservation measures to ensure that water supplies are adequate to meet demands and that water quality remains unaffected during periods of low flow. In order to assist in planning and management of the State's water resources, estimates of water use are produced.

The North Carolina Water-Use Program is part of the National Water-Use Information Program operated by the U.S. Geological Survey (USGS). The National Water-Use Information Program is a cooperative program with State and local governments designed to collect and disseminate water-use information to a wide variety of government agencies and private organizations. The USGS, in cooperation with the Division of Water Resources (DWR) of the North Carolina Department of Environment and Natural Resources (DENR) (formerly the North Carolina Department of Environment, Health, and Natural Resources), surveyed and compiled ground- and surface-water use data in North Carolina for 1995. These data were compiled from a variety of Federal, State, and private sources for the offstream water-use categories of public supply, domestic, commercial, industrial, mining, livestock, irrigation, and thermoelectric-power generation. Data also were collected for instream use from hydroelectric facilities.

The purpose of this report is to provide an estimate of water use, by county, in North Carolina for 1995. Data are summarized for nine categories of water use as required for the USGS circular on water use in the United States, which is published every 5 years. Water-use estimates for instream and offstream use are summarized, as well as water use by source—ground water and surface water.

Data Compilation and Definitions

Compilation methods and standards used in this study are in the document titled "Guidelines for

Preparing U.S. Geological Survey Water-Use Estimates in the United States for 1995" (Crompton and Solley, 1995). Estimates for water withdrawn by category were obtained from a variety of sources. This information is summarized by category in table 1. Whenever metered data were not available, estimated values were used. For clarity, water-use values in the text are rounded and percentages are expressed as integers. These values may not add to totals because of rounding.

Public-supply water use is defined as water withdrawn by public and private suppliers that furnish water for at least 25 people, or that have a minimum of 15 hookups. This category includes water delivered for domestic, commercial, industrial, and thermoelectric-power generation use and for other users who do not supply their own water needs. Domestic self-supplied water use is limited to individual households that are not served by public-supply systems. Commercial self-supplied withdrawals refer to water withdrawn by

Table 1. Water-use data collection, by category, in North Carolina, 1995

[DENR, North Carolina Department of Environment and Natural Resources; DWR, Division of Water Resources; LWSP, Local Water Supply Plan; DEH, Division of Environmental Health; PWSS, Public Water Supply Section; USGS, U.S. Geological Survey; USDOC, U.S. Department of Commerce; gal/d, gallons per day; NCDOC, North Carolina Department of Commerce; B/IDD, Business/Industry Development Division; NCGS, North Carolina Geological Survey; LQS, Land Quality Section; DWQ, Division of Water Quality; NCSU, North Carolina State University; AES, Agriculture Extension Service; NCDA, North Carolina Department of Agriculture; ASS. Agricultural Statistics Section; ANR, Aquaculture and Natural Resources; BAE, Biological and Agricultural Engineering; BC, Bureau of the Census; PID, Plant Industry Division; CS, Crop Science; TCNC, Turfgrass Council of North Carolina]

Data sources	Data collection—Type, method, and analysis
	PUBLIC SUPPLY
DENR, DWR	1992-93 LWSP database and hardcopy files.
DENR, DEH, PWSS	Public water-supply database. Community water systems, noncommunity water systems, and data on population served, and source of water to supplement site data from DENR, DWR.
USGS	Compile and aggregate data by county.
	DOMESTIC
DENR, DWR	1992-93 LWSP database and hardcopy files. Municipal public-supply facility information on water use.
DENR, DEH, PWSS	Public water-supply database. Community water systems and data on population served, and source of water to supplement site data from the LWSP.
USDOC	Population within a county.
USGS	Water-use coefficient of 70 gal/d per person. Calculation per county: (county population) - (population served by public suppliers) x (70 gal/d). Compile and aggregate data by county.
	COMMERCIAL
DENR, DWR	1992-93 LWSP database and hardcopy files. Municipal public-supply facility information on water use.
DENR, DEH, PWSS	Public water-supply database. Noncommunity water systems, and data on population served, and source of water to supplement site data from the LWSP.
USGS	Water-use coefficients for various commercial users. Compile and aggregate data by county.
	INDUSTRIAL
DENR, DWR	1992-93 LWSP database and hardcopy files. Municipal public-supply facility information on water use.
NCDOC, B/IDD	Identification of industries from "North Carolina Manufacturing Firms, 1995 Directory."
USGS	Mail survey of 500 industries. Statistical analysis of water-use estimates for industries using survey results. Telephone conversations with industry personnel. Compile and aggregate data by county.

Table 1. Water-use data collection, by category, in North Carolina, 1995—Continued

[DENR, North Carolina Department of Environment and Natural Resources; DWR, Division of Water Resources; LWSP, Local Water Supply Plan; DEH, Division of Environmental Health; PWSS, Public Water Supply Section; USGS, U.S. Geological Survey; USDOC, U.S. Department of Commerce; gal/d, gallons per day; NCDOC, North Carolina Department of Commerce; B/IDD, Business/Industry Development Division; NCGS, North Carolina Geological Survey; LQS, Land Quality Section; DWQ, Division of Water Quality; NCSU, North Carolina State University; AES, Agriculture Extension Service; NCDA, North Carolina Department of Agriculture; ASS, Agricultural Statistics Section; ANR, Aquaculture and Natural Resources; BAE, Biological and Agricultural Engineering; BC, Bureau of the Census; PID, Plant Industry Division; CS, Crop Science; TCNC, Turfgrass Council of North Carolina]

Data sources	Data collection—Type, method, and analysis
	MINING
NCGS, LQS	Identification of permitted mining operation from "Permitted Active and Inactive Mining Operations in North Carolina," as of June 1994.
DENR, DWQ	Hardcopy files of all active discharge permits for mining operations.
NCDOC, B/IDD	Identification of mining operations from "Directory of North Carolina Manufacturing Firms, 1995."
USGS	Telephone conversations with mining operations personnel. Compile and aggregate data by county.
	LIVESTOCK
	Stock
NCSU, AES	Email survey, by county, for water source percentage for livestock. Coefficients for per capita water requirement by livestock type: dairy cattle, 40 gal/d; horses and beef cattle, 12 gal/d; hogs, 4 gal/d; sheep, 2 gal/d; chickens, 9 gal/d per 100 chickens; turkeys, 9 gal/d per 50 turkeys.
NCDA, ASS	Livestock populations, by county, from "North Carolina Agricultural Statistics, 1995."
USGS	Compile and aggregate data by county.
	Animal Specialties
NCDA, ANR	Data on aquaculture in North Carolina.
NCSU	Results of trout farming operations in western North Carolina.
USGS	Compute water use by multiplying (number of head) x (livestock coefficient). Compile and aggregate data by county.
	IRRIGATION
NCSU, AES	Email survey, by county, for percentage irrigation by source and system type.
NCSU, BAE	Crop irrigation requirement coefficient of 8 acre/inches per growing season for all crop types.
USDOC, BC	Census information on irrigated acres, by county, from "1992 Census of Agriculture."
NCDA, PID	Electronic file of nurseries and acreage of nurseries from "Updated List of Certified Nurseries and Plant Collectors through September 30, 1995."
NCSU, AES, CS	Nursery irrigation crop requirement coefficient of 40 acre/inches per crop per season.
NCDOC	List of public, private, and military golf courses in North Carolina.
TCNC	List of golf courses in North Carolina to supplement the NCDOC list of golf courses. Provided water-use coefficient for a typical 18-hole golf course.
USGS	Compile and aggregate data by county
	POWER GENERATION
USGS	Telephone and mail contacts with power-generating companies in North Carolina: Carolina Power & Light, Duke Power Company, Virginia Electric & Power Company, Nantahala Power & Light Company, and the Tennessee Valley Authority. Compile and aggregate data by county.

hotels, restaurants, office buildings, churches, and other commercial facilities and institutions, including universities and military installations. Industrial self-supplied water use is water used for industrial purposes in the manufacturing of products. Mining water use consists of withdrawals for use in the extraction of minerals and to wash, sort, and transport mineral products. Mining water use does not include water that is removed by dewatering of excavation pits. The livestock category includes water used for livestock watering, feed lots, dairy operations, and fish farming. Irrigation water use is defined as the artificial application of water to lands to assist in the growing of crops and pastures or to maintain vegetative growth in commercial nurseries and recreational lands, such as parks and golf courses. Water used for the power generation category includes the instream use by 38 hydroelectric powerplants and offstream withdrawals by 18 fossil-fuel and 3 nuclear facilities in North Carolina. This category is divided into water use for hydroelectric and thermoelectric power (fossil-fuel and nuclear facilities). Water use for hydroelectric-power generation is the only category in this report considered as an instream water use.

Some county-level data are based on site-specific data collected by various Divisions within the DENR. Water-use data for domestic, commercial, industrial, livestock, and irrigation were not available for all sites within the State. Therefore, estimates were calculated using coefficients obtained from knowledgeable sources (table 1) applied to survey, census, or agricultural statistical data.

Physiography and Climate

The physiography of North Carolina is diverse. The State has three physiographic provinces—the Blue Ridge in the west, the Piedmont in the central part of the State, and the Coastal Plain in the east (fig. 1). The Blue Ridge consists of mountainous terrain giving way to the gently sloping, hilly terrain of the Piedmont. The Coastal Plain is flat and low-lying with little topographic relief. Streams and rivers along the eastern slope of the Blue Ridge flow to the Atlantic Ocean, and streams and rivers along the western slope flow to the Ohio and Tennessee River Basins in adjacent States. The division between the western and eastern watersheds of the Blue Ridge is known as the Tennessee Valley Divide (fig. 1). The dominant source of water varies by Provinces; surface water is the primary source in the Blue Ridge and Piedmont Provinces, and ground water is the primary source in the Coastal Plain Province.

North Carolina has a mild, humid climate and ranks sixth in the Nation in average annual precipitation with 49.3 inches. In 1995, the State experienced a higher-than-normal precipitation amount of 54.9 inches (National Atmospheric and Oceanic Administration, 1996). A water-budget study in eastern North Carolina indicated that as much as 61 percent of

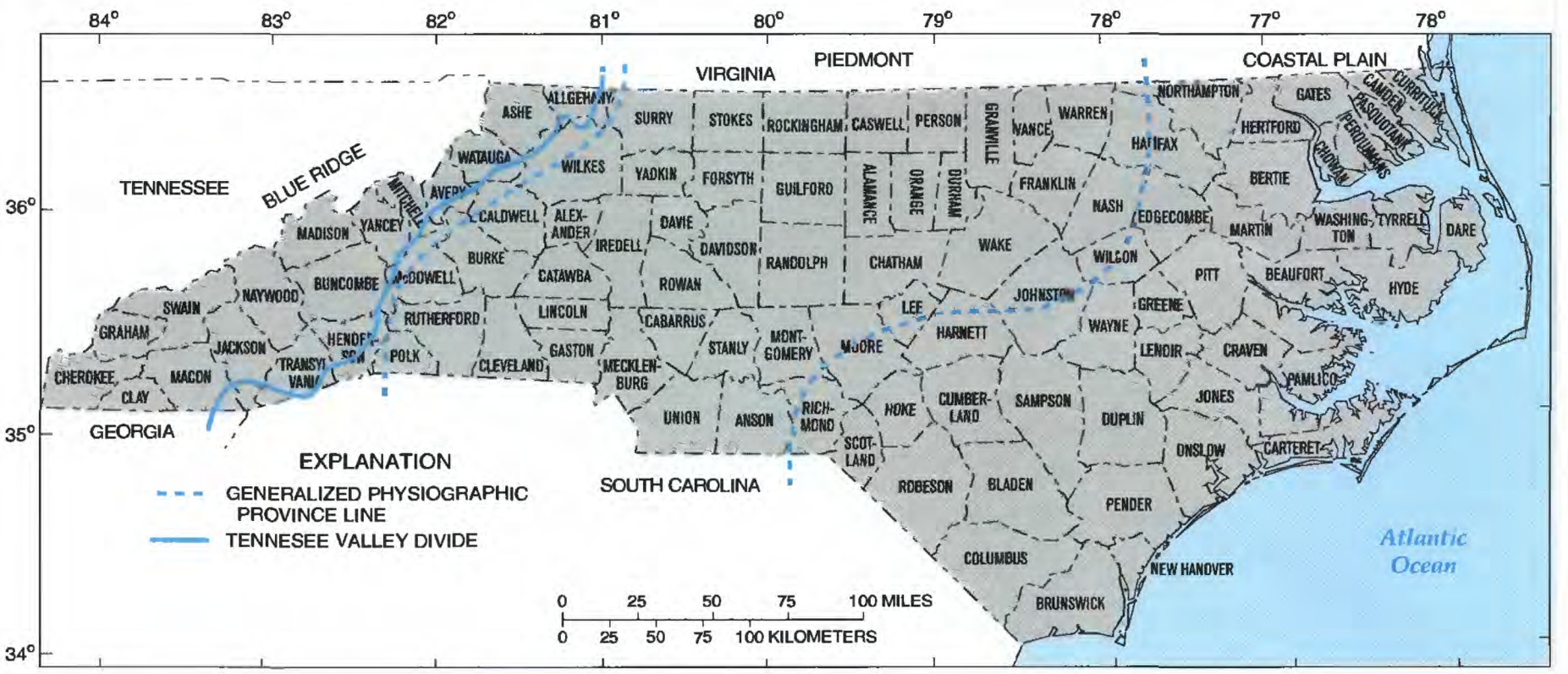


Figure 1. Counties and physiographic provinces in North Carolina.

the annual precipitation is returned to the atmosphere by evapotranspiration, and about 39 percent recharges the ground- and surface-water systems (Winner and Simmons, 1977).

ESTIMATED WATER USE

In 1995, total (fresh and saline) offstream water use in North Carolina was estimated at 9,286 million gallons per day (Mgal/d) (table 2). A flow diagram illustrating source, use, and disposition of 1995 water withdrawals in North Carolina is shown in figure 2. Offstream water use refers to all water "withdrawn or diverted from ground- or surface-water source for public water supply, industry, irrigation, livestock, thermoelectric-power generation, and other uses. It is sometimes referred to as off-channel use or withdrawal," (Solley and others, 1993). Of the total withdrawals in 1995, 80 percent, or 7,417 Mgal/d, was

Table 2. Total water withdrawals, by source and water-use category, in North Carolina, 1995

[Values in million gallons per day]

Water source	Public supply	Domes-tic	Com-mercial	Indus-trial	Mining	Live-stock	Irriga-tion	Thermo-electric	Total
Ground water	136.38	171.53	7.31	61.10	11.69	89.48	57.29	0.11	534.89
Surface water	632.85	0.00	0.29	307.94	4.33	207.10	181.28	7,416.89	8,750.68
Total	769.23	171.53	7.60	369.04	16.02	296.58	238.57	7,417.00	9,285.57

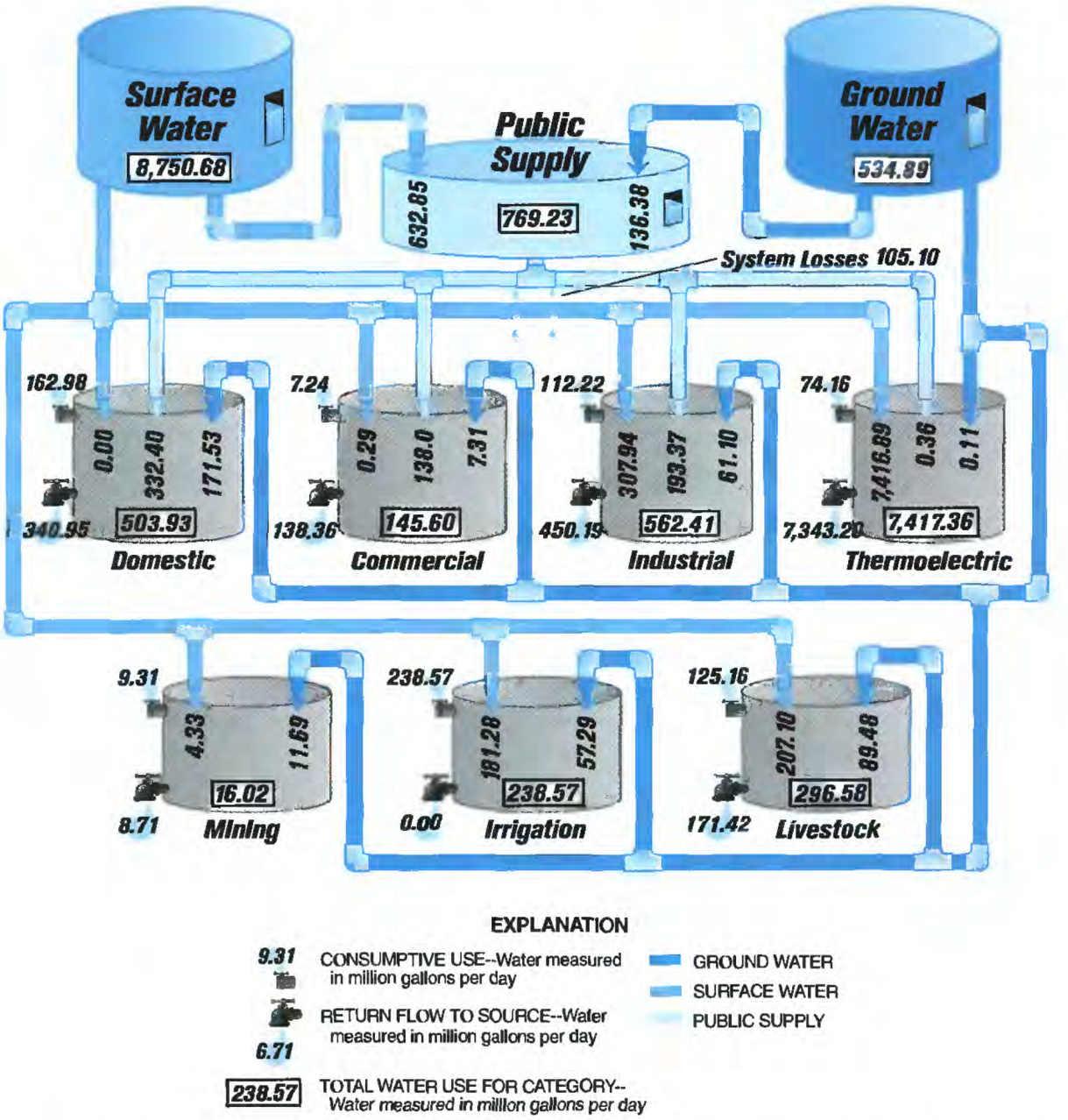


Figure 2. Source, use, and disposition of an estimated 9,286 million gallons per day of fresh and saline water withdrawals in North Carolina, 1995.

for thermoelectric-power generation. Of the remaining categories, public supply accounted for the largest amount of water withdrawn in North Carolina, representing 8 percent, or about 769 Mgal/d, of total water withdrawals (tables 2 and 3; fig. 3). A summary of water-use estimates, by category and water source, for each county in North Carolina is shown in the appendix of this report.

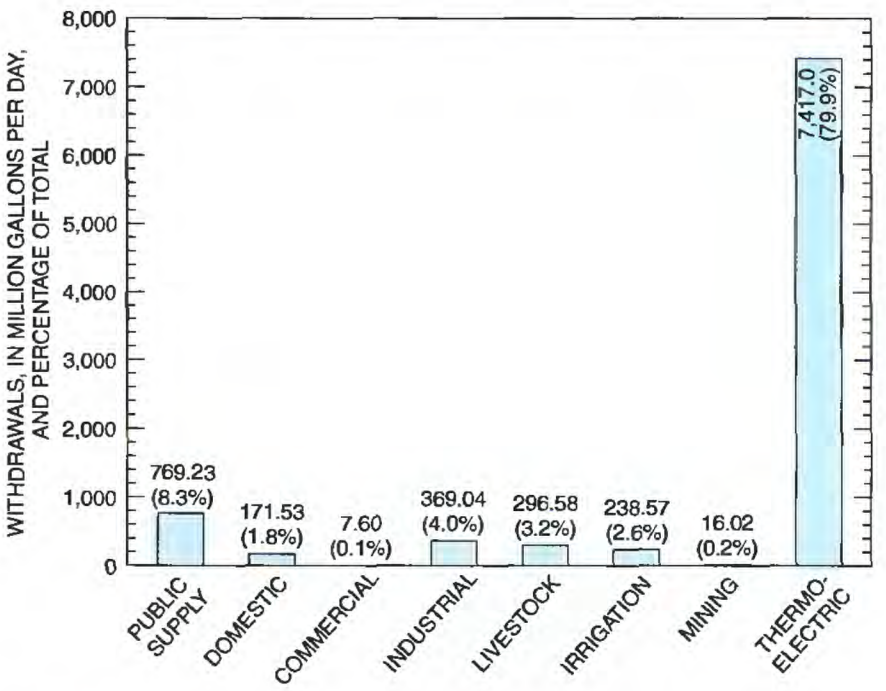


Figure 3. Water withdrawals, by water-use category, in North Carolina, 1995.

Surface water was the source of 94 percent, or 8,751 Mgal/d, of withdrawals in North Carolina in 1995 (table 4; fig. 4); thermoelectric-power generation represented 85 percent of surface-water withdrawals. Public supply was the second largest category of surface-water use, comprising 7 percent of all surface-water withdrawals (fig. 4).

Six percent of water withdrawn in 1995 was from ground water (table 4; fig. 4). The largest ground-water withdrawals occur primarily in the coastal counties of North Carolina. Of the 535 Mgal/d, 26 percent was withdrawn by public suppliers and 32 percent by domestic users. Agricultural withdrawals (livestock, animal specialties, and irrigation) accounted for 27 percent of ground-water withdrawals, industry and mining accounted for 14 percent (table 2).

For the purpose of this report, instream water use is limited to the use of water for the generation of hydroelectric power. Instream water use is the use of water, but not the withdrawal from a surface-water source. Other examples of instream water use include fish propagation, navigation, and recreation. Because the generation of hydroelectric power requires significant quantities of water that are directed through turbines, this water use is affected by water availability and therefore should be considered in the planning and management of water resources.

Offstream Water Use by Category and Source

The water-use categories of public supply, domestic, commercial, industrial, mining, livestock, irrigation, and thermoelectric-power generation are

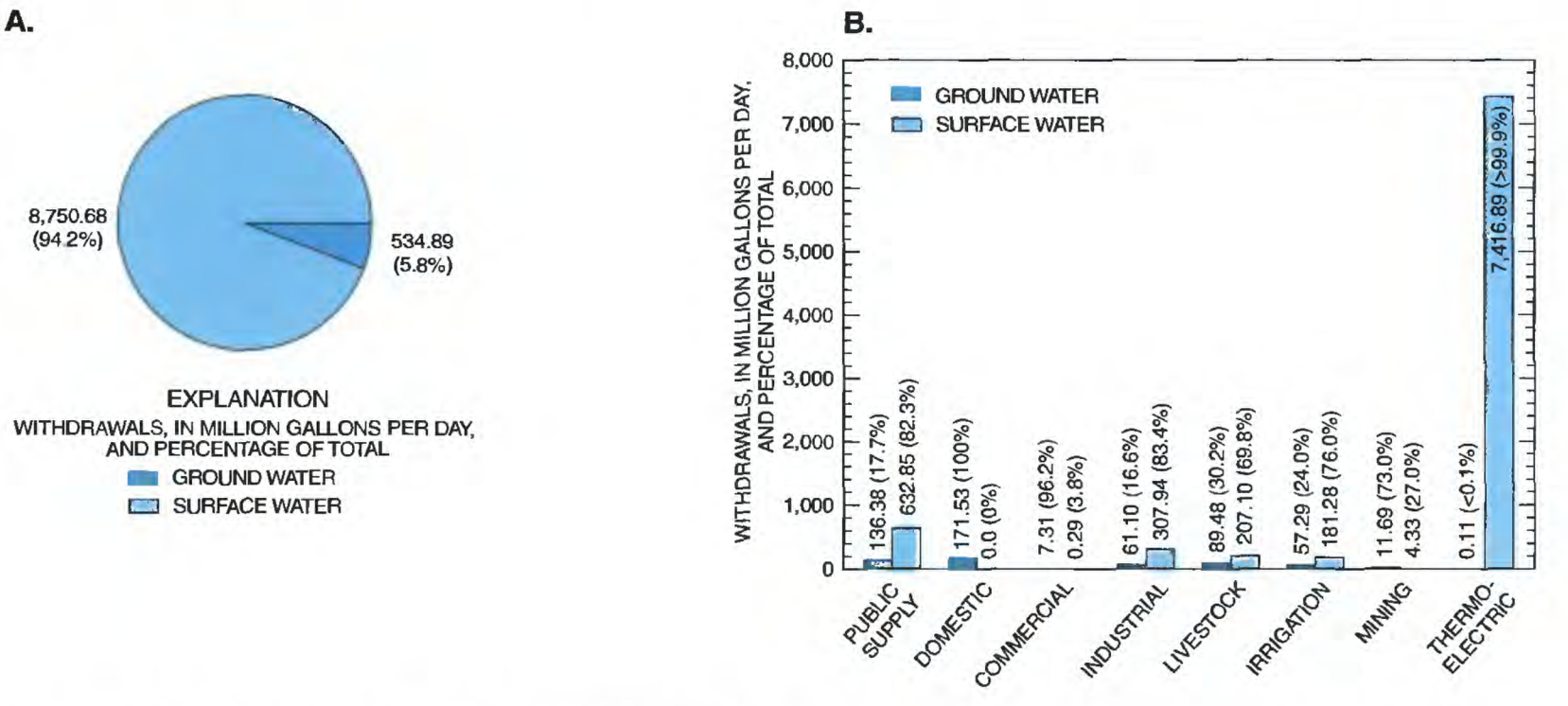


Figure 4. Water withdrawals, by (A) source and (B) water-use category and source, in North Carolina, 1995.

Table 3. Total water withdrawals, by water-use category and county, in North Carolina, 1995

[Mgal/d, million gallons per day]

County	Water withdrawals, in Mgal/d											
	Public supply		Domestic	Commercial	Industrial	Mining	Livestock	Irrigation	Thermoelectric		Total	
	Fresh	Saline	Fresh	Fresh	Fresh	Fresh	Fresh	Fresh	Fresh	Saline	Fresh	Saline
ALAMANCE	14.37	0.00	2.86	0.17	5.25	0.00	1.09	3.81	0.00	0.00	27.55	0.00
ALEXANDER	1.54	0.00	0.84	0.01	0.00	0.00	2.23	0.40	0.00	0.00	5.02	0.00
ALLEGHANY	0.45	0.00	0.48	0.05	0.09	0.00	0.70	1.12	0.00	0.00	2.89	0.00
ANSON	5.85	0.00	0.31	0.00	4.57	0.00	2.23	0.40	0.00	0.00	13.36	0.00
ASHE	0.36	0.00	1.38	0.07	0.00	0.00	0.53	1.23	0.00	0.00	3.57	0.00
AVERY	0.92	0.00	0.42	0.11	0.53	0.00	3.06	3.65	0.00	0.00	8.69	0.00
BEAUFORT	2.26	0.00	1.81	0.09	0.19	9.10	2.25	0.85	0.00	0.00	16.55	0.00
BERTIE	0.95	0.00	0.70	0.02	0.33	0.00	2.93	3.13	0.00	0.00	8.06	0.00
BLADEN	2.32	0.00	0.38	0.25	2.16	0.00	2.20	1.36	0.00	0.00	8.67	0.00
BRUNSWICK	1.75	0.00	0.99	0.11	0.57	0.00	0.25	8.26	0.00	1,553.33	11.93	1,553.33
BUNCOMBE	24.26	0.00	4.56	0.07	2.82	0.00	1.17	2.18	2.73	0.00	37.79	0.00
BURKE	16.37	0.00	2.07	0.14	7.31	0.00	0.43	2.68	0.00	0.00	29.00	0.00
CABARRUS	9.16	0.00	2.87	0.06	16.76	0.00	0.40	1.54	0.00	0.00	30.79	0.00
CALDWELL	6.07	0.00	1.63	0.07	1.61	0.00	0.65	3.38	0.00	0.00	13.41	0.00
CAMDEN	0.46	0.00	0.07	0.01	0.00	0.00	0.29	0.04	0.00	0.00	0.87	0.00
CARTERET	4.16	0.00	1.60	0.12	0.01	0.00	0.20	2.35	0.00	0.00	8.44	0.00
CASWELL	0.61	0.00	1.25	0.02	0.00	0.00	0.20	1.55	0.00	0.00	3.63	0.00
CATAWBA	17.22	0.00	3.97	0.15	5.58	0.00	0.55	3.54	775.00	0.00	806.01	0.00
CHATHAM	3.80	0.00	1.75	0.07	0.42	0.00	5.01	0.44	385.00	0.00	396.49	0.00
CHEROKEE	1.50	0.00	0.91	0.04	0.00	0.00	4.89	0.30	0.00	0.00	7.64	0.00
CHOWAN	1.61	0.00	0.01	0.00	0.17	0.00	0.16	1.38	0.00	0.00	3.33	0.00
CLAY	0.15	0.00	0.47	0.03	0.00	0.00	3.87	0.22	0.00	0.00	4.74	0.00
CLEVELAND	12.57	0.00	2.48	0.05	1.76	0.00	1.06	2.41	19.00	0.00	39.33	0.00
COLUMBUS	1.86	0.00	2.39	0.11	0.98	0.00	0.76	1.30	0.00	0.00	7.40	0.00
CRAVEN	10.33	0.00	0.30	0.08	0.04	0.00	0.57	2.89	0.00	0.00	14.21	0.00
CUMBERLAND	25.17	0.00	3.61	0.18	1.55	0.00	0.62	4.58	0.00	0.00	35.71	0.00
CURRITUCK	0.37	0.00	0.63	0.02	0.00	0.00	0.06	1.16	0.00	0.00	2.24	0.00
DARE	2.55	1.78	0.38	0.05	0.00	0.00	0.00	1.61	0.00	0.00	4.59	1.78
DAVIDSON	14.83	0.00	0.06	0.00	4.53	0.00	0.76	1.78	0.00	0.00	21.96	0.00
DAVIE	2.36	0.00	0.84	0.01	0.12	0.01	0.47	1.83	0.00	0.00	5.64	0.00
DUPLIN	11.27	0.00	1.78	0.04	1.02	0.00	11.43	3.55	0.00	0.00	29.09	0.00
DURHAM	20.93	0.00	3.64	0.05	4.00	0.00	0.07	2.68	0.00	0.00	31.37	0.00
EDGECOMBE	3.55	0.00	2.62	0.04	1.35	0.50	0.96	3.32	0.00	0.00	12.34	0.00
FORSYTH	43.35	0.00	3.10	0.02	8.55	0.03	0.25	6.23	0.00	0.00	61.53	0.00
FRANKLIN	1.94	0.00	2.25	0.06	0.03	0.00	0.71	4.08	0.00	0.00	9.07	0.00

Table 3. Total water withdrawals, by water-use category and county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day]

County	Water withdrawals, in Mgal/d											
	Public supply		Domestic	Commercial	Industrial	Mining	Livestock	Irrigation	Thermoelectric		Total	
	Fresh	Saline	Fresh	Fresh	Fresh	Fresh	Fresh	Fresh	Fresh	Saline	Fresh	Saline
GASTON	33.47	0.00	3.94	0.00	45.20	0.00	0.25	2.26	314.00	0.00	399.12	0.00
GATES	0.62	0.00	0.10	0.00	0.00	0.00	0.68	0.96	0.00	0.00	2.36	0.00
GRAHAM	0.32	0.00	0.34	0.01	0.00	0.00	41.36	0.25	0.00	0.00	42.28	0.00
GRANVILLE	2.15	0.00	1.38	0.02	1.22	0.00	0.36	2.30	0.00	0.00	7.43	0.00
GREENE	2.06	0.00	0.36	0.00	0.00	0.00	1.77	0.76	0.00	0.00	4.95	0.00
GUILFORD	42.36	0.00	6.84	0.38	34.44	0.00	0.60	10.65	0.00	0.00	95.27	0.00
HALIFAX	6.37	0.00	1.21	0.05	1.76	0.00	1.23	2.60	0.00	0.00	13.22	0.00
HARNETT	6.74	0.00	1.49	0.02	84.14	0.00	1.60	2.92	0.00	0.00	96.91	0.00
HAYWOOD	5.75	0.00	1.31	0.08	26.17	0.00	50.58	0.77	0.00	0.00	84.66	0.00
HENDERSON	5.86	0.00	2.15	0.21	2.00	0.00	0.32	3.82	0.00	0.00	14.36	0.00
HERTFORD	1.29	0.00	0.93	0.04	0.00	0.00	0.79	1.90	0.00	0.00	4.95	0.00
HOKE	2.04	0.00	1.08	0.01	0.14	0.00	0.21	1.05	0.00	0.00	4.53	0.00
HYDE	0.33	0.27	0.01	0.02	0.03	0.00	0.12	0.00	0.00	0.00	0.51	0.27
IREDELL	8.72	0.00	3.28	0.05	7.46	0.00	1.62	2.42	0.00	0.00	23.55	0.00
JACKSON	0.76	0.00	0.83	0.11	0.11	0.00	1.76	0.94	0.00	0.00	4.51	0.00
JOHNSTON	4.61	0.00	2.62	0.11	0.06	0.50	1.06	4.56	0.00	0.00	13.52	0.00
JONES	0.67	0.00	0.10	0.00	2.82	0.00	0.90	0.63	0.00	0.00	5.12	0.00
LEE	5.05	0.00	0.56	0.00	0.00	0.00	0.47	2.48	0.00	0.00	8.56	0.00
LENOIR	7.04	0.00	0.85	0.03	0.25	0.00	1.90	1.46	0.00	0.00	11.53	0.00
LINCOLN	5.81	0.00	2.52	0.05	0.52	0.00	0.87	0.78	0.04	0.00	10.59	0.00
MCDOWELL	2.43	0.00	1.81	0.21	1.65	0.01	3.58	0.84	0.00	0.00	10.53	0.00
MACON	1.47	0.00	1.09	0.08	0.19	0.00	13.11	1.04	0.00	0.00	16.98	0.00
MADISON	0.48	0.00	0.96	0.02	0.02	0.00	2.20	0.51	0.00	0.00	4.19	0.00
MARTIN	2.78	0.00	1.15	0.06	0.00	0.00	0.72	1.21	0.00	0.00	5.92	0.00
MECKLENBURG	72.95	0.00	7.87	0.34	5.43	0.01	0.30	12.09	2,650.00	0.00	2,748.99	0.00
MITCHELL	1.06	0.00	0.73	0.04	0.00	2.00	2.36	0.38	0.00	0.00	6.57	0.00
MONTGOMERY	3.14	0.00	0.68	0.02	0.04	0.00	1.91	1.00	0.00	0.00	6.79	0.00
MOORE	4.94	0.00	2.39	0.13	0.01	0.00	5.24	13.85	0.00	0.00	26.56	0.00
NASH	13.42	0.00	1.14	0.15	1.76	0.00	1.76	5.81	0.00	0.00	24.04	0.00
NEW HANOVER	19.52	0.00	5.22	0.18	0.43	0.00	0.00	3.68	37.54	0.00	66.57	0.00
NORTHAMPTON	1.13	0.00	0.89	0.02	0.02	0.00	1.53	1.16	0.00	0.00	4.75	0.00
ONSLOW	8.48	0.00	2.94	0.03	0.00	0.00	1.13	2.18	0.00	0.00	14.76	0.00
ORANGE	10.75	0.00	1.72	0.03	0.00	0.00	0.48	3.04	0.00	0.00	16.02	0.00
PAMLICO	0.86	0.00	0.14	0.00	0.00	0.00	0.16	1.84	0.00	0.00	3.00	0.00
PASQUOTANK	4.02	0.00	0.53	0.00	0.06	0.00	0.04	0.66	0.00	0.00	5.31	0.00

Table 3. Total water withdrawals, by water-use category and county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day]

County	Water withdrawals, in Mgal/d											
	Public supply		Domestic	Commercial	Industrial	Mining	Livestock	Irrigation	Thermoelectric		Total	
	Fresh	Saline	Fresh	Fresh	Fresh	Fresh	Fresh	Fresh	Fresh	Saline	Fresh	Saline
PENDER	0.69	0.00	0.22	0.11	0.00	0.00	0.95	2.14	0.00	0.00	4.11	0.00
PERQUIMANS	1.00	0.00	0.01	0.01	0.00	0.00	0.80	0.31	0.00	0.00	2.13	0.00
PERSON	4.11	0.00	1.46	0.04	0.71	0.00	0.24	1.73	670.00	0.00	678.29	0.00
PITT	13.67	0.00	1.28	0.03	5.85	0.00	2.02	3.10	0.00	0.00	25.95	0.00
POLK	1.36	0.00	0.56	0.02	0.01	0.00	0.13	0.60	0.00	0.00	2.68	0.00
RANDOLPH	6.69	0.00	5.17	0.12	3.21	0.00	6.03	2.46	0.00	0.00	23.68	0.00
RICHMOND	5.42	0.00	0.57	0.01	2.20	0.01	1.40	2.32	0.00	0.00	11.93	0.00
ROBESON	16.50	0.00	2.92	0.06	5.59	0.00	2.57	2.95	7.17	0.00	37.76	0.00
ROCKINGHAM	21.50	0.00	1.39	0.06	0.79	0.00	0.30	4.76	40.00	0.00	68.80	0.00
ROWAN	12.26	0.00	4.84	0.23	2.02	0.88	0.86	1.76	49.00	0.00	71.85	0.00
RUTHERFORD	10.09	0.00	1.89	0.13	10.97	0.00	0.34	2.45	7.00	0.00	32.87	0.00
SAMPSON	3.43	0.00	2.25	0.15	0.05	0.00	8.93	5.78	0.00	0.00	20.59	0.00
SCOTLAND	2.89	0.00	1.13	0.01	2.95	0.00	0.71	1.24	0.00	0.00	8.93	0.00
STANLY	7.86	0.00	1.28	0.06	0.61	0.84	1.05	1.64	0.00	0.00	13.34	0.00
STOKES	1.53	0.00	1.47	0.27	0.00	0.00	0.26	0.78	894.00	0.00	898.31	0.00
SURRY	7.42	0.00	3.29	0.18	10.26	0.24	2.08	2.05	0.00	0.00	25.52	0.00
SWAIN	0.35	0.00	0.63	0.16	0.00	0.39	21.05	0.12	0.00	0.00	22.70	0.00
TRANSYLVANIA	1.50	0.00	1.01	0.23	0.02	0.00	24.70	2.04	0.00	0.00	29.50	0.00
TYRRELL	0.25	0.00	0.08	0.00	0.00	0.00	0.18	0.00	0.00	0.00	0.51	0.00
UNION	9.68	0.00	3.36	0.03	5.02	0.00	8.14	1.23	0.00	0.00	27.46	0.00
VANCE	5.16	0.00	1.56	0.04	13.73	0.00	0.08	1.43	0.00	0.00	22.00	0.00
WAKE	43.22	0.00	9.47	0.25	7.91	1.00	0.51	10.22	6.22	0.00	78.80	0.00
WARREN	0.04	0.00	0.93	0.02	0.06	0.00	0.59	1.27	0.00	0.00	2.91	0.00
WASHINGTON	2.91	0.00	0.24	0.00	0.00	0.00	1.10	1.35	0.00	0.00	5.60	0.00
WATAUGA	3.87	0.00	0.49	0.14	0.00	0.00	0.28	1.47	0.00	0.00	6.25	0.00
WAYNE	9.15	0.00	1.64	0.04	6.26	0.00	4.84	3.11	6.97	0.00	32.01	0.00
WILKES	6.99	0.00	1.77	0.07	0.00	0.00	8.84	0.81	0.00	0.00	18.48	0.00
WILSON	8.30	0.00	1.55	0.06	2.59	0.50	0.48	3.34	0.00	0.00	16.82	0.00
YADKIN	2.32	0.00	1.52	0.10	0.00	0.00	1.00	1.36	0.00	0.00	6.30	0.00
YANCEY	0.35	0.00	0.98	0.10	0.00	0.00	0.14	0.72	0.00	0.00	2.29	0.00
TOTAL	767.18	2.05	171.53	7.60	369.04	16.02	296.58	238.57	5,863.67	1,553.33	7,730.19	1,555.38

Table 4. Total water withdrawals, by source, use, and county, in North Carolina, 1995

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Population, in thousands	Water withdrawals, by source, in Mgal/d							Water use		
		Ground water			Surface water			Total	Per capita use, in gal/d	Consumptive use, in Mgal/d	Reclaimed wastewater, in Mgal/d
		Fresh	Saline	Total	Fresh	Saline	Total				
ALAMANCE	115.06	4.42	0.00	4.42	23.13	0.00	23.13	27.55	239.44	9.61	0.00
ALEXANDER	29.89	1.82	0.00	1.82	3.20	0.00	3.20	5.02	167.95	3.19	0.00
ALLEGHANY	9.89	1.37	0.00	1.37	1.52	0.00	1.52	2.89	292.21	2.05	0.00
ANSON	24.18	4.40	0.00	4.40	8.96	0.00	8.96	13.36	552.52	4.57	0.00
ASHE	23.37	2.00	0.00	2.00	1.57	0.00	1.57	3.57	152.76	2.26	0.00
AVERY	15.32	1.99	0.00	1.99	6.70	0.00	6.70	8.69	567.23	4.11	0.00
BEAUFORT	44.12	15.06	0.00	15.06	1.49	0.00	1.49	16.55	375.11	11.77	0.00
BERTIE	20.85	4.64	0.00	4.64	3.42	0.00	3.42	8.06	386.57	6.59	0.00
BLADEN	29.96	6.68	0.00	6.68	1.99	0.00	1.99	8.67	289.39	4.80	0.00
BRUNSWICK	60.80	4.69	0.00	4.69	7.24	1,553.33	1,560.57	1,565.26	196.22	28.17	0.31
BUNCOMBE	189.51	6.94	0.00	6.94	30.85	0.00	30.85	37.79	199.41	10.30	0.00
BURKE	79.86	4.84	0.00	4.84	24.16	0.00	24.16	29.00	363.14	8.67	0.00
CABARRUS	110.03	6.52	0.00	6.52	24.27	0.00	24.27	30.79	279.83	7.81	0.00
CALDWELL	74.06	2.83	0.00	2.83	10.58	0.00	10.58	13.41	181.07	6.17	0.00
CAMDEN	6.45	0.85	0.00	0.85	0.02	0.00	0.02	0.87	134.88	0.50	0.00
CARTERET	57.88	7.98	0.00	7.98	0.46	0.00	0.46	8.44	145.82	4.00	0.20
CASWELL	21.32	3.08	0.00	3.08	0.55	0.00	0.55	3.63	170.26	2.18	0.00
CATAWBA	126.42	8.65	0.00	8.65	797.36	0.00	797.36	806.01	6,375.65	9.77	0.00
CHATHAM	42.54	6.14	0.00	6.14	390.35	0.00	390.35	396.49	9,320.40	15.43	0.30
CHEROKEE	21.60	1.17	0.00	1.17	6.47	0.00	6.47	7.64	353.70	1.03	0.00
CHOWAN	14.01	1.90	0.00	1.90	1.43	0.00	1.43	3.33	237.69	1.93	0.00
CLAY	7.86	0.88	0.00	0.88	3.86	0.00	3.86	4.74	603.05	0.50	0.00
CLEVELAND	89.77	4.21	0.00	4.21	35.12	0.00	35.12	39.33	438.12	7.05	0.00
COLUMBUS	51.40	5.51	0.00	5.51	1.89	0.00	1.89	7.40	143.97	3.45	0.00
CRAVEN	85.52	13.55	0.00	13.55	0.66	0.00	0.66	14.21	166.16	6.46	0.00
CUMBERLAND	285.87	8.50	0.00	8.50	27.21	0.00	27.21	35.71	124.92	12.76	0.00
CURRITUCK	16.27	1.66	0.00	1.66	0.58	0.00	0.58	2.24	137.68	1.52	0.00
DARE	26.05	3.97	1.78	5.75	0.62	0.00	0.62	6.37	176.20	2.74	0.00
DAVIDSON	135.37	1.36	0.00	1.36	20.60	0.00	20.60	21.96	162.22	6.71	0.00
DAVIE	29.61	1.77	0.00	1.77	3.87	0.00	3.87	5.64	190.48	3.13	0.00
DUPLIN	41.99	25.21	0.00	25.21	3.88	0.00	3.88	29.09	692.78	16.68	0.00
DURHAM	195.26	4.59	0.00	4.59	26.78	0.00	26.78	31.37	160.66	9.03	0.00
EDGECOMBE	56.37	5.26	0.00	5.26	7.08	0.00	7.08	12.34	218.91	6.45	0.00
FORSYTH	281.05	4.84	0.00	4.84	56.69	0.00	56.69	61.53	218.93	18.59	0.00
FRANKLIN	41.40	3.35	0.00	3.35	5.72	0.00	5.72	9.07	219.08	5.67	0.00

Table 4. Total water withdrawals, by source, use, and county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Population, in thousands	Water withdrawals, by source, in Mgal/d							Water use		
		Ground water			Surface water			Total	Per capita use, in gal/d	Consumptive use, in Mgal/d	Reclaimed wastewater, in Mgal/d
		Fresh	Saline	Total	Fresh	Saline	Total				
GASTON	181.47	6.83	0.00	6.83	392.29	0.00	392.29	399.12	2,199.37	18.53	0.00
GATES	9.85	1.88	0.00	1.88	0.48	0.00	0.48	2.36	239.59	1.86	0.00
GRAHAM	7.62	0.44	0.00	0.44	41.84	0.00	41.84	42.28	5,548.56	0.44	0.00
GRANVILLE	40.91	2.48	0.00	2.48	4.95	0.00	4.95	7.43	181.62	4.06	0.00
GREENE	16.94	4.31	0.00	4.31	0.64	0.00	0.64	4.95	292.21	3.00	0.00
GUILFORD	374.44	13.20	0.00	13.20	82.07	0.00	82.07	95.27	254.43	29.32	0.00
HALIFAX	57.50	3.08	0.00	3.08	10.14	0.00	10.14	13.22	229.91	5.87	0.00
HARNETT	76.31	6.86	0.00	6.86	90.05	0.00	90.05	96.91	1,269.95	22.89	0.00
HAYWOOD	49.74	1.90	0.00	1.90	82.76	0.00	82.76	84.66	1,702.05	8.06	0.00
HENDERSON	76.70	3.24	0.00	3.24	11.12	0.00	11.12	14.36	187.22	6.25	0.14
HERTFORD	22.59	3.96	0.00	3.96	0.99	0.00	0.99	4.95	219.12	3.40	0.00
HOKE	27.63	3.61	0.00	3.61	0.92	0.00	0.92	4.53	163.95	2.07	0.00
HYDE	5.37	0.49	0.27	0.76	0.02	0.00	0.02	0.78	94.97	0.25	0.00
IREDELL	103.41	6.78	0.00	6.78	16.77	0.00	16.77	23.55	227.73	8.40	0.00
JACKSON	29.03	1.90	0.00	1.90	2.61	0.00	2.61	4.51	155.36	1.43	0.00
JOHNSTON	94.78	6.70	0.00	6.70	6.82	0.00	6.82	13.52	142.65	7.96	0.00
JONES	9.80	2.67	0.00	2.67	2.45	0.00	2.45	5.12	522.45	2.32	0.00
LEE	45.94	1.75	0.00	1.75	6.81	0.00	6.81	8.56	186.33	4.35	0.00
LENOIR	59.26	9.65	0.00	9.65	1.88	0.00	1.88	11.53	194.57	5.49	0.00
LINCOLN	56.02	3.37	0.00	3.37	7.22	0.00	7.22	10.59	189.04	3.28	0.00
MCDOWELL	37.47	4.22	0.00	4.22	6.31	0.00	6.31	10.53	281.02	2.11	0.00
MACON	26.18	1.48	0.00	1.48	15.50	0.00	15.50	16.98	648.59	1.78	0.00
MADISON	17.94	1.41	0.00	1.41	2.78	0.00	2.78	4.19	233.56	1.13	0.00
MARTIN	26.40	4.83	0.00	4.83	1.09	0.00	1.09	5.92	224.24	2.62	0.00
MECKLENBURG	579.47	13.41	0.00	13.41	2,735.58	0.00	2,735.58	2,748.99	4,743.97	31.15	0.00
MITCHELL	14.70	0.88	0.00	0.88	5.69	0.00	5.69	6.57	446.94	0.78	0.00
MONTGOMERY	23.49	2.08	0.00	2.08	4.71	0.00	4.71	6.79	289.06	3.58	0.10
MOORE	67.17	11.69	0.00	11.69	14.87	0.00	14.87	26.56	395.41	21.10	0.00
NASH	85.56	4.12	0.00	4.12	19.92	0.00	19.92	24.04	280.97	10.76	0.00
NEW HANOVER	139.82	9.56	0.00	9.56	57.01	0.00	57.01	66.57	476.11	12.89	0.00
NORTHAMPTON	20.90	3.77	0.00	3.77	0.98	0.00	0.98	4.75	227.27	3.21	0.00
ONSLOW	143.32	14.33	0.00	14.33	0.43	0.00	0.43	14.76	102.99	6.43	0.00
ORANGE	107.65	3.11	0.00	3.11	12.91	0.00	12.91	16.02	148.82	5.95	0.00
PAMLICO	12.07	3.00	0.00	3.00	0.00	0.00	0.00	3.00	248.55	2.27	0.00
PASQUOTANK	33.87	4.79	0.00	4.79	0.52	0.00	0.52	5.31	156.78	1.55	0.00

Table 4. Total water withdrawals, by source, use, and county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Population, in thousands	Water withdrawals, by source, in Mgal/d							Water use		
		Ground water			Surface water			Total	Per capita use, in gal/d	Consumptive use, in Mgal/d	Reclaimed wastewater, in Mgal/d
		Fresh	Saline	Total	Fresh	Saline	Total				
PENDER	35.08	2.46	0.00	2.46	1.65	0.00	1.65	4.11	117.16	3.31	0.00
PERQUIMANS	10.80	2.04	0.00	2.04	0.09	0.00	0.09	2.13	197.22	1.49	0.00
PERSON	32.38	2.03	0.00	2.03	676.26	0.00	676.26	678.29	20,947.80	34.29	0.00
PITT	117.74	15.14	0.00	15.14	10.81	0.00	10.81	25.95	220.40	9.39	0.00
POLK	15.80	1.11	0.00	1.11	1.57	0.00	1.57	2.68	169.62	1.21	0.00
RANDOLPH	114.62	11.51	0.00	11.51	12.17	0.00	12.17	23.68	206.60	12.18	0.00
RICHMOND	45.66	3.84	0.00	3.84	8.09	0.00	8.09	11.93	261.28	5.73	0.00
ROBESON	112.04	17.71	0.00	17.71	20.05	0.00	20.05	37.76	337.02	13.37	0.00
ROCKINGHAM	88.41	2.34	0.00	2.34	66.46	0.00	66.46	68.80	778.19	8.80	0.00
ROWAN	119.21	7.09	0.00	7.09	64.76	0.00	64.76	71.85	602.72	7.44	0.00
RUTHERFORD	59.21	2.97	0.00	2.97	29.90	0.00	29.90	32.87	555.14	14.45	0.00
SAMPSON	50.48	15.92	0.00	15.92	4.67	0.00	4.67	20.59	407.88	16.00	0.00
SCOTLAND	35.30	5.27	0.00	5.27	3.66	0.00	3.66	8.93	252.97	3.44	0.00
STANLY	54.17	3.64	0.00	3.64	9.70	0.00	9.70	13.34	246.26	4.36	0.00
STOKES	40.72	2.17	0.00	2.17	896.14	0.00	896.14	898.31	22,060.60	1.95	0.00
SURRY	65.16	7.43	0.00	7.43	18.09	0.00	18.09	25.52	391.65	8.49	0.00
SWAIN	11.82	0.84	0.00	0.84	21.86	0.00	21.86	22.70	1,920.47	0.81	0.00
TRANSYLVANIA	27.34	2.06	0.00	2.06	27.44	0.00	27.44	29.50	1,079.01	2.72	0.00
TYRRELL	3.89	0.51	0.00	0.51	0.00	0.00	0.00	0.51	131.11	0.27	0.00
UNION	99.16	10.28	0.00	10.28	17.18	0.00	17.18	27.46	276.93	13.03	0.00
VANCE	40.72	13.15	0.00	13.15	8.85	0.00	8.85	22.00	540.28	5.25	0.00
WAKE	513.64	18.22	0.00	18.22	60.58	0.00	60.58	78.80	153.41	27.70	0.00
WARREN	17.98	1.25	0.00	1.25	1.66	0.00	1.66	2.91	161.85	2.26	0.00
WASHINGTON	14.12	5.14	0.00	5.14	0.46	0.00	0.46	5.60	396.60	2.75	0.00
WATAUGA	39.80	1.24	0.00	1.24	5.01	0.00	5.01	6.25	157.04	2.29	0.00
WAYNE	110.17	9.56	0.00	9.56	22.45	0.00	22.45	32.01	290.55	12.26	0.00
WILKES	60.92	6.46	0.00	6.46	12.02	0.00	12.02	18.48	303.35	11.41	0.00
WILSON	67.36	5.07	0.00	5.07	11.75	0.00	11.75	16.82	249.70	6.50	0.00
YADKIN	32.96	4.66	0.00	4.66	1.64	0.00	1.64	6.30	191.14	3.08	0.00
YANCEY	16.24	1.32	0.00	1.32	0.97	0.00	0.97	2.29	141.01	1.22	0.00
TOTAL	7,195.13	532.84	2.05	534.89	7,197.35	1,553.33	8,750.68	9,285.57	1,074.36	729.64	1.05

summarized by county in table 3 and by source of water in figure 5. Counties with the largest withdrawals are those where thermoelectric-power generation facilities are located. Brunswick and Mecklenburg Counties each withdrew more than 1,500 Mgal/d. Three other counties (Catawba, Person, and Stokes) each withdrew more than 500 Mgal/d (table 3). Most of the water withdrawn was in conjunction with power generation.

Consumptive use is defined as "that part of water withdrawn that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment" and, therefore, not returned to the source of withdrawal (Solley and others, 1993). Person County has the highest consumptive use in the State with about 34 Mgal/d (table 4), because of the high consumptive-use rate for thermoelectric-power generation. Excluding thermoelectric, Mecklenburg County has the highest consumptive-use rate in the State with 31 Mgal/d. Excluding thermoelectric, other counties with consumptive use amounts greater than 15 Mgal/d include Duplin, Forsyth, Gaston, Guilford, Harnett, Moore, Sampson, and Wake. These counties may have large populations served by public suppliers, large domestic, agricultural water withdrawal rates, or a combination of all. The impact of high consumptive use is that the water is no longer available to other users within or downstream from the county.

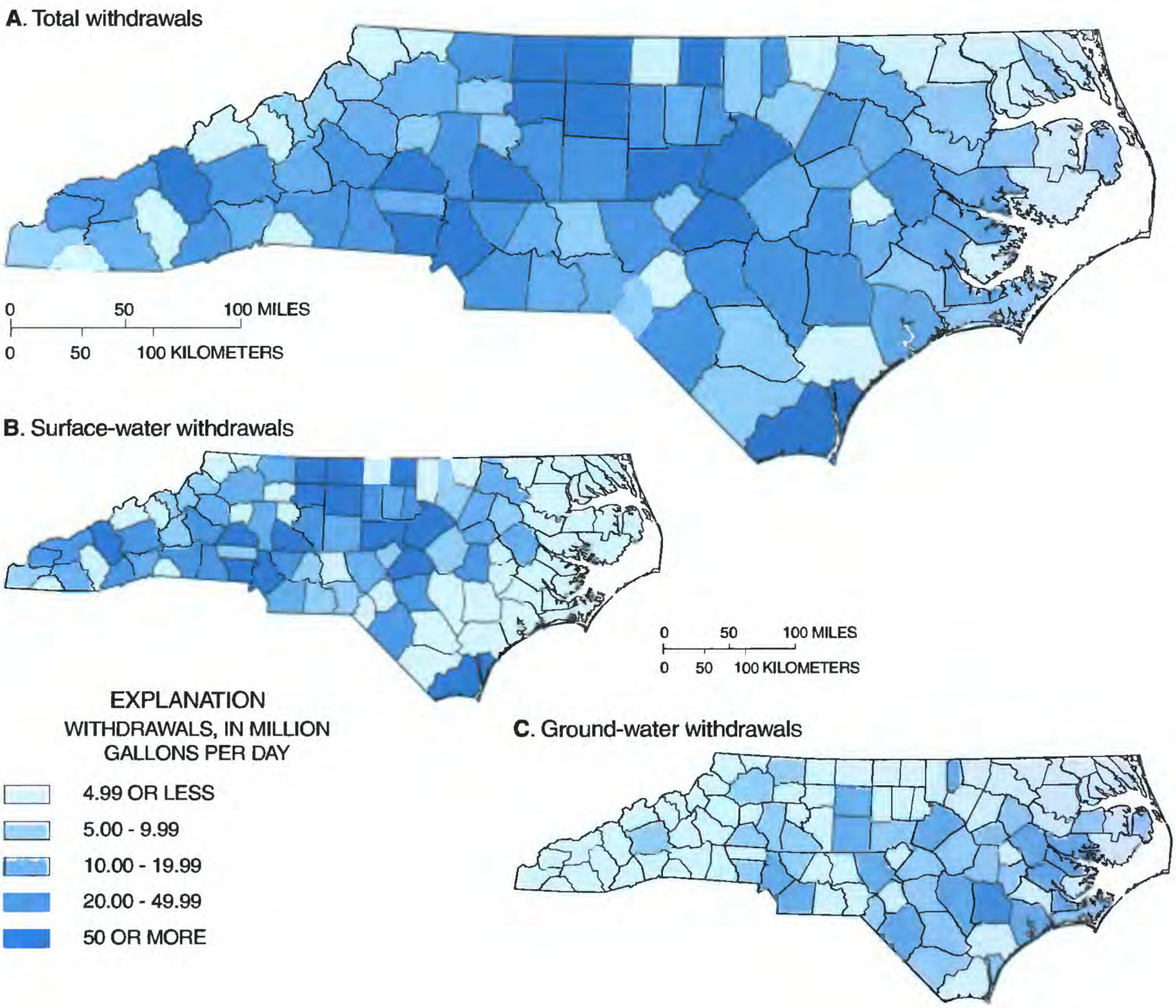


Figure 5. Water withdrawals, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

Public-Supply Water Use

The population of North Carolina was about 7.2 million in 1995 (table 4), an increase of almost 8 percent since 1990 (U.S. Bureau of the Census, 1996). About 66 percent, or 4.7 million people, were served by a public-supply system. Counties with the majority of their population residing in urban areas tend to have a greater number of the population served by public suppliers. Mecklenburg County (Charlotte) had the highest population (579,470) in the State, with 467,070 people served by public supply. Other more populated areas of the State (in order of highest population) include Wake, Guilford, Cumberland, Forsyth, and Durham Counties (table 4). A large percentage of the population in these counties are served by public-supply systems (table 5; fig. 6).

Public-supply systems withdraw, treat, and deliver water to customers. An estimated 769 Mgal/d of water was withdrawn for public supply in 1995. This number is 8 percent of all water withdrawn in the State. Withdrawals for this category are primarily from surface water which accounted for 82 percent of the

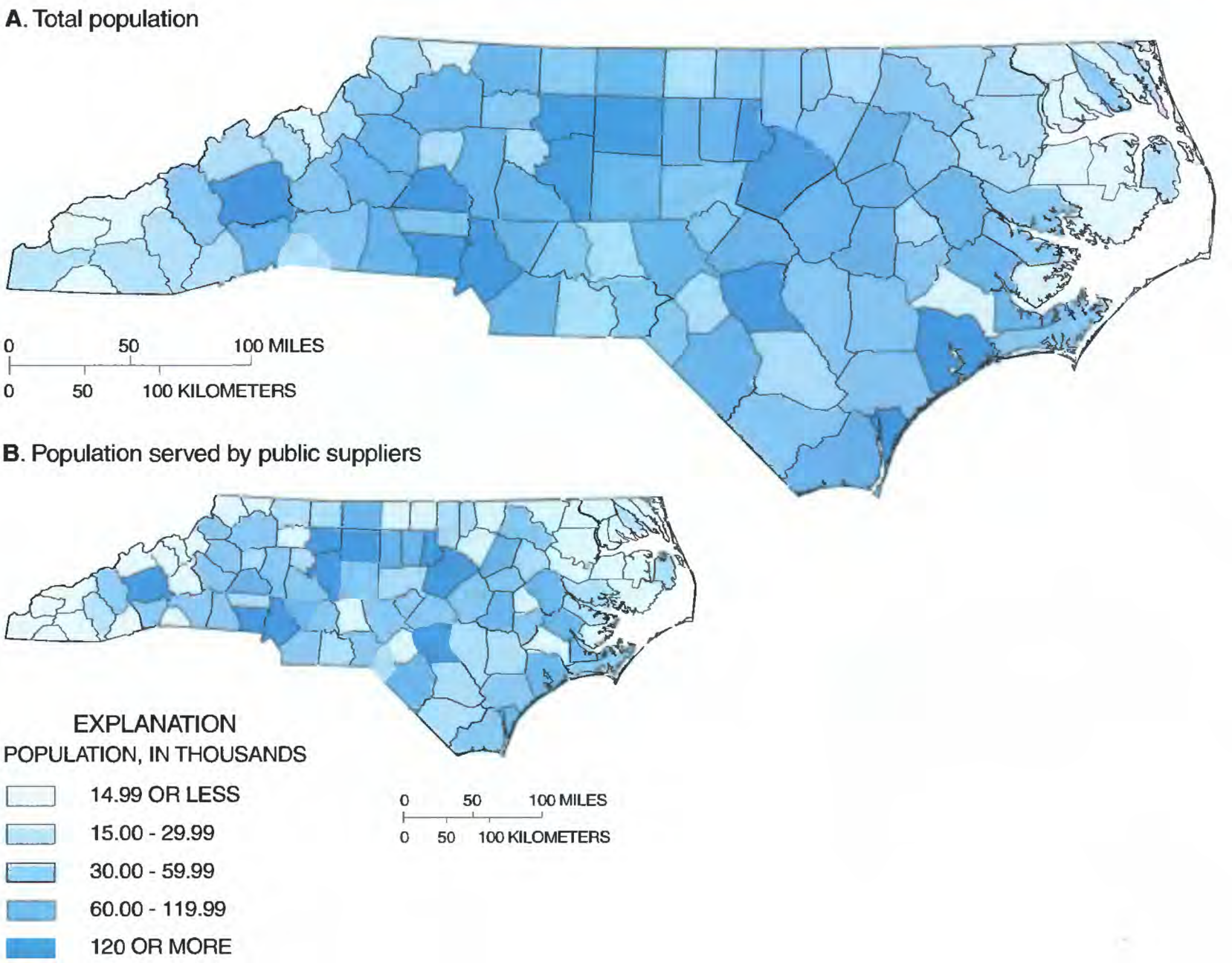


Figure 6. (A) Total population and (B) population served by public suppliers, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

Table 5. Public-supply water use, by source, water-use category, and county, in North Carolina, 1995

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Population served, in thousands			Withdrawals, by source, in Mgal/d					Per capita use, in gal/d	Water deliveries, by water-use category, in Mgal/d					Public uses and losses, in Mgal/d
	Source		Total	Ground water			Surface water	Total		Domestic	Commercial	Industrial	Thermoelectric	Total deliveries	
	Ground water	Surface water		Fresh	Saline	Total	Fresh								
ALAMANCE	4.14	70.12	74.26	0.27	0.00	0.27	14.10	14.37	193.51	3.70	2.57	7.33	0.00	13.60	0.77
ALEXANDER	0.60	17.35	17.95	0.04	0.00	0.04	1.50	1.54	85.79	0.90	0.07	0.14	0.00	1.11	0.43
ALLEGHANY	3.02	0.00	3.02	0.45	0.00	0.45	0.00	0.45	149.01	0.20	0.04	0.00	0.00	0.24	0.21
ANSON	0.64	19.16	19.80	0.04	0.00	0.04	5.81	5.85	295.45	1.70	0.13	1.68	0.00	3.51	2.34
ASHE	2.70	1.02	3.72	0.22	0.00	0.22	0.14	0.36	96.77	0.30	0.11	0.05	0.00	0.46	-0.10
AVERY	9.26	0.00	9.26	0.92	0.00	0.92	0.00	0.92	99.35	0.50	0.10	0.00	0.00	0.60	0.32
BEAUFORT	10.64	7.69	18.33	1.12	0.00	1.12	1.14	2.26	123.30	1.20	0.35	0.23	0.00	1.78	0.48
BERTIE	10.83	0.00	10.83	0.95	0.00	0.95	0.00	0.95	87.72	0.70	0.09	0.02	0.00	0.81	0.14
BLADEN	24.51	0.04	24.55	2.32	0.00	2.32	0.00	2.32	94.50	1.80	0.13	0.25	0.00	2.18	0.14
BRUNSWICK	7.58	39.03	46.61	1.68	0.00	1.68	0.07	1.75	37.55	2.90	0.11	6.02	0.26	9.29	-7.54
BUNCOMBE	12.55	111.86	124.41	1.48	0.00	1.48	22.78	24.26	195.00	8.90	2.02	7.03	0.00	17.95	6.31
BURKE	2.33	48.03	50.36	0.11	0.00	0.11	16.26	16.37	325.06	3.40	1.31	11.22	0.00	15.93	0.44
CABARRUS	8.54	60.47	69.01	0.53	0.00	0.53	8.63	9.16	132.73	3.80	1.33	1.75	0.00	6.88	2.28
CALDWELL	2.19	48.55	50.74	0.20	0.00	0.20	5.87	6.07	119.63	3.00	0.51	1.51	0.00	5.02	1.05
CAMDEN	5.26	0.25	5.51	0.46	0.00	0.46	0.00	0.46	83.48	0.50	0.00	0.00	0.00	0.50	-0.04
CARTERET	35.07	0.00	35.07	4.16	0.00	4.16	0.00	4.16	118.62	2.70	1.21	0.04	0.00	3.95	0.21
CASWELL	1.39	2.04	3.43	0.08	0.00	0.08	0.53	0.61	177.84	0.20	0.09	0.03	0.00	0.32	0.29
CATAWBA	11.60	58.08	69.68	0.73	0.00	0.73	16.49	17.22	247.13	5.20	2.42	7.74	0.00	15.36	1.86
CHATHAM	7.03	10.55	17.58	0.49	0.00	0.49	3.31	3.80	216.15	1.30	0.18	1.52	0.00	3.00	0.80
CHEROKEE	1.70	6.97	8.67	0.12	0.00	0.12	1.38	1.50	173.01	0.60	0.24	0.29	0.00	1.13	0.37
CHOWAN	13.85	0.00	13.85	1.61	0.00	1.61	0.00	1.61	116.25	0.80	0.44	0.20	0.00	1.44	0.17
CLAY	1.15	0.00	1.15	0.15	0.00	0.15	0.00	0.15	130.43	0.10	0.05	0.01	0.00	0.16	-0.01
CLEVELAND	4.50	49.83	54.33	0.40	0.00	0.40	12.17	12.57	231.36	4.30	0.70	4.99	0.00	9.99	2.58
COLUMBUS	17.20	0.00	17.20	1.86	0.00	1.86	0.00	1.86	108.14	1.40	0.49	0.14	0.00	2.03	-0.17
CRAVEN	81.19	0.00	81.19	10.33	0.00	10.33	0.00	10.33	127.23	6.30	1.48	3.10	0.00	10.88	-0.55
CUMBERLAND	39.35	194.90	234.25	2.85	0.00	2.85	22.32	25.17	107.45	14.50	10.53	2.77	0.10	27.90	-2.73
CURRITUCK	7.28	0.00	7.28	0.37	0.00	0.37	0.00	0.37	50.82	0.30	0.15	0.00	0.00	0.45	-0.08
DARE	18.83	1.84	20.67	2.23	1.78	4.01	0.32	4.33	209.48	2.10	0.50	0.01	0.00	2.61	1.72
DAVIDSON	0.00	134.47	134.47	0.00	0.00	0.00	14.83	14.83	110.28	8.20	3.42	1.02	0.00	12.64	2.19
DAVIE	0.08	17.56	17.64	0.00	0.00	0.00	2.36	2.36	133.79	1.40	0.23	0.34	0.00	1.97	0.39
DUPLIN	16.61	0.00	16.61	11.27	0.00	11.27	0.00	11.27	678.51	1.20	0.41	2.84	0.00	4.45	6.82
DURHAM	3.21	140.00	143.21	0.19	0.00	0.19	20.74	20.93	146.15	11.00	7.10	1.30	0.00	19.40	1.53
EDGECOMBE	3.47	15.45	18.92	0.60	0.00	0.60	2.95	3.55	187.63	2.20	0.08	1.01	0.00	3.29	0.26
FORSYTH	8.19	228.55	236.74	0.63	0.00	0.63	42.72	43.35	183.11	13.10	0.30	24.58	0.00	37.98	5.37
FRANKLIN	3.28	5.92	9.20	0.75	0.00	0.75	1.19	1.94	210.87	0.50	0.30	0.32	0.00	1.12	0.82

Table 5. Public-supply water use, by source, water-use category, and county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Population served, in thousands			Withdrawals, by source, in Mgal/d					Per capita use, in gal/d	Water deliveries, by water-use category, in Mgal/d					Public uses and losses, in Mgal/d
	Source		Total	Ground water			Surface water	Total		Domestic	Commercial	Industrial	Thermoelectric	Total deliveries	
	Ground water	Surface water		Fresh	Saline	Total	Fresh								
GASTON	21.29	103.93	125.22	1.28	0.00	1.28	32.19	33.47	267.29	9.40	4.07	12.31	0.00	25.78	7.69
GATES	8.39	0.00	8.39	0.62	0.00	0.62	0.00	0.62	73.90	0.60	0.00	0.00	0.00	0.60	0.02
GRAHAM	0.38	2.37	2.75	0.02	0.00	0.02	0.30	0.32	116.36	0.20	0.02	0.06	0.00	0.28	0.04
GRANVILLE	1.14	20.03	21.17	0.06	0.00	0.06	2.09	2.15	101.56	1.80	0.79	0.59	0.00	3.18	-1.03
GREENE	11.56	0.18	11.74	2.06	0.00	2.06	0.00	2.06	175.47	1.00	0.17	0.09	0.00	1.26	0.80
GUILFORD	9.50	267.26	276.76	0.46	0.00	0.46	41.90	42.36	153.06	19.80	7.47	10.01	0.00	37.28	5.08
HALIFAX	3.25	37.01	40.26	0.39	0.00	0.39	5.98	6.37	158.22	2.50	0.80	2.23	0.00	5.53	0.84
HARNETT	8.26	46.82	55.08	0.44	0.00	0.44	6.30	6.74	122.37	3.00	1.01	0.19	0.00	4.20	2.54
HAYWOOD	0.89	30.09	30.98	0.05	0.00	0.05	5.70	5.75	185.60	3.20	1.00	0.00	0.00	4.20	1.55
HENDERSON	4.21	41.79	46.00	0.25	0.00	0.25	5.61	5.86	127.39	2.50	1.14	0.96	0.00	4.60	1.26
HERTFORD	9.29	0.00	9.29	1.29	0.00	1.29	0.00	1.29	138.86	1.20	0.28	0.10	0.00	1.58	-0.29
HOKE	12.15	0.00	12.15	2.04	0.00	2.04	0.00	2.04	167.90	0.60	0.06	1.32	0.00	1.98	0.06
HYDE	5.21	0.00	5.21	0.33	0.27	0.60	0.00	0.60	115.16	0.30	0.06	0.00	0.00	0.36	0.24
IREDELL	14.87	41.65	56.52	1.33	0.00	1.33	7.39	8.72	154.28	5.00	2.89	0.64	0.00	8.53	0.19
JACKSON	12.55	4.66	17.21	0.74	0.00	0.74	0.02	0.76	44.16	0.40	0.65	0.11	0.00	1.16	-0.40
JOHNSTON	11.88	45.55	57.43	1.30	0.00	1.30	3.31	4.61	80.27	3.70	0.65	0.55	0.00	4.90	-0.29
JONES	8.31	0.12	8.43	0.67	0.00	0.67	0.00	0.67	79.48	0.60	0.05	0.00	0.00	0.65	0.02
LEE	7.18	30.78	37.96	0.44	0.00	0.44	4.61	5.05	133.03	2.60	0.03	1.53	0.00	4.16	0.89
LENOIR	47.09	0.00	47.09	7.04	0.00	7.04	0.00	7.04	149.50	4.50	0.47	1.23	0.00	6.20	0.84
LINCOLN	1.05	18.93	19.98	0.06	0.00	0.06	5.75	5.81	290.79	1.20	0.63	1.67	0.00	3.50	2.31
MCDOWELL	2.35	9.24	11.59	0.66	0.00	0.66	1.77	2.43	209.66	0.70	0.19	0.69	0.00	1.58	0.85
MACON	3.09	7.48	10.57	0.19	0.00	0.19	1.28	1.47	139.07	0.70	0.51	0.08	0.00	1.29	0.18
MADISON	1.34	2.95	4.29	0.23	0.00	0.23	0.25	0.48	111.89	0.30	0.04	0.00	0.00	0.34	0.14
MARTIN	10.02	0.00	10.02	2.78	0.00	2.78	0.00	2.78	277.45	0.80	0.38	1.16	0.00	2.34	0.44
MECKLENBURG	16.29	450.78	467.07	0.97	0.00	0.97	71.98	72.95	156.19	40.30	25.52	0.63	0.00	66.45	6.50
MITCHELL	1.03	3.24	4.27	0.08	0.00	0.08	0.98	1.06	248.24	0.30	0.34	0.03	0.00	0.67	0.39
MONTGOMERY	2.13	11.60	13.73	0.53	0.00	0.53	2.61	3.14	228.70	1.00	0.43	0.62	0.00	2.05	1.09
MOORE	17.48	15.56	33.04	3.05	0.00	3.05	1.89	4.94	149.52	3.20	1.17	0.96	0.00	5.33	-0.39
NASH	5.27	64.03	69.30	0.62	0.00	0.62	12.80	13.42	193.65	3.80	2.56	5.31	0.00	11.67	1.75
NEW HANOVER	8.05	57.21	65.26	2.10	0.00	2.10	17.42	19.52	299.11	6.60	2.09	0.44	0.00	9.13	10.39
NORTHAMPTON	8.16	0.00	8.16	1.13	0.00	1.13	0.00	1.13	138.48	0.60	0.12	0.34	0.00	1.06	0.07
ONSLOW	101.32	0.00	101.32	8.48	0.00	8.48	0.00	8.48	83.70	6.50	0.33	0.05	0.00	6.88	1.60
ORANGE	4.14	78.99	83.13	0.25	0.00	0.25	10.50	10.75	129.32	4.80	3.02	0.75	0.00	8.57	2.18
PAMLICO	10.14	0.00	10.14	0.86	0.00	0.86	0.00	0.86	84.81	0.70	0.07	0.00	0.00	0.77	0.09
PASQUOTANK	25.55	0.74	26.29	3.86	0.00	3.86	0.16	4.02	152.91	1.80	0.54	0.16	0.00	2.50	1.52

Table 5. Public-supply water use, by source, water-use category, and county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Population served, in thousands			Withdrawals, by source, in Mgal/d					Per capita use, in gal/d	Water deliveries, by water-use category, in Mgal/d					Public uses and losses, in Mgal/d
	Source		Total	Ground water			Surface water	Total		Domestic	Commercial	Industrial	Thermoelectric	Total deliveries	
	Ground water	Surface water		Fresh	Saline	Total	Fresh								
PENDER	31.98	0.00	31.98	0.69	0.00	0.69	0.00	0.69	21.58	0.40	0.20	0.00	0.00	0.60	0.09
PERQUIMANS	10.65	0.00	10.65	1.00	0.00	1.00	0.00	1.00	93.90	1.10	0.05	0.00	0.00	1.15	-0.15
PERSON	0.31	11.26	11.57	0.02	0.00	0.02	4.09	4.11	355.23	0.50	0.35	2.84	0.00	3.69	0.42
PITT	49.80	49.66	99.46	5.96	0.00	5.96	7.71	13.67	137.44	5.90	4.03	2.35	0.00	12.28	1.39
POLK	1.77	6.08	7.85	0.49	0.00	0.49	0.87	1.36	173.25	0.80	0.09	0.23	0.00	1.12	0.24
RANDOLPH	6.98	33.83	40.81	0.58	0.00	0.58	6.11	6.69	163.93	2.60	0.32	3.60	0.00	6.52	0.17
RICHMOND	0.00	37.54	37.54	0.00	0.00	0.00	5.42	5.42	144.38	3.00	1.29	1.38	0.00	5.67	-0.25
ROBESON	50.07	20.21	70.28	10.00	0.00	10.00	6.50	16.50	234.78	6.40	0.48	8.80	0.00	15.68	0.82
ROCKINGHAM	3.96	64.64	68.60	0.25	0.00	0.25	21.25	21.50	313.41	4.90	5.96	9.46	0.00	20.32	1.18
ROWAN	12.99	37.04	50.03	1.20	0.00	1.20	11.06	12.26	245.05	3.00	0.71	5.85	0.00	9.56	2.70
RUTHERFORD	6.84	25.44	32.28	0.37	0.00	0.37	9.72	10.09	312.58	1.90	0.75	6.11	0.00	8.76	1.33
SAMPSON	18.37	0.00	18.37	3.43	0.00	3.43	0.00	3.43	186.72	1.60	0.48	0.25	0.00	2.33	1.10
SCOTLAND	4.50	14.67	19.17	0.29	0.00	0.29	2.60	2.89	150.76	1.30	0.63	0.55	0.00	2.48	0.41
STANLY	2.96	32.97	35.93	0.31	0.00	0.31	7.55	7.86	218.76	1.70	1.96	2.50	0.00	6.16	1.70
STOKES	2.18	17.50	19.68	0.26	0.00	0.26	1.27	1.53	77.74	1.40	0.07	0.00	0.00	1.47	0.06
SURRY	4.25	13.85	18.10	0.26	0.00	0.26	7.16	7.42	409.94	1.60	0.88	4.10	0.00	6.58	0.84
SWAIN	0.35	2.40	2.75	0.02	0.00	0.02	0.33	0.35	127.27	0.20	0.10	0.02	0.00	0.32	0.03
TRANSYLVANIA	5.30	7.60	12.90	0.51	0.00	0.51	0.99	1.50	116.28	0.90	0.05	0.00	0.00	0.95	0.55
TYRRELL	2.76	0.00	2.76	0.25	0.00	0.25	0.00	0.25	90.58	0.20	0.03	0.00	0.00	0.23	0.02
UNION	0.69	50.51	51.20	0.04	0.00	0.04	9.64	9.68	189.06	3.80	3.60	1.24	0.00	8.64	1.04
VANCE	0.91	17.50	18.41	0.05	0.00	0.05	5.11	5.16	280.28	1.30	0.51	0.42	0.00	2.23	2.93
WAKE	46.50	331.83	378.33	2.84	0.00	2.84	40.38	43.22	114.24	28.90	11.03	2.48	0.00	42.41	0.81
WARREN	0.72	4.03	4.75	0.04	0.00	0.04	0.00	0.04	8.42	0.40	0.04	0.02	0.00	0.46	-0.42
WASHINGTON	10.66	0.00	10.66	2.91	0.00	2.91	0.00	2.91	272.98	0.60	0.12	0.01	0.00	0.73	2.18
WATAUGA	5.15	27.60	32.75	0.53	0.00	0.53	3.34	3.87	118.17	1.00	1.25	0.06	0.00	2.31	1.56
WAYNE	40.05	46.73	86.78	3.57	0.00	3.57	5.58	9.15	105.44	4.10	1.64	1.57	0.00	7.31	1.84
WILKES	2.12	33.58	35.70	0.13	0.00	0.13	6.86	6.99	195.80	1.80	1.42	2.84	0.00	6.06	0.93
WILSON	5.24	40.00	45.24	0.84	0.00	0.84	7.46	8.30	183.47	3.10	0.94	2.01	0.00	6.05	2.25
YADKIN	4.61	6.63	11.24	1.19	0.00	1.19	1.13	2.32	206.41	0.70	0.20	0.30	0.00	1.20	1.12
YANCEY	0.49	1.80	2.29	0.03	0.00	0.03	0.32	0.35	152.84	0.20	0.08	0.09	0.00	0.37	-0.02
TOTAL	1,127.74	3,617.62	4,745.36	134.33	2.05	136.38	632.85	769.23	162.10	332.40	138.00	193.37	0.36	664.13	105.10

public-supply water (table 5; fig. 7). About 2 Mgal/d of saline water was withdrawn from aquifers in Dare and Hyde Counties and treated for public-supply use.

Public-supply systems delivered water for domestic, commercial, industrial, thermoelectric power, and for other public uses (such as firefighting, street cleaning, and recreation). Deliveries to the domestic sector account for 43 percent of the public-supply withdrawals (fig. 7). The remaining 57 percent includes deliveries to the other sectors, losses resulting from the transfer of water outside of the county or State, and losses associated with leaks within the distribution systems (table 5). The "public use and losses" column in table 5 was computed by subtracting the total deliveries to domestic, commercial, industrial, and thermoelectric water users from the total water withdrawals.

In the last few decades many municipalities have expanded their service areas to keep up with increasing population, and many previously self-supplied rural areas have been connected to public or community water systems. Mecklenburg County had the largest rate of withdrawal by public suppliers (nearly 10 percent of total public-supply withdrawals, or 73 Mgal/d) (table 5). Population served by public suppliers in Mecklenburg County accounted for 10 percent of all population served by public suppliers in the State. Wake, Forsyth, and Guilford Counties are the other large users of publicly supplied water (more than 40 Mgal/d) in the State (table 5; fig. 8). These counties account for 19 percent of all population served, and 18 percent of all the water delivered, by public suppliers in the State (table 5). Concentrated industrial and commercial activities also contribute to the large public-supply deliveries in these counties.

Domestic Water Use

In 1995, water use (withdrawals plus deliveries) for domestic purposes was 504 Mgal/d and represents 5 percent of all the water withdrawn in North Carolina (table 6). Nearly 2.5 million people in North Carolina rely on private wells or springs for their household

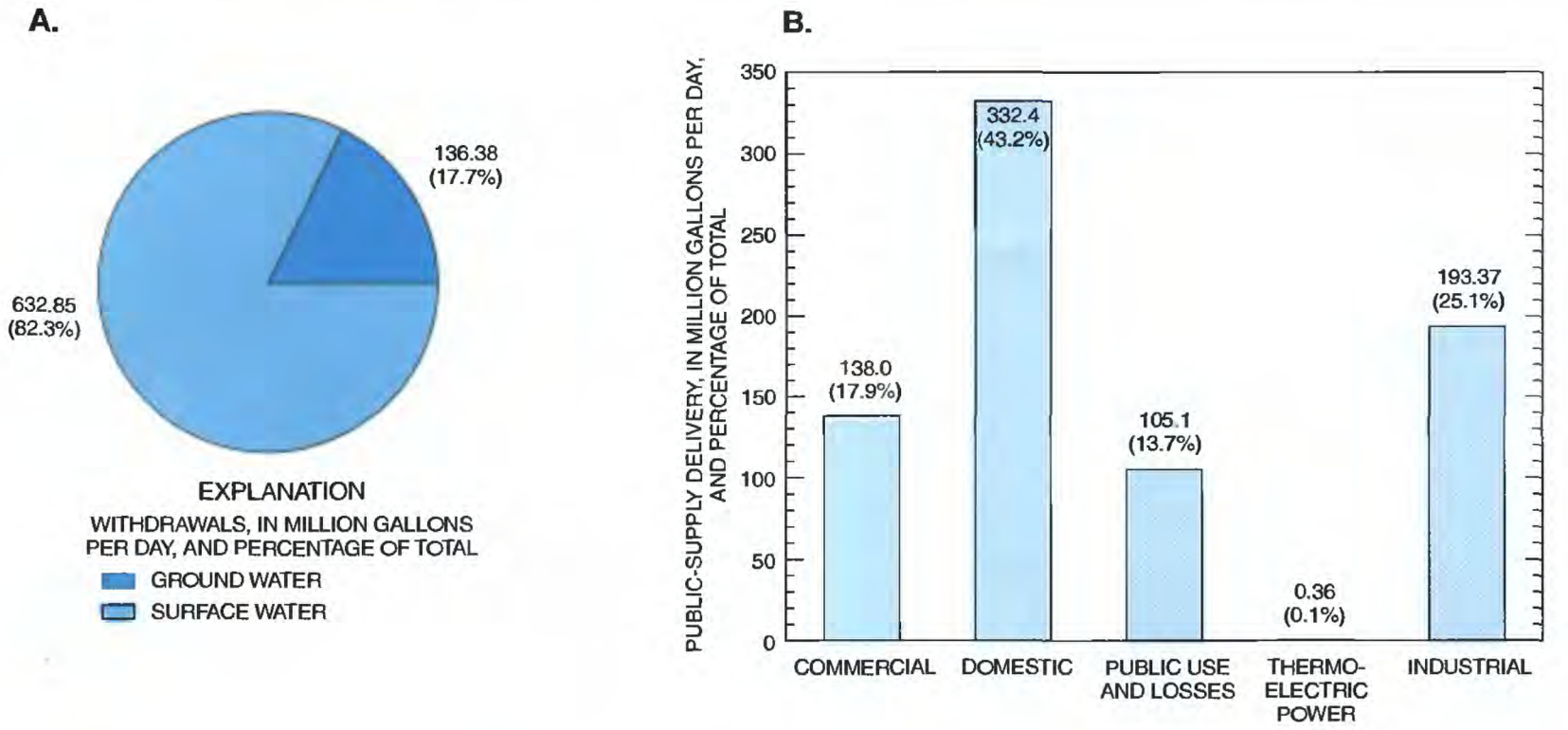


Figure 7. (A) Sources of public-supply withdrawals and (B) public-supply deliveries, by water-use category, in North Carolina, 1995.

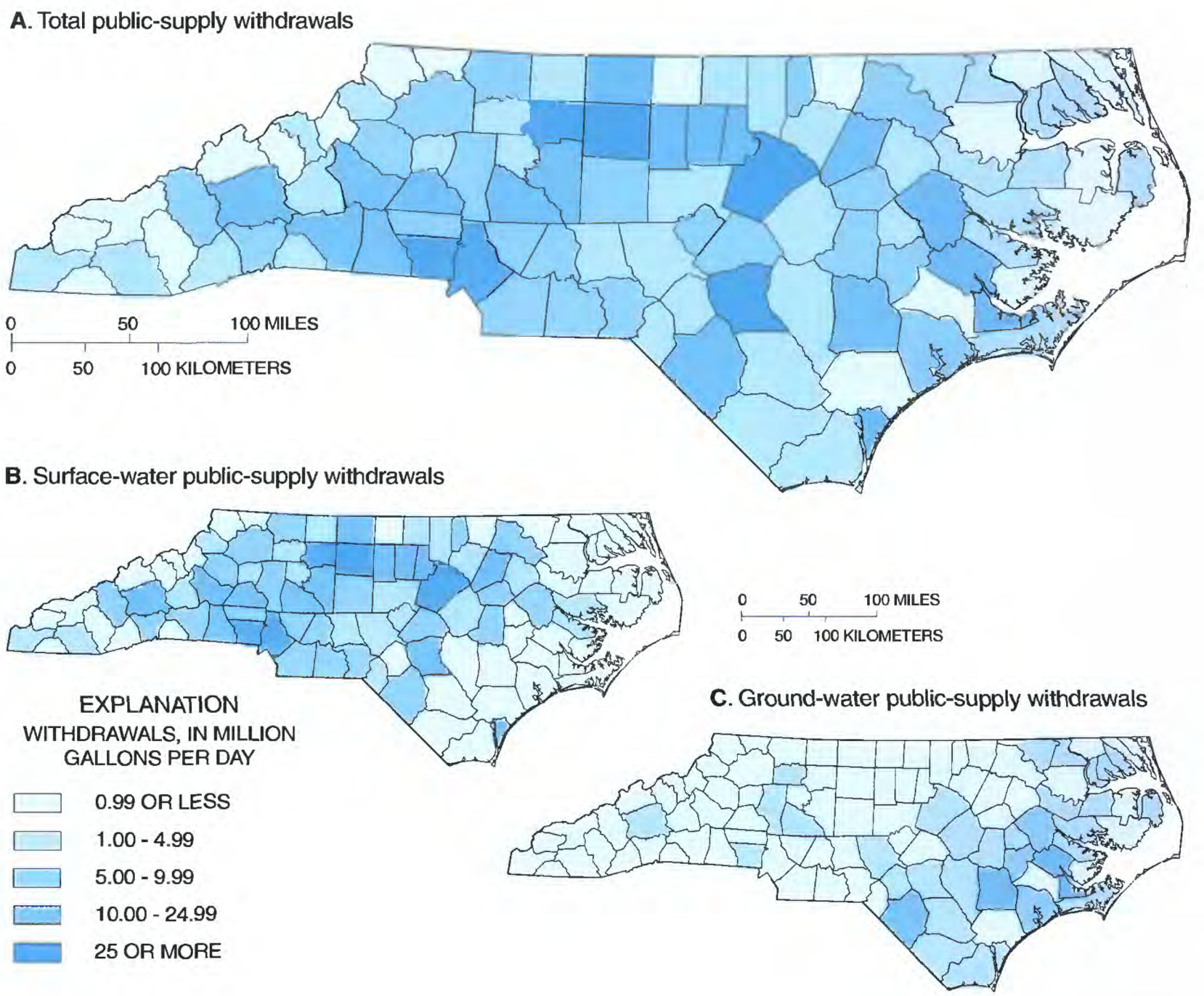


Figure 8. Public-supply withdrawals, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

water needs (table 6; fig. 9). Withdrawals for domestic use were 172 Mgal/d. Domestic withdrawals were estimated with a per capita use rate of 70 gallons per day (gal/d). Per capita use for people serviced by public suppliers was also about 70 gal/d. Public suppliers delivered 332 Mgal/d to about 4.7 million users; this accounts for 66 percent of all water used for domestic purposes (table 5; fig. 9).

Wake County had the largest self-supplied population in the State with 135,300 persons (table 6; fig 10). Mecklenburg, Guilford, New Hanover, and Randolph Counties also had large populations that were self supplied. Each of these five counties withdrew 5 Mgal/d or more, and combined, accounted for 20 percent of all domestic withdrawals in 1995 (table 6; fig. 11). Domestic withdrawals were assumed to be entirely from ground water.

More than 75 percent of the people in seven counties relied on private wells and springs in 1995 for their water supply: Yancey, 86 percent; Clay, 85 percent; Ashe and Caswell, 84 percent each; Franklin, 78 percent; Swain, 77 percent; and Madison, 76 percent (table 6; fig. 10). These counties have relatively small populations that are located in rural areas of the State. In contrast, counties with less than 5 percent of the population that relied on private water supplies include Davidson, Chowan, and Perquimans, 1 percent each; Hyde, 3 percent; and Craven, 5 percent. Chowan, Perquimans, Hyde, and Craven Counties are mostly rural areas with small total populations served primarily by public-supply systems. Davidson County has a relatively large population, and several urban areas are served by public-supply systems in Davidson or adjoining counties.

Table 6. Domestic water use, by county, in North Carolina, 1995

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Self supplied					Public supplied			Total	
	Population, in thousands	Ground-water withdrawals, in Mgal/d	Surface-water withdrawals, in Mgal/d	Total withdrawals, in Mgal/d	Per capita use, in gal/d	Population served, in thousands	Deliveries from public suppliers, in Mgal/d	Per capita use, in gal/d	Withdrawals and deliveries, in Mgal/d	Consumptive use, in Mgal/d
ALAMANCE	40.80	2.86	0.00	2.86	70.10	74.26	3.70	49.82	6.56	2.05
ALEXANDER	11.94	0.84	0.00	0.84	70.35	17.95	0.90	50.14	1.74	0.53
ALLEGHANY	6.87	0.48	0.00	0.48	69.87	3.02	0.20	66.23	0.68	0.21
ANSON	4.38	0.31	0.00	0.31	70.78	19.80	1.70	85.86	2.01	0.68
ASHE	19.65	1.38	0.00	1.38	70.23	3.72	0.30	80.65	1.68	0.48
AVERY	6.06	0.42	0.00	0.42	69.31	9.26	0.50	54.00	0.92	0.30
BEAUFORT	25.79	1.81	0.00	1.81	70.18	18.33	1.20	65.47	3.01	0.87
BERTIE	10.02	0.70	0.00	0.70	69.86	10.83	0.70	64.64	1.40	0.45
BLADEN	5.41	0.38	0.00	0.38	70.24	24.55	1.80	73.32	2.18	0.74
BRUNSWICK	14.19	0.99	0.00	0.99	69.77	46.61	2.90	62.22	3.89	1.27
BUNCOMBE	65.10	4.56	0.00	4.56	70.05	124.41	8.90	71.54	13.46	4.23
BURKE	29.50	2.07	0.00	2.07	70.17	50.36	3.40	67.51	5.47	1.78
CABARRUS	41.02	2.87	0.00	2.87	69.97	69.01	3.80	55.06	6.67	2.10
CALDWELL	23.32	1.63	0.00	1.63	69.90	50.74	3.00	59.12	4.63	1.49
CAMDEN	0.94	0.07	0.00	0.07	74.47	5.51	0.50	90.74	0.57	0.17
CARTERET	22.81	1.60	0.00	1.60	70.14	35.07	2.70	76.99	4.30	1.37
CASWELL	17.89	1.25	0.00	1.25	69.87	3.43	0.20	58.31	1.45	0.41
CATAWBA	56.74	3.97	0.00	3.97	69.97	69.68	5.20	74.63	9.17	2.89
CHATHAM	24.96	1.75	0.00	1.75	70.11	17.58	1.30	73.95	3.05	0.92
CHEROKEE	12.93	0.91	0.00	0.91	70.38	8.67	0.60	69.20	1.51	0.46
CHOWAN	0.16	0.01	0.00	0.01	62.50	13.85	0.80	57.76	0.81	0.30
CLAY	6.71	0.47	0.00	0.47	70.04	1.15	0.10	86.96	0.57	0.15
CLEVELAND	35.44	2.48	0.00	2.48	69.98	54.33	4.30	79.15	6.78	2.19
COLUMBUS	34.20	2.39	0.00	2.39	69.88	17.20	1.40	81.40	3.79	1.14
CRAVEN	4.33	0.30	0.00	0.30	69.28	81.19	6.30	77.60	6.60	2.29
CUMBERLAND	51.62	3.61	0.00	3.61	69.93	234.25	14.50	61.90	18.11	6.08
CURRITUCK	8.99	0.63	0.00	0.63	70.08	7.28	0.30	41.21	0.93	0.29
DARE	5.38	0.38	0.00	0.38	70.63	20.67	2.10	101.60	2.48	1.10
DAVIDSON	0.90	0.06	0.00	0.06	66.67	134.47	8.20	60.98	8.26	2.89
DAVIE	11.97	0.84	0.00	0.84	70.18	17.64	1.40	79.37	2.24	0.72
DUPLIN	25.38	1.78	0.00	1.78	70.13	16.61	1.20	72.25	2.98	0.91
DURHAM	52.05	3.64	0.00	3.64	69.93	143.21	11.00	76.81	14.64	4.86
EDGECOMBE	37.45	2.62	0.00	2.62	69.96	18.92	2.20	116.28	4.82	1.49
FORSYTH	44.31	3.10	0.00	3.10	69.96	236.74	13.10	55.33	16.20	5.43
FRANKLIN	32.20	2.25	0.00	2.25	69.88	9.20	0.50	54.35	2.75	0.79

Table 6. Domestic water use, by county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Self supplied					Public supplied			Total	
	Population, in thousands	Ground-water withdrawals, in Mgal/d	Surface-water withdrawals, in Mgal/d	Total withdrawals, in Mgal/d	Per capita use, in gal/d	Population served, in thousands	Deliveries from public suppliers, in Mgal/d	Per capita use, in gal/d	Withdrawals and deliveries, in Mgal/d	Consumptive use, in Mgal/d
GASTON	56.25	3.94	0.00	3.94	70.04	125.22	9.40	75.07	13.34	4.32
GATES	1.46	0.10	0.00	0.10	68.49	8.39	0.60	71.51	0.70	0.22
GRAHAM	4.87	0.34	0.00	0.34	69.82	2.75	0.20	72.73	0.54	0.15
GRANVILLE	19.74	1.38	0.00	1.38	69.91	21.17	1.80	85.03	3.18	1.00
GREENE	5.20	0.36	0.00	0.36	69.23	11.74	1.00	85.18	1.36	0.44
GUILFORD	97.68	6.84	0.00	6.84	70.02	276.76	19.80	71.54	26.64	8.79
HALIFAX	17.24	1.21	0.00	1.21	70.19	40.26	2.50	62.10	3.71	1.20
HARNETT	21.23	1.49	0.00	1.49	70.18	55.08	3.00	54.47	4.49	1.47
HAYWOOD	18.76	1.31	0.00	1.31	69.83	30.98	3.20	103.29	4.51	1.47
HENDERSON	30.70	2.15	0.00	2.15	70.03	46.00	2.50	54.35	4.65	1.45
HERTFORD	13.30	0.93	0.00	0.93	69.92	9.29	1.20	129.17	2.13	0.67
HOKE	15.48	1.08	0.00	1.08	69.77	12.15	0.60	49.38	1.68	0.52
HYDE	0.16	0.01	0.00	0.01	62.50	5.21	0.30	57.58	0.31	0.12
IREDELL	46.89	3.28	0.00	3.28	69.95	56.52	5.00	88.46	8.28	2.59
JACKSON	11.82	0.83	0.00	0.83	70.22	17.21	0.40	23.24	1.23	0.36
JOHNSTON	37.35	2.62	0.00	2.62	70.15	57.43	3.70	64.43	6.32	1.99
JONES	1.37	0.10	0.00	0.10	72.99	8.43	0.60	71.17	0.70	0.23
LEE	7.98	0.56	0.00	0.56	70.18	37.96	2.60	68.49	3.16	1.09
LENOIR	12.17	0.85	0.00	0.85	69.84	47.09	4.50	95.56	5.35	1.80
LINCOLN	36.04	2.52	0.00	2.52	69.92	19.98	1.20	60.06	3.72	1.12
MCDOWELL	25.88	1.81	0.00	1.81	69.94	11.59	0.70	60.40	2.51	0.76
MACON	15.61	1.09	0.00	1.09	69.83	10.57	0.70	66.23	1.79	0.52
MADISON	13.65	0.96	0.00	0.96	70.33	4.29	0.30	69.93	1.26	0.36
MARTIN	16.38	1.15	0.00	1.15	70.21	10.02	0.80	79.84	1.95	0.54
MECKLENBURG	112.40	7.87	0.00	7.87	70.02	467.07	40.30	86.28	48.17	16.25
MITCHELL	10.43	0.73	0.00	0.73	69.99	4.27	0.30	70.26	1.03	0.30
MONTGOMERY	9.76	0.68	0.00	0.68	69.67	13.73	1.00	72.83	1.68	0.52
MOORE	34.13	2.39	0.00	2.39	70.03	33.04	3.20	96.85	5.59	1.76
NASH	16.26	1.14	0.00	1.14	70.11	69.30	3.80	54.83	4.94	1.64
NEW HANOVER	74.56	5.22	0.00	5.22	70.01	65.26	6.60	101.13	11.82	3.73
NORTHAMPTON	12.74	0.89	0.00	0.89	69.86	8.16	0.60	73.53	1.49	0.44
ONSLOW	42.00	2.94	0.00	2.94	70.00	101.32	6.50	64.15	9.44	3.09
ORANGE	24.52	1.72	0.00	1.72	70.15	83.13	4.80	57.74	6.52	2.13
PAMLICO	1.93	0.14	0.00	0.14	72.54	10.14	0.70	69.03	0.84	0.27
PASQUOTANK	7.58	0.53	0.00	0.53	69.92	26.29	1.80	68.47	2.33	0.78

Table 6. Domestic water use, by county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day; gal/d, gallons per day]

County	Self supplied					Public supplied			Total	
	Population, in thousands	Ground-water withdrawals, in Mgal/d	Surface-water withdrawals, in Mgal/d	Total withdrawals, in Mgal/d	Per capita use, in gal/d	Population served, in thousands	Deliveries from public suppliers, in Mgal/d	Per capita use, in gal/d	Withdrawals and deliveries, in Mgal/d	Consumptive use, in Mgal/d
PENDER	3.10	0.22	0.00	0.22	70.97	31.98	0.40	12.51	0.62	0.20
PERQUIMANS	0.15	0.01	0.00	0.01	66.67	10.65	1.10	103.29	1.11	0.38
PERSON	20.81	1.46	0.00	1.46	70.16	11.57	0.50	43.22	1.96	0.59
PITT	18.28	1.28	0.00	1.28	70.02	99.46	5.90	59.32	7.18	2.43
POLK	7.95	0.56	0.00	0.56	70.44	7.85	0.80	101.91	1.36	0.42
RANDOLPH	73.81	5.17	0.00	5.17	70.04	40.81	2.60	63.71	7.77	2.31
RICHMOND	8.12	0.57	0.00	0.57	70.20	37.54	3.00	79.91	3.57	1.21
ROBESON	41.76	2.92	0.00	2.92	69.92	70.28	6.40	91.06	9.32	3.04
ROCKINGHAM	19.81	1.39	0.00	1.39	70.17	68.60	4.90	71.43	6.29	1.98
ROWAN	69.18	4.84	0.00	4.84	69.96	50.03	3.00	59.96	7.84	2.46
RUTHERFORD	26.93	1.89	0.00	1.89	70.18	32.28	1.90	58.86	3.79	1.20
SAMPSON	32.11	2.25	0.00	2.25	70.07	18.37	1.60	87.10	3.85	1.20
SCOTLAND	16.13	1.13	0.00	1.13	70.06	19.17	1.30	67.81	2.43	0.76
STANLY	18.24	1.28	0.00	1.28	70.18	35.93	1.70	47.31	2.98	0.95
STOKES	21.04	1.47	0.00	1.47	69.87	19.68	1.40	71.14	2.87	0.89
SURRY	47.06	3.29	0.00	3.29	69.91	18.10	1.60	88.40	4.89	1.43
SWAIN	9.07	0.63	0.00	0.63	69.46	2.75	0.20	72.73	0.83	0.26
TRANSYLVANIA	14.44	1.01	0.00	1.01	69.94	12.90	0.90	69.77	1.91	0.59
TYRRELL	1.13	0.08	0.00	0.08	70.80	2.76	0.20	72.46	0.28	0.09
UNION	47.96	3.36	0.00	3.36	70.06	51.20	3.80	74.22	7.16	2.25
VANCE	22.31	1.56	0.00	1.56	69.92	18.41	1.30	70.61	2.86	0.88
WAKE	135.31	9.47	0.00	9.47	69.99	378.33	28.90	76.39	38.37	12.71
WARREN	13.23	0.93	0.00	0.93	70.29	4.75	0.40	84.21	1.33	0.38
WASHINGTON	3.46	0.24	0.00	0.24	69.36	10.66	0.60	56.29	0.84	0.29
WATAUGA	7.05	0.49	0.00	0.49	69.50	32.75	1.00	30.53	1.49	0.46
WAYNE	23.39	1.64	0.00	1.64	70.12	86.78	4.10	47.25	5.74	1.89
WILKES	25.22	1.77	0.00	1.77	70.18	35.70	1.80	50.42	3.57	1.12
WILSON	22.12	1.55	0.00	1.55	70.07	45.24	3.10	68.52	4.65	1.51
YADKIN	21.72	1.52	0.00	1.52	69.98	11.24	0.70	62.28	2.22	0.65
YANCEY	13.95	0.98	0.00	0.98	70.25	2.29	0.20	87.34	1.18	0.33
TOTAL	2,449.77	171.53	0.00	171.53	70.02	4,745.36	332.40	70.05	503.93	162.98

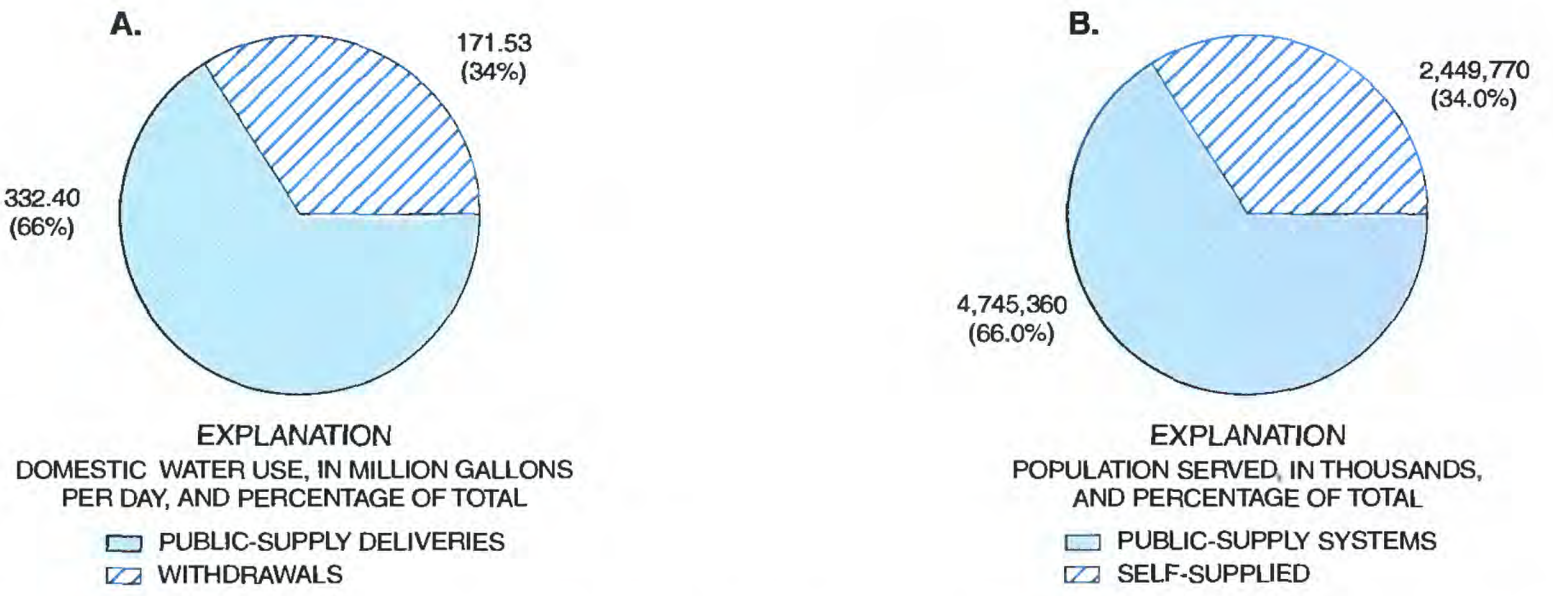


Figure 9. Domestic water use in North Carolina, 1995. (A) Public-supply deliveries and withdrawals, and (B) Population served by public suppliers and self-supplied sources.

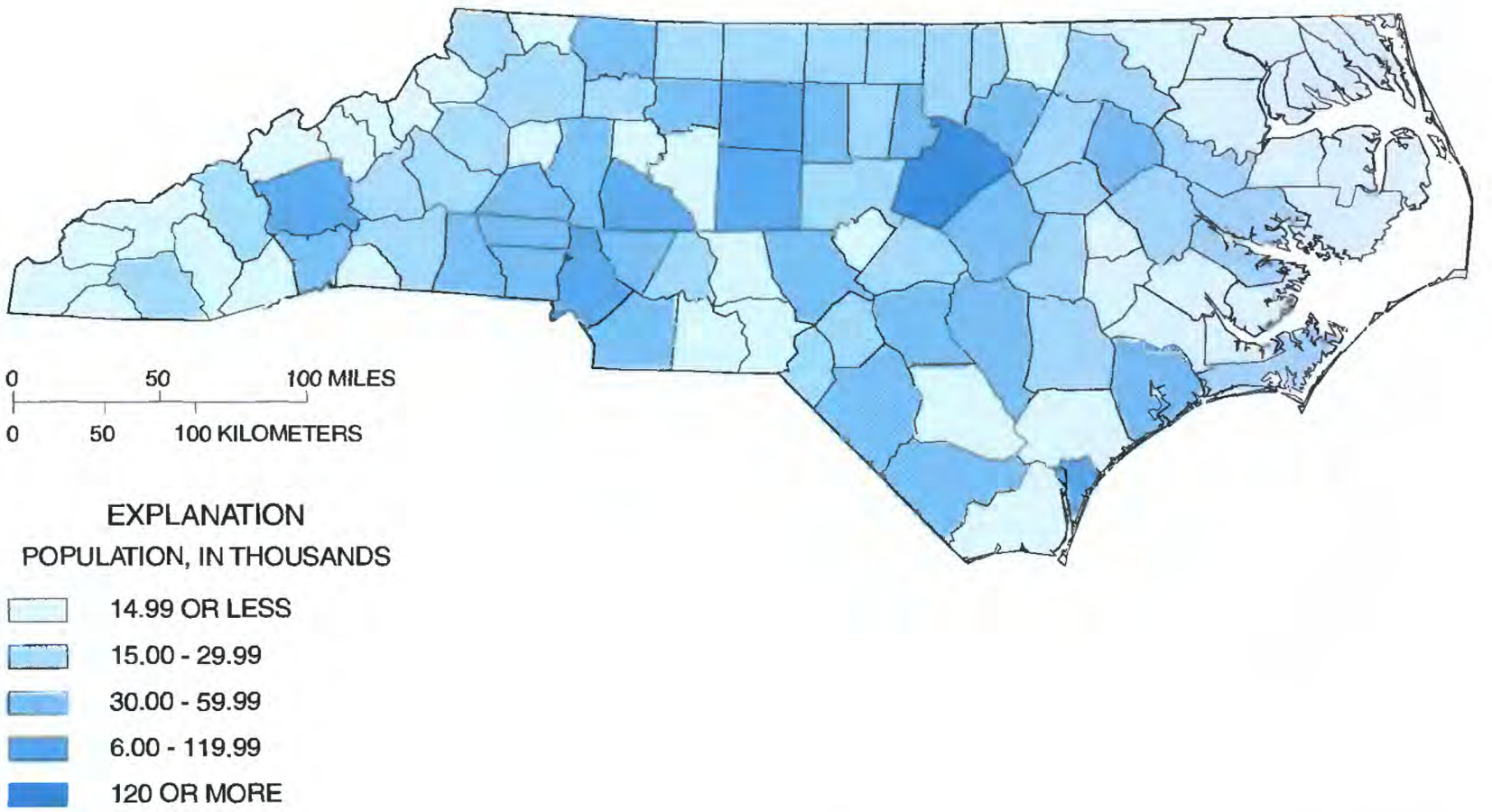


Figure 10. Population reliant on self-supplied water for domestic use, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

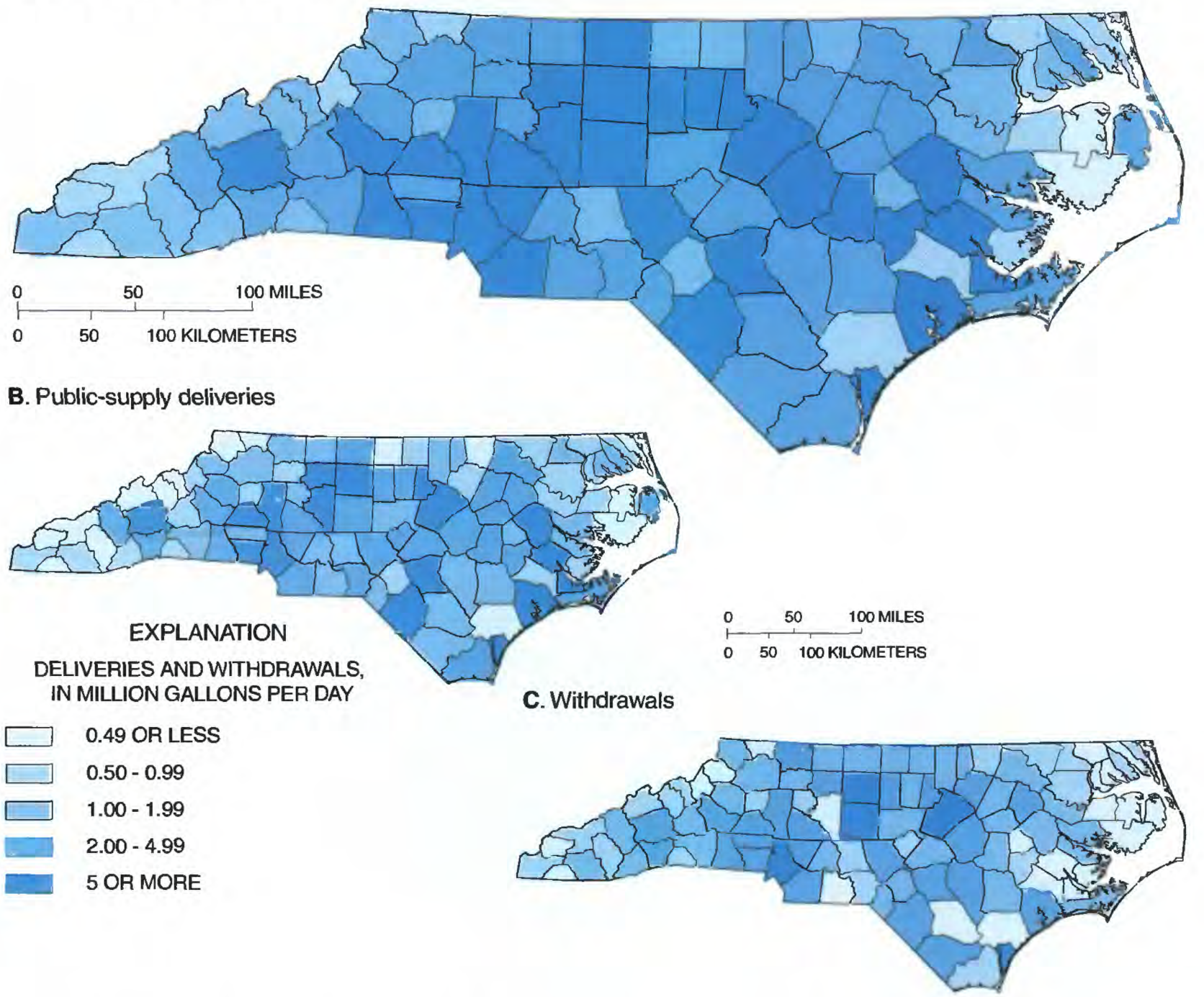


Figure 11. Domestic water use, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

Commercial Water Use

In 1995, commercial water use in North Carolina was estimated at 146 Mgal/d, which is less than 2 percent of the State's total water withdrawals (table 7). Withdrawals were estimated at 7.60 Mgal/d. Self-supplied commercial water use is difficult to estimate because withdrawals tend to be relatively small and water-use coefficients for commercial use vary between water-use coefficient sources. County withdrawals ranged from 0 to 0.38 Mgal/d (table 7; fig. 12). The source of self-supplied commercial water was assumed to be ground water.

Public-supply deliveries comprised 95 percent, or 138 Mgal/d, of all commercial water use (fig. 13). Three counties received more than 10 Mgal/d of water from public suppliers for commercial use—Cumberland, Mecklenburg, and Wake Counties.

Table 7. Commercial water use, in million gallons per day, by county, in North Carolina, 1995

County	Self-supplied withdrawals			Deliveries from public suppliers	Total use	
	Ground water	Surface water	Total		Withdrawals and deliveries	Consumptive use
ALAMANCE	0.17	0.00	0.17	2.57	2.74	0.14
ALEXANDER	0.01	0.00	0.01	0.07	0.08	0.00
ALLEGHANY	0.05	0.00	0.05	0.04	0.09	0.00
ANSON	0.00	0.00	0.00	0.13	0.13	0.01
ASHE	0.07	0.00	0.07	0.11	0.18	0.01
AVERY	0.11	0.00	0.11	0.10	0.21	0.01
BEAUFORT	0.09	0.00	0.09	0.35	0.44	0.02
BERTIE	0.02	0.00	0.02	0.09	0.11	0.01
BLADEN	0.25	0.00	0.25	0.13	0.38	0.02
BRUNSWICK	0.11	0.00	0.11	0.11	0.22	0.01
BUNCOMBE	0.07	0.00	0.07	2.02	2.09	0.10
BURKE	0.14	0.00	0.14	1.31	1.45	0.07
CABARRUS	0.06	0.00	0.06	1.33	1.39	0.07
CALDWELL	0.07	0.00	0.07	0.51	0.58	0.03
CAMDEN	0.01	0.00	0.01	0.00	0.01	0.00
CARTERET	0.12	0.00	0.12	1.21	1.33	0.07
CASWELL	0.02	0.00	0.02	0.09	0.11	0.01
CATAWBA	0.15	0.00	0.15	2.42	2.57	0.13
CHATHAM	0.03	0.04	0.07	0.18	0.25	0.01
CHEROKEE	0.04	0.00	0.04	0.24	0.28	0.01
CHOWAN	0.00	0.00	0.00	0.44	0.44	0.02
CLAY	0.03	0.00	0.03	0.05	0.08	0.00
CLEVELAND	0.05	0.00	0.05	0.70	0.75	0.04
COLUMBUS	0.11	0.00	0.11	0.49	0.60	0.03
CRAVEN	0.08	0.00	0.08	1.48	1.56	0.08
CUMBERLAND	0.18	0.00	0.18	10.53	10.71	0.54
CURRITUCK	0.02	0.00	0.02	0.15	0.17	0.01
DARE	0.05	0.00	0.05	0.50	0.55	0.03
DAVIDSON	0.00	0.00	0.00	3.42	3.42	0.17
DAVIE	0.01	0.00	0.01	0.23	0.24	0.01
DUPLIN	0.04	0.00	0.04	0.41	0.45	0.02
DURHAM	0.05	0.00	0.05	7.10	7.15	0.36
EDGECOMBE	0.04	0.00	0.04	0.08	0.12	0.01
FORSYTH	0.02	0.00	0.02	0.30	0.32	0.02
FRANKLIN	0.06	0.00	0.06	0.30	0.36	0.02
GASTON	0.00	0.00	0.00	4.07	4.07	0.20
GATES	0.00	0.00	0.00	0.00	0.00	0.00
GRAHAM	0.01	0.00	0.01	0.02	0.03	0.00
GRANVILLE	0.02	0.00	0.02	0.79	0.81	0.04
GREENE	0.00	0.00	0.00	0.17	0.17	0.01
GUILFORD	0.38	0.00	0.38	7.47	7.85	0.39
HALIFAX	0.05	0.00	0.05	0.80	0.85	0.04
HARNETT	0.02	0.00	0.02	1.01	1.03	0.05
HAYWOOD	0.08	0.00	0.08	1.00	1.08	0.05
HENDERSON	0.21	0.00	0.21	1.14	1.35	0.07
HERTFORD	0.04	0.00	0.04	0.28	0.32	0.02
HOKE	0.01	0.00	0.01	0.06	0.07	0.00
HYDE	0.02	0.00	0.02	0.06	0.08	0.00
IREDELL	0.05	0.00	0.05	2.89	2.94	0.15
JACKSON	0.11	0.00	0.11	0.65	0.76	0.04

Table 7. Commercial water use, in million gallons per day, by county, in North Carolina, 1995—Continued

County	Self-supplied withdrawals			Deliveries from public suppliers	Total use	
	Ground water	Surface water	Total		Withdrawals and deliveries	Consumptive use
JOHNSTON	0.11	0.00	0.11	0.65	0.76	0.04
JONES	0.00	0.00	0.00	0.05	0.05	0.00
LEE	0.00	0.00	0.00	0.03	0.03	0.00
LENOIR	0.03	0.00	0.03	0.47	0.50	0.03
LINCOLN	0.05	0.00	0.05	0.63	0.68	0.03
MCDOWELL	0.21	0.00	0.21	0.19	0.40	0.04
MACON	0.08	0.00	0.08	0.51	0.59	0.01
MADISON	0.02	0.00	0.02	0.04	0.06	0.00
MARTIN	0.06	0.00	0.06	0.38	0.44	0.01
MECKLENBURG	0.34	0.00	0.34	25.52	25.86	1.29
MITCHELL	0.04	0.00	0.04	0.34	0.38	0.02
MONTGOMERY	0.02	0.00	0.02	0.43	0.45	0.02
MOORE	0.13	0.00	0.13	1.17	1.30	0.06
NASH	0.15	0.00	0.15	2.56	2.71	0.14
NEW HANOVER	0.17	0.01	0.18	2.09	2.27	0.11
NORTHAMPTON	0.02	0.00	0.02	0.12	0.14	0.01
ONSLOW	0.03	0.00	0.03	0.33	0.36	0.02
ORANGE	0.03	0.00	0.03	3.02	3.05	0.15
PAMLICO	0.00	0.00	0.00	0.07	0.07	0.00
PASQUOTANK	0.00	0.00	0.00	0.54	0.54	0.03
PENDER	0.11	0.00	0.11	0.20	0.31	0.02
PERQUIMANS	0.01	0.00	0.01	0.05	0.06	0.00
PERSON	0.03	0.01	0.04	0.35	0.39	0.02
PITT	0.03	0.00	0.03	4.03	4.06	0.20
POLK	0.02	0.00	0.02	0.09	0.11	0.01
RANDOLPH	0.12	0.00	0.12	0.32	0.44	0.02
RICHMOND	0.01	0.00	0.01	1.29	1.30	0.07
ROBESON	0.06	0.00	0.06	0.48	0.54	0.03
ROCKINGHAM	0.06	0.00	0.06	5.96	6.02	0.16
ROWAN	0.13	0.10	0.23	0.71	0.94	0.19
RUTHERFORD	0.13	0.00	0.13	0.75	0.88	0.04
SAMPSON	0.15	0.00	0.15	0.48	0.63	0.03
SCOTLAND	0.01	0.00	0.01	0.63	0.64	0.03
STANLY	0.06	0.00	0.06	1.96	2.02	0.10
STOKES	0.27	0.00	0.27	0.07	0.34	0.02
SURRY	0.18	0.00	0.18	0.88	1.06	0.05
SWAIN	0.16	0.00	0.16	0.10	0.26	0.01
TRANSYLVANIA	0.13	0.10	0.23	0.05	0.28	0.01
TYRRELL	0.00	0.00	0.00	0.03	0.03	0.00
UNION	0.03	0.00	0.03	3.60	3.63	0.18
VANCE	0.04	0.00	0.04	0.51	0.55	0.03
WAKE	0.22	0.03	0.25	11.03	11.28	0.56
WARREN	0.02	0.00	0.02	0.04	0.06	0.00
WASHINGTON	0.00	0.00	0.00	0.12	0.12	0.01
WATAUGA	0.14	0.00	0.14	1.25	1.39	0.07
WAYNE	0.04	0.00	0.04	1.64	1.68	0.08
WILKES	0.07	0.00	0.07	1.42	1.49	0.07
WILSON	0.06	0.00	0.06	0.94	1.00	0.05
YADKIN	0.10	0.00	0.10	0.20	0.30	0.01
YANCEY	0.10	0.00	0.10	0.08	0.18	0.01
TOTAL	7.31	0.29	7.60	138.00	145.60	7.24

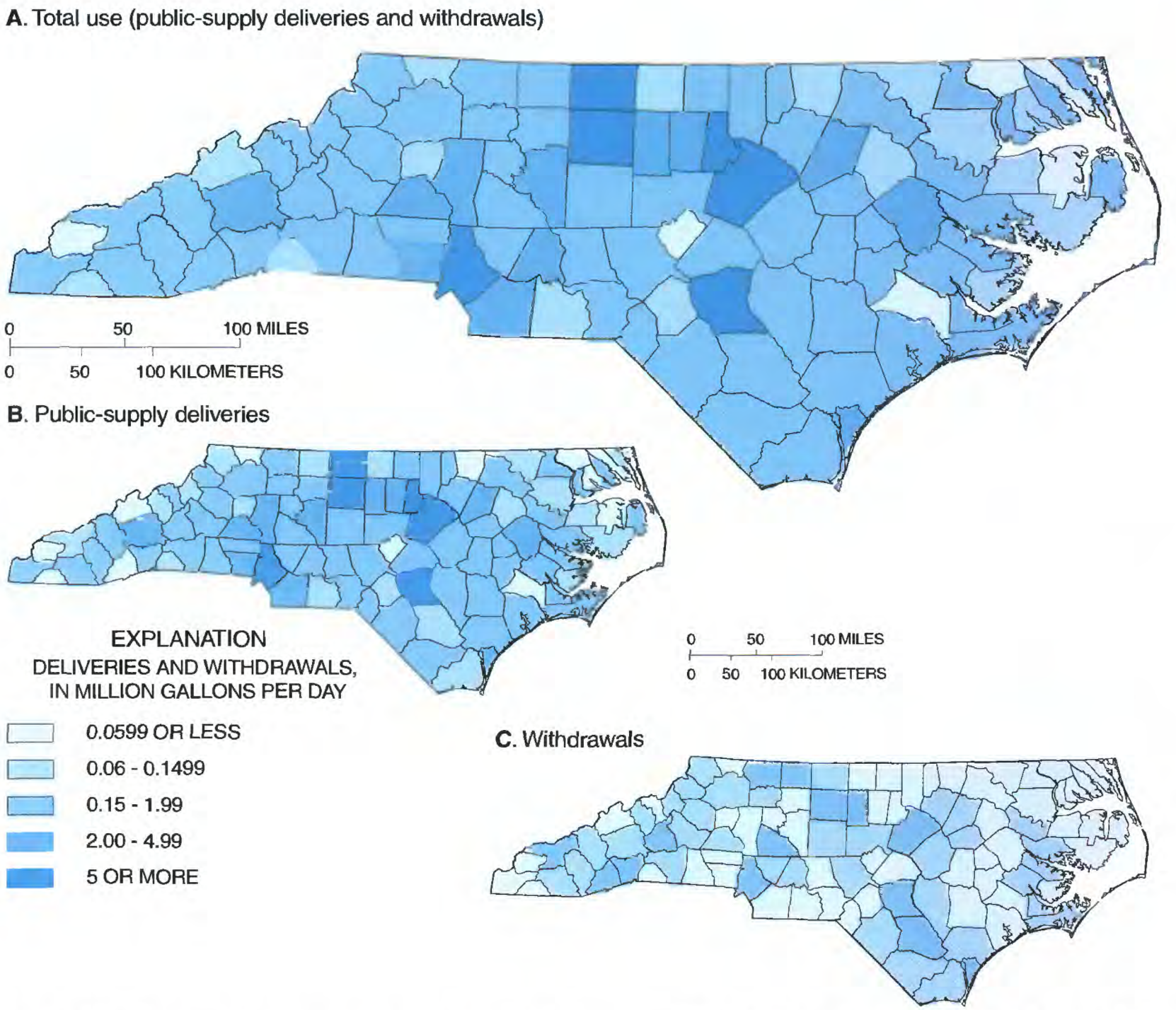


Figure 12. Commercial water use, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

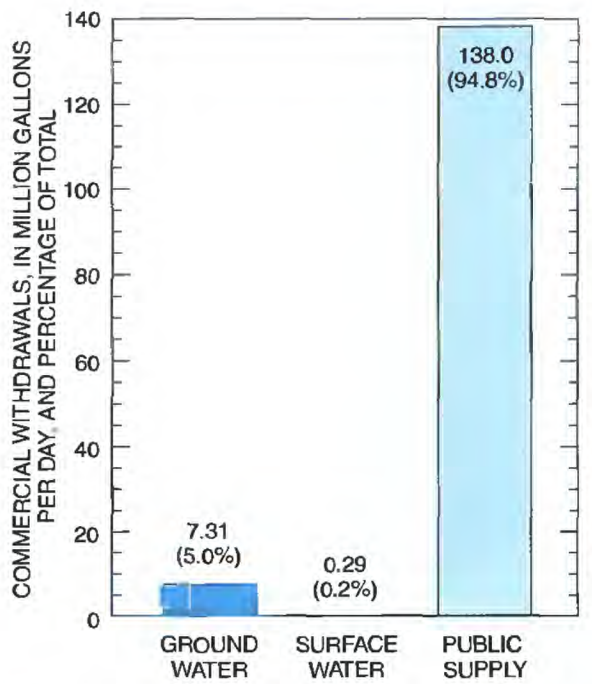


Figure 13. Source of water for commercial use in North Carolina, 1995.

Industrial Water Use

Industrial water use (including public-supply deliveries) in North Carolina, amounted to 6 percent, or 562 Mgal/d, of all withdrawals in the State (table 8). Withdrawals for industrial water use were approximately 369 Mgal/d. Of the industrial water use, 55 percent was from surface water. Public suppliers delivered about 34 percent of the total water used for industry (fig. 14). Harnett, Gaston, and Guilford Counties accounted for 33 percent of all water used by industries. Withdrawals for these counties accounted for almost 45 percent of the total for this category. Textiles, chemicals, and plastic products were the main industries in these counties. Total water use (deliveries and withdrawals), by county, varied geographically and ranged from 0 to 84 Mgal/d (table 8; fig. 15).

Table 8. Industrial water use, in million gallons per day, by county, in North Carolina, 1995

County	Self-supplied withdrawals			Deliveries from public suppliers	Total use	
	Ground water	Surface water	Total		Withdrawals and deliveries	Consumptive use
ALAMANCE	0.57	4.68	5.25	7.33	12.58	2.52
ALEXANDER	0.00	0.00	0.00	0.14	0.14	0.03
ALLEGHANY	0.01	0.08	0.09	0.00	0.09	0.02
ANSON	2.55	2.02	4.57	1.68	6.25	1.25
ASHE	0.00	0.00	0.00	0.05	0.05	0.01
AVERY	0.35	0.18	0.53	0.00	0.53	0.11
BEAUFORT	0.01	0.18	0.19	0.23	0.42	0.08
BERTIE	0.02	0.31	0.33	0.02	0.35	0.07
BLADEN	1.23	0.93	2.16	0.25	2.41	0.48
BRUNSWICK	0.23	0.34	0.57	6.02	6.59	1.32
BUNCOMBE	0.56	2.26	2.82	7.03	9.85	1.97
BURKE	2.22	5.09	7.31	11.22	18.53	3.71
CABARRUS	2.75	14.01	16.76	1.75	18.51	3.70
CALDWELL	0.35	1.26	1.61	1.51	3.12	0.62
CAMDEN	0.00	0.00	0.00	0.00	0.00	0.00
CARTERET	0.00	0.01	0.01	0.04	0.05	0.01
CASWELL	0.00	0.00	0.00	0.03	0.03	0.01
CATAWBA	2.89	2.69	5.58	7.74	13.32	2.66
CHATHAM	0.06	0.36	0.42	1.52	1.94	0.39
CHEROKEE	0.00	0.00	0.00	0.29	0.29	0.06
CHOWAN	0.13	0.04	0.17	0.20	0.37	0.07
CLAY	0.00	0.00	0.00	0.01	0.01	0.00
CLEVELAND	0.61	1.15	1.76	4.99	6.75	1.35
COLUMBUS	0.05	0.93	0.98	0.14	1.12	0.22
CRAVEN	0.00	0.04	0.04	3.10	3.14	0.63
CUMBERLAND	0.38	1.17	1.55	2.77	4.32	0.86
CURRITUCK	0.00	0.00	0.00	0.00	0.00	0.00
DARE	0.00	0.00	0.00	0.01	0.01	0.00
DAVIDSON	0.66	3.87	4.53	1.02	5.55	1.11
DAVIE	0.05	0.07	0.12	0.34	0.46	0.09
DUPLIN	0.20	0.82	1.02	2.84	3.86	0.77
DURHAM	0.25	3.75	4.00	1.30	5.30	1.06
EDGECOMBE	0.14	1.21	1.35	1.01	2.36	0.47
FORSYTH	0.60	7.95	8.55	24.58	33.13	6.63
FRANKLIN	0.02	0.01	0.03	0.32	0.35	0.07
GASTON	1.07	44.13	45.20	12.31	57.51	11.50
GATES	0.00	0.00	0.00	0.00	0.00	0.00
GRAHAM	0.00	0.00	0.00	0.06	0.06	0.01
GRANVILLE	0.68	0.54	1.22	0.59	1.81	0.36
GREENE	0.00	0.00	0.00	0.09	0.09	0.02
GUILFORD	4.36	30.08	34.44	10.01	44.45	8.89
HALIFAX	0.19	1.57	1.76	2.23	3.99	0.80
HARNETT	2.93	81.21	84.14	0.19	84.33	16.87
HAYWOOD	0.13	26.04	26.17	0.00	26.17	5.23
HENDERSON	0.31	1.69	2.00	0.96	2.96	0.59
HERTFORD	0.00	0.00	0.00	0.10	0.10	0.02
HOKE	0.00	0.14	0.14	1.32	1.46	0.29
HYDE	0.01	0.02	0.03	0.00	0.03	0.01
IREDELL	0.65	6.81	7.46	0.64	8.10	1.62
JACKSON	0.03	0.08	0.11	0.11	0.22	0.04

Table 8. Industrial water use, in million gallons per day, by county, in North Carolina, 1995—Continued

County	Self-supplied withdrawals			Deliveries from public suppliers	Total use	
	Ground water	Surface water	Total		Withdrawals and deliveries	Consumptive use
JOHNSTON	0.04	0.02	0.06	0.55	0.61	0.12
JONES	0.67	2.15	2.82	0.00	2.82	0.56
LEE	0.00	0.00	0.00	1.53	1.53	0.31
LENOIR	0.07	0.18	0.25	1.23	1.48	0.30
LINCOLN	0.01	0.51	0.52	1.67	2.19	0.44
MCDOWELL	1.46	0.19	1.65	0.69	2.34	0.35
MACON	0.03	0.16	0.19	0.08	0.27	0.04
MADISON	0.01	0.01	0.02	0.00	0.02	0.00
MARTIN	0.00	0.00	0.00	1.16	1.16	0.14
MECKLENBURG	0.86	4.57	5.43	0.63	6.06	1.21
MITCHELL	0.00	0.00	0.00	0.03	0.03	0.01
MONTGOMERY	0.01	0.03	0.04	0.62	0.66	0.13
MOORE	0.01	0.00	0.01	0.96	0.97	0.19
NASH	0.19	1.57	1.76	5.31	7.07	1.41
NEW HANOVER	0.13	0.30	0.43	0.44	0.87	0.17
NORTHAMPTON	0.00	0.02	0.02	0.34	0.36	0.07
ONSLOW	0.00	0.00	0.00	0.05	0.05	0.01
ORANGE	0.00	0.00	0.00	0.75	0.75	0.15
PAMLICO	0.00	0.00	0.00	0.00	0.00	0.00
PASQUOTANK	0.03	0.03	0.06	0.16	0.22	0.04
PENDER	0.00	0.00	0.00	0.00	0.00	0.00
PERQUIMANS	0.00	0.00	0.00	0.00	0.00	0.00
PERSON	0.21	0.50	0.71	2.84	3.55	0.71
PITT	3.76	2.09	5.85	2.35	8.20	1.64
POLK	0.00	0.01	0.01	0.23	0.24	0.05
RANDOLPH	1.70	1.51	3.21	3.60	6.81	1.36
RICHMOND	1.99	0.21	2.20	1.38	3.58	0.72
ROBESON	1.48	4.11	5.59	8.80	14.39	2.88
ROCKINGHAM	0.02	0.77	0.79	9.46	10.25	1.60
ROWAN	0.07	1.95	2.02	5.85	7.87	2.03
RUTHERFORD	0.26	10.71	10.97	6.11	17.08	3.42
SAMPSON	0.00	0.05	0.05	0.25	0.30	0.06
SCOTLAND	2.92	0.03	2.95	0.55	3.50	0.70
STANLY	0.08	0.53	0.61	2.50	3.11	0.62
STOKES	0.00	0.00	0.00	0.00	0.00	0.00
SURRY	2.96	7.30	10.26	4.10	14.36	2.87
SWAIN	0.00	0.00	0.00	0.02	0.02	0.00
TRANSYLVANIA	0.00	0.02	0.02	0.00	0.02	0.00
TYRRELL	0.00	0.00	0.00	0.00	0.00	0.00
UNION	0.19	4.83	5.02	1.24	6.26	1.23
VANCE	11.48	2.25	13.73	0.42	14.15	2.83
WAKE	1.63	6.28	7.91	2.48	10.39	2.08
WARREN	0.01	0.05	0.06	0.02	0.08	0.02
WASHINGTON	0.00	0.00	0.00	0.01	0.01	0.00
WATAUGA	0.00	0.00	0.00	0.06	0.06	0.01
WAYNE	0.89	5.37	6.26	1.57	7.83	1.57
WILKES	0.00	0.00	0.00	2.84	2.84	0.57
WILSON	0.68	1.91	2.59	2.01	4.60	0.92
YADKIN	0.00	0.00	0.00	0.30	0.30	0.06
YANCEY	0.00	0.00	0.00	0.09	0.09	0.02
TOTAL	61.10	307.94	369.04	193.37	562.41	112.22

Industrial water use is difficult to estimate because coefficients vary by product, plant facility, and process. For 1995, water use for the industrial category was estimated as follows. Surveys were received from 200 randomly selected facilities of the more than 2,200 water-using industrial facilities listed in the North Carolina Manufacturing Firms, 1995 Directory. Data from the survey were incorporated into a statistical model relating water use to the number of employees, facility SIC (standard industrial classification) code, and county population density (Gregory E. Schwarz, U.S. Geological Survey, written commun., 1997). Results of the analysis indicate that total water use is greater in facilities with a large employment base, but is lower in facilities with a comparable employment base that produce metal or plastic products. A large

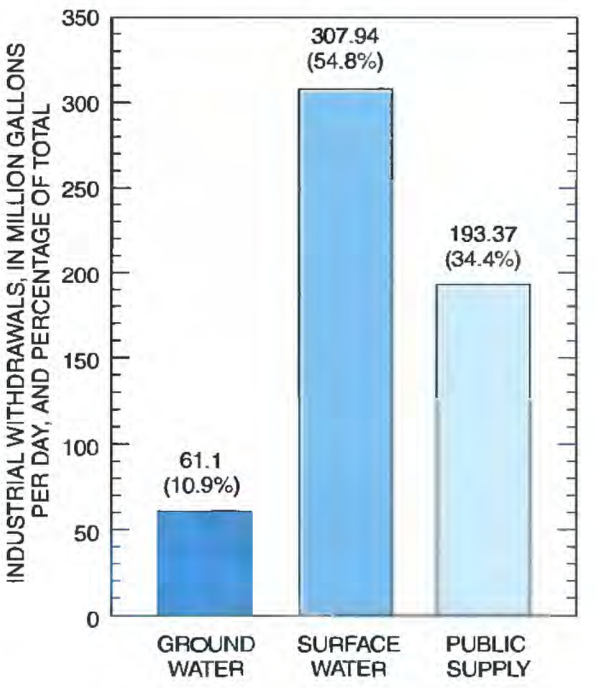


Figure 14. Source of water for industrial use in North Carolina, 1995.

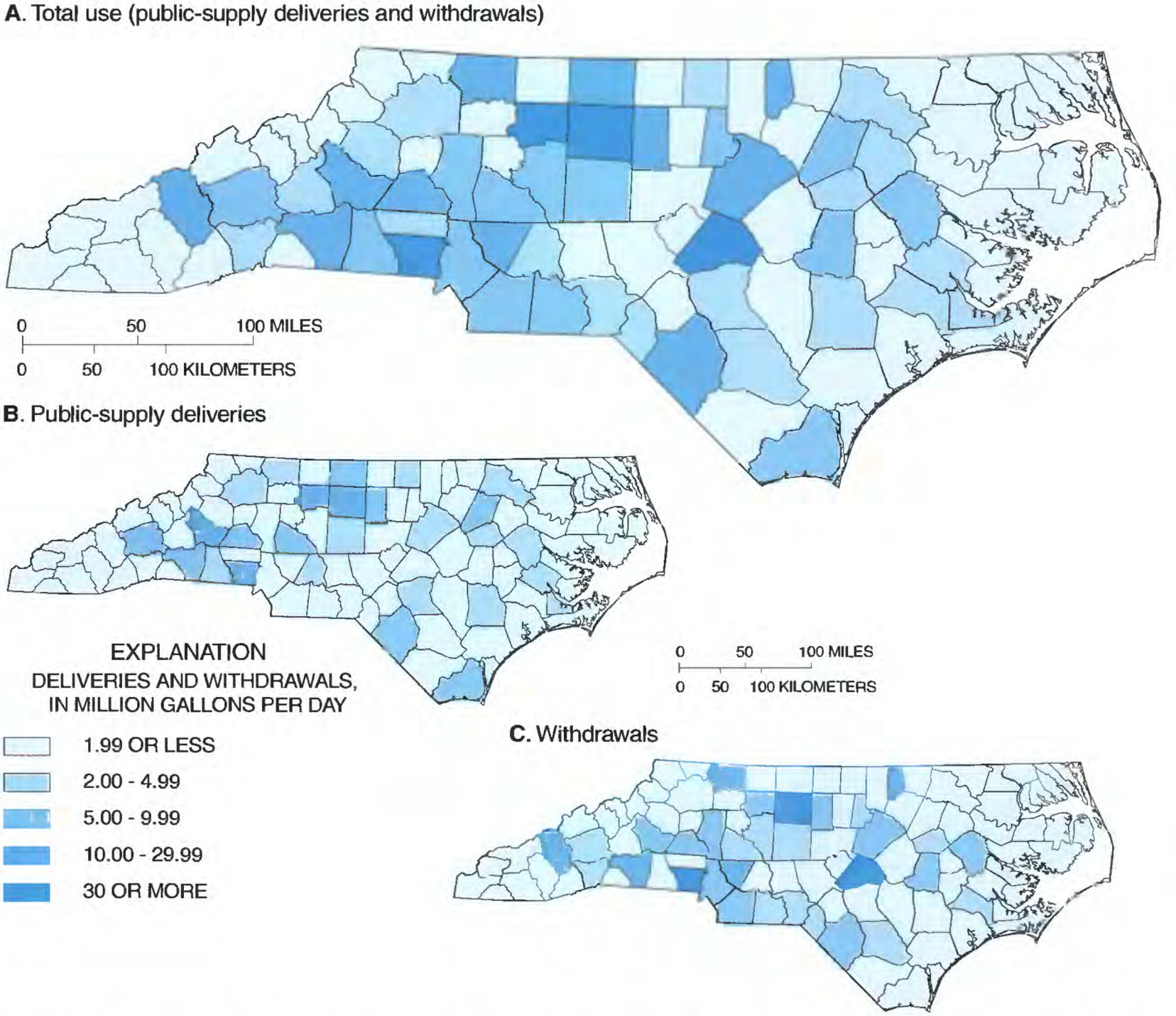


Figure 15. Industrial water use, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

proportion of water delivered to a facility comes from public supplies if the facility (1) has a large employment base but relatively small water needs, (2) produces fabric or food products, or (3) is in a county with high population density. For self-supplied facilities, withdrawals are more likely to come from surface water where large amounts of water are needed. Finally, the percentage of water consumed is positively related to the facility employment and if the facility produces cement, petrol, or wood products. Overall, using employment and other readily obtained facility characteristics as a predictor of water use is a viable method of computing industrial water-use estimates.

Mining Water Use

Water withdrawals for mining accounted for less than 0.2 percent of all water withdrawn in North Carolina in 1995. Mining operations are generally self supplied. Total withdrawals for mining were about 16 Mgal/d, of which 73 percent, or 12 Mgal/d, was from ground water (table 9; fig. 16). Mining operations in Beaufort County accounted for the largest withdrawals in the State with withdrawals of 9 Mgal/d, or 57 percent of all withdrawals for this category (table 9; fig. 17). Some of the ground water withdrawn was from wells, but most was from ground-water discharge into excavation pits from which the water was later withdrawn for use. Estimates published in this report do not include dewatering. However, the dewatering discharges large amounts of water to streams and rivers. In Beaufort County, mining operations discharged nearly 22 Mgal/d in 1995 from dewatering.

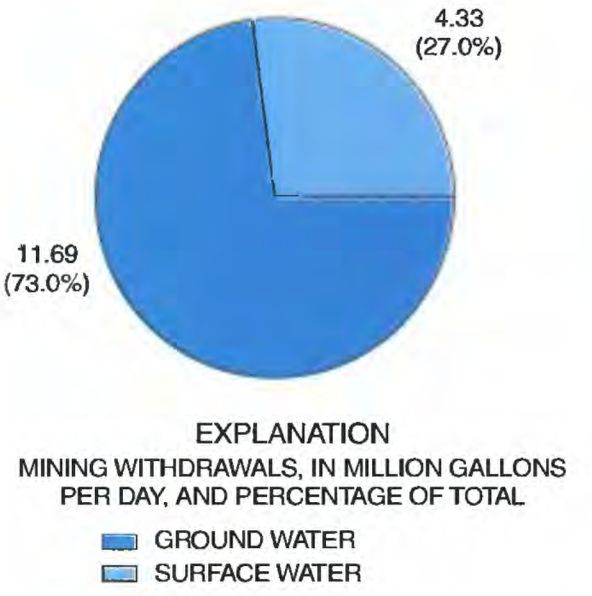


Figure 16. Source of water for mining use in North Carolina, 1995.

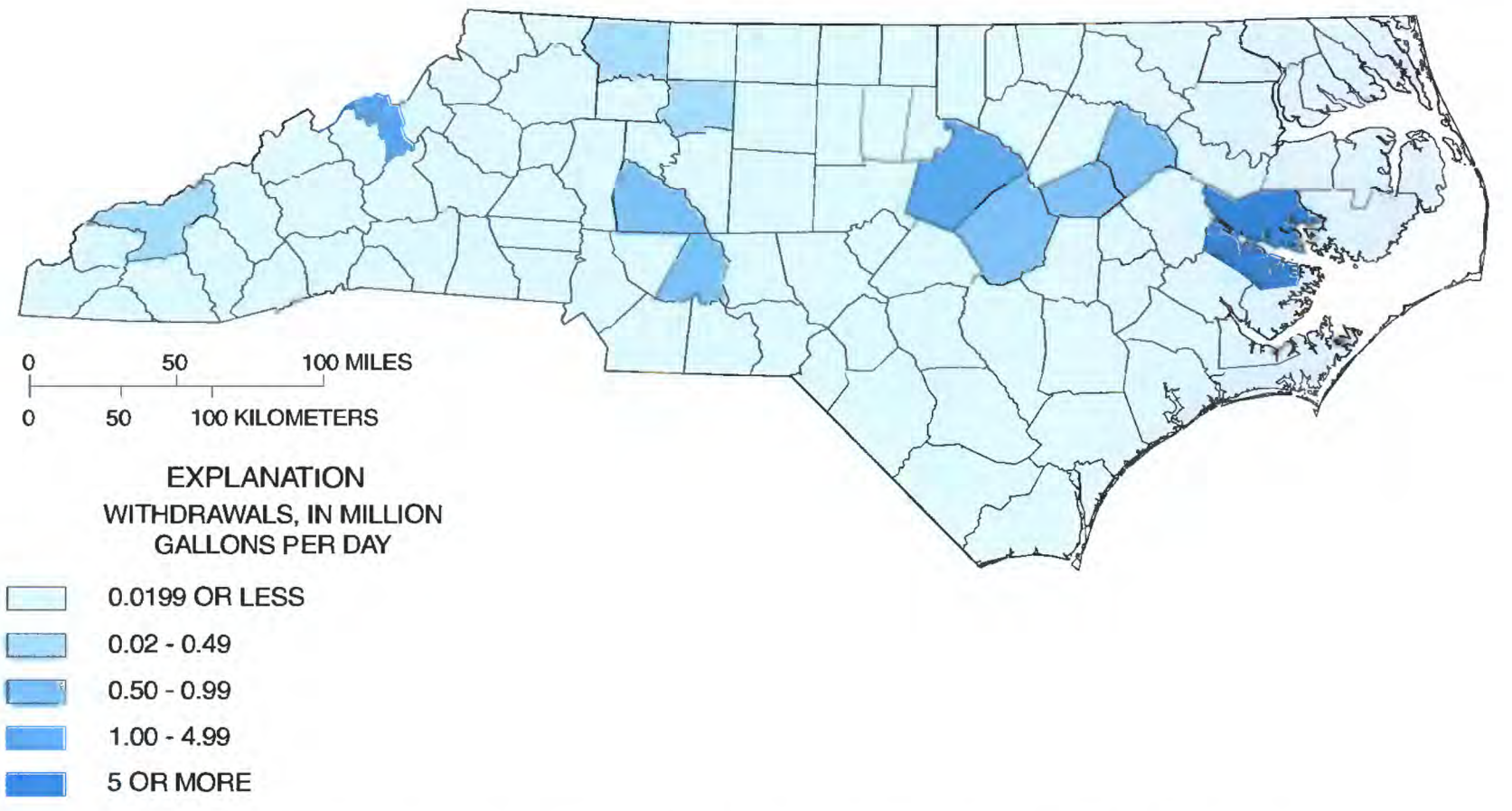


Figure 17. Total withdrawals for mining water use, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

Table 9. Mining water use, in million gallons per day, by county, in North Carolina, 1995

County	Ground water	Surface water	Total	Consumptive use
ALAMANCE	0.00	0.00	0.00	0.00
ALEXANDER	0.00	0.00	0.00	0.00
ALLEGHANY	0.00	0.00	0.00	0.00
ANSON	0.00	0.00	0.00	0.00
ASHE	0.00	0.00	0.00	0.00
AVERY	0.00	0.00	0.00	0.00
BEAUFORT	9.10	0.00	9.10	7.70
BERTIE	0.00	0.00	0.00	0.00
BLADEN	0.00	0.00	0.00	0.00
BRUNSWICK	0.00	0.00	0.00	0.00
BUNCOMBE	0.00	0.00	0.00	0.00
BURKE	0.00	0.00	0.00	0.00
CABARRUS	0.00	0.00	0.00	0.00
CALDWELL	0.00	0.00	0.00	0.00
CAMDEN	0.00	0.00	0.00	0.00
CARTERET	0.00	0.00	0.00	0.00
CASWELL	0.00	0.00	0.00	0.00
CATAWBA	0.00	0.00	0.00	0.00
CHATHAM	0.00	0.00	0.00	0.00
CHEROKEE	0.00	0.00	0.00	0.00
CHOWAN	0.00	0.00	0.00	0.00
CLAY	0.00	0.00	0.00	0.00
CLEVELAND	0.00	0.00	0.00	0.00
COLUMBUS	0.00	0.00	0.00	0.00
CRAVEN	0.00	0.00	0.00	0.00
CUMBERLAND	0.00	0.00	0.00	0.00
CURRITUCK	0.00	0.00	0.00	0.00
DARE	0.00	0.00	0.00	0.00
DAVIDSON	0.00	0.00	0.00	0.00
DAVIE	0.01	0.00	0.01	0.01
DUPLIN	0.00	0.00	0.00	0.00
DURHAM	0.00	0.00	0.00	0.00
EDGECOMBE	0.50	0.00	0.50	0.20
FORSYTH	0.03	0.00	0.03	0.03
FRANKLIN	0.00	0.00	0.00	0.00
GASTON	0.00	0.00	0.00	0.00
GATES	0.00	0.00	0.00	0.00
GRAHAM	0.00	0.00	0.00	0.00
GRANVILLE	0.00	0.00	0.00	0.00
GREENE	0.00	0.00	0.00	0.00
GUILFORD	0.00	0.00	0.00	0.00
HALIFAX	0.00	0.00	0.00	0.00
HARNETT	0.00	0.00	0.00	0.00
HAYWOOD	0.00	0.00	0.00	0.00
HENDERSON	0.00	0.00	0.00	0.00
HERTFORD	0.00	0.00	0.00	0.00
HOKE	0.00	0.00	0.00	0.00
HYDE	0.00	0.00	0.00	0.00
IREDELL	0.00	0.00	0.00	0.00
JACKSON	0.00	0.00	0.00	0.00

Table 9. Mining water use, in million gallons per day, by county, in North Carolina, 1995—Continued

County	Ground water	Surface water	Total	Consumptive use
JOHNSTON	0.50	0.00	0.50	0.20
JONES	0.00	0.00	0.00	0.00
LEE	0.00	0.00	0.00	0.00
LENOIR	0.00	0.00	0.00	0.00
LINCOLN	0.00	0.00	0.00	0.00
MCDOWELL	0.00	0.01	0.01	0.00
MACON	0.00	0.00	0.00	0.00
MADISON	0.00	0.00	0.00	0.00
MARTIN	0.00	0.00	0.00	0.00
MECKLENBURG	0.01	0.00	0.01	0.01
MITCHELL	0.00	2.00	2.00	0.01
MONTGOMERY	0.00	0.00	0.00	0.00
MOORE	0.00	0.00	0.00	0.00
NASH	0.00	0.00	0.00	0.00
NEW HANOVER	0.00	0.00	0.00	0.00
NORTHAMPTON	0.00	0.00	0.00	0.00
ONSLOW	0.00	0.00	0.00	0.00
ORANGE	0.00	0.00	0.00	0.00
PAMLICO	0.00	0.00	0.00	0.00
PASQUOTANK	0.00	0.00	0.00	0.00
PENDER	0.00	0.00	0.00	0.00
PERQUIMANS	0.00	0.00	0.00	0.00
PERSON	0.00	0.00	0.00	0.00
PITT	0.00	0.00	0.00	0.00
POLK	0.00	0.00	0.00	0.00
RANDOLPH	0.00	0.00	0.00	0.00
RICHMOND	0.01	0.00	0.01	0.01
ROBESON	0.00	0.00	0.00	0.00
ROCKINGHAM	0.00	0.00	0.00	0.00
ROWAN	0.02	0.86	0.88	0.14
RUTHERFORD	0.00	0.00	0.00	0.00
SAMPSON	0.00	0.00	0.00	0.00
SCOTLAND	0.00	0.00	0.00	0.00
STANLY	0.00	0.84	0.84	0.00
STOKES	0.00	0.00	0.00	0.00
SURRY	0.01	0.23	0.24	0.01
SWAIN	0.00	0.39	0.39	0.39
TRANSYLVANIA	0.00	0.00	0.00	0.00
TYRRELL	0.00	0.00	0.00	0.00
UNION	0.00	0.00	0.00	0.00
VANCE	0.00	0.00	0.00	0.00
WAKE	1.00	0.00	1.00	0.40
WARREN	0.00	0.00	0.00	0.00
WASHINGTON	0.00	0.00	0.00	0.00
WATAUGA	0.00	0.00	0.00	0.00
WAYNE	0.00	0.00	0.00	0.00
WILKES	0.00	0.00	0.00	0.00
WILSON	0.50	0.00	0.50	0.20
YADKIN	0.00	0.00	0.00	0.00
YANCEY	0.00	0.00	0.00	0.00
TOTAL	11.69	4.33	16.02	9.31

Livestock Water Use

The livestock category of water use is divided into two subcategories: (1) water associated with the production of "stock," such as beef and dairy cows, cattle, sheep, milk, poultry, and eggs; and (2) water associated with "animal specialties," such as horses and aquaculture of trout, bass, catfish, and crawfish. In most cases, the amount of water used for maintaining animals is relatively small compared to water used in other categories. Water used for all livestock was only 3 percent of all water withdrawn in North Carolina in 1995. Of the 297 Mgal/d used for all livestock, approximately 30 percent was from ground water (table 10; fig. 18).

Water used for stock accounted for 41 percent, or 121 Mgal/d, of the water withdrawn for all livestock in the State in 1995 (table 10). Approximately 71 percent of the water stock was from ground water (fig. 18). Seven predominately rural counties, Chatham, Duplin, Moore, Randolph, Sampson, Union, and Wilkes Counties, had withdrawals of more than 5 Mgal/d for stock populations. Duplin County had the largest withdrawals for stock, 11 Mgal/d (fig. 19).

Withdrawals for the stock subcategory have shown substantial increases in the last decade and may be attributed to the increase in hog production in the State. The hog industry has historically been an important part of North Carolina agriculture. The

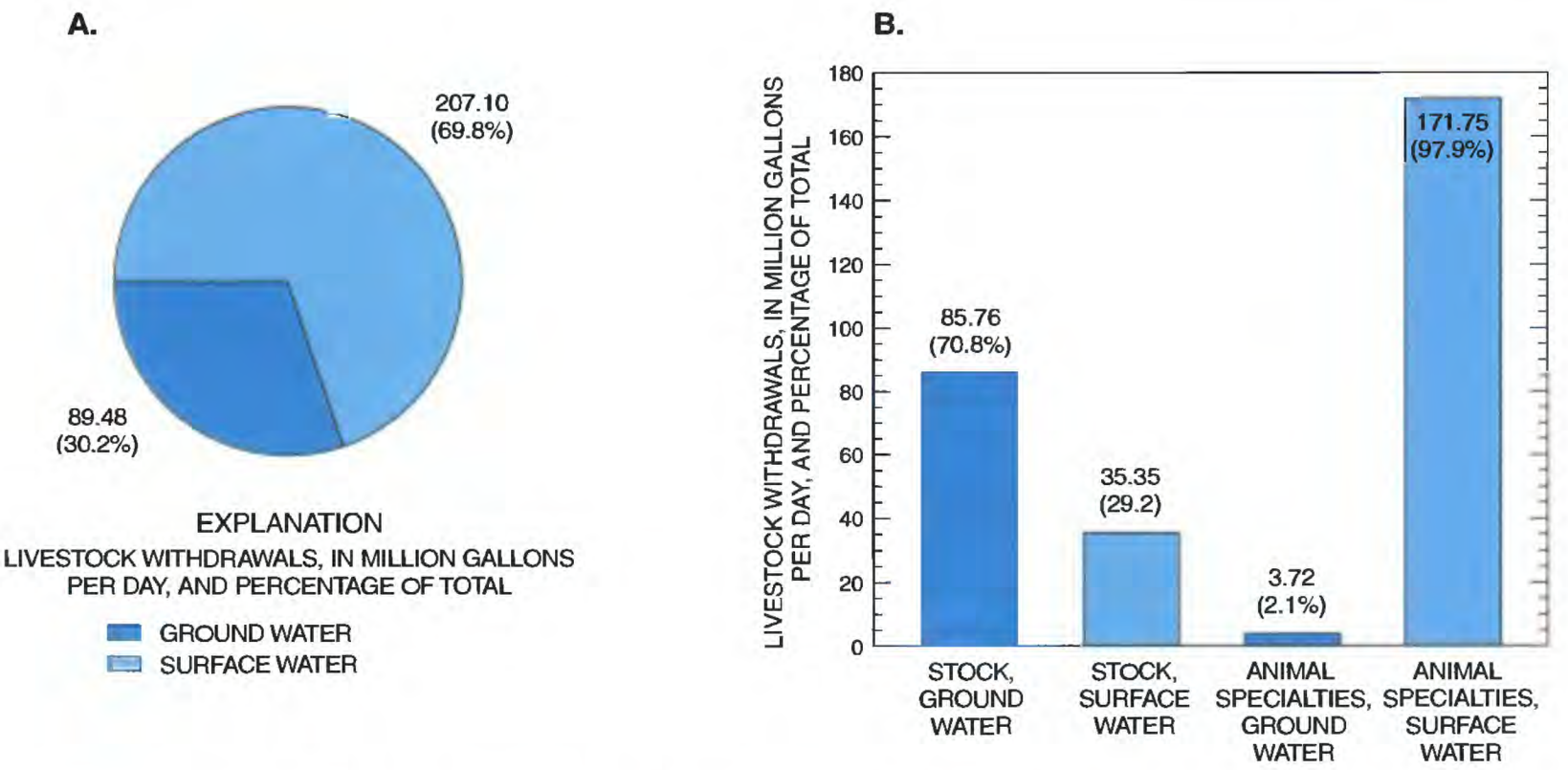


Figure 18. Source of water for livestock use in North Carolina, 1995. (A) Total and (B) Stock and animal specialties.

Table 10. Livestock water use, in million gallons per day, by county, in North Carolina, 1995

County	Stock				Animal specialties				Total livestock			
	Withdrawals			Consumptive use	Withdrawals			Consumptive use	Withdrawals			Consumptive use
	Ground water	Surface water	Total		Ground water	Surface water	Total		Ground water	Surface water	Total	
ALAMANCE	0.54	0.54	1.08	1.08	0.01	0.00	0.01	0.01	0.55	0.54	1.09	1.09
ALEXANDER	0.89	1.34	2.23	2.23	0.00	0.00	0.00	0.00	0.89	1.34	2.23	2.23
ALLEGHANY	0.28	0.42	0.70	0.70	0.00	0.00	0.00	0.00	0.28	0.42	0.70	0.70
ANSON	1.45	0.78	2.23	2.23	0.00	0.00	0.00	0.00	1.45	0.78	2.23	2.23
ASHE	0.21	0.32	0.53	0.53	0.00	0.00	0.00	0.00	0.21	0.32	0.53	0.53
AVERY	0.01	0.03	0.04	0.04	0.00	3.02	3.02	0.00	0.01	3.05	3.06	0.04
BEAUFORT	0.50	0.00	0.50	0.50	1.75	0.00	1.75	1.75	2.25	0.00	2.25	2.25
BERTIE	2.74	0.14	2.88	2.88	0.05	0.00	0.05	0.05	2.79	0.14	2.93	2.93
BLADEN	2.09	0.11	2.20	2.20	0.00	0.00	0.00	0.00	2.09	0.11	2.20	2.20
BRUNSWICK	0.04	0.18	0.22	0.22	0.03	0.00	0.03	0.03	0.07	0.18	0.25	0.25
BUNCOMBE	0.17	0.41	0.58	0.58	0.01	0.58	0.59	0.01	0.18	0.99	1.17	0.59
BURKE	0.17	0.26	0.43	0.43	0.00	0.00	0.00	0.00	0.17	0.26	0.43	0.43
CABARRUS	0.20	0.20	0.40	0.40	0.00	0.00	0.00	0.00	0.20	0.20	0.40	0.40
CALDWELL	0.26	0.39	0.65	0.65	0.00	0.00	0.00	0.00	0.26	0.39	0.65	0.65
CAMDEN	0.03	0.00	0.03	0.03	0.26	0.00	0.26	0.26	0.29	0.00	0.29	0.29
CARTERET	0.11	0.00	0.11	0.11	0.09	0.00	0.09	0.09	0.20	0.00	0.20	0.20
CASWELL	0.18	0.02	0.20	0.20	0.00	0.00	0.00	0.00	0.18	0.02	0.20	0.20
CATAWBA	0.19	0.36	0.55	0.55	0.00	0.00	0.00	0.00	0.19	0.36	0.55	0.55
CHATHAM	3.76	1.25	5.01	5.01	0.00	0.00	0.00	0.00	3.76	1.25	5.01	5.01
CHEROKEE	0.04	0.16	0.20	0.20	0.00	4.69	4.69	0.00	0.04	4.85	4.89	0.20
CHOWAN	0.11	0.01	0.12	0.12	0.04	0.00	0.04	0.04	0.15	0.01	0.16	0.16
CLAY	0.01	0.12	0.13	0.13	0.00	3.74	3.74	0.00	0.01	3.86	3.87	0.13
CLEVELAND	0.42	0.64	1.06	1.06	0.00	0.00	0.00	0.00	0.42	0.64	1.06	1.06
COLUMBUS	0.72	0.04	0.76	0.76	0.00	0.00	0.00	0.00	0.72	0.04	0.76	0.76
CRAVEN	0.38	0.04	0.42	0.42	0.15	0.00	0.15	0.15	0.53	0.04	0.57	0.57
CUMBERLAND	0.56	0.06	0.62	0.62	0.00	0.00	0.00	0.00	0.56	0.06	0.62	0.62
CURRITUCK	0.06	0.00	0.06	0.06	0.00	0.00	0.00	0.00	0.06	0.00	0.06	0.06
DARE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DAVIDSON	0.45	0.30	0.75	0.75	0.01	0.00	0.01	0.01	0.46	0.30	0.76	0.76
DAVIE	0.30	0.16	0.46	0.46	0.00	0.01	0.01	0.01	0.30	0.17	0.47	0.47
DUPLIN	10.86	0.57	11.43	11.43	0.00	0.00	0.00	0.00	10.86	0.57	11.43	11.43
DURHAM	0.05	0.02	0.07	0.07	0.00	0.00	0.00	0.00	0.05	0.02	0.07	0.07
EDGECOMBE	0.86	0.10	0.96	0.96	0.00	0.00	0.00	0.00	0.86	0.10	0.96	0.96
FORSYTH	0.07	0.16	0.23	0.23	0.01	0.01	0.02	0.02	0.08	0.17	0.25	0.25
FRANKLIN	0.18	0.53	0.71	0.71	0.00	0.00	0.00	0.00	0.18	0.53	0.71	0.71

Table 10. Livestock water use, in million gallons per day, by county, in North Carolina, 1995—Continued

County	Stock				Animal specialties				Total livestock			
	Withdrawals			Consumptive use	Withdrawals			Consumptive use	Withdrawals			Consumptive use
	Ground water	Surface water	Total		Ground water	Surface water	Total		Ground water	Surface water	Total	
GASTON	0.19	0.06	0.25	0.25	0.00	0.00	0.00	0.00	0.19	0.06	0.25	0.25
GATES	0.68	0.00	0.68	0.68	0.00	0.00	0.00	0.00	0.68	0.00	0.68	0.68
GRAHAM	0.02	0.01	0.03	0.03	0.00	41.33	41.33	0.00	0.02	41.34	41.36	0.03
GRANVILLE	0.11	0.25	0.36	0.36	0.00	0.00	0.00	0.00	0.11	0.25	0.36	0.36
GREENE	1.59	0.18	1.77	1.77	0.00	0.00	0.00	0.00	1.59	0.18	1.77	1.77
GUILFORD	0.09	0.49	0.58	0.58	0.01	0.01	0.02	0.02	0.10	0.50	0.60	0.60
HALIFAX	0.98	0.25	1.23	1.23	0.00	0.00	0.00	0.00	0.98	0.25	1.23	1.23
HARNETT	1.38	0.15	1.53	1.53	0.01	0.06	0.07	0.05	1.39	0.21	1.60	1.58
HAYWOOD	0.22	0.32	0.54	0.54	0.00	50.04	50.04	0.00	0.22	50.36	50.58	0.54
HENDERSON	0.13	0.19	0.32	0.32	0.00	0.00	0.00	0.00	0.13	0.19	0.32	0.32
HERTFORD	0.75	0.04	0.79	0.79	0.00	0.00	0.00	0.00	0.75	0.04	0.79	0.79
HOKE	0.17	0.04	0.21	0.21	0.00	0.00	0.00	0.00	0.17	0.04	0.21	0.21
HYDE	0.08	0.00	0.08	0.08	0.04	0.00	0.04	0.04	0.12	0.00	0.12	0.12
IREDELL	1.21	0.40	1.61	1.61	0.01	0.00	0.01	0.01	1.22	0.40	1.62	1.62
JACKSON	0.00	0.05	0.05	0.05	0.00	1.71	1.71	0.00	0.00	1.76	1.76	0.05
JOHNSTON	0.98	0.05	1.03	1.03	0.02	0.01	0.03	0.02	1.00	0.06	1.06	1.05
JONES	0.51	0.17	0.68	0.68	0.22	0.00	0.22	0.22	0.73	0.17	0.90	0.90
LEE	0.38	0.09	0.47	0.47	0.00	0.00	0.00	0.00	0.38	0.09	0.47	0.47
LENOIR	1.14	0.76	1.90	1.90	0.00	0.00	0.00	0.00	1.14	0.76	1.90	1.90
LINCOLN	0.65	0.22	0.87	0.87	0.00	0.00	0.00	0.00	0.65	0.22	0.87	0.87
MCDOWELL	0.04	0.08	0.12	0.12	0.00	3.46	3.46	0.00	0.04	3.54	3.58	0.12
MACON	0.05	0.12	0.17	0.17	0.00	12.94	12.94	0.00	0.05	13.06	13.11	0.17
MADISON	0.08	0.18	0.26	0.26	0.00	1.94	1.94	0.00	0.08	2.12	2.20	0.26
MARTIN	0.48	0.12	0.60	0.60	0.12	0.00	0.12	0.12	0.60	0.12	0.72	0.72
MECKLENBURG	0.25	0.04	0.29	0.29	0.01	0.00	0.01	0.01	0.26	0.04	0.30	0.30
MITCHELL	0.01	0.05	0.06	0.06	0.00	2.30	2.30	0.00	0.01	2.35	2.36	0.06
MONTGOMERY	0.57	1.34	1.91	1.91	0.00	0.00	0.00	0.00	0.57	1.34	1.91	1.91
MOORE	2.62	2.62	5.24	5.24	0.00	0.00	0.00	0.00	2.62	2.62	5.24	5.24
NASH	1.44	0.16	1.60	1.60	0.00	0.16	0.16	0.16	1.44	0.32	1.76	1.76
NEW HANOVER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NORTHAMPTON	1.15	0.38	1.53	1.53	0.00	0.00	0.00	0.00	1.15	0.38	1.53	1.53
ONSLOW	1.13	0.00	1.13	1.13	0.00	0.00	0.00	0.00	1.13	0.00	1.13	1.13
ORANGE	0.34	0.11	0.45	0.45	0.01	0.02	0.03	0.03	0.35	0.13	0.48	0.48
PAMLICO	0.03	0.00	0.03	0.03	0.13	0.00	0.13	0.13	0.16	0.00	0.16	0.16
PASQUOTANK	0.04	0.00	0.04	0.04	0.00	0.00	0.00	0.00	0.04	0.00	0.04	0.04

Table 10. Livestock water use, in million gallons per day, by county, in North Carolina, 1995—Continued

County	Stock				Animal specialties				Total livestock			
	Withdrawels			Consumptive use	Withdrawals			Consumptive use	Withdrawals			Consumptive use
	Ground water	Surface water	Total		Ground water	Surface water	Total		Ground water	Surface water	Total	
PENDER	0.90	0.05	0.95	0.95	0.00	0.00	0.00	0.00	0.90	0.05	0.95	0.95
PERQUIMANS	0.78	0.00	0.78	0.78	0.02	0.00	0.02	0.02	0.80	0.00	0.80	0.80
PERSON	0.14	0.10	0.24	0.24	0.00	0.00	0.00	0.00	0.14	0.10	0.24	0.24
PITT	1.58	0.08	1.66	1.66	0.36	0.00	0.36	0.36	1.94	0.08	2.02	2.02
POLK	0.01	0.12	0.13	0.13	0.00	0.00	0.00	0.00	0.01	0.12	0.13	0.13
RANDOLPH	3.61	2.41	6.02	6.02	0.01	0.00	0.01	0.01	3.62	2.41	6.03	6.03
RICHMOND	0.91	0.49	1.40	1.40	0.00	0.00	0.00	0.00	0.91	0.49	1.40	1.40
ROBESON	2.31	0.26	2.57	2.57	0.00	0.00	0.00	0.00	2.31	0.26	2.57	2.57
ROCKINGHAM	0.15	0.15	0.30	0.30	0.00	0.00	0.00	0.00	0.15	0.15	0.30	0.30
ROWAN	0.64	0.21	0.85	0.85	0.01	0.00	0.01	0.01	0.65	0.21	0.86	0.86
RUTHERFORD	0.20	0.14	0.34	0.34	0.00	0.00	0.00	0.00	0.20	0.14	0.34	0.34
SAMPSON	8.92	0.00	8.92	8.92	0.01	0.00	0.01	0.01	8.93	0.00	8.93	8.93
SCOTLAND	0.60	0.11	0.71	0.71	0.00	0.00	0.00	0.00	0.60	0.11	0.71	0.71
STANLY	0.37	0.68	1.05	1.05	0.00	0.00	0.00	0.00	0.37	0.68	1.05	1.05
STOKES	0.09	0.17	0.26	0.26	0.00	0.00	0.00	0.00	0.09	0.17	0.26	0.26
SURRY	0.73	1.35	2.08	2.08	0.00	0.00	0.00	0.00	0.73	1.35	2.08	2.08
SWAIN	0.01	0.02	0.03	0.03	0.00	21.02	21.02	0.00	0.01	21.04	21.05	0.03
TRANSYLVANIA	0.03	0.05	0.08	0.08	0.00	24.62	24.62	0.00	0.03	24.67	24.70	0.08
TYRRELL	0.14	0.00	0.14	0.14	0.04	0.00	0.04	0.04	0.18	0.00	0.18	0.18
UNION	6.10	2.03	8.13	8.13	0.01	0.00	0.01	0.01	6.11	2.03	8.14	8.14
VANCE	0.02	0.06	0.08	0.08	0.00	0.00	0.00	0.00	0.02	0.06	0.08	0.08
WAKE	0.32	0.02	0.34	0.34	0.17	0.00	0.17	0.17	0.49	0.02	0.51	0.51
WARREN	0.12	0.47	0.59	0.59	0.00	0.00	0.00	0.00	0.12	0.47	0.59	0.59
WASHINGTON	0.90	0.05	0.95	0.95	0.08	0.07	0.15	0.15	0.98	0.12	1.10	1.10
WATAUGA	0.01	0.26	0.27	0.27	0.00	0.01	0.01	0.01	0.01	0.27	0.28	0.28
WAYNE	2.41	2.41	4.82	4.82	0.02	0.00	0.02	0.02	2.43	2.41	4.84	4.84
WILKES	4.42	4.42	8.84	8.84	0.00	0.00	0.00	0.00	4.42	4.42	8.84	8.84
WILSON	0.43	0.05	0.48	0.48	0.00	0.00	0.00	0.00	0.43	0.05	0.48	0.48
YADKIN	0.50	0.50	1.00	1.00	0.00	0.00	0.00	0.00	0.50	0.50	1.00	1.00
YANCEY	0.03	0.11	0.14	0.14	0.00	0.00	0.00	0.00	0.03	0.11	0.14	0.14
TOTAL	85.76	35.35	121.11	121.11	3.72	171.75	175.47	4.05	89.48	207.10	296.58	125.16

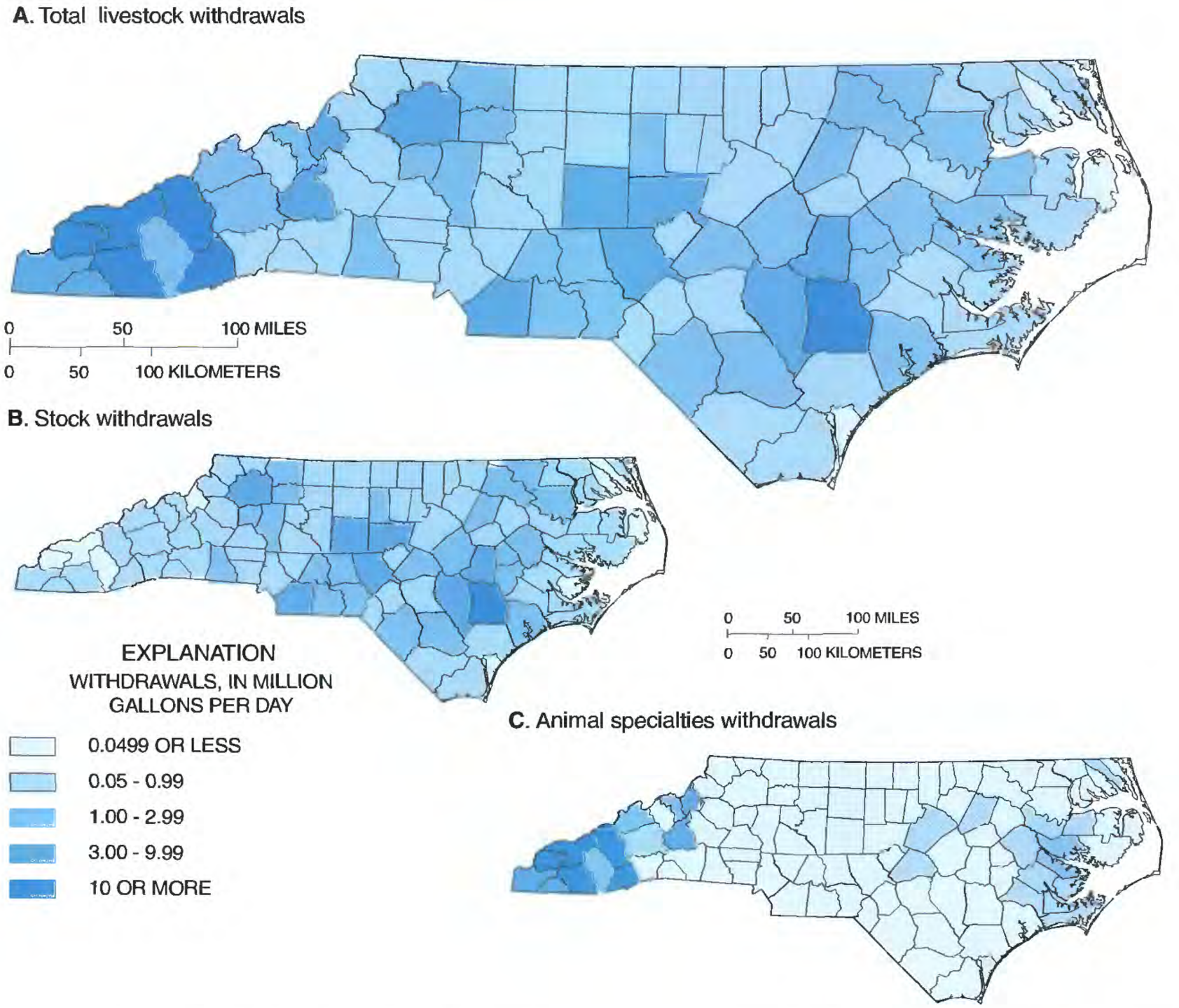


Figure 19. Livestock water use, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

industry has changed from the small farms raising few hogs to the large confinement type operations of today. This shift is apparent when reviewing the change in the number and size of operations. North Carolina's hog population has increased almost 300 percent since 1991 (North Carolina Department of Agriculture, 1995a).

Animal specialties accounted for about 59 percent, or 176 Mgal/d, of the livestock withdrawals in North Carolina in 1995 (table 10; fig. 18). About 98 percent of the water withdrawn for animal specialties was from surface water. Aquaculture accounted for more than 99 percent of the withdrawals for animal specialties. Aquaculture in the western part of the State is primarily trout farming. Because water is diverted from and returned to the original stream, consumptive use is minimal. Aquaculture in the eastern part of the State is primarily bass, catfish, and crawfish farming. Ground water is the source for about 92 percent of all the water used for eastern aquaculture.

Irrigation Water Use

In 1995, about 239 Mgal/d of water was used to irrigate more than 167,000 acres on crops, nurseries, and golf courses in the State (table 11). Seventy-six

percent, or 181 Mgal/d, of the withdrawals was from surface water (fig. 20). Four counties (Guilford, Mecklenburg, Moore, and Wake Counties) irrigated a total of 22,000 acres and had withdrawals of more than 10 Mgal/d each which accounted for 20 percent of all withdrawals for irrigation (table 11; fig. 21). Irrigation activities are influenced by the weather during the growing season. Because 1995 rainfall amounts were above average throughout the State, irrigation activities may have been less compared to years with average precipitation.

Crops and nurseries accounted for 72 percent, or 121,000 acres, of the irrigated acreage in the State. Land irrigated to grow tobacco accounted for 34 percent of this number. Crop and nursery irrigation accounted for about 40 percent, or 96 Mgal/d, of the total withdrawals for irrigation (fig. 20). Surface water was the source for 76 percent, or 73 Mgal/d, of these withdrawals.

Golf is a popular recreational sport in North Carolina. There are approximately 495 public, private, and military golf courses across the State. Approximately 46,000 acres were irrigated on golf courses, which was 38 percent of irrigated land in the State in 1995. Golf-course irrigation accounted for about 60 percent, or 144 Mgal/d, of the total water withdrawals for irrigation in 1995 (fig. 20). About 76 percent of golf-course irrigation withdrawals was from surface water because most irrigation water comes from on-site runoff-collection ponds. However, during periods of below-average rainfall, ground water is sometimes used to maintain pond water levels. Brunswick, Mecklenburg, and Wake Counties had the largest number of golf courses and withdrew more than 18 percent of all the withdrawals for golf course irrigation. A total of 1 Mgal/d of reclaimed wastewater was applied to golf courses in Brunswick, Carteret, Chatham, and Henderson Counties.

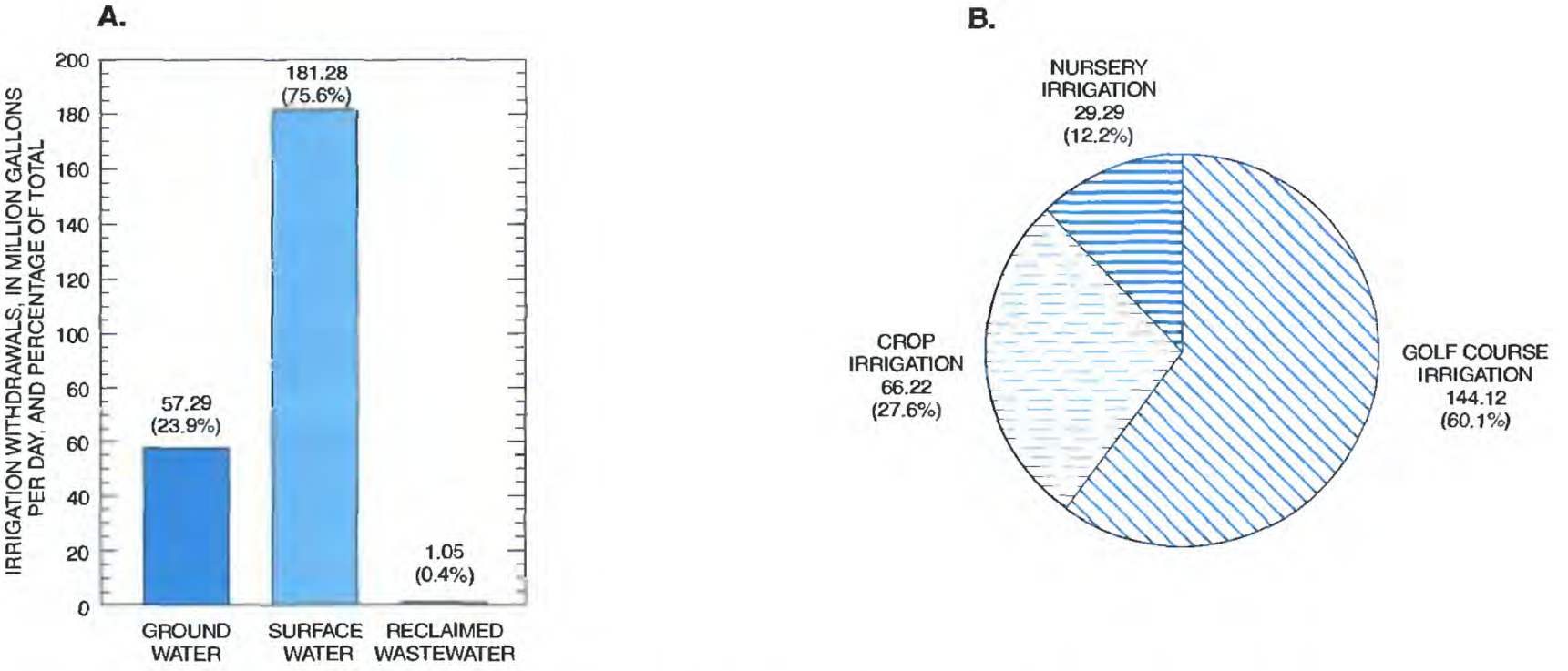


Figure 20. Irrigation water use, in million gallons per day, and percentage of total, by (A) source and (B) irrigation type, in North Carolina, 1995.

Table 11. Irrigation water use, by county, in North Carolina, 1995

[Mgal/d, million gallons per day]

County	Withdrawals, in Mgal/d			Reclaimed wastewater, in Mgal/d	Consumptive use, in Mgal/d	Irrigated land, by type, in thousand acres		
	Ground water	Surface water	Total			Sprinkler	Drip	Total
ALAMANCE	0.00	3.81	3.81	0.00	3.81	2.12	0.00	2.12
ALEXANDER	0.04	0.36	0.40	0.00	0.40	0.27	0.00	0.27
ALLEGHANY	0.10	1.02	1.12	0.00	1.12	0.45	0.00	0.45
ANSON	0.05	0.35	0.40	0.00	0.40	0.16	0.07	0.23
ASHE	0.12	1.11	1.23	0.00	1.23	0.53	0.01	0.54
AVERY	0.18	3.47	3.65	0.00	3.65	1.46	0.02	1.48
BEAUFORT	0.68	0.17	0.85	0.00	0.85	0.55	0.01	0.56
BERTIE	0.16	2.97	3.13	0.00	3.13	4.83	0.00	4.83
BLADEN	0.41	0.95	1.36	0.00	1.36	1.22	0.02	1.24
BRUNSWICK	1.61	6.65	8.26	0.31	8.26	2.77	0.00	2.77
BUNCOMBE	0.09	2.09	2.18	0.00	2.18	1.43	0.01	1.44
BURKE	0.13	2.55	2.68	0.00	2.68	1.28	0.05	1.33
CABARRUS	0.11	1.43	1.54	0.00	1.54	0.66	0.02	0.68
CALDWELL	0.32	3.06	3.38	0.00	3.38	1.70	0.02	1.72
CAMDEN	0.02	0.02	0.04	0.00	0.04	0.07	0.00	0.07
CARTERET	1.90	0.45	2.35	0.20	2.35	0.76	0.01	0.77
CASWELL	1.55	0.00	1.55	0.00	1.55	2.15	0.00	2.15
CATAWBA	0.72	2.82	3.54	0.00	3.54	1.32	0.10	1.42
CHATHAM	0.05	0.39	0.44	0.30	0.44	0.44	0.19	0.63
CHEROKEE	0.06	0.24	0.30	0.00	0.30	0.23	0.00	0.23
CHOWAN	0.00	1.38	1.38	0.00	1.38	1.79	0.03	1.82
CLAY	0.22	0.00	0.22	0.00	0.22	0.20	0.00	0.20
CLEVELAND	0.25	2.16	2.41	0.00	2.41	1.13	0.01	1.14
COLUMBUS	0.38	0.92	1.30	0.00	1.30	0.68	0.01	0.69
CRAVEN	2.31	0.58	2.89	0.00	2.89	1.23	0.01	1.24
CUMBERLAND	0.92	3.66	4.58	0.00	4.58	3.12	0.04	3.16
CURRITUCK	0.58	0.58	1.16	0.00	1.16	0.83	0.02	0.85
DARE	1.31	0.30	1.61	0.00	1.61	0.45	0.00	0.45
DAVIDSON	0.18	1.60	1.78	0.00	1.78	1.07	0.01	1.08
DAVIE	0.56	1.27	1.83	0.00	1.83	0.75	0.03	0.78
DUPLIN	1.06	2.49	3.55	0.00	3.55	3.49	0.06	3.55
DURHAM	0.41	2.27	2.68	0.00	2.68	0.77	0.00	0.77
EDGECOMBE	0.50	2.82	3.32	0.00	3.32	4.37	0.00	4.37
FORSYTH	0.38	5.85	6.23	0.00	6.23	2.27	0.03	2.30
FRANKLIN	0.09	3.99	4.08	0.00	4.08	3.85	0.04	3.89
GASTON	0.35	1.91	2.26	0.00	2.26	0.77	0.00	0.77
GATES	0.48	0.48	0.96	0.00	0.96	1.57	0.03	1.60
GRAHAM	0.05	0.20	0.25	0.00	0.25	0.10	0.00	0.10
GRANVILLE	0.23	2.07	2.30	0.00	2.30	3.08	0.06	3.14
GREENE	0.30	0.46	0.76	0.00	0.76	1.26	0.00	1.26
GUILFORD	1.06	9.59	10.65	0.00	10.65	5.30	0.31	5.61
HALIFAX	0.26	2.34	2.60	0.00	2.60	3.05	0.06	3.11
HARNETT	0.59	2.33	2.92	0.00	2.92	3.08	0.06	3.14
HAYWOOD	0.11	0.66	0.77	0.00	0.77	0.61	0.29	0.90
HENDERSON	0.19	3.63	3.82	0.14	3.82	2.47	0.29	2.76
HERTFORD	0.95	0.95	1.90	0.00	1.90	2.23	0.04	2.27
HOKE	0.31	0.74	1.05	0.00	1.05	0.59	0.00	0.59
HYDE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IREDELL	0.25	2.17	2.42	0.00	2.42	1.30	0.04	1.34
JACKSON	0.19	0.75	0.94	0.00	0.94	0.40	0.17	0.57

Table 11. Irrigation water use, by county, in North Carolina, 1995—Continued

[Mgal/d. million gallons per day]

County	Withdrawals, in Mgal/d			Reclaimed westewater, in Mgal/d	Consumptive use, in Mgal/d	Irrigated land, by type, in thousand acres		
	Ground water	Surface water	Total			Sprinkler	Drip	Total
JOHNSTON	1.13	3.43	4.56	0.00	4.56	4.29	0.08	4.37
JONES	0.50	0.13	0.63	0.00	0.63	0.61	0.01	0.62
LEE	0.37	2.11	2.48	0.00	2.48	1.89	0.03	1.92
LENOIR	0.52	0.94	1.46	0.00	1.46	1.06	0.02	1.08
LINCOLN	0.08	0.70	0.78	0.00	0.78	0.44	0.01	0.45
MCDOWELL	0.04	0.80	0.84	0.00	0.84	0.50	0.01	0.51
MACON	0.04	1.00	1.04	0.00	1.04	0.58	0.08	0.66
MADISON	0.11	0.40	0.51	0.00	0.51	0.38	0.01	0.39
MARTIN	0.24	0.97	1.21	0.00	1.21	0.71	0.01	0.72
MECKLENBURG	3.10	8.99	12.09	0.00	12.09	3.84	0.07	3.91
MITCHELL	0.02	0.36	0.38	0.00	0.38	0.18	0.00	0.18
MONTGOMERY	0.27	0.73	1.00	0.10	1.00	0.58	0.21	0.79
MOORE	3.49	10.36	13.85	0.00	13.85	7.40	0.09	7.49
NASH	0.58	5.23	5.81	0.00	5.81	7.68	0.15	7.83
NEW HANOVER	1.90	1.78	3.68	0.00	3.68	1.13	0.04	1.17
NORTHAMPTON	0.58	0.58	1.16	0.00	1.16	1.86	0.02	1.88
ONSLOW	1.75	0.43	2.18	0.00	2.18	1.18	0.01	1.19
ORANGE	0.76	2.28	3.04	0.00	3.04	1.64	0.02	1.66
PAMLICO	1.84	0.00	1.84	0.00	1.84	2.23	0.00	2.23
PASQUOTANK	0.33	0.33	0.66	0.00	0.66	0.19	0.00	0.19
PENDER	0.54	1.60	2.14	0.00	2.14	0.94	0.04	0.98
PERQUIMANS	0.22	0.09	0.31	0.00	0.31	0.50	0.03	0.53
PERSON	0.17	1.56	1.73	0.00	1.73	2.39	0.05	2.44
PITT	2.17	0.93	3.10	0.00	3.10	1.85	0.01	1.86
POLK	0.03	0.57	0.60	0.00	0.60	0.27	0.07	0.34
RANDOLPH	0.32	2.14	2.46	0.00	2.46	1.37	0.02	1.39
RICHMOND	0.35	1.97	2.32	0.00	2.32	2.86	0.05	2.91
ROBESON	0.87	2.08	2.95	0.00	2.95	2.25	0.04	2.29
ROCKINGHAM	0.47	4.29	4.76	0.00	4.76	4.66	0.08	4.74
ROWAN	0.18	1.58	1.76	0.00	1.76	1.16	0.02	1.18
RUTHERFORD	0.12	2.33	2.45	0.00	2.45	1.02	0.00	1.02
SAMPSON	1.16	4.62	5.78	0.00	5.78	8.06	0.41	8.47
SCOTLAND	0.32	0.92	1.24	0.00	1.24	0.37	0.00	0.37
STANLY	1.54	0.10	1.64	0.00	1.64	0.91	0.01	0.92
STOKES	0.08	0.70	0.78	0.00	0.78	0.64	0.01	0.65
SURRY	0.00	2.05	2.05	0.00	2.05	1.30	0.00	1.30
SWAIN	0.02	0.10	0.12	0.00	0.12	0.11	0.00	0.11
TRANSYLVANIA	0.38	1.66	2.04	0.00	2.04	0.87	0.00	0.87
TYRRELL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNION	0.55	0.68	1.23	0.00	1.23	0.63	0.05	0.68
VANCE	0.00	1.43	1.43	0.00	1.43	1.46	0.01	1.47
WAKE	2.57	7.65	10.22	0.00	10.22	5.10	0.06	5.16
WARREN	0.13	1.14	1.27	0.00	1.27	1.40	0.00	1.40
WASHINGTON	1.01	0.34	1.35	0.00	1.35	2.02	0.04	2.06
WATAUGA	0.07	1.40	1.47	0.00	1.47	0.61	0.00	0.61
WAYNE	0.99	2.12	3.11	0.00	3.11	1.75	0.28	2.03
WILKES	0.07	0.74	0.81	0.00	0.81	0.38	0.00	0.38
WILSON	1.01	2.33	3.34	0.00	3.34	1.82	0.03	1.85
YADKIN	1.35	0.01	1.36	0.00	1.36	1.30	0.01	1.31
YANCEY	0.18	0.54	0.72	0.00	0.72	0.32	0.01	0.33
TOTAL	57.29	181.28	238.57	1.05	238.57	162.90	4.37	167.27

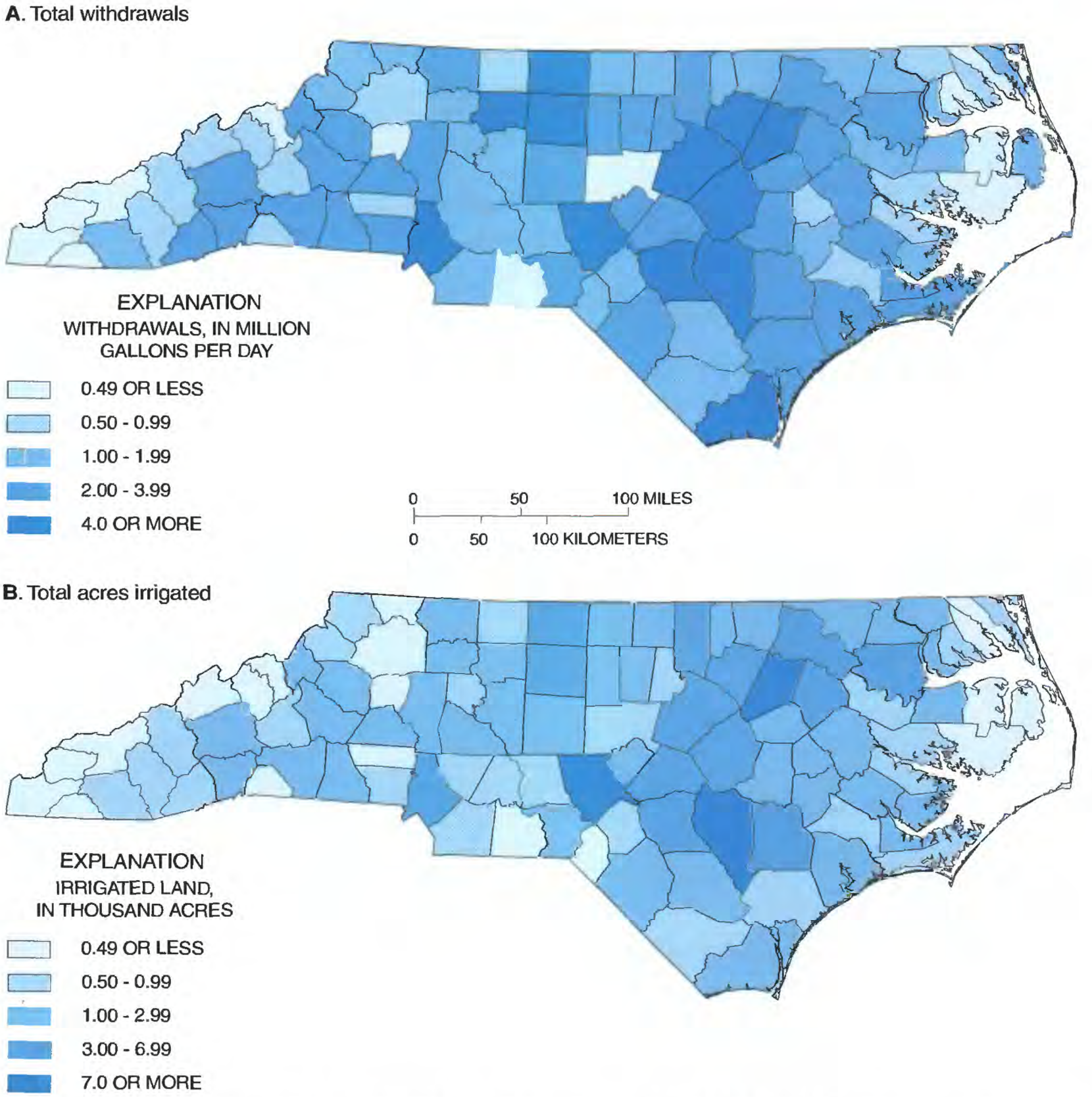


Figure 21. Irrigation water use, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

Thermoelectric-Power Generation Water Use

Thermoelectric-power generation includes water use associated with the generation of power by fossil fuel and nuclear energy. Thermoelectric-power generation facilities are the largest water users in the State. These facilities withdrew 80 percent, or 7,417 Mgal/d, of the total (table 12). North Carolina had 21 thermoelectric powerplants operating in 1995; 18 fossil-fuel facilities withdrew about 43 percent, or 3,207 Mgal/d, of the thermoelectric withdrawals. Nuclear facilities in Mecklenburg and Wake Counties withdrew 36 percent, or 2,656 Mgal/d, of the

Table 12. Thermoelectric-power generation water use, in million gallons per day, and power generated in million kilowatt-hours, by county, in North Carolina, 1995

[kWh, kilowatt-hours]

County	Total withdrawals, by category		Withdrawals by source					Deliveries from public suppliers	Total use		Power generated, in million kWh
	Fossil-fuel	Nuclear	Ground water	Surface water			Total		Withdrawals and deliveries	Consumptive use	
			Fresh	Fresh	Saline	Total					
ALAMANCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALEXANDER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ALLEGHANY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ANSON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ASHE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
AVERY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BEAUFORT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BERTIE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BLADEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
BRUNSWICK	0.00	1,553.33	0.00	0.00	1,553.33	1,553.33	1,553.33	0.26	1,553.59	17.06	11,993.64
BUNCOMBE	2.73	0.00	0.00	2.73	0.00	2.73	2.73	0.00	2.73	1.23	2,609.14
BURKE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CABARRUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CALDWELL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CAMDEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CARTERET	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CASWELL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CATAWBA	775.00	0.00	0.00	775.00	0.00	775.00	775.00	0.00	775.00	0.00	13,062.00
CHATHAM	385.00	0.00	0.00	385.00	0.00	385.00	385.00	0.00	385.00	8.66	1,563.63
CHEROKEE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CHOWAN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CLAY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CLEVELAND	19.00	0.00	0.00	19.00	0.00	19.00	19.00	0.00	19.00	0.00	147.00
COLUMBUS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CRAVEN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
CUMBERLAND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.10	0.08	97.41
CURRITUCK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DARE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.57
DAVIDSON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DAVIE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DUPLIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
DURHAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
EDGECOMBE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FORSYTH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
FRANKLIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 12. Thermoelectric-power generation water use, in million gallons per day, and power generated in million kilowatt-hours, by county, in North Carolina, 1995—Continued

[kWh, kilowatt-hours]

County	Total withdrawals, by category		Withdrawals by source					Deliveries from public suppliers	Total use		Power generated, in million kWh
	Fossil-fuel	Nuclear	Ground water	Surface water			Total		Withdrawals and deliveries	Consumptive use	
			Fresh	Fresh	Saline	Total					
GASTON	314.00	0.00	0.00	314.00	0.00	314.00	314.00	0.00	314.00	0.00	4,480.00
GATES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRAHAM	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GRANVILLE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GREENE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
GUILFORD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HALIFAX	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HARNETT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HAYWOOD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HENDERSON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HERTFORD	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HOKE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HYDE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
IREDELL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JACKSON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JOHNSTON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
JONES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LEE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LENOIR	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
LINCOLN	0.04	0.00	0.00	0.04	0.00	0.04	0.04	0.00	0.04	0.04	65.00
MCDOWELL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MACON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MADISON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MARTIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MECKLENBURG	0.00	2,650.00	0.00	2,650.00	0.00	2,650.00	2,650.00	0.00	2,650.00	0.00	1,7950.00
MITCHELL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MONTGOMERY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MOORE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NASH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
NEW HANOVER	37.54	0.00	0.04	37.50	0.00	37.50	37.54	0.00	37.54	5.20	1,695.19
NORTHAMPTON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ONSLOW	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ORANGE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PAMLICO	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PASQUOTANK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Table 12. Thermoelectric-power generation water use, in million gallons per day, and power generated in million kilowatt-hours, by county, in North Carolina, 1995—Continued

[kWh, kilowatt-hours]

County	Total withdrawals, by category		Withdrawals by source					Deliveries from public suppliers	Total use		Power generated, in million kWh
	Fossil-fuel	Nuclear	Ground water	Surface water			Total		Withdrawals and deliveries	Consumptive use	
			Fresh	Fresh	Saline	Total					
PENDER	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERQUIMANS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
PERSON	670.00	0.00	0.00	670.00	0.00	670.00	670.00	0.00	670.00	31.00	16,910.52
PITT	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
POLK	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RANDOLPH	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
RICHMOND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
ROBESON	7.17	0.00	0.07	7.10	0.00	7.10	7.17	0.00	7.17	1.90	261.09
ROCKINGHAM	40.00	0.00	0.00	40.00	0.00	40.00	40.00	0.00	40.00	0.00	375.00
ROWAN	49.00	0.00	0.00	49.00	0.00	49.00	49.00	0.00	49.00	0.00	419.00
RUTHERFORD	7.00	0.00	0.00	7.00	0.00	7.00	7.00	0.00	7.00	7.00	2,399.00
SAMPSON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SCOTLAND	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STANLY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
STOKES	894.00	0.00	0.00	894.00	0.00	894.00	894.00	0.00	894.00	0.00	12,572.00
SURRY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
SWAIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TRANSYLVANIA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TYRRELL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
UNION	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
VANCE	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WAKE	0.00	6.22	0.00	6.22	0.00	6.22	6.22	0.00	6.22	1.22	5,966.63
WARREN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WASHINGTON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WATAUGA	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WAYNE	6.97	0.00	0.00	6.97	0.00	6.97	6.97	0.00	6.97	0.77	866.16
WILKES	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
WILSON	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
YADKIN	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
YANCEY	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	3,207.45	4,209.55	0.11	5,863.56	1,553.33	7,416.89	7,417.00	0.36	7,417.36	74.16	93,432.98

thermoelectric withdrawals (figs. 22 and 23). A nuclear facility in Brunswick County withdrew 1,553 Mgal/d of saline water from the Cape Fear estuary for cooling. This amount is 21 percent of the total water used for this category. Of the water withdrawn, 99 percent was returned to surface water.

The water source for thermoelectric-power production was almost exclusively from surface water; 0.11 Mgal/d was from ground water (table 12). Public suppliers delivered 0.36 Mgal/d to thermoelectric plants. Thermoelectric-powerplants produced about 93,433 million kilowatt-hours (kWh) of electricity in 1995. Fossil-fuel plants supplied 62 percent of this total, or 57,523 million kWh of electricity, and the remainder was produced by nuclear plants (table 12; fig. 23).

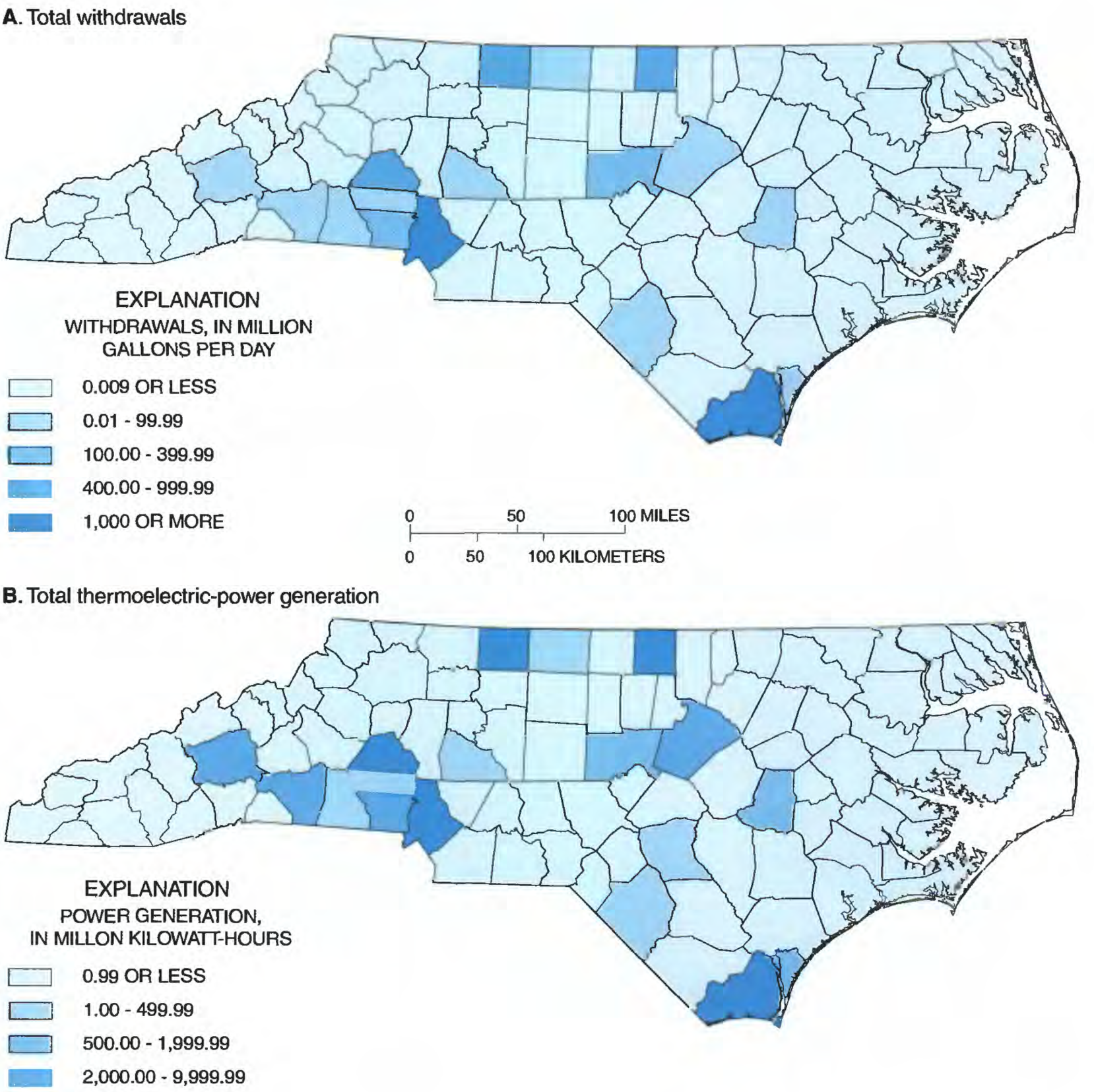


Figure 22. (A) Total water withdrawals for thermoelectric-power generation and (B) power generated, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

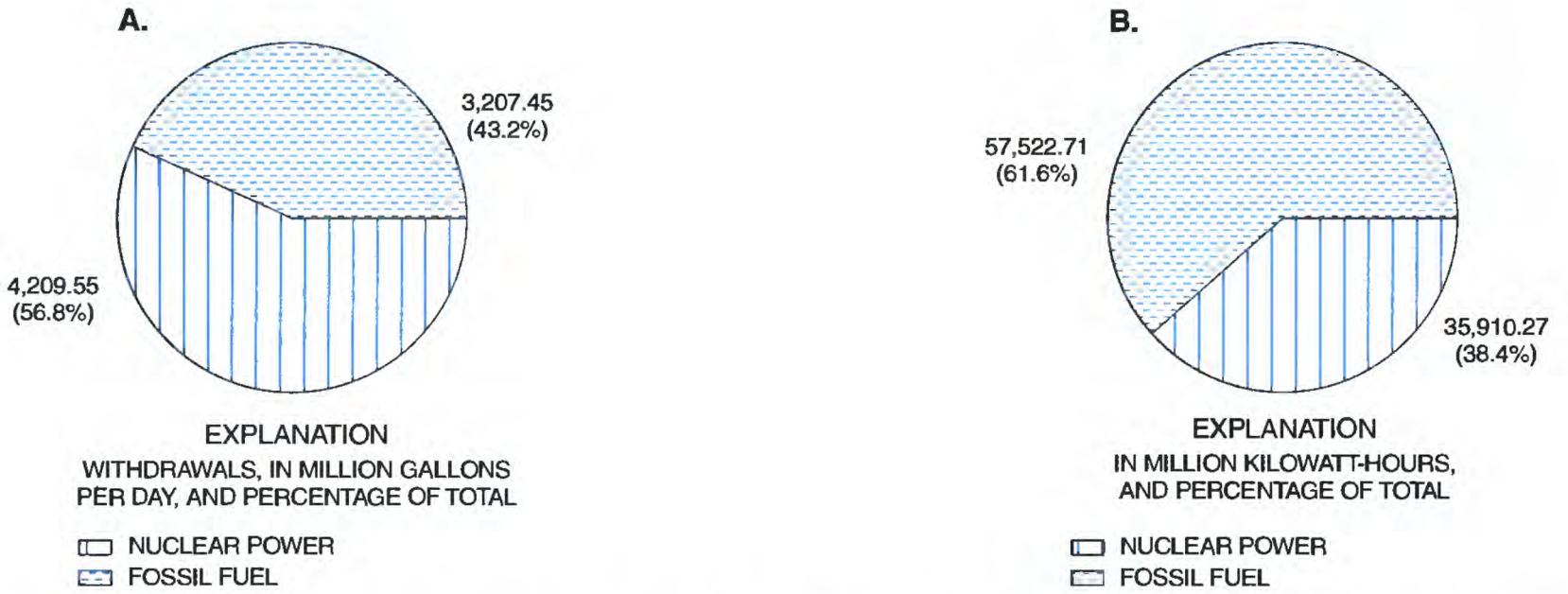


Figure 23. Thermoelectric-power generation, by power type, in North Carolina, 1995. (A) Water withdrawals and (B) Power generated.

Instream Water Use for Hydroelectric-Power Generation

In this report, instream water use is limited to water that is used in the generation of hydroelectric power. These data were collected from power companies that operate the 38 hydroelectric-power generation facilities in North Carolina. Even though water is not actually removed from the source, it is necessary to record the amount of water used by these facilities. Water budget planners must ensure that the amount of water needed to produce electricity is readily available to these facilities throughout the year, especially during drought conditions.

Hydroelectric-power generation occurs in the Blue Ridge and Piedmont Provinces of the State where topographic relief generally provides sufficient elevation drop essential for hydroelectric-power generation. Hydroelectric-power generation facilities require large amounts of water to drive turbines for the generation of electricity. The amount of water that passed through hydroelectric turbines in the State in 1995 was about 56,400 Mgal/d (table 13). This volume is more than six times the amount of all offstream water use in the State. Hydroelectric facilities in Halifax and Montgomery Counties, which have facilities located on major rivers, used 26,200 Mgal/d of water to produce electricity. This accounts for more than 46 percent of all water used by the 38 hydroelectric facilities in the State (table 13; fig. 24). Power generated by hydroelectric facilities totaled about 5,813 million kWh (table 13) or about 6 percent of all the electricity produced in the State.

Table 13. Hydroelectric-power generation water use, by county, in North Carolina, 1995

[Mgal/d, million gallons per day; kWh, kilowatt-hours]

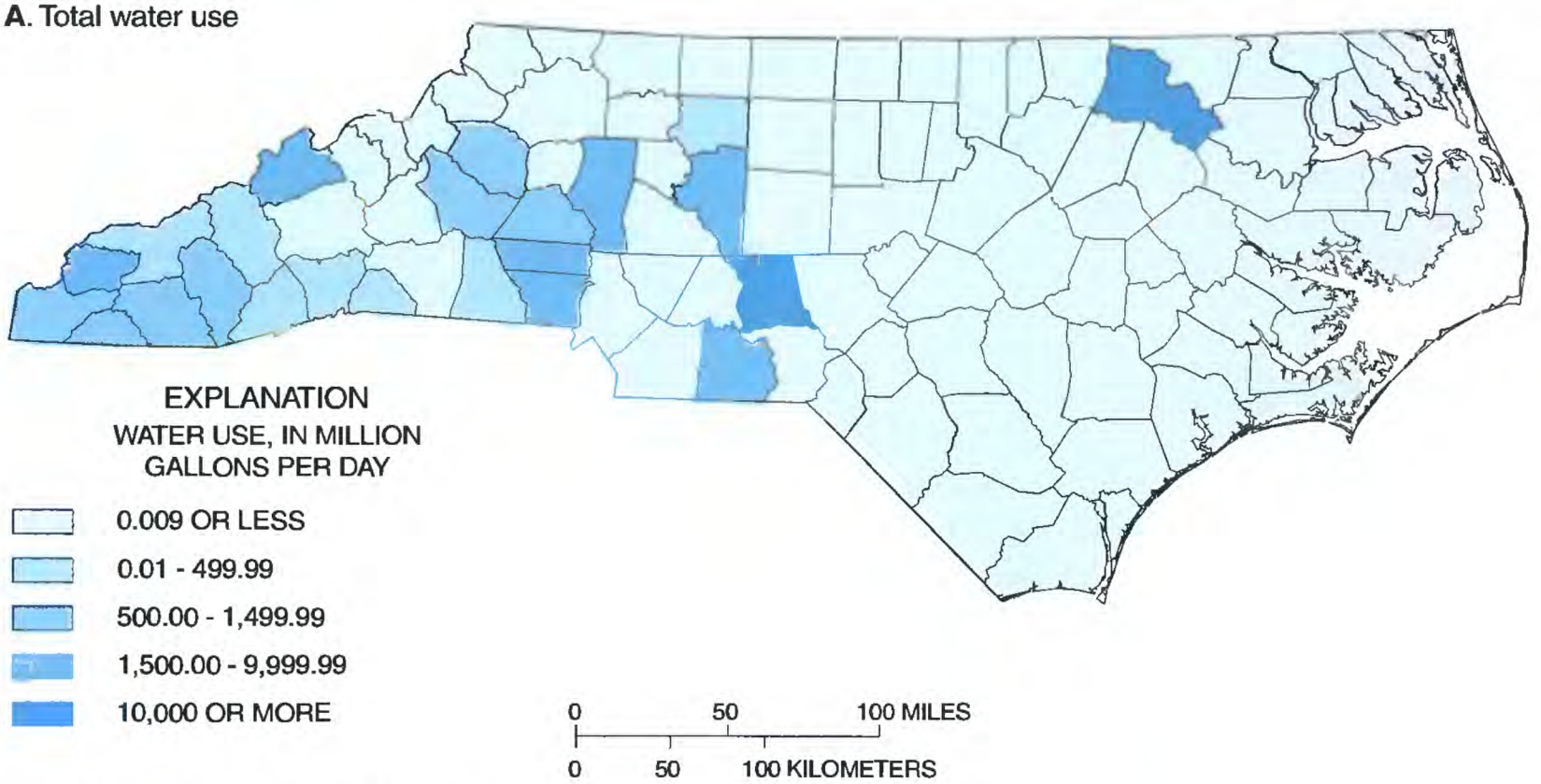
County	Water use, in Mgal/d	Power generated, in million kWh
ALAMANCE	0.00	0.00
ALEXANDER	0.00	0.00
ALLEGHANY	0.00	0.00
ANSON	6,022.41	151.30
ASHE	0.00	0.00
AVERY	0.00	0.00
BEAUFORT	0.00	0.00
BERTIE	0.00	0.00
BLADEN	0.00	0.00
BRUNSWICK	0.00	0.00
BUNCOMBE	0.00	0.00
BURKE	568.00	74.00
CABARRUS	0.00	0.00
CALDWELL	1,380.00	80.00
CAMDEN	0.00	0.00
CARTERET	0.00	0.00
CASWELL	0.00	0.00
CATAWBA	1,400.00	127.00
CHATHAM	0.00	0.00
CHEROKEE	1,441.29	318.56
CHOWAN	0.00	0.00
CLAY	513.88	57.88
CLEVELAND	164.00	2.00
COLUMBUS	0.00	0.00
CRAVEN	0.00	0.00
CUMBERLAND	0.00	0.00
CURRITUCK	0.00	0.00
DARE	0.00	0.00
DAVIDSON	3,113.72	159.41
DAVIE	0.00	0.00
DUPLIN	0.00	0.00
DURHAM	0.00	0.00
EDGECOMBE	0.00	0.00
FORSYTH	175.00	4.00
FRANKLIN	0.00	0.00
GASTON	1,773.00	145.00
GATES	0.00	0.00
GRAHAM	6,079.30	1,725.80
GRANVILLE	0.00	0.00
GREENE	0.00	0.00
GUILFORD	0.00	0.00
HALIFAX	10,477.26	646.51
HARNETT	0.00	0.00
HAYWOOD	499.66	399.05
HENDERSON	72.00	23.00
HERTFORD	0.00	0.00
HOKE	0.00	0.00
HYDE	0.00	0.00
IREDELL	1,780.00	111.00
JACKSON	656.72	208.32

Table 13. Hydroelectric-power generation water use, by county, in North Carolina, 1995—Continued

[Mgal/d, million gallons per day; kWh, kilowatt-hours]

County	Water use, in Mgal/d	Power generated, in million kWh
JOHNSTON	0.00	0.00
JONES	0.00	0.00
LEE	0.00	0.00
LENOIR	0.00	0.00
LINCOLN	1,770.00	205.00
MCDOWELL	0.00	0.00
MACON	742.02	213.28
MADISON	1,615.00	33.75
MARTIN	0.00	0.00
MECKLENBURG	0.00	0.00
MITCHELL	0.00	0.00
MONTGOMERY	15,707.24	1,100.00
MOORE	0.00	0.00
NASH	0.00	0.00
NEW HANOVER	0.00	0.00
NORTHAMPTON	0.00	0.00
ONSLOW	0.00	0.00
ORANGE	0.00	0.00
PAMLICO	0.00	0.00
PASQUOTANK	0.00	0.00
PENDER	0.00	0.00
PERQUIMANS	0.00	0.00
PERSON	0.00	0.00
PITT	0.00	0.00
POLK	95.00	17.00
RANDOLPH	0.00	0.00
RICHMOND	0.00	0.00
ROBESON	0.00	0.00
ROCKINGHAM	0.00	0.00
ROWAN	0.00	0.00
RUTHERFORD	0.00	0.00
SAMPSON	0.00	0.00
SCOTLAND	0.00	0.00
STANLY	0.00	0.00
STOKES	0.00	0.00
SURRY	0.00	0.00
SWAIN	302.05	5.46
TRANSYLVANIA	54.20	5.40
TYRRELL	0.00	0.00
UNION	0.00	0.00
VANCE	0.00	0.00
WAKE	0.00	0.00
WARREN	0.00	0.00
WASHINGTON	0.00	0.00
WATAUGA	0.00	0.00
WAYNE	0.00	0.00
WILKES	0.00	0.00
WILSON	0.00	0.00
YADKIN	0.00	0.00
YANCEY	0.00	0.00
TOTAL	56,401.75	5,812.72

A. Total water use



B. Total hydroelectric-power generation

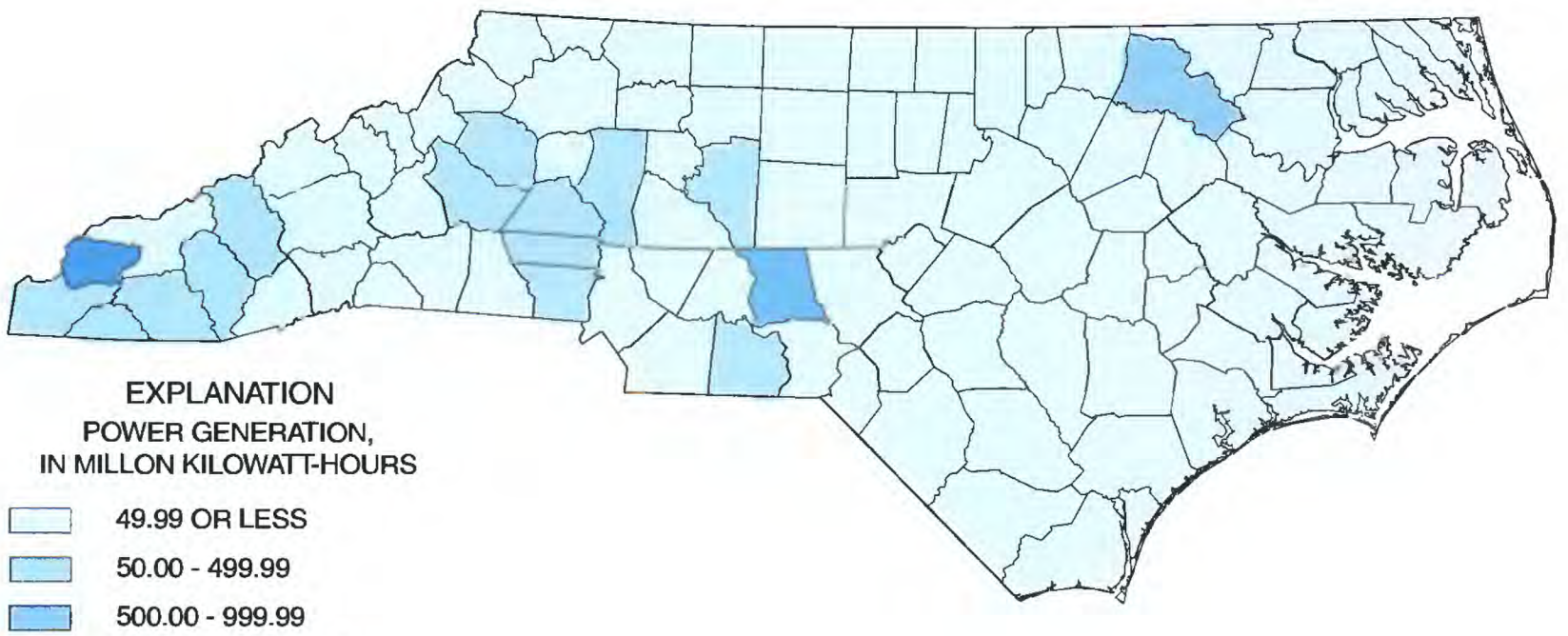


Figure 24. (A) Total instream water use for hydroelectric-power generation and (B) power generated, by county, in North Carolina, 1995. (Data from the U.S. Geological Survey National Data Storage and Retrieval System.)

SUMMARY

In a cooperative effort between the U.S. Geological Survey and the Division of Water Resources of the North Carolina Department of Environment and Natural Resources, water use data for 1995 in North Carolina were collected for several categories. Data also were compiled from a number of other Federal, State, and private sources for the offstream water-use categories of public supply, domestic, commercial, industrial, mining, livestock, irrigation, and thermoelectric-power generation. Data for instream water use for hydroelectric-power generation were collected.

In 1995, an estimated 9,286 million gallons of water per day were withdrawn from surface- and ground-water sources in the State. Of this total, 94 percent came from surface water. Thermoelectric-power generation accounted for 80 percent of the total water withdrawn in the State, almost all of which was from surface water. Public-supply facilities delivered water to approximately 4.7 million consumers or 66 percent of the State's population. These facilities withdrew about 769 Mgal/d, 82 percent of which was from surface water. Domestic users withdrew about 172 Mgal/d, all from ground water. Commercial establishments withdrew only 7.60 Mgal/d, mainly from ground water. Industries withdrew about 369 Mgal/d, 83 percent of which was from surface water. Mining operations withdrew approximately 16 Mgal/d, 73 percent of which was from ground water and does not include water withdrawn for dewatering of excavation pits. Water use for livestock was about 297 Mgal/d; approximately 70 percent was from surface water. Water withdrawals to irrigate approximately 167,000 acres in the State was about 239 Mgal/d; 76 percent was from surface water. Thermoelectric-power generation facilities were the largest water users in the State and withdrew 80 percent, or 7,417 Mgal/d, of all water withdrawn in North Carolina. Instream use for hydroelectric-power generation was about 56,400 Mgal/d.

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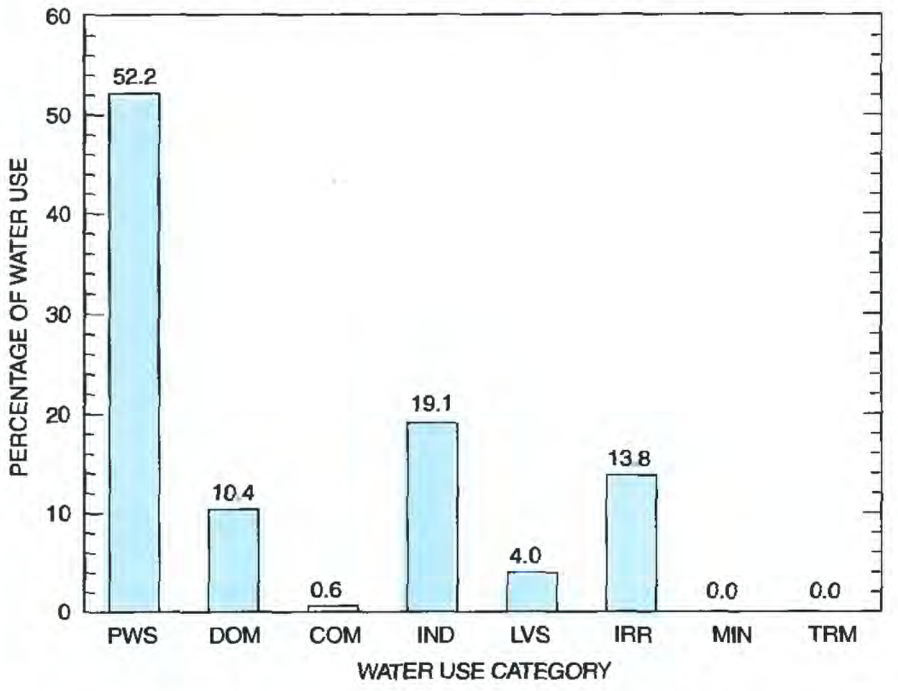
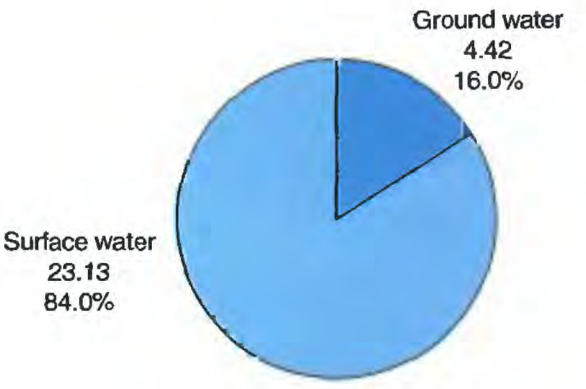
APPENDIX

Population: 115,060
Acres irrigated: 2,120

ALAMANCE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 74,260
Hydroelectric power water use: 0 Mgal/d





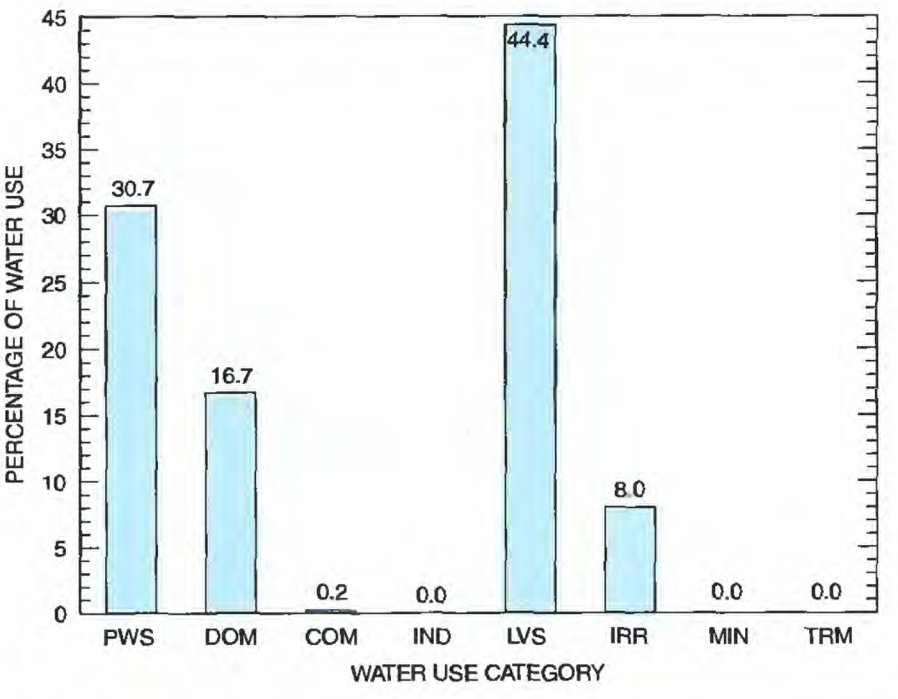
Water use, in million gallons per day

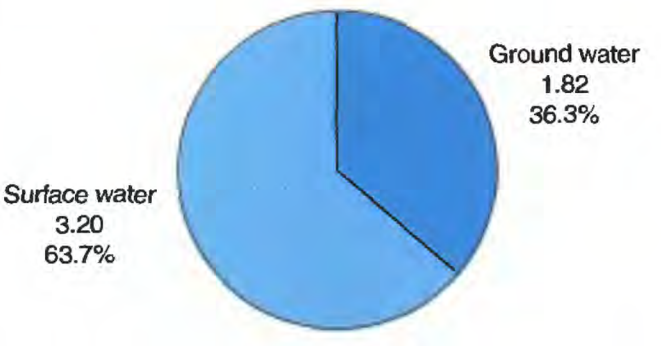
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.27	2.86	0.17	0.57	0.55	0.00	0.00	0.00
Surface water	14.10	0.00	0.00	4.68	0.54	3.81	0.00	0.00
Total	14.37	2.86	0.17	5.25	1.09	3.81	0.00	0.00

Population: 29,890
Acres irrigated: 270

ALEXANDER COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 17,950
Hydroelectric power water use: 0 Mgal/d





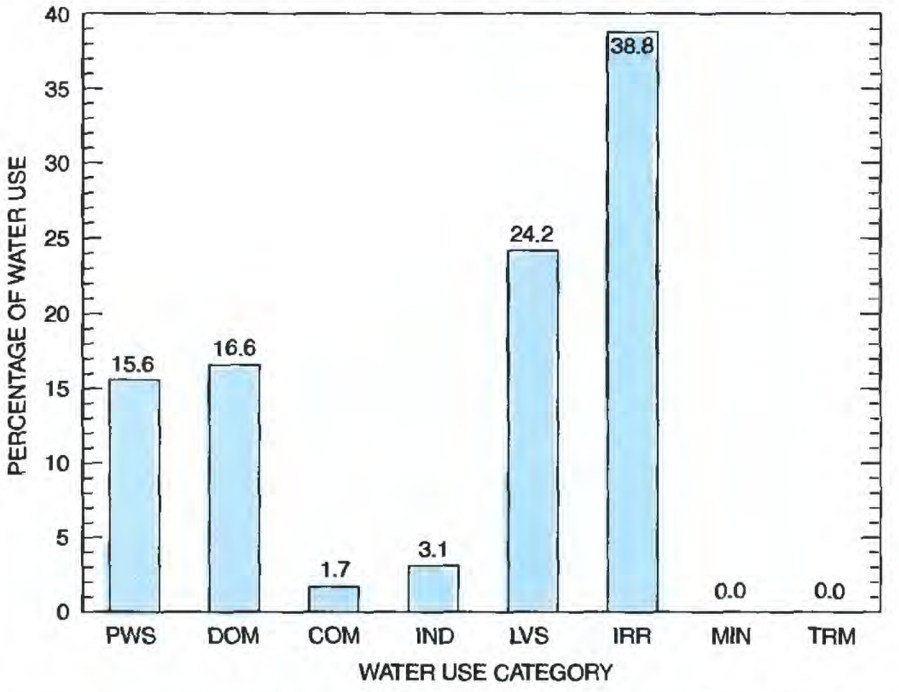
Water use, in million gallons per day

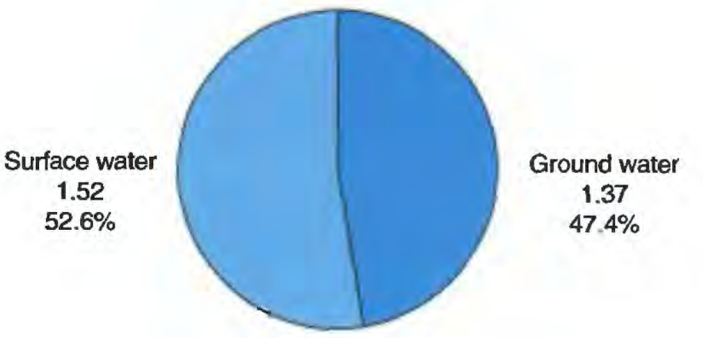
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.04	0.84	0.01	0.00	0.89	0.04	0.00	0.00
Surface water	1.50	0.00	0.00	0.00	1.34	0.36	0.00	0.00
Total	1.54	0.84	0.01	0.00	2.23	0.40	0.00	0.00

Population: 9,890
Acres irrigated: 450

ALLEGHANY COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 3,020
Hydroelectric power water use: 0 Mgal/d





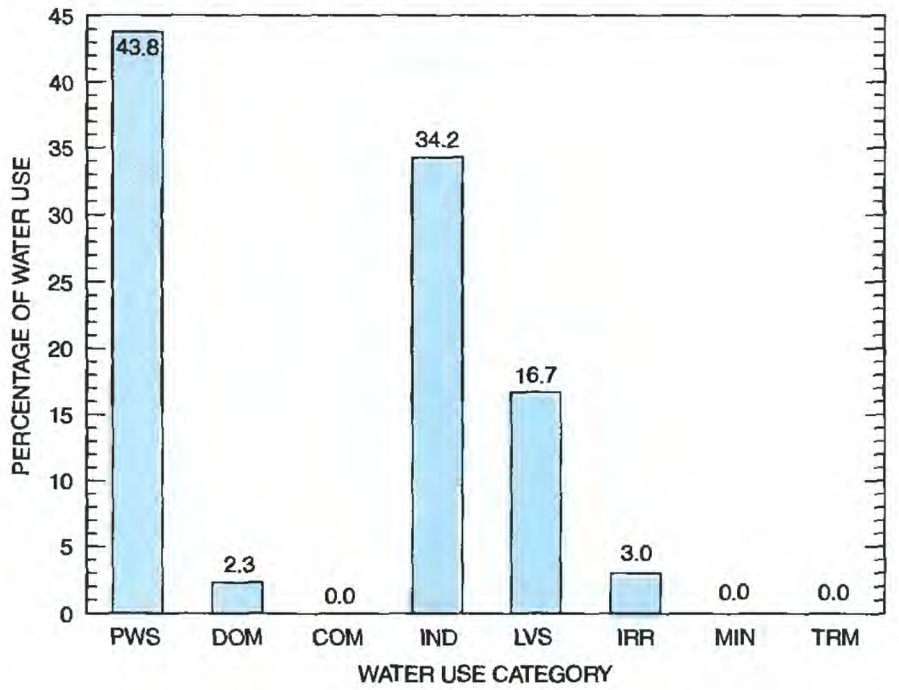
Water use, in million gallons per day

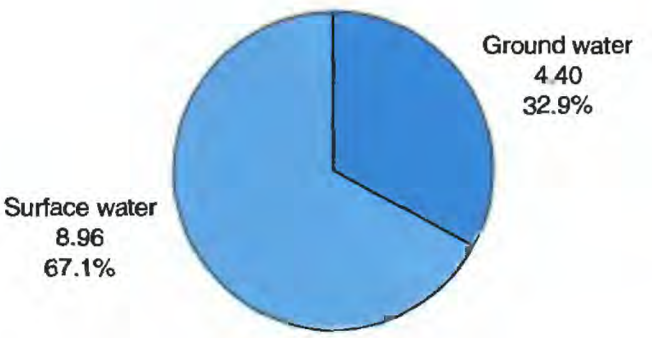
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.45	0.48	0.05	0.01	0.28	0.10	0.00	0.00
Surface water	0.00	0.00	0.00	0.08	0.42	1.02	0.00	0.00
Total	0.45	0.48	0.05	0.09	0.70	1.12	0.00	0.00

Population: 24,180
Acres irrigated: 230

ANSON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 19,800
Hydroelectric power water use: 6,022.41 Mgal/d





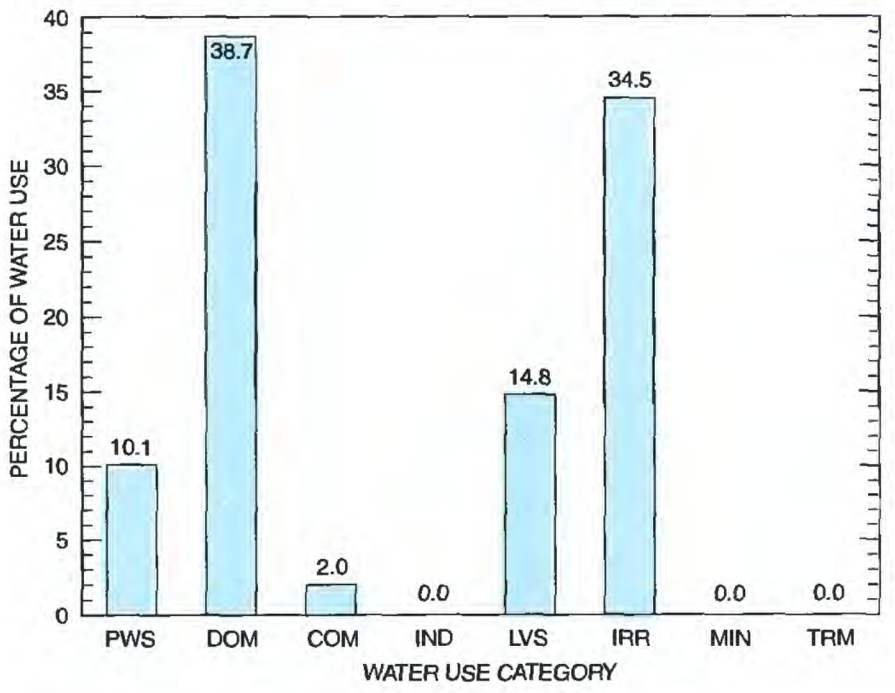
Water use, in million gallons per day

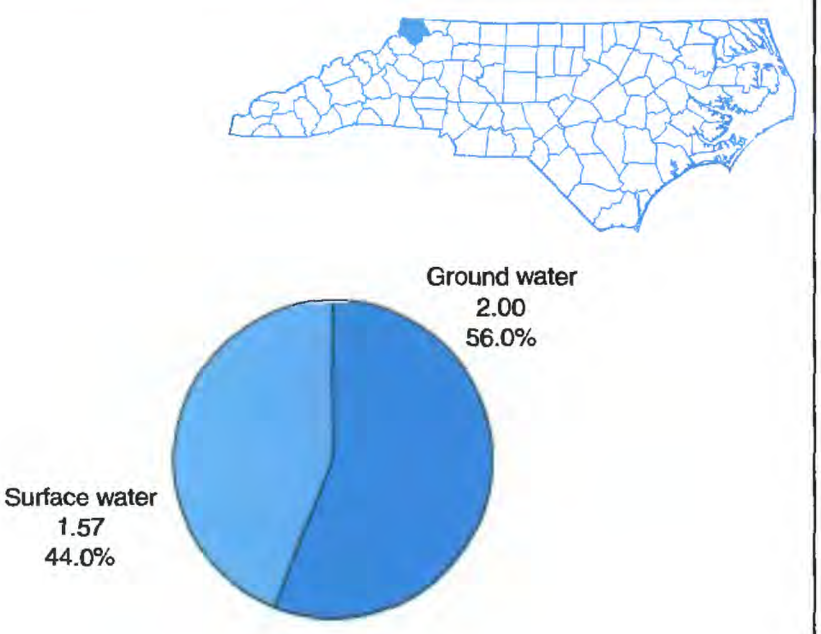
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.04	0.31	0.00	2.55	1.45	0.05	0.00	0.00
Surface water	5.81	0.00	0.00	2.02	0.78	0.35	0.00	0.00
Total	5.85	0.31	0.00	4.57	2.23	0.40	0.00	0.00

Population: 23,370
Acres irrigated: 540

ASHE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 3,720
Hydroelectric power water use: 0 Mgal/d





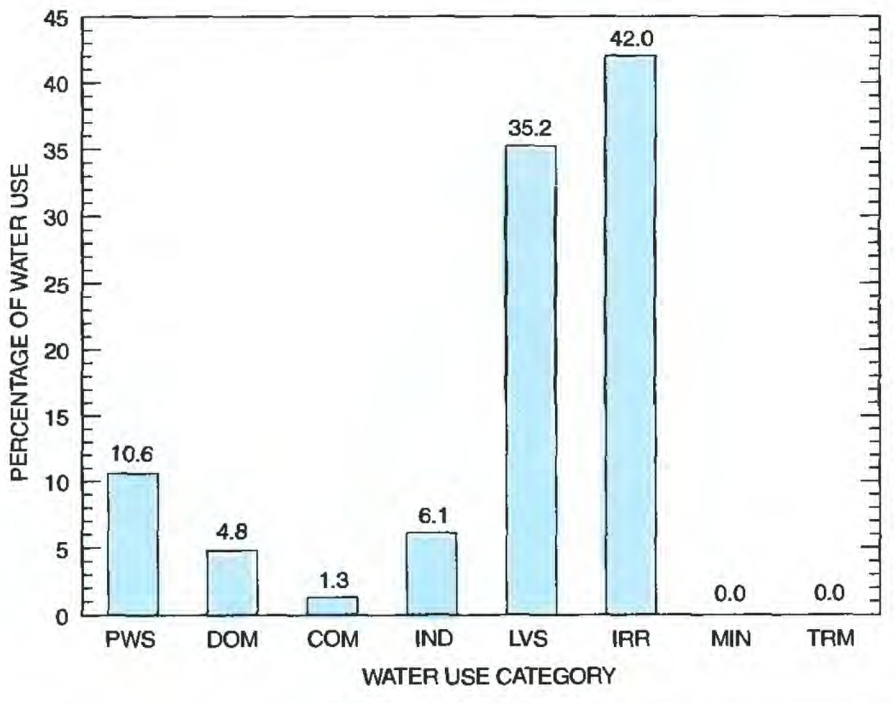
Water use, in million gallons per day

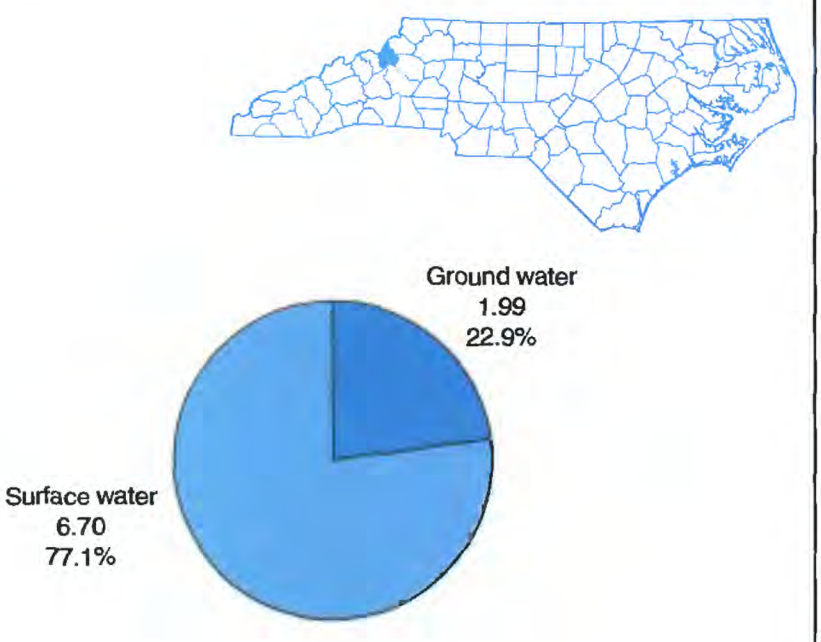
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.22	1.38	0.07	0.00	0.21	0.12	0.00	0.00
Surface water	0.14	0.00	0.00	0.00	0.32	1.11	0.00	0.00
Total	0.36	1.38	0.07	0.00	0.53	1.23	0.00	0.00

Population: 15,320
Acres irrigated: 1,480

AVERY COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 9,260
Hydroelectric power water use: 0 Mgal/d





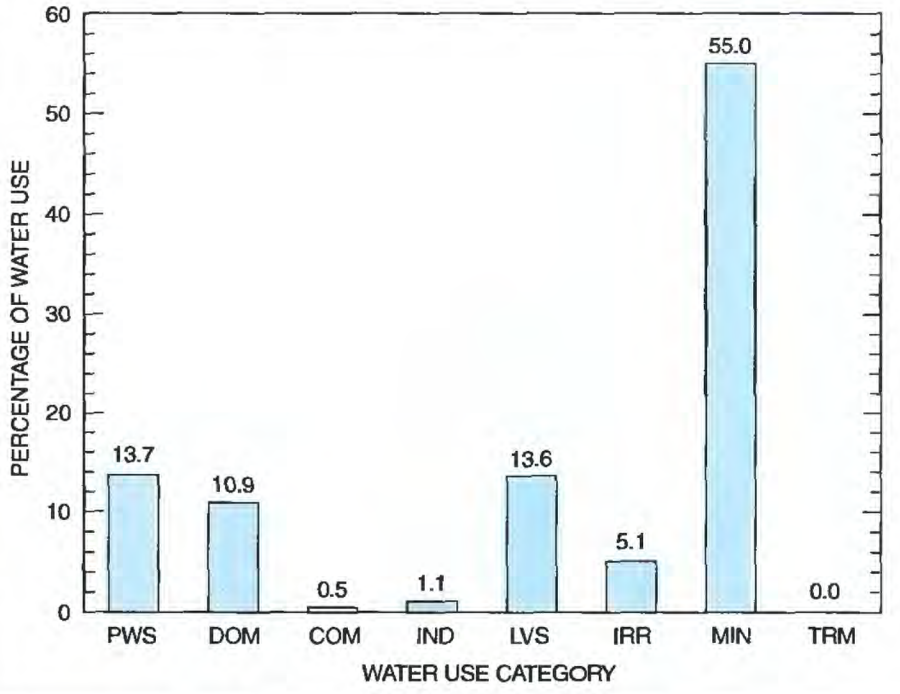
Water use, in million gallons per day

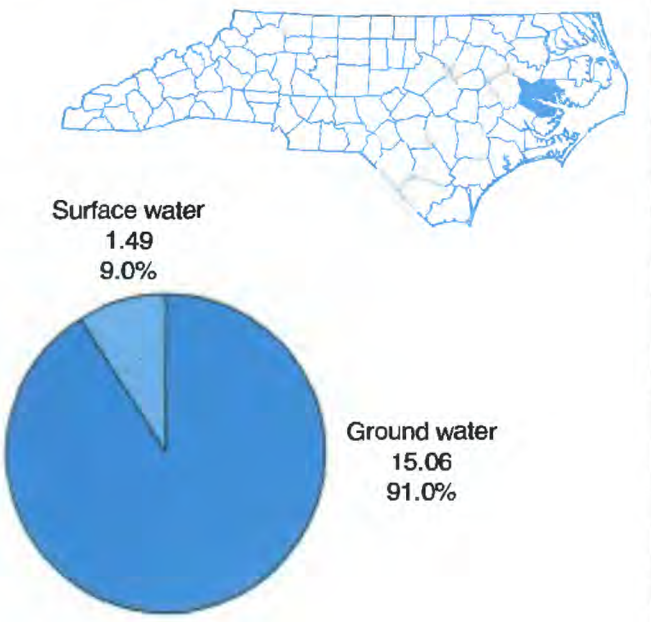
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.92	0.42	0.11	0.35	0.01	0.18	0.00	0.00
Surface water	0.00	0.00	0.00	0.18	3.05	3.47	0.00	0.00
Total	0.92	0.42	0.11	0.53	3.06	3.65	0.00	0.00

Population: 44,120
Acres irrigated: 560

BEAUFORT COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 18,330
Hydroelectric power water use: 0 Mgal/d





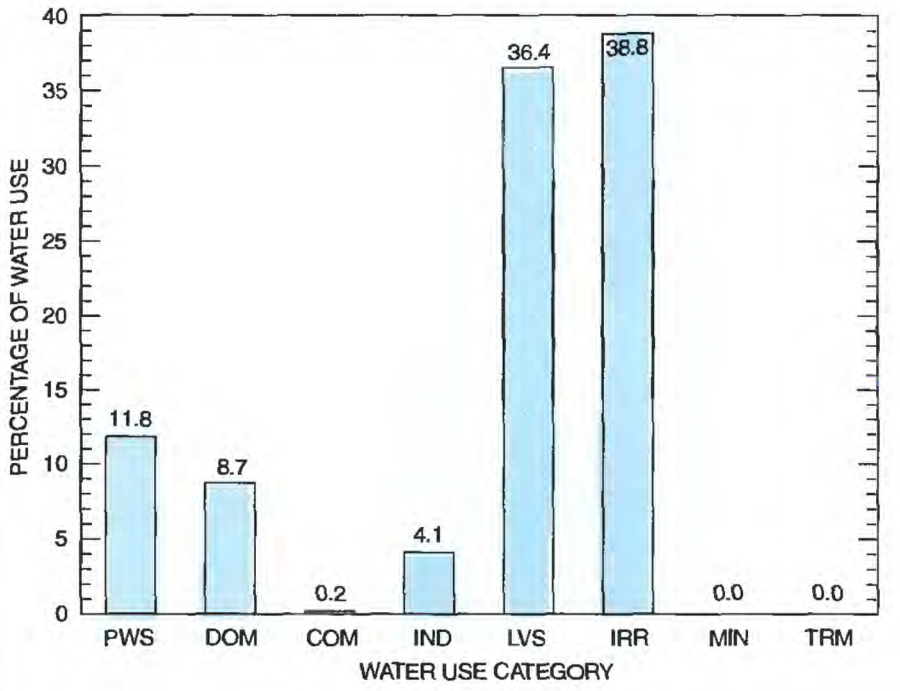
Water use, in million gallons per day

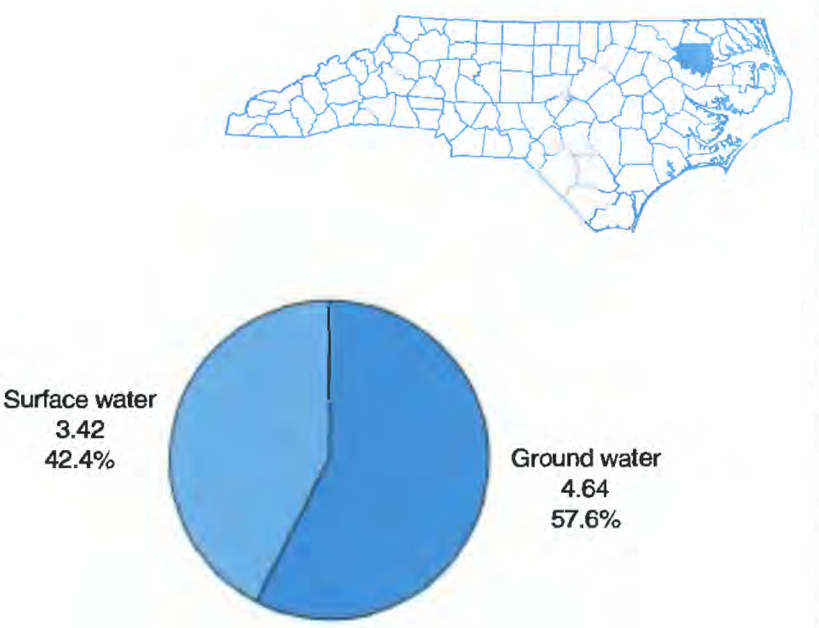
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.12	1.81	0.09	0.01	2.25	0.68	9.10	0.00
Surface water	1.14	0.00	0.00	0.18	0.00	0.17	0.00	0.00
Total	2.26	1.81	0.09	0.19	2.25	0.85	9.10	0.00

Population: 20,850
Acres irrigated: 4,830

BERTIE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 10,830
Hydroelectric power water use: 0 Mgal/d





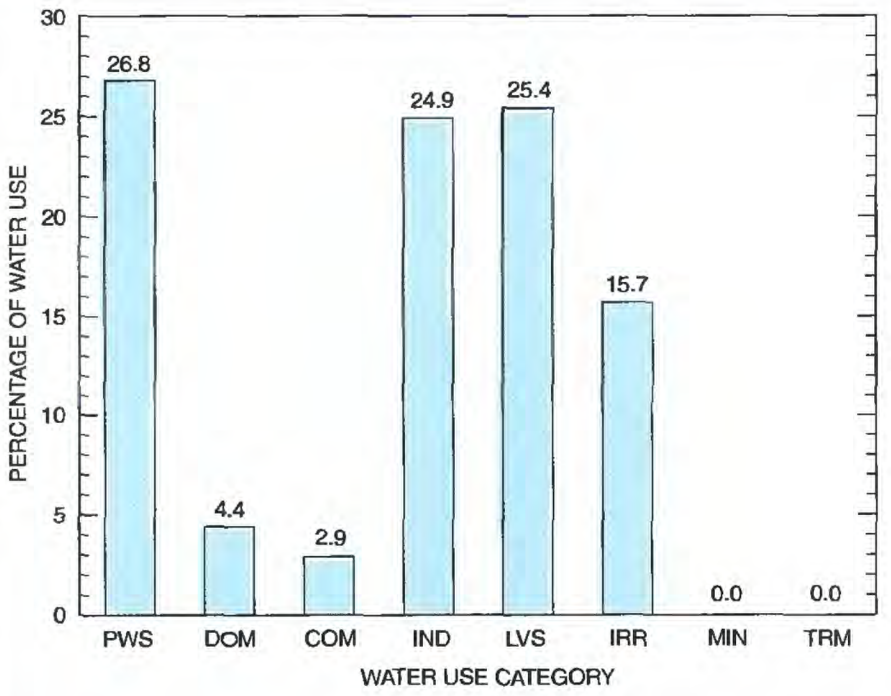
Water use, in million gallons per day

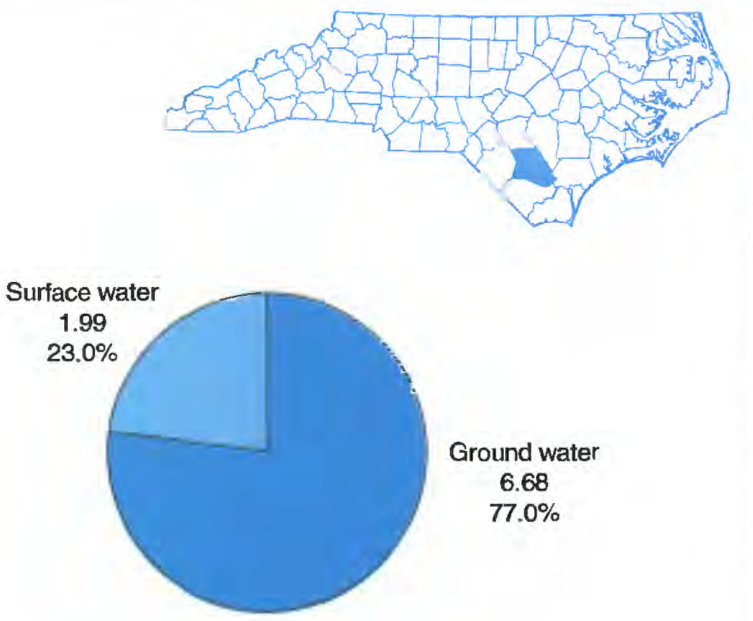
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.95	0.70	0.02	0.02	2.79	0.16	0.00	0.00
Surface water	0.00	0.00	0.00	0.31	0.14	2.97	0.00	0.00
Total	0.95	0.70	0.02	0.33	2.93	3.13	0.00	0.00

Population: 29,960
Acres irrigated: 1,240

BLADEN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 24,550
Hydroelectric power water use: 0 Mgal/d





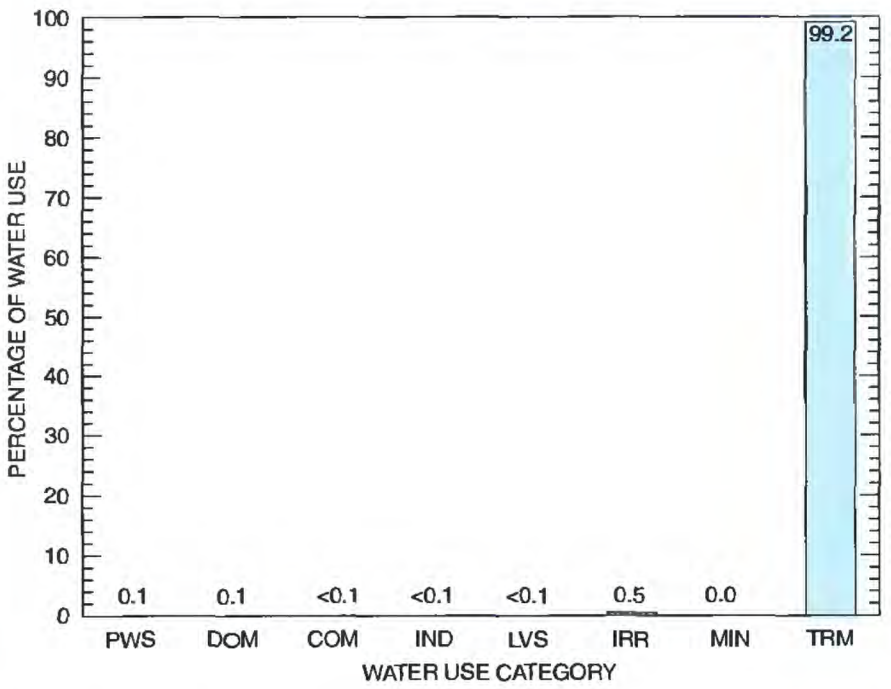
Water use, in million gallons per day

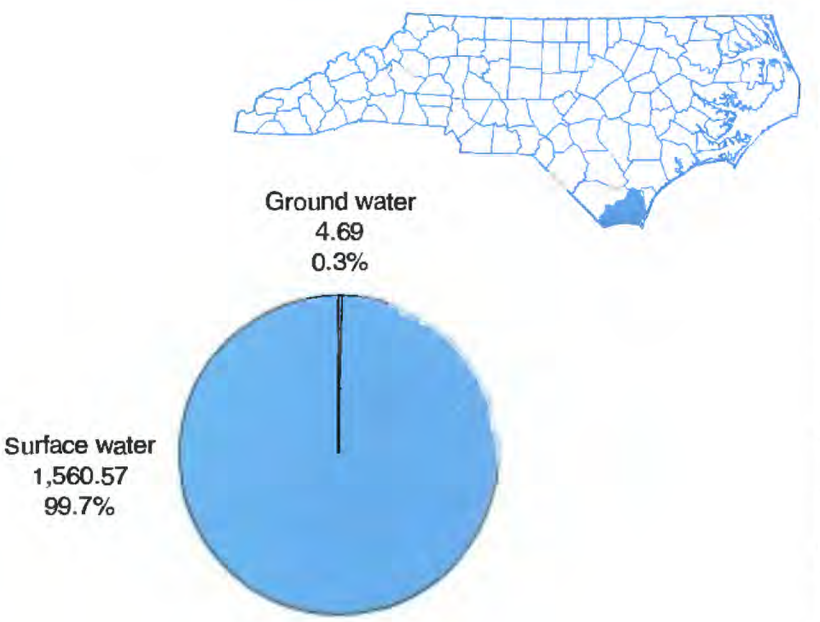
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	2.32	0.38	0.25	1.23	2.09	0.41	0.00	0.00
Surface water	0.00	0.00	0.00	0.93	0.11	0.95	0.00	0.00
Total	2.32	0.38	0.25	2.16	2.20	1.36	0.00	0.00

Population: 60,800
Acres irrigated: 2,770

BRUNSWICK COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 46,610
Hydroelectric power water use: 0 Mgal/d





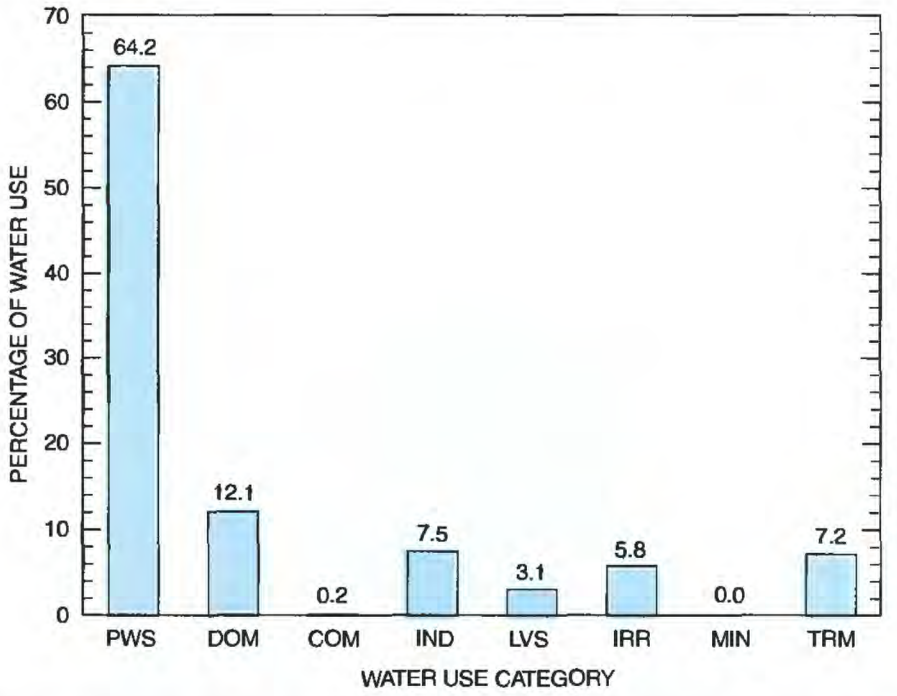
Water use, in million gallons per day

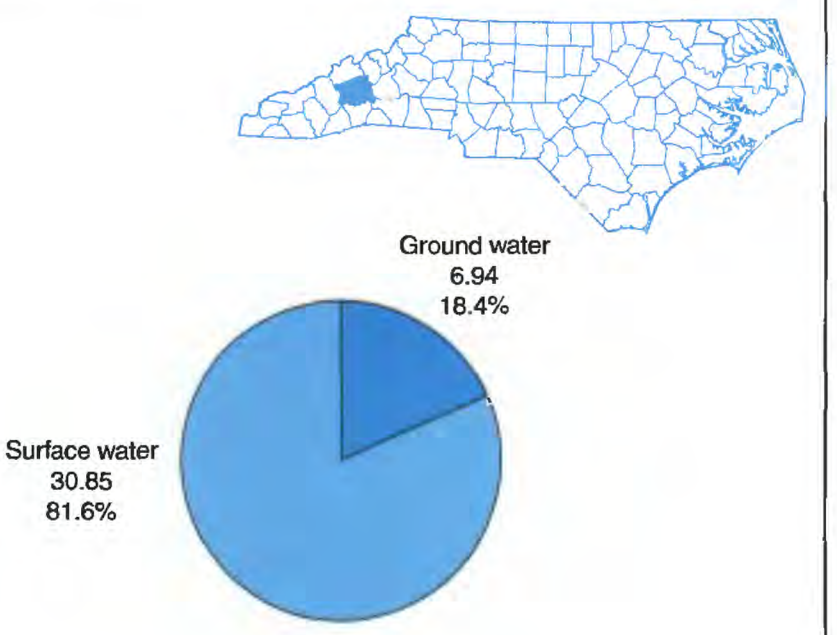
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.68	0.99	0.11	0.23	0.07	1.61	0.00	0.00
Surface water	0.07	0.00	0.00	0.34	0.18	6.65	0.00	1,553.33
Total	1.75	0.99	0.11	0.57	0.25	8.26	0.00	1,553.33

Population: 189,510
Acres irrigated: 1,440

BUNCOMBE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 124,410
Hydroelectric power water use: 0 Mgal/d





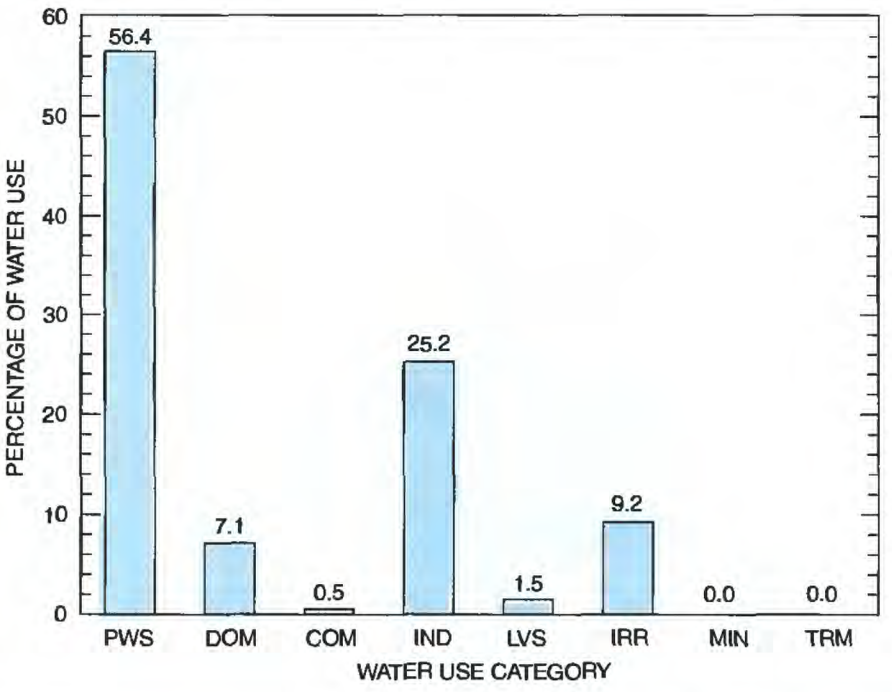
Water use, in million gallons per day

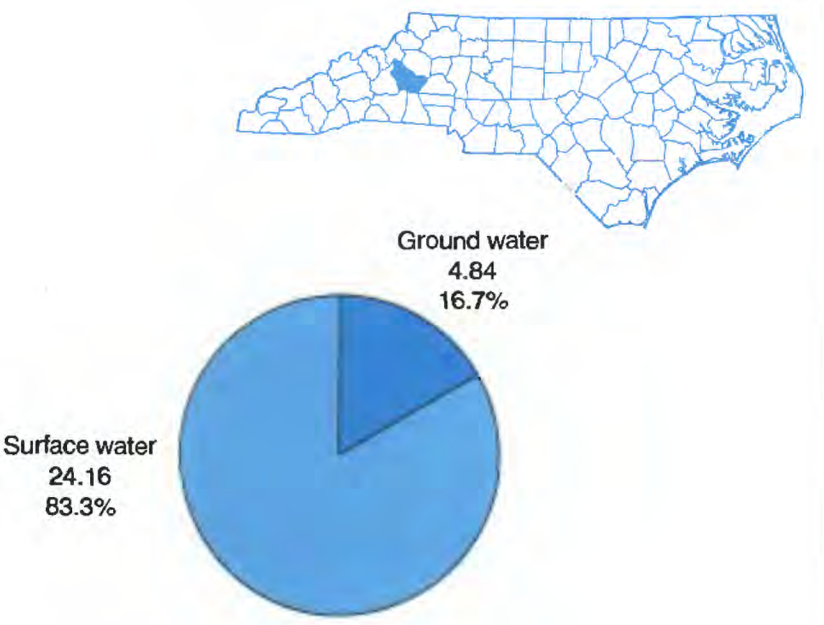
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.48	4.56	0.07	0.56	0.18	0.09	0.00	0.00
Surface water	22.78	0.00	0.00	2.26	0.99	2.09	0.00	2.73
Total	24.26	4.56	0.07	2.82	1.17	2.18	0.00	2.73

Population: 79,860
Acres irrigated: 1,330

BURKE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 50,360
Hydroelectric power water use: 568 Mgal/d





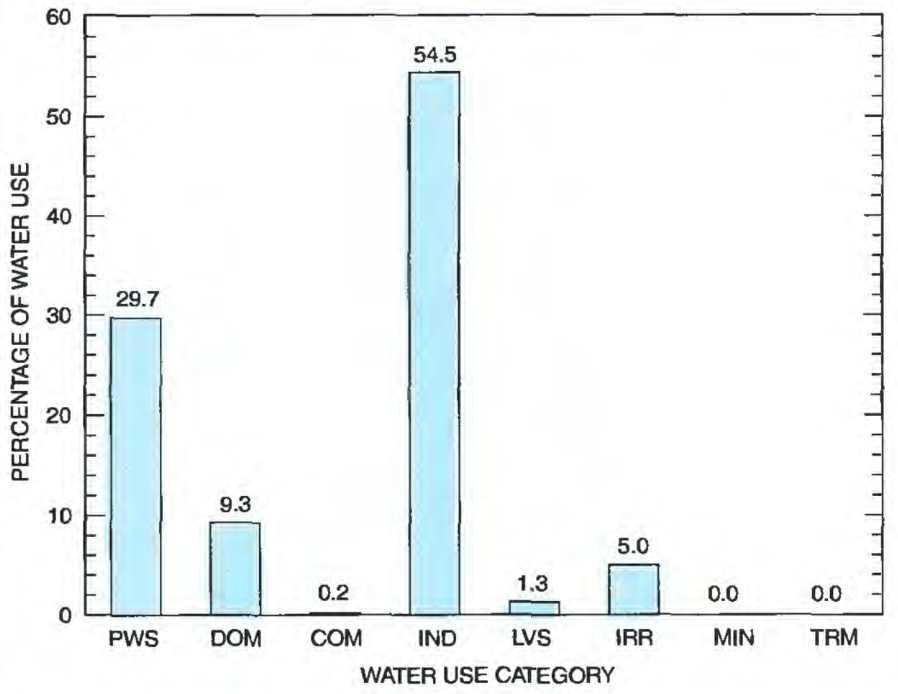
Water use, in million gallons per day

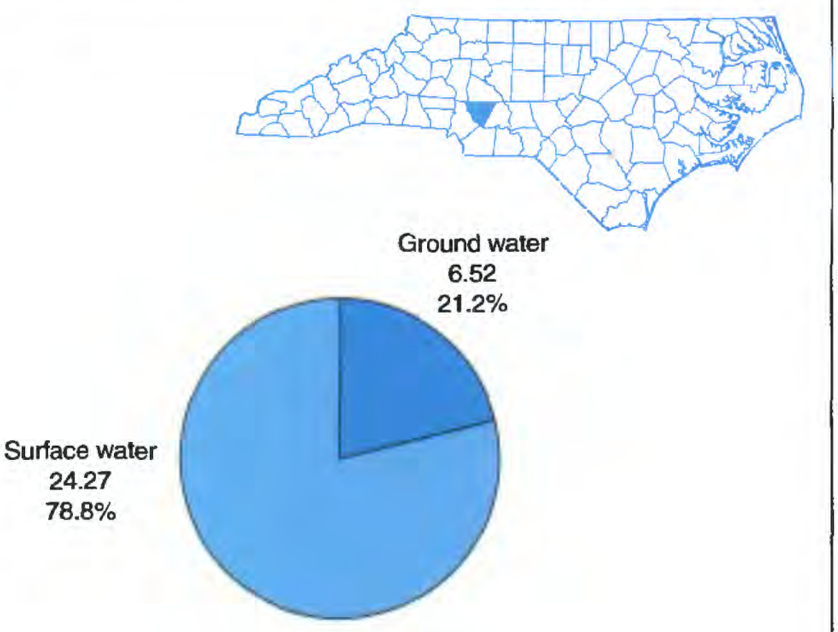
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.11	2.07	0.14	2.22	0.17	0.13	0.00	0.00
Surface water	16.26	0.00	0.00	5.09	0.26	2.55	0.00	0.00
Total	16.37	2.07	0.14	7.31	0.43	2.68	0.00	0.00

Population: 110,030
Acres irrigated: 680

CABARRUS COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 69,010
Hydroelectric power water use: 0 Mgal/d





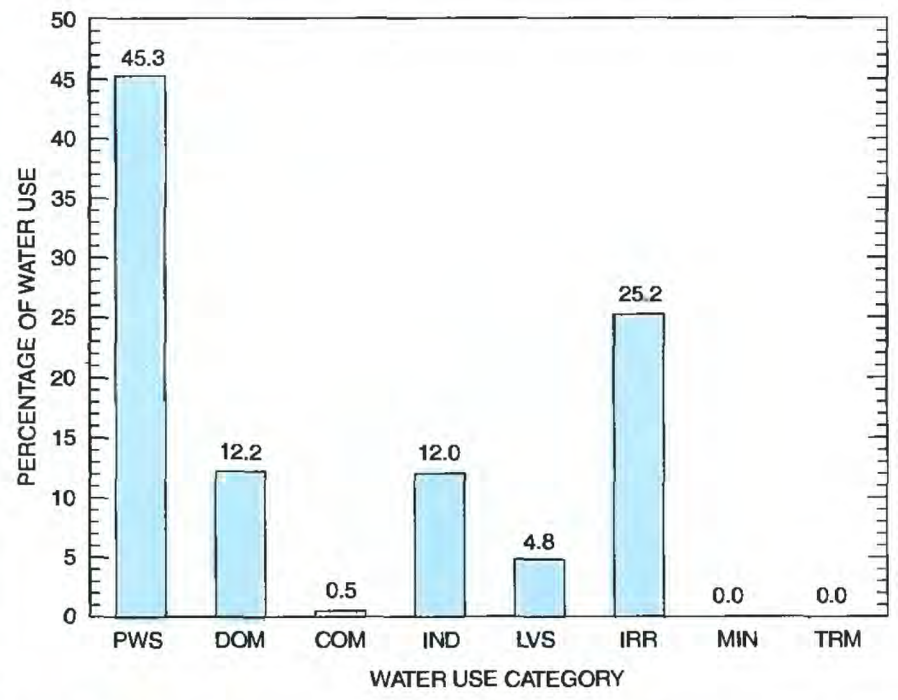
Water use, in million gallons per day

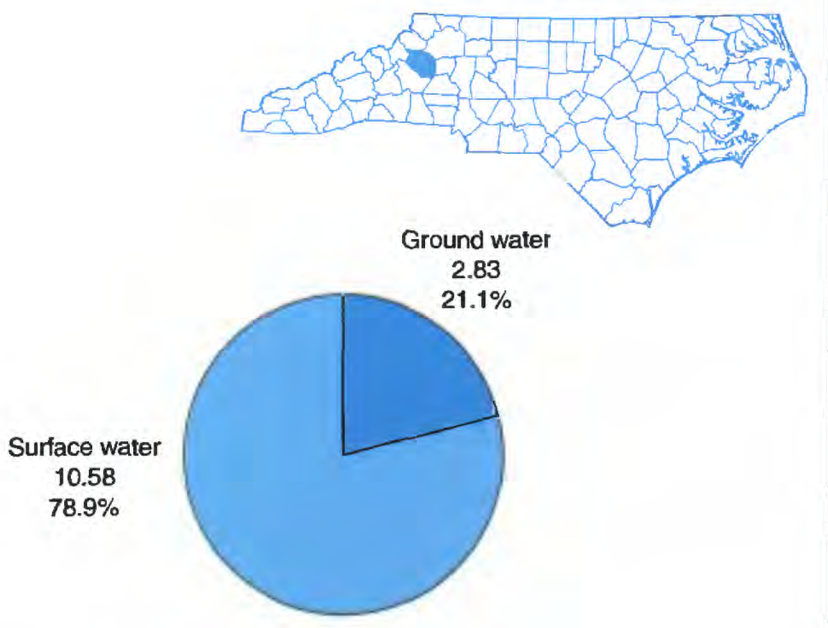
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.53	2.87	0.06	2.75	0.20	0.11	0.00	0.00
Surface water	8.63	0.00	0.00	14.01	0.20	1.43	0.00	0.00
Total	9.16	2.87	0.06	16.76	0.40	1.54	0.00	0.00

Population: 74,060
Acres irrigated: 1,720

CALDWELL COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 50,740
Hydroelectric power water use: 1,380 Mgal/d





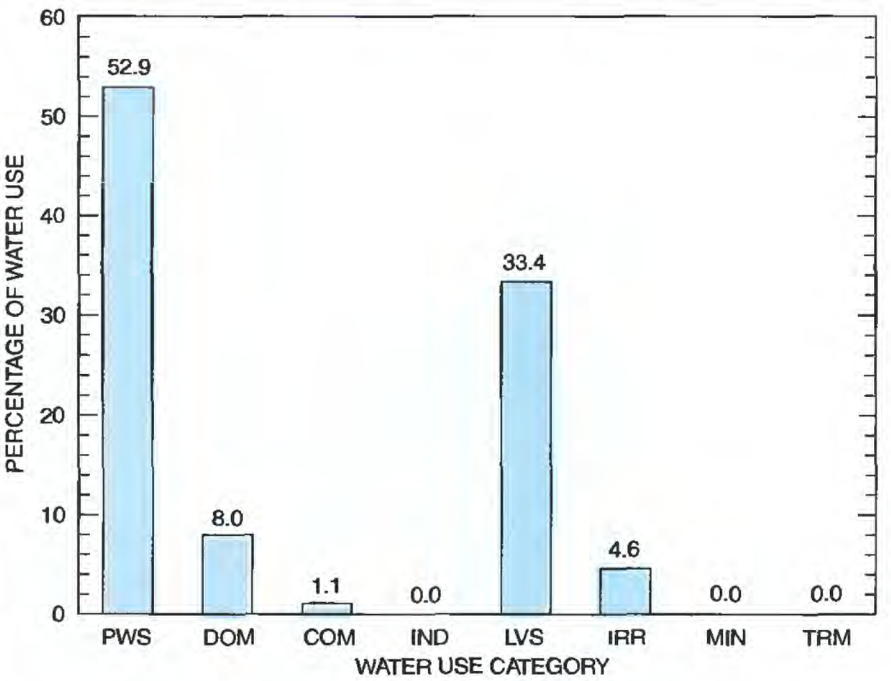
Water use, in million gallons per day

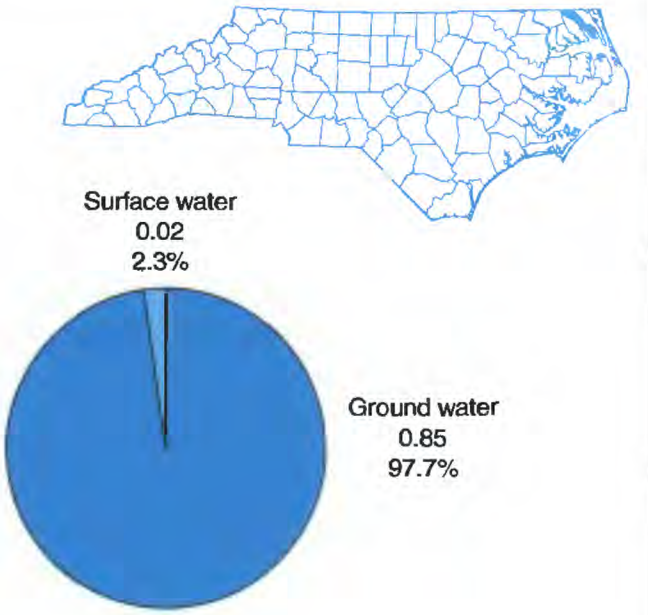
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.20	1.63	0.07	0.35	0.26	0.32	0.00	0.00
Surface water	5.87	0.00	0.00	1.26	0.39	3.06	0.00	0.00
Total	6.07	1.63	0.07	1.61	0.65	3.38	0.00	0.00

Population: 6,450
Acres irrigated: 70

CAMDEN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 5,510
Hydroelectric power water use: 0 Mgal/d





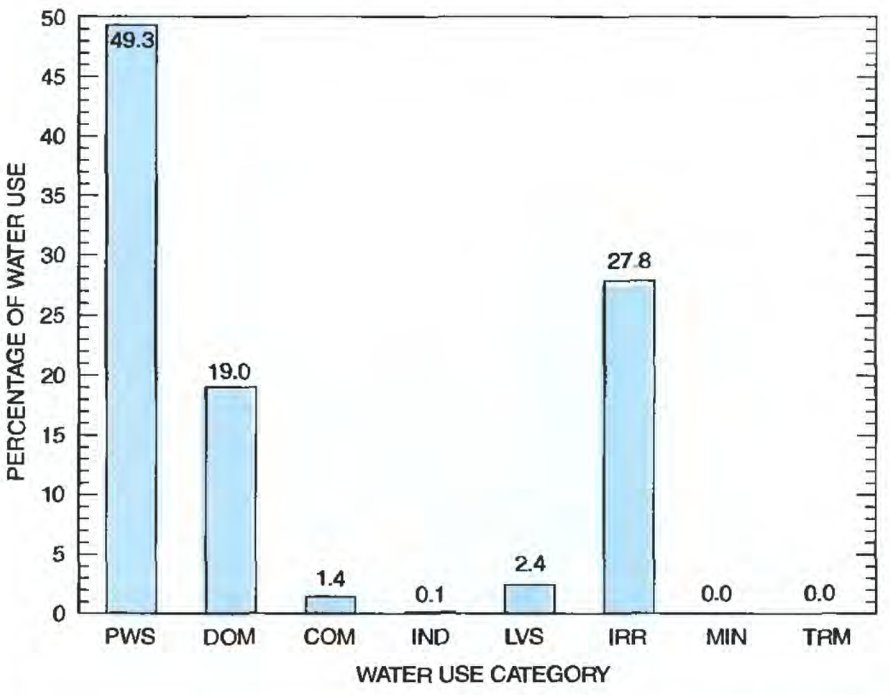
Water use, in million gallons per day

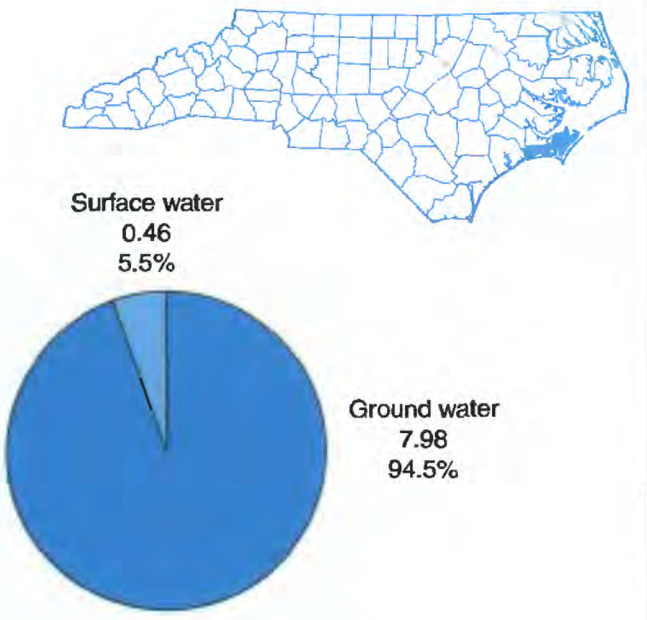
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.46	0.07	0.01	0.00	0.29	0.02	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.00
Total	0.46	0.07	0.01	0.00	0.29	0.04	0.00	0.00

Population: 57,880
Acres irrigated: 770

CARTERET COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 35,070
Hydroelectric power water use: 0 Mgal/d





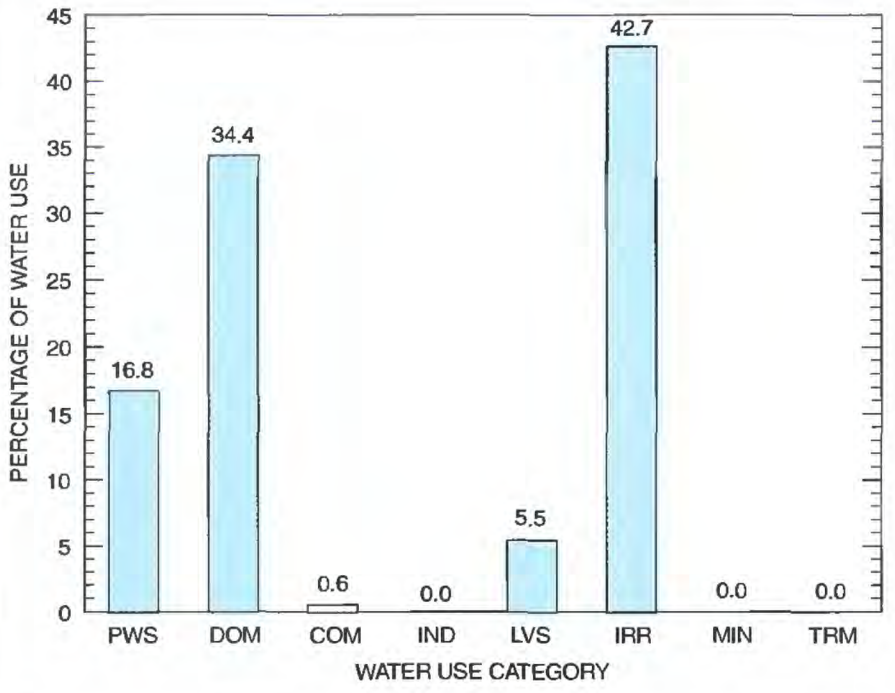
Water use, in million gallons per day

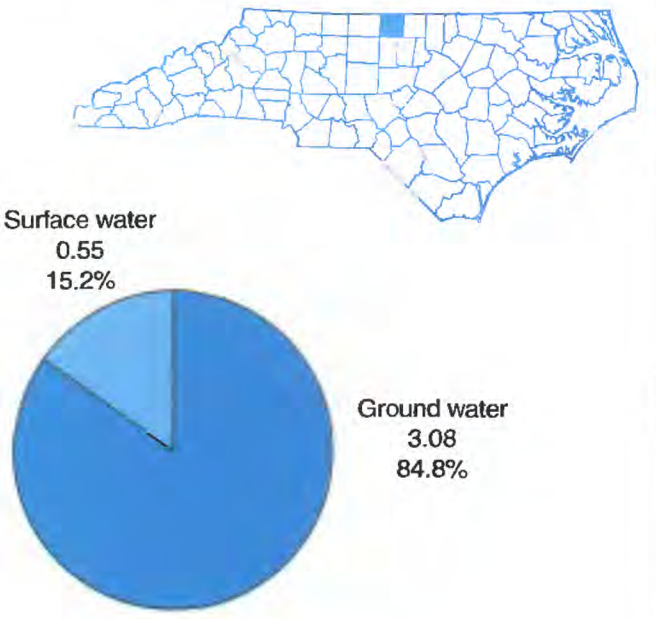
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	4.16	1.60	0.12	0.00	0.20	1.90	0.00	0.00
Surface water	0.00	0.00	0.00	0.01	0.00	0.45	0.00	0.00
Total	4.16	1.60	0.12	0.01	0.20	2.35	0.00	0.00

Population: 21,320
Acres irrigated: 2,150

CASWELL COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 3,430
Hydroelectric power water use: 0 Mgal/d





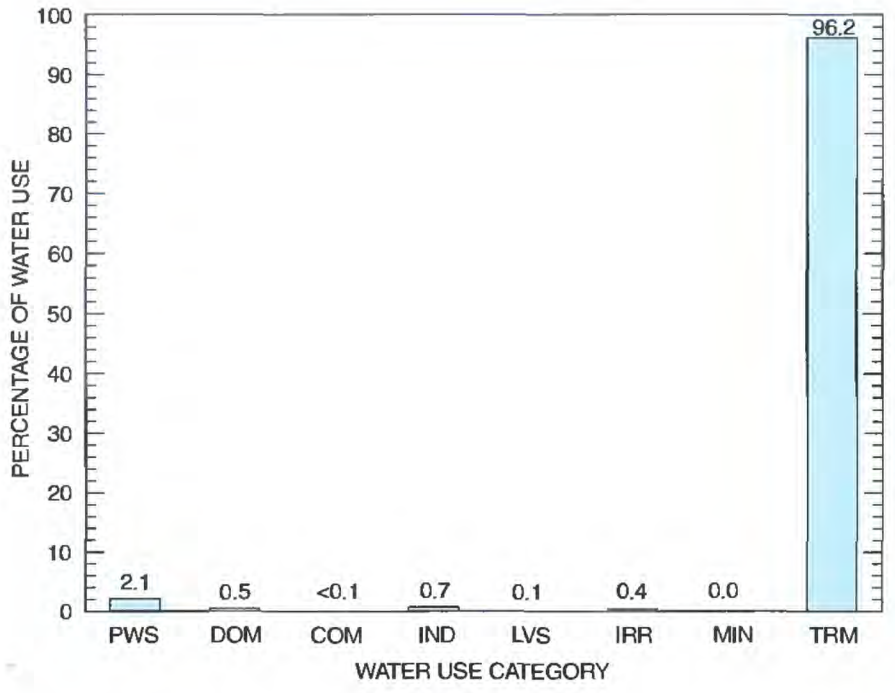
Water use, in million gallons per day

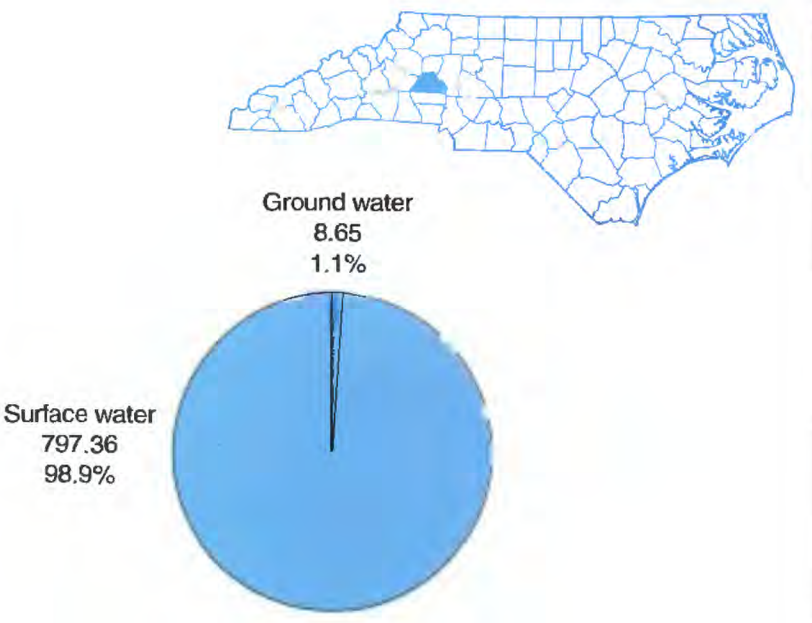
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.08	1.25	0.02	0.00	0.18	1.55	0.00	0.00
Surface water	0.53	0.00	0.00	0.00	0.02	0.00	0.00	0.00
Total	0.61	1.25	0.02	0.00	0.20	1.55	0.00	0.00

Population: 126,420
Acres irrigated: 1,420

CATAWBA COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 69,680
Hydroelectric power water use: 1,400 Mgal/d





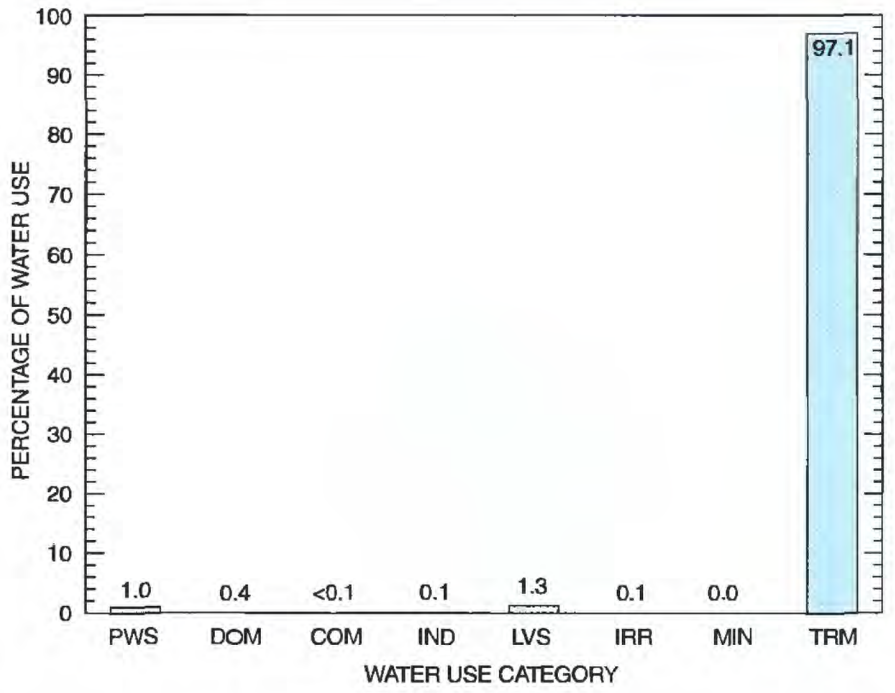
Water use, in million gallons per day

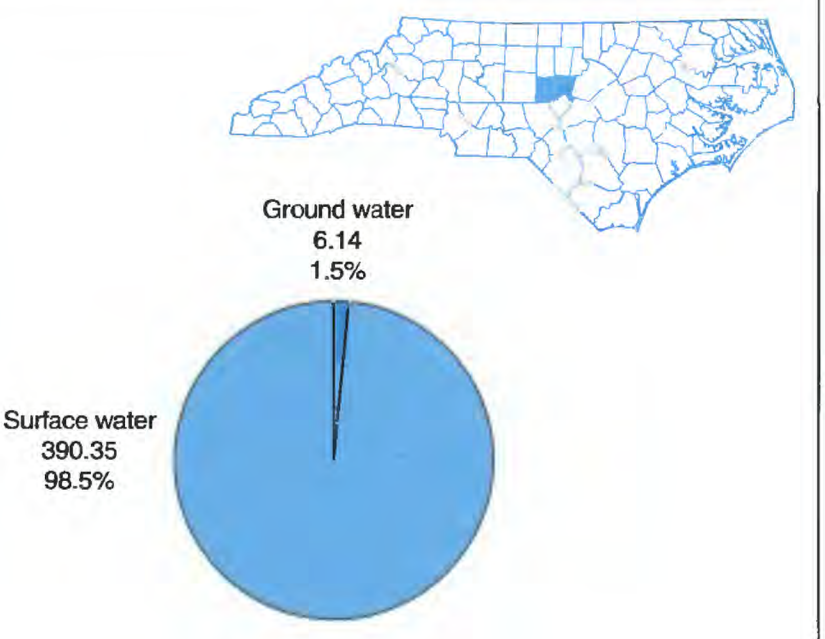
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.73	3.97	0.15	2.89	0.19	0.72	0.00	0.00
Surface water	16.49	0.00	0.00	2.69	0.36	2.82	0.00	775.00
Total	17.22	3.97	0.15	5.58	0.55	3.54	0.00	775.00

Population: 42,540
Acres irrigated: 630

CHATHAM COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 17,580
Hydroelectric power water use: 0 Mgal/d





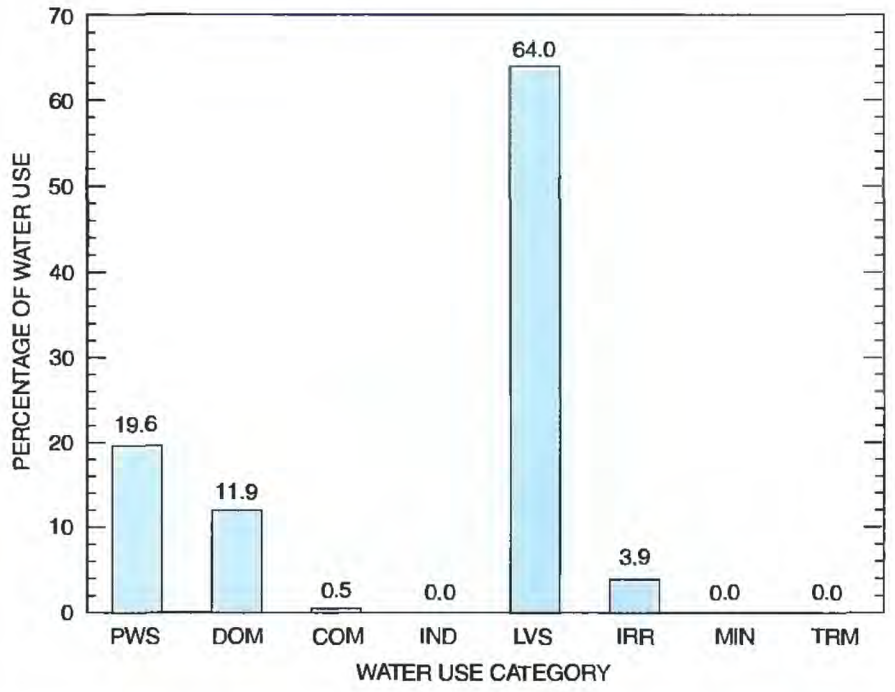
Water use, in million gallons per day

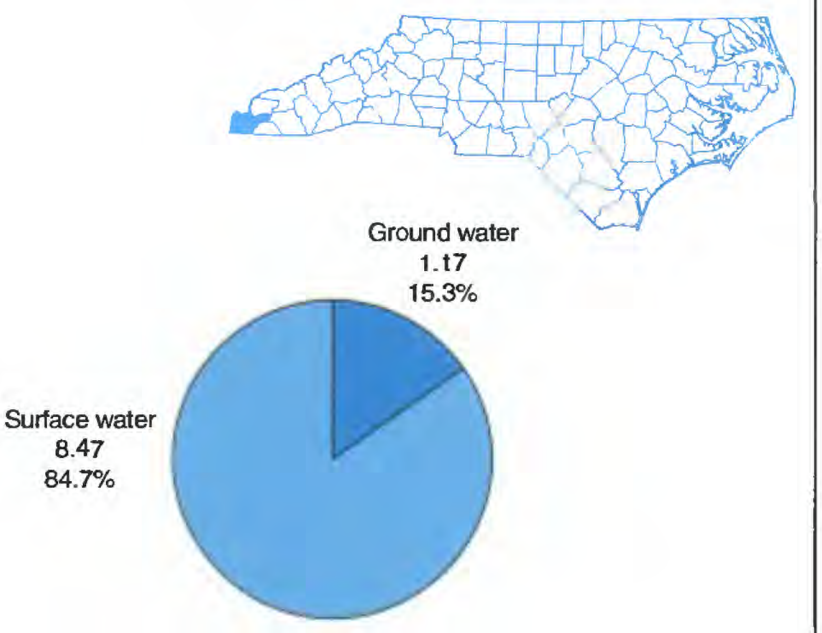
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.49	1.75	0.03	0.06	3.76	0.05	0.00	0.00
Surface water	3.31	0.00	0.04	0.36	1.25	0.39	0.00	385.00
Total	3.80	1.75	0.07	0.42	5.01	0.44	0.00	385.00

Population: 21,600
Acres irrigated: 230

CHEROKEE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 8,670
Hydroelectric power water use: 1,441.29 Mgal/d





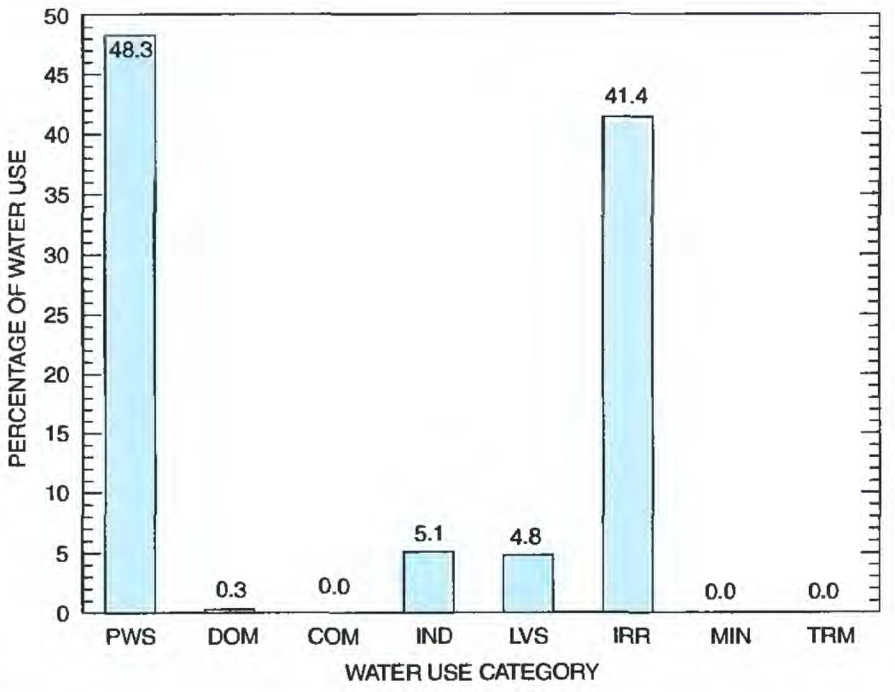
Water use, in million gallons per day

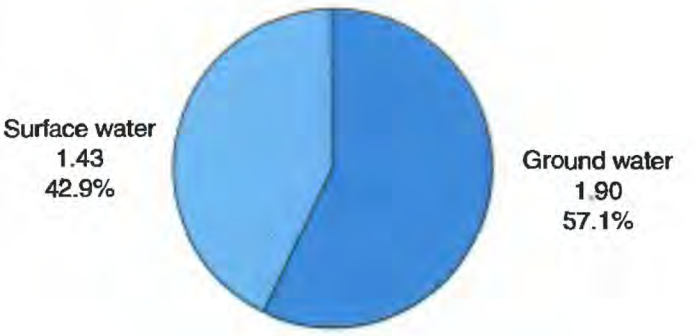
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.12	0.91	0.04	0.00	0.04	0.06	0.00	0.00
Surface water	1.38	0.00	0.00	0.00	4.85	0.24	0.00	0.00
Total	1.50	0.91	0.04	0.00	4.89	0.30	0.00	0.00

Population: 14,010
Acres irrigated: 1,820

CHOWAN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 13,850
Hydroelectric power water use: 0 Mgal/d





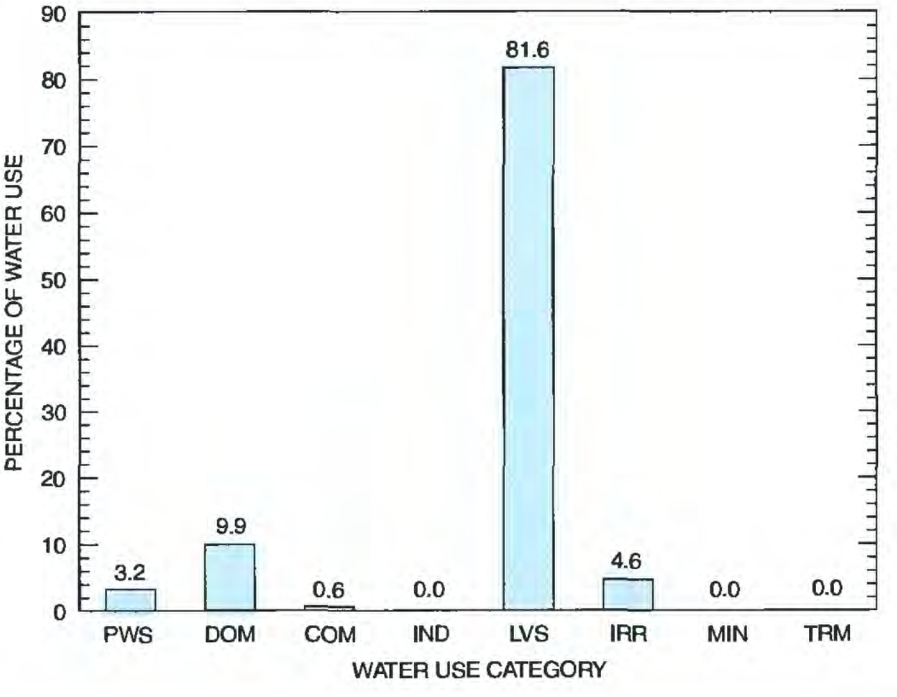
Water use, in million gallons per day

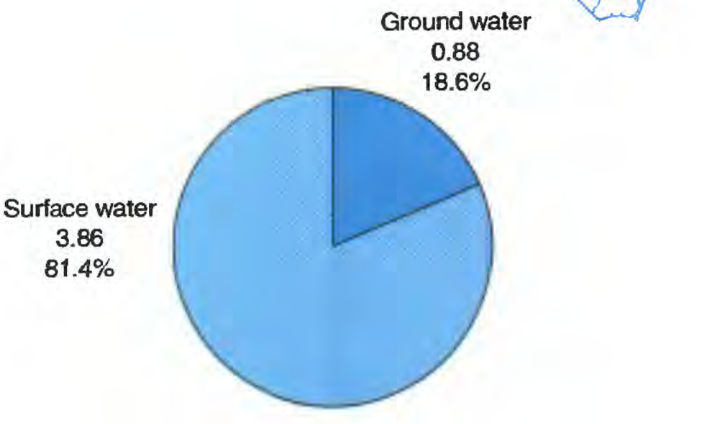
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.61	0.01	0.00	0.13	0.15	0.00	0.00	0.00
Surface water	0.00	0.00	0.00	0.04	0.01	1.38	0.00	0.00
Total	1.61	0.01	0.00	0.17	0.16	1.38	0.00	0.00

Population: 7,860
Acres irrigated: 200

CLAY COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 1,150
Hydroelectric power water use: 513.88 Mgal/d





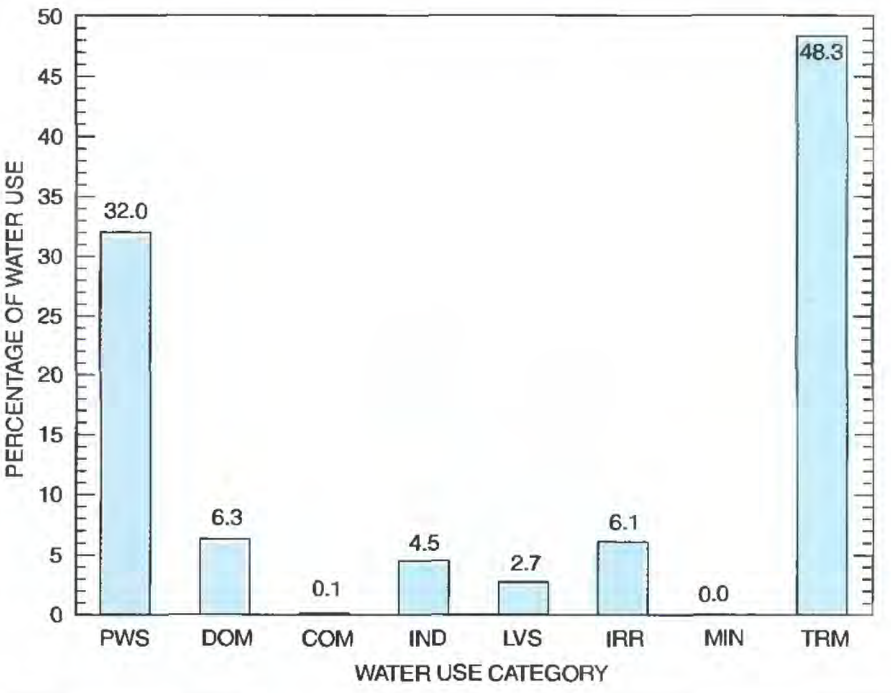
Water use, in million gallons per day

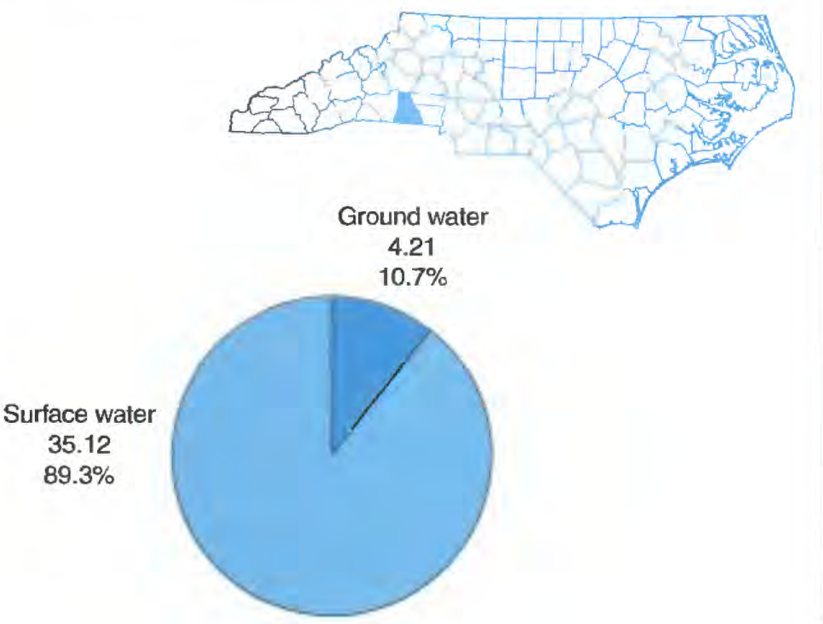
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.15	0.47	0.03	0.00	0.01	0.22	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	3.86	0.00	0.00	0.00
Total	0.15	0.47	0.03	0.00	3.87	0.22	0.00	0.00

Population: 89,770
Acres irrigated: 1,140

CLEVELAND COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 54,330
Hydroelectric power water use: 164 Mgal/d





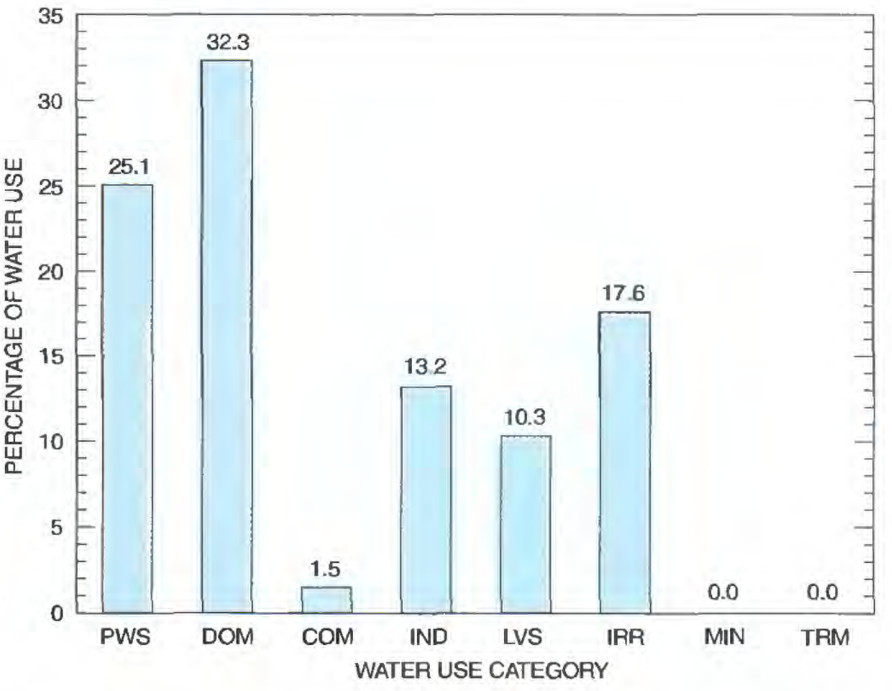
Water use, in million gallons per day

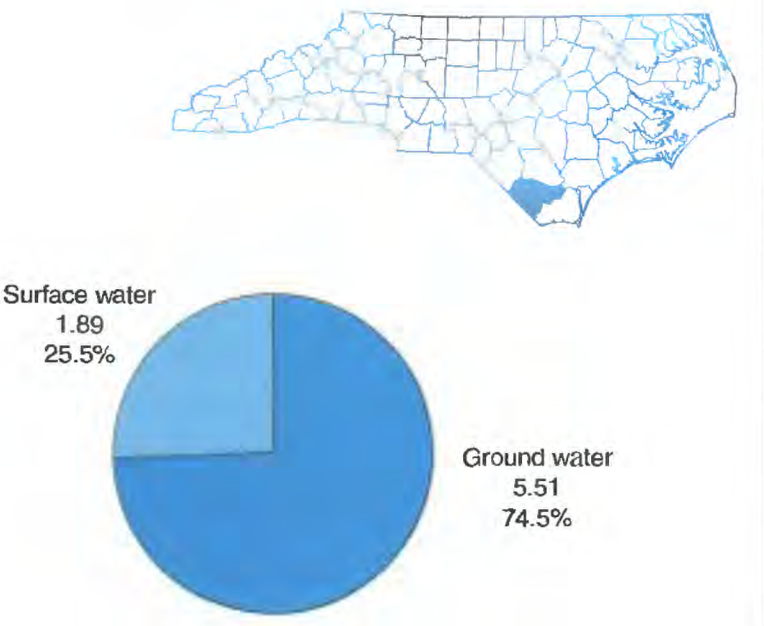
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.40	2.48	0.05	0.61	0.42	0.25	0.00	0.00
Surface water	12.17	0.00	0.00	1.15	0.64	2.16	0.00	19.00
Total	12.57	2.48	0.05	1.76	1.06	2.41	0.00	19.00

Population: 51,400
Acres irrigated: 690

COLUMBUS COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 17,200
Hydroelectric power water use: 0 Mgal/d





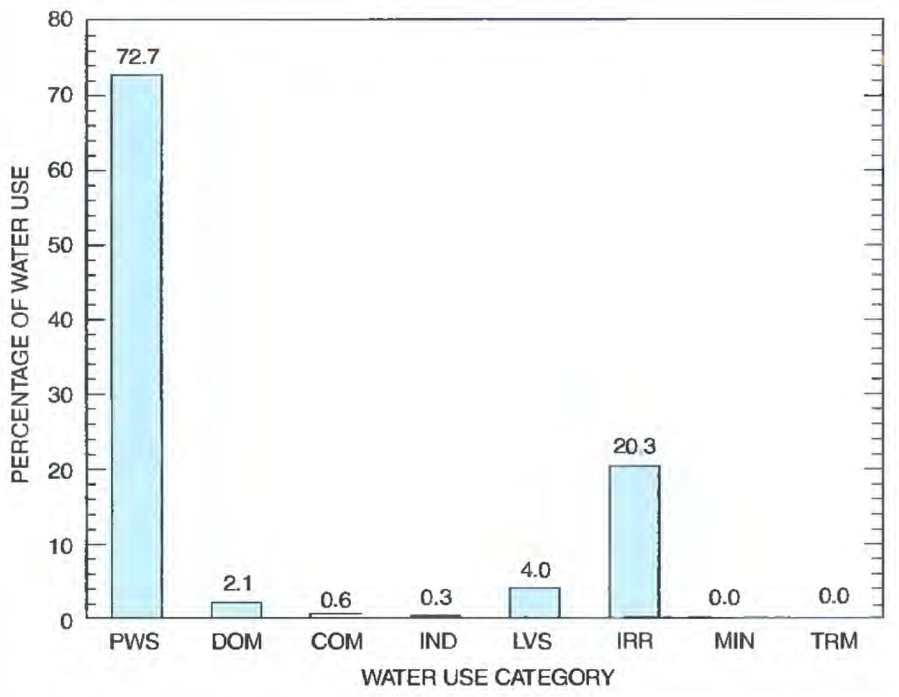
Water use, in million gallons per day

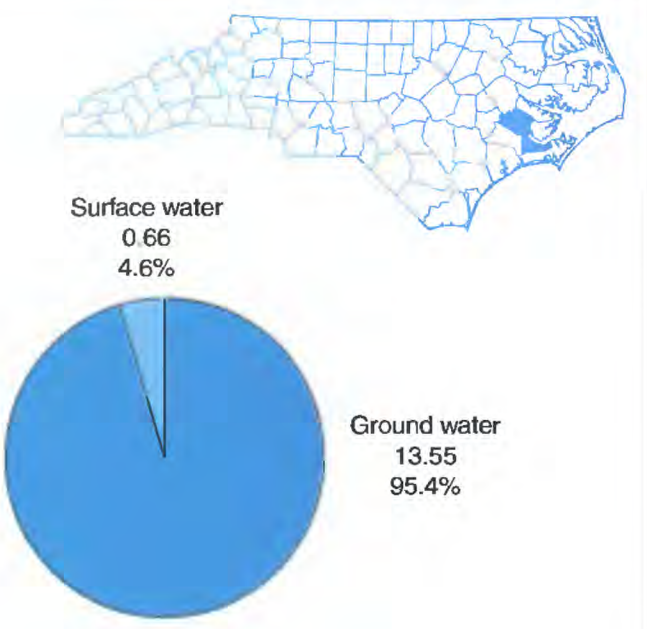
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.86	2.39	0.11	0.05	0.72	0.38	0.00	0.00
Surface water	0.00	0.00	0.00	0.93	0.04	0.92	0.00	0.00
Total	1.86	2.39	0.11	0.98	0.76	1.30	0.00	0.00

Population: 85,520
Acres irrigated: 1,240

CRAVEN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 81,190
Hydroelectric power water use: 0 Mgal/d





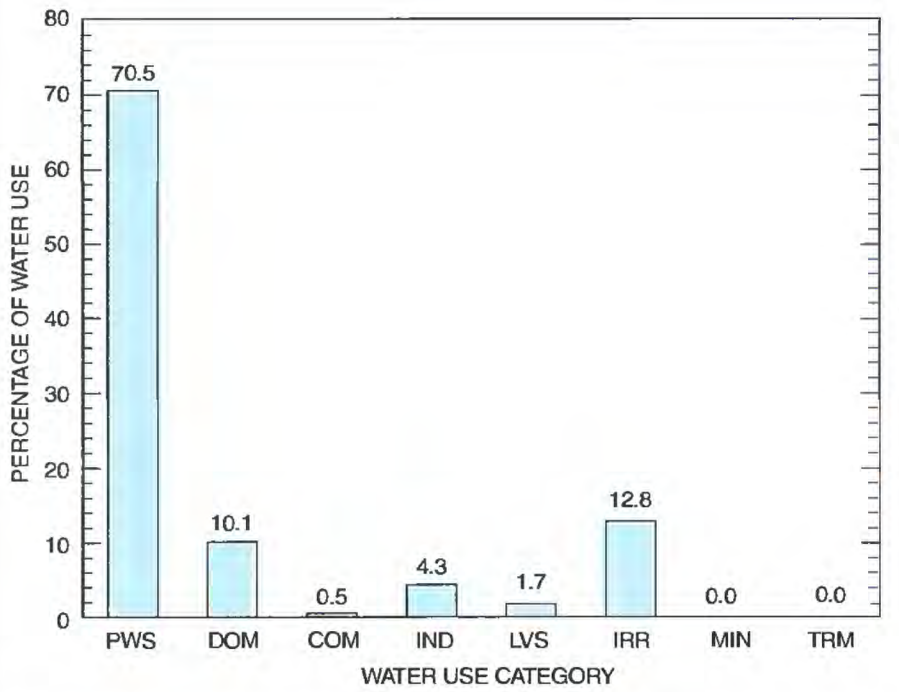
Water use, in million gallons per day

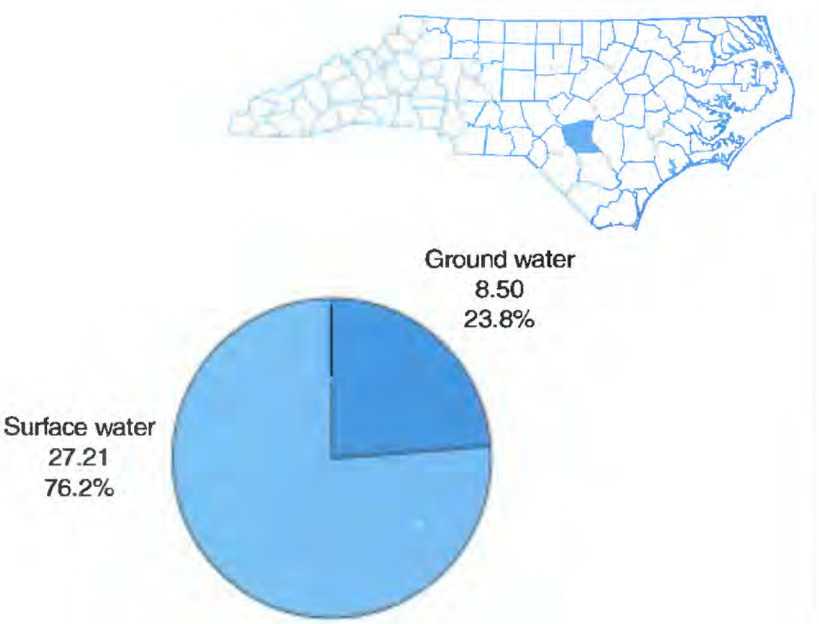
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	10.33	0.30	0.08	0.00	0.53	2.31	0.00	0.00
Surface water	0.00	0.00	0.00	0.04	0.04	0.58	0.00	0.00
Total	10.33	0.30	0.08	0.04	0.57	2.89	0.00	0.00

Population: 285,870
Acres irrigated: 3,160

CUMBERLAND COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 234,250
Hydroelectric power water use: 0 Mgal/d





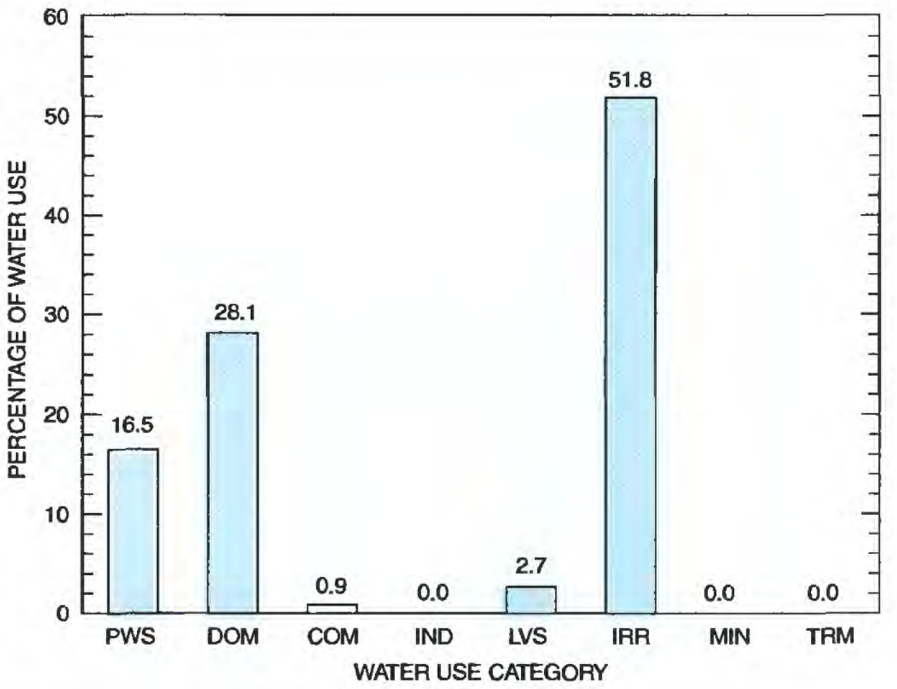
Water use, in million gallons per day

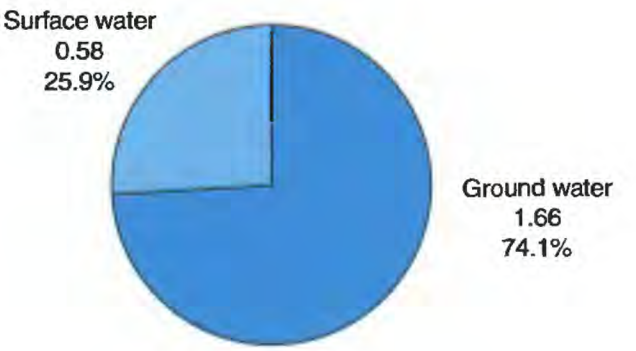
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	2.85	3.61	0.18	0.38	0.56	0.92	0.00	0.00
Surface water	22.32	0.00	0.00	1.17	0.06	3.66	0.00	0.00
Total	25.17	3.61	0.18	1.55	0.62	4.58	0.00	0.00

Population: 16,270
Acres irrigated: 850

CURRITUCK COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 7,280
Hydroelectric power water use: 0 Mgal/d





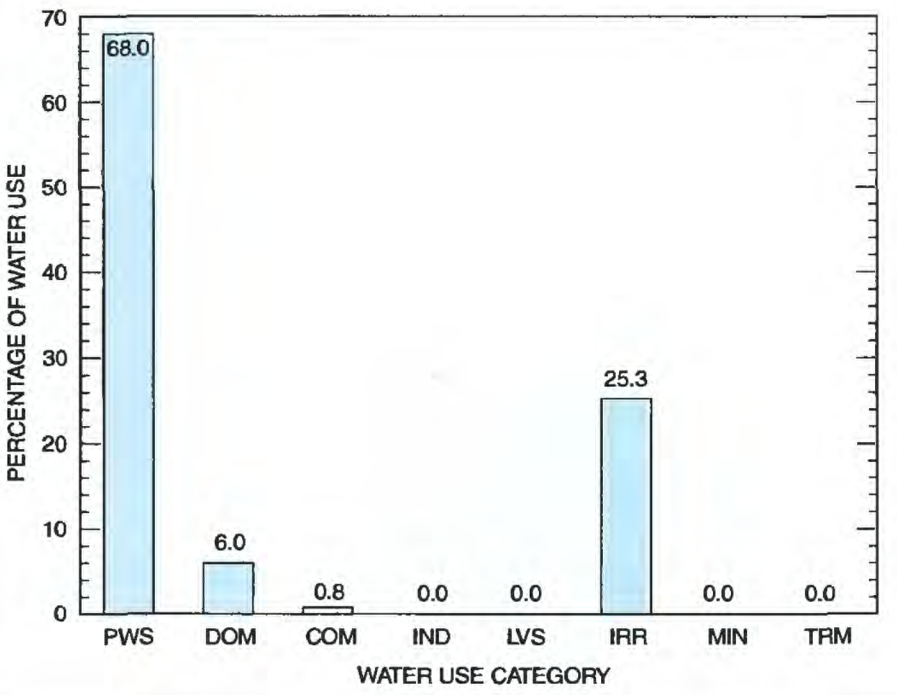
Water use, in million gallons per day

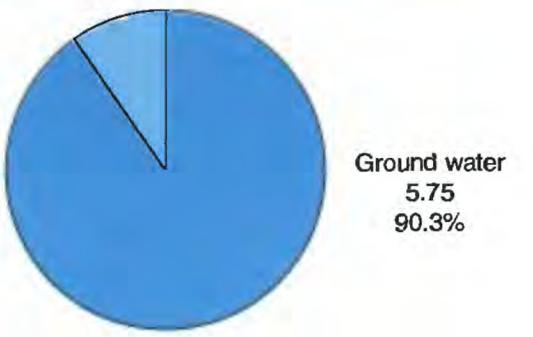
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.37	0.63	0.02	0.00	0.06	0.58	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.00	0.58	0.00	0.00
Total	0.37	0.63	0.02	0.00	0.06	1.16	0.00	0.00

Population: 26,050
Acres irrigated: 450

DARE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 20,670
Hydroelectric power water use: 0 Mgal/d





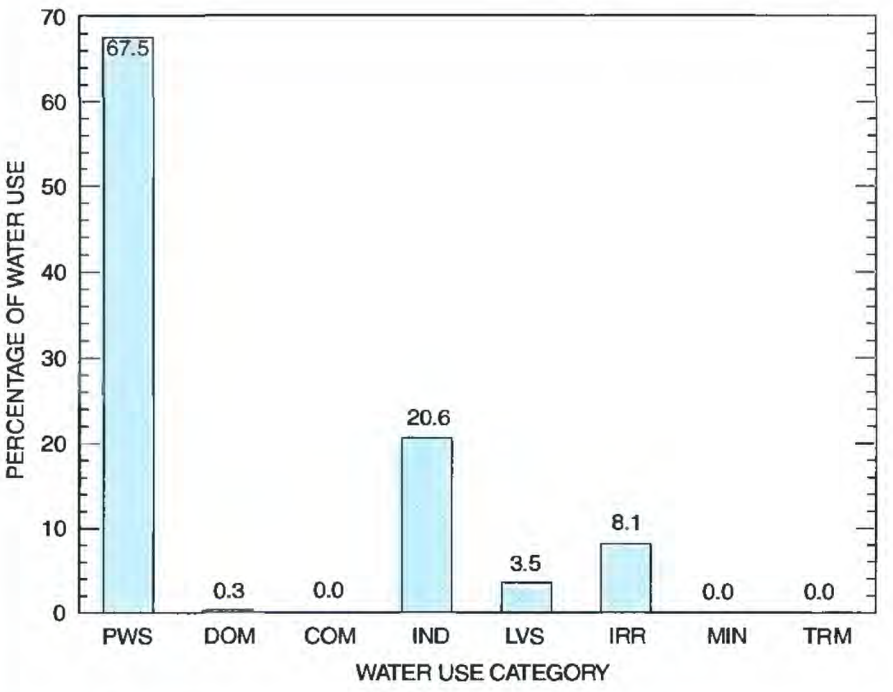
Water use, in million gallons per day

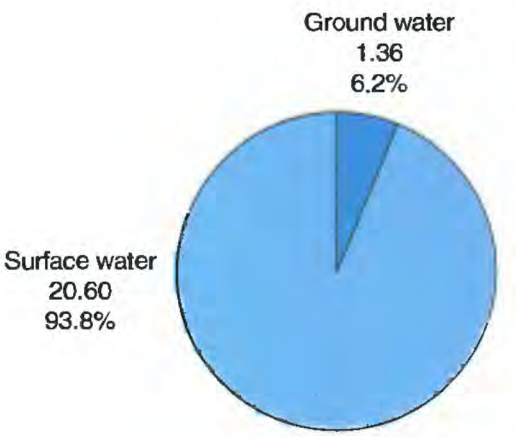
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	4.01	0.38	0.05	0.00	0.00	1.31	0.00	0.00
Surface water	0.32	0.00	0.00	0.00	0.00	0.30	0.00	0.00
Total	4.33	0.38	0.05	0.00	0.00	1.61	0.00	0.00

Population: 135,370
Acres irrigated: 1,080

DAVIDSON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 134,470
Hydroelectric power water use: 3,113.72 Mgal/d





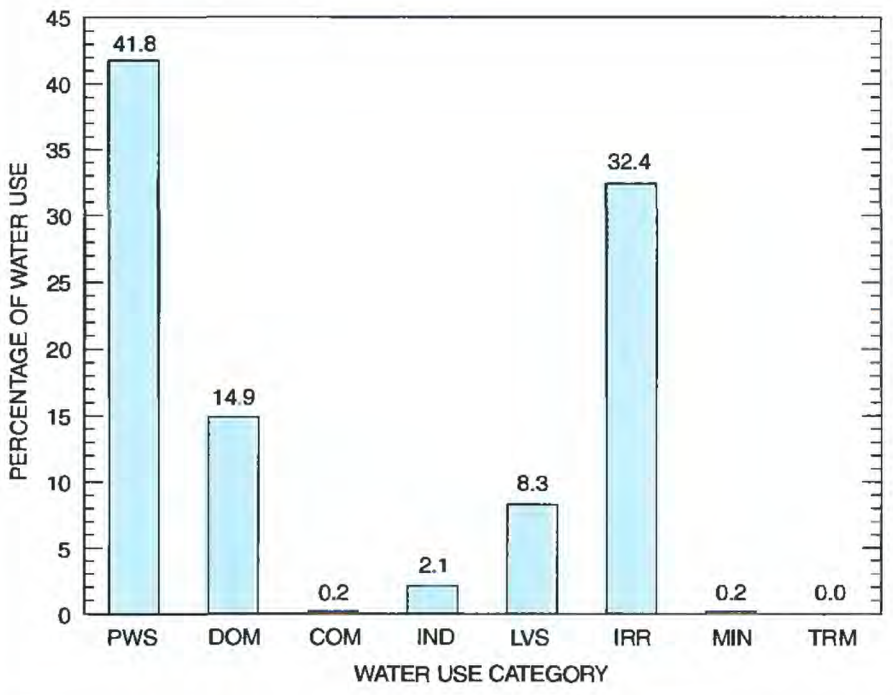
Water use, in million gallons per day

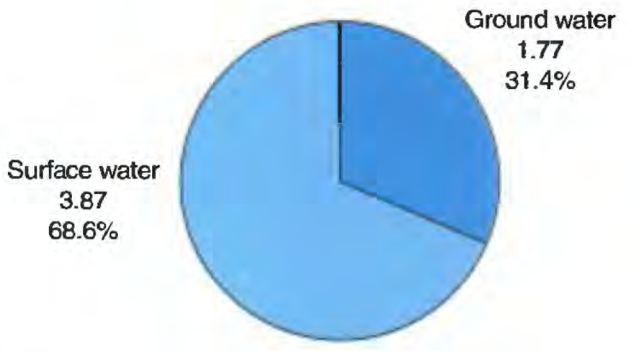
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.00	0.06	0.00	0.66	0.46	0.18	0.00	0.00
Surface water	14.83	0.00	0.00	3.87	0.30	1.60	0.00	0.00
Total	14.83	0.06	0.00	4.53	0.76	1.78	0.00	0.00

Population: 29,610
Acres irrigated: 780

DAVIE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 17,640
Hydroelectric power water use: 0 Mgal/d





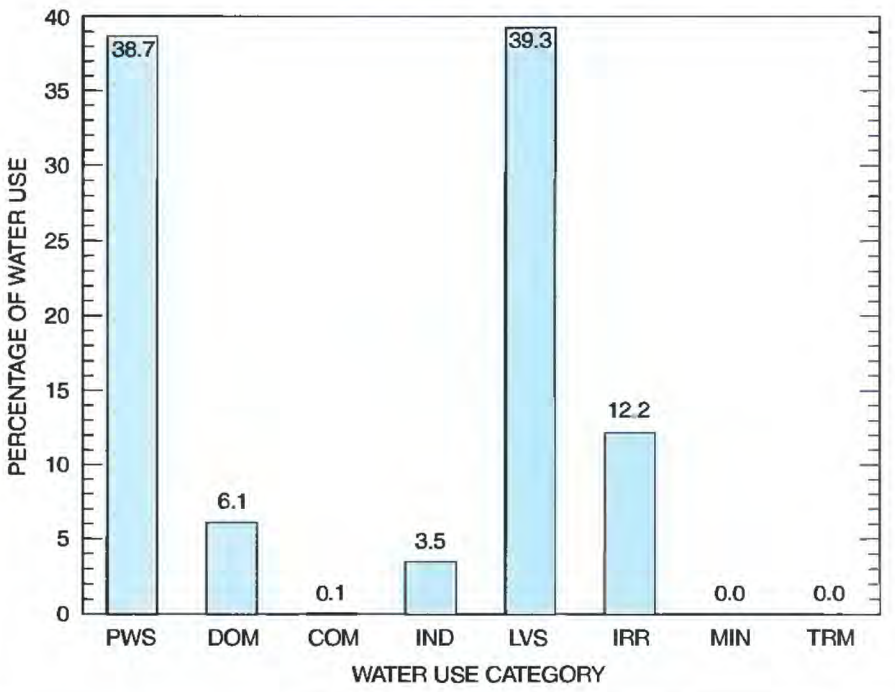
Water use, in million gallons per day

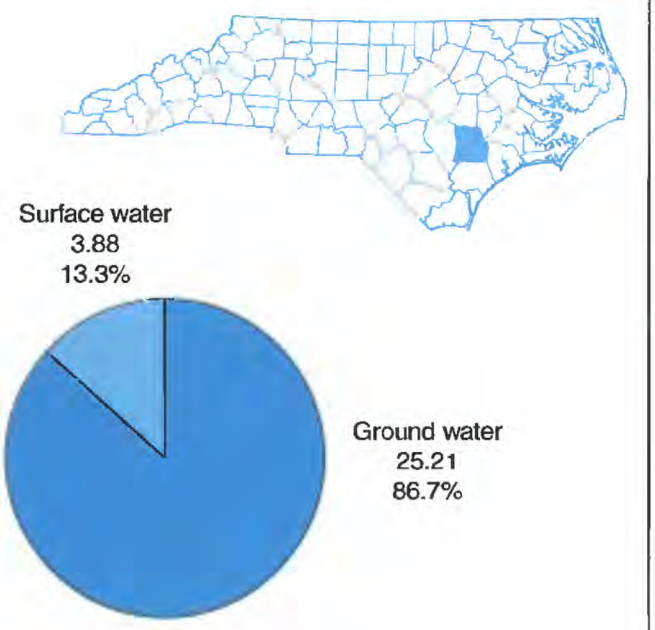
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.00	0.84	0.01	0.05	0.30	0.56	0.01	0.00
Surface water	2.36	0.00	0.00	0.07	0.17	1.27	0.00	0.00
Total	2.36	0.84	0.01	0.12	0.47	1.83	0.01	0.00

Population: 41,990
Acres irrigated: 3,550

DUPLIN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 16,610
Hydroelectric power water use: 0 Mgal/d





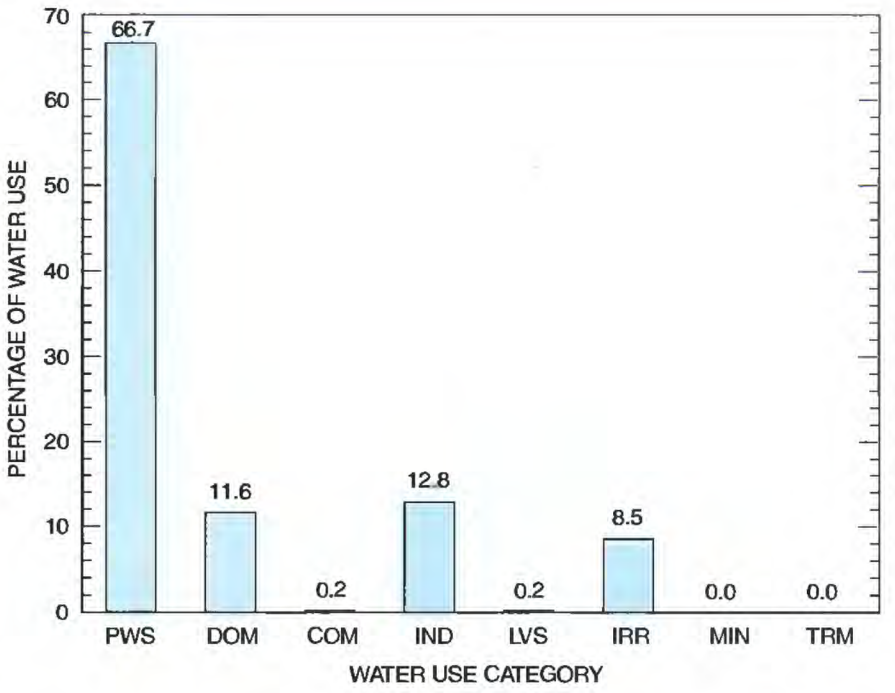
Water use, in million gallons per day

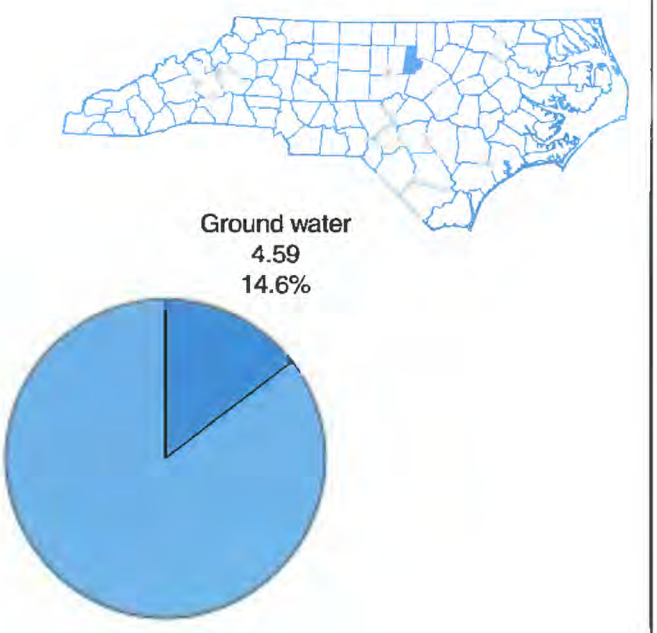
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	11.27	1.78	0.04	0.20	10.86	1.06	0.00	0.00
Surface water	0.00	0.00	0.00	0.82	0.57	2.49	0.00	0.00
Total	11.27	1.78	0.04	1.02	11.43	3.55	0.00	0.00

Population: 195,260
Acres irrigated: 770

DURHAM COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 143,210
Hydroelectric power water use: 0 Mgal/d





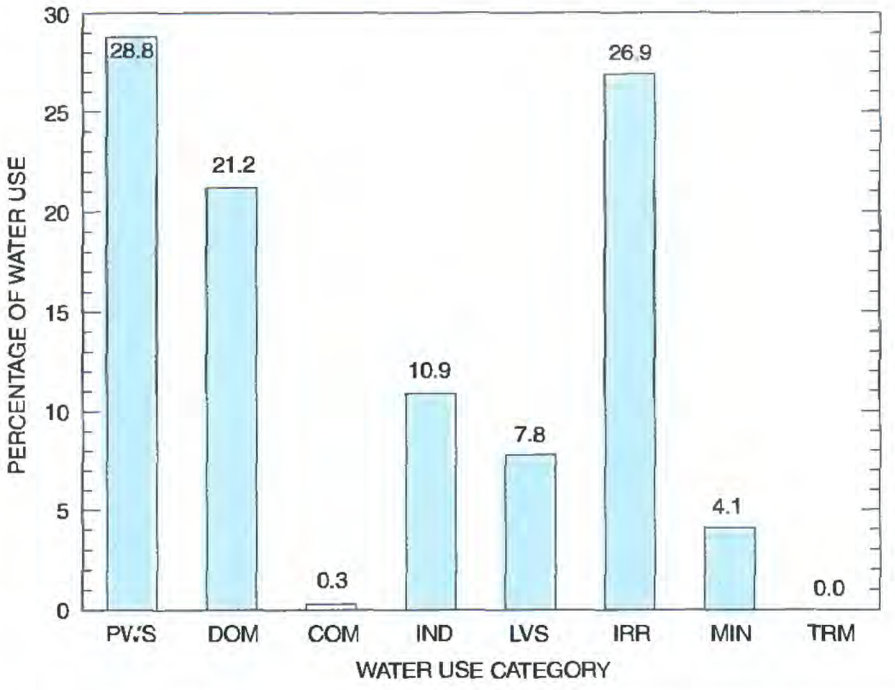
Water use, in million gallons per day

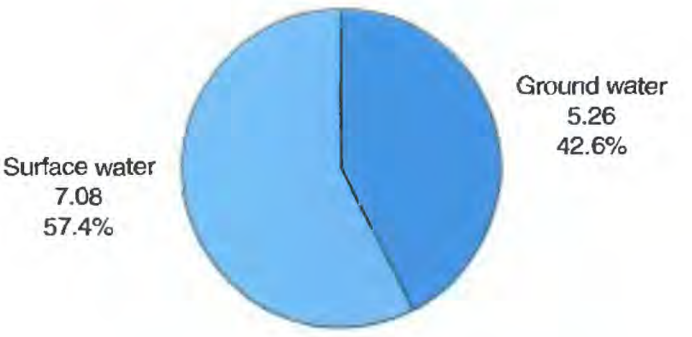
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.19	3.64	0.05	0.25	0.05	0.41	0.00	0.00
Surface water	20.74	0.00	0.00	3.75	0.02	2.27	0.00	0.00
Total	20.93	3.64	0.05	4.00	0.07	2.68	0.00	0.00

Population: 56,370
Acres irrigated: 4,370

EDGECOMBE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 18,920
Hydroelectric power water use: 0 Mgal/d





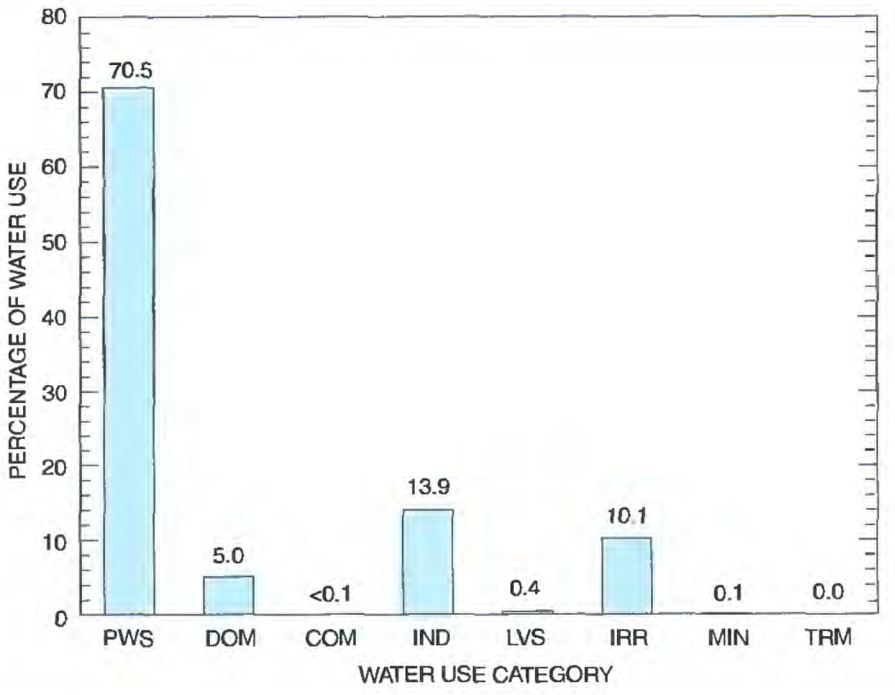
Water use, in million gallons per day

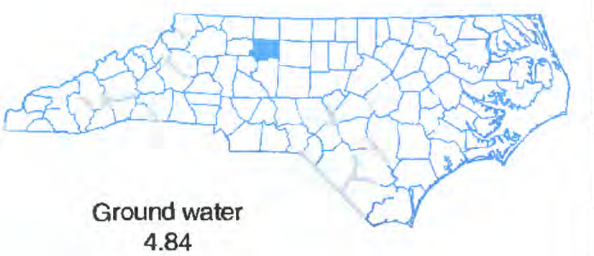
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.60	2.62	0.04	0.14	0.86	0.50	0.50	0.00
Surface water	2.95	0.00	0.00	1.21	0.10	2.82	0.00	0.00
Total	3.55	2.62	0.04	1.35	0.96	3.32	0.50	0.00

Population: 281,050
Acres irrigated: 2.300

FORSYTH COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 236,740
Hydroelectric power water use: 175 Mgal/d





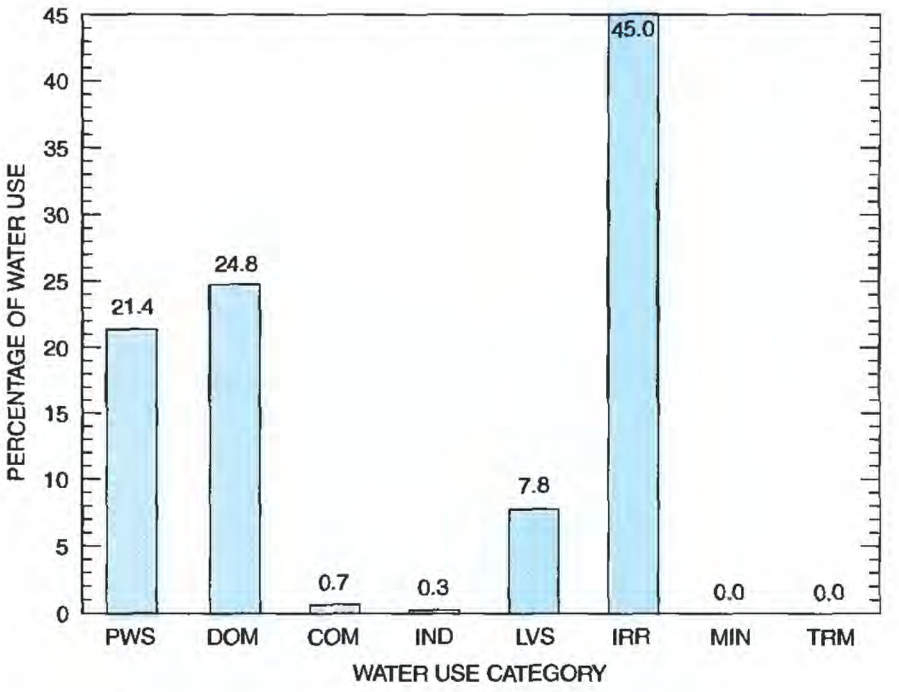
Water use, in million gallons per day

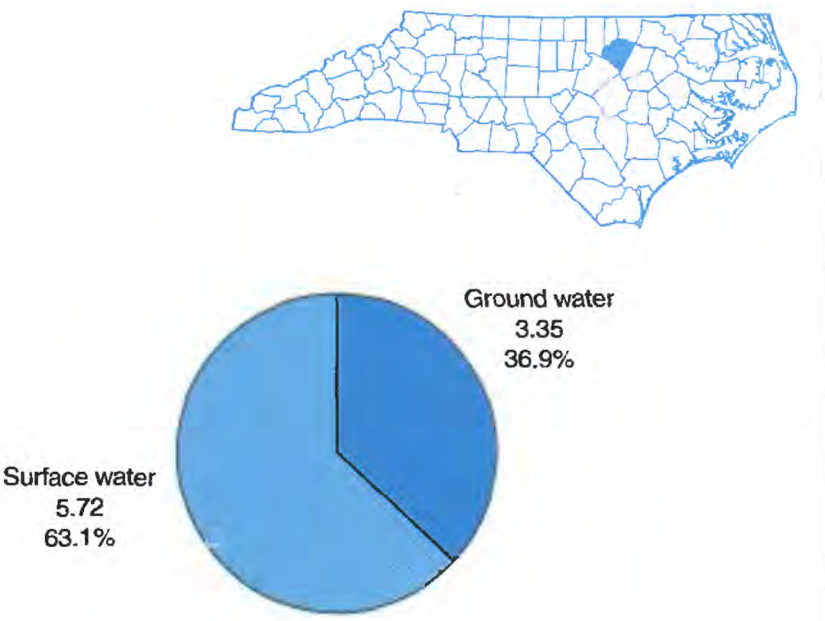
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.63	3.10	0.02	0.60	0.08	0.38	0.03	0.00
Surface water	42.72	0.00	0.00	7.95	0.17	5.85	0.00	0.00
Total	43.35	3.10	0.02	8.55	0.25	6.23	0.03	0.00

Population: 41,400
Acres irrigated: 3,890

FRANKLIN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 9,200
Hydroelectric power water use: 0 Mgal/d





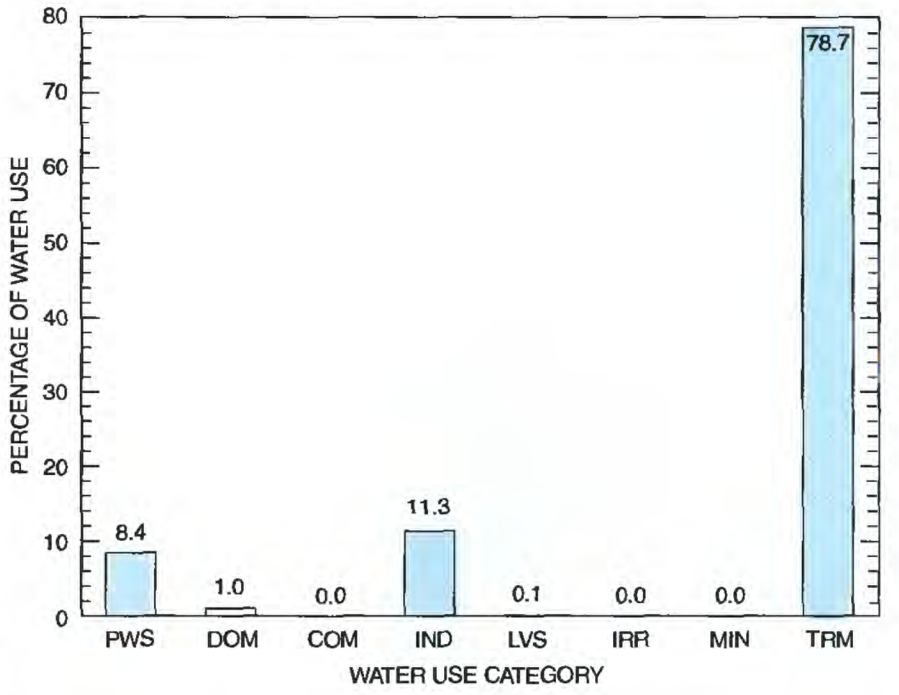
Water use, in million gallons per day

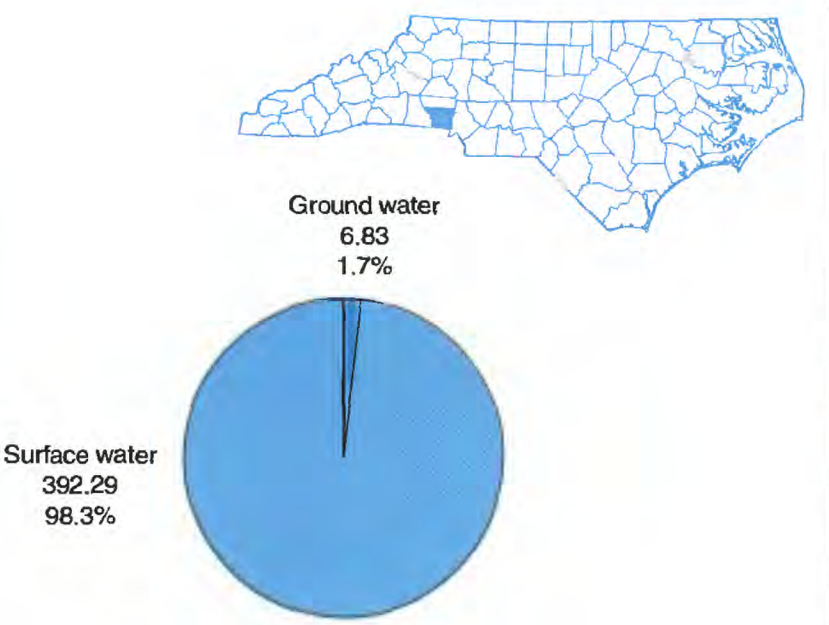
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.75	2.25	0.06	0.02	0.18	0.09	0.00	0.00
Surface water	1.19	0.00	0.00	0.01	0.53	3.99	0.00	0.00
Total	1.94	2.25	0.06	0.03	0.71	4.08	0.00	0.00

Population: 181,470
Acres irrigated: 770

GASTON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 125,220
Hydroelectric power water use: 1,773 Mgal/d





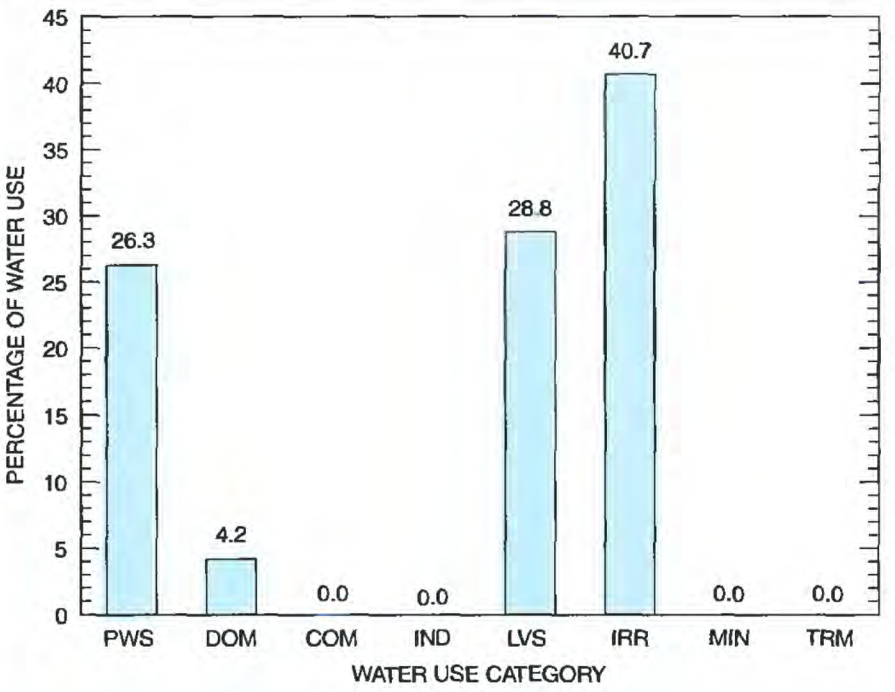
Water use, in million gallons per day

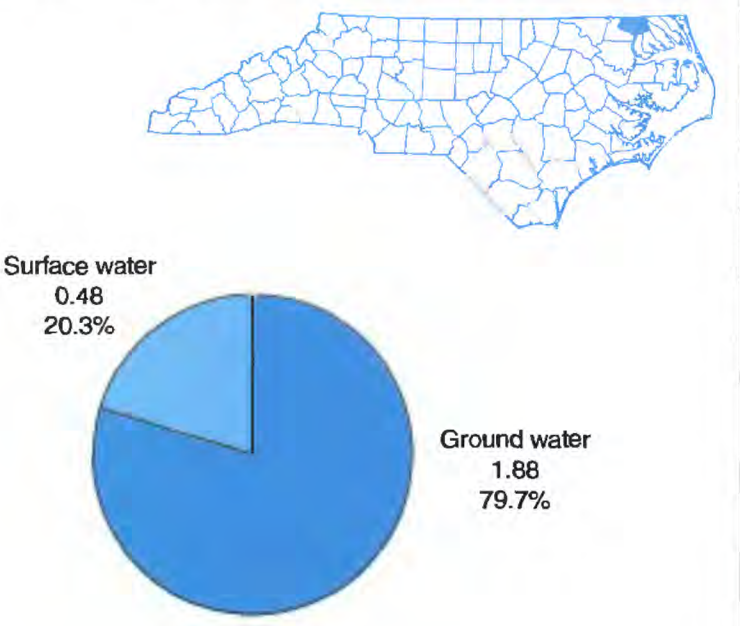
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.28	3.94	0.00	1.07	0.19	0.35	0.00	0.00
Surface water	32.19	0.00	0.00	44.13	0.06	1.91	0.00	314.00
Total	33.47	3.94	0.00	45.20	0.25	2.26	0.00	314.00

Population: 9,850
Acres irrigated: 1,600

GATES COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 8,390
Hydroelectric power water use: 0 Mgal/d





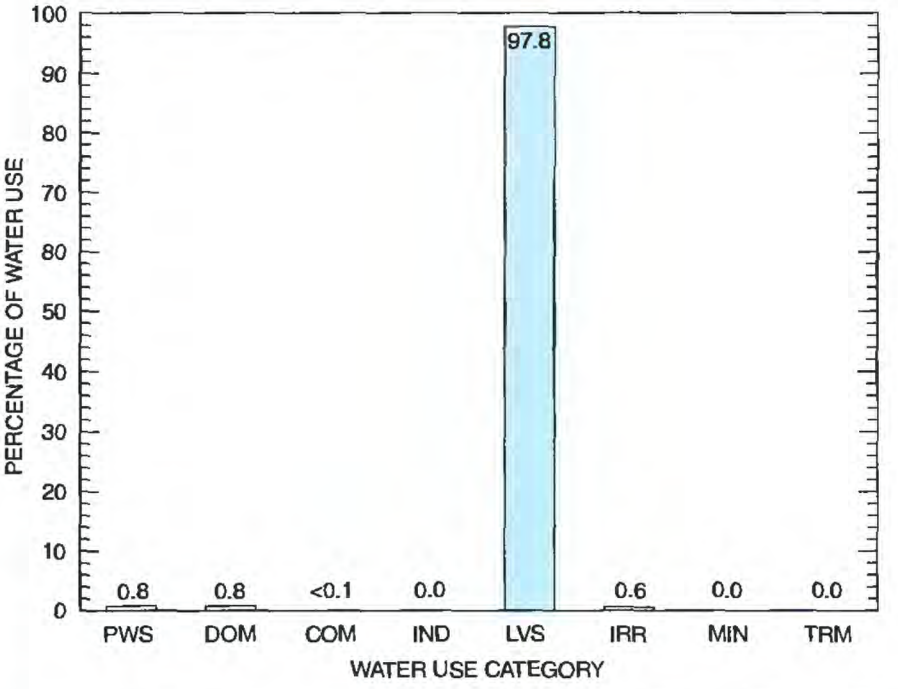
Water use, in million gallons per day

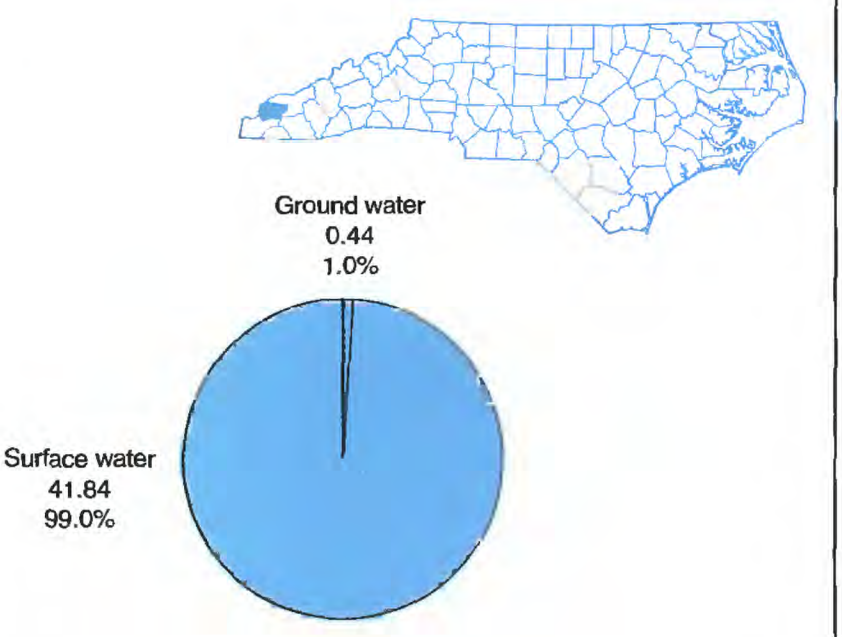
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.62	0.10	0.00	0.00	0.68	0.48	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.00	0.48	0.00	0.00
Total	0.62	0.10	0.00	0.00	0.68	0.96	0.00	0.00

Population: 7,620
Acres irrigated: 100

GRAHAM COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 2,750
Hydroelectric power water use: 6,079.30 Mgal/d





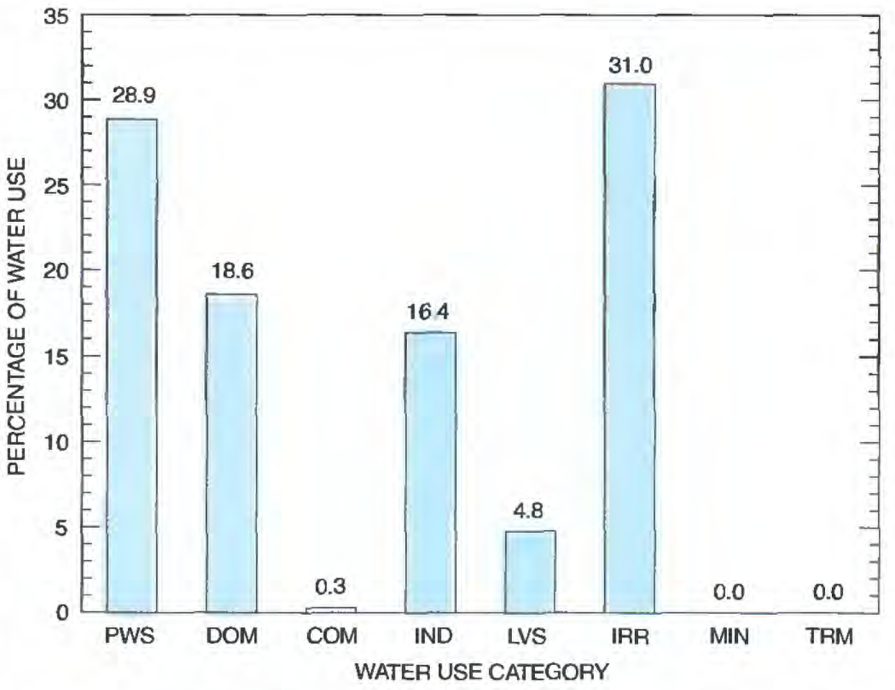
Water use, in million gallons per day

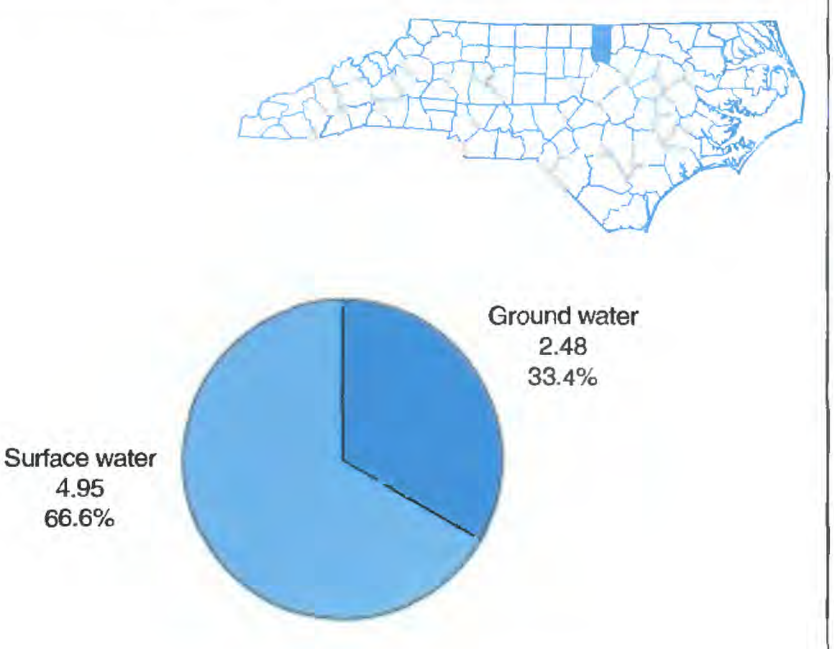
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.02	0.34	0.01	0.00	0.02	0.05	0.00	0.00
Surface water	0.30	0.00	0.00	0.00	41.34	0.20	0.00	0.00
Total	0.32	0.34	0.01	0.00	41.36	0.25	0.00	0.00

Population: 40,910
Acres irrigated: 3,140

GRANVILLE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 21,170
Hydroelectric power water use: 0 Mgal/d





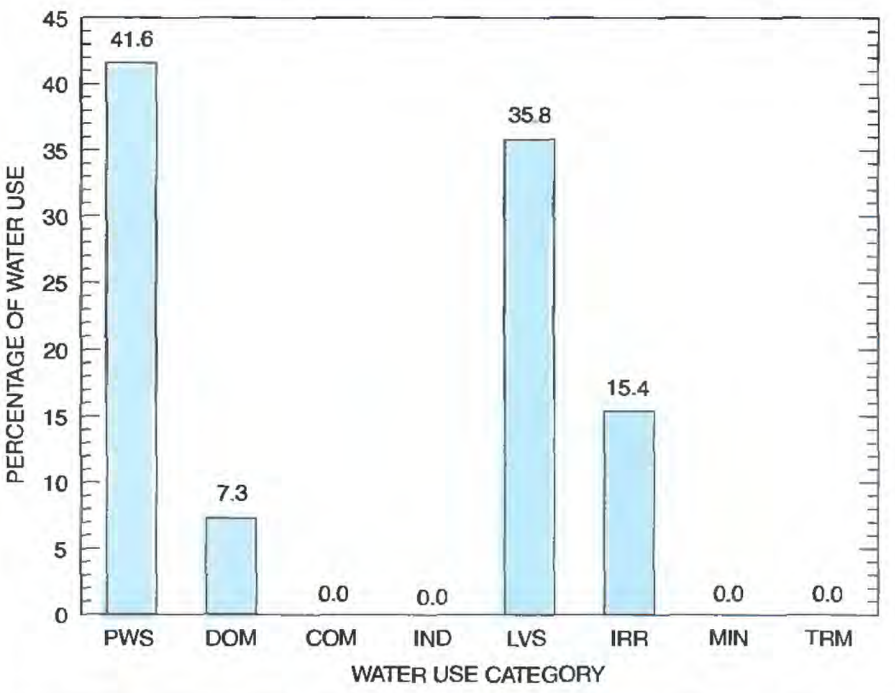
Water use, in million gallons per day

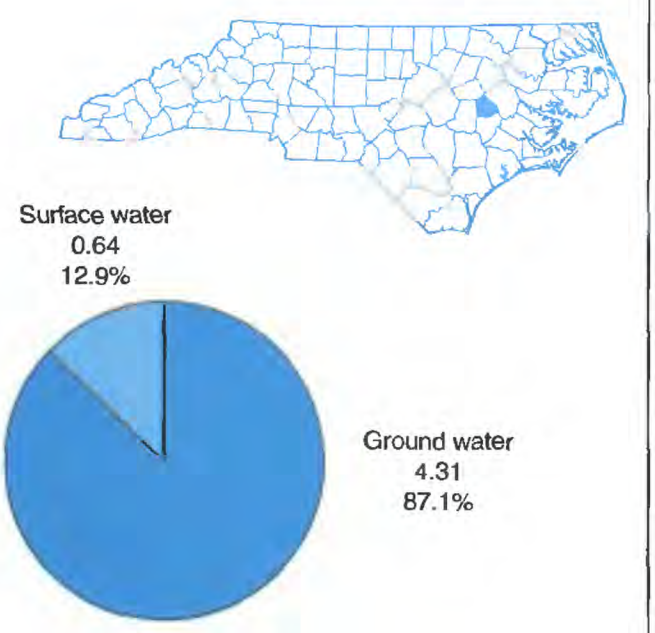
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.06	1.38	0.02	0.68	0.11	0.23	0.00	0.00
Surface water	2.09	0.00	0.00	0.54	0.25	2.07	0.00	0.00
Total	2.15	1.38	0.02	1.22	0.36	2.30	0.00	0.00

Population: 16,940
Acres irrigated: 1,260

GREENE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 11,740
Hydroelectric power water use: 0 Mgal/d





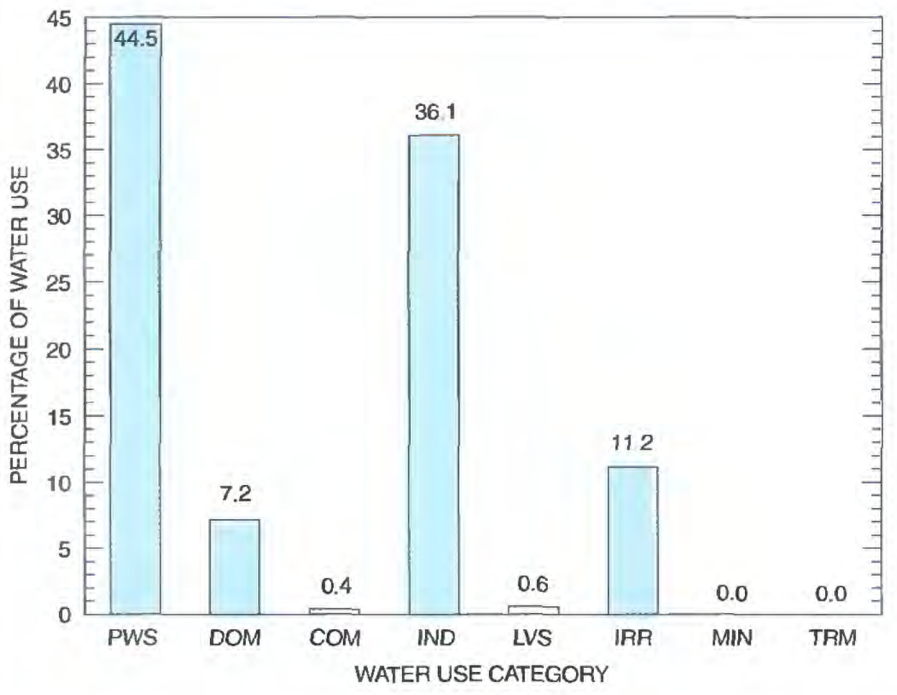
Water use, in million gallons per day

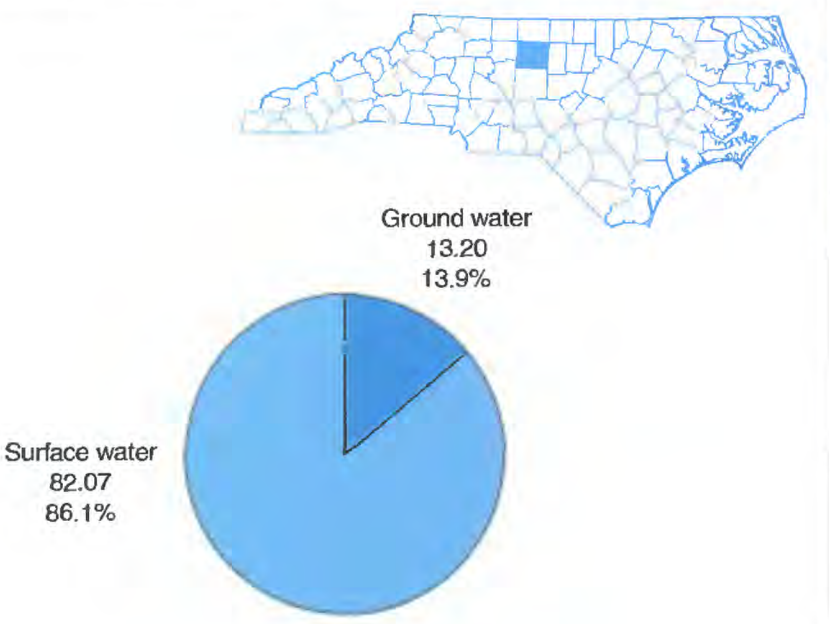
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	2.06	0.36	0.00	0.00	1.59	0.30	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.18	0.46	0.00	0.00
Total	2.06	0.36	0.00	0.00	1.77	0.76	0.00	0.00

Population: 374,440
Acres irrigated: 5,610

GUILFORD COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 276,760
Hydroelectric power water use: 0 Mgal/d





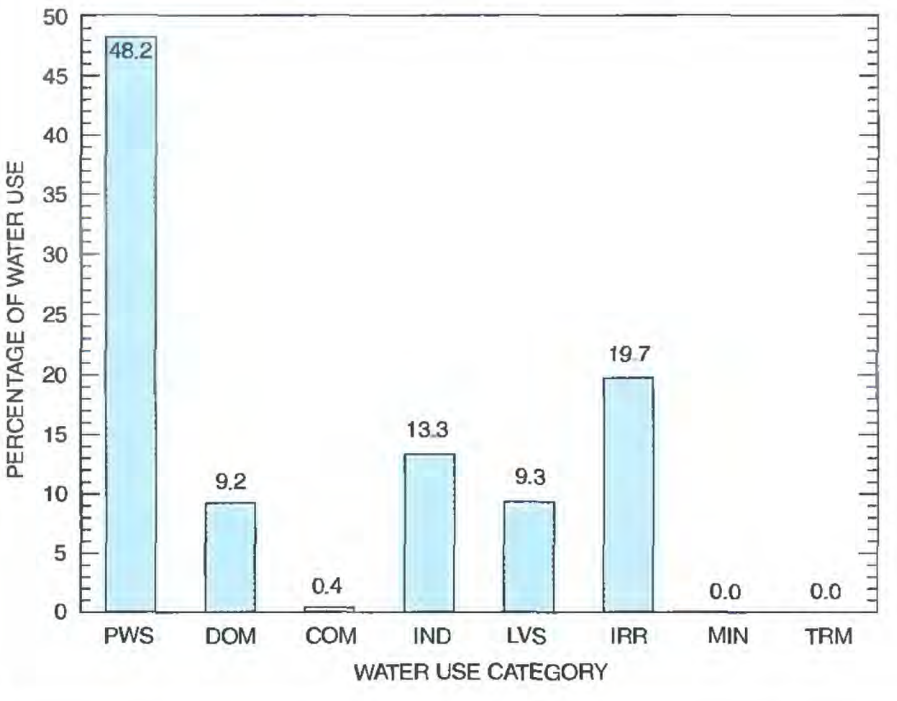
Water use, in million gallons per day

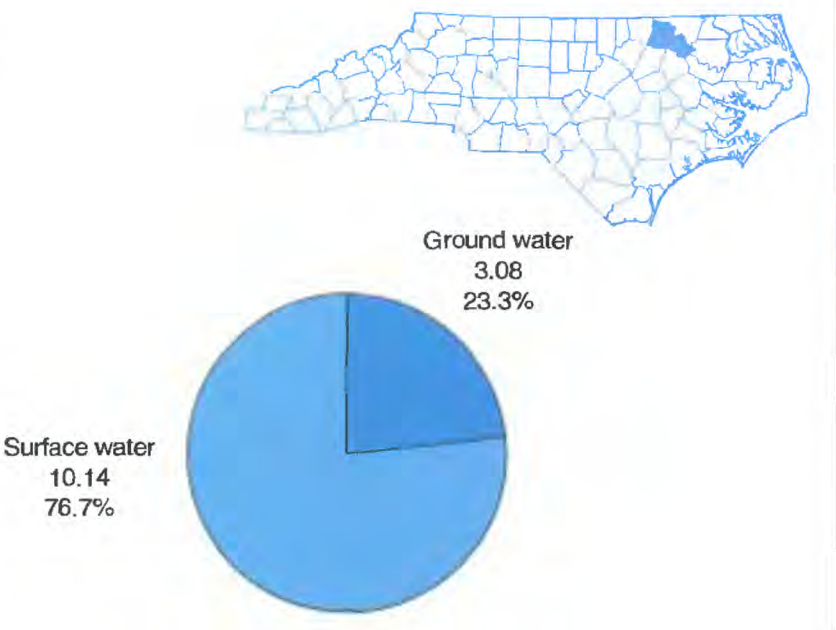
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.46	6.84	0.38	4.36	0.10	1.06	0.00	0.00
Surface water	41.90	0.00	0.00	30.08	0.50	9.59	0.00	0.00
Total	42.36	6.84	0.38	34.44	0.60	10.65	0.00	0.00

Population: 57,500
Acres irrigated: 3,110

HALIFAX COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 40,260
Hydroelectric power water use: 10,477.26 Mgal/d





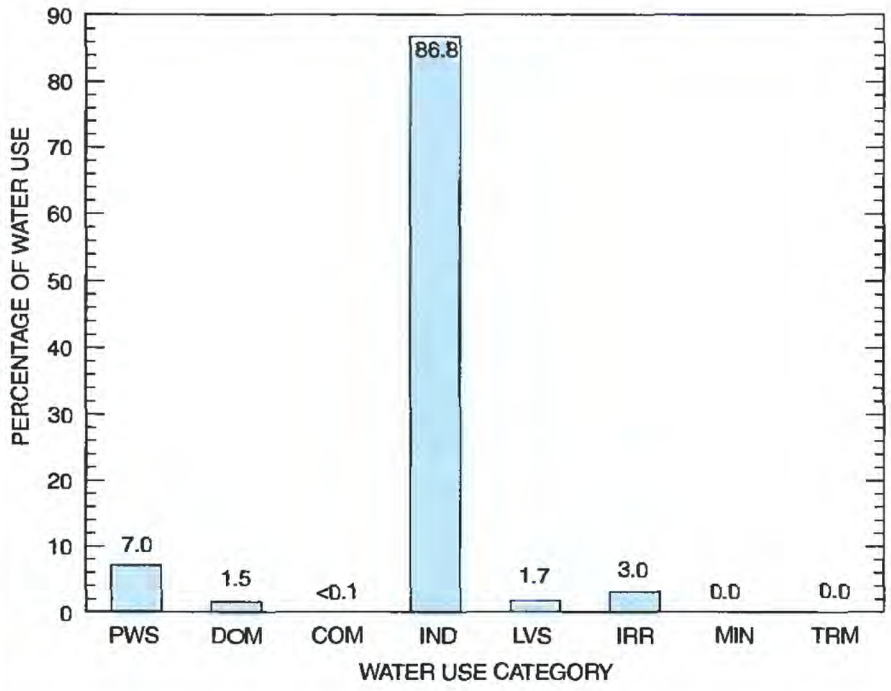
Water use, in million gallons per day

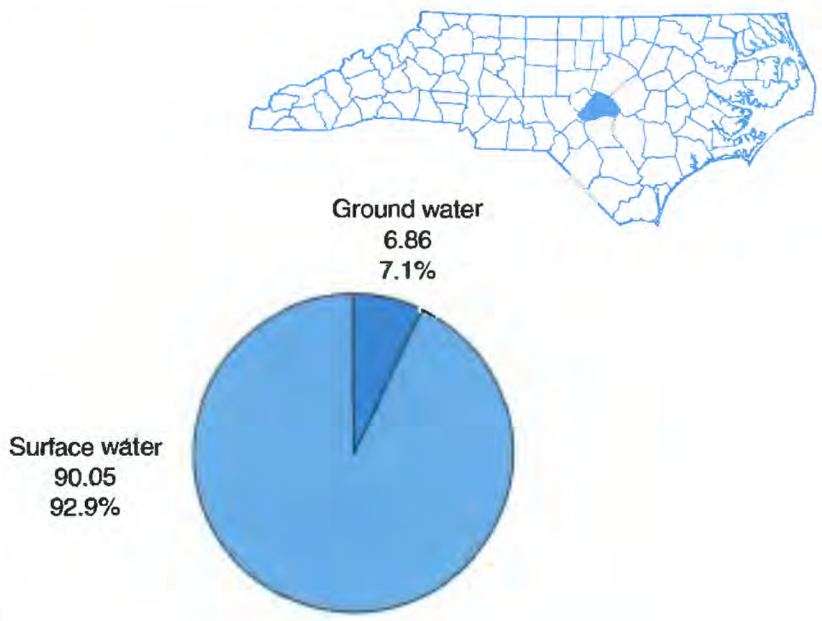
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.39	1.21	0.05	0.19	0.98	0.26	0.00	0.00
Surface water	5.98	0.00	0.00	1.57	0.25	2.34	0.00	0.00
Total	6.37	1.21	0.05	1.76	1.23	2.60	0.00	0.00

Population: 76,310
Acres irrigated: 3,140

HARNETT COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 55,080
Hydroelectric power water use: 0 Mgal/d





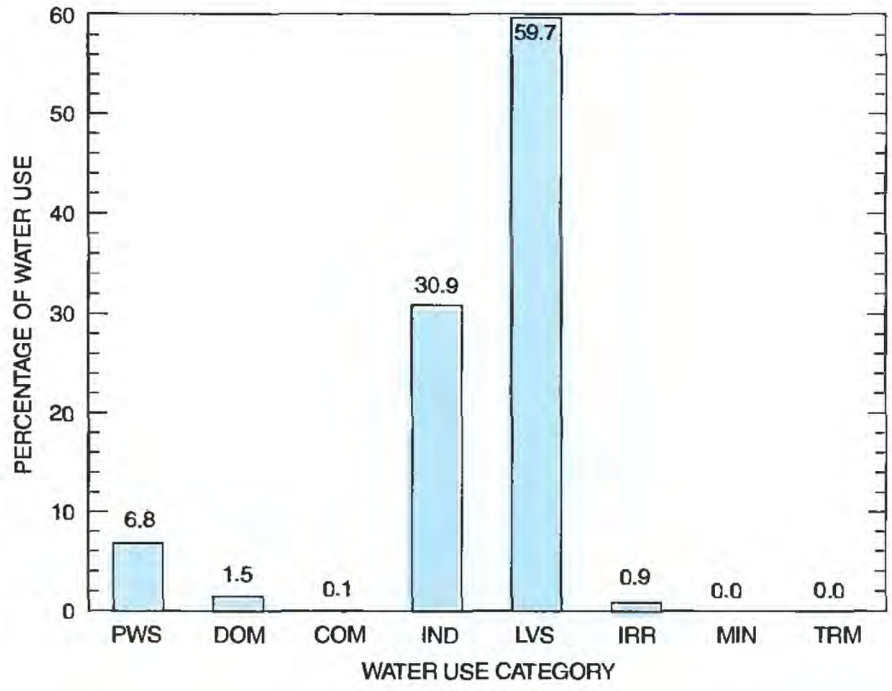
Water use, in million gallons per day

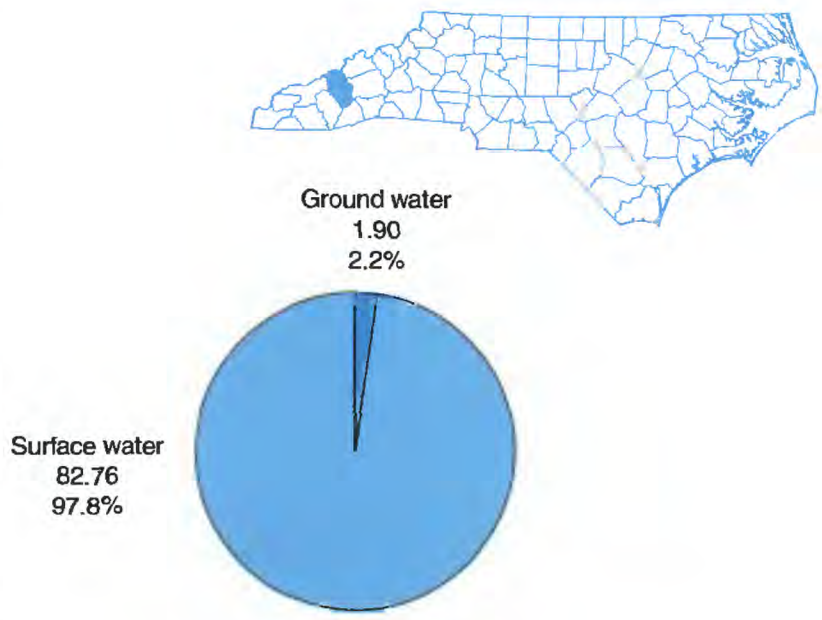
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.44	1.49	0.02	2.93	1.39	0.59	0.00	0.00
Surface water	6.30	0.00	0.00	81.21	0.21	2.33	0.00	0.00
Total	6.74	1.49	0.02	84.14	1.60	2.92	0.00	0.00

Population: 49,740
Acres irrigated: 900

HAYWOOD COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 30,980
Hydroelectric power water use: 499.66 Mgal/d





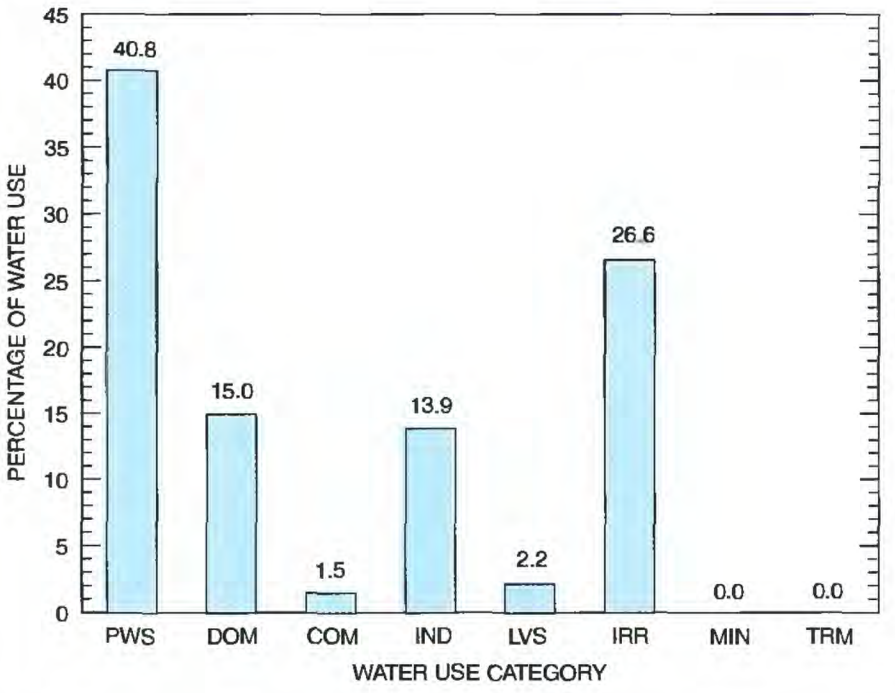
Water use, in million gallons per day

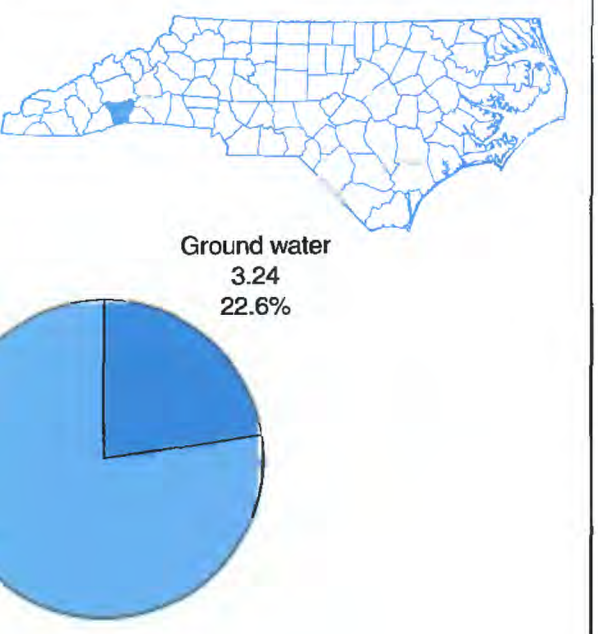
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.05	1.31	0.08	0.13	0.22	0.11	0.00	0.00
Surface water	5.70	0.00	0.00	26.04	50.36	0.66	0.00	0.00
Total	5.75	1.31	0.08	26.17	50.58	0.77	0.00	0.00

Population: 76,700
Acres irrigated: 2,760

HENDERSON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 46,000
Hydroelectric power water use: 72 Mgal/d





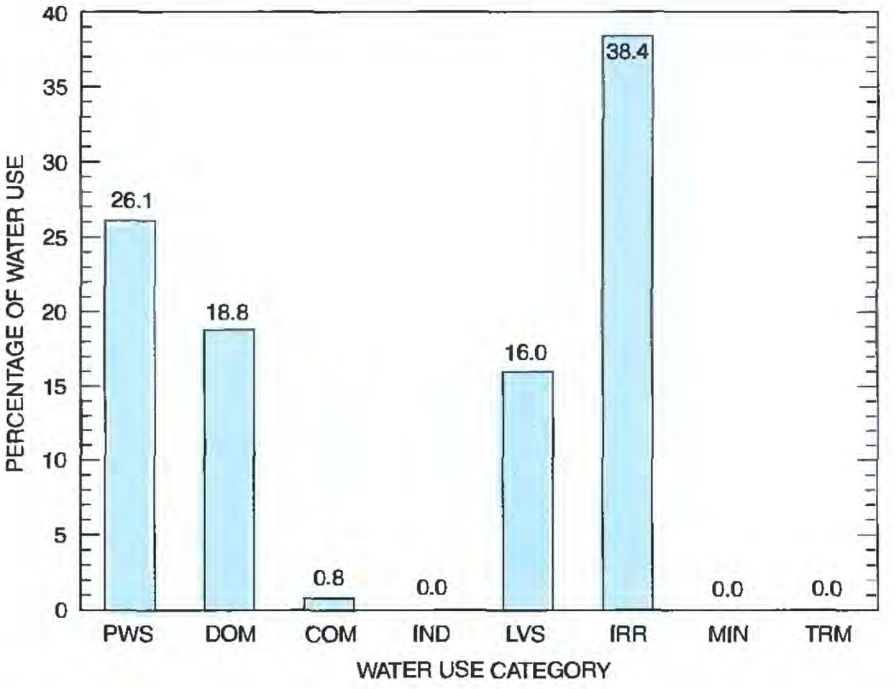
Water use, in million gallons per day

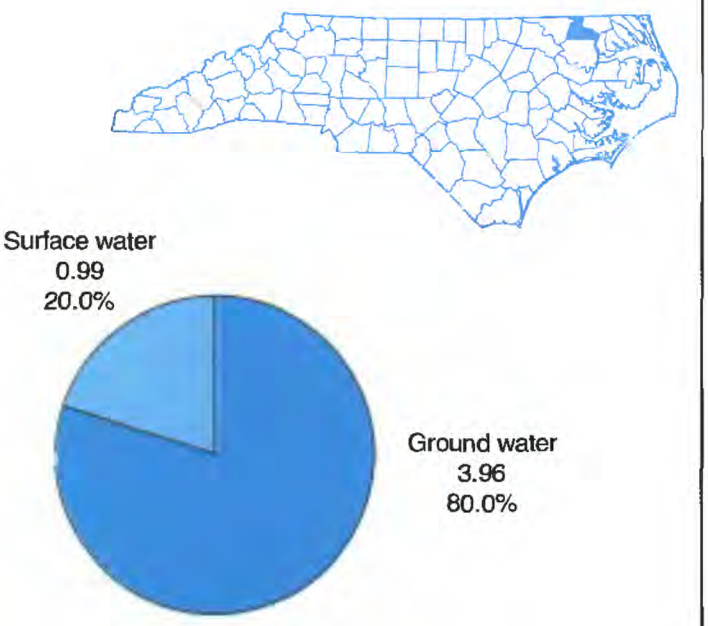
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.25	2.15	0.21	0.31	0.13	0.19	0.00	0.00
Surface water	5.61	0.00	0.00	1.69	0.19	3.63	0.00	0.00
Total	5.86	2.15	0.21	2.00	0.32	3.82	0.00	0.00

Population: 22,590
Acres irrigated: 2,270

HERTFORD COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 9,290
Hydroelectric power water use: 0 Mgal/d





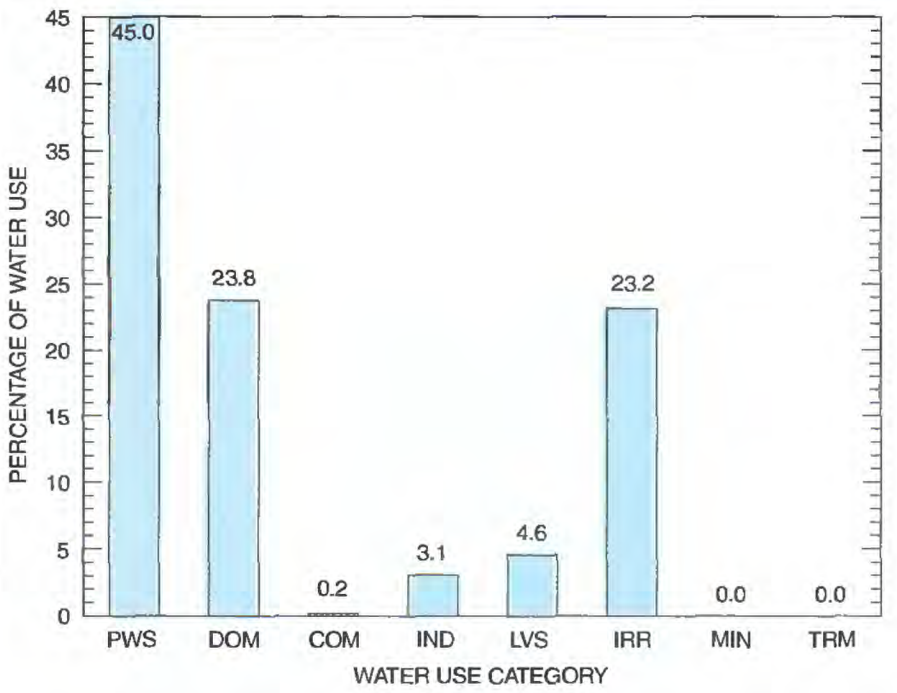
Water use, in million gallons per day

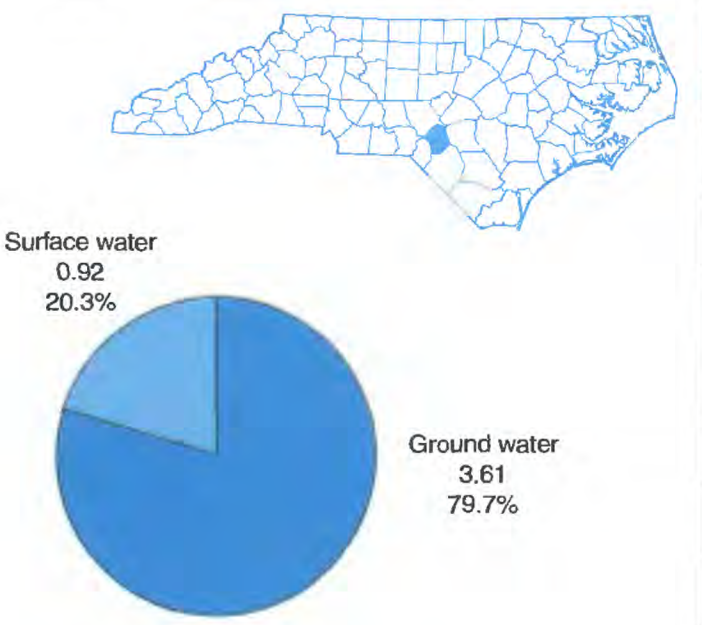
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.29	0.93	0.04	0.00	0.75	0.95	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.04	0.95	0.00	0.00
Total	1.29	0.93	0.04	0.00	0.79	1.90	0.00	0.00

Population: 27,630
Acres irrigated: 590

HOKE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 12,150
Hydroelectric power water use: 0 Mgal/d





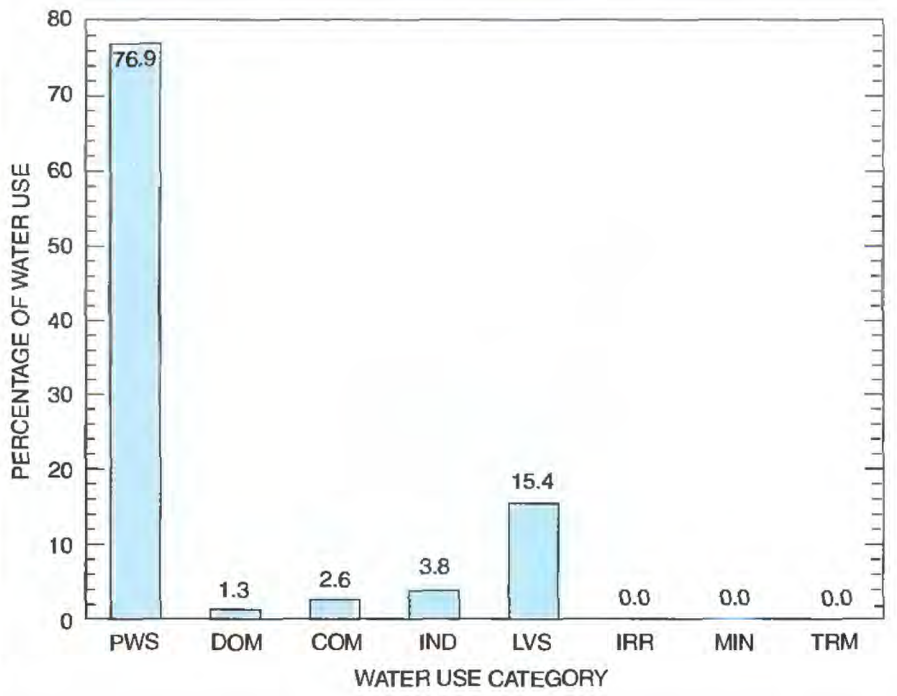
Water use, in million gallons per day

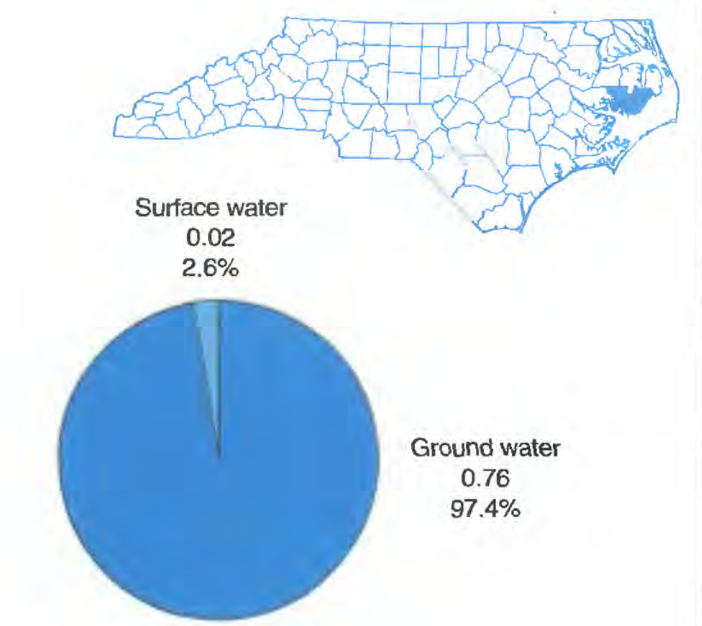
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	2.04	1.08	0.01	0.00	0.17	0.31	0.00	0.00
Surface water	0.00	0.00	0.00	0.14	0.04	0.74	0.00	0.00
Total	2.04	1.08	0.01	0.14	0.21	1.05	0.00	0.00

Population: 5,370
Acres irrigated: 0

HYDE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 5,210
Hydroelectric power water use: 0 Mgal/d





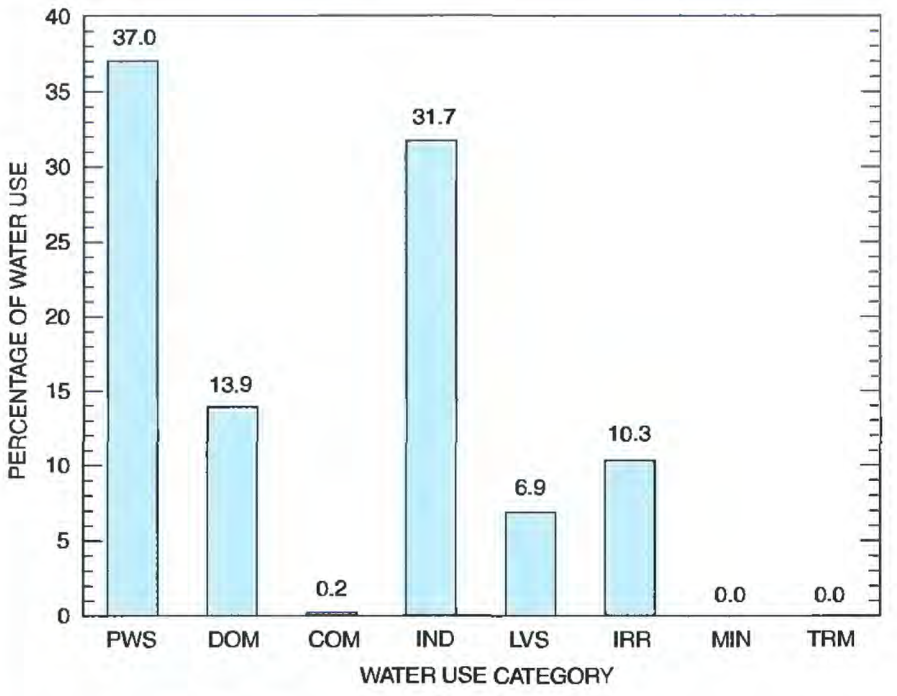
Water use, in million gallons per day

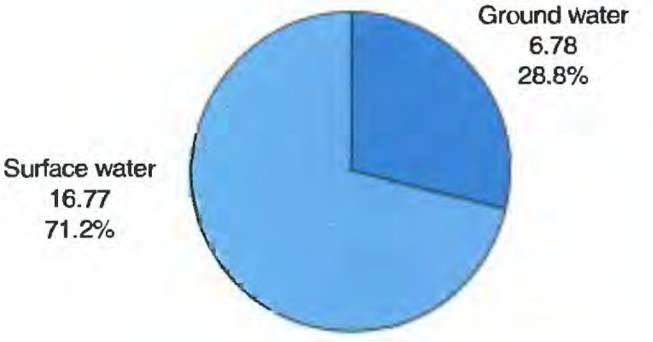
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.60	0.01	0.02	0.01	0.12	0.00	0.00	0.00
Surface water	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00
Total	0.60	0.01	0.02	0.03	0.12	0.00	0.00	0.00

Population: 103,410
Acres irrigated: 1,340

IREDELL COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 56,520
Hydroelectric power water use: 1,780 Mgal/d





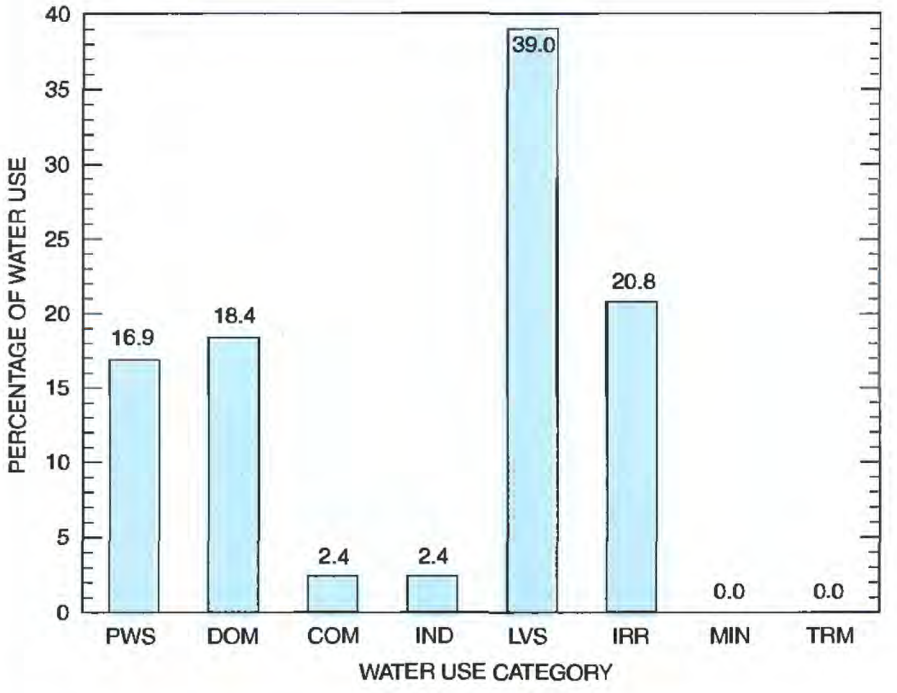
Water use, in million gallons per day

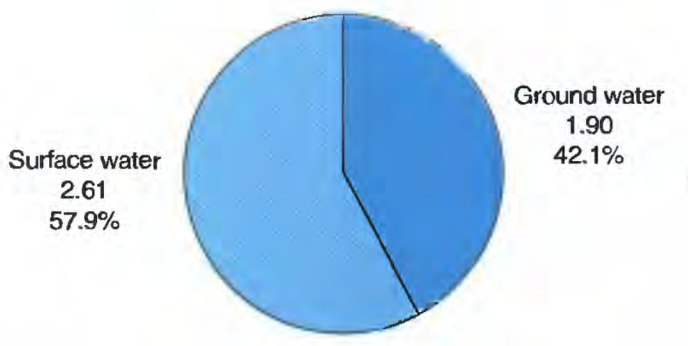
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.33	3.28	0.05	0.65	1.22	0.25	0.00	0.00
Surface water	7.39	0.00	0.00	6.81	0.40	2.17	0.00	0.00
Total	8.72	3.28	0.05	7.46	1.62	2.42	0.00	0.00

Population: 29,030
Acres irrigated: 570

JACKSON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 17,210
Hydroelectric power water use: 656.72 Mgal/d





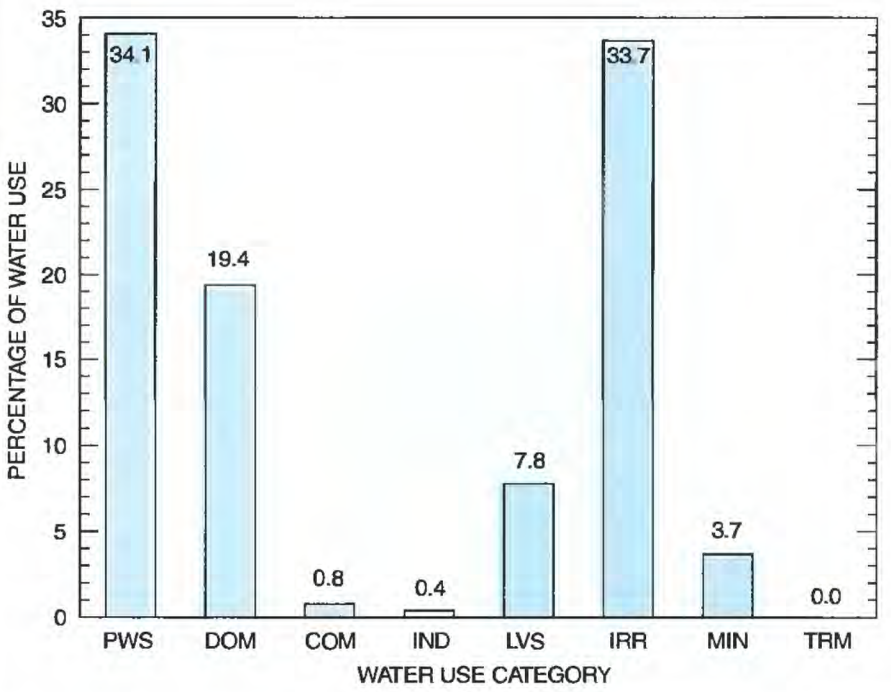
Water use, in million gallons per day

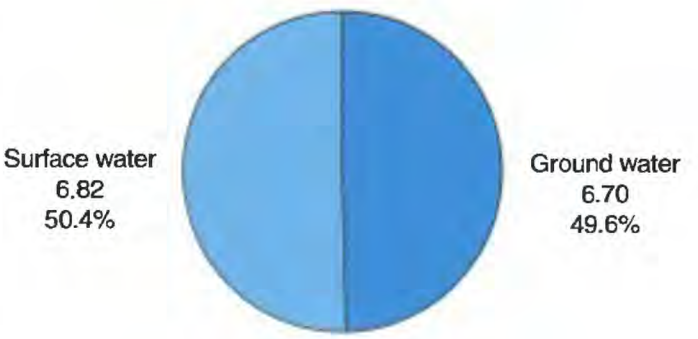
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.74	0.83	0.11	0.03	0.00	0.19	0.00	0.00
Surface water	0.02	0.00	0.00	0.08	1.76	0.75	0.00	0.00
Total	0.76	0.83	0.11	0.11	1.76	0.94	0.00	0.00

Population: 94,780
Acres irrigated: 4,370

JOHNSTON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 57,430
Hydroelectric power water use: 0 Mgal/d





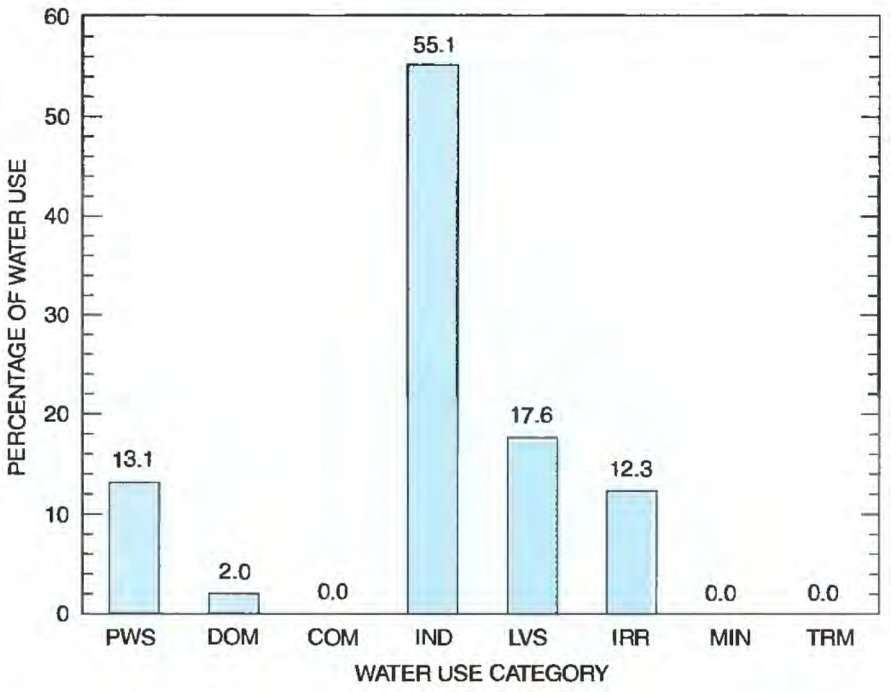
Water use, in million gallons per day

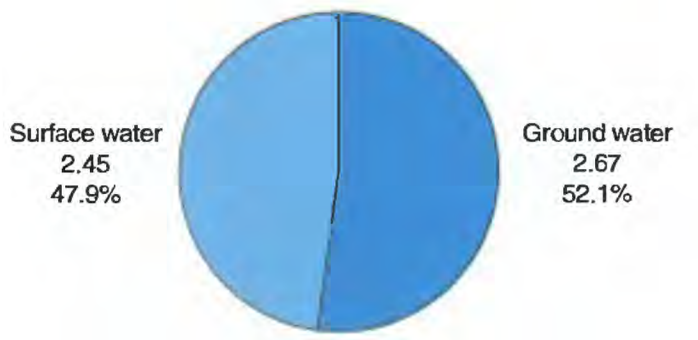
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.30	2.62	0.11	0.04	1.00	1.13	0.50	0.00
Surface water	3.31	0.00	0.00	0.02	0.06	3.43	0.00	0.00
Total	4.61	2.62	0.11	0.06	1.06	4.56	0.50	0.00

Population: 9,800
Acres irrigated: 620

JONES COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 8,430
Hydroelectric power water use: 0 Mgal/d





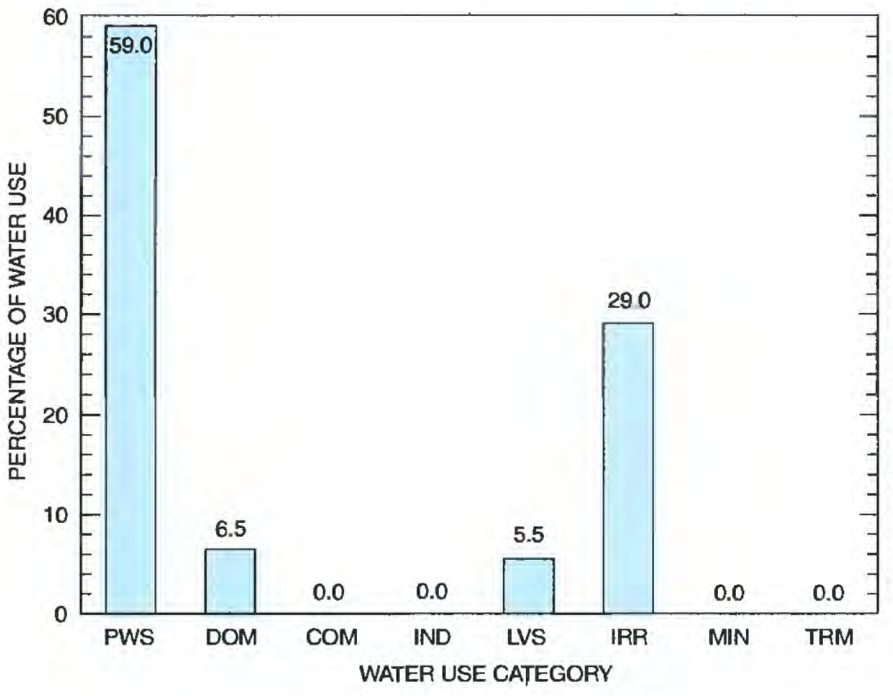
Water use, in million gallons per day

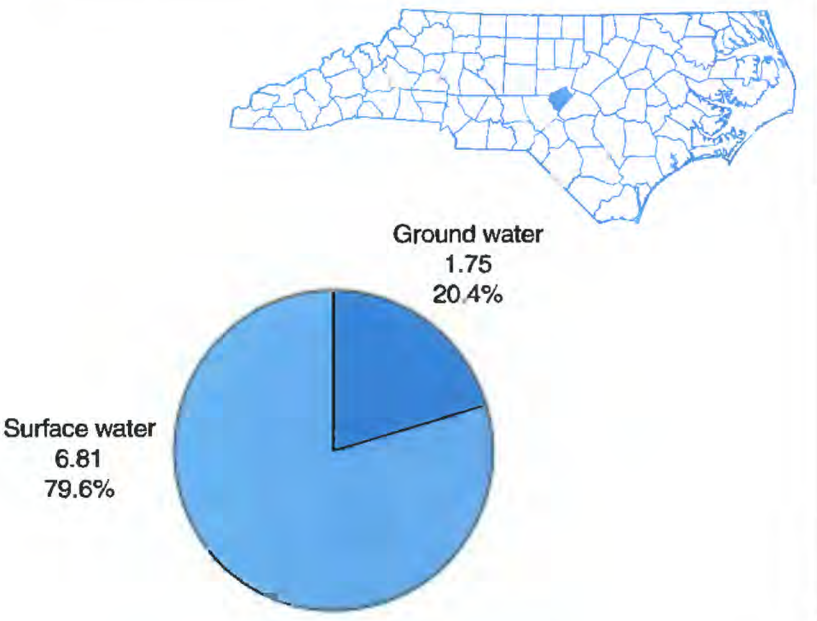
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.67	0.10	0.00	0.67	0.73	0.50	0.00	0.00
Surface water	0.00	0.00	0.00	2.15	0.17	0.13	0.00	0.00
Total	0.67	0.10	0.00	2.82	0.90	0.63	0.00	0.00

Population: 45,940
Acres irrigated: 1,920

LEE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 37,960
Hydroelectric power water use: 0 Mgal/d





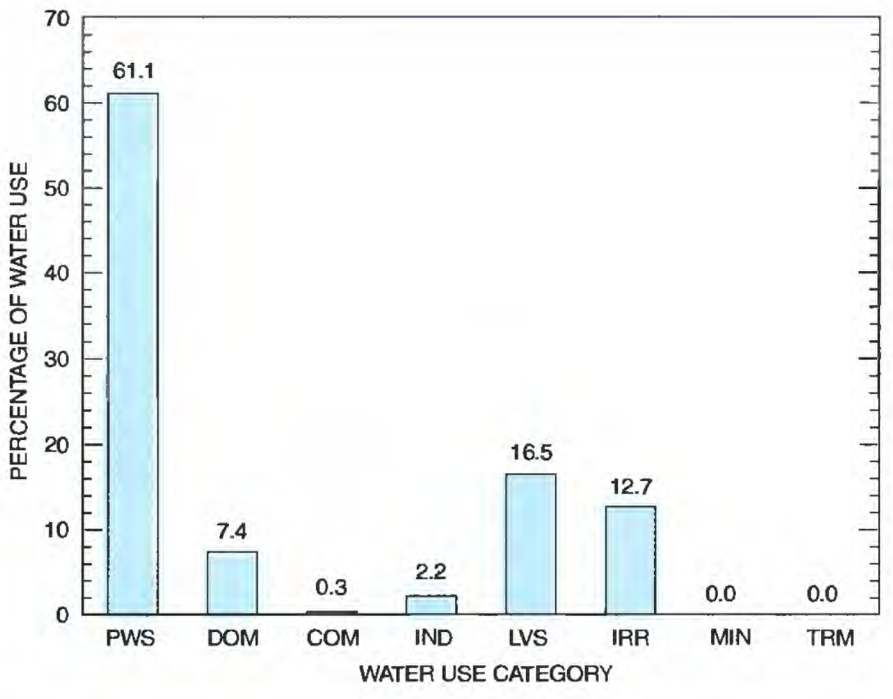
Water use, in million gallons per day

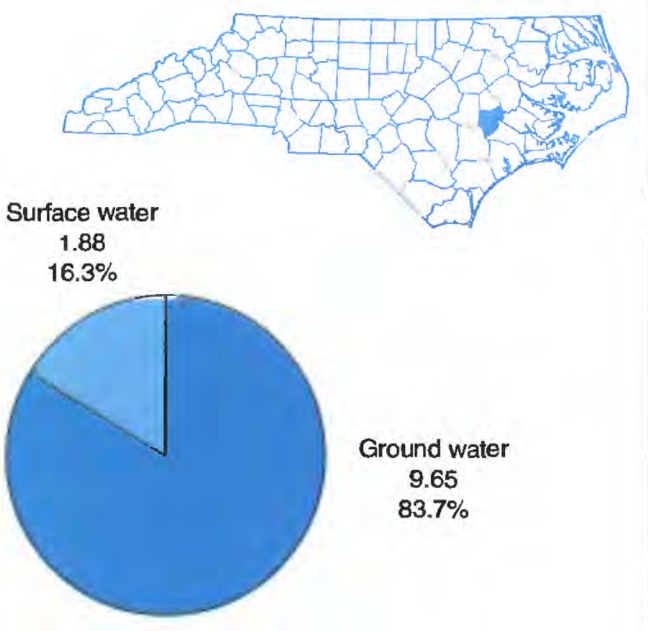
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.44	0.56	0.00	0.00	0.38	0.37	0.00	0.00
Surface water	4.61	0.00	0.00	0.00	0.09	2.11	0.00	0.00
Total	5.05	0.56	0.00	0.00	0.47	2.48	0.00	0.00

Population: 59,260
Acres irrigated: 1,080

LENOIR COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 47,090
Hydroelectric power water use: 0 Mgal/d





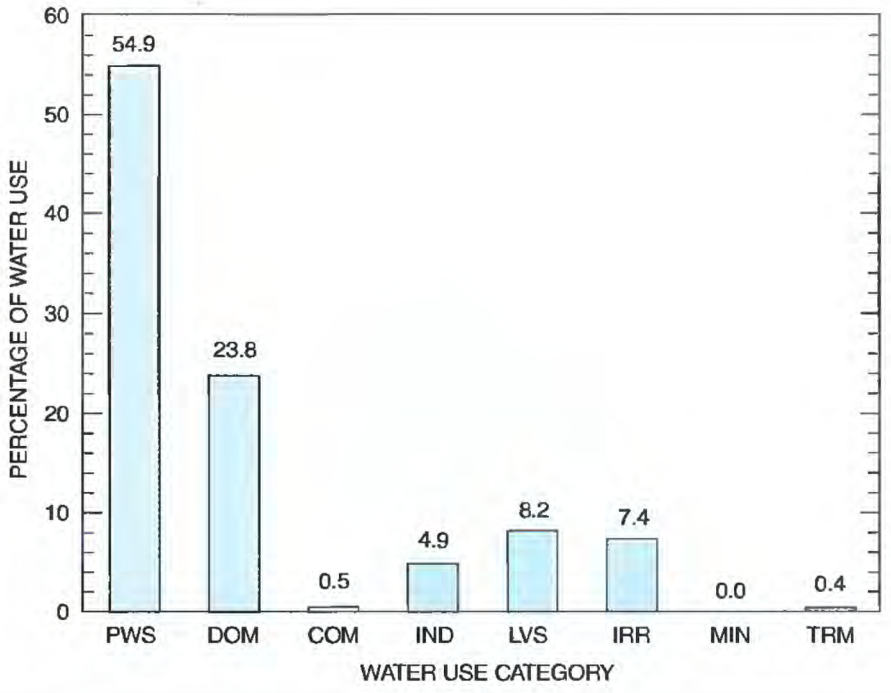
Water use, in million gallons per day

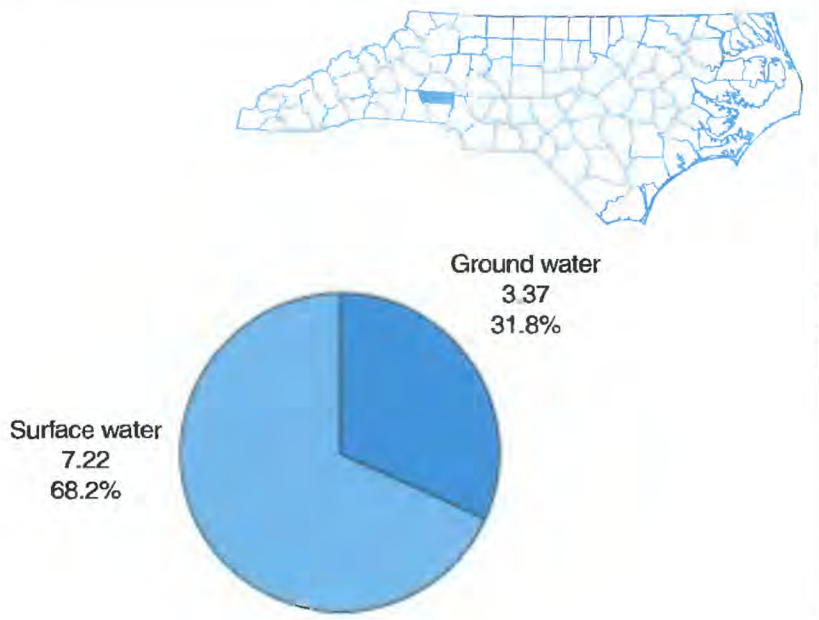
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	7.04	0.85	0.03	0.07	1.14	0.52	0.00	0.00
Surface water	0.00	0.00	0.00	0.18	0.76	0.94	0.00	0.00
Total	7.04	0.85	0.03	0.25	1.90	1.46	0.00	0.00

Population: 56,020
Acres irrigated: 450

LINCOLN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 19,980
Hydroelectric power water use: 1,770 Mgal/d





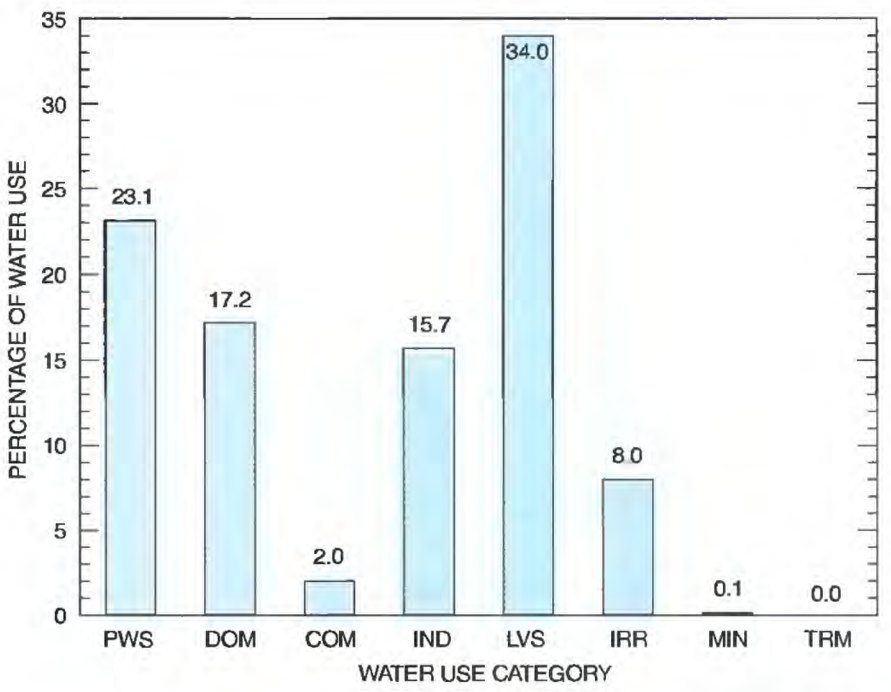
Water use, in million gallons per day

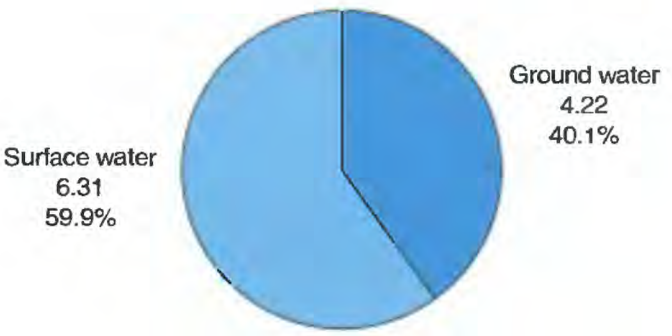
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.06	2.52	0.05	0.01	0.65	0.08	0.00	0.00
Surface water	5.75	0.00	0.00	0.51	0.22	0.70	0.00	0.04
Total	5.81	2.52	0.05	0.52	0.87	0.78	0.00	0.04

Population: 37,470
Acres irrigated: 510

McDOWELL COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 11,590
Hydroelectric power water use: 0 Mgal/d





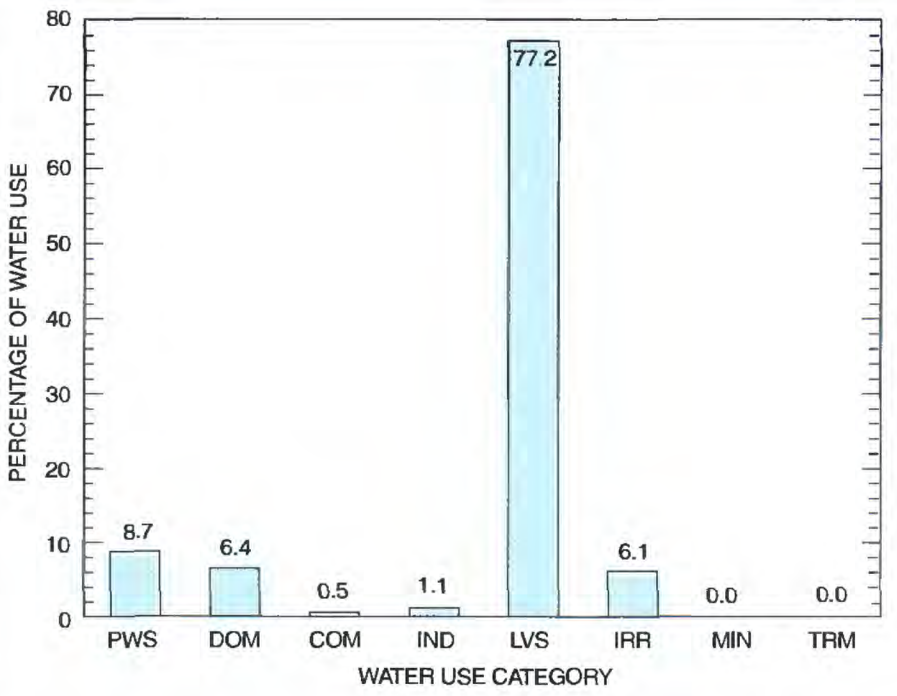
Water use, in milllon gallons per day

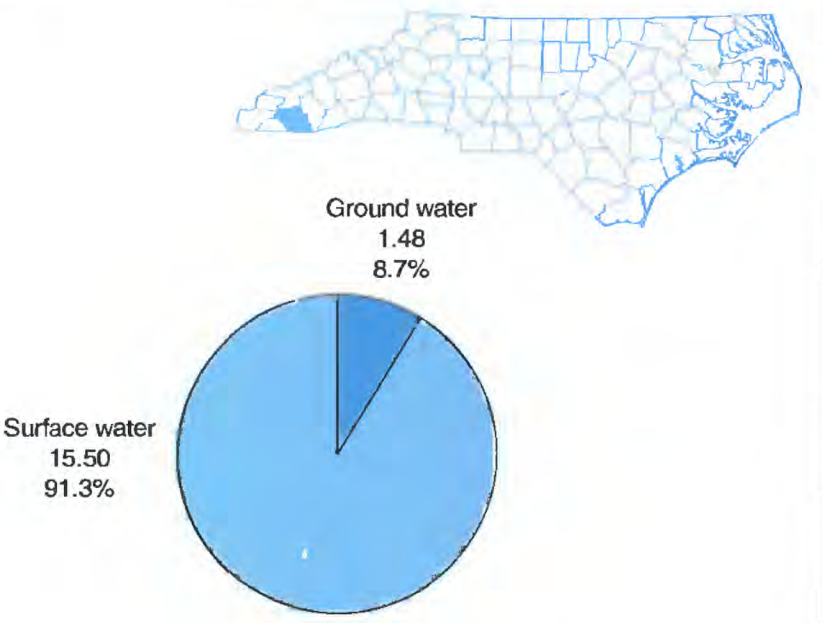
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.66	1.81	0.21	1.46	0.04	0.04	0.00	0.00
Surface water	1.77	0.00	0.00	0.19	3.54	0.80	0.01	0.00
Total	2.43	1.81	0.21	1.65	3.58	0.84	0.01	0.00

Population: 26,180
Acres irrigated: 660

MACON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 10,570
Hydroelectric power water use: 742.02 Mgal/d





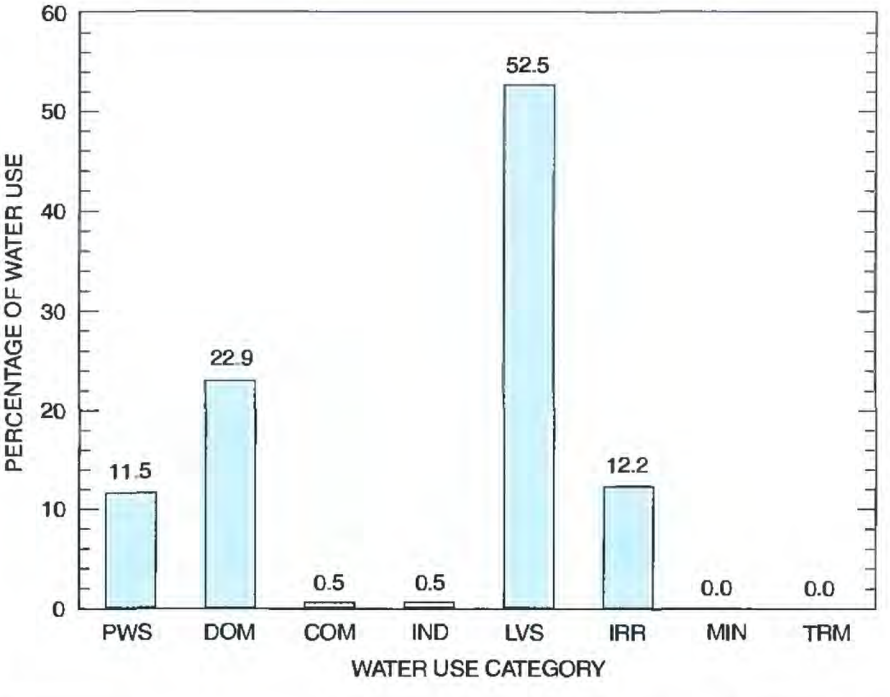
Water use, in million gallons per day

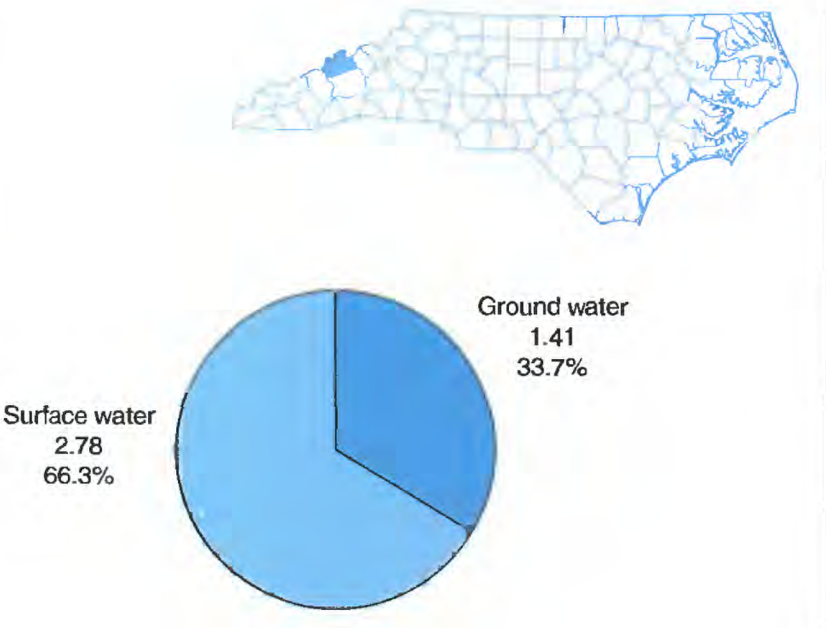
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.19	1.09	0.08	0.03	0.05	0.04	0.00	0.00
Surface water	1.28	0.00	0.00	0.16	13.06	1.00	0.00	0.00
Total	1.47	1.09	0.08	0.19	13.11	1.04	0.00	0.00

Population: 17,940
Acres irrigated: 390

MADISON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 4,290
Hydroelectric power water use: 1,615 Mgal/d





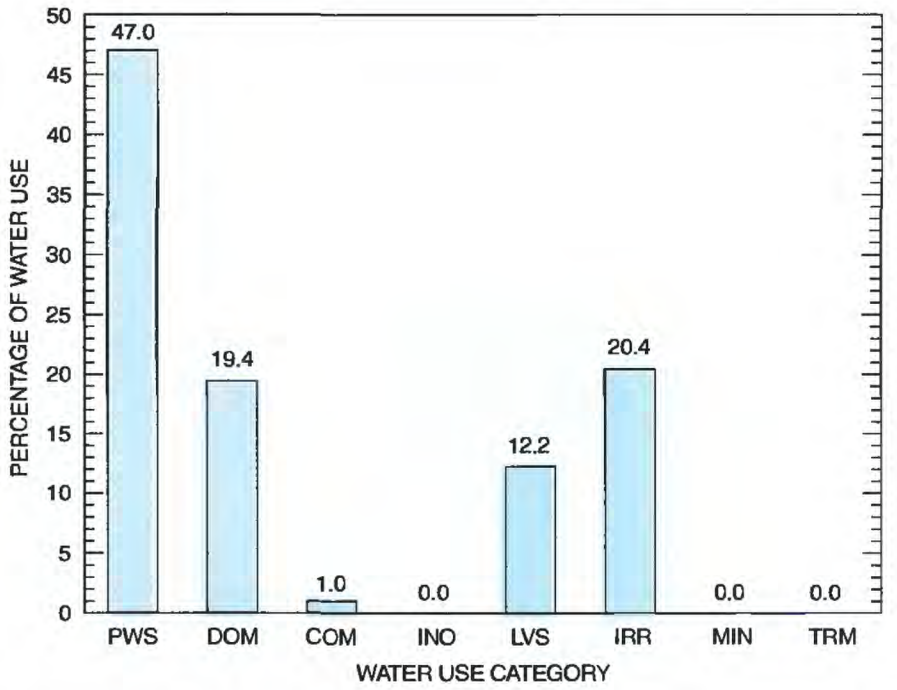
Water use, in million gallons per day

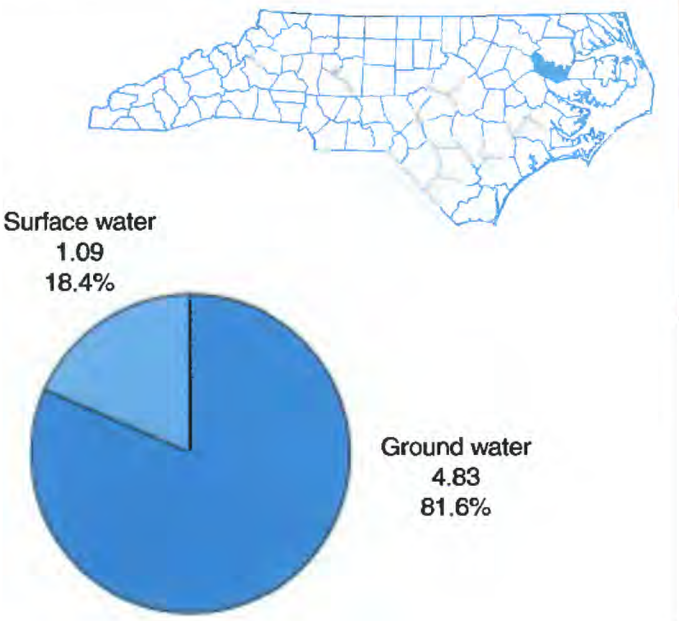
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.23	0.96	0.02	0.01	0.08	0.11	0.00	0.00
Surface water	0.25	0.00	0.00	0.01	2.12	0.40	0.00	0.00
Total	0.48	0.96	0.02	0.02	2.20	0.51	0.00	0.00

Population: 26,400
Acres irrigated: 720

MARTIN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 10,020
Hydroelectric power water use: 0 Mgal/d





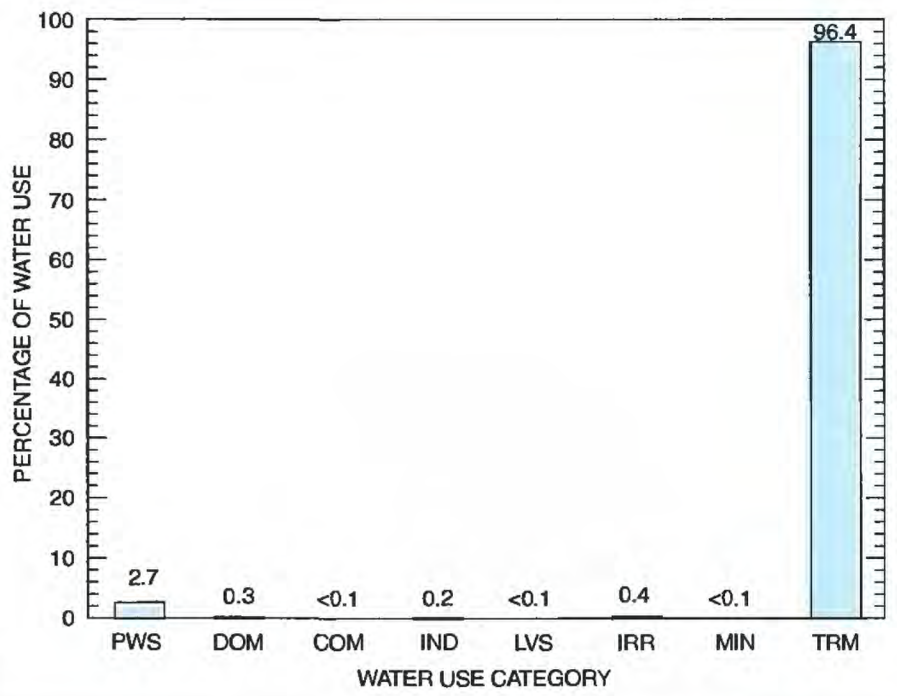
Water use, in million gallons per day

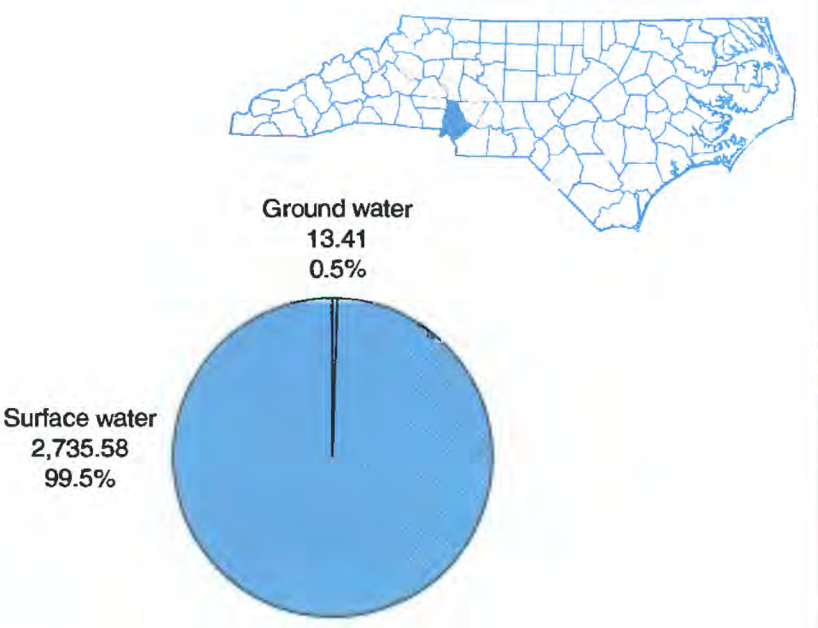
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	2.78	1.15	0.06	0.00	0.60	0.24	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.12	0.97	0.00	0.00
Total	2.78	1.15	0.06	0.00	0.72	1.21	0.00	0.00

Population: 579,470
Acres irrigated: 3,910

MECKLENBURG COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 467,070
Hydroelectric power water use: 0 Mgal/d





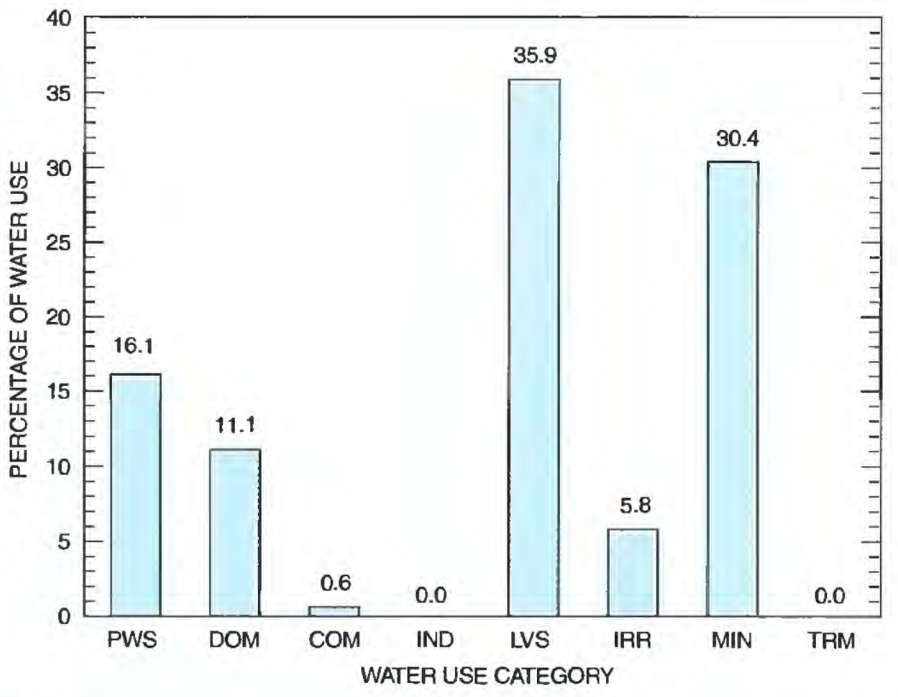
Water use, in million gallons per day

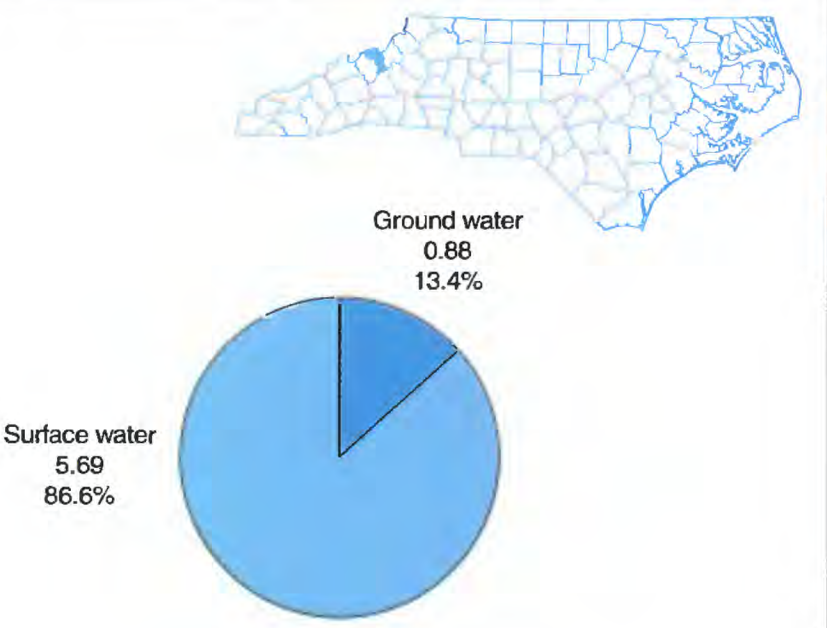
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.97	7.87	0.34	0.86	0.26	3.10	0.01	0.00
Surface water	71.98	0.00	0.00	4.57	0.04	8.99	0.00	2,650.00
Total	72.95	7.87	0.34	5.43	0.30	12.09	0.01	2,650.00

Population: 14,700
Acres irrigated: 180

MITCHELL COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 4,270
Hydroelectric power water use: 0 Mgal/d





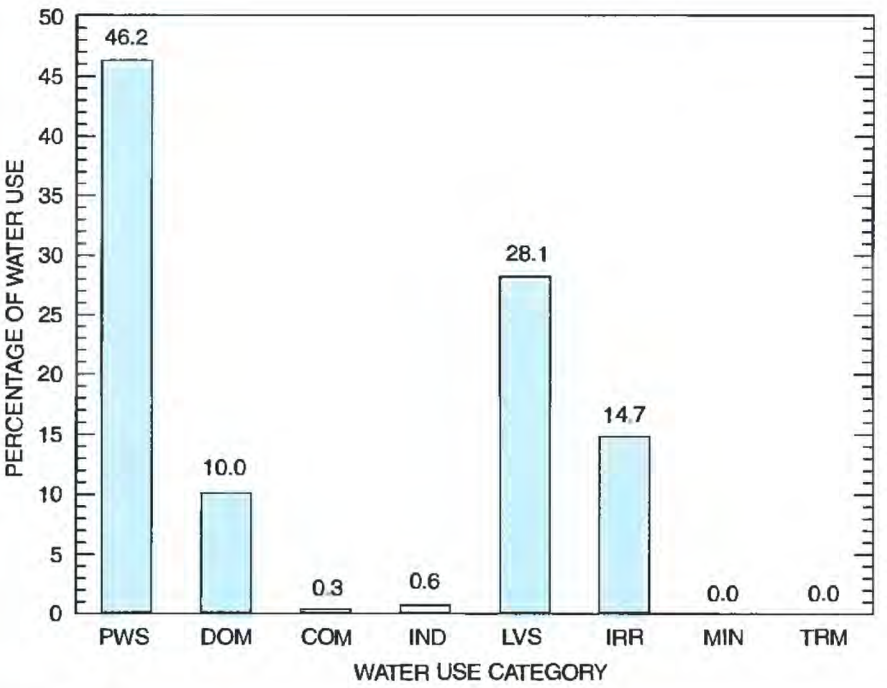
Water use, in million gallons per day

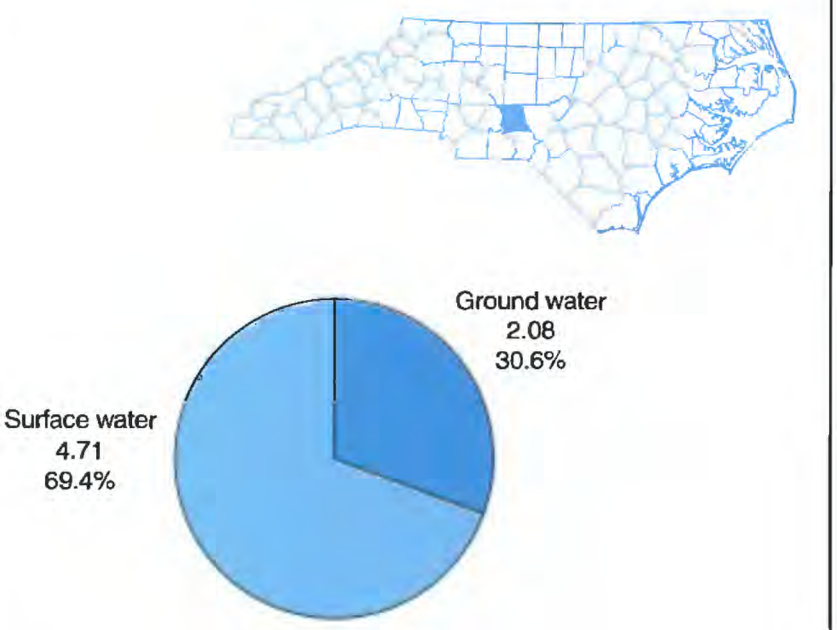
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.08	0.73	0.04	0.00	0.01	0.02	0.00	0.00
Surface water	0.98	0.00	0.00	0.00	2.35	0.36	2.00	0.00
Total	1.06	0.73	0.04	0.00	2.36	0.38	2.00	0.00

Population: 23,490
Acres irrigated: 790

MONTGOMERY COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 13,730
Hydroelectric power water use: 15,707.24 Mgal/d





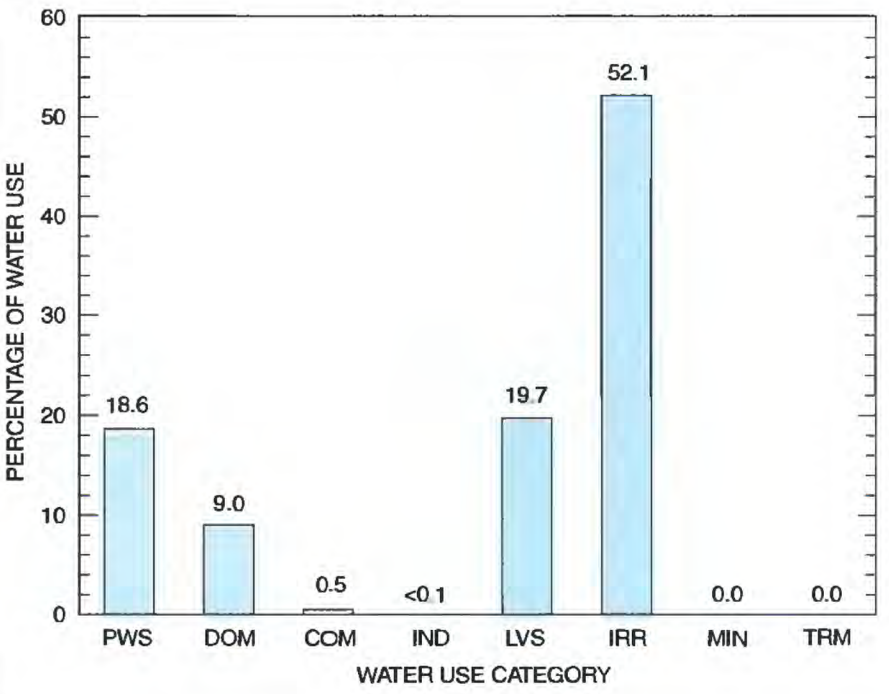
Water use, in million gallons per day

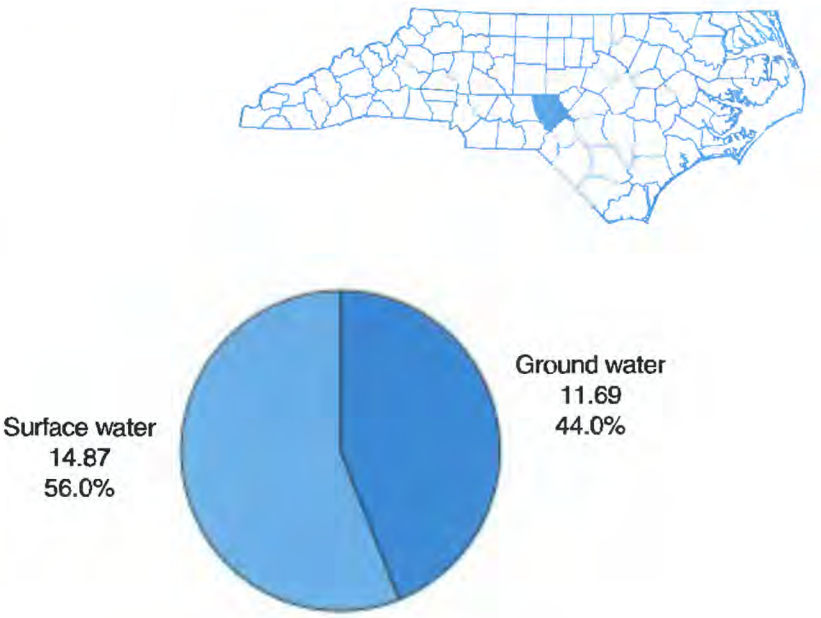
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.53	0.68	0.02	0.01	0.57	0.27	0.00	0.00
Surface water	2.61	0.00	0.00	0.03	1.34	0.73	0.00	0.00
Total	3.14	0.68	0.02	0.04	1.91	1.00	0.00	0.00

Population: 67,170
Acres irrigated: 7,490

MOORE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 33,040
Hydroelectric power water use: 0 Mgal/d





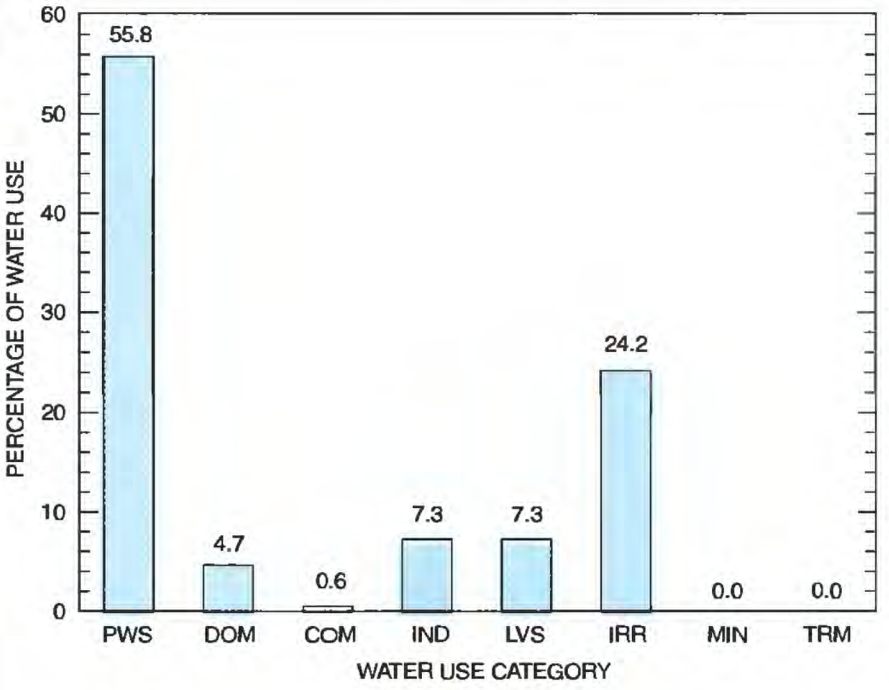
Water use, in million gallons per day

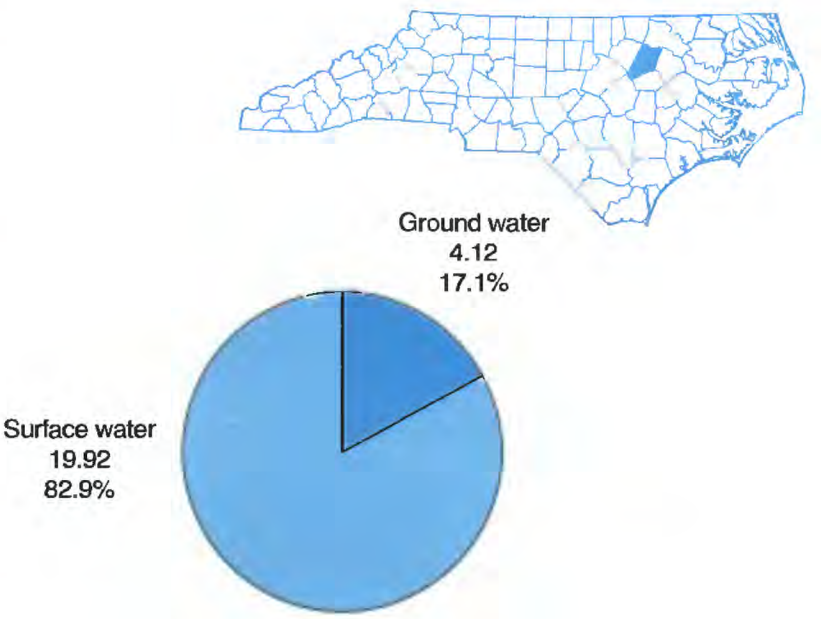
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	3.05	2.39	0.13	0.01	2.62	3.49	0.00	0.00
Surface water	1.89	0.00	0.00	0.00	2.62	10.36	0.00	0.00
Total	4.94	2.39	0.13	0.01	5.24	13.85	0.00	0.00

Population: 85,560
Acres irrigated: 7,830

NASH COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 69,300
Hydroelectric power water use: 0 Mgal/d





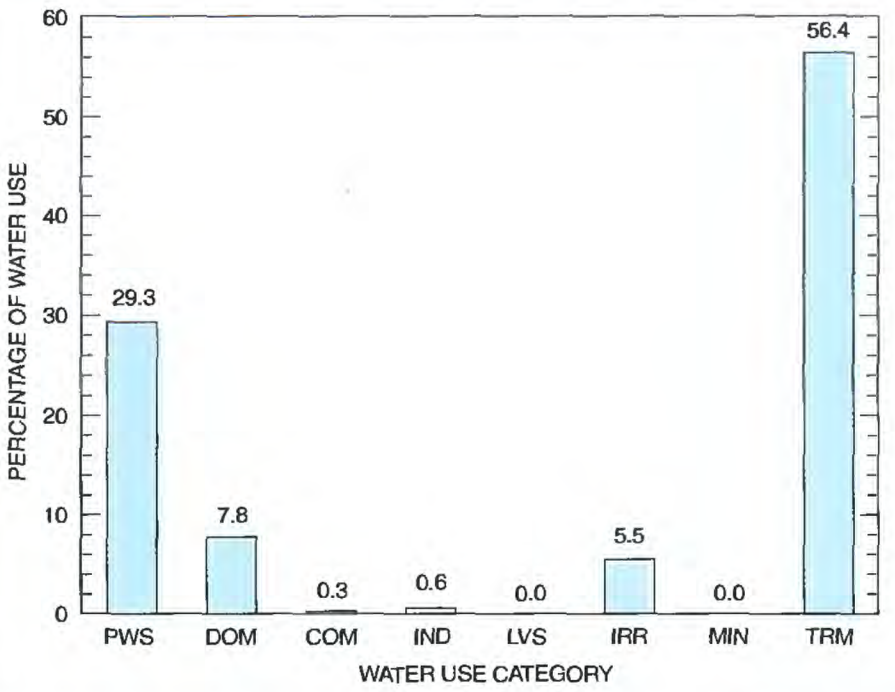
Water use, in million gallons per day

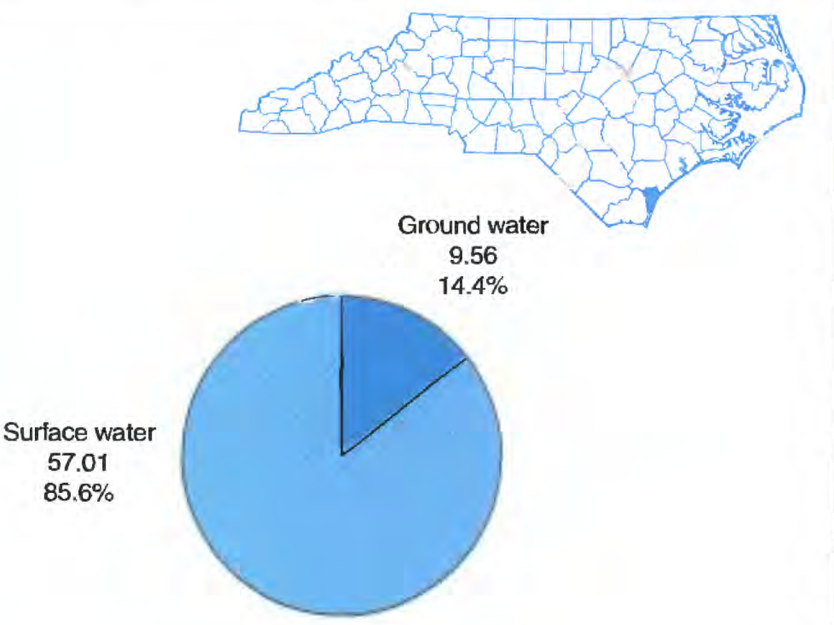
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.62	1.14	0.15	0.19	1.44	0.58	0.00	0.00
Surface water	12.80	0.00	0.00	1.57	0.32	5.23	0.00	0.00
Total	13.42	1.14	0.15	1.76	1.76	5.81	0.00	0.00

Population: 139,820
Acres irrigated: 1,170

NEW HANOVER COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 65,260
Hydroelectric power water use: 0 Mgal/d





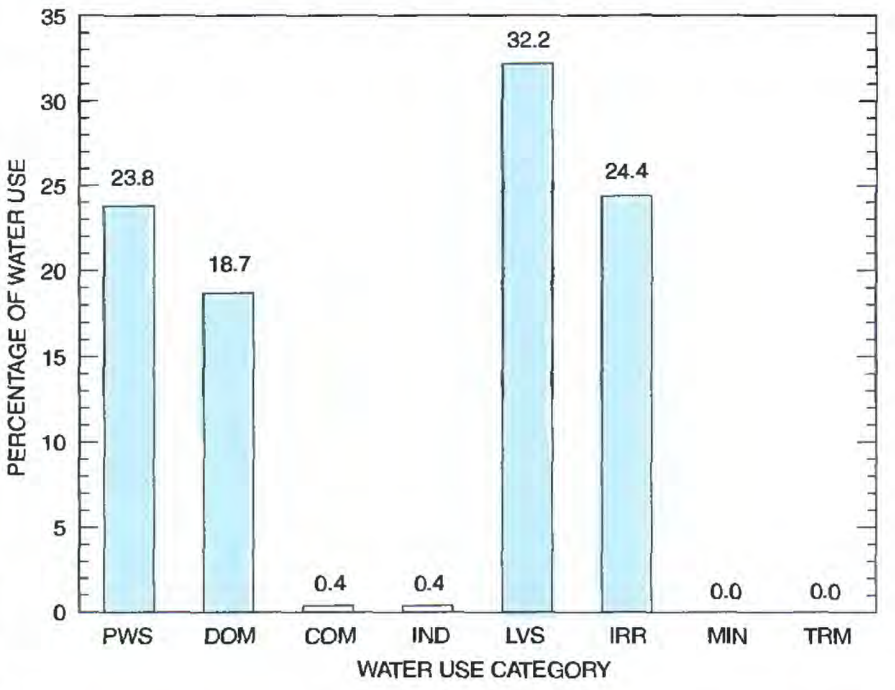
Water use, in million gallons per day

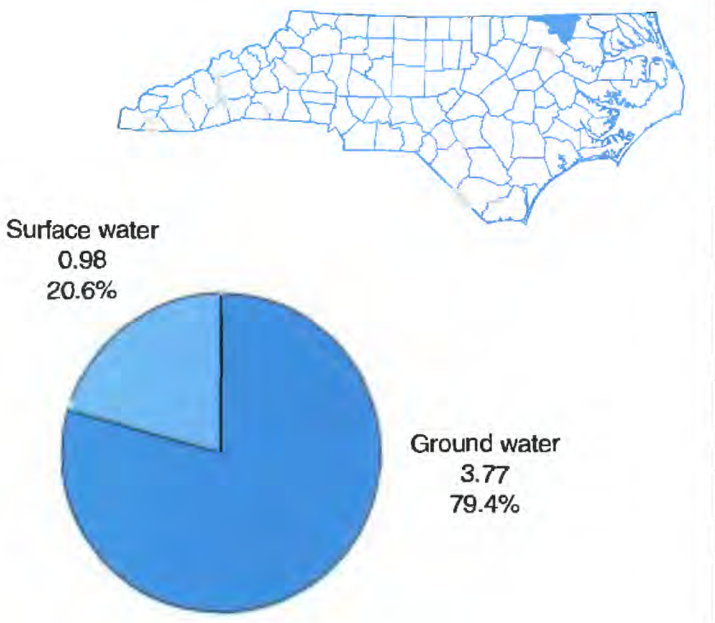
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	2.10	5.22	0.17	0.13	0.00	1.90	0.00	0.04
Surface water	17.42	0.00	0.01	0.30	0.00	1.78	0.00	37.50
Total	19.52	5.22	0.18	0.43	0.00	3.68	0.00	37.54

Population: 20,900
Acres irrigated: 1,880

NORTHAMPTON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 8,160
Hydroelectric power water use: 0 Mgal/d





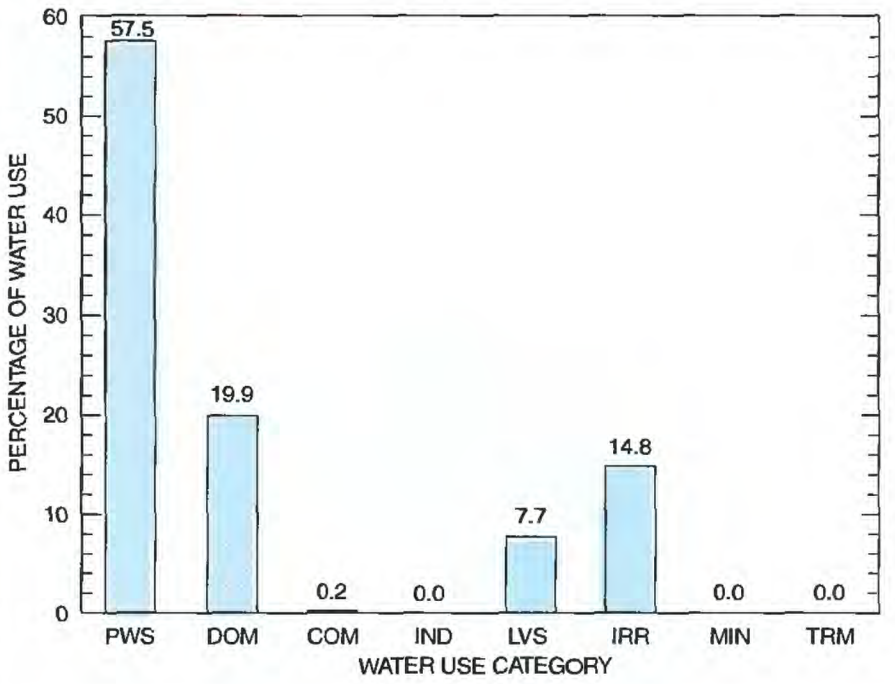
Water use, in million gallons per day

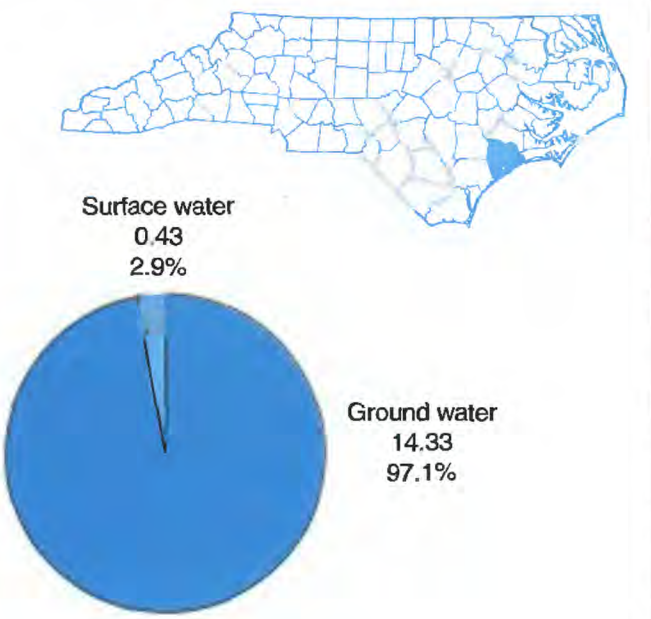
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.13	0.89	0.02	0.00	1.15	0.58	0.00	0.00
Surface water	0.00	0.00	0.00	0.02	0.38	0.58	0.00	0.00
Total	1.13	0.89	0.02	0.02	1.53	1.16	0.00	0.00

Population: 143,320
Acres irrigated: 1,190

ONSLOW COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 101,320
Hydroelectric power water use: 0 Mgal/d





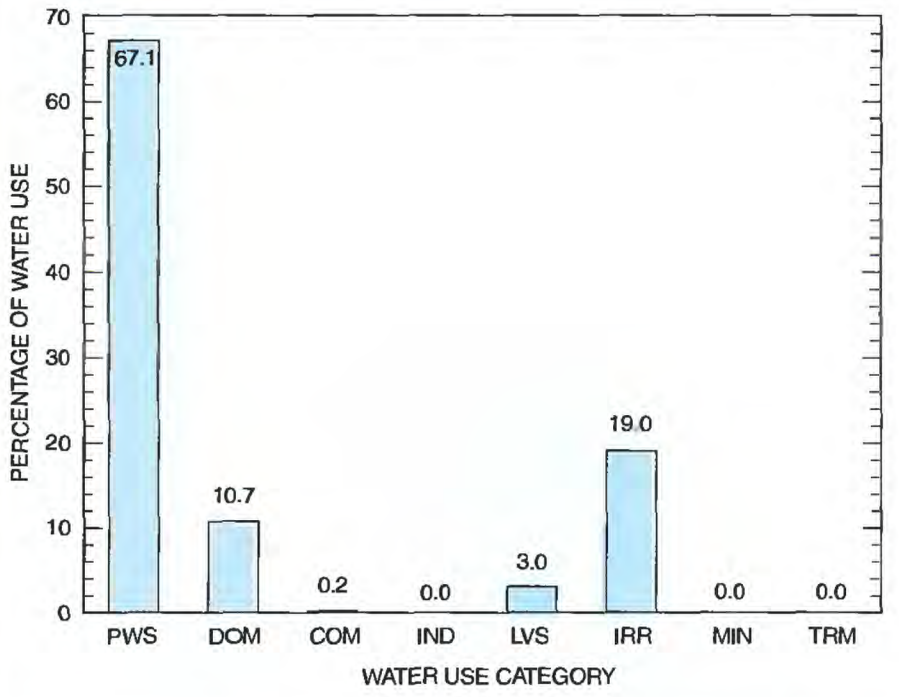
Water use, in million gallons per day

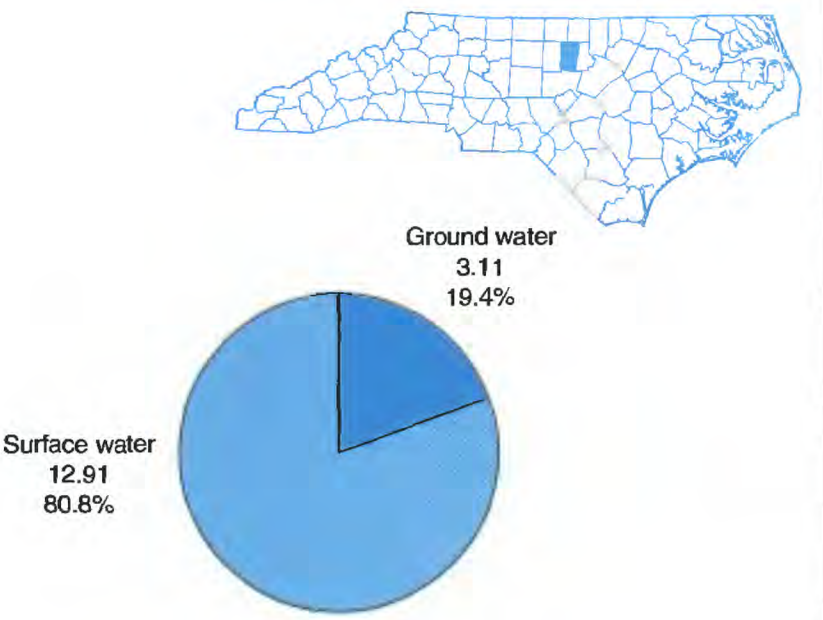
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	8.48	2.94	0.03	0.00	1.13	1.75	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.00	0.43	0.00	0.00
Total	8.48	2.94	0.03	0.00	1.13	2.18	0.00	0.00

Population: 107,650
Acres irrigated: 1,660

ORANGE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 83,130
Hydroelectric power water use: 0 Mgal/d





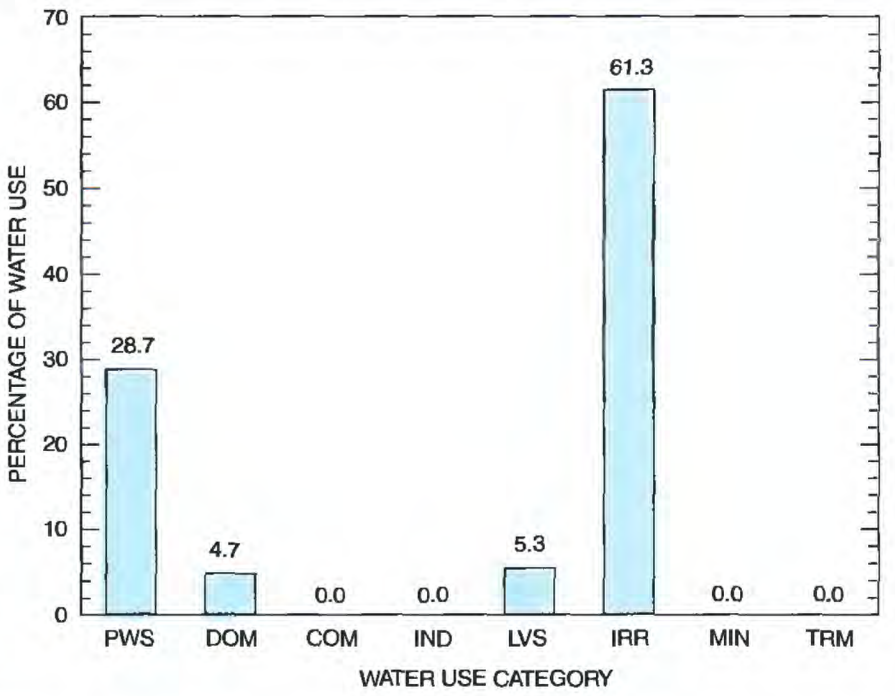
Water use, in million gallons per day

Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.25	1.72	0.03	0.00	0.35	0.76	0.00	0.00
Surface water	10.50	0.00	0.00	0.00	0.13	2.28	0.00	0.00
Total	10.75	1.72	0.03	0.00	0.48	3.04	0.00	0.00

Population: 12,070
Acres irrigated: 2,230

PAMLICO COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 10,140
Hydroelectric power water use: 0 Mgal/d



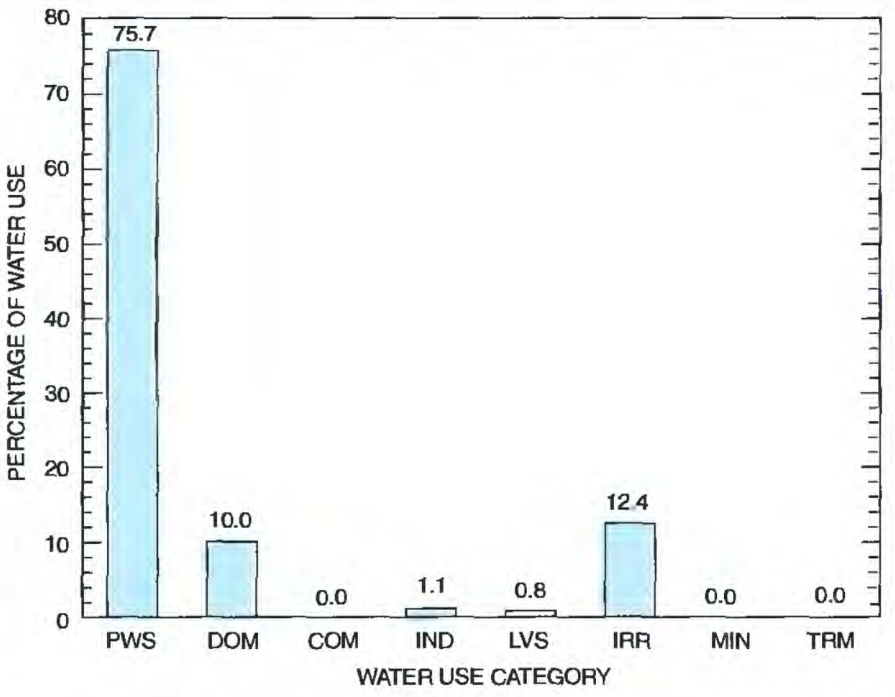
Water use, in million gallons per day

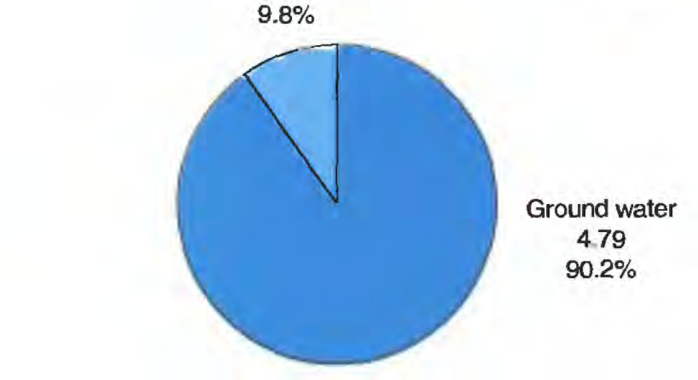
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.86	0.14	0.00	0.00	0.16	1.84	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.86	0.14	0.00	0.00	0.16	1.84	0.00	0.00

Population: 33,870
Acres irrigated: 190

PASQUOTANK COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 26,290
Hydroelectric power water use: 0 Mgal/d





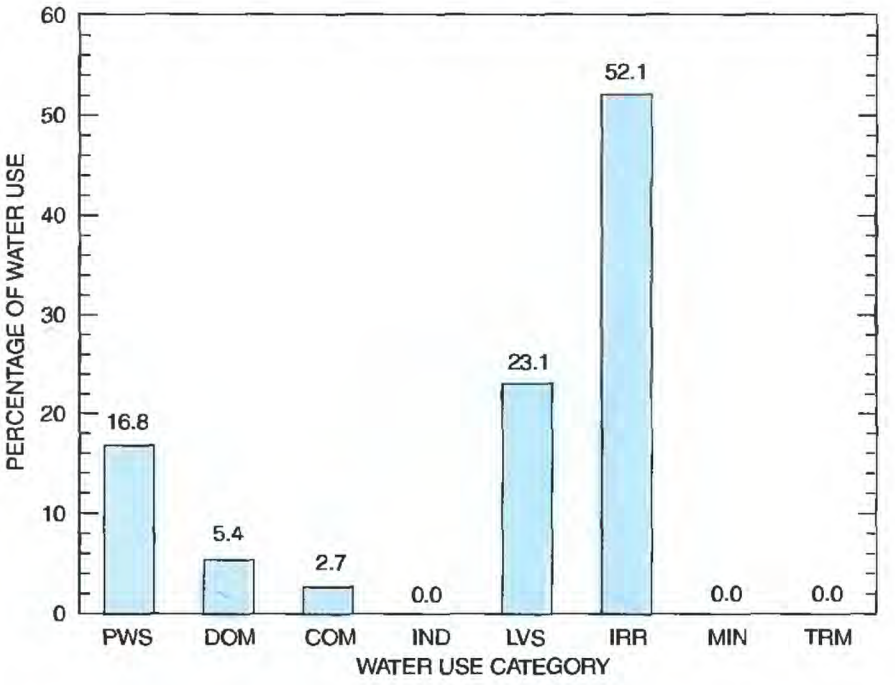
Water use, in million gallons per day

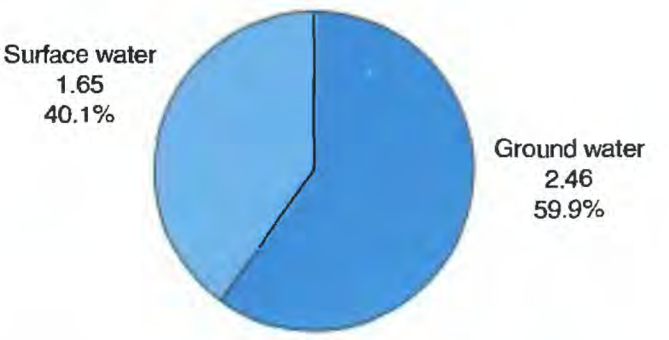
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	3.86	0.53	0.00	0.03	0.04	0.33	0.00	0.00
Surface water	0.16	0.00	0.00	0.03	0.00	0.33	0.00	0.00
Total	4.02	0.53	0.00	0.06	0.04	0.66	0.00	0.00

Population: 35,080
Acres irrigated: 980

PENDER COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 31,980
Hydroelectric power water use: 0 Mgal/d





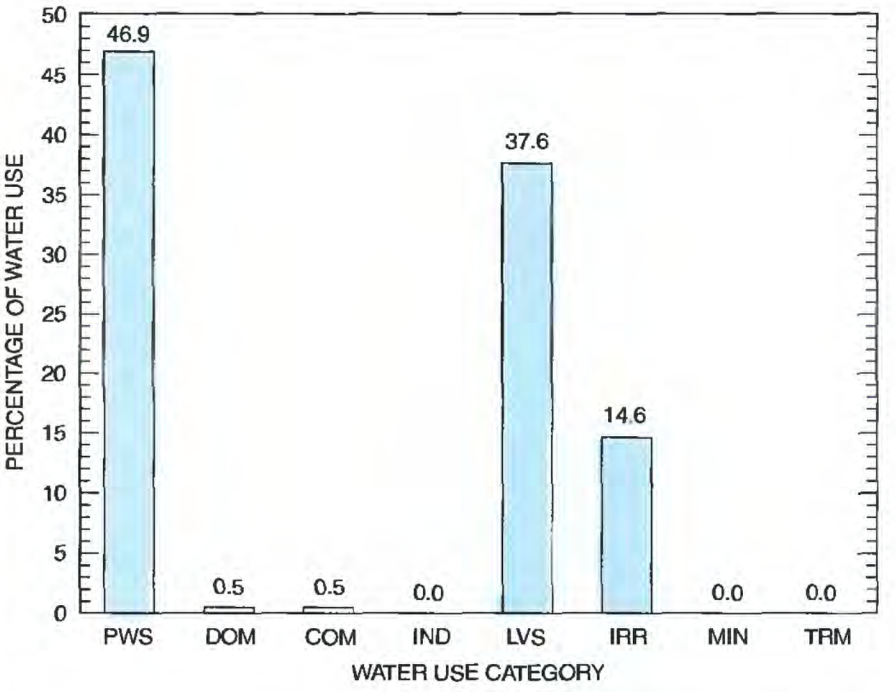
Water use, in million gallons per day

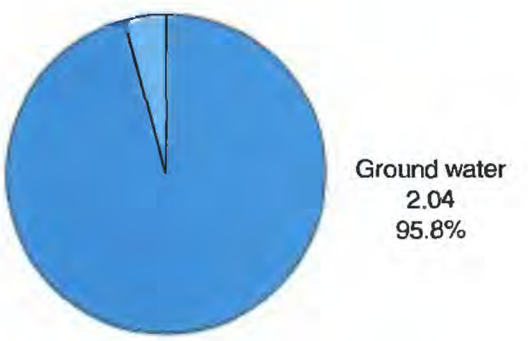
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.69	0.22	0.11	0.00	0.90	0.54	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.05	1.60	0.00	0.00
Total	0.69	0.22	0.11	0.00	0.95	2.14	0.00	0.00

Population: 10,800
Acres irrigated: 530

PERQUIMANS COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 10,650
Hydroelectric power water use: 0 Mgal/d





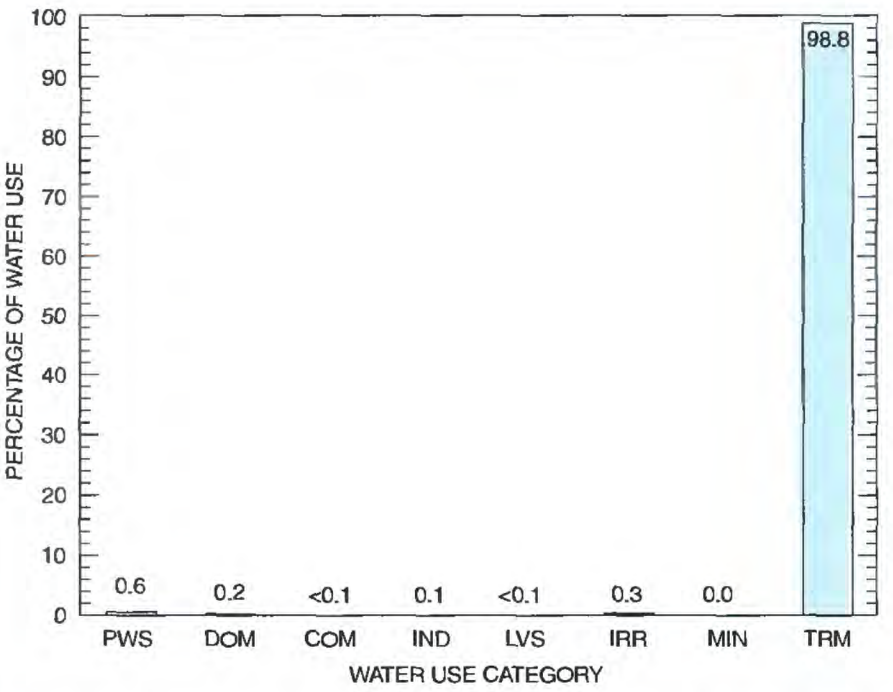
Water use, in million gallons per day

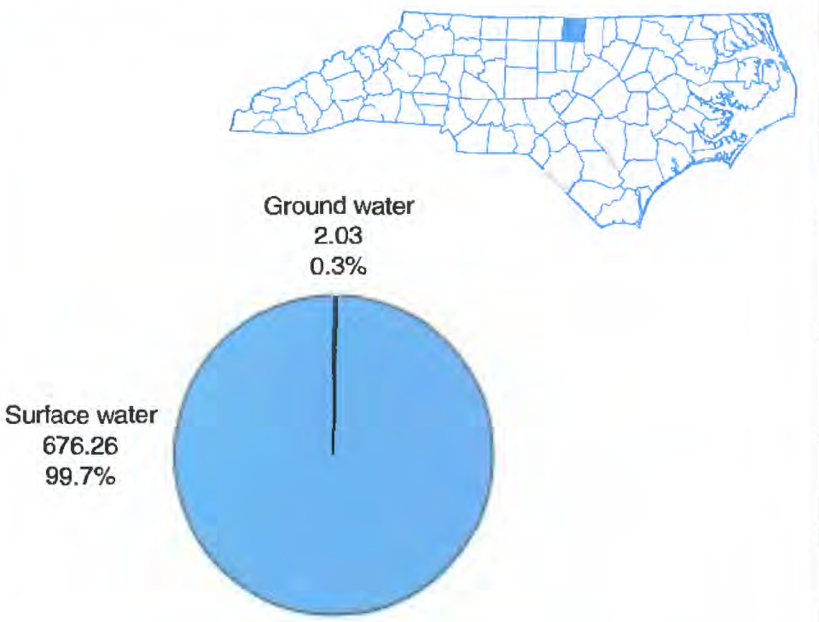
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.00	0.01	0.01	0.00	0.80	0.22	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.00	0.09	0.00	0.00
Total	1.00	0.01	0.01	0.00	0.80	0.31	0.00	0.00

Population: 32,380
Acres irrigated: 2,440

PERSON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 11,570
Hydroelectric power water use: 0 Mgal/d





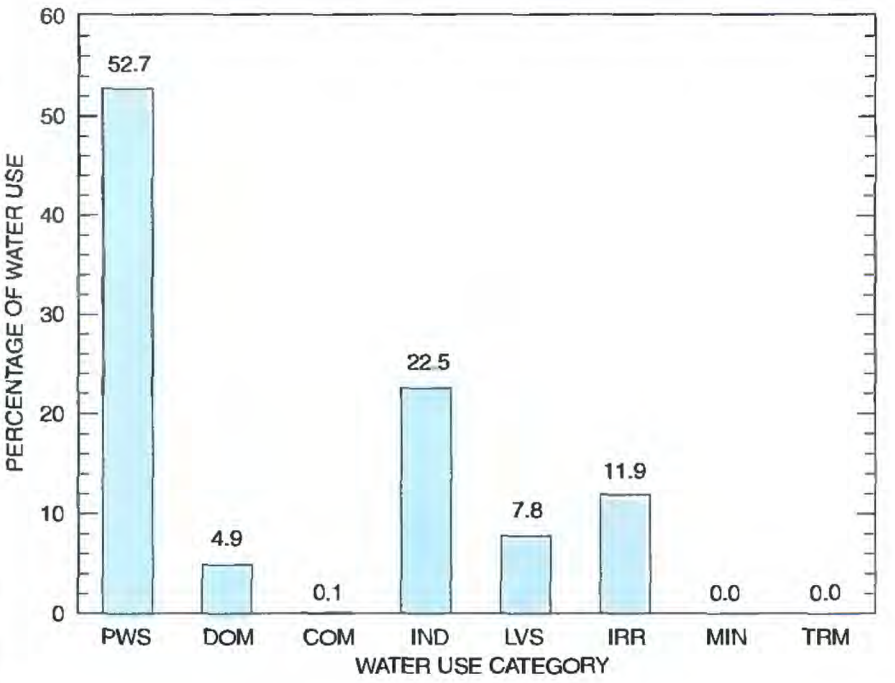
Water use, in million gallons per day

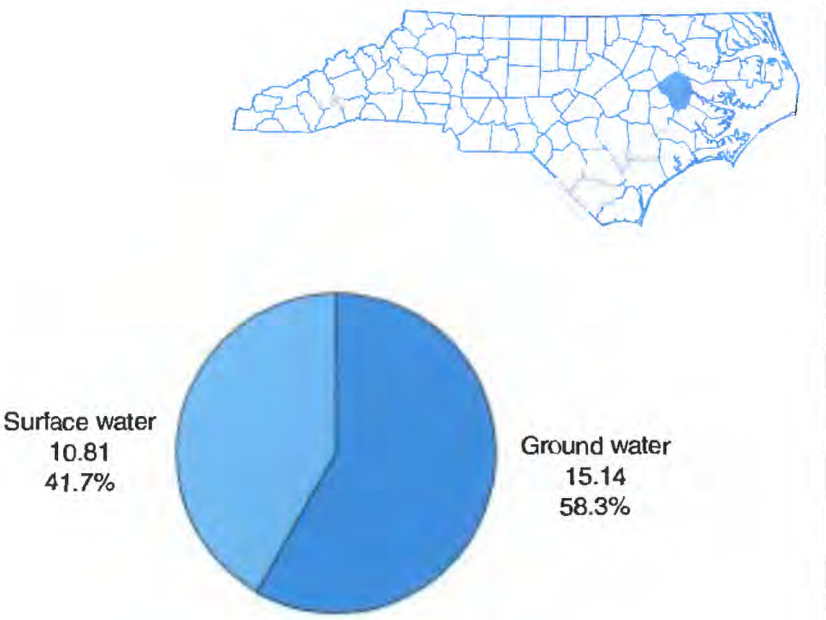
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.02	1.46	0.03	0.21	0.14	0.17	0.00	0.00
Surface water	4.09	0.00	0.01	0.50	0.10	1.56	0.00	670.00
Total	4.11	1.46	0.04	0.71	0.24	1.73	0.00	670.00

Population: 117,740
Acres irrigated: 1,860

PITT COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 99,460
Hydroelectric power water use: 0 Mgal/d





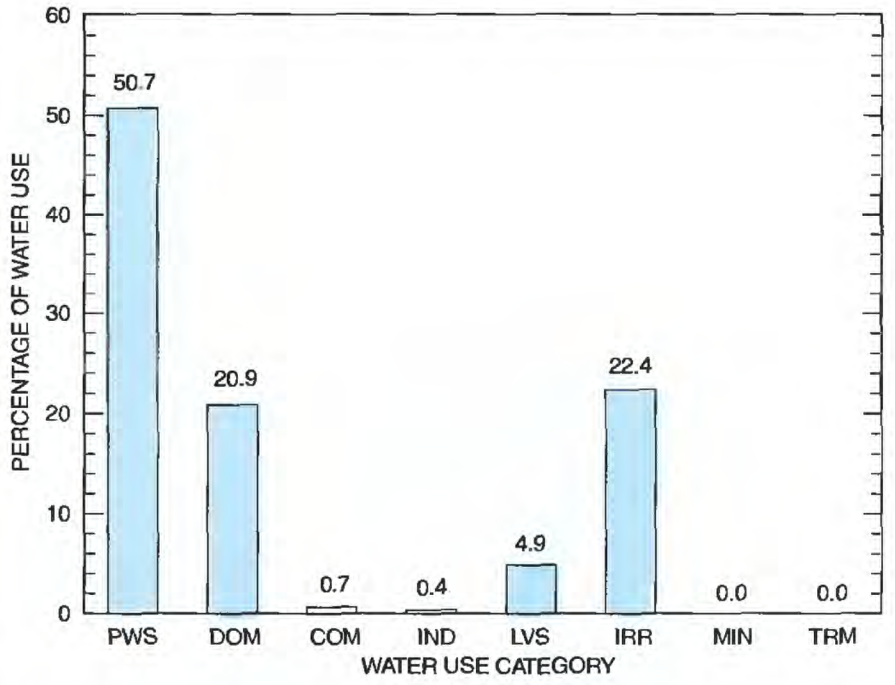
Water use, in million gallons per day

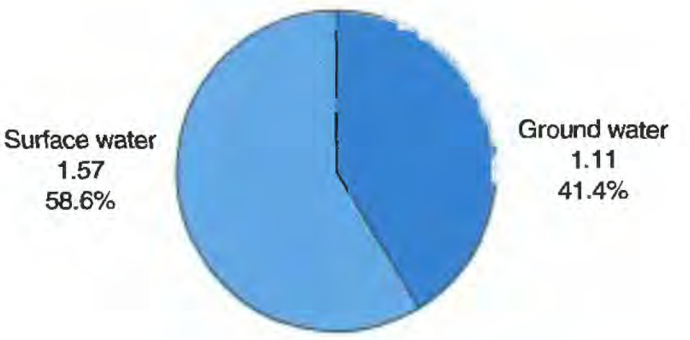
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	5.96	1.28	0.03	3.76	1.94	2.17	0.00	0.00
Surface water	7.71	0.00	0.00	2.09	0.08	0.93	0.00	0.00
Total	13.67	1.28	0.03	5.85	2.02	3.10	0.00	0.00

Population: 15,800
Acres irrigated: 340

POLK COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 7,850
Hydroelectric power water use: 95 Mgal/d





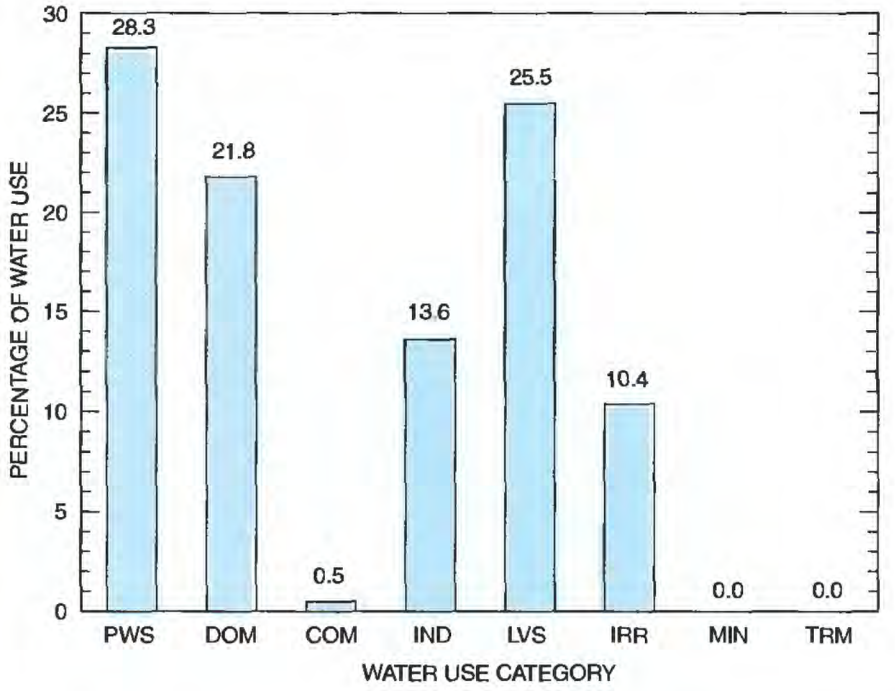
Water use, in million gallons per day

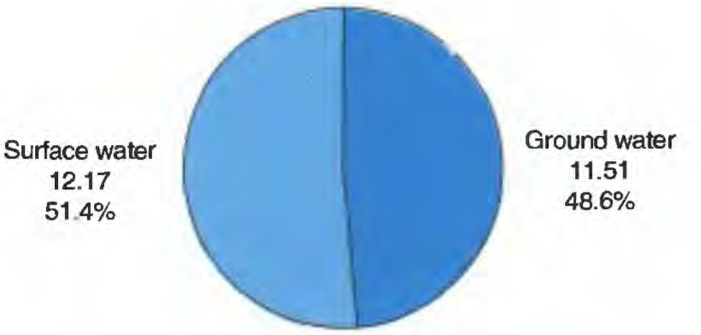
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.49	0.56	0.02	0.00	0.01	0.03	0.00	0.00
Surface water	0.87	0.00	0.00	0.01	0.12	0.57	0.00	0.00
Total	1.36	0.56	0.02	0.01	0.13	0.60	0.00	0.00

Population: 114,620
Acres irrigated: 1,390

RANDOLPH COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 40,810
Hydroelectric power water use: 0 Mgal/d





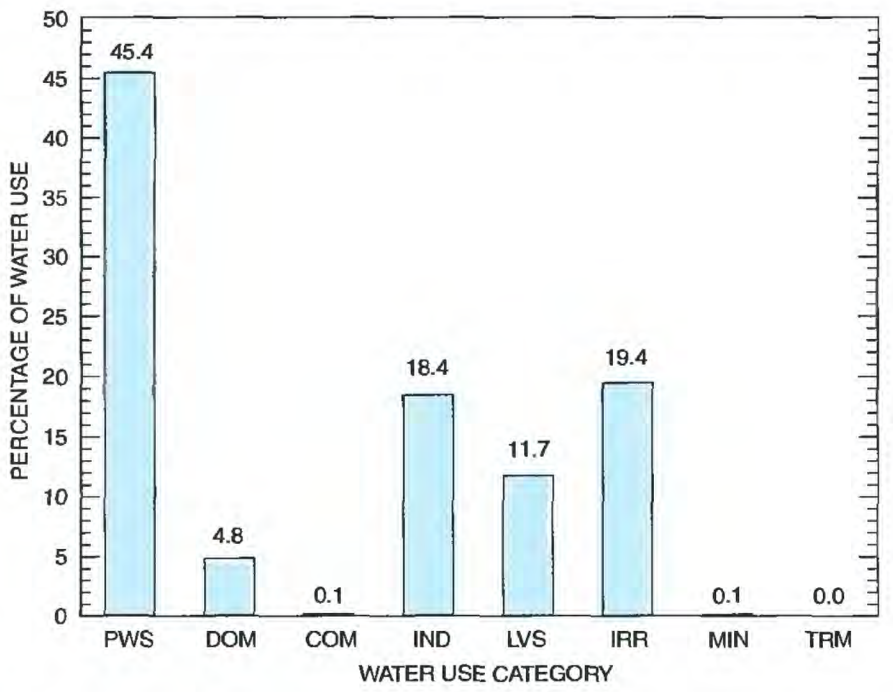
Water use, in million gallons per day

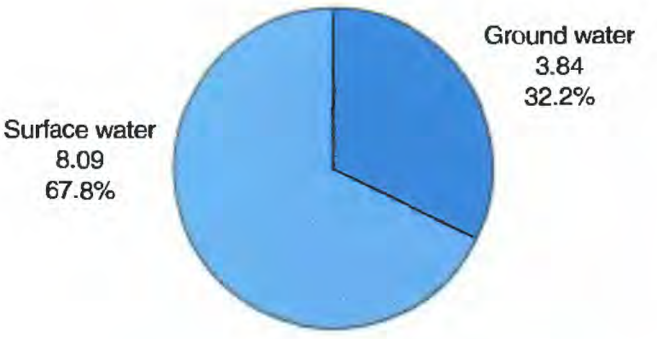
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.58	5.17	0.12	1.70	3.62	0.32	0.00	0.00
Surface water	6.11	0.00	0.00	1.51	2.41	2.14	0.00	0.00
Total	6.69	5.17	0.12	3.21	6.03	2.46	0.00	0.00

Population: 45,660
Acres irrigated: 2,910

RICHMOND COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 37,540
Hydroelectric power water use: 0 Mgal/d





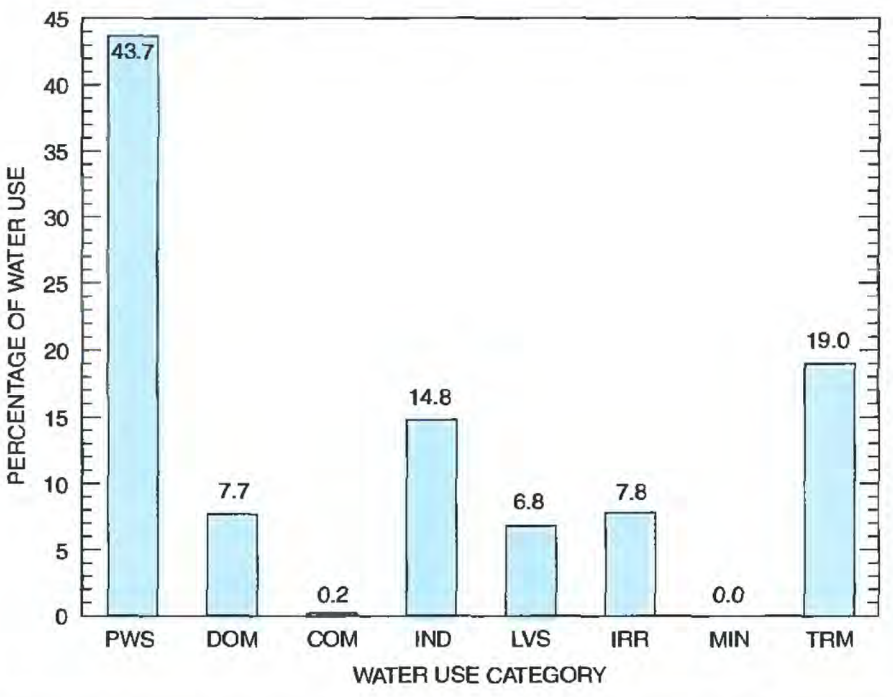
Water use, in million gallons per day

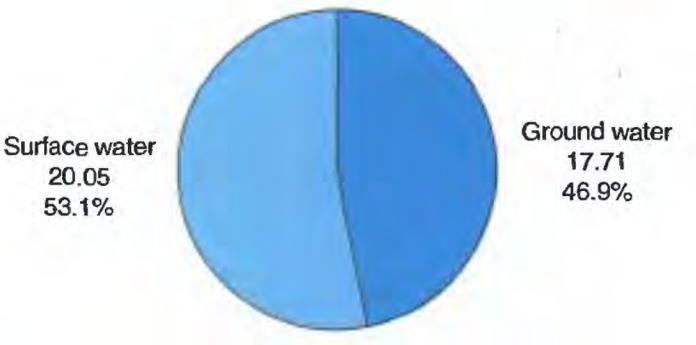
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.00	0.57	0.01	1.99	0.91	0.35	0.01	0.00
Surface water	5.42	0.00	0.00	0.21	0.49	1.97	0.00	0.00
Total	5.42	0.57	0.01	2.20	1.40	2.32	0.01	0.00

Population: 112,040
Acres irrigated: 2,290

ROBESON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 70,280
Hydroelectric power water use: 0 Mgal/d





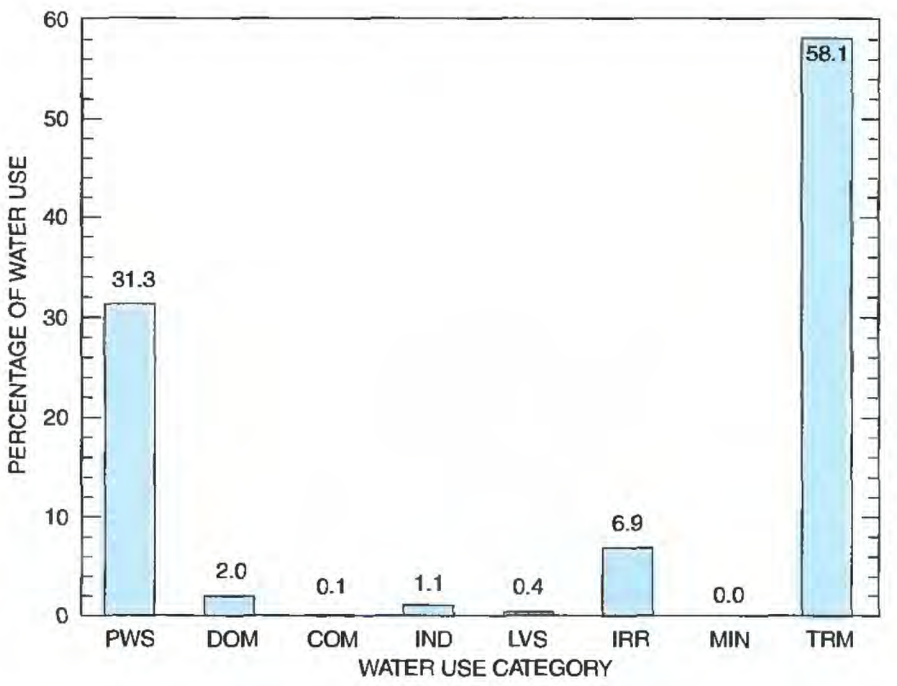
Water use, in million gallons per day

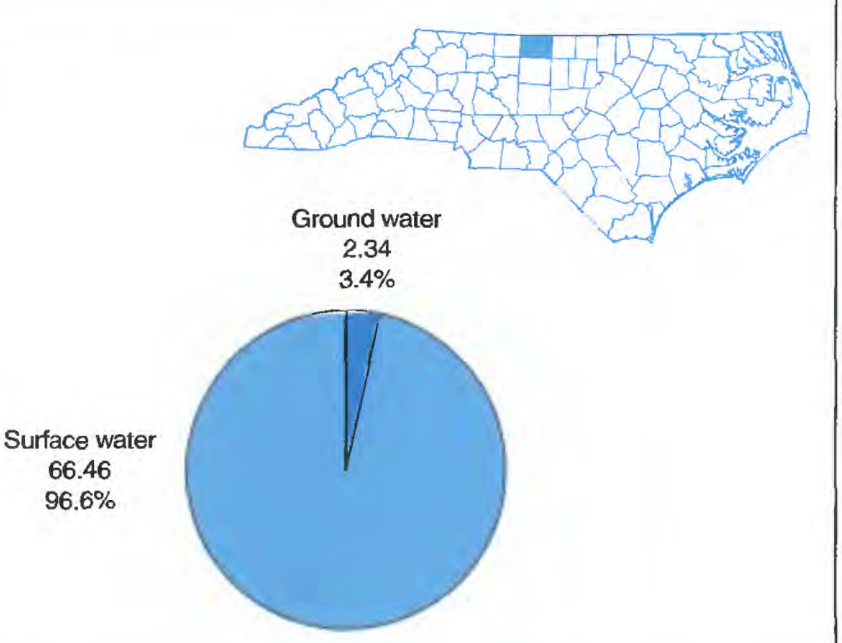
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	10.00	2.92	0.06	1.48	2.31	0.87	0.00	0.07
Surface water	6.50	0.00	0.00	4.11	0.26	2.08	0.00	7.10
Total	16.50	2.92	0.06	5.59	2.57	2.95	0.00	7.17

Population: 88,410
Acres irrigated: 4,740

ROCKINGHAM COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 68,600
Hydroelectric power water use: 0 Mgal/d





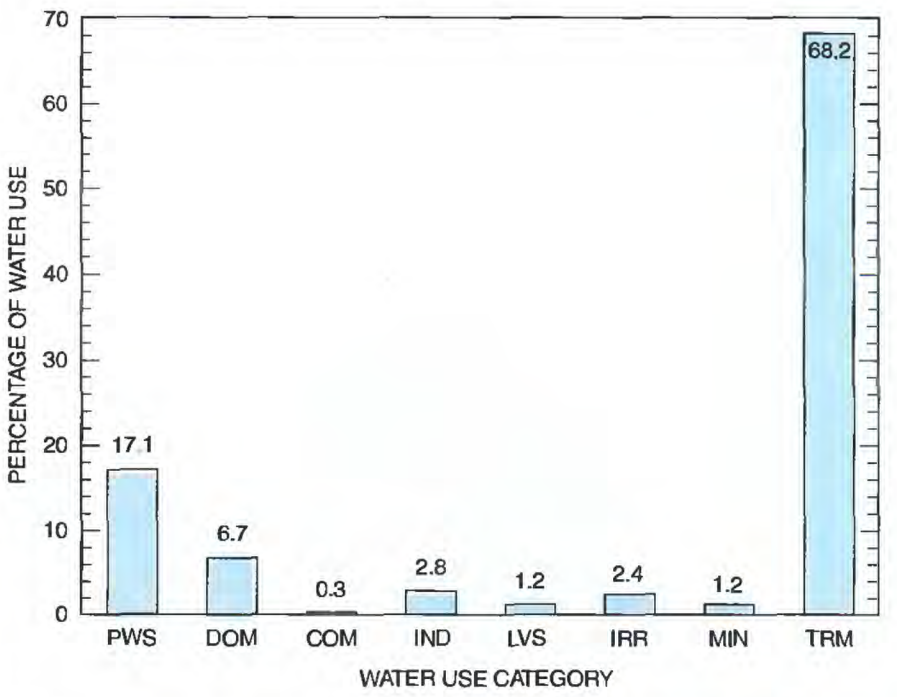
Water use, in million gallons per day

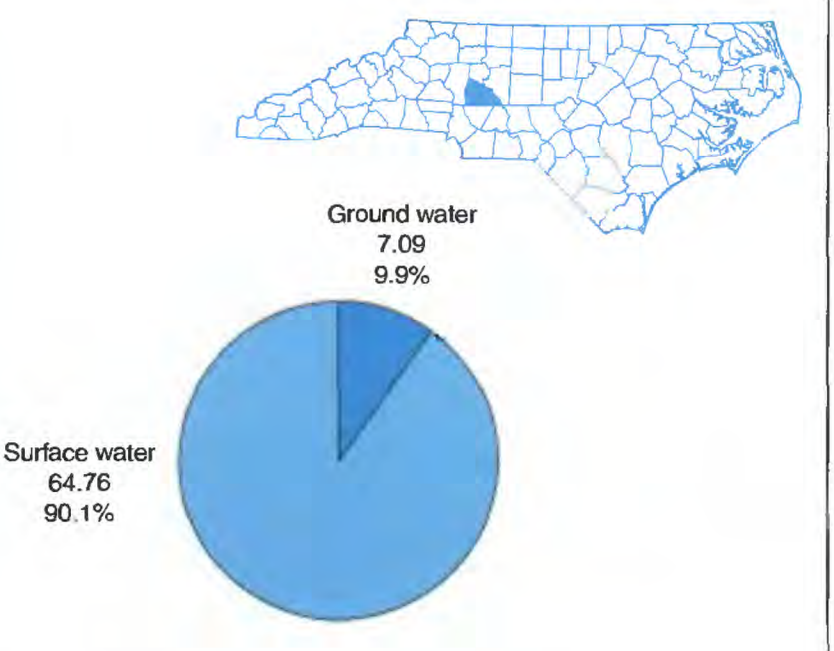
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.25	1.39	0.06	0.02	0.15	0.47	0.00	0.00
Surface water	21.25	0.00	0.00	0.77	0.15	4.29	0.00	40.00
Total	21.50	1.39	0.06	0.79	0.30	4.76	0.00	40.00

Population: 119,210
Acres irrigated: 1,180

ROWAN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 50,030
Hydroelectric power water use: 0 Mgal/d





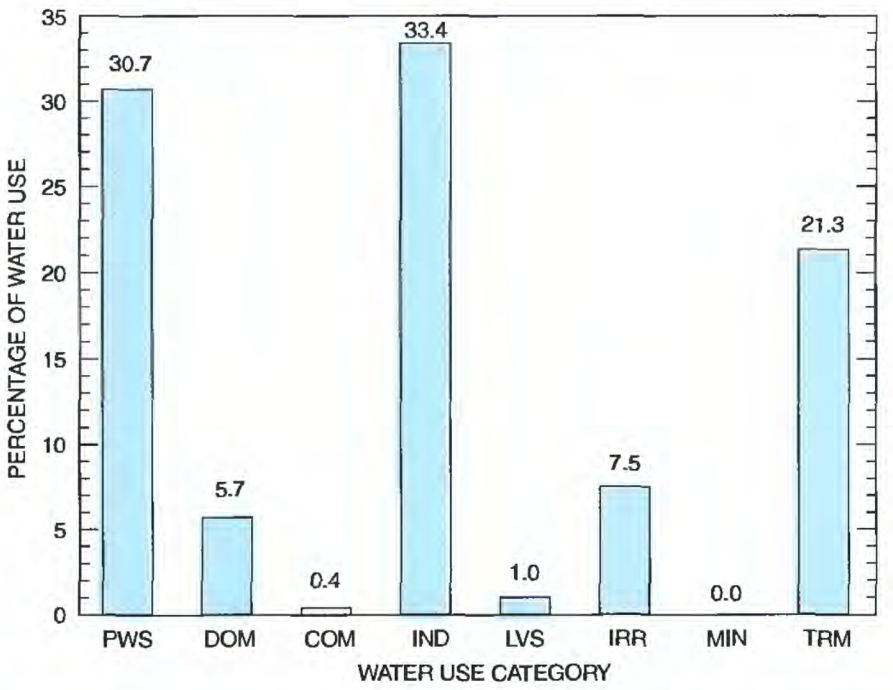
Water use, in million gallons per day

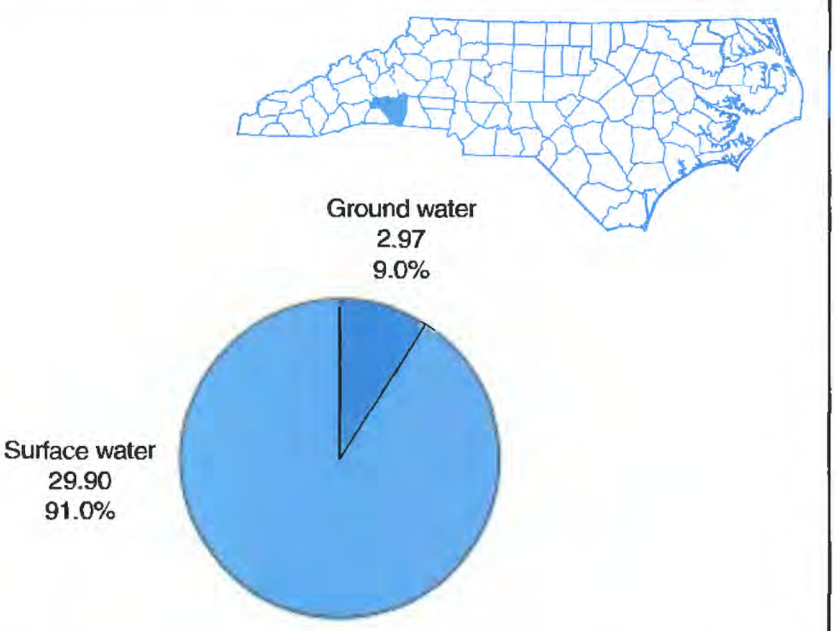
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.20	4.84	0.13	0.07	0.65	0.18	0.02	0.00
Surface water	11.06	0.00	0.10	1.95	0.21	1.58	0.86	49.00
Total	12.26	4.84	0.23	2.02	0.86	1.76	0.88	49.00

Population: 59,210
Acres irrigated: 1,020

RUTHERFORD COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 32,280
Hydroelectric power water use: 0 Mgal/d





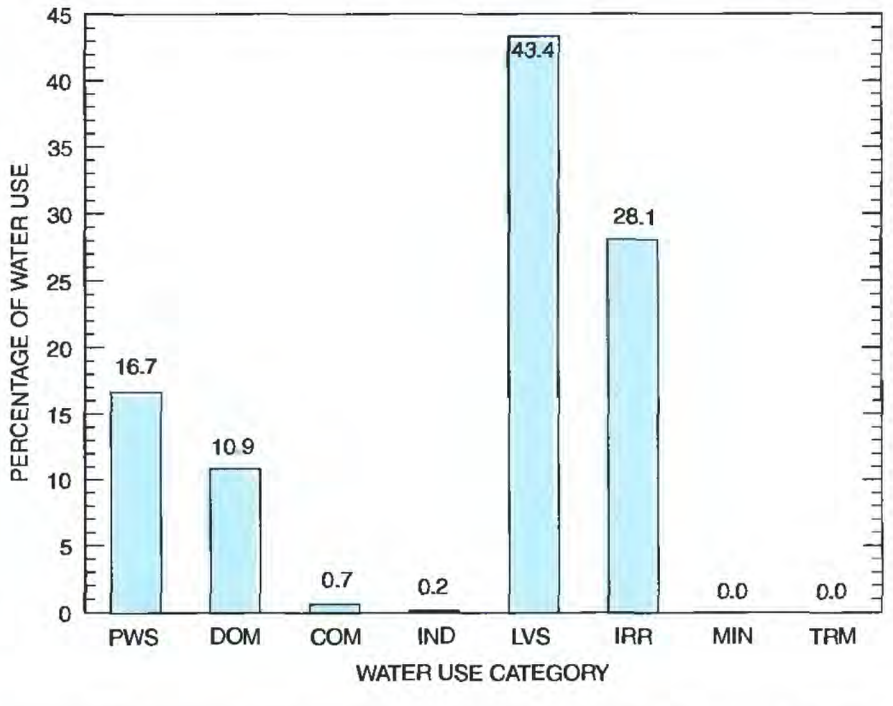
Water use, in million gallons per day

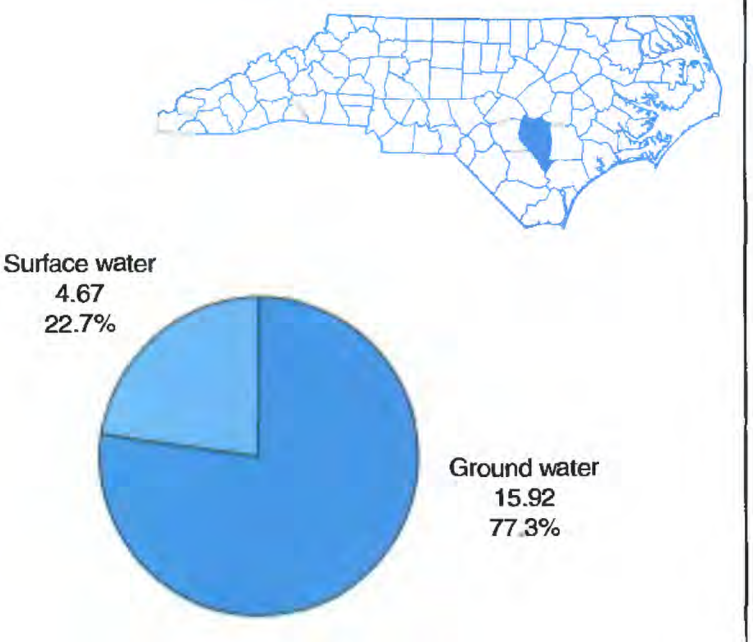
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.37	1.89	0.13	0.26	0.20	0.12	0.00	0.00
Surface water	9.72	0.00	0.00	10.71	0.14	2.33	0.00	7.00
Total	10.09	1.89	0.13	10.97	0.34	2.45	0.00	7.00

Population: 50,480
Acres irrigated: 8,470

SAMPSON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 18,370
Hydroelectric power water use: 0 Mgal/d





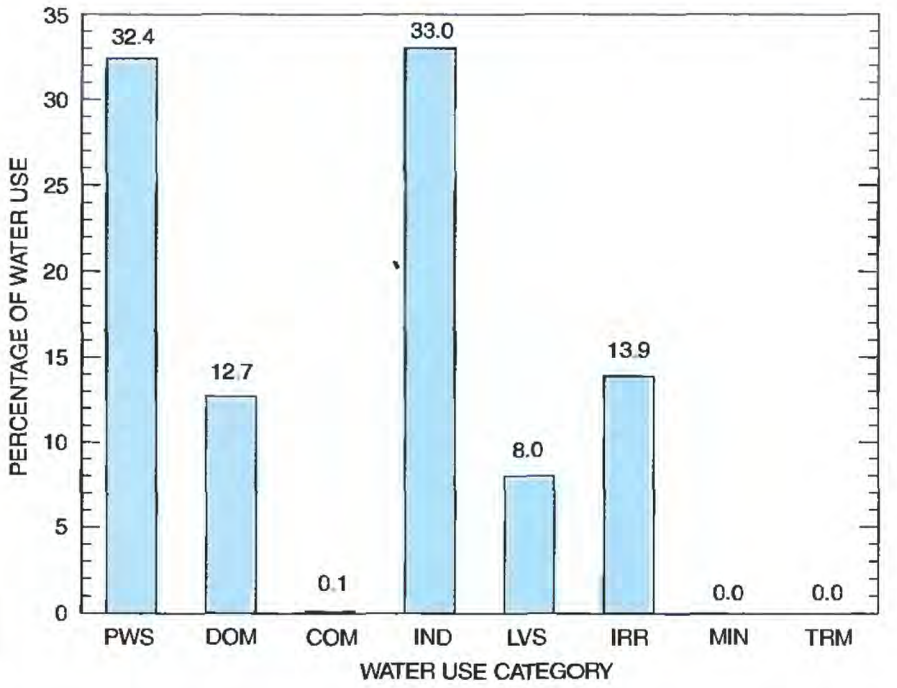
Water use, in million gallons per day

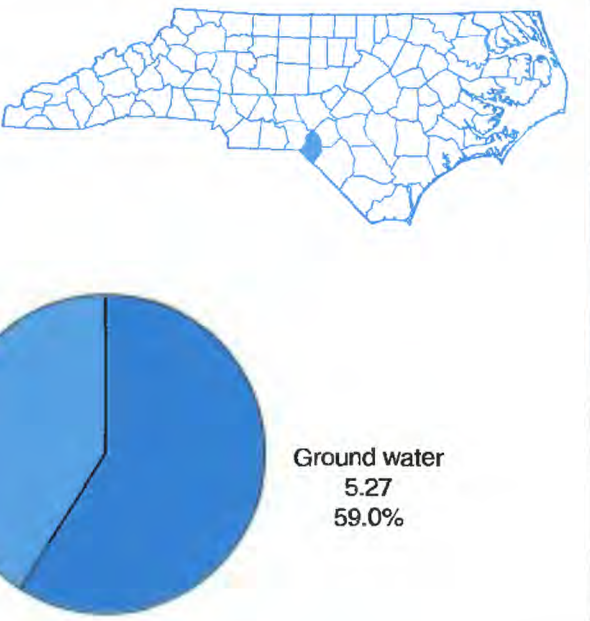
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	3.43	2.25	0.15	0.00	8.93	1.16	0.00	0.00
Surface water	0.00	0.00	0.00	0.05	0.00	4.62	0.00	0.00
Total	3.43	2.25	0.15	0.05	8.93	5.78	0.00	0.00

Population: 35,300
Acres irrigated: 370

SCOTLAND COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 19,170
Hydroelectric power water use: 0 Mgal/d





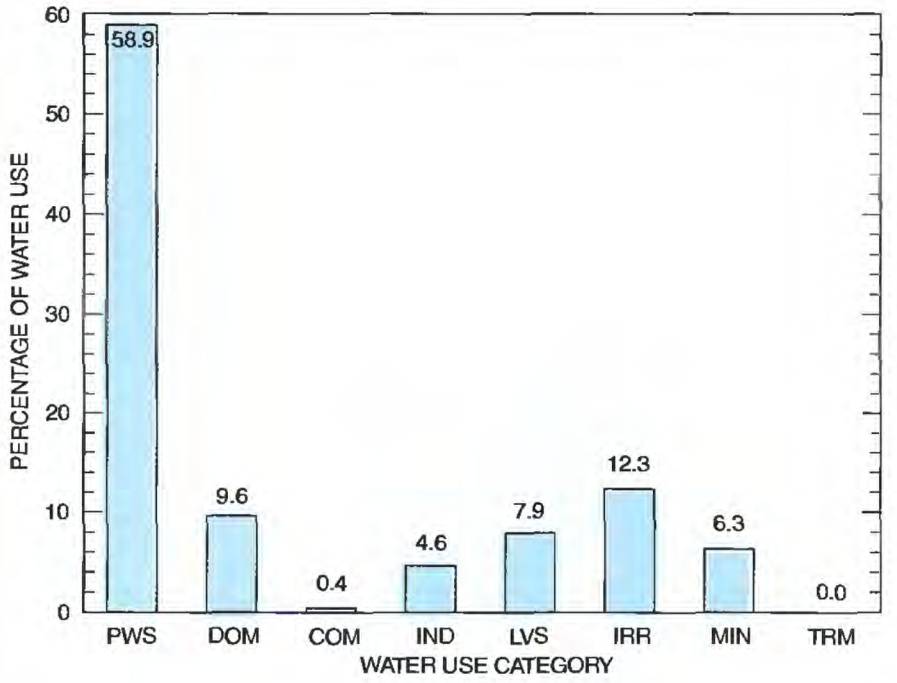
Water use, in million gallons per day

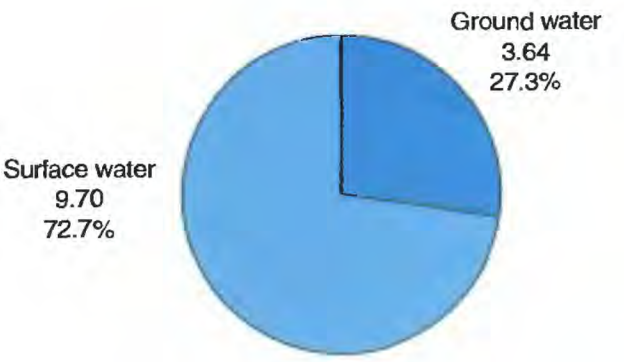
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.29	1.13	0.01	2.92	0.60	0.32	0.00	0.00
Surface water	2.60	0.00	0.00	0.03	0.11	0.92	0.00	0.00
Total	2.89	1.13	0.01	2.95	0.71	1.24	0.00	0.00

Population: 54,170
Acres irrigated: 920

STANLY COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 35,930
Hydroelectric power water use: 0 Mgal/d





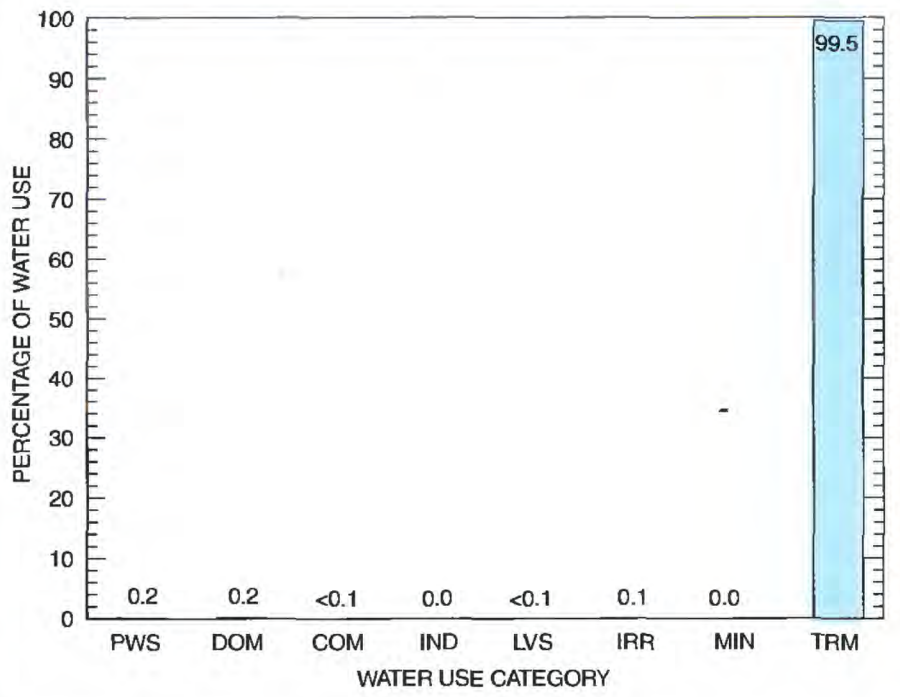
Water use, in million gallons per day

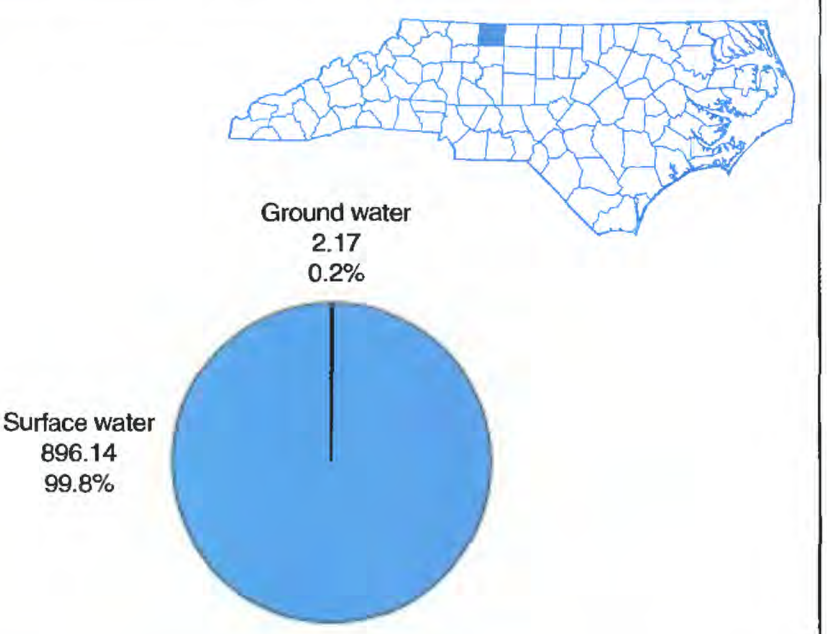
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.31	1.28	0.06	0.08	0.37	1.54	0.00	0.00
Surface water	7.55	0.00	0.00	0.53	0.68	0.10	0.84	0.00
Total	7.86	1.28	0.06	0.61	1.05	1.64	0.84	0.00

Population: 40,720
Acres irrigated: 650

STOKES COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 19,680
Hydroelectric power water use: 0 Mgal/d





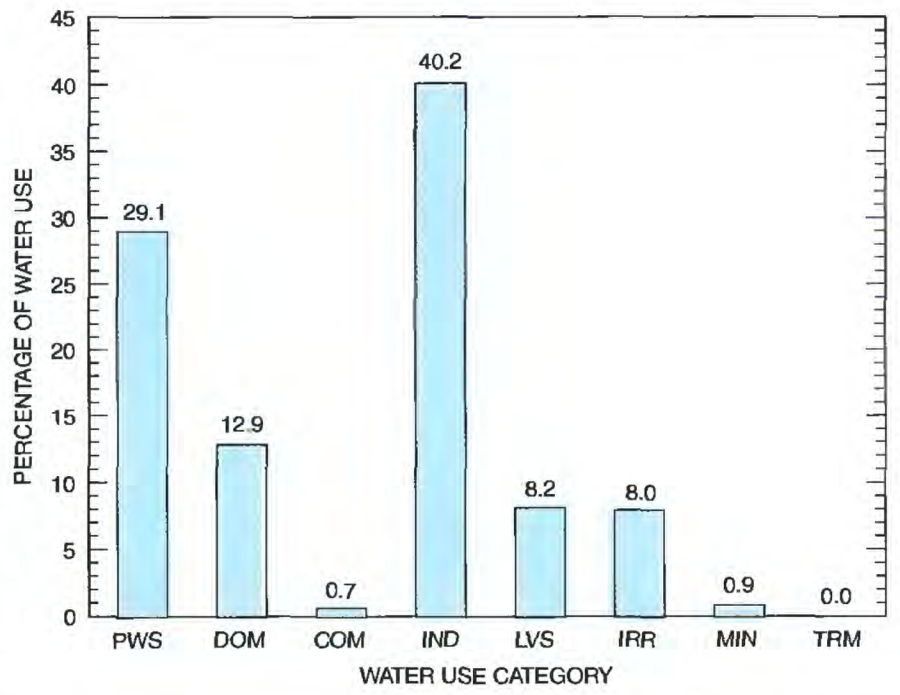
Water use, in million gallons per day

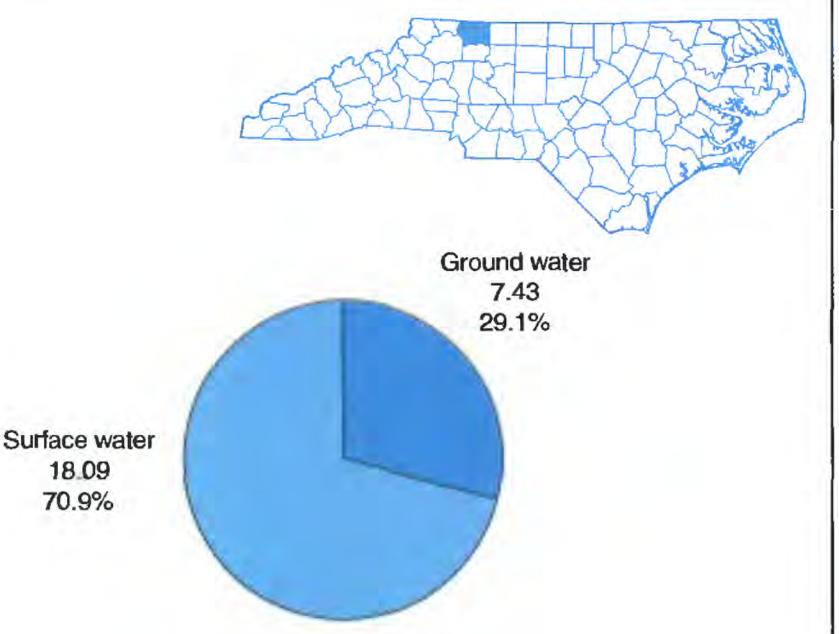
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.26	1.47	0.27	0.00	0.09	0.08	0.00	0.00
Surface water	1.27	0.00	0.00	0.00	0.17	0.70	0.00	894.00
Total	1.53	1.47	0.27	0.00	0.26	0.78	0.00	894.00

Population: 65,160
Acres irrigated: 1,300

SURRY COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 18,100
Hydroelectric power water use: 0 Mgal/d





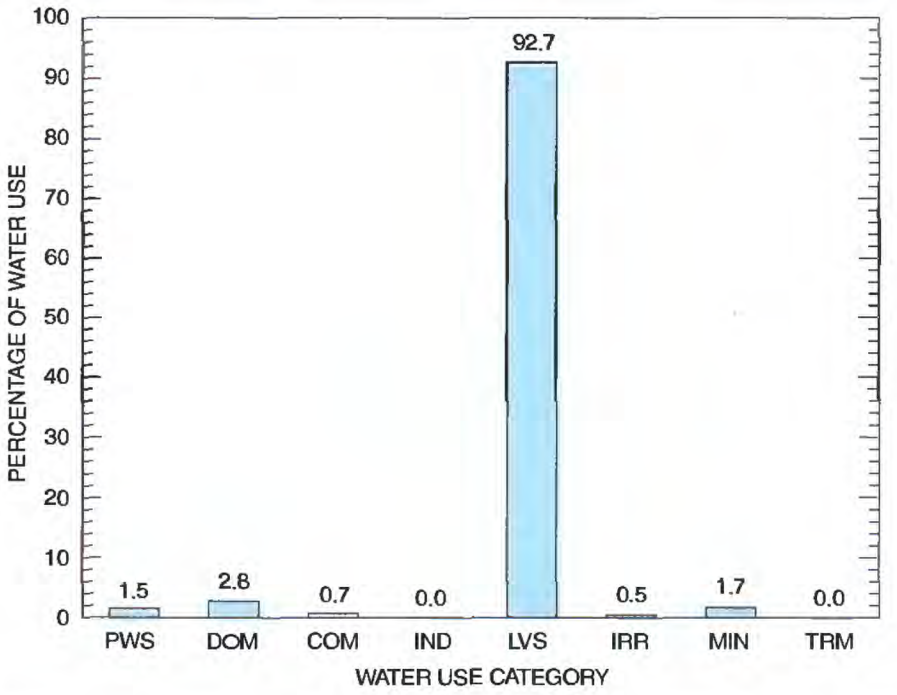
Water use, in million gallons per day

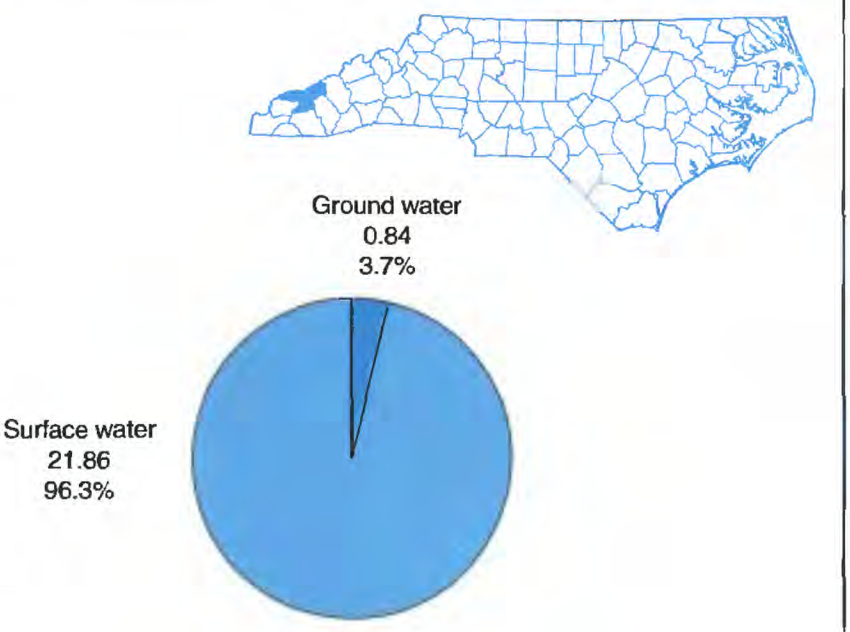
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.26	3.29	0.18	2.96	0.73	0.00	0.01	0.00
Surface water	7.16	0.00	0.00	7.30	1.35	2.05	0.23	0.00
Total	7.42	3.29	0.18	10.26	2.08	2.05	0.24	0.00

Population: 11,820
Acres irrigated: 110

SWAIN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 2,750
Hydroelectric power water use: 302.05 Mgal/d





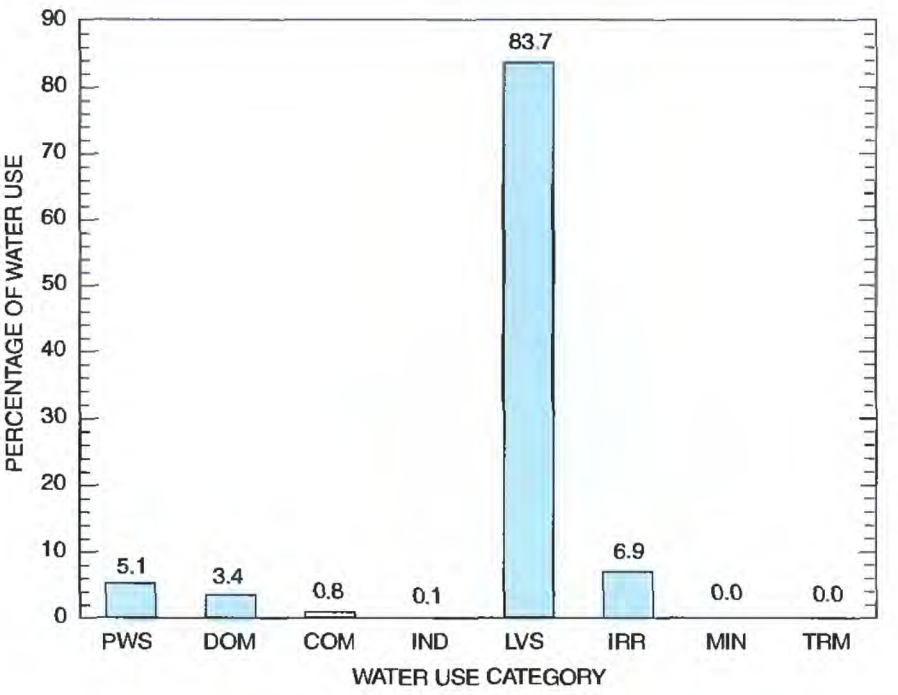
Water use, in million gallons per day

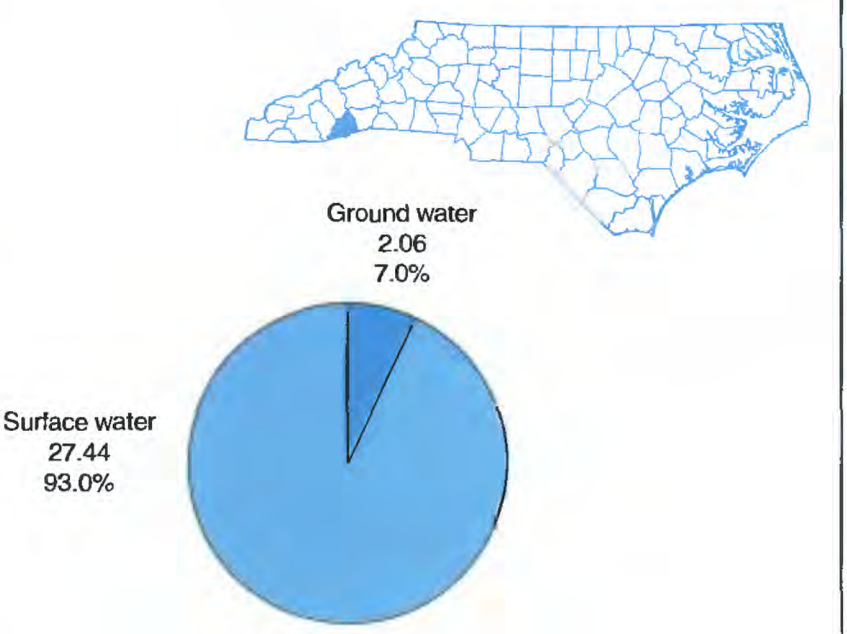
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.02	0.63	0.16	0.00	0.01	0.02	0.00	0.00
Surface water	0.33	0.00	0.00	0.00	21.04	0.10	0.39	0.00
Total	0.35	0.63	0.16	0.00	21.05	0.12	0.39	0.00

TRANSYLVANIA COUNTY
1995 WATER-USE SUMMARY

Population: 27,340
Acres irrigated: 870

Population served by public supply: 12,900
Hydroelectric power water use: 54.20 Mgal/d





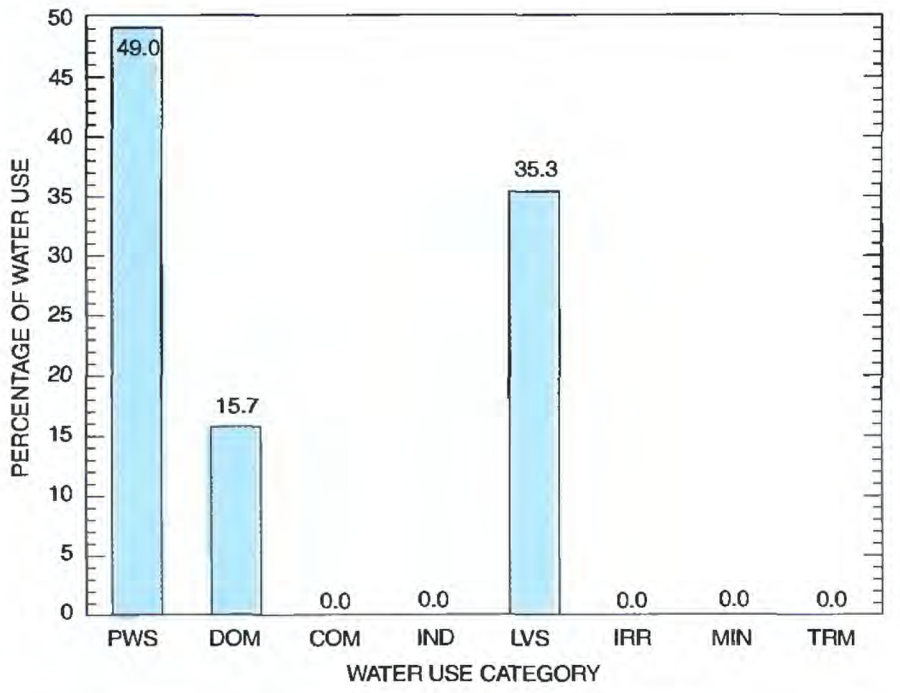
Water use, in million gallons per day

Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.51	1.01	0.13	0.00	0.03	0.38	0.00	0.00
Surface water	0.99	0.00	0.10	0.02	24.67	1.66	0.00	0.00
Total	1.50	1.01	0.23	0.02	24.70	2.04	0.00	0.00

Population: 3,890
Acres irrigated: 0

TYRRELL COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 2,760
Hydroelectric power water use: 0 Mgal/d



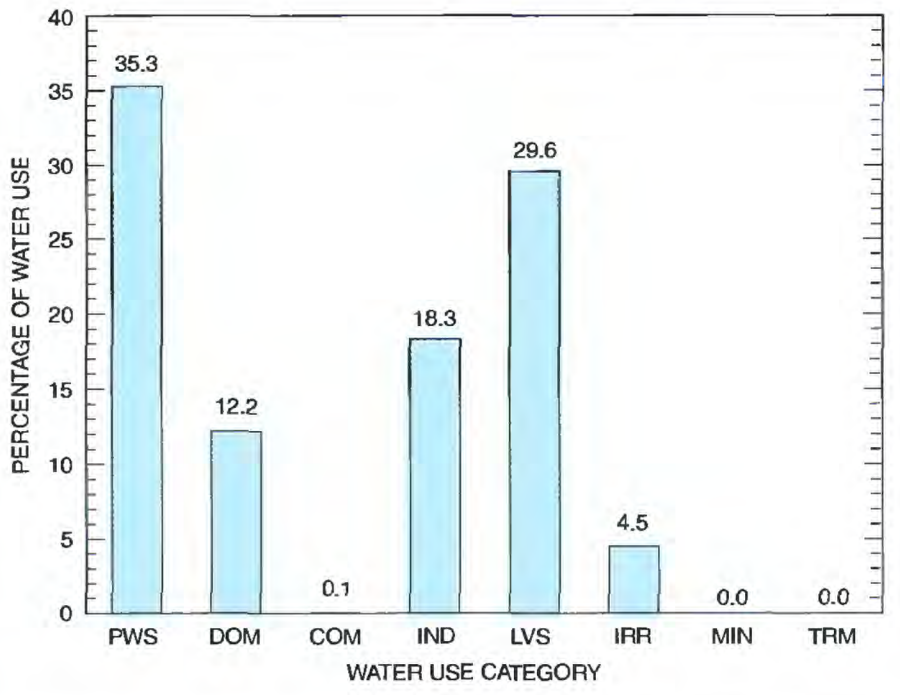
Water use, in million gallons per day

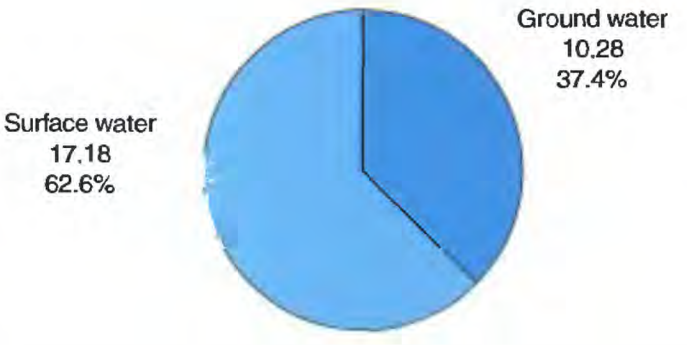
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.25	0.08	0.00	0.00	0.18	0.00	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total	0.25	0.08	0.00	0.00	0.18	0.00	0.00	0.00

Population: 99,160
Acres irrigated: 680

UNION COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 51,200
Hydroelectric power water use: 0 Mgal/d





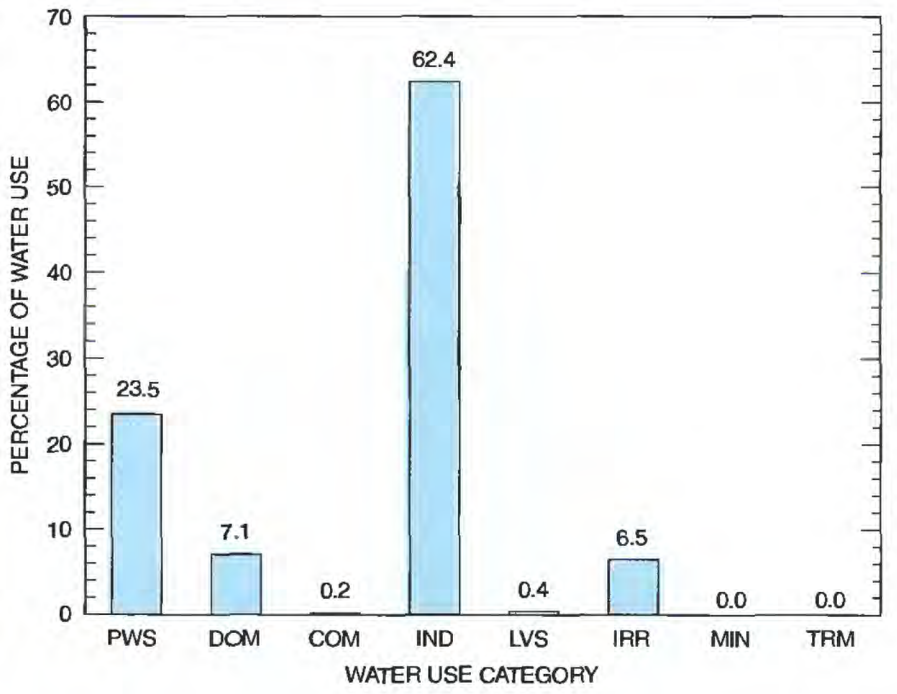
Water use, in million gallons per day

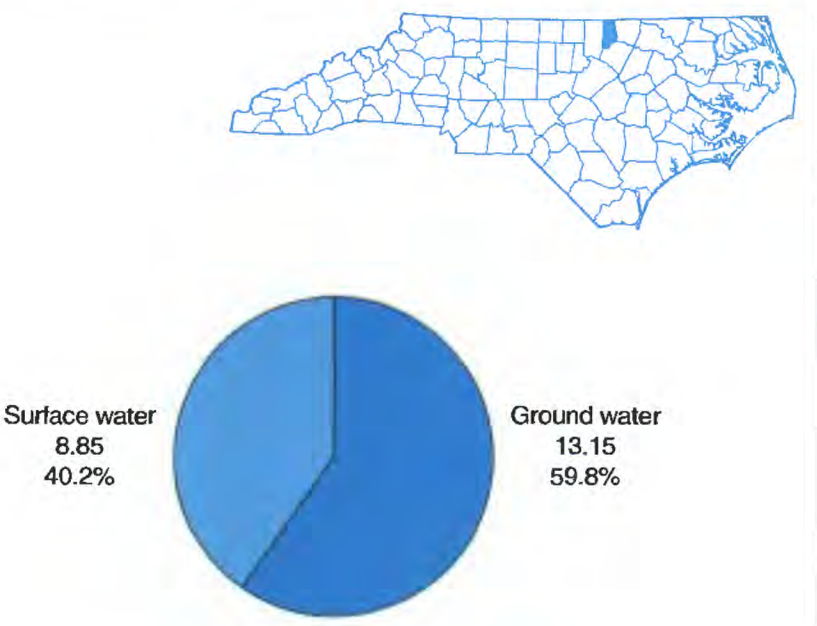
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.04	3.36	0.03	0.19	6.11	0.55	0.00	0.00
Surface water	9.64	0.00	0.00	4.83	2.03	0.68	0.00	0.00
Total	9.68	3.36	0.03	5.02	8.14	1.23	0.00	0.00

Population: 40,720
Acres irrigated: 1,470

VANCE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 18,410
Hydroelectric power water use: 0 Mgal/d





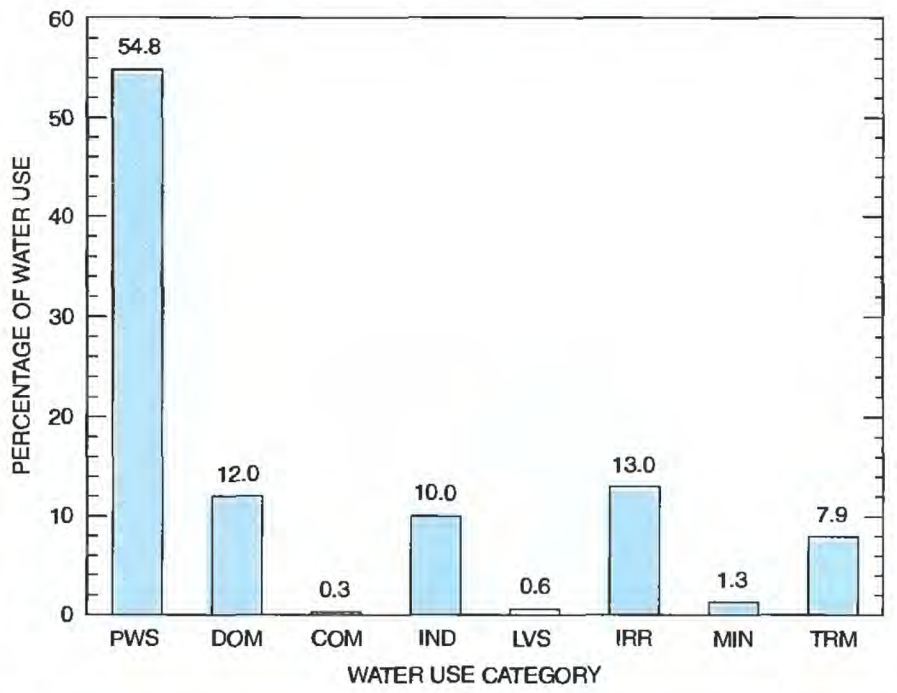
Water use, in million gallons per day

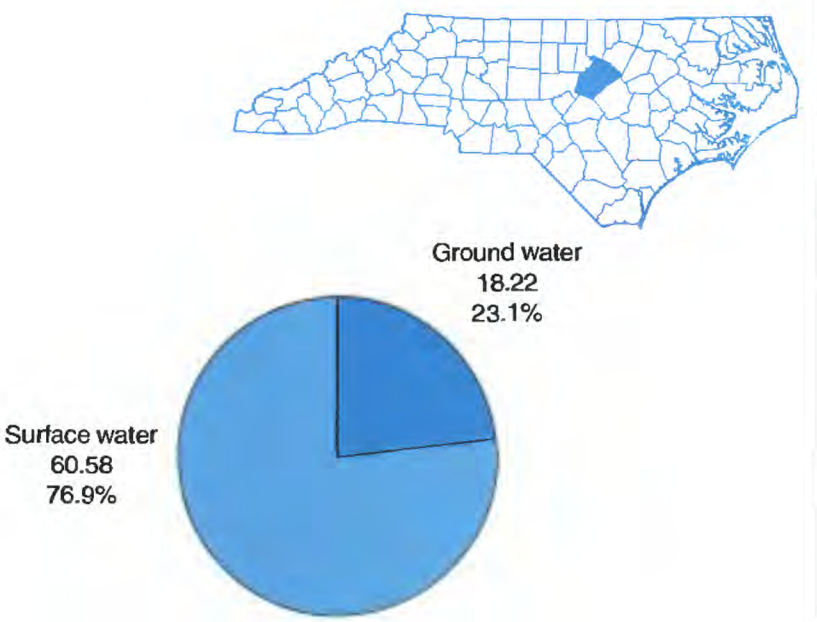
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.05	1.56	0.04	11.48	0.02	0.00	0.00	0.00
Surface water	5.11	0.00	0.00	2.25	0.06	1.43	0.00	0.00
Total	5.16	1.56	0.04	13.73	0.08	1.43	0.00	0.00

Population: 513,640
Acres irrigated: 5,160

WAKE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 378,330
Hydroelectric power water use: 0 Mgal/d





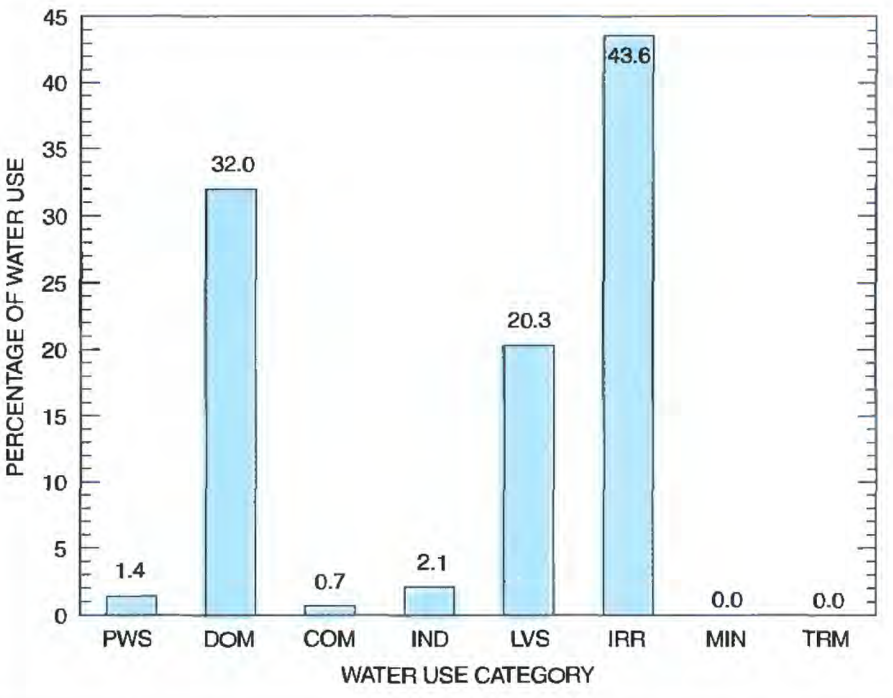
Water use, in million gallons per day

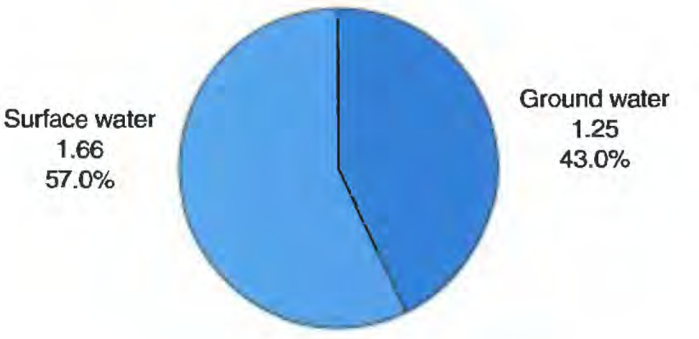
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	2.84	9.47	0.22	1.63	0.49	2.57	1.00	0.00
Surface water	40.38	0.00	0.03	6.28	0.02	7.65	0.00	6.22
Total	43.22	9.47	0.25	7.91	0.51	10.22	1.00	6.22

Population: 17,980
Acres irrigated: 1,400

WARREN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 4,750
Hydroelectric power water use: 0 Mgal/d





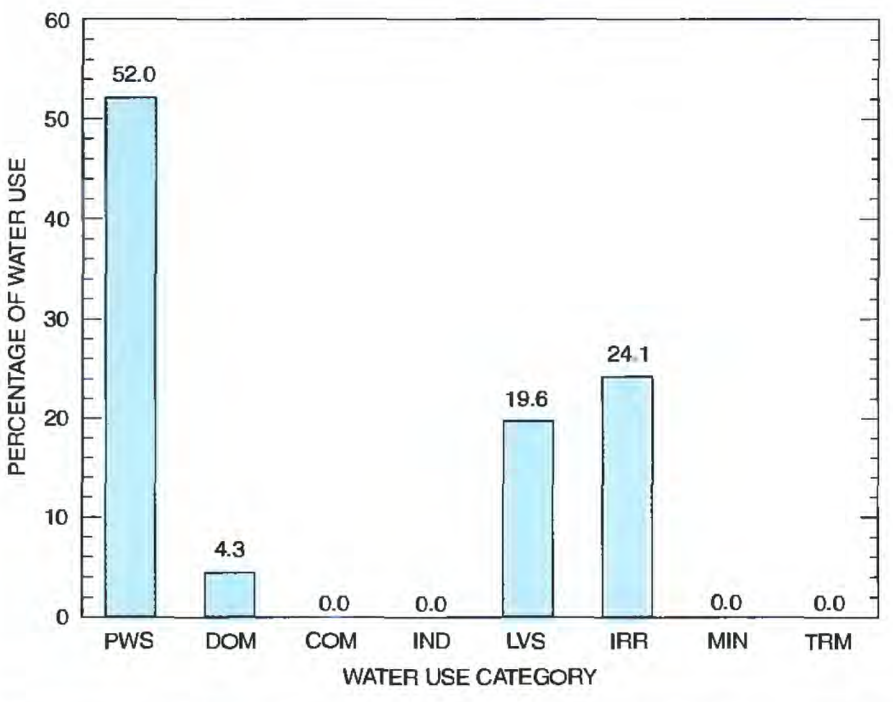
Water use, in million gallons per day

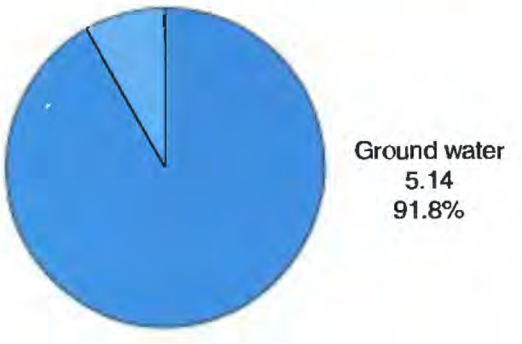
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.04	0.93	0.02	0.01	0.12	0.13	0.00	0.00
Surface water	0.00	0.00	0.00	0.05	0.47	1.14	0.00	0.00
Total	0.04	0.93	0.02	0.06	0.59	1.27	0.00	0.00

Population: 14,120
Acres irrigated: 2,060

WASHINGTON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 10,660
Hydroelectric power water use: 0 Mgal/d





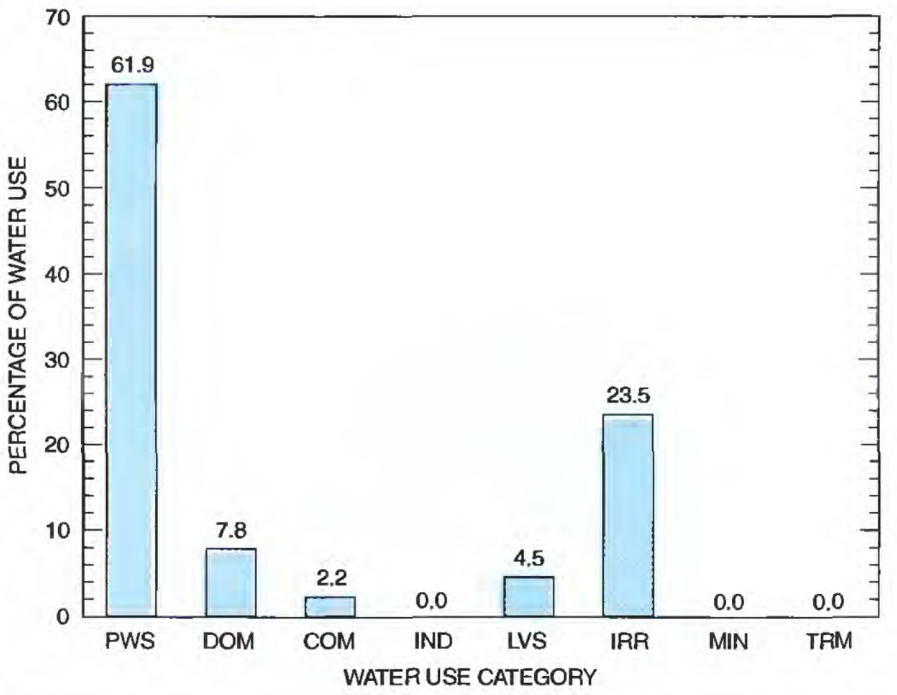
Water use, in million gallons per day

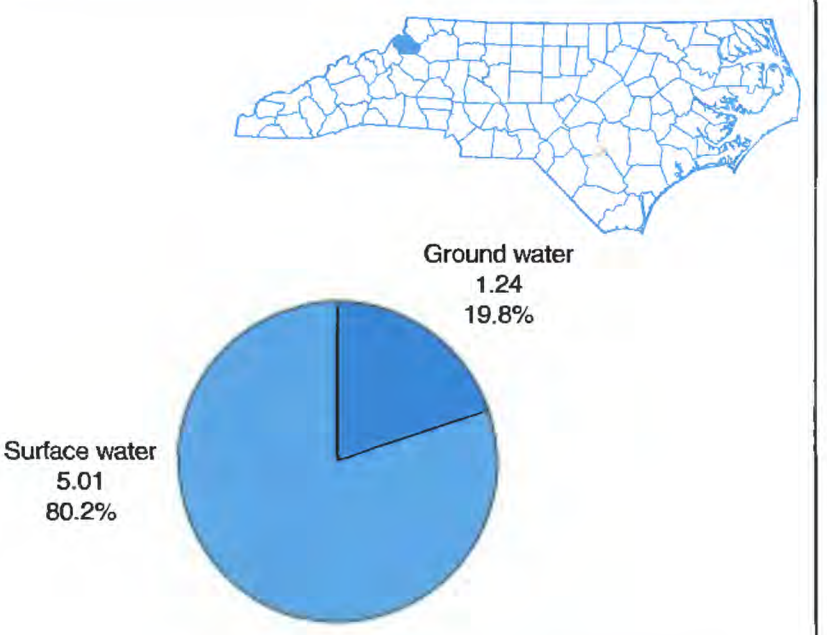
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	2.91	0.24	0.00	0.00	0.98	1.01	0.00	0.00
Surface water	0.00	0.00	0.00	0.00	0.12	0.34	0.00	0.00
Total	2.91	0.24	0.00	0.00	1.10	1.35	0.00	0.00

Population: 39,800
Acres irrigated: 610

WATAUGA COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 32,750
Hydroelectric power water use: 0 Mgal/d





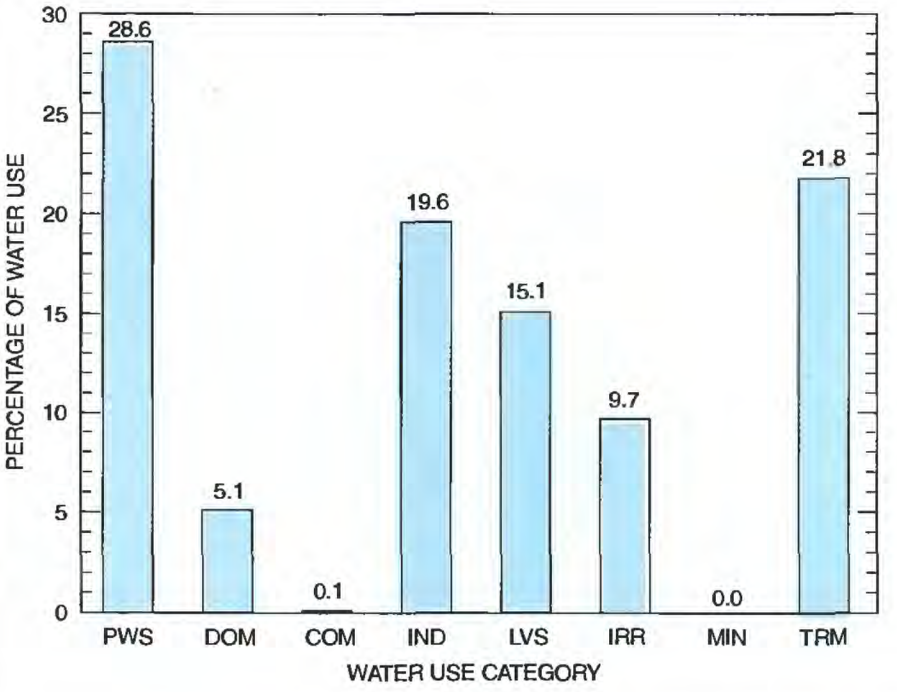
Water use, in million gallons per day

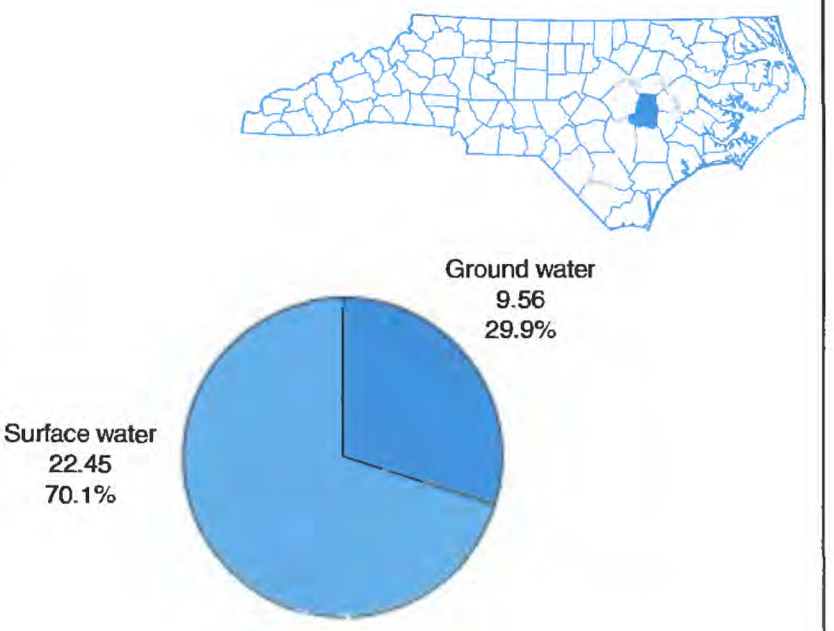
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.53	0.49	0.14	0.00	0.01	0.07	0.00	0.00
Surface water	3.34	0.00	0.00	0.00	0.27	1.40	0.00	0.00
Total	3.87	0.49	0.14	0.00	0.28	1.47	0.00	0.00

Population: 110,170
Acres irrigated: 2,030

WAYNE COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 86,780
Hydroelectric power water use: 0 Mgal/d





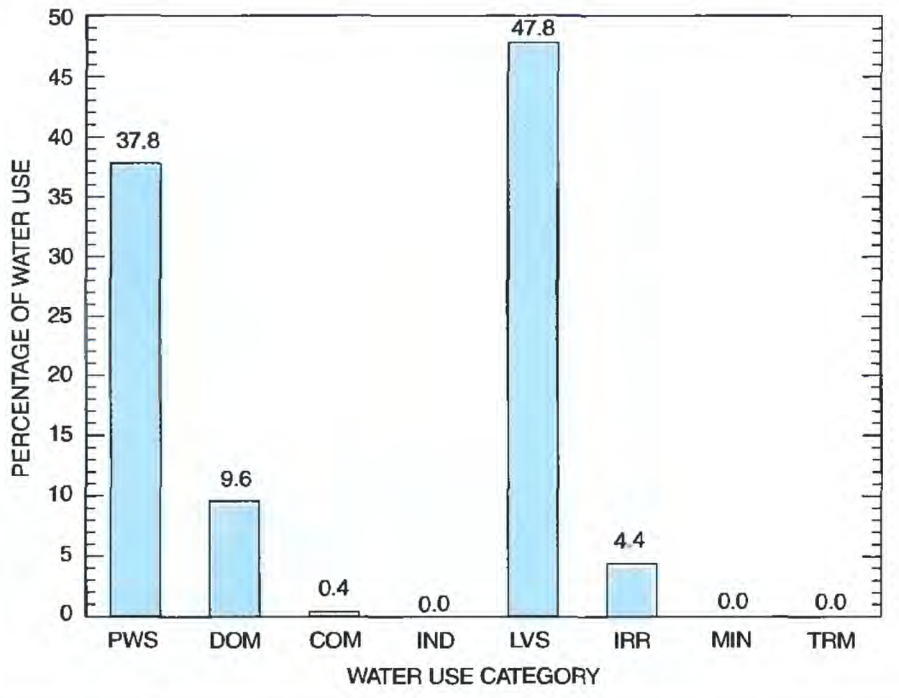
Water use, in million gallons per day

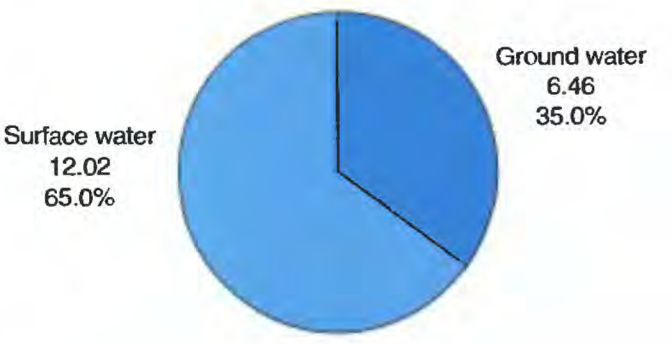
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	3.57	1.64	0.04	0.89	2.43	0.99	0.00	0.00
Surface water	5.58	0.00	0.00	5.37	2.41	2.12	0.00	6.97
Total	9.15	1.64	0.04	6.26	4.84	3.11	0.00	6.97

Population: 60,920
Acres irrigated: 380

WILKES COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 35,700
Hydroelectric power water use: 0 Mgal/d





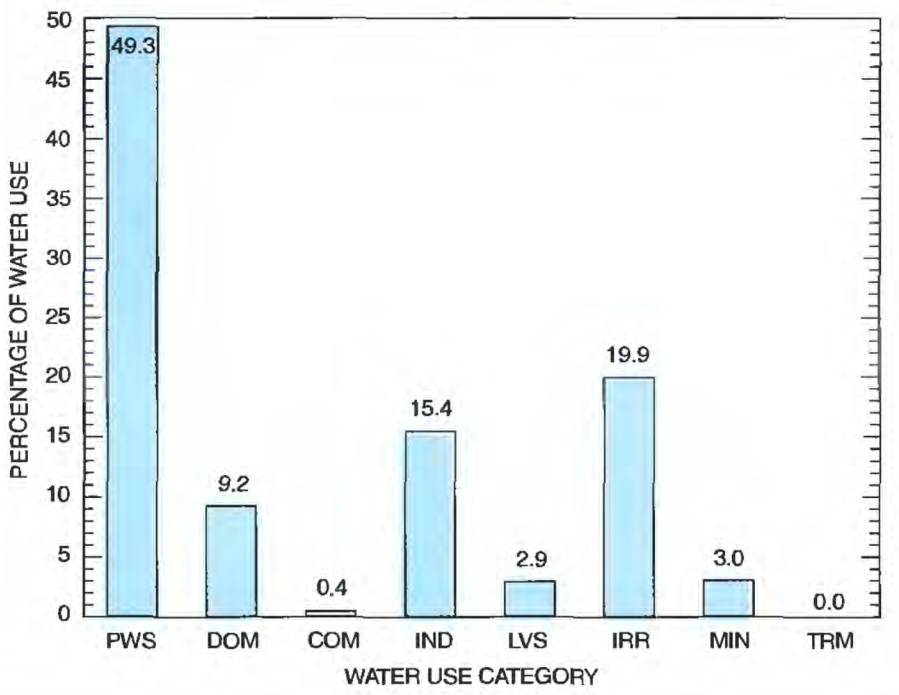
Water use, in million gallons per day

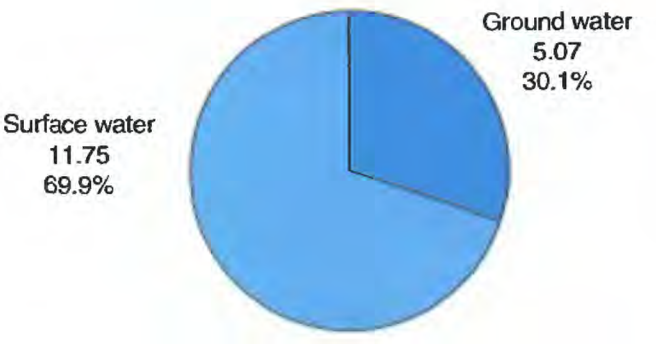
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.13	1.77	0.07	0.00	4.42	0.07	0.00	0.00
Surface water	6.86	0.00	0.00	0.00	4.42	0.74	0.00	0.00
Total	6.99	1.77	0.07	0.00	8.84	0.81	0.00	0.00

Population: 67,360
Acres irrigated: 1,850

WILSON COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 45,240
Hydroelectric power water use: 0 Mgal/d





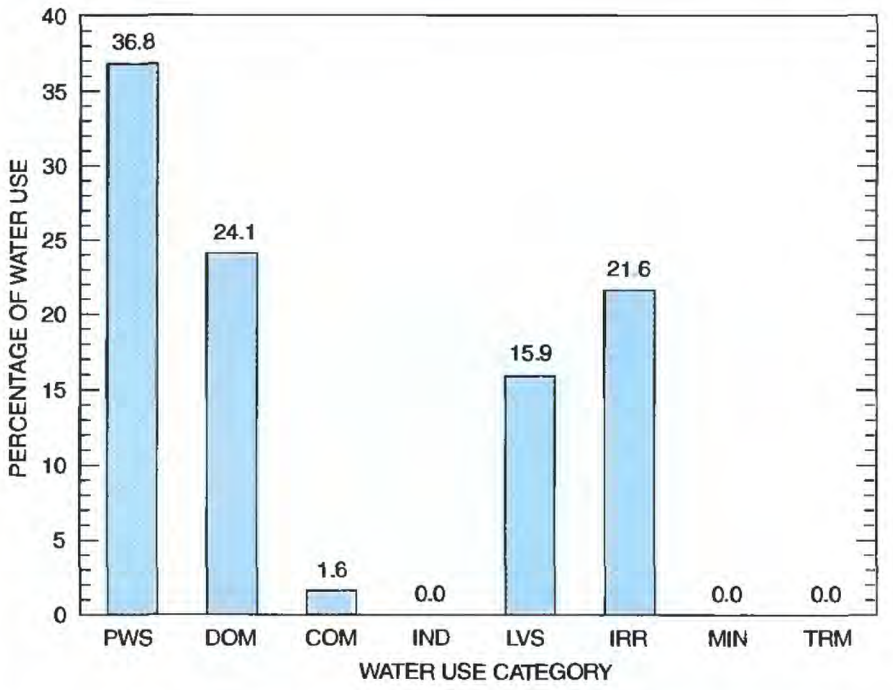
Water use, in million gallons per day

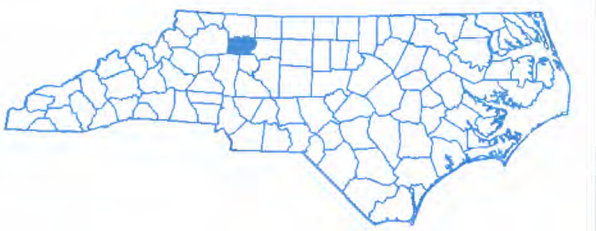
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.84	1.55	0.06	0.68	0.43	1.01	0.50	0.00
Surface water	7.46	0.00	0.00	1.91	0.05	2.33	0.00	0.00
Total	8.30	1.55	0.06	2.59	0.48	3.34	0.50	0.00

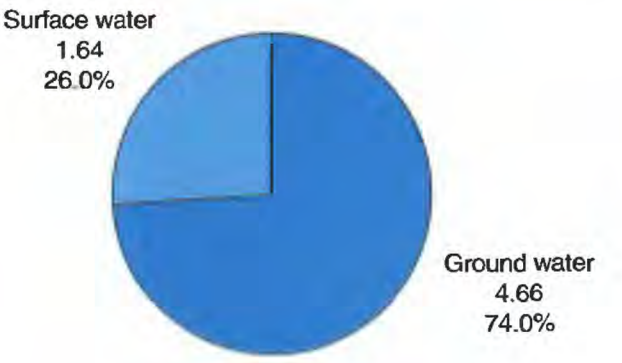
Population: 32,960
Acres irrigated: 1,310

YADKIN COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 11,240
Hydroelectric power water use: 0 Mgal/d







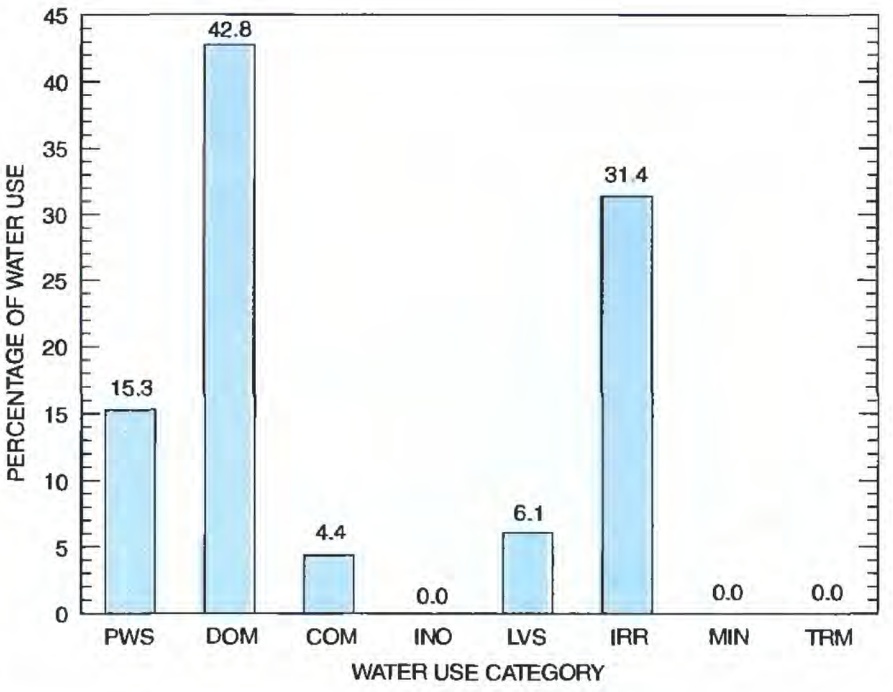
Water use, in million gallons per day

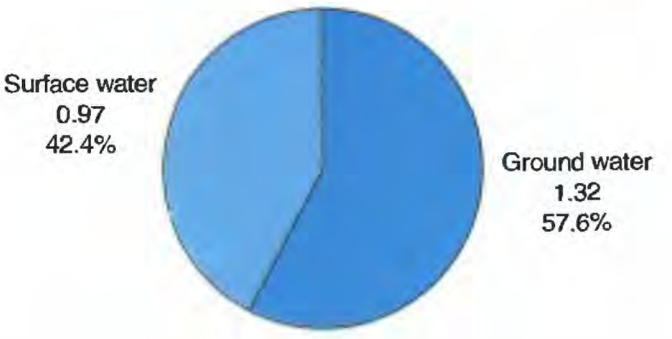
Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	1.19	1.52	0.10	0.00	0.50	1.35	0.00	0.00
Surface water	1.13	0.00	0.00	0.00	0.50	0.01	0.00	0.00
Total	2.32	1.52	0.10	0.00	1.00	1.36	0.00	0.00

Population: 16,240
Acres irrigated: 330

YANCEY COUNTY
1995 WATER-USE SUMMARY

Population served by public supply: 2,290
Hydroelectric power water use: 0 Mgal/d





Water use, in million gallons per day

Source	Public supply (PWS)	Domestic (DOM)	Commercial (COM)	Industry (IND)	Livestock (LVS)	Irrigation (IRR)	Mining (MIN)	Thermoelectric (TRM)
Ground water	0.03	0.98	0.10	0.00	0.03	0.18	0.00	0.00
Surface water	0.32	0.00	0.00	0.00	0.11	0.54	0.00	0.00
Total	0.35	0.98	0.10	0.00	0.14	0.72	0.00	0.00

GLOSSARY

Acres irrigated—The total number of acres of crops that were irrigated during the year.

Animal specialties—Water use associated with the production of fish in captivity except fish hatcheries, fur-bearing animals in captivity, horses, rabbits, and pets.

Commercial water use—Water for motels, hotels, restaurants, office buildings, and other commercial facilities and institutions, both civilian and military. The water may be obtained from a public-supply facility or may be self-supplied. See also public supply and self-supplied water.

Community water system—A water supplier that furnishes water for at least 25 people, or that has a minimum of 15 hookups.

Consumptive use—That part of water withdrawn that is evaporated, transpired, incorporated into products or crops, consumed by humans or livestock, or otherwise removed from the immediate water environment. Also referred to as water consumed.

Cooling water—Water used for cooling purposes, such as for condensers and nuclear reactors.

Delivery—The amount of water delivered to the point of use.

Domestic population served—The total number of people served by the public suppliers during the calendar year.

Domestic water use—Water used for household purposes, such as drinking, food preparation, bathing, washing clothes and dishes, flushing toilets, and watering lawns and gardens. Also called residential water use. The water may be obtained from a public-supply facility or may be self-supplied. See also public supply and self-supplied water.

Fossil-fuel power—Electrical power generated by using fossil-fuel (coal, oil, or natural gas) energy.

Freshwater—Water that contains less than 1,000 milligrams per liter (mg/L) of dissolved solids; generally, more than 500 mg/L of dissolved solids is undesirable for drinking and many industrial uses.

Gigawatt-hour (GWh)—One billion watt-hours.

Ground water—Generally all subsurface water as distinct from surface water; specifically, that part of the subsurface water in the saturated zone (a zone in which all voids are filled with water).

Hydroelectric-power generation water use—The use of water in the generation of electricity at plants where the turbine generators are driven by falling water; an instream use.

Industrial water use—Water used for industrial purposes, such as fabrication, processing, washing, and cooling, and includes such industries as steel, chemical and allied products, paper and allied products, and mining and petroleum refining. The water may be obtained from a public-supply facility or may be self-supplied. See also public supply and self-supplied water.

Instream use—Water use taking place within the stream channel for such purposes as hydroelectric-power generation, navigation, water-quality improvement, fish propagation, and recreation. Sometimes called non-withdrawal use or in-channel use.

Irrigation water use—Artificial application of water to lands to assist in the growing of crops and pastures or to maintain vegetative growth in commercial nurseries and recreational lands, such as parks and golf courses.

Kilowatt-hour (KWh)—One thousand watt-hours.

(Continued On Inside Back Cover)

COVER PHOTOGRAPH: Tristan Walters helping his brother Braden to a cool drink of water on a hot day at the pool.

GLOSSARY (Continued From Inside Front Cover)

Livestock water use—Water for stock watering, feed lots, dairy operations, fish farming, and other on-farm needs. Livestock as used here includes cattle, sheep, goats, hogs, and poultry. Also included are such animal specialties as horses, rabbits, bees, pets, fur-bearing animals in captivity, and fish in captivity.

Million gallons per day (Mgal/d)—A rate of flow of water.

Mining water use—Water use for the extraction of minerals occurring naturally, including solids, such as coal, clay, and ores; liquids, such as crude petroleum; and gases, such as natural gas. Also includes uses associated with quarrying for rock aggregates, such as sand and gravel, and well operations, milling (crushing, screening, washing, floatation, and other), and other preparations customarily done at the mine site or as part of a mining activity.

Noncommunity water system—A water supplier that furnishes water for less than 25 people and has less than 15 hookups.

Nuclear power—Electrical power generated using nuclear energy.

Offstream use—Water withdrawn and diverted from a ground- or surface-water source for public supply, domestic, commercial, industry, irrigation, livestock, thermoelectric-power generation, and other uses. Sometimes called off-channel use or withdrawal use.

Per capita use—The average amount of water used per person within a given unit area during a standard time period, generally per day.

Per capita withdrawals—The average amount of water withdrawn per person within a given unit area during a standard time period, generally per day.

Public supply—Water withdrawn by public and private water suppliers and delivered to groups of users. Public suppliers provide water for a variety of uses, such as domestic, commercial, thermoelectric power, industrial, and public water use. See also commercial water use, domestic water use, industrial water use, and public water use.

Public use and losses—The use of water for municipal functions, such as firefighting, street cleaning, and recreation, and losses resulting from the transfer of water and conveyance losses associated with leaky pipes in the distribution systems.

Public water use—Water supplied from a public supply and used for such purposes as firefighting, street washing, and municipal parks and swimming pools. See also public supply.

Reclaimed wastewater—Wastewater-treatment plant effluent that has been diverted or intercepted for reuse before it reaches a natural waterway or aquifer.

Saline water—Water that contains more than 1,000 mg/L of dissolved solids.

Self-supplied water—Water withdrawn from a ground- or surface-water source by a user rather than being obtained from a public-supply facility.

Spray irrigation—Artificial application of water by spray techniques to lands to assist in the growing of crops and pastures or to maintain vegetative growth in recreational lands.

Stock—Water use associated with the production of cattle, sheep, goats, hogs, and poultry. See also livestock water use.

Surface water—An open body of water, such as a stream or a lake.

Thermoelectric-power generation water use—Water used in the process of the generation of thermoelectric power. The water may be obtained from a public-supply facility or may be self-supplied. See also public supply and self-supplied water.

Watt-hour (Wh)—An electrical energy unit of measure equal to one watt of power supplied to or taken from an electrical circuit continuously for one hour.

Withdrawal—The amount of water withdrawn from a water source (ground or surface, fresh or saline). This is equivalent to "intake," "water diversion," or "pumpage," terms commonly used by industry, and for irrigation, and public supply, respectively. See also offstream use and self-supplied water.