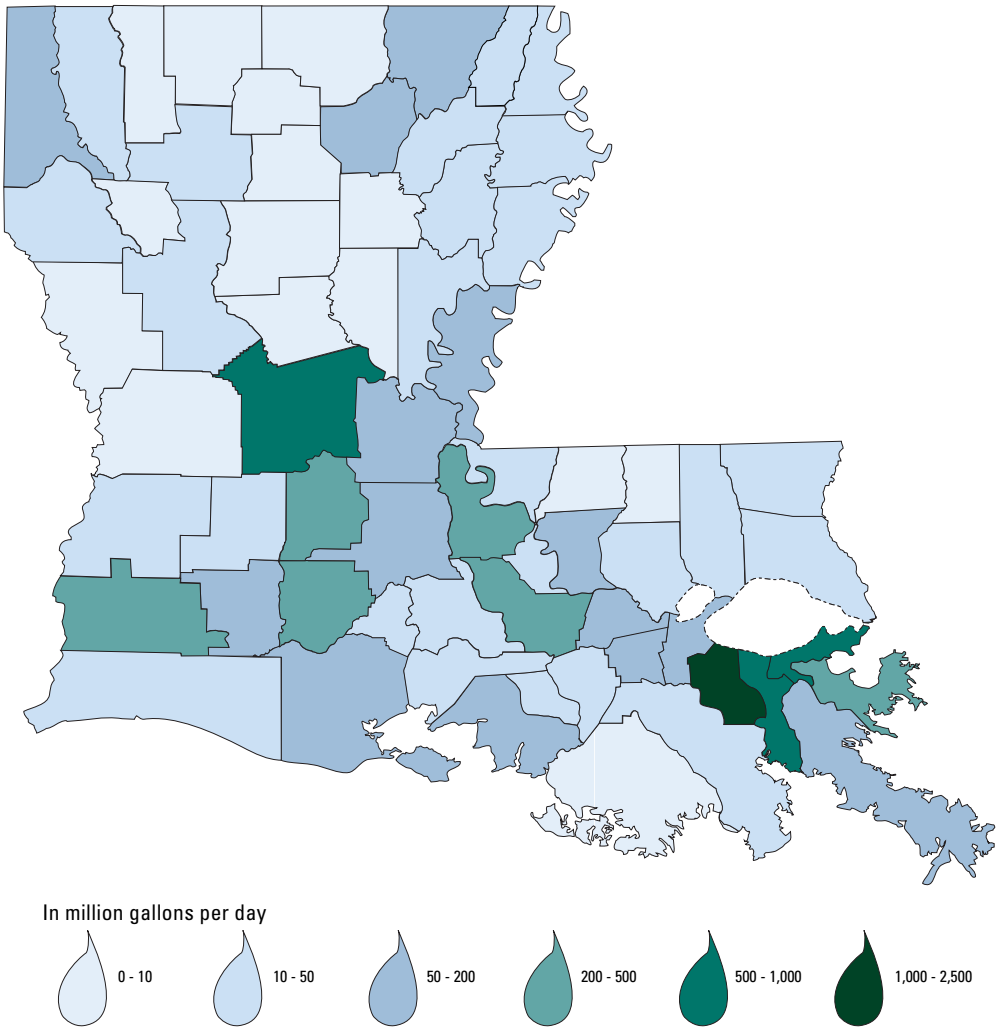
Water Use in Louisiana, 2010

DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
Water Resources Special Report No. 17 (Revised)



STATE OF LOUISIANA
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
PUBLIC WORKS AND WATER RESOURCES DIVISION

In cooperation with the
U.S. GEOLOGICAL SURVEY

2011 (Revised December 2012)

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U.S. DEPARTMENT OF THE INTERIOR

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WATER RESOURCES

SPECIAL REPORT NO. 17

WATER USE IN LOUISIANA, 2010

By

B. Pierre Sargent

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Conversion Factors and Abbreviated Water-quality Unit

Multiply	By	To obtain
acre	4,047	square meter
acre-foot (acre-ft)	0.00123	cubic hectometer
gallon per day (gal/d)	0.003785	cubic meter per day
mile (mi)	1.609	kilometer
million gallons per day (Mgal/d)	3,785	cubic meters per day
square mile (mi^2)	2.590	square kilometer

Abbreviated water-quality unit:
milligrams per liter (mg/L)

Water Use In Louisiana, 2010

By B. Pierre Sargent

Abstract

In 2010, approximately 8,500 million gallons per day (Mgal/d) of water was withdrawn from groundwater and surface-water sources in Louisiana. Total groundwater withdrawals were about 1,600 Mgal/d, and total surface-water withdrawals were about 7,000 Mgal/d. From 2005 to 2010, groundwater withdrawals in Louisiana increased by 1.8 percent, and surface-water withdrawals decreased by 19 percent. Total water withdrawals in Louisiana decreased by 17 percent from 2005 to 2010.

Water withdrawal totals in Mgal/d in 2010 for various categories of use were as follows: public supply—750, industry—2,100, power generation—4,400, rural domestic—41, livestock—8.0, rice irrigation—690, general irrigation—240, and aquaculture—300. From 2005 to 2010, changes in withdrawals, in percent, for the categories of use were as follows: public supply increased by 3.7, industry decreased by 33, power generation decreased by 14, rural domestic decreased by 6.1, livestock was unchanged, rice irrigation decreased by 13, general irrigation increased by 17, and aquaculture increased by 12.

Forty-one percent (about 650 Mgal/d) of all groundwater was withdrawn from the Chicot aquifer system, and 25 percent (about 390 Mgal/d) was withdrawn from the Mississippi River alluvial aquifer. Since 2005, withdrawals from the Chicot aquifer system decreased by 2.1 percent, and withdrawals from the Mississippi River alluvial aquifer increased by 2.7 percent. About 72 percent (5,000 Mgal/d) of all surface water withdrawn was from the Mississippi River mainstem. This value represents a 24 percent decrease in withdrawals from 2005 to 2010.

Introduction

Louisiana has a total land and water area of 52,000 square miles, and abundant water resources are located throughout the State. Every day, large amounts of water are withdrawn from natural sources for public-supply, industrial, power-generation, rural-domestic, livestock, irrigation, and aquaculture uses. Water-use data are essential to appraise the effects of present use and plan the future use of Louisiana's water resources. The U.S. Geological Survey (USGS), in cooperation with the Louisiana Department of Transportation and Development, has collected and published water-withdrawal and water-use information on a 5-year basis since 1960.

Purpose and Scope

This report presents data from a 2010 inventory of water withdrawals in Louisiana. The report presents information on withdrawals from groundwater and surface-water sources for use in public supply, industry, power generation, rural domestic, livestock, irrigation, and aquaculture for each parish in Louisiana. Included in the report are tables of water use by category, parish, aquifer, and surface-water basin. This report also presents trends in Louisiana water withdrawals based on data compiled on a 5-year report basis since 1960.

Data in this report, with the exception of irrigation data, are compiled from water withdrawals made during the 2009 calendar year. Withdrawals for irrigation are based on data from 2009 and 2010 and represent a composite of the 2 years. For purposes of this report, the amount and distribution of water used in 2010 is assumed to be the same as that for 2009. The data are limited by the accuracy of the information reported by the individual facilities or users. All water-use data presented in this report are on file at the USGS office in Baton Rouge, La.

Presentation of Data

The 2010 water-use data in this report are aggregated by category of use, parish, aquifer, and surface-water basin and compiled for water source (groundwater and surface water). The information is presented in several formats to offer a complete description of water use in Louisiana. The section entitled "Water Use by Category" describes the 2010 water withdrawals for public supply, industrial, power generation, rural domestic, livestock, irrigation, and aquaculture purposes.

Following this section are graphical and tabular data for each parish, major aquifer, and surface-water basin in Louisiana. Data for the 64 parishes (fig. 1) are presented by parish in alphabetical order. Water-use data for 13 major aquifers or aquifer systems are presented. Major aquifers and aquifer systems in Louisiana, in order of shallowest to deepest, include the Red River alluvial aquifer, Mississippi River alluvial aquifer, upland terrace aquifer (northern Louisiana), Chicot aquifer system, Chicot equivalent aquifer system (southeastern Louisiana), Evangeline aquifer, Evangeline equivalent aquifer system (southeastern Louisiana), Jasper aquifer system, Jasper equivalent aquifer system (southeastern Louisiana), Catahoula aquifer, Cockfield aquifer, Sparta aquifer, and the Carrizo-Wilcox aquifer (fig. 2). Water-use data also are presented for 10 surface water basins in Louisiana. In addition, the report contains sections on total water withdrawals and trends in water withdrawals in Louisiana since the 1960s.

In this report, water-use values presented in tables and figures have been rounded to two decimal places; water-use values presented in the text have been rounded to two significant figures; however, all totals and percentages presented in the report were calculated by using unrounded values stored in a water-use database at the USGS office in Baton Rouge, La. Because of this difference in rounding, totals and percentages presented in tables, figures, and text in the report may differ slightly from totals or percentages calculated by using rounded numbers in the report. Withdrawals that were less than 0.005 Mgal/d are not shown in tables or on figures but are included in calculations of percentages and totals. Withdrawals that were less than 0.005 Mgal/d, but greater than 0, are shown as 0.00 in tables; blank values in tables indicate that there were no withdrawals.

Previous Reports

The previous 5-year reports that have been published are as follows: Snider and Forbes (1961), Bieber and Forbes (1966), Dial (1970), Cardwell and Walter (1979), Walter (1982), Lurry (1987), Lovelace (1991), Lovelace and Johnson (1996), Sargent (2002), and Sargent (2007). In addition, Lurry (1985), and Stuart and Lurry (1988) discussed specific information about public water supplies in Louisiana, and Lovelace (1994) discussed water requirements for crawfish farming at selected sites in south-central Louisiana. Covay and others (1992) reported on water requirements for growing rice in southwestern Louisiana, 1985-86.

Acknowledgements

This report was made possible through the assistance and cooperation of personnel at public-supply, industrial, and power-generation facilities throughout Louisiana. Special thanks are given to Zahir "Bo" Bolourchi, Director, Water Resources Programs, Louisiana Department of Transportation and Development, who contributed substantially to the design and format of the report. Don C. Dial, Director, Capital Area Groundwater Conservation Commission, provided information on the five-parish area under the commission's jurisdiction. Bill Branch, Professor Emeritus, Department of Biological and Agricultural Engineering, Louisiana State University AgCenter, provided livestock, irrigation, and aquaculture information. Gary Snellgrove, Director of the Environmental Division, Louisiana Department of Natural Resources, Office of Conservation, assisted with the collection of water-use data associated with extraction of natural gas from the Haynesville Shale. The Sabine River Compact Administration provided information for the Sabine River-Toledo Bend Reservoir System. The Louisiana Public Service Commission provided lists of power-generation companies and public water-supply facilities, including information on name changes or changes in ownership. Johan Forsman, Geologist, Safe Drinking Water Program, Louisiana Department of Health and Hospitals, Office of Public Health, provided extensive information on active and inactive public suppliers. Additionally, special thanks are given to USGS employees, Colin M. Fontenot and Darlene M. Smothers, for their assistance.

Base map modified from Official Map of Louisiana, Department of Transportation and Development,1986

Figure 1. Parishes in Louisiana.

System	Series	Stratigraphic unit		Hydrogeologic unit: Northern Louisiana — Aquifer or confining unit	Central and southwestern Louisiana — Aquifer system or confining unit	Central and southwestern Louisiana — Aquifer or confining unit: Lake Charles area	Central and southwestern Louisiana — Aquifer or confining unit: Rice growing area	Southeastern Louisiana — Aquifer system or confining unit[1]	Southeastern Louisiana — Aquifer or confining unit[2]: Baton Rouge area	Southeastern Louisiana — Aquifer or confining unit[2]: St. Tammany, Tangipahoa, and Washington Parishes	Southeastern Louisiana — Aquifer or confining unit[2]: New Orleans area and lower Mississippi River Parishes[3]
Quaternary	Holocene — ? — Pleistocene	Red River alluvial deposits Mississippi River alluvial deposits		Red River alluvial aquifer or surficial confining unit Mississippi River alluvial aquifer or surficial confining unit	Units absent			Mississippi River alluvial aquifer or surficial confining unit	Mississippi River alluvial aquifer or surficial confining unit	Units absent	
		Northern Louisiana terrace deposits Unnamed Pleistocene deposits		Upland terrace aquifer or surficial confining unit	Chicot aquifer system or surficial confining unit	"200-foot" sand	Upper sand unit	Chicot equivalent aquifer system or surficial confining unit	Shallow sands Upland terrace aquifer "400-foot" sand "600-foot" sand	Upland terrace aquifer Upper Ponchatoula aquifer	Gramercy aquifer Norco aquifer Gonzales-New Orleans aquifer "1200-foot" sand
						"500-foot" sand "700-foot" sand	Lower sand unit				
Tertiary	Pliocene — ? — Miocene	Fleming Formation	Blounts Creek Member	Aquifers in Pliocene-Miocene sediments are absent in this area	Evangeline aquifer or surficial confining unit			Evangeline equivalent aquifer system or surficial confining unit	"800-foot" sand "1,000-foot" sand "1,200-foot" sand "1,500-foot" sand "1700-foot" sand	Lower Ponchatoula aquifer Kentwood aquifer Big Branch aquifer Abita aquifer Covington aquifer Slidell aquifer	
			Castor Creek Member		Castor Creek confining unit			Unnamed confining unit			
			Williamson Creek Member Dough Hills Member Carnahan Bayou Member		Jasper aquifer system or surficial confining unit	Williamson Creek aquifer Dough Hills confining unit Carnahan Bayou aquifer		Jasper equivalent aquifer system or surficial confining unit	"2,000-foot" sand "2,400-foot" sand "2,800-foot" sand	Tchefuncte aquifer Hammond aquifer Amite aquifer Ramsay aquifer Franklinton aquifer	
			Lena Member		Lena confining unit			Unnamed confining unit			
	— ? — Oligocene	Catahoula Formation			Catahoula aquifer			Catahoula equivalent aquifer system or surficial confining unit	Catahoula aquifer		
	Eocene	Vicksburg Group, undifferentiated		Vicksburg-Jackson confining unit	No freshwater occurs in deeper units						
		Jackson Group, undifferentiated									
		Claiborne Group	Cockfield Formation	Cockfield aquifer or surficial confining unit							
			Cook Mountain Formation	Cook Mountain aquifer or surficial confining unit							
			Sparta Sand	Sparta aquifer or surficial confining unit							
			Cane River Formation	Cane River aquifer or surficial confining unit							
			Carrizo Sand	Carrizo-Wilcox aquifer or surficial confining unit							
	Paleocene — ?	Wilcox Group, undifferentiated									
		Midway Group, Undifferentiated		Midway confining unit							

[1] The interval containing the four aquifer systems is called the Southern Hills aquifer system.
[2] Clay units separating aquifers in southeastern Louisiana are discontinuous, unnamed, and not listed herein.
[3] The interval containing the four aquifers is called the New Orleans aquifer system.

Louisiana Department of Transportation and Development — U.S. Geological Survey Water Resources Cooperative Program

Figure 2. Hydrogeologic units in Louisiana. (Modified from Lovelace and Lovelace, 1995)

Data Collection

Water-withdrawal information for public-supply, industrial, and power-generation facilities primarily was obtained directly from the facilities. A master list was created by combining lists from several sources. The main source for public water system information was the United States Environmental Protection Agency's Safe Drinking Water Information System (U. S. Environmental Protection Agency, 2011), which provided contact information for all the active water suppliers in a parish and identified whether the water source was groundwater or surface water. A list of industrial facilities was compiled from the "2009 Directory of Louisiana Manufacturers" (Carlsen, 2008).

Water-withdrawals for rural domestic and livestock uses were estimated based on population data and per-capita water-use rates. Rural-domestic populations for each parish were based on U.S. Census Bureau (1993, 2011) estimates of populations not served by a public supply. Livestock populations for each parish were compiled by the Louisiana Cooperative Extension Service (2010) for calendar year 2009.

Water withdrawals for irrigation were estimated based on crop acreage in each parish and irrigation application rates. Acreage data for all crops, with the exception of cotton, were compiled by the Louisiana Cooperative Extension Service (2010) for calendar year 2009. Acreage data for cotton were from the U.S. Department of Agriculture's 2008 Farm and Ranch Irrigation Survey (National Agricultural Statistics Service, 2008). Irrigation application rates for each parish were estimated based on data from the Farm and Ranch Irrigation Survey for 2008 (National Agricultural Statistics Service, 2008) and unpublished data provided by Bill Branch, Professor Emeritus, Department of Biological and Agricultural Engineering, Louisiana State University (oral communication, May 4, 2011).

Water withdrawals for aquaculture were based on reported and estimated use. Water withdrawals at bait farms and fish hatcheries were obtained directly from the facilities. Water withdrawals for crawfish, catfish, and alligator farms were estimated for each parish using acreage or other production data compiled by the Louisiana Cooperative Extension Service (2010) for the 2009 calendar year and water application rates. Application rates were obtained from Louisiana Cooperative Extension Service county agents and aquaculture specialists. Dr. Jimmy Avery (Louisiana Cooperative Extension Service, oral commun., 1995) provided information about crawfish application rates. Dr. Greg Lutz (Louisiana Cooperative Extension Service, oral commun., 1995) provided information about catfish production. Larry McNease (Louisiana Department of Wildlife and Fisheries, oral commun., 1995) provided data and insights on the estimation of water used at alligator farms.

Water-use information was compiled and divided into two groups—site-specific and aggregate. The information for public supply, industrial, and power-generation facilities was collected on a site-specific basis, that is, the location of the facility and source of water was known and recorded with the withdrawal data. Information for rural-domestic, livestock, irrigation, and aquaculture withdrawals was estimated on a parish-wide basis, without knowledge of each user's exact location or source of water. This type of information is referred to as "aggregated withdrawals." Sources of groundwater and surface water used for rural-domestic, livestock, irrigation, and aquaculture withdrawals were estimated based water-well inventory information and data reported by farmers and county agents for previous water-use data compilations. Water well inventories provided by the Louisiana Department of Natural Resources (Dustin Ewing, Louisiana Department of Natural Resources, written commun., 2010) were used to distribute aggregated groundwater withdrawals in each parish among appropriate aquifers. Aggregated surface-water withdrawals in each parish were distributed among hydrologic basins based on the percent of the parish within each basin.

All the water-use information was entered into a database at the USGS office in Baton Rouge, La. All withdrawal data in this report were retrieved from the USGS database and are expressed in millions of gallons per day (Mgal/d). Seasonal withdrawals, such as for irrigation and sugar cane processing, were prorated for the entire year.

Most, but not all of the uses of water described in this report require freshwater. For the purposes of this report, freshwater is defined as water having 250 milligrams per liter (mg/L) or less of chloride, and most of the water withdrawals described in this report were assumed to be fresh (U.S. Environmental Protection Agency, 2009). However, in some areas of Louisiana, especially near the Gulf of Mexico, historical data on file at the USGS indicate that chloride concentrations in water being withdrawn could exceed 250 mg/L. Collection and presentation of chloride concentrations in water withdrawn was beyond the scope of this study.

Water Use By Category

Water use refers to water withdrawn or diverted from a groundwater or surface-water source and used for public supply, industry, power generation, rural domestic, livestock, irrigation, or aquaculture purposes. The following definitions clarify water-use terms in this report:

Public-supply withdrawal refers to water withdrawn and delivered to a group of users by public or private water suppliers. For this report, a public water supply is defined as one that serves at least 25 people or has a minimum of 15 service connections on a year-round basis. The water is used for a variety of purposes such as domestic, commercial, industrial, or public water needs.

Industrial withdrawal refers to water withdrawn for industrial purposes such as process and production, boiler feed, air conditioning, cooling, sanitation, washing, and steam generation. Water for industrial uses at facilities requiring relatively large amounts of water as part of industrial processes is obtained from self-supplied withdrawals (100 percent). Industrial facilities requiring lesser amounts of water are typically supplied from public-supply water facilities.

Power-generation withdrawal refers to water withdrawn for thermoelectric power-generation purposes such as cooling, sanitation, washing, and steam generation. Use of water for hydroelectric power generation is considered an in-stream use and not a withdrawal. Therefore, hydroelectric power-generation use is not included in surface-water withdrawals in this report but is reported as an in-stream use.

Once-through cooling refers to the one-time use of water for cooling and other industrial uses. Water used in this manner is usually returned to the source and little, if any, water is consumed.

Rural-domestic withdrawal refers to water withdrawn by a person or family for personal home use. These users are often in rural areas where public supplies are unavailable.

Livestock withdrawal refers to water withdrawn for use in the production of cattle, horses, sheep, swine, poultry, and other animals. The water can be used for livestock consumption, sanitation, and other on-farm needs.

Irrigation refers to any withdrawal of water applied to the land to assist in the growing of vegetation. This use includes application to field crops (such as rice, corn, and cotton), fruit crops, nurseries, and nonagricultural applications such as the watering of golf courses and sporting fields.

Aquaculture withdrawal refers to the withdrawal of water for purposes such as fish, crawfish, and alligator farming. In-stream fish farming is not included in this category.

In-stream use refers to the use of surface water without removal from its natural environment. Common in-stream uses include hydroelectric power generation, fishing, and navigation. In-stream use is not included in surface-water totals of this report.

Standard Industrial Classification (SIC) is a standard used by Federal agencies for the classification of establishments by type of activity. In 1987, a SIC revision was promulgated by the U.S. Office of Management and Budget to facilitate comparisons of economic statistics by the various government agencies (Office of Management and Budget, 1987). This SIC version was used as the reference for industrial classification in this report.

Public Supply

Approximately 3.9 million people, or 87 percent of Louisiana's total population of 4.5 million in 2010 (U.S. Census Bureau, 2011), used about 750 Mgal/d of water provided by public suppliers (fig. 3). This water accounted for about 8.7 percent of the total water withdrawn in the State. Per capita use for Louisiana was 190 gallons per day (gal/d). Of the 750 Mgal/d, about 380 Mgal/d was from groundwater sources, and about 370 Mgal/d was from surface-water sources. Of these approximately 3.9 million people, about 50 percent were provided with water from a groundwater source, and about 50 percent were provided with water from a surface-water source.

All the major freshwater aquifers or aquifer systems in Louisiana were utilized as sources of public-supply water. In northern Louisiana, the chief source of groundwater was the Sparta aquifer, which provided 9.1 percent of the groundwater used for public supply in the State. In southwestern Louisiana, the Chicot aquifer system was the major source of groundwater, providing 26 percent of the State total for public supply. In southeastern Louisiana, the Evangeline equivalent and Jasper equivalent aquifer systems provided 19 percent and 20 percent of groundwater used for public supply in the State.

The Mississippi River was the greatest source of surface water for public supply. In 2010, about 240 Mgal/d of Mississippi River water was provided primarily to parishes in southeastern Louisiana, where fresh groundwater supplies are limited or unavailable for public supply. This amount represents 66 percent of the total surface-water withdrawals for public supply in Louisiana. Cross Lake, in Caddo Parish, supplied the second largest amount (12 percent) of surface water for public supply in the State. Twenty-two other surface-water bodies provided the remaining 22 percent of withdrawals. In 2010, 343,829 people lived in Orleans Parish, which had the greatest surface-water withdrawals, about 150 Mgal/d, by public suppliers (fig. 4) and the third largest parish population in the State (U.S. Census Bureau, 2011).

Some industries obtain all or part of the water they need from public suppliers. Public suppliers reported that about 46 Mgal/d was supplied to industries in 46 parishes. The greatest amount of water supplied by public suppliers to industries (18 Mgal/d) was in Jefferson Parish. Table 1 lists public supply withdrawals used by industries in each parish.

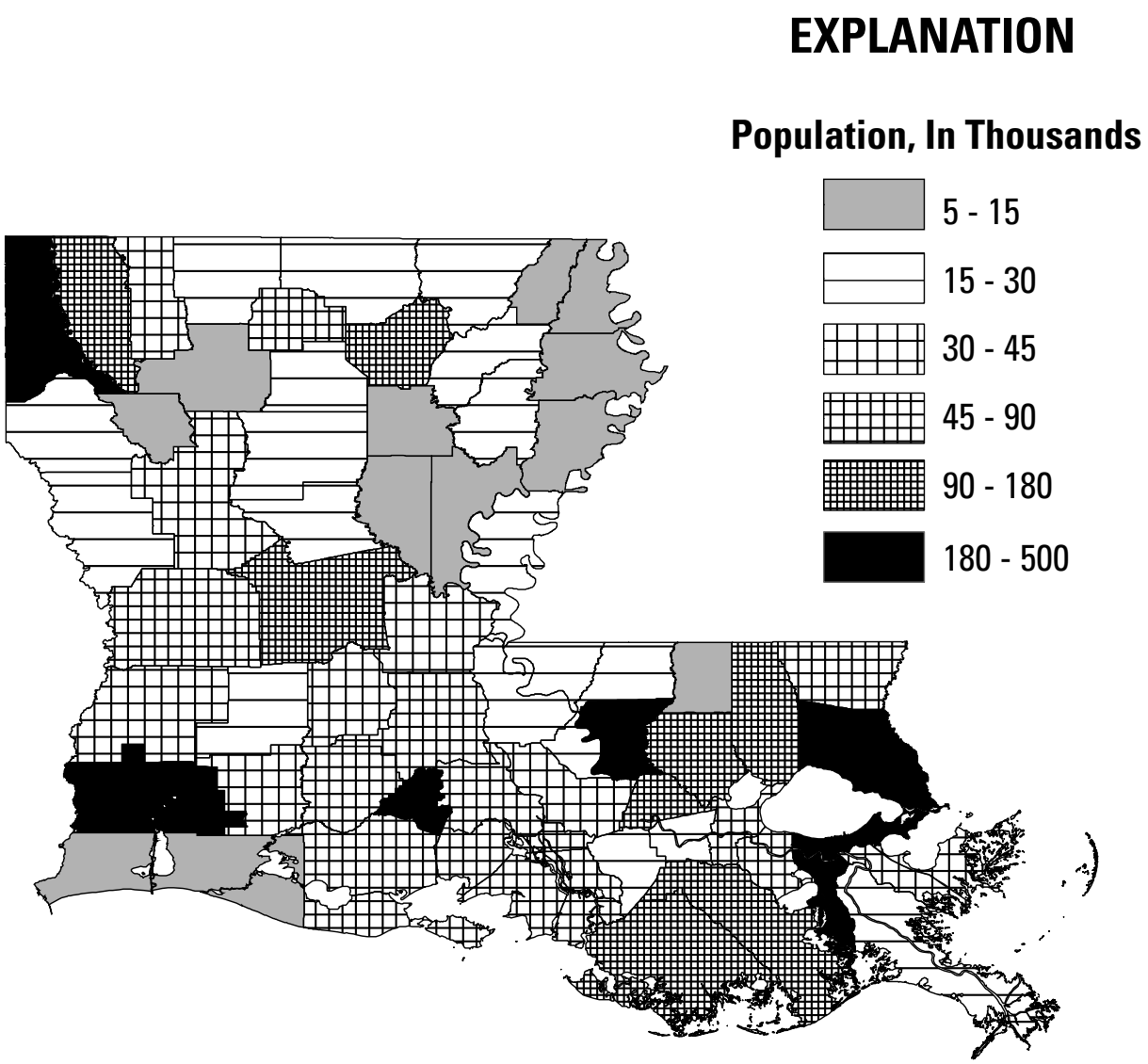


Figure 3. Louisiana population by parish, 2010.

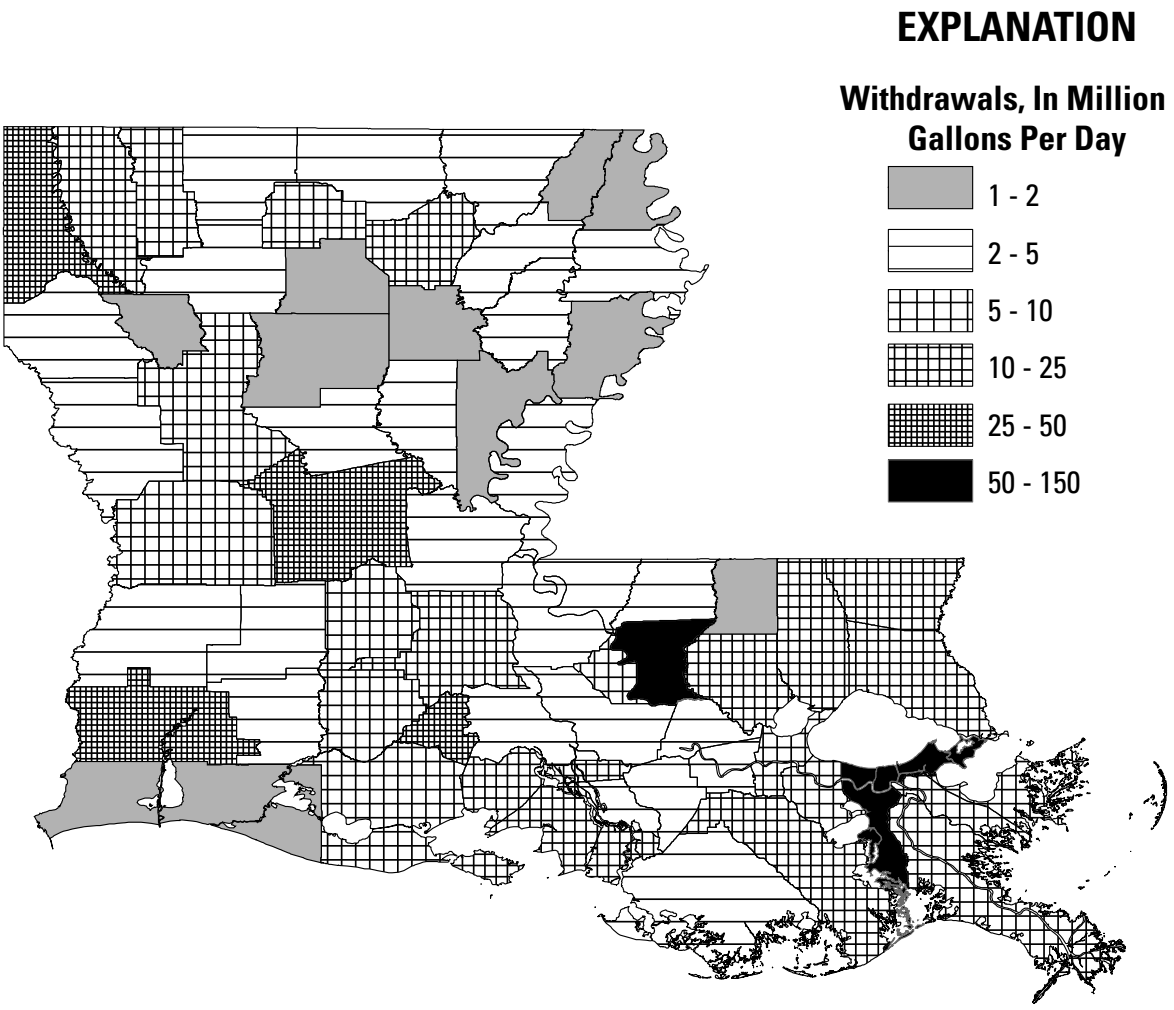


Figure 4. Public-supply water withdrawals in Louisiana by parish, 2010.

Table 1. Industrial withdrawals from public suppliers in Louisiana by parish, 2010
[Withdrawals are in million gallons per day]

Parish	Withdrawals	
	Groundwater	Surface water
Acadia		
Allen	.02	
Ascension		.08
Assumption		.08
Avoyelles	.01	
Beauregard	.09	
Bienville		
Bossier	.00	1.02
Caddo		6.23
Calcasieu	1.36	
Caldwell		
Cameron	.57	
Catahoula		
Claiborne	.03	
Concordia	.01	
De Soto	.00	.11
East Baton Rouge		
East Carroll		
East Feliciana	.01	
Evangeline	.01	
Franklin	.01	
Grant	.00	
Iberia	.14	
Iberville	.06	.06
Jackson	.15	
Jefferson		17.78
Jefferson Davis	.03	
Lafayette		
Lafourche		.18
La Salle	.03	
Lincoln	.35	
Livingston	.44	
Madison		
Morehouse	.08	
Natchitoches	.01	1.43
Orleans		.58
Ouachita		1.04
Plaquemines		.32
Pointe Coupee		
Rapides	5.52	.34
Red River		
Richland	.05	
Sabine		.13
St. Bernard		
St. Charles		2.65
St. Helena		
St. James		.36
St. John the Baptist		
St. Landry	.37	
St. Martin	.12	
St. Mary		.96
St. Tammany	.44	
Tangipahoa	.36	
Tensas	.01	
Terrebonne		
Union	1.33	
Vermilion	.56	
Vernon		
Washington	.01	
Webster	.41	
West Baton Rouge	.03	
West Carroll		
West Feliciana		
Winn	.03	
Total	12.62	33.35

Industrial

Industry in Louisiana withdrew approximately 2,100 Mgal/d of water in 2010, 240 Mgal/d from groundwater sources and 1,800 Mgal/d from surface-water sources. Industrial withdrawals in 2010 accounted for 24 percent of all withdrawals. Most of the surface water withdrawn by industry was used for once-through cooling and was returned to its source after use. Chemical manufacturers withdrew 1,400 Mgal/d or 69 percent of total industrial withdrawals. Table 2 lists industrial withdrawals in 2010 by Standard Industrial Classification code for the major industrial groups.

Table 2. Water withdrawals in Louisiana by major industrial group, 2010.
[Withdrawals are in million gallons per day. Source of Standard Industrial Classification: Office of Management and Budget, 1987]

Standard Industrial Classification		Withdrawals	
		Groundwater	Surface water
12	Coal and lignite mining	1.24	
13	Oil and gas extraction	3.53	7.48
14	Nonfuels and nonmetals mining	.70	.05
15	Building construction	.70	
20	Food products	19.27	27.78
24	Lumber	1.93	.03
26	Paper products	85.05	66.70
28	Chemicals	92.58	1,348.38
29	Petroleum refining	25.91	377.44
30	Rubber and plastics	1.26	2.70
32	Glass, clay, and concrete	1.26	
33	Primary metals	1.83	.89
34	Metal products	.30	
37	Transportation equipment	1.57	
38	Instrumentation	.25	

Aquifers in the southeastern part of the State (Chicot, Evangeline, and Jasper equivalent aquifer systems) provided approximately 46 percent of groundwater withdrawn for industrial use; aquifers in the central and southwestern part of the State (Evangeline and Catahoula aquifers and Chicot and Jasper aquifer systems) provided 30 percent, aquifers in northern Louisiana (upland terrace, Cockfield, Sparta, and Carrizo-Wilcox aquifers) provided 12 percent, and the Red and Mississippi River alluvial aquifers provided the remaining 12 percent. Percentages of the total surface water withdrawals for industry by surface-water body are as follows: Mississippi River, 88 percent; Calcasieu River, 4 percent; and the remaining 22 surface-water bodies, 8 percent. Total industrial withdrawals were the greatest in St. Charles and Iberville Parishes (510 and 400 Mgal/d), and together accounted for 44 percent of total industrial withdrawals (fig. 5).

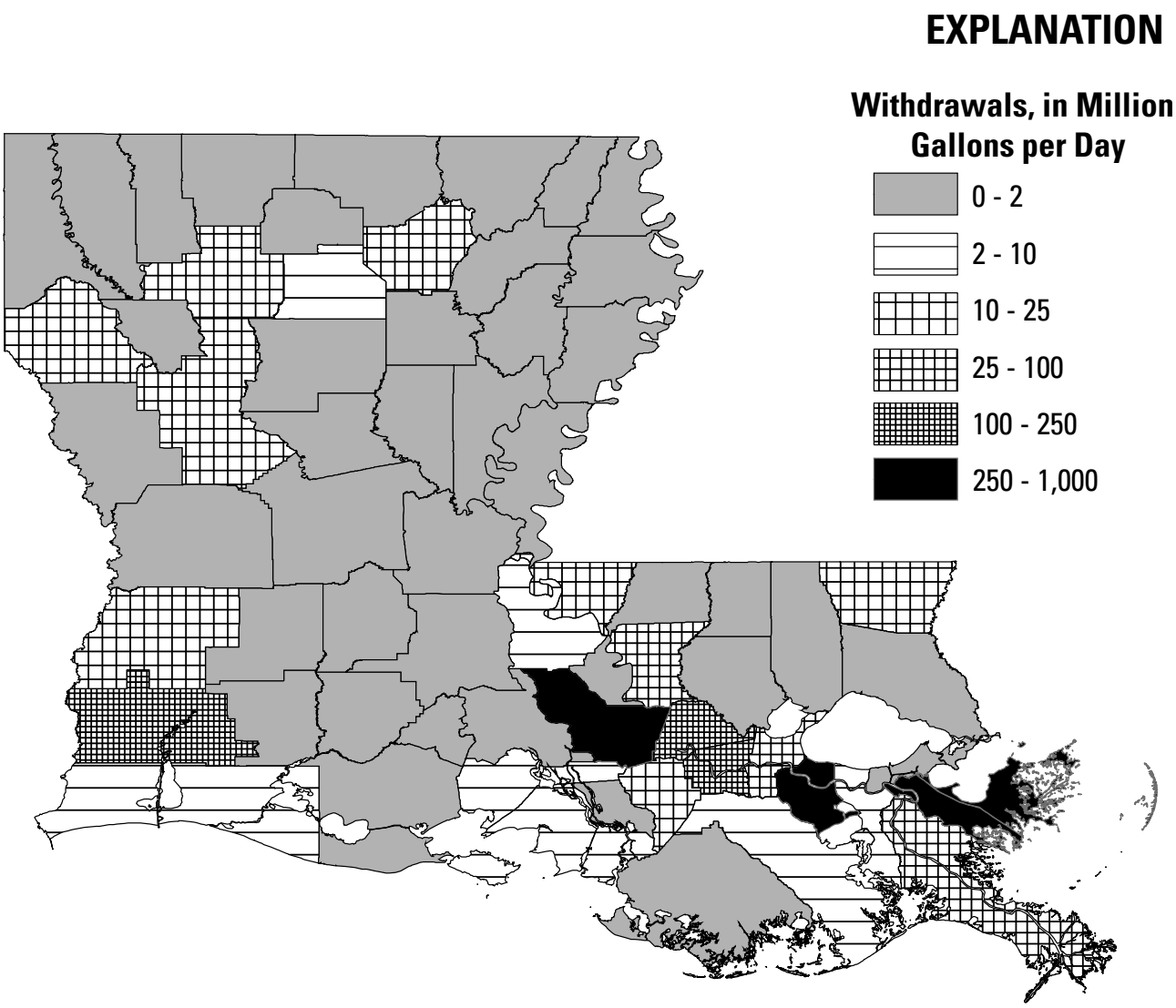


Figure 5. Industrial water withdrawals in Louisiana by parish, 2010.

Power Generation

Power-generation facilities withdrew approximately 4,400 Mgal/d or 52 percent of all water withdrawn in 2010. Of the total water withdrawn for power generation, 41 Mgal/d of groundwater and 3,400 Mgal/d of surface water were withdrawn for use in fossil-fueled plants; 8.3 Mgal/d of surface water was withdrawn for use in hydroelectric plants; and 0.02 Mgal/d of groundwater and 1,000 Mgal/d of surface water were withdrawn for use in nuclear plants. Aquifers in southeastern Louisiana (fig. 2) provided 62 percent of the groundwater used for power generation. The Chicot and Jasper aquifer systems and the Evangeline aquifer in southwestern Louisiana were the sources of 36 percent of the groundwater withdrawals for power generation. The remaining 2 percent of the groundwater withdrawals were from the other aquifers in the State.

Eighty-two percent (3,600 Mgal/d) of the surface water withdrawn for power-generation purposes was from the Mississippi River and the Mississippi River Gulf Outlet in southeastern Louisiana; 2,000 Mgal/d of this water was withdrawn in St. Charles Parish (fig. 6). Most surface water withdrawn for power-generation purposes was used for cooling purposes and was returned to its source after use.

In 2010, 86,000 Mgal/d of water passed through Louisiana's two hydroelectric power plants. The larger of the two hydroelectric power plants, located at the Old River Control Structure in southern Concordia Parish (fig. 1), uses water from the Mississippi River. In 2010, an average of 85,000 Mgal/d passed through the plant's turbines.

The other hydroelectric power plant in Louisiana used water impounded in the Toledo Bend Reservoir in Sabine Parish on the Louisiana-Texas border and released the water through the turbines near Burkeville, Texas. Because the plant is located on the Louisiana-Texas border, one-half of the water used was counted in Louisiana's water-use inventory. In 2009, an average of 2,028 Mgal/d of water passed through the plant's turbines. Of this amount, 1,014 Mgal/d was counted as power-generation in-stream use for Louisiana. Hydroelectric power-generation in-stream use was not included in surface-water withdrawals in this report because the water was not withdrawn.

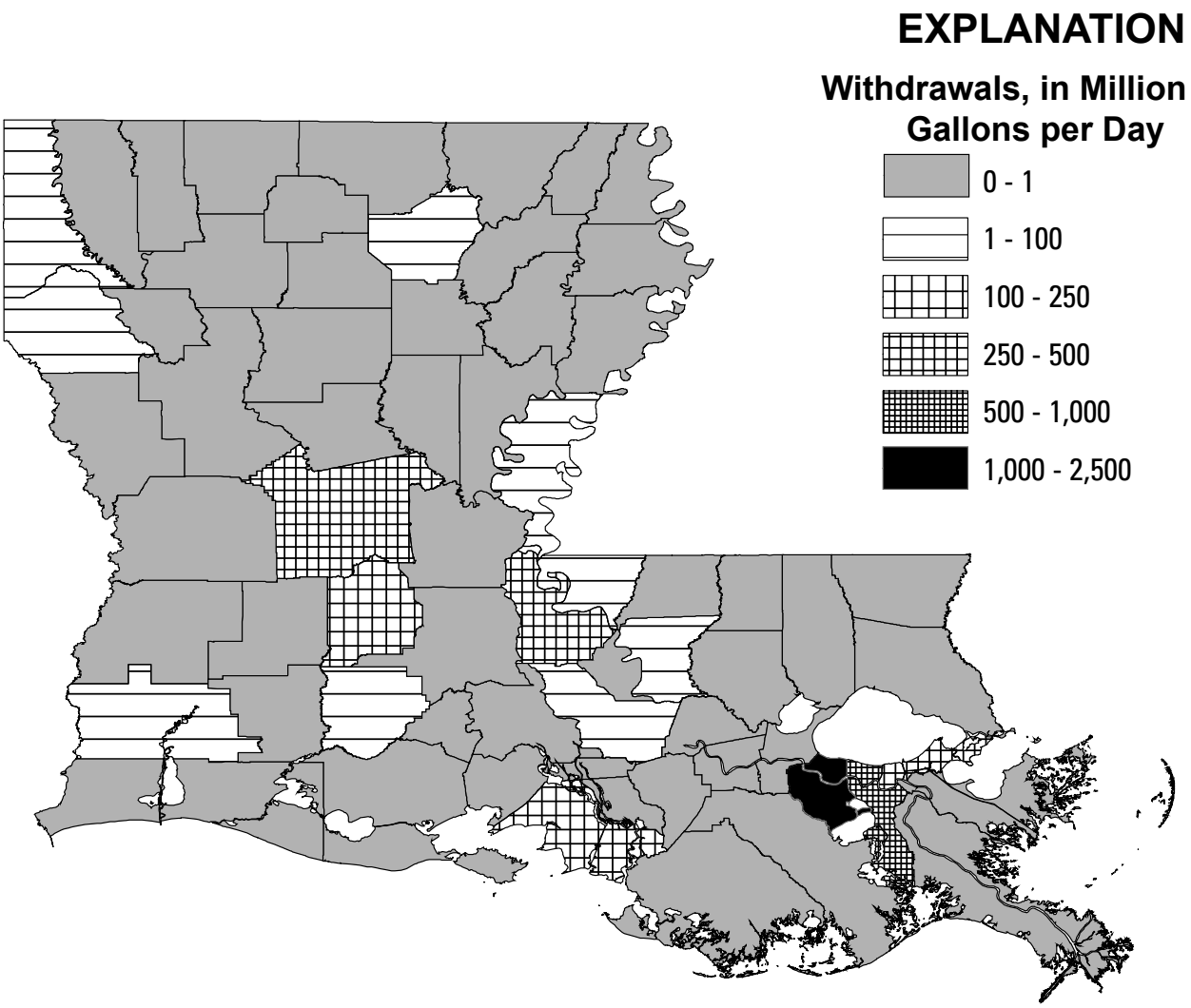


Figure 6. Power-generation water withdrawals in Louisiana by parish, 2010.

Rural Domestic

Approximately 13 percent (587,507) of Louisiana's population (U.S. Census Bureau, 2010) who use privately owned domestic wells withdrew an estimated 41 Mgal/d of groundwater in 2010. For the purpose of this report, an average of 80 gal/d per person was used to estimate withdrawals by the rural-domestic portion of the population (Lurry, 1987). Little or no surface water is used for rural-domestic purposes in Louisiana because suitable groundwater that requires minimal treatment generally is available. Every major aquifer and aquifer system was used as a source for rural-domestic water. Percentages of the total groundwater withdrawals for rural-domestic by major and minor aquifers are as follows: major aquifers in southeastern Louisiana, 41 percent; major aquifers in the central and southwest part of the State, 32 percent; major aquifer in northern Louisiana, 19 percent; and other aquifers throughout the State, 8 percent. St. Tammany Parish had the greatest withdrawals, 6.4 Mgal/d (fig. 7).

Livestock

In 2010, individual ranchers and farmers used approximately 8.0 Mgal/d of water for livestock operations. Of this total, 4.2 Mgal/d was groundwater, and 3.9 Mgal/d was surface water. In Louisiana, livestock that requires substantial amounts of water included cattle, horses, swine, sheep, and poultry. For the purpose of this report, estimates of livestock-use rates were used to calculate water withdrawals for livestock. The rates used (in gallons per day per head) were as follows: milk cows, 20; other cattle, 10; horses, 10; swine, 3; sheep, 2; and poultry, 0.04 (Lovelace and Johnson, 1996).

Surface-water sources for livestock withdrawals generally included small streams, canals, and private ponds. Groundwater sources included most of the major freshwater aquifers and aquifer systems. The Chicot aquifer system provided 29 percent (1.2 Mgal/d), the Mississippi River alluvial aquifer provided 27 percent (1.1 Mgal/d), and the Chicot equivalent aquifer system provided 14 percent (0.58 Mgal/d) of groundwater withdrawals for livestock. The remaining 30 percent of withdrawals was distributed among other aquifers in amounts less than 0.5 Mgal/d. Tangipahoa and Calcasieu Parishes had the greatest livestock withdrawals, 0.4 and 0.5 Mgal/d (fig. 8).

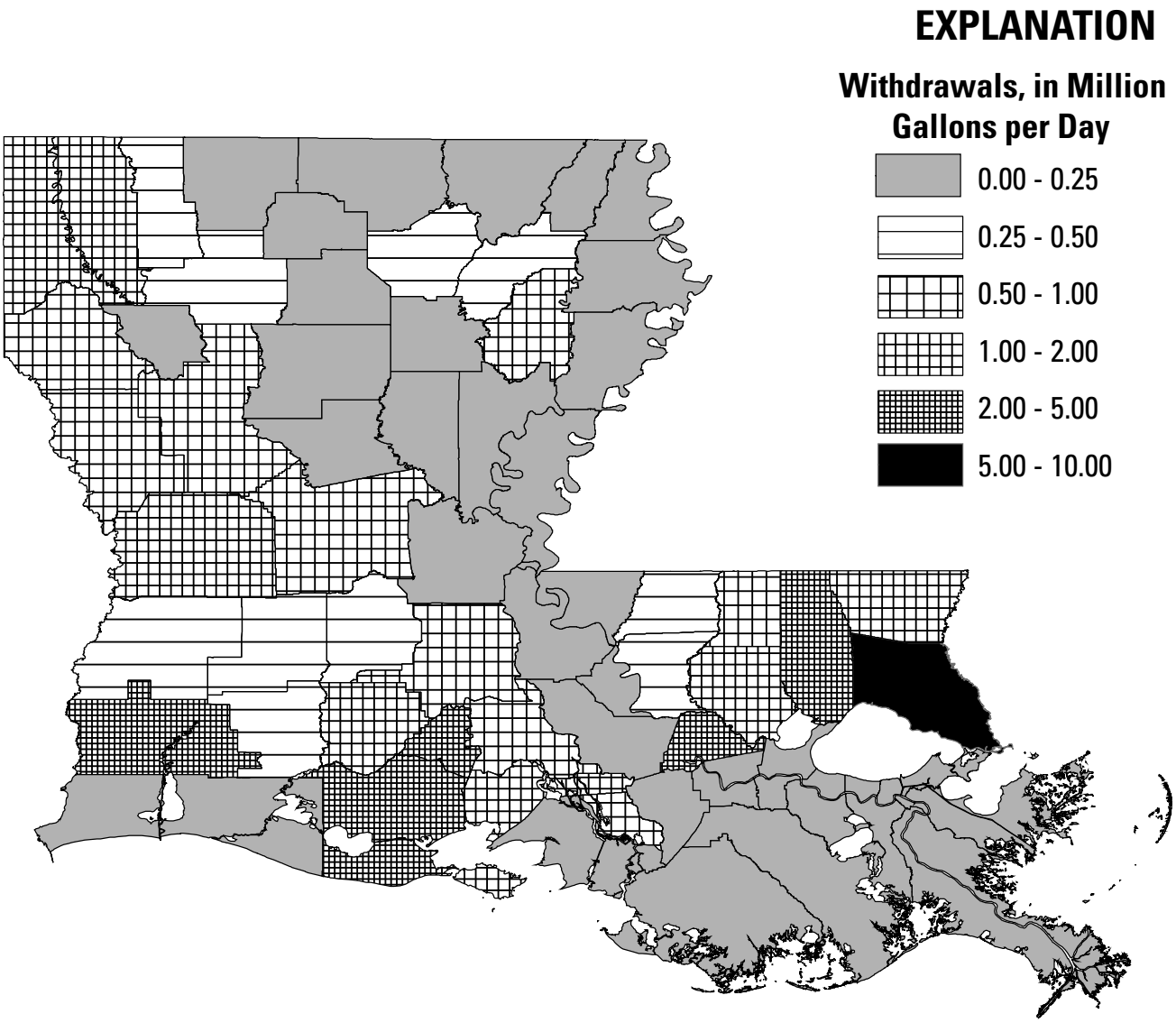


Figure 7. Rural-domestic water withdrawals in Louisiana by parish, 2010.

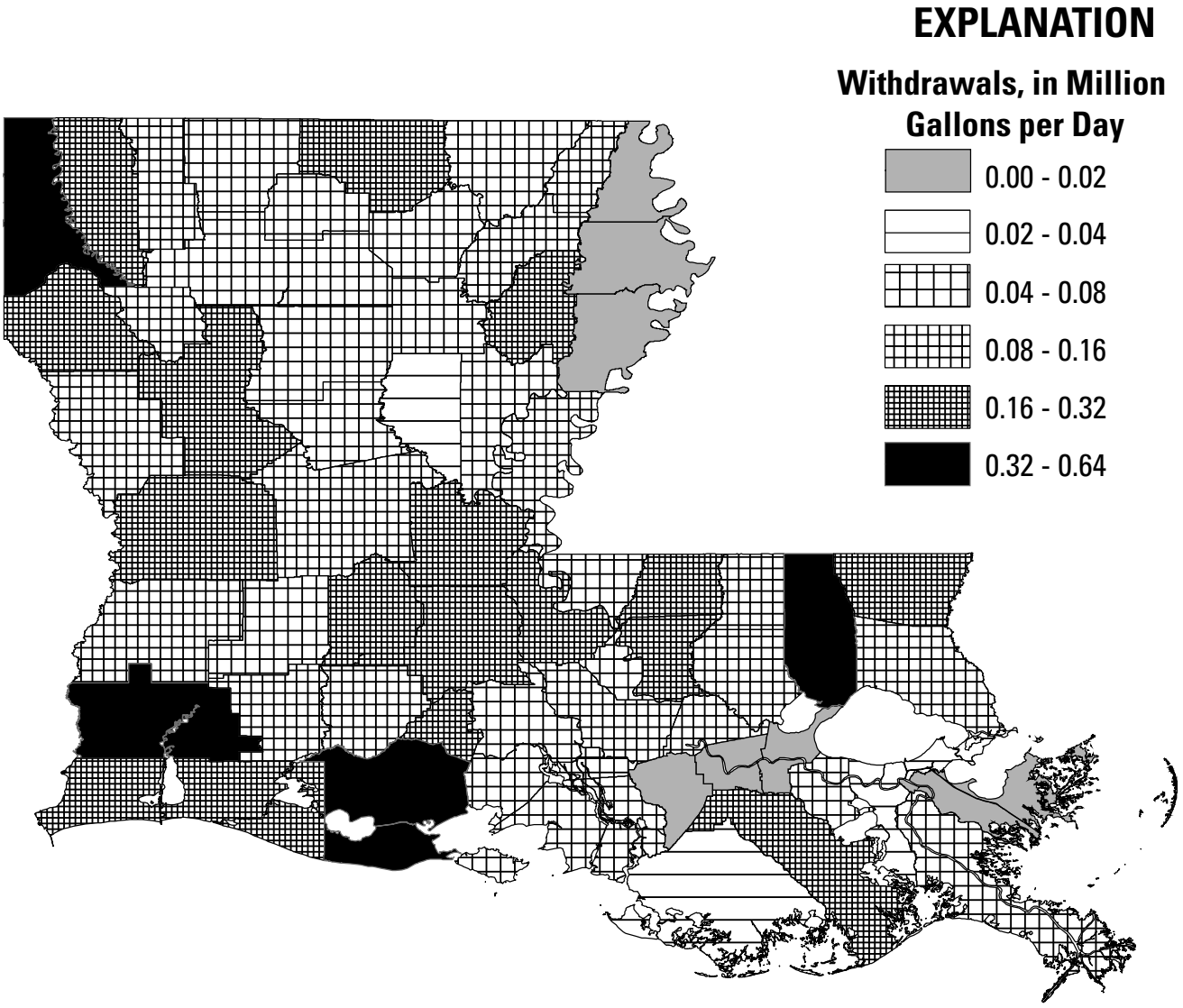


Figure 8. Livestock water withdrawals in Louisiana by parish, 2010.

Rice Irrigation

In 2009, approximately 460,000 acres of rice were harvested in 28 parishes, mainly in southwestern and northeastern Louisiana (Louisiana Cooperative Extension Service, 2010). All rice grown in Louisiana is assumed to be irrigated. The average water application rate was about 1.50 acre-ft per acre per year. Rice farmers withdrew approximately 690 Mgal/d of water to irrigate their fields in 2009. Of the total, about 490 Mgal/d was groundwater, and about 200 Mgal/d was surface water.

Percentages of the total groundwater withdrawals for rice irrigation by aquifer or aquifer system were as follows: Chicot aquifer system in southwestern Louisiana, 70 percent (340 Mgal/d); Mississippi River alluvial aquifer in northeastern Louisiana, 27 percent (130 Mgal/d); and other aquifers in the State, 3 percent (13 Mgal/d). Surface water used for rice irrigation was withdrawn from streams, lakes, bayous, and canals; the greatest percentage of withdrawals, 14 percent, was from Bayou Queue de Tortue (28 Mgal/d). Total withdrawals for rice irrigation were greatest, about 160 Mgal/d, in Acadia Parish and included about 130 Mgal/d from groundwater sources and about 35 Mgal/d from surface-water sources (fig. 9).

General Irrigation

In 2009, farmers irrigated approximately 460,000 acres of crops other than rice (Louisiana Cooperative Extension Service, 2010). Crops with substantial amounts of irrigated acreage included cotton, corn, soybeans, sugar cane, sorghum, and berries. The average application rate for these crops was about 0.58 acre-ft per acre per year. Farmers withdrew approximately 240 Mgal/d for general irrigation, of which about 180 Mgal/d was groundwater and about 57 Mgal/d was surface water. Water used for general irrigation occurred primarily in northeastern Louisiana (fig. 10), and 85 percent of the groundwater was withdrawn from the Mississippi River alluvial aquifer (160 Mgal/d). The Chicot aquifer system provided 5.8 percent, and the other aquifers in the State provided 9.2 percent of the groundwater for general irrigation.

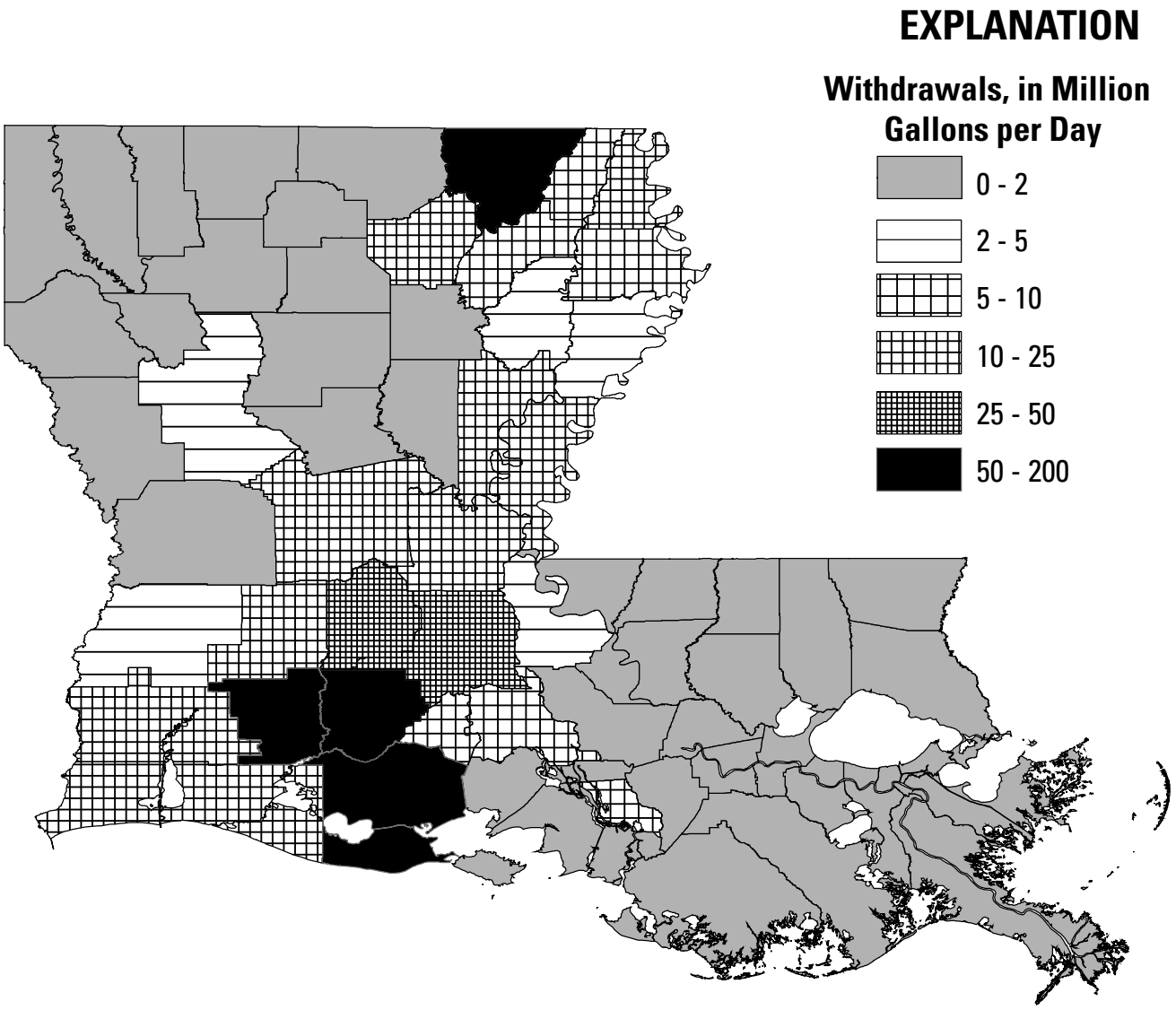


Figure 9. Rice-irrigation water withdrawals in Louisiana by parish, 2010.

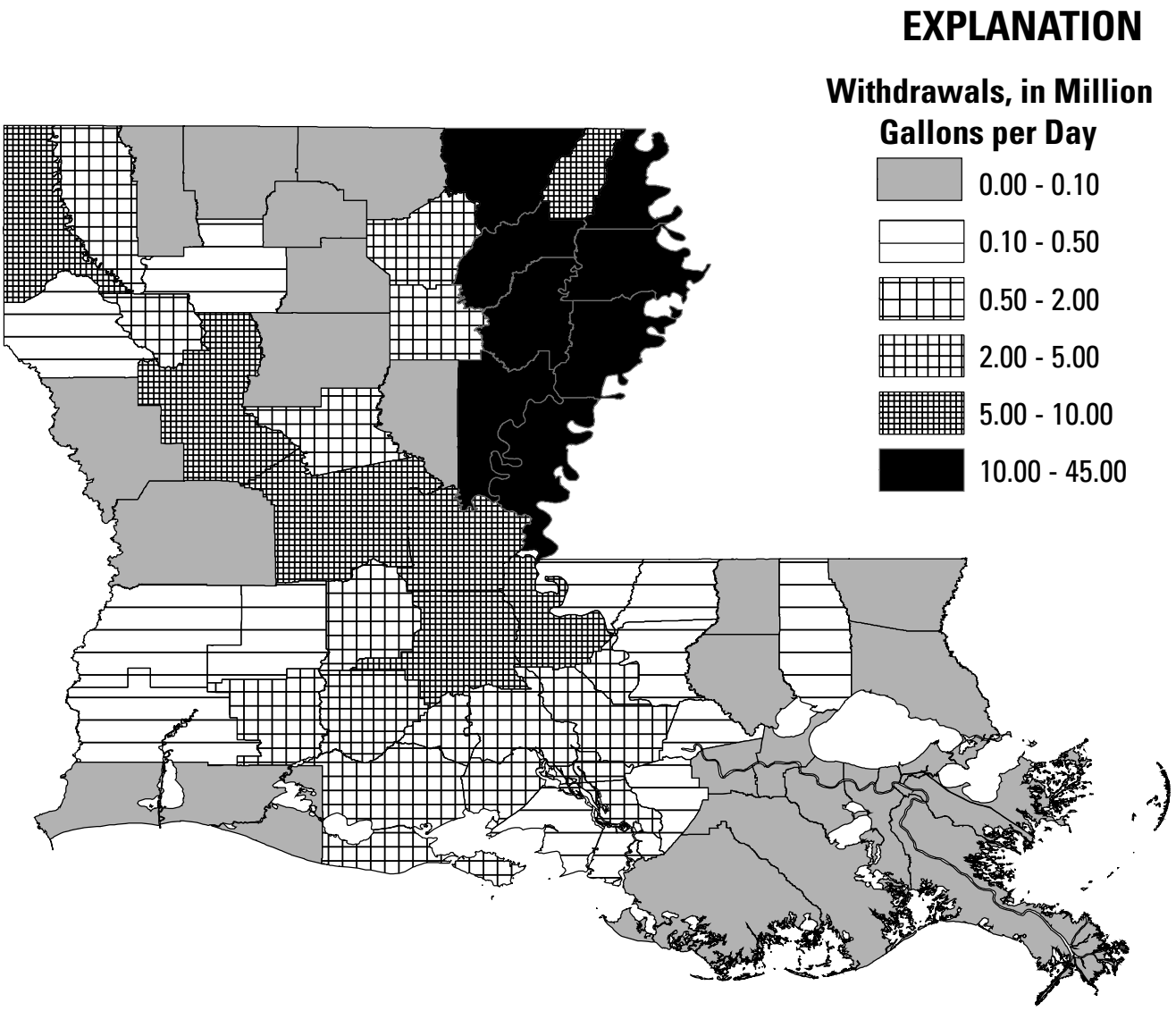


Figure 10. General-irrigation water withdrawals in Louisiana by parish, 2010.

Aquaculture

In 2010, approximately 300 Mgal/d of water was withdrawn for aquaculture in Louisiana. Of the total, about 190 Mgal/d was groundwater, and about 110 Mgal/d was surface water. Ninety-seven percent of this water was used to maintain water levels on 173,000 acres of crawfish ponds, 3 percent on 2,600 acres of catfish ponds, and less than 1 percent at alligator farms and other aquaculture farms (Louisiana Cooperative Extension Service, 2010). Percentages of the total groundwater withdrawals for aquaculture by aquifer or aquifer system were as follows: Chicot aquifer system, 60 percent (110 Mgal/d); Mississippi River alluvial aquifer, 33 percent (62 Mgal/d); Red River alluvial aquifer, 3.6 percent (6.8 Mgal/d); and other aquifers, 3.4 percent (7.8 Mgal/d). Numerous streams were used as sources of surface water. The greatest total withdrawal for aquaculture, 57 Mgal/d, was in Acadia Parish (fig. 11). The greatest groundwater withdrawal was also in Acadia Parish, 46 Mgal/d, and the greatest surface-water withdrawal was in Jefferson Davis Parish, 24 Mgal/d.

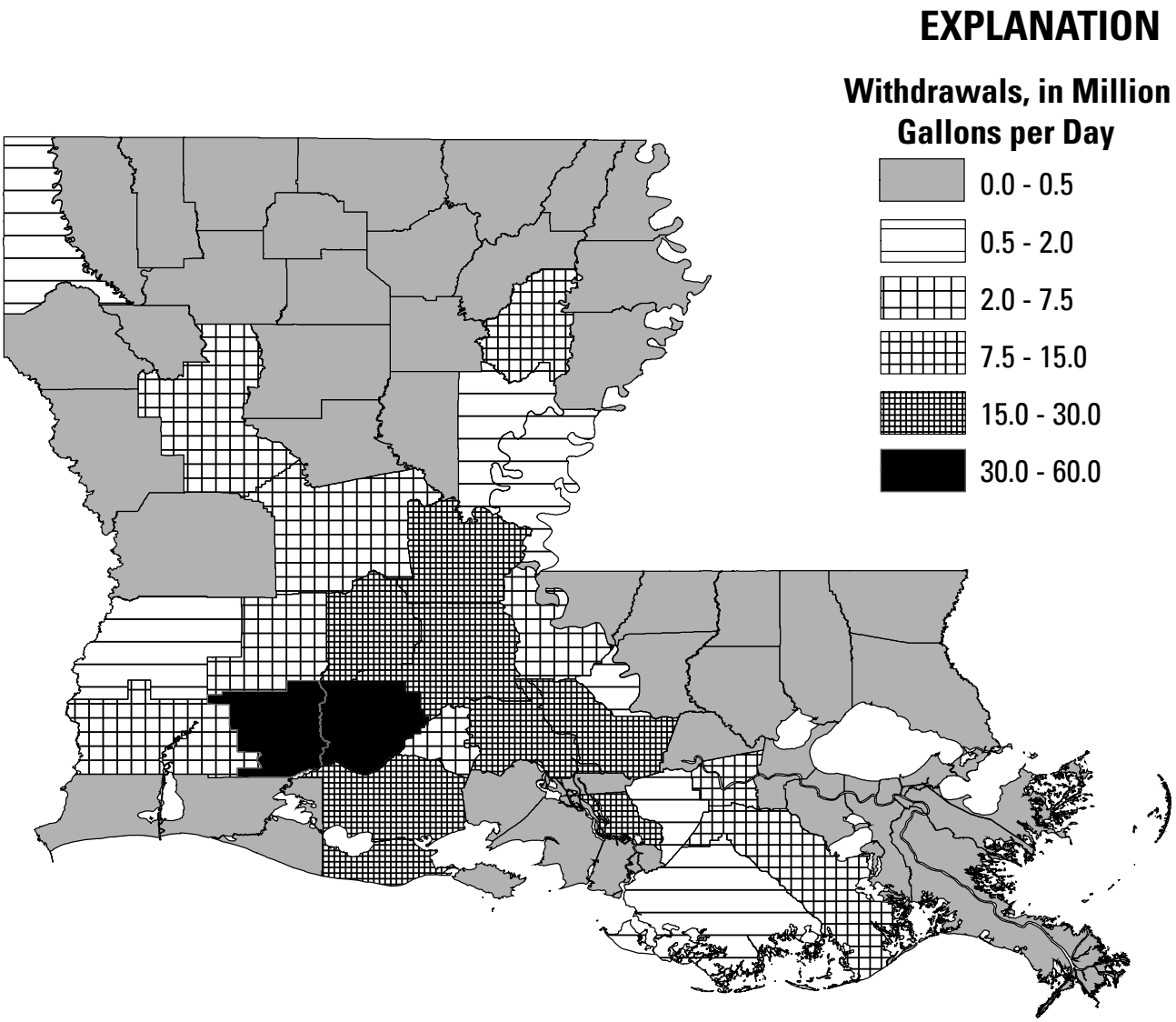


Figure 11. Aquaculture water withdrawals in Louisiana by parish, 2010.

Water Use By Parish

The one-page summaries of water-use information by parish presented in this section of the report include tables of withdrawals by source of water (ground or surface) and the eight categories of use (public supply, industry, power generation, rural domestic, livestock, rice irrigation, general irrigation, and aquaculture). The one-page parish summary also lists water withdrawals by major public suppliers and major industrial groups. Also listed is parish population, population served by public supply, per capita withdrawals, total irrigated acreage, and the amount of hydroelectric in-stream use in the parish. The per capita withdrawal rate is the average daily total amount of water withdrawn in the parish divided by the total parish population. A map shows the location of the parish within the State.

Each summary page contains a bar chart that shows water-use trends since 1960 for the parish. The data were compiled from previous 5-year water-use reports and are presented without interpretation.

The table of withdrawals by major public suppliers lists facilities in alphabetical order. For the purposes of this table, public suppliers were included only if the withdrawal was greater than or equal to 0.01 Mgal/d. Therefore, totaled withdrawals from this table may be less than the totals for public supply in the table of withdrawals by category of use. Self-supplied institutions such as hospitals, prisons, and military installations, though included in the withdrawals for public supply, do not meet the strict definition of public supply and, like previous Louisiana water use reports, are not listed in the table of major public suppliers.

The table of withdrawals by major industrial groups lists withdrawals from both groundwater and surface-water sources. For the purposes of this table, an industrial group was included only if the amount was greater than or equal to 0.01 Mgal/d and was used by a manufacturing sector of industry, rather than a service or commercial sector. Therefore, totaled withdrawals from this table may be less than the total for industry in the table of withdrawals by category of use.

Water-use information for each of the 64 parishes in Louisiana is summarized in table 3. The table lists withdrawals and totals for each parish and each major category of use.

Acadia

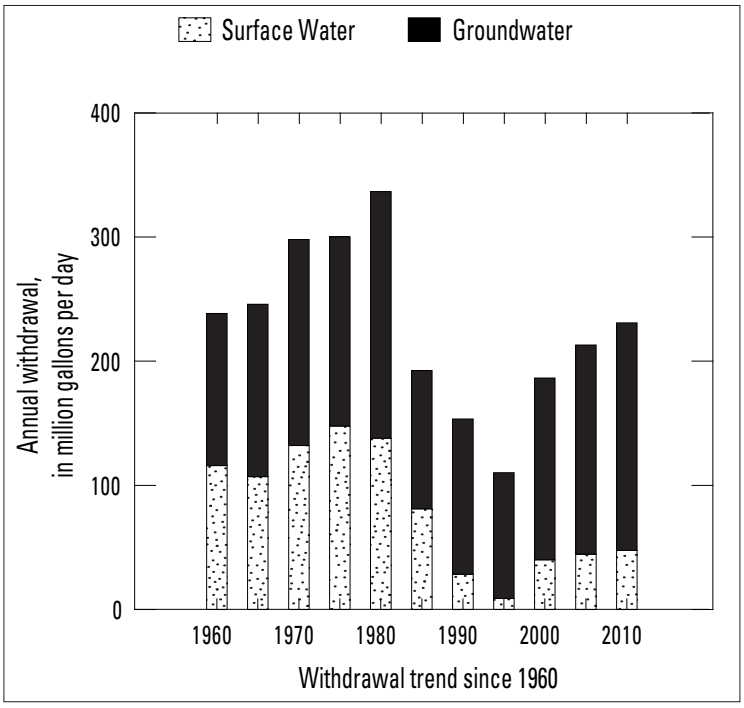
Population: 61,773
Population served by public supply: 44,662
Per capita withdrawals (gal/d): 3,737
Acres irrigated: 86,890
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	5.81		5.81
Industrial	.01		.01
Power generation	1.33	.79	2.12
Rural domestic	1.34		1.34
Livestock	.09	.01	.10
Rice irrigation	126.79	34.68	161.47
General irrigation	1.41	1.41	2.82
Aquaculture	46.47	10.71	57.18
Total	**183.25**	**47.60**	**230.85**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.01	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Church Point Water System	0.52	
Crowley Water System	1.97	
Egan Water Corp.	.37	
Iota Water System	.22	
Mire-Branch Water Corp.	.51	
Morse Water System	.15	
North of Crowley Water Corp.	.29	
Rayne Water Supply	.99	
South Rayne Water Corp.	.27	
Southwest Acadia Water Corp.	.51	

Allen

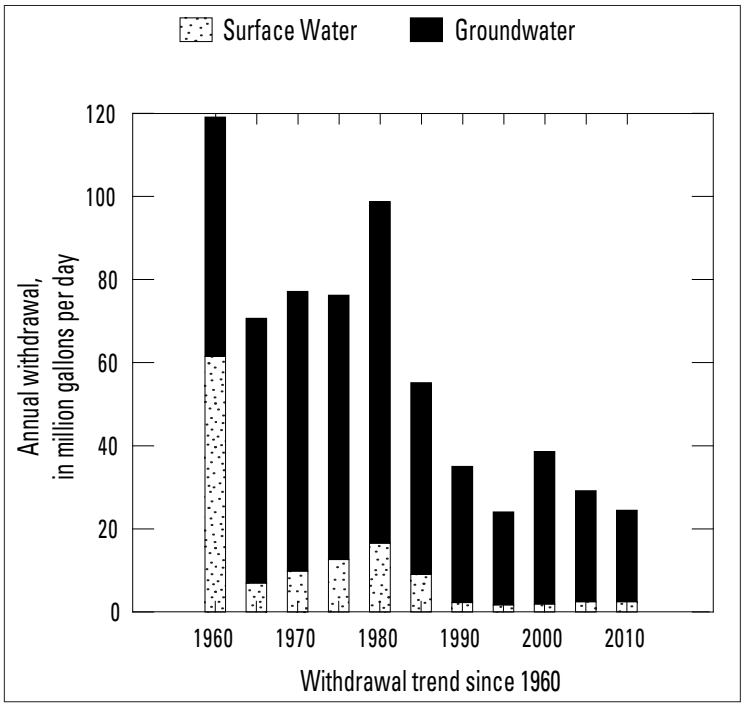
Population: 25,764
Population served by public supply: 22,569
Per capita withdrawals (gal/d): 951
Acres irrigated: 13,627
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	4.27		4.27
Industrial	.13		.13
Power generation			.00
Rural domestic	.26		.26
Livestock	.04	.01	.05
Rice irrigation	14.28	1.55	15.83
General irrigation	.25		.25
Aquaculture	2.79	.93	3.71
Total	**22.01**	**2.49**	**24.50**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
26	Paper products	0.13	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Allen Parish Water District #1	0.13	
East Allen Water Dist.	.38	
Elizabeth Water System	.05	
Fairview Water System	.04	
Oakdale Water System	1.73	
Oberlin Water System	.16	
South Oakdale Water System	.10	
S. W. Allen Water Works Dist. 2	1.46	
West Allen Water Dist.	.23	

Ascension

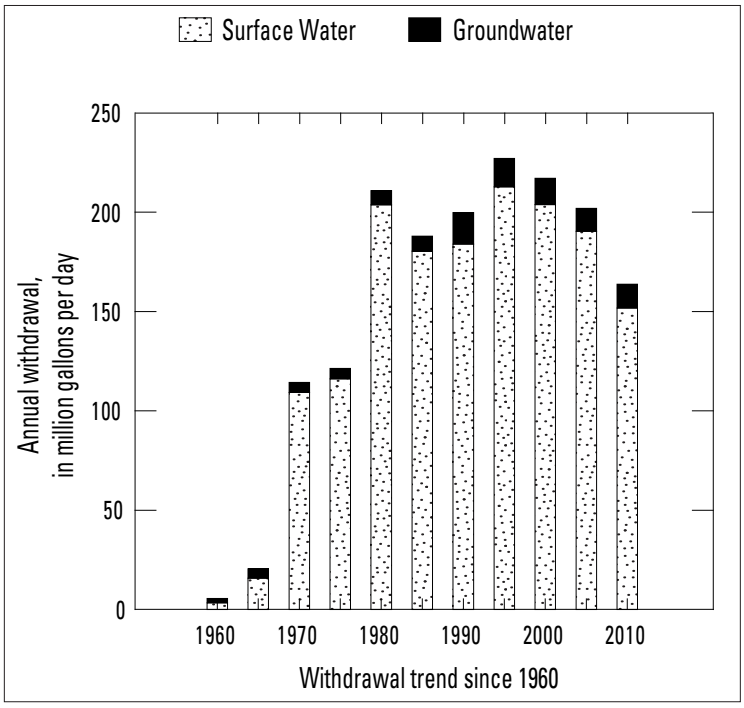
Population: 107,215
Population served by public supply: 56,610
Per capita withdrawals (gal/d): 1,527
Acres irrigated: 222
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	3.02	1.97	4.98
Industrial	6.40	149.44	155.84
Power generation			.00
Rural domestic	2.23		2.23
Livestock	.13	.03	.16
Rice irrigation			.00
General irrigation	.12		.12
Aquaculture	.05	.32	.38
Total	**11.95**	**151.76**	**163.71**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
28	Chemicals	2.88	149.44
29	Petroleum refining	.06	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Ascension Water Company	0.12	
Gonzales Water System	1.76	
Parish Water Company	1.04	
People's Water Service		1.97
Tranquility Lakes Water System	.02	

Assumption

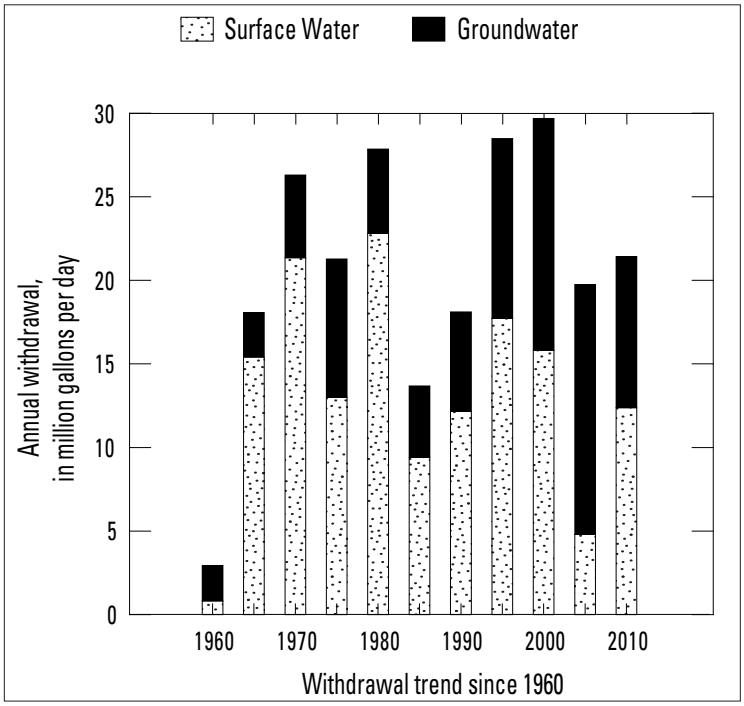
Population: 23,421
Population served by public supply: 23,046
Per capita withdrawals (gal/d): 914
Acres irrigated: 496
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply		3.90	3.90
Industrial	8.59	7.79	16.37
Power generation			.00
Rural domestic	.18		.18
Livestock		.01	.01
Rice irrigation			.00
General irrigation	.07	.11	.19
Aquaculture	.19	.58	.76
Total	**9.03**	**12.39**	**21.42**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products		7.79
28	Chemicals	8.55	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Assumption W. W. Dist. # 1		3.90

Avoyelles

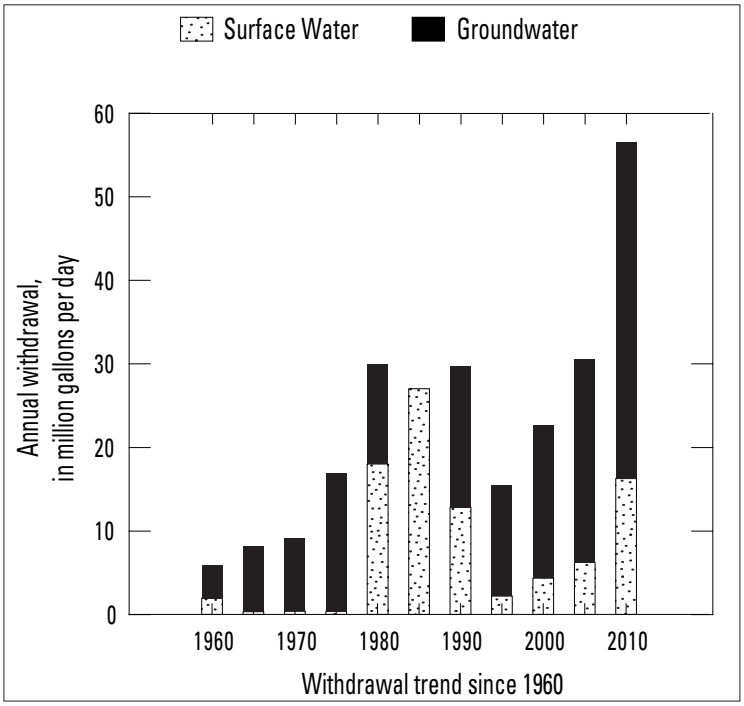
Population: 42,073
Population served by public supply: 39,759
Per capita withdrawals (gal/d): 1,341
Acres irrigated: 32,710
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	3.85		3.85
Industrial	.36		.36
Power generation			.00
Rural domestic	.22		.22
Livestock	.20		.20
Rice irrigation	14.82	4.94	19.77
General irrigation	5.97	1.49	7.46
Aquaculture	14.73	9.82	24.55
Total	**40.15**	**16.25**	**56.40**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	0.35	
24	Lumber	.01	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Avoyelles W. W. Dist. # 1	0.15	
Avoyelles Ward 1 Water System	.22	
Avoyelles Water Commission	.92	
Brouillette Water System	.19	
Cottonport Water System	.45	
Evergreen Water System	.13	
Fifth Ward Water System	.35	
Hessmer Water System	.31	
Mansura Water System	.24	
Morrow Water System Inc.	.17	
Plaucheville Water System	.26	
Simmesport Water System	.38	
Southwest Avoyelles W. W.	.09	

Beauregard

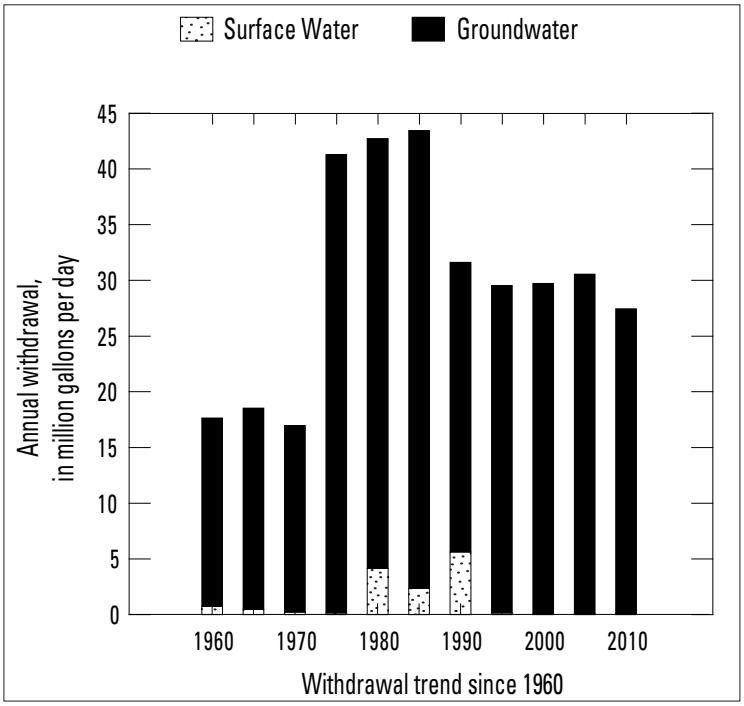
Population: 35,654
Population served by public supply: 25,635
Per capita withdrawals (gal/d): 770
Acres irrigated: 2,954
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	4.56		4.56
Industrial	18.19		18.19
Power generation			.00
Rural domestic	.42		.42
Livestock	.08	.06	.14
Rice irrigation	3.20		3.20
General irrigation	.35	.04	.38
Aquaculture	.56		.56
Total	**27.35**	**.09**	**27.45**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
26	Paper products	17.72	
28	Chemicals	.46	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Beauregard Dist. 2 Ward 5	0.58	
DeRidder Water System	1.87	
Green Acres Water & Sewer	.08	
Merryville Water System	.49	
S. Merryville Water System	.03	
Waterworks District No. 3	1.50	

Bienville

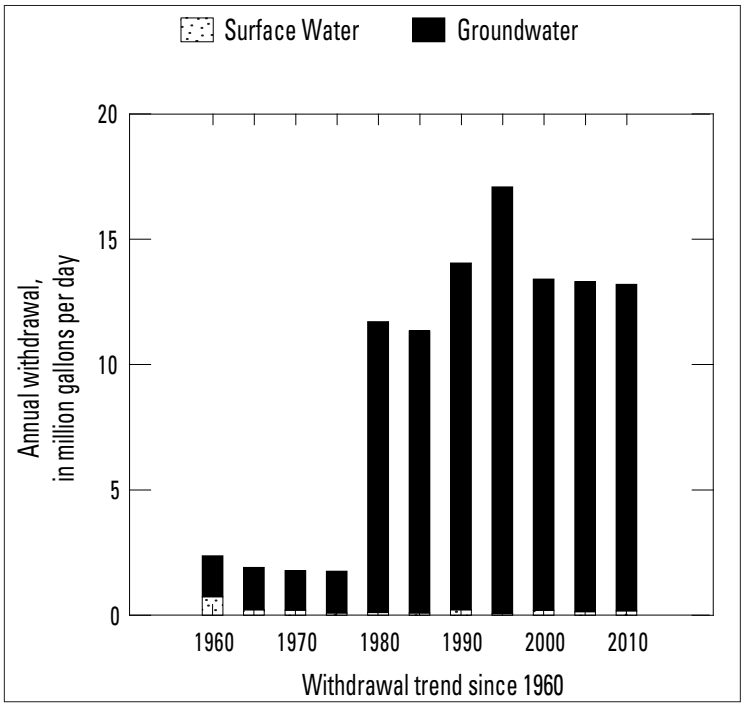
Population: 14,353
Population served by public supply: 10,205
Per capita withdrawals (gal/d): 919
Acres irrigated: 221
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.05		2.05
Industrial	10.58	.01	10.59
Power generation			.00
Rural domestic	.35		.35
Livestock	.04	.03	.07
Rice irrigation			.00
General irrigation		.14	.14
Aquaculture			.00
Total	**13.02**	**.18**	**13.20**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	1.50	0.01
15	Building Construction	.70	
20	Food products	.06	
26	Paper products	8.33	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Alabama Water System	0.06	
Alberta Water System	.20	
Arcadia Water System	.46	
Bienville Water System	.03	
Bryceland Water System	.03	
Castor Water System	.24	
Cypress Water System	.06	
Friendship Water System	.05	
Gibsland Water System	.28	
Jamestown-Fryeburg W. S.	.04	
Louisiana Water Co.	.04	
Lucky Water System	.02	
Mill Creek Water System	.02	
Mt. Calm Water System	.02	
Mt. Lebanon Water System	.01	
Mt. Olive Water System	.04	
Old Saline Comm. Water System	.03	
Ringgold Water System	.21	
S. E. Bienville Water System	.04	
Saline Water System	.04	
Social Springs Water System	.03	
Springhill Community W. S.	.09	

Bossier

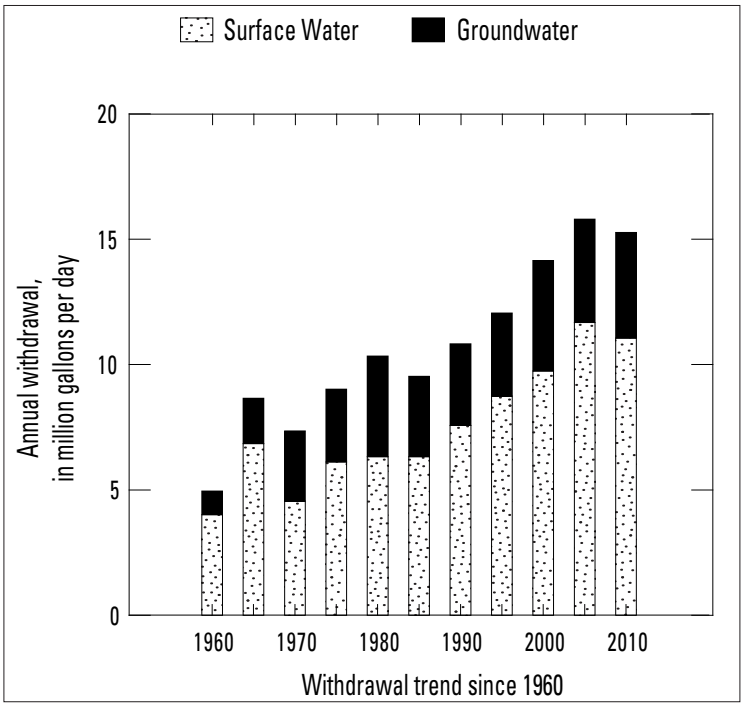
Population: 116,979
Population served by public supply: 98,964
Per capita withdrawals (gal/d): 131
Acres irrigated: 2,004
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.15	10.24	12.39
Industrial	.33		.33
Power generation			.00
Rural domestic	1.36		1.36
Livestock	.16	.04	.20
Rice irrigation	.02		.02
General irrigation	.19	.77	.97
Aquaculture			.00
Total	**4.22**	**11.05**	**15.27**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
29	Petroleum refining	0.33	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bellevue Water System	0.11	
Bodcau Comm. Water System	.01	
Bossier City Water System		10.24
Central Bossier Water System	.07	
Evangeline Oaks Water System	.01	
Haughton Water System	.27	
Plain Dealing Water System	.10	
Red Chute Utilities Co.	.86	
Saint Mary's Water System	.02	
Sligo Water System, Inc.	.09	
South Bossier Water System	.10	
Village Water System	.44	

Caddo

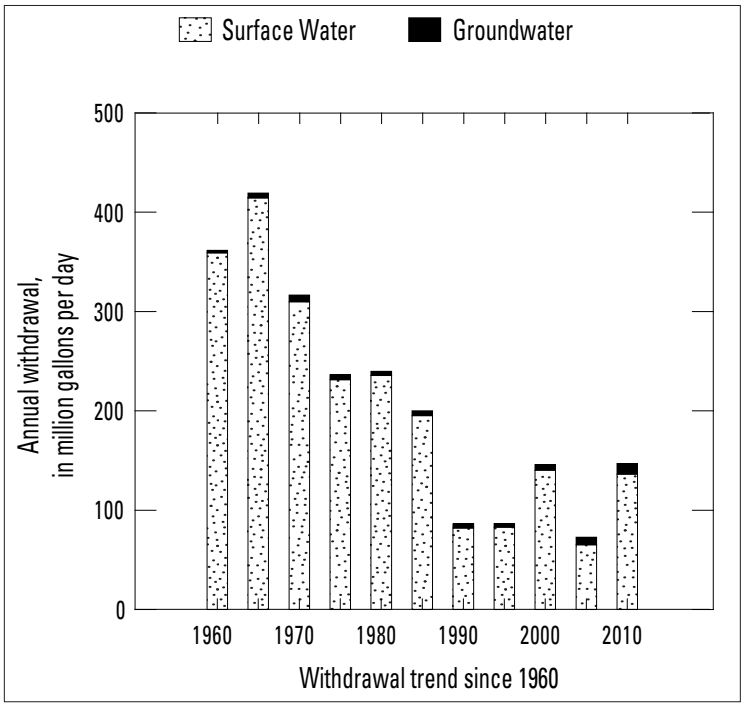
Population: 254,969
Population served by public supply: 234,317
Per capita withdrawals (gal/d): 576
Acres irrigated: 12,414
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.77	45.56	47.33
Industrial	.00	.04	.04
Power generation		89.12	89.12
Rural domestic	1.65		1.65
Livestock	.10	.23	.33
Rice irrigation			.00
General irrigation	5.77	1.44	7.21
Aquaculture	1.29		1.29
Total	**10.58**	**136.38**	**146.96**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
29	Petroleum refining		0.04



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bel-Di-Gil Water System	0.06	
Blanchard Water System		.85
Caddo Water District #1		.21
Caddo Water District #7	.47	
Deep Woods Utilities	.06	
Eagle Water Co.	.19	
East Cove Util. Water System		.03
East Mooringsport Water System		.02
Evergreen Estates	.17	
Four Forks Water System	.04	
Greenwood Water System	.02	.35
Hosston Mira Water System	.08	
Ida Water System	.02	
Meadowwood Estates Utility	.01	
Mooringsport Water System		.08
North Caddo Utilities Inc.	.03	
Pine Hills Water Works	.34	
Rodessa Water System	.02	
Shreveport Water System		43.56
Vivian Water System		.45
Wildwood South Water System	.03	

Calcasieu

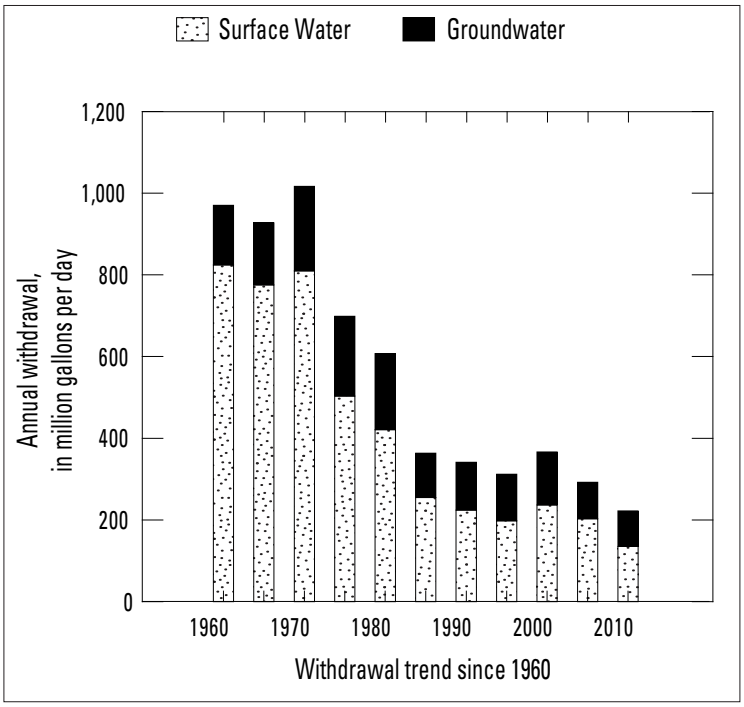
Population: 192,768
Population served by public supply: 164,238
Per capita withdrawals (gal/d): 1,152
Acres irrigated: 9,473
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	25.73	0.50	26.23
Industrial	40.88	114.02	154.90
Power generation	6.46	14.51	20.97
Rural domestic	2.23		2.23
Livestock	.20	.30	.51
Rice irrigation	7.90	3.77	11.67
General irrigation	.34		.34
Aquaculture	2.90	2.34	5.24
Total	**86.65**	**135.44**	**222.09**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
24	Lumber	0.60	
28	Chemicals	28.66	96.06
29	Petroleum refining	8.61	17.96
30	Rubber and plastics	1.08	
33	Primary metals	1.74	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
C & L Utilities	0.08	
Calcasieu W. W. Dist. 4	.40	
Calcasieu W. W. Dist. 5	.49	
Calcasieu W. W. Dist. 7	.23	
Calcasieu W. W. Dist. 8	.72	
Calcasieu W. W. Dist. 9	1.05	
Country Pines Subdivision	.13	
Country Pines Utilities, LLC	.02	
DeQuincy Water System	.55	
Gulf Stream Manor Water System	.05	
Houston River W. W. Dist. 11		0.50
Iowa Water System	.26	
Lake Charles Water System	12.61	
Lake Street Water Co.	.09	
Moss Bluff Water Dist. 1	2.43	
Mossville Waterworks	.18	
Oak Meadows Water Works	.03	
Parkspace Water System	.04	
Quail Ridge Estates Water System	.03	
Sulphur Water System	4.26	
Utilities Services of Lake Charles	.02	
Vinton Water System	.61	
W. W. Dist. 14 of Ward 5	.05	
Westlake Water System	1.10	

Caldwell

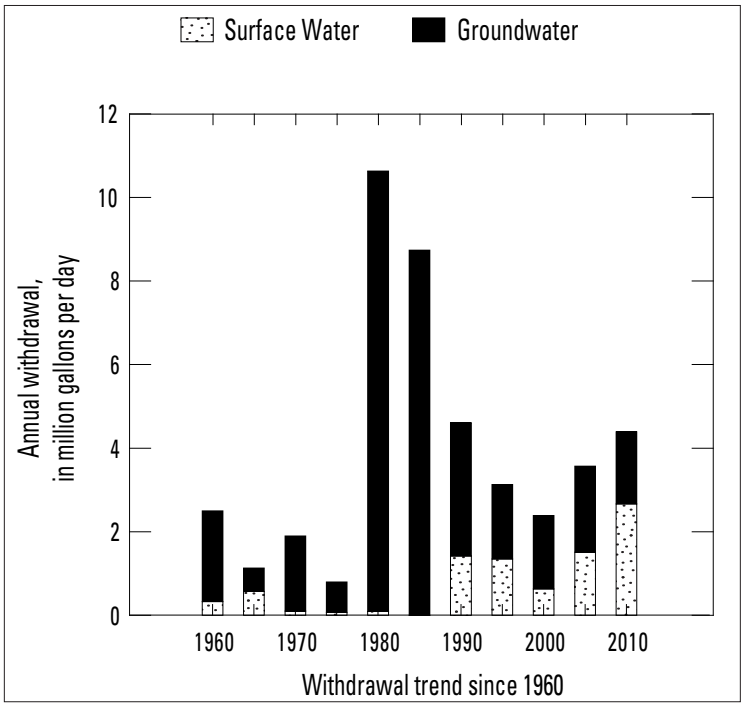
Population: 10,132
Population served by public supply: 9,372
Per capita withdrawals (gal/d): 434
Acres irrigated: 3,834
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.07		1.07
Industrial			.00
Power generation			.00
Rural domestic	.07		.07
Livestock	.03	.03	.05
Rice irrigation	.57	1.32	1.88
General irrigation		1.32	1.32
Aquaculture			.00
Total	**1.73**	**2.67**	**4.39**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Clarks Water System	0.10	
Columbia Heights Water Dist.	.22	
Columbia Water System	.07	
Cottonplant Water System	.03	
East Columbia Water Dist.	.21	
Grayson Water System	.19	
Hebert Water System	.12	
Kelly Water System	.07	
Vixen Water System East	.02	
Wards 4 & 5 Water System	.05	

Cameron

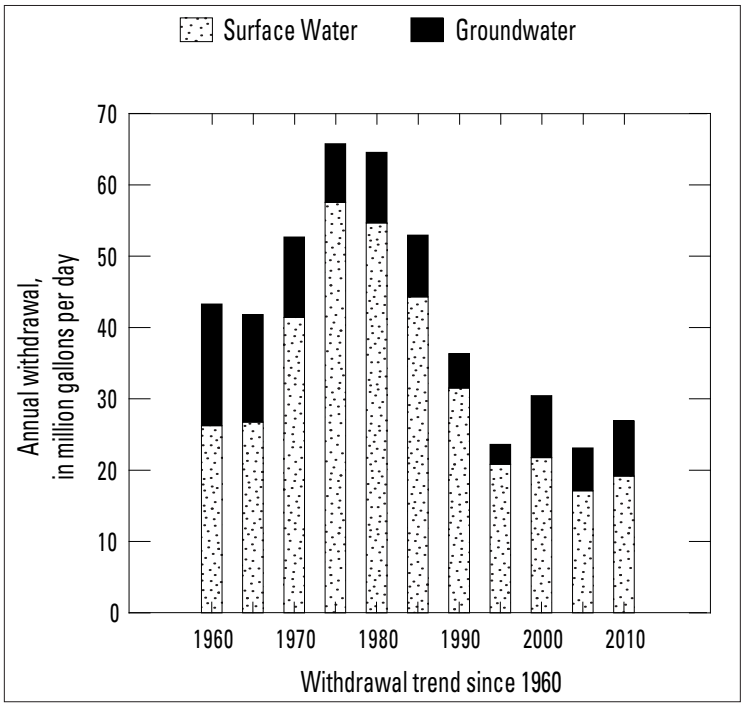
Population: 6,839
Population served by public supply: 5,977
Per capita withdrawals (gal/d): 3,934
Acres irrigated: 14,854
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.72		1.72
Industrial	2.45	.58	3.03
Power generation			.00
Rural domestic	.07		.07
Livestock	.04	.13	.17
Rice irrigation	3.45	18.42	21.87
General irrigation			.00
Aquaculture	.01	.04	.05
Total	**7.74**	**19.17**	**26.90**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.01	
20	Food products		.56
29	Petroleum refining	2.15	.02



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Cameron W. W. Dist. 1	0.39	
Cameron W. W. Dist. 2	.37	
Cameron W. W. Dist. 7	.03	
Cameron W. W. Dist. 9	.12	
Cameron W. W. Dist. 10	.38	
Cameron W. W. Dist. 11	.44	

Catahoula

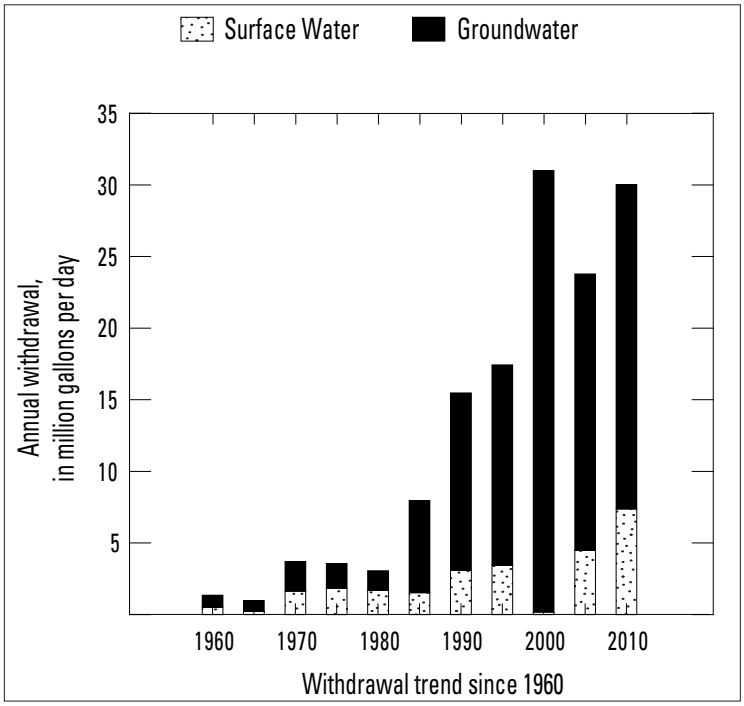
Population: 10,407
Population served by public supply: 9,127
Per capita withdrawals (gal/d): 2,884
Acres irrigated: 37,712
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.86		1.86
Industrial			.00
Power generation			.00
Rural domestic	.11		.11
Livestock	.02	.04	.06
Rice irrigation	11.86		11.86
General irrigation	7.34	7.34	14.68
Aquaculture	1.44		1.44
Total	**22.63**	**7.38**	**30.01**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Black River Water System	0.22	
Enterprise W. W. Dist. 1	.04	
Harrisonburg Water System	.04	
Jonesville Water System	.31	
Leland Water System	.06	
Maitland W. W. Dist.	.64	
Manifest Rhinehart W. S.	.15	
Sandy Lake Water System	.19	
Sicily Island Water System	.05	
South Bayou Macon W. S.	.14	
Whitehall Water System	.03	

Claiborne

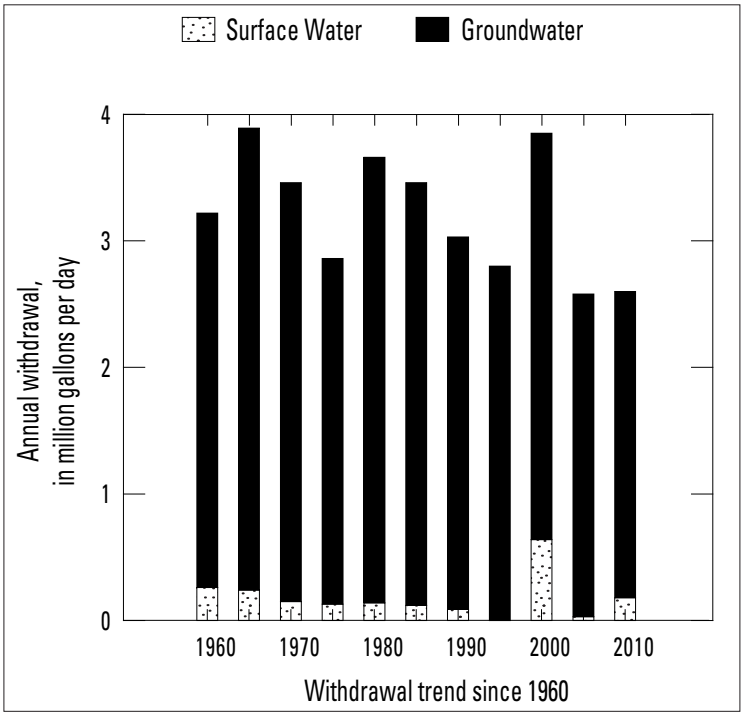
Population: 17,195
Population served by public supply: 15,028
Per capita withdrawals (gal/d): 151
Acres irrigated: 45
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.19		2.19
Industrial	.00	.15	.15
Power generation			.00
Rural domestic	.17		.17
Livestock	.03	.03	.06
Rice irrigation			.00
General irrigation	.04		.04
Aquaculture			.00
Total	**2.42**	**.18**	**2.60**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction		0.15



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Athens Water System	0.05	
Central Claiborne Water System	.25	
Claiborne Ward 9 Water System	.03	
Haynesville Water System	.32	
Homer Water System	.54	
Junction City Water System	.04	
Leatherman Creek Water System	.03	
Lisbon Water System	.03	
Middle Fork Water System	.02	
Norton Shop Water System	.01	
Pine Hill Water System	.07	
South Claiborne Water System	.40	
Summerfield Water System	.09	

Concordia

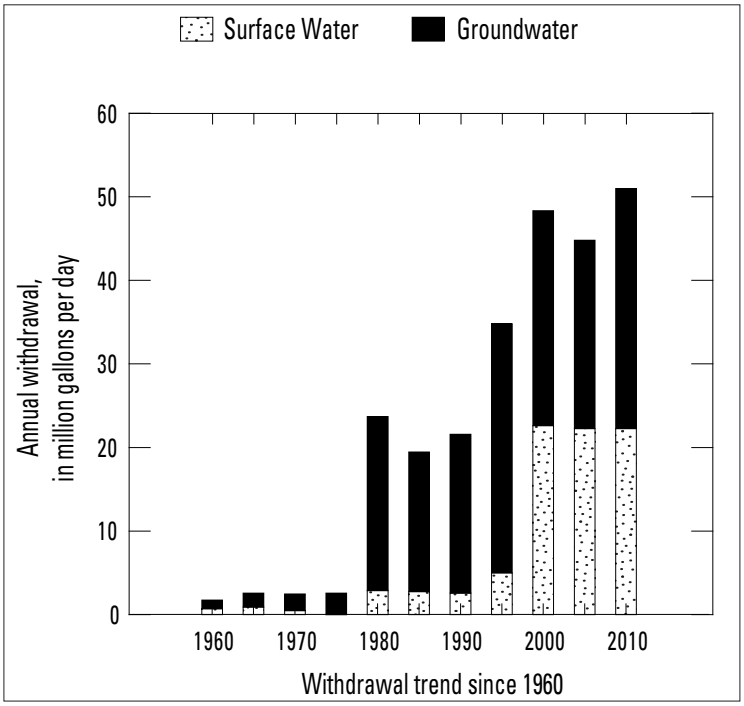
Population: 20,822
Population served by public supply: 20,010
Per capita withdrawals (gal/d): 2,449
Acres irrigated: 48,684
Hydroelectric power instream use (Mgal/d): 74,000

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.00	1.50	3.50
Industrial			.00
Power generation		8.26	8.26
Rural domestic	.06		.06
Livestock	.10	.02	.11
Rice irrigation	10.81	10.81	21.62
General irrigation	14.08	1.56	15.64
Aquaculture	1.70	.10	1.80
Total	**28.74**	**22.25**	**50.99**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Clayton Water System	0.05	
Concordia W. W. Dist. 1	.68	
Ferriday Water System		1.50
Lake St. John Water Dist. No. 1	.11	
Monterey Rural Water System	.29	
Ridgecrest Water System	.10	
Vidalia Water System	.76	

De Soto

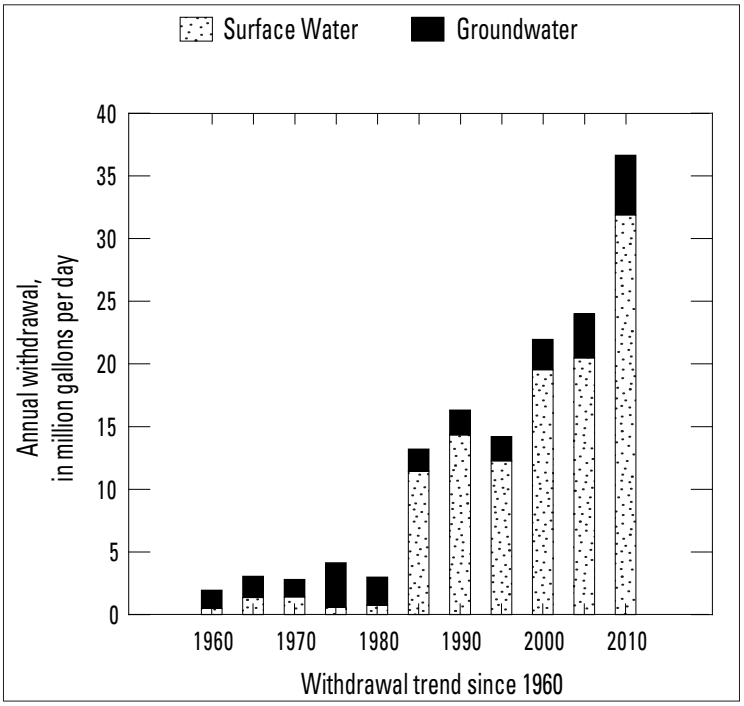
Population: 26,656
Population served by public supply: 18,819
Per capita withdrawals (gal/d): 1,375
Acres irrigated: 356
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.41	1.83	3.24
Industrial	2.53	21.04	23.57
Power generation		8.76	8.76
Rural domestic	.63		.63
Livestock	.17	.06	.23
Rice irrigation			.00
General irrigation	.02	.20	.23
Aquaculture			.00
Total	**4.76**	**31.89**	**36.66**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
12	Coal and lignite mining	1.24	
13	Oil and gas extraction	.99	4.11
26	Paper products	.29	16.93



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bayou Pierre Water System	0.11	
De Soto Parish W. W. Dist.No. 1		.19
East De Soto Water System	.11	
Grand Cane Water System	.05	
Keatchie Water System	.25	
Logansport Water System		.64
Mansfield Water System	.14	.99
North De Soto Water System	.33	
Rambin-Wallace Water System	.15	
South De Soto Water System	.05	
South Mansfield Water System	.22	

East Baton Rouge

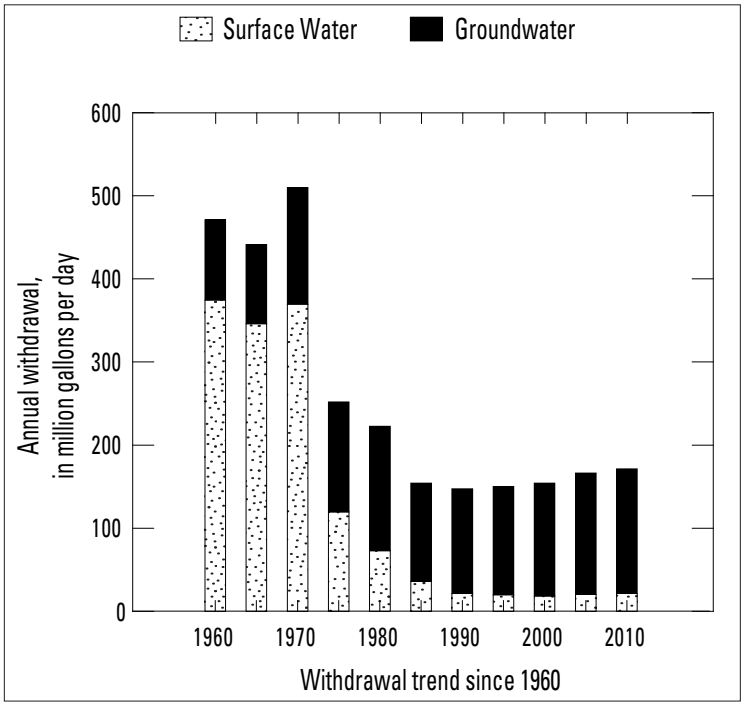
Population: 440,171
Population served by public supply: 436,650
Per capita withdrawals (gal/d): 389
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	75.12		75.12
Industrial	66.22	21.51	87.73
Power generation	7.79		7.79
Rural domestic	.28		.28
Livestock	.19	.01	.21
Rice irrigation			.00
General irrigation	.25		.25
Aquaculture	.04		.04
Total	**149.89**	**21.52**	**171.41**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
26	Paper products	33.23	
28	Chemicals	23.97	
29	Petroleum refining	8.69	18.80
30	Rubber and plastics	.17	2.70
33	Primary metals	.09	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Baker Utilities	4.45	
Baton Rouge Water Company	55.11	
Bellingrath Water Company, Inc.	.17	
Parish Water Company	12.69	
Red Oak Water Company	.58	
Slaughter Water System	.02	
Zachary Water System	2.02	

East Carroll

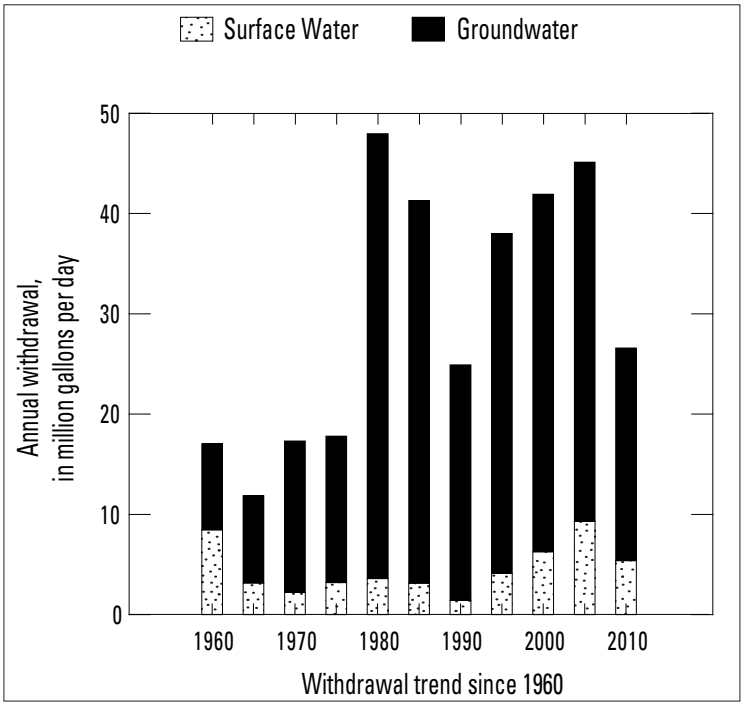
Population: 7,759
Population served by public supply: 7,573
Per capita withdrawals (gal/d): 3,427
Acres irrigated: 30,494
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.29		1.29
Industrial			.00
Power generation			.00
Rural domestic	.02		.02
Livestock	.00	.00	.01
Rice irrigation	9.26	2.72	11.99
General irrigation	10.64	2.66	13.3
Aquaculture			.00
Total	**21.20**	**5.39**	**26.59**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
East Carroll Water System	0.27	
Lake Providence Water System	1.02	

East Feliciana

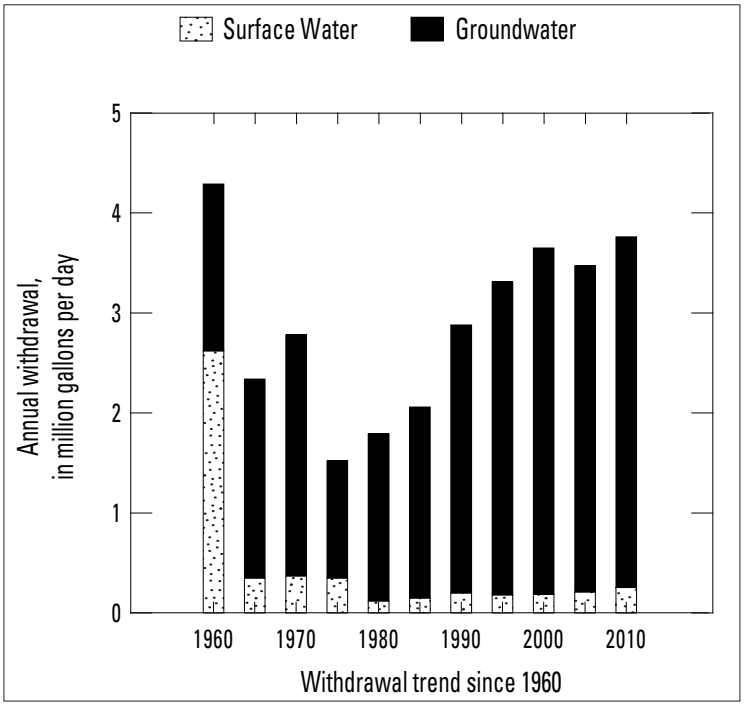
Population: 20,267
Population served by public supply: 17,085
Per capita withdrawals (gal/d): 186
Acres irrigated: 454
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	3.00		3.00
Industrial	.03		.03
Power generation			.00
Rural domestic	.27		.27
Livestock	.02	.19	.22
Rice irrigation			.00
General irrigation	.18	.06	.24
Aquaculture			.00
Total	**3.51**	**.25**	**3.76**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Clinton Water System	0.29	
East Feliciana Rural W. S.	1.01	
East Feliciana Water District 1	.05	
East Feliciana Water District 7	.57	
Jackson Water System	.20	
Norwood Water System	.04	
Slaughter Water System	.13	
Wilson Water System	.05	

Evangeline

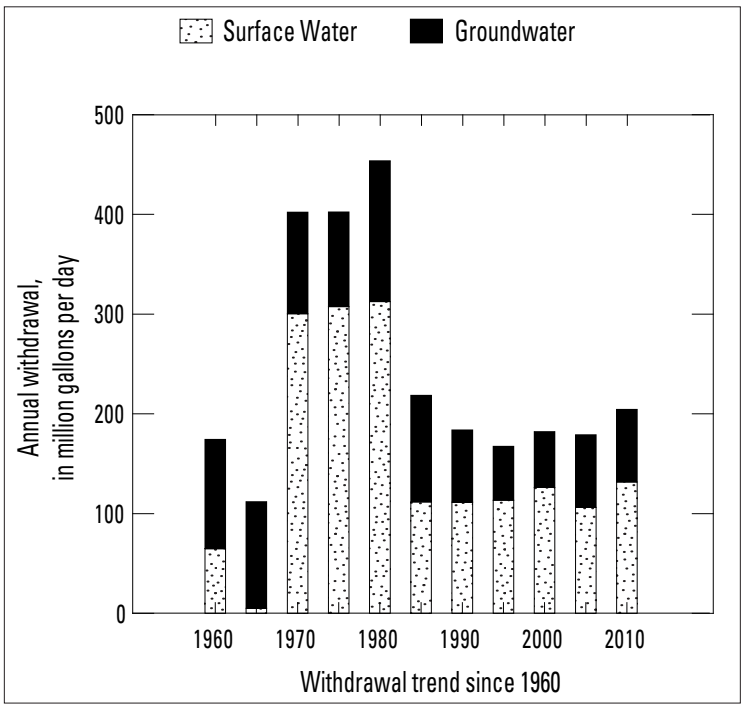
Population: 33,984
Population served by public supply: 29,770
Per capita withdrawals (gal/d): 6,013
Acres irrigated: 46,968
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	6.44		6.44
Industrial	1.89		1.89
Power generation		121.13	121.13
Rural domestic	.35		.35
Livestock	.17	.06	.22
Rice irrigation	42.61	5.68	48.29
General irrigation	1.59	.18	1.76
Aquaculture	19.64	4.62	24.26
Total	**72.69**	**131.67**	**204.35**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.16	
28	Chemicals	1.06	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bayou Des Cannes W. S.	0.53	
Chataignier Water System	.07	
East Side Water System	.38	
Evangeline Water Dist. 1	.20	
Mamou Road Water Dist.	.19	
Mamou Water System	.99	
Point Blue Water System	.27	
Reddell-Vidrine Water Dist.	.17	
Savoy-Swords Water System	.45	
Te Mamou Water Dist.	.27	
Turkey Creek Water System	.52	
Ville Platte Water System	2.35	
Ward 4 Water System	.05	

Franklin

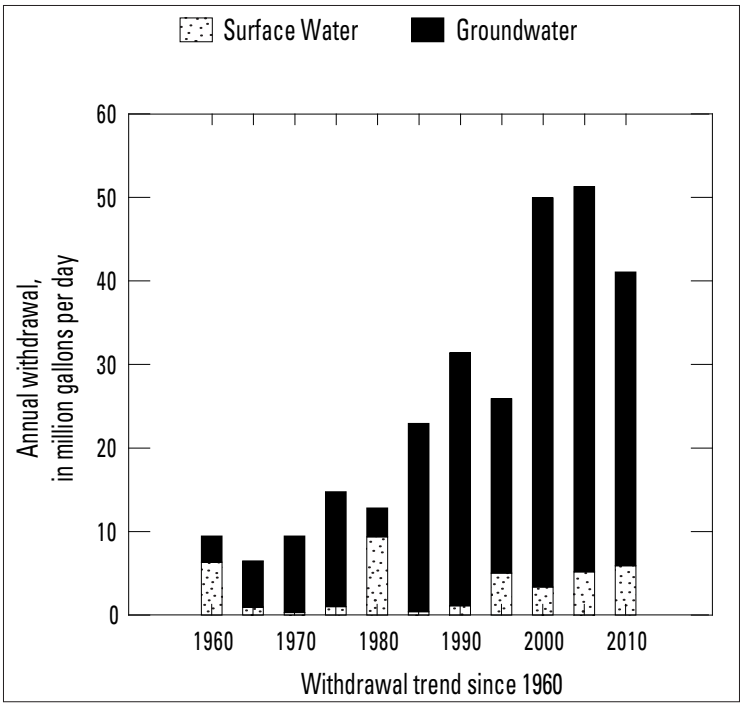
Population: 20,767
Population served by public supply: 12,709
Per capita withdrawals (gal/d): 1,978
Acres irrigated: 48,124
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.04		2.04
Industrial	1.00		1.00
Power generation			.00
Rural domestic	.64		.64
Livestock	.20		.20
Rice irrigation	.84	3.36	4.20
General irrigation	22.79	2.53	25.32
Aquaculture	7.67	.01	7.68
Total	**35.18**	**5.90**	**41.08**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	0.99	
32	Glass, clay, and concrete	.01	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
N. Franklin Water Works	0.65	
Turkey Creek Water System	.22	
West Winnsboro Water System	.24	
Winnsboro Water System	.83	
Wisner Water System	.09	

Grant

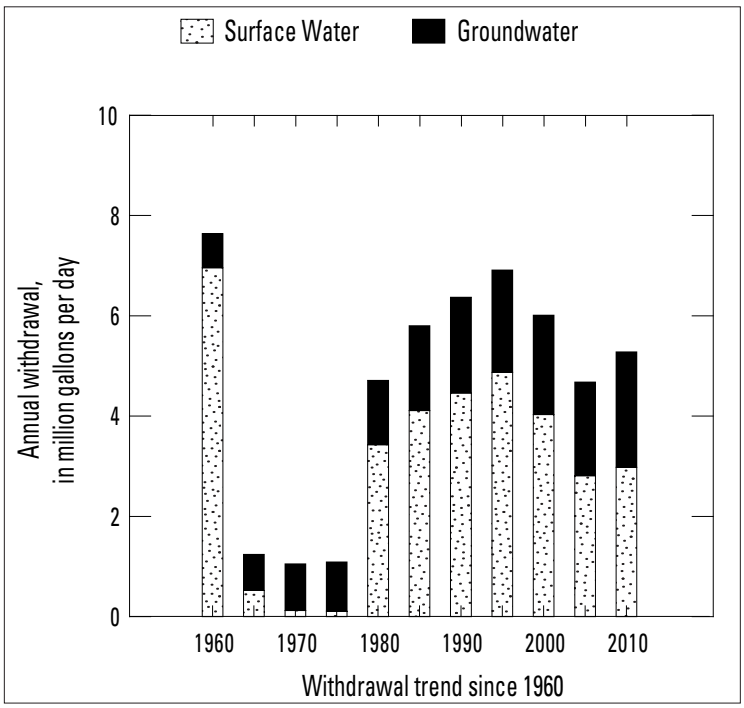
Population: 22,309
Population served by public supply: 19,052
Per capita withdrawals (gal/d): 237
Acres irrigated: 2,098
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.98	2.01	3.99
Industrial	.07		.07
Power generation			.00
Rural domestic	.23		.23
Livestock	.02	.03	.05
Rice irrigation			.00
General irrigation		.94	.94
Aquaculture			.00
Total	**2.30**	**2.98**	**5.28**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
24	Lumber	0.06	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Central Grant Water System	0.13	
Colfax Water System	.51	
Dry Prong Water System	.08	
Georgetown Water System		.01
Grant Zone 2 Water System	.15	
Jordan Hill\Red Hill W. W.	.04	
Montgomery Water System	.01	
Pollock Area Water System	.22	
Pollock Water System	.22	
Rapides Parish W. W. Dist. 3		2.00
South Grant Water Corp.	.30	
S. E. Grant Water System	.08	
West Grant Water Assoc.	.23	

Iberia

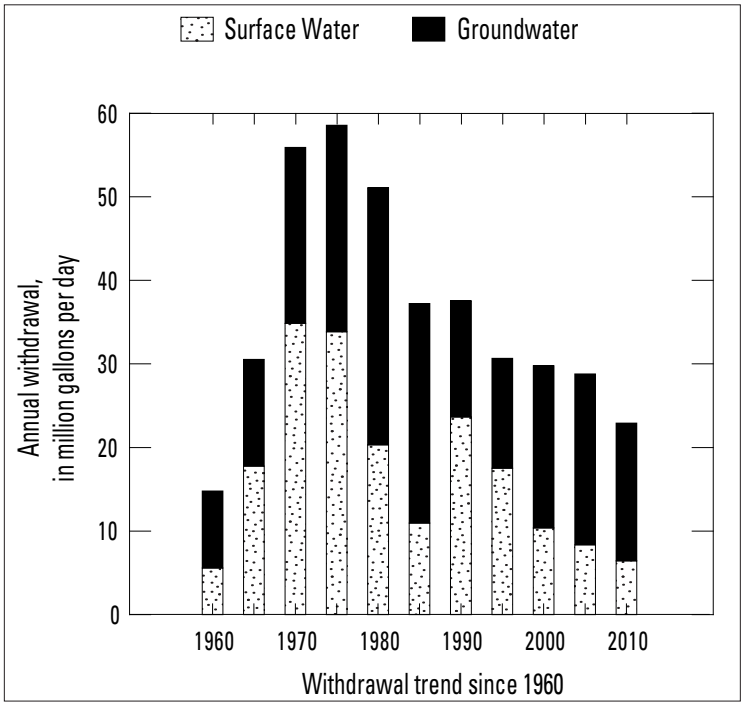
Population: 73,240
Population served by public supply: 58,885
Per capita withdrawals (gal/d): 313
Acres irrigated: 2,146
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	10.07		10.07
Industrial	4.40	5.45	9.85
Power generation			.00
Rural domestic	1.19		1.19
Livestock	.06	.01	.07
Rice irrigation	.13	.98	1.12
General irrigation	.61		.61
Aquaculture			.00
Total	**16.47**	**6.44**	**22.91**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.70	0.01
20	Food products	3.44	.38
28	Chemicals	.01	5.05
32	Glass, clay, and concrete	.25	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bayou Teche Water Works	0.76	
Coteau Water System	.52	
Jeanerette Water System	1.74	
Loreauville Water System	.13	
New Iberia Water System	6.91	

Iberville

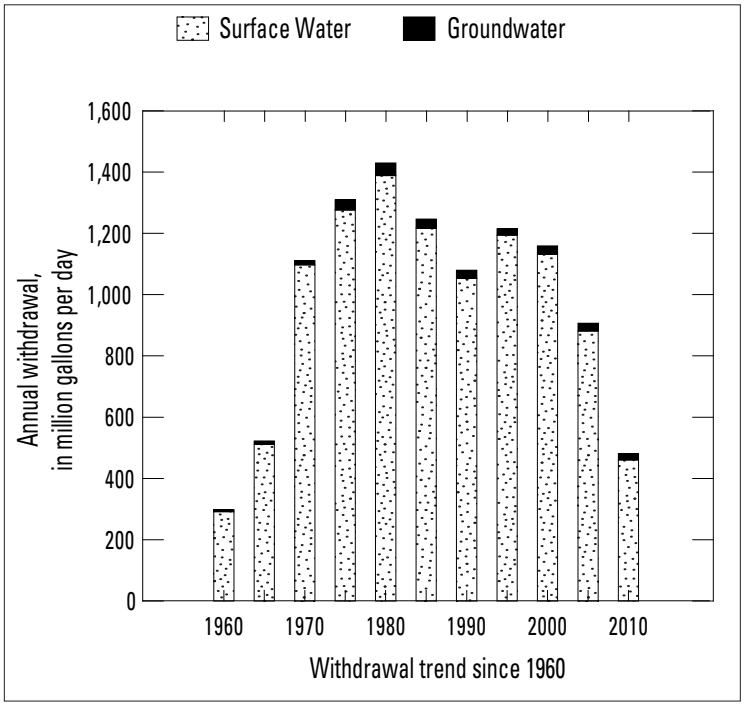
Population: 33,387
Population served by public supply: 31,451
Per capita withdrawals (gal/d): 14,419
Acres irrigated: 1,983
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.57	0.47	2.04
Industrial	15.61	387.47	403.08
Power generation	.82	59.17	59.99
Rural domestic	.15		.15
Livestock	.08	.03	.11
Rice irrigation			.00
General irrigation	.47	.32	.79
Aquaculture	2.18	13.08	15.27
Total	**20.88**	**460.54**	**481.42**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.03	0.01
20	Food products	7.59	
28	Chemicals	7.98	387.46
29	Petroleum refining	.01	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Iberville W. W. Dist. 3	0.52	0.47
Iberville W. W. Dist. 4	.36	
Maringouin Water System	.35	
Rosedale Water System	.09	
White Castle Water System	.25	

Jackson

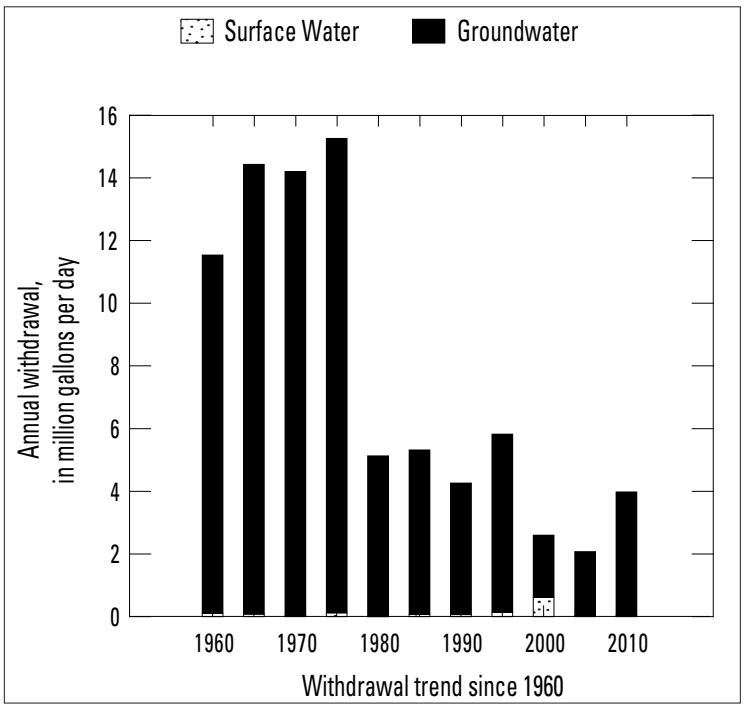
Population: 16,274
Population served by public supply: 14,337
Per capita withdrawals (gal/d): 244
Acres irrigated: 1
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.66		1.66
Industrial	2.08		2.08
Power generation			.00
Rural domestic	.15		.15
Livestock	.00	.05	.05
Rice irrigation			.00
General irrigation	.00		.00
Aquaculture	.04		.04
Total	**3.93**	**.05**	**3.98**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
26	Paper products	2.08	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bear Creek Water System	0.03	
Chatham Water System	.08	
East Hodge Water System	.04	
Eros Community Water System	.04	
Eros Water System	.02	
Hodge Water System	.28	
Jonesboro Water System	.63	
LWC Management Co., Inc.	.04	
McDonald Water System	.06	
North Hodge Water System	.04	
Punkin Center Hilltop W. S.	.15	
Quitman Water System	.07	
Shady Grove Water System	.01	
Southeast Hodge W. S.	.01	
Spring Creek Water & Sew.	.01	
Vixen Water System	.02	
Walker Community Water System	.02	
Weston Water System Inc.	.10	

Jefferson

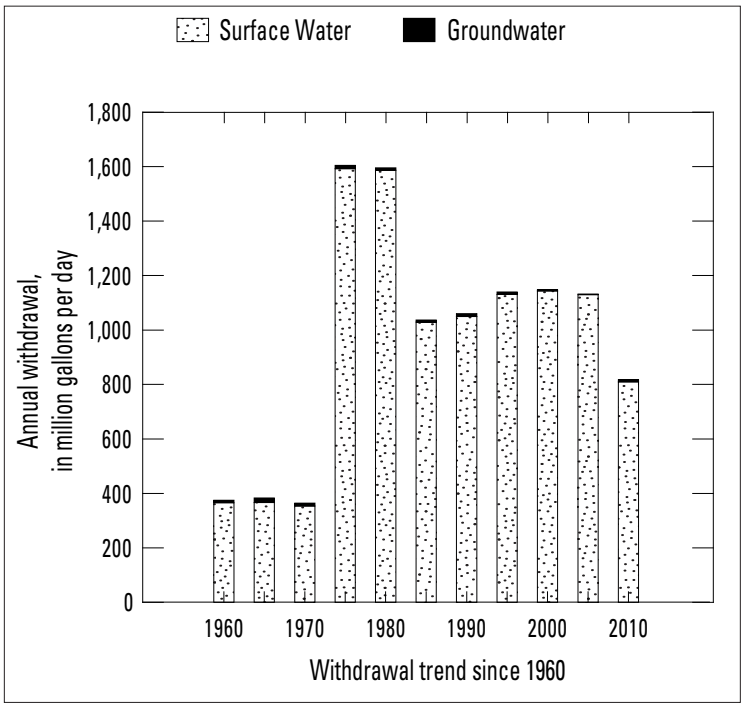
Population: 432,552
Population served by public supply: 432,119
Per capita withdrawals (gal/d): 1,888
Acres irrigated: 2
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply		64.95	64.95
Industrial	2.24	4.19	6.43
Power generation	4.79	740.42	745.21
Rural domestic	.04		.04
Livestock		.04	.04
Rice irrigation			.00
General irrigation	.08		.08
Aquaculture			.00
Total	**7.16**	**809.59**	**816.75**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	0.07	
26	Paper products	.70	
28	Chemicals		4.19
37	Transportation equipment	1.47	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
E. Jefferson W. W. Dist. No. 1		37.64
Gretna Waterworks		2.75
West Jefferson Waterworks		22.51
Westwego Water System		2.06

Jefferson Davis

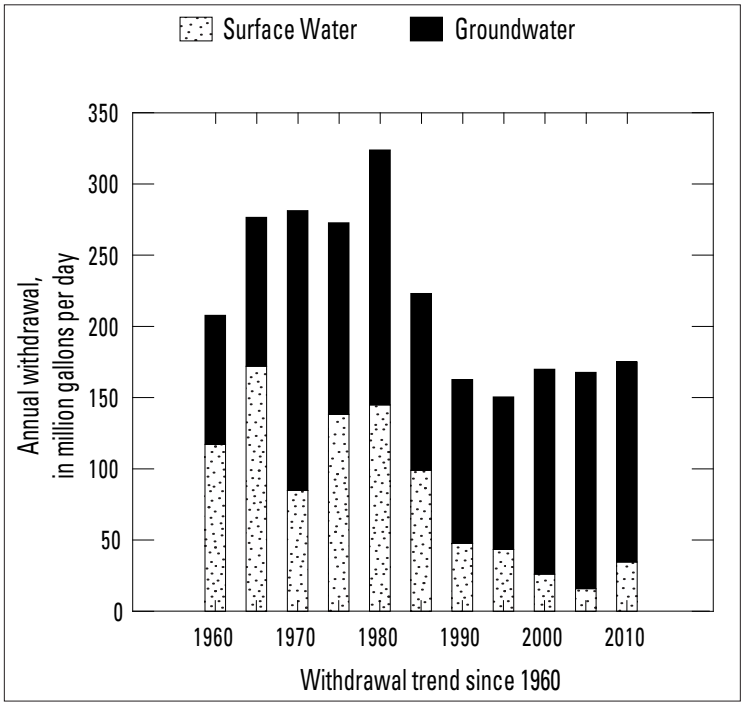
Population: 31,594
Population served by public supply: 26,760
Per capita withdrawals (gal/d): 5,541
Acres irrigated: 82,074
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	4.83		4.83
Industrial	.09		.09
Power generation			.00
Rural domestic	.39		.39
Livestock	.16		.16
Rice irrigation	122.51	10.58	133.09
General irrigation	.69	.46	1.15
Aquaculture	11.78	23.57	35.35
Total	**140.46**	**34.61**	**175.06**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
28	Chemicals	0.03	
29	Petroleum refining	.06	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Fenton Water System	0.03	
Jefferson Davis Water & Sewer	.65	
Jefferson Davis Central W. W.	.53	
Jefferson Davis W. W. Dist. 4	.32	
Jennings Water System	1.88	
Lake Arthur Water System	1.02	
Welsh Water System	.40	

Lafayette

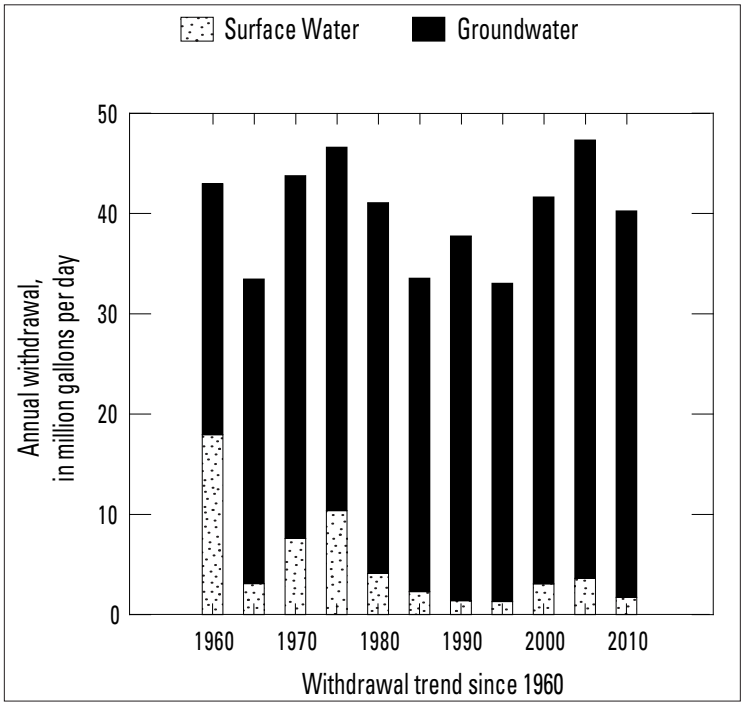
Population: 221,578
Population served by public supply: 179,257
Per capita withdrawals (gal/d): 182
Acres irrigated: 5,587
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	25.40		25.40
Industrial	.01		.01
Power generation	.96		.96
Rural domestic	2.43		2.43
Livestock	.24		.24
Rice irrigation	5.36	1.10	6.46
General irrigation	.52	.09	.61
Aquaculture	3.62	.54	4.15
Total	**38.53**	**1.72**	**40.25**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.01	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Broussard Water System	0.19	
Carencro Water System	2.14	
Duson Water System	.19	
Lafayette Utilities System	21.58	
South Lafayette W. W. Dist.	.10	
Total Environmental Systems Inc..	.32	
Water & Wastwater Utilities, Inc.	.10	
Youngsville Water System	.26	

Lafourche

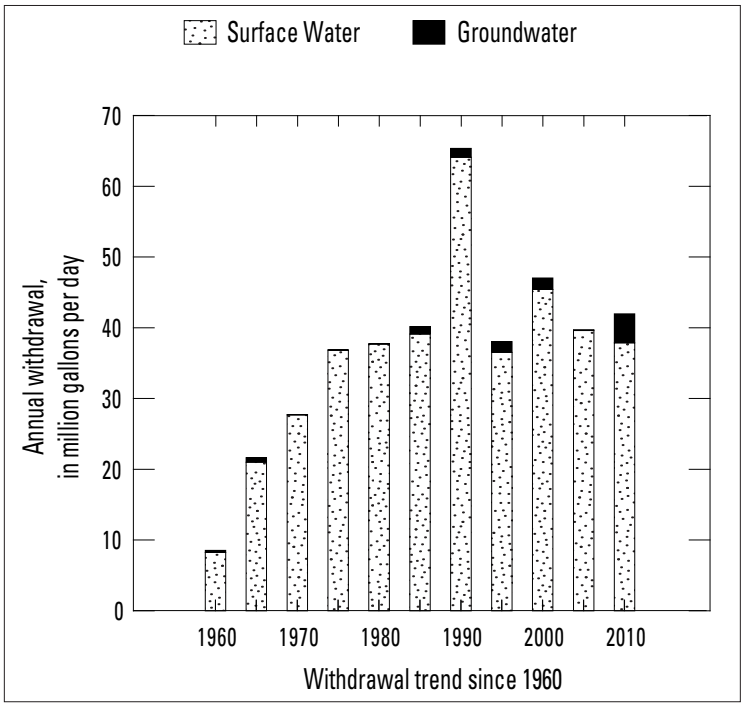
Population: 96,318
Population served by public supply: 96,029
Per capita withdrawals (gal/d): 436
Acres irrigated: 144
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply		22.69	22.69
Industrial	1.06	3.46	4.51
Power generation			.00
Rural domestic	.02		.02
Livestock	.11	.11	.23
Rice irrigation			.00
General irrigation		.05	.05
Aquaculture	2.89	11.57	14.46
Total	**4.09**	**37.88**	**41.97**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products		3.46
28	Chemicals	1.06	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Lafourche Water Dist. No. 1		10.14
Terrebonne W. W. Dist. No. 1		9.93
Thibodaux Water System		2.62

La Salle

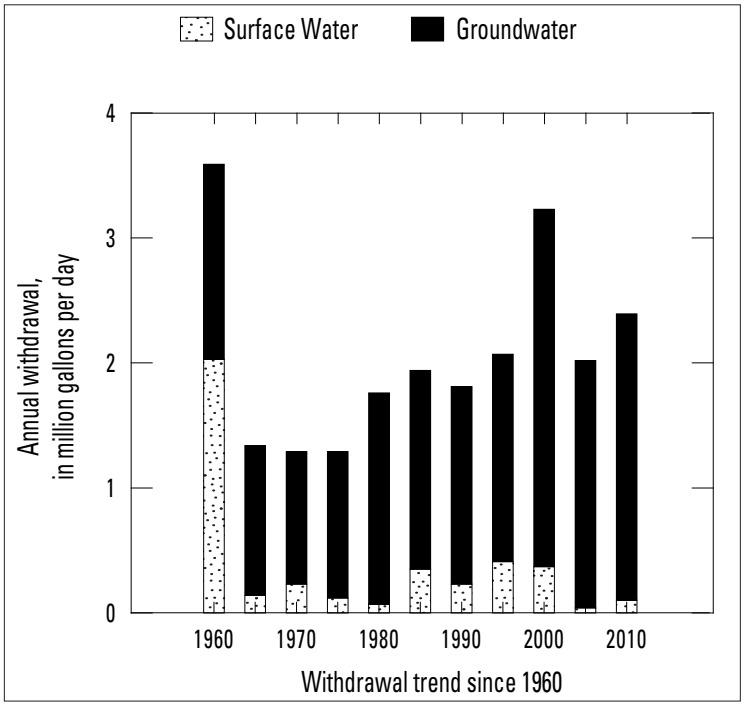
Population: 14,890
Population served by public supply: 14,175
Per capita withdrawals (gal/d): 161
Acres irrigated: 100
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.18		2.18
Industrial			.00
Power generation			.00
Rural domestic	.06		.06
Livestock	.01	.03	.03
Rice irrigation			.00
General irrigation		.08	.08
Aquaculture	.06		.06
Total	**2.29**	**.10**	**2.40**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Belah-Fellowship Water System	0.21	
East Jena Water System	.08	
Jena Water System	.48	
La Salle W. W. Dist. 1	.34	
Nebo Water System	.05	
Olla Water System	.22	
Rogers Community Water System	.03	
Summerville-Rosefield Water	.14	
Tullos Water System	.51	
Urania Water System	.12	

Lincoln

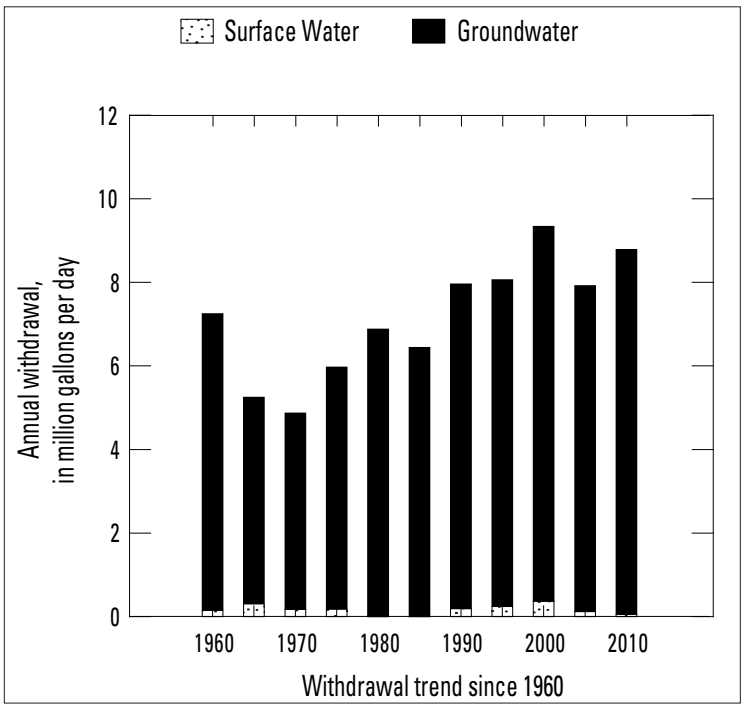
Population: 46,735
Population served by public supply: 44,398
Per capita withdrawals (gal/d): 188
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	7.70		7.70
Industrial	.85		.85
Power generation			.00
Rural domestic	.17		.17
Livestock	.01	.06	.06
Rice irrigation			.00
General irrigation			.00
Aquaculture			.00
Total	**8.73**	**.06**	**8.78**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
24	Lumber	0.13	
32	Glass, clay, and concrete	.17	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Choudrant Water System	0.25	
Culbertson Water System	.25	
Dubach Water System	.07	
Fellowship Water System	.05	
Grambling Water System	.41	
Greater Ward 1 W. W. Dist.	.54	
Hico Water System	.26	
Hilly-Greenwood W. S.	.14	
Lincoln W. W. Dist. 1	.03	
Lincoln W. W. Dist. 3	.39	
Mineral Springs Water System	.08	
Mt. Olive Water Dist.	.07	
Mt. Zion Water System	.25	
Ruston Utilities System	4.18	
Simsboro Water System	.09	
Wesley Chapel Water System	.25	

Livingston

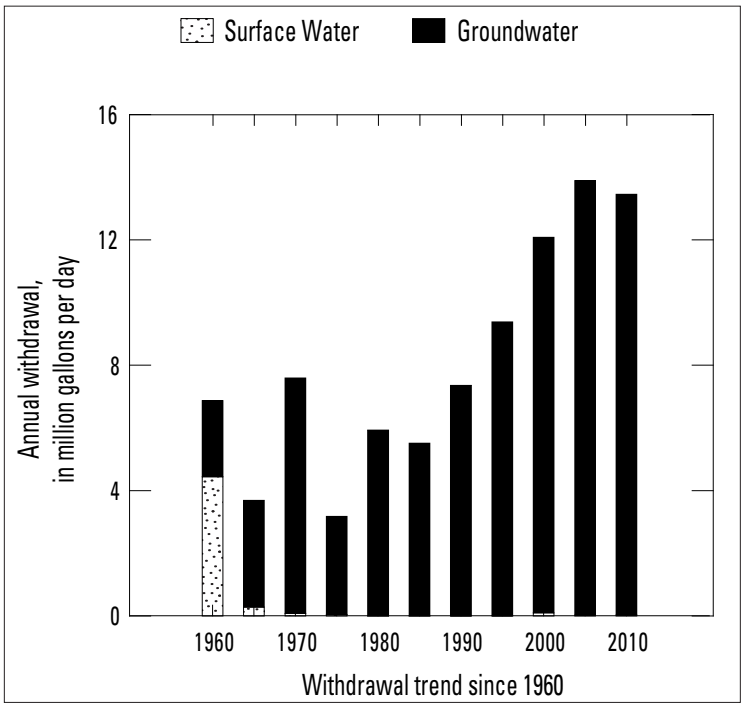
Population: 128,026
Population served by public supply: 90,258
Per capita withdrawals (gal/d): 106
Acres irrigated: 63
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	11.76		11.76
Industrial	.10		.10
Power generation			.00
Rural domestic	1.40		1.40
Livestock	.05	.04	.09
Rice irrigation			.00
General irrigation	.06		.06
Aquaculture	.18		.18
Total	**13.55**	**.04**	**13.59**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	0.01	
24	Lumber	.10	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Albany Water System	0.42	
Colyell Community Water Assoc.	.24	
Denham Springs Water Dept.	3.50	
Diversion Water Co.	.26	
Fourth Ward Water Works	.23	
French Settlement Water System	.18	
Head of Island Water System	.25	
Killian Water System	.09	
Livingston Water System	.72	
Port Vincent Water System	.05	
Springfield Water System	.14	
Vincent Acres Water Co.	.05	
Walker Water System	1.12	
Ward 2 Water District	4.35	

Madison

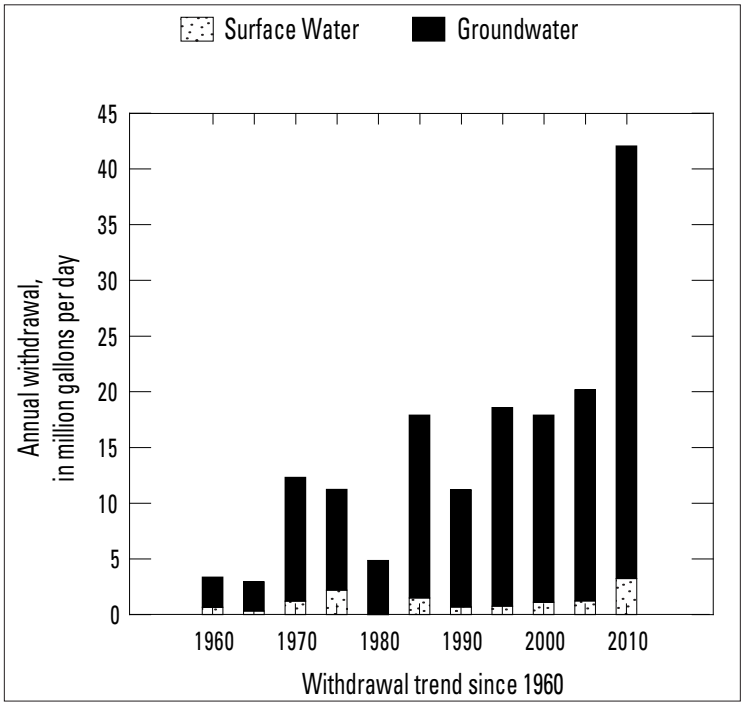
Population: 12,093
Population served by public supply: 11,851
Per capita withdrawals (gal/d): 3,479
Acres irrigated: 64,477
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.03		2.03
Industrial			.00
Power generation			.00
Rural domestic	.02		.02
Livestock	.01	.01	.02
Rice irrigation	8.13		8.13
General irrigation	28.28	3.14	31.42
Aquaculture	.38	.09	.46
Total	**38.83**	**3.24**	**42.07**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Delta Water System	0.02	
Tallulah Water Service	1.54	
Walnut Bayou Water Assoc.	.47	

Morehouse

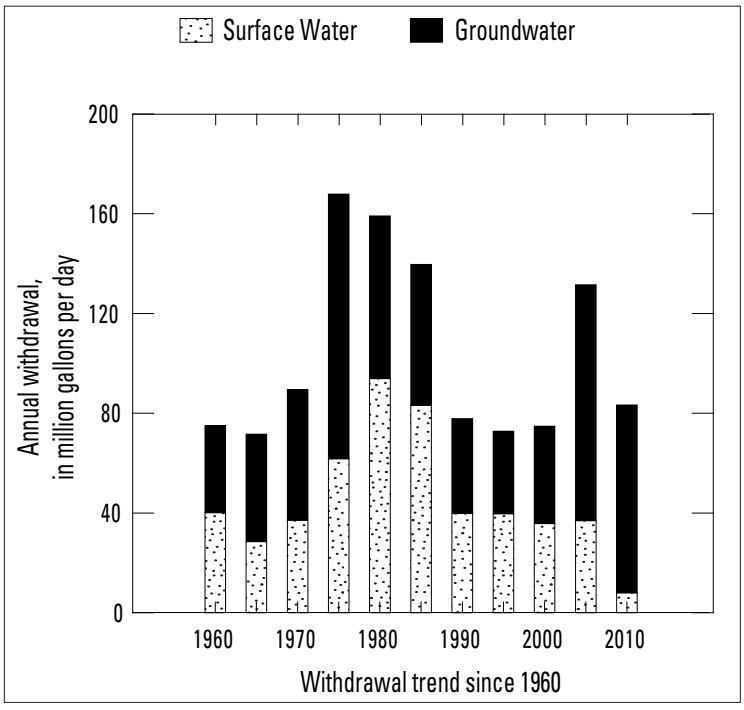
Population: 27,979
Population served by public supply: 25,909
Per capita withdrawals (gal/d): 2,977
Acres irrigated: 93,621
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.99		2.99
Industrial	.24		.24
Power generation			.00
Rural domestic	.17		.17
Livestock	.04	.01	.06
Rice irrigation	49.69	5.52	55.21
General irrigation	22.17	2.46	24.63
Aquaculture			.00
Total	**75.31**	**8.00**	**83.30**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
26	Paper products	0.22	
28	Chemicals	.02	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bayou Bonne Idee Water System	0.12	
Beekman Water System	.08	
Bonita Water System	.08	
Jones-McGinty Water System	.11	
Mer Rouge Water System	.11	
Morehouse Central Water System	.05	
Morehouse W. W. Dist. 1	.26	
Morehouse W. W. Dist. 2	.14	
Oak Ridge Water System	.02	
Peoples Water Service Co.	1.93	
S. Bonne Idee Water System	.01	
Ward 3 Water System	.07	

Natchitoches

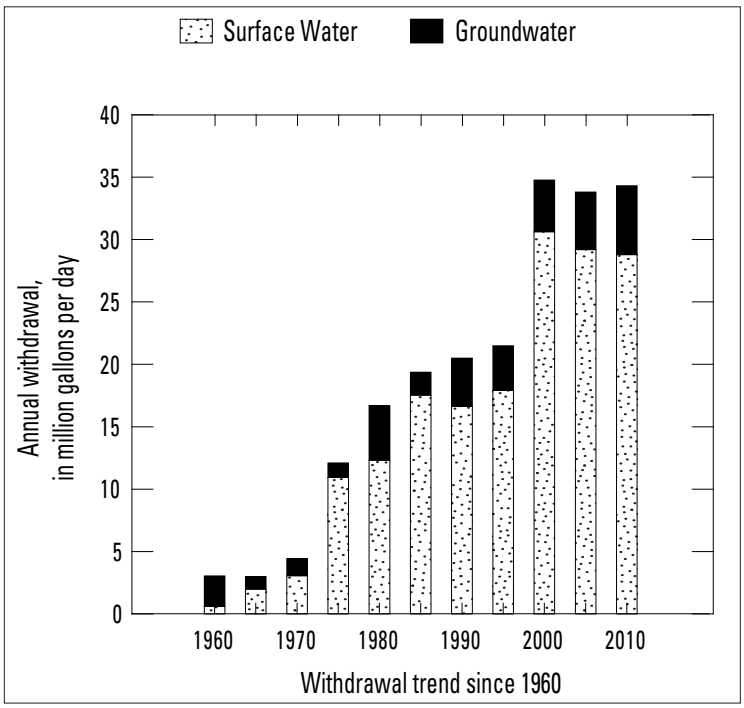
Population: 39,566
Population served by public supply: 33,117
Per capita withdrawals (gal/d): 867
Acres irrigated: 15,068
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	0.89	5.77	6.66
Industrial	.03	12.69	12.72
Power generation			.00
Rural domestic	.51		.51
Livestock	.06	.25	.31
Rice irrigation	.64	3.63	4.27
General irrigation	1.28	5.11	6.39
Aquaculture	2.11	1.36	3.46
Total	**5.52**	**28.80**	**34.32**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction		0.01
24	Lumber	.03	
26	Paper products		12.67



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Campti Water System	0.08	
Chee Chee Bay Water System	.04	
Chestnut-Readhimer W.S.	.03	
Creston Water System	.05	
Goldonna Water System	.03	
Natchitoches Utility System		5.73
Natchitoches W. W. Dist. 2	.42	
Powhatan Water System	.06	
Provencal Water System	.08	
Robeline-Marthaville Water	.10	
Sandy Point 480 W. S.		.03

Orleans

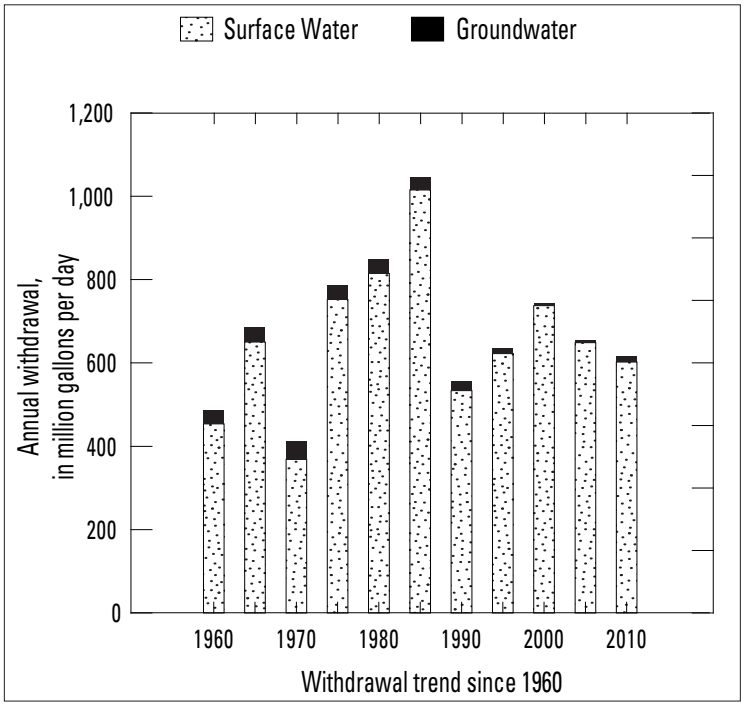
Population: 343,829
Population served by public supply: 341,766
Per capita withdrawals (gal/d): 1,790
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply		149.14	149.14
Industrial	1.88	.00	1.88
Power generation	10.87	453.20	464.07
Rural domestic	.17		.17
Livestock	.00	.02	.03
Rice irrigation			.00
General irrigation	.02		.02
Aquaculture			.00
Total	**12.95**	**602.37**	**615.31**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
28	Chemicals	1.41	
32	Glass, clay, and concrete	.47	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
New Orleans Sewage & Water		149.14

Ouachita

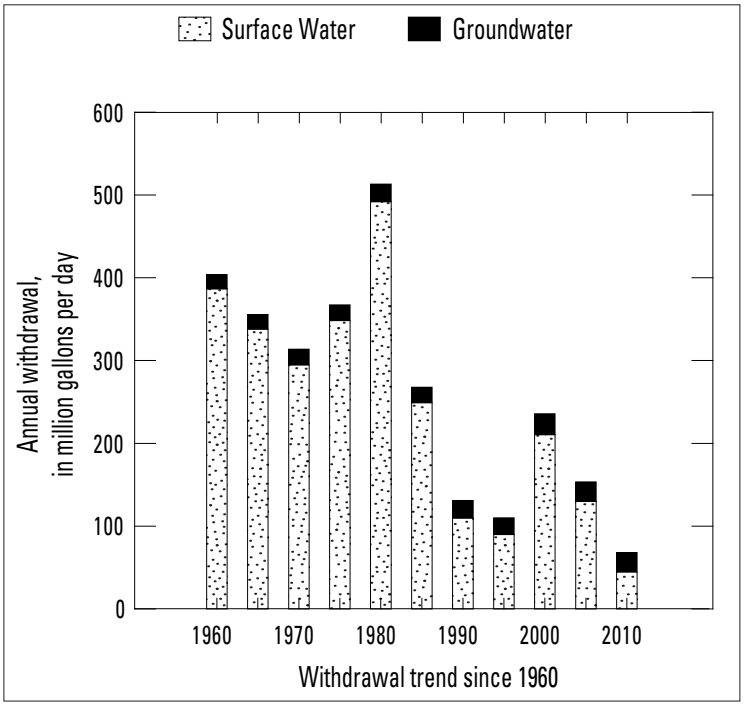
Population: 153,720
Population served by public supply: 148,186
Per capita withdrawals (gal/d): 443
Acres irrigated: 17,104
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	11.88	13.00	24.88
Industrial	9.82	13.92	23.74
Power generation	.00	2.52	2.52
Rural domestic	.44		.44
Livestock		.07	.07
Rice irrigation	.69	10.81	11.50
General irrigation	.49	4.42	4.91
Aquaculture	.01	.03	.04
Total	**23.33**	**44.77**	**68.09**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.02	
14	Nonfuels/nonmetals mining		.05
26	Paper products	9.79	12.50
28	Chemicals	.01	1.37



Withdrawals by Major Public Supplier (Mgal/d)

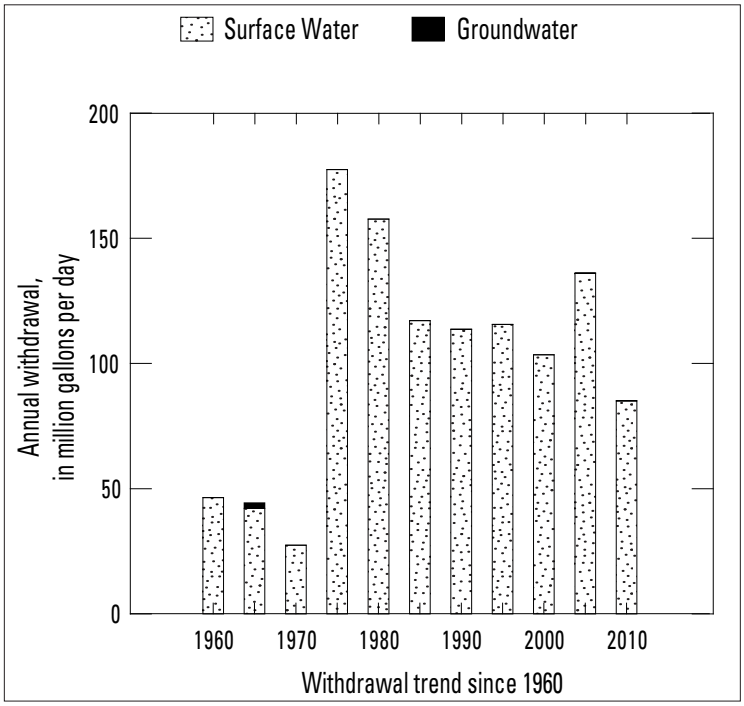
Public Supplier	GW	SW
Aqua Water System	0.01	
Better Water Works	.21	
Cadeville Water Dist.	.33	
Calhoun Water System	.07	
Cheniere-Drew Water System	1.05	
Frost Town Water System	.08	
Greater Ouachita Water. Co.	4.05	
Hickory Bend Water System	.02	
Indian Village Water System	.11	
Kiroli - Darbonne Water System	.39	
L & R Utilities, Inc.	.10	
LWC Management Co. Inc	.65	
Monroe Water System		13.00
Prairie Road Water System	.20	
Sikes Water System	.03	
S. W. Ouachita Water District	.73	
Swartz Water Works	.02	
Toney Road Water System	.01	
West Monroe Water System	3.70	
Western Utilities Inc.	.07	

Plaquemines

Population: 23,042
Population served by public supply: 22,512
Per capita withdrawals (gal/d): 3,694
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)			
	Groundwater (GW)	Surface Water (SW)	Total
Public supply		6.32	6.32
Industrial		78.71	78.71
Power generation			.00
Rural domestic	.04		.04
Livestock		.05	.05
Rice irrigation			.00
General irrigation			.00
Aquaculture			.00
Total	**.04**	**85.07**	**85.11**

Withdrawals by Major Industrial Group (Mgal/d)			
Standard Industrial Classification		GW	SW
28	Chemicals		17.43
29	Petroleum refining		61.28



Withdrawals by Major Public Supplier (Mgal/d)		
Public Supplier	GW	SW
Plaquemines Parish W. W.		6.32

Pointe Coupee

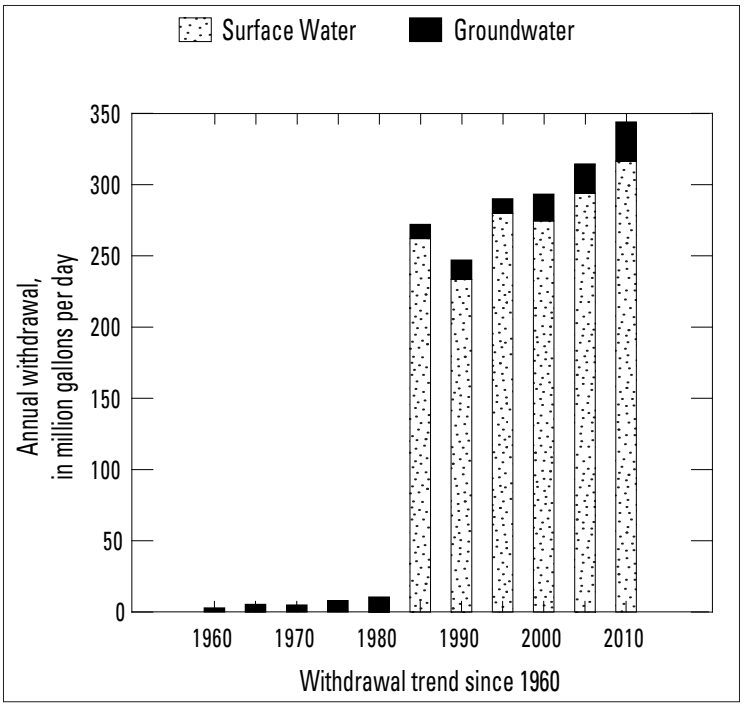
Population: 22,802
Population served by public supply: 19,952
Per capita withdrawals (gal/d): 15,082
Acres irrigated: 19,076
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	4.08		4.08
Industrial	4.92		4.92
Power generation	1.89	314.17	316.05
Rural domestic	.23		.23
Livestock	.10	.07	.17
Rice irrigation	4.78		4.78
General irrigation	7.19		7.19
Aquaculture	4.34	2.15	6.49
Total	**27.52**	**316.39**	**343.90**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	4.21	
32	Glass, clay, and concrete	.59	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
East Lejeune Water System	0.01	
False River Water Company	.41	
Fordoche Water System	.13	
Innis Water Corporation, Inc.	.17	
Livonia Water System	.24	
M. & S. Water Supply	.09	
Maringouin Village Water System	.29	
Morganza Water System	.06	
New Roads Water System	1.06	
Old River Water Dist. 1	.02	
Pointe Coupee W. W. Corp.	.51	
Pointe Coupee Water Dist. #1	.20	
Pointe Coupee Water Dist. #2	.36	
Torbert-Frisco Water System	.52	
Waterloo Water Service	.01	

Rapides

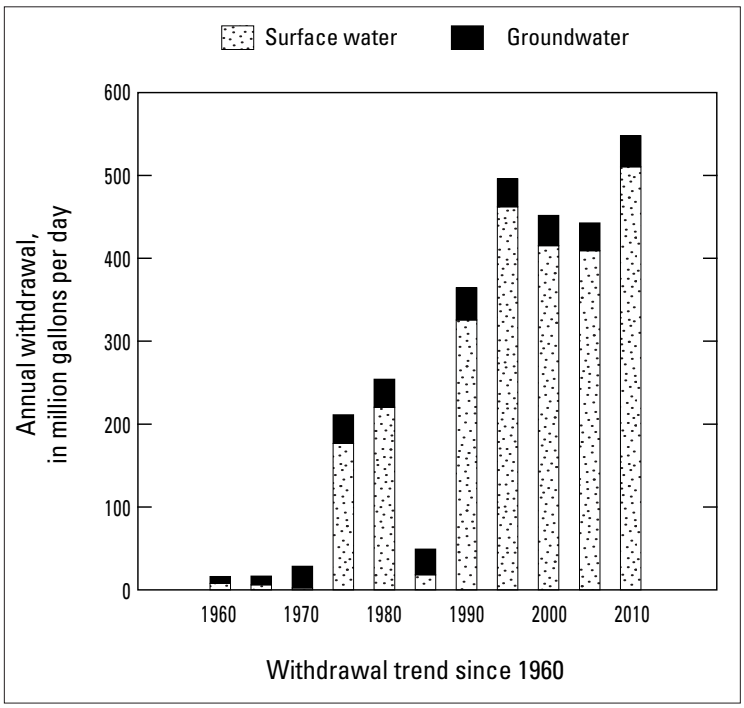
Population: 131,613
Population served by public supply: 125,164
Per capita withdrawals (gal/d): 4,162
Acres irrigated: 22,139
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	25.87		25.87
Industrial	.66		.66
Power generation	.12	498.92	499.03
Rural domestic	.52		.52
Livestock	.03	.10	.13
Rice irrigation	4.36	6.49	10.85
General irrigation	2.62	2.62	5.23
Aquaculture	3.25	2.33	5.59
Total	**37.43**	**510.46**	**547.89**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
24	Lumber	0.01	
26	Paper products	.65	



Withdrawals by Major Public Supplier (Mgal/d)

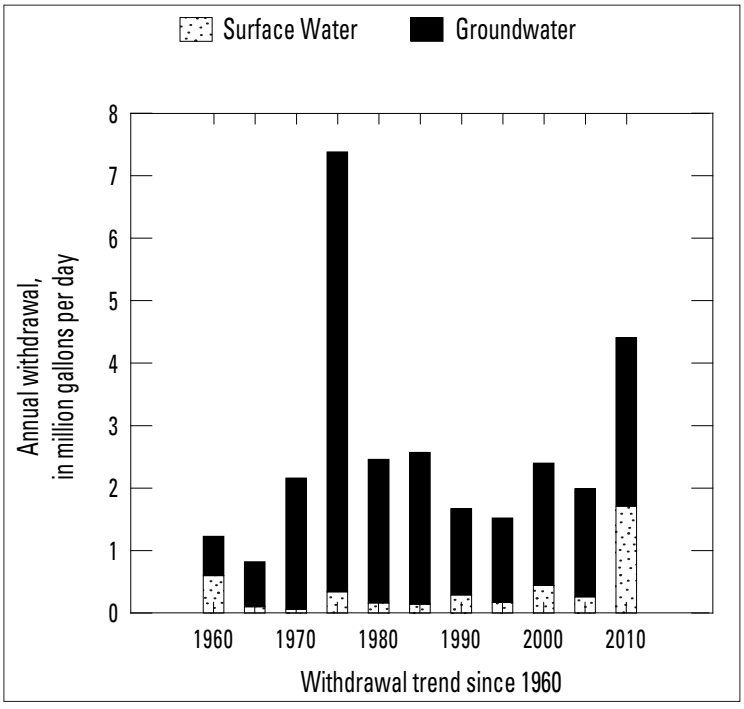
Public Supplier	GW	SW
Alexandria Water System	16.24	
Avoyelles W. W. Dist. # 1	.15	
Boyce Water System	.16	
Buckeye Water District 50	.86	
Bunkie Water System	.66	
Cheneyville Water System	.16	
Elmer-Melder-Cal W. S.	.19	
Forest Hill Water System	.27	
Gardner Comm Water System	.35	
Glenmora Town Water System	.14	
Hammock Water System	.06	
Hineston Water System	.08	
Kolin-Ruby-Wise Water Dist.	.34	
Lecompte Water System	.20	
Lena Water System	.29	
McNary Water System	.04	
Pineville Water System	2.66	
Rapides Island Water Assoc.	.52	
Rapides W. W. Dist. 3	1.60	
Sieper Area Water System	.08	
Ward 6 Water Assoc.	.07	
Woodworth Water System	.57	

Red River

Population: 9,091
Population served by public supply: 6,482
Per capita withdrawals (gal/d): 485
Acres irrigated: 2,805
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)			
	Groundwater (GW)	Surface Water (SW)	Total
Public supply	0.66	0.20	0.85
Industrial	.59	1.12	1.71
Power generation			.00
Rural domestic	.22		.22
Livestock	.06	.09	.16
Rice irrigation			.00
General irrigation	1.18	.29	1.47
Aquaculture			.00
Total	**2.70**	**1.71**	**4.41**

Withdrawals by Major Industrial Group (Mgal/d)			
Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.59	1.12



Withdrawals by Major Public Supplier (Mgal/d)		
Public Supplier	GW	SW
Coushatta Water System	0.28	
East Cross Water System	.03	
Edgefield Water System	.03	
Fairview Union Water System		.20
Halfway-Carroll Water System	.03	
Hall Summit Water System	.07	
Hickory Grove Water System	.04	
Martin Water System	.13	
Social Springs Water System	.03	

Richland

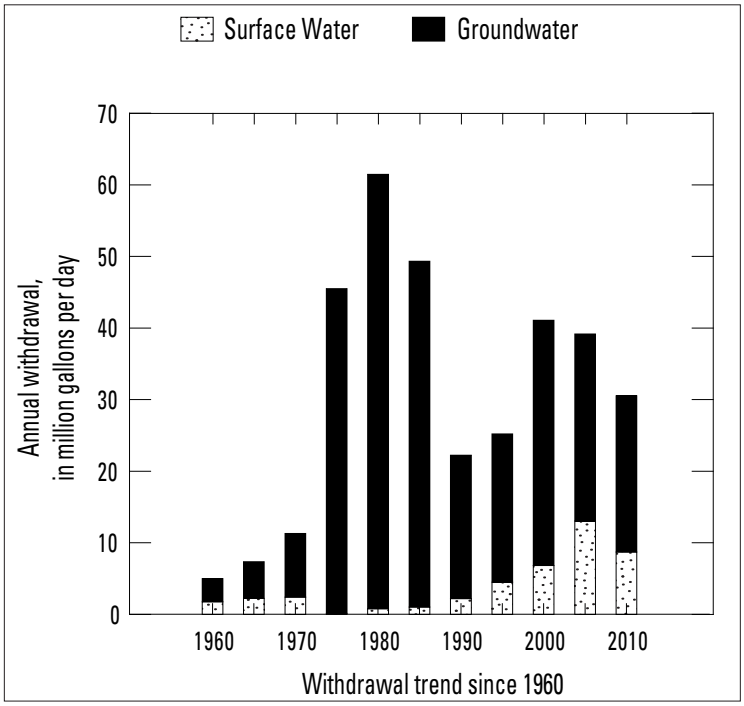
Population: 20,725
Population served by public supply: 14,798
Per capita withdrawals (gal/d): 1,474
Acres irrigated: 38,056
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	2.89		2.89
Industrial			.00
Power generation			.00
Rural domestic	.47		.47
Livestock	.06	.06	.11
Rice irrigation	9.76		9.76
General irrigation	8.65	8.65	17.31
Aquaculture			.00
Total	**21.83**	**8.71**	**30.54**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

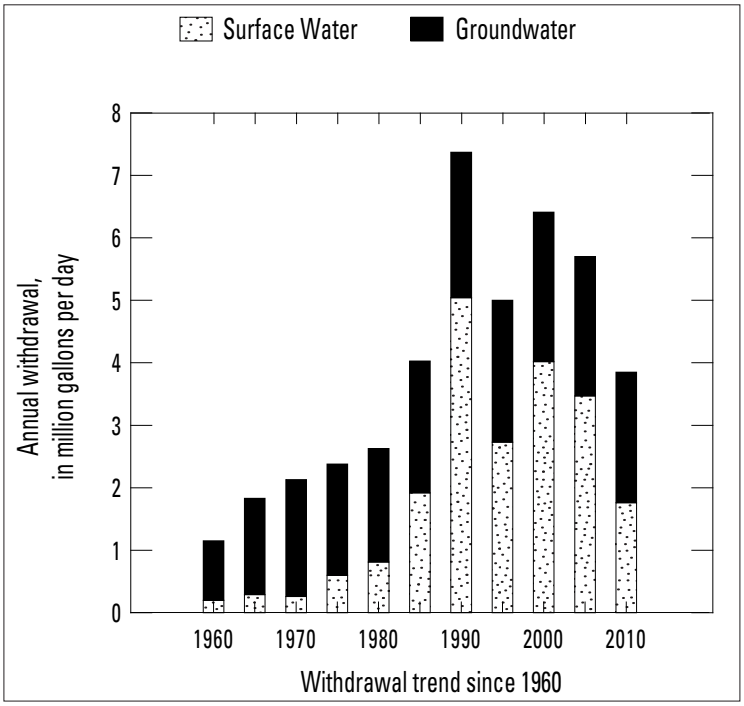
Public Supplier	GW	SW
Archibald Water System	0.39	
Delhi Water System	1.00	
Liddieville Water System	.11	
Mangham Water System	.08	
N. Franklin Water Works	.74	
Rayville Water System	.02	
River Road Water System	.24	
Start Water System	.21	

Sabine

Population: 24,233
Population served by public supply: 11,608
Per capita withdrawals (gal/d): 159
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 1,014

Withdrawals, in million gallons per day (Mgal/d)			
	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.25	1.30	2.55
Industrial	.14	.36	.50
Power generation			.00
Rural domestic	.68		.68
Livestock	.01	.10	.12
Rice irrigation			.00
General irrigation	.00	.00	.01
Aquaculture			.00
Total	**2.09**	**1.76**	**3.85**

Withdrawals by Major Industrial Group (Mgal/d)			
Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.14	0.33
24	Lumber		.03



Withdrawals by Major Public Supplier (Mgal/d)		
Public Supplier	GW	SW
Belmont Waterworks, Inc.	0.37	
Converse Water System	.03	
Fisher Water Department	.03	
Many Water System	.39	.43
Noble Water System	.03	
Pendleton Water Assoc.		.12
Plainview Water System	.04	
Pleasant Hill Water System	.09	
S. Toledo Bend W. W. Dist.		.49
Union Springs Water System	.05	
Utility Data Service Corp.		.26
Zwolle Water Department	.21	

St. Bernard

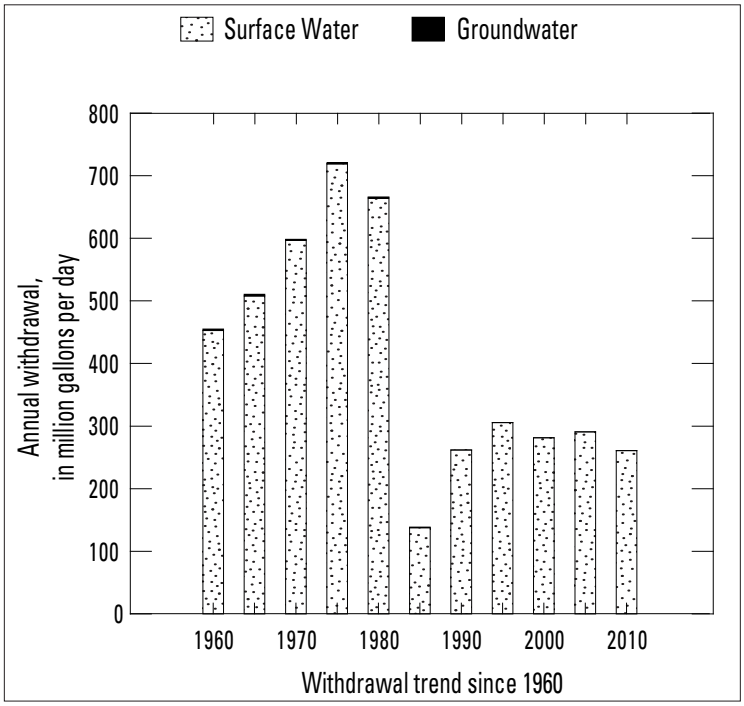
Population: 35,897
Population served by public supply: 35,825
Per capita withdrawals (gal/d): 7,263
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply		7.82	7.82
Industrial		252.87	252.87
Power generation			.00
Rural domestic	.01		.01
Livestock	.01		.01
Rice irrigation			.00
General irrigation			.00
Aquaculture			.00
Total	**.02**	**260.70**	**260.71**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction		1.18
20	Food products		13.47
29	Petroleum refining		238.23



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
St. Bernard Parish Public Works		7.82

St. Charles

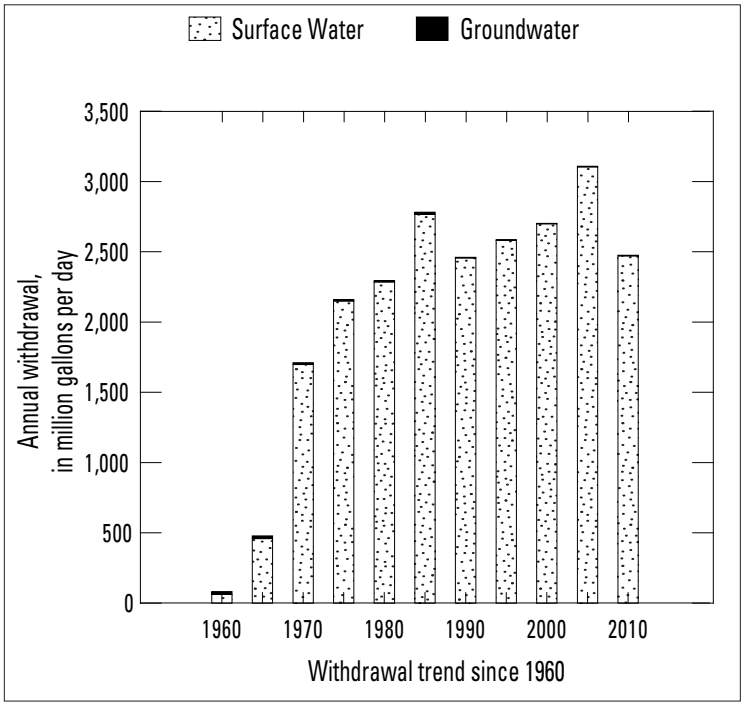
Population: 52,780
Population served by public supply: 52,516
Per capita withdrawals (gal/d): 46,902
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply		8.50	8.50
Industrial	4.21	503.20	507.41
Power generation		1,959.53	1,959.53
Rural domestic	.02		.02
Livestock	.01	.05	.05
Rice irrigation			.00
General irrigation			.00
Aquaculture			.00
Total	**4.24**	**2,471.28**	**2,475.51**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
28	Chemicals	0.48	478.39
29	Petroleum refining	3.73	24.81



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
St. Charles Dept. Dist. 1		4.31
St. Charles Dept. Dist. 2		4.19

St. Helena

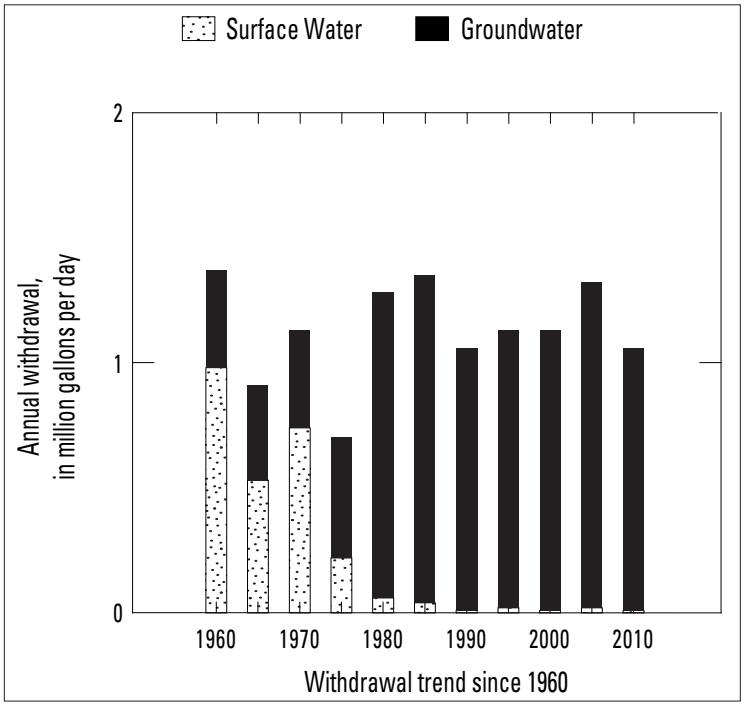
Population: 11,203
Population served by public supply: 4,257
Per capita withdrawals (gal/d): 95
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	0.39		0.39
Industrial	.03		.03
Power generation			.00
Rural domestic	.53		.53
Livestock	.09	.01	.11
Rice irrigation			.00
General irrigation			.00
Aquaculture			.00
Total	**1.05**	**.01**	**1.06**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	0.03	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Greensburg Water System	0.16	
Montpelier Water System	.03	
Pine Grove W. W. Assoc.	.01	
St Helena W. W. Dist. 2	.19	

St. James

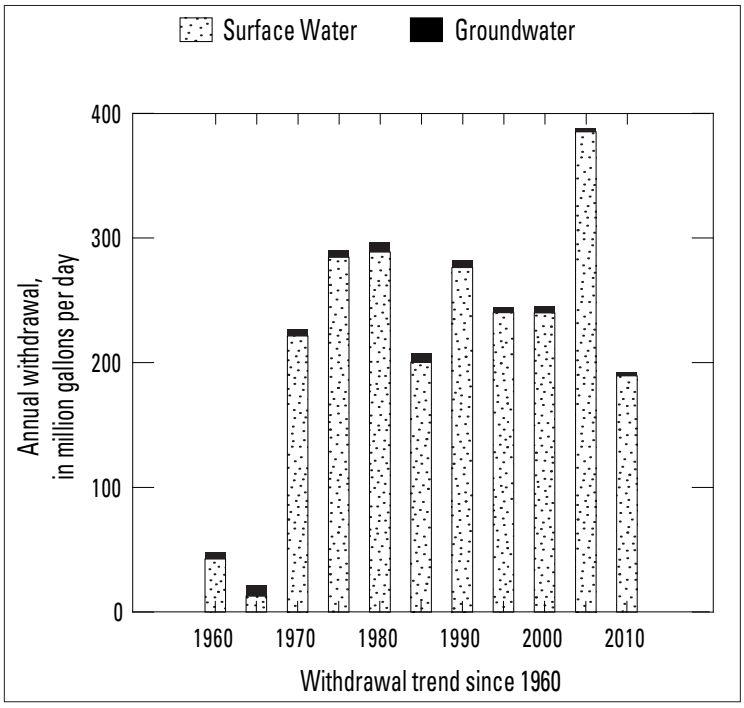
Population: 22,102
Population served by public supply: 21,925
Per capita withdrawals (gal/d): 8,704
Acres irrigated: 168
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply		3.12	3.12
Industrial	2.83	174.52	177.36
Power generation			.00
Rural domestic	.01		.01
Livestock			.00
Rice irrigation			.00
General irrigation		.06	.06
Aquaculture		11.82	11.82
Total	**2.85**	**189.53**	**192.38**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	2.67	1.31
28	Chemicals		164.65
29	Petroleum refining	.16	8.56



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Gramercy Water System		0.40
Lutcher Water System		.60
St. James Parish Utilities		2.13

St. John the Baptist

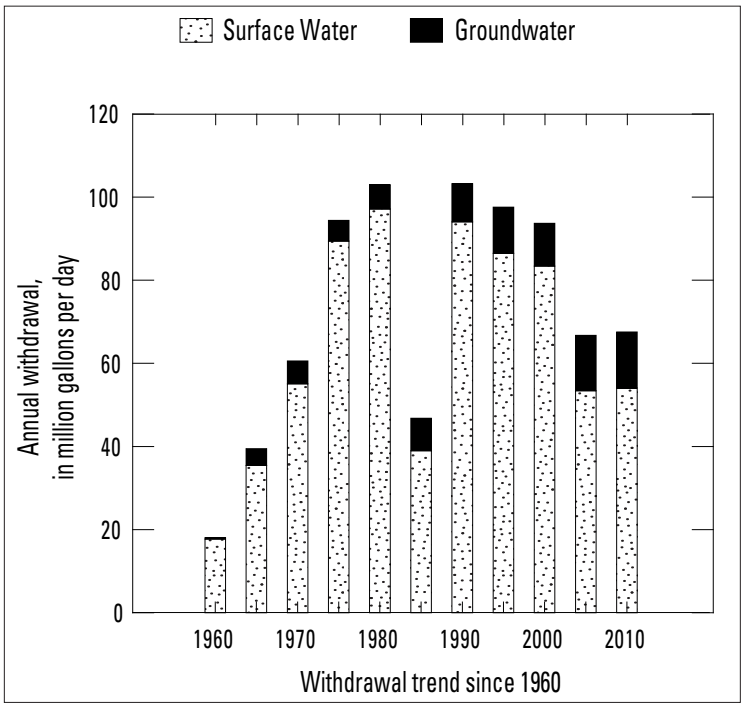
Population: 45,924
Population served by public supply: 44,868
Per capita withdrawals (gal/d): 1,471
Acres irrigated: 197
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	3.93	2.53	6.46
Industrial	9.49	51.44	60.93
Power generation			.00
Rural domestic	.09		.09
Livestock		.00	.00
Rice irrigation			.00
General irrigation		.07	.07
Aquaculture			.00
Total	**13.50**	**54.04**	**67.55**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
28	Chemicals	9.49	42.79
29	Petroleum refining		7.75
33	Primary metals		.89



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
St. John the Baptist Utilities	3.93	2.53

St. Landry

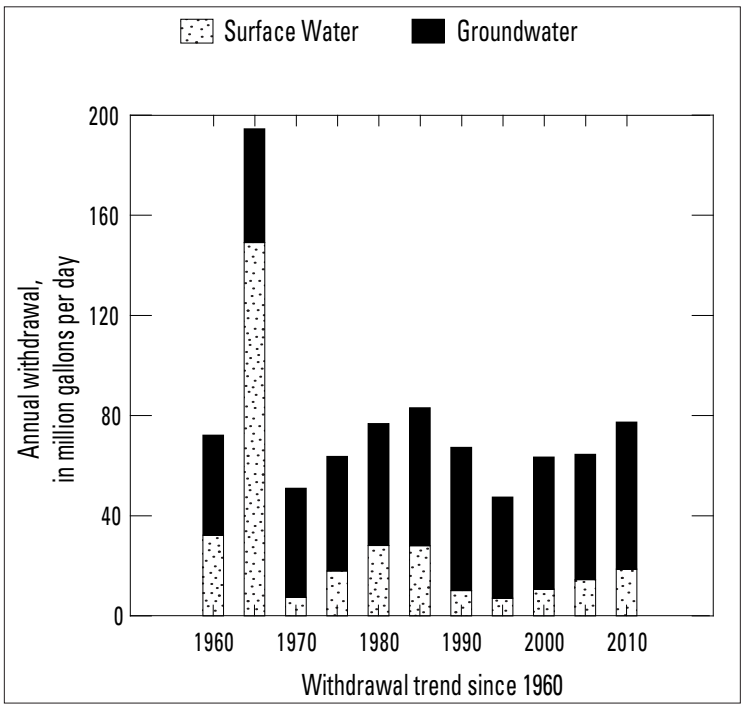
Population: 83,384
Population served by public supply: 74,462
Per capita withdrawals (gal/d): 928
Acres irrigated: 45,427
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	10.74		10.74
Industrial	1.51		1.51
Power generation			.00
Rural domestic	.80		.80
Livestock	.14	.04	.18
Rice irrigation	19.50	10.35	29.86
General irrigation	6.08	1.52	7.60
Aquaculture	19.91	6.80	26.70
Total	**58.68**	**18.71**	**77.39**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
24	Lumber	0.27	
29	Petroleum refining	1.19	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Arnaudville Water System	0.32	
Cankton Water System	.16	
Eunice Water System	1.67	
Garland/Whiteville W. S.	.48	
Grand Coteau Water System	.14	
Grand Prairie Water System	.06	
Greenbriar-Prairie Basse W. S.	.13	
Krotz Springs Water Department	.12	
Lawtell W. W. Dist. 1	.22	
Leonville Water System	.65	
Lewisburg-Bellevue W. S.	.47	
Melville Water System	.20	
Midway Water Works	.01	
Opelousas Water System	4.54	
Palmetto Water System	.11	
Plaisance Water System	.44	
Port Barre Water System	.30	
St. Landry W. W. Dist. No. 2	.28	
Sunset Water System	.31	
Washington Water System	.11	

St. Martin

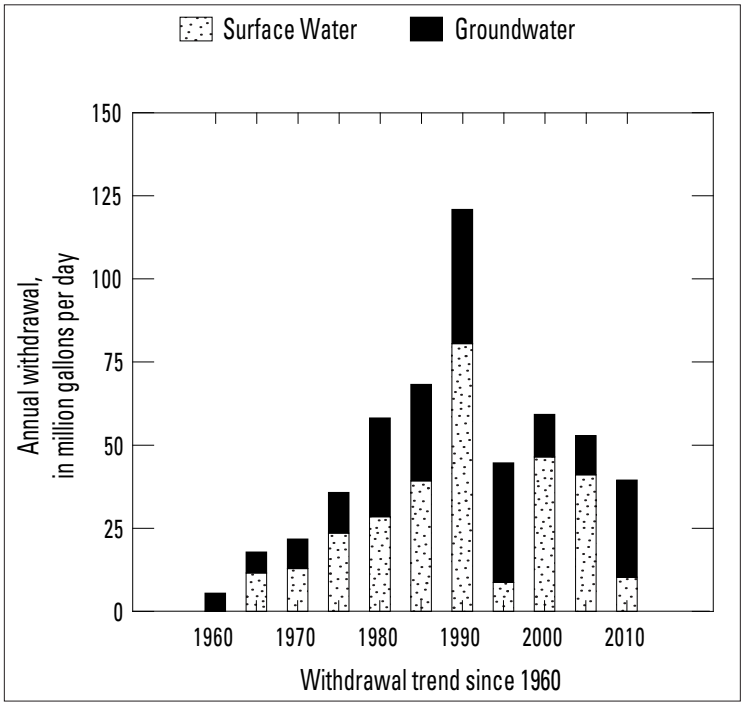
Population: 52,160
Population served by public supply: 41,363
Per capita withdrawals (gal/d): 757
Acres irrigated: 5,985
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	4.78		4.78
Industrial	.13		.13
Power generation			.00
Rural domestic	.87		.87
Livestock	.06	.02	.08
Rice irrigation	.31	6.34	6.65
General irrigation	.14	.55	.69
Aquaculture	22.90	3.39	26.29
Total	**29.19**	**10.30**	**39.48**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
28	Chemicals	0.12	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Breaux Bridge Water System	1.08	
Cecilia Water System	.73	
Henderson-Nina W. S., Inc.	.44	
Parks Village Water System	1.02	
St. Martin Parish WW Dist No. 3,	.34	
St. Martinville Water System	.84	
United Water System	.30	

St. Mary

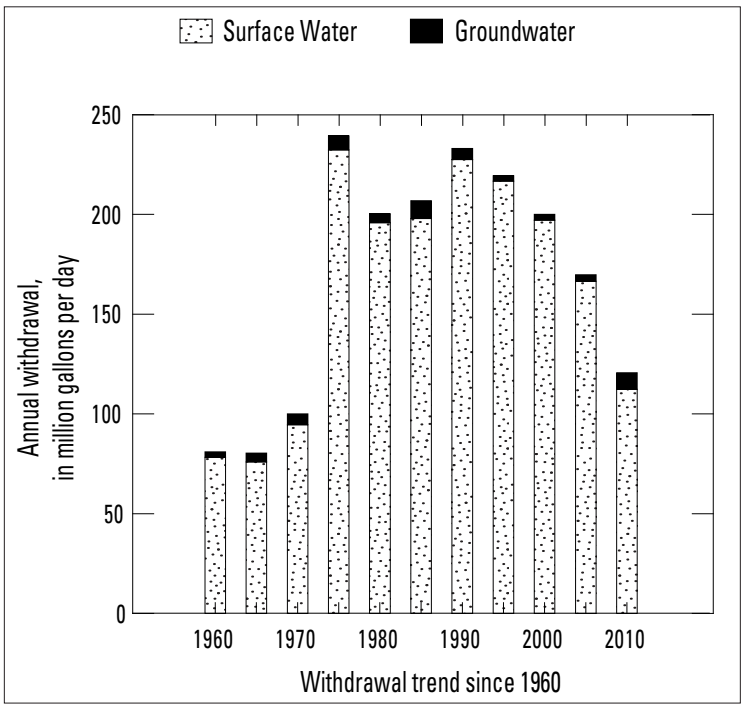
Population: 54,650
Population served by public supply: 52,737
Per capita withdrawals (gal/d): 2,208
Acres irrigated: 741
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	0.42	10.29	10.71
Industrial	1.73	2.74	4.47
Power generation	5.99	99.04	105.04
Rural domestic	.15		.15
Livestock		.04	.04
Rice irrigation			.00
General irrigation	.03	.25	.28
Aquaculture			.00
Total	**8.31**	**112.37**	**120.69**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction		0.39
20	Food products	.29	.81
28	Chemicals	1.44	1.54



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Baldwin Water System	0.25	
Berwick Bayou Vista W. W.		1.25
Franklin Water System		1.37
Glencoe Comm Water System	.02	
Morgan City Water System		3.67
Patterson Water System		.44
St. Mary Parish W. W. Dist. 1		.71
St. Mary Parish W. W. Dist. 5		1.17
St. Mary Parish W. W. Dist. 7	.14	
St. Mary Water & Sewer		1.68

St. Tammany

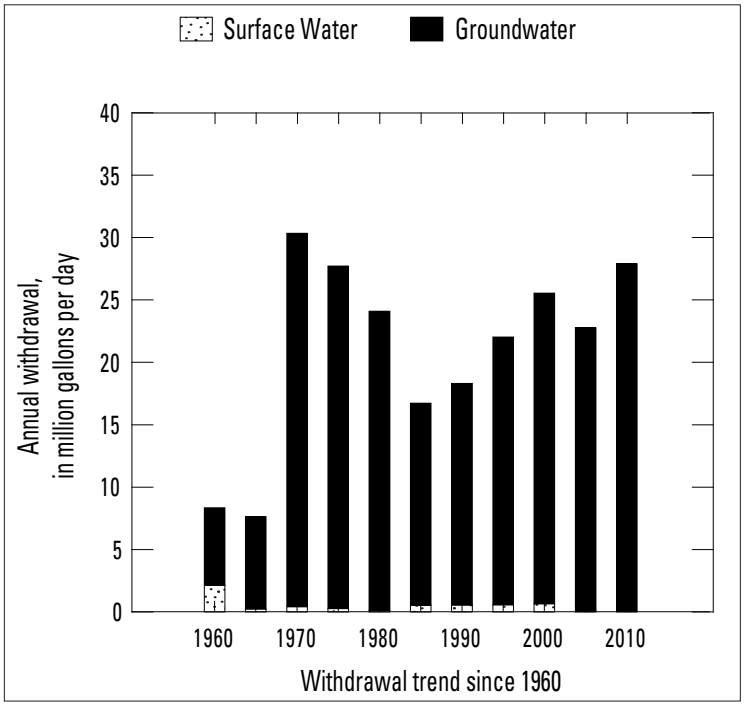
Population: 233,740
Population served by public supply: 145,620
Per capita withdrawals (gal/d): 119
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	21.11		21.11
Industrial	.25		.25
Power generation			.00
Rural domestic	6.37		6.37
Livestock	.09	.06	.15
Rice irrigation			.00
General irrigation		.00	.00
Aquaculture	.02		.02
Total	**27.84**	**.06**	**27.90**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	0.03	
28	Chemicals	.13	
37	Transportation equipment	.10	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Abita Springs Water System	0.20	
Alton Water System	.02	
Bayou Liberty Water Co.	.96	
Beau Chene Subdivision	.95	
Faubourg-Coquille Water System	1.40	
Central Park Subdivision	.16	
Covington Dept. of Public Works	2.80	
Cross Gates Utilities Co.	.34	
Eden Isles Water Supply	.92	
Folsom Water System	.15	
H2O Systems, Inc.	.71	
Lakeshore Estates	.16	
Lee Road Water Corporation	.04	
Madisonville Water System	.08	
Mandeville Water Supply	1.83	
Pearl River Water System	.13	
Resolve Water System	.55	
Slidell Water System	4.50	
St. Tammany Dept. of Env.	.04	
St. Tammany Water Dist. 2	.32	
St. Tammany Water Dist. 3	.30	
Sun Water System	.06	
Tchefuncte Club Estates	.37	
Utilities Inc. of LA	2.84	

Tangipahoa

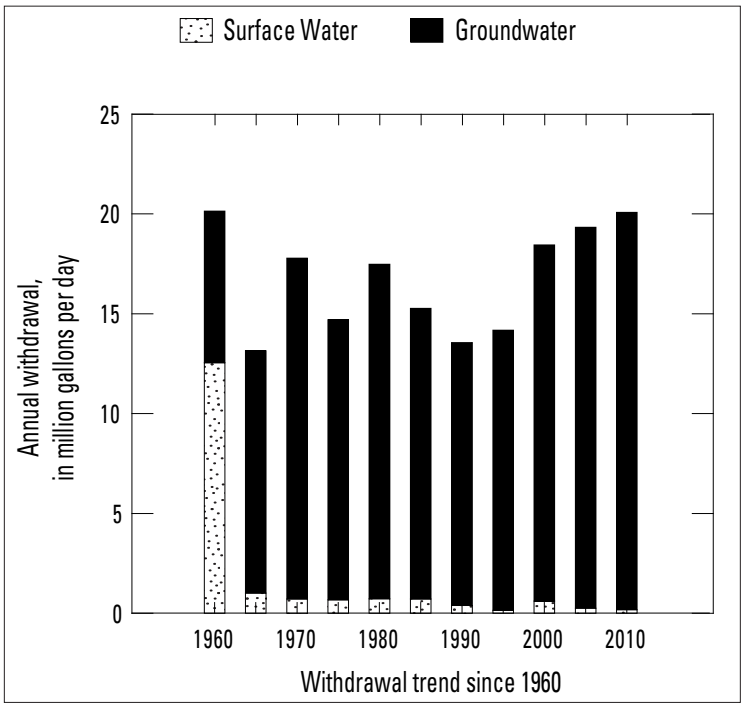
Population: 121,097
Population served by public supply: 73,990
Per capita withdrawals (gal/d): 166
Acres irrigated: 300
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	14.59		14.59
Industrial	1.14		1.14
Power generation	.00		.00
Rural domestic	3.66		3.66
Livestock	.18	.18	.36
Rice irrigation	.00		.00
General irrigation	.27		.27
Aquaculture	.08		.08
Total	**19.90**	**.18**	**20.08**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	0.88	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Amite Water System	1.74	
Bon Aire Estates Util. Co.	.05	
Eastern Heights W. W.	.18	
Fluker Water Works	.03	
Hammond Water System	3.56	
Independence Water System	.21	
Kentwood Water System	.28	
Ponchatoula Water System	.69	
Roseland Water System	.50	
Springfield Water System	.80	
Tangipahoa Village W. W.	.05	
Tangipahoa Water District 2	6.05	
Tickfaw Water System	.07	
Westview Water Works	.13	

Tensas

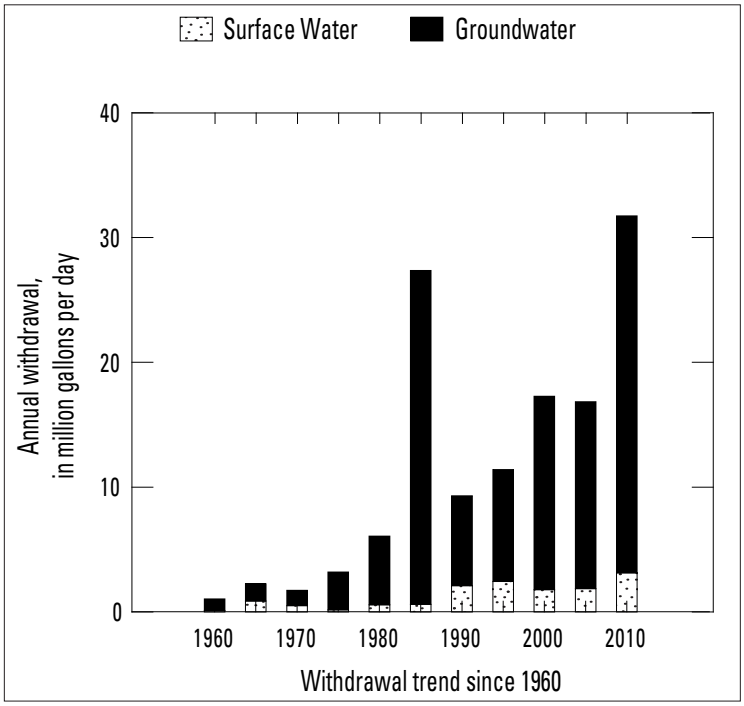
Population: 5,252
Population served by public supply: 5,010
Per capita withdrawals (gal/d): 6,044
Acres irrigated: 50,885
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	0.74	0.46	1.20
Industrial			.00
Power generation			.00
Rural domestic	.02		.02
Livestock	.00	.01	.01
Rice irrigation	3.91		3.91
General irrigation	23.9	2.66	26.56
Aquaculture	.04		.04
Total	**28.62**	**3.12**	**31.74**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Lake Bruin Water System		0.04
Newellton Water System		.14
St. Joseph Water System	.61	
Tensas Water Distribution Assoc.		.28
Waterproof Water System	.13	

Terrebonne

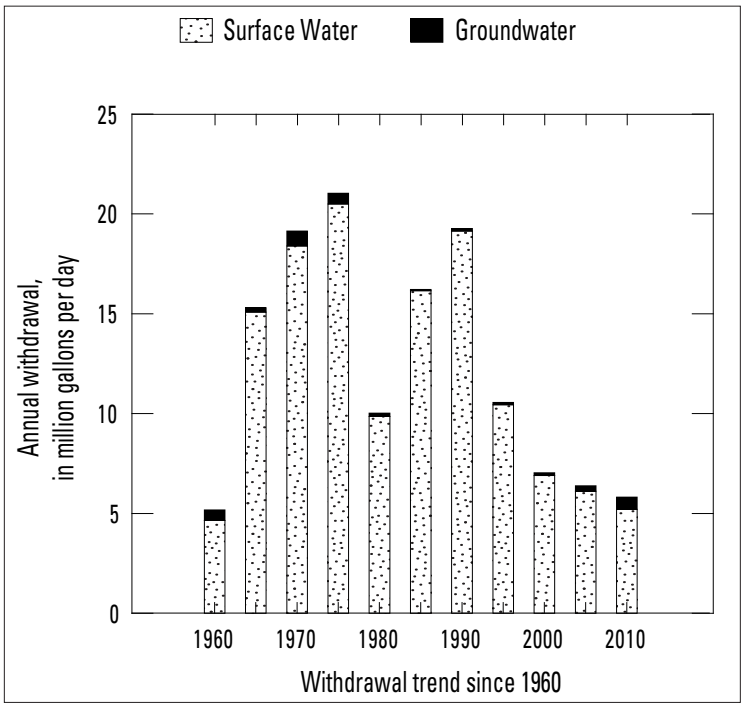
Population: 111,860
Population served by public supply: 111,748
Per capita withdrawals (gal/d): 52
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply		4.06	4.06
Industrial	.24		.24
Power generation			.00
Rural domestic	.01		.01
Livestock	.01	.03	.03
Rice irrigation			.00
General irrigation			.00
Aquaculture	.35	1.12	1.47
Total	**.61**	**5.20**	**5.81**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
20	Food products	0.24	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Terrebonne W. W. Dist. No. 1		4.06

Union

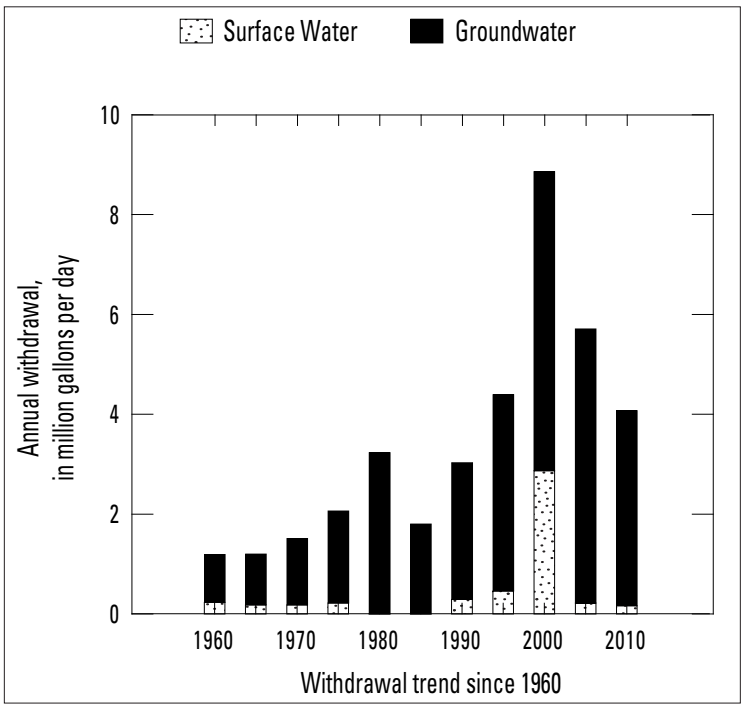
Population: 22,721
Population served by public supply: 20,313
Per capita withdrawals (gal/d): 179
Acres irrigated: 5
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	3.55		3.55
Industrial	.12		.12
Power generation			.00
Rural domestic	.19		.19
Livestock	.04	.16	.20
Rice irrigation			.00
General irrigation	.00	.00	.00
Aquaculture			.00
Total	**3.91**	**.16**	**4.07**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
24	Lumber	0.06	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bernice Water System	0.18	
Concord Water System	.03	
Corney Water System	.01	
Cox Ferry WS	.01	
D'arbonne WS South & North	.62	
Downsville Water System	.02	
Farmerville Water System	1.57	
Holmesville Water System	.21	
Junction City Water System	.02	
Linville-Haile Water System	.15	
Litroe Water System	.02	
Marion Water System	.06	
Point Wilhite Water System	.14	
Randolph Water System	.01	
Rocky Branch W. W. Dist.	.09	
Salem Water System	.03	
Sardis Water System	.08	
Tri-Water System, Inc.	.11	
Union Waterworks Dist. 1	.02	
Wards Chapel Water System	.11	
West Sterlington Water System	.08	

Vermilion

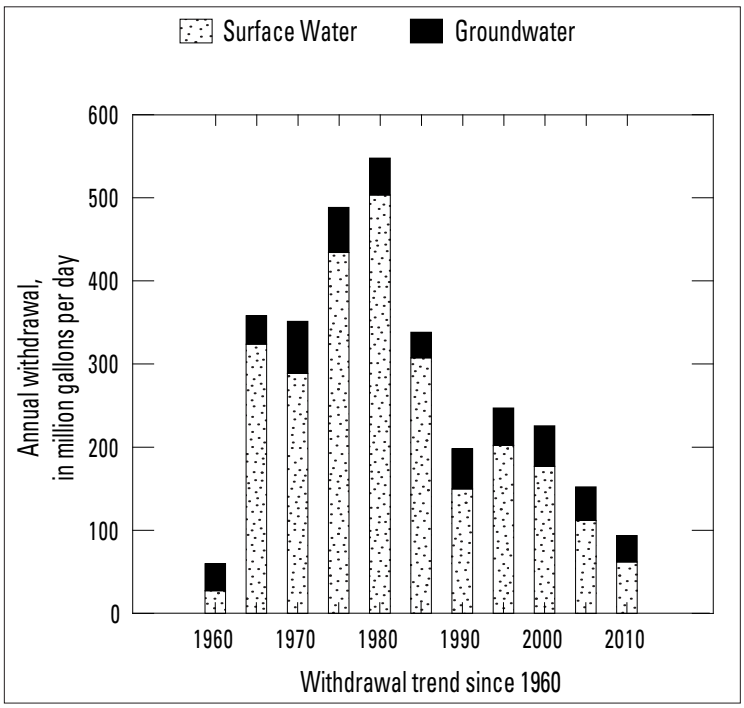
Population: 57,999
Population served by public supply: 28,362
Per capita withdrawals (gal/d): 1,614
Acres irrigated: 42,590
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	6.39		6.39
Industrial	1.55		1.55
Power generation			.00
Rural domestic	2.29		2.29
Livestock	.07	.27	.33
Rice irrigation	5.51	57.02	62.53
General irrigation	.11	.44	.55
Aquaculture	15.83	4.14	19.97
Total	**31.75**	**61.86**	**93.61**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.06	
20	Food products	1.11	
29	Petroleum refining	.38	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Abbeville Water System	2.41	
Delcambre Water System	.35	
Erath Water System	.38	
Grand Prairie Water System	.02	
Gueydan Water System	.31	
Kaplan Water System	.56	
Magnolia Plantation Water System	.42	
Maurice Water System	.16	
Pecan Island Waterworks District No. 3	.04	
Southeast W. W. Dist. 2	.47	
Vermilion W. W. Dist. 1	1.25	

Vernon

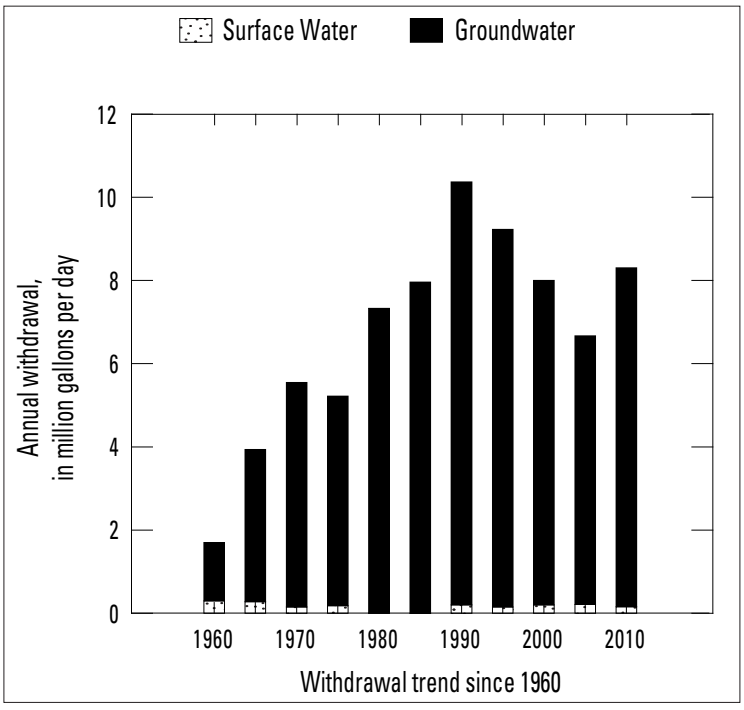
Population: 52,334
Population served by public supply: 34,540
Per capita withdrawals (gal/d): 159
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	6.82		6.82
Industrial	.01		.01
Power generation			.00
Rural domestic	1.25		1.25
Livestock	.02	.16	.18
Rice irrigation			.00
General irrigation			.00
Aquaculture	.05		.05
Total	**8.15**	**.16**	**8.31**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
24	Lumber	0.01	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Anacoco Water System	0.13	
E. Central Vernon Water System	.51	
Empire Point Community W. S.	.01	
Hornbeck Water System	.06	
Leesville Water System	2.80	
Pitkin Water System	.07	
Rosepine Water System	.23	
S. Vernon W. W. Dist. 1	.18	
Sandy Hill Water & Sewer	.02	
Simpson Water System	.06	
Vernon Parish Water & Sewer	.62	
W. Vernon Parish W. W. Dist.	.21	

Washington

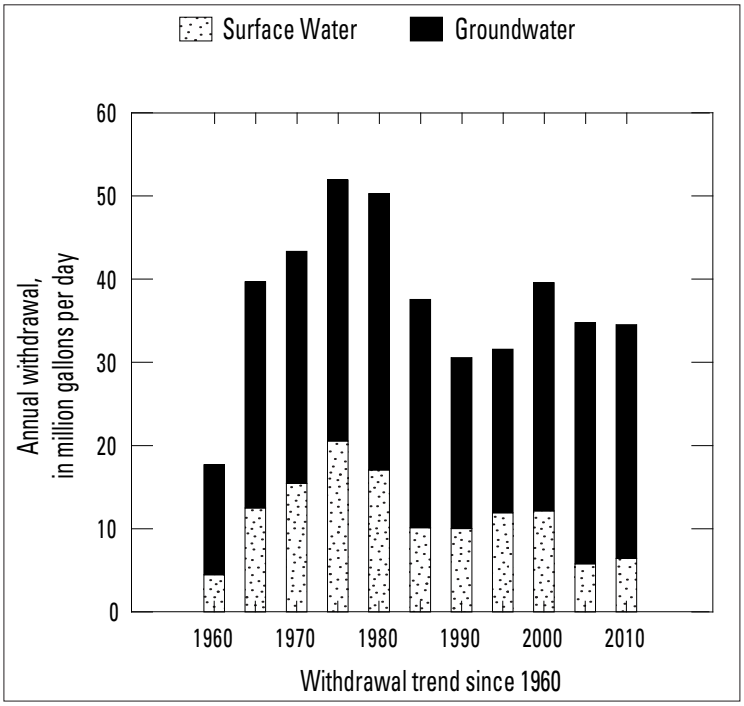
Population: 47,168
Population served by public supply: 29,763
Per capita withdrawals (gal/d): 732
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	14.26		14.26
Industrial	12.35	6.30	18.64
Power generation			.00
Rural domestic	1.36		1.36
Livestock	.14	.14	.28
Rice irrigation			.00
General irrigation			.00
Aquaculture			.00
Total	**28.10**	**6.44**	**34.55**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
26	Paper products	11.50	6.30



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Angie Water System	0.04	
Bogalusa Rural Water System	.34	
Bogalusa Water System	12.11	
Franklinton Water System	.92	
Mt. Hermon Water District	.15	
Rural Franklinton Water System	.35	
Varnado W. W. District	.34	

Webster

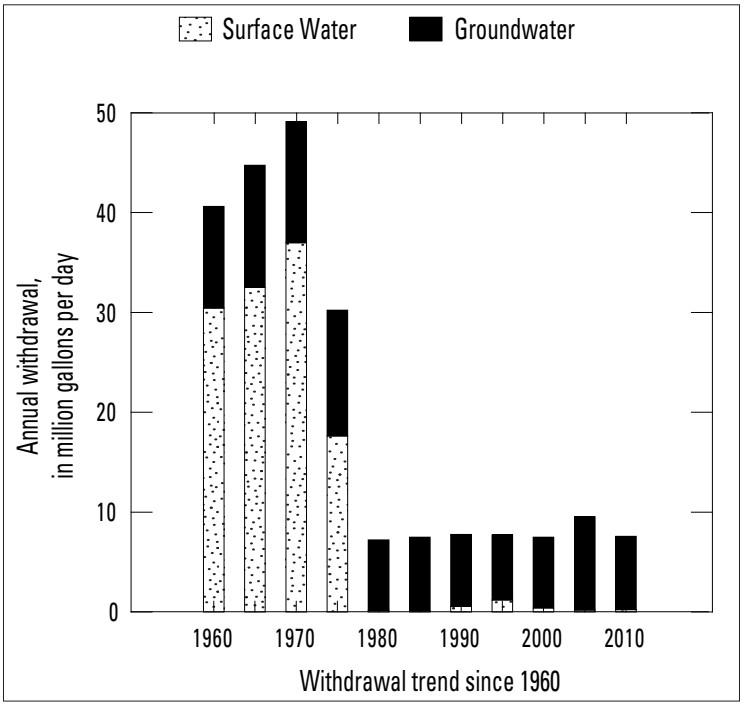
Population: 41,207
Population served by public supply: 36,592
Per capita withdrawals (gal/d): 184
Acres irrigated: 8
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	5.47		5.47
Industrial	1.45	.15	1.60
Power generation			.00
Rural domestic	.37		.37
Livestock	.01	.07	.08
Rice irrigation			.00
General irrigation		.01	.01
Aquaculture	.05		.05
Total	**7.35**	**.23**	**7.58**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
13	Oil and gas extraction	0.01	0.15
14	Nonfuels/nonmetals mining	.70	
24	Lumber	.06	
29	Petroleum refining	.40	
34	Metal products	.29	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Bistineau Water System	0.07	
Blocker Water Works Corp.	.08	
Central Water System	.03	
Cotton Valley Water System	.06	
Cullen Water System	.33	
Dixie Inn Water System	.03	
Dixie Overland Water Works	.22	
Doyline Water System	.05	
Dubberly Water System	.08	
Germantown Water System	.14	
Gilark Water System	.05	
Gilgal Water System	.10	
Jenkins Comm. Water System	.05	
Leton Water System	.06	
McIntyre Water System	.03	
Midway Water Works	.04	
Minden Water System	2.15	
Pleasant Valley Water System	.07	
St. James Water System	.02	
Salt Works Water System	.03	
Sarepta Water System	.12	
Shongaloo Water System	.13	
Sibley Water System	.11	
Springhill Water System	.83	
State Line Water System	.03	
Thomasville Water System	.02	
Union Grove Water System	.03	
Village Water System	.44	

West Baton Rouge

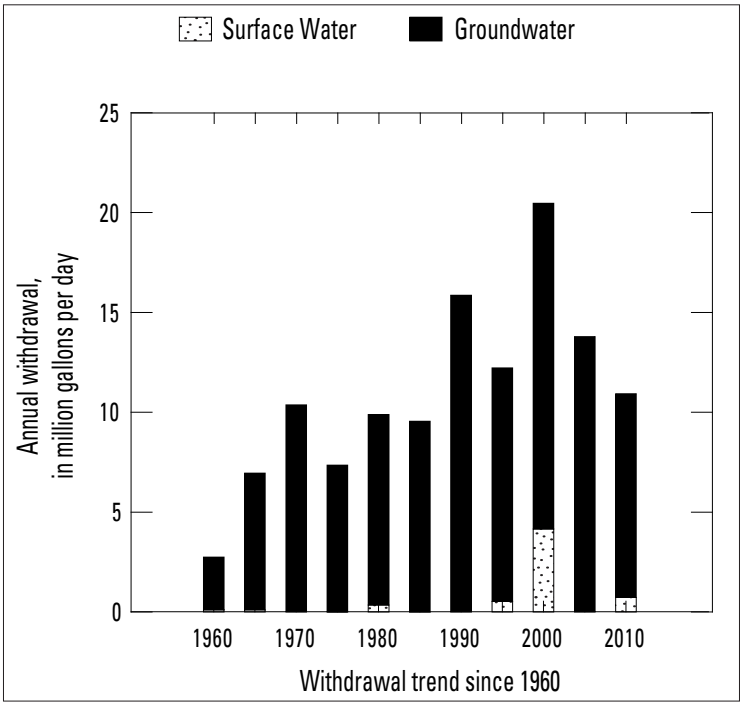
Population: 23,788
Population served by public supply: 23,265
Per capita withdrawals (gal/d): 460
Acres irrigated: 1,341
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	7.21		7.21
Industrial	1.50		1.50
Power generation			.00
Rural domestic	.05		.05
Livestock	.03	.01	.04
Rice irrigation			.00
General irrigation	.35	.18	.53
Aquaculture	1.07	.54	1.61
Total	**10.20**	**.73**	**10.93**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
28	Chemicals	1.23	
29	Petroleum refining	.15	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Plaquemine Light & Water	1.57	
Port Allen Water System	.58	
W. Baton Rouge Gas & Water	2.56	
W. Baton Rouge Water Dist. 1	.19	
W. Baton Rouge Water Dist. 2	1.26	
W. Baton Rouge Water Dist. 4	.90	
Westport Properties	.15	

West Carroll

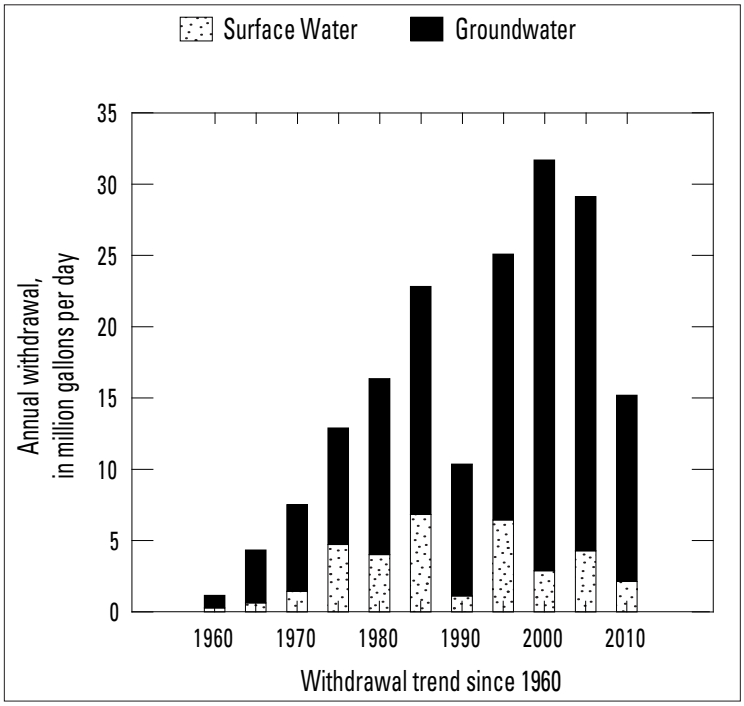
Population: 11,604
Population served by public supply: 10,699
Per capita withdrawals (gal/d): 1,309
Acres irrigated: 18,940
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.38		1.38
Industrial			.00
Power generation			.00
Rural domestic	.07		.07
Livestock	.12	.02	.14
Rice irrigation	5.14	1.01	6.16
General irrigation	6.23	1.10	7.33
Aquaculture	.11		.11
Total	**13.06**	**2.14**	**15.19**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification	GW	SW



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Epps Water and Sewer System	0.10	
Forest Water System	.09	
Goodwill Water System	.18	
Monticello Water System	.08	
N-E-W Carroll Water System	.31	
Oak Grove Water System	.43	
Pioneer-Darnell Water System	.19	

West Feliciana

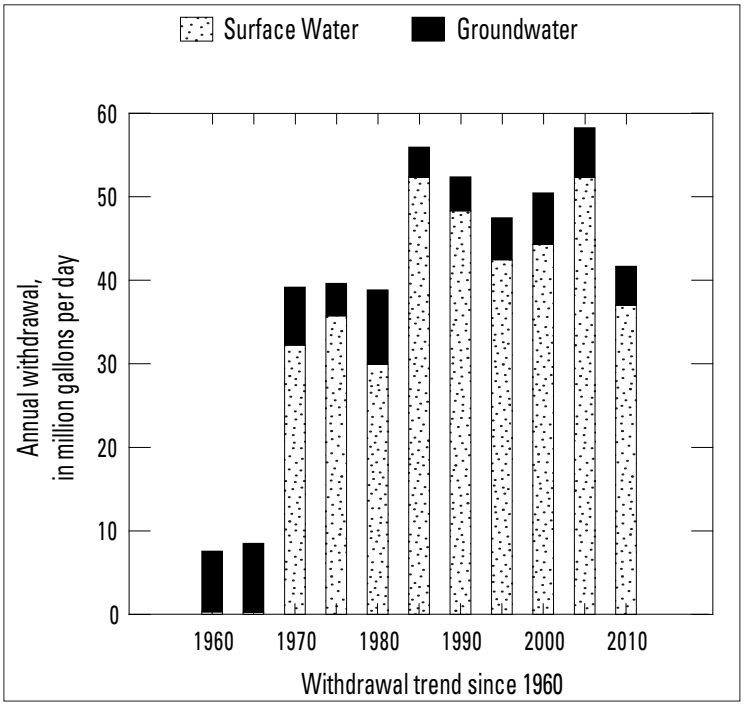
Population: 15,625
Population served by public supply: 15,094
Per capita withdrawals (gal/d): 2,668
Acres irrigated: 523
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	4.15		4.15
Industrial	.41	18.29	18.7
Power generation	.02	18.40	18.42
Rural domestic	.10		.10
Livestock	.00	.05	.05
Rice irrigation			.00
General irrigation		.26	.26
Aquaculture			.00
Total	**4.68**	**37.00**	**41.69**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
26	Paper products	0.41	18.29



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
St. Francisville Water System	0.62	
W. Feliciana Water District #13	1.44	

Winn

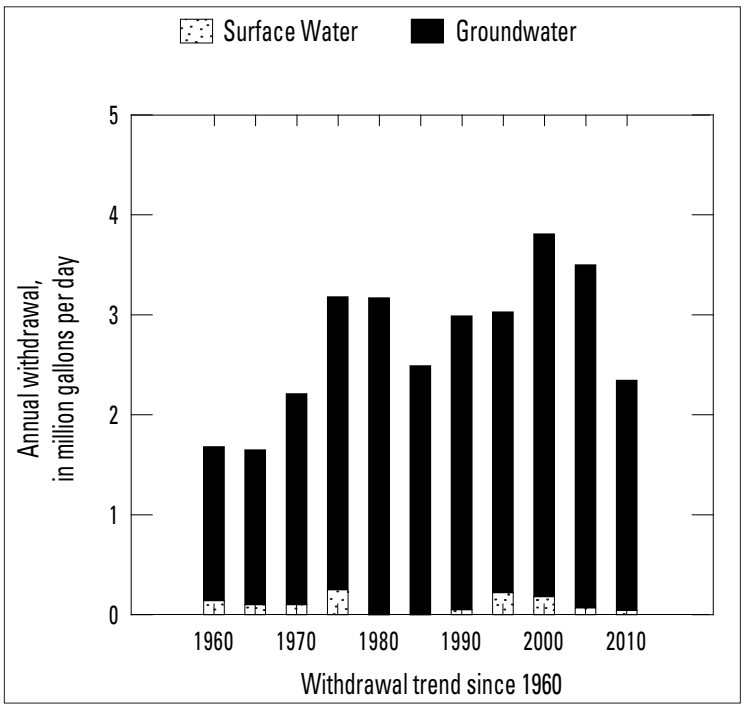
Population: 15,313
Population served by public supply: 12,725
Per capita withdrawals (gal/d): 153
Acres irrigated: 0
Hydroelectric power instream use (Mgal/d): 0

Withdrawals, in million gallons per day (Mgal/d)

	Groundwater (GW)	Surface Water (SW)	Total
Public supply	1.32		1.32
Industrial	.75		.75
Power generation			.00
Rural domestic	.21		.21
Livestock	.01	.04	.06
Rice irrigation			.00
General irrigation			.00
Aquaculture			.00
Total	**2.30**	**.04**	**2.35**

Withdrawals by Major Industrial Group (Mgal/d)

Standard Industrial Classification		GW	SW
24	Lumber	0.60	
28	Chemicals	.15	



Withdrawals by Major Public Supplier (Mgal/d)

Public Supplier	GW	SW
Atlanta Water System	0.05	
Backwood Village Water System	.05	
Calvin Water System	.04	
Dodson Water System	.08	
Hudson-Gaars Mill Water System	.03	
Hwy 84 West Water System	.03	
Jordan Hill\Red Hill Waterworks	.04	
Joyce Water Supply	.04	
Pleasant Hill-Crossroads W. S.	.03	
Sikes Water System	.02	
Tannehill Water System	.18	
West Winn Water System, Inc.	.09	
Wheeling Water System, Inc.	.02	
Winnfield Water System	.61	

Table 3. Water withdrawals in Louisiana by parish, source, and principal use, 2010
[Withdrawals are in million gallons per day, GW, groundwater, SW surface water Summation of numbers in columns may differ slightly from totals because of rounding]

Parish	Public supply		Industrial		Power generation		Rural domestic	Livestock	
	GW	SW	GW	SW	GW	SW	GW	GW	SW
Acadia	5.81		0.01		1.33	0.79	1.34	0.09	0.01
Allen	4.27		.13				.26	.04	.01
Ascension	3.02	1.97	6.40	149.44			2.23	.13	.03
Assumption		3.90	8.59	7.79			.18		.01
Avoyelles	3.85		.36				.22	.20	
Beauregard	4.56		18.19				.42	.08	.06
Bienville	2.05		10.58	.01			.35	.04	.03
Bossier	2.15	10.24	.33				1.36	.16	.04
Caddo	1.77	45.56		.04		89.12	1.65	.10	.23
Calcasieu	25.73	.50	40.88	114.02	6.46	14.51	2.23	.20	.30
Caldwell	1.07						.07	.03	.03
Cameron	1.72		2.45	.58			.07	.04	.13
Catahoula	1.86						.11	.02	.04
Claiborne	2.19			.15			.17	.03	.03
Concordia	2.00	1.50				8.26	.06	.10	.02
De Soto	1.41	1.83	2.53	21.04		8.76	.63	.17	.06
East Baton Rouge	75.12		66.22	21.51	7.79		.28	.19	.01
East Carroll	1.29						.02		
East Feliciana	3.00		.03				.27	.02	.19
Evangeline	6.44		1.89			121.13	.35	.17	.06
Franklin	2.04		1.00				.64	.20	
Grant	1.98	2.01	.07				.23	.02	.03
Iberia	10.07		4.40	5.45			1.19	.06	.01
Iberville	1.57	.47	15.61	387.47	.82	59.17	.15	.08	.03
Jackson	1.66		2.08				.15		.05
Jefferson		64.95	2.24	4.19	4.79	740.42	.04		.04
Jefferson Davis	4.83		.09				.39	.16	
Lafayette	25.40		.01		.96		2.43	.24	
Lafourche		22.69	1.06	3.46			.02	.11	.11
La Salle	2.18						.06	.01	.03
Lincoln	7.70		.85				.17	.01	.06
Livingston	11.76		.10				1.40	.05	.04
Madison	2.03						.02	.01	.01
Morehouse	2.99		.24				.17	.04	.01
Natchitoches	.89	5.77	.03	12.69			.51	.06	.25
Orleans		149.14	1.88		10.87	453.20	.17		.02
Ouachita	11.88	13.00	9.82	13.92		2.52	.44		.07
Plaquemines		6.32		78.71			.04		.05
Pointe Coupee	4.08		4.92		1.89	314.17	.23	.10	.07
Rapides	25.87		.66		.12	498.92	.52	.03	.10
Red River	.66	.20	.59	1.12			.22	.06	.09
Richland	2.89						.47	.06	.06
Sabine	1.25	1.30	.14	.36			.68	.01	.10
St. Bernard		7.82		252.87			.01	.01	
St. Charles		8.50	4.21	503.20		1,959.53	.02	.01	.05
St. Helena	.39		.03				.53	.09	.01
St. James		3.12	2.83	174.52			.01		
St. John the Baptist	3.93	2.53	9.49	51.44			.09		
St. Landry	10.74		1.51				.80	.14	.04
St. Martin	4.78		.13				.87	.06	.02
St. Mary	.42	10.29	1.73	2.74	5.99	99.04	.15		.04
St. Tammany	21.11		.25				6.37	.09	.06
Tangipahoa	14.59		1.14				3.66	.18	.18
Tensas	.74	.46					.02		.01
Terrebonne		4.06	.24				.01	.01	.03
Union	3.55		.12				.19	.04	.16
Vermilion	6.39		1.55				2.29	.07	.27
Vernon	6.82		.01				1.25	.02	.16
Washington	14.26		12.35	6.30			1.36	.14	.14
Webster	5.47		1.45	.15			.37	.01	.07
West Baton Rouge	7.21		1.50	.00			.05	.03	.01
West Carroll	1.38						.07	.12	.02
West Feliciana	4.15		.41	18.29	.02	18.40	.10		.05
Winn	1.32		.75				.21	.01	.04
Subtotals	378.26	368.12	244.09	1,831.44	41.02	4,387.94	41.01	4.17	3.86
Totals	**746.38**		**2,075.53**		**4,428.96**		**41.01**	**8.03**	

Irrigation									
Rice		General		Aquaculture		Total use			
GW	SW	GW	SW	GW	SW	GW	SW	Total	Parish
126.79	34.68	1.41	1.41	46.47	10.71	183.25	47.60	**230.85**	Acadia
14.28	1.55	.25		2.79	.93	22.01	2.49	**24.50**	Allen
		.12		.05	.32	11.95	151.76	**163.71**	Ascension
		.07	.11	.19	.58	9.03	12.39	**21.42**	Assumption
14.82	4.94	5.97	1.49	14.73	9.82	40.15	16.25	**56.40**	Avoyelles
3.20		.35	.04	.56		27.35	.09	**27.45**	Beauregard
			.14			13.02	.18	**13.20**	Bienville
.02		.19	.77			4.22	11.05	**15.27**	Bossier
		5.77	1.44	1.29		10.58	136.38	**146.96**	Caddo
7.90	3.77	.34		2.90	2.34	86.65	135.44	**222.09**	Calcasieu
.57	1.32		1.32			1.73	2.67	**4.39**	Caldwell
3.45	18.42			.01	.04	7.74	19.17	**26.90**	Cameron
11.86		7.34	7.34	1.44		22.63	7.38	**30.01**	Catahoula
		.04				2.42	.18	**2.60**	Claiborne
10.81	10.81	14.08	1.56	1.70	.10	28.74	22.25	**50.99**	Concordia
		.02	.20			4.76	31.89	**36.66**	De Soto
		.25		.04		149.89	21.52	**171.41**	East Baton Rouge
9.26	2.72	10.64	2.66			21.20	5.39	**26.59**	East Carroll
		.18	.06			3.51	.25	**3.76**	East Feliciana
42.61	5.68	1.59	.18	19.64	4.62	72.69	131.67	**204.35**	Evangeline
.84	3.36	22.79	2.53	7.67	.01	35.18	5.90	**41.08**	Franklin
			.94			2.30	2.98	**5.28**	Grant
.13	.98	.61				16.47	6.44	**22.91**	Iberia
		.47	.32	2.18	13.08	20.88	460.54	**481.42**	Iberville
				.04		3.93	.05	**3.98**	Jackson
		.08				7.16	809.59	**816.75**	Jefferson
122.51	10.58	.69	.46	11.78	23.57	140.46	34.61	**175.06**	Jefferson Davis
5.36	1.10	.52	.09	3.62	.54	38.53	1.72	**40.25**	Lafayette
			.05	2.89	11.57	4.09	37.88	**41.97**	Lafourche
			.08	.06		2.29	.10	**2.40**	La Salle
						8.73	.06	**8.78**	Lincoln
		.06		.18		13.55	.04	**13.59**	Livingston
8.13		28.28	3.14	.38	.09	38.83	3.24	**42.07**	Madison
49.69	5.52	22.17	2.46			75.31	8.00	**83.30**	Morehouse
.64	3.63	1.28	5.11	2.11	1.36	5.52	28.80	**34.32**	Natchitoches
		.02				12.95	602.37	**615.31**	Orleans
.69	10.81	.49	4.42	.01	.03	23.33	44.77	**68.09**	Ouachita
						.04	85.07	**85.11**	Plaquemines
4.78		7.19		4.34	2.15	27.52	316.39	**343.90**	Pointe Coupee
4.36	6.49	2.62	2.62	3.25	2.33	37.43	510.46	**547.89**	Rapides
		1.18	.29			2.70	1.71	**4.41**	Red River
9.76		8.65	8.65			21.83	8.71	**30.54**	Richland
						2.09	1.76	**3.85**	Sabine
						.02	260.70	**260.71**	St. Bernard
						4.24	2,471.28	**2,475.51**	St. Charles
						1.05	.01	**1.06**	St. Helena
			.06		11.82	2.85	189.53	**192.38**	St. James
			.07			13.50	54.04	**67.55**	St. John the Baptist
19.50	10.35	6.08	1.52	19.91	6.80	58.68	18.71	**77.39**	St. Landry
.31	6.34	.14	.55	22.90	3.39	29.19	10.30	**39.48**	St. Martin
		.03	.25			8.31	112.37	**120.69**	St. Mary
				.02		27.84	.06	**27.90**	St. Tammany
		.27		.08		19.90	.18	**20.08**	Tangipahoa
3.91		23.90	2.66	.04		28.62	3.12	**31.74**	Tensas
				.35	1.12	.61	5.20	**5.81**	Terrebonne
						3.91	.16	**4.07**	Union
5.51	57.02	.11	.44	15.83	4.14	31.75	61.86	**93.61**	Vermilion
				.05		8.15	.16	**8.31**	Vernon
						28.10	6.44	**34.55**	Washington
			.01	.05		7.35	.23	**7.58**	Webster
		.35	.18	1.07	.54	10.20	.73	**10.93**	West Baton Rouge
5.14	1.01	6.23	1.10	.11		13.06	2.14	**15.19**	West Carroll
			.26			4.68	37.00	**41.69**	West Feliciana
						2.30	.04	**2.35**	Winn
486.84	201.08	182.81	57.00	190.72	112.00	1,568.35	6,961.44	**8,529.79**	
687.92		**239.81**		**302.72**		**8,529.79**			

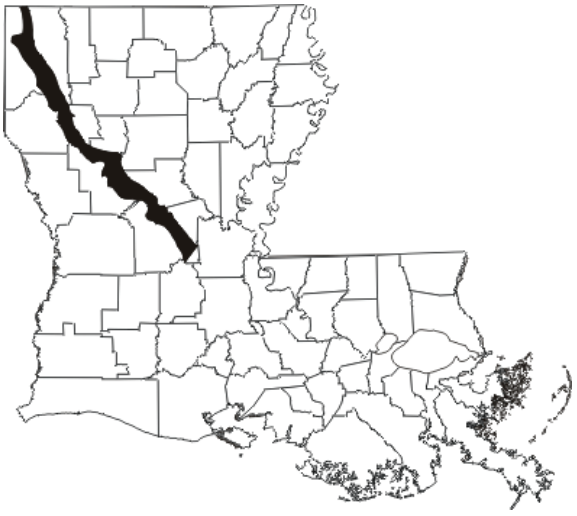
Water Use By Aquifer

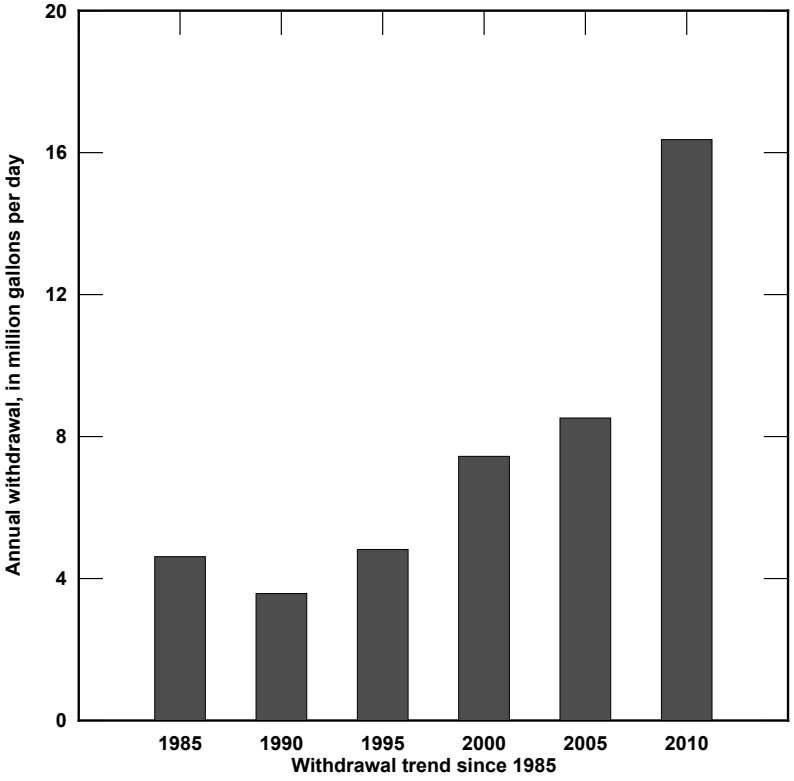
Total groundwater withdrawals were approximately 1,600 Mgal/d, of which 99.9 percent was withdrawn from 13 major aquifers or aquifer systems, which include the Red River alluvial aquifer, Mississippi River alluvial aquifer, upland terrace aquifer (northern Louisiana), Chicot aquifer system, Chicot equivalent aquifer system (southeastern Louisiana), Evangeline aquifer, Evangeline equivalent aquifer system (southeastern Louisiana), Jasper aquifer system, Jasper equivalent aquifer system (southeastern Louisiana), Catahoula aquifer, Cockfield aquifer, Sparta aquifer, and the Carrizo-Wilcox aquifer. The Chicot aquifer system supplied the most groundwater (650 Mgal/d), which represented 41 percent of all groundwater withdrawals. The Mississippi River alluvial aquifer supplied the second most groundwater (about 390 Mgal/d), which represented 25 percent of all groundwater withdrawals.

This section provides information on groundwater withdrawals for the 13 major aquifers or aquifer systems listed above. The one-page summary for each aquifer includes a table of withdrawals by category of use and a list of withdrawals by parish. As was previously mentioned, the sum of the withdrawals by parish could be different from the total withdrawals by category of use because of rounding. A location map depicts the areal extent of freshwater in the aquifer within the State. Bar charts show withdrawal trends in each aquifer for the 1985-2010 period. Withdrawals from nine of the thirteen aquifers have increased overall and specifically from 2005 to 2010. Table 4 summarizes water withdrawals by parish and aquifer or aquifer system.

Red River Alluvial Aquifer

Withdrawals, in million gallons per day (Mgal/d)	
Public supply	0.12
Industry	.27
Power generation	.00
Rural domestic	.15
Livestock	.29
Rice Irrigation	3.43
General irrigation	5.31
Aquaculture	6.80
Total	**16.37**

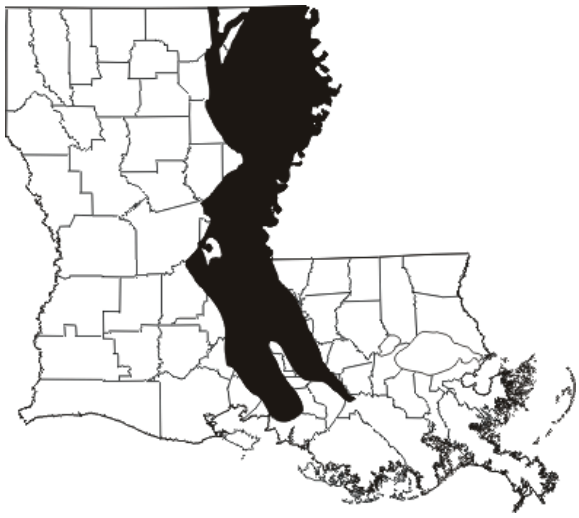


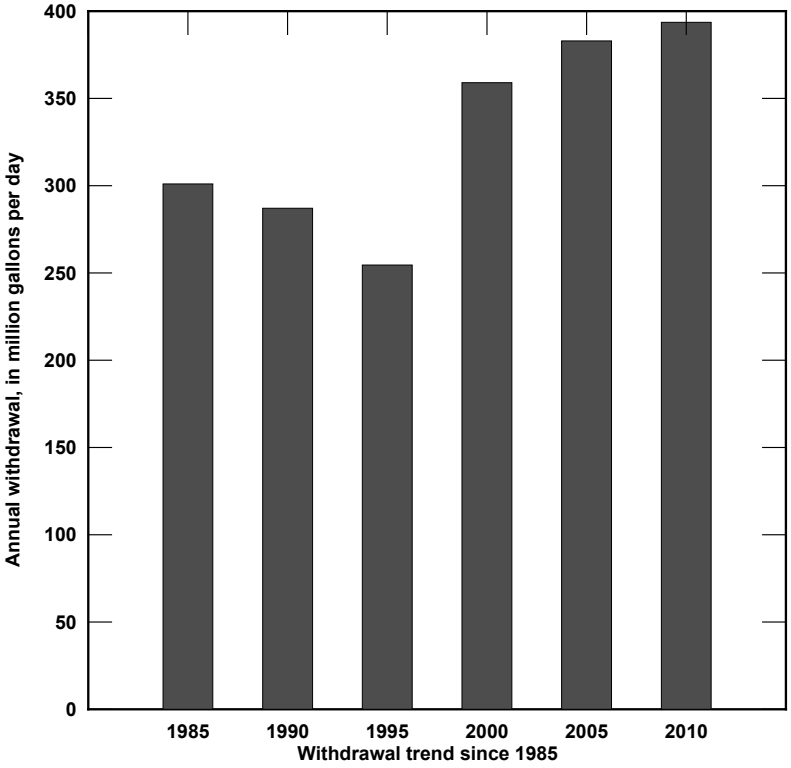


Withdrawals by Parish	
Parish	**Mgal/d**
Avoyelles	6.47
Bossier	.24
Caddo	3.09
Catahoula	.21
De Soto	.15
Grant	.02
Natchitoches	2.99
Rapides	1.92
Red River	1.26

Mississippi River Alluvial Aquifer

Withdrawals, in million gallons per day (Mgal/d)	
Public supply	10.04
Industry	28.49
Power generation	.82
Rural domestic	3.41
Livestock	1.12
Rice Irrigation	132.30
General irrigation	155.13
Aquaculture	62.26
Total	**393.57**

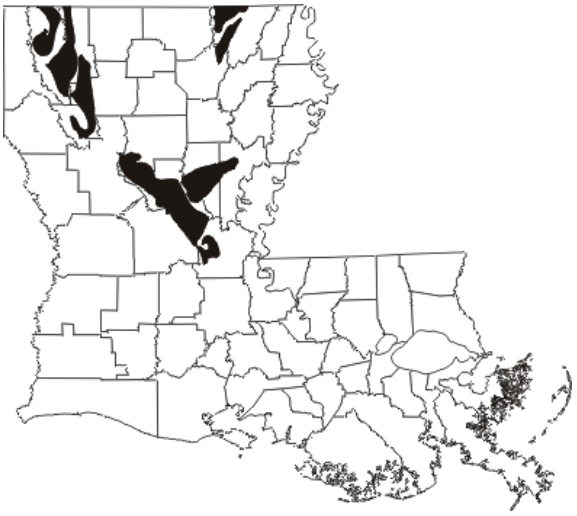


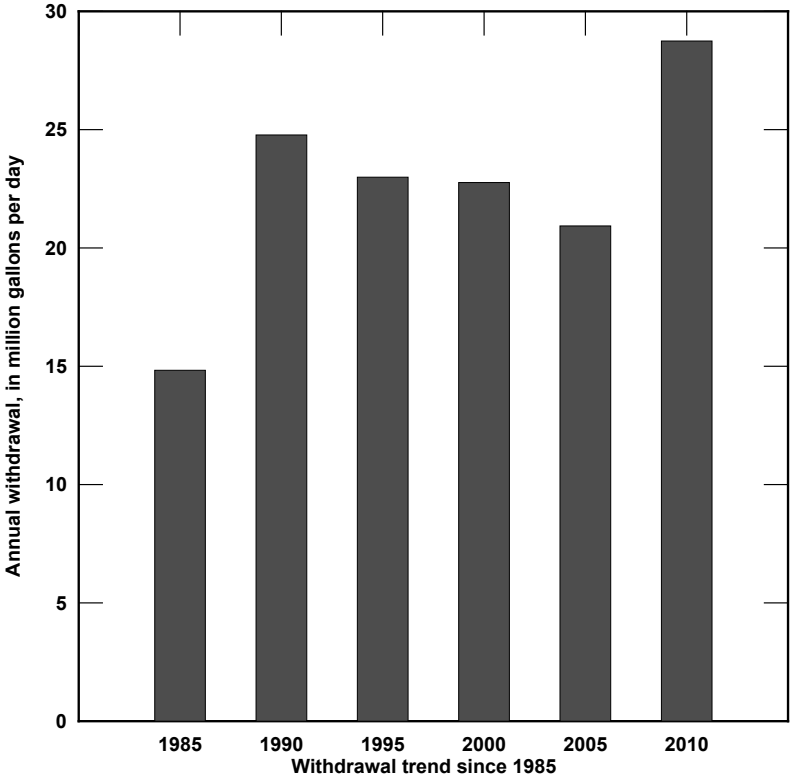


Withdrawals by Parish	
Parish	**Mgal/d**
Ascension	0.15
Assumption	6.81
Avoyelles	24.96
Caldwell	.61
Catahoula	20.49
Concordia	26.16
East Baton Rouge	.09
East Carroll	19.91
Franklin	35.18
Iberia	.17
Iberville	20.41
Lafayette	.29
Lafourche	4.09
Madison	38.83
Morehouse	67.50
Ouachita	.88
Pointe Coupee	17.64
Richland	20.37
St. James	.01
St. Landry	19.77
St. Martin	25.08
St. Mary	.03
Tensas	28.62
Terrebonne	.61
West Baton Rouge	2.88
West Carroll	11.98
West Feliciana	.04

Upland Terrace Aquifer (Northern Louisiana)

Withdrawals, in million gallons per day (Mgal/d)	
Public supply	13.24
Industry	.62
Power generation	.00
Rural domestic	.99
Livestock	.09
Rice Irrigation	4.64
General irrigation	4.47
Aquaculture	4.71
Total	**28.74**

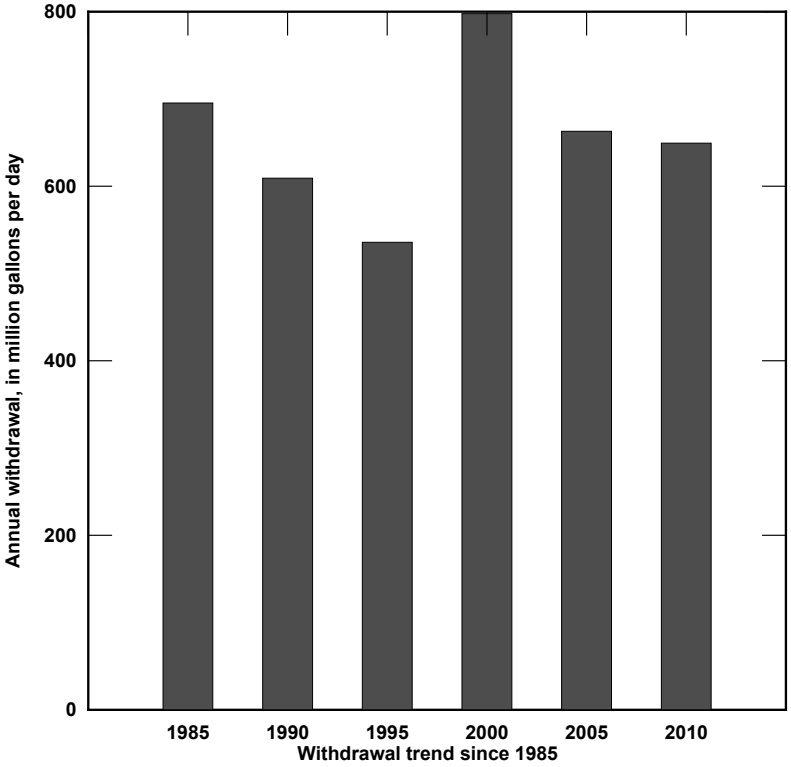




Withdrawals by Parish	
Parish	**Mgal/d**
Avoyelles	5.35
Bienville	.03
Bossier	1.40
Caddo	.58
De Soto	.49
Grant	.98
La Salle	1.28
Morehouse	7.08
Natchitoches	.20
Ouachita	.07
Rapides	10.45
Red River	.25
Sabine	.03
Union	.01
Vernon	.06
Webster	.43
Winn	.05

Chicot Aquifer System

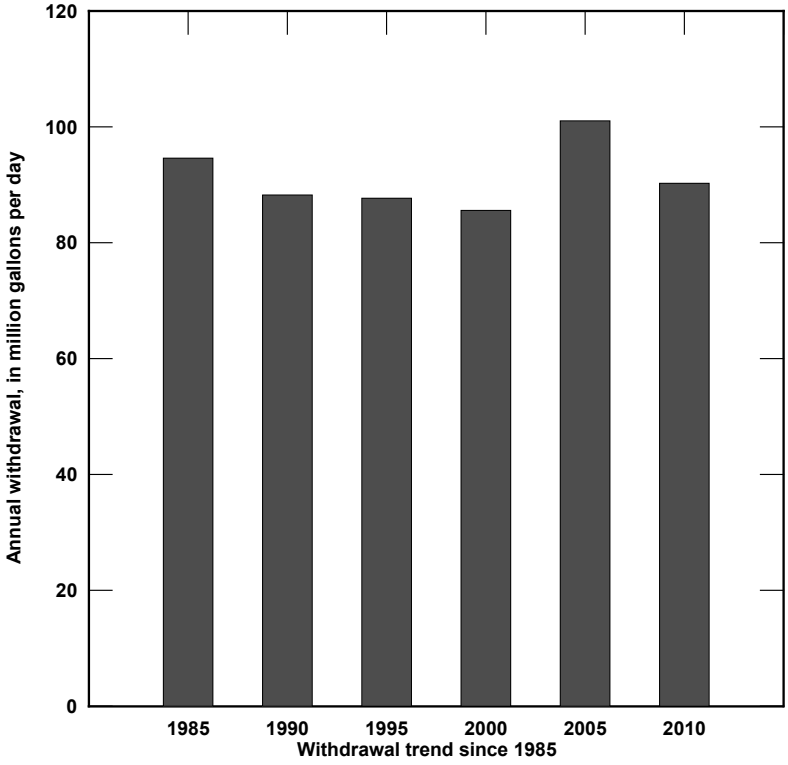
Withdrawals, in million gallons per day (Mgal/d)	
Public supply	96.55
Industry	57.86
Power generation	14.74
Rural domestic	11.84
Livestock	1.20
Rice Irrigation	341.90
General irrigation	10.55
Aquaculture	113.89
Total	648.54



Withdrawals by Parish	
Parish	**Mgal/d**
Acadia	183.25
Allen	17.77
Beauregard	11.74
Calcasieu	85.86
Cameron	7.74
Evangeline	64.90
Iberia	16.29
Jefferson Davis	140.46
Lafayette	38.24
Rapides	1.15
St. Landry	36.49
St. Martin	4.11
St. Mary	8.28
Vermilion	31.75
Vernon	.53

Chicot Equivalent Aquifer System (Southeastern Louisiana)

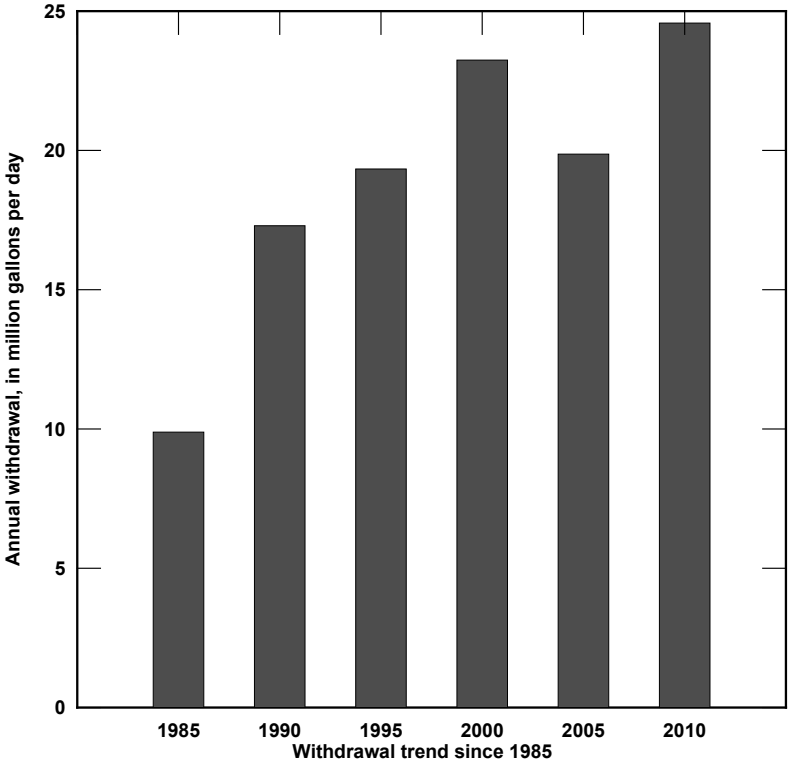
Withdrawals, in million gallons per day (Mgal/d)	
Public supply	11.65
Industry	46.07
Power generation	15.66
Rural domestic	15.24
Livestock	.58
Rice Irrigation	.00
General irrigation	.89
Aquaculture	.21
Total	**90.30**



Withdrawals by Parish	
Parish	**Mgal/d**
Ascension	11.80
Assumption	2.22
East Baton Rouge	16.44
East Feliciana	.34
Iberville	.03
Jefferson	7.16
Livingston	2.17
Orleans	12.94
Plaquemines	.04
Pointe Coupee	1.79
St. Bernard	.02
St. Charles	4.23
St. Helena	.70
St. James	2.85
St. John the Baptist	9.58
St. Tammany	6.70
Tangipahoa	4.82
Washington	6.03
West Baton Rouge	.01
West Feliciana	.45

Evangeline Aquifer

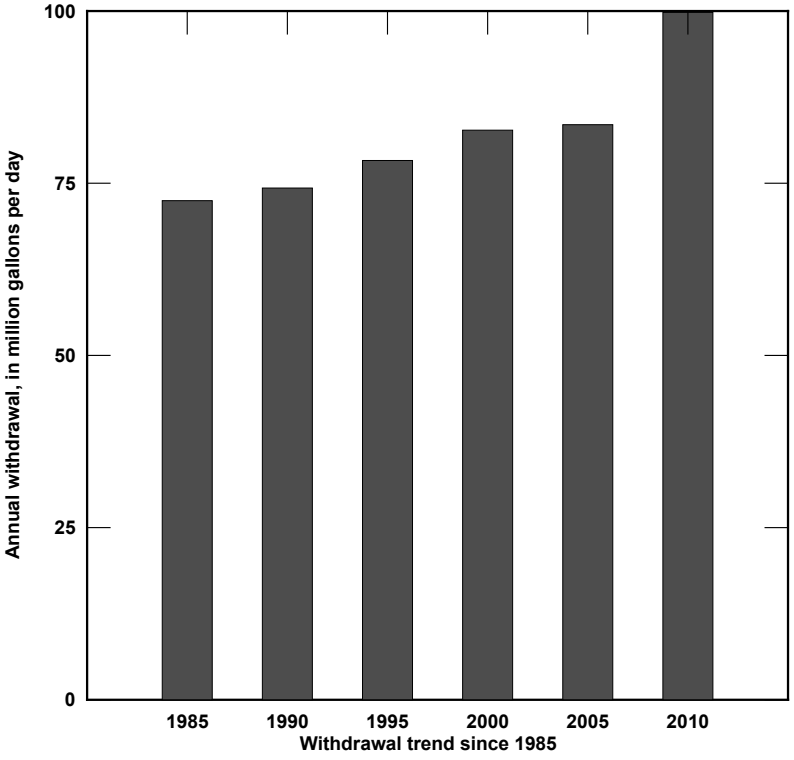
Withdrawals, in million gallons per day (Mgal/d)	
Public supply	18.45
Industry	2.71
Power generation	.00
Rural domestic	.30
Livestock	.07
Rice Irrigation	2.89
General irrigation	.68
Aquaculture	.27
Total	**25.37**



Withdrawals by Parish	
Parish	**Mgal/d**
Allen	4.25
Avoyelles	3.36
Beauregard	3.22
Calcasieu	.79
Evangeline	7.79
Rapides	3.40
St. Landry	2.42
Vernon	.15

Evangeline Equivalent Aquifer System (Southeastern Louisiana)

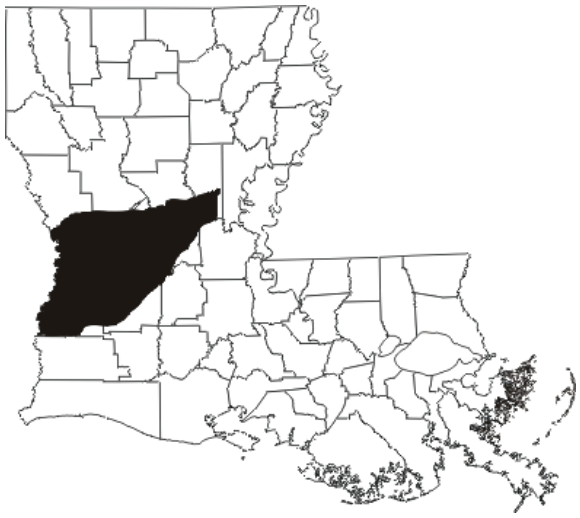
Withdrawals, in million gallons per day (Mgal/d)	
Public supply	71.99
Industry	22.63
Power generation	1.89
Rural domestic	1.30
Livestock	.25
Rice Irrigation	.24
General irrigation	.93
Aquaculture	.07
Total	**99.29**

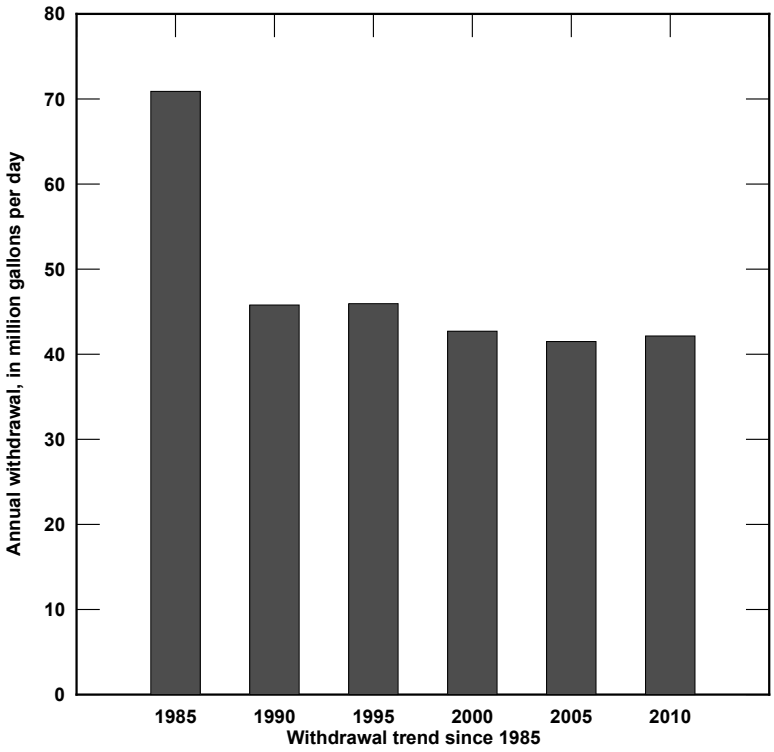


Withdrawals by Parish	
Parish	**Mgal/d**
East Baton Rouge	61.04
East Feliciana	.29
Livingston	4.92
Pointe Coupee	3.94
St. John the Baptist	3.93
St. Tammany	15.21
Tangipahoa	2.46
Washington	.17
West Baton Rouge	7.31
West Feliciana	.02

Jasper Aquifer System

Withdrawals, in million gallons per day (Mgal/d)	
Public supply	25.01
Industry	12.80
Power generation	.12
Rural domestic	1.06
Livestock	.04
Rice Irrigation	.96
General irrigation	.65
Aquaculture	1.52
Total	**42.15**

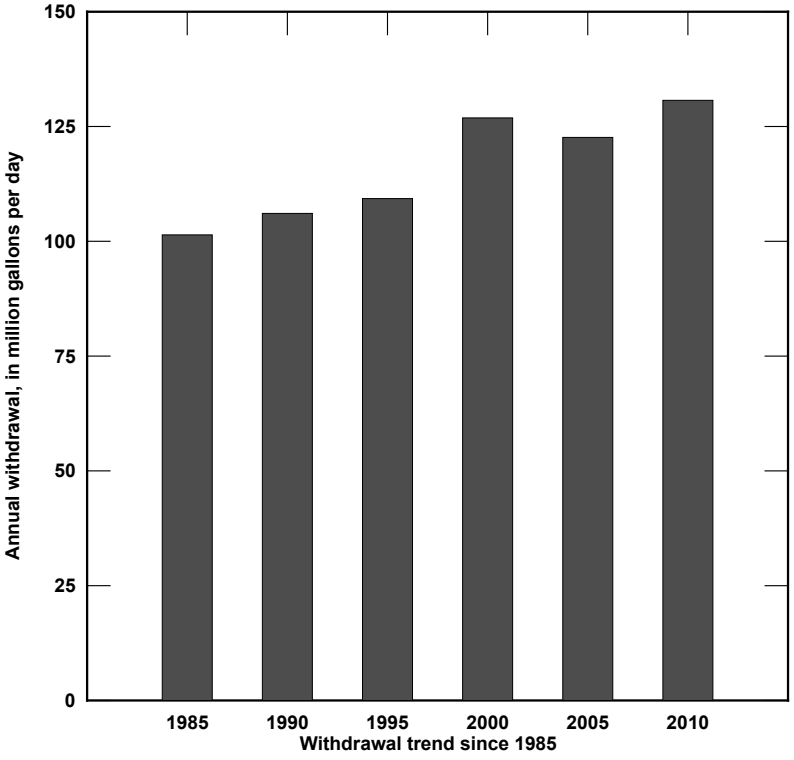




Withdrawals by Parish	
Parish	**Mgal/d**
Avoyelles	0.01
Beauregard	12.40
Concordia	2.17
Grant	.50
Rapides	19.91
Vernon	7.17

Jasper Equivalent Aquifer System (Southeastern Louisiana)

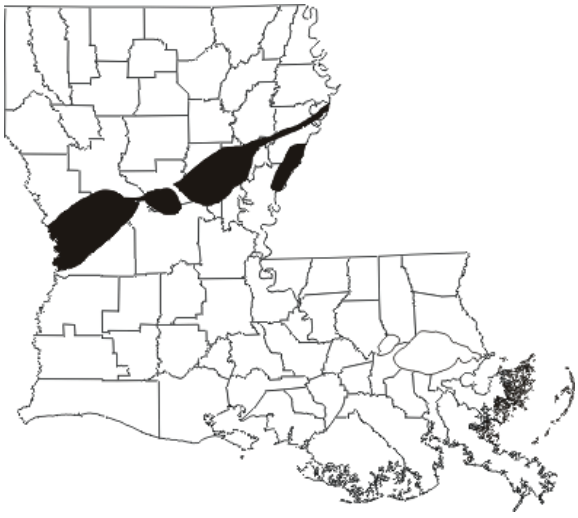
Withdrawals, in million gallons per day (Mgal/d)	
Public supply	77.04
Industry	43.94
Power generation	7.80
Rural domestic	.12
Livestock	.06
Rice Irrigation	.00
General irrigation	.01
Aquaculture	.08
Total	**129.05**

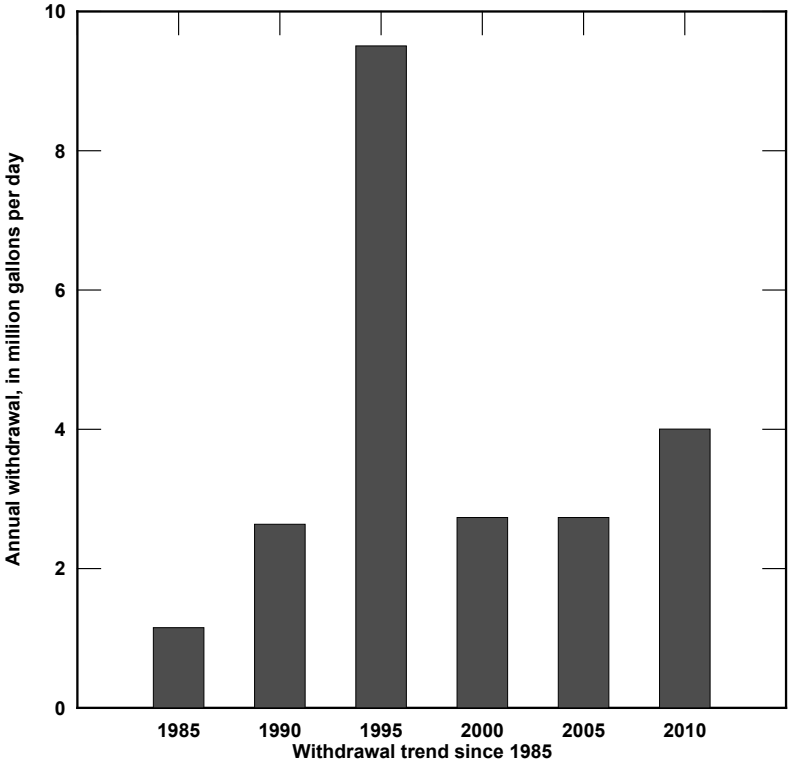


Withdrawals by Parish	
Parish	**Mgal/d**
East Baton Rouge	72.33
East Feliciana	2.12
Iberville	.44
Livingston	6.46
Pointe Coupee	4.14
St. Helena	.35
St. Tammany	5.93
Tangipahoa	12.62
Washington	20.49
West Baton Rouge	.01
West Feliciana	4.17

Catahoula Aquifer

Withdrawals, in million gallons per day (Mgal/d)	
Public supply	4.21
Industry	.06
Power generation	.00
Rural domestic	.20
Livestock	.03
Rice Irrigation	.00
General irrigation	.15
Aquaculture	.06
Total	**4.70**

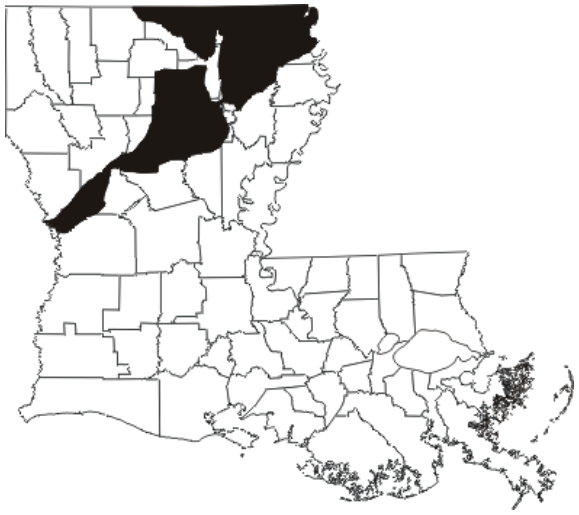


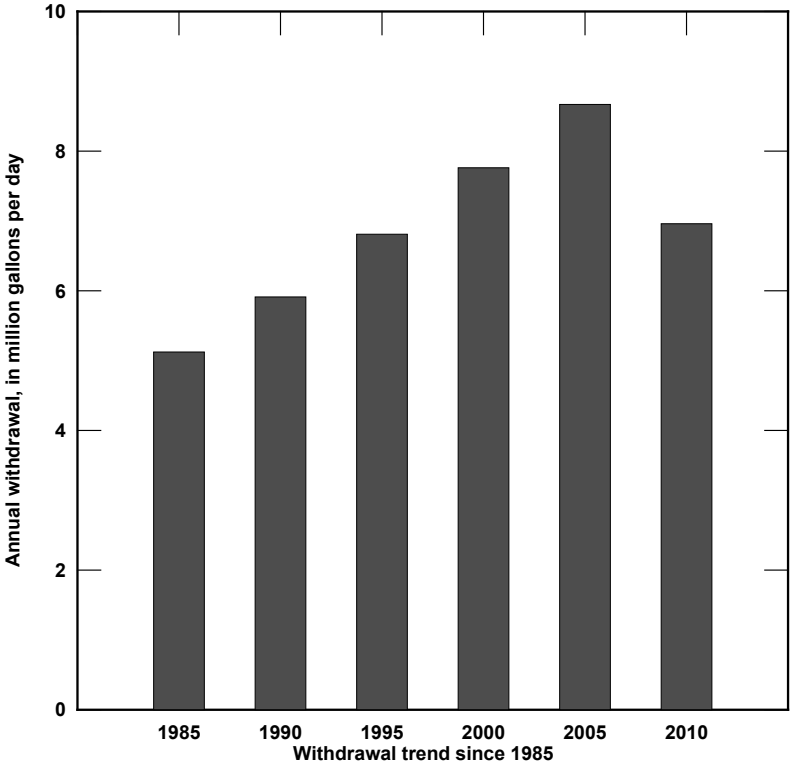


Withdrawals by Parish	
Parish	**Mgal/d**
Catahoula	1.93
Concordia	.41
East Feliciana	.76
Grant	.61
La Salle	.16
Natchitoches	.03
Rapides	.59
Sabine	.05
Vernon	.18

Cockfield Aquifer

Withdrawals, in million gallons per day (Mgal/d)	
Public supply	6.40
Industry	.00
Power generation	.00
Rural domestic	.44
Livestock	.01
Rice Irrigation	.11
General irrigation	.00
Aquaculture	.00
Total	**6.96**

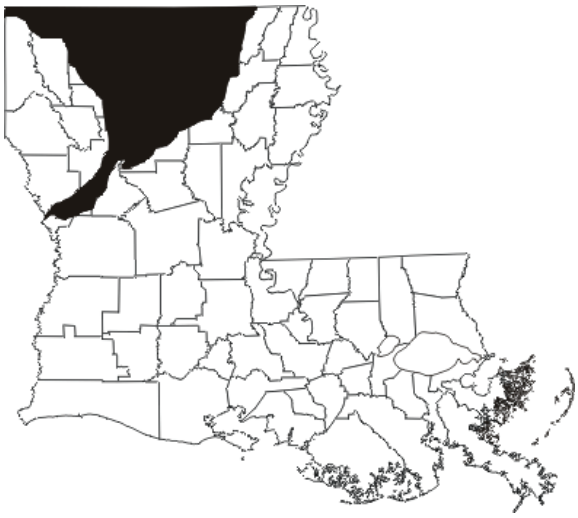


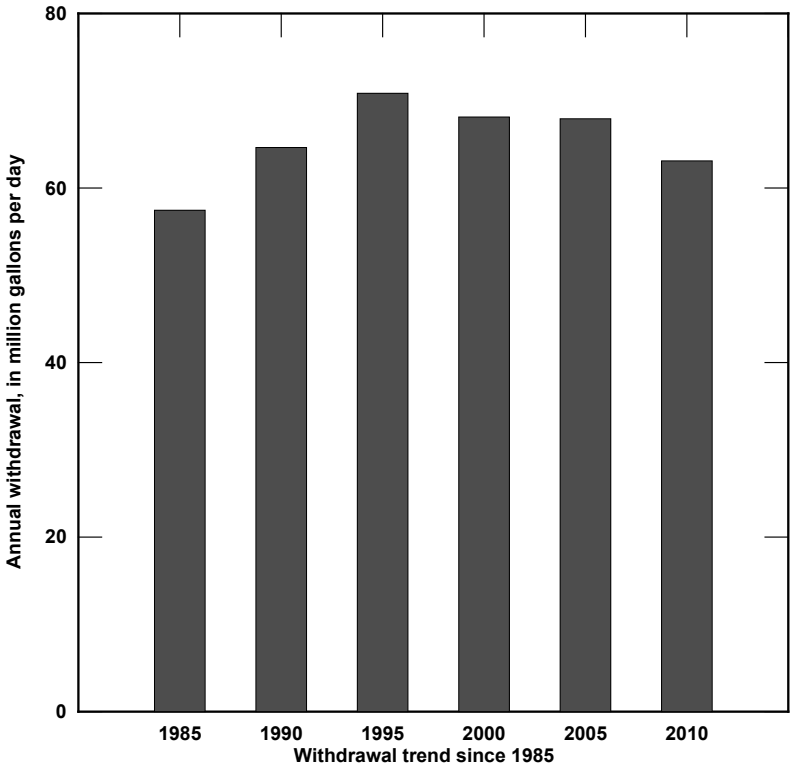


Withdrawals by Parish	
Parish	**Mgal/d**
Caldwell	1.09
Claiborne	.01
East Carroll	1.29
Grant	.20
Jackson	.06
La Salle	.86
Lincoln	.01
Morehouse	.34
Natchitoches	.07
Ouachita	.11
Richland	1.46
Sabine	.07
Union	.06
Vernon	.06
West Carroll	1.08
Winn	.19

Sparta Aquifer

Withdrawals, in million gallons per day (Mgal/d)	
Public supply	34.61
Industry	25.60
Power generation	.00
Rural domestic	1.50
Livestock	.14
Rice Irrigation	.22
General irrigation	.98
Aquaculture	.06
Total	**63.11**

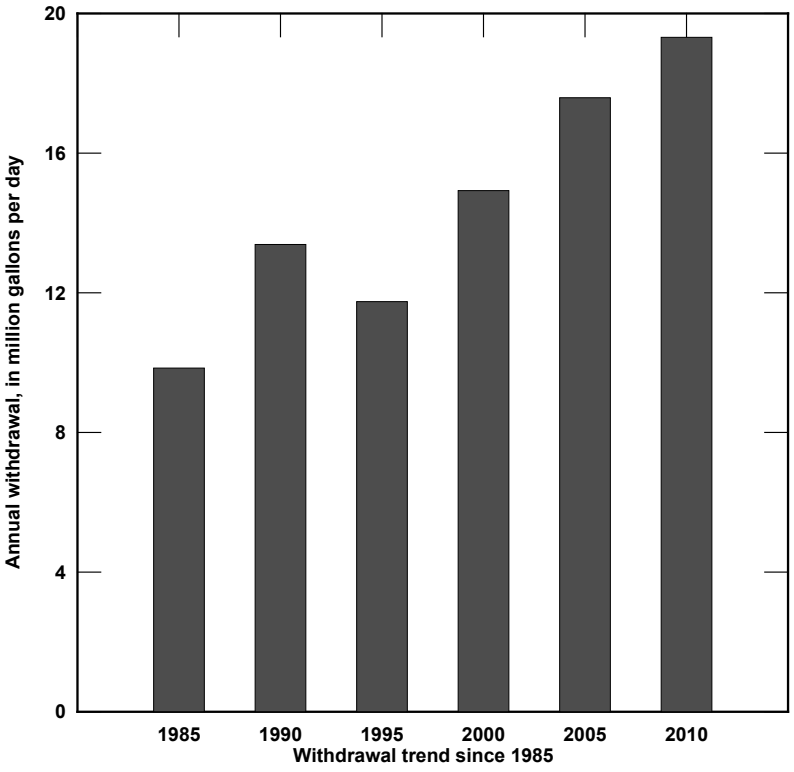




Withdrawals by Parish	
Parish	**Mgal/d**
Bienville	12.00
Bossier	.19
Caddo	.13
Caldwell	.02
Claiborne	2.41
Jackson	3.88
Lincoln	8.71
Morehouse	.38
Natchitoches	1.21
Ouachita	22.27
Sabine	.13
Union	3.84
Webster	5.89
Winn	2.05

Carrizo-Wilcox Aquifer

Withdrawals, in million gallons per day (Mgal/d)	
Public supply	7.55
Industry	3.03
Power generation	.00
Rural domestic	4.46
Livestock	.28
Rice Irrigation	.15
General irrigation	3.05
Aquaculture	.79
Total	**19.32**



Withdrawals by Parish	
Parish	**Mgal/d**
Bienville	0.99
Bossier	2.39
Caddo	6.78
De Soto	4.11
Natchitoches	1.03
Red River	1.19
Sabine	1.81
Webster	1.03

Table 4. Groundwater withdrawals in Louisiana by parish and aquifer, 2010.
[Withdrawals are in million gallons per day. Summation of numbers in columns may differ slightly from totals because of rounding]

Parish	Red River Alluvial Aquifer	Mississippi River Alluvial Aquifer	Upland Terrace Aquifer (Northern Louisiana)	Chicot Aquifer System	Chicot Equivalent Aquifer System (Southeast Louisiana)	Evangeline Aquifer	Evangeline Equivalent Aquifer System (Southeast Louisiana)
Acadia				183.25			
Allen				17.77		4.25	
Ascension		.15			11.80		
Assumption		6.81			2.22		
Avoyelles	6.47	24.96	5.35			3.36	
Beauregard				11.74		3.22	
Bienville			.03				
Bossier	.24		1.40				
Caddo	3.09		.58				
Calcasieu				85.86		.79	
Caldwell		.61					
Cameron				7.74			
Catahoula	.21	20.49					
Claiborne							
Concordia		26.16					
De Soto	.15		.49				
East Baton Rouge		.09			16.44		61.04
East Carroll		19.91					
East Feliciana					.34		.29
Evangeline				64.90		7.79	
Franklin		35.18					
Grant	.02		.98				
Iberia		.17		16.29			
Iberville		20.41			.03		
Jackson							
Jefferson					7.16		
Jefferson Davis				140.46			
La Salle			1.28				
Lafayette		.29		38.24			
Lafourche		4.09					
Lincoln							
Livingston					2.17		4.92
Madison		38.83					
Morehouse		67.50	7.08				
Natchitoches	2.99		.20				
Orleans					12.94		
Ouachita		.88	.07				
Plaquemines					.04		
Pointe Coupee		17.64			1.79		3.94
Rapides	1.92		10.45	1.15		3.40	
Red River	1.26		.25				
Richland		20.37					
Sabine			.03				
St. Bernard					.02		
St. Charles					4.23		
St. Helena					.70		
St. James		.01			2.85		
St. John					9.58		3.93
St. Landry		19.77		36.49		2.42	
St. Martin		25.08		4.11			
St. Mary		.03		8.28			
St. Tammany					6.70		15.21
Tangipahoa					4.82		2.46
Tensas		28.62					
Terrebonne		.61					
Union			.01				
Vermilion				31.75			
Vernon			.06	.53		.15	
Washington					6.03		.17
Webster			.43				
West Baton Rouge		2.88			.01		7.31
West Carroll		11.98					
West Feliciana		.04			.45		.02
Winn			.05				
Totals	**16.37**	**393.57**	**28.74**	**648.54**	**90.30**	**25.37**	**99.29**

Jasper Aquifer System	Jasper Equivalent Aquifer System (Southeast Louisiana)	Catahoula Aquifer	Cockfield Aquifer	Sparta Aquifer	Carrizo-Wilcox Aquifer	Other	Parish
							Acadia
							Allen
							Ascension
							Assumption
.01							Avoyelles
12.40							Beauregard
				12.00	.99		Bienville
				.19	2.39		Bossier
				.13	6.78		Caddo
							Calcasieu
			1.09	.02			Caldwell
							Cameron
		1.93					Catahoula
			.01	2.41			Claiborne
2.17		.41					Concordia
					4.11	.01	De Soto
	72.33						East Baton Rouge
			1.29				East Carroll
	2.12	.76					East Feliciana
							Evangeline
							Franklin
.50		.61	.20				Grant
							Iberia
	.44						Iberville
			.06	3.88			Jackson
							Jefferson
							Jefferson Davis
		.16	.86				La Salle
							Lafayette
							Lafourche
			.01	8.71			Lincoln
	6.46						Livingston
							Madison
			.34	.38			Morehouse
		.03	.07	1.21	1.03		Natchitoches
							Orleans
			.11	22.27			Ouachita
							Plaquemines
	4.14						Pointe Coupee
19.91		.59					Rapides
					1.19	.01	Red River
			1.46				Richland
		.05	.07	.13	1.81		Sabine
							St. Bernard
							St. Charles
	.35						St. Helena
							St. James
							St. John
							St. Landry
							St. Martin
							St. Mary
	5.93						St. Tammany
	12.62						Tangipahoa
							Tensas
							Terrebonne
			.06	3.84			Union
							Vermilion
7.17		.18	.06				Vernon
	20.49					1.42	Washington
				5.89	1.03		Webster
	.01						West Baton Rouge
			1.08				West Carroll
	4.17						West Feliciana
			.19	2.05			Winn
42.15	**129.05**	**4.70**	**6.96**	**63.11**	**19.32**	**1.44**	Totals

Water Use By Surface-Water Basin

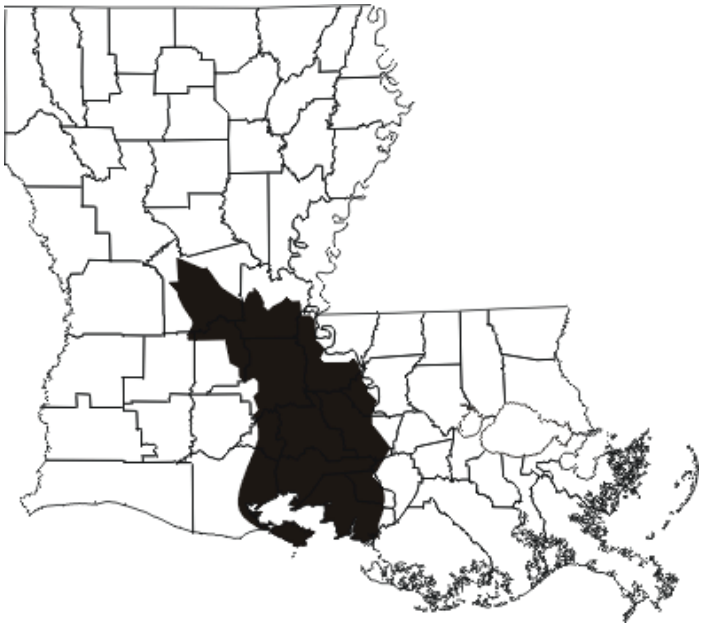
Total surface-water withdrawals were approximately 7,000 Mgal/d, of which nearly 100 percent was withdrawn from the 10 major surface-water basins. These basins include the Atchafalaya-Teche-Vermilion, Calcasieu-Mermentau River, Lake Pontchartrain-Lake Maurepas, Mississippi River mainstem, Mississippi River Delta, Ouachita River, Pearl River, Red River, Sabine River, and Tensas River surface-water basins. The Mississippi River mainstem supplied the most water (about 5,000 Mgal/d), which represented about 72 percent of all surface-water withdrawals in 2010 and was 24 percent less than withdrawals in 2005. Since 2005, total surface-water withdrawals in Louisiana decreased by 19 percent.

This section presents information on surface-water withdrawals for each of the 10 major surface-water basins in Louisiana. The one-page summaries of water-use information by surface-water basin presented in this section of the report include tables that list surface-water withdrawals by category of use (public supply, industry, power generation, rural domestic, livestock, rice irrigation, general irrigation, and aquaculture) by parish and by major water body within the basin. A map shows the areal extent of the basin within the State (modified from Garrison and Covay, 1994).

The tables of withdrawals from major water bodies could be incomplete because withdrawals for rice irrigation, general irrigation, livestock, and agriculture were estimated by using data that were not site specific. For this reason, a large part of surface-water withdrawals for these categories was recorded as miscellaneous streams and some water bodies that may have had substantial withdrawals may not have been included in these tables. Consequently, the sum of withdrawals from the major water bodies could be less than the total withdrawals listed in the tables of withdrawals by category because of withdrawals attributed to miscellaneous streams.

Atchafalaya-Teche-Vermilion Surface-Water Basin

Withdrawals in million gallons per day (Mgal/d)	
Public supply	10.05
Industry	8.19
Power generation	220.18
Rural domestic	.00
Livestock	.34
Rice Irrigation	46.27
General irrigation	4.68
Aquaculture	37.53
Total	**327.25**

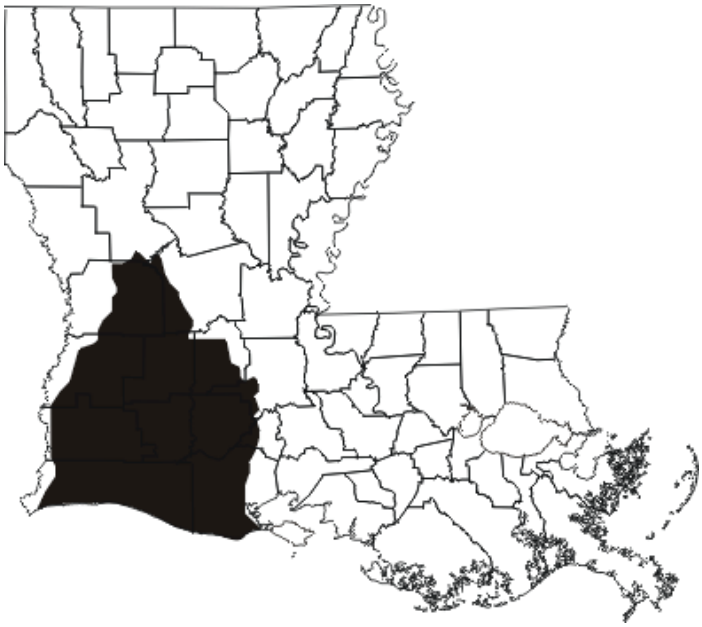


Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Alligator Bayou	0.45
Atchafalaya River	4.17
Bayou Boeuf	13.68
Bayou Cocodrie	122.27
Bayou du Lac	3.54
Bayou Portage	2.43
Bayou Robert	1.41
Bayou Teche	11.00
Charenton Canal	99.44
Chatlin Lake Canal	2.83
Intracoastal Waterway	9.11
Lower Grand River	.47
Patout Bayou	.38
Six Mile Lake	1.17
Vermilion River	20.72

Withdrawals by Parish	
Parish	**Mgal/d**
Avoyelles	15.61
Evangeline	122.27
Iberia	6.44
Iberville	13.91
Lafayette	1.18
Pointe Coupee	2.22
Rapides	10.02
St. Landry	12.61
St. Martin	10.30
St. Mary	111.66
Vermilion	20.36
West Baton Rouge	.67

Calcasieu-Mermentau River Surface-Water Basin

Withdrawals in million gallons per day (Mgal/d)	
Public supply	0.50
Industry	114.60
Power generation	15.30
Rural domestic	.00
Livestock	.81
Rice Irrigation	115.62
General irrigation	2.66
Aquaculture	47.47
Total	**296.96**



Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Bayou Blue	0.34
Bayou Chene	9.60
Bayou Choupique	.94
Bayou Cocodrie	.94
Bayou Des Cannes	1.21
Bayou Lacassine	7.86
Bayou Mallet	.79
Bayou Marron	1.22
Bayou Nezpique	2.67
Bayou Plaquemine	10.01
Bayou Queue de Tortue	32.67
Calcasieu River	79.55
Intracoastal Waterway	2.04
Lyons Point Gully	5.87
Mermentau River	18.64
Millers Lake	1.12
Sabine River Diversion Canal	53.53

Withdrawals by Parish	
Parish	**Mgal/d**
Acadia	47.60
Allen	2.49
Beauregard	.09
Calcasieu	135.44
Cameron	19.17
Evangeline	9.40
Jefferson Davis	34.61
Lafayette	.54
Rapides	.03
St. Landry	6.10
Vermilion	41.50

Lake Pontchartrain-Lake Maurepas Surface-Water Basin

Withdrawals in million gallons per day (Mgal/d)	
Public supply	0.00
Industry	2.70
Power generation	.00
Rural domestic	.00
Livestock	.55
Rice Irrigation	.00
General irrigation	.26
Aquaculture	.00
Total	**3.51**

Withdrawals by Major Water Body	
Water Body	**Mgal/d**

Withdrawals by Parish	
Parish	**Mgal/d**
Ascension	0.03
East Baton Rouge	2.72
East Feliciana	.25
Livingston	.04
St. Helena	.01
St. Tammany	.04
Tangipahoa	.18
Washington	.01
West Feliciana	.23

Mississippi River Mainstem

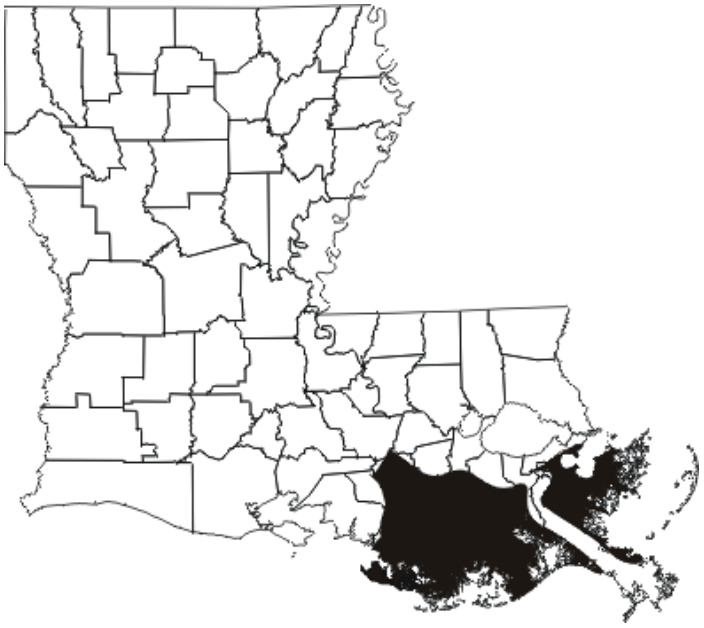
Withdrawals in million gallons per day (Mgal/d)	
Public supply	242.39
Industry	1,637.75
Power generation	3,099.94
Rural domestic	.00
Livestock	.02
Rice Irrigation	.00
General irrigation	1.79
Aquaculture	.00
Total	**4,981.88**

Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Mississippi River	4,947.18
Tante Phine Pass	32.90

Withdrawals by Parish	
Parish	**Mgal/d**
Ascension	149.44
Concordia	8.65
East Baton Rouge	18.80
Iberville	446.63
Jefferson	809.56
Madison	.79
Orleans	149.14
Plaquemines	85.03
Pointe Coupee	314.17
St. Bernard	259.52
St. Charles	2,471.23
St. James	177.71
St. John the Baptist	53.97
Tensas	.42
West Baton Rouge	.06
West Feliciana	36.77

Mississippi River Delta Surface-Water Basin

Withdrawals in million gallons per day (Mgal/d)	
Public supply	33.33
Industry	12.42
Power generation	453.20
Rural domestic	.00
Livestock	.30
Rice Irrigation	.00
General irrigation	.24
Aquaculture	25.41
Total	**524.90**

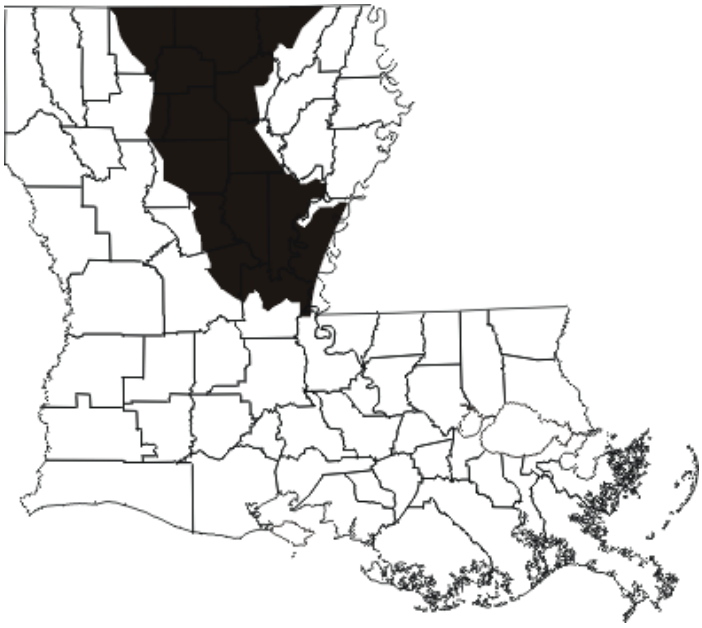


Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Bayou Black	0.23
Bayou Boeuf	.71
Bayou Lafourche	42.01
Intracoastal Waterway	7.65
Lake Verret	1.99
Mississippi River Gulf Outlet	454.37

Withdrawals by Parish	
Parish	**Mgal/d**
Ascension	2.30
Assumption	12.39
Jefferson	.04
Lafourche	37.88
Orleans	453.22
Plaquemines	.05
St. Bernard	1.18
St. Charles	.05
St. James	11.82
St. John the Baptist	.08
St. Mary	.71
Terrebonne	5.20

Ouachita River Surface-Water Basin

Withdrawals in million gallons per day (Mgal/d)	
Public supply	3.51
Industry	14.02
Power generation	2.52
Rural domestic	.00
Livestock	.51
Rice Irrigation	17.19
General irrigation	12.22
Aquaculture	.13
Total	**50.11**



Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Bayou Bartholomew	2.52
Bayou Cocodrie	9.14
Big Creek	2.00
Cross Bayou	2.95
Falgon Creek	.49
Marango Bend	1.50
Ouachita River	21.36

Withdrawals by Parish	
Parish	**Mgal/d**
Avoyelles	0.64
Caldwell	1.02
Catahoula	6.43
Claiborne	.17
Concordia	13.60
Grant	2.53
Jackson	.03
La Salle	.10
Lincoln	.06
Morehouse	3.55
Ouachita	21.17
Rapides	.60
Union	.16
Winn	.04

Pearl River Surface-Water Basin

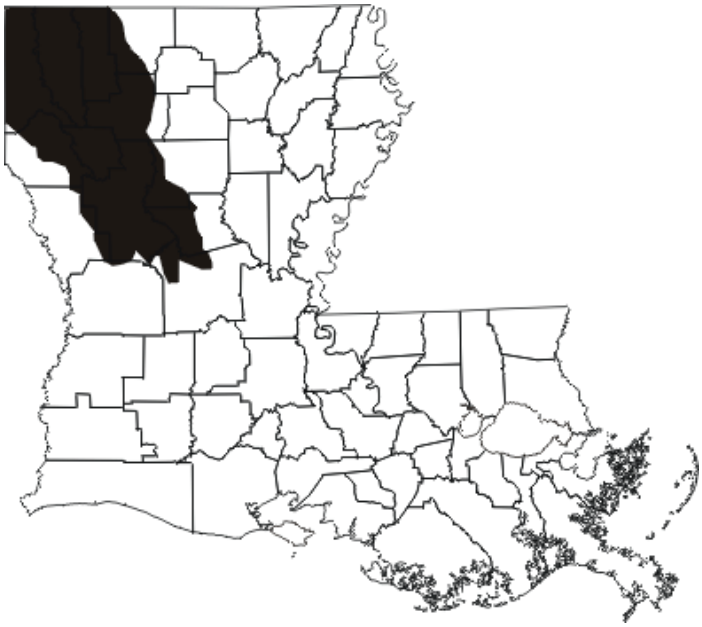
Withdrawals in million gallons per day (Mgal/d)	
Public supply	0.00
Industry	6.30
Power generation	.00
Rural domestic	.00
Rice Irrigation	.00
General irrigation	.00
Livestock	.15
Aquaculture	.00
Total	**6.45**

Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Bogue Lusa Creek	6.30

Withdrawals by Parish	
Parish	**Mgal/d**
St. Tammany	0.02
Washington	6.43

Red River Surface-Water Basin

Withdrawals in million gallons per day (Mgal/d)	
Public supply	61.76
Industry	17.90
Power generation	588.04
Rural domestic	.00
Livestock	.74
Rice Irrigation	3.63
General irrigation	8.70
Livestock	.00
Aquaculture	1.36
Total	**682.12**



Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Bayou Pierre	3.17
Black Lake	.96
Caddo Lake	91.05
Cane River	1.74
Cross Lake	43.56
Grand Bayou Reservoir	.20
Lake Rodemacher	464.19
Little River	1.64
Old River	.36
Red River	22.24
Sibley Lake	5.73
Twelve Mile Bayou	.10

Withdrawals by Parish	
Parish	**Mgal/d**
Bienville	0.18
Bossier	11.05
Caddo	136.38
De Soto	4.02
Grant	.45
Natchitoches	28.80
Rapides	499.31
Red River	1.71
Webster	.23

Sabine River Surface-Water Basin

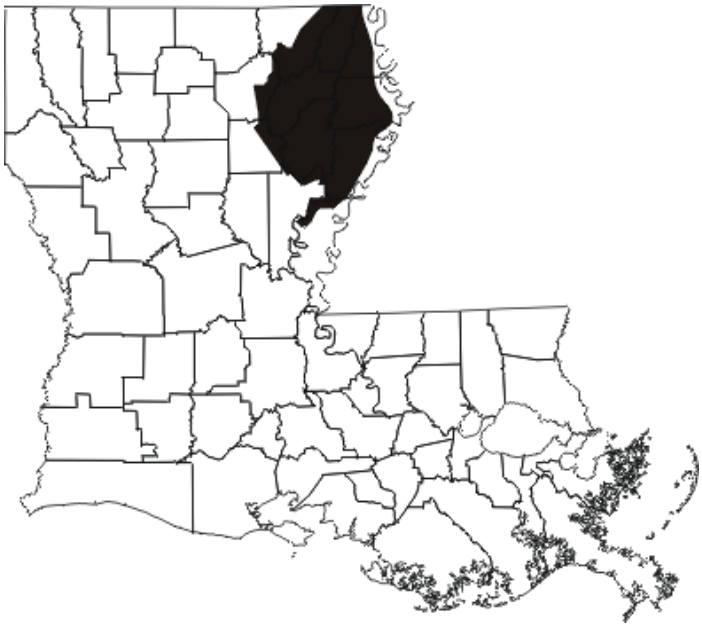
Withdrawals in million gallons per day (Mgal/d)	
Public supply	3.13
Industry	17.51
Power generation	8.76
Rural domestic	.00
Livestock	.29
Rice Irrigation	.00
General irrigation	.12
Aquaculture	.00
Total	**29.81**

Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Toledo Bend Reservoir	29.09

Withdrawals by Parish	
Parish	**Mgal/d**
Beauregard	0.01
De Soto	27.88
Sabine	1.76
Vernon	.16

Tensas River Surface-Water Basin

Withdrawals in million gallons per day (Mgal/d)	
Public supply	13.46
Industry	.05
Power generation	.00
Rural domestic	.00
Livestock	.11
Rice Irrigation	18.36
General irrigation	25.84
Livestock	.00
Aquaculture	.10
Total	**57.92**



Withdrawals by Major Water Body	
Water Body	**Mgal/d**
Bayou de Siard	12.44
Bayou Despair	.79
Bayou Galion	.15
Bayou Lafourche	4.67
Bayou Macon	8.10
Big Creek	1.99
Big Cypress Creek	2.92
Boeuf River	6.05
Hill Bayou	.14
Jack Falls Bayou	.33
Joes Bayou	1.48
Lake Bruin	1.58
Lake Lafourche River	.17
Little Long Lake	.16
Tensas River	.95

Withdrawals by Parish	
Parish	**Mgal/d**
Caldwell	1.64
Catahoula	.95
East Carroll	5.39
Franklin	5.90
Madison	2.45
Morehouse	4.44
Ouachita	23.60
Richland	8.71
Tensas	2.70
West Carroll	2.14

Total Water Use

Total withdrawals from groundwater and surface-water sources in 2010 (fig. 12) were approximately 8,500 Mgal/d. Of this total, about 1,600 Mgal/d was from groundwater and about 7,000 Mgal/d was from surface water (table 3). By category, withdrawals for power generation accounted for about 52 percent of the total, industry about 24 percent, irrigation about 11 percent (rice and general irrigation combined), public supply about 8.8 percent, aquaculture about 3.6 percent, and rural-domestic and livestock combined the other 0.6 percent (figs. 13-15). Figures 16 and 17 show the distribution of groundwater and surface-water withdrawals by parish.

Forty-one percent (about 650 Mgal/d) of all groundwater was withdrawn from the Chicot aquifer system, and 25 percent (about 390 Mgal/d) was withdrawn from the Mississippi River alluvial aquifer (table 4). About 72 percent (about 5,000 Mgal/d) of all surface water was withdrawn from the Mississippi River mainstem.

St. Charles Parish had the greatest surface-water withdrawals and the greatest total withdrawals in the State, about 2,500 Mgal/d, mostly for power generation and industrial water use. Acadia Parish had the greatest groundwater withdrawals in the State, about 180 Mgal/d, mostly for rice irrigation (table 3).

Louisiana

Population: 4,533,372
Population served by public supply: 3,948,864
Per capita withdrawals (gal/d): 1,882
Acres irrigated: 926,053
Hydroelectric power instream use (Mgal/d): 69,000.00

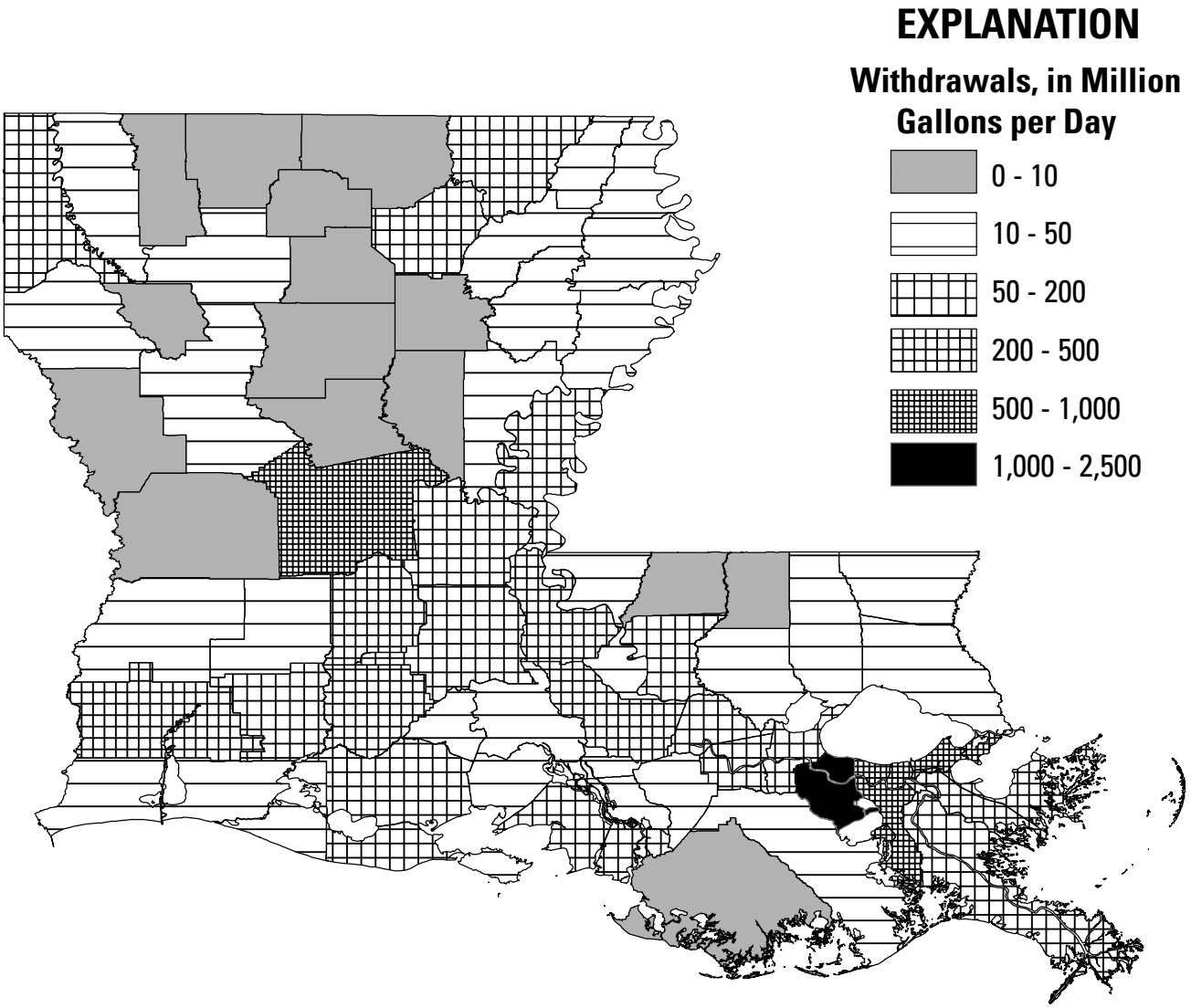
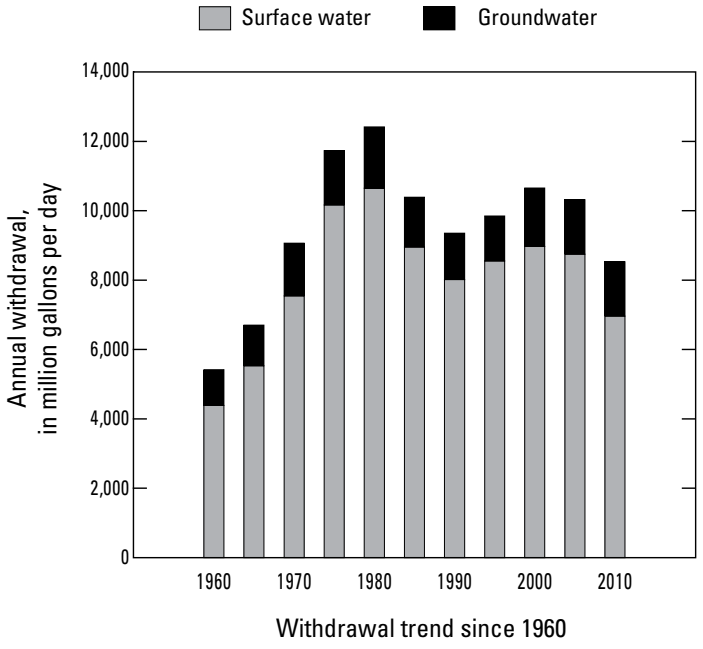


Figure 12. Summary of total water withdrawals in Louisiana, 2010.

Withdrawals, in million gallons per day (Mgal/d)			
	Ground-water (GW)	Surface Water (SW)	Total
Public supply	378.26	368.12	746.38
Industry	244.09	1,831.44	2,075.53
Power generation	41.02	4,387.94	4,428.96
Rural domestic	41.01	.00	41.01
Livestock	4.17	3.86	8.03
Rice Irrigation	486.84	201.08	687.92
General irrigation	182.81	57.00	239.81
Aquaculture	190.72	112.00	302.72
Total	**1,568.35**	**6,961.44**	**8,529.79**

Withdrawals in Louisiana by Major Industrial Group (Mgal/d)			
	Standard Industrial Classification	GW	SW
12	Coal and lignite mining	1.24	
13	Oil and gas extraction	3.53	7.48
14	Nonfuels and nonmetals mining	.70	.05
15	Building construction	.70	
20	Food products	19.27	27.78
24	Lumber	1.93	.03
26	Paper products	85.05	66.70
28	Chemicals	92.58	1,348.38
29	Petroleum refining	25.91	377.44
30	Rubber and plastics	1.26	2.70
32	Glass, clay, and concrete	1.26	
33	Primary metals	1.83	.89
34	Metal products	.30	
37	Transportation equipment	1.57	
38	Instrumentation	.25	
39	Miscellaneous manufacturing	.02	



Withdrawals by Top 25 Public Suppliers (Mgal/d)		
Public Suppliers	GW	SW
Alexandria Water System	16.24	
Baker Utilities	4.45	
Baton Rouge Water Company	55.11	
Bogalusa Water System	12.11	
Bossier City Water System		10.24
East Jefferson Waterworks Dist. No. 1		37.64
Lafayette Utilities System	21.58	
Lafourche Parish Water Dist. No. 1		10.14
Lake Charles Water System	12.61	
Livingston Parish–Ward 2 Water District	4.35	
Monroe Water System		13.00
Natchitoches Utility System		5.73
New Iberia Water System	6.91	
New Orleans Sewage and Water Board		149.14
Opelousas Water System	4.54	
Parish Water Company	13.73	
Plaquemines Parish W. W.		6.32
St. Bernard Parish Water and Sewerage Commission		7.82
St. Charles Dept. of W. W. - Dist. 1		4.31
St. John the Baptist Utilities	3.93	2.53
Shreveport Water System		43.56
Slidell Water System	4.50	
Tangipahoa Water District 2	6.05	
Terrebonne Parish Waterworks Dist. No. 1		13.99
West Jefferson Waterworks		22.51

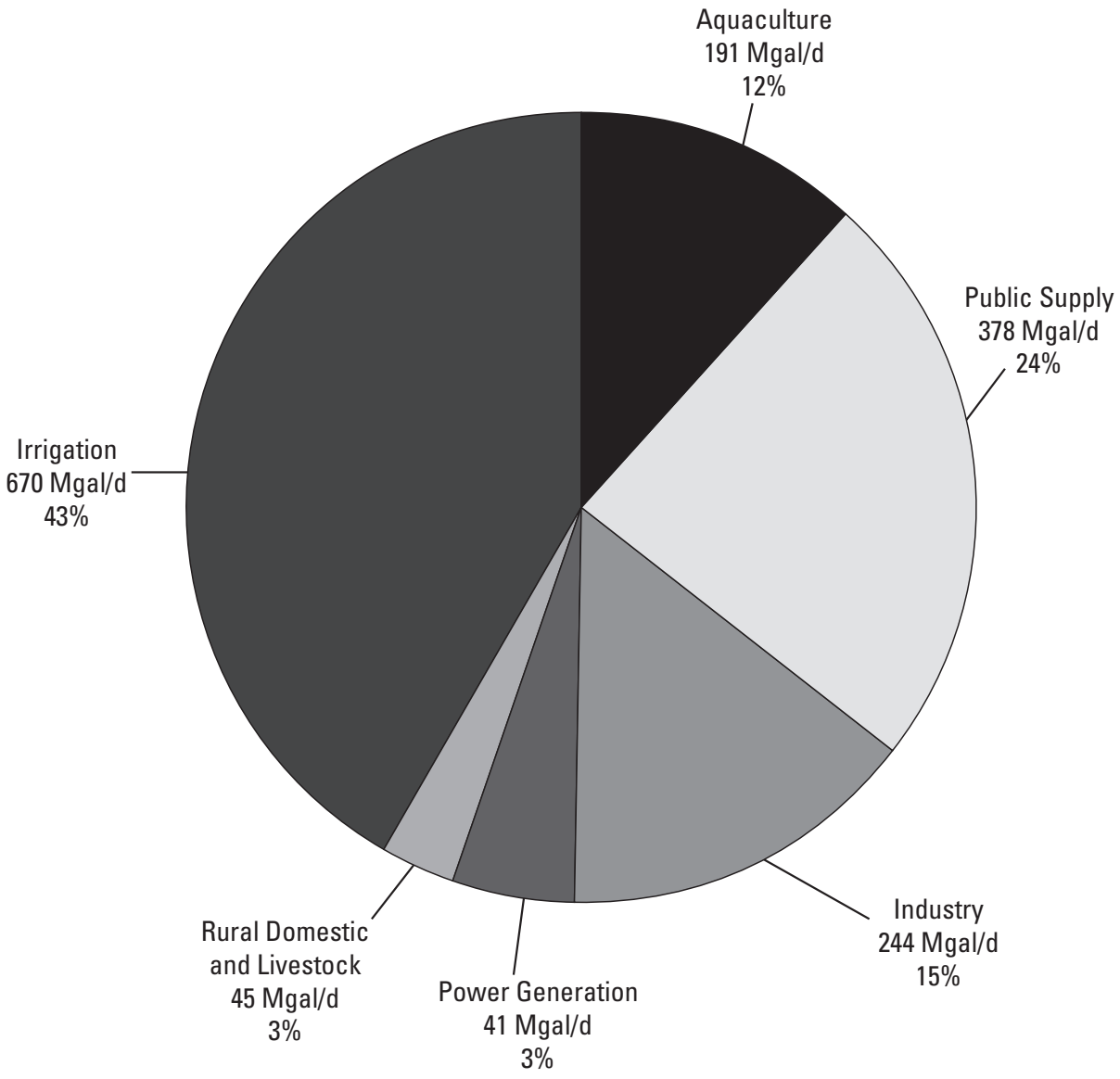


Figure 13. Groundwater withdrawals in Louisiana by water-use category, 2010.

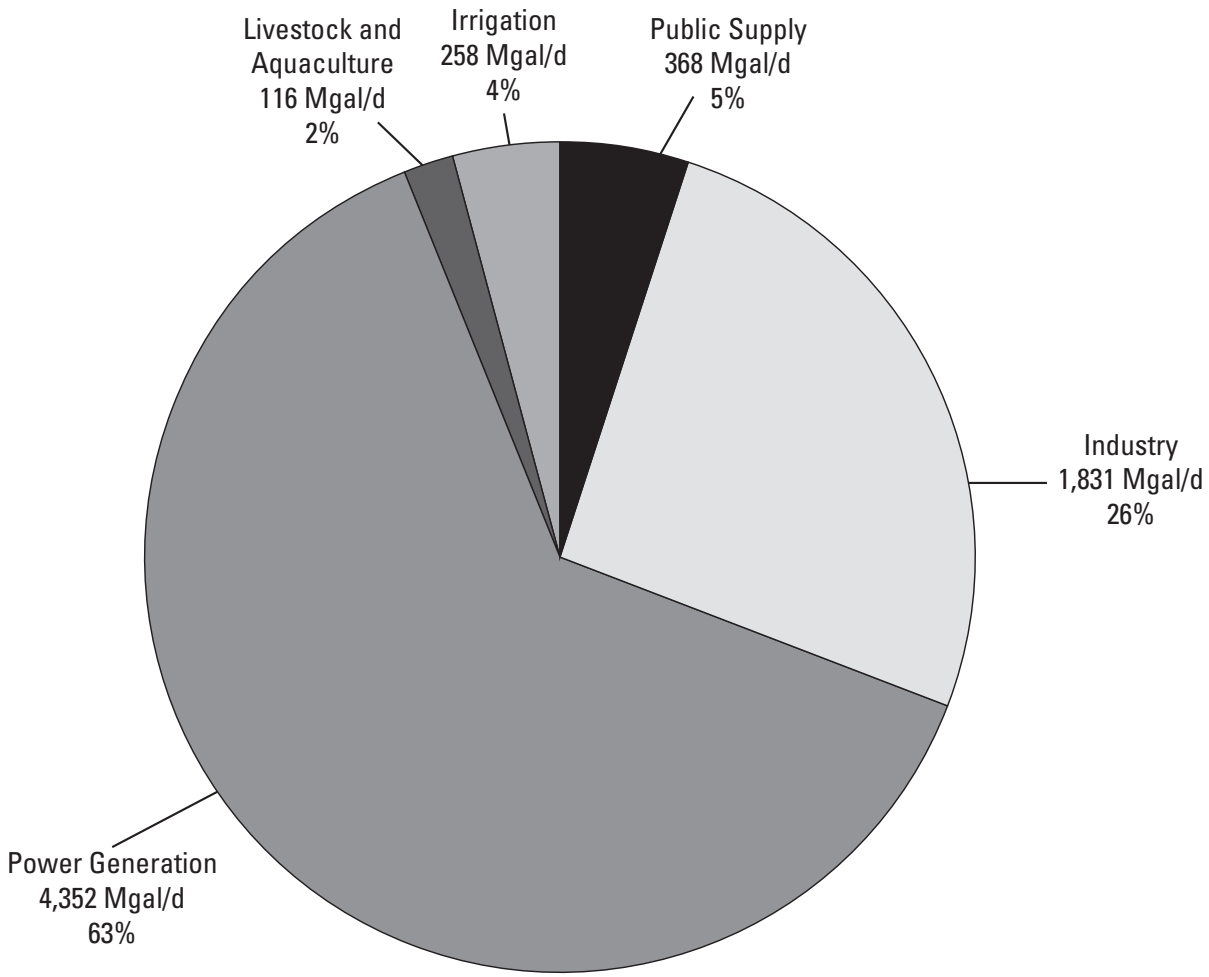


Figure 14. Surface-water withdrawals in Louisiana by water-use category, 2010.

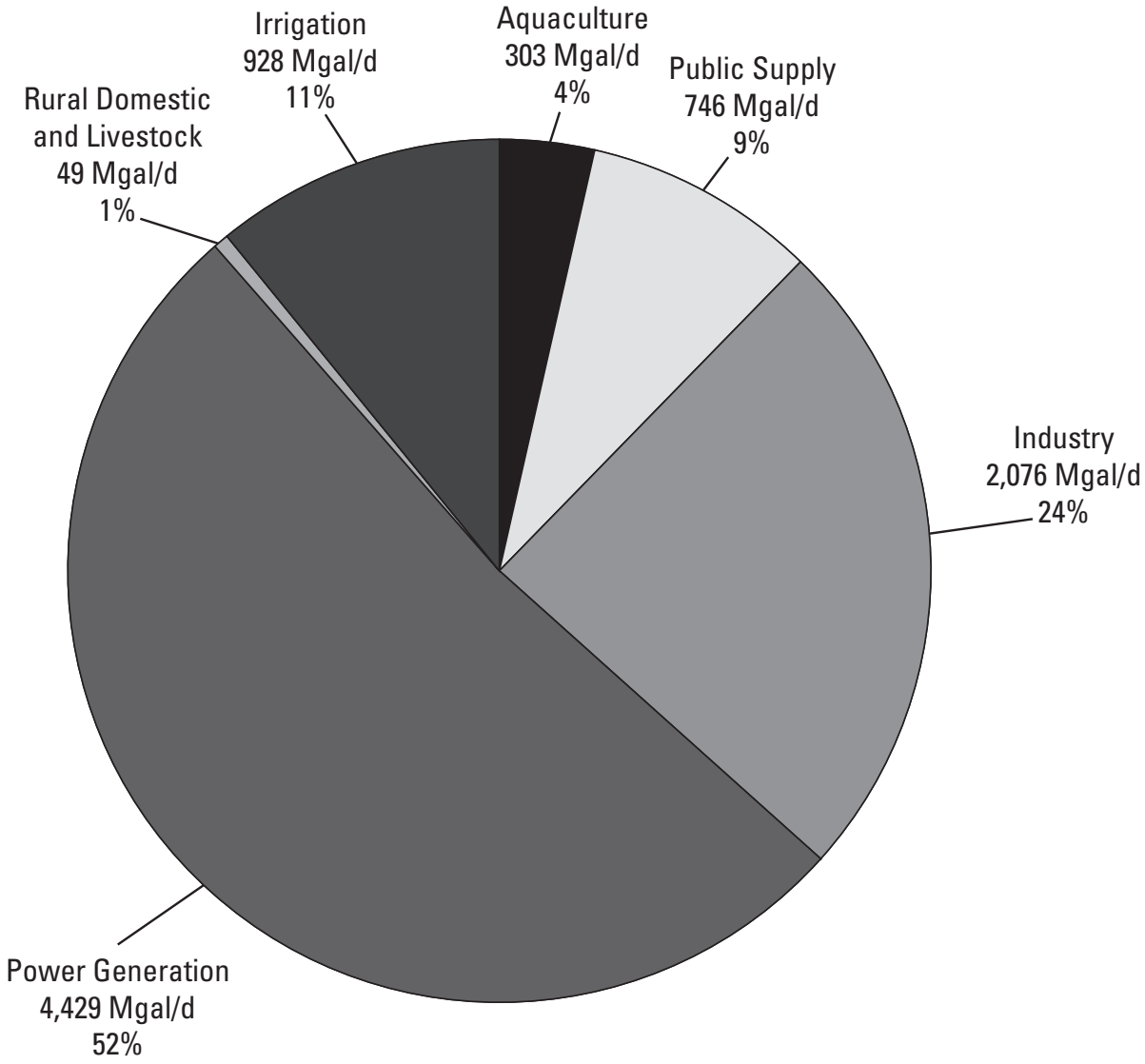


Figure 15. Total water withdrawals in Louisiana by water-use category, 2010.

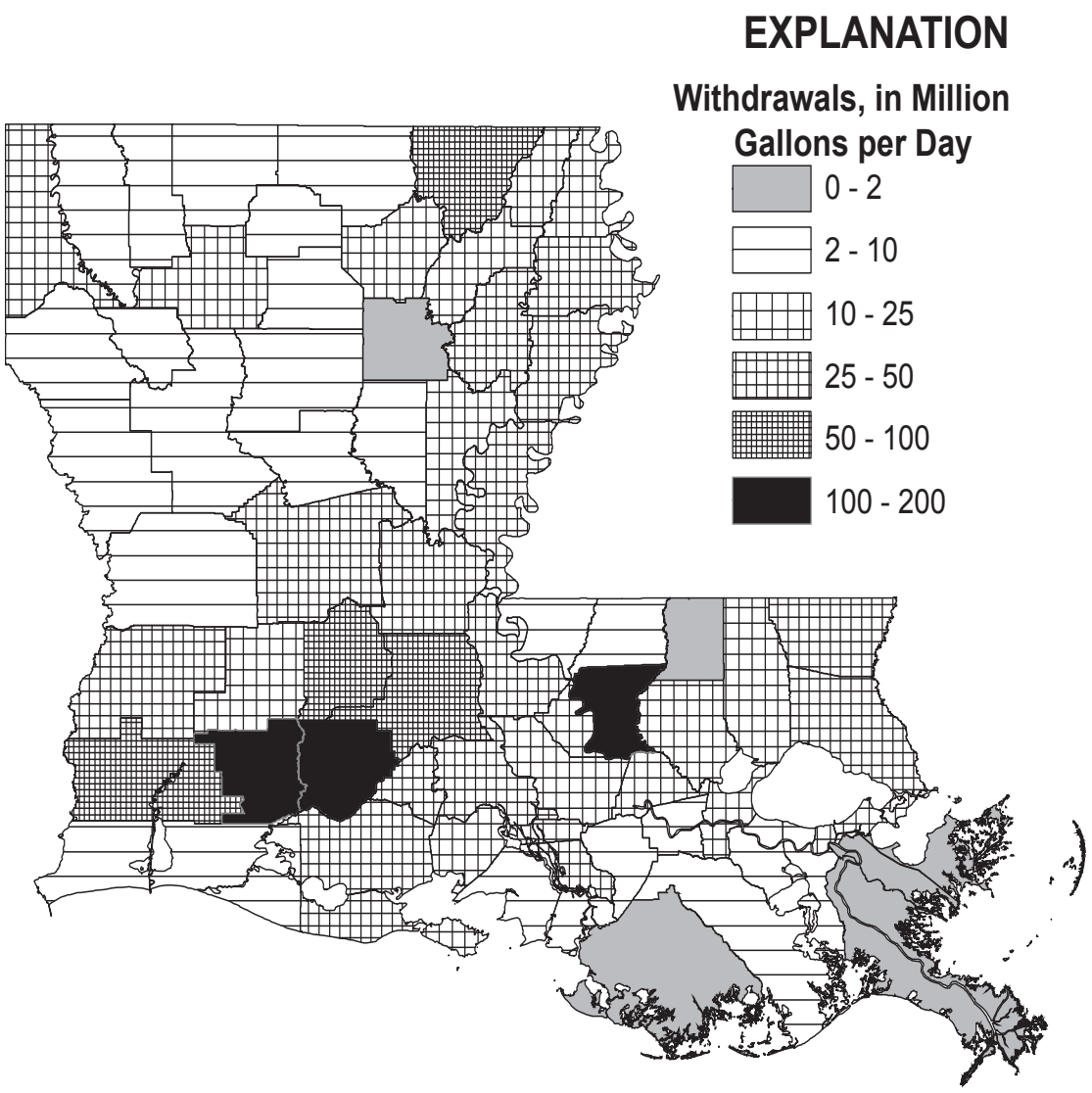


Figure 16. Groundwater withdrawals in Louisiana by parish, 2010.

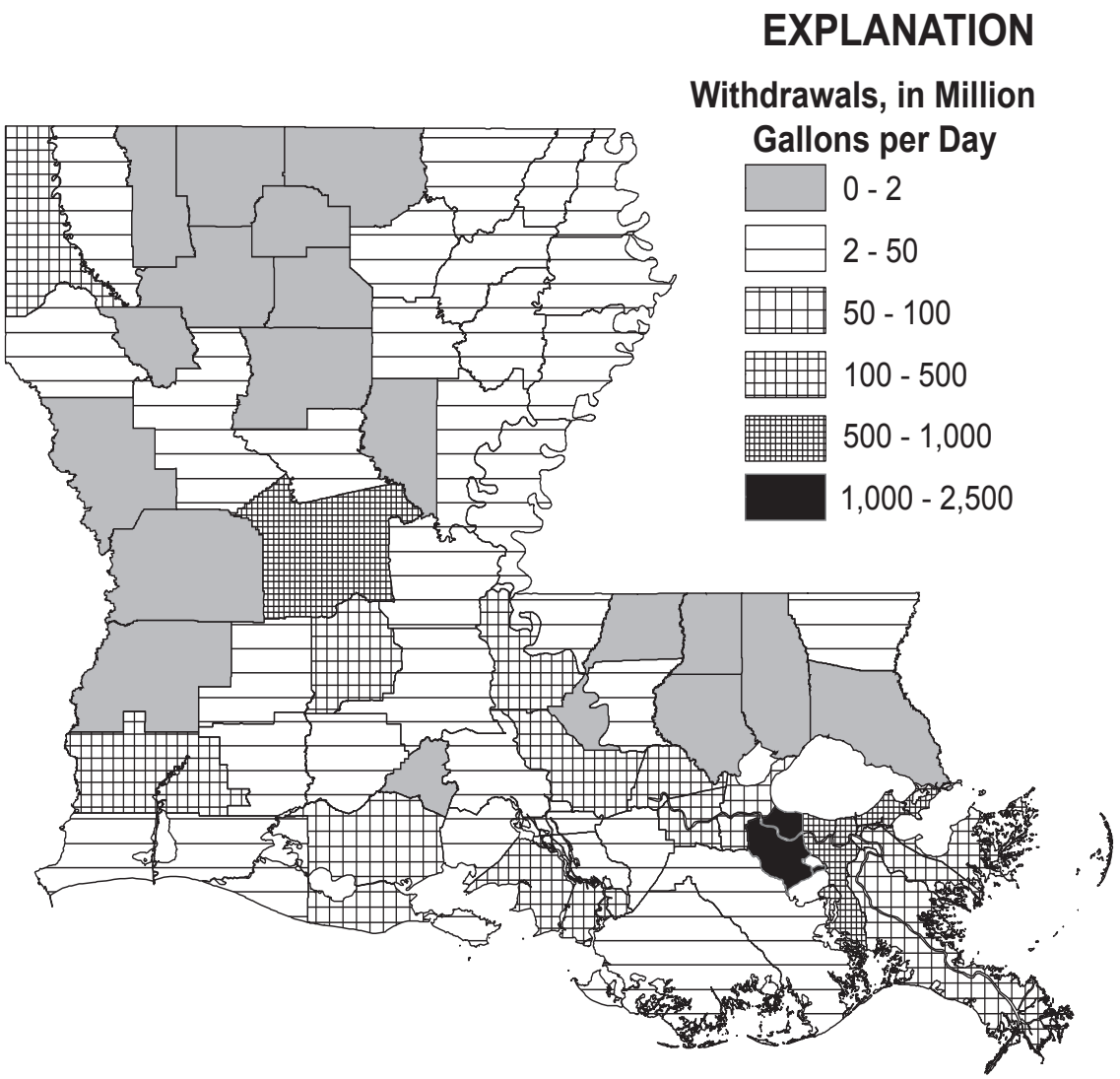


Figure 17. Surface-water withdrawals in Louisiana by parish, 2010.

Water Use Trends

The State's population increased by 0.2 percent from 2005 to 2010 (fig. 18). Livingston, Lafayette, East Baton Rouge, St. Tammany, and Tangipahoa Parishes had the largest increase in population since 2005. St. Landry, Plaquemines, Jefferson, St. Bernard, and Orleans Parishes had the largest decline in population since 2005. Since 1960, the State's population has increased by 39 percent (U.S. Census Bureau, 1961, 2011).

Total public-supply withdrawals increased by approximately 3.8 percent from 2005 to 2010 (fig. 19). Total groundwater withdrawals for public supply increased by about 7.0 percent, and surface-water withdrawals for public supply increased by 0.8 percent from 2005 to 2010. Orleans Parish had the greatest increase in total public-supply withdrawals, 16 Mgal/d. Public-supply withdrawals decreased, however, in 23 of Louisiana's 64 parishes between 2005 and 2010. Jefferson Parish had the greatest decrease, 11 Mgal/d. The median difference in public-supply withdrawals between 2005 and 2010 was an increase of 0.17 Mgal/d; that is, the change for half of the parishes was greater than a 0.17 Mgal/d increase, and the change for the other half was less than the 0.17 Mgal/d increase. Since 1960, public-supply withdrawals have increased by 179 percent.

Total industrial withdrawals decreased 33 percent since 2005 (fig. 20). Industrial withdrawals from groundwater sources decreased by 8.5 percent, and industrial withdrawals from surface-water sources decreased by 36 percent. Twenty-nine parishes had a decrease in industrial withdrawals from 2005 to 2010. St. Charles Parish had the greatest decrease, 470 Mgal/d. The median difference in industrial water use was less than 0.005 Mgal/d between 2005 and 2010. Of the 35 parishes that had an increase in industrial withdrawals, De Soto Parish had the greatest increase, 5.5 Mgal/d. Since 1960, total industrial withdrawals in Louisiana have decreased by 49 percent.

Groundwater withdrawals for power generation increased by 42 percent from 2005 to 2010, but surface-water withdrawals decreased by 15 percent, resulting in a overall decrease of 14 percent for power-generation withdrawals from 2005 to 2010 (fig. 21). Nine of the 17 parishes (53 percent) that had water withdrawals for power generation showed a decrease in withdrawals from 2005 to 2010. The parish with the greatest decrease was Jefferson Parish, 310 Mgal/d. The median change in power generation withdrawals for the parishes that generated power was a decrease of 0.6 Mgal/d. Rapides Parish had the greatest increase, 97 Mgal/d. Since 1965, withdrawals for power generation in Louisiana have increased by 97 percent.

Rural-domestic withdrawals decreased by 6.1 percent from 2005 to 2010 (fig. 22). Twenty-five of the 64 parishes (39 percent) had a decrease in rural-domestic water use from 2005 to 2010. Ascension Parish had the greatest decrease, 1.06 Mgal/d, and Tangipahoa Parish had the greatest increase, 0.38 Mgal/d. The median change in rural-domestic water use was slightly negative and less than 0.005 Mgal/d. The small decrease in total rural-domestic withdrawals from 2005 to 2010 in Louisiana is consistent with a continued expansion of public suppliers into rural areas and a resultant shift from the use of private domestic wells to public supplies. Since 1960, groundwater withdrawals for rural-domestic use have increased by 0.9 percent.

Groundwater withdrawals for livestock decreased by 0.2 percent, surface-water withdrawals increased by 1.0 percent, and total withdrawals for livestock increased by 0.4 percent from 2005 to 2010. Withdrawals for livestock decreased in 24 of 64 parishes (38 percent) from 2005 to 2010. Cameron Parish had the greatest decrease, 0.21 Mgal/d. Parishes with the greatest increases include Bossier and Lafayette Parishes, where livestock water use increased by 0.11 and 0.08 Mgal/d. The median change in livestock water use was an increase of less than 0.01 Mgal/d. Withdrawals for livestock in Louisiana have decreased by 69 percent since 1960 (fig. 23).

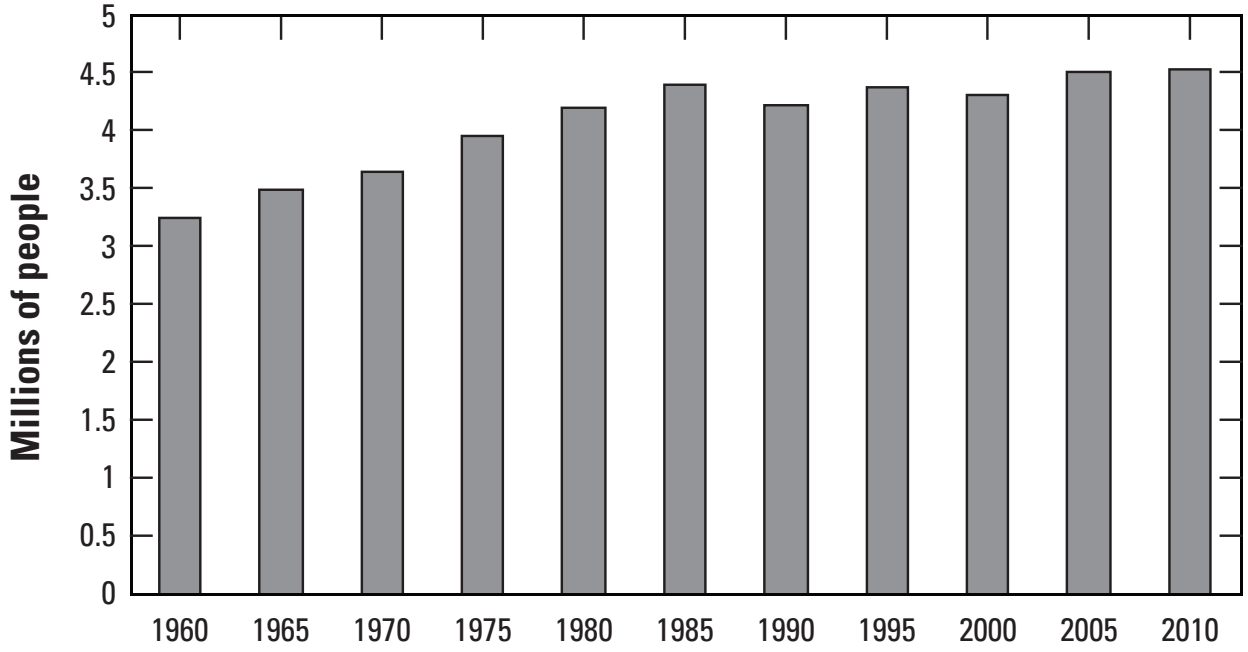


Figure 18. Total population in Louisiana, 1960-2010.

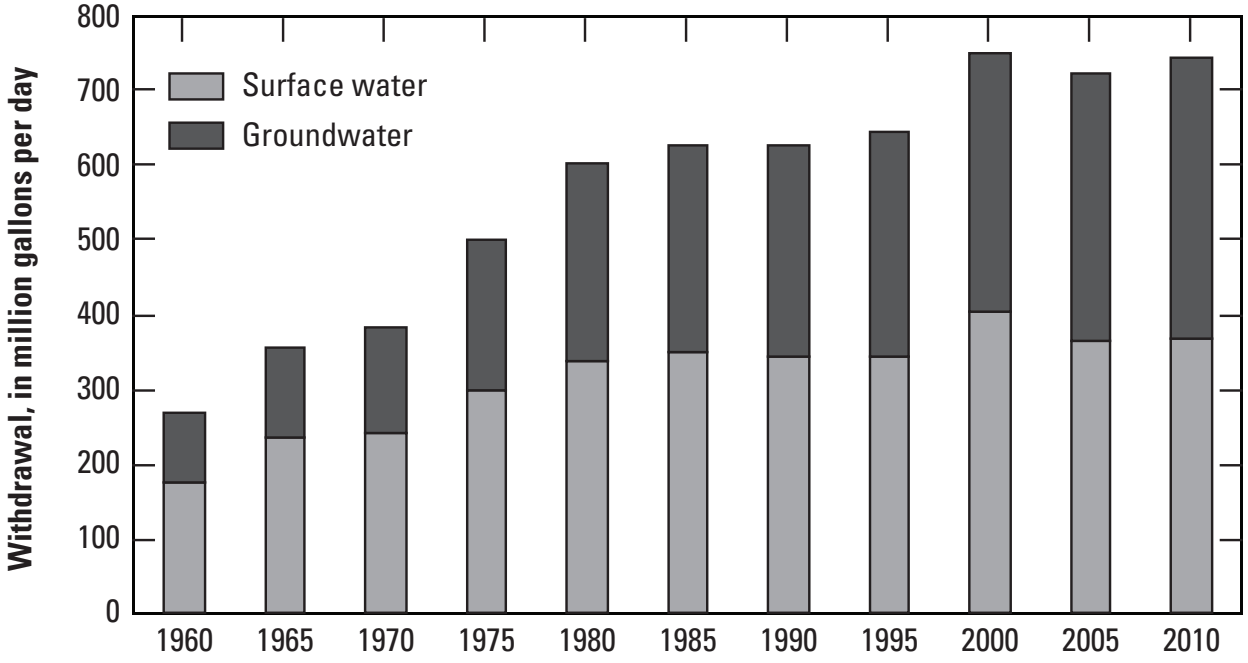


Figure 19. Public-supply water withdrawals in Louisiana, 1960-2010.

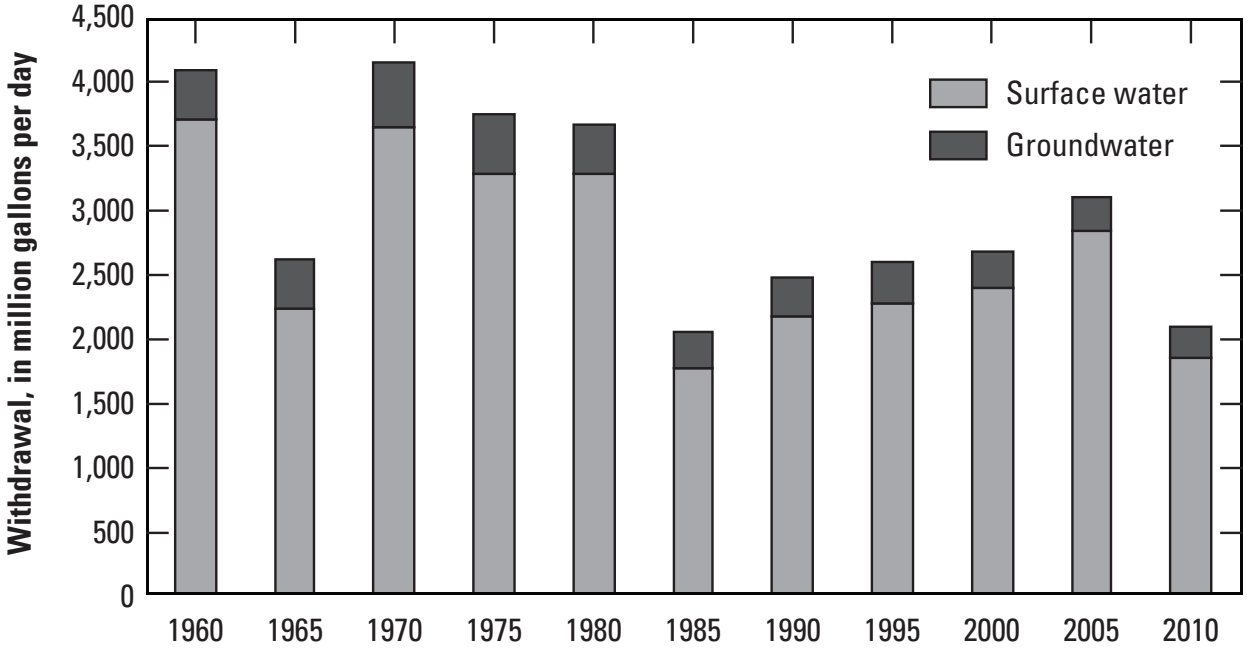


Figure 20. Industrial water withdrawals in Louisiana, 1960-2010.

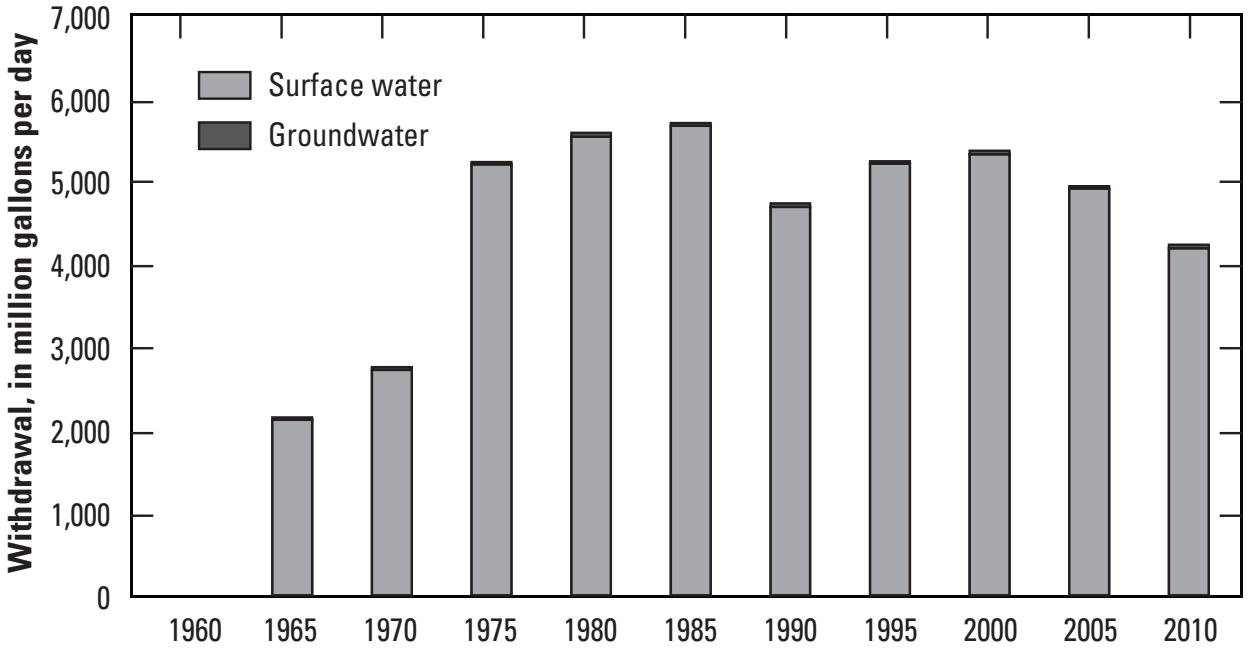


Figure 21. Power-generation water withdrawals in Louisiana, 1965-2010.

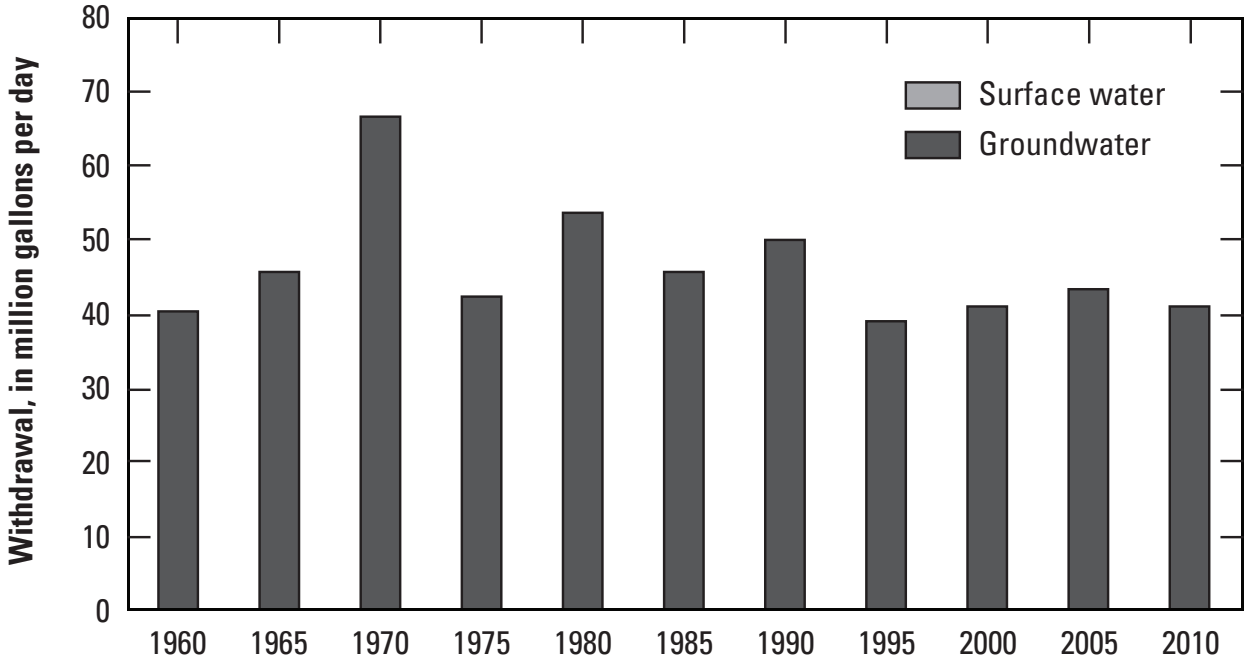


Figure 22. Rural-domestic water withdrawals in Louisiana, 1960-2010.

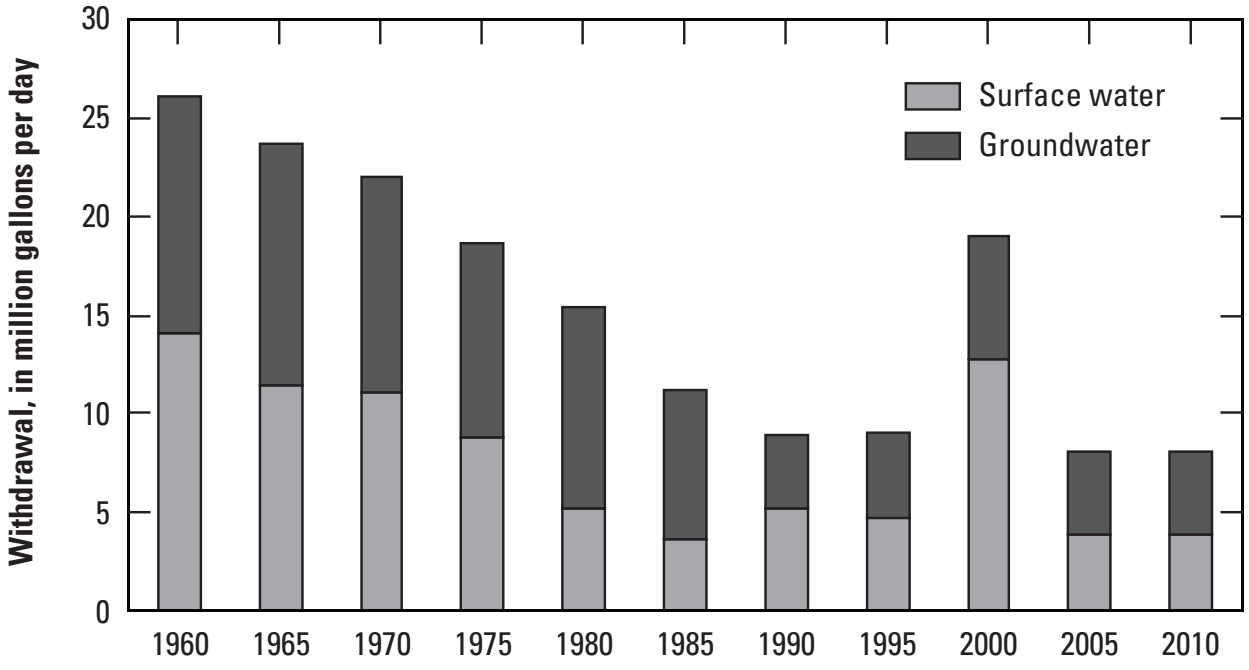


Figure 23. Livestock water withdrawals in Louisiana, 1960-2010.

From 2005 to 2010, total withdrawals for rice irrigation decreased by 13 percent (Louisiana Cooperative Extension Service, 2005, 2010) similar to rice-harvest acreage that decreased by approximately 16 percent. Groundwater withdrawals for rice irrigation decreased by 7.5 percent, and for the same period, surface-water withdrawals for rice irrigation decreased by 23 percent (fig. 24). From 2005 to 2010, total water withdrawals for rice irrigation decreased in 18 of 28 parishes that grow rice in Louisiana. Between 2005 and 2010, the median change in rice-irrigation withdrawals for Louisiana parishes was a decrease of 0.59 Mgal/d. Vermilion Parish had the greatest decrease, 55 Mgal/d. Rapides Parish had the greatest increase, 3.3 Mgal/d. Total withdrawals for rice irrigation in Louisiana have decreased by 29 percent from 1960 to 2010.

Total withdrawals for general irrigation increased by 17 percent from 2005 to 2010. During the same period, groundwater withdrawals for general irrigation increased by 16 percent, and surface-water withdrawals increased by 22 percent. From 2005 to 2010, water withdrawals increased in 37 of the 64 parishes in Louisiana (58 percent) that have general irrigation withdrawals. Morehouse Parish had the greatest decrease, 15 Mgal/d, and Tensas Parish had the greatest increase, 13 Mgal/d. The median change in general irrigation water use was an increase of 0.04 Mgal/d. General irrigation withdrawals in Louisiana have increased by 780 percent since 1960 (fig. 25).

Groundwater withdrawals for aquaculture decreased by 5.9 percent, surface-water withdrawals for aquaculture increased by 64 percent, and total withdrawals increased by 12 percent from 2005 to 2010. From 2005 to 2010, withdrawals increased in 24 of the 47 parishes in Louisiana (51 percent) that had aquaculture withdrawals. Avoyelles Parish had the greatest increase, 24 Mgal/d. The median change in aquaculture withdrawals for parishes with aquaculture water use was slightly negative and less than 0.005 Mgal/d. Saint Martin Parish had the greatest decrease, 11 Mgal/d. Total withdrawals for aquaculture in Louisiana have increased by 99 percent since aquaculture withdrawals were first reported in the 1980 water-use report (fig. 26).

Total groundwater withdrawals for all water-use categories increased by 1.8 percent from 2005 to 2010 (fig. 27). Since 2005, withdrawals from the Chicot aquifer system decreased by 2.1 percent, and withdrawals from the Mississippi River alluvial aquifer increased by 2.7 percent. Total surface-water withdrawals decreased by 19 percent from 2005 to 2010 (fig. 28).

Figure 29 shows increases and decreases of total water withdrawals in Louisiana since 1960. Withdrawals of both ground and surface water increased steadily from 1960 to 1980. For that period, total groundwater withdrawals increased by 71 percent; total surface-water withdrawals increased by 140 percent; and total water withdrawals in Louisiana increased by 129 percent, from 5,400 to 12,000 Mgal/d. For the period 1980 to 2010, total groundwater withdrawals decreased by 11 percent, total surface-water withdrawals decreased by 35 percent, and total withdrawals decreased by 31 percent (about 3,900 Mgal/d). As seen on the figure, from 2005 to 2010, total withdrawals in Louisiana decreased by 16 percent. Overall, since 1960, groundwater withdrawals have increased by 59 percent, surface-water withdrawals have increased by 52 percent, and total withdrawals have increased by 57 percent.

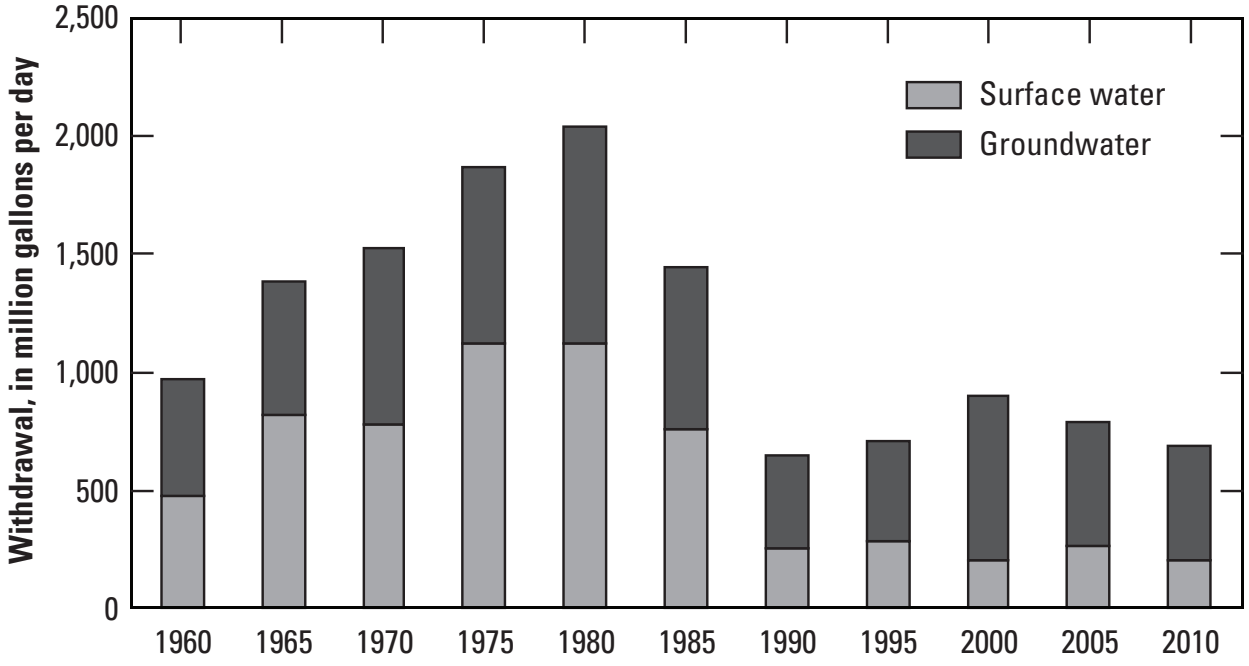


Figure 24. Rice-irrigation water withdrawals in Louisiana, 1960-2010.

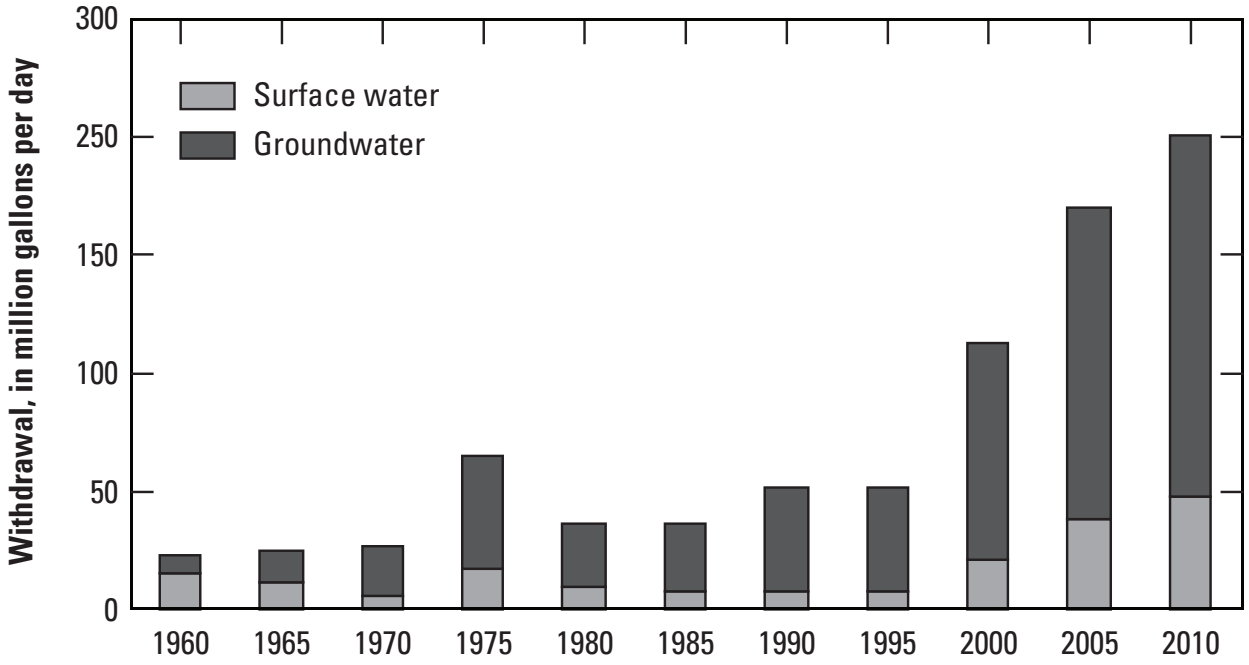


Figure 25. General-irrigation water withdrawals in Louisiana, 1960-2010.

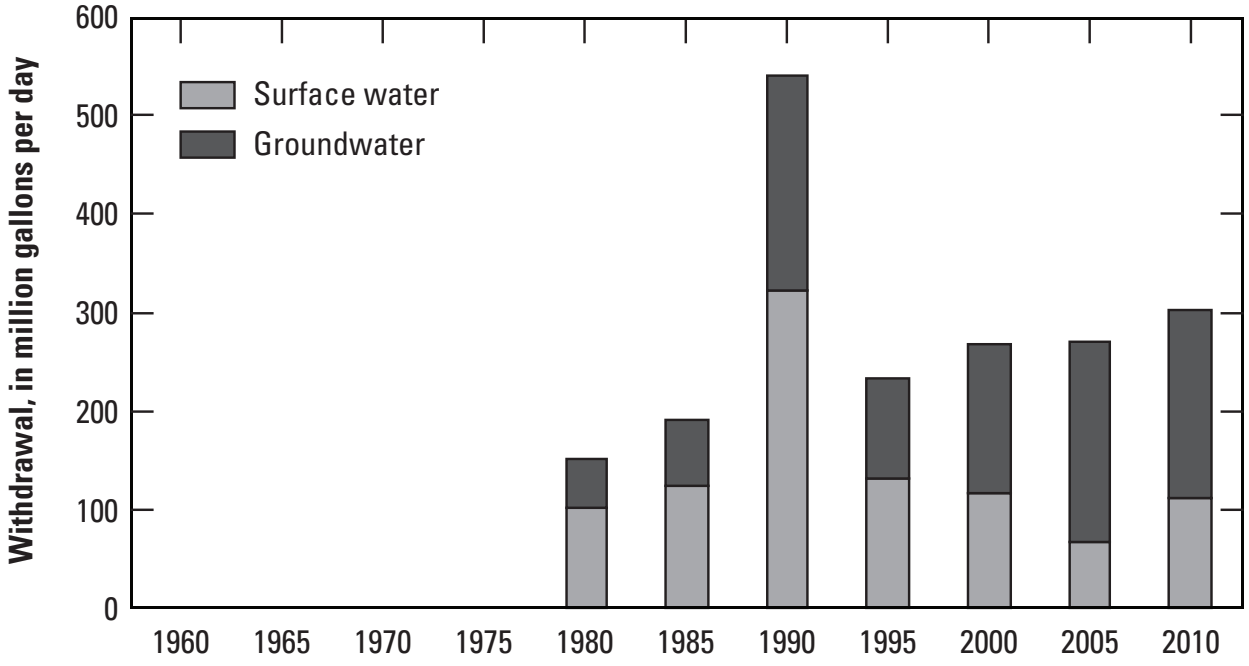


Figure 26. Aquaculture water withdrawals in Louisiana, 1980-2010.

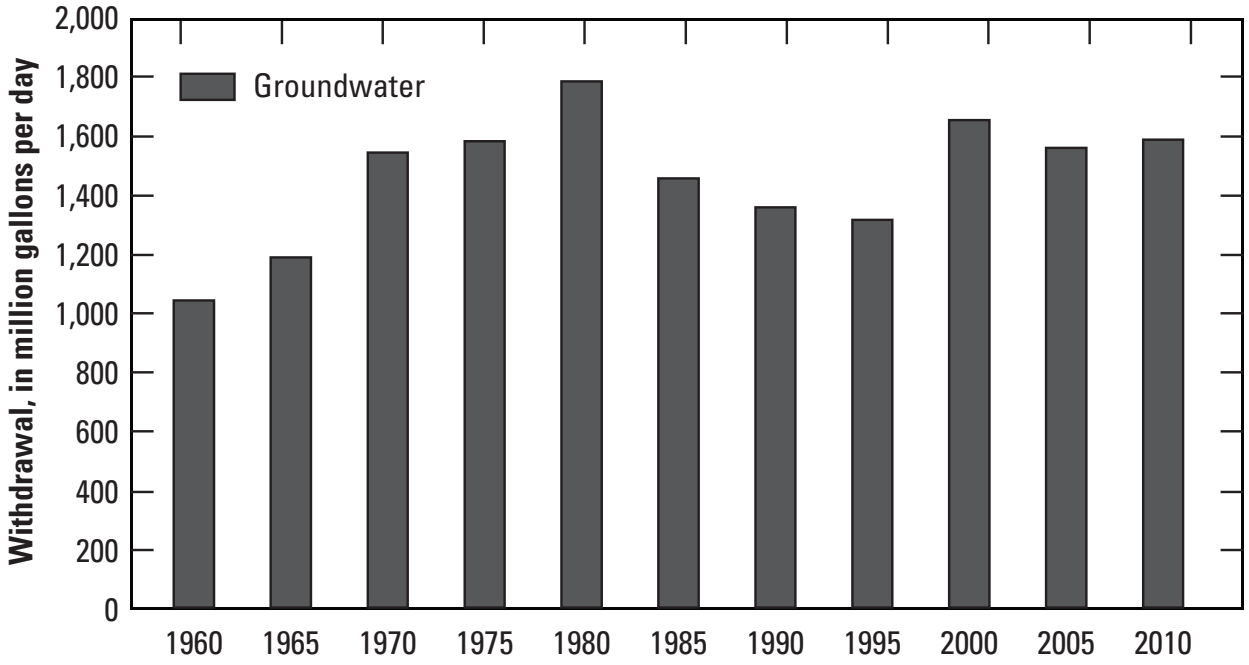


Figure 27. Groundwater withdrawals in Louisiana, 1960-2010.

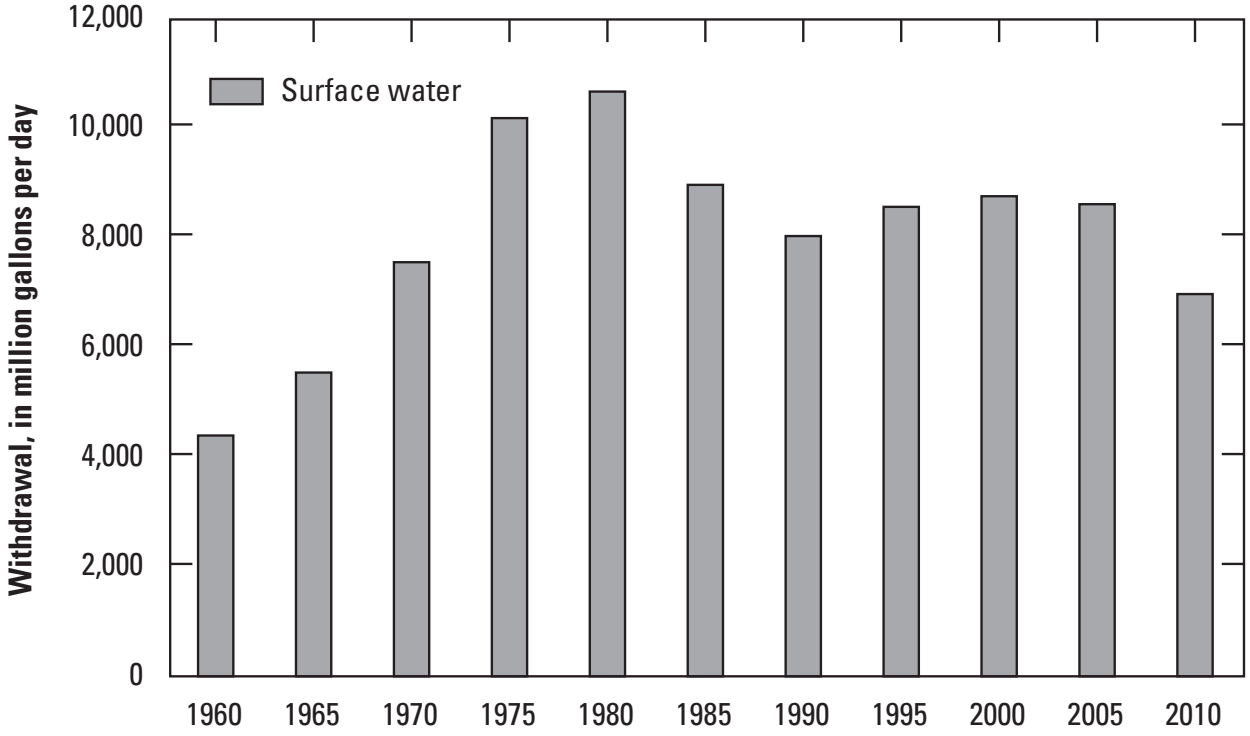


Figure 28. Surface-water withdrawals in Louisiana, 1960-2010.

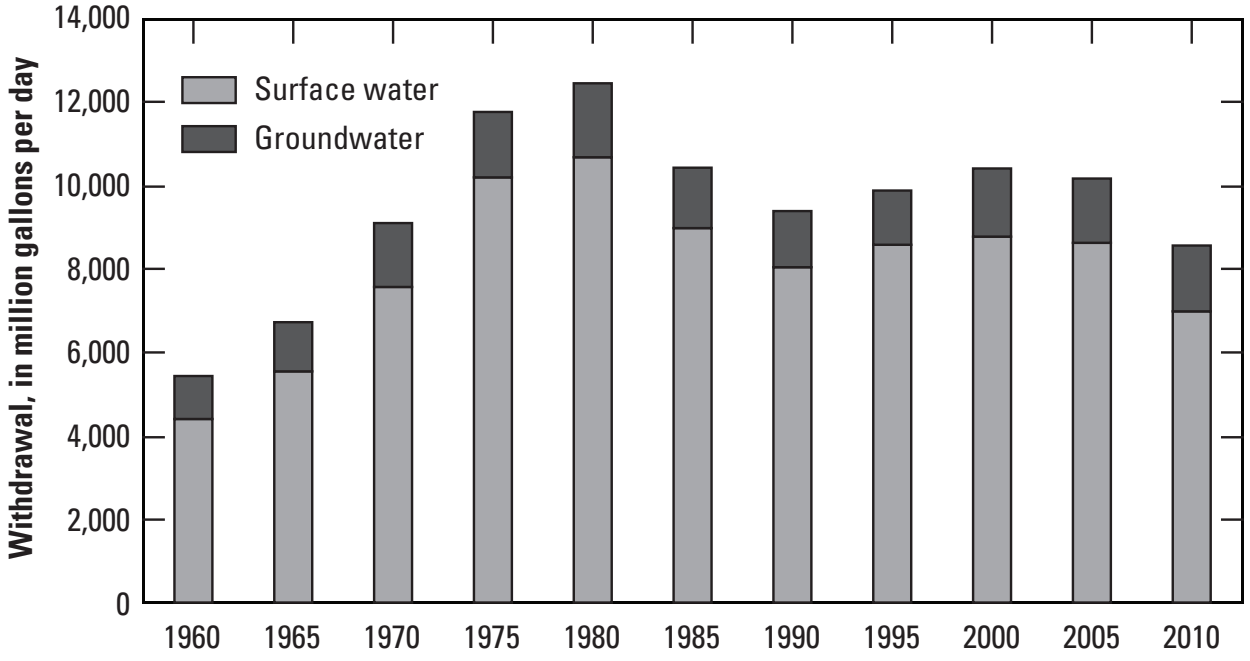


Figure 29. Total water withdrawals in Louisiana, 1960-2010.

Summary

In 2010, public suppliers in Louisiana withdrew approximately 750 Mgal/d of water, 380 Mgal/d from groundwater sources and 370 Mgal/d from surface-water sources, to supply approximately 3.9 million Louisiana residents. Groundwater use for public supply increased by about 6.9 percent, and surface-water use increased by 0.8 percent, for an overall increase of approximately 3.8 percent from 2005 to 2010.

Industry in Louisiana withdrew approximately 2,100 Mgal/d of water, 240 Mgal/d from groundwater sources and 1,800 Mgal/d from surface-water sources. Industrial withdrawals in 2010 accounted for 24 percent of all withdrawals. Industrial groundwater use decreased by 8.5 percent, and surface-water use decreased by 36 percent, for an overall decrease of 33 percent in withdrawals since 2005.

Power-generation facilities withdrew approximately 4,400 Mgal/d, which accounted for more than 52 percent of all water withdrawn in 2010. Of this amount, only 41 Mgal/d came from groundwater sources. Eighty-two percent (3,600 Mgal/d) of the surface water withdrawn for power generation was from the Mississippi River and the Mississippi River Gulf Outlet in southeastern Louisiana. Groundwater withdrawals for power generation increased by 42 percent from 2005 to 2010. Surface-water withdrawals decreased by 15 percent, resulting in an overall decrease of 14 percent for total power-generation withdrawals from 2005 to 2010.

In 2010, an average of 85,000 Mgal/d of Mississippi River water passed through the turbines of the hydroelectric power plant at the Old River Control Structure near Tarbert Landing, Mississippi. For the hydroelectric power plant at the Toledo Bend Reservoir near Burkeville, Texas, an average of 2,028 Mgal/d of water passed through its turbines, 1,014 Mgal/d of which was counted as power-generation in-stream use for Louisiana in 2010. Hydroelectric power-generation in-stream use was not included in surface-water withdrawals in this report, because the water was not withdrawn.

Approximately 13 percent of Louisiana's population, 587,507 people, using privately owned domestic wells withdrew an estimated 41 Mgal/d of groundwater for domestic use in 2010. Rural-domestic withdrawals decreased by 6.1 percent from 2005 to 2010. The small increase is consistent with the continued expansion of public suppliers into rural areas and the resultant shift from the use of private domestic wells to public supplies.

Livestock consumed approximately 8.0 Mgal/d of water in 2010. Of this total, 4.2 Mgal/d was groundwater and 3.9 Mgal/d was surface water. Groundwater used for livestock decreased by 0.2 percent, and surface water increased by 1.0 percent from 2005 to 2010, for a total increase of 0.4 percent.

Rice farmers withdrew approximately 690 Mgal/d of water to irrigate their fields in 2010. Of this total, 490 Mgal/d was groundwater and 200 Mgal/d was surface water. The Chicot aquifer system in southwestern Louisiana provided 70 percent of the groundwater used for rice irrigation. Groundwater withdrawal for rice irrigation decreased by 7.5 percent, and surface-water withdrawal increased by 23 percent from 2005 to 2010. Rice-harvest acreage decreased by 16 percent, and total withdrawals for rice irrigation decreased 13 percent.

Farmers also withdrew approximately 180 Mgal/d of groundwater and 57 Mgal/d of surface water for crops other than rice in 2009. Groundwater withdrawals for these crops increased by 16 percent, and surface-water withdrawals increased by 22 percent from 2005 to 2010. Total withdrawals for general irrigation (about 240 Mgal/d) increased by 17 percent from 2005 to 2010.

Water withdrawn for aquaculture in Louisiana was approximately 300 Mgal/d in 2010. Of this total, 190 Mgal/d was groundwater and 110 Mgal/d was surface water. Since 2005, groundwater withdrawals decreased by 5.9 percent, and surface-water withdrawals increased by 64 percent. Total withdrawals for aquaculture increased by 12 percent.

Total withdrawals in 2010 were approximately 8,500 Mgal/d. Total groundwater withdrawals were 1,600 Mgal/d, and total surface-water withdrawals were 7,000 Mgal/d. About 41 percent (650 Mgal/d) of all groundwater withdrawn was from the Chicot aquifer system, and about 25 percent (390 Mgal/d) was withdrawn from the Mississippi River alluvial aquifer. About 72 percent (5,000 Mgal/d) of all surface water withdrawn was from the Mississippi River mainstem. This value represents a 24 percent decrease in withdrawals from 2005 to 2010.

Since 2005, total groundwater withdrawals increased by 1.8 percent, and total surface-water withdrawals decreased by 19 percent. Groundwater withdrawals from the Chicot aquifer system decreased by 2.1 percent, and groundwater withdrawals from the Mississippi River alluvial aquifer increased by 2.7 percent during that period. Total withdrawals for all water-use categories decreased by 16 percent from 2005 to 2010.

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