UNITED STATES DEPARTMENT OF THE INTERIOR

SURFACE WATER SUPPLY *of the* UNITED STATES 1931

PART 7

LOWER MISSISSIPPI RIVER BASIN

Prepared in cooperation with the States of
ARKANSAS, KANSAS, MISSISSIPPI, MISSOURI, TENNESSEE, and TEXAS

GEOLOGICAL SURVEY WATER-SUPPLY PAPER 717

UNITED STATES DEPARTMENT OF THE INTERIOR
RAY LYMAN WILBUR, Secretary
GEOLOGICAL SURVEY
W. C. MENDENHALL, Director

Water-Supply Paper 717

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PART 7
LOWER MISSISSIPPI RIVER BASIN

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CONTENTS

ILLUSTRATION

SURFACE WATER SUPPLY OF LOWER MISSISSIPPI RIVER BASIN, 1931

AUTHORIZATION AND SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of flow made on streams in the United States during the year ending September 30, 1931.

The data presented in these reports were collected by the United States Geological Survey under the following authority contained in the organic law (20 Stat. L., p. 394):

Provided, That this officer [the director] shall have the direction of the Geological Survey and the classification of the public lands and examination of the geological structure, mineral resources, and products of the national domain.

The work was begun in 1888 in connection with special studies relating to irrigation. Since the fiscal year ending June 30, 1895, successive appropriation bills passed by Congress have carried the following items:

For gaging the streams and determining the water supply of the United States, and for the investigation of underground currents and artesian wells, and for the preparation of reports upon the best methods of utilizing the water resources.

Annual appropriations for the fiscal years ending June 30, 1895–1932

1895	$12,500.00	1908–1910	$100,000.00	1926	$165,000.00
1896	24,500.00	1911–1917	150,000.00	1927	151,000.00
1897–1899	50,000.00	1918	175,000.00	1928	147,000.00
1900	70,000.00	1919	148,244.10	1929	270,500.00
1901–2	100,000.00	1920	175,000.00	1930	275,000.00
1903–1906	200,000.00	1921–1923	180,000.00	1931	565,000.00
1907	150,000.00	1924–25	170,000.00	1932	711,000.00

In the execution of the work many private and State organizations have cooperated, either by furnishing data or by assisting in collecting data. Acknowledgments for cooperation of the first kind are made in connection with the description of each station affected; cooperation of the second kind is acknowledged on page 10.

Measurements of stream flow have been made at about 6,270 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July, 1931, 2,660 gaging stations were being

maintained by the Geological Survey and the cooperating organizations. Many miscellaneous discharge measurements were made at other points. In connection with this work data were also collected in regard to precipitation, evaporation, storage reservoirs, river profiles, and water power in many sections of the country and will be made available in water-supply papers from time to time.

DEFINITION OF TERMS

The volume of water flowing in a stream—the "run-off" or "discharge"—is expressed in various terms, each of which has become associated with a certain class of work. These terms may be divided into two groups—(1) those that represent a rate of flow, as second-feet, gallons per minute, miner's inches, and discharge in second-feet per square mile, and (2) those that represent the actual quantity of water, as run-off in inches, acre-feet, and millions of cubic feet. The principal terms used in this series of reports are second-feet, second-feet per square mile, run-off in inches, and acre-feet. They may be defined as follows:

"Second-feet" is an abbreviation for "cubic feet per second." A second-foot is the rate of discharge of water flowing in a channel of rectangular cross section 1 foot wide and 1 foot deep at an average velocity of 1 foot per second. It is generally used as a fundamental unit from which others are computed.

"Second-feet per square mile" is the average number of cubic feet of water flowing per second from each square mile of area drained, on the assumption that the run-off is distributed uniformly both as regards time and area.

"Run-off in inches" is the depth to which an area would be covered if all the water flowing from it in a given period were uniformly distributed on the surface. It is used for comparing run-off with rainfall, which is usually expressed in inches.

"An acre-foot," equivalent to 43,560 cubic feet, is the quantity required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation.

The following terms not in common use are here defined:

"Stage-discharge relation," an abbreviation for the term "relation of gage height to discharge."

"Control," a term used to designate the natural section or stretch of the channel or artificial structure below the gage which determines the stage-discharge relation at the gage.

EXPLANATION OF DATA

The data presented in this report cover the year beginning October 1, 1930, and ending September 30, 1931. At the beginning of January

in most parts of the United States much of the precipitation in the preceding three months is stored in the form of snow or ice, or in ponds, lakes, and swamps, or as underground water, and this stored water passes off in the streams during the spring break-up. At the end of September, on the other hand, the only stored water available for run-off is possibly a small quantity in the ground; therefore the run-off for the year beginning October 1 is practically all derived from precipitation within that year.

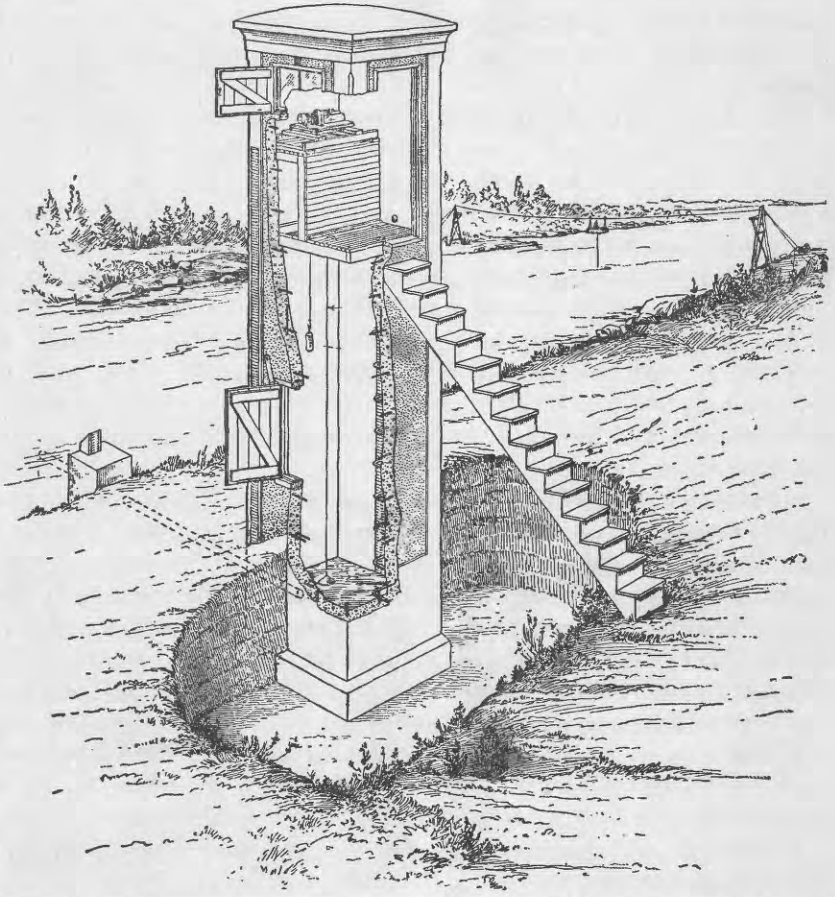

FIGURE 1.—Typical river-measurement station showing concrete well and house for water-stage recorder and staff gages, cable, and car

The base data collected at gaging stations consists of records of stage, measurements of discharge, and general information used to supplement the gage heights and discharge measurements in determining the daily flow. The records of stage are obtained either from direct readings on a staff or chain gage or from a water-stage recorder that gives a continuous record of the fluctuations. Measurements of

discharge are made with a current meter by the general methods outlined in standard textbooks on the measurement of river discharge. A typical gaging station, equipped with water-stage recorder and measuring cable and car, is shown in Figure 1.

Rating tables giving the discharge for any stage are prepared from the discharge measurements. The application of the daily gage heights to these rating tables gives the daily discharge from which the monthly and yearly mean discharge is determined.

The data presented for each gaging station in the area covered by this report comprise a description of the station, a table showing the daily discharge of the stream, and a table of monthly and yearly discharge and run-off.

The description of the station gives, in addition to statements regarding location and type of gage, information as to diversions that decrease the flow at the gage, artificial regulation, maximum and minimum recorded discharge, and the accuracy of the records. The maximum discharge given under "Extremes" does not represent the crest discharge unless a water-stage recorder was in operation or unless a nonrecording gage was read at the time of the crest.

The table of daily discharge gives, in general, the discharge in second-feet corresponding to the daily gage height which may be a once-daily reading or the mean of twice-daily readings of a nonrecording gage, or the mean daily gage height obtained from a water-stage recorder graph.

At stations on streams subject to sudden or rapid diurnal fluctuation the discharge obtained from the rating table and the mean daily gage height may not be the true mean discharge for the day. If such stations are equipped with water-stage recorders the mean daily discharge may be obtained by averaging discharge at regular intervals during the day or by using the discharge integrator, an instrument for obtaining mean daily discharge from a continuous gage-height graph and containing as an essential element the rating curve of the station.

In the table of monthly discharge the column headed "Maximum" gives the maximum daily discharge, and not the discharge when the water surface was at crest height. Likewise, in the column headed "Minimum" the quantity given is the minimum daily discharge. The column headed "Mean" is the average flow in cubic feet per second during the month. On this average flow are based computations recorded in the remaining columns, which are defined on page 2.

ACCURACY OF FIELD DATA AND COMPUTED RESULTS

The accuracy of stream-flow data depends primarily (1) on the permanency of the stage-discharge relation and (2) on the accuracy of observation of stage, measurements of flow, and interpretation of records.

The station description gives a statement in regard to the general

accuracy of the records. "Excellent" indicates that records are accurate within 5 per cent; "good," within 10 per cent; "fair," within 15 per cent; and "poor," 20 per cent or more.

The monthly means for any station may represent with high accuracy the quantity of water flowing past the gage, but the figures showing discharge per square mile and depth in inches may be subject to gross errors caused by the inclusion of large noncontributing districts in the measured drainage area, by lack of information concerning water diverted for irrigation or other use, or by inability to interpret the effect of artificial regulation of the flow of the river above the station. "Second-feet per square mile" and "run-off in inches" are therefore not computed if such errors appear probable. The computations are also omitted for stations on streams draining areas in which the annual rainfall is less than 20 inches.

The table of monthly discharge gives a general idea of the flow at the station. The table of daily discharge allows more detailed studies of the variation in flow. It should be borne in mind, however, that the observations in each succeeding year may be expected to throw new light on data previously published.

Many gaging stations on streams in the irrigated areas of the United States are situated above most of the diversions from those streams, and the discharge recorded does not show the water supply available for further development, as prior appropriations below the station must be satisfied first.

PUBLICATIONS

Investigation of water resources by the United States Geological Survey has consisted in large part of measurements of the volume of flow of streams and studies of the conditions affecting that flow, but it has comprised also investigation of such closely allied subjects as irrigation, water storage, water powers, underground waters, and quality of waters. Most of the results of these investigations have been published in the series of water-supply papers, but some have appeared in the bulletins, professional papers, monographs, and annual reports.

The results of stream-flow measurements are now published annually in 12 parts, each part covering an area whose boundaries coincide with natural drainage features as indicated below:

PART 1. North Atlantic slope basins (St. John River to York River).
2. South Atlantic slope and eastern Gulf of Mexico basins (James River to the Mississippi).
3. Ohio River Basin.
4. St. Lawrence River Basin.
5. Hudson Bay and upper Mississippi River Basins.
6. Missouri River Basin.
7. Lower Mississippi River Basin.
8. Western Gulf of Mexico basins.

PART 9. Colorado River Basin.
10. The Great Basin.
11. Pacific slope basins in California.
12. North Pacific slope drainage basins, in three parts:
A, Pacific slope basins in Washington and upper Columbia River Basin.
B, Snake River Basin.
C, Pacific slope basins in Oregon and lower Columbia River Basin.

Water-supply papers and other publications of the United States Geological Survey containing data in regard to the water resources of the United States may be obtained or consulted as indicated below:

1. Copies may be purchased at nominal cost from the Superintendent of Documents, Government Printing Office, Washington, D. C., who will, on application, furnish lists giving prices.

2. Sets of the reports may be consulted in the libraries of the principal cities in the United States.

3. Sets are available for consultation in the local offices of the water-resources branch of the Geological Survey, as follows:

Augusta, Me., Statehouse.
Boston, Mass., 2500 Customhouse.
Hartford, Conn., 318 State Office Building.
Albany, N. Y., 603 State Public Works Building.
Trenton, N. J., 710 Trenton Trust Building.
Harrisburg, Pa., 624 Claster Building.
Charlottesville, Va., Brooks Museum, University of Virginia.
South Charleston, W. Va., Naval Ordnance Plant.
Asheville, N. C., 220 Post Office Building.
Columbia, S. C., 801 National Loan & Exchange Bank Building.
Ocala, Fla., Post Office Building.
Tuscaloosa, Ala., Post Office Building.
Chattanooga, Tenn., 630 Power Building.
Columbus, Ohio, Engineering Experiment Station, Ohio State University.
Indianapolis, Ind., 319 Federal Building.
Urbana, Ill., 302 University New Agricultural Building.
Madison, Wis., 337N State Capitol.
St. Paul, Minn., 202 Old State Capitol.
Topeka, Kans., 23 Federal Building.
Rolla, Mo., Rolla Building, School of Mines and Metallurgy.
Fort Smith, Ark., Post Office Building.
Austin, Tex., State Capitol.
Santa Fe, N. Mex., State Capitol.
Tucson, Ariz., 210 Post Office Building.
Denver, Colo., 403 Post Office Building.
Salt Lake City, Utah, 313 Federal Building.
Idaho Falls, Idaho, 228 Federal Building.
Boise, Idaho, Federal Building.
Helena, Mont., 416 Power Block.
Tacoma, Wash., 406 Federal Building.
Portland, Oreg., 606 Post Office Building.
San Francisco, Calif., 303 Customhouse.
Los Angeles, Calif., 751 South Figueroa Street, room 510.
Honolulu, Hawaii, Territorial Office Building.

A list of the Geological Survey's publications may be obtained by applying to the Director, United States Geological Survey, Washington, D. C.

Stream-flow records have been obtained at about 6,270 points in the United States, and the data obtained have been published in the reports tabulated below.

Stream-flow data in reports of the United States Geological Survey

[A=Annual report; B=Bulletin; W=Water-Supply Paper]

Report	Character of data	Year
10th A, pt. 2	Descriptive information only	
11th A, pt. 2	Monthly discharge and descriptive information	1884 to Sept., 1890
12th A, pt. 2	do	1884 to June 30, 1891.
13th A, pt. 3	Mean discharge in second-feet	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871 to 1893)	1888 to Dec. 31, 1893.
B 131	Descriptions, measurements, gage heights, and ratings	1893 and 1894.
16th A, pt. 2	Descriptive information only	
B 140	Descriptions, measurements, gage heights, ratings, and monthly discharge (also many data covering earlier years).	1895.
W 11	Gage heights (also gage heights for earlier years)	1896.
18th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also similar data for some earlier years).	1895 and 1896.
W 15	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas.	1897.
W 16	Descriptions, measurements, and gage heights, western Mississippi River below junction of Missouri and Platte Rivers, and western United States.	1897.
19th A, pt. 4	Descriptions, measurements, ratings, and monthly discharge (also some long-time records).	1897.
W 27	Measurements, ratings, and gage heights, eastern United States, eastern Mississippi River, and Missouri River.	1898.
W 28	Measurements, ratings, and gage heights, Arkansas River and western United States.	1898.
20th A, pt. 4	Monthly discharge (also for many earlier years)	1898.
W 35 to 39	Descriptions, measurements, gage heights, and ratings	1899.
21st A, pt. 4	Monthly discharge	1899.
W 47 to 52	Descriptions, measurements, gage heights, and ratings	1900.
22d A, pt. 4	Monthly discharge	1900.
W 65, 66	Descriptions, measurements, gage heights, and ratings	1901.
W 75	Monthly discharge	1901.
W 82 to 85	Complete data	1902.
W 97 to 100	do	1903.
W 124 to 135	do	1904.
W 165 to 178	do	1905.
W 201 to 214	do	1906.
W 241 to 252	do	1907 and 1908.
W 261 to 272	do	1909.
W 281 to 292	do	1910.
W 301 to 312	do	1911.
W 321 to 332	do	1912.
W 351 to 362	do	1913.
W 381 to 394	do	1914.
W 401 to 414	do	1915.
W 431 to 444	do	1916.
W 451 to 464	do	1917.
W 471 to 484	do	1918.
W 501 to 514	do	1919 and 1920.
W 521 to 534	do	1921.
W 541 to 554	do	1922.
W 561 to 574	do	1923.
W 581 to 594	do	1924.
W 601 to 614	do	1925.
W 621 to 634	do	1926.
W 641 to 654	do	1927.
W 661 to 674	do	1928.
W 681 to 694	do	1929.
W 696 to 709	do	1930.
W 711 to 724	do	1931.

The records at most of the stations discussed in these reports extend over a series of years. Miscellaneous measurements at many

points other than regular gaging stations have been made each year and are published under "Miscellaneous discharge measurements" at the end of each report in the same relative order as the regular gaging stations. An index of the reports containing records obtained prior to 1904 has been published in Water-Supply Paper 119.

The following table gives, by years and drainage basins, the numbers of the papers on surface-water supply published from 1899 to 1931. The data for any particular station will, as a rule, be found in the reports covering the years during which the station was maintained. For example, data from 1910 to 1920 for any station in the area covered by Part 3 are published in Water-Supply Papers 283, 303, 323, 353, 383, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

Numbers of water-supply papers containing results of stream measurements, 1899-1931

[For basins included see p. 5]

Year	1	2	3	4	5	6	7	8	9	10	11	12-A	12-B	12-C
1899 [a]	35	[b] 35, 36	36	36	36	[c] 36, 37	37	37	[d] 37, 38	38, [e] 39	38, [f] 39	38	38	38
1900 [a]	47, [h] 48	48	48, [i] 49	49	49	49, [j] 50	50	50	50	51	51	51	51	51
1901	[g] 65, 75	65, 75	65, 75	65, 75	[k] 65, 66, 75	66, 75	[k] 65, 66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75	66, 75
1902	82	[b] 82, 83	83	[l] 82, 83	[k] 83, 85	84	[k] 83, 84	84	85	85	85	85	85	85
1903	97	[b] 97, 98	98	97	[k] 98, 99, [m] 100	99	[k] 98, 99	99	100	100	100	100	100	100
1904	[n] 124, [o] 125, [p] 126	[p] 126, 127	128	129	[k] 128, 130	130, [q] 131	[k] 128, 131	132	133	133, [r] 134	134	135	135	135
1905	[n] 165, [o] 166, [p] 167	[p] 167, 168	169	170	171	172	[k] 169, 173	174	175, [s] 177	176, [r] 177	177	178	178	[t] 177, 178
1906	[n] 201, [o] 202, [p] 203	[p] 203, 204	205	206	207	208	[k] 205, 209	210	211, [s] 213	212, [r] 213	213	214	214	214
1907-8	241	242	243	244	245	246	247	248	249	250, [r] 251	251	252	252	252
1909	261	262	263	264	265	266	267	268	269	270, [r] 271	271	272	272	272
1910	281	282	283	284	285	286	287	288	289	290	291	292	292	292
1911	301	302	303	304	305	306	307	308	309	310	311	312	312	312
1912	321	322	323	324	325	326	327	328	329	330	331	332-A	332-B	332-C
1913	351	352	353	354	355	356	357	358	359	360	361	362-A	362-B	362-C
1914	381	382	383	384	385	386	387	388	389	390	391	392	393	394
1915	401	402	403	404	405	406	407	408	409	410	411	412	413	414
1916	431	432	433	434	435	436	437	438	439	440	441	442	443	444
1917	451	452	453	454	455	456	457	458	459	460	461	462	463	464
1918	471	472	473	474	475	476	477	478	479	480	481	482	483	484
1919-20	501	502	503	504	505	506	507	508	509	510	511	512	513	514
1921	521	522	523	524	525	526	527	528	529	530	531	532	533	534
1922	541	542	543	544	545	546	547	548	549	550	551	552	553	554
1923	561	562	563	564	565	566	567	568	569	570	571	572	573	574
1924	581	582	583	584	585	586	587	588	589	590	591	592	593	594
1925	601	602	603	604	605	606	607	608	609	610	611	612	613	614
1926	621	622	623	624	625	626	627	628	629	630	631	632	633	634
1927	641	642	643	644	645	646	647	648	649	650	651	652	653	654
1928	661	662	663	664	665	666	667	668	669	670	671	672	673	674
1929	681	682	683	684	685	686	687	688	689	690	691	692	693	694
1930	696	697	698	699	700	701	702	703	704	705	706	707	708	709
1931	711	712	713	714	715	716	717	718	719	720	721	722	723	724

[a] Rating tables and index to Water-Supply Papers 35–39 contained in Water-Supply Paper 39. Tables of monthly discharge for 1899 in Twenty-first Annual Report, Part 4.
[b] James River only.
[c] Gallatin River.
[d] Green and Gunnison Rivers and Colorado River above junction with Gunnison.
[e] Mohave River only.
[f] Kings and Kern Rivers and south Pacific slope drainage basins.
[g] Rating tables and index to Water-Supply Papers 47–52 and data on precipitation, wells, and irrigation in California and Utah contained in Water-Supply Paper 52. Tables of monthly discharge for 1900 in Twenty-second Annual Report, Part 4.
[h] Wissahickon and Schuylkill Rivers to James River.
[i] Scioto River.
[j] Loup and Platte Rivers near Columbus, Nebr., and all tributaries below junction with the Platte.
[k] Tributaries of the Mississippi from east.
[l] Lake Ontario and tributaries to St. Lawrence River proper.
[m] Hudson Bay only.
[n] New England rivers only.
[o] Hudson River to Delaware River, inclusive.
[p] Susquehanna River to Yadkin River, inclusive.
[q] Platte and Kansas Rivers.
[r] Great Basin in California, except Truckee and Carson River Basins.
[s] Below junction with Gila.
[t] Rogue, Umpqua, and Siletz Rivers only.

COOPERATION

The work in the several States was done under cooperative agreements as follows: In Arkansas, with the Arkansas Geological Survey, Dr. George C. Branner, State geologist; in Kansas, with the water-resources division of the State Board of Agriculture, George S. Knapp, chief engineer; in Mississippi, with the Mississippi Geological Survey, Dr. E. N. Lowe, director; in Missouri, and for the station on the White River at Beaver, Ark., with the Missouri Bureau of Geology and Mines, H. A. Buehler, State geologist; in Tennessee, with the Tennessee Geological Survey, Walter F. Pond, State geologist; in Texas, with the board of water engineers, John A. Norris, chairman.

Acknowledgments are due also to the Corps of Engineers, United States Army, for financial assistance in collecting the records published herein.

Assistance in collecting records was also rendered by the following municipalities, organizations, corporations, and individuals: In Arkansas, by the Arkansas Power & Light Co., White River Power Co., Arkansas-Missouri Power Co., Fort Smith Water Works District, and Van Buren Waterworks Improvement District No. 1; in Missouri, by the Missouri Game and Fish Department, Little River Drainage District, Empire District Electric Co., Springfield City Water Co., and Willis H. Meredith; in Oklahoma, by the Public Service Co. of Oklahoma, and the Grand Hydro.

DIVISION OF WORK

The data for stations in the several States were collected and prepared for publication as follows: In Arkansas, except for the station on the White River at Beaver, Ark., and in Oklahoma, by John H. Gardiner, district engineer, assisted by O. B. Johnson; in Kansas, by J. B. Spiegel, district engineer, assisted by Charles Wells, W. M. Littlefield, R. V. Smrha, H. Gerald Bobst, and Mrs. Maude Moon; in Mississippi, by C. E. McCashin, district engineer, assisted by D. M. Corbett, J. L. Saunders, C. H. Prior, W. S. Eisenlohr, jr., E. J. Tripp, I. E. Anderson, and Miss Annie L. Hardin; in Missouri, and for the station on the White River at Beaver, Ark., by H. C. Beckman, district engineer, assisted by H. C. Bolon, R. D. Schmickle, C. J. Eyberg, and C. H. Jennings; in Tennessee, by W. R. King, district engineer, assisted by Warren Withee, C. E. Knox, W. R. Eaton, M. R. Williams, Duncan Charlton, W. J. Perry, and Miss Gladys Boulton; and in Texas, by C. E. Ellsworth, district engineer, assisted by Trigg Twichell, Seth D. Breeding, Tate Dalrymple, N. C. Magnuson, Kate Casparis, A. B. Goodwin, P. H. Holland, F. C. Ames, V. L. Austin, Jack M. Terry, R. W. Yarbrough, W. C. Dodd, and S. H. Crowell.

The records were reviewed and manuscript assembled by David S. Jenkins.

GAGING-STATION RECORDS

MERAMEC RIVER BASIN

MERAMEC RIVER NEAR STEELVILLE, MO.

LOCATION.—Chain gage in NE. ¼ sec. 21, T. 38 N., R. 4 W., 2½ miles north of Steelville. Zero of gage is 681.86 feet above mean sea level.
DRAINAGE AREA.—About 830 square miles.
RECORDS AVAILABLE.—December, 1922, to September, 1931.
EXTREMES.—Maximum discharge during year, 1,930 second-feet June 10 (gage height, 3.53 feet); minimum, 98 second-feet Sept. 22 (gage height, 0.56 foot).
1923–1931: Maximum discharge, 36,000 second-feet Apr. 1, 1927 (gage height, 19.40 feet); minimum discharge, that of Sept. 22, 1931; minimum gage height, 0.51 foot Aug. 6, 1930.
Maximum stage known, 26.5 feet Aug. 20, 1915 (discharge, about 60,000 second-feet).
REMARKS.—Records good. Discharge estimated Apr. 8, Aug. 9, Sept. 7.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	137	148	417	145	154	251	437	437	301	157	123	123
2	137	148	301	145	151	251	397	397	284	151	113	168
3	137	148	251	142	151	235	357	357	267	145	134	180
4	137	148	220	142	145	235	319	319	251	301	132	284
5	137	148	235	142	145	220	301	301	251	220	140	183
6	137	148	301	142	145	204	267	284	235	235	140	157
7	165	148	397	142	154	204	251	301	457	235	126	143
8	204	148	319	145	154	284	251	337	319	198	123	129
9	220	148	267	151	162	457	251	1,250	267	177	128	123
10	235	145	251	145	168	478	267	930	1,830	162	134	123
11	204	145	235	157	198	570	337	720	545	154	137	121
12	192	145	220	157	192	625	301	752	437	148	134	118
13	180	145	204	165	220	545	267	688	500	145	123	118
14	171	145	204	174	319	478	267	545	478	140	118	113
15	165	145	189	180	397	417	251	478	377	140	113	113
16	165	154	177	180	357	357	235	417	357	134	113	108
17	160	162	174	168	417	319	235	377	437	129	113	106
18	160	180	174	165	478	301	267	337	319	123	126	106
19	160	180	174	165	437	284	284	337	284	118	140	106
20	157	177	168	168	377	267	267	820	251	235	140	106
21	160	235	168	168	337	251	267	457	220	457	142	100
22	160	201	165	168	319	267	522	457	220	357	132	98
23	160	192	162	168	437	357	457	820	204	186	123	145
24	165	180	160	168	457	397	397	570	192	186	118	123
25	165	174	157	165	377	337	397	500	189	186	126	116
26	165	162	157	162	337	301	595	625	180	157	113	113
27	165	157	154	160	301	319	1,010	522	174	151	116	110
28	162	151	151	157	267	820	752	457	168	145	123	103
29	160	165	151	157	------	785	545	397	162	137	123	103
30	154	198	148	157	------	595	478	337	162	134	118	103
31	154	------	148	157	------	500	------	319	------	129	118	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	235	137	165	0.199	0.23
November	235	145	162	.195	.22
December	417	148	213	.257	.30
January	180	142	158	.190	.22
February	478	145	277	.334	.35
March	820	204	384	.463	.53
April	1,010	235	374	.451	.50
May	1,250	284	511	.616	.71
June	1,830	162	344	.414	.46
July	457	118	183	.220	.25
August	142	113	126	.152	.18
September	284	98	128	.154	.17
The year	1,830	98	252	.304	4.12

MERAMEC RIVER NEAR SULLIVAN, MO.

LOCATION.—Chain gage in N. ½ SW. ¼ sec. 35, T. 40 N., R. 2 W., at Sappington highway bridge, 6 miles southwest of Sullivan. Zero of gage is 582.64 feet above mean sea level.

DRAINAGE AREA.—1,550 square miles.

RECORDS AVAILABLE.—September, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,300 second-feet Apr. 27 (gage height, 5.56 feet); minimum, 188 second-feet Sept. 22 (gage height, 1.76 feet).

1921–1931: Maximum discharge, 28,300 second-feet June 2, 1927 (gage height, 22.89 feet); minimum discharge, that of Sept. 22, 1931; minimum gage height, 1.48 feet Aug. 12, 1926.

Maximum stage known, about 30.7 feet in August, 1915 (discharge, about 90,000 second-feet).

REMARKS.—Records good. Discharge estimated Jan. 5.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	260	260	402	298	338	525	960	1,080	632	278	213	243
2	260	260	500	298	318	500	900	1,020	605	278	219	475
3	243	260	578	298	318	450	780	840	525	243	243	460
4	243	260	578	298	318	426	690	750	475	203	243	450
5	243	260	605	298	298	426	632	690	475	338	228	475
6	243	278	605	298	298	402	550	660	450	318	240	402
7	338	278	632	298	338	426	500	690	525	402	237	318
8	426	260	660	318	318	578	475	780	1,020	358	225	260
9	690	260	660	318	318	1,020	475	1,460	780	318	196	240
10	605	260	605	318	358	1,140	500	1,910	1,520	298	206	231
11	500	278	525	318	450	1,140	525	1,650	1,720	278	222	225
12	450	278	500	338	450	1,260	720	1,580	1,080	243	219	219
13	380	278	450	358	525	1,200	578	1,520	1,020	260	210	219
14	358	278	426	380	660	1,080	578	1,320	960	243	203	213
15	338	298	402	358	900	960	578	1,140	900	237	203	208
16	318	318	380	358	900	780	550	1,020	720	234	203	203
17	318	338	358	358	900	660	578	900	720	231	203	198
18	298	358	338	358	1,020	605	840	780	720	228	216	196
19	278	358	318	358	1,020	578	780	750	605	225	231	193
20	278	380	318	358	900	525	720	840	500	475	225	190
21	278	402	318	380	840	525	1,260	1,020	450	1,520	243	193
22	278	426	338	380	720	550	1,780	960	402	550	260	190
23	278	402	338	380	720	690	1,460	1,080	380	358	231	500
24	278	358	338	358	900	780	1,260	1,260	358	338	219	450
25	298	338	338	358	780	750	1,200	1,260	358	318	228	260
26	278	318	318	358	720	690	1,520	1,260	338	298	213	243
27	298	298	318	358	632	690	2,240	1,200	318	260	203	234
28	298	278	318	338	550	900	1,980	960	318	243	237	225
29	278	318	318	358	-------	1,520	1,520	840	318	222	219	219
30	278	402	318	338	-------	1,320	1,260	780	298	216	219	213
31	260	-------	298	318	-------	1,140	-------	720	-------	216	210	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	690	243	328	0.212	0.24
November	426	260	311	.201	.22
December	660	298	432	.279	.32
January	380	298	339	.219	.25
February	1,020	298	600	.387	.40
March	1,520	402	782	.505	.58
April	2,240	475	946	.610	.68
May	1,910	660	1,060	.684	.79
June	1,720	298	650	.419	.47
July	1,520	203	330	.213	.25
August	260	196	222	.143	.16
September	500	190	278	.179	.20
The year	2,240	190	522	.337	4.56

MERAMEC RIVER NEAR EUREKA, MO.

LOCATION.—Chain gage in SE. ¼ sec. 32, T. 44 N., R. 4 E., at Votaw Ford highway bridge, 2 miles east of Eureka. Zero of gage is 407.40 feet above mean sea level.

DRAINAGE AREA.—3,800 square miles.

RECORDS AVAILABLE.—August, 1903, to July, 1906; October, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,420 second-feet May 22 (gage height, 6.10 feet); minimum, 295 second-feet Sept. 22.

1922–1931: Maximum discharge, 64,000 second-feet Apr. 3, 1927 (gage height, 29.47 feet); minimum discharge, 295 second-feet Aug. 12, 1930, Sept. 22, 1931; minimum gage height, 0.26 foot Aug. 12, 1930.

Maximum stage known, 39.2 feet Aug. 22, 1915 (discharge, about 175,000 second-feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	473	503	795	539	635	1,310	2,830	2,610	1,490	605	491	605
2	473	503	795	527	635	1,220	2,280	2,280	1,400	563	461	1,860
3	467	503	830	527	605	1,140	2,060	1,960	1,310	900	455	3,170
4	455	509	980	509	635	1,060	1,860	1,760	1,220	605	455	1,860
5	433	521	1,140	527	605	1,020	1,670	1,580	1,140	575	527	1,490
6	428	503	1,060	527	635	980	1,490	1,490	1,060	563	491	1,220
7	497	503	1,060	521	665	1,060	1,400	1,490	1,060	635	473	1,020
8	575	521	1,060	521	695	1,060	1,310	1,860	1,400	665	444	830
9	865	515	1,140	515	695	2,500	1,220	2,280	1,860	665	433	695
10	980	503	1,140	515	665	2,170	1,220	2,500	2,830	695	438	665
11	940	515	1,140	539	665	2,170	1,220	3,170	2,610	635	444	605
12	830	533	1,020	557	695	2,170	1,310	3,410	3,890	605	422	545
13	728	539	940	551	830	2,500	1,490	3,050	3,410	551	433	605
14	665	545	865	575	900	3,170	1,670	3,170	2,280	521	433	515
15	575	563	795	575	980	2,830	1,960	3,050	2,060	503	438	450
16	635	695	760	605	1,220	2,280	1,760	2,390	1,760	485	416	411
17	575	635	728	605	1,400	1,960	1,580	2,060	1,490	467	406	385
18	539	635	728	605	1,670	1,670	1,580	1,860	1,400	455	400	370
19	527	635	695	635	1,670	1,490	1,670	1,670	1,310	422	395	350
20	503	665	695	635	1,960	1,400	1,670	1,760	1,140	455	521	320
21	503	665	665	605	1,860	1,310	5,760	3,410	1,060	1,220	527	315
22	497	665	635	605	1,670	1,310	4,490	6,420	940	1,140	635	300
23	491	665	635	605	1,490	1,310	3,770	3,170	865	1,400	575	433
24	497	695	605	605	1,400	1,400	3,050	3,290	795	1,060	503	575
25	503	635	605	635	1,400	1,490	2,610	3,650	760	1,060	479	539
26	491	635	605	605	1,960	1,760	2,720	2,940	760	940	422	665
27	515	635	575	575	1,760	1,760	3,410	5,760	728	728	390	533
28	527	605	563	605	1,490	2,060	4,130	4,130	695	605	390	527
29	515	635	575	605	-------	2,500	4,130	2,500	635	563	370	569
30	533	728	557	605	-------	5,110	3,170	1,960	605	551	830	527
31	521	-------	557	575	-------	3,770	-------	1,670	-------	515	557	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	980	428	573	0.151	0.17
November	728	503	587	.154	.17
December	1,140	557	805	.212	.24
January	635	509	572	.151	.17
February	1,960	605	1,120	.295	.31
March	5,110	980	1,900	.500	.58
April	5,760	1,220	2,350	.618	.69
May	6,420	1,490	2,720	.716	.83
June	3,890	605	1,470	.387	.43
July	1,400	422	689	.181	.21
August	830	370	473	.124	.14
September	3,170	300	765	.201	.22
The year	6,420	300	1,170	.308	4.16

BOURBEUSE RIVER AT UNION, MO.

LOCATION.—Chain gage in SW ¼ sec. 26, T. 43 N., R. 1 W., at bridge on State Highway 50, about 800 feet above Flat Creek, and 1 mile east of Union. Zero of gage is 491.93 feet above mean sea level.

DRAINAGE AREA.—767 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,650 second-feet May 21 (gage height, 9.20 feet); minimum, 32 second-feet Oct. 31, Nov. 6, Aug. 21, Sept. 20, 21.

1921–1931: Maximum discharge, 22,500 second-feet Apr. 3, 1927 (gage height, 19.10 feet); minimum, 22 second-feet Aug. 12, 18, 22, 26, 31, 1930; minimum gage height, 0.80 foot Oct. 5, 6, 1922.

Maximum stage known, 25.5 feet Aug. 22, 1915 (discharge, about 50,000 second-feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	39	84	52	52	320	852	430	405	74	53	47
2	47	37	75	52	49	262	590	360	360	69	43	560
3	44	37	68	52	52	230	505	280	280	69	46	650
4	39	37	430	55	49	189	430	245	262	64	245	532
5	37	34	300	57	47	167	340	202	230	66	72	280
6	42	32	214	49	49	147	300	178	202	74	58	167
7	52	42	178	52	62	138	245	167	230	70	39	128
8	73	35	147	52	60	147	214	147	189	64	44	107
9	52	37	202	55	55	147	189	214	178	167	37	167
10	52	42	320	44	55	167	202	230	1,700	138	39	138
11	49	47	245	44	52	202	214	1,280	680	105	57	110
12	44	42	178	49	62	430	214	815	3,840	82	47	147
13	49	34	157	52	78	1,280	455	712	1,040	72	42	107
14	47	34	128	49	93	1,700	455	1,440	1,040	64	47	84
15	47	34	110	49	93	1,120	360	852	712	61	44	70
16	73	37	110	49	103	745	280	620	560	56	39	57
17	52	42	107	55	455	505	245	455	405	53	37	49
18	52	44	90	47	340	382	230	360	320	53	34	47
19	47	44	87	49	360	320	214	280	262	43	37	44
20	49	52	78	52	680	280	178	455	202	51	47	32
21	47	49	78	49	505	214	189	5,850	178	560	32	32
22	44	49	78	52	360	230	189	4,040	157	92	70	34
23	44	49	75	52	320	214	189	1,440	138	66	55	107
24	44	47	68	49	280	189	189	2,770	119	48	42	93
25	42	60	68	49	965	620	214	1,440	119	51	47	103
26	42	60	65	49	890	455	320	2,680	119	53	49	75
27	39	60	65	52	620	455	320	5,300	98	51	39	96
28	47	78	65	52	455	560	890	1,520	82	51	49	178
29	44	75	65	52	------	2,320	890	890	82	61	39	128
30	39	100	52	55	------	2,410	560	620	82	64	39	100
31	32	------	52	49	------	1,280	------	505	------	58	49	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	73	32	46.9	0.061	0.07
November	100	32	47.0	.061	.07
December	430	52	130	.169	.19
January	57	44	50.8	.066	.08
February	965	47	259	.338	.35
March	2,410	138	575	.750	.86
April	890	178	355	.463	.52
May	5,850	147	1,190	1.55	1.79
June	3,840	82	476	.621	.69
July	560	43	85.5	.111	.13
August	245	32	52.2	.068	.08
September	650	32	149	.194	.22
The year	5,850	32	285	.372	5.05

BIG RIVER AT BYRNESVILLE, MO.

LOCATION.—Chain gage in SE. ¼ sec. 12, T. 42 N., R. 3 E., at highway bridge 200 feet below dam and mill at Byrnesville.

DRAINAGE AREA.—892 square miles.

RECORDS AVAILABLE.—May, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,940 second-feet Apr. 21 (gage height, 10.10 feet); minimum, 34 second-feet July 18 (gage height, 1.82 feet).

1922–1931: Maximum discharge, 21,900 second-feet Apr. 2, 1927 (gage height, 22.63 feet); minimum discharge, that of July 18, 1931; minimum gage height, 1.80 feet Aug. 5, 1930.

Maximum stage known, 30.2 feet in August, 1915 (discharge, about 80,000 second-feet).

REMARKS.—Records good except those for discharges below 200 second-feet, which are fair, owing to regulation by gristmills upstream.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	83	101	173	101	114	182	464	678	238	69	70	305
2	95	101	182	95	107	173	396	558	226	65	68	1,120
3	89	95	173	95	107	164	350	482	204	68	62	2,460
4	78	107	164	107	107	155	320	412	192	78	57	980
5	78	107	182	114	114	155	290	380	173	83	55	482
6	78	101	204	114	114	155	263	365	146	95	57	290
7	95	107	250	114	121	182	238	596	173	107	56	215
8	290	107	250	114	121	238	215	936	558	114	50	173
9	520	114	250	107	121	1,640	215	936	637	95	52	146
10	482	114	238	107	121	1,020	226	892	936	89	55	129
11	305	129	204	114	121	805	290	762	350	83	53	107
12	238	129	182	114	121	678	320	720	305	72	48	89
13	182	129	173	121	164	558	320	678	263	68	72	89
14	164	137	173	114	182	482	290	637	226	68	83	78
15	146	129	155	114	238	396	848	520	204	62	72	78
16	146	146	146	114	396	335	520	446	173	63	61	67
17	129	164	137	107	365	305	464	380	164	59	54	64
18	121	155	137	129	320	276	482	350	155	42	49	65
19	114	155	137	137	429	250	464	320	129	38	44	61
20	114	164	129	137	429	238	1,210	305	137	45	107	55
21	114	146	129	129	365	238	3,940	305	121	114	192	47
22	114	146	129	129	305	238	1,980	365	121	72	380	47
23	114	146	129	121	276	276	1,580	429	107	596	226	68
24	107	137	114	121	250	290	1,070	380	101	290	121	61
25	114	146	114	129	226	305	848	350	101	720	121	69
26	107	129	121	129	215	305	1,210	335	101	305	107	89
27	107	129	114	121	204	290	1,860	380	101	164	95	83
28	114	129	114	114	192	350	1,530	350	95	121	95	89
29	114	129	121	121	------	446	1,020	320	83	101	350	83
30	114	155	114	114	------	637	805	276	72	95	678	70
31	107	------	107	114	------	558	------	250	------	83	226	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	520	78	154	0.173	0.20
November	164	95	129	.145	.16
December	250	107	160	.179	.21
January	137	95	116	.130	.15
February	429	107	212	.238	.25
March	1,640	155	397	.445	.51
April	3,940	215	801	.898	1.00
May	936	250	487	.546	.63
June	936	72	220	.247	.28
July	720	38	133	.149	.17
August	678	44	123	.138	.16
September	2,460	47	259	.290	.32
The year	3,940	38	265	.297	4.04

HEADWATER DIVERSION CHANNEL BASIN

CASTOR RIVER AT ZALMA, MO.

LOCATION.—Chain gage in S. ½ sec. 29, T. 29 N., R. 9 E., at bridge on State highway 51 in Zalma. Zero of gage is about 350 feet above mean sea level.
DRAINAGE AREA.—395 square miles.
RECORDS AVAILABLE.—September, 1921, to September, 1931.
EXTREMES.—Maximum discharge during year, 3,800 second-feet Mar. 8 (gage height, 16.10 feet); minimum, 36 second-feet Sept. 21, 25, 29, 30.

1921–1931: Maximum discharge, 19,400 second-feet Dec. 14, 1927 (gage height, 26.50 feet); minimum discharge, 30 second-feet Aug. 31, 1924; minimum gage height, 1.06 feet Sept. 21, 30, 1931.

Maximum stage known, 28.0 feet in August, 1915 (discharge, about 30,000 second-feet).
REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	52	63	102	75	72	160	256	540	134	50	44	63
2	50	63	108	75	75	160	240	483	120	50	44	57
3	50	69	102	75	69	140	225	429	108	52	47	57
4	47	66	102	75	69	140	225	375	96	54	50	72
5	47	69	114	75	69	134	210	321	96	63	52	75
6	47	66	140	75	69	120	210	429	96	60	57	72
7	52	66	160	72	72	740	188	580	134	57	60	66
8	75	66	153	75	102	3,800	180	521	120	54	82	54
9	160	66	146	78	580	1,830	153	465	108	54	91	60
10	134	66	140	75	560	1,020	288	393	96	50	69	54
11	96	66	134	75	375	660	2,460	375	91	50	60	44
12	82	69	120	78	339	540	1,490	339	86	42	63	50
13	75	72	114	86	357	447	922	304	82	44	60	50
14	72	72	102	86	1,070	393	740	272	78	44	50	50
15	66	72	102	86	740	321	806	272	75	40	54	50
16	66	108	86	86	540	288	620	240	75	40	50	44
17	66	108	86	82	502	256	521	225	75	42	47	40
18	69	108	91	82	447	240	447	188	72	47	47	40
19	69	102	86	86	393	225	375	173	63	44	60	42
20	69	96	82	82	339	195	357	195	66	40	72	38
21	66	96	82	82	304	195	393	240	54	52	66	36
22	63	91	78	82	288	225	447	195	57	52	63	44
23	69	91	78	78	272	195	411	210	60	78	60	44
24	69	86	78	82	225	180	375	210	57	78	63	42
25	72	82	75	78	225	166	357	210	57	72	60	36
26	69	82	82	72	188	153	1,330	195	57	69	57	52
27	69	75	82	75	173	225	1,510	188	54	63	57	38
28	69	75	82	82	166	225	994	166	52	54	63	44
29	66	75	78	75	------	288	720	146	52	57	72	36
30	63	91	75	78	------	288	600	146	52	54	78	36
31	63	------	75	75	------	256	------	146	------	47	72	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	160	47	70.4	0.178	0.21
November	108	63	79.2	.201	.22
December	160	75	101	.256	.30
January	86	72	78.6	.199	.23
February	1,070	69	310	.785	.82
March	3,800	120	458	1.16	1.34
April	2,460	153	602	1.52	1.70
May	580	146	296	.749	.86
June	134	52	80.8	.205	.23
July	78	40	53.3	.135	.16
August	91	44	60.3	.153	.18
September	75	36	49.5	.125	.14
The year	3,800	36	185	.468	6.39

OBION RIVER BASIN

SOUTH FORK OF OBION RIVER NEAR GREENFIELD, TENN.

LOCATION.—Staff gage at bridge on State highway 43, 2½ miles south of Greenfield, Weakley County, and 10 miles above confluence with Middle Fork.

DRAINAGE AREA.—431 square miles.

RECORDS AVAILABLE.—July, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,470 second-feet Mar. 28 (gage height, 12.16 feet); minimum discharge, 101 second-feet Aug. 3, Sept. 21; minimum gage height, 1.55 feet Oct. 16.

1929–1931: Maximum discharge, 12,800 second-feet Jan. 10, 1930 (gage height, 15.52 feet); minimum, 97 second-feet Aug. 1–3, 13, 14, Sept. 1–7, 21–25, 1930 (gage height, 1.5 feet).

REMARKS.—Records fair. Discharge estimated July 9–13, 15, Sept. 16–20, 22–27.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	109	121	216	181	160	1,730	1,640	230	128	121	109	103
2	109	115	202	174	160	876	1,440	275	128	140	103	614
3	109	115	167	167	147	436	614	230	128	181	101	369
4	109	115	147	154	147	337	419	216	121	188	167	140
5	103	115	174	453	147	290	305	216	121	188	128	121
6	103	115	154	321	147	260	260	230	121	230	1,410	115
7	103	115	147	245	147	1,440	230	230	121	154	1,230	103
8	121	115	140	260	160	1,730	216	216	121	128	854	103
9	174	115	147	230	1,640	1,550	202	202	128	120	470	103
10	128	337	154	202	1,440	942	202	202	121	115	275	109
11	121	202	154	188	1,130	542	260	188	115	115	147	109
12	115	188	154	245	854	275	202	188	121	115	245	103
13	109	160	140	216	1,500	260	188	188	167	115	147	103
14	103	154	154	216	1,530	245	181	188	154	121	121	103
15	103	275	167	202	1,230	230	174	167	140	130	115	103
16	103	488	181	181	832	216	167	160	154	353	134	103
17	147	216	181	181	964	202	160	147	128	128	128	103
18	140	154	181	181	810	202	147	140	115	147	140	103
19	115	147	181	202	436	216	154	134	109	109	188	103
20	109	128	174	188	436	216	147	188	121	134	290	102
21	103	121	174	188	353	369	174	202	121	750	181	101
22	103	115	174	188	230	632	524	154	115	614	154	102
23	115	115	167	188	230	353	290	147	188	402	147	103
24	134	121	154	188	216	305	181	140	385	470	147	103
25	115	128	167	181	1,700	260	154	140	160	174	128	103
26	115	128	632	174	1,280	216	964	134	121	128	115	103
27	147	128	385	160	506	1,530	614	134	115	121	115	103
28	290	121	290	160	560	2,280	337	134	115	121	181	103
29	160	121	202	160	------	1,640	260	128	115	115	275	103
30	140	290	181	160	------	1,530	245	128	115	109	147	103
31	134	------	181	160	------	854	------	128	------	109	109	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	290	103	125	0.290	0.33
November	488	115	163	.378	.42
December	632	140	194	.450	.52
January	453	154	203	.471	.54
February	1,700	147	682	1.58	1.64
March	2,280	202	715	1.66	1.91
April	1,640	147	368	.854	.95
May	275	128	178	.413	.48
June	385	109	137	.318	.35
July	750	109	198	.459	.53
August	1,410	101	265	.615	.71
September	614	101	131	.304	.34
The year	2,280	101	278	.645	8.72

OBION RIVER AT OBION, TENN.

LOCATION.—Chain gage at toll bridge on State highway 3, one-fourth mile south of Obion, Obion County, and 7 miles below mouth of North Fork.

DRAINAGE AREA.—1,880 square miles.

RECORDS AVAILABLE.—July, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,570 second-feet Apr. 2 (gage height, 22.4 feet); minimum, 317 second-feet Sept. 21 (gage height, 10.22 feet).

1929–1931: Maximum discharge, 47,000 second-feet Jan. 11, 1930 (gage height, 31.9 feet); minimum discharge, 311 second-feet several days during August and September, 1930; minimum gage height, that of Sept. 21, 1931.

REMARKS.—Records poor. Some possibility of backwater from Mississippi River during extremely high stages on both rivers.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	352	431	552	648	536	1,700	2,510	1,370	403	377	364	475
2	364	417	600	568	536	1,660	2,570	747	417	536	352	431
3	340	417	600	536	536	1,640	2,540	713	403	798	352	1,350
4	364	417	536	520	505	1,580	2,490	680	390	990	403	1,510
5	352	431	536	536	505	1,420	2,460	616	390	849	747	1,460
6	364	431	600	568	505	1,170	2,410	648	377	648	1,490	1,190
7	364	431	764	664	505	954	2,360	713	568	600	1,790	936
8	377	431	781	713	520	1,480	1,770	680	632	536	1,810	648
9	403	431	680	730	713	1,720	1,350	632	568	445	1,660	460
10	505	445	584	747	1,330	1,810	1,100	616	431	403	1,580	417
11	460	520	552	680	1,480	1,850	1,260	584	377	377	1,420	390
12	417	664	536	632	1,510	1,750	1,190	568	364	364	1,080	377
13	403	648	552	616	1,570	1,480	990	536	364	340	747	377
14	377	600	536	648	1,680	1,170	815	552	832	352	536	377
15	377	536	520	632	1,750	900	730	536	781	340	445	364
16	377	536	520	584	1,770	747	648	505	747	352	403	364
17	390	713	536	536	1,810	680	600	490	883	403	390	364
18	403	815	552	536	1,770	648	584	475	600	445	417	364
19	431	764	568	600	1,730	616	552	475	417	403	568	352
20	417	664	568	648	1,580	632	552	475	364	377	632	340
21	403	584	552	664	1,240	632	1,010	505	364	403	648	317
22	390	536	536	616	972	764	1,190	505	364	664	648	340
23	417	520	520	568	815	954	1,100	490	377	1,060	552	352
24	445	490	505	552	764	1,080	1,010	445	584	1,260	445	364
25	490	475	505	536	832	972	900	431	781	1,120	390	340
26	475	475	552	536	1,300	900	1,300	431	600	1,030	377	352
27	445	475	900	536	1,530	1,060	1,620	445	445	781	377	340
28	445	475	1,040	536	1,700	1,870	1,660	445	403	584	403	340
29	568	475	1,010	536	-------	1,990	1,570	431	364	475	616	340
30	584	490	866	536	-------	2,120	1,530	417	364	403	713	340
31	490	-------	730	536	-------	2,330	-------	417	-------	377	600	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	584	340	419	0.223	0.26
November	815	417	525	.279	.31
December	1,040	505	625	.332	.38
January	747	520	597	.318	.37
February	1,810	505	1,140	.606	.63
March	2,330	616	1,300	.691	.80
April	2,570	552	1,410	.750	.84
May	1,370	417	567	.302	.35
June	883	364	498	.265	.30
July	1,260	340	584	.311	.36
August	1,810	352	740	.394	.45
September	1,510	317	532	.283	.32
The year	2,570	317	742	.395	5.37

RUTHERFORD FORK OF OBION RIVER NEAR BRADFORD, TENN.

LOCATION.—Chain gage at bridge on old State highway 54, 5½ miles southwest of Bradford, Gibson County, and 17 miles above confluence with South Fork.
DRAINAGE AREA.—190 square miles.
RECORDS AVAILABLE.—July, 1929, to September, 1931.
EXTREMES.—Maximum discharge during year, 1,770 second-feet Mar. 27 (gage height, 8.98 feet); minimum, 12 second-feet June 30, July 1 (gage height, 0.99 foot).
1929–1931: Maximum discharge, 7,650 second-feet Jan. 9, 1930 (gage height, 18.10 feet); minimum, that of June 30, July 1, 1931.
REMARKS.—Records fair. Discharge interpolated Apr. 6, 7.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	28	52	34	22	242	785	41	16	16	20	14
2	24	30	44	31	22	188	446	36	16	47	19	217
3	23	32	40	33	24	110	249	33	15	266	19	100
4	24	32	42	36	22	60	201	32	16	114	80	30
5	24	32	67	41	22	28	107	35	16	74	114	19
6	24	31	80	48	22	110	95	49	15	40	283	18
7	24	26	60	56	21	1,110	82	56	14	24	164	16
8	49	28	47	128	179	465	70	50	14	20	335	15
9	36	58	39	68	778	300	59	45	14	19	266	14
10	32	97	38	60	215	178	60	41	14	18	42	14
11	33	61	38	41	128	93	65	36	14	17	26	14
12	31	40	32	51	128	82	63	37	14	19	24	15
13	30	41	34	58	802	72	55	35	22	19	22	16
14	28	42	37	55	320	65	47	33	18	19	20	16
15	27	64	34	48	162	60	44	31	16	18	17	15
16	27	179	38	42	162	49	40	27	16	18	16	15
17	27	61	52	42	280	52	37	24	16	17	16	16
18	27	42	51	44	197	52	34	22	16	19	16	16
19	24	37	44	41	97	47	32	22	15	16	18	16
20	22	38	39	38	45	44	33	25	14	107	149	15
21	21	38	32	32	31	107	44	25	14	705	82	17
22	26	38	29	29	28	164	39	23	14	194	32	15
23	33	37	27	27	23	142	36	22	22	505	17	15
24	33	34	28	26	136	80	34	22	55	86	16	15
25	33	32	153	25	826	72	54	21	22	64	14	15
26	33	29	188	24	420	56	283	20	17	65	14	16
27	39	27	66	25	215	1,100	156	19	14	64	16	16
28	42	25	47	24	380	1,040	85	19	13	38	171	15
29	37	36	37	24	------	545	52	17	13	26	83	16
30	31	52	41	24	------	233	40	16	12	25	23	15
31	28	------	37	23	------	149	------	18	------	22	18	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	49	21	29.5	0.155	0.18
November	179	25	44.9	.236	.26
December	188	27	51.4	.271	.31
January	128	23	41.2	.217	.25
February	826	21	204	1.07	1.11
March	1,110	28	229	1.21	1.40
April	785	32	114	.600	.67
May	56	16	30.1	.158	.18
June	55	12	15.9	.084	.09
July	705	16	87.1	.458	.53
August	335	14	69.4	.365	.42
September	217	14	25.5	.134	.15
The year	1,110	12	77.9	.410	5.55

NORTH FORK OF OBION RIVER NEAR UNION CITY, TENN.

LOCATION.—Staff gage at bridge on State highway 22, 4½ miles southeast of Union City, Obion County, and 9 miles above confluence with Obion River.
DRAINAGE AREA.—490 square miles.
RECORDS AVAILABLE.—July, 1929, to September, 1931.
EXTREMES.—Maximum discharge during year, 1,770 second-feet Mar. 28 (gage height, 10.2 feet); minimum discharge, 85 second-feet Aug. 10, 16, 17, 25–27; minimum gage height, 3.4 feet Aug. 27, Sept. 10.
1929–1931: Maximum discharge, about 13,800 second-feet Jan. 10, 1930 (gage height (estimated), 19.7 feet); minimum, that of August, 1931.
REMARKS.—Records fair to poor.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	100	92	202	178	146	381	454	202	138	108	100	100
2	100	92	122	170	146	311	399	243	138	277	108	115
3	100	100	130	170	146	243	210	210	138	345	108	1,230
4	100	92	122	170	146	186	210	178	130	311	108	454
5	100	92	210	178	146	178	194	170	122	186	202	202
6	100	92	243	178	146	178	178	210	122	210	1,120	178
7	100	108	186	178	146	345	154	210	311	186	243	130
8	100	92	170	170	178	435	146	202	243	130	130	115
9	130	92	146	170	630	345	146	186	154	122	92	100
10	115	154	138	170	226	277	511	186	138	115	85	100
11	100	138	138	186	194	243	609	178	130	108	100	100
12	100	130	154	178	178	210	328	178	122	108	122	100
13	100	146	138	170	345	194	194	202	1,140	108	115	100
14	100	138	138	154	277	178	170	186	417	108	108	100
15	100	122	138	154	186	178	162	170	1,650	100	100	100
16	108	146	138	154	186	178	146	170	904	122	85	100
17	122	170	138	154	186	178	146	154	243	108	85	100
18	115	122	130	162	186	178	146	138	138	100	194	100
19	100	122	130	186	178	178	146	138	130	108	454	100
20	100	115	138	186	178	178	146	243	138	108	243	100
21	100	146	138	178	170	178	454	202	138	115	194	92
22	100	130	162	170	170	260	311	170	122	243	100	92
23	115	130	154	170	170	194	210	162	130	122	100	92
24	122	122	162	162	170	194	162	154	651	122	92	92
25	115	122	170	154	186	178	162	154	186	122	85	92
26	108	122	243	154	178	194	1,330	146	130	122	85	100
27	122	115	345	146	178	435	855	138	122	115	85	100
28	170	115	277	146	186	1,770	569	138	108	108	226	100
29	138	115	178	146	-------	589	243	138	108	100	381	92
30	122	170	178	146	-------	473	202	138	108	100	294	92
31	115	-------	178	146	-------	328	-------	138	-------	100	243	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	170	100	110	0.224	0.26
November	170	92	121	.247	.28
December	345	122	169	.345	.40
January	186	146	166	.339	.39
February	630	146	195	.398	.41
March	1,770	178	309	.631	.73
April	1,330	146	310	.633	.71
May	243	138	175	.357	.41
June	1,650	108	282	.576	.64
July	345	100	143	.292	.34
August	1,120	85	187	.382	.44
September	1,230	92	156	.318	.35
The year	1,770	85	193	.394	5.36

SOUTH FORK OF FORKED DEER RIVER AT JACKSON, TENN.

LOCATION.—Staff gage at bridge on State highway 5, half a mile south of Jackson, Madison County.

DRAINAGE AREA.—574 square miles.

RECORDS AVAILABLE.—July, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 4,930 second-feet Aug. 8 (gage height, 15.00 feet); minimum discharge, 98 second-feet Aug. 1, 2, 25, Sept. 19, 24–27; minimum gage height, 2.02 feet Oct. 3–7.

1929–1931: Maximum discharge, 16,000 second-feet Jan. 9, 10, 1930 (gage height, 19.00 feet); minimum discharge, that of Aug. 1, 2, 25, Sept. 19, 24–27, 1931; minimum gage height, 1.58 feet July 9, 1929.

REMARKS.—Records fair. Discharge estimated Nov. 15.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	126	158	354	314	219	2,890	3,310	275	133	191	98	126
2	118	166	246	275	210	1,870	1,830	334	133	616	98	334
3	118	166	228	275	210	1,140	1,440	275	133	437	111	416
4	118	166	219	314	210	738	547	228	133	275	111	201
5	118	166	416	547	201	570	547	246	133	395	1,300	141
6	118	166	616	593	201	502	458	502	118	570	1,540	183
7	126	166	334	374	201	1,680	395	437	118	900	2,890	158
8	2,110	166	275	928	275	1,990	354	314	118	416	4,840	141
9	354	210	246	547	2,470	1,580	314	395	118	183	4,530	133
10	219	458	237	395	958	988	334	334	118	149	3,020	126
11	191	416	275	354	480	593	334	256	118	133	3,210	126
12	178	334	294	712	395	480	294	237	118	126	1,870	111
13	178	275	246	524	1,330	437	275	219	166	104	872	126
14	178	334	237	374	2,390	480	275	219	149	246	210	126
15	166	500	237	256	1,270	593	275	201	133	118	158	111
16	166	640	416	275	738	437	275	183	141	104	141	111
17	256	395	294	334	1,870	374	275	183	133	104	126	111
18	201	294	314	354	958	354	256	166	118	104	118	111
19	166	256	354	334	640	374	246	166	118	354	149	98
20	166	237	294	294	547	334	246	256	118	118	183	111
21	158	294	256	256	437	395	593	201	118	640	183	111
22	158	256	237	256	395	712	1,230	183	104	374	166	111
23	191	228	228	256	374	437	570	183	210	3,020	133	104
24	219	219	219	246	1,080	458	395	166	294	3,360	104	98
25	178	210	275	246	4,530	374	374	166	133	1,300	98	98
26	166	201	2,310	237	4,170	294	294	166	118	790	149	98
27	201	201	1,020	256	2,590	2,070	275	166	104	480	141	98
28	354	191	593	246	2,470	3,980	256	149	104	237	334	104
29	210	191	640	237	-------	2,070	256	133	104	178	764	104
30	178	354	416	228	-------	1,270	246	133	104	158	210	104
31	166	-------	334	228	-------	1,170	-------	149	-------	104	141	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	2,110	118	244	0.425	0.49
November	640	158	267	.465	.52
December	2,310	219	408	.711	.82
January	928	228	357	.622	.72
February	4,530	201	1,140	1.99	2.07
March	3,980	294	1,020	1.78	2.05
April	3,310	246	559	.974	1.09
May	502	133	233	.406	.47
June	294	104	132	.230	.26
July	3,360	104	525	.915	1.05
August	4,840	98	903	1.57	1.81
September	416	98	138	.240	.27
The year	4,840	98	491	.855	11.62

SOUTH FORK OF FORKED DEER RIVER AT CHESTNUT BLUFF, TENN.

LOCATION.—Staff gage at highway bridge 1 mile west of Chestnut Bluff, Crockett County, and 12 miles above confluence with North Fork of Forked Deer River.

DRAINAGE AREA.—1,080 square miles.

RECORDS AVAILABLE.—July, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 4,230 second-feet Mar. 3 (gage height, 15.2 feet); minimum discharge, 217 second-feet Sept. 21–30; minimum gage height, 3.35 feet Oct. 3–7.

1929–1931: Maximum discharge, 15,600 second-feet Jan. 11, 1930 (gage height, 20.2 feet); minimum, 195 second-feet Aug. 5–13, 1930 (gage height, 3.2 feet).

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	228	274	445	521	298	3,980	3,220	417	310	286	298	403
2	228	262	460	431	286	4,140	2,980	445	310	431	286	445
3	228	274	375	375	274	4,230	2,860	475	298	729	274	830
4	228	286	349	362	274	3,980	2,740	445	286	673	262	710
5	228	286	336	389	274	2,800	1,880	403	286	445	431	445
6	228	286	460	655	274	1,560	1,210	490	286	389	1,520	336
7	228	274	655	710	274	1,300	920	655	286	710	1,800	286
8	431	274	521	710	286	1,920	748	637	286	1,040	2,370	274
9	1,300	274	417	968	1,150	2,370	603	521	274	729	2,470	262
10	748	286	375	809	2,020	2,370	553	569	274	460	2,620	250
11	417	490	349	620	2,220	1,720	553	505	274	336	2,800	250
12	298	505	389	537	1,380	1,210	521	445	274	310	3,100	250
13	262	460	375	710	1,300	944	475	403	310	298	3,470	239
14	262	389	349	655	2,220	768	445	389	349	310	3,900	239
15	250	521	336	537	2,570	729	403	362	310	389	3,340	239
16	250	1,100	375	403	2,680	748	389	362	298	323	1,640	239
17	250	897	445	375	2,020	620	389	349	298	298	1,020	228
18	389	655	417	403	2,070	553	375	336	286	298	729	228
19	323	505	417	417	1,760	521	362	336	286	298	620	228
20	262	375	445	417	1,300	490	349	336	274	375	553	228
21	250	362	389	375	1,020	475	505	375	274	460	537	217
22	250	375	362	349	809	569	710	362	274	852	655	217
23	262	375	336	323	673	748	1,150	336	274	874	460	217
24	286	349	323	323	603	673	897	323	389	1,320	349	217
25	298	336	310	310	2,370	620	691	323	490	2,020	298	217
26	274	323	586	310	3,040	553	691	323	362	2,020	298	217
27	286	310	1,420	310	3,400	1,420	603	323	298	1,450	553	217
28	298	298	1,520	323	3,750	2,370	505	310	286	897	968	217
29	389	286	1,070	310	-------	2,860	460	310	286	586	1,040	217
30	310	310	897	310	-------	3,040	417	310	286	403	920	217
31	286	-------	673	298	-------	3,220	-------	298	-------	336	603	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,300	228	330	0.306	0.35
November	1,100	262	400	.370	.41
December	1,520	310	522	.483	.56
January	968	298	469	.434	.50
February	3,750	274	1,450	1.34	1.40
March	4,230	475	1,730	1.60	1.84
April	3,220	349	953	.882	.98
May	655	298	402	.372	.43
June	490	274	302	.280	.31
July	2,020	286	656	.607	.70
August	3,900	262	1,300	1.20	1.38
September	830	217	293	.271	.30
The year	4,230	217	730	.676	9.16

MIDDLE FORK OF FORKED DEER RIVER NEAR ALAMO, TENN.

LOCATION.—Staff gage at highway bridge on State highway 54, 5 miles north of Alamo, Crockett County, and 15 miles above confluence with North Fork.
DRAINAGE AREA.—410 square miles.
RECORDS AVAILABLE.—July, 1929, to September, 1931.
EXTREMES.—Maximum discharge during year, 3,500 second-feet Aug. 8, 9 (gage height, 11.80 feet); minimum discharge, 87 second-feet several days during October, July, August, and September; minimum gage height, 1.26 feet July 1, 11, 17.

1929–1931: Maximum discharge, 10,000 second-feet Jan. 8, 1930 (gage height, 13.94 feet); minimum discharge, 71 second-feet several days in August, 1930; minimum gage height, that of July 1, 11, 17, 1931.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	87	99	192	160	160	1,080	1,260	168	118	93	87	93
2	87	99	192	153	168	756	870	168	118	124	87	99
3	87	111	131	153	160	400	734	160	118	362	87	176
4	87	111	131	153	160	305	362	153	118	160	87	105
5	87	105	138	184	160	287	251	153	111	105	251	99
6	87	105	251	269	160	269	217	168	111	105	690	99
7	87	105	184	184	160	500	200	217	111	99	625	87
8	131	105	153	381	168	824	192	176	111	99	3,500	87
9	287	138	138	269	2,090	480	176	168	111	93	3,500	99
10	131	176	131	217	824	305	176	176	111	93	400	93
11	118	168	146	184	500	251	217	153	111	87	217	87
12	99	146	160	200	343	234	168	146	111	93	138	87
13	93	138	153	234	646	217	160	146	111	93	124	87
14	93	124	138	184	1,210	217	234	138	118	105	111	87
15	93	234	138	176	824	208	168	138	118	93	105	93
16	93	646	146	168	287	200	176	138	176	93	105	93
17	105	184	153	168	893	192	176	138	118	87	99	93
18	99	138	153	192	690	192	160	131	111	208	99	87
19	99	124	146	192	343	192	160	124	111	99	99	93
20	93	118	176	184	287	192	251	131	111	93	99	93
21	93	131	146	168	251	192	184	146	217	583	118	93
22	93	124	146	160	234	362	541	138	99	192	111	87
23	131	124	138	160	217	269	251	131	99	2,700	99	87
24	131	124	138	160	217	234	192	124	400	734	93	87
25	111	124	138	153	3,380	208	184	124	160	234	87	87
26	105	124	778	160	1,080	192	287	124	111	131	93	93
27	105	124	562	160	988	916	251	118	105	105	208	93
28	124	118	234	153	520	2,410	192	118	99	105	604	93
29	118	124	208	153	------	1,210	176	118	93	105	176	93
30	111	146	192	153	------	1,260	168	118	93	93	105	93
31	105	------	168	153	------	520	------	124	------	87	93	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	287	87	109	0.266	0.31
November	646	99	148	.361	.40
December	778	131	193	.471	.54
January	381	153	185	.451	.52
February	3,380	160	611	1.49	1.55
March	2,410	192	486	1.19	1.37
April	1,260	160	291	.710	.79
May	217	118	144	.351	.40
June	400	93	127	.310	.35
July	2,700	87	240	.585	.67
August	3,500	87	397	.968	1.12
September	176	87	94.8	.231	.26
The year	3,500	87	250	.610	8.28

HATCHIE RIVER BASIN

HATCHIE RIVER NEAR BOLIVAR, TENN.

LOCATION.—Staff gage at highway bridge on State highway 18, about 300 feet upstream from Illinois Central Railroad bridge, 2,000 feet below mouth of Spring Creek, and 1 mile north of Bolivar, Hardeman County.

DRAINAGE AREA.—1,430 square miles.

RECORDS AVAILABLE.—July, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 8,860 second-feet Aug. 8, 11, 12 (gage height, 14.9 feet); minimum, 152 second-feet Sept. 27–30 (gage height, 1.3 feet).

1929–1931: Maximum discharge, 16,800 second-feet Jan. 9, 1930 (gage height, 16.18 feet); minimum, 134 second-feet Aug. 12–14, 1930 (gage height, 1.1 feet).

REMARKS.—Records fair. Discharge interpolated Sept. 14–22.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	340	340	722	2,210	680	5,780	4,400	916	322	184	376	1,160
2	322	304	938	1,540	638	6,740	4,780	938	288	212	304	701
3	288	304	982	1,250	596	7,480	5,000	1,250	272	828	288	513
4	272	304	872	1,030	575	7,100	5,240	1,440	256	1,160	272	414
5	256	304	806	1,030	575	7,100	5,500	1,250	240	1,250	272	473
6	256	322	1,030	1,210	575	6,400	5,500	1,230	240	1,280	473	554
7	256	322	1,690	1,940	575	6,400	5,240	1,490	226	1,970	2,960	414
8	617	322	1,940	2,280	575	6,400	4,780	1,840	212	2,150	8,360	322
9	575	304	2,000	2,460	982	6,080	4,240	2,060	212	1,720	5,780	288
10	722	358	1,720	2,650	1,300	5,000	3,540	2,090	198	894	5,000	256
11	722	433	1,350	2,700	1,300	4,400	2,600	2,030	198	433	7,900	256
12	596	533	1,120	2,760	1,120	3,970	1,970	1,940	198	322	8,860	240
13	433	1,280	1,030	2,550	1,120	3,440	1,520	1,720	198	272	7,480	226
14	433	1,300	982	2,420	1,760	2,760	1,250	1,400	212	240	6,400	220
15	376	1,470	916	2,210	2,340	2,280	1,070	1,050	212	226	5,000	215
16	304	1,840	872	2,000	2,650	2,000	960	1,160	358	212	3,640	205
17	272	2,180	850	1,760	3,020	1,790	764	1,320	596	226	2,380	200
18	272	2,380	894	1,660	3,100	1,560	617	916	1,120	304	1,640	195
19	272	2,460	916	1,300	3,020	1,370	575	743	1,300	272	828	190
20	272	2,210	938	1,320	2,820	1,230	575	722	916	256	617	185
21	272	2,000	916	1,250	2,460	1,160	764	722	617	982	1,090	175
22	272	1,560	828	1,120	2,060	1,230	1,520	743	304	1,790	1,370	170
23	272	1,320	743	1,000	1,690	1,400	2,150	764	272	2,150	1,090	164
24	272	1,300	680	894	1,740	1,420	2,460	554	240	2,310	722	164
25	288	1,090	638	850	3,440	1,370	2,500	453	414	2,120	473	158
26	288	1,140	1,250	806	4,400	1,350	2,240	433	453	1,740	617	158
27	288	938	1,820	785	4,240	1,620	1,740	395	304	1,350	1,300	158
28	304	701	2,310	785	4,580	2,760	1,620	395	256	1,050	1,890	152
29	376	554	2,600	764	-------	3,350	1,370	358	212	638	2,000	152
30	395	638	2,650	764	-------	3,440	1,090	340	198	533	1,920	152
31	376	-------	2,600	722	-------	3,640	-------	322	-------	358	1,720	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	722	256	363	0.254	0.29
November	2,460	304	1,020	.713	.80
December	2,650	638	1,280	.895	1.03
January	2,760	722	1,550	1.08	1.24
February	4,580	575	1,930	1.35	1.41
March	7,480	1,160	3,610	2.52	2.90
April	5,500	575	2,590	1.81	2.02
May	2,090	322	1,060	.741	.85
June	1,300	198	368	.257	.29
July	2,310	184	949	.664	.77
August	8,860	272	2,680	1.87	2.16
September	1,160	152	294	.206	.23
The year	8,860	152	1,470	1.03	13.99

HATCHIE RIVER NEAR STANTON, TENN.

LOCATION.—Staff gage at bridge on State highway 1, 1 mile below Nashville, Chattanooga & St. Louis Railway bridge and 4 miles north of Stanton, Haywood County.

DRAINAGE AREA.—1,940 square miles.

RECORDS AVAILABLE.—July, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 10,800 second-feet Aug. 16; maximum gage height, 15.6 feet Mar. 7, 8; minimum discharge, 360 second-feet Sept. 29, 30; minimum gage height, 2.44 feet Sept. 30.

1929–1931: Maximum discharge, about 36,400 second-feet Jan. 9, 1930 (gage height, 18.8 feet); minimum, 308 second-feet Aug. 12–15, 1930 (gage height, 2.1 feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	880	553	960	2,140	1,000	4,390	3,630	2,140	619	490	1,040	1,900
2	760	553	920	2,250	960	4,490	3,860	1,840	602	490	880	1,960
3	653	537	920	2,330	940	4,600	4,020	1,540	585	619	780	1,930
4	585	521	940	2,410	920	5,030	4,290	1,390	569	688	688	1,690
5	619	505	1,000	2,410	900	5,760	4,600	1,340	553	920	653	1,260
6	505	505	1,090	2,140	880	7,360	4,720	1,420	537	1,020	1,120	980
7	490	505	1,160	1,900	840	8,390	5,030	1,520	505	1,260	1,930	900
8	537	505	1,190	1,750	840	8,390	5,230	1,520	490	1,390	1,930	860
9	880	505	1,320	1,840	1,420	7,860	5,230	1,520	475	1,460	2,330	780
10	1,020	505	1,490	2,020	2,080	7,860	5,470	1,600	460	1,600	2,680	688
11	1,040	521	1,720	2,110	2,050	7,360	5,470	1,780	460	1,720	3,290	619
12	920	585	1,840	2,290	1,870	6,900	5,030	1,930	445	1,720	3,940	585
13	840	653	1,810	2,370	1,810	6,100	4,720	2,020	445	1,360	4,860	553
14	780	760	1,600	2,530	2,330	5,470	4,490	2,170	445	980	6,480	537
15	688	900	1,390	2,580	2,530	5,030	4,110	2,080	460	742	9,540	521
16	619	1,220	1,290	2,680	2,450	4,720	3,630	1,960	445	619	10,800	505
17	569	1,420	1,220	2,680	2,450	4,490	2,830	1,630	475	569	10,200	475
18	537	1,540	1,160	2,680	2,630	4,290	2,050	1,340	537	537	9,540	475
19	521	1,660	1,120	2,630	2,680	3,940	1,520	1,140	653	537	8,390	460
20	505	1,810	1,090	2,410	2,730	3,560	1,340	1,000	800	569	8,390	445
21	490	1,900	1,090	2,080	2,780	2,990	1,240	900	920	602	6,480	430
22	475	2,020	1,090	1,750	2,880	2,450	1,220	860	940	880	4,490	416
23	475	2,080	1,060	1,600	2,930	2,080	1,240	820	860	1,020	3,050	402
24	475	2,110	1,040	1,490	3,110	1,900	1,420	860	760	1,260	2,020	402
25	475	1,990	1,020	1,390	3,700	1,780	1,690	880	688	1,570	1,570	388
26	475	1,690	1,120	1,260	4,490	1,750	1,960	860	636	1,840	1,340	388
27	490	1,490	1,420	1,160	4,390	2,020	2,110	800	619	1,960	1,140	374
28	505	1,290	1,570	1,120	4,290	2,990	2,250	724	636	1,990	1,120	374
29	537	1,120	1,750	1,060	-------	3,420	2,370	688	585	1,900	1,240	360
30	569	1,000	1,900	1,040	-------	3,420	2,370	653	505	1,600	1,540	360
31	553	-------	2,020	1,020	-------	3,440	-------	636	-------	1,320	1,780	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,040	475	628	0.324	0.37
November	2,110	505	1,100	.567	.63
December	2,020	920	1,300	.670	.77
January	2,680	1,020	1,970	1.02	1.18
February	4,490	840	2,250	1.16	1.21
March	8,390	1,750	4,650	2.40	2.77
April	5,470	1,220	3,300	1.70	1.90
May	2,170	636	1,340	.691	.80
June	940	445	590	.304	.34
July	1,990	490	1,140	.588	.68
August	10,800	653	3,720	1.92	2.21
September	1,960	360	734	.378	.42
The year	10,800	360	1,900	.979	13.28

WOLF RIVER BASIN

WOLF RIVER AT ROSSVILLE, TENN.

LOCATION.—Chain gage at county highway bridge half a mile north of Rossville, Fayette County, and 8 miles downstream from Moscow and mouth of North Fork.

DRAINAGE AREA.—531 square miles.

RECORDS AVAILABLE.—July, 1929, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,950 second-feet Aug. 11 (gage height, 8.4 feet); minimum, 136 second-feet Sept. 27–30 (gage height, 2.3 feet).

1929–1931: Maximum discharge, 16,400 second-feet Jan. 9, 1930 (gage height, 11.32 feet); minimum discharge, that of Sept. 27–30, 1931; minimum gage height, 2.24 feet Aug. 12–14, 1930.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	168	189	279	335	213	2,220	1,840	252	159	159	189	226
2	168	189	394	279	213	1,840	1,680	279	168	159	178	201
3	168	178	265	252	213	1,420	1,540	265	159	279	168	394
4	159	178	252	252	213	1,170	1,420	265	159	201	159	472
5	159	178	379	424	201	883	1,060	252	151	456	159	364
6	159	178	521	629	201	610	573	293	151	409	573	424
7	159	178	379	670	201	1,060	379	293	151	849	849	239
8	1,680	178	364	715	265	1,540	335	293	143	960	1,170	189
9	1,680	178	349	692	920	1,680	321	335	143	670	1,420	178
10	960	201	424	538	715	1,680	307	307	143	379	1,680	168
11	456	226	424	488	440	1,320	307	279	143	226	2,680	168
12	265	252	409	538	364	790	279	252	143	189	1,420	178
13	226	252	349	440	488	424	265	226	143	189	692	168
14	201	364	252	349	1,170	379	265	213	143	307	307	168
15	189	764	252	335	1,060	394	252	201	143	279	239	159
16	189	790	252	293	849	364	252	189	409	201	226	159
17	189	591	252	279	883	379	239	189	456	379	213	159
18	178	488	252	265	790	394	239	178	239	364	213	159
19	178	394	252	265	555	321	239	178	252	213	239	151
20	178	364	252	265	456	293	239	201	279	189	265	151
21	178	394	239	265	379	335	279	201	504	213	265	143
22	178	364	239	252	321	349	364	201	591	226	252	143
23	178	293	226	239	307	335	335	226	521	504	213	143
24	189	279	226	239	739	349	394	201	424	849	201	143
25	189	265	279	226	1,840	349	409	189	265	1,060	178	143
26	189	239	849	226	2,020	321	349	178	201	1,170	279	143
27	189	239	883	226	2,020	920	293	168	201	790	321	136
28	213	213	670	226	2,020*	1,420	279	168	178	538	424	136
29	213	213	591	226	-------	1,840	279	168	168	488	739	136
30	201	252	555	226	-------	1,840	252	168	168	349	649	136
31	201	-------	456	226	-------	1,680	-------	159	-------	226	364	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,680	159	317	0.597	0.69
November	790	178	302	.569	.63
December	883	226	380	.716	.83
January	715	226	351	.661	.76
February	2,020	201	716	1.35	1.41
March	2,220	293	932	1.76	2.03
April	1,840	239	509	.959	1.07
May	335	159	225	.424	.49
June	591	143	237	.446	.50
July	1,170	159	435	.819	.94
August	2,680	159	546	1.03	1.19
September	472	136	196	.369	.41
The year	2,680	136	428	.806	10.95

ST. FRANCIS RIVER BASIN

ST. FRANCIS RIVER AT FISK, MO.

LOCATION.—Chain gage in SW. ¼ sec. 28, T. 25 N., R. 8 E., at bridge on State highway 60 at Fisk. Zero of gage is 307.94 feet above mean sea level.

DRAINAGE AREA.—1,370 square miles.

RECORDS AVAILABLE.—October, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 7,800 second-feet Mar. 10 (gage height, 23.18 feet); minimum, 149 second-feet Sept. 20–26, 29, 30.

1928–1931: Maximum discharge, 30,700 second-feet Jan. 16, 1930 (gage height, 26.47 feet); minimum discharge, 125 second-feet Aug. 5, 7–13, 1930; minimum gage height, 1.80 feet Aug. 9–11, 1930.

Maximum stage known, 28.0 feet Apr. 18, 1927 (discharge, about 50,000 second-feet).

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	177	205	290	232	270	540	1,300	1,880	638	198	184	205
2	170	205	311	232	270	527	1,180	1,630	582	198	184	205
3	170	198	311	232	260	501	1,090	1,330	540	183	191	214
4	163	198	366	241	260	449	1,150	1,150	501	223	232	241
5	156	198	388	241	250	423	940	985	449	223	223	290
6	163	198	410	232	260	423	865	955	423	250	205	377
7	163	191	501	232	250	1,670	792	1,200	501	280	311	344
8	170	191	554	232	280	4,440	736	1,610	554	270	423	290
9	280	191	610	232	1,060	6,960	694	1,790	462	241	366	250
10	377	191	596	241	1,590	7,200	708	1,610	423	214	322	232
11	410	191	554	250	1,650	5,540	1,750	1,390	410	205	333	214
12	366	191	540	250	1,480	3,850	2,290	1,200	388	205	311	198
13	322	191	475	260	1,330	2,770	2,050	1,080	366	191	311	191
14	300	191	436	280	1,650	2,230	2,200	970	366	184	223	177
15	280	198	399	280	2,470	1,830	1,460	880	366	184	177	177
16	260	205	377	290	2,290	1,540	1,250	736	423	177	170	170
17	250	232	366	300	1,920	1,280	1,080	750	540	177	170	163
18	241	260	344	300	1,690	1,080	970	666	436	170	170	156
19	241	290	333	311	1,500	940	880	638	488	163	170	156
20	232	311	333	311	1,280	835	806	638	322	170	205	149
21	223	322	300	311	1,150	764	778	652	311	191	223	149
22	223	322	300	311	1,030	835	820	708	280	191	241	149
23	223	333	290	300	925	850	835	764	260	191	290	149
24	232	333	250	300	835	792	865	736	290	232	290	149
25	232	322	270	300	736	736	1,020	722	300	250	250	149
26	232	322	260	300	708	708	1,330	722	241	214	232	149
27	223	300	260	290	652	736	2,320	925	232	198	223	156
28	223	290	260	290	554	985	3,020	880	223	184	241	156
29	214	280	260	290	------	1,140	2,800	835	214	214	241	149
30	205	290	250	290	------	1,330	2,230	764	198	214	232	149
31	205	------	250	280	------	1,370	------	708	------	198	223	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in acre-feet
October	410	156	236	0.172	0.20
November	333	191	245	.179	.20
December	610	250	369	.269	.31
January	311	232	272	.199	.23
February	2,470	250	1,020	.745	.78
March	7,200	423	1,780	1.30	1.50
April	3,020	694	1,340	.978	1.09
May	1,880	638	1,020	.745	.86
June	638	198	391	.285	.32
July	280	163	206	.150	.17
August	423	170	244	.178	.21
September	377	149	197	.144	.16
The year	7,200	149	607	.443	6.03

ST. FRANCIS RIVER AT MARKED TREE, ARK.

LOCATION.—Staff gage in sec. 35, T. 11 N., R. 6 E., at Marked Tree.
RECORDS AVAILABLE.—September, 1927, to September, 1931 (discontinued).
EXTREMES.—Maximum stage during year, 7.1 feet Mar. 29; minimum, 0.5 foot Oct. 16, 17, July 14–17.
1927–1931: Maximum stage, 18.7 feet Feb. 4–6, 1930; minimum, that of 1931.
REMARKS.—Records good. Daily discharge not determined. Gage-height record published by United States Weather Bureau.

Discharge measurements, 1930–31

Date	Gage height	Discharge
	Feet	*Sec.-ft.*
Nov. 20	0.92	281
May 1	4.90	1,510

ST. FRANCIS RIVER FLOODWAY NEAR MARKED TREE, ARK.

LOCATION.—Staff gage in SE. ¼ sec. 10, T. 11 N., R. 6 E., at dam of Poinsett County drainage district No. 7, near Marked Tree.

RECORDS AVAILABLE.—September, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,880 second-feet Mar. 25 (gage height, 21.1 feet); minimum, 125 second-feet Oct. 7, 13–16 (gage height, 10.5 feet).

1927–1931: Maximum discharge, 21,400 second-feet July 5–9, 1928 (gage height, 31.2 feet); minimum, 120 second-feet Sept. 6–8, 1930 (gage height, 10.4 feet).

REMARKS.—Records fair. Gage-height record furnished by Poinsett County Drainage District No. 7.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	215	235	320	380	430	2,250	3,200	2,060	1,120	530	580	910
2	205	235	320	360	430	2,200	3,140	2,150	1,090	480	480	1,030
3	185	245	290	360	430	2,100	3,140	2,150	1,060	505	430	1,090
4	145	245	305	360	430	1,960	3,090	2,100	1,030	505	455	1,090
5	145	245	305	380	430	1,880	3,040	2,100	1,000	505	480	1,180
6	135	245	305	380	430	1,740	2,520	2,150	970	530	505	1,150
7	125	245	340	380	430	1,660	2,870	2,200	910	380	580	1,220
8	215	245	360	405	430	1,620	2,760	2,250	880	360	790	1,180
9	195	245	380	430	630	1,580	2,700	2,300	850	340	790	1,030
10	215	245	380	455	820	1,620	2,650	2,400	910	320	820	970
11	205	245	380	480	1,030	1,740	2,550	2,450	940	305	820	820
12	155	260	380	505	1,250	1,880	2,450	2,550	970	480	820	730
13	125	260	380	480	1,460	2,100	2,350	2,550	970	580	790	680
14	125	260	380	480	1,500	2,300	2,250	2,500	940	580	730	655
15	125	275	380	455	1,580	2,400	2,200	2,400	910	555	680	655
16	125	290	405	455	1,660	2,500	2,060	2,300	850	530	630	630
17	175	305	405	430	1,700	2,550	1,960	2,100	820	505	555	530
18	225	360	405	430	1,700	2,700	1,880	1,960	790	145	480	320
19	245	360	405	455	1,780	2,980	1,830	1,830	730	145	430	305
20	225	340	405	480	1,880	3,140	1,780	1,780	680	145	380	275
21	205	340	405	480	2,010	3,380	1,780	1,780	630	305	360	260
22	205	340	405	455	2,060	3,560	1,740	1,740	605	320	340	245
23	215	340	380	455	2,010	3,740	1,780	1,660	580	480	340	245
24	260	305	360	455	2,010	3,810	1,830	1,620	580	730	340	290
25	340	290	360	455	2,150	3,880	1,880	1,580	580	790	320	340
26	340	275	405	455	2,250	3,810	1,960	1,660	580	760	305	360
27	305	275	405	455	2,250	3,810	1,960	1,580	555	730	305	340
28	260	260	430	455	2,250	3,740	1,960	1,460	555	630	305	320
29	260	260	430	455	------	3,620	1,960	1,360	555	760	305	320
30	260	305	430	430	------	3,440	2,010	1,280	555	705	760	380
31	260	------	405	430	------	3,260	------	1,180	------	630	850	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	340	125	207	12,700
November	360	235	279	16,600
December	430	290	376	23,100
January	505	360	436	26,800
February	2,250	430	1,340	74,400
March	3,880	1,580	2,680	165,000
April	3,200	1,740	2,310	137,000
May	2,550	1,180	1,970	121,000
June	1,120	555	806	48,000
July	790	145	492	30,300
August	850	305	540	33,200
September	1,220	245	652	38,800
The year	3,880	125	1,000	727,000

LITTLE RIVER DITCH NO. 81 NEAR KENNETT, MO.

LOCATION.—Chain gage in NE. ¼ sec. 4, T. 18 N., R. 10 E., at bridge on State highway 84, 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level.

RECORDS AVAILABLE.—October, 1926, to September, 1931, at present site; September, 1921, to September, 1926, at Kirk, 1¼ miles upstream.

EXTREMES.—Maximum discharge during year, 303 second-feet Mar. 8 (gage height, 4.48 feet); minimum, 45 second-feet Oct. 12–15, 18 (gage height, 2.35 feet).

1927–1931: Maximum discharge, 2,760 second-feet Apr. 21, 1927 (gage height, 15.11 feet); minimum, 42 second-feet Sept. 5–8, 1930 (gage height, 2.31 feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	47	48	62	66	62	117	192	141	106	85	66	75
2	47	53	57	66	62	117	179	141	100	85	66	100
3	47	53	57	66	62	117	166	141	100	85	66	117
4	47	53	57	66	62	117	153	135	95	80	66	106
5	48	53	66	70	62	112	141	135	95	80	80	100
6	48	57	66	66	62	112	141	129	90	80	85	90
7	48	53	66	66	66	129	135	141	95	80	75	90
8	53	53	70	75	75	303	135	147	129	75	66	85
9	49	53	66	75	179	261	129	141	117	75	66	80
10	48	57	66	75	261	205	135	135	106	70	80	80
11	48	57	66	75	205	179	135	129	95	70	75	80
12	45	57	66	75	179	166	129	129	95	70	70	80
13	45	53	66	75	166	160	129	123	95	70	70	75
14	45	53	66	70	192	147	123	123	90	70	70	75
15	45	53	66	129	205	141	123	117	90	70	70	70
16	47	57	66	75	179	135	117	112	90	66	70	70
17	49	66	66	70	166	129	117	112	95	66	70	70
18	45	66	66	70	160	129	117	106	85	66	66	70
19	47	57	62	70	153	117	112	112	85	66	66	70
20	47	57	62	70	147	117	112	112	85	66	66	70
21	47	57	62	70	141	129	129	129	85	85	70	70
22	49	57	62	66	135	141	141	117	80	80	66	66
23	62	57	62	66	129	160	135	106	80	85	66	70
24	53	57	62	66	129	153	129	117	90	85	66	70
25	53	57	62	66	123	141	129	117	85	85	62	66
26	53	57	66	70	117	135	147	117	135	80	62	66
27	53	53	66	66	117	153	179	112	112	75	62	66
28	53	53	66	66	117	233	160	100	95	75	100	66
29	48	53	70	62	-------	247	147	95	85	75	85	66
30	48	66	66	62	-------	219	141	100	85	70	80	66
31	48	-------	66	62	-------	192	-------	106	-------	70	80	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	62	45	48.8	May	147	95	122
November	66	48	55.9	June	135	80	95.7
December	70	57	64.4	July	85	66	75.5
January	129	62	70.7	August	100	62	71.2
February	261	62	133	September	117	66	77.5
March	303	112	158				
April	192	112	139	The year	303	45	92.3

LITTLE RIVER DITCH NO. 1 NEAR KENNETT, MO.

LOCATION.—Chain gage in NE. ¼ sec. 4, T. 18 N., R. 10 E., at bridge on State highway 84, 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level.

RECORDS AVAILABLE.—October, 1926, to September, 1931, at present site; September, 1921, to September, 1926, at Kirk, 1¼ miles upstream.

EXTREMES.—Maximum discharge during year, 545 second-feet Mar. 9 (gage height, 5.05 feet); minimum, 16 second-feet Oct. 19–21 (gage height, 2.64 feet).

1927–1931: Maximum discharge, 7,520 second-feet Apr. 25, 1927 (gage height, 16.56 feet); minimum discharge, that of Oct. 19–21, 1930; minimum gage height, 2.62 feet Sept. 8, 1930.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	22	26	33	37	125	330	212	86	61	37	56
2	20	24	26	33	35	125	294	212	82	54	33	96
3	20	24	26	30	33	121	270	212	75	54	33	135
4	20	24	26	30	33	121	258	189	75	51	35	115
5	20	24	33	35	33	117	224	189	72	51	33	107
6	20	24	30	33	37	113	212	178	68	48	48	88
7	24	24	30	35	40	145	200	178	68	48	54	81
8	26	23	33	43	51	405	200	200	68	45	54	70
9	22	21	33	37	117	545	189	235	105	43	65	63
10	20	23	33	40	432	405	200	200	97	40	54	58
11	20	23	30	43	294	330	200	167	79	37	48	54
12	20	25	30	43	189	282	200	167	72	37	45	51
13	20	23	30	43	156	246	189	156	72	37	44	51
14	18	23	30	37	189	224	189	145	65	37	41	48
15	18	25	30	82	212	200	189	125	65	35	37	45
16	20	25	54	37	178	178	178	125	61	35	35	43
17	26	27	61	37	178	167	167	121	61	33	35	37
18	20	27	33	37	167	167	167	117	58	35	33	35
19	16	27	30	37	156	156	156	109	54	35	35	33
20	16	32	28	37	145	145	156	117	51	35	33	33
21	16	27	28	40	145	156	167	117	51	45	40	33
22	20	25	28	37	135	178	189	117	51	79	40	28
23	30	28	28	35	125	224	189	117	51	72	35	33
24	26	28	26	35	135	258	189	105	58	54	35	30
25	22	26	28	40	125	224	167	105	51	61	33	30
26	24	26	33	37	125	189	212	105	189	51	33	26
27	24	26	30	40	121	212	212	97	212	48	33	26
28	24	26	30	37	121	355	306	90	121	45	90	26
29	22	24	33	37	-------	405	270	82	86	40	79	26
30	22	30	30	37	-------	380	235	82	68	37	68	26
31	22	-------	30	37	-------	330	-------	86	-------	37	63	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	30	16	21.2	May	235	82	144
November	32	21	25.2	June	212	51	79.1
December	61	26	31.5	July	79	33	45.8
January	82	30	38.5	August	90	33	44.5
February	432	33	134	September	135	26	52.8
March	545	113	233				
April	330	156	210	The year	545	16	87.9

LITTLE RIVER DITCH NO. 66 NEAR KENNETT, MO.

LOCATION.—Chain gage in NE. ¼ sec. 4, T. 18 N., R. 10 E., at bridge on State highway 84, 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level.

RECORDS AVAILABLE.—October, 1926, to September, 1931, at present site; September, 1921, to September, 1926, at Kirk, 1¼ miles upstream.

EXTREMES.—Maximum discharge during year, 1,390 second-feet Mar. 9 (gage height, 10.20 feet); minimum, 31 second-feet Oct. 13–15 (gage height, 2.64 feet).

1927–1931: Maximum discharge, 3,650 second-feet Apr. 25, 1927 (gage height, 17.69 feet); minimum discharge, 26 second-feet Sept. 5–8, 1930; minimum gage height, 2.60 feet Sept. 6–8, 1930.

REMARKS.—Records good. Little River Ditch No. 66–A is an auxiliary to Ditch No. 66, the two ditches being separated by a low narrow bank and interconnected by cut-offs. Above stage of 6.2 feet part of the flow is carried by Ditch No. 66–A, and above stage of 13 feet the two ditches in the vicinity of the gage unite to form one continuous body of water. For the purpose of determining the discharge of each ditch the division between them is taken at the top of the bank which separates them during low stages.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	33	37	48	55	59	168	423	385	245	85	67	76
2	32	39	48	55	59	160	385	366	197	80	63	90
3	31	40	48	55	55	160	347	347	175	80	59	112
4	31	40	48	55	55	160	329	312	162	80	59	129
5	31	40	55	55	55	152	278	295	148	80	67	112
6	31	40	55	55	59	152	278	278	142	85	95	95
7	33	41	55	55	59	168	261	278	136	90	112	85
8	34	41	63	63	63	879	261	670	213	80	117	85
9	33	41	59	59	104	1,390	245	670	537	76	123	72
10	32	41	59	59	292	1,180	245	480	385	72	117	63
11	32	44	59	59	347	1,020	245	385	278	67	112	59
12	32	44	55	59	292	708	329	312	213	67	155	59
13	31	44	55	59	256	537	329	278	182	63	123	59
14	31	44	55	52	274	461	295	261	162	59	95	55
15	31	44	55	98	366	385	295	245	148	59	85	51
16	32	44	52	52	347	312	278	213	129	55	76	48
17	33	48	63	74	310	295	261	205	129	51	67	47
18	32	52	55	59	274	278	245	205	123	55	67	44
19	32	52	52	59	256	278	229	182	117	55	67	44
20	32	52	52	59	238	245	213	205	112	55	67	44
21	32	52	52	63	220	245	213	261	106	67	80	47
22	33	48	52	59	202	278	245	295	100	85	90	42
23	41	48	52	59	194	347	278	229	106	95	72	44
24	41	44	48	59	185	385	261	213	112	95	67	43
25	39	44	48	59	185	366	245	205	95	95	59	42
26	39	48	55	59	168	312	261	197	142	95	59	42
27	39	48	55	63	160	312	461	261	129	85	55	44
28	40	44	55	63	160	404	784	245	106	80	85	43
29	39	44	55	59	-------	537	613	229	95	76	80	43
30	39	52	55	59	-------	537	480	197	85	76	85	43
31	39	-------	55	59	-------	461	-------	190	-------	67	80	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	41	31	34.2	May	670	182	293
November	52	37	44.7	June	537	85	167
December	63	48	54	July	95	51	74.5
January	98	52	59.9	August	155	55	84.0
February	366	55	189	September	129	42	62.1
March	1,390	152	428				
April	784	213	320	The year	1,390	31	151

LITTLE RIVER DITCH NO. 66-A NEAR KENNETT, MO.

LOCATION.—Chain gage in NE. ¼ sec. 4, T. 18 N., R. 10 E., at bridge on State highway 84, 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level.

RECORDS AVAILABLE.—January, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 482 second-feet Mar. 9 (gage height, 10.06 feet); no flow on many days.

1927–1931: Maximum discharge, 2,340 second-feet Apr. 25, 1927 (gage height, 17.62 feet); no flow on many days.

REMARKS.—Records fair for discharges above 20 second-feet and poor for those below. See "Remarks" under Little River Ditch No. 66.

Daily discharge, in second-feet, 1930–31

Mar. 13	102	Mar. 17	44	Apr. 29	18
Mar. 14	482	Mar. 18	4.5	May 8	34
Mar. 15	308	Mar. 30	3.6	May 9	36
Mar. 16	184	Apr. 28	67	June 9	4.2

NOTE.—No flow during year ending Sept. 30, 1931, except during periods given in above table.

LITTLE RIVER DITCH NO. 251 NEAR KENNETT, MO.

LOCATION.—Chain gage in NW. ¼ sec. 3, T. 18 N., R. 10 E., at bridge on State highway 84, 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level.

RECORDS AVAILABLE.—November, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,240 second-feet Mar. 9 (gage height, 10.12 feet); minimum, 56 second-feet Oct. 15 (gage height, 2.15 feet).

1927–1931: Maximum discharge, 6,510 second-feet Apr. 24, 25, 1927 (gage height, 17.67 feet); minimum, 52 second-feet Sept. 5–8, 1930 (gage height, 2.10 feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	61	70	86	102	114	283	696	624	384	170	115	142
2	61	70	86	102	114	283	648	576	318	163	115	163
3	59	75	80	102	108	283	600	552	296	163	115	194
4	57	75	80	102	108	263	552	504	276	170	115	238
5	57	75	91	108	108	263	504	504	276	163	122	220
6	57	75	96	114	114	263	480	456	256	170	170	186
7	61	75	108	114	120	283	456	456	238	178	178	170
8	70	75	114	120	134	1,320	456	996	340	163	186	156
9	66	75	114	114	203	2,240	456	996	768	149	194	142
10	66	75	108	120	517	1,920	432	744	576	156	186	135
11	61	80	108	114	565	1,560	432	600	432	149	186	128
12	57	86	102	120	493	1,070	528	528	340	142	238	128
13	57	80	96	120	445	816	528	480	318	142	202	115
14	57	80	96	108	445	696	504	456	276	135	170	115
15	56	80	96	185	590	600	456	408	256	128	149	108
16	61	86	96	108	565	552	456	384	238	122	135	102
17	66	86	134	140	517	504	432	362	238	122	128	96
18	61	91	91	120	445	480	408	362	238	122	122	91
19	59	91	91	114	421	456	384	340	220	122	115	86
20	61	91	91	114	397	456	362	362	202	115	122	86
21	61	86	91	120	373	432	384	408	202	149	142	91
22	66	86	91	120	349	480	432	456	186	156	163	81
23	80	86	91	120	349	576	480	408	202	170	156	86
24	80	80	91	114	327	600	480	362	211	170	128	81
25	75	80	96	114	327	600	432	362	186	170	108	81
26	70	80	108	120	305	528	456	340	238	163	108	81
27	70	80	102	120	283	528	696	408	220	156	102	81
28	75	80	108	120	283	648	1,160	408	194	142	149	81
29	75	80	108	114	-------	840	944	362	178	135	142	81
30	70	91	102	114	-------	840	744	318	170	128	156	81
31	70	-------	102	114	-------	744	-------	318	-------	122	149	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	80	56	64.6	May	996	318	479
November	91	70	80.7	June	768	170	282
December	134	80	98.5	July	178	115	149
January	185	102	117	August	238	102	147
February	590	108	326	September	238	81	121
March	2,240	263	691				
April	1,160	362	533	The year	2,240	56	257

LITTLE RIVER DITCH NO. 259 NEAR KENNETT, MO.

LOCATION.—Chain gage in NW. ¼ sec. 3, T. 18 N., R. 10 E., at bridge on State highway 84, 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level.

RECORDS AVAILABLE.—November, 1926, to September, 1931.

EXTREMES.—Maximum discharge during year, 212 second-feet Apr. 27 (gage height, 4.50 feet); minimum, 0.1 second-foot Aug. 4, 5.

1927–1931: Maximum discharge, 4,140 second-feet Apr. 29, 1927 (gage height, 15.57 feet); minimum discharge, that of 1931; minimum gage height, 1.33 feet Aug. 29, 30, Sept. 4–8, 19, 20, 22, 23, 1930.

REMARKS.—Records fair except those for discharges below 5 second-feet, which are poor.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.4	0.3	1.1	3.2	5	33	119	129	15	0.9	0.4	1.8
2	.4	.4	.8	3.2	5	31	114	124	15	1.4	.3	16
3	.4	.5	1.1	3.6	5	31	104	114	11	1.0	.3	32
4	.3	.5	1.1	3.2	5	33	94	104	9	1.0	.1	31
5	.3	.5	3.2	5	5	30	81	94	8	.9	.1	39
6	.3	.5	2.8	5	6	29	77	90	7	.9	.7	35
7	.3	.4	2.8	4.8	6	41	73	85	7	.9	.8	26
8	.4	.4	2.8	7	9	104	69	94	6	.9	1.4	26
9	.4	.4	2.8	7	33	118	65	94	14	.7	1.0	25
10	.3	.8	2.8	6	95	108	65	85	17	.3	.9	7
11	.3	1.1	2.8	6	65	90	61	73	13	.3	.7	4.6
12	.3	1.1	2.4	7	48	73	57	65	9	.3	.8	2.6
13	.3	.8	2.0	6	48	65	57	57	7	.3	.7	1.8
14	.3	.8	2.0	6	87	61	57	53	5	.2	.6	1.4
15	.3	.8	1.7	6	76	53	57	50	4.2	.2	.4	.9
16	.3	1.7	1.7	6	65	45	57	45	2.2	.2	.4	.7
17	.4	1.4	2.4	6	62	42	50	39	1.8	.2	.3	.4
18	.3	1.1	2.4	6	62	40	50	35	1.4	.3	.2	.4
19	.3	1.1	2.4	6	54	35	50	26	1.0	.2	.3	.3
20	.3	1.4	2.0	6	54	33	46	32	1.0	.2	.2	.3
21	.3	1.1	2.0	6	48	33	90	35	.9	.5	.2	.2
22	.4	.8	1.7	6	44	53	134	37	.8	.6	.2	.2
23	2.4	.8	2.0	6	41	65	119	35	.8	4.6	.2	.2
24	1.7	.8	1.7	6	41	65	109	32	.9	3.8	.2	.2
25	1.1	.6	2.4	5	36	57	104	28	.9	3.0	.2	.2
26	.8	.5	2.8	6	34	50	144	28	1.4	1.8	.2	.2
27	1.1	.5	3.6	6	33	69	212	26	3.0	1.0	.2	.2
28	1.1	.5	3.6	6	30	188	188	24	2.6	.9	13	.2
29	.8	.5	3.2	6	------	166	166	20	1.4	.8	14	.2
30	.8	1.7	3.2	6	------	134	144	17	.9	.6	6	.2
31	.8	------	2.8	6	------	119	------	16	------	.4	2.6	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	2.4	0.3	0.58	May	129	16	57.6
November	1.7	.3	.79	June	17	.8	5.61
December	3.6	.8	2.33	July	4.6	.2	.95
January	7	3.2	5.61	August	14	.1	1.54
February	95	5	39.4	September	39	.2	8.47
March	188	29	67.5				
April	212	46	93.8	The year	212	.1	23.5

BIG LAKE OUTLET NEAR MANILA, ARK.

LOCATION.—Chain gage in SE. ¼ sec. 9, T. 14 N., R. 9 E., 3½ miles southeast of Manila.

RECORDS AVAILABLE.—September, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,650 second-feet Mar. 14, 15 (gage height, 8.60 feet); minimum, 125 second-feet Oct. 15 (gage height, 2.52 feet).

1927–1931: Maximum discharge, 15,900 second-feet Jan. 16, 1930 (gage height, 19.85 feet); minimum, that of Oct. 15, 1930.

REMARKS.—Records fair. Gage-height record furnished by Mississippi County Drainage District No. 17.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	205	230	355	405	480	1,200	2,200	2,000	1,000	540	380	540
2	205	230	355	405	480	1,200	2,250	2,050	955	510	355	510
3	195	230	330	405	455	1,200	2,250	2,000	955	480	330	540
4	175	242	330	405	455	1,150	2,200	1,950	910	480	305	685
5	175	242	355	430	430	1,100	2,150	1,850	865	480	305	730
6	175	242	380	430	430	1,050	2,100	1,750	820	480	330	685
7	185	242	405	455	455	1,100	2,000	1,750	775	480	510	645
8	205	242	405	480	480	910	1,850	1,700	730	480	610	610
9	230	242	430	480	645	1,350	1,750	1,650	820	455	645	575
10	205	255	430	480	955	1,500	1,650	1,650	955	430	685	540
11	195	255	430	480	1,100	1,700	1,650	1,800	1,000	405	685	510
12	195	268	405	480	1,200	2,350	1,600	1,800	1,000	380	645	480
13	155	280	405	480	1,300	2,600	1,550	1,750	955	380	610	455
14	145	280	405	480	1,350	2,650	1,550	1,650	865	355	575	430
15	125	280	405	480	1,400	2,650	1,550	1,550	820	330	540	405
16	145	305	405	480	1,450	2,550	1,550	1,500	775	330	510	405
17	230	305	405	480	1,550	2,350	1,500	1,350	730	330	430	380
18	230	330	405	480	1,550	2,200	1,450	1,300	730	330	405	355
19	205	330	405	480	1,600	2,050	1,400	1,200	685	330	380	330
20	230	330	380	480	1,550	1,950	1,350	1,250	610	330	380	305
21	230	330	380	480	1,550	1,850	1,400	1,250	610	355	380	305
22	230	330	380	480	1,500	1,800	1,400	1,150	575	405	380	280
23	230	330	380	480	1,450	1,700	1,400	1,200	540	510	405	280
24	280	330	380	480	1,400	1,650	1,450	1,150	540	540	380	280
25	280	305	380	480	1,400	1,650	1,450	1,100	540	540	355	280
26	268	305	380	480	1,300	1,650	1,550	1,100	575	540	330	255
27	268	305	430	480	1,250	1,750	1,550	1,100	610	510	305	255
28	280	305	430	480	1,200	1,800	1,650	1,050	610	480	280	255
29	280	305	430	480	------	1,850	1,750	1,000	575	480	510	255
30	255	330	405	480	------	1,950	1,900	1,050	575	455	575	255
31	230	------	430	480	------	2,150	------	1,050	------	405	575	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	280	125	214	13,200
November	330	230	284	16,900
December	430	330	395	24,300
January	480	405	466	28,700
February	1,600	430	1,080	60,000
March	2,650	910	1,760	108,000
April	2,250	1,350	1,700	101,000
May	2,050	1,000	1,470	90,400
June	1,000	540	757	45,000
July	540	330	437	26,900
August	685	280	455	28,000
September	730	255	427	25,400
The year	2,650	125	786	568,000

WHITE RIVER BASIN

WHITE RIVER AT BEAVER, ARK.

LOCATION.—Chain gage in sec. 20, T. 21 N., R. 26 W., at Missouri & North Arkansas Railroad bridge, one-fourth mile east of depot at Beaver. Zero of gage is 885.55 feet above mean sea level.

DRAINAGE AREA.—1,270 square miles.

RECORDS AVAILABLE.—July, 1909, to December, 1910; May, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 25,100 second-feet Feb. 10 (gage height, 19.69 feet); minimum, 52 second-feet Sept. 29, 30 (gage height, 2.00 feet).

1909–10, 1923–1931: Maximum discharge, 65,000 second-feet Apr. 16, 1927 (gage height, 37.0 feet); minimum discharge, 33 second-feet Sept. 10, 1925; minimum gage height, 1.55 feet Oct. 1–8, 1909.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	159	159	2,580	296	168	1,160	2,220	2,530	2,320	273	345	209
2	147	153	3,560	278	162	1,040	1,820	2,120	1,720	256	308	194
3	136	147	2,160	278	159	972	1,530	1,920	1,370	240	290	179
4	128	142	1,760	260	156	855	1,370	1,820	1,100	209	8,900	385
5	120	136	3,430	260	156	799	1,160	1,530	912	240	4,120	273
6	125	131	7,620	243	156	799	1,040	1,820	799	224	1,450	209
7	370	125	7,620	243	162	1,100	972	2,530	693	273	912	179
8	350	120	3,840	243	332	3,440	855	2,420	972	326	693	156
9	1,570	118	2,690	243	7,780	3,200	799	1,920	1,160	290	553	144
10	1,040	115	2,060	226	21,900	2,420	1,370	1,620	855	209	468	128
11	680	113	1,660	226	6,350	2,020	4,120	1,450	745	179	385	117
12	525	113	1,480	243	3,700	1,620	3,320	1,230	1,920	164	326	112
13	412	106	1,210	226	3,840	1,450	2,420	1,100	4,400	156	290	104
14	350	103	1,040	226	7,140	1,300	1,920	1,040	3,440	144	273	96
15	296	103	920	226	6,350	1,160	1,720	912	2,220	133	240	89
16	260	103	805	209	4,120	1,040	1,530	855	2,530	122	224	82
17	226	101	740	209	3,440	912	1,450	745	3,840	122	209	75
18	206	96	680	209	3,440	855	1,370	693	2,120	133	209	78
19	187	96	620	209	2,750	799	1,450	645	1,370	128	209	78
20	171	278	570	203	2,220	745	2,970	645	1,040	156	194	69
21	171	296	525	196	1,820	912	4,700	855	855	224	179	65
22	203	1,300	502	187	1,620	972	6,980	1,040	745	224	173	65
23	525	1,080	458	187	1,620	1,370	5,150	855	599	179	179	62
24	350	772	435	183	1,920	1,450	3,700	745	553	326	179	67
25	278	595	412	177	1,820	1,300	3,700	693	489	972	173	69
26	278	480	390	177	1,530	1,160	5,750	8,740	447	2,750	179	67
27	278	412	370	177	1,370	1,230	9,070	7,780	406	1,920	224	60
28	226	370	350	171	1,230	2,860	5,450	4,260	345	855	799	56
29	206	458	332	171	-------	5,900	3,840	2,420	326	645	385	52
30	187	1,040	332	171	-------	3,840	2,930	1,920	308	489	256	52
31	171	-------	314	168	-------	2,750	-------	3,080	-------	406	224	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	1,570	120	333	0.262	0.30	20,500
November	1,300	96	312	.246	.27	18,600
December	7,620	314	1,660	1.31	1.51	102,000
January	296	168	217	.171	.20	13,300
February	21,900	156	3,120	2.46	2.56	173,000
March	5,900	745	1,660	1.31	1.51	102,000
April	9,070	799	2,890	2.28	2.54	172,000
May	8,740	645	2,000	1.57	1.81	123,000
June	4,400	308	1,350	1.06	1.18	80,300
July	2,750	122	418	.329	.38	25,700
August	8,900	173	760	.598	.69	46,700
September	385	52	119	.094	.10	7,080
The year	21,900	52	1,220	.961	13.05	884,000

WHITE RIVER AT FORSYTH, MO.

LOCATION.—Water-stage recorder in SE. ¼ sec. 33, T. 24 N., R. 20 W., in Forsyth, one-fourth mile below Swan Creek. Zero of gage is 642.98 feet above mean sea level.

DRAINAGE AREA.—4,610 square miles.

RECORDS AVAILABLE.—January to September, 1926; February, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year, 31,100 second-feet Feb. 11 (gage height, 14.50 feet); minimum, 124 second-feet July 12 (gage height, 1.38 feet).

1926, 1930–31: Maximum discharge, 31,100 second-feet May 12, 13, 1930, Feb. 11, 1931 (gage height, 14.50 feet); minimum, 111 second-feet many times during 1930.

Maximum stage known, 45.36 feet Apr. 15, 1927; (discharge, about 160,000 second-feet).

REMARKS.—Records good. Flow regulated by hydroelectric plant of Empire District Electric Co. 2 miles upstream. Discharge Dec. 22 to Jan. 6 computed from records of this plant.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	285	1,040	9,110	1,270	521	5,390	8,830	8,590	5,890	671	1,530	4,090
2	333	1,220	8,400	1,070	870	4,930	7,310	7,410	5,300	598	829	2,450
3	553	1,300	8,280	1,190	1,220	4,490	6,590	6,080	4,350	597	801	1,860
4	629	673	6,290	1,150	1,040	4,090	5,630	5,610	3,190	329	3,140	2,190
5	171	742	11,300	971	824	3,890	4,930	5,180	3,230	587	14,800	2,140
6	710	736	15,700	1,070	826	3,200	4,160	5,610	2,610	582	21,900	1,110
7	2,830	853	15,800	1,070	1,260	5,100	3,210	5,290	1,440	580	18,800	805
8	2,300	1,190	13,500	929	2,400	8,650	5,990	4,940	1,660	708	14,200	719
9	1,680	676	9,230	1,420	8,960	11,000	4,290	5,240	1,400	843	7,820	786
10	2,180	810	7,030	1,390	22,800	10,500	4,660	4,490	1,600	702	6,100	629
11	2,780	1,030	6,000	963	27,800	8,570	6,130	4,660	1,840	858	4,200	593
12	2,070	972	4,850	801	13,500	7,550	6,000	4,440	2,450	327	2,190	516
13	1,110	725	4,270	1,340	12,800	6,590	8,450	3,990	3,540	647	2,800	293
14	734	854	3,920	1,160	13,800	5,850	7,530	3,380	2,640	708	3,000	442
15	905	1,410	3,660	885	15,300	5,150	7,170	3,320	5,430	633	2,710	463
16	1,060	968	3,710	855	14,500	9,350	6,340	2,340	4,740	538	1,970	584
17	807	374	2,840	1,230	14,200	4,090	5,950	1,450	3,760	495	1,910	569
18	490	663	2,250	1,240	12,900	3,710	7,160	2,480	5,550	447	3,720	547
19	325	684	2,170	994	11,700	3,550	6,840	2,750	4,650	187	4,790	484
20	970	529	2,310	786	9,910	3,280	6,200	3,170	3,550	893	6,510	253
21	785	1,760	2,750	771	8,080	3,710	8,440	2,530	1,510	519	5,630	617
22	737	2,610	2,050	1,140	7,310	4,090	11,800	2,130	2,050	390	4,300	668
23	3,660	3,280	1,760	1,040	7,310	5,150	13,100	2,260	1,470	531	2,410	526
24	4,670	2,860	1,630	1,170	8,050	5,390	11,300	1,580	1,400	4,630	2,620	768
25	4,270	2,740	1,490	904	8,310	5,140	10,500	2,190	1,380	5,040	2,290	636
26	3,660	2,290	1,680	1,150	7,480	5,150	10,600	3,560	1,380	5,520	2,420	495
27	2,580	1,030	1,410	1,200	6,830	6,530	13,800	21,300	1,210	5,130	2,470	261
28	1,850	1,620	1,320	777	6,110	9,900	17,200	14,300	308	4,230	4,280	613
29	1,920	2,530	1,400	726	-------	12,100	13,000	8,340	1,200	2,820	11,500	656
30	1,200	5,810	1,330	1,480	-------	13,900	10,400	6,460	720	2,010	5,540	657
31	1,540	-------	1,300	1,220	-------	11,000	-------	5,050	-------	1,530	5,070	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	4,670	171	1,610	0.349	0.40	99,000
November	5,810	374	1,470	.319	.36	87,500
December	15,800	1,300	5,120	1.11	1.28	315,000
January	1,480	726	1,080	.234	.27	66,400
February	27,800	521	8,810	1.91	2.00	489,000
March	13,900	3,200	6,480	1.41	1.63	398,000
April	17,200	3,210	8,120	1.76	1.96	483,000
May	21,300	1,450	5,170	1.12	1.29	318,000
June	5,890	308	2,710	.588	.66	161,000
July	5,520	187	1,430	.310	.36	87,900
August	21,900	801	5,560	1.21	1.40	342,000
September	4,090	253	914	.198	.22	54,400
The year	27,800	171	4,010	.870	11.83	2,900,000

WHITE RIVER NEAR FLIPPIN, ARK.

LOCATION.—Staff gage in NW. ¼ sec. 9, T. 19 N., R. 15 W., 2½ miles north of Flippin. Zero of gage is 420.92 feet above mean sea level.

DRAINAGE AREA.—6,170 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 36,200 second-feet Aug. 7 (gage height, 16.70 feet); minimum, 376 second-feet Sept. 23 (gage height, 4.52 feet).

1928–1931: Maximum discharge, 70,400 second-feet May 9, 1929 (gage height, 23.80 feet); minimum, 204 second-feet Aug. 7, 1930 (gage height, 4.32 feet).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	880	2,080	8,000	1,730	1,940	7,220	13,400	14,400	6,000	1,240	1,540	5,280
2	568	1,940	11,100	1,800	1,540	6,480	10,500	10,200	6,240	880	1,080	4,840
3	480	1,420	9,640	1,730	880	5,760	9,360	8,800	6,000	730	2,680	2,840
4	416	1,360	9,940	1,420	1,130	5,520	8,260	7,480	4,840	780	3,980	2,840
5	400	1,420	8,000	1,600	1,420	5,060	7,220	6,960	3,580	780	3,780	2,080
6	664	980	17,300	1,360	1,360	4,840	6,480	7,220	3,200	640	25,400	2,220
7	930	930	19,400	1,730	1,240	10,500	5,760	7,740	3,200	780	31,300	2,220
8	2,220	1,030	18,700	1,540	5,760	11,800	5,060	6,960	2,360	576	22,000	1,360
9	3,580	1,240	15,800	1,540	18,400	12,700	6,720	6,480	1,940	672	11,100	1,030
10	2,680	1,360	11,100	1,420	13,100	13,100	9,940	6,720	2,080	730	9,080	980
11	2,840	930	8,800	1,940	29,300	13,100	8,520	5,760	1,660	930	6,960	980
12	3,020	1,080	7,740	1,730	30,900	10,800	8,260	5,760	1,940	830	5,760	980
13	3,580	1,300	6,240	1,300	20,900	9,640	10,800	5,520	2,360	930	2,840	780
14	1,730	1,180	5,520	1,180	20,900	8,520	10,800	5,280	4,180	690	2,680	830
15	1,360	1,030	5,060	1,600	18,400	7,480	10,200	4,400	3,200	512	3,020	592
16	1,080	1,360	4,840	1,600	20,900	6,720	9,360	4,180	5,520	730	3,380	544
17	930	2,220	4,400	1,360	22,400	6,000	8,000	3,580	5,520	780	2,680	584
18	1,420	1,180	3,980	1,240	20,200	5,520	8,800	2,520	3,980	730	3,780	656
19	1,030	780	3,020	1,600	16,600	5,060	9,080	2,520	5,520	632	3,780	672
20	780	4,400	2,680	1,540	14,400	4,840	8,800	3,200	5,280	552	6,720	730
21	672	2,840	2,840	1,360	11,800	4,620	9,080	4,620	3,780	616	6,960	584
22	1,030	1,940	2,840	1,130	10,200	6,000	11,100	3,200	2,840	830	6,240	584
23	3,200	3,780	2,680	1,080	9,080	6,480	14,400	2,840	1,800	730	5,280	384
24	6,000	3,980	2,840	1,360	9,080	6,960	15,500	2,840	1,940	624	3,020	730
25	6,480	3,780	2,520	1,480	9,360	7,220	13,400	2,520	1,940	1,600	3,380	608
26	7,480	3,780	1,660	1,600	9,940	6,720	13,100	6,000	1,730	5,520	2,520	730
27	5,280	3,200	1,080	1,180	8,800	8,260	13,400	5,520	1,730	6,000	3,580	830
28	4,180	2,520	3,580	1,540	8,000	12,400	16,600	25,400	1,660	5,280	2,840	830
29	2,360	1,940	2,520	1,600	-------	14,400	16,600	15,800	1,540	5,280	5,280	600
30	2,840	3,380	1,360	1,130	-------	15,800	15,100	9,640	780	2,840	11,800	424
31	2,220	-------	1,240	1,030	-------	16,900	-------	6,720	-------	2,680	6,480	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	7,480	400	2,330	0.378	0.44	143,000
November	4,400	780	2,010	.326	.36	120,000
December	19,400	1,080	6,660	1.08	1.24	410,000
January	1,940	1,030	1,470	.238	.27	90,400
February	30,900	880	12,100	1.96	2.04	672,000
March	16,900	4,620	8,590	1.39	1.60	528,000
April	16,600	5,060	10,500	1.70	1.90	625,000
May	25,400	2,520	6,800	1.10	1.27	418,000
June	6,240	780	3,280	.532	.59	195,000
July	6,000	512	1,520	.246	.28	93,500
August	31,300	1,080	6,800	1.10	1.27	418,000
September	5,280	384	1,310	.212	.24	78,000
The year	31,300	384	5,230	.848	11.50	3,790,000

WHITE RIVER NEAR NEWPORT, ARK.

LOCATION.—Chain gage on line between secs. 16 and 17, T. 11 N., R. 3 W., on Missouri Pacific Railroad bridge, 2½ miles southwest of Newport.

DRAINAGE AREA.—19,800 square miles.

RECORDS AVAILABLE.—September, 1927, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 64,200 second-feet Feb. 13 (gage height, 23.6 feet); minimum, 4,280 second-feet Sept. 23–25, 30 (gage height, 2.7 feet).

1927–1931: Maximum discharge, 163,000 second-feet June 25, 1928 (gage height, 32.8 feet); minimum, 4,110 second-feet Sept. 6–9, 1930 (gage height, 2.6 feet).

Maximum stage known, 36.1 feet in April, 1927.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6,060	8,940	8,940	7,680	6,240	25,200	41,500	38,700	22,100	7,140	8,400	13,100
2	5,880	8,400	9,840	7,140	5,880	23,300	41,100	35,500	19,400	6,960	7,680	11,600
3	5,520	7,680	15,000	6,960	5,880	21,500	38,700	31,600	17,700	6,420	7,140	10,200
4	5,160	7,320	16,800	6,960	5,880	20,200	34,800	28,500	16,000	6,600	6,960	9,480
5	4,980	7,320	16,900	6,960	6,240	18,600	31,000	25,500	14,800	7,500	8,040	8,580
6	4,980	6,960	18,100	6,960	6,240	17,500	27,900	23,300	13,900	10,900	12,600	7,680
7	4,980	6,960	19,600	6,780	6,060	17,700	25,200	22,300	12,800	9,480	16,800	6,960
8	9,480	6,600	26,000	6,780	6,240	35,900	23,100	22,700	11,600	7,680	28,800	6,960
9	22,900	6,240	26,500	6,960	27,700	49,800	21,300	23,100	10,900	6,780	34,400	6,780
10	22,300	6,240	26,200	6,960	52,900	52,000	19,600	22,100	10,600	6,240	31,300	6,420
11	18,600	6,060	25,200	6,960	61,200	51,600	20,200	21,300	9,660	5,880	25,800	5,880
12	15,000	6,240	21,700	6,960	62,200	50,600	23,300	20,400	9,300	5,880	19,600	5,520
13	12,200	6,240	18,800	6,780	64,200	48,400	23,300	19,200	9,120	5,700	13,300	5,340
14	10,900	5,880	16,800	6,780	63,200	45,500	23,100	18,300	9,120	5,700	12,800	5,160
15	10,200	5,880	16,000	6,600	61,700	42,300	22,300	17,500	8,760	5,520	10,400	4,980
16	9,480	6,240	14,100	6,600	60,700	38,300	23,100	16,600	11,600	5,520	8,580	4,980
17	8,760	8,400	13,100	6,600	57,000	34,100	22,700	15,600	11,800	5,520	8,400	4,800
18	7,860	9,840	12,400	6,780	57,000	30,600	22,100	14,700	12,400	5,520	8,040	4,800
19	7,320	9,120	11,600	6,600	56,000	27,600	21,700	13,900	13,000	5,700	8,040	4,450
20	7,140	8,580	11,100	6,600	53,400	25,500	21,300	13,300	12,200	5,340	8,040	4,450
21	6,960	8,040	12,800	6,600	48,800	23,500	22,300	13,000	11,800	5,520	8,400	4,450
22	6,600	15,000	9,660	6,600	43,900	23,500	22,900	13,000	11,600	9,480	10,000	4,450
23	6,600	14,800	9,120	6,600	38,700	27,300	23,800	13,000	10,900	9,120	11,600	4,280
24	9,480	14,500	9,120	6,240	35,900	30,300	26,000	12,400	9,840	8,760	10,400	4,280
25	16,600	11,600	9,120	6,240	32,400	30,300	27,600	11,800	8,400	8,760	9,660	4,280
26	16,400	10,900	9,480	6,240	30,600	29,700	29,100	11,500	8,400	8,220	8,760	4,800
27	15,000	10,200	8,760	6,420	28,800	28,800	32,400	13,900	8,040	7,680	7,680	4,980
28	13,500	10,000	8,400	6,240	27,300	30,300	35,500	22,700	7,680	8,400	7,680	4,800
29	12,200	9,480	7,680	6,240	-------	33,800	35,900	21,100	7,320	9,480	10,700	4,450
30	11,100	9,120	7,860	6,240	-------	38,700	37,100	27,600	7,140	9,120	9,480	4,280
31	10,700	-------	8,760	6,240	-------	40,700	-------	26,200	-------	9,300	9,480	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	22,900	4,980	10,500	0.530	0.61	646,000
November	15,000	5,880	8,630	.436	.49	514,000
December	26,500	7,680	14,400	.727	.84	885,000
January	7,680	6,240	6,690	.338	.39	411,000
February	64,200	5,880	36,200	1.83	1.91	2,010,000
March	52,000	17,500	32,700	1.65	1.90	2,010,000
April	41,500	19,600	27,300	1.38	1.54	1,620,000
May	38,700	11,500	20,300	1.03	1.19	1,250,000
June	22,100	7,140	11,600	.586	.65	690,000
July	10,900	5,340	7,280	.368	.42	448,000
August	34,400	6,960	12,500	.631	.73	769,000
September	13,100	4,280	6,110	.309	.34	364,000
The year	64,200	4,280	16,000	.808	11.01	11,600,000

WHITE RIVER AT DE VALLS BLUFF, ARK.

LOCATION.—Staff gage in sec. 16, T. 2 N., R. 4 W., 1 mile northeast of De Valls Bluff and 27 miles above mouth of Cache River. Zero of gage is 152.67 feet above mean sea level.

DRAINAGE AREA.—23,500 square miles.

RECORDS AVAILABLE.—December, 1927, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 58,800 second-feet Feb. 28 (gage height, 23.0 feet); minimum, 4,900 second-feet Sept. 27, 28 (gage height, 4.0 feet).

1927–1931: Maximum discharge, 140,000 second-feet June 28, 29, 1928 (gage height, 28.5 feet); minimum, 4,900 second-feet Sept. 3–5, 1930, Sept. 27, 28, 1931.

Maximum stage known, 33.8 feet Apr. 24, 1927.

REMARKS.—Records fair. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,860	12,400	13,100	11,000	7,720	47,300	39,400	34,100	25,200	9,320	10,400	11,000
2	7,310	11,500	13,100	10,900	7,600	45,700	39,400	35,000	26,200	9,040	10,400	11,400
3	6,930	10,600	14,600	10,700	7,600	43,400	40,000	36,000	26,000	8,620	10,300	12,500
4	6,660	9,730	15,800	10,400	7,480	42,000	40,600	36,000	25,200	8,480	9,740	13,100
5	6,300	8,950	17,500	10,200	7,360	40,000	40,600	36,600	23,800	8,480	9,180	12,800
6	6,090	8,560	18,900	9,600	7,240	37,600	40,000	37,100	22,100	9,880	8,760	12,000
7	6,020	8,080	20,400	9,320	7,240	36,600	40,000	36,600	20,400	10,000	8,900	11,300
8	5,950	7,750	22,100	9,180	7,240	34,500	38,800	35,000	18,700	10,900	10,900	10,400
9	6,390	7,420	24,000	9,320	7,840	35,000	37,600	34,100	17,200	11,800	15,600	9,600
10	15,200	7,200	25,700	9,320	11,000	36,600	36,600	32,300	15,900	11,200	20,400	8,900
11	21,400	7,020	27,200	9,460	22,500	38,200	34,500	31,100	14,800	10,200	23,600	8,340
12	22,900	6,840	27,700	9,600	28,500	39,400	32,300	30,000	13,800	9,320	25,000	7,960
13	22,000	6,660	27,700	9,740	32,700	40,000	30,700	28,800	13,100	8,200	25,200	7,600
14	20,300	6,570	27,200	9,600	36,000	40,600	30,000	27,400	12,400	7,840	24,000	7,120
15	18,000	6,480	25,700	9,320	38,200	42,000	29,700	26,200	11,900	7,360	21,800	6,640
16	15,800	6,480	24,000	9,320	40,000	42,000	29,400	24,700	11,900	6,880	18,900	6,640
17	14,000	6,460	22,100	9,320	42,000	42,700	28,800	23,600	12,400	6,760	16,600	6,160
18	12,400	6,730	20,200	9,180	43,400	42,700	28,500	22,100	13,200	6,760	14,200	5,960
19	11,000	9,230	18,600	8,900	44,900	42,700	28,200	20,600	13,700	6,520	12,500	5,760
20	10,100	11,400	17,200	8,760	47,300	42,000	27,700	19,800	14,200	6,520	11,400	5,660
21	9,080	11,800	16,400	8,760	50,100	41,300	27,400	18,600	14,600	6,400	10,700	5,460
22	8,430	11,900	15,100	8,620	51,000	40,600	26,700	17,700	14,500	6,400	10,200	5,360
23	8,080	14,400	14,600	8,480	52,000	39,400	26,400	16,900	14,200	6,400	10,200	5,260
24	7,640	16,800	13,600	8,340	52,000	38,200	26,700	16,400	14,000	7,720	10,400	5,170
25	7,310	17,500	13,000	8,340	54,200	37,600	27,000	15,900	13,400	9,180	11,000	5,080
26	8,300	17,000	12,600	8,200	52,000	37,600	27,700	15,600	13,000	9,880	11,400	4,990
27	11,200	16,100	12,400	8,080	50,100	38,200	28,200	15,300	11,900	10,200	11,400	4,900
28	13,300	15,300	12,200	7,960	58,800	38,200	29,400	15,800	11,000	10,200	10,900	4,900
29	14,200	14,500	12,200	7,840	-------	38,200	30,700	18,700	10,400	9,880	10,300	4,990
30	13,800	13,800	11,800	7,720	-------	38,800	32,300	21,600	9,880	9,740	10,000	5,170
31	13,300	-------	11,300	7,720	-------	39,400	-------	23,800	-------	10,200	10,700	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	22,900	5,950	11,500	0.489	0.56	707,000
November	17,500	6,460	10,500	.447	.50	625,000
December	27,700	11,300	18,300	.779	.90	1,130,000
January	11,000	7,720	9,140	.346	.40	562,000
February	58,800	7,240	31,200	1.33	1.38	1,730,000
March	47,300	34,500	40,000	1.70	1.96	2,460,000
April	40,600	26,400	32,500	1.38	1.54	1,930,000
May	37,100	15,300	25,900	1.10	1.27	1,590,000
June	26,200	9,880	16,000	.681	.76	952,000
July	11,800	6,400	8,720	.371	.43	536,000
August	25,200	8,760	13,700	.583	.67	842,000
September	13,100	4,900	7,740	.329	.37	461,000
The year	58,800	4,900	18,700	.796	10.74	13,500,000

JAMES RIVER BELOW BATTLEFIELD, MO.

LOCATION.—Chain gage in NE. ¼ sec. 32, T. 28 N., R. 22 W., at Blue Spring highway bridge 3 miles southeast of Battlefield.

DRAINAGE AREA.—325 square miles.

RECORDS AVAILABLE.—May, 1929, to September, 1931; February, 1926, to May, 1929, at site 3 miles upstream.

EXTREMES.—Maximum discharge during year ending Sept. 30, 1931, 5,350 second-feet Aug. 6 (gage height, 10.50 feet); minimum, 16 second-feet Oct. 3–5 (gage height, 2.22 feet).

1929–1931: Maximum discharge, 5,450 second-feet May 28, 1929; maximum gage height, that of Aug. 6, 1931; minimum discharge, 13 second-feet Aug. 8, 10, 13, 1930 (gage height, 2.12 feet).

REMARKS.—Records good. Discharge estimated Jan. 26–28, 1930.

Daily and monthly discharge, in second-feet, 1929–1931

Day	May	June	July	Aug.	Sept.	Day	May	June	July	Aug.	Sept.
1929						1929					
1	-------	515	160	60	28	16	1,500	405	73	67	39
2	-------	460	146	58	28	17	1,100	305	67	54	36
3	-------	405	129	76	28	18	1,170	260	60	52	34
4	-------	350	106	58	31	19	3,380	240	56	48	32
5	-------	305	119	54	33	20	1,690	240	52	42	31
6	-------	260	116	48	33	21	1,170	205	50	38	30
7	-------	305	123	46	33	22	925	240	48	37	29
8	-------	1,100	110	50	33	23	745	350	46	37	28
9	-------	776	100	103	32	24	625	305	52	37	28
10	-------	570	90	106	30	25	542	598	48	37	28
11	-------	460	153	100	29	26	432	350	46	36	27
12	-------	350	110	175	40	27	805	282	44	34	26
13	4,680	625	83	140	58	28	3,470	240	42	33	26
14	3,200	570	86	106	48	29	1,240	205	100	32	24
15	1,890	432	83	83	42	30	805	184	48	30	24
						31	624	-------	67	29	------

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929-30												
1	24	385	42	86	187	610	93	48	48	33	15	17
2	24	247	40	129	460	510	90	44	50	31	15	17
3	23	198	39	226	735	435	93	44	44	30	15	17
4	28	157	37	218	2,490	360	90	48	40	30	15	16
5	29	123	37	202	2,040	335	86	46	39	28	15	16
6	39	110	37	194	1,340	310	80	44	38	25	14	17
7	31	103	39	187	1,040	290	80	50	36	25	14	18
8	28	90	38	238	885	266	76	48	35	31	13	202
9	25	83	36	271	735	238	73	48	36	27	14	67
10	23	76	35	252	635	222	70	70	36	26	13	67
11	32	76	35	257	535	210	67	247	50	29	14	52
12	133	76	35	385	485	198	67	214	54	27	14	42
13	150	90	36	3,790	385	183	67	183	50	28	13	42
14	93	100	54	4,150	385	171	67	160	50	23	15	37
15	80	110	80	2,160	360	164	67	133	110	20	14	56
16	60	123	129	1,340	320	150	63	116	140	17	15	54
17	50	116	171	935	285	146	60	110	126	15	22	52
18	39	110	210	735	257	146	60	113	113	17	23	48
19	35	103	210	685	234	140	58	106	93	18	25	40
20	36	96	198	535	226	136	56	100	83	18	31	35
21	36	90	175	460	214	129	52	110	67	18	30	30
22	33	80	160	360	175	126	52	103	46	20	28	28
23	33	70	143	310	202	119	52	119	52	20	24	28
24	33	67	126	276	190	119	52	119	46	20	22	27
25	33	58	123	266	410	119	52	110	44	19	21	23
26	31	56	110	247	1,860	113	52	96	42	18	20	21
27	31	50	106	228	1,040	110	48	83	39	18	20	20
28	36	50	103	209	785	106	46	76	38	17	18	20
29	46	46	93	190	-------	106	46	70	35	17	17	18
30	48	42	86	198	-------	100	48	60	34	16	17	18
31	133	-------	83	190	-------	93	-------	56	-------	16	17	------

Daily and monthly discharge, in second-feet, of James River below Battlefield, Mo., 1929–1931—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930-31												
1	17	40	210	40	44	315	360	360	96	27	25	146
2	17	40	190	40	44	262	310	295	83	27	27	140
3	16	40	153	44	44	230	271	257	76	25	28	129
4	16	38	119	44	44	202	226	226	70	24	48	113
5	16	37	119	44	42	187	202	214	63	70	1,280	106
6	17	36	140	44	40	175	190	202	60	46	5,130	100
7	25	36	206	44	40	179	175	183	56	38	2,100	86
8	24	36	202	44	50	290	175	175	52	35	1,080	83
9	24	36	171	44	86	635	168	190	52	31	685	80
10	24	36	150	44	330	435	194	230	50	28	585	70
11	24	35	126	44	280	460	238	210	52	27	385	60
12	22	34	116	44	234	435	234	187	50	26	295	60
13	22	34	96	44	230	360	230	175	46	26	243	56
14	21	32	86	44	485	305	214	153	44	24	198	54
15	21	30	80	48	460	280	210	140	67	23	171	52
16	25	30	80	50	385	234	206	33	58	22	150	52
17	31	30	67	52	560	210	194	119	46	21	1,280	50
18	32	30	67	52	610	190	214	110	40	20	2,280	48
19	32	30	56	52	510	183	194	143	39	20	2,630	44
20	32	37	54	52	410	160	183	150	35	21	1,340	40
21	32	35	52	48	360	160	183	146	34	21	835	40
22	48	34	50	50	410	164	194	153	33	20	610	40
23	63	32	46	46	1,180	206	190	179	32	19	460	40
24	73	28	44	44	885	226	190	175	32	37	360	80
25	70	28	48	44	685	206	194	168	29	32	295	73
26	60	28	46	44	535	187	735	146	29	29	266	56
27	58	27	44	44	435	198	935	133	29	26	226	54
28	52	28	44	44	360	685	685	126	28	22	210	48
29	46	39	44	44	-------	735	510	116	27	20	187	44
30	42	103	42	44	-------	535	410	106	27	18	164	42
31	40	-------	40	44	-------	435	-------	96	-------	18	150	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1929					
May 13-31	4,680	432	1,580	4.86	3.43
June	1,100	184	396	1.22	1.36
July	160	42	84.3	.259	.30
August	175	29	61.5	.189	.22
September	58	24	32.3	.099	.11
1929-30					
October	150	23	47.6	.146	.17
November	385	42	106	.326	.36
December	210	35	91.8	.282	.33
January	4,150	86	642	1.98	2.28
February	2,490	175	675	2.08	2.17
March	610	93	208	.640	.74
April	93	46	65.4	.201	.22
May	247	44	95.9	.295	.34
June	140	34	57.1	.176	.20
July	33	15	22.5	.069	.08
August	31	13	18.2	.056	.06
September	202	16	38.2	.118	.13
The year	4,150	13	169	.520	7.08
1930-31					
October	73	16	33.6	.103	.12
November	103	27	36.0	.111	.12
December	210	40	96.4	.297	.34
January	52	40	45.5	.140	.16
February	1,180	40	349	1.07	1.11
March	735	160	305	.938	1.08
April	935	168	287	.883	.99
May	360	96	174	.535	.62
June	96	27	47.8	.147	.16
July	70	18	27.2	.084	.10
August	5,130	25	765	2.35	2.71
September	146	40	69.5	.214	.24
The year	5,130	16	186	.572	7.75

NOTE.—Records July 1 to Sept. 30, 1929, supersede those published in Water-Supply Paper 687.

JAMES RIVER AT GALENA, MO.

LOCATION.—Chain gage in NW. ¼ sec. 7, T. 24 N., R. 23 W., at bridge on State highway 44 at Galena, half a mile above Railey Creek. Zero of gage is 925.94 feet (revised) above mean sea level.

DRAINAGE AREA.—1,000 square miles.

RECORDS AVAILABLE.—October, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 17,500 second-feet Aug. 6 (gage height, 14.55 feet); minimum, 95 second-feet July 17 (gage height, 1.31 feet).

1922–1931: Maximum discharge, 41,900 second-feet Apr. 15, 1927 (gage height, 25.15 feet); minimum, 52 second-feet Sept. 6, 7, 9, 10, 1925 (gage height, 0.56 foot).

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	117	320	1,330	268	215	1,190	1,260	1,260	380	144	126	490
2	120	302	1,330	268	215	1,050	1,050	1,120	360	144	135	490
3	114	268	1,050	268	212	915	980	980	340	138	171	436
4	112	250	915	250	215	795	855	855	320	129	198	411
5	112	232	915	250	215	735	735	795	302	285	530	386
6	112	212	1,190	250	215	708	680	735	285	208	13,100	340
7	190	198	1,260	232	215	1,050	625	680	268	215	9,590	296
8	208	184	1,190	250	285	1,330	575	625	268	194	3,610	296
9	198	174	1,050	232	625	1,640	552	600	285	165	2,300	276
10	180	168	855	232	1,400	1,640	680	575	268	156	2,480	256
11	171	162	795	232	1,330	1,640	735	600	250	147	1,760	245
12	159	162	680	232	1,120	1,480	765	575	250	141	1,340	242
13	144	156	600	232	1,050	1,400	735	530	250	132	1,100	256
14	138	153	575	232	1,260	1,260	765	508	250	117	912	234
15	132	150	530	215	1,720	1,050	735	485	340	120	735	227
16	153	162	508	215	1,560	915	708	440	420	114	670	213
17	147	168	462	250	1,560	795	708	420	340	103	1,100	200
18	138	168	420	232	1,960	765	680	400	285	114	3,850	194
19	132	168	400	232	1,800	708	680	462	250	114	5,390	181
20	126	285	380	232	1,560	652	625	625	232	103	3,370	172
21	123	340	360	232	1,330	652	680	575	215	144	2,390	162
22	215	340	340	232	1,260	652	735	552	208	141	1,760	159
23	462	302	320	232	1,480	625	708	552	194	112	1,340	184
24	708	285	302	232	2,660	600	735	530	187	320	1,100	256
25	530	268	302	232	2,220	600	795	530	180	360	912	363
26	420	268	302	232	1,800	600	1,480	530	171	268	840	296
27	420	250	302	250	1,560	680	3,050	508	162	201	805	245
28	400	250	302	268	1,400	1,050	2,220	485	153	168	770	213
29	400	268	302	268	-------	2,300	1,800	440	150	138	670	197
30	360	1,190	302	250	-------	1,720	1,480	420	147	126	575	172
31	340	-------	285	215	-------	1,480	-------	400	-------	120	518	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	708	112	235	0.235	0.27
November	1,190	150	260	.260	.29
December	1,330	285	640	.640	.74
January	268	215	240	.240	.28
February	2,660	212	1,160	1.16	1.21
March	2,300	600	1,050	1.05	1.21
April	3,050	552	960	.960	1.07
May	1,260	400	606	.606	.70
June	420	147	257	.257	.29
July	360	103	164	.164	.19
August	13,100	126	2,070	2.07	2.39
September	490	159	270	.270	.30
The year	13,100	103	658	.658	8.94

BUFFALO RIVER NEAR RUSH, ARK.

LOCATION.—Staff gage in SE. ¼ sec. 10, T. 17 N., R. 15 W., immediately above Rush Creek, 24 miles above mouth and 1½ miles southeast of Rush. Zero of gage is 458.70 feet above mean sea level.

DRAINAGE AREA.—1,110 square miles.

RECORDS AVAILABLE.—October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 31,900 second-feet Feb. 9 (gage height, 15.2 feet); minimum, 60 second-feet Sept. 27–30 (gage height, 0.70 foot).

1928–1931: Maximum discharge, 57,000 second-feet May 11, 1930 (gage height, 21.8 feet); minimum discharge, 60 second-feet Aug. 3, 8, 9, 11, 1930, Sept. 27–30, 1931; minimum gage height, 0.6 foot Sept. 25–30, Oct. 1–3, 7–9, 1929.

Maximum stage known, 49.5 feet in April, 1927.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	165	175	3,530	243	138	1,120	2,200	2,200	2,520	185	92	150
2	150	175	2,140	237	138	985	2,000	1,900	1,700	166	92	134
3	142	170	1,490	231	138	895	1,700	1,700	1,300	154	112	121
4	131	155	1,200	219	138	810	1,500	1,400	985	205	850	112
5	117	145	1,200	207	138	730	1,300	1,210	810	570	2,200	106
6	120	145	4,090	195	138	730	1,120	2,100	690	298	1,080	98
7	820	138	2,870	201	138	10,100	985	2,000	570	185	492	96
8	6,150	134	2,030	207	4,060	6,320	940	1,600	492	175	349	92
9	2,380	131	1,590	207	29,200	4,090	850	1,400	420	166	265	88
10	1,290	131	1,390	195	8,400	2,880	850	1,210	420	150	205	84
11	900	131	1,200	185	4,840	2,300	1,080	1,080	385	134	170	84
12	660	128	980	195	3,130	1,900	1,080	940	455	127	142	80
13	545	124	860	195	2,760	1,700	985	850	4,240	115	130	80
14	440	124	742	185	4,390	1,500	985	770	2,000	106	121	80
15	350	124	700	195	3,390	1,210	1,080	650	1,600	103	112	76
16	314	225	660	175	2,760	1,080	1,120	570	1,900	98	106	76
17	268	255	582	175	3,260	985	1,120	530	2,100	109	103	76
18	237	231	545	175	2,760	895	1,300	455	1,500	121	103	72
19	201	225	508	165	2,300	810	2,820	455	1,120	109	115	72
20	185	1,070	455	165	1,900	770	3,260	492	810	106	115	72
21	170	3,310	417	155	1,600	850	2,760	530	610	195	112	72
22	165	2,140	402	155	1,500	1,700	4,390	570	492	245	112	68
23	660	1,390	372	145	1,800	1,900	3,000	455	385	175	115	68
24	620	1,060	342	145	2,000	1,700	2,640	420	337	138	103	64
25	410	860	314	145	1,800	1,500	2,400	455	298	124	98	64
26	320	742	300	145	1,500	1,300	6,680	14,100	260	138	200	64
27	300	582	287	145	1,300	1,900	5,160	5,480	235	121	162	60
28	262	545	281	145	1,210	4,840	3,810	3,000	225	109	146	60
29	237	470	268	145	-------	4,090	3,000	2,100	215	100	455	60
30	201	1,870	255	145	-------	3,000	2,520	1,800	200	96	205	60
31	185	-------	243	145	-------	2,520	-------	2,760	-------	92	175	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	6,150	117	616	0.555	0.64	37,900
November	1,870	124	570	.514	.57	33,900
December	4,090	243	1,040	.936	1.08	64,000
January	243	145	180	.162	.19	11,100
February	29,200	138	3,100	2.79	2.90	172,000
March	10,100	730	2,160	1.95	2.25	133,000
April	6,680	850	2,150	1.94	2.16	128,000
May	14,100	420	1,780	1.60	1.84	109,000
June	4,240	200	976	.879	.98	58,100
July	570	92	159	.143	.16	9,780
August	2,200	92	285	.257	.30	17,500
September	150	60	83.0	.075	.08	4,940
The year	29,200	60	1,080	.973	13.15	779,000

NORTH FORK OF WHITE RIVER AT TECUMSEH, MO.

LOCATION.—Chain gage in sec. 16, T. 22 N., R. 12 W., at bridge on State highway 80 at Tecumseh, half a mile below Bryant Creek.

DRAINAGE AREA.—1,180 square miles.

RECORDS AVAILABLE.—October, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 4,550 second-feet Feb. 9 (gage height, 4.30 feet); minimum, 427 second-feet Sept. 11, 20–23 (gage height, 1.02 feet).

1922–1931: Maximum discharge, 53,000 second-feet June 13, 1928 (gage height, 24.00 feet); minimum, 363 second-feet Sept. 5, 1925.

Maximum stage known, 31.6 feet in July, 1905.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	490	605	1,630	648	564	1,120	1,510	1,510	920	605	482	482
2	473	605	1,390	648	564	1,070	1,450	1,510	870	605	514	482
3	482	605	1,220	605	564	1,020	1,390	1,390	870	648	514	472
4	482	605	1,070	605	564	1,020	1,280	1,340	870	605	648	465
5	490	564	1,220	605	564	1,020	1,170	1,340	825	605	780	457
6	490	564	1,630	605	564	1,020	1,170	1,630	825	605	1,170	457
7	1,020	564	1,510	605	605	3,210	1,120	1,870	780	605	870	457
8	1,120	564	1,390	605	1,630	3,800	1,120	1,630	780	605	735	449
9	870	564	1,220	605	4,400	2,790	1,070	1,630	780	605	605	465
10	780	564	1,120	605	2,790	2,380	1,630	1,450	780	564	605	441
11	690	522	1,120	605	1,990	2,120	1,630	1,390	780	564	564	427
12	648	564	1,020	605	1,750	1,870	1,390	1,280	825	564	564	449
13	648	522	970	605	2,790	1,630	1,340	1,220	825	564	522	490
14	605	564	920	605	3,500	1,510	1,340	1,170	780	564	522	465
15	605	522	870	605	2,510	1,450	1,280	1,120	780	564	514	449
16	605	1,170	825	605	2,250	1,340	1,220	1,070	825	564	522	449
17	564	970	825	605	2,250	1,280	1,340	1,070	780	564	522	441
18	564	780	780	605	2,120	1,220	1,390	1,020	780	564	564	441
19	564	825	780	605	1,870	1,170	1,340	1,020	735	564	564	441
20	522	4,250	780	605	1,750	1,170	1,340	1,070	690	564	605	434
21	522	2,510	735	605	1,510	1,280	1,390	970	690	564	605	427
22	564	1,630	735	605	1,450	1,630	1,390	970	690	564	522	427
23	1,510	1,220	735	605	1,450	1,750	1,340	970	690	522	498	434
24	1,280	1,070	690	605	1,390	1,630	1,390	920	690	564	490	735
25	1,020	970	690	605	1,340	1,450	1,450	970	648	522	490	735
26	920	870	690	605	1,220	1,390	1,630	1,280	648	522	490	564
27	825	825	690	605	1,170	1,510	2,120	1,220	848	506	490	473
28	780	780	690	564	1,170	1,750	1,990	1,070	648	490	522	490
29	690	825	690	564	-------	1,750	1,750	1,070	648	490	514	449
30	648	1,280	648	564	-------	1,630	1,630	1,020	605	490	506	441
31	648	-------	648	564	-------	1,630	-------	970	-------	490	473	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,510	473	714	0.605	0.70
November	4,250	522	949	.804	.90
December	1,630	648	966	.819	.94
January	648	564	602	.510	.59
February	4,400	564	1,650	1.40	1.46
March	3,800	1,020	1,630	1.38	1.59
April	2,120	1,070	1,420	1.20	1.34
May	1,870	920	1,230	1.04	1.20
June	920	605	757	.642	.72
July	648	490	562	.476	.55
August	1,170	473	580	.492	.57
September	735	427	476	.403	.45
The year	4,400	427	957	.811	11.01

NORTH FORK OF WHITE RIVER NEAR HENDERSON, ARK.

LOCATION.—Staff gage in NE. ¼ SW. ¼ sec. 26, T. 20 N., R. 12 W., 1 mile southeast of Henderson, 1 mile below Bennetts Bayou, and 19 miles above mouth.

DRAINAGE AREA.—1,640 square miles.

RECORDS AVAILABLE.—July, 1909, to December, 1910; October, 1928, to September, 1931.

EXTREMES.—Maximum discharge during year, 17,900 second-feet Oct. 7 (gage height, 10.4 feet); minimum, 432 second-feet Sept. 21 (gage height, 1.47 feet).

1928–1931: Maximum discharge, 39,800 second-feet Jan. 24, 1929 (gage height, 17.0 feet); minimum, 410 second-feet Sept. 8, 1930 (gage height, 1.42 feet).

Maximum stage known, 29.5 feet in August, 1915.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	515	790	2,310	750	590	1,600	2,090	1,960	1,020	585	490	520
2	480	750	1,950	710	590	1,600	1,960	1,830	980	585	490	520
3	480	710	1,830	710	590	1,490	1,830	1,710	935	620	552	520
4	480	710	1,600	710	590	1,380	1,710	1,590	935	585	1,270	520
5	480	710	2,190	710	590	1,380	1,590	1,590	890	585	1,270	490
6	515	670	2,430	710	590	1,600	1,480	2,350	850	585	1,590	490
7	9,440	630	2,430	670	630	8,620	1,480	2,480	810	585	1,170	490
8	2,820	630	2,190	670	9,840	6,610	1,370	2,350	810	585	935	460
9	1,600	590	1,950	670	7,260	5,420	1,370	2,090	770	585	770	460
10	1,170	590	1,830	670	4,940	4,550	3,460	1,830	770	552	692	460
11	1,020	590	1,600	710	3,230	3,760	2,220	1,710	770	552	655	460
12	970	590	1,490	710	2,560	3,320	1,830	1,590	810	552	620	460
13	835	590	1,380	710	5,290	2,760	1,710	1,480	850	552	585	490
14	790	590	1,270	670	5,290	2,350	1,590	1,370	810	520	585	490
15	710	590	1,170	670	3,510	2,090	1,590	1,270	1,070	520	552	490
16	670	2,070	1,070	630	3,810	1,830	1,480	1,220	1,070	520	552	460
17	670	1,380	1,020	670	3,960	1,710	1,370	1,170	935	552	520	460
18	630	1,020	970	630	3,370	1,590	1,590	1,120	810	552	655	460
19	630	970	970	630	2,950	1,480	1,590	1,120	770	552	655	460
20	590	7,480	925	630	2,690	1,370	1,480	1,170	730	520	655	460
21	550	4,600	925	630	2,430	1,960	1,960	1,120	692	585	620	460
22	590	2,430	880	630	2,190	2,620	1,960	1,070	692	552	620	460
23	3,960	1,830	880	630	2,070	2,220	1,830	1,020	655	520	585	460
24	2,190	1,600	835	630	2,070	2,090	1,710	980	655	552	552	585
25	1,710	1,490	835	630	1,950	1,960	1,710	1,020	655	552	520	890
26	1,380	1,270	790	630	1,830	1,960	2,220	1,830	655	520	520	620
27	1,170	1,170	790	630	1,710	2,220	2,900	1,480	620	520	520	552
28	1,070	1,020	790	630	1,710	2,350	2,620	1,270	585	520	585	552
29	970	970	790	630	-------	2,620	2,350	1,170	585	490	585	490
30	880	1,600	790	630	-------	2,350	2,090	1,120	585	490	552	460
31	790	-------	750	630	-------	2,220	-------	1,070	-------	520	520	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	9,440	480	1,310	0.799	0.92	80,600
November	7,480	590	1,350	.823	.92	80,300
December	2,430	750	1,320	.805	.93	81,200
January	750	630	664	.405	.47	40,800
February	9,840	590	2,820	1.72	1.79	157,000
March	8,620	1,370	2,620	1.60	1.84	161,000
April	3,460	1,370	1,870	1.14	1.27	111,000
May	2,480	980	1,490	.909	1.05	91,600
June	1,070	585	792	.482	.54	47,100
July	620	490	550	.335	.39	33,800
August	1,590	490	692	.422	.49	42,500
September	890	460	505	.308	.34	30,000
The year	9,840	460	1,320	.805	10.95	957,000

BLACK RIVER AT LEEPER, MO.

LOCATION.—Chain gage in SW. ¼ NE. ¼ sec. 27, T. 28 N., R. 3 E., at Missouri Southern Railway bridge at Leeper. Zero of gage is 425.22 feet above mean sea level (revised).

DRAINAGE AREA.—957 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,000 second-feet Mar. 8 (gage height, 6.69 feet); minimum, 190 second-feet Sept. 22–24, 29 (gage height, 1.49 feet).

1921–1931: Maximum discharge, 37,000 second-feet Apr. 15, 1927 (gage height, 16.35 feet); minimum, that of Sept. 22–24, 29, 1931.

Maximum stage known, 21.3 feet in August, 1915.

REMARKS.—Records good. Discharge estimated Sept. 27.

Daily and monthly discharge, in second-feet, 1930-31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	264	302	420	302	370	505	965	1,220	535	240	205	240
2	260	302	600	280	348	475	925	1,010	475	240	205	264
3	256	302	600	280	325	448	848	965	475	280	205	280
4	256	302	535	280	348	448	772	848	448	348	226	280
5	256	302	665	280	325	420	735	772	420	370	216	280
6	256	280	600	280	325	420	665	810	420	325	240	264
7	280	280	600	280	348	1,400	632	772	420	302	233	252
8	505	280	600	325	505	6,000	600	772	395	280	222	233
9	1,400	280	535	302	600	3,120	535	700	395	276	233	226
10	925	302	600	280	2,980	2,300	772	665	370	260	236	219
11	700	280	568	280	1,500	1,880	848	632	370	256	219	219
12	600	280	535	302	1,220	1,500	772	632	370	252	212	212
13	535	280	475	302	1,130	1,310	735	600	395	240	212	212
14	505	280	475	348	1,780	1,130	665	568	395	233	208	205
15	475	302	420	348	1,690	1,010	632	535	448	226	205	205
16	420	395	420	348	1,400	885	632	505	420	222	205	199
17	395	395	370	348	1,310	810	568	535	395	222	205	199
18	370	370	370	348	1,310	810	568	505	370	233	219	196
19	370	370	370	348	1,310	700	568	475	370	222	222	196
20	348	448	370	370	1,130	632	535	568	325	222	272	196
21	325	370	370	370	1,010	632	600	535	325	264	264	196
22	325	370	348	370	885	665	700	505	302	236	252	190
23	370	370	348	370	810	700	1,050	475	280	230	236	190
24	370	348	325	370	735	735	965	475	302	230	226	190
25	370	348	325	370	665	735	885	505	302	222	222	205
26	370	325	325	370	600	700	1,130	535	280	205	252	212
27	348	325	325	370	568	735	3,120	665	280	205	240	202
28	348	325	325	370	505	885	2,190	632	280	212	280	193
29	325	325	302	370	-------	1,130	1,690	600	264	212	280	190
30	325	370	302	370	-------	1,130	1,400	600	256	208	260	193
31	325	-------	302	370	-------	1,050	-------	600	-------	205	248	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,400	256	425	0.444	0.51
November	448	280	327	.342	.38
December	665	302	443	.463	.53
January	370	280	332	.347	.40
February	2,980	325	930	.972	1.01
March	6,000	420	1,140	1.19	1.37
April	3,120	535	923	.964	1.08
May	1,220	475	652	.681	.79
June	535	256	369	.386	.43
July	370	205	248	.259	.30
August	280	205	231	.241	.28
September	280	190	218	.228	.25
The year	6,000	190	517	.540	7.33

BLACK RIVER AT BLACK ROCK, ARK.

LOCATION.—Staff gage in sec. 21, T. 17 N., R. 1 W., at Black Rock. Zero of gage is 229.98 feet above mean sea level.
DRAINAGE AREA.—7,400 square miles.
RECORDS AVAILABLE.—June, 1929, to September, 1931 (discontinued).
EXTREMES.—Maximum discharge during year, 23,000 second-feet Mar. 9 (gage height, 17.5 feet); minimum, 1,800 second-feet Sept. 19–24 (gage height, 0.5 foot).
1929–1931: Maximum discharge, 41,100 second-feet Jan. 15, 1930 (gage height, 23.6 feet); minimum, that of Sept. 19–24, 1931.
REMARKS.—Records poor. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,090	3,730	3,810	3,250	3,090	6,390	10,000	8,300	5,040	3,330	2,500	2,850
2	3,010	3,650	3,730	3,250	3,090	5,940	9,880	7,970	4,860	3,330	2,500	2,710
3	3,010	3,650	3,730	3,170	3,010	5,760	9,400	7,650	4,770	3,490	2,430	2,710
4	2,930	3,490	4,050	3,090	3,010	5,400	8,850	7,250	4,410	3,650	3,650	2,710
5	2,930	3,410	4,320	3,010	3,010	5,310	8,520	7,050	4,410	3,810	4,050	2,570
6	2,930	3,410	4,950	3,010	3,010	5,220	7,970	6,950	4,320	4,050	4,230	2,500
7	3,490	3,330	5,040	2,930	3,010	10,000	7,650	7,450	4,230	3,650	6,850	2,500
8	6,660	3,330	5,040	2,930	5,040	20,600	7,050	7,650	4,230	3,490	7,750	2,500
9	9,070	3,330	4,950	2,930	17,100	23,000	7,050	7,650	4,320	3,490	6,750	2,430
10	5,760	3,250	4,950	2,930	19,300	17,700	6,950	7,550	4,230	3,250	5,400	2,360
11	5,580	3,250	4,860	2,930	15,600	17,100	7,970	7,450	4,230	3,170	4,320	2,290
12	5,130	3,170	4,680	2,850	13,800	16,800	7,750	6,950	4,140	3,090	3,890	2,150
13	4,500	3,170	4,320	2,850	12,900	15,400	7,750	6,660	4,050	2,850	3,650	2,150
14	4,230	3,170	4,230	2,850	13,200	14,400	7,450	6,210	3,970	2,780	3,490	2,080
15	4,140	3,730	4,140	2,850	12,700	13,400	7,350	6,030	3,970	2,710	3,330	2,010
16	4,050	3,890	4,140	2,850	11,400	12,600	7,150	5,850	4,140	2,710	3,090	1,940
17	3,970	3,650	4,140	2,850	11,500	11,600	6,950	5,670	4,320	2,640	2,850	1,940
18	3,890	3,650	4,050	2,780	11,500	11,100	6,850	5,400	4,230	2,640	2,710	1,870
19	3,810	3,650	3,730	2,780	10,600	10,700	6,660	5,310	4,140	2,570	2,710	1,800
20	3,650	3,650	3,570	2,780	9,880	10,000	6,480	5,490	4,050	2,500	2,570	1,800
21	3,490	3,650	3,570	2,930	9,290	9,880	6,480	5,310	4,050	4,050	2,570	1,800
22	3,410	3,650	3,570	2,930	8,520	11,400	6,390	5,220	3,970	3,890	2,570	1,800
23	5,220	3,650	3,490	2,930	8,520	12,300	6,300	5,130	3,650	3,650	2,570	1,800
24	6,850	3,650	3,490	2,930	7,970	11,800	6,390	5,040	3,650	3,490	2,500	1,800
25	5,220	3,650	3,410	2,930	7,860	11,100	6,300	4,860	3,570	3,170	2,500	3,250
26	4,680	3,650	3,410	2,850	7,450	10,600	7,350	5,310	3,490	2,780	2,500	3,170
27	4,140	3,570	3,330	2,850	7,150	10,600	7,150	5,400	3,490	2,710	2,500	2,850
28	4,050	3,570	3,330	3,090	6,950	11,600	7,350	5,130	3,410	2,710	2,710	2,710
29	3,970	3,570	3,330	3,090	-------	11,500	7,970	4,950	3,410	2,640	3,970	2,710
30	3,970	3,810	3,330	3,090	-------	11,100	8,520	5,310	3,330	2,570	3,650	2,570
31	3,810	-------	3,330	3,090	-------	10,600	-------	5,400	-------	2,570	3,330	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	9,070	2,930	4,340	0.586	0.68	267,000
November	3,890	3,170	3,530	.491	.55	210,000
December	5,040	3,330	4,000	.541	.62	246,000
January	3,250	2,780	2,950	.399	.46	181,000
February	19,300	3,010	8,910	1.20	1.25	495,000
March	23,000	5,220	11,600	1.57	1.81	713,000
April	10,000	6,300	7,530	1.02	1.14	448,000
May	8,300	4,860	6,240	.843	.97	384,000
June	5,040	3,330	4,070	.550	.61	242,000
July	4,050	2,500	3,140	.424	.49	193,000
August	7,750	2,430	3,550	.480	.55	218,000
September	3,250	1,800	2,340	.316	.35	139,000
The year	23,000	1,800	5,170	.699	9.48	3,740,000

CURRENT RIVER AT VAN BUREN, MO.

LOCATION.—Chain gage in NE. ¼ NW. ¼ sec. 25, T. 27 N., R. 1 W., at bridge on State highway 60 in Van Buren. Zero of gage is 445.79 feet above mean sea level.

DRAINAGE AREA.—1,640 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 11,000 second-feet Mar. 8 (gage height, 6.80 feet); minimum discharge, 640 second-feet September 17, 19, 20, 28, 29; minimum gage height, 1.43 feet Sept. 28, 29.

1921–1931: Maximum discharge, 49,300 second-feet June 10, 1928 (gage height, 16.45 feet); minimum, 542 second-feet Sept. 6, 8, 9, 12, 1925.

Maximum stage known, 26 feet Mar. 26, 1904.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	748	825	1,220	748	825	1,320	2,320	2,620	1,120	865	710	785
2	748	825	1,430	785	825	1,380	2,180	2,180	1,120	825	748	865
3	748	825	1,320	748	825	1,320	2,180	2,040	1,080	825	748	945
4	710	825	1,170	748	825	1,170	2,040	1,910	1,080	865	748	945
5	710	785	1,170	748	785	1,170	2,040	1,910	1,080	865	748	865
6	710	785	1,270	748	825	1,220	1,780	2,040	945	785	945	825
7	785	825	1,660	748	825	5,720	1,660	2,470	988	865	1,660	825
8	4,660	785	1,540	825	988	9,800	1,540	2,320	1,030	825	1,170	785
9	2,620	748	1,380	785	2,320	5,940	1,660	2,040	945	825	945	748
10	1,540	785	1,270	748	4,160	4,480	2,320	2,040	905	825	905	748
11	1,320	748	1,170	710	3,070	3,840	2,040	1,910	1,030	785	825	710
12	1,170	748	1,080	748	2,320	3,220	1,910	1,780	1,030	785	785	710
13	1,030	748	1,030	825	2,320	2,920	1,910	1,660	1,660	748	785	710
14	988	748	988	825	3,520	2,620	1,660	1,660	1,430	748	748	710
15	905	785	945	865	3,370	2,320	1,660	1,540	1,430	748	748	675
16	945	825	905	865	2,770	2,040	1,540	1,540	1,320	748	710	675
17	945	865	905	785	2,620	1,910	1,430	1,430	1,270	748	710	640
18	905	945	905	785	2,620	1,780	1,540	1,380	1,170	785	825	675
19	905	988	865	825	2,620	1,660	1,540	1,430	1,080	785	945	640
20	865	945	865	865	2,320	1,660	1,430	1,430	1,030	785	905	640
21	825	988	865	865	1,910	1,780	1,780	1,380	988	865	865	675
22	865	1,170	825	825	1,660	2,470	2,040	1,320	945	825	825	675
23	905	1,030	825	785	1,660	3,520	2,040	1,320	945	825	748	675
24	1,030	945	825	785	1,540	3,220	1,780	1,270	945	865	710	675
25	1,320	905	825	825	1,540	2,770	1,780	1,270	945	785	710	675
26	1,120	865	785	825	1,380	2,320	3,370	1,220	905	785	710	675
27	988	865	785	825	1,380	2,320	4,480	1,270	865	748	710	675
28	905	815	785	825	1,320	2,770	4,000	1,220	825	748	675	640
29	905	825	748	825	-------	3,070	3,370	1,220	825	710	748	640
30	865	945	785	785	-------	2,920	2,920	1,170	865	748	785	675
31	865	-------	785	785	-------	2,620	-------	1,120	-------	748	785	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,660	710	1,110	0.677	0.78
November	1,170	748	857	.523	.58
December	1,660	748	1,030	.628	.72
January	865	710	796	.485	.56
February	4,160	785	1,900	1.16	1.21
March	9,800	1,170	2,820	1.72	1.98
April	4,480	1,430	2,130	1.30	1.45
May	2,620	1,120	1,650	1.01	1.16
June	1,660	825	1,060	.646	.72
July	865	710	796	.485	.56
August	1,660	675	825	.503	.58
September	945	640	727	.443	.49
The year	9,800	640	1,300	.793	10.79

CURRENT RIVER AT DONIPHAN, MO.

LOCATION.—Chain gage in N. ½ sec. 27, T. 23 N., R. 2 E., at bridge on State highway 42, three-fourths mile west of Doniphan. Zero of gage is 322.30 feet above mean sea level.

DRAINAGE AREA.—2,030 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 9,500 second-feet Mar. 9 (gage height, 6.95 feet); minimum discharge, 1,050 second-feet Sept. 20–23, 30; minimum gage height, 0.27 foot Sept. 21.

1921–1931: Maximum discharge, 48,000 second-feet Apr. 15, 1927 (gage height, 18.30 feet); minimum, 1,020 second-feet Aug. 27 to Sept. 14, 1925. Maximum stage known, 26.5 feet in August, 1915.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,260	1,340	1,660	1,260	1,340	2,000	3,380	4,680	1,740	1,260	1,120	1,190
2	1,260	1,340	2,300	1,260	1,260	1,910	3,160	3,720	1,660	1,260	1,120	1,260
3	1,190	1,340	2,200	1,260	1,260	1,820	3,050	2,940	1,580	1,260	1,190	1,500
4	1,190	1,340	2,000	1,260	1,260	1,820	2,830	2,720	1,580	1,260	1,190	1,580
5	1,190	1,340	2,000	1,260	1,260	1,740	2,610	2,500	1,500	1,260	1,190	1,420
6	1,190	1,260	1,910	1,260	1,260	1,740	2,400	2,500	1,500	1,260	4,320	1,340
7	1,500	1,260	2,200	1,260	1,340	3,960	2,300	2,720	1,580	1,260	2,940	1,260
8	2,830	1,260	2,500	1,340	1,660	7,920	2,200	3,050	1,500	1,260	2,100	1,190
9	4,680	1,260	2,300	1,340	2,400	8,700	2,200	2,940	1,500	1,190	1,740	1,190
10	2,940	1,260	2,100	1,260	4,440	5,950	2,400	2,720	1,420	1,190	1,500	1,120
11	2,300	1,260	2,000	1,340	4,560	4,920	3,050	2,500	1,420	1,190	1,420	1,120
12	1,910	1,260	1,910	1,340	3,600	4,320	2,830	2,400	1,420	1,190	1,340	1,190
13	1,740	1,260	1,820	1,420	3,380	3,840	2,720	2,300	1,660	1,120	1,260	1,120
14	1,660	1,260	1,740	1,420	3,720	3,490	2,500	2,200	2,000	1,120	1,260	1,120
15	1,580	1,260	1,660	1,420	4,680	3,160	2,400	2,100	1,910	1,120	1,190	1,120
16	1,580	1,340	1,580	1,420	3,960	2,940	2,300	2,000	1,910	1,120	1,190	1,120
17	1,500	1,420	1,580	1,420	3,600	2,720	2,300	1,910	1,820	1,120	1,190	1,120
18	1,580	1,500	1,580	1,420	3,380	2,610	2,200	1,910	1,740	1,190	1,190	1,120
19	1,420	1,500	1,500	1,420	3,380	2,500	2,200	1,910	1,580	1,190	1,340	1,120
20	1,420	1,500	1,500	1,420	3,160	2,400	2,100	1,910	1,580	1,190	1,420	1,050
21	1,420	1,500	1,420	1,420	2,940	2,400	2,200	1,820	1,420	1,260	1,420	1,050
22	1,420	1,500	1,420	1,420	2,720	2,830	2,500	1,740	1,420	1,260	1,260	1,050
23	1,580	1,740	1,420	1,420	2,500	3,720	2,610	1,740	1,420	1,260	1,260	1,050
24	1,580	1,580	1,340	1,340	2,400	4,320	2,500	1,740	1,340	1,190	1,190	1,120
25	1,820	1,580	1,260	1,340	2,300	3,840	2,500	1,740	1,340	1,190	1,120	1,120
26	1,740	1,500	1,340	1,340	2,200	3,380	2,830	1,740	1,340	1,190	1,120	1,120
27	1,660	1,420	1,340	1,340	2,100	3,270	4,800	1,740	1,260	1,190	1,120	1,120
28	1,580	1,420	1,340	1,340	2,000	3,490	5,170	1,740	1,260	1,120	1,420	1,120
29	1,500	1,420	1,340	1,340	-------	3,720	4,320	1,740	1,260	1,120	1,260	1,120
30	1,420	1,500	1,340	1,340	-------	3,840	3,840	1,820	1,260	1,260	1,190	1,050
31	1,420	-------	1,260	1,340	-------	3,600	-------	1,740	-------	1,260	1,190	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	4,680	1,190	1,710	0.842	0.97
November	1,740	1,260	1,390	.685	.76
December	2,500	1,260	1,710	.842	.97
January	1,420	1,260	1,350	.665	.77
February	4,680	1,260	2,640	1.30	1.35
March	8,700	1,740	3,510	1.73	1.99
April	5,170	2,100	2,810	1.38	1.54
May	4,680	1,740	2,290	1.13	1.30
June	2,000	1,260	1,530	.754	.84
July	1,260	1,120	1,200	.591	.68
August	4,320	1,120	1,440	.709	.82
September	1,580	1,050	1,170	.576	.64
The year	8,700	1,050	1,890	.931	12.63

ROUND SPRING AT ROUND SPRING, MO.

LOCATION.—Staff gage in sec. 20, T. 30 N., R. 4 W., at Round Spring.
RECORDS AVAILABLE.—October, 1928, to September, 1931.
EXTREMES.—Maximum discharge during year (estimated), 180 second-feet during backwater from Current River Mar. 7; minimum, 16 second-feet Feb. 1, 2, 7, Sept. 21–23.
1929–1931: Maximum discharge (estimated), 220 second-feet during backwater from Current River May 13, 1929; minimum discharge, that of Feb. 1, 2, 7, Sept. 21–23, 1931.
REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	20	27	19	a 16	a 22	50	a 70	a 23	23	17	20
2	20	20	29	19	16	21	45	a 60	22	23	17	37
3	20	20	31	18	17	22	39	a 50	22	22	17	33
4	20	a 20	31	a 18	18	21	33	39	20	a 21	18	22
5	19	21	34	19	19	22	32	34	20	20	20	22
6	19	21	a 32	20	17	a 60	34	83	20	20	115	a 22
7	115	20	31	20	16	a 180	32	74	24	20	61	21
8	95	19	29	20	a 52	a 170	34	66	21	22	a 45	20
9	62	a 19	31	20	89	a 160	28	59	23	23	36	17
10	a 51	19	31	21	55	145	32	a 51	23	20	34	18
11	40	20	29	a 22	40	101	33	43	24	20	26	17
12	a 39	20	26	23	36	77	a 32	43	61	a 20	25	a 17
13	37	20	25	22	a 56	67	32	43	50	20	25	a 17
14	34	20	25	20	77	a 55	31	43	a 45	20	25	17
15	33	20	24	20	a 72	43	32	40	40	20	24	a 17
16	26	a 21	24	20	68	42	31	a 36	36	20	a 24	a 18
17	28	22	23	20	55	40	29	a 33	31	20	23	a 19
18	26	22	23	a 20	48	39	27	29	27	20	24	20
19	a 24	21	22	21	42	36	28	28	27	20	24	a 19
20	23	20	a 22	20	36	36	29	26	28	21	21	a 17
21	23	20	21	a 19	33	46	33	29	a 28	20	21	16
22	22	20	20	18	a 32	a 60	36	25	28	20	21	16
23	21	20	20	20	32	89	36	a 25	a 25	19	20	16
24	21	20	21	17	29	83	34	a 28	22	19	20	18
25	22	21	23	a 17	28	70	a 100	28	20	19	21	18
26	21	21	22	17	27	a 64	170	27	20	a 19	21	a 18
27	22	21	23	17	26	57	115	25	20	19	21	a 19
28	22	26	21	18	24	74	95	24	21	18	20	20
29	21	26	21	18	-------	66	89	22	20	17	20	20
30	21	a 26	20	17	-------	61	77	24	21	17	a 20	19
31	21	-------	20	17	-------	55	-------	a 24	-------	17	19	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	115	19	31.9	May	83	22	39.7
November	26	19	20.9	June	61	20	27.1
December	34	20	25.2	July	23	17	20.0
January	23	17	19.3	August	115	17	27.3
February	89	16	38.4	September	37	16	19.7
March	180	21	67.2				
April	170	27	48.3	The year	180	16	32.0

a Estimated.

ALLEY SPRING AT ALLEY, MO.

LOCATION.—Staff gage in sec. 25, T. 29 N., R. 5 W., at Alley, 400 feet below spring outlet. Zero of gage is 664.49 feet above mean sea level.
RECORDS AVAILABLE.—October, 1928, to September, 1931.
EXTREMES.—Maximum discharge during period Oct. 30, 1928, to Sept. 30, 1931, 633 second-feet May 14, 1929 (gage height, 3.32 feet); minimum, 63 second-feet Sept. 28–30, 1931.
REMARKS.—Records fair. Discharge estimated Mar. 17, 1929, Sept. 23–25, 1931. Discharge during high stages includes some surface run-off.

Daily and monthly discharge, in second-feet, 1928–1931

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1928–29												
1	------	104	252	118	192	278	160	170	203	230	144	129
2	------	102	160	118	181	278	150	192	203	230	137	129
3	------	102	160	110	170	215	150	203	192	217	129	124
4	------	102	150	110	170	203	139	192	181	217	129	124
5	------	102	150	110	160	192	139	181	181	217	129	124
6	------	102	139	139	160	181	139	365	181	204	129	124
7	------	98	135	139	160	181	135	397	181	204	129	124
8	------	98	135	126	160	170	240	529	181	204	191	120
9	------	98	122	122	150	170	461	495	181	191	204	120
10	------	98	122	139	139	160	461	461	181	191	204	120
11	------	98	118	139	139	160	461	429	181	191	230	120
12	------	98	114	139	139	150	381	227	170	191	204	120
13	------	98	126	139	139	150	350	598	461	179	179	124
14	------	98	170	135	135	150	413	633	461	179	179	124
15	------	98	160	124	131	278	397	563	461	191	179	120
16	------	98	160	122	131	278	381	495	413	191	167	120
17	------	102	203	122	131	259	350	461	381	191	156	120
18	------	106	203	139	135	240	306	429	365	179	156	120
19	------	102	192	139	135	215	265	381	306	179	156	120
20	------	102	181	150	131	203	252	335	278	167	156	120
21	------	98	160	150	126	203	227	306	278	167	156	111
22	------	98	160	139	126	192	215	292	252	156	156	111
23	------	98	150	139	122	181	203	278	252	156	144	111
24	------	98	139	365	126	181	203	265	252	156	144	111
25	------	98	139	461	227	170	203	252	252	156	137	111
26	------	98	135	429	381	160	192	240	252	156	137	111
27	------	98	131	350	278	160	181	227	258	144	133	111
28	------	98	131	306	306	160	181	227	244	144	133	111
29	------	181	131	265	------	150	170	203	244	144	133	111
30	104	252	122	227	------	150	170	203	230	144	129	111
31	104	------	122	203	------	150	------	203	------	144	129	------
1929–30												
1	111	230	94	129	129	287	115	94	115	90	78	80
2	111	230	94	129	129	230	115	94	115	86	74	80
3	111	179	94	129	129	191	115	94	115	86	74	80
4	111	179	94	120	302	191	115	94	115	86	74	80
5	111	167	94	115	302	217	115	94	94	86	74	80
6	107	156	94	115	272	204	115	94	94	86	74	80
7	107	156	94	115	244	204	115	94	96	86	74	80
8	107	131	94	124	244	217	107	94	94	86	74	80
9	102	131	94	124	191	191	107	94	94	86	74	156
10	102	129	94	124	179	191	107	94	94	86	76	156
11	118	129	94	129	179	179	107	179	94	86	76	156
12	118	120	94	156	179	179	107	156	94	86	76	120
13	118	120	94	396	167	167	107	156	94	86	76	120
14	118	120	94	465	156	167	107	124	94	86	76	156
15	107	104	94	413	156	167	102	124	94	86	84	156
16	107	104	217	364	144	156	102	111	90	86	84	156
17	107	104	217	287	144	156	102	111	90	86	80	156
18	107	104	217	287	144	156	104	124	90	82	80	144
19	107	98	217	244	144	144	102	124	90	82	80	129
20	107	98	137	156	144	142	102	124	90	82	80	120
21	107	98	137	191	144	142	102	111	90	82	80	98
22	107	98	115	179	144	133	102	111	90	82	76	98
23	107	98	115	179	191	133	102	111	90	82	78	98
24	107	94	115	167	191	133	102	111	90	82	78	94
25	107	94	102	167	317	129	102	102	90	78	76	98
26	107	94	102	156	348	129	94	102	90	78	76	90
27	107	94	102	144	348	133	94	102	90	78	76	90
28	107	94	102	142	287	124	94	102	90	78	76	82
29	102	94	98	142	------	124	94	102	90	78	78	82
30	102	94	98	137	------	124	94	102	90	78	78	82
31	230	------	98	137	------	124	------	102	------	78	78	------

Daily and monthly discharge, in second-feet, of Alley Spring at Alley, Mo., 1928–1931—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930–31												
1	82	90	156	78	74	115	191	204	94	86	86	78
2	82	86	137	78	74	111	179	191	94	86	86	142
3	80	86	137	78	74	111	167	179	94	86	86	137
4	80	86	137	78	74	107	167	167	94	86	86	102
5	80	82	167	78	74	107	156	156	94	86	86	102
6	80	82	167	78	74	111	144	217	94	90	204	90
7	156	82	167	78	74	396	142	217	90	86	204	82
8	302	82	167	78	258	396	142	191	90	86	167	82
9	204	82	137	78	287	380	142	191	86	86	115	82
10	204	82	137	78	258	348	167	179	86	86	115	78
11	179	80	131	78	204	287	142	167	86	86	94	78
12	156	76	131	78	191	244	156	156	230	86	94	78
13	133	76	111	78	191	230	144	137	230	86	82	80
14	133	76	109	78	244	204	142	137	167	86	82	74
15	122	76	102	78	244	191	133	129	142	86	86	74
16	122	78	98	78	217	167	133	129	129	82	82	74
17	111	78	96	78	217	167	142	124	115	82	82	74
18	111	78	96	80	204	156	144	137	115	82	82	74
19	100	78	90	82	179	156	142	115	98	86	94	74
20	92	86	90	86	167	156	135	111	98	86	94	74
21	90	86	88	88	167	156	179	111	90	86	82	74
22	90	86	86	86	156	244	167	144	90	78	82	67
23	122	86	84	82	156	244	156	144	90	78	82	67
24	122	82	84	82	144	230	156	102	90	78	78	67
25	122	82	84	74	144	204	156	102	86	78	78	67
26	90	82	84	74	137	204	348	102	86	86	78	67
27	94	74	82	74	133	204	317	98	86	86	78	67
28	94	74	82	74	124	230	272	94	86	86	78	63
29	94	74	82	74	-------	217	244	94	129	86	78	63
30	90	156	82	74	-------	204	217	94	129	86	78	63
31	90	-------	82	74	-------	191	-------	94	-------	86	78	-------

Month	Maximum	Minimum	Mean
1928–29			
October	-------	-------	-------
November	252	98	107
December	252	114	151
January	461	110	181
February	381	122	167
March	278	150	193
April	461	135	256
May	633	170	337
June	461	170	262
July	230	144	181
August	230	129	155
September	129	111	119
1929–30			
October	230	102	112
November	230	94	125
December	217	94	116
January	465	115	189
February	348	129	202
March	287	124	167
April	115	94	105
May	179	94	111
June	115	90	94.9
July	90	78	83.4
August	84	74	77.0
September	156	80	109
The year	465	74	124
1930–31			
October	302	80	120
November	156	74	83.5
December	167	82	112
January	88	74	78.4
February	287	74	162
March	396	107	209
April	348	133	174
May	217	94	142
June	230	86	110
July	90	78	84.7
August	204	78	96.0
September	142	63	79.8
The year	396	63	121

BIG SPRING NEAR VAN BUREN, MO.

LOCATION.—Staff gage in sec. 6, T. 26 N., R. 1 E., 600 feet above mouth of Spring Branch and 4 miles southeast of Van Buren. Zero of gage is 431.26 feet above mean sea level (revised).

RECORDS AVAILABLE.—January to June, 1922; April, 1923, to September, 1931.

EXTREMES.—Maximum discharge during year, 685 second-feet Mar. 9; minimum, 308 second-feet Jan. 2–21, 26–31, Feb. 1–5, 7.

1922–1931: Maximum discharge (estimated), 1,100 second-feet during backwater from Current River in June, 1928; minimum, 268 second-feet Sept. 17–24, 1926.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	316	324	316	312	308	e 379	578	569	359	328	328	341
2	316	324	395	308	308	372	e 568	522	354	328	328	363
3	316	324	372	308	308	368	e 558	e 495	350	328	328	363
4	316	324	354	308	308	359	e 548	468	350	328	328	363
5	316	320	350	308	308	350	e 538	453	350	328	332	354
6	316	320	363	308	309	350	e 528	453	346	324	363	350
7	324	320	423	308	308	e 400	e 518	500	346	328	433	350
8	438	316	404	308	e 400	e 500	e 508	516	346	328	404	346
9	440	316	381	308	478	685	e 498	494	346	328	377	346
10	386	316	368	308	532	547	e 488	e 476	341	328	368	346
11	386	316	354	308	497	e 540	e 478	458	341	328	363	e 346
12	368	318	346	308	502	536	e 468	443	341	328	359	346
13	354	316	341	308	484	e 531	e 458	428	363	328	354	346
14	350	316	337	308	476	e 526	448	418	e 366	328	350	346
15	341	316	332	308	e 500	e 521	438	409	372	328	350	341
16	341	324	328	308	519	516	428	395	359	328	346	341
17	337	324	324	308	508	494	418	e 392	359	328	346	341
18	337	328	324	308	497	473	418	390	350	328	346	341
19	332	324	324	308	502	463	e 416	386	346	328	350	341
20	328	324	324	308	486	443	413	386	341	328	354	e 341
21	328	320	320	308	478	438	413	377	337	332	350	341
22	328	346	320	312	e 458	e 480	448	372	337	332	350	337
23	337	332	320	312	438	494	448	372	332	332	346	337
24	341	328	320	312	423	502	438	e 370	332	332	341	337
25	350	324	316	e 310	413	525	438	368	332	328	341	341
26	e 346	320	316	308	404	560	e 490	372	328	328	341	341
27	341	320	316	308	395	543	494	372	328	328	346	341
28	337	316	316	308	386	565	565	363	328	328	346	341
29	332	816	316	308	-------	e 550	569	363	332	328	346	337
30	328	320	312	308	-------	532	574	368	328	328	346	337
31	324	-------	312	308	-------	547	-------	363	-------	328	341	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	440	316	344	May	569	363	423
November	346	316	322	June	372	328	345
December	423	312	340	July	332	324	328
January	312	308	309	August	433	328	352
February	532	308	426	September	363	337	345
March	685	350	487				
April	578	413	486	The year	685	308	375

e Discharge estimated.

ELEVEN POINT RIVER NEAR BARDLEY, MO.

LOCATION.—Chain gage in NW. ¼ sec. 20, T. 23 N., R. 2 W., at bridge on State highway 42, 7 miles southwest of Bardley. Zero of gage is about 410.8 feet above mean sea level.

RECORDS AVAILABLE.—October, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 2,640 second-feet Aug. 6 (gage height, 5.25 feet); minimum, 300 second-feet Feb. 2–5, Sept. 17–30.

1922–1931: Maximum discharge, 27,800 second-feet Apr. 14, 1927 (gage height, 18.74 feet); minimum, 210 second-feet Sept. 6–11, 1925 (gage height, 1.06 feet).

Maximum stage known, 19.7 feet in August, 1915.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	322	395	420	345	322	565	987	845	565	445	345	345
2	322	395	420	345	300	565	915	845	565	420	395	370
3	322	370	420	345	300	565	915	810	565	445	370	345
4	322	370	395	345	300	535	880	775	535	420	370	345
5	322	370	420	345	300	535	845	775	535	420	370	345
6	322	370	445	345	322	535	810	845	535	420	1,880	345
7	420	345	475	345	322	1,650	775	915	845	420	775	322
8	1,650	345	475	345	420	2,020	775	915	740	420	670	322
9	880	345	475	345	1,060	1,580	740	915	635	395	600	322
10	565	345	445	322	987	1,350	880	880	600	395	535	322
11	370	345	445	322	845	1,200	915	845	565	395	505	322
12	565	322	445	345	810	1,130	915	810	565	395	475	322
13	535	322	420	345	845	1,060	880	775	565	395	445	322
14	505	322	420	345	987	987	880	740	565	370	445	322
15	505	345	420	322	915	915	845	740	565	370	420	322
16	475	395	420	322	915	915	810	705	565	370	420	322
17	445	370	395	322	915	845	775	705	565	370	395	300
18	420	345	395	322	880	845	775	670	535	370	395	300
19	420	345	395	322	810	810	740	740	535	370	445	300
20	395	345	395	322	775	775	740	670	505	395	420	300
21	395	370	370	322	775	810	775	635	505	420	420	300
22	420	345	370	322	740	845	775	635	475	370	420	300
23	445	345	370	322	705	987	810	600	475	370	395	300
24	505	370	370	322	705	1,060	810	600	475	370	395	300
25	475	345	370	322	670	987	810	600	475	370	370	300
26	445	345	370	322	635	987	880	635	445	345	370	300
27	445	345	345	322	600	987	915	635	445	345	370	300
28	420	345	345	322	600	1,060	915	600	445	345	420	300
29	420	345	345	322	------	1,060	915	600	445	345	370	300
30	420	370	345	322	------	1,060	880	600	445	395	370	300
31	395	------	345	322	------	987	------	600	------	345	370	------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	1,650	322	480	May	915	600	731
November	395	322	354	June	845	445	543
December	475	345	403	July	445	345	388
January	345	322	331	August	1,880	345	482
February	1,060	300	670	September	370	300	317
March	2,020	535	975				
April	987	740	843	The year	2,020	300	542

ELEVEN POINT RIVER NEAR ELEVEN POINT, ARK.

LOCATION.—Chain gage in SE. ¼ SE. ¼ sec. 30, T. 20 N., R. 1 W., 2 miles southwest of Eleven Point and 15 miles above mouth.
DRAINAGE AREA.—1,090 square miles.
RECORDS AVAILABLE.—November, 1929, to September, 1931.
EXTREMES.—Maximum discharge during year, 7,530 second-feet Mar. 7 (gage height, 10.0 feet); minimum, 390 second-feet Feb. 5 (gage height, 2.54 feet). 1929–1931: Maximum discharge, 11,300 second-feet Jan. 14, 1930 (gage height, 13.01 feet); minimum, that of Feb. 5, 1931.
REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	450	630	570	510	450	830	1,420	1,190	830	630	570	510
2	450	630	630	510	450	830	1,340	1,120	830	630	510	510
3	450	570	630	510	450	830	1,340	1,120	760	570	630	510
4	510	570	570	510	450	830	1,260	1,040	760	760	630	510
5	510	570	690	510	390	760	1,190	1,040	760	900	570	510
6	510	570	690	510	450	760	1,120	1,040	760	630	2,990	510
7	630	570	760	510	450	7,530	1,120	1,190	760	630	1,490	510
8	690	570	690	510	4,280	4,160	1,040	1,260	1,120	570	970	510
9	1,650	570	690	510	2,800	2,800	1,040	1,190	900	570	830	510
10	970	570	690	510	1,730	2,070	1,490	1,120	830	570	760	450
11	760	570	630	510	1,340	1,810	1,340	1,120	760	570	690	450
12	760	570	630	510	1,190	1,650	1,260	1,120	760	570	690	450
13	690	570	630	450	1,420	1,490	1,260	1,040	760	570	630	450
14	690	510	630	510	1,420	1,420	1,260	970	760	570	630	450
15	690	510	630	450	1,260	1,260	1,190	970	760	570	630	450
16	690	690	570	450	1,260	1,190	1,120	970	760	570	570	450
17	630	630	570	450	1,340	1,190	1,040	900	760	570	570	450
18	630	570	570	450	1,260	1,120	1,120	900	760	570	570	450
19	570	570	570	510	1,190	1,120	1,120	900	690	570	570	450
20	570	570	570	510	1,120	1,040	1,040	1,120	690	570	630	450
21	570	570	570	450	1,120	1,120	1,120	900	690	630	570	450
22	570	570	570	450	1,040	1,570	1,120	900	690	570	570	450
23	970	570	570	450	970	1,490	1,120	830	690	570	570	450
24	760	570	570	450	970	1,490	1,120	830	690	570	570	1,420
25	760	570	570	450	970	1,420	1,120	930	690	630	570	450
26	690	570	570	450	900	1,340	1,190	900	630	570	570	450
27	690	570	570	510	900	1,490	1,260	830	630	510	570	450
28	630	570	570	450	900	1,650	1,260	830	630	510	570	450
29	630	570	510	450	-------	1,570	1,260	830	630	510	570	450
30	630	630	510	450	-------	1,490	1,190	830	630	510	570	450
31	630	-------	510	450	-------	1,420	-------	830	-------	830	510	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	1,650	450	678	0.622	0.72	41,700
November	690	510	578	.530	.59	34,400
December	760	510	603	.553	.64	37,100
January	510	450	481	.441	.51	29,600
February	4,280	390	1,160	1.06	1.10	64,400
March	7,530	760	1,630	1.50	1.73	100,000
April	1,490	1,040	1,200	1.10	1.23	71,400
May	1,260	830	989	.907	1.05	60,800
June	1,120	630	746	.684	.76	44,400
July	900	510	599	.550	.63	36,800
August	2,990	510	721	.661	.76	44,300
September	1,420	450	500	.459	.51	29,800
The year	7,530	390	822	.754	10.23	595,000

GREER SPRING AT GREER, MO.

LOCATION.—Staff gage in SE. ¼ SW. ¼ sec. 36, T. 25 N., R. 4 W., 500 feet below lower outlet of the spring and 1 mile north of Greer. Zero of gage is about 539.0 feet above mean sea level.

RECORDS AVAILABLE.—August to December, 1904; November, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 612 second-feet Mar. 11 (gage height, 1.06 feet); minimum, 213 second-feet Jan. 15.

1922–1931: Maximum discharge, 903 second-feet May 26, 1927 (gage height, 1.43 feet); minimum, 151 second-feet Aug. 19, 1925.

REMARKS.—Records fair. Gage read three times a week; discharge estimated for remaining days.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	242	244	232	228	230	343	518	477	366	316	275	280
2	240	240	236	228	230	336	508	470	366	312	280	280
3	240	236	240	226	232	332	497	462	366	308	285	280
4	240	234	242	226	228	328	484	454	366	305	294	278
5	270	230	242	224	224	323	470	447	358	311	302	275
6	300	228	244	222	230	405	457	472	350	317	311	272
7	341	228	248	220	236	487	452	497	336	311	350	270
8	382	228	252	220	320	600	447	508	323	306	390	268
9	371	230	250	220	408	604	437	518	327	300	372	267
10	361	232	250	220	414	608	427	504	332	300	355	265
11	350	231	248	220	420	612	430	491	336	300	336	262
12	330	229	246	220	427	580	432	477	351	300	318	260
13	311	228	244	218	447	549	434	467	366	300	300	256
14	302	230	240	216	467	518	437	457	374	298	298	258
15	294	232	236	213	467	508	432	447	382	297	295	260
16	285	234	234	214	477	497	427	437	379	295	292	258
17	272	236	234	216	487	497	417	432	377	295	290	256
18	260	234	232	216	457	497	417	427	374	295	292	254
19	257	232	232	220	427	477	417	412	366	297	293	252
20	255	236	232	222	427	457	417	417	358	298	295	244
21	252	238	232	224	427	462	417	411	350	300	298	244
22	264	240	232	226	404	467	427	405	343	298	300	244
23	275	234	230	226	382	472	437	399	343	295	295	244
24	275	228	230	228	376	477	432	393	343	298	290	244
25	275	226	228	230	370	482	427	388	343	300	285	246
26	278	226	228	232	366	487	450	382	336	298	282	248
27	280	224	228	232	358	493	474	374	329	295	280	244
28	271	224	230	232	350	498	497	366	326	290	280	244
29	261	224	232	232	-------	503	492	374	323	285	280	244
30	252	228	230	230	-------	508	487	382	320	280	280	244
31	248	-------	228	228	-------	513	-------	374	-------	278	280	-------

Month	Maximum	Minimum	Mean	Month	Maximum	Minimum	Mean
October	382	240	285	May	518	366	436
November	244	224	231	June	382	320	350
December	252	228	237	July	317	278	299
January	232	213	224	August	390	275	302
February	487	224	367	September	280	244	258
March	612	323	481				
April	518	417	450	The year	612	213	327

LITTLE RED RIVER NEAR HEBER SPRINGS, ARK.

LOCATION.—Staff gage in NE. ¼ sec. 1, T. 10 N., R. 10 W., 4 miles northeast of Heber Springs.
DRAINAGE AREA.—1,160 square miles.
RECORDS AVAILABLE.—September, 1927, to September, 1931.
EXTREMES.—Maximum discharge during year, 28,500 second-feet Oct. 8 (gage height, 24.45 feet); minimum, 8 second-feet Sept. 30 (gage height, 2.72 feet). 1927–1931: Maximum discharge, 88,800 second-feet April 6, 1928 (gage height, 42.35 feet); no flow Oct. 1–19, 22–30, 1929, Aug. 2–18, 1930.
REMARKS.—Records fair. Gage-height record furnished by Arkansas Power & Light Co.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	252	220	7,140	400	265	1,670	2,250	2,040	1,220	92	170	385
2	200	200	3,080	385	252	1,490	2,110	1,910	1,020	76	160	278
3	170	190	2,880	370	240	1,320	1,850	1,550	780	71	84	230
4	142	180	2,520	340	240	1,220	1,610	1,320	620	87	122	210
5	122	180	2,250	340	230	1,070	1,430	1,120	520	170	240	200
6	114	170	4,880	385	220	1,020	1,220	1,070	460	328	620	190
7	190	170	3,830	370	230	12,500	1,120	1,270	385	220	1,610	160
8	22,500	160	3,040	490	340	11,000	970	1,270	355	180	870	142
9	7,280	152	2,390	660	14,700	5,340	920	1,070	328	146	550	132
10	3,370	142	2,110	700	13,900	3,640	820	920	265	114	430	111
11	2,110	142	1,730	660	6,610	2,880	2,040	780	252	92	302	92
12	1,490	138	1,490	660	4,230	2,390	1,670	700	240	71	230	81
13	1,170	132	1,070	660	3,460	1,970	1,370	620	620	66	190	71
14	870	128	1,020	580	5,830	1,730	1,220	550	580	61	152	61
15	700	190	970	550	3,640	1,490	1,490	490	490	51	122	51
16	580	315	920	520	3,640	1,270	1,610	460	870	41	106	41
17	490	6,740	780	460	3,830	1,120	1,370	400	820	41	94	39
18	430	3,200	700	430	3,370	1,020	1,270	355	620	43	92	37
19	370	2,250	700	430	2,810	920	1,170	315	490	41	99	31
20	340	2,740	620	430	2,390	870	1,070	355	385	76	99	27
21	290	9,750	580	400	2,040	920	1,070	340	315	92	106	23
22	278	4,030	580	385	1,730	1,730	1,730	340	265	190	114	21
23	278	2,960	520	370	1,670	2,960	1,850	315	230	210	106	18
24	302	2,250	490	355	2,250	2,390	1,550	290	200	340	76	16
25	290	1,730	460	340	2,670	1,970	1,430	265	200	302	66	14
26	302	1,490	460	328	2,530	1,670	1,910	2,810	210	230	63	13
27	328	1,170	490	315	2,110	2,320	6,740	6,480	152	370	61	12
28	302	1,020	460	315	1,850	4,770	3,930	2,810	132	355	99	10
29	278	870	460	302	-------	3,830	2,810	1,970	114	230	170	9
30	252	1,610	430	290	-------	2,880	2,250	1,670	99	170	355	8
31	230	-------	430	278	-------	2,530	-------	1,430	-------	140	580	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	22,500	114	1,480	1.28	1.48	91,000
November	9,750	128	1,490	1.28	1.43	88,700
December	7,140	430	1,620	1.40	1.61	99,600
January	700	278	435	.375	.43	26,700
February	14,700	220	3,120	2.69	2.80	173,000
March	12,500	870	2,710	2.34	2.70	167,000
April	6,740	820	1,800	1.55	1.73	107,000
May	6,480	265	1,200	1.03	1.19	73,800
June	1,220	99	441	.380	.42	26,200
July	370	41	151	.130	.15	9,280
August	1,610	61	263	.227	.26	16,200
September	385	8	90.4	.078	.09	5,380
The year	22,500	8	1,220	1.05	14.29	884,000

CACHE RIVER AT PATTERSON, ARK.

LOCATION.—Staff gage in sec. 6, T. 7 N., R. 2 W., at Patterson. Zero of gage is 188.27 feet above mean sea level.

DRAINAGE AREA.—790 square miles.

RECORDS AVAILABLE.—February, 1928, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 2,400 second-feet Feb. 19–22 (gage height, 8.7 feet); minimum, 57 second-feet Sept. 30 (gage height, 2.4 feet).

1928–1931: Maximum discharge, 12,100 second-feet June 27, 28, 1928 (gage height, 11.8 feet); minimum, 51 second-feet Aug. 7–16, 1930 (gage height, 2.1 feet).

Maximum stage known, 17.1 feet in April, 1927, due to break in White River levee.

REMARKS.—Records fair. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	70	61	115	104	99	1,320	1,040	157	134	61	243	175
2	67	70	121	104	94	1,110	1,040	185	134	61	273	185
3	67	81	121	a 104	94	1,040	930	217	127	a 61	273	206
4	67	89	127	104	94	980	800	243	121	61	313	243
5	67	99	141	115	94	880	880	258	115	64	258	336
6	64	109	157	127	94	800	1,040	293	109	64	258	a 336
7	64	115	157	134	94	720	1,110	336	109	109	217	336
8	67	115	141	149	94	680	1,110	359	104	166	185	293
9	70	109	127	149	99	930	930	359	99	206	149	293
10	70	99	115	149	185	1,040	800	359	94	185	141	273
11	67	104	109	141	293	1,040	680	336	89	134	134	293
12	67	94	104	134	575	1,040	575	293	85	99	115	a 276
13	64	85	94	134	760	980	445	258	81	81	104	258
14	64	77	99	134	840	930	385	243	81	73	121	217
15	64	73	109	134	880	1,200	336	228	81	70	149	175
16	64	73	134	157	1,110	1,450	313	217	81	70	185	a 142
17	64	73	157	175	1,590	1,450	293	206	81	67	195	109
18	64	73	175	185	2,230	1,450	273	195	77	67	195	94
19	64	73	175	185	2,400	1,320	228	195	a 75	67	185	a 84
20	64	70	157	185	2,400	1,320	206	185	73	67	166	73
21	61	70	141	175	a 2,400	1,320	206	185	73	67	a 135	67
22	61	67	127	149	2,400	1,320	195	185	73	67	104	64
23	61	67	115	134	2,230	1,040	195	175	70	64	94	61
24	61	67	a 104	134	2,230	880	185	175	67	64	77	61
25	61	67	94	134	2,230	760	175	175	67	67	70	61
26	61	73	89	121	1,900	610	175	166	67	67	64	a 60
27	61	81	94	115	1,740	575	175	157	67	67	61	59
28	61	85	99	109	1,740	720	166	149	67	67	61	59
29	61	94	99	104	-------	800	166	a 145	67	67	134	59
30	61	104	99	104	-------	880	157	141	64	109	134	57
31	61	-------	104	104	-------	980	-------	141	-------	206	141	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off	
					Inches	Acre-feet
October	70	61	64.2	0.081	0.09	3,950
November	115	61	83.9	.106	.12	4,990
December	175	89	123	.156	.18	7,560
January	185	104	135	.171	.20	8,300
February	2,400	94	1,110	1.41	1.47	61,600
March	1,450	575	1,020	1.29	1.49	62,700
April	1,110	157	507	.642	.72	30,200
May	359	141	223	.282	.33	13,700
June	134	64	87.7	.111	.12	5,220
July	206	61	88.5	.112	.13	5,440
August	313	61	159	.201	.23	9,780
September	336	57	167	.211	.24	9,940
The year	2,400	57	308	.390	5.32	223,000

a Interpolated.

ARKANSAS RIVER BASIN

ARKANSAS RIVER AT SYRACUSE, KANS.

LOCATION.—Water-stage recorder in NW. ¼ sec. 18, T. 24 S., R. 40 W., at highway bridge half a mile south of Syracuse.

DRAINAGE AREA.—25,500 square miles.

RECORDS AVAILABLE.—August, 1902, to July, 1906; June, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 5,650 second-feet Oct. 4 (gage height, 5.44 feet); minimum, 1 second-foot July 31 (gage height, 1.93 feet).

1902–1906; 1921–1931: Maximum stage, about 9.75 feet June 6, 1921 (discharge not determined); minimum discharge, 1 second-foot July 31, 1931.

REMARKS.—Records good except those estimated for period of ice effect, Dec. 24 to Jan. 17, and those during March when a shift in rating occurred, which are fair. Discharge interpolated Apr. 24, 25. Diversions for irrigation above station. Gage datum lowered 2 feet Oct. 1, 1929.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	135	426	780		608	439	895	70	352	7	1	3
2	289	426	790		520	506	1,060	60	770	6	2	3
3	374	413	730		506	426	758	65	380	8	2	3
4	2,190	400	649		472	459	747	94	205	14	1	3
5	2,750	406	710		533	479	624	123	149	9	1	2
6	2,380	380	692	400	540	368	571	106	154	6	1	2
7	1,410	406	585		499	272	736	97	119	6	2	2
8	855	452	555		472	283	808	80	103	6	4	2
9	683	387	520		465	465	712	77	85	7	14	2
10	608	368	533		446	452	460	94	60	7	32	2
11	1,930	374	513		439	432	345	82	75	7	13	1
12	2,860	393	533		432	336	304	72	72	1	7	2
13	1,240	361	520		413	301	237	56	56	1	4	2
14	1,490	355	548		413	283	190	52	54	1	2	2
15	1,090	348	555	300	406	251	154	50	52	1	2	2
16	810	406	492		406	229	138	48	40	1	2	1
17	700	419	513		393	245	127	44	30	1	1	1
18	592	380	465	261	374	251	103	35	63	2	1	1
19	600	465	342	267	348	301	85	30	48	1	1	2
20	675	330	215	251	342	324	82	35	32	4	1	1
21	640	206	182	330	342	267	82	106	20	6	1	1
22	649	206	201	426	555	261	85	167	112	2	1	1
23	649	210	234	520	513	283	82	338	123	2	1	1
24	608	224		570	499	301	82	420	25	1	33	6
25	592	312		608	492	312	82	420	15	1	32	2
26	540	710		533	472	245	82	260	8	1	9	2
27	452	811	535	526	446	201	68	248	6	1	5	2
28	479	811		548	380	174	63	138	6	1	4	2
29	472	844		570	-------	187	63	103	5	1	3	1
30	452	780		526	-------	361	77	97	5	1	4	1
31	459	-------		486	-------	628	-------	103	-------	1	3	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,860	135	924	56,800
November	844	206	434	25,800
December	790	182	521	32,000
January	608	----------	407	25,000
February	608	342	454	25,200
March	628	174	333	20,500
April	1,060	63	330	19,600
May	420	30	122	7,480
June	770	5	107	6,390
July	14	1	3.7	226
August	33	1	6.1	377
September	6	1	1.9	115
The year	2,860	1	303	219,000

ARKANSAS RIVER AT GARDEN CITY, KANS.

LOCATION.—Water-stage recorder in NW. ¼ sec. 19, T. 24 S., R. 32 W., half a mile south of Garden City.

DRAINAGE AREA.—28,800 square miles.

RECORDS AVAILABLE.—June, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 5,410 second-feet Oct. 12 (gage height, 5.50 feet); no flow during several periods in October, June, July, August, and September.

1922–1931: Maximum discharge, 21,200 second-feet Aug. 9, 1929 (gage height, 7.74 feet); no flow during several periods.

REMARKS.—Records good except those for October, January, and April, which are fair. Discharge estimated Dec. 19, 20, Jan. 20–31, Mar. 26–31, Apr. 19–30. Diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	88	768	180	78	72	938	66	102	0	0	0
2	0	82	755	256	66	175	1,640	47	91	0	0	5
3	0	82	793	216	43	104	896	36	152	0	0	8
4	45	82	768	256	34	88	812	38	172	2	0	7
5	1,140	78	680	216	30	75	743	34	94	0	0	0
6	1,790	56	655	248	29	69	661	59	66	0	0	0
7	2,550	88	680	360	23	96	688	47	43	0	0	0
8	994	120	489	390	21	170	826	34	41	0	0	0
9	466	82	432	420	18	256	716	29	30	0	38	0
10	256	78	432	420	29	432	572	23	27	0	21	0
11	547	52	380	380	25	280	369	25	25	0	11	0
12	2,280	32	370	304	23	133	172	25	27	0	11	0
13	1,930	25	320	248	25	104	137	25	38	0	10	0
14	966	10	380	280	23	100	95	23	45	0	10	0
15	1,220	5	559	186	20	96	66	18	32	0	4	0
16	1,050	7	607	210	16	82	26	15	25	0	0	0
17	705	9	535	186	10	78	18	15	24	0	0	0
18	524	5	390	186	8	56	17	15	17	0	0	0
19	390	16	200	216	7	47		13	5	0	0	0
20	320	49	110		8	54		18	7	1	0	0
21	330	128	69		23	49		112	8	2	0	0
22	320	180	45		25	27		362	3	2	0	0
23	312	149	38		32	21		312	0	2	0	0
24	264	124	45		43	20		208	0	2	0	0
25	320	144	49		25	21	26	248	0	1	0	0
26	304	159	56	180	18			192	0	0	0	0
27	240	320	149		29			162	0	0	0	0
28	248	705	120		23	15		140	0	0	0	0
29	120	730	154		-------			140	0	0	0	0
30	112	768	204		-------			136	0	0	0	0
31	108	-------	216		-------		-------	124	-------	0	0	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,550	0	640	39,400
November	768	5	148	8,830
December	793	38	369	22,700
January	420	----------	236	14,500
February	78	7	26.9	1,500
March	432	15	90.2	5,540
April	1,640	----------	323	19,200
May	362	13	88.4	5,440
June	172	0	35.8	2,130
July	2	0	.4	24
August	38	0	3.4	208
September	8	0	.7	40
The year	2,550	0	165	120,000

ARKANSAS RIVER AT LARNED, KANS.

LOCATION.—Water-stage recorder in NE. ¼ sec. 5, T. 22 S., R. 16 W., south of Larned, half a mile above Pawnee River.
DRAINAGE AREA.—34,900 square miles.
RECORDS AVAILABLE.—June, 1922, to September, 1931.
EXTREMES.—Maximum discharge during year, 2,450 second-feet Oct. 14 (gage height, 5.29 feet); periods of no flow during July, August, and September.
1922–1931: Maximum discharge, 14,300 second-feet Aug. 25, 1923 (gage height, 9.5 feet); no flow during several periods.
REMARKS.—Records good except those for short periods in October, November, April, and May, which are poor. Diversions for irrigation above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July
1	0	321	564	171	432	204	343		96	7
2	0	290	610	189	376	211	414		84	19
3	0	280	652	242	300	211	450	a 450	77	22
4	0	260	818	220	256	211	1,120		75	32
5	0	246	638	161	251	224	989		73	34
6	0	238	631	175	228	275	885	438	73	19
7		246	617	233	208	238	885	376	73	10
8	a 530	251	590	233	196	256	855	260	73	6
9		256	590	242	189	246	795	228	71	2
10	1,100	265	597	270	182	265	870	215	71	0
11	848	316	526	280	185	270	862	224	75	0
12	701	321	512	332	168	295	743	196	84	0
13	645	343	526	348	161	348	659	185	86	0
14	1,350	316	519		155	365	558	161	94	0
15	a 1,670	326	532	a 380	158	310		155	121	0
16	a 900		571		161	280	a 610	148	96	0
17	a 825		590	450	152	260		84	84	0
18	a 750	a 330	659	462	158	251		a 130	75	0
19	a 750		729	404	168	270	a 600		64	0
20	a 680		610	295	168	444		116	55	0
21	666			354	182	506		148	46	0
22	590		a 450	376	182	426		196	39	0
23	538	a 345		382	182	370	a 500	193	30	0
24	500		300	420	185	365		185	24	0
25	480		251	354	185	295		178	18	0
26	456	354	228	370	178	300		178	14	0
27	432	332	208	392	175	204		161	11	0
28	432	316	193	420	175	256	a 450	137	9	0
29	432	332	200	450	-------	265		131	5	0
30	350	392	196	456	-------	208		123	1	0
31	354	-------	175	450	-------	280	-------	111	-------	0

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,670	0	550	33,800
November	-------	238	313	18,600
December	818	175	490	30,100
January	462	161	331	20,400
February	432	152	203	11,300
March	506	204	287	17,700
April	1,120	343	627	37,300
May	-------	111	228	14,000
June	121	1	59.9	3,560
July	34	0	4.9	300
The year	1,670	0	258	187,000

a Estimated.

NOTE.—No flow during August and September.

ARKANSAS RIVER NEAR WICHITA, KANS.

LOCATION.—Chain gage near middle of line between secs. 7 and 18, T. 27 S., R. 1 E., 1½ miles above mouth of Little Arkansas River.

DRAINAGE AREA.—40,300 square miles.

RECORDS AVAILABLE.—June, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,960 second-feet Apr. 18; maximum gage height, 8.57 feet Oct. 18–19; periods of no flow in August and September.

1921–1931: Maximum discharge, 12,000 second-feet Aug. 18, 1927 (gage height, 14.75 feet); no flow during several different years.

REMARKS.—Records good except those for period of unstable control, October to March, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.
1	146	505	958	810	810	410	492	775	520	140	22
2	156	480	958	810	845	410	438	882	492	128	35
3	166	455	995	810	845	410	550	845	465	117	40
4	156	455	1,070	775	845	385	995	958	410	112	37
5	166	455	1,140	810	810	385	1,140	1,140	385	100	31
6	166	430	995	845	775	410	1,220	1,220	385	85	29
7	166	430	958	882	645	410	1,540	1,380	385	85	27
8	187	408	920	882	645	410	1,780	810	325	85	27
9	408	408	920	920	580	410	1,700	995	288	85	20
10	1,280	408	995	882	550	385	1,540	995	296	74	13
11	1,460	408	1,070	920	520	410	1,380	1,070	360	65	10
12	1,460	455	1,070	920	520	385	1,380	958	335	60	6
13	1,550	480	1,070		520	410	1,540	[a] 800	325	56	4
14	1,550	505	1,070		520	410	1,380	[a] 700	325	56	4
15	1,550	555	995		520	410	1,140	[a] 600	385	56	3
16	1,650	555	995	[a] 850	492	410	1,070	550	385	54	2
17	1,650	610	995		465	438	995	520	385	45	2
18	1,750	735	995		465	465	1,960	438	385	30	3
19	1,750	840	995		465	465	1,780	438	385	30	3
20	1,550	[a] 810	1,070	845	465	520	1,540	465	465	30	3
21	1,460	[a] 780	1,140	810	465	520	1,220	492	492	35	4
22	1,280	950	1,070	810	438	520	995	438	438	35	5
23	1,190	1,540	995	810	438	520	845	465	385	28	4
24	960	1,960	958	775	438	775	742	492	252	23	2
25	700	1,870	995	710	410	742	742	492	204	23	1
26	580	1,780	920	742	410	580	958	492	170	20	1
27	555	1,620	845	710	410	492	920	492	161	20	0
28	530	1,380	845	742	410	350	882	465	148	19	0
29	530	1,140	810	775	-------	340	810	438	142	19	1
30	530	1,070	810	775	-------	360	742	438	140	19	1
31	505	-------	775	810	-------	410	-------	465	-------	21	1

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,750	146	895	55,000
November	1,960	408	816	48,500
December	1,140	775	981	60,360
January	920	710	824	50,600
February	845	410	561	31,200
March	775	340	450	27,700
April	1,960	438	1,150	68,300
May	1,380	438	700	43,100
June	520	140	341	20,300
July	140	19	56.6	3,480
August	40	0	11.0	676
The year	1,960	0	565	409,000

[a] Estimated.

NOTE.—No flow during September.

ARKANSAS RIVER AT ARKANSAS CITY, KANS.

LOCATION.—Water-stage recorder in NW. ¼ sec. 25, T. 34 S., R. 3 E., half a mile west of Arkansas City and 5 miles above mouth of Walnut River.

DRAINAGE AREA.—44,700 square miles.

RECORDS AVAILABLE.—September, 1902, to July, 1906; September, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 7,800 second-feet June 16 (gage height, 12.2 feet); minimum, 50 second-feet Sept. 20 (gage height, 6.42 feet). 1902–1905; 1921–1931: Maximum stage, 25.46 feet June 11, 1923 (discharge not determined); minimum discharge, 12 second-feet in March and April, 1923, due to diversion by power canal of Kansas Gas & Electric Co.

REMARKS.—Records fair. Diversions for irrigation from Arkansas River cease about 250 miles upstream.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	363	741	1,100	813	837	573		1,180	919	403	157	101
2	352	718	1,140	813	837	566		1,220	919	409	157	95
3	336	702	1,140	813	853	559	a 700	1,180	861	403	182	95
4	341	680	1,140	821	869	538		1,140	805	385	189	104
5	346	680	1,140	805	885	524		1,400	749	385	196	101
6	346	636	1,140	797	869	531		1,480	718	397	196	113
7	363	608	1,180	797	853	545		1,480	718	368	212	92
8	374	587	1,180	797	853	559	a 1,600	1,350	702	341	204	98
9	368		1,140	805	813	531		1,270	672	325	204	84
10	358		1,140	853	781	524		1,140	636	310	185	81
11	538		1,140	877	733	538		1,350	1,880	300	174	90
12	1,180		1,140	885	718	545	a 1,800	1,520	5,340	290	204	81
13	1,350		1,100	885	710	559		1,350	3,220	285	212	81
14	1,350	a 750	1,060	821	688	566	1,620	1,180	2,560	267	185	76
15	1,350		1,010	695	672	559	1,520	1,100	3,220	249	178	78
16	1,140		987	573	688	545	1,350	1,040	5,520	240	164	76
17	970		978	672	658	566	1,270	987	3,220	232	160	76
18	1,140		987	845	636	587	1,180	928	2,180	228	167	68
19	1,620		987	1,040	622	601	1,520	885	1,430	236	154	60
20	1,660		978	978	622	643	2,000	813	1,220	254	141	52
21	1,480	877	996	894	580	658	1,660	789	1,060	781	131	107
22	1,310	a 948	1,050	837	573	680	1,480	805	885	615	128	208
23	1,220	1,020	1,020	805	587	733	1,350	853	773	315	144	643
24	1,140	1,140	1,030	805	636	a 820	1,270	885	695	254	131	622
25	1,060	1,620	996	797	629	910	1,220	953	636	236	122	363
26	1,000	1,520	953	773	636		1,270	953	580	212	110	245
27	962	1,310	894	765	636		1,270	919	545	208	110	200
28	910	1,180	861	805	608	a 600	1,220	902	504	192	119	185
29	869	1,100	845	829	-------		1,220	1,010	478	189	104	160
30	813	1,060	829	853	-------		1,180	1,310	433	178	107	147
31	773	-------	821	837	-------		----------	1,020	-------	174	104	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,660	336	883	54,300
November	1,620	----------	871	51,800
December	1,180	821	1,040	63,700
January	1,040	573	819	50,400
February	885	573	717	39,800
March	910	----------	599	36,800
April	----------	1,180	1,350	80,300
May	1,520	789	1,110	68,200
June	5,520	433	1,470	87,400
July	781	174	312	19,200
August	212	104	159	9,780
September	643	52	153	9,090
The year	5,520	52	788	571,000

a Estimated.

ARKANSAS RIVER AT VAN BUREN, ARK.

LOCATION.—Chain gage in sec. 24, T. 9 N., R. 32 W., at Van Buren, 1½ miles below Lee Creek. Zero of gage is 372.67 feet above mean sea level.
DRAINAGE AREA.—150,000 square miles.
RECORDS AVAILABLE.—October, 1927, to September, 1931.
EXTREMES.—Maximum discharge during year, 82,500 second-feet Dec. 6 (gage height, 15.5 feet); minimum, 1,260 second-feet Sept. 26 (gage height, 3.14 feet).

1927–1931: Maximum discharge, 315,000 second-feet May 16, 1929 (gage height, 29.0 feet); minimum, that of Sept. 26, 1931.

Maximum stage known, 35.0 feet in April, 1927.
REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,730	4,650	15,700	7,170	4,770	18,900	35,000	36,100	18,000	6,890	7,430	3,230
2	2,970	4,500	17,200	6,610	4,770	16,700	28,600	34,000	14,800	6,370	5,410	3,770
3	2,880	4,350	21,300	6,610	4,770	14,800	28,600	30,000	13,600	5,890	4,550	5,410
4	2,730	4,350	21,300	6,610	4,520	14,000	28,600	25,400	13,600	5,410	7,710	4,750
5	2,670	4,060	46,000	6,340	4,280	12,800	27,600	23,800	13,600	4,970	13,200	10,100
6	2,670	4,060	81,200	6,070	4,050	11,700	24,100	31,000	15,200	4,750	23,800	11,800
7	3,650	3,920	67,600	5,800	6,340	14,000	20,700	34,000	18,400	4,350	32,000	9,790
8	4,650	3,920	61,600	5,800	27,600	18,900	18,900	35,000	16,500	4,150	24,600	6,890
9	4,810	3,830	46,000	5,540	78,600	19,500	18,300	29,000	17,400	5,190	15,600	4,970
10	6,650	3,620	30,600	5,800	62,800	15,700	17,700	32,000	14,000	6,130	11,800	4,150
11	8,150	3,420	26,600	5,540	47,200	13,200	17,200	38,300	12,800	4,970	9,470	3,770
12	7,200	3,420	21,300	5,280	36,100	12,000	17,200	30,000	13,600	4,550	9,470	3,410
13	5,630	3,420	18,900	5,280	35,000	11,400	18,300	23,800	14,800	5,890	8,570	2,910
14	4,810	3,230	17,700	5,540	41,600	11,700	19,500	20,000	27,200	5,890	7,150	2,750
15	4,500	3,230	14,400	5,540	40,500	14,000	18,300	18,400	27,200	5,890	6,630	2,590
16	31,700	3,230	13,200	5,800	33,900	16,700	16,700	16,500	30,000	5,410	6,370	2,440
17	22,000	3,420	12,400	5,540	25,700	14,800	16,200	14,800	61,600	5,410	5,890	2,140
18	11,000	4,770	11,700	5,800	20,700	12,000	17,200	13,200	59,200	4,970	6,130	1,860
19	7,500	4,280	11,400	5,540	17,200	10,400	17,200	12,800	37,200	4,550	8,270	1,860
20	6,000	4,520	11,100	5,540	15,700	9,500	16,700	12,500	33,000	4,150	12,800	1,720
21	6,000	4,520	10,100	5,280	14,400	12,000	18,900	15,200	41,600	4,550	12,100	1,580
22	6,000	6,610	10,400	5,280	14,000	25,700	24,900	39,400	29,000	5,410	10,400	1,580
23	6,000	6,610	10,100	5,280	20,700	25,700	27,600	46,000	20,600	20,000	8,570	1,650
24	6,000	6,890	9,810	5,280	47,200	19,500	36,100	46,000	16,500	29,000	7,430	1,520
25	6,000	14,800	9,200	5,280	54,400	17,200	36,100	33,000	14,000	18,400	6,630	1,380
26	5,800	15,200	8,600	5,280	47,200	13,200	67,600	22,400	12,500	14,000	5,410	1,260
27	5,800	14,800	8,310	5,540	33,900	16,700	73,600	24,600	11,100	14,800	4,970	1,320
28	5,800	14,800	8,020	5,540	22,700	24,100	64,000	44,900	9,790	15,200	5,190	1,320
29	5,630	13,200	7,450	5,280	-------	40,500	50,800	41,600	8,870	12,500	4,550	1,320
30	5,290	14,400	7,450	4,770	-------	49,600	42,700	31,000	7,710	11,100	4,150	1,380
31	4,970	-------	7,450	5,020	-------	46,000	-------	23,800	-------	9,470	3,410	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	31,700	2,670	6,720	413,000
November	15,200	3,230	6,330	377,000
December	81,200	7,450	21,400	1,320,000
January	7,170	4,770	5,660	348,000
February	78,600	4,050	27,500	1,530,000
March	49,600	9,500	18,500	1,140,000
April	73,600	16,200	28,800	1,710,000
May	46,000	12,500	28,300	1,740,000
June	61,600	7,710	21,400	1,270,000
July	29,000	4,150	8,390	516,000
August	32,000	3,410	9,670	595,000
September	11,800	1,260	3,490	208,000
The year	81,200	1,260	14,900	11,200,000

ARKANSAS RIVER AT LITTLE ROCK, ARK.

LOCATION.—Staff gage in sec. 3, T. 1 N., R. 12 W., at Little Rock. Zero of gage is 223.39 feet above mean sea level.

DRAINAGE AREA.—158,000 square miles.

RECORDS AVAILABLE.—September, 1927, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 97,000 second-feet Feb. 11 (gage height, 13.0 feet); minimum, 1,450 second-feet Sept. 29, 30 (gage height, −2.8 feet).

1927–1931: Maximum discharge, 275,000 second-feet May 19, 1929 (gage height, 23.3 feet); minimum, that of Sept. 29, 30, 1931.

Maximum stages known, 34.6 feet in June, 1833, and 33.0 feet Apr. 20, 1927.

REMARKS.—Records fair; for low stages, poor. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8,860	7,910	20,200	9,300	6,600	48,400	52,900	67,000	40,800	9,900	12,000	10,200
2	7,910	7,680	32,700	9,000	6,300	38,400	54,700	56,500	32,700	9,600	10,800	7,500
3	7,680	7,220	29,600	9,000	6,000	30,800	47,500	48,400	26,000	8,700	9,600	5,700
4	6,760	6,760	26,600	9,000	6,000	25,500	38,400	45,000	20,600	8,100	8,700	4,500
5	6,070	6,300	25,500	8,700	6,000	22,000	36,200	40,800	16,600	7,500	7,800	4,250
6	5,630	6,070	28,400	8,400	5,700	19,400	31,400	35,500	14,900	6,900	7,200	4,250
7	6,070	5,850	66,000	8,400	5,700	19,000	30,200	31,400	13,800	6,900	7,800	5,100
8	12,500	5,630	86,000	8,400	6,000	24,000	28,400	30,800	13,800	6,300	11,400	5,100
9	33,900	5,630	75,000	8,400	7,200	34,100	25,500	34,800	19,000	6,000	17,400	8,400
10	26,200	5,630	65,000	8,400	60,300	36,200	22,500	36,200	21,500	5,700	24,000	9,300
11	18,200	5,400	52,900	8,400	97,000	34,800	21,000	34,800	19,000	5,100	23,000	8,400
12	14,100	5,100	42,400	8,400	86,000	30,800	20,600	29,600	18,200	4,500	16,600	6,300
13	12,200	5,100	34,800	8,100	68,000	25,000	20,200	30,800	16,000	5,100	12,900	5,100
14	13,400	4,800	29,600	7,800	65,000	20,600	19,800	34,100	14,900	5,700	10,200	4,000
15	13,100	4,800	24,000	7,800	81,000	18,600	19,000	29,000	17,000	5,100	9,000	3,500
16	11,700	4,800	21,000	7,500	71,000	17,800	20,200	23,500	16,600	4,800	8,400	3,050
17	9,590	6,900	18,600	7,200	66,000	16,300	21,500	20,200	26,000	5,400	7,800	2,850
18	8,140	10,800	16,600	7,200	61,200	17,400	20,600	17,800	30,800	5,700	6,900	2,650
19	22,600	9,600	15,200	7,200	52,000	18,200	19,000	16,300	34,100	5,700	6,600	2,450
20	22,100	9,000	14,200	7,200	43,200	18,200	18,600	14,900	54,700	5,700	7,200	2,150
21	14,700	9,300	13,500	7,200	34,800	16,300	20,200	13,800	47,500	5,400	9,300	2,050
22	11,400	15,200	12,900	7,200	29,600	16,300	22,000	13,500	34,100	5,700	9,300	1,950
23	9,840	16,300	12,300	6,900	25,000	19,000	23,000	13,200	30,800	7,200	10,200	1,850
24	8,860	14,200	11,700	6,900	30,200	21,500	23,500	14,900	34,100	6,900	11,400	1,750
25	8,860	12,000	11,400	6,600	34,100	29,600	28,400	30,200	27,800	6,000	10,200	1,750
26	8,860	11,100	11,400	6,600	45,000	30,800	32,700	40,800	21,000	11,100	9,000	1,650
27	8,620	10,500	11,100	6,600	56,500	26,600	46,600	45,000	16,600	21,500	7,800	1,550
28	8,620	12,900	10,500	6,600	58,400	27,800	72,000	45,800	14,200	18,200	6,900	1,550
29	8,380	15,600	10,200	6,600	------	30,800	81,000	34,100	12,300	14,200	6,600	1,450
30	8,140	16,000	9,600	6,600	------	36,200	73,000	32,700	11,100	12,600	6,600	1,450
31	8,140	------	9,600	6,600	------	44,100	------	42,400	------	13,200	9,000	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	33,900	5,630	12,000	738,000
November	16,300	4,800	8,800	524,000
December	86,000	9,600	27,400	1,680,000
January	9,300	6,600	7,680	472,000
February	97,000	6,000	40,000	2,220,000
March	48,400	16,300	26,300	1,620,000
April	81,000	18,600	33,000	1,960,000
May	67,000	13,200	32,400	1,990,000
June	54,700	11,100	23,900	1,420,000
July	21,500	4,500	8,080	497,000
August	24,000	6,600	10,400	640,000
September	10,200	1,450	4,060	242,000
The year	97,000	1,450	19,300	14,000,000

AMAZON CANAL NEAR HARTLAND, KANS.

LOCATION.—In SW. ¼ sec. 8, T. 25 S., R. 37 W., 1 mile below head gate and 2 miles west of Hartland.

RECORDS AVAILABLE.—Irrigation seasons 1921–1924; October, 1930, to September, 1931. (State records available since 1921.)

EXTREMES.—Maximum discharge, 280 second-feet Oct. 11 (gage height, 5.24 feet); no flow during extensive periods.

REMARKS.—Records fair. Canal diverts water from left bank of Arkansas River at a point in sec. 7, T. 25 S., R. 37 W. Water used for irrigation. Gage-height record and discharge measurements furnished by division of water resources, Kansas State Board of Agriculture.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	Day	Oct.	Nov.	Feb.	Mar.	Apr.	May
1	------	------	------	32	------	81	16	------	178	------	142	16	46
2	------	------	------	174	------	67	17	------	147	------	160	------	52
3	------	------	------	156	------	60	18	------	142	------	29	------	43
4	16	------	------	156	------	78	19	------	142	------	------	------	39
5	170	------	------	156	------	126	20	------	100	------	------	------	29
6	224	------	------	90	------	138	21	------	66	------	------	------	------
7	237	------	------	11	11	118	22	------	52	------	------	------	------
8	232	------	------	10	118	98	23	------	47	------	------	------	------
9	228	------	------	95	69	78	24	------	34	------	------	------	------
10	228	------	------	201	93	81	25	------	------	------	------	------	------
11	139	------	------	228	152	88	26	------	------	------	------	19	------
12	------	80	------	206	138	81	27	------	------	------	------	74	------
13	------	210	------	160	126	70	28	------	------	6	------	67	------
14	------	219	------	138	114	58	29	------	------	------	------	79	------
15	------	214	------	138	58	51	30	------	------	------	------	91	------
							31	------	------	------	------	------	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	237	0	47.5	2,920
November	219	0	54.4	3,240
March	228	0	73.6	4,530
April	152	0	40.8	2,430
May	138	0	47.8	2,940

NOTE.—No records obtained Dec. 7 to Feb. 27. Otherwise when no discharge is shown the flow was practically zero.

SOUTH SIDE DITCH NEAR HARTLAND, KANS.

LOCATION.—Recording gage in SE. ¼ sec. 15, T. 25 S., R. 37 W., on north bank of ditch three-fourths mile south of Hartland and 1½ miles below point of diversion from Arkansas River.

RECORDS AVAILABLE.—Irrigation seasons 1921–1924; October, 1930, to September, 1931. (State records published since 1921.)

EXTREMES.—Maximum discharge, 165 second-feet May 27 (gage height, 3.09 feet); no flow during extensive periods.

REMARKS.—Records fair. Ditch diverts water from right bank of Arkansas River at a point in sec. 16, T. 25 S., R. 37 W. Water used for irrigation. Gage-height record and discharge measurements furnished by division of water resources, Kansas State Board of Agriculture.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Feb.	Mar.	Apr.	May	June
1		34		24			89
2		31		37			97
3		30		51			121
4		58		37			81
5		77		58			
6		73		26			
7		48		18			
8	50	48		20			
9		48		14			
10		44			17		
11		44			69		
12		40		8	54		
13		15		36	38		
14	30			51	28		
15				51	9		
16				40			
17				34			
18		40		69			
19		97		93			
20		40		101			
21				97		34	
22				89		73	
23				97		130	
24				105		157	
25				113	40	148	
26				44	58	148	
27	48			8		148	
28	89		21	6		139	
29	73					113	
30	28					97	
31	25					85	

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	89	0	25.3	1,550
November	97	0	25.6	1,520
March	113	0	42.8	2,630
April	69	0	10.4	621
May	157	0	41.0	2,520
June	121	0	12.9	770

NOTE.—No records obtained Dec. 6 to Feb. 27. Otherwise when no discharge is shown the flow was practically zero.

GREAT EASTERN CANAL NEAR HARTLAND, KANS.

LOCATION.—Recording gage in NE. ¼ sec. 28, T. 24 S., R. 36 W., half a mile west of Lakin and 6 miles northeast of Hartland.

RECORDS AVAILABLE.—Irrigation seasons 1921–1924; October, 1930) to September, 1931. (State records published since 1921.)

EXTREMES.—Maximum discharge, 358 second-feet Oct. 4 (gage height, 3.88 feet); no flow during extensive periods.

REMARKS.—Records fair. Canal diverts water from left bank of Arkansas River at a point in sec. 16, T. 25 S., R. 37 W. Water used for irrigation. Gage-height record and discharge measurements furnished by division of water resources, Kansas State Board of Agriculture.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Feb.	Mar.	Apr.	May	June
1	0	55	84		162			
2	0	62	111		104			104
3	60	61	124		130			
4	252	60	124		101			[a] 156
5	259	223	131		145			
6	188	223	119					160
7	228	225						145
8	245	239			[a] 65			105
9	194	221						88
10	121	218			141			
11	87	216			113			[a] 51
12	163	141			95			
13	241	30			78			45
14	221	27			72			34
15	189	28			72	101		29
16	191	35			60	137		25
17	198	96			42	125		17
18	188	73			103	115		9
19	184	44			156	98		22
20	201	36			196	52		17
21	198	38			188	53		8
22	201	39			150	67		0
23	205	39			129	76		77
24	88	40			130	75	97	57
25		42			144	25	122	
26		78			93		70	
27		191			38		52	
28		263		85	39		31	
29		145					21	
30		79					19	
31								

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	259	0	132	8,140
November	263	27	109	6,480
March	196	0	94.9	5,830
April	137	0	30.8	1,830
May	122	0	13.3	817
June	160	0	52.1	3,100

NOTE.—No records were obtained Dec. 7 to Feb. 27. Otherwise when no discharge is shown the flow was practically zero.

[a] Estimated.

FARMERS' DITCH NEAR GARDEN CITY, KANS.

LOCATION.—In NW. ¼ sec. 4, T. 24 S., R. 34 W., 4 miles below head gate, 4 miles northwest of Holcomb, and 10 miles west of Garden City.

RECORDS AVAILABLE.—Irrigation seasons 1921–1924; October, 1930, to September, 1931. (State records published since 1921.)

EXTREMES.—Maximum discharge, 163 second-feet June 3 (gage height, 2.02 feet); no flow during extensive periods.

REMARKS.—Records fair. Ditch diverts water from left bank of Arkansas River at a point in sec. 13, T. 24 S., R. 35 W. Water used for irrigation. Gage-height record and discharge measurements furnished by division of water resources, Kansas State Board of Agriculture.

Daily and monthly discharge, in second-feet, 1930–31

Day	Nov.	Mar.	Apr.	May	June	July	Aug.
1				9		10	
2				8		10	
3					116	38	
4					75	42	
5					45	22	
6					37	14	
7					30	11	
8					26	10	
9					24		52
10			18		24		27
11			23		24		
12			22		25		
13	40		16		31		
14	50		18		25		
15	31		72		22		
16	11		73		22		
17	64		65		21		
18	71	42	63		21		
19	39	50	60		20		
20	24	10	62		18		
21	21	51	105		16		
22	14	60	105		14		
23	12	59	83		12		
24	13	60	73		24		
25		39	25		14		
26		6	14		10		
27			33		9		
28			14		9		
29			42		10		
30			14		10		
31							

Month	Maximum	Minimum	Mean	Run-off in acre-feet
November	71	0	13.0	774
March	60	0	12.2	748
April	105	0	33.3	1,980
May	9	0	.5	34
June	116	0	24.5	1,460
July	42	0	5.1	311
August	52	0	2.5	157

NOTE.—No records obtained Dec. 7 to Feb. 28. Otherwise, when no discharge is shown the flow was practically zero.

GARDEN CITY CANAL NEAR GARDEN CITY, KANS.

LOCATION.—In SW. ¼ sec. 3, T. 24 S., R. 34 W., 1½ miles below point of diversion from Arkansas River, 3 miles west of Holcomb, and 9 miles west of Garden City.

RECORDS AVAILABLE.—Irrigation seasons 1921–1924; October, 1930, to September, 1931. (State records published since 1921.)

EXTREMES.—Maximum discharge, 80 second-feet Oct. 5 (gage height, 3.64 feet); no flow for extensive periods.

REMARKS.—Records fair. Canal diverts water from left bank of Arkansas River at a point in sec. 5, T. 24 S., R. 34 W. Water used for irrigation. Gage-height record and discharge measurements furnished by division of water resources, Kansas State Board of Agriculture.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Mar.	Apr.	May	June	July	Day	Oct.	Mar.	Apr.	May	June	July
1	23	------	------	10	11	------	16	4	------	4	10	------	------
2	29	------	------	10	11	------	17	3	------	3	9	------	------
3	32	5	------	11	12	3	18	3	------	3	9	------	5
4	32	5	------	11	7	4	19	------	------	3	9	------	4
5	34	4	3	12	6	------	20	------	------	3	7	------	6
6	18	5	3	13	4	------	21	------	------	------	22	------	6
7	30	5	5	9	------	------	22	3	------	------	23	------	4
8	21	5	6	------	------	------	23	3	------	------	14	------	4
9	13	4	6	------	------	------	24	------	------	3	11	------	3
10	11	4	6	6	------	------	25	------	------	8	9	------	3
11	25	3	5	7	------	------	26	------	------	8	7	------	------
12	33	3	5	9	------	------	27	------	------	4	7	------	------
13	5	------	7	9	------	------	28	4	------	5	10	------	------
14	4	------	7	9	------	------	29	4	------	3	12	------	------
15	4	------	5	9	------	------	30	------	------	10	12	------	------
							31	------	------	------	12	------	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	34	0	10.9	670
March	5	0	1.4	85
April	10	0	3.8	228
May	23	0	9.9	611
June	12	0	1.7	101
July	6	0	1.4	83

NOTE.—No records obtained Dec. 6 to Mar. 2. Otherwise, when no discharge is shown the flow was practically zero.

PAWNEE RIVER NEAR LARNED, KANS.

LOCATION.—Water-stage recorder in sec. 33, T. 21 S., R. 18 W., at Moffet Dam, 11½ miles west of Larned.
DRAINAGE AREA.—About 2,300 square miles.
RECORDS AVAILABLE.—November, 1924, to September, 1931.
EXTREMES.—Maximum discharge during year, 2,040 second-feet Apr. 15 (gage height, 16.90 feet); no flow several days in October, August, and September.
1924–1931: Maximum discharge, 2,910 second-feet May 13, 1929 (gage height, 21.70 feet); no flow during periods in 1926, 1930, 1931.
REMARKS.—Records good except those for short periods in October and for estimated period Apr. 11 to May 6, which are fair. Diversions for irrigation by pumping above station.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	15	19	12	10	10	11	31	14	1	5	1
2	1	14	19	12	13	10	20	30	13	3	4	1
3	0	15	19	13	13	10	48	30	12	3	4	2
4	0	14	19	14	11	9	61	162	11	158	3	1
5	32	12	19	14	10	10	74	68	10	58	1	1
6	740	11	19	13	10	10	81	236	10	21	2	1
7	1,180	11	18	12	10	10	63	74	9	14	2	1
8	1,010	10	18	13	10	8	53	27	8	8	2	0
9	529	10	18	12	10	9	278	20	5	5	2	0
10	122	11	18	13	10	10	441	17	5	4	1	0
11	46	12	17	13	10	10	118	17	4	4	78	0
12	33	11	16	12	10	11	46	16	4	4	21	0
13	43	11	16	11	10	12	35	15	4	4	6	0
14	236	11	16	10	10	11	30	15	4	3	4	4
15	864	11	16	10	10	11	1,120	15	6	3	4	2
16	1,040	10	16	10	11	11	808	15	11	3	5	0
17	352	10	16	11	10	11	352	16	24	5	5	0
18	78	9	15	8	9	11	94	17	28	6	5	0
19	53	109	14	9	8	14	48	17	23	5	4	0
20	42	352	14	9	9	24	45	15	14	4	5	0
21	35	412	15	10	10	25	42	17	11	2	5	0
22	32	272	14	10	10	22	40	17	8	3	2	0
23	29	75	14	10	8	21	38	18	6	3	0	0
24	28	52	14	11	9	18	38	19	4	3	0	0
25	25	36	12	11	8	17	36	18	4	3	0	0
26	22	29	12	12	9	17	36	17	3	2	0	0
27	21	24	12	12	10	11	35	17	2	2	0	0
28	20	20	12	12	10	4	34	16	2	1	0	0
29	18	20	12	11	-------	7	32	15	2	1	0	0
30	17	19	12	11	-------	10	32	14	1	3	1	0
31	16	-------	13	11	-------	8	-------	14	-------	4	1	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,180	0	215	13,200
November	412	9	54.3	3,230
December	19	12	15.6	960
January	14	8	11.4	698
February	13	8	9.9	551
March	25	4	12.3	758
April	1,120	11	140	8,310
May	236	14	33.4	2,050
June	28	1	8.7	520
July	158	1	11.1	680
August	78	0	5.5	341
September	4	0	.5	28
The year	1,180	0	43.3	31,300

LITTLE ARKANSAS RIVER AT VALLEY CENTER, KANS.

LOCATION.—Chain gage in SW. ¼ sec. 1, T. 26 S., R. 1 W., 1 mile south of Valley Center and 14 miles above mouth.

DRAINAGE AREA.—1,340 square miles.

RECORDS AVAILABLE.—June, 1922, to September, 1931.

EXTREMES.—Maximum discharge during year, 363 second-feet June 16 (gage height, 4.44 feet); minimum, 11 second-feet several days in September (gage height, 0.59 feet).

1922–1931: Maximum discharge, 10,500 second-feet June 10, 1923 (gage height, 18.02 feet); minimum, 4 second-feet Dec. 17, 1922. Bank-full stage, 10 feet.

REMARKS.—Records good except those for periods Dec. 15 to May 15, which are fair, due to variable artificial modification of station control. Discharge estimated Mar. 28–31.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	31	38	32	28	40	45	55	64	27	16	16
2	26	31	36	33	28	40	45	55	61	28	22	16
3	26	32	34	33	30	40	55	52	52	28	24	16
4	26	32	34	33	31	40	52	48	45	30	26	16
5	26	32	34	32	30	38	45	55	38	28	24	14
6	28	33	33	32	30	38	42	58	38	31	24	14
7	29	32	32	32	31	38	45	64	38	32	24	14
8	29	33	32	33	31	38	48	64	35	28	20	14
9	30	36	32	32	31	38	42	58	32	26	19	14
10	28	34	32	32	31	38	42	55	30	27	18	12
11	30	34	32	31	32	40	45	52	55	26	20	12
12	31	36	32	31	32	40	42	48	81	24	18	12
13	31	36	33	31	32	40	35	48	81	23	18	12
14	31	36	32	29	32	40	32	48	64	23	16	12
15	31	34	33	27	32	40	32	42	52	22	16	12
16	31	36	33	22	33	40	32	45	363	21	16	12
17	31	36	33	26	33	40	35	48	224	21	16	12
18	32	36	32	24	34	40	35	42	291	20	18	11
19	32	34	32	26	34	38	32	48	142	20	18	11
20	32	36	32	19	34	40	32	45	90	20	19	11
21	33	38	33	19	36	40	35	85	76	20	24	32
22	32	36	33	19	36	42	42	52	61	20	22	42
23	32	34	32	21	36	42	42	55	55	19	45	48
24	32	38	33	22	38	42	42	55	45	19	26	32
25	33	36	32	24	38	40	45	52	42	19	22	22
26	33	34	32	20	38	38	48	52	35	19	20	20
27	32	33	31	16	38	34	52	48	35	18	18	19
28	32	33	32	17	38	32	48	42	32	17	16	19
29	32	32	31	22	------		55	45	31	17	16	18
30	32	34	32	25	------		55	48	30	15	16	18
31	32	------	32	26	------		------	81	------	16	16	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	33	24	30.3	1,860
November	38	31	34.3	2,040
December	38	31	32.7	2,010
January	33	16	26.5	1,630
February	38	28	33.1	1,840
March	42	----------	38.5	2,360
April	55	32	42.6	2,530
May	81	42	51.8	3,180
June	363	30	77.3	4,600
July	32	15	22.7	1,400
August	45	16	20.4	1,260
September	48	11	17.8	1,060
The year	363	11	35.9	25,800

WALNUT RIVER AT WINFIELD, KANS.

LOCATION.—Chain gage in NE. ¼ sec. 33, T. 32 S., R. 4 E., 1 mile south of Winfield and 1 mile above Black Creek.

DRAINAGE AREA.—1,860 square miles.

RECORDS AVAILABLE.—November, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 11,800 second-feet June 16 (gage height, 21.84 feet); minimum, 2 second-feet Sept. 17, 18 (gage height, 2.34 feet).

1921–1931: Maximum discharge, 94,400 second-feet Nov. 18, 1928 (gage height, 40.61 feet); no flow Nov. 11, 1928.

REMARKS.—Records good except those for period May to August, which are fair, due to shifting control. Diversion above station on Sundays.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36	20	528	60	42	97	930	272	482	151	53	65
2	35	9	690	79	62	97	1,290	224	289	156	51	80
3	12	28	342	92	84	104	1,180	210	272	170	41	50
4	33	34	239	47	66	90	738	196	170	145	52	47
5	30	27	196	76	62	92	400	882	156	134	96	6
6	28	21	170	79	71	94	361	1,610	128	138	68	18
7	35	35	149	79	79	94	289	690	123	130	62	16
8	59	18	143	77	42	79	239	462	3,310	115	63	33
9	31	33	132	76	77	101	196	342	1,080	112	48	37
10	38	17	149	87	71	94	224	272	183	101	47	34
11	53	22	123	36	123	84	239	239	3,360	97	63	24
12	29	21	104	82	82	90	256	224	10,900	94	52	16
13	30	18	117	71	76	90	224	183	6,780	89	52	10
14	65	16	117	79	77	108	210	196	1,030	84	58	7
15	58	21	113	66	42	69	196	170	5,520	72	31	6
16	306	42	110	74	63	110	183	158	11,200	68	22	3
17	170	154	104	59	85	110	183	145	6,640	63	21	2
18	130	28	99	28	85	106	224	145	1,240	77	33	2
19	125	40	104	62	89	92	239	239	690	68	224	2
20	97	4,260	104	82	85	103	210	224	528	66	170	12
21	76	3,360	96	96	84	115	210	196	690	1,400	90	37
22	76	1,180	92	87	68	99	380	289	380	462	66	1,940
23	38	400	96	82	183	140	528	289	306	183	56	2,870
24	21	272	99	87	170	128	324	256	272	119	52	690
25	38	170	76	38	128	134	272	224	239	101	37	342
26	28	126	89	104	119	110	272	183	210	101	39	145
27	68	104	96	76	113	115	441	68	183	66	41	85
28	71	99	56	69	96	145	528	239	158	74	26	89
29	53	113	82	63	------	210	324	441	158	62	41	53
30	28	128	87	58	------	239	289	1,130	183	62	26	58
31	72	------	69	66	------	596	------	834	------	55	46	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	306	12	63.5	3,910
November	4,260	9	361	21,500
December	690	56	154	9,460
January	104	28	71.5	4,400
February	183	42	86.6	4,810
March	596	69	127	7,800
April	1,290	183	386	23,000
May	1,610	68	362	22,300
June	11,200	123	1,900	113,000
July	1,400	55	155	9,550
August	224	21	58.9	3,620
September	2,870	2	226	13,400
The year	11,200	2	327	237,000

VERDIGRIS RIVER AT INDEPENDENCE, KANS.

LOCATION.—Chain gage in NE. ¼ sec. 32, T. 32 S., R. 16 E., 2 miles east of Independence and 3½ miles below Elk River. Gage moved to new site 1 mile downstream Oct. 1, 1930.

DRAINAGE AREA.—2,800 square miles.

RECORDS AVAILABLE.—April to September, 1904; November, 1921, to September, 1931.

EXTREMES.—Maximum discharge during year, 18,200 second-feet June 13 (gage height, 29.60 feet); minimum, 1 second-foot Sept. 18 (gage height, 0.87 foot). 1904, 1921–1931: Maximum discharge, 124,000 second-feet Oct. 3, 1927 (gage height, 46.04 feet at former site); minimum discharge, 0.1 second-foot Aug. 11, 1926.

REMARKS.—Records good except those for period of shifting control during October and November and for estimated periods, Apr. 18–26, July 26–31, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	34	49	1,420	190	154	396	6,020	925	1,290	805	34	27
2	33	44	1,330	177	144	369	4,300	1,020	1,040	775	23	52
3	26	40	835	177	144	369	2,600	955	895	775	41	48
4	18	34	625	165	134	315	1,820	865	1,020	745	30	84
5	33	37	745	165	125	302	1,330	2,300	1,370	715	26	72
6	49	37	2,250	154	144	275	985	6,230	1,730	715	34	61
7	61	34	1,640	165	134	262	805	6,930	2,000	685	28	55
8	63	28	865	154	288	275	745	4,500	1,730	685	20	34
9	47	26	685	154	190	250	805	3,090	1,600	655	18	26
10	34	31	595	154	177	250	895	1,980	1,730	625	98	20
11	31	27	566	177	165	302	835	1,460	3,220	595	51	20
12	31	25	508	188	144	315	835	1,210	9,380	566	43	19
13	26	22	480	188	188	369	775	1,080	17,300	537	48	15
14	24	20	424	170	302	452	745	955	7,420	480	32	11
15	25	29	396	160	342	508	625	895	2,150	452	26	7
16	30	34	369	154	315	537	566	895	6,650	424	20	5
17	51	38	369	154	537	452	480	835	7,210	396	17	2
18	46	65	369	188	745	315	508	895	4,820	342	18	2
19	41	125	342	250	835	250		9,170	3,100	315	68	2
20	43	1,640	369	342	595	262		15,900	1,730	369	47	2
21	90	6,580	342	342	508	302		3,400	1,420	625	38	2
22	98	3,460	315	288	452	685	850	1,780	1,140	745	34	2
23	144	1,080	288	275	595	745		2,950	985	685	33	537
24	134	625	275	250	805	715		1,640	925	537	25	955
25	237	480	262	237	655	595		1,040	895	396	20	537
26	237	369	224	212	537	566		1,250	865		18	275
27	165	315	224	212	480	2,800	1,910	2,950	865		17	144
28	116	275	212	188	424	3,100	1,550	1,210	835	215	14	90
29	88	342	212	134	------	3,050	1,290	745	835		11	60
30	68	480	190	165	------	3,000	1,020	1,020	835		10	47
31	57	------	190	165	------	5,140	------	1,640	------		15	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	237	18	70.3	4,320
November	6,580	20	546	32,500
December	2,250	190	578	35,500
January	342	134	197	12,100
February	835	125	366	20,300
March	5,140	250	888	54,600
April	6,020	480	1,270	75,900
May	15,900	745	2,630	161,000
June	17,300	835	2,900	173,000
July	805	------	514	31,600
August	98	10	30.9	1,900
September	955	2	107	6,370
The year	17,300	2	841	609,000

NEOSHO RIVER NEAR IOLA, KANS.

LOCATION.—Water-stage recorder in NE. ¼ sec. 9, T. 25 S., R. 18 E., 3 miles southwest of Iola and half a mile below Elm Creek.

DRAINAGE AREA.—3,800 square miles.

RECORDS AVAILABLE.—August, 1895, to November, 1903; October, 1917, to September, 1931.

EXTREMES.—Maximum discharge during year, 6,130 second-feet May 19 (gage height, 10.20 feet); minimum, 12 second-feet Sept. 20 (gage height, 2.68 feet). 1895–1903, 1917–1931: Maximum discharge, 46,000 second-feet Sept. 13, 1926 (gage height, 33.2 feet); no flow on several days in September and October, 1897.

REMARKS.—Records good except those for short periods in October, April, and May, which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	93	74	334	122	105	122	1,850	740	1,110	128	50	25
2	84	68	370	110	100	116	1,340	685	740	131	19	24
3	88	57	406	108	96	110	890	580	542	128	19	20
4	93	57	406	105	98	108	830	495	406	105	18	22
5	93	63	450	103	100	105	800	485	343	218	20	22
6	93	48	537	105	91	108	624	1,180	288	406	19	26
7	105	46	505	103	98	110	537	1,180	301	218	24	26
8	108	54	392	103	108	108	470	920	233	244	24	24
9	84	55	309	108	103	113	411	740	276	288	26	26
10	65	50	268	113	98	113	379	553	1,400	214	24	30
11	54	48	252	110	93	137	348	470	1,240	181	22	28
12	46	50	218	110	100	210	330		2,330	134	20	28
13	48	50	240	119	98	313	326		1,140	116	24	26
14	68	55	188	108	98	415	313		1,240	105	25	26
15	77	59	192	110	105	388	296	[a] 450	1,500	88	22	25
16	98	65	192	100	128	352	276		1,570	84	18	25
17	150	65	181	93	174	388	288		1,370	86	24	22
18	150	84	181	108	229	361	288	685	1,270	70	41	20
19	157	103	174	100	203	313	280	5,290	1,110	61	44	18
20	174	[a] 268	160	122	214	276	288	2,080	712	72	41	12
21	174	1,780	164	128	203	272	1,270	800	475	65	39	13
22	167	2,420	154	134	199	280	2,420	1,080	370	63	41	18
23	134	1,920	150	116	164	334	1,240	1,270	284	59	38	164
24	116	1,040	150	108	167	397	860	830	229	57	41	370
25	105	602	147	110	150	370	740	712	218	57	44	658
26	103	411	140	119	143	330	860	510	181	50	59	520
27	93	313	137	128	125	397	1,110	435	174	38	42	322
28	72	248	137	125	128	722	860	370	157	70	30	218
29	74	240	131	125	-------	800	712	317	137	100	24	160
30	77	276	125	110	-------	770	740	402	125	96	[a] 24	98
31	77	-------	116	108	-------	1,570	-------	830	-------	74	24	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	174	46	101	6,190
November	2,420	46	356	21,200
December	537	116	242	14,900
January	134	93	112	6,880
February	229	91	133	7,370
March	1,570	105	339	20,800
April	2,420	276	733	43,600
May	5,290	317	850	52,200
June	2,330	125	716	42,600
July	406	38	123	7,550
August	59	18	30.0	1,840
September	658	12	101	5,980
The year	5,290	12	319	231,000

[a] Estimated.

NEOSHO RIVER NEAR PARSONS, KANS.

LOCATION.—Chain gage in NW. ¼ sec. 22, T. 31 S., R. 21 E., half a mile above St. Louis-San Francisco Railway bridge, and 10 miles east of Parsons.
DRAINAGE AREAS.—4,860 square miles.
RECORDS AVAILABLE.—October, 1921, to September, 1931.
EXTREMES.—Maximum discharge during year, 9,500 second-feet May 20 (gage height, 13.53 feet); minimum, 12 second-feet Sept. 20 (gage height, 1.10 feet).

1921–1931: Maximum discharge, 48,100 second-feet Nov. 24, 1928 (gage height, 27.50 feet); minimum, that of Sept. 20, 1931.
REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	67	875	140	128	192	2,850	1,360	925	140	49	64
2	90	75	675	145	122	179	3,020	1,360	1,600	118	67	65
3	79	75	600	153	120	179	1,960	1,140	1,090	120	64	44
4	65	73	600	153	115	163	1,540	925	825	122	55	31
5	59	72	725	138	102	156	1,260	825	675	143	44	28
6	65	69	775	128	104	148	1,260	980	500	128	35	24
7	86	61	1,040	122	104	150	1,090	1,360	425	214	25	20
8	88	61	925	122	525	153	925	1,720	382	425	21	18
9	86	58	675	122	284	161	875	1,260	340	248	18	17
10	83	55	600	122	195	163	875	1,090	321	265	284	16
11	81	55	600	132	172	163	775	875	980	302	361	17
12	73	52	404	140	143	214	675	725	2,260	230	83	18
13	59	53	340	132	145	361	625	600	4,550	198	39	18
14	49	55	321	128	153	425	575	575	2,400	148	25	17
15	46	58	302	125	179	600	575	500	1,540	115	22	15
16	45	58	284	122	230	625	500	450	1,960	102	19	14
17	43	53	265	120	340	575	475	382	2,690	94	19	13
18	48	58	248	122	382	475	425	382	2,540	83	61	13
19	104	70	230	135	450	475	450	3,190	1,540	77	192	13
20	122	[a] 70	230	153	425	475	500	9,280	1,420	107	140	12
21	132	[a] 300	198	182	361	425	825	4,550	1,040	115	83	14
22	192	2,080	192	169	302	361	1,040	1,900	725	70	72	16
23	248	2,620	192	163	302	302	2,850	1,960	575	69	61	17
24	404	2,400	185	163	302	340	1,720	2,020	404	61	48	34
25	265	1,660	179	161	248	404	1,310	1,420	321	56	38	35
26	172	925	169	138	248	[a] 475	1,360	1,090	274	48	32	404
27	150	575	161	143	214	[a] 980	1,720	875	230	48	32	725
28	130	500	166	132	198	1,540	1,600	675	230	43	30	575
29	113	475	161	148	------	1,780	1,310	575	188	34	29	361
30	107	675	161	148	------	1,720	1,090	600	169	31	52	248
31	75	------	150	138	------	1,780	------	825	------	31	49	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	404	43	112	6,860
November	2,620	52	449	26,700
December	1,040	150	407	25,000
January	182	120	140	8,610
February	525	102	235	13,100
March	1,780	148	521	32,000
April	3,020	425	1,200	71,500
May	9,280	382	1,470	90,200
June	4,550	169	1,100	65,700
July	425	31	129	7,900
August	361	18	69.3	4,260
September	725	12	96.9	5,760
The year	9,280	12	494	358,000

[a] Estimated.

NEOSHO RIVER NEAR GROVE, OKLA.

LOCATION.—Chain gage in SE. ¼ sec. 27, T. 25 N., R. 23 E., 3 miles below Spring Branch and 3½ miles northwest of Grove.

RECORDS AVAILABLE.—February, 1925, to September, 1931.

EXTREMES.—Maximum discharge during year, 31,600 second-feet May 20 (gage height, 13.3 feet); minimum, 275 second-feet Sept. 19 (gage height, 0.11 foot).

1925–1931: Maximum discharge, 133,000 second-feet Apr. 15, 1927 (gage height, 34.6 feet); minimum, 250 second-feet September, 1925.

REMARKS.—Records good. Regulation at low stages by power plants upstream.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,040	1,190	11,200	1,530	1,000	2,860	5,130	4,460	2,230	880	1,080	1,530
2	1,220	1,080	8,820	1,320	845	2,860	5,130	4,460	2,730	705	880	1,080
3	920	880	6,640	1,320	775	2,350	5,850	4,140	2,600	670	1,530	1,000
4	880	880	5,480	1,530	1,000	2,470	4,790	3,550	2,860	775	4,620	1,000
5	880	920	6,240	1,130	740	2,110	3,840	4,460	2,230	845	6,840	880
6	880	880	10,100	1,320	920	1,990	2,990	3,550	2,110	600	4,300	1,130
7	1,640	810	9,550	1,220	1,000	1,870	3,130	3,550	1,870	810	3,550	635
8	2,350	920	7,470	1,320	920	1,990	2,730	3,840	1,640	845	3,410	595
9	1,640	810	6,240	1,320	1,040	2,110	2,730	4,140	1,530	670	3,690	810
10	1,990	740	5,480	1,320	1,220	1,990	2,990	4,300	1,320	845	2,730	880
11	1,640	775	4,620	1,420	1,870	2,230	4,140	3,270	1,530	775	1,750	568
12	1,320	845	3,550	1,040	1,420	2,350	3,840	3,690	2,470	775	1,420	420
13	1,220	845	3,410	1,040	1,870	2,350	2,990	2,990	3,840	705	1,640	395
14	1,130	740	3,550	1,080	2,110	2,350	3,270	2,470	5,480	670	1,530	670
15	1,080	845	3,410	1,040	2,730	2,860	2,600	2,110	4,140	705	1,420	448
16	1,130	740	3,690	1,000	2,470	1,990	2,230	2,110	3,840	670	1,220	535
17	1,130	960	2,230	1,220	2,860	1,990	2,600	1,990	2,990	568	920	740
18	960	740	2,860	1,220	2,990	1,990	2,230	2,230	3,410	568	1,220	448
19	920	810	2,230	1,080	3,410	1,870	2,110	3,470	2,990	568	1,990	290
20	960	1,220	2,730	1,080	3,270	1,640	2,860	30,800	2,860	2,990	1,640	370
21	740	2,470	2,230	1,420	2,860	2,110	4,790	23,300	2,350	18,600	1,640	395
22	1,000	3,550	2,230	920	2,990	2,470	7,470	13,700	1,990	7,050	1,320	568
23	1,220	2,860	2,110	1,320	3,840	2,600	5,660	7,260	1,420	4,140	1,000	305
24	2,230	3,840	1,870	1,220	5,130	1,530	6,640	6,040	1,320	2,230	845	395
25	2,230	5,480	1,530	880	4,960	1,750	6,840	5,480	1,130	1,530	920	370
26	2,230	3,130	1,990	920	4,460	1,530	5,480	5,480	1,190	2,600	1,040	505
27	1,990	2,110	1,320	1,040	3,550	2,470	5,130	5,850	1,000	3,270	775	635
28	1,420	1,870	1,870	1,000	2,990	5,850	6,640	3,690	1,000	2,730	705	420
29	1,420	2,110	1,130	1,130	-------	7,260	5,300	3,690	1,000	1,320	1,190	705
30	1,320	6,040	1,530	1,530	-------	6,640	5,480	2,990	740	1,220	3,990	775
31	1,320	-------	1,420	880	-------	5,850	-------	2,860	-------	1,130	2,230	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,350	740	1,360	83,600
November	5,480	740	1,700	101,000
December	11,200	1,130	4,150	255,000
January	1,530	880	1,190	73,200
February	5,130	740	2,330	129,000
March	7,260	1,530	2,720	167,000
April	7,470	2,110	4,250	253,000
May	30,800	1,990	5,670	349,000
June	5,480	740	2,260	134,000
July	18,600	568	2,010	124,000
August	6,840	705	2,030	125,000
September	1,530	290	647	38,500
The year	30,800	290	2,530	1,830,000

COTTONWOOD RIVER AT ELMDALE, KANS.

LOCATION.—Chain gage in NW. ¼ sec. 26, T. 19 S., R. 7 E., one-fourth mile above Middle Creek and 1 mile east of Elmdale.
DRAINAGE AREA.—1,040 square miles.
RECORDS AVAILABLE.—May, 1922, to September, 1931.
EXTREMES.—Maximum discharge during the year, 3,320 second-feet June 7 (gage height, 14.55 feet); minimum, 1 second-foot Sept. 16 (gage height, 3.24 feet).
1922–1931: Maximum discharge, 15,800 second-feet July 12, 1929 (gage height, 36.43 feet); minimum, 1 second-foot July 9, 1926, Sept. 16, 1931.
REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept
1	17	29	513	41	33	40	168	104	102	37	6	7
2	36	35	156	41	40	46	220	92	71	37	18	7
3	31	24	112	41	40	40	146	82	64	33	38	7
4	26	24	82	52	33	33	543	86	56	28	84	6
5	31	29	72	41	40	40	314	99	49	37	27	7
6	31	26	72	48	37	40	211	99	72	46	25	7
7	35	29	65	41	46	40	133	110	2,650	53	27	7
8	26	51	60	48	40	40	110	92	1,100	48	27	7
9	37	35	70	41	40	46	97	92	314	41	20	7
10	35	29	58	48	40	40	97	78	102	35	18	6
11	28	32	65	41	40	40	86	68	1,680	35	20	7
12	40	29	58	48	40	40	86	65	1,070	35	12	5
13	58	29	46	48	40	51	86	68	633	31	11	5
14	110	35	51	68	40	74	76	78	394	25	11	5
15	314	35	58	58	40	123	71	72	*600	25	11	5
16	115	46	59	48	33	90	82	71	*780	25	10	2
17	52	58	53	44	33	66	71	71	945	20	6	3
18	49	76	59	35	40	60	68	71	394	22	16	5
19	49	72	56	38	37	55	68	71	179	20	26	5
20	42	1,770	56	55	33	53	82	80	102	20	19	4
21	36	1,240	56	44	40	60	156	80	84	25	16	40
22	33	743	49	38	41	66	270	76	80	20	16	376
23	42	196	94	41	40	97	136	76	64	22	13	573
24	46	110	49	41	46	110	107	71	55	22	11	58
25	42	92	49	41	40	97	107	76	49	16	15	24
26	49	60	49	41	40	82	130	71	46	12	16	37
27	46	64	49	48	40	71	120	64	38	9	15	26
28	36	53	49	41	40	86	136	71	38	8	10	19
29	38	64	} *44	41	-------	97	136	56	36	6	15	16
30	42	102		41	-------	104	130	123	25	6	16	13
31	36	-------		41	-------	168	-------	245	-------	9	11	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	314	17	51.9	3,190
November	1,770	24	174	10,300
December	513	----------	77.3	4,750
January	68	35	44.6	2,740
February	46	33	39.0	2,170
March	168	33	67.6	4,160
April	543	68	141	8,420
May	245	56	85.7	5,270
June	2,650	25	396	23,500
July	53	6	26.1	1,600
August	84	6	18.9	1,160
September	573	2	43.2	2,570
The year	2,650	2	96.6	69,800

* Estimated

SPRING RIVER NEAR WACO, MO.

LOCATION.—Chain gage on line between SE. ¼ sec. 7 and NE. ¼ sec. 18, T. 29 N., R. 33 W., at highway bridge 1½ miles east of Waco. Zero of gage is 835.25 feet above mean sea level.

DRAINAGE AREA.—1,160 square miles.

RECORDS AVAILABLE.—April, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 8,140 second-feet May 19 (gage height, 11.92 feet); minimum, 52 second-feet July 13 (gage height, 1.24 feet).

1924–1931: Maximum discharge, 57,400 second-feet Aug. 17, 1927 (gage height, 28.6 feet); minimum, 22 second-feet Sept. 8, 1925 (gage height, 0.90 foot).

REMARKS.—Records good except those for discharges below 150 second-feet which are fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	109	135	2,390	202	149	477	556	418	496	126	143	380
2	118	121	1,250	202	116	438	516	399	477	143	149	303
3	103	82	694	199	153	399	477	320	399	126	516	266
4	88	138	556	189	129	380	438	360	341	100	838	244
5	80	121	742	179	138	380	380	341	322	284	838	212
6	80	116	1,620	192	135	341	360	380	284	189	988	212
7	169	105	1,360	179	135	341	341	418	284	138	3,030	196
8	176	103	938	186	129	341	322	399	266	138	1,760	189
9	199	96	694	169	143	341	303	380	266	143	742	169
10	182	68	600	169	202	399	380	360	248	116	556	159
11	124	96	556	182	196	496	438	341	399	126	477	146
12	76	84	516	176	205	516	380	341	341	126	418	153
13	94	90	477	186	216	458	341	284	303	57	380	146
14	135	107	458	186	226	399	322	284	248	114	341	107
15	111	96	438	179	303	341	303	248	226	109	322	135
16	118	186	380	169	322	303	303	248	219	86	284	126
17	98	209	360	192	496	266	284	241	223	90	284	121
18	100	205	360	176	742	266	266	234	205	90	284	121
19	103	149	322	135	646	241	248	3,980	192	92	360	121
20	78	838	341	176	477	244	237	6,050	196	742	341	114
21	105	1,360	322	169	418	266	248	3,890	149	1,760	303	88
22	179	888	303	166	438	284	303	2,710	149	742	248	124
23	399	360	284	153	1,300	303	322	1,760	179	418	219	105
24	341	248	266	166	1,250	303	322	1,200	132	322	202	116
25	322	219	266	156	790	303	322	888	126	322	199	380
26	266	196	248	138	646	266	438	742	135	360	196	153
27	202	179	241	156	556	556	646	646	135	380	189	132
28	186	126	234	153	516	1,830	600	556	135	248	516	82
29	176	303	230	156	-------	1,550	496	516	114	248	1,480	114
30	169	2,790	230	146	-------	838	458	556	126	199	838	107
31	143	-------	212	153	-------	600	-------	600	-------	186	556	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	399	76	156	0.134	0.15
November	2,790	68	327	.282	.31
December	2,390	212	577	.497	.57
January	202	135	172	.148	.17
February	1,300	116	399	.344	.36
March	1,830	241	467	.403	.46
April	646	237	378	.326	.36
May	6,050	234	973	.839	.97
June	496	114	244	.210	.23
July	1,760	57	268	.231	.27
August	3,030	143	581	.501	.58
September	380	82	167	.144	.16
The year	6,050	57	394	.340	4.59

SHOAL CREEK NEAR JOPLIN, MO.

LOCATION.—Indicating float gage in S. ½ sec. 28, T. 27 N., R. 33 W., at Grand Falls hydroelectric plant of Empire District Electric Co., 4 miles south of Joplin.

DRAINAGE AREA.—458 square miles.

RECORDS AVAILABLE.—April, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 3,760 second-feet July 26 (gage height, 6.33 feet); minimum, 11 second-feet many short periods while plant was shut down.

1924–1931: Maximum discharge, 15,200 second-feet Sept. 10, 1930 (gage height, 13.92 feet); minimum discharge, that of 1931.

REMARKS.—Records good. Flow regulated by Grand Falls hydroelectric plant.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	352	273	1,180	271	200	437	366	565	260	114	219	294
2	322	256	913	271	220	412	292	453	254	132	210	267
3	306	255	812	284	193	366	366	484	233	115	609	293
4	322	231	743	287	204	358	310	427	233	111	677	259
5	293	253	914	275	173	361	319	416	233	119	476	203
6	299	215	1,130	271	243	380	303	452	202	114	411	176
7	517	212	999	263	158	336	298	428	190	96	372	177
8	444	202	900	259	201	336	253	426	195	112	320	166
9	466	170	792	278	208	306	392	426	196	111	293	203
10	411	196	754	225	255	310	275	392	216	85	247	158
11	342	188	702	250	209	310	336	381	198	103	300	168
12	353	208	664	253	241	304	273	372	214	94	218	147
13	317	180	585	233	241	309	336	355	194	94	230	144
14	326	235	506	233	310	334	253	334	169	103	198	150
15	311	198	516	314	307	300	298	320	185	116	196	145
16	301	207	477	206	342	285	298	331	202	96	171	132
17	280	187	466	287	327	285	273	278	170	117	188	126
18	110	188	405	252	310	285	262	319	181	110	214	146
19	265	194	427	220	310	285	298	412	178	127	345	92
20	222	295	450	215	330	285	274	523	153	556	266	161
21	251	468	417	248	336	321	505	424	172	307	311	121
22	297	319	352	237	391	255	621	400	151	193	194	77
23	361	318	396	223	461	285	593	404	108	165	213	130
24	388	305	387	218	502	241	511	366	236	169	190	213
25	406	274	387	223	436	285	539	336	137	161	185	132
26	352	279	352	165	510	288	519	350	147	2,020	182	67
27	355	231	346	186	474	298	662	302	151	489	183	143
28	309	251	334	171	461	362	635	297	128	305	501	92
29	282	349	324	208	------	336	619	308	131	262	1,370	111
30	278	1,050	307	225	------	359	531	271	117	250	429	113
31	301	------	296	191	------	366	------	308	------	204	312	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	517	110	327	0.714	0.82
November	1,050	170	273	.596	.66
December	1,180	296	588	1.28	1.48
January	314	165	240	.524	.60
February	510	158	305	.666	.69
March	437	241	322	.703	.81
April	662	253	394	.860	.96
May	565	271	383	.836	.96
June	260	108	184	.402	.45
July	2,020	85	231	.504	.58
August	1,370	171	330	.721	.83
September	294	67	160	.349	.39
The year	2,020	67	312	.681	9.23

LEE CREEK NEAR VAN BUREN, ARK.

LOCATION.—Staff gage in SW. ¼ sec. 31, T. 10 N., R. 32 W., at Arkansas-Oklahoma State line, 6¾ miles northwest of Van Buren.
DRAINAGE AREA.—430 square miles.
RECORDS AVAILABLE.—September, 1930, to September, 1931.
EXTREMES.—Maximum discharge during year, 24,600 second-feet Feb. 8 (gage height, 18.8 feet); minimum, 3 second-feet Oct. 3-5 (gage height, 0.68 foot). 1930–31: Maximum discharge, that of Feb. 8, 1931; no flow Sept. 1–24, 1930.
REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	4	15	792	43	24	385	722	722	315	24	14	41
2	0	4	15	465	42	24	335	625	722	240	21	13	54
3	0	3	15	340	40	24	305	530	592	196	20	13	56
4	0	3	14	335	39	24	276	440	500	156	20	470	64
5	0	3	13	8,910	38	22	244	360	658	125	18	240	54
6	0	8	12	2,230	35	24	280	325	1,330	104	19	113	41
7	0	255	13	1,090	35	28	1,410	295	960	2,210	15	68	34
8	0	255	12	760	35	18,000	1,030	267	755	755	13	48	29
9	0	129	12	580	33	5,400	788	272	625	560	14	40	27
10	0	87	12	465	33	2,150	658	592	530	500	13	34	22
11	0	64	12	382	33	1,300	560	820	412	360	13	29	20
12	0	54	12	315	33	955	470	625	360	285	12	24	17
13	9	42	10	255	30	7,860	412	530	305	335	11	23	15
14	0	39	12	224	28	3,000	360	625	262	240	11	20	13
15	0	35	13	194	28	1,970	325	592	224	188	9	18	12
16	0	32	18	163	28	1,490	280	500	192	440	8	16	11
17	0	28	16	146	28	1,410	254	890	160	240	11	24	11
18	0	26	16	132	28	960	232	820	142	160	12	31	9
19	9	24	17	120	27	820	212	890	196	122	11	29	8
20	0	22	102	105	28	690	232	788	305	101	12	54	8
21	0	20	108	97	28	592	722	1,330	280	78	19	56	8
22	0	20	142	87	27	625	890	1,180	216	66	16	44	7
23	0	24	111	79	27	855	722	890	176	56	13	34	6
24	0	24	84	75	26	788	592	855	146	48	16	29	6
25	0	22	70	70	26	658	500	2,400	125	44	15	25	6
26	39	20	61	66	28	560	500	4,020	1,010	41	42	25	5
27	16	20	54	59	27	500	1,490	2,050	855	36	28	19	5
28	8	18	48	55	27	470	2,290	1,410	500	34	22	122	4
29	6	16	126	50	27	-------	1,330	1,030	360	31	21	58	4
30	5	16	1,520	50	26	-------	1,030	855	320	27	19	36	4
31	-------	15	-------	47	24	-------	855	-------	335	-------	16	42	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
1930				
September	39	0	2.5	147
1930–31				
October	255	3	43.0	2,640
November	1,520	10	89.5	5,330
December	8,910	47	604	37,100
January	43	24	30.9	1,900
February	18,000	22	1,830	102,000
March	2,290	212	644	39,600
April	4,020	267	918	54,600
May	1,330	125	460	28,300
June	2,210	27	270	16,100
July	42	8	16.6	1,020
August	470	13	58.4	3,590
September	64	4	20.0	1,190
The year	18,000	3	405	293,000

YAZOO RIVER BASIN

TALLAHATCHIE RIVER NEAR SARDIS, MISS.

LOCATION.—Chain gage at highway bridge in T. 8 S., R. 7 W. Chickasaw meridian, 3 miles above Illinois Central Railroad bridge and 5 miles south of Sardis.

DRAINAGE AREA.—1,680 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1931 (discontinued). At Batesville, 5 miles downstream, comparable record from June, 1906, to December, 1912.

EXTREMES.—Maximum discharge during year, 7,000 second-feet Apr. 2 (gage height, 14.58 feet); minimum, 305 second-feet Sept. 27, 30 (gage height, 2.20 feet).

1928–1931: Maximum discharge, 11,900 second-feet Mar. 10, 1930 (gage height, 21.31 feet); minimum discharge, 255 second-feet Aug. 13, 14, 1930; minimum gage height, that of 1931.

REMARKS.—Records fair. The Vicksburg office of United States Army Engineers furnished field data, and computations were made in conjunction with it.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	410	380	670	2,700	740	4,880	6,720	1,580	500	470	2,750	530
2	380	380	670	2,420	705	5,740	6,650	1,350	530	1,120	1,760	500
3	355	355	810	1,900	670	5,060	5,740	1,440	530	880	880	440
4	355	355	960	1,480	670	4,580	6,300	1,580	500	880	705	440
5	355	355	1,260	1,580	670	4,340	6,720	1,860	470	1,400	600	440
6	410	380	1,120	1,440	635	4,280	6,090	2,100	440	1,530	600	500
7	670	380	1,120	1,350	635	4,460	4,820	2,000	440	1,440	740	530
8	845	380	1,260	1,710	635	3,800	3,440	1,440	410	1,580	960	440
9	600	380	1,530	1,900	670	2,860	2,360	2,060	410	2,000	1,350	440
10	670	380	1,860	2,160	670	2,700	1,860	2,100	410	1,960	1,660	410
11	740	410	2,060	2,580	705	2,700	1,530	2,200	380	1,710	2,060	380
12	670	470	1,800	2,860	740	2,750	1,300	2,310	380	1,120	2,700	380
13	530	705	1,300	3,020	810	2,700	1,170	2,480	380	810	3,140	410
14	470	1,040	1,040	2,800	960	2,480	1,080	2,580	410	810	3,260	410
15	440	1,120	920	2,420	1,000	2,260	1,040	2,160	600	775	2,920	380
16	410	1,080	845	2,260	1,300	1,480	960	1,620	845	1,000	1,620	380
17	380	1,120	810	2,160	1,710	1,260	920	1,170	920	1,120	880	380
18	380	1,300	775	2,000	2,060	1,080	960	845	810	1,440	705	380
19	355	1,490	810	2,060	2,260	1,000	1,000	880	705	880	635	355
20	355	1,530	775	1,860	2,160	920	1,080	960	635	1,000	600	355
21	355	1,800	775	1,300	2,060	960	1,300	880	565	1,040	600	355
22	355	1,530	670	1,170	1,960	1,040	1,400	845	500	1,220	635	330
23	355	1,080	600	1,080	1,710	1,000	1,300	960	500	1,580	670	330
24	355	1,080	530	1,000	2,000	1,120	1,760	960	600	1,860	670	318
25	355	1,120	635	920	2,970	1,350	2,160	845	880	2,640	565	318
26	355	1,040	1,040	845	2,750	1,800	3,020	705	1,000	3,620	500	305
27	380	920	1,220	810	2,700	2,420	3,620	635	810	3,620	470	318
28	410	810	1,300	810	3,080	2,700	3,020	600	600	2,700	470	318
29	440	670	1,580	775	-------	2,480	2,360	565	470	2,530	500	318
30	440	705	1,800	775	-------	2,580	2,060	530	440	2,860	530	305
31	410	-------	2,200	740	-------	4,400	-------	530	-------	2,920	530	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	845	355	451	0.268	0.31
November	1,800	355	825	.491	.55
December	2,200	530	1,120	.667	.77
January	3,020	740	1,710	1.02	1.18
February	3,080	635	1,420	.845	.88
March	5,740	920	2,680	1.60	1.84
April	6,720	920	2,790	1.66	1.85
May	2,580	530	1,380	.821	.95
June	1,000	380	569	.339	.38
July	3,620	470	1,630	.970	1.12
August	3,260	470	1,180	.702	.81
September	530	305	390	.232	.26
The year	6,720	305	1,350	.804	10.90

YOCONA RIVER NEAR ENID, MISS.

LOCATION.—Chain gage at highway bridge in T. 11 S., R. 7 W. Chickasaw meridian, 2 miles above Illinois Central Railroad bridge and 2½ miles northeast of Enid.

DRAINAGE AREA.—560 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 4,880 second-feet Apr. 1 (gage height, 13.16 feet); minimum, 34 second-feet Sept. 28 (gage height, 1.30 feet).

1928–1931: Maximum discharge, 10,100 second-feet May 20, 1930 (gage height, 18.22 feet); minimum discharge, that of 1931; minimum gage height, 0.78 foot Oct. 3, 1929.

REMARKS.—Records fair. The Vicksburg office of United States Army Engineers furnished field data, and computations were made in conjunction with it.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	58	540	247	152	2,680	4,220	584	202	168	136	95
2	58	59	359	211	144	1,390	2,520	519	144	830	121	93
3	57	64	211	194	128	1,070	1,600	397	121	229	121	194
4	56	62	229	247	128	658	920	302	106	340	144	136
5	57	62	1,920	1,520	128	457	562	302	99	920	211	359
6	53	61	1,700	1,240	128	457	457	920	93	658	194	152
7	57	60	890	740	121	1,600	397	830	88	437	712	106
8	128	57	632	1,830	128	1,560	359	562	80	417	632	84
9	283	62	359	1,200	168	950	340	1,350	75	229	658	70
10	168	113	265	770	152	712	302	1,100	72	121	540	65
11	106	359	229	608	144	457	265	608	71	92	283	62
12	81	265	229	1,240	128	359	265	340	75	76	152	128
13	72	177	194	1,040	229	321	247	265	417	64	121	121
14	61	457	177	712	800	283	229	229	321	76	106	93
15	60	1,280	202	437	608	283	229	202	177	265	106	113
16	60	1,040	283	321	457	247	211	185	202	211	202	67
17	100	632	247	302	632	229	247	168	121	194	113	60
18	75	302	229	321	632	211	980	152	99	378	76	60
19	61	265	211	302	498	229	860	247	160	712	359	57
20	59	160	194	283	378	211	498	1,740	920	1,740	321	50
21	58	202	185	247	302	302	1,200	1,010	283	498	498	52
22	57	378	168	211	247	540	3,320	457	152	712	265	51
23	61	417	152	202	247	457	1,960	265	265	712	136	49
24	75	247	144	194	1,200	477	1,280	211	302	1,350	106	71
25	66	160	265	185	2,470	417	770	177	168	1,200	86	75
26	60	121	2,320	177	1,310	397	658	160	121	1,780	85	50
27	60	105	1,650	177	980	2,370	498	152	99	1,200	84	43
28	81	99	1,040	177	1,880	3,920	378	136	86	498	144	35
29	78	121	860	168	-------	2,010	321	128	77	283	321	38
30	68	457	437	160	-------	1,240	321	168	81	194	160	42
31	64	-------	283	152	-------	1,700	-------	519	-------	160	121	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	283	53	78.8	0.141	0.16
November	1,280	57	263	.470	.52
December	2,320	144	542	.968	1.12
January	1,830	152	510	.911	1.05
February	2,470	121	519	.927	.97
March	3,920	211	909	1.62	1.87
April	4,220	211	880	1.57	1.75
May	1,740	128	464	.829	.96
June	920	71	176	.314	.35
July	1,780	64	540	.964	1.11
August	540	76	236	.421	.49
September	359	35	89.0	.159	.18
The year	4,220	35	434	.775	10.53

COLDWATER RIVER NEAR COLDWATER, MISS.

LOCATION.—Chain gage at highway bridge in T. 4 S., R. 7 W. Chickasaw meridian, on U. S. Route 51, 1¼ miles northwest of Coldwater and 1½ miles below Beartail Creek.

DRAINAGE AREA.—617 square miles.

RECORDS AVAILABLE.—July, 1928, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 7,940 second-feet July 26 (gage height, 14.18 feet); minimum, 83 second-feet Oct. 6 (gage height, 2.74 feet).

1928–1931: Maximum discharge, 41,800 second-feet Jan. 9, 1930 (gage height, 18.86 feet); minimum, 69 second-feet Sept. 30, 1929; minimum gage height, 2.36 feet Aug. 21, 1929.

REMARKS.—Records fair. Complete data furnished by the Vicksburg office of the United States Army Engineers.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	91	103	270	152	122	2,500	2,200	147	107	122	218	182
2	87	95	182	147	117	2,800	2,500	365	99	137	152	147
3	87	95	176	137	117	2,500	2,500	292	99	224	127	365
4	87	99	182	137	117	1,120	1,200	164	99	170	112	1,020
5	87	95	200	170	117	720	798	137	95	182	103	675
6	83	103	1,040	1,200	117	345	355	224	95	878	1,180	224
7	91	99	1,180	830	117	1,250	242	327	95	1,250	2,500	242
8	1,300	99	365	630	122	2,500	194	200	99	962	2,500	230
9	1,950	95	224	1,100	705	3,550	170	176	95	766	3,150	122
10	962	99	170	846	1,250	2,500	164	309	95	525	3,550	117
11	862	112	147	442	962	1,250	158	152	95	158	1,700	117
12	375	127	147	385	396	782	152	137	99	147	645	270
13	194	127	142	442	418	355	152	127	99	132	277	355
14	112	132	147	224	1,250	230	147	117	99	103	176	318
15	103	212	194	188	2,200	540	142	117	99	224	164	182
16	99	301	170	194	1,300	645	142	117	142	158	147	127
17	95	615	137	147	1,060	345	132	112	212	137	152	112
18	95	555	137	142	944	218	147	112	277	218	147	107
19	95	293	147	142	585	194	152	112	137	132	164	99
20	95	212	142	142	277	176	176	182	107	182	293	103
21	95	176	132	142	218	218	218	525	99	962	396	103
22	95	142	122	142	176	496	418	200	95	1,120	188	99
23	99	142	127	137	158	396	249	164	158	570	142	95
24	95	142	117	132	212	375	182	142	188	2,800	142	95
25	103	137	137	132	1,950	570	158	137	127	3,550	137	103
26	99	127	1,100	132	2,500	585	230	147	99	7,940	127	99
27	95	117	1,950	127	2,800	782	327	142	95	3,550	122	95
28	164	103	944	127	1,700	2,500	194	107	91	2,800	132	95
29	164	99	798	127	-------	2,200	152	103	95	1,040	147	95
30	122	122	468	127	-------	2,500	137	103	91	645	152	91
31	117	-------	224	122	-------	3,150	-------	107	-------	318	224	-------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October	1,950	83	264	0.428	0.49
November	615	95	166	.269	.30
December	1,950	117	375	.608	.70
January	1,200	122	298	.483	.56
February	2,800	117	786	1.27	1.32
March	3,550	176	1,240	2.01	2.32
April	2,500	132	470	.762	.85
May	525	103	178	2.88	.33
June	277	91	116	.188	.21
July	7,940	103	1,040	1.69	1.95
August	3,550	103	625	1.01	1.16
September	1,020	91	203	.329	.37
The year	7,940	83	479	.776	10.56

YALOBUSHA RIVER AT GRENADA, MISS.

LOCATION.—Chain gage in T. 22 N., R. 5 E. Choctaw meridian, at highway bridge on U. S. Route 51 in Grenada, 1 mile below Batupan River.

DRAINAGE AREA.—1,550 square miles.

RECORDS AVAILABLE.—June to November, 1906; July, 1908, to March, 1912; July, 1928, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year ending Sept. 30, 1931, 5,180 second-feet Apr. 1 (gage height, 20.64 feet); minimum, 46 second-feet Sept. 30 (gage height, 2.88 feet).

1906, 1908–1912, 1928–1931: Maximum discharge, 35,700 second-feet May 20, 1930 (gage height, 27.49 feet); minimum, 40 second-feet on occasional days in October and November, 1909 (gage height, 0.95 foot).

REMARKS.—Records fair. The Vicksburg office of United States Army Engineers furnished field data, and computations were made in conjunction with it.

Daily and monthly discharge, in second-feet, 1929–1931

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1929-30												
1	71	750	904	2,250	3,060	2,310	880	272	650	87	70	70
2	70	1,860	976	1,650	2,280	2,250	2,220	256	596	92	62	62
3	68	1,510	1,050	2,070	1,680	1,980	4,570	240	453	87	58	62
4	70	1,000	1,130	2,100	3,720	1,510	4,920	240	368	87	50	58
5	107	526	1,030	1,950	4,410	1,130	4,730	224	351	82	47	54
6	112	320	976	1,540	4,410	904	4,450	224	334	82	47	50
7	110	240	1,770	1,400	4,490	1,080	4,170	240	300	82	45	54
8	99	192	2,310	1,570	4,530	1,770	3,580	422	284	82	44	54
9	94	168	2,540	1,770	4,490	2,040	2,960	3,440	252	78	47	66
10	84	160	2,380	1,680	3,860	2,130	1,800	8,620	252	78	46	175
11	75	160	1,770	1,430	2,990	2,600	1,100	7,570	236	74	46	436
12	66	224	1,180	1,180	1,770	2,700	790	6,730	220	74	41	698
13	60	508	792	1,260	1,260	2,790	710	8,260	189	78	41	542
14	57	1,800	730	4,010	1,340	2,760	670	9,060	182	78	42	334
15	57	2,250	652	5,270	1,320	1,980	598	7,420	168	78	46	204
16	55	2,380	508	5,070	1,210	1,480	526	7,270	162	74	204	162
17	52	2,220	439	5,070	1,130	1,230	508	9,280	162	74	101	116
18	51	2,040	710	4,970	1,030	1,230	508	15,300	156	78	116	101
19	52	1,740	952	4,820	904	3,340	473	30,000	144	101	268	74
20	52	1,160	1,210	4,170	814	3,520	422	33,800	138	106	860	70
21	53	730	1,100	3,240	750	3,480	388	31,900	127	111	840	82
22	52	580	836	2,890	770	3,240	354	23,000	116	160	368	96
23	53	544	670	2,730	1,230	2,920	337	17,100	111	116	175	182
24	54	526	634	2,600	1,290	2,470	304	12,500	111	106	116	144
25	58	508	770	1,980	1,290	2,630	304	9,720	106	127	87	106
26	62	792	904	1,480	[a]1,650	2,500	288	7,270	106	127	74	87
27	67	976	1,130	2,100	[a]2,020	2,040	272	5,390	101	111	70	87
28	74	1,130	2,410	3,380	2,380	1,540	256	3,690	96	96	62	82
29	87	1,030	2,920	3,580	-------	1,320	256	1,680	87	87	58	78
30	112	858	2,890	3,660	-------	1,030	272	1,590	82	82	62	70
31	176	-------	2,730	3,480	-------	670	-------	840	-------	74	66	------

[a] Estimated.

Daily and monthly discharge, in second-feet, of Yalobusha River at Grenada, Miss., 1929–1931—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1930–31												
1	66	74	650	764	252	4,570	5,120	764	111	111	2,400	132
2	62	66	688	542	236	4,420	5,020	925	96	106	1,000	106
3	58	70	578	453	236	4,370	4,790	764	92	111	402	96
4	50	66	488	453	284	4,280	4,710	596	82	300	284	144
5	54	66	1,950	2,090	220	3,850	4,550	560	82	436	252	860
6	50	66	2,730	3,090	204	3,170	3,850	2,160	82	596	284	950
7	87	62	2,580	2,930	204	2,890	2,820	2,580	78	650	317	614
8	669	62	2,440	3,250	189	3,810	1,410	2,370	70	419	524	402
9	614	66	1,710	3,290	189	3,650	821	2,160	66	204	880	236
10	632	116	840	2,970	204	3,770	688	1,650	66	116	783	156
11	368	144	560	2,730	204	3,810	596	1,260	66	101	436	127
12	182	220	436	2,930	204	3,330	560	900	74	82	252	122
13	122	220	368	2,970	252	2,730	488	669	268	82	204	127
14	101	334	317	2,850	802	2,060	453	470	175	204	156	175
15	92	669	300	2,650	1,440	1,050	419	368	132	560	138	156
16	78	880	317	1,980	1,800	688	385	300	87	925	175	111
17	82	1,080	334	1,200	1,770	596	351	252	78	1,050	284	87
18	82	840	368	783	1,500	524	351	220	74	1,050	204	74
19	78	542	334	669	1,320	470	402	204	74	950	436	70
20	74	368	317	614	1,120	453	368	419	111	880	1,410	66
21	70	317	300	560	860	470	745	688	268	950	1,200	62
22	66	669	300	506	707	669	1,950	578	300	1,080	1,150	58
23	62	1,080	268	453	560	783	2,060	402	334	1,100	688	54
24	58	1,100	252	402	925	840	1,950	317	524	1,500	419	54
25	58	650	506	368	2,300	764	1,500	204	470	1,980	268	54
26	62	385	2,060	351	2,970	688	1,000	156	436	2,580	189	50
27	66	284	2,730	334	3,290	1,530	840	138	334	2,760	150	50
28	87	220	2,850	300	3,930	3,930	688	132	220	2,900	127	50
29	106	220	2,890	300	-------	4,140	578	122	162	2,760	138	47
30	92	506	2,300	284	-------	4,010	596	116	127	2,620	156	46
31	78	-------	1,320	268	-------	4,620	-------	127	-------	2,580	138	------

Month	Maximum	Minimum	Mean	Per square mile	Run-off in inches
1929–30					
October	176	51	74.5	0.048	0.06
November	2,380	160	963	.621	.69
December	2,920	439	1,320	.852	.98
January	5,27	1,180	2,790	1.80	2.08
February	4,530	750	2,220	1.43	1.49
March	3,520	670	2,080	1.34	1.54
April	4,920	256	1,450	.935	1.04
May	33,800	224	8,500	5.48	6.32
June	650	82	221	.143	.16
July	150	74	91.6	.059	.07
August	860	41	137	.088	.10
September	688	50	148	.095	.11
The year	33,800	41	1,670	1.08	14.64
1930–31					
October	669	50	142	0.092	0.11
November	1,100	62	381	.246	.27
December	2,890	252	1,100	.710	.82
January	3,290	268	1,400	.903	1.04
February	3,930	189	1,010	.652	.68
March	4,620	453	2,480	1.60	1.84
April	5,120	351	1,670	1.08	1.20
May	2,580	116	728	.470	.54
June	524	66	171	.110	.12
July	2,900	82	1,020	.658	.76
August	2,400	127	498	.321	.37
September	950	46	178	.115	.13
The year	5,120	46	900	.581	7.88

NOTE:—Records of daily and monthly discharge in the above table for the year ending Sept. 30, 1930, supersede those published in Water-Supply Paper 702.

RED RIVER BASIN

RED RIVER NEAR DENISON, TEX.

LOCATION.—Chain gage on Denison-Colbert toll bridge, half a mile below Missouri-Kansas-Texas Railroad bridge and 4½ miles northeast of Denison, Grayson County.

DRAINAGE AREA.—39,400 square miles.

RECORDS AVAILABLE.—October, 1923, to September, 1931. United States Weather Bureau has obtained readings of stage at Missouri-Kansas-Texas Railroad bridge, half a mile upstream, since January, 1906. Relation between gages is not known.

EXTREMES.—Maximum discharge during year, about 66,900 second-feet Oct. 16 (gage height, 12.6 feet); minimum, 145 second-feet Sept. 29.

1923–1931: Maximum discharge, 132,000 second-feet Oct. 17, 1923 (gage height, 19.4 feet); minimum, that of Sept. 29, 1931.

REMARKS.—Records fair. No diversions.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	445	2,520	5,320	1,900	1,270	4,160	11,600	1,900	1,780	690	1,780	326
2	410	2,260	3,440	1,780	1,270	4,550	12,500	1,900	1,560	620	1,460	344
3	392	1,900	2,950	1,670	1,270	5,410	8,780	2,390	1,360	585	1,180	302
4	380	1,670	4,040	1,670	1,270	4,350	6,890	2,520	1,270	543	1,000	302
5	529	1,560	14,600	1,560	1,180	5,410	5,870	3,000	1,180	487	880	266
6	1,290	1,460	28,500	1,560	1,140	6,360	4,970	7,510	1,180	362	760	620
7	3,830	1,460	43,700	1,460	1,180	7,170	4,160	16,100	1,270	356	655	800
8	5,640	1,270	33,000	1,460	1,720	6,110	3,790	16,200	1,180	508	550	690
9	12,100	1,270	21,000	1,460	5,800	4,970	3,440	11,600	1,180	840	508	725
10	11,200	1,180	11,700	1,460	12,000	4,160	3,110	8,780	1,140	655	550	585
11	8,080	1,180	7,460	1,460	9,940	3,270	2,800	6,890	1,040	529	494	508
12	6,110	1,140	6,110	1,460	9,160	2,800	2,660	5,190	1,040	466	410	452
13	4,760	1,040	6,110	1,360	9,160	2,520	2,520	4,350	1,140	438	410	380
14	21,600	1,040	5,190	1,460	8,780	2,260	2,260	3,610	1,000	338	452	326
15	39,800	1,140	4,970	1,460	7,760	2,020	2,260	3,110	2,020	410	550	326
16	49,900	1,140	4,550	1,460	6,110	1,780	2,140	2,660	3,610	487	620	326
17	39,000	1,090	4,350	1,460	4,970	1,670	2,390	2,390	3,440	445	1,040	314
18	21,000	960	4,160	1,460	3,970	1,560	2,140	2,260	3,610	459	1,360	260
19	14,900	1,090	3,970	1,560	3,270	1,560	1,900	1,900	2,520	515	1,090	266
20	10,800	1,180	3,790	1,460	2,950	4,710	1,900	1,900	2,140	905	1,270	272
21	7,170	1,460	3,610	1,460	2,800	7,030	2,020	3,070	1,560	4,800	1,670	272
22	5,870	1,670	3,610	1,460	7,900	8,780	3,760	4,970	1,460	7,320	1,560	278
23	5,190	1,900	3,440	1,460	12,000	4,760	2,570	3,720	1,360	19,500	1,140	254
24	4,350	2,390	3,440	1,360	12,000	2,660	2,260	3,270	1,270	18,900	920	212
25	3,270	1,900	3,270	1,360	11,600	2,260	2,390	3,440	1,270	13,900	880	200
26	3,270	1,900	3,110	1,360	7,060	2,140	2,390	4,350	1,140	9,540	760	218
27	4,970	1,780	2,800	1,270	5,410	5,710	2,660	4,350	1,000	5,190	620	176
28	5,870	1,560	2,390	1,270	4,550	8,780	2,520	3,610	920	4,760	522	155
29	4,760	3,620	2,260	1,270	-------	6,620	2,260	2,390	840	3,790	466	150
30	3,790	6,620	2,140	1,270	-------	5,190	2,020	2,140	760	3,110	410	160
31	2,800	-------	2,020	1,270	-------	5,640	-------	2,020	-------	2,140	380	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	49,900	380	9,790	602,000
November	6,620	960	1,740	104,000
December	43,700	2,020	8,100	498,000
January	1,900	1,270	1,460	89,800
February	12,000	1,140	5,620	312,000
March	8,780	1,560	4,400	271,000
April	12,500	1,900	3,760	224,000
May	16,200	1,900	4,630	285,000
June	3,610	760	1,540	91,600
July	19,500	338	3,340	205,000
August	1,780	330	850	52,300
September	800	150	349	20,800
The year	49,900	150	3,810	2,760,000

RED RIVER AT GARLAND CITY, ARK.

LOCATION.—Chain gage in SE. ¼ sec. 17, T. 14 S., R. 25 W., on St. Louis Southwestern Railway bridge at Garland City.

RECORDS AVAILABLE.—October, 1927, to September, 1931.

EXTREMES.—Maximum discharge during year, 57,100 second-feet Dec. 10 (gage height, 21.85 feet); minimum, 440 second-feet Sept. 30 (gage height, 3.3 feet).

1927–1931: Maximum discharge, 119,000 second-feet May 22, 23, 1930 (gage height, 32.5 feet); minimum, that of Sept. 30, 1931.

Maximum stage known, 35.4 feet in April, 1927.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,260	6,320	6,540	5,780	2,260	33,300	35,600	6,860	4,900	1,640	19,000	1,790
2	2,260	7,420	12,500	5,420	2,260	28,100	32,000	7,240	5,420	1,490	12,700	2,100
3	2,440	7,640	22,700	5,070	2,260	24,400	26,400	8,840	5,420	1,230	10,900	2,420
4	2,260	6,540	27,300	4,900	2,260	23,000	23,000	9,440	4,730	1,230	6,500	3,540
5	1,720	5,470	26,400	4,560	2,260	21,300	23,000	9,840	4,050	1,230	5,240	5,070
6	1,900	4,840	21,600	4,390	2,100	18,700	20,100	9,440	3,710	1,120	4,220	4,900
7	2,080	4,000	25,600	4,220	2,100	16,300	16,800	9,040	3,540	1,020	3,540	2,900
8	2,440	3,600	44,200	4,220	1,940	15,600	14,100	9,840	2,900	930	3,060	1,790
9	3,600	3,200	54,500	3,880	2,100	19,600	12,500	14,800	2,740	850	2,580	1,230
10	5,680	3,200	57,100	3,880	2,260	26,000	10,900	26,800	2,580	850	2,260	930
11	12,000	2,630	53,900	3,710	2,900	28,900	9,840	29,300	2,420	790	1,940	850
12	11,800	2,440	44,700	3,540	17,600	26,800	9,240	22,400	2,260	710	1,640	790
13	11,600	2,260	32,000	3,220	32,000	22,700	8,440	17,100	2,260	650	1,340	710
14	13,800	2,260	23,000	3,220	33,300	18,400	8,240	13,600	2,260	710	1,120	650
15	12,800	2,080	17,900	3,220	28,500	14,800	7,640	13,900	2,260	710	1,020	650
16	10,800	2,260	15,100	3,060	37,000	12,900	7,240	10,100	2,580	850	930	650
17	10,600	2,080	12,900	2,900	41,700	10,700	6,860	8,840	2,580	1,120	790	710
18	32,400	2,080	11,600	2,900	40,800	9,440	6,500	7,840	2,740	1,120	790	650
19	46,200	4,210	10,100	2,740	37,000	8,640	6,500	7,040	3,220	1,230	1,020	650
20	44,700	4,840	9,240	2,740	34,700	8,040	6,140	6,320	3,710	1,120	1,340	600
21	31,500	4,000	8,640	2,580	24,800	7,840	6,140	5,600	3,710	1,230	2,580	560
22	23,800	4,420	7,840	2,740	23,000	8,240	5,960	5,420	3,380	1,230	2,740	560
23	18,200	6,760	7,440	2,740	19,900	8,640	5,960	5,070	3,380	930	2,900	560
24	15,500	6,980	7,440	2,580	16,100	13,400	5,780	4,900	4,050	1,020	2,420	520
25	12,500	5,470	6,860	2,580	21,300	20,700	5,600	4,560	3,880	1,340	1,940	520
26	10,800	4,210	7,040	2,580	35,100	22,700	5,600	4,220	3,540	3,060	1,790	520
27	9,680	3,200	7,240	2,580	40,800	19,300	6,140	4,390	3,060	21,000	1,640	480
28	8,760	3,010	7,240	2,580	39,800	17,400	7,240	5,240	2,420	28,100	1,640	480
29	7,860	3,010	6,860	2,580	-------	18,100	7,440	5,420	1,940	28,100	1,940	480
30	6,760	5,260	6,680	2,580	-------	28,900	7,440	5,070	1,790	27,300	1,940	440
31	5,890	-------	6,320	2,420	-------	36,100	-------	4,560	-------	24,400	1,790	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	46,200	1,720	12,400	762,000
November	7,640	2,080	4,190	249,000
December	57,100	6,320	19,600	1,210,000
January	5,780	2,420	3,420	210,000
February	41,700	1,940	19,500	1,080,000
March	36,100	7,840	19,000	1,170,000
April	35,600	5,600	11,800	702,000
May	29,300	4,220	9,780	601,000
June	5,420	1,790	3,250	193,000
July	28,100	650	5,100	314,000
August	19,000	790	3,400	209,000
September	5,070	440	1,290	76,800
The year	57,100	440	9,360	6,780,000

PEASE RIVER NEAR CROWELL, TEX.

LOCATION.—Water-stage recorder and auxiliary chain gage at Quanah-Crowell highway bridge 1 mile below mouth of Devils Creek and 8 miles north of Crowell, Foard County.

DRAINAGE AREA.—2,940 square miles.

RECORDS AVAILABLE.—January, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, about 25,800 second-feet June 9 (gage height, 8.85 feet); no flow during several periods.

1924–1931: Maximum discharge not determined; maximum gage height, 9.92 feet Oct. 3, 1926; no flow during several periods.

REMARKS.—Monthly records fair. Daily records not sufficiently accurate for publication. No diversions.

Monthly discharge, in second-feet, 1930–31

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	11,000	0	931	57,200
November	82	0	20.6	1,230
December	4,360	0	245	15,100
January	32	4.0	16.1	990
February	667	4.0	90.3	5,020
March	165	.3	32.9	2,020
April	796	0	81.5	4,850
May	643	0	55.0	3,380
June	5,690	0	281	16,700
July	279	0	12.8	787
August	1,260	0	64.3	3,950
September	0	0	0	0
The year	11,000	0	154	111,000

NORTH FORK OF RED RIVER AT LUGERT DAM, OKLA.

LOCATION.—Staff gage in SW. ¼ SE. ¼ sec. 22, T. 5 N., R. 20 W., at Lugert Dam. Mean altitude of crest of dam is 1,514.31 feet above mean sea level, gage height 10.00 feet.

DRAINAGE AREA.—2,200 square miles.

RECORDS AVAILABLE.—March, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year ending Sept. 30, 1930, 10,400 second-feet May 7 (gage height, 13.70 feet); no flow Apr. 26, July 12 to Sept. 30.

Maximum discharge during year ending Sept. 30, 1931, 4,390 second-feet Oct. 13 (gage height, 12.10 feet); no flow Oct. 1–12, June 20 to Sept. 30.

Maximum stage known, 14.5 feet May 16, 1928.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Mar.	Apr.	May	June	July	Day	Mar.	Apr.	May	June	July
1930						1930					
1		9	578	43	5	16		1	[a] 1,000	385	0
2		15	655	43	19	17		5	600	500	0
3		15	470	43	57	18		9	500	357	0
4		15	2,020	43	43	19	124	5	300	208	0
5		15	655	43	43	20	106	9	43	124	0
6		9	1,160	43	19	21	106	5	254	106	0
7		9	8,410	43	19	22	57	5	291	124	0
8		9	1,660	43	5	23	57	1	291	43	0
9		6	655	43	5	24	57	1	254	143	0
10		1	[a] 357	3,370	1	25	43	1	230	143	0
11		1	1,160	1,200	1	26	19	0	175	80	0
12		1	385	427	0	27	15	32	124	32	0
13		1	[a] 1,100	385	0	28	15	106	124	5	0
14		1	3,370	427	0	29	15	357	124	5	0
15		1	4,090	427	0	30	15	1,660	43	9	0
						31	12		43		0

[a] Sluiced for part of day. Discharge estimated May 16–19, 1930, when sluice gates were open.

Daily and monthly discharge, in second-feet, of North Fork of Red River at Lugert Dam, Okla., 1930–31—Continued

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June
1930–31									
1	0	43	43	43	57	80	385	820	115
2	0	43	43	143	57	124	291	500	57
3	0	43	43	175	57	186	254	330	19
4	0	43	43	124	57	330	175	175	19
5	0	43	80	124	57	357	124	175	9
6	0	43	106	106	57	291	80	175	9
7	0	32	124	80	57	175	80	291	32
8	0	32	124	80	57	124	80	254	32
9	0	43	124	80	72	106	80	143	80
10	0	43	124	80	80	106	57	124	57
11	0	43	80	124	80	80	57	115	57
12	0	43	80	124	106	80	57	80	43
13	2,150	43	80	124	106	80	57	50	19
14	2,020	43	80	124	97	80	57	43	19
15	3,090	43	80	124	97	72	57	43	9
16	1,420	80	43	124	80	43	43	19	5
17	578	43	43	124	80	43	124	19	5
18	357	43	43	124	124	43	164	19	5
19	291	43	43	80	124	43	124	43	5
20	230	43	43	97	106	291	106	43	0
21	175	175	43	88	175	124	80	43	0
22	175	143	43	80	175	72	57	43	0
23	143	124	43	80	124	43	57	43	0
24	124	57	43	80	124	43	88	43	0
25	124	43	43	80	124	43	106	80	0
26	124	43	43	80	106	43	80	57	0
27	124	43	43	80	80	43	80	186	0
28	80	43	43	80	80	43	80	124	0
29	43	43	43	57	-------	43	80	124	0
30	43	43	43	57	-------	80	470	124	0
31	43	-------	43	57	-------	470	-------	124	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
1930				
March 19–31	124	12	49.3	1,270
April	1,660	0	76.8	4,570
May	8,410	43	1,000	61,500
June	3,370	5	296	17,600
July	57	0	7.0	430
The period				85,400
1930–31				
October	3,090	0	366	22,500
November	175	32	54.4	3,240
December	124	43	62.6	3,850
January	175	43	97.5	6,000
February	175	57	92.7	5,150
March	470	43	122	7,500
April	470	43	121	7,200
May	820	19	144	8,850
June	115	0	19.9	1,180
The year	3,090	0	90.4	65,500

NOTE.—No flow during August, September, 1930, July, August, September, 1931.

NORTH FORK OF RED RIVER NEAR LUGERT, OKLA.

LOCATION.—Chain gage in sec. 33, T. 5 N., R. 20 W., on Atchison, Topeka & Santa Fe Railway bridge half a mile below mouth of Elm Creek and 3 miles southwest of Lugert. Zero of gage is 1,457.10 feet above mean sea level.

RECORDS AVAILABLE.—October, 1929, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 5,340 second-feet Oct. 14 (gage height, 8.09 feet); minimum, 1 second-foot on various days June to September. 1929–1931: Maximum discharge, 6,900 second-feet May 6, 1930 (gage height, 10.04 feet); minimum, that of 1931.

REMARKS.—Records poor.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	40	81	73	101	109	185	620	1,350	125	1	1	6
2	40	85	73	185	105	170	420	760	89	1	3	3
3	53	73	81	170	97	380	495	420	49	2	6	5
4	183	81	101	200	121	320	280	260	33	2	61	2
5	690	85	600	137	109	470	230	1,140	22	42	245	7
6	360	57	400	137	117	320	185	620	26	26	380	53
7	145	81	280	170	121	170	170	400	42	20	33	3
8	137	61	215	121	170	200	121	420	33	8	18	3
9	77	57	170	117	145	145	170	215	57	520	9	1
10	49	69	137	137	145	137	125	158	97	320	6	1
11	42	65	133	158	145	141	109	137	77	105	8	1
12	215	69	129	170	158	137	105	117	57	42	5	1
13	2,360	69	121	170	230	133	121	113	30	24	2	1
14	3,300	85	113	145	158	113	109	97	20	18	2	1
15	3,860	81	113	145	141	109	93	101	10	12	3	1
16	2,340	97	93	158	145	85	81	73	7	9	3	1
17	550	97	89	145	170	85	121	61	5	8	4	1
18	445	85	101	145	185	93	340	53	6	40	42	1
19	320	113	93	121	170	101	470	97	6	10	4	1
20	260	109	97	129	158	760	230	53	5	65	4	1
21	245	260	101	129	170	185	158	109	3	36	16	1
22	215	185	97	125	215	137	145	89	2	24	10	280
23	260	145	97	113	170	129	145	109	2	81	6	101
24	200	100	93	109	141	133	170	117	2	33	4	57
25	200	85	97	117	145	121	170	109	2	16	3	20
26	200	77	81	109	158	117	145	125	2	9	3	7
27	158	93	93	117	137	145	141	230	1	5	2	6
28	133	53	101	113	145	145	170	137	2	3	2	3
29	101	77	109	117	-------	145	158	141	2	2	1	2
30	91	85	117	109	-------	260	710	215	2	2	2	2
31	81	-------	117	117	-------	520	-------	170	-------	2	2	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3,860	40	560	34,400
November	260	53	92.0	5,470
December	600	73	139	8,550
January	200	101	137	8,420
February	230	97	149	8,280
March	760	85	203	12,500
April	710	81	224	13,300
May	1,350	53	264	16,200
June	125	1	27.2	1,620
July	520	1	48.0	2,950
August	380	1	28.7	1,760
September	280	1	19.1	1,140
The year	3,860	1	158	115,000

ELM FORK OF NORTH FORK OF RED RIVER NEAR MANGUM, OKLA.

LOCATION.—Chain gage in E. ½ sec. 10, T. 15 N., R. 22 W., 4 miles north of Mangum.

RECORDS AVAILABLE.—April, 1905, to March, 1908. March, 1930, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 1,900 second-feet Oct. 14 (gage height, 8.06 feet); minimum, 0.5 second-foot on various days June to September.

1930–31: Maximum discharge, 2,860 second-feet May 6, 1930 (gage height, 9.70 feet); minimum, that of 1931.

REMARKS.—Records fair.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	11	16	42	60	170	95	145	7	1	1	0.5
2	44	28	16	35	50	230	82	60	9	1	9	.5
3	49	20	16	35	50	215	70	42	9	50	82	1
4	560	16	158	42	50	200	70	20	9	28	145	3
5	460	20	520	50	42	170	70	975	9	28	108	20
6	94	28	260	50	50	132	60	145	11	20	28	5
7	39	16	132	42	70	132	50	95	9	16	5	3
8	33	16	70	42	108	120	95	35	11	132	1	1
9	37	16	60	35	95	95	70	20	16	215	.5	1
10	35	20	50	70	82	82	60	28	11	60	35	1
11	125	20	50	70	82	70	50	20	9	28	20	.5
12	355	11	50	50	95	70	70	20	7	11	9	.5
13	280	120	50	60	95	70	50	20	5	7	5	.5
14	1,740	108	50	60	95	60	70	16	7	5	3	.5
15	520	82	60	60	82	60	60	20	3	7	1	.5
16	260	70	95	70	70	50	145	16	2	3	1	.5
17	50	82	70	50	70	60	295	20	2	2	9	.5
18	16	82	35	70	70	50	440	20	1	9	2	.5
19	11	70	35	70	82	200	145	11	1	9	7	.5
20	11	145	42	60	60	108	70	11	.5	20	16	.5
21	16	120	50	50	120	70	60	28	.5	70	11	.5
22	16	95	42	70	95	70	42	20	.5	70	7	185
23	11	42	50	60	82	60	50	16	1	28	5	35
24	11	28	42	60	95	60	95	20	2	16	3	16
25	11	28	35	50	82	82	50	16	2	5	3	9
26	16	35	35	42	70	120	35	7	2	2	1	3
27	9	28	35	50	70	158	16	7	1	1	1	3
28	7	28	60	50	145	158	20	9	2	1	1	1
29	9	20	42	42	-------	120	170	28	2	1	.5	1
30	9	20	42	42	-------	158	348	20	1	.5	.5	1
31	11	-------	42	50	-------	158	-------	9	-------	1	.5	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,740	7	158	9,720
November	145	11	47.5	2,830
December	520	16	74.5	4,580
January	70	35	52.5	3,230
February	145	42	79.2	4,400
March	230	50	115	7,070
April	440	16	100	5,950
May	975	7	61.9	3,810
June	16	.5	5.08	302
July	215	.5	27.3	1,680
August	145	.5	16.8	1,030
September	185	.5	9.85	586
The year	1,740	.5	62.4	45,200

WASHITA RIVER NEAR DURWOOD, OKLA.

LOCATION.—Chain gage in sec. 3, T. 4 S., R. 3 E., 3 miles north of Durwood.
RECORDS AVAILABLE.—August, 1928, to September, 1931.
EXTREMES.—Maximum discharge during year, 11,700 second-feet Mar. 20 (gage height, 22.32 feet); minimum, 35 second-feet Sept. 3 (gage height, 2.90 feet).

1928–1931: Maximum discharge, 16,900 second-feet May 16, 1930; minimum, that of 1931.

Maximum stage known, 38 feet in April and June, 1927.
REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	195	384	870	422	384	910	4,450	1,030	615	222	384	177
2	195	362	870	422	384	830	2,880	1,350	580	222	240	150
3	177	340	580	422	384	720	1,910	1,350	580	222	177	35
4	164	340	3,060	422	395	685	1,630	1,420	580	222	177	150
5	146	330	6,100	422	395	685	1,350	3,110	720	177	177	378
6	245	250	6,410	422	395	650	1,190	4,870	615	177	177	450
7	245	300	5,250	422	395	650	1,030	2,760	580	177	177	384
8	265	300	4,090	422	4,500	615	990	1,840	545	177	177	330
9	285	300	1,840	422	2,400	545	950	1,700	510	250	177	250
10	285	290	1,840	422	1,770	510	910	1,270	480	300	177	231
11	265	300	1,840	422	1,030	510	870	1,110	450	240	177	195
12	285	280	1,350	422	870	510	870	1,030	422	222	177	142
13	870	300	1,110	422	1,560	510	950	990	422	222	177	150
14	3,060	300	790	422	2,120	510	870	950	395	222	177	150
15	3,550	290	720	422	1,350	510	870	830	395	222	177	150
16	2,940	280	650	422	1,110	510	790	720	1,270	222	177	150
17	990	280	615	422	870	510	755	720	1,030	222	177	150
18	545	290	580	422	790	480	755	685	720	790	480	150
19	390	260	545	422	720	480	910	615	615	615	1,030	150
20	450	950	510	422	650	8,620	1,030	615	510	390	1,270	110
21	755	870	510	422	580	6,300	1,030	650	384	395	910	110
22	755	870	510	422	3,920	4,450	870	615	335	510	384	110
23	755	950	480	395	5,180	2,580	870	580	320	830	356	110
24	615	545	480	384	5,850	990	870	1,270	320	790	295	110
25	615	480	480	384	4,670	830	870	1,700	320	480	208	110
26	615	480	450	384	1,840	2,460	830	1,420	300	325	177	110
27	685	480	450	384	1,190	4,990	830	1,030	300	395	177	110
28	720	510	450	384	1,110	3,700	870	790	280	615	177	110
29	580	510	450	384	------	2,050	870	720	231	720	150	110
30	510	1,190	450	384	------	1,490	870	685	222	580	177	110
31	422	------	422	384	------	4,710	------	650	------	384	177	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3,550	146	728	44,800
November	1,190	250	454	27,000
December	6,410	422	1,440	88,500
January	422	384	411	25,300
February	5,850	384	1,670	92,800
March	8,620	480	1,760	108,000
April	4,450	755	1,160	69,000
May	4,870	580	1,260	77,500
June	1,270	222	502	29,900
July	830	177	372	22,900
August	1,270	150	298	18,300
September	450	35	171	10,200
The year	8,620	35	849	614,000

KIAMICHI RIVER NEAR BELZONI, OKLA.

LOCATION.—Chain gage in SE. ¼ sec. 14, T. 4 S., R. 17 E., 1¾ miles northwest of Belzoni and 6 miles below mouth of Cedar Creek. Zero of gage is 393.56 feet above mean sea level.

DRAINAGE AREA.—1,420 square miles.

RECORDS AVAILABLE.—December, 1925, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 13,800 second-feet Feb. 9 (gage height, 25.40 feet); no flow Sept. 24–30.

1925–1931: Maximum discharge, about 61,400 second-feet Dec. 14, 1927 (gage height, 41.24 feet); no flow in August, 1930, and Sept. 24–30, 1931. Maximum stage known, 44.2 feet in October, 1915.

REMARKS.—Records good. Discharge estimated June 7–13, Sept. 9–11.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	270	20	3,600	126	54	1,380	2,040	1,000	240	41	90	10
2	255	25	2,640	104	48	1,380	1,440	1,220	225	35	86	8
3	240	23	2,520	94	47	1,110	1,160	1,560	210	30	76	6
4	240	21	2,340	78	46	955	955	1,800	180	28	68	5
5	4,080	20	10,600	68	44	755	805	1,560	160	24	63	5
6	9,290	20	8,590	88	48	1,800	705	5,400	160	23	59	4
7	7,560	18	4,140	92	47	2,880	615	7,020	180	20	47	4
8	5,460	18	2,340	92	4,680	3,960	505	4,920	205	20	38	4
9	3,060	17	1,800	90	12,900	2,460	425	2,520	230	26	30	4
10	1,920	15	1,060	88	11,100	1,860	485	1,500	255	33	26	4
11	1,380	16	805	92	5,400	1,440	615	1,060	255	26	23	4
12	1,330	17	705	86	2,460	1,060	570	805	255	23	17	4
13	1,220	17	615	76	10,100	955	525	615	255	21	12	3
14	1,160	17	505	68	9,080	805	505	525	255	20	9	2
15	1,110	17	425	72	6,780	955	485	465	145	18	7	1
16	905	16	370	72	3,720	1,000	465	405	84	18	7	1
17	805	16	352	88	2,880	805	445	352	64	17	7	1
18	615	14	300	72	2,400	705	445	335	130	11	26	1
19	405	485	285	76	1,920	660	445	405	240	20	26	1
20	240	405	260	68	1,800	615	445	370	505	27	28	1
21	165	335	240	59	1,740	3,300	615	335	240	35	28	1
22	92	270	225	52	4,680	4,320	1,000	318	195	23	26	1
23	54	210	210	61	3,840	2,520	955	255	145	21	26	1
24	35	180	195	61	2,880	1,860	855	210	110	38	24	0
25	50	160	170	61	2,460	1,380	955	195	96	98	23	0
26	50	130	140	57	2,040	1,220	1,060	180	74	172	20	0
27	50	112	117	57	1,740	4,380	1,280	145	64	112	13	0
28	54	92	108	57	1,500	6,180	1,160	126	55	126	10	0
29	41	1,160	100	50	-------	4,800	1,000	135	47	117	10	0
30	34	6,060	98	59	-------	3,120	905	255	44	108	10	0
31	23	-------	96	50	-------	2,340	-------	335	-------	96	10	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	9,290	23	1,360	83,600
November	6,060	14	331	19,700
December	10,600	96	1,480	91,000
January	126	50	74.6	4,590
February	12,900	44	3,440	191,000
March	6,180	615	2,030	125,000
April	2,040	425	796	47,400
May	7,020	126	1,170	71,900
June	505	44	177	10,500
July	172	11	46.0	2,830
August	90	7	30.5	1,880
September	10	0	2.5	149
The year	12,900	0	898	650,000

LITTLE RIVER NEAR WRIGHT CITY, OKLA.

LOCATION.—Chain gage in sec. 6, T. 6 S., R. 22 E., at Texas, Oklahoma & Eastern Railroad bridge 2 miles west of Wright City. Zero of gage is 351.03 feet above mean sea level.

RECORDS AVAILABLE.—October, 1929, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 15,700 second-feet Feb. 9 (gage height, 22.86 feet); no flow Aug. 14–16, Sept. 16–30.

1929–1931: Maximum discharge, 30,000 second-feet Dec. 16, 1929 (gage height, 32.66 feet); no flow July 24 to Sept. 15, Sept. 19–25, 1930, Aug. 14–16, Sept. 16–30, 1931.

REMARKS.—Records good except for flow above 6,000 second-feet.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1	21	2,750	65	22	1,180	1,180	360	110	11	4	11
2	1	18	1,520	65	22	1,020	940	495	95	12	4	8
3	2	18	980	65	22	740	740	435	80	10	4	6
4	3	17	740	65	22	570	570	405	68	8	4	4
5	5	18	6,500	60	22	495	465	495	60	8	3	3
6	191	18	3,680	52	22	465	375	1,620	58	6	3	2
7	2,290	18	1,860	48	22	4,300	330	1,700	50	5	3	2
8	1,300	18	1,360	31	2,790	3,550	300	1,270	44	4	2	2
9	495	17	980	6	14,400	1,820	285	890	46	8	2	2
10	285	15	690	17	3,580	1,480	285	650	46	8	2	1
11	186	12	495	44	1,640	1,210	285	495	44	8	1	1
12	115	12	435	44	1,210	890	285	405	50	11	1	1
13	102	12	360	38	10,400	690	285	345	50	8	1	1
14	70	12	300	33	11,100	570	270	270	40	8	0	1
15	50	12	255	33	3,280	495	270	240	31	6	0	1
16	44	12	225	33	1,900	435	270	210	62	6	0	0
17	36	12	210	35	1,660	375	255	171	60	6	4	0
18	33	12	186	38	1,210	330	225	135	88	8	15	0
19	31	12	168	29	1,140	255	255	135	70	7	225	0
20	29	270	153	29	890	345	270	183	54	6	210	0
21	26	375	128	29	690	1,140	285	180	56	12	122	0
22	21	255	108	29	1,460	1,380	315	168	54	8	82	0
23	26	225	78	33	4,150	1,300	300	156	50	6	58	0
24	19	195	100	33	2,550	1,100	360	141	40	6	36	0
25	21	180	92	33	1,740	840	360	120	27	6	20	0
26	18	141	92	33	1,400	690	345	102	22	8	17	0
27	18	122	90	29	1,060	2,560	300	98	21	8	14	0
28	18	112	88	26	980	4,710	270	85	19	5	11	0
29	17	120	78	24	------	2,470	240	80	15	4	14	0
30	16	6,000	65	22	------	1,720	225	122	11	4	12	0
31	16	------	65	22	------	1,420	------	122	------	4	12	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,290	1	177	10,900
November	6,000	12	276	16,400
December	6,500	65	801	49,300
January	65	6	36.9	2,270
February	14,400	22	2,480	138,000
March	4,710	255	1,310	80,600
April	1,180	225	371	22,100
May	1,700	80	396	24,300
June	110	11	50.7	3,020
July	12	4	7.3	449
August	225	0	28.6	1,760
September	11	0	1.5	89
The year	14,400	0	482	349,000

LITTLE RIVER NEAR IDABEL, OKLA.

LOCATION.—Chain gage in NE. ¼ sec. 19, T. 7 S., R. 24 E., 13 miles below mouth of Glover Creek and 3 miles north of Idabel. Zero of gage is 318.64 feet above mean sea level.

RECORDS AVAILABLE.—October, 1929, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 10,600 second-feet Feb. 15 (gage height, 26.90 feet); minimum discharge, 2 second-feet Sept. 26–30; minimum gage height, 2.64 feet Sept. 29, 30.

1929–1931: Maximum discharge, 17,000 second-feet May 12, 1930 (gage height, 32.80 feet); no flow Sept. 8, 9, 1930; minimum gage height, that of 1931.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2	38	6,560	125	68	1,670	2,240	475	175	24	15	22
2	2	44	4,790	117	68	1,730	1,760	1,020	145	15	16	19
3	3	44	2,340	109	62	1,550	1,460	1,370	135	16	16	16
4	5	34	1,640	113	58	1,250	1,250	1,160	113	14	15	15
5	8	30	3,280	119	57	1,040	860	1,130	100	13	14	13
6	29	26	7,210	113	54	890	860	1,940	96	11	14	12
7	852	24	5,490	111	51	2,240	750	3,210	98	10	12	11
8	2,480	24	3,530	102	372	6,610	550	2,660	86	10	12	10
9	1,430	25	2,000	102	4,260	5,950	575	2,000	76	10	12	8
10	775	26	1,400	115	8,150	3,880	575	1,520	72	10	10	8
11	450	26	1,130	102	6,120	2,420	575	1,130	80	12	8	7
12	325	25	890	96	2,890	1,790	575	920	102	10	7	6
13	250	24	725	98	2,660	1,430	550	750	123	7	7	5
14	205	26	675	93	9,150	1,190	550	625	98	13	6	5
15	195	28	575	90	10,400	1,040	525	550	115	16	6	5
16	123	115	525	87	7,820	950	550	475	225	14	8	4
17	94	78	450	87	4,990	830	525	400	262	14	9	4
18	78	38	425	88	3,250	725	500	350	175	17	13	4
19	58	28	375	84	2,240	675	500	300	155	21	400	4
20	44	75	325	84	1,760	550	525	300	125	16	325	4
21	39	325	325	81	1,460	1,070	550	300	104	34	262	4
22	29	550	275	76	1,700	1,970	575	300	98	74	175	4
23	33	500	250	74	4,790	2,170	625	300	92	70	121	3
24	57	400	238	70	6,790	1,910	650	275	81	32	87	3
25	51	350	225	69	4,840	1,550	650	225	69	23	63	3
26	54	275	215	68	3,250	1,310	650	195	60	22	51	2
27	46	250	205	66	2,140	2,240	625	175	45	20	39	2
28	44	215	195	69	1,700	6,500	575	155	38	20	30	2
29	38	275	185	66	-------	7,330	525	145	33	19	42	2
30	36	2,800	145	66	-------	5,540	475	135	29	19	38	2
31	36	-------	135	68	-------	3,210	-------	155	-------	16	30	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	2,480	2	254	15,600
November	2,800	24	224	13,300
December	7,210	135	1,510	92,800
January	125	66	90.6	5,570
February	10,400	51	3,250	180,000
March	7,330	550	2,360	145,000
April	2,240	475	738	43,900
May	3,210	135	795	48,900
June	262	29	107	6,370
July	74	7	20.1	1,240
August	400	6	60.1	3,700
September	22	2	7.0	417
The year	10,400	2	770	557,000

LITTLE RIVER NEAR HORATIO, ARK.

LOCATION.—Chain gage in E. ½ sec. 11, T. 10 S., R. 32 W., 2 miles south of Horatio.

RECORDS AVAILABLE.—December, 1930, to September, 1931.

EXTREMES.—Maximum discharge during year, 20,700 second-feet July 27 (gage height, 24.84 feet); minimum, 73 second-feet Sept. 30 (gage height, 3.63 feet).

Maximum stage known, 38 feet in August, 1915.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-------	360	210	3,660	6,430	990	320	134	570	150
2	-------	360	210	3,910	4,630	2,240	300	130	410	170
3	-------	340	210	3,740	3,580	3,740	280	130	320	160
4	-------	320	210	2,940	3,020	3,420	280	119	260	150
5	-------	320	195	2,380	2,460	2,700	260	115	210	130
6	-------	340	195	2,100	2,030	3,420	225	110	195	120
7	-------	320	195	3,260	1,680	6,700	225	108	195	114
8	-------	320	195	10,900	1,400	6,610	195	105	170	112
9	5,710	320	1,300	11,600	1,260	5,350	180	106	160	108
10	3,820	320	10,600	9,600	1,190	4,000	180	105	140	106
11	2,780	300	10,800	6,610	1,120	2,860	195	103	130	104
12	2,240	300	9,200	4,540	1,120	2,170	225	98	120	101
13	1,960	300	6,430	3,500	1,050	1,750	240	97	116	101
14	1,610	280	17,100	2,780	990	1,400	280	106	112	100
15	1,330	280	18,200	2,380	990	1,190	435	105	110	98
16	1,120	280	15,800	2,170	930	990	460	101	115	94
17	990	280	13,800	1,960	930	810	660	107	110	90
18	930	280	10,200	1,680	870	750	930	101	108	88
19	810	280	6,900	1,470	870	660	810	100	108	84
20	720	280	4,990	1,400	930	660	570	100	630	90
21	690	260	3,820	1,820	930	690	410	120	1,260	89
22	630	260	3,100	3,180	870	720	340	116	690	87
23	600	260	7,900	4,270	930	660	280	150	485	85
24	540	240	12,900	4,180	1,120	570	240	150	320	84
25	510	240	12,000	3,500	1,120	485	210	140	260	82
26	510	225	9,000	2,860	1,120	410	195	10,500	170	80
27	510	225	5,980	4,720	1,120	360	180	20,600	170	78
28	460	225	4,360	12,900	1,680	320	160	14,600	170	76
29	435	225	-------	15,400	1,330	300	150	3,740	170	74
30	385	210	-------	13,000	1,120	360	140	1,470	170	74
31	385	210	-------	9,810	-------	340	-------	870	160	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
December 9–31	5,710	385	1,290	58,800
January	360	210	283	17,400
February	18,200	195	6,640	369,000
March	15,400	1,400	5,100	314,000
April	6,430	870	1,630	97,000
May	6,700	300	1,860	114,000
June	930	140	318	18,900
July	20,600	97	1,760	108,000
August	1,260	108	268	16,500
September	170	74	103	6,130
The period				1,120,000

LITTLE RIVER NEAR WILTON, ARK.

LOCATION.—Chain gage in NW. ¼ sec. 30, T. 11 S., R. 29 W., 200 feet below Cossatot River and 3 miles north of Wilton.

RECORDS AVAILABLE.—August, 1928, to December, 1930 (discontinued).

EXTREMES.—Maximum discharge during period, 15,900 second-feet Dec. 7 (gage height, 16.34 feet); minimum, 8 second-feet Oct. 5.

1928–1930: Maximum discharge, 46,800 second-feet May 13, 1930 (gage height, 26.02 feet); minimum discharge, 8 second-feet Sept. 24, Oct. 5, 1930; minimum gage height, 1.85 feet Sept. 30, 1928.

Maximum stage known, 30.2 feet in August, 1915.

REMARKS.—Records poor.

Daily and monthly discharge, in second-feet, 1930

Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.	Day	Oct.	Nov.	Dec.
1	28	124	11,800	11	2,240	720	6,000	21	248	2,770	965
2	26	114	15,700	12	1,540	720	4,070	22	185	3,850	880
3	12	110	14,400	13	1,190	760	2,560	23	260	2,880	840
4	9	107	9,790	14	880	680	2,040	24	203	2,240	760
5	8	104	6,460	15	680	720	1,640	25	209	1,840	720
6	13	107	11,400	16	560	840	1,440	26	185	1,540	720
7	522	104	15,600	17	464	2,140	1,440	27	146	1,340	760
8	1,340	720	15,400	18	401	2,460	1,240	28	132	1,100	760
9	3,850	720	12,700	19	345	1,640	1,140	29	173	1,140	720
10	3,080	720	8,830	20	286	1,340	1,060	30	173	2,270	680
								31	137	-------	600

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	3,850	8	630	38,700
November	3,850	104	1,200	71,400
December	15,700	600	4,940	304,000
The period	-------	-------	-------	414,000

MOUNTAIN FORK RIVER NEAR EAGLETOWN, OKLA.

LOCATION.—Chain gage in SE. ¼ sec. 7, T. 6 S., R. 26 E., 1 mile west of Eagletown and 7 miles above mouth. Zero of gage is 333.95 feet above mean sea level.
RECORDS AVAILABLE.—March, 1924, to December, 1925. October, 1929, to September, 1931 (discontinued).
EXTREMES.—Maximum discharge during year, 18,200 second-feet July 26 (gage height, 11.98 feet); minimum, 6 second-feet Oct. 4 (gage height, 1.37 feet).
1929–1931: Maximum discharge, 43,200 second-feet May 11, 1930 (gage height, 19.62 feet); no flow Aug. 10 to Sept. 4, 1930.
Maximum stage known, 26.4 feet in August, 1915.
REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	38	4,160	112	56	840	1,300	490	140	54	265	92
2	10	38	2,310	108	56	780	1,040	1,120	128	50	238	87
3	8	38	1,200	104	56	680	840	1,720	120	45	212	82
4	6	34	900	94	54	590	730	960	112	41	140	73
5	10	31	6,290	85	52	490	630	2,540	104	38	112	61
6	12	30	6,290	82	50	450	590	2,540	94	34	122	50
7	1,720	27	4,380	85	50	5,120	550	2,240	85	34	110	46
8	780	27	2,540	88	162	6,790	550	1,720	82	30	100	43
9	730	27	1,300	96	6,540	3,020	490	1,400	88	27	69	38
10	680	29	840	104	4,380	1,960	450	900	102	26	57	31
11	680	33	840	102	1,720	1,200	400	590	100	26	47	27
12	550	30	780	87	1,120	840	370	370	92	56	40	26
13	385	27	780	85	11,200	840	340	325	81	44	38	23
14	175	26	900	85	9,600	730	310	310	73	38	36	23
15	96	24	730	82	3,560	630	310	295	67	33	33	22
16	88	430	450	82	3,200	590	310	280	188	30	30	21
17	78	490	310	80	2,700	510	310	265	280	31	28	19
18	69	355	295	73	1,840	490	310	265	325	37	27	18
19	59	430	280	67	1,400	430	325	265	340	50	188	16
20	53	840	265	64	1,200	470	325	250	325	44	900	14
21	47	1,840	250	61	960	3,760	295	238	140	39	730	16
22	44	1,720	225	58	2,100	2,700	325	225	212	36	450	16
23	40	960	200	58	5,800	1,500	415	212	200	33	340	14
24	35	550	188	58	6,540	960	430	200	175	33	238	14
25	42	490	175	64	5,080	840	450	162	122	212	150	14
26	53	340	150	61	3,960	730	470	150	85	17,900	120	14
27	50	238	140	61	2,240	3,960	430	140	70	10,400	98	15
28	48	188	130	58	1,200	9,340	470	140	64	1,300	88	21
29	46	632	130	58	------	4,160	680	128	56	730	118	36
30	43	13,700	124	57	------	2,240	590	212	56	470	108	73
31	41	------	116	58	------	1,720	------	162	------	340	100	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	1,720	6	216	13,300
November	13,700	24	789	46,900
December	6,290	116	1,210	74,400
January	112	57	78.0	4,800
February	11,200	50	2,740	152,000
March	9,340	430	1,910	117,000
April	1,300	295	501	29,800
May	2,540	128	671	41,300
June	340	56	137	8,150
July	17,900	26	1,040	64,000
August	900	27	172	10,600
September	92	14	34.8	2,070
The year	17,900	6	782	564,000

SULPHUR RIVER NEAR DARDEN, TEX.

LOCATION.—Staff gage on St. Louis Southwestern Railway bridge 1 mile south of Darden, Bowie County. Zero of gage is 221.7 feet above mean sea level.
DRAINAGE AREA.—2,750 square miles.
RECORDS AVAILABLE.—October, 1924, to September, 1931.
EXTREMES.—Maximum discharge during year, 8,100 second-feet Mar. 10 (gage height, 23.5 feet); no flow Oct. 3–5.
1924–1931: Maximum discharge, 67,200 second-feet May 19, 1930 (gage height, 31.7 feet); no flow Sept. 2–5, 1929, Oct. 3–5, 1930.
REMARKS.—Records fair. No diversions. Gage-height record furnished by United States Weather Bureau.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.3	159	664	85	23	2,600	4,300	780	23	9.5	940	1,010
2	.3	117	980	61	23	2,310	4,780	427	20	9.5	568	1,020
3	0	85	1,920	55	17	2,480	4,900	397	17	6.9	335	740
4	0	55	2,520	49	17	2,840	4,300	1,220	17	6.9	166	542
5	0	35	3,040	44	17	3,280	3,200	1,890	17	5.0	145	437
6	9.6	27	3,080	44	17	3,800	2,220	2,480	14	5.0	97	315
7	155	27	2,760	44	14	4,550	1,320	2,680	14	5.0	79	229
8	38	27	2,960	44	14	5,350	704	2,400	14	5.0	55	208
9	16	23	3,360	44	23	6,900	387	2,220	11	12	39	166
10	247	20	3,800	39	27	7,800	275	1,800	11	16	27	124
11	919	14	4,300	39	88	7,500	222	1,200	8.0	250	20	85
12	900	14	4,840	44	596	6,200	194	680	5.8	634	11	58
13	632	14	5,200	73	980	5,080	166	387	5.8	528	5.8	37
14	490	11	5,200	79	1,100	3,800	152	267	5.8	347	5.8	33
15	437	11	4,520	73	1,000	2,580	138	208	5.8	291	5.8	29
16	411	14	2,780	61	920	1,440	117	166	9.5	236	5.8	27
17	307	14	1,530	55	1,220	701	97	131	42	264	8.0	23
18	201	20	691	44	1,160	379	97	103	79	942	27	17
19	124	108	331	39	820	267	97	91	131	1,860	121	11
20	79	239	194	39	632	243	97	79	143	1,410	347	9.5
21	55	437	159	35	529	355	97	67	215	980	447	9.5
22	35	427	138	35	419	403	97	55	152	820	490	6.9
23	27	910	110	35	371	457	91	44	124	880	542	6.9
24	27	1,260	91	31	280	616	85	39	73	475	395	5.0
25	27	960	97	31	1,020	542	272	35	44	235	331	5.0
26	23	580	194	31	2,070	395	920	31	35	104	331	3.3
27	23	411	180	27	2,640	816	1,240	27	25	260	283	3.3
28	176	339	159	27	2,880	1,740	1,320	23	18	1,490	187	3.3
29	291	355	138	23	------	2,310	1,350	23	17	1,860	124	1.7
30	243	616	124	23	------	3,040	1,140	27	11	2,160	73	1.7
31	194	------	110	23	------	3,520	------	23	------	1,530	91	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	919	0	196	12,100
November	1,260	11	244	14,500
December	5,200	91	1,810	111,000
January	85	23	44.4	2,730
February	2,880	14	676	37,500
March	7,800	243	2,720	167,000
April	4,900	85	1,150	68,400
May	2,680	23	645	39,700
June	215	5.8	43.6	2,590
July	2,160	5.0	569	35,000
August	940	5.8	203	12,500
September	1,020	1.7	172	10,200
The year	7,800	0	709	513,000

CYPRESS CREEK NEAR JEFFERSON, TEX.

LOCATION.—Staff gage at Farrell Bridge on Jefferson-Harlenton highway 8 miles west of Jefferson, Marion County, and 14 miles above mouth of Black Cypress Creek.

DRAINAGE AREA.—848 square miles.

RECORDS AVAILABLE.—July, 1924, to September, 1931.

EXTREMES.—Maximum discharge during year, 1,300 second-feet Apr. 5 (gage height, 11.40 feet); minimum, 1.4 second-feet Oct. 3, 4.

1924–1931: Maximum discharge, about 22,600 second-feet May 20, 1930 (gage height, 25.37 feet); no flow for several periods.

REMARKS.—Records good. No diversions.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.2	54	589	396	159	485	740	676	53	12	144	30
2	2.2	49	576	360	159	616	892	708	48	9.0	169	32
3	1.6	42	550	312	159	704	1,090	692	44	10	144	105
4	1.4	38	537	276	173	689	1,240	660	40	12	106	296
5	2.3	36	659	300	173	689	1,300	580	38	13	62	284
6	13	34	736	336	173	704	1,240	548	36	26	44	119
7	116	32	720	300	181	803	1,160	564	32	59	36	74
8	126	31	689	264	181	915	1,000	628	29	74	24	56
9	108	29	616	228	294	1,020	804	756	29	56	19	50
10	108	27	644	228	408	1,100	556	964	26	34	18	42
11	102	27	659	228	324	1,150	359	964	24	11	16	30
12	114	29	659	276	312	1,200	232	910	24	8.4	12	26
13	132	31	659	276	312	1,230	232	856	30	15	9.0	23
14	132	32	644	276	396	1,230	223	820	40	26	8.6	19
15	108	34	602	240	459	1,120	214	756	65	34	8.8	16
16	74	45	511	217	524	979	205	547	120	64	20	14
17	47	56	372	207	563	803	178	228	136	109	31	11
18	42	64	264	217	576	576	178	178	144	269	63	9.8
19	29	85	217	252	550	511	187	160	92	360	128	9.0
20	24	139	207	228	537	396	187	178	59	233	144	8.6
21	20	181	181	207	524	408	248	178	56	120	106	7.0
22	17	207	173	189	498	396	305	152	59	136	82	6.6
23	16	181	166	181	485	396	294	128	48	169	99	5.8
24	27	139	217	173	472	396	250	120	36	152	120	5.5
25	36	120	252	173	433	396	261	113	29	136	128	5.0
26	40	102	324	166	420	459	272	120	26	120	136	4.3
27	42	85	348	166	408	511	283	106	22	92	128	3.8
28	42	120	372	166	396	563	294	82	18	85	99	3.6
29	47	173	408	159	------	498	402	68	15	113	71	3.3
30	56	565	420	159	------	511	564	59	13	128	65	3.3
31	56	------	446	159	------	589	------	53	------	136	38	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	132	1.4	54.3	3,340
November	565	27	92.9	5,530
December	736	166	465	28,600
January	396	159	236	14,500
February	576	159	366	20,300
March	1,230	396	711	43,700
April	1,300	178	513	30,500
May	964	53	437	26,900
June	144	13	47.7	2,840
July	360	8.4	91.0	5,600
August	169	8.6	73.5	4,520
September	296	3.3	43.4	2,580
The year	1,300	1.4	261	189,000

OUACHITA RIVER AT REMMEL DAM, NEAR MALVERN, ARK.

LOCATION.—Water-stage recorder in SW. ¼ NW. ¼ sec. 36, T. 3 S., R. 18 W. 700 feet below Remmel Dam and 9 miles northwest of Malvern. Zero of gage is 247.94 feet above mean sea level.

DRAINAGE AREA.—1,540 square miles.

RECORDS AVAILABLE.—January, 1925, to September, 1931.

EXTREMES.—Maximum daily discharge during year, 41,600 second-feet Oct. 7 (gage height, 20.22 feet); minimum, 20 second-feet Jan. 31 (gage height, 1.60 feet).

1925–1931: Maximum discharge, about 138,000 second-feet Apr. 21, 1927 (gage height, 35.7 feet); minimum, 15 second-feet Sept. 12, 13, 1925 (gage height, 1.52 feet).

Maximum stage known, 36.3 feet May 16, 1923 (discharge, about 140,000 second-feet).

REMARKS.—Records good. Regulation by Remmel Dam.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	130	120	9,610	80	71	2,590	2,730	1,720	97	718	205	338
2	112	115	5,630	76	72	2,780	2,740	2,050	119	919	227	580
3	183	131	3,350	74	116	2,750	2,740	1,300	118	501	227	318
4	158	129	2,910	78	98	2,710	2,640	1,320	102	115	694	153
5	150	144	4,380	92	90	1,880	2,480	1,660	118	136	393	353
6	1,000	120	6,380	95	70	1,500	2,750	2,500	100	71	236	132
7	23,100	94	5,810	97	63	2,180	2,760	2,480	117	160	256	175
8	13,100	115	3,720	86	94	2,540	2,690	2,190	135	310	194	109
9	2,860	157	3,000	83	76	2,720	2,690	1,120	96	112	150	129
10	2,700	110	2,770	102	83	2,790	2,640	976	187	122	133	289
11	2,040	110	2,840	113	96	2,740	1,670	826	248	99	136	472
12	360	123	2,760	106	119	2,760	348	637	160	221	116	192
13	251	183	1,400	101	122	2,770	1,120	629	288	109	130	128
14	803	202	781	98	108	2,710	1,030	628	120	96	130	277
15	886	342	956	96	545	2,440	670	471	489	99	134	139
16	1,190	2,530	656	93	778	2,750	745	303	1,350	95	120	276
17	562	4,000	1,040	90	1,200	2,770	863	124	770	199	99	447
18	100	2,750	822	90	2,050	2,780	728	360	710	111	442	324
19	369	2,330	107	93	2,900	2,760	276	632	213	124	882	369
20	98	2,840	100	102	2,920	2,760	1,160	732	517	346	1,140	125
21	266	7,120	111	86	2,810	2,690	1,050	486	216	353	961	94
22	178	4,330	114	68	2,540	2,370	263	105	254	130	252	236
23	1,220	2,640	99	58	2,760	2,570	249	310	289	101	157	170
24	207	2,520	100	58	2,840	2,790	920	115	189	141	128	327
25	89	1,880	533	66	2,840	2,780	732	139	133	194	121	368
26	253	1,480	84	78	2,830	2,740	1,080	101	139	323	218	197
27	123	509	95	84	2,820	4,760	996	240	164	621	227	126
28	86	658	98	98	2,780	7,170	761	140	119	118	522	90
29	112	1,880	94	96	-------	7,010	599	70	474	583	1,070	236
30	144	5,420	94	96	-------	7,140	1,100	123	460	190	218	383
31	127	-------	90	68	-------	5,460	-------	113	-------	768	198	-------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	23,100	86	1,710	105,000
November	7,120	94	1,500	89,300
December	9,610	84	1,950	120,000
January	113	58	87.1	5,340
February	2,920	63	1,210	67,200
March	7,170	1,500	3,200	197,000
April	2,760	249	1,440	85,700
May	2,500	70	794	48,800
June	1,350	96	283	16,800
July	919	71	264	16,200
August	1,140	99	326	20,000
September	580	90	252	15,000
The year	23,100	58	1,090	786,000

LITTLE MISSOURI RIVER NEAR MURFREESBORO, ARK.

LOCATION.—Chain gage in SE. ¼ sec. 13, T. 8 S., R. 26 W., 1 mile below Muddy Creek and 2 miles southwest of Murfreesboro. Zero of gage is 323.70 feet above mean sea level.

DRAINAGE AREA.—380 square miles.

RECORDS AVAILABLE.—October, 1927, to September, 1931 (discontinued).

EXTREMES.—Maximum discharge during year, 6,290 second-feet Feb. 13 (gage height, 6.80 feet); minimum, 3 second-feet Sept. 28–30 (gage height, 1.58 feet).

1927–1931: Maximum discharge, 26,000 second-feet May 3, 1930 (gage height, 14.00 feet); minimum, that of Sept. 28–30, 1931.

Maximum stage known, about 21 feet in April, 1927.

REMARKS.—Records good.

Daily and monthly discharge, in second-feet, 1930–31

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9	27	1,800	164	70	550	630	1,080	21	8	19	19
2	9	23	1,140	140	65	630	550	710	27	8	18	16
3	8	21	790	133	65	550	480	550	23	7	14	27
4	8	21	630	140	65	515	397	384	19	7	12	18
5	19	21	4,520	230	65	480	333	321	18	7	10	13
6	27	23	2,080	190	65	445	274	550	18	8	9	12
7	4,940	23	1,190	180	60	4,940	252	410	21	8	8	10
8	790	23	880	172	140	2,840	230	345	23	12	7	8
9	410	25	710	164	345	1,360	210	297	27	32	7	7
10	230	25	550	156	515	1,030	190	241	23	18	7	6
11	180	27	515	156	410	790	180	190	19	12	6	6
12	105	32	410	164	345	630	156	156	30	9	5	5
13	81	32	345	172	6,290	550	133	126	75	8	4	5
14	65	44	297	148	2,840	480	126	112	70	12	4	5
15	55	47	274	133	2,520	410	119	99	65	13	4	5
16	47	230	241	133	2,370	345	112	81	44	9	4	5
17	37	750	200	148	1,800	321	112	70	30	13	5	6
18	32	445	180	148	1,240	263	112	60	34	12	6	6
19	30	321	172	140	980	241	148	55	27	12	55	5
20	25	3,010	164	133	790	274	180	345	21	13	25	5
21	23	1,240	148	119	630	790	140	252	19	18	25	5
22	23	710	133	119	710	710	133	133	16	14	21	5
23	32	550	105	105	930	590	133	93	16	60	16	4
24	32	397	105	105	790	480	126	70	14	32	10	4
25	34	285	148	105	630	397	133	55	12	34	9	4
26	34	241	345	99	550	445	119	50	10	65	7	4
27	34	156	263	93	480	2,080	105	44	10	87	8	3
28	37	148	241	81	550	1,800	99	37	10	40	9	3
29	34	230	210	75	------	1,300	87	34	10	32	34	3
30	32	1,300	180	75	------	930	87	32	9	23	32	3
31	30	------	180	70	------	750	------	27	------	19	30	------

Month	Maximum	Minimum	Mean	Run-off in acre-feet
October	4,940	8	240	14,800
November	3,010	21	348	20,700
December	4,520	105	618	38,000
January	230	70	135	8,300
February	6,290	60	940	52,200
March	4,940	241	901	55,400
April	630	87	203	12,100
May	1,080	27	226	13,900
June	75	9	25.4	1,510
July	87	7	21.0	1,290
August	55	4	13.9	855
September	27	3	7.6	452
The year	6,290	3	303	220,000

MISCELLANEOUS DISCHARGE MEASUREMENTS

In addition to the records of stream flow obtained at gaging stations and reported in the preceding pages, measurements of flow were made at a number of other points, as shown by the following table.

Miscellaneous discharge measurements in Lower Mississippi River drainage basin during the year ending September 30, 1931

Date	Stream	Tributary to—	Locality	Gage height	Discharge
Nov. 23	Swan Creek	White River	Forsyth, Mo	1.14	45
Jan. 7	do	do	do	.97	32
Feb. 12	do	do	do	1.92	218
May 7	do	do	do	1.50	124
July 17	do	do	do	.53	5.8
Sept. 4	do	do	do	.86	33
May 8	Brown Spring	James River	Brown Spring, Mo		11
Sept. 8	Boze Mill Spring	Eleven Point River	12 miles east of Alton, Mo		16

INDEX