

STATE OF ARKANSAS
ARKANSAS DEPARTMENT OF COMMERCE
ARKANSAS GEOLOGICAL COMMISSION

WATER RESOURCES SUMMARY NUMBER 14

USE OF WATER IN ARKANSAS, 1980

By

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Prepared by the Arkansas Geological Commission in cooperation
with the U.S. Geological Survey

1981

STATE OF ARKANSAS

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CONVERSION TABLE

<u>Multiply inch-pound unit</u>	<u>By</u>	<u>To obtain metric unit</u>
acres	4047	m ² (square meters)
acres	0.4047	hm ² (square hectometers)
acre-ft (acre-feet)	1233 1.233X10 ⁻³	m ³ (cubic meters) hm ³ (cubic hectometers)
ft (feet)	0.3048	m (meters)
gal (gallons)	3.785X10 ⁻³	m ³ (cubic meters)
gal/d (gallons per day)	3.785X10 ⁻³	m ³ /d (cubic meters per day)
in. (inches)	25.4	mm (millimeters)
Mgal/d (million gallons per day)	3785 3.785X10 ⁻³	m ³ /d (cubic meters per day) hm ³ /d (cubic hectometers per day)

USE OF WATER IN ARKANSAS, 1980

By Terrance W. Holland¹ and A. H. Ludwig²

ABSTRACT

This report summarizes the results of the 1980 Arkansas water-use inventory. Water-use data for the following categories is Public supply, 263 million gallons per day; self-supplied industry, 235 million gallons per day; rural domestic and livestock, 118 million gallons per day; irrigation, 4,082 million gallons per day; fish and minnow farms, 415 million gallons per day; wildlife impoundments, 139 million gallons per day; and electric-energy generation, 35,461 million gallons per day. These data are tabulated by county, by hydrologic unit, and by source.

Water withdrawals during 1980 were 40,714 million gallons per day, of which ground water provided 4,056 million gallons per day, and surface-water sources supplied 36,658 million gallons per day. The largest use of water was for electric-energy generation, which accounted for 87 percent of the total withdrawals. Excluding hydroelectric diversions, 1980 surface-water use was 1,200 million gallons per day, and 1980 ground-water use was 4,053 million gallons per day. Nine percent (3,599 million gallons per day) of the total was consumed.

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INTRODUCTION

Water is one of Arkansas' most valuable natural resources. Much of the State's agriculture and industry is dependent upon an adequate supply of good-quality water, therefore, it is prudent to document current water use to permit planning and proper management of Arkansas' existing water resources. To this end, the Arkansas Geological Commission, in cooperation with the U.S. Geological Survey, has undertaken a periodic inventory of the ground- and surface-water withdrawals in the State. This data collection is intended to document the State's total water use, to assist in coordinating the management of water resources, to expedite the exchange of water-use information to the benefit of other State and Federal agencies, and to facilitate planning the most effective use of Arkansas' water resources for the economic and social well-being of the people of Arkansas and the Nation.

Data for this report were provided by many public agencies, industries, public utilities, other organizations, and individuals. Principal contributors include the Arkansas Geological Commission, Arkansas Department of Health, the Cooperative Extension Service, College of Agriculture, University of Arkansas, the Agricultural Stabilization and Conservation Service, Soil Conservation Service, Statistical Reporting Service, and other bureaus of the U.S. Department of Agriculture; the Bureau of Mines, and the U.S. Fish and Wildlife Service of the U.S. Department of the Interior; the U.S. Army Corps of Engineers, the Arkansas Game and Fish Commission and the Arkansas Power and Light Company, Arkansas Department of Parks and Tourism, and the Arkansas Highway and Transportation Department.

PREVIOUS STUDIES

The first detailed estimates of ground-water use in the United States were made in 1945 (Guyton, 1950). MacKichan, 1951, developed estimates of State totals for rural, municipal, industrial, and irrigation uses for both ground- and surface-water sources. Formal publication of detailed water-use information for Arkansas began with the 1960 water-use inventory (Stephens and Halberg, 1961). Subsequent water-use reports for 1965, 1970, and 1975 were published by the Arkansas Geological Commission in cooperation with U.S. Geological Survey (Halberg and Stephens, 1966; Halberg, 1972; and Halberg, 1977).

PRESENT STUDY

This report presents the results of the 1980 Arkansas Water-Use Inventory. It summarizes water withdrawals by major-use categories from ground-water and surface-water sources in Arkansas during 1980 and compares selected data from previous publications with the 1980 data.

Information on the quantity of water withdrawn for use in Arkansas was obtained from many sources during the inventory. The data are presented by the following categories: Public water supply; self-supplied industry, rural domestic, livestock, irrigation, fish and minnow farms, wildlife impoundments, and thermoelectric and electric-energy generation. The water-use data in this report are then further categorized by county and hydrologic units. Information concerning nonwithdrawal uses, such as navigation and water-based recreation, was not collected. Water-use and consumptive use data are tabulated under the county and hydrologic unit where the water is used, not under the location of the source.

TERMINOLOGY

Water use, or pumpage, as used in this report, is water withdrawn or diverted from a source for use. The principal requisite for withdrawal use is that water must be taken from a ground-water or surface-water source and conveyed to the place of use. Water used more than once by recycling, such as in enclosed steam-electric generation systems, is tallied only once, when it is withdrawn from the source. If the water is returned to a lake, stream, or aquifer and then withdrawn again, it is tallied each time it is withdrawn.

Public supplies are defined as systems or wells that furnish water for drinking or general domestic use in incorporated municipalities or unincorporated communities consisting of 10 or more connections (25 or more people) for a period of 60 days or more each year (from the files of the Arkansas Department of Health). Public water supplies also serve commercial or industrial users.

If a public supply is not available or not used, the water is self-supplied. Individual families and small communities not served by a public water-supply system are categorized as rural domestic with regard to water use. Industries and commercial establishments using their own water-source facilities are categorized as self-supplied industry.

Water used to generate hydroelectric power or for cooling purposes in thermoelectric-power generation is also included as withdrawal use in the report because of its diversion through powerplants. Nonwithdrawal uses encompass all uses taking place within the river channel itself, such as navigation and recreation, and are not included in this report.

Part of the water withdrawn is consumed. In this report "consumptive use" is defined as water that is evaporated or transpired, incorporated into a product, or is ingested by humans or animals. It is not returned to a source and is not available for reuse.

The only saline water used in Arkansas at the present time (1982) is associated with the bromine and petroleum industries in southern Arkansas. Brines containing recoverable amounts of bromine are withdrawn from deep wells for processing. Brines are also used for repressuring oil wells. Saline-water use in Arkansas is not tabulated in this report.

"Hydrologic Unit" refers to one of nine Hydrologic Accounting Units of the U.S. Geological Survey's Hydrologic Unit map of 1974 for Arkansas. This map, prepared by the Geological Survey in cooperation with the U.S. Water Resources Council, delineates the boundaries of major U.S. river basins to help standardize the collection and dissemination of water data. Each hydrologic unit is identified by a unique four-digit code number.

Water-use data are reported herein as the average daily use, which generally is derived from the annual use. For example, irrigation water is applied only during the growing season; but it is tabulated as though the water were applied at a constant rate throughout the year.

Detailed data are shown to the nearest 0.01 Mgal/d (10,000 gallons per day). This precision was used only in order to facilitate tabulation. Slight discrepancies occur in some of the summary tables as a result of the rounding process.

The use is expressed in million gallons per day (Mgal/d).

USE AND CONSUMPTION

Arkansas used an average of 40,714 Mgal/d of fresh ground and surface water in 1980. Eighty-seven percent (35,461 Mgal/d) was used for thermoelectric- and hydroelectric-power generation (table 2). For all uses other than power generation, Arkansas used 5,253 Mgal/d of ground and surface water. Seventy-eight percent, or 4,056 Mgal/d of water, was withdrawn from ground-water sources and the rest (1,199 Mgal/d) was supplied by surface water. Figure 1 and table 1 show the amounts of water used for each of the principal use categories. County totals of ground- and surface-water use, including electric-energy generation, are shown graphically in figure 2.

More water was used in Yell County (10,551 Mgal/d) than in any other county (table 2). However, practically all of this water was used for thermoelectric-power generation. The smallest quantity of water (1.2 Mgal/d) was used in Newton and Calhoun Counties. Exclusive of the counties in which large surface-water diversions are used for electric-power generation; more water (429 Mgal/d) was used in Arkansas county, primarily for irrigation.

Consumptive use averaged 3,599 Mgal/d of ground and surface water in Arkansas in 1980 (table 1,3, and 4). Seventy-nine percent of the consumed water was withdrawn from ground-water sources.

Water use is tabulated by county, category of use, and source in table 2. Water use is also tabulated by hydrologic unit (table 3). A generalized delineation of hydrologic unit boundaries for the State is shown in figure 3.

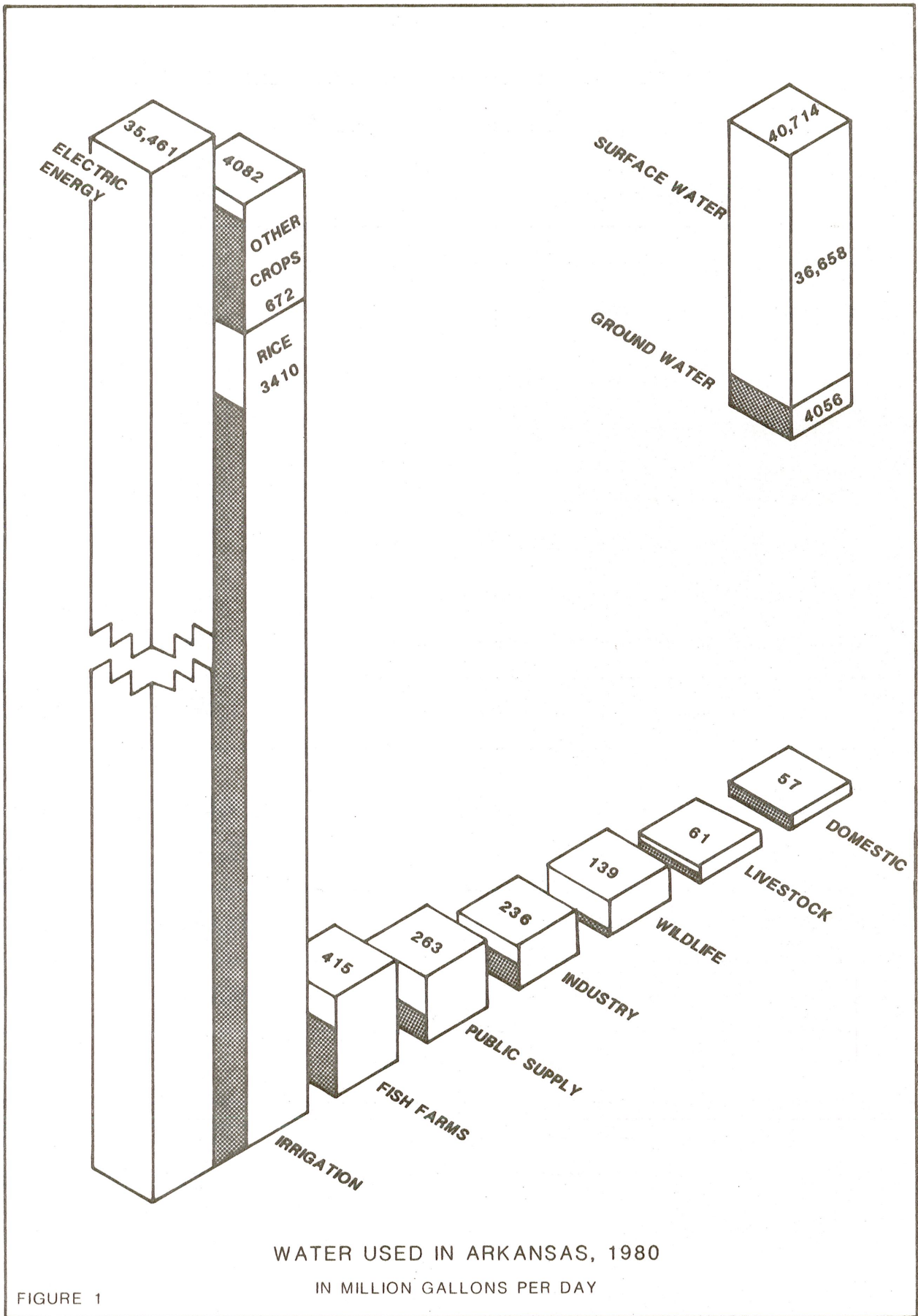


FIGURE 1

Table 1.--Use and consumption of water in Arkansas, 1980

[Million gallons per day]

Use category	Ground water	Surface water	Total
Public supply-----	110	153	263
Self-supplied industry-----	90	146	236
Rural use:			
Domestic-----	57	0	57
Livestock-----	22	39	61
Irrigation:			
Rice-----	2,887	523	3,410
Other crops-----	597	74	672
Fish and minnow farms-----	285	130	415
Wildlife impoundments-----	5	134	139
Subtotal-----	4,053	1,199	5,253
Electric energy:			
Thermoelectric-----	3	9,675	9,678
Hydroelectric-----	0	25,783	25,783
Subtotal-----	3	35,458	35,461
Total-----	4,056	36,658	40,714
Consumption			
All categories-----	2,837	762	3,599

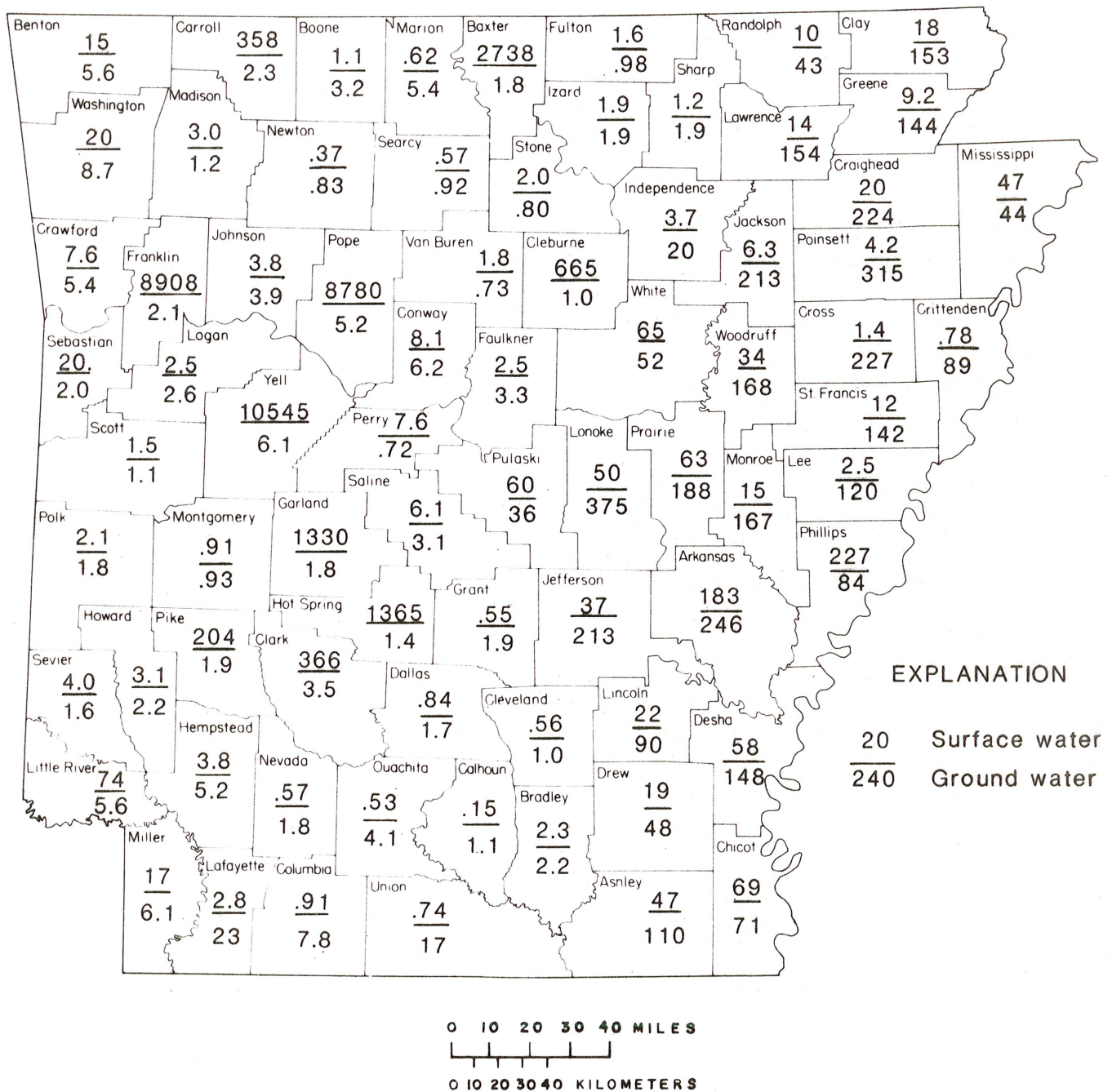


Figure 2.—Water used in Arkansas counties in 1980, in million gallons per day.

Table 3.--Use and consumption of water in Water Resources Council subregions
in Arkansas, 1980

[In million gallons per day]

Water Resources Council subregion	Use			Consumption		
	Ground water	Surface water	Total	Ground water	Surface water	Total
0801, Mississippi- Hatchie.	0.02	0.01	0.03	0.02	0.01	0.03
0802, Mississippi- St. Francis.	2,881.00	747.47	3,628.47	2,026.26	372.84	2,399.10
0803, Mississippi- Yazoo.	.06	.04	.10	.06	.03	.09
0804, Ouachita-----	299.70	3,416.61	3,716.31	180.16	100.02	280.18
0805, Mississippi- Tensas.	267.10	133.30	400.40	189.13	94.09	283.22
1101, White-----	426.57	3,856.14	4,282.71	309.72	70.37	380.09
1107, Verdigris- Neosho.	2.60	5.09	7.69	2.12	2.28	4.40
1111, Lower Arkansas.	129.93	28,394.69	28,524.62	94.79	98.29	193.08
1114, Lower Red-----	49.48	104.45	153.93	34.82	23.83	58.65
State total-----	4,056.46	36,657.80	40,714.26	2,837.08	761.76	3,598.84

Table 4.--Consumption of water in Arkansas counties, 1980

[In million gallons per day]

County	Ground water	Surface water	Total
Arkansas-----	178.44	132.98	311.42
Ashley-----	71.05	6.74	77.79
Baxter-----	1.50	10.99	12.49
Benton-----	5.04	7.60	12.64
Boone-----	1.72	1.04	2.76
Bradley-----	1.15	1.83	2.98
Calhoun-----	.44	.11	.55
Carroll-----	1.50	1.52	3.02
Chicot-----	50.45	52.63	103.08
Clark-----	1.99	7.32	9.33
Clay-----	109.41	11.61	121.02
Cleburne-----	.99	7.36	8.36
Cleveland-----	.70	.51	1.21
Columbia-----	3.46	.88	4.34
Conway-----	4.18	2.57	6.75
Craighead-----	163.41	14.88	178.29
Crawford-----	4.28	2.99	7.27
Crittenden-----	60.49	.78	61.27
Cross-----	166.54	1.40	167.94
Dallas-----	1.06	.66	1.72
Desha-----	104.44	37.21	141.65
Drew-----	34.44	11.49	45.93
Faulkner-----	2.79	11.52	14.31
Franklin-----	1.79	24.45	26.24
Fulton-----	.72	1.05	1.77
Garland-----	1.43	3.98	5.41
Grant-----	.99	.40	1.39
Greene-----	103.90	4.94	108.84
Hempstead-----	2.99	2.72	5.71
Hot Spring-----	1.18	3.28	4.46
Howard-----	1.89	2.56	4.45
Independence-----	15.06	1.36	16.42
Izard-----	.97	.78	1.75
Jackson-----	156.07	5.00	161.07
Jefferson-----	124.55	21.14	145.69
Johnson-----	3.14	2.13	5.27
Lafayette-----	17.03	2.13	19.16
Lawrence-----	114.05	5.06	119.11
Lee-----	87.71	2.51	90.22

Table 4.--Consumption of water in Arkansas counties, 1980--Continued

County	Ground water	Surface water	Total
Lincoln-----	66.92	16.85	83.77
Little River-----	4.04	6.58	10.62
Logan-----	1.94	1.88	3.82
Lonoke-----	234.74	38.29	273.03
Madison-----	1.17	2.39	3.56
Marion-----	2.42	.56	2.98
Miller-----	4.81	7.87	12.68
Mississippi-----	26.86	22.38	49.24
Monroe-----	109.02	11.41	120.43
Montgomery-----	.90	.67	1.57
Nevada-----	1.29	.53	1.82
Newton-----	.63	.36	.99
Ouachita-----	1.30	45.41	46.71
Perry-----	.69	4.80	5.49
Phillips-----	58.94	.52	59.46
Pike-----	1.61	1.27	2.88
Poinsett-----	231.02	2.80	233.82
Polk-----	1.79	1.53	3.32
Pope-----	4.15	4.88	9.03
Prairie-----	130.40	52.55	182.95
Pulaski-----	25.75	15.31	41.06
Randolph-----	32.33	4.81	37.14
St. Francis-----	103.01	9.35	112.36
Saline-----	2.62	2.62	5.24
Scott-----	1.05	.86	1.91
Searcy-----	.72	.56	1.28
Sebastian-----	1.75	5.29	7.04
Sevier-----	1.37	2.04	3.41
Sharp-----	.90	.97	1.87
Stone-----	.75	1.53	2.28
Union-----	5.96	.58	6.54
Van Buren-----	.72	1.14	1.86
Washington-----	6.31	7.49	13.80
White-----	38.72	39.72	78.44
Woodruff-----	123.62	30.03	153.65
Yell-----	3.62	6.14	9.76
State total-----	2,836.78	762.10	3,598.88

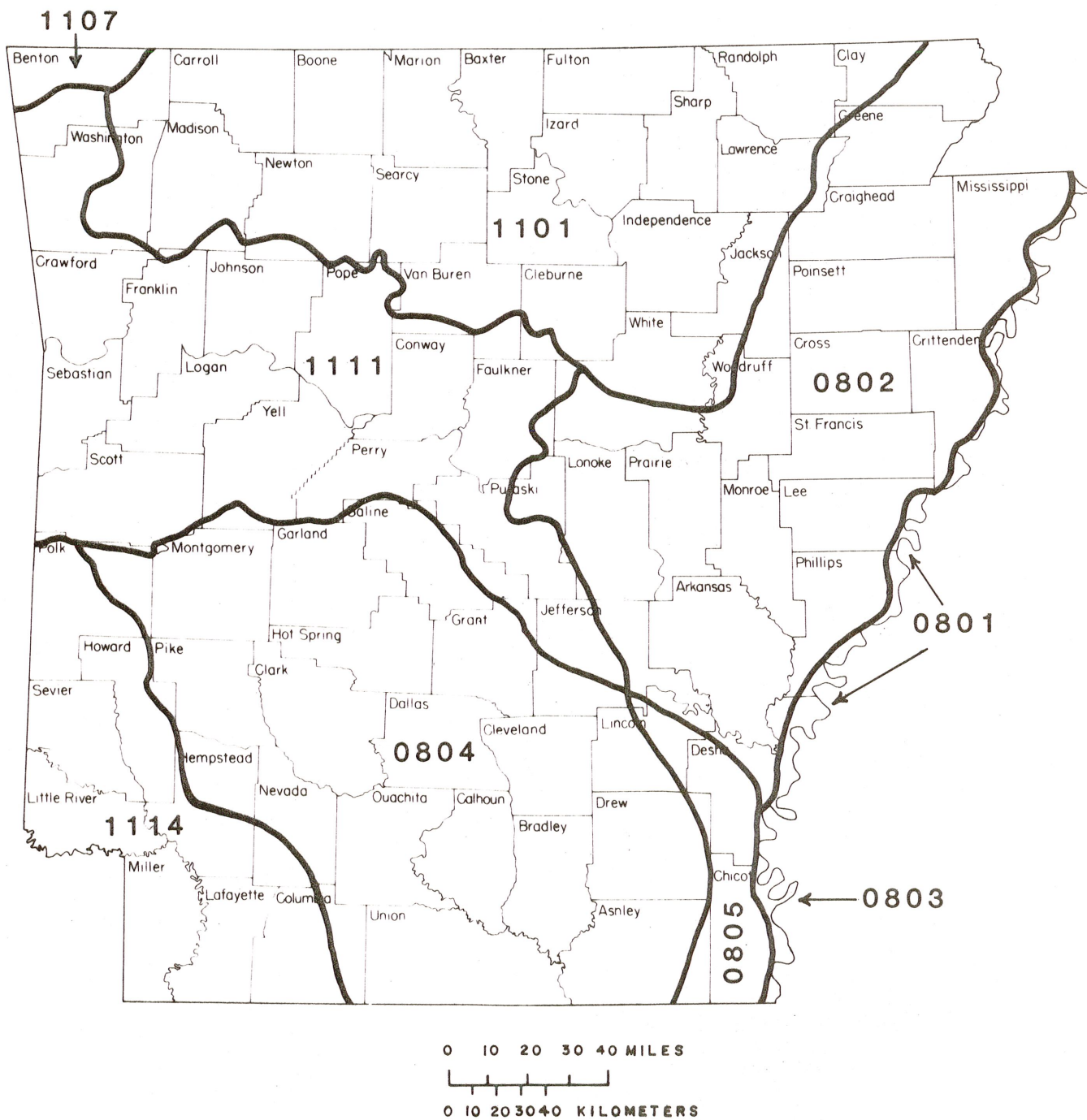


Figure 3.—Generalized hydrologic unit map.

INDUSTRY AND COMMERCE

The total industrial water withdrawals, including those furnished by public supply, were 328 Mgal/d in 1980 (table 5). Ground water supplied 123 Mgal/d and surface-water sources provided 205 Mgal/d. The water was used by agricultural, chemical, metal, paper, petroleum, and other types of manufacturing, as well as at mines, quarries, sand and gravel pits, and for drilling oil and gas wells. Military establishments, institutions, schools, and recreation areas that have their own sources of supply are also included in the self-supplied category.

Industrial self-supplied water withdrawals were obtained from a telephone or mail canvas of 2,215 industries in the State (Arkansas Directory of Manufacturers, 1980). More than 95 percent of these industries were accounted for either by questionnaire return, telephone contact, or staff knowledge.

RURAL DOMESTIC AND LIVESTOCK

Rural domestic use in Arkansas for 1980 was estimated to be 57 Mgal/d (table 2). About 656,733 people in the State furnish their own water supplies. The rural domestic use was computed by multiplying the population with running water in each county not served by a public supply system (89 gal/d per person) by a per-capita-use factor. The per capita water use was derived by averaging the per capita use in 20 rural water systems as described previously herein, but excluding the 15-percent transmission loss associated with municipal water systems. An estimated 95 percent of the rural residents in Arkansas have running water in their homes. A per-capita-use factor of 20 gal/d per person was applied to the remaining 5 percent of the rural residents.

Table 5.--Industrial and commercial use in Arkansas counties, 1980

[In million gallons per day]

County	Furnished by public supply			Self-supplied industry			Total ground water	Total surface water	County total
	Ground water	Sur-face water	Total	Ground water	Sur-face water	Total			
Arkansas-----	1.89	-----	1.89	0.09	-----	0.09	1.98	-----	1.98
Ashley-----	.36	-----	.36	10.03	36.40	46.43	10.39	36.40	46.79
Baxter-----	.02	1.44	1.45	.14	-----	.14	.16	1.44	1.60
Benton-----	.04	1.13	1.17	.15	.06	.21	.19	1.19	1.38
Boone-----	.51	-----	.51	.05	-----	.05	.56	-----	.56
Bradley-----	.20	-----	.20	.45	-----	.45	.65	-----	.65
Calhoun-----	.01	-----	.01	.51	.04	.55	.52	.04	.56
Carroll-----	.71	.54	1.25	.01	-----	.01	.72	.54	1.26
Chicot-----	.48	-----	.48	.03	-----	.03	.51	-----	.51
Clark-----	.12	.75	.87	.18	1.39	1.57	.30	2.14	2.44
Clay-----	.26	-----	.26	.70	-----	.70	.96	-----	.96
Cleburne-----	-----	.15	.15	.13	.01	.14	.13	.16	.29
Cleveland-----	.12	-----	.12	.01	-----	.01	.13	-----	.13
Columbia-----	.81	-----	.81	2.87	-----	2.87	3.68	-----	3.68
Conway-----	.21	-----	.21	.06	5.45	5.51	.27	5.45	5.72
Craighead-----	2.66	-----	2.66	.46	-----	.46	3.12	-----	3.12
Crawford-----	-----	2.51	2.51	.03	.18	.21	.03	2.69	2.72
Crittenden-----	1.49	-----	1.49	.17	-----	.17	1.66	-----	1.66
Cross-----	.67	-----	.67	.30	-----	.30	.97	-----	.97
Dallas-----	.24	-----	.24	.14	-----	.14	.38	-----	.38
Desha-----	.14	-----	.14	.97	11.62	12.59	1.11	11.62	12.73
Drew-----	1.45	-----	1.45	.01	-----	.01	1.46	-----	1.46
Faulkner-----	.20	1.61	1.81	.03	.12	.15	.23	1.73	1.96
Franklin-----	-----	.40	.40	.19	.03	.22	.19	.43	.62
Fulton-----	.02	-----	.02	.02	-----	.02	.04	-----	.04
Garland-----	-----	4.55	4.55	.51	2.66	3.17	.51	7.21	7.72
Grant-----	.37	-----	.37	.07	.03	.10	.44	.03	.47
Greene-----	1.10	-----	1.10	.17	-----	.17	1.27	-----	1.27
Hempstead-----	1.41	-----	1.41	.01	-----	.01	1.42	-----	1.42
Hot Spring-----	.01	.21	.22	.22	3.56	3.78	.23	3.77	4.00
Howard-----	.01	.88	.89	.49	.23	.72	.50	1.11	1.61
Independence-----	.27	1.66	1.93	.09	.05	.14	.36	1.71	2.07
Izard-----	.15	-----	.15	.01	1.06	1.07	.16	1.06	1.22
Jackson-----	.09	-----	.09	.79	-----	.79	.88	-----	.88
Jefferson-----	2.99	-----	2.99	45.45	.23	45.68	48.44	.23	48.67
Johnson-----	-----	1.16	1.16	.10	-----	.10	.10	1.16	1.26
Lafayette-----	.34	-----	.34	.19	.23	.42	.53	.23	.76
Lawrence-----	.20	.01	.21	.01	.23	.24	.21	.24	.45
Lee-----	.64	-----	.64	.01	7	.01	.65	-----	.65

Table 5.--Industrial and commercial use in Arkansas counties, 1980--Continued

County	Furnished by public supply			Self-supplied industry			Total ground water	Total surface water	County total
	Ground water	Sur-face water	Total	Ground water	Sur-face water	Total			
Lincoln-----	.01	-----	.01	.40	-----	.40	.41	-----	.41
Little River-	.23	-----	.23	.47	69.64	70.11	.70	69.64	70.34
Logan-----	.01	.59	.60	.04	.01	.05	.05	.60	.65
Lonoke-----	.53	-----	.53	1.28	-----	1.28	1.81	-----	1.81
Madison-----	.01	.32	.33	.01	-----	.01	.02	.32	.34
Marion-----	.08	-----	.08	.22	.06	.28	.30	.06	.36
Miller-----	.06	.81	.87	.23	.23	.46	.29	1.04	1.33
Mississippi--	2.60	-----	2.60	3.80	-----	3.80	6.40	-----	6.40
Monroe-----	.15	-----	.15	.02	-----	.02	.17	-----	.17
Montgomery--	-----	.01	.01	.10	.04	.14	.10	.05	.15
Nevada-----	.15	-----	.15	.04	-----	.04	.19	-----	.19
Newton-----	.02	-----	.02	.17	-----	.17	.19	-----	.19
Ouachita-----	.36	.18	.54	2.64	7.84	10.48	3.00	8.02	11.02
Perry-----	-----	.03	.03	.02	-----	.02	.03	.03	.05
Phillips-----	1.20	-----	1.20	2.44	-----	2.44	3.64	-----	3.64
Pike-----	.02	.55	.57	.27	.33	.60	.29	.88	1.17
Poinsett-----	.68	-----	.68	.43	-----	.43	1.11	-----	1.11
Polk-----	-----	.21	.21	.03	.06	.09	.03	.27	.30
Pope-----	-----	2.90	2.90	.47	-----	.47	.47	2.90	3.37
Prairie-----	.11	-----	.11	-----	-----	-----	.11	-----	.11
Pulaski-----	2.03	14.61	16.64	.71	1.44	2.15	2.74	16.05	18.79
Randolph-----	.01	.10	.11	.01	-----	.01	.02	.10	.12
St. Francis--	.30	-----	.30	.31	-----	.31	.61	-----	.61
Saline-----	.02	.33	.35	.27	1.98	2.25	.29	2.31	2.60
Scott-----	-----	.58	.58	.01	-----	.01	.01	.58	.59
Searcy-----	.04	-----	.04	.01	-----	.01	.05	-----	.05
Sebastian-----	-----	10.20	10.20	.05	.23	.28	.05	10.43	10.48
Sevier-----	.01	1.58	1.59	.12	.04	.16	.13	1.62	1.75
Sharp-----	.06	.46	.52	.01	-----	.01	.07	.46	.53
Stone-----	-----	.17	.17	.05	-----	.05	.05	.17	.22
Union-----	3.43	-----	3.43	8.20	.29	8.49	11.63	.29	11.92
Van Buren-----	-----	.02	.02	.01	-----	.01	.01	.02	.03
Washington---	-----	7.25	7.25	.03	.07	.10	.03	7.32	7.35
White-----	.08	1.23	1.31	.04	-----	.04	.12	1.23	1.35
Woodruff-----	.07	-----	.07	.02	-----	.02	.09	-----	.09
Yell-----	.55	.30	.85	1.26	.23	1.49	1.81	.53	2.34

Total----- 33.01 59.43 92.44 90.04 146.07 236.11 123.05 204.85 327.90

All rural-domestic withdrawals were assumed to be obtained from ground-water sources.

Water withdrawals for livestock in 1980 were estimated to be 61 Mgal/d. About 60 percent of the water used by livestock was withdrawn from wells. The rest was from surface-water sources. County cattle and hog populations were provided by the Statistical Reporting Service, U.S. Department of Agriculture, (1980), and poultry populations were obtained from the Cooperative Extension Service. The water-use estimates for livestock are based on a fixed amount of water used per head, for each type of animal. Daily consumption rates (table 6) provided the basis for these calculations.

Table 6.--Livestock water requirements

<u>Livestock</u>	<u>Water use (gal/d)</u>
Milk cows-----	30
Cattle-----	15
Hogs-----	2
100 broilers-----	4
100 hens-----	6
100 turkeys-----	8

In this report, 100 percent of the water used in rural households and by livestock is considered to be consumed.

IRRIGATION

Withdrawals for irrigation during 1980 were estimated to be 4,082 Mgal/d annually. Of this amount, 85 percent was ground water and 15 percent was from surface-water sources. Most of the water was applied during May, June, and July, but it is tabulated as though the water were applied at a constant rate throughout the entire year.

Table 10.--Withdrawals of ground water from aquifers in Arkansas counties, 1980

County	[Million gallons per day]													County total		
	Deposits of Quaternary age	Jackson Group, undifferentiated	Cockfield Formation	Sparta Sand	Memphis Sand	Cane River Formation	Carizzo Sand	Wilcox Group, undifferentiated	Clayton Formation	Tertiary System, undifferentiated	Nacatoch Sand	Ozan Formation	Tokio Formation		Trinity Group, undifferentiated	Rocks of Paleozoic age, undifferentiated
Arkansas	209.49			36.97												246.46
Ashley	109.56		1.01													110.57
Baxter															1.82	1.82
Benton															5.61	5.61
Boone															3.23	3.23
Bradley		0.02	.38	1.83												2.23
Calhoun			.39	.69												1.08
Carroll															2.27	2.27
Chicot	69.19		1.41													70.60
Clark	.35							0.52			1.73	.52	.06		.28	3.46
Clay	150.50							.50			1.55					152.55
Cleburne															1.03	1.03
Cleveland	.03	.08	.65	.24												1.00
Columbia			.38	7.22												7.76
Conway	5.44														.74	6.18
Craighead	222.57				.29			.95								223.81
Crawford	2.51														2.95	5.46
Crittenden	78.98							9.76								88.74
Cross	226.34				.53											226.87
Dallas			.08	1.42		.15										1.65
Desha	146.27		.44	1.73												148.44
Drew	43.60	.48	.48	3.88												48.44
Faulkner	.53														2.77	3.30
Franklin	.24														1.91	2.15
Fulton															.98	.98
Garland															1.84	1.84
Grant	.13	.01	.21	1.53												1.88
Greene	138.96				.63			4.48			.16					144.23
Hempstead							0.10	.10			1.98		3.00			5.18
Hot Spring	.15			.17		.08	.07	.30	.06						.56	1.39
Howard											.24		1.11	.35	.47	2.17
Independence	16.85														2.98	19.83
Izard															1.85	1.85
Jackson	212.89															212.89
Jefferson	141.14	.04	.23	71.13												212.54
Johnson	2.24														1.63	3.87
Lafayette	18.88			.46		3.68										23.02
Lawrence	154.11															154.11
Lee	116.73		.06	2.84												119.63
Lincoln	88.74	.07	.07	1.28												90.16
Little River	5.57										.06					5.63
Logan	.25														2.34	2.59
Lonoke	374.13		.45	.09				.76								375.43
Madison															1.16	1.16
Marion															5.38	5.38
Miller	3.86			.80		.92	.18	.31			.06					6.13
Mississippi	19.44							24.74								44.18
Monroe	165.21			1.67												166.88
Montgomery															.93	.93
Nevada				.16		.16	.06	.09			.68		.68			1.83
Newton															.83	.83
Quachita				3.89		.12	.08								.48	4.09
Perry	.24															.72
Phillips	78.01			5.84												83.85
Pike	.06											.82	.02		.97	1.87
Poinsett	308.86				1.36			5.28								315.50
Polk															1.84	1.84
Pope	3.45														1.77	5.22
Prairie	166.49		.01	20.92			.25									187.67
Pulaski	33.50			.30				.30							1.48	35.58
Randolph	42.41														.87	43.28
St. Francis	140.71		.23		.49			.21								141.64
Saline	.20			.28				.28	1.18	.18					1.00	3.12
Scott															1.06	1.06
Searcy															.92	.92
Sebastian	.15														1.83	1.98
Sevier	.05											.35	.89		.30	1.59
Sharp															1.89	1.89
Stone															.87	.87
Union			.67	16.07												16.74
Van Buren															.73	.73
Washington															8.74	8.74
White	47.20							2.10							3.15	52.45
Woodruff	166.97				.75											167.72
Yell	3.75														2.39	6.14
STATE	3,716.93	.70	7.15	181.41	4.05	5.27	.74	50.68	1.24	.18	6.46	.52	6.02	1.26	73.85	4,056.46
COASTAL PLAIN	3,697.14	.70	7.15	181.41	4.05	5.27	.74	50.68	1.24	.18	6.46	.52	6.02	1.26		3,962.82
INTERIOR HIGHLANDS	19.79														73.85	93.64

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