UNITED STATES

DEPARTMENT OF THE INTERIOR

GEOLOGICAL SURVEY

REPORT OF THE ANNUAL YIELD OF THE ARKANSAS RIVER BASIN FOR THE ARKANSAS RIVER BASIN COMPACT ARKANSAS--OKLAHOMA

1983 WATER YEAR

By Martha A. Moore and T. E. Lamb

Open-File Report 84-598

Prepared in cooperation with the

ARKANSAS SOIL AND WATER CONSERVATION COMMISSION

Little Rock, Arkansas
1984

UNITED STATES DEPARTMENT OF THE INTERIOR

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CONVERSION FACTORS

For use of readers who prefer to use metric units, conversion factors for terms used in this report are listed below:

Multiply	By	To obtain
inch (in)	25.4	millimeter (mm)
foot (ft)	.3048	meter (m)
mile (mi)	1.609	kilometer (km)
acre	4047	square meter (m^2)
	.004047	square kilometer (km^2)
square mile (mi^2)	2.590	square kilometer (km^2)
cubic foot (ft^3)	.02832	cubic meter (m^3)
acre-foot (acre-ft)	1233	cubic meter (m^3)
	1.233×10^{-6}	cubic kilometer (km^3)
cubic foot per second (ft^3/s)	28.32	liter per second (L/s)
	.02832	cubic meter per second (m^3/s)

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ABSTRACT

The computed annual yield and deficiency of the subbasins as defined in the Arkansas River Compact, Arkansas-Oklahoma, are given in tables. Actual runoff from the subbasins and depletion caused by major reservoirs in the compact area are also given in tabular form. Monthly, maximum, minimum, and mean discharges are shown for the 14 streamflow stations used in computing annual yield.

INTRODUCTION

The computed annual yields for subbasins in the Arkansas River basin as defined in the Arkansas River Basin Compact, Arkansas-Oklahoma, 1972, are presented in this report. The area included in the Compact is shown in figure 1.

This report was prepared by the Water Resources Division of the U.S. Geological Survey in cooperation with the Arkansas Soil and Water Conservation Commission. Streamflow data were furnished by the Arkansas and Oklahoma Districts of the Water Resources Division, Geological Survey, and the U.S. Army Corps of Engineers, Tulsa District. The Tulsa District also provided data from the Webbers Falls, Tenkiller Ferry, Robert S. Kerr and Wister Reservoirs.

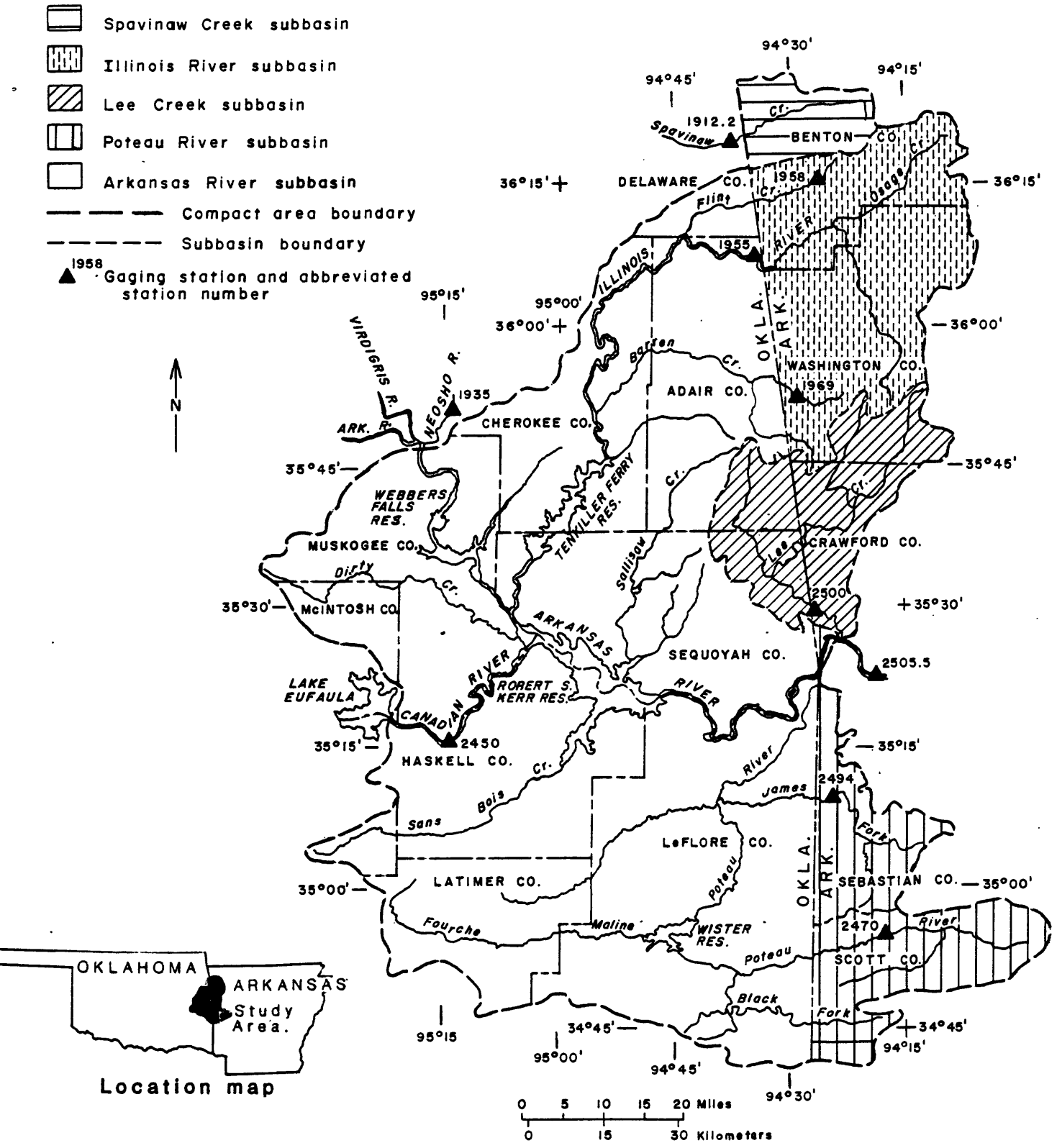

Figure 1.--Arkansas-Oklahoma Arkansas River Basin Compact area and subbasins.

DEFINITION OF TERMS

The following terms used in this report are taken from Article II of the Arkansas River Basin Compact, Arkansas-Oklahoma, 1972.

The term "Arkansas River Basin" means all of the drainage basin of the the Arkansas River and its tributaries from a point immediately downstream from the confluence of the Neosho River with the Arkansas River (fig. 1) to a point immediately downstream from the confluence of Lee Creek with the Arkansas River, together with the drainage basin of Spavinaw Creek in Arkansas (top of fig. 1), but excludes that part of the drainage basin of the Canadian River upstream from Lake Eufaula Dam.

The term "Spavinaw Creek Subbasin" means the drainage area of Spavinaw Creek in the State of Arkansas.

The term "Illinois River Subbasin" means the drainage area of Illinois River in the State of Arkansas.

The term "Lee Creek Subbasin" means the drainage area of Lee Creek in the State of Arkansas and in the State of Oklahoma.

The term "Poteau River Subbasin" means the drainage area of Poteau River in the State of Arkansas.

The term "Arkansas River Subbasin" means all areas of the Arkansas River Basin except the four subbasins described previously.

The term "water year" means a 12-month period beginning on October 1 and ending September 30.

The term "annual yield" means the computed annual gross runoff from any specified subbasin. The runoff would have passed any certain point on a stream and would have originated within any specified area under natural conditions, without any manmade depletion or accretion during the water year.

Other hydrologic terms used in this report are defined as follows:

Acre-foot (acre-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or 325,851 gallons.

Contents is the volume of water in a reservoir or lake. Unless otherwise indicated, volume is computed on the basis of a level pool and does not include bank storage.

Cubic foot per second (ft^3/s) is the rate of discharge representing a volume of 1 cubic foot passing a specified point during 1 second, and is equivalent to 7.48 gallons per second or 448.8 gallons per minute.

Discharge is the volume of water that passes a given point within a given period of time.

Instantaneous discharge is the discharge at a particular instant of time.

Mean discharge is the arithmetic average of individual daily mean discharges during a specific period.

Drainage area of a stream at a specified point on the stream is that area enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the stream upstream from the specified point. Figures of drainage area given herein include all closed basins, or non-contributing areas within the area, unless otherwise noted.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained.

Stage-discharge relation is the relation between gage height and the amount of water flowing past the gage in a channel.

COMPUTATION OF ANNUAL YIELD

The annual yield and deficiency (table 1) for each subbasin were computed as described in Appendix I to the Arkansas River Basin Compact Arkansas-Oklahoma, 1972, supplement No. 1. Actual runoff for the subbasins (table 2) was computed as described in the Compact except for the stations Arkansas River at Muskogee, which has been discontinued, and Arkansas River at Van Buren, which has been moved 7.9 miles (12.7 km) downstream.

Annual depletion caused by major reservoirs (table 3) was computed for the four major reservoirs in the basin as described in Appendix I to the Compact. Depletion caused by small reservoirs and minor diversion for municipal and agricultural use are insignificant at this time and data are not included in tables 1 and 3.

A compilation of the areas of lakes and ponds in the Poteau River, Lee Creek, Spavinaw Creek, and Illinois River Subbasins was conducted by the Arkansas Soil and Water Conservation Commission. This information was used to partially evaluate depletions caused by small reservoirs. Analysis showed that their present impact on the depletion in any Subbasin is less than 1 percent, and further consideration is not necessary at this time.

Streamflow data used in the computations are given in streamflow records (p. 10 to 24). The station description under "Remarks" states the degree of accuracy of the records. "Excellent" means that about 95 percent of the daily discharges are within 5 percent of the actual discharge, "good" is within 10 percent, and "fair" is within 15 percent. "Poor" means that daily discharges have less than "fair" accuracy.

Table 1.--Annual yield and deficiency for the subbasins as defined in the Arkansas-Oklahoma Arkansas River Basin Compact

[Average annual flow in cubic feet per second for 1983 water year]

Subbasin	(1) Actual runoff from the subbasins	(2) Total depletions (+) or accretions (-)	(3) Annual yield	(4) Percent depletion allowed	(5) Minimum required flow	(6) Deficiency
Spavinaw Creek	84	0	84	50	42	0
Illinois River	553	0	553	60	221	0
Lee Creek	524	0	524	100	0	0
Poteau River	713	0	713	60	285	0
Arkansas River	2,512	+155	2,667	60	1,067	0

Table 2.--Actual runoff from the subbasins

[Mean discharge in cubic feet per second for the 1983 water year; D.A., discharge area]

Month	Spavinaw Creek D.A.=135 mi^2 [a]	Illinois River D.A.=744 mi^2 [b]	Lee Creek D.A.=464 mi^2 [c]	Poteau River D.A.=536 mi^2 [d]	Arkansas River D.A.=4,553 mi^2 [e]
October	9	101	9	6	-68[f]
November	18	239	269	182	1,026
December	139	2,006	1,457	2,707	8,047
January	58	463	260	317	2,345
February	82	619	798	631	5,652
March	49	380	909	608	1,501
April	297	1,166	1,234	943	1,601
May	215	982	1,216	2,457	8,195
June	70	317	116	121	2,607
July	35	158	28	447	-6[f]
August	20	93	1	84	-367[f]
September	11	79	0	8	-262[f]
1983 water year	84	553	524	713	2,512
1983 water year (acre-ft)	60,810	400,400	379,400	516,200	1,819,000

[a] Includes 31 mi^2 ungaged.
[b] Includes 63 mi^2 ungaged.
[c] Includes 38 mi^2 ungaged.
[d] Includes 186 mi^2 ungaged.
[e] Computed by subtracting drainage area at Arkansas River at Muskogee, Canadian River near Whitefield, Illinois River Subbasin, Lee Creek Subbasin, and Poteau River Subbasin from drainage area at Arkansas River at Dam No. 13, near Van Buren, Ark.
[f] Negative discharge caused by storage in reservoirs, seepage into ground water, and evaporation from reservoirs.

Table 3.--Annual depletion caused by major reservoirs

[1983 water year]

Reservoir	Yearend contents (acre-ft)	Change in contents in water year (acre-ft)	Precipitation on reservoir surface (inch)[a]	Evaporation from reservoir (inch)[b]	Depletion (acre-ft)	Depletion (Average annual ft^3/s)
Webbers Falls-----	151,070	-15,620	34.54	56.28	+10,080	+13.9
Tenkiller Ferry---	543,730	-17,940	35.67	42.20	-3,480	-4.8
Robert S. Kerr----	508,450	+27,940	34.12	49.19	+102,180	+141
Wister----------	56,690	-2,100	42.89	39.84	+3,380	+4.7

[a] From U.S. Corps of Engineers, Tulsa District.
[b] Adjusted for pan coefficient of 0.70 (from Wisler and Brater, 1949).

SELECTED REFERENCES

Arkansas River Compact Committee, March 1972, Arkansas River Basin Compact Arkansas-Oklahoma, 1972, with Supplemental Interpretive Comments, Supplement No. 1: Austin, Tex., 31 p.

Wisler, C. D., and Brater, E. F., 1949, Hydrology: New York, N.Y., John Wiley & Sons, Inc., 150 p.

STREAMFLOW RECORDS

07165570 Arkansas River near Haskell, Okla.

LOCATION.--Lat 35°49'23", long 95°38'39", in NE 1/4 sec.31, T.16 N., R.16 E., Muskogee County, near right bank on downstream side of bridge on State Highway 104, 2.0 mi east of Haskell, 23.5 mi upstream from Verdigris River, and at mile 483.7.

DRAINAGE AREA.--75,473 mi^2, of which 12,541 mi^2 probably is noncontributing.

AVERAGE DISCHARGE.--11 years, 8,791 ft^3/s.

EXTREMES.--June 1972 to current year: Maximum discharge, 108,000 ft^3/s Nov. 6, 1974; minimum daily, 139 ft^3/s Nov. 18, 1982.

REMARKS.--Records fair. Flow regulated by Keystone Lake, 55.1 mi upstream.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	32,244	3,100	196	1,040	63,960
November	23,519	3,700	139	784	46,650
December	27,961	2,670	175	902	55,460
January	77,207	6,050	439	2,491	153,100
February	142,220	11,800	1,990	5,079	282,100
March	226,250	19,400	1,610	7,298	448,800
April	900,300	44,400	12,300	30,010	1,786,000
May	630,220	36,400	8,080	20,330	1,250,000
June	427,830	26,700	8,230	14,260	848,600
July	401,400	22,600	1,660	12,950	796,200
August	52,989	3,670	400	1,709	105,100
September	33,237	7,550	313	1,108	65,930
Water Year 1983	2,975,377	44,400	139	8,152	5,902,000

07176000 Verdigris River near Claremore, Okla.

LOCATION.--Lat 36°18'26", long 95°41'52", in SE 1/4 SW 1/4 sec.10, T.21 N., R.15 E., Rogers County, near left bank on downstream side of bridge on State Highway 20, 2.3 mi downstream from Caney River, 4.5 mi west of Claremore, 12.4 mi upstream from Bird Creek, and at mile 76.0.

DRAINAGE AREA.--6,534 mi^2.

AVERAGE DISCHARGE.--27 years (water years 1936-62), 3,723 ft^3/s; 19 years (water years 1965-83), 3,773 ft^3/s.

EXTREMES.--October 1935 to current year: Maximum discharge, 182,000 ft^3/s May 21, 1943; no flow at times in 1936, 1939-40, 1956.

REMARKS.--Records fair. Flow regulated since May 1963 by Oologah Lake 14.3 mi upstream; some regulation by dams in Kansas since 1949 and by Hulah Lake since 1950.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	1,823	99	48	58.8	3,620
November	7,525	1,700	50	251	14,930
December	55,132	5,430	182	1,778	109,400
January	72,385	5,940	383	2,335	143,600
February	236,500	14,400	4,530	8,446	469,100
March	150,824	17,600	538	4,865	299,200
April	597,450	30,100	6,890	19,920	1,185,000
May	409,290	25,300	6,950	13,200	811,800
June	141,090	15,700	1,040	4,703	279,900
July	42,992	4,600	106	1,387	85,270
August	2,517	125	46	81.2	4,990
September	3,106	170	79	104	6,160
Water Year 1983	1,720,634	30,100	46	4,714	3,413,000

07177500 Bird Creek near Sperry, Okla.

LOCATION.--Lat 36°16'42", long 95°57'14", in NW 1/4 NW 1/4 sec.29, T.21 N., R.13 E., Tulsa County, on downstream side of county road bridge, 1.5 mi upstream from Delaware Creek, 2.4 mi downstream from Hominy Creek, 2.5 mi southeast of Sperry, and at mile 25.0

DRAINAGE AREA.--905 mi^2.

AVERAGE DISCHARGE.--45 years, 481 ft^3/s.

EXTREMES.--October 1938 to current year: Maximum discharge, 90,000 ft^3/s Oct. 3, 1959; no flow at times in 1939, 1954-57, 1964-66, 1970.

REMARKS.--Records good.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	276.2	24	4.8	8.91	548
November	2,325.6	616	6.3	77.5	4,610
December	14,198	5,080	14	458	28,160
January	2,498	397	12	80.6	4,950
February	38,605	9,410	153	1,379	76,570
March	17,211	4,310	76	555	34,140
April	42,541	6,760	164	1,418	84,380
May	76,651	11,200	193	2,473	152,000
June	12,463	5,420	31	415	24,720
July	2,563	328	22	82.7	5,080
August	619	25	15	20.0	1,230
September	729	40	17	24.3	1,450
Water Year 1983	210,679.8	11,200	4.8	577	417,900

07191220 Spavinaw Creek near Sycamore, Okla.

LOCATION.--Lat 36°20'07", long 94°38'24", in NE 1/4 NW 1/4 sec.4, T.21 N., R.25 E., Delaware County, on right bank 1.8 mi upstream from Cherokee Creek, 4.8 mi northeast of Row, 6.5 mi southeast of Sycamore, and at mile 35.0.

DRAINAGE AREA.--133 mi^2.

AVERAGE DISCHARGE.--22 years, 102 ft^3/s.

EXTREMES.--October 1961 to current year: Maximum discharge, 39,800 ft^3/s July 27, 1975; minimum, 1.2 ft^3/s Aug. 9, 1964.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	306.1	12	8.0	9.87	607
November	538	73	11	17.9	1,070
December	4,262	593	56	137	8,450
January	1,770	121	39	57.1	3,510
February	2,273	182	46	81.2	4,510
March	1,502	58	42	48.5	2,980
April	8,783	1,130	49	293	17,420
May	6,526	626	110	211	12,940
June	2,086	114	51	69.5	4,140
July	1,085	55	21	35	2,150
August	608	27	13	19.6	1,210
September	319.4	13	8.8	10.6	634
Water Year 1983	30,058.5	1,130	8.0	82.4	59,620

07193500 Neosho River below Fort Gibson Lake, near Fort Gibson, Okla.

LOCATION.--Lat 35°51'15", long 95°13'45", in SE 1/4 NW 1/4 sec.19, T.16 N., R.19 E., Cherokee County, on left bank 1.1 mi downstream from Fort Gibson Dam, 4.5 mi north of Fort Gibson, and at mile 6.6.

DRAINAGE AREA.--12,495 mi^2.

AVERAGE DISCHARGE.--33 years (1950-83), 7,635 ft^3/s.

EXTREMES.--May 1950 to current year: Maximum discharge, 223,000 ft^3/s May 26, 1957; minimum, 12 ft^3/s Oct. 10, 1957, Aug. 23, 1964.

REMARKS.--Records good. Flow completely regulated by Fort Gibson Lake.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	18,190	1,680	15	587	36,080
November	34,591	5,090	15	1,153	68,610
December	206,348	16,400	15	6,656	409,300
January	140,898	12,600	15	4,545	279,500
February	353,380	16,100	4,040	12,620	700,900
March	264,440	15,200	2,120	8,530	524,500
April	908,300	58,600	11,600	30,280	1,802,000
May	1,043,600	65,400	11,200	33,660	2,070,000
June	427,140	20,800	6,940	14,240	847,200
July	198,912	11,900	942	6,417	394,500
August	89,349	6,040	30	2,882	177,200
September	14,635	2,280	15	488	29,030
Water Year 1983	3,699,783	65,400	15	10,140	7,339,000

07194500 Arkansas River near Muskogee, Okla.

LOCATION.--Lat 35°46'10", long 95°17'55", in NW 1/4 sec.21, T.15 N., R.19 E., Muskogee County, at bridge on U.S. Highway 62, 1.7 mi downstream from Neosho River, 3.5 mi northeast of Muskogee.

DRAINAGE AREA.--96,674 mi^2 of which 12,541 mi^2 probably is noncontributing.

REMARKS.--Gaging station discontinued Sept. 30, 1970, due to backwater conditions. Streamflow computed by combining flow at station 07165570 Arkansas River near Haskell, station 07176000 Verdigris River near Claremore, station 07177500 Bird Creek near Sperry, station 07193500 Neosho River below Fort Gibson Lake near Fort Gibson, and adjusting the total for the ungaged intervening drainage area.

Monthly and yearly discharge

Month	Mean (ft^3/s)	Runoff in acre-feet
October	1,707	105,000
November	2,380	141,600
December	10,440	641,900
January	9,566	588,200
February	29,450	1,636,000
March	22,020	1,354,000
April	83,620	4,976,000
May	73,120	4,496,000
June	34,200	2,035,000
July	20,950	1,288,000
August	4,718	290,100
September	1,762	104,800
Water Year 1983	24,394	17,660,000

07195500 Illinois River near Watts, Okla.

LOCATION.--Lat 36°07'48", long 94°34'12", in NE 1/4 sec.18, T.19 N., R.26 E., Adair County, near right bank on downstream side of bridge on U.S. Highway 59, 1.5 mi north of Watts, 4.5 mi downstream from Cincinnati Creek, and at mile 106.2.

DRAINAGE AREA.--635 mi^2.

AVERAGE DISCHARGE.--28 years, 558 ft^3/s.

EXTREMES.--August 1955 to current year: Maximum discharge, 68,000 ft^3/s July 25, 1960; minimum, 8.6 ft^3/s Oct. 26, 1955, Sept. 19, Oct. 14, 1956.

REMARKS.--Records good. Some regulation at low flow by Lake Francis Dam, 0.8 mi above station. Since July 2, 1957, small diversion above station for municipal water supply for city of Siloam Springs, Ark.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	3,118	174	78	101	6,180
November	6,716	907	76	224	13,320
December	57,632	14,500	434	1,859	114,300
January	13,329	881	275	430	26,440
February	15,054	1,490	310	538	29,860
March	9,862	533	191	318	19,560
April	30,491	2,550	195	1,016	60,480
May	24,562	2,450	463	792	48,720
June	10,518	746	233	351	20,860
July	4,985	331	69	161	9,890
August	3,036	140	74	97.9	6,020
September	2,443	107	68	81.4	4,850
Water Year 1983	181,746	14,500	68	498	360,500

07195855 Flint Creek near West Siloam Springs, Okla.

LOCATION.--Lat 36°12'58", long 94°36'15", in NE 1/4 NE 1/4 sec.14, T.20 N., R.25 E., Delaware County, on left bank 180 ft downstream from county bridge, 2.5 mi from Arkansas-Oklahoma State line, northwest of Siloam Springs, Okla.

DRAINAGE AREA.--58.9 mi^2.

EXTREMES.--June 1979 to current year: Maximum discharge, 299 ft^3/s Dec. 3, 1982; minimum daily, 0.40 ft^3/s Aug. 7, 1980.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	220.7	8.7	6.5	7.12	438
November	407.0	52	7.4	13.6	807
December	1,595	216	18	51.5	3,160
January	632	39	14	20.4	1,250
February	842	61	16	30.1	1,670
March	552	28	14	17.8	1,090
April	1,771	124	18	59.0	3,510
May	1,167	67	26	37.6	2,310
June	526	27	11	17.5	1,040
July	300.3	15	6.3	9.69	596
August	178.7	7.4	4.4	5.76	354
September	124.9	5.5	3.2	4.16	248
Water Year 1983	8,316.6	216	3.2	22.8	16,500

07196900 Baron Fork at Dutch Mills, Ark.

LOCATION.--Lat 35°52'48", long 94°29'11", on line between secs.21 and 22, T.14 N., R.33 W., Washington County, near right bank on downstream side of bridge on State Highway 59 at Dutch Mills, 2.2 mi downstream from Fly Creek, and 2.9 mi upstream from Arkansas-Oklahoma State line.

DRAINAGE AREA.--46.0 mi^2.

AVERAGE DISCHARGE.--25 years, 37.1 ft^3/s.

EXTREMES.--April 1958 to current year: Maximum discharge, 17,100 ft^3/s July 13, 1972; no flow at times in 1963, 1967, 1980, 1981.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	34.54	4.8	0.29	1.11	69
November	307.8	72	1.5	10.3	611
December	3,335	894	13	108	6,650
January	655.4	71	8.9	21.1	1,300
February	1,128	273	16	40.3	2,240
March	933	117	12	30.1	1,850
April	2,284	363	25	76.1	4,530
May	2,796	1,240	18	90.2	5,550
June	461.8	75	6.4	15.4	916
July	66.49	8.3	.63	2.14	132
August	18.02	1.7	.19	.58	36
September	10.18	.92	.21	.34	20
Water Year 1983	12,048.23	1,240	.19	33.0	23,900

07245000 Canadian River near Whitefield, Okla.

LOCATION.--Lat 35°15'45", long 95°14'19", in SE 1/4 SE 1/4 sec.12, T.9 N., R.19 E., Haskell County, near right bank on downstream side of bridge on State Highway 2, 0.8 mi north of Whitefield, 5.5 mi upstream from Taleka (Snake) Creek, 8.2 mi downstream from Eufaula Dam, and at mile 18.8.

DRAINAGE AREA.--47,576 mi^2, of which 9,700 mi^2 is probably noncontributing.

AVERAGE DISCHARGE.--25 years (water years 1939-63), 6,005 ft^3/s; 16 years (water years 1968-83), 5,067 ft^3/s.

EXTREMES.--July 1938 to current year: Maximum discharge, 281,000 ft^3/s May 10, 1943; minimum daily, 0.4 ft^3/s Oct. 8, 1956.

REMARKS.--Records fair. Prior to February 1964, occasional slight regulation by Conchas Lake in New Mexico and except for 54 mi^2 of intervening area, completely regulated thereafter by Eufaula Lake.

COOPERATION.--Gage-height record and discharge measurements furnished by Corps of Engineers; records computed by Geological Survey.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	13,017	2,690	51	420	25,820
November	7,438	630	38	248	14,750
December	23,647	3,300	22	763	46,900
January	76,861	5,620	30	2,479	152,500
February	295,380	22,200	1,730	10,550	585,900
March	263,860	15,700	2,050	8,512	523,400
April	111,491	9,610	39	3,716	221,100
May	562,020	40,100	3,230	18,130	1,115,000
June	219,753	17,700	173	7,325	435,900
July	114,495	5,800	122	3,693	227,100
August	129,685	6,850	155	4,183	257,200
September	52,592	6,030	59	1,753	104,300
Water Year 1983	1,870,239	40,100	22	5,124	3,710,000

07247000 Poteau River at Cauthron, Ark.

LOCATION.--Lat 34°55'08", long 94°17'55", in NW 1/4 SW 1/4 sec.16, T.3 N., R.31 W., Scott County, on right bank at downstream side of highway bridge at Cauthron, 2.9 mi downstream from Cross Creek, 7.8 mi downstream from Jones Creek, and at mile 109.0.

DRAINAGE AREA.--203 mi^2.

AVERAGE DISCHARGE.--44 years, 215 ft^3/s.

EXTREMES.--February 1939 to current year: Maximum discharge, 32,200 ft^3/s May 20, 1960; no flow at times in most years.

REMARKS.--Records fair. As of September 1973, flow from 74.8 mi^2 above this station is controlled by 12 floodwater-detention reservoirs with a total combined capacity of 32,660 acre-ft below the flood spillway crests, of which 29,546 acre-ft is flood-detention capacity, 2,100 acre-ft is water-supply storage, and 1,014 acreft is sediment-storage capacity.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	33.46	2.0	0.62	1.08	66
November	2,488.2	1,040	2.5	82.9	4,940
December	33,421	11,600	96	1,078	66,290
January	3,356	292	33	108	6,660
February	6,870	1,570	54	245	13,630
March	7,041	1,600	39	227	13,970
April	12,047	2,320	72	402	23,900
May	32,680	5,800	153	1,054	64,820
June	1,483.9	210	8.0	49.5	2,940
July	6,704.5	1,780	5.0	216	13,300
August	1,227.6	382	1.0	39.6	2,430
September	148.03	35	.16	4.93	294
Water Year 1983	107,500.69	11,600	.16	295	213,200

07249400 James Fork near Hackett, Ark.

LOCATION.--Lat 35°09'45", long 94°24'25", in NW 1/4 NW 1/4 sec.34, T.6 N., R.32 W., Sebastian County, near left bank on downstream side of bridge on State Highway 45, 1.7 mi south of Hackett, 2.0 mi downstream from Elder Branch, 2.0 mi upstream from small tributary, and 3.6 mi upstream from Arkansas-Oklahoma State line.

DRAINAGE AREA.--147 mi^2.

AVERAGE DISCHARGE.--25 years, 130 ft^3/s.

EXTREMES.--April 1958 to current year: Maximum discharge, 30,000 ft^3/s May 14, 1968; no flow at times.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	71.59	5.4	0.64	2.31	142
November	945.7	187	3.7	31.5	1,880
December	20,924	5,540	28	675	41,500
January	3,181	266	41	103	6,310
February	4,633	742	52	165	9,190
March	5,276	1,460	43	170	10,460
April	6,043	1,870	52	201	11,990
May	16,004	3,770	79	516	31,740
June	901	69	15	30.0	1,790
July	1,979	484	17	63.8	3,930
August	368.61	33	.89	11.9	731
September	36.37	2.1	.34	1.21	72
Water Year 1983	60,363.27	5,540	.34	165	119,700

07250000 Lee Creek near Van Buren, Ark.

LOCATION.--Lat 35°29'40", long 94°26'58", in SE 1/4 sec.21, T.12 N., R.27 E., Indian Meridian, Sequoyah County, Okla., on right bank 300 ft west of Arkansas-Oklahoma State line, 3.2 mi downstream from Webbers Creek, 6.8 mi northwest of Van Buren, and at mile 7.8.

DRAINAGE AREA.--426 mi^2.

AVERAGE DISCHARGE.--39 years (1930-36, 1950-83), 485 ft^3/s.

EXTREMES.--September 1930 to June 1937, October 1950 to current year: Maximum discharge, 80,600 ft^3/s (2,280 m^3/s) May 6, 1960; no flow at times.

REMARKS.--Records good.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	294.07	87	0.07	9.49	583
November	7,420.4	2,280	9.4	247	14,720
December	41,425	10,000	213	1,336	82,170
January	7,364	665	107	238	14,610
February	20,555	2,720	232	734	40,770
March	25,890	4,750	236	835	51,350
April	34,003	4,470	431	1,133	67,440
May	34,633	5,990	209	1,117	68,690
June	3,172	356	20	106	6,290
July	811.9	136	2.4	26.2	1,610
August	32.66	2.7	.00	1.05	65
September	.00	.00	.00	.00	.00
Water Year 1983	175,601.03	10,000	.00	481	348,300

07250550 Arkansas River at Dam No. 13, near Van Buren, Ark.

LOCATION.--Lat 35°20'56", long 94°17'54", in sec.28, T.8 N., R.31 W., Sebastian County, in Dam No. 13 control house on right bank, and at mile 308.9.

DRAINAGE AREA.--150,547 mi^2, of which 22,241 mi^2 is probably noncontributing.

AVERAGE DISCHARGE.--56 years, 30,785 ft^3/s.

EXTREMES.--October 1927 to current year: Maximum discharge, 850,000 ft^3/s (24,100 m^3/s) May 12, 1943; no flow Nov. 2, 1975, Feb. 1, 1981.

REMARKS.--Records good. Prior to October 1969, published as 07250500 Arkansas River at Van Buren. Beginning Apr. 26, 1970, daily discharge computed from relation between discharge, head, and gate openings. Flow regulated by many locks, dams, and reservoirs upstream.

Monthly and yearly discharge

Month	Total (ft^3/s)	Maximum daily (ft^3/s)	Minimum daily (ft^3/s)	Mean (ft^3/s)	Runoff in acre-feet
October	67,432	7,590	580	2,175	133,800
November	130,326	23,200	83	4,344	258,500
December	788,010	54,300	5,020	25,420	1,563,000
January	478,480	34,700	4,160	15,430	949,100
February	1,335,600	91,000	34,900	47,700	2,649,000
March	1,051,900	72,200	11,000	33,930	2,086,000
April	2,768,300	113,000	56,300	92,280	5,491,000
May	3,226,600	132,000	57,900	104,100	6,400,000
June	1,342,200	90,700	26,100	44,740	2,662,000
July	783,400	41,800	1,640	25,270	1,554,000
August	270,040	16,300	75	8,771	535,600
September	100,237	11,900	17	3,341	198,800
Water Year 1983	12,342,525	132,000	17	33,820	24,480,000