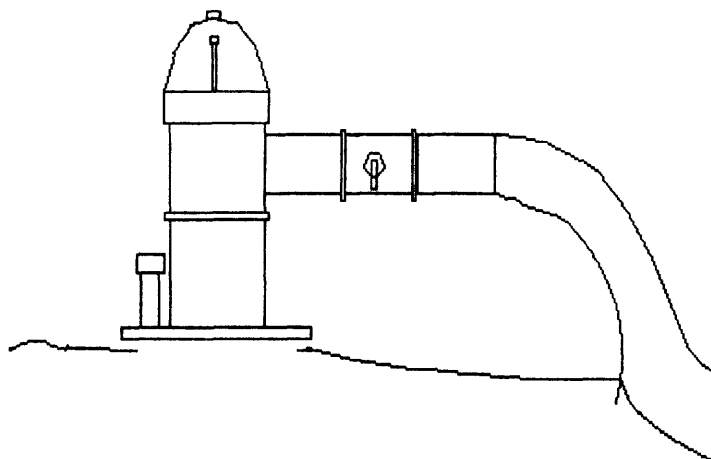


# Use of Water in Arkansas, 1990



**U.S. Department of the Interior  
U.S. Geological Survey  
Open-File Report 93-48**

Prepared in cooperation with the ARKANSAS  
SOIL AND WATER CONSERVATION  
COMMISSION

## Use of Water in Arkansas, 1990

by Terrance W. Holland

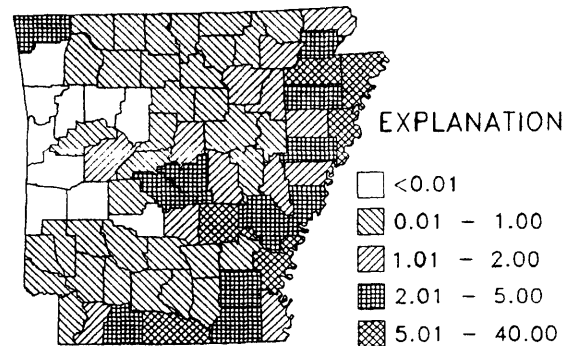
Water is one of Arkansas' most valuable resources. Public supply, as well as agriculture and industry, is dependent upon having an adequate supply of good-quality water. Every 5 years, as a part of the National Water-Use Information Program, water-use data are collected and compiled for the State by county, by hydrologic unit, and by aquifer.

Site-specific water-use data for several categories are collected and compiled annually by the Arkansas Soil and Water Conservation Commission in cooperation with the U.S. Geological Survey. Data for the livestock and irrigation categories are reported through the Conservation District Offices in each county. These data are then aggregated, and in some categories it is necessary to supplement these data from other sources. These sources include public agencies, industries, public utilities, other organizations, and individuals. Principal contributors include the Arkansas Geological Commission; Arkansas Department of Health; Arkansas Department of Pollution Control and Ecology; the Cooperative Extension Service; College of Agriculture, University of Arkansas; the Agricultural Stabilization and Conservation Service, Soil Conservation Service, Statistical Reporting Service of the U.S. Department of Agriculture; the U.S. Fish and Wildlife Service of the U.S. Department of the Interior; U.S. Army Corps of Engineers; Arkansas Department of Parks and Tourism; Arkansas State Highway and Transportation Department; and the U.S. Department of Energy.

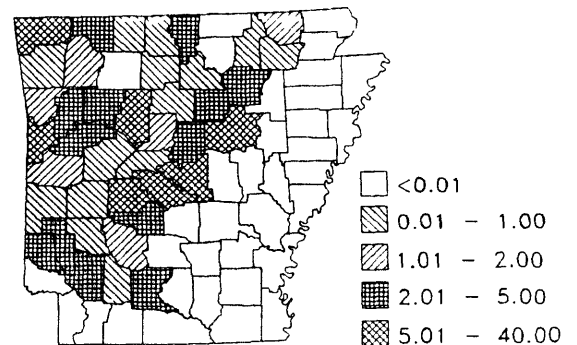
This report summarizes the results of the 1990 Arkansas water-use inventory. The water-use categories considered and the total quantity of water used in each category are public supply, 309 million gallons per day (Mgal/d); domestic, 50.6 Mgal/d; commercial, 222 Mgal/d; industrial (self-supplied), 177 Mgal/d; mining, 2.48 Mgal/d; livestock (stock and animal specialities), 189 Mgal/d; irrigation, 5,245 Mgal/d; and thermoelectric power generation, 1,641 Mgal/d. An additional 62,007 Mgal/d is diverted for hydroelectric power generation (instream use not shown in tables or illustrations). These data are tabulated by county and source in table 1 and by county and aquifer in table 2.

Water withdrawals during 1990 were 69,843 Mgal/d (ground-water sources provided 4,708 Mgal/d and surface-water sources provided 65,135 Mgal/d). The largest use of water was for electric-energy generation, which accounts for 89 percent of the total withdrawals. Excluding hydroelectric diversions, 1990 surface-water use was 3,128 Mgal/d. Six percent (4,142 Mgal/d) of the total withdrawals was estimated consumed (water that is not returned to a source or is not available for reuse).

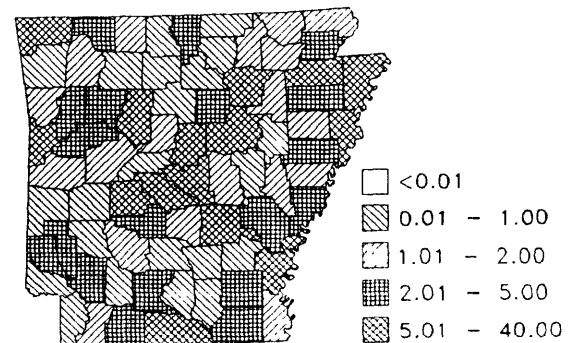
PUBLIC SUPPLY			
Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	118.95	1) Benton	39.9
Surface water	189.57	2) Pulaski	38.5
Total	308.52	3) Saline	28.1



GROUND WATER



SURFACE WATER



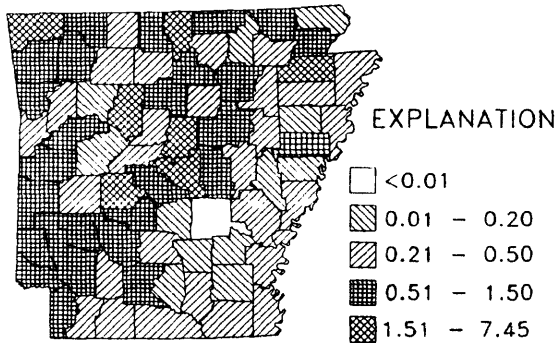
TOTAL

## DOMESTIC

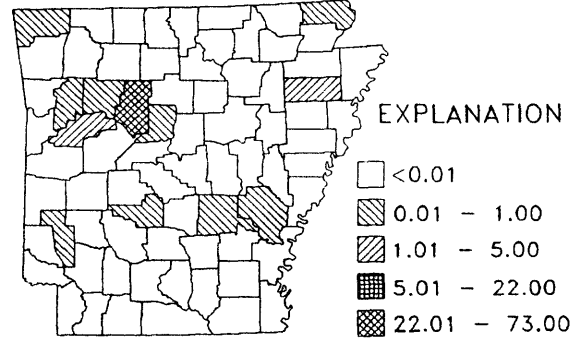
Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	50.61	1) Pulaski	7.44
Surface water	0.00	2) Benton	2.21
Total	50.61	3) Garland	2.03

## COMMERCIAL

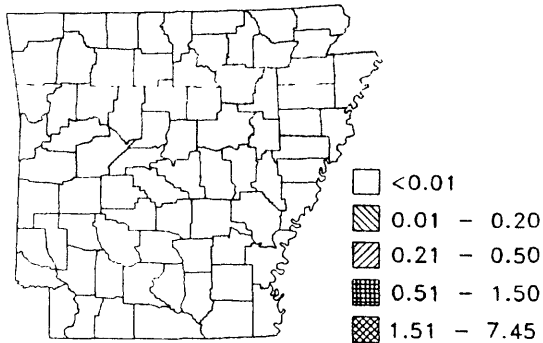
Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	14.31	1) Fulton	72.01
Surface water	207.30	2) White	66.96
Total	221.61	3) Arkansas	15.85



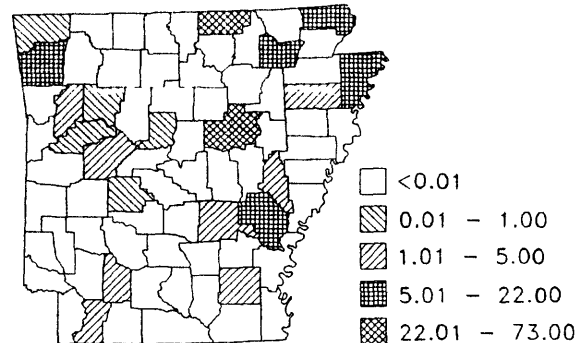
GROUND WATER



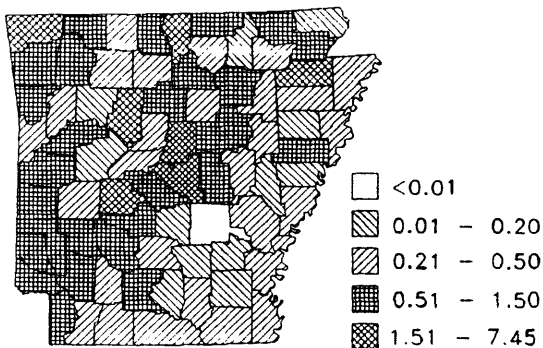
GROUND WATER



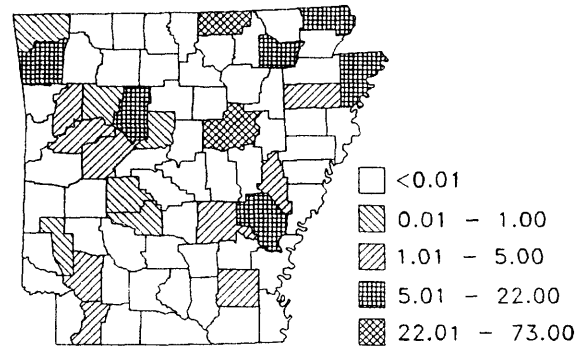
SURFACE WATER



SURFACE WATER



TOTAL



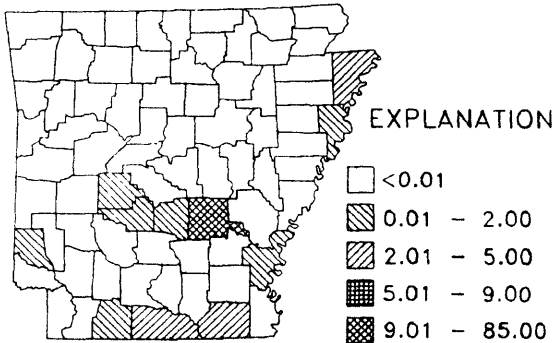
TOTAL

## INDUSTRIAL

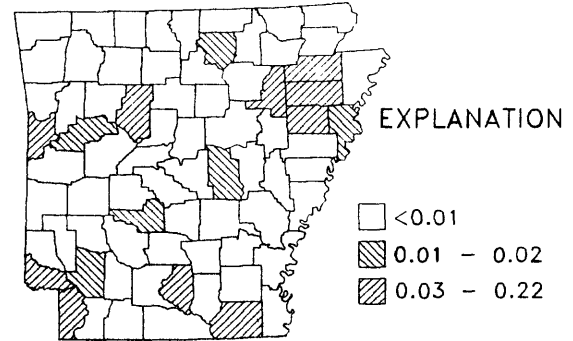
Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	98.92	1) Jefferson	84.65
Surface water	78.43	2) Ashley	37.42
Total	177.35	3) Independence	22.44

## MINING

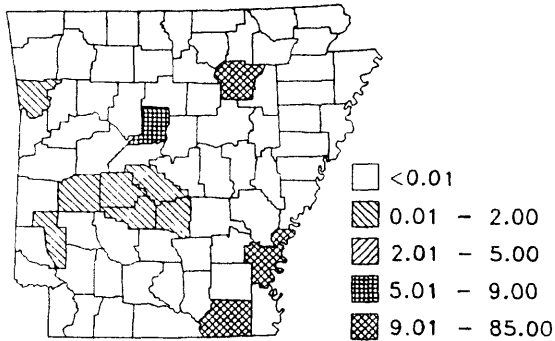
Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	1.82	1) Sebastian	0.22
Surface water	0.66	2) 12 counties	.18
Total	2.48	3) 4 counties	.02



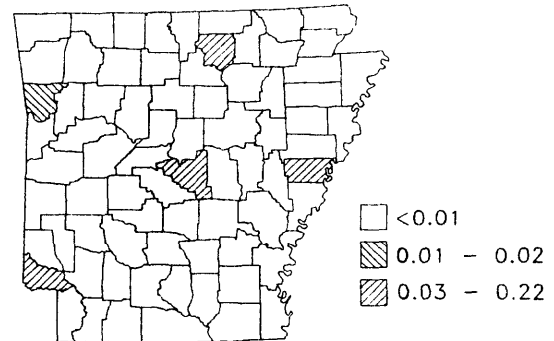
GROUND WATER



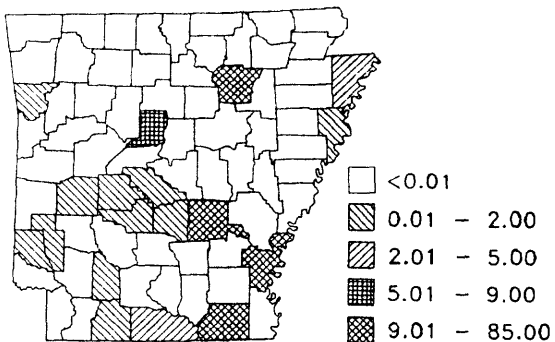
GROUND WATER



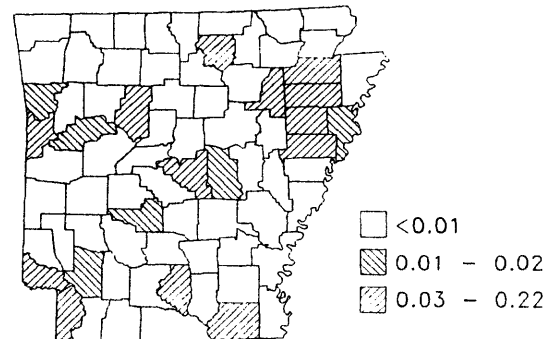
SURFACE WATER



SURFACE WATER



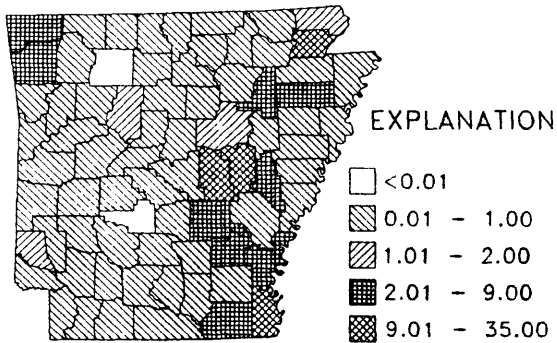
TOTAL



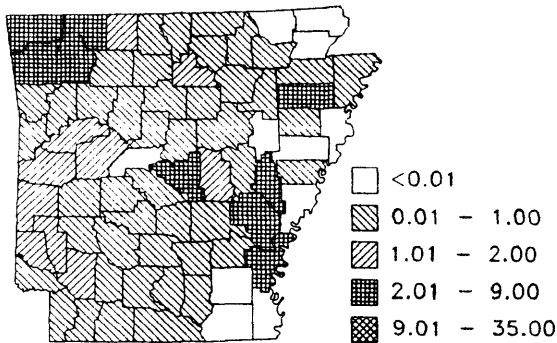
TOTAL

## LIVESTOCK \*

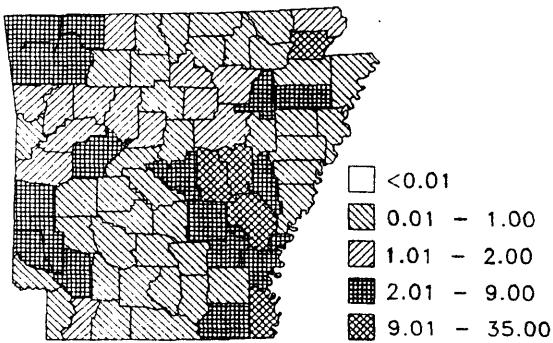
Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	124.96	1) Lonoke	34.27
Surface water	64.44	2) Prairie	12.99
Total	189.40	3) Chicot	12.96



GROUND WATER



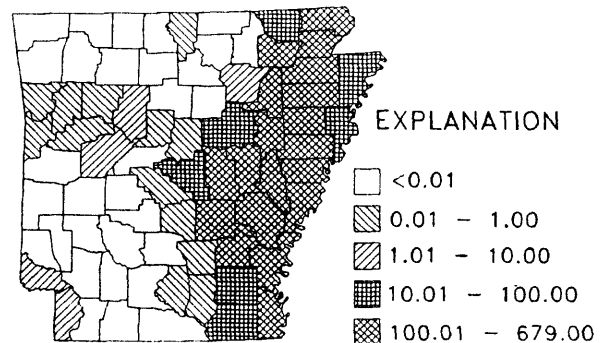
SURFACE WATER



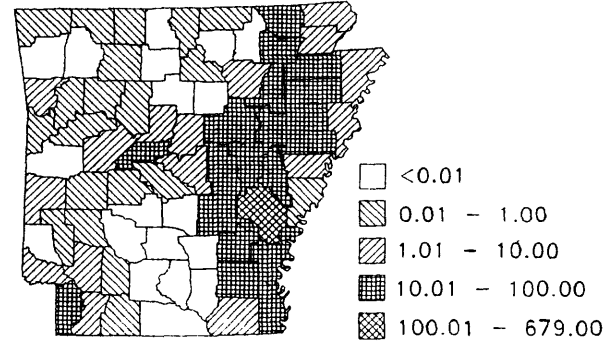
TOTAL

## IRRIGATION

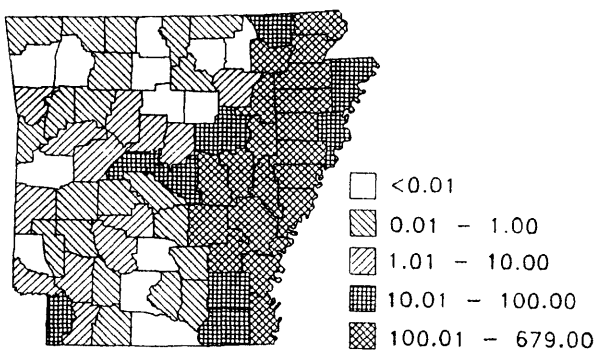
Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	4,296.15	1) Arkansas	678.31
Surface water	949.28	2) Poinsett	433.96
Total	5,245.43	3) Cross	355.29



GROUND WATER



SURFACE WATER



TOTAL

\* Includes stock and animal specialities

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Halberg, H.N., 1972, Use of water in Arkansas, 1970: Arkansas Geological Commission Water Resources Summary 7, 15 p.

Halberg, H.N., 1977, Use of water in Arkansas, 1975: Arkansas Geological Commission Water Resources Summary 9, 28 p.

Halberg, H.N., and Stephens, J.W., 1966, Use of water in Arkansas, 1965: Arkansas Geological Commission Water Resources Summary 5, 12 p.

Hall, A.P., and Holland, T.W., 1984, Water use in Arkansas, 1981: U.S. Geological Survey Water-Resources Investigations Report 84-4070, 1 sheet.

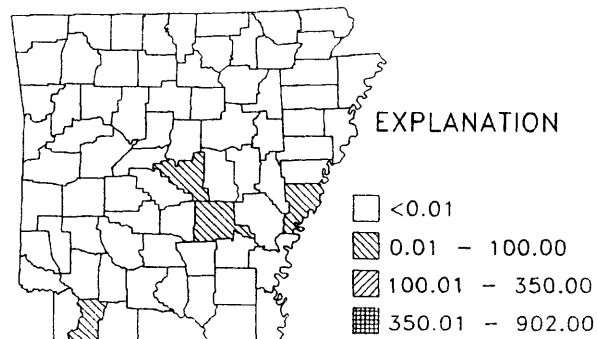
Holland, T.W., 1987, Use of water in Arkansas, 1985: Arkansas Geological Commission Water-Resources Summary 16, 27 p.

Holland, T.W., and Hall, A.P., 1986, Water use in Arkansas, 1982: U.S. Geological Survey Water-Resources Investigations Report 85-4282, 1 sheet.

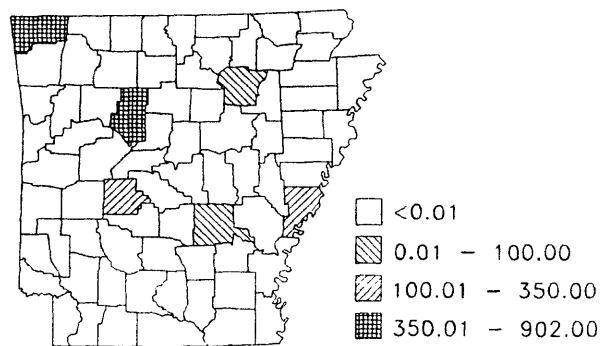
Holland, T.W., and Ludwig, 1981, A.H., Use of water in Arkansas, 1980: Arkansas Geological Commission Water-Resources Summary 14, 30 p.

Stephens, J.W., and Halberg, H.N., 1961, Use of water in Arkansas, 1960: Arkansas Geological and Conservation Commission Special Report Series 294, 56 p.

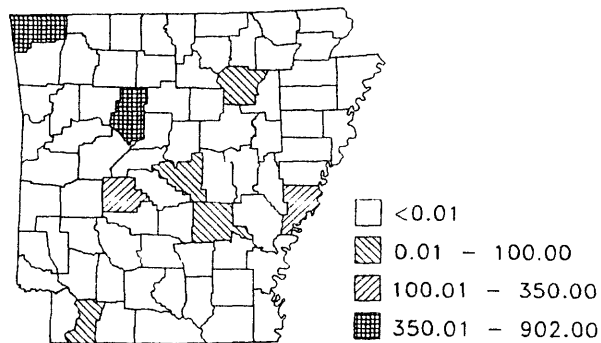
THERMOELECTRIC			
Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	2.43	1) Pope	901.62
Surface water	1,638.22	2) Benton	368.97
Total	1,640.65	3) Garland	231.42



GROUND WATER



SURFACE WATER

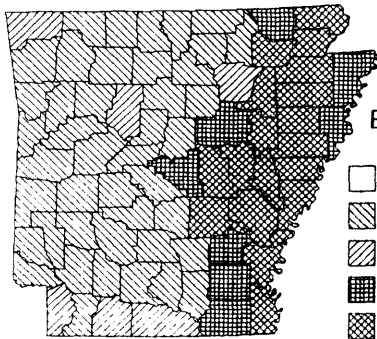


TOTAL

# TOTAL WATER WITHDRAWALS \*

Total withdrawals (Mgal/d)		Top three counties 1990 total withdrawals	
Ground water	4,708.15	1) Pope	921.69
Surface water	3,127.90	2) Arkansas	708.05
Total	7,836.05	3) Poinsett	450.26

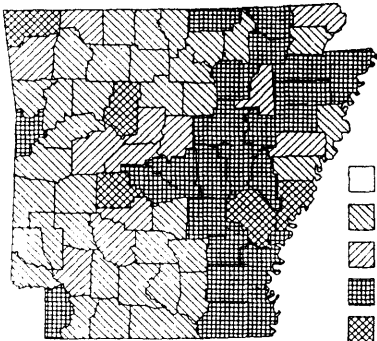
[In million gallons]



## EXPLANATION

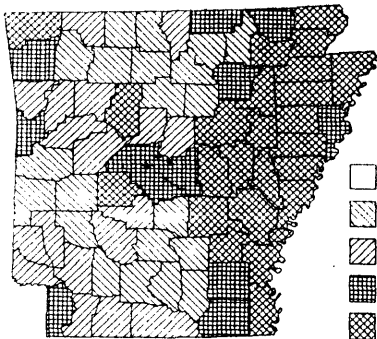
- <0.01
- 0.01 - 5.00
- 5.01 - 15.00
- 15.01 - 120.00
- 120.01 - 922.00

## GROUND WATER



- <0.01
- 0.01 - 5.00
- 5.01 - 15.00
- 15.01 - 120.00
- 120.01 - 922.00

## SURFACE WATER



- <0.01
- 0.01 - 5.00
- 5.01 - 15.00
- 15.01 - 120.00
- 120.01 - 922.00

## TOTAL

Total withdrawals excluding hydroelectric diversions

County	Public Supply		Domestic		Commercial	
	Ground water	Surface water	Ground water	Surface water	Ground water	Surface water
Arkansas	4.18	0.00	0.36	0.00	0.63	15.22
Ashley	2.25	0.00	0.44	0.00	0.00	0.00
Baxter	0.53	0.00	1.60	0.00	0.00	0.00
Benon	4.30	35.62	2.21	0.00	0.24	0.38
Boone	0.64	0.79	0.33	0.00	0.00	0.00
Bradley	0.96	0.00	0.28	0.00	0.00	0.00
Calhoun	0.40	0.00	0.11	0.00	0.00	0.00
Carroll	0.46	3.80	0.56	0.00	0.00	0.00
Chicot	1.55	0.00	0.37	0.00	0.00	0.00
Clark	0.31	1.66	0.53	0.00	0.00	0.00
Clay	1.61	0.00	0.09	0.00	0.14	8.44
Cleburne	0.12	2.11	0.44	0.00	0.00	0.00
Cleveland	0.80	0.00	0.11	0.00	0.00	0.00
Columbia	3.12	0.00	0.24	0.00	0.00	0.00
Conway	0.15	1.10	0.47	0.00	0.02	0.04
Craighead	8.70	0.00	1.91	0.00	0.00	0.00
Crawford	0.00	1.28	1.11	0.00	0.00	0.00
Crittenden	7.70	0.00	0.43	0.00	0.00	0.00
Cross	1.16	0.00	0.06	0.00	0.00	0.00
Dallas	0.92	0.00	0.35	0.00	0.00	0.00
Desha	5.82	0.00	0.40	0.00	0.00	0.00
Drew	2.02	0.00	0.01	0.00	0.00	3.49
Faulkner	1.80	4.68	1.88	0.00	0.00	0.00
Franklin	0.00	2.45	0.35	0.00	0.13	1.54
Fulton	0.67	0.00	0.58	0.00	0.00	72.01
Garland	0.10	9.87	2.03	0.00	0.00	0.73
Grant	1.33	0.00	0.11	0.00	0.00	0.00
Greene	2.92	0.00	0.94	0.00	0.00	0.00
Hempstead	0.19	3.34	0.90	0.00	0.00	1.41
Hot Spring	0.00	2.59	0.59	0.00	0.01	0.00
Howard	0.42	2.21	0.53	0.00	0.34	0.00
Independence	1.24	3.82	0.66	0.00	0.00	0.00
Izard	0.99	0.00	0.40	0.00	0.00	0.00
Jackson	1.38	0.00	0.25	0.00	0.00	0.00
Jefferson	10.98	0.00	0.00	0.00	0.94	1.43
Johnson	0.00	2.81	0.03	0.00	0.30	0.28
Lafayette	1.14	0.00	0.35	0.00	0.00	0.00
Lawrence	1.37	0.06	0.36	0.00	0.00	7.36
Lee	1.27	0.00	0.11	0.00	0.00	0.00
Lincoln	0.88	0.00	0.12	0.00	0.00	1.65
Little River	0.89	0.00	0.51	0.00	0.00	0.00
Logan	0.11	2.33	1.10	0.00	1.05	0.08
Looke	1.92	0.00	1.10	0.00	0.00	0.00
Madison	0.30	1.12	0.54	0.00	0.00	0.00
Manon	0.45	0.31	0.59	0.00	0.00	0.00
Miller	0.10	0.00	1.28	0.00	0.00	1.65
Mississippi	9.42	0.00	0.35	0.00	0.00	14.29
Monroe	1.64	0.00	0.13	0.00	0.00	1.08
Montgomery	0.00	0.32	0.42	0.00	0.00	0.00
Nevada	0.07	0.65	0.38	0.00	0.00	0.00
Newton	0.22	0.00	0.41	0.00	0.00	0.00
Ouachita	0.39	2.42	0.85	0.00	0.00	0.00
Perry	0.09	0.37	0.38	0.00	0.00	0.00
Phillips	3.42	0.00	0.29	0.00	0.00	0.00
Pike	0.07	0.60	0.51	0.00	0.00	0.00
Poinsett	3.52	0.00	0.29	0.00	2.51	1.80
Polk	0.00	0.72	0.79	0.00	0.00	0.00
Pope	0.00	5.96	1.55	0.00	8.00	0.00
Prairie	0.79	0.00	0.31	0.00	0.00	0.00
Pulaski	4.18	34.36	7.44	0.00	0.00	0.00
Randolph	0.18	1.04	0.76	0.00	0.00	0.00
St. Francis	2.96	0.00	0.80	0.00	0.00	0.00
Saline	2.01	26.17	1.21	0.00	0.00	0.00
Scott	0.00	1.09	0.64	0.00	0.00	0.00
Searcy	0.17	0.30	0.45	0.00	0.00	0.00
Sebastian	0.00	20.39	0.32	0.00	0.00	0.00
Sevier	0.16	2.28	0.57	0.00	0.00	0.00
Sharp	0.75	0.65	0.14	0.00	0.00	0.00
Stone	0.02	0.58	0.67	0.00	0.00	0.00
Union	7.85	0.00	0.26	0.00	0.00	0.00
Van Buren	0.03	0.91	0.77	0.00	0.00	0.00
Washington	0.00	0.79	1.38	0.00	0.00	6.61
White	0.78	5.02	0.52	0.00	0.00	66.96
Woodruff	0.81	0.00	0.24	0.00	0.00	0.00
Yell	1.27	0.53	0.04	0.00	0.00	2.70
Total	118.95	189.57	50.61	0.00	14.31	207.30





Table 2. --Withdrawals of ground water  
[In million gallons per day:

County	Deposits of Quaternary age	Cockfield Formation	Sparta-Memphis Sand	Cane River Formation	Wilcox Group undifferentiated
Arkansas	356.97	---	67.99	---	---
Ashley	74.35	2.44	---	---	---
Baxter	---	---	---	---	---
Benton	---	---	---	---	---
Boone	---	11	91	---	---
Bradley	36	---	70	---	---
Calhoun	03	---	---	---	---
Carroll	---	---	---	---	---
Chicot	116.48	5.00	---	---	---
Clark	70	---	---	---	---
Clay	196.40	---	---	---	---
Cleburne	---	---	---	---	---
Cleveland	22	.05	98	---	---
Columbia	73	---	4.50	---	---
Conway	1.64	---	---	---	---
Craighead	237.55	---	.68	---	1.83
Crawford	1.00	---	---	---	---
Crittenden	62.33	---	---	---	5.05
Cross	337.39	---	---	---	---
Dallas	24	---	1.07	---	---
Dasha	211.71	.38	6.23	---	---
Drew	35.94	.11	2.60	---	---
Faulkner	78	---	---	---	---
Franklin	71	---	---	---	---
Fullon	---	---	---	---	---
Garland	---	---	---	---	---
Gaut	23	---	1.41	---	---
Greene	118.15	---	---	1.76	1.59
Hampton	.80	---	---	---	---
Hot Spring	.22	---	---	---	---
Howard	---	---	---	---	---
Independence	7.74	---	---	---	---
Izard	---	---	---	---	---
Jackson	269.79	---	---	---	---
Jefferson	174.73	---	78.50	---	---
Johnson	90	---	---	---	---
Lafayette	2.97	---	.04	.19	---
Lawrence	212.39	---	---	---	---
Lee	162.52	---	3.32	---	---
Lincoln	110.40	---	1.12	---	---
Little River	2.70	---	.40	---	---
Logan	20	---	---	---	---
Louisa	263.65	---	3.08	---	1.72
Madison	---	---	---	---	---
Marion	---	---	---	---	---
Miller	8.13	---	.03	.23	.43
Mississippi	93.68	---	.02	---	16.85
Monroe	178.60	---	.73	---	---
Montgomery	---	---	---	---	---
Nevada	33	---	---	.02	---
Newton	---	---	---	---	---
Ouachita	13	---	1.23	---	---
Perry	---	---	---	---	---
Phillips	110.89	---	9.27	---	---
Pike	35	---	---	---	---
Poinsett	403.22	---	.03	---	3.38
Polk	---	---	---	---	---
Pope	10.59	---	---	---	---
Prarie	185.00	---	22.58	---	---
Pulaski	28.66	---	.82	---	---
Randolph	49.54	---	---	---	---
St Francis	159.66	---	---	---	---
Saline	20	---	3.43	---	---
Scott	---	---	---	---	---
Searcy	---	---	---	---	---
Sebastian	40	---	---	---	---
Sevier	33	---	---	---	---
Sharp	---	---	---	---	---
Stone	---	---	---	---	---
Union	36	---	10.83	---	---
Van Buren	---	---	---	---	---
Washington	---	---	---	---	---
White	41.42	---	---	---	---
Woodruff	140.78	---	---	---	---
Yell	0.58	---	---	---	---
Total	4375.77	8.09	222.50	2.20	30.85

from aquifers in Arkansas counties, 1990  
---, no data available]

Clayton Formation	Nacatoch Sand	Tokio Formation	Trinity Group	Rocks of Paleozoic age undifferentiated	County total
---	---	---	---	---	424.96
---	---	---	---	---	76.79
---	---	---	---	2.23	2.23
---	---	---	---	8.97	8.97
---	---	---	---	1.19	1.19
---	---	---	---	---	1.38
---	---	---	---	---	0.73
---	---	---	---	1.44	1.44
---	---	---	---	---	121.48
---	---	---	---	---	1.00
---	.29	.01	---	---	198.38
---	1.98	---	---	1.23	1.23
---	---	---	---	---	1.25
---	---	---	---	---	5.23
---	---	---	---	.26	1.90
---	---	---	---	---	240.06
---	---	---	---	.62	1.63
---	---	---	---	---	67.38
---	---	---	---	---	337.39
---	---	---	---	---	1.31
---	---	---	---	---	218.32
---	---	---	---	---	38.65
---	---	---	---	3.91	4.69
---	---	---	---	.70	1.41
---	---	---	---	1.40	1.40
---	---	---	---	2.44	2.44
---	---	---	---	---	1.64
---	.23	---	---	---	121.73
---	.20	1.10	---	---	2.10
.02	---	---	---	.59	0.83
---	---	---	.23	2.04	2.27
---	---	---	---	2.12	9.86
---	---	---	---	1.54	1.54
---	---	---	---	---	269.79
---	---	---	---	---	253.23
---	---	---	---	.41	1.31
---	---	---	---	---	3.20
---	---	---	---	2.22	214.61
---	---	---	---	---	165.84
---	---	---	---	---	111.32
---	---	---	---	---	3.10
---	---	---	---	3.76	3.96
---	---	---	---	---	268.45
---	---	---	---	1.27	1.27
---	---	---	---	1.10	1.10
---	---	---	---	---	8.82
---	---	---	---	---	110.55
---	---	---	---	---	179.33
---	---	---	---	.75	0.75
---	.44	---	---	---	0.79
---	---	---	---	.63	0.63
---	---	---	---	---	1.36
---	---	---	---	1.38	1.38
---	---	---	---	---	120.16
---	---	.03	---	.89	1.27
---	---	---	---	---	406.63
---	---	---	---	1.63	1.63
---	---	---	---	2.39	12.98
---	---	---	---	---	207.58
---	---	---	---	.02	29.50
---	---	---	---	2.57	52.11
---	---	---	---	---	159.66
---	---	---	---	---	3.63
---	---	---	---	1.31	1.31
---	---	---	---	.73	0.73
---	---	---	---	.56	0.96
---	---	1.15	---	1.29	2.77
---	---	---	---	.95	0.95
---	---	---	---	.90	0.90
---	---	---	---	---	11.19
---	---	---	---	.91	.91
---	---	---	---	4.05	4.05
---	---	---	---	---	41.42
---	---	---	---	---	140.78
---	---	---	---	2.66	3.24
.02	3.14	2.29	.23	63.06	4708.15

**For additional information write to:**

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