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SURFACE WATER SUPPLY  
*of the* UNITED STATES  
1938

PART 7  
LOWER MISSISSIPPI RIVER BASIN

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ILLUSTRATION

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## SURFACE WATER SUPPLY OF LOWER MISSISSIPPI RIVER BASIN, 1938

### SCOPE OF WORK

This volume is one of a series of 14 reports presenting results of measurements of stage and flow made on streams, lakes, and reservoirs in the United States during the water year ending September 30, 1938. The work was begun in 1888 in connection with special studies relating to irrigation. Measurements of stream flow have been made at about 7,800 points in the United States and also at many points in Alaska and the Hawaiian Islands. In July 1938, 3,830 gaging stations were being maintained by the Geological Survey and cooperating organizations. Many miscellaneous discharge measurements were made at other points.

In the execution of the work many State and private 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 9.

### DEFINITION OF TERMS

The units in which stream-flow data are presented in this report and other terms used herein are defined as follows:

"Second-foot" is an abbreviation for "cubic feet per second." A second-foot is the rate of discharge of water flowing in a channel when the cross-sectional area is 1 square foot and the average velocity is 1 foot per second.

"Second-foot 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 its 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 of water required to cover an acre to the depth of 1 foot. The term is commonly used in connection with storage for irrigation.

"Second-foot-day" is the volume of water represented by a flow of 1 second-foot for 24 hours. It is equivalent to 86,400 cubic feet, 1.983471 acre-feet, or 646,317 gallons and represents a run-off of 0.0372 inches from one square mile.

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

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

### EXPLANATION OF DATA

The base data collected at gaging stations consist 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 nonrecording 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. Typical gaging stations, equipped with water-stage recorder and measuring cable and car, are shown on plate 1.

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

The data presented for each gaging station in the area covered by this report usually 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. Skeleton rating tables are published except for those stations whose daily discharge for the greater part of the year was determined by the shifting-control method, the slope method, or other special methods.

The description of the station gives the type of gage, its latitude and longitude determined from the best available maps, and information in regard to diversions that decrease the flow at the gage, artificial regulation from pondage or storage, and the accuracy of the records. Under "Average discharge" is given the average discharge for the number of years indicated. It is given only for stations for which there are 10 or more complete years of record. Information under "Extremes" gives the maximum discharge and gage height; the minimum discharge if there is little or no regulation; the minimum daily discharge if there is extensive regulation, and also the minimum discharge if useful; and the minimum gage height except when it is of no importance. Unless otherwise qualified, the maximum discharge corresponds to the crest stage, obtained by use of a water-stage recorder or a nonrecording gage read at the time of the crest. Likewise the minimum represents the lowest discharge, unless otherwise qualified. The peak discharge for the year with the time of its occurrence is given below the table of monthly discharge for some stations. Selected lower peaks are also given if the peak discharge exceeded the mean discharge for that day by more than 10 percent. This supplementary information is generally not given for stations having drainage areas of less than 10 square miles or more than 10,000 square miles.

The table of daily discharge gives, for stations equipped with nonrecording gages, the discharge in second-feet corresponding to once-daily or the mean of twice-daily readings of the gage. For flashy floods the mean daily discharge is determined from gage-height graphs based on gage readings made once or twice daily or oftener, as stated in the station description. For stations equipped with water-stage recorders the table gives the discharge corresponding to the mean daily gage height except for stations on streams subject to sudden or rapid fluctuation. For stations subject to such fluctuation the mean daily gage height may not indicate the true mean daily discharge, which must be obtained by averaging the discharge for intervals of the day or by using the discharge integrator, an instrument for obtaining the 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 "Second-foot-days" gives the sum for each month of the figures for that month given in the table of daily 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





A. ARTIFICIAL CONTROL, RECORDER HOUSE, AND MEASURING CABLE ON OLENTANGY RIVER, DELAWARE, OHIO.



B. RECORDER HOUSE AND MEASURING CABLE ON KAWEAH RIVER, THREE RIVERS, CALIF.

TYPICAL RIVER-MEASUREMENT STATIONS.



given is the minimum daily discharge. The column headed "Mean" is the average flow in cubic feet per second during the month.

#### 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, in general, the daily records are accurate within 5 percent; "good", within 10 percent; "fair", within 15 percent; and "poor", within 20 percent 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 stream draining areas in which the annual rainfall is less than 20 inches.

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

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, and that greater degrees of refinement in computations and records may be warranted with increased data and use of improved equipment.

#### PUBLICATIONS

The results of stream-flow measurements are now published annually in 14 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 Mississippi River).
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.
9. Colorado River Basin.
10. The Great Basin.
11. Pacific slope basins in California.
12. Pacific slope basins in Washington and upper Columbia River Basin.
13. Snake River Basin.
14. Pacific slope basins in Oregon and lower Columbia River Basin.

Water-supply papers and other publications of the Geological Survey containing data in regard to the water resources of the United States may be obtained or consulted as explained 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, Maine, Statehouse.  
 Boston, Mass., 945 Post Office Building.  
 Hartford, Conn., 203 Federal Building.  
 Albany, N. Y., 526 Federal Building.  
 Trenton, N. J., 228 Federal Building.  
 Harrisburg, Pa., 490 Education Building.  
 Charlottesville, Va., University of Virginia.  
 South Charleston, W. Va., Naval Ordnance Plant.  
 Asheville, N. C., 220 Post Office Building.  
 Columbia, S. C., 119 United States Courthouse.  
 Atlanta, Ga., Georgia School of Technology.  
 Ocala, Fla., Post Office Building.  
 Montgomery, Ala., 507 Post Office Building.  
 Chattanooga, Tenn., 442 Post Office Building.  
 Louisville, Ky., 641 Federal Building.  
 Columbus, Ohio, 404 Engineering Experiment Station, Ohio State University.  
 Indianapolis, Ind., 316 Federal Building.  
 Urbana, Ill., 14 Post Office Annex.  
 Madison, Wis., 337 N. State Capitol.  
 St. Paul, Minn., 808 New Post Office Building.  
 Iowa City, Iowa, 402 Hydraulic Laboratory, University of Iowa.  
 St. Louis, Mo., 906 Customhouse, 1114 Market Street.  
 Rolla, Mo., Missouri Geological Survey Building, Missouri School of Mines and Metallurgy.  
 Topeka, Kans., 305 Federal Building.  
 Fort Smith, Ark., 6 Post Office Building.  
 Austin, Tex., State Highway Building.  
 Santa Fe, N. Mex., 3 United States Courthouse.  
 Tucson, Ariz., 210 Post Office Building.  
 Denver, Colo., 230 Customhouse.  
 Salt Lake City, Utah, 303 Federal Building.  
 Idaho Falls, Idaho, 204 Federal Building.  
 Boise, Idaho, 429 Federal Building.  
 Helena, Mont., 412 Federal Building.  
 Tacoma, Wash., 406 Federal Building.  
 Portland, Oreg., 606 Post Office Building.  
 San Francisco, Calif., 208 Federal Office Building.  
 Los Angeles, Calif., G-31 Post Office and Courthouse.  
 Honolulu, Hawaii, 225 Federal Building.

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

Records of flow of streams in the United States have been published in the reports tabulated as follows:

Stream-flow data in reports of the 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	....do.....	1884 to Dec. 31, 1892.
14th A, pt. 2	Monthly discharge (long-time records, 1871-93)....	1886 to Dec. 31, 1893.
B 131.....	Descriptions, measurements, gage heights, and ratings.	1893-94.
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).	1895-96

## Stream-flow data in reports of the Geological Survey--Continued

Report	Character of data	Year
W 15.....	Descriptions, measurements, and gage heights, eastern United States, eastern Mississippi River, and Missouri River above junction with Kansas River.	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.

Note.— The reports that contain records after 1901 are given in the table on page 6.

The table on the following page gives, by years and drainage basins, the numbers of the papers on surface water supply published from 1899 to 1938. The data for any particular station will, in general, be found in the reports covering the years during which the station was maintained. For example, the data from 1910 to 1920 for any station in the area covered by part 3 are published in Water-Supply Papers 263, 303, 323, 353, 403, 433, 453, 473, and 503, which contain records for the Ohio River Basin for those years.

The records at most of the station 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, the streams and points of measurement listed appearing in the same relative order as the streams and gaging stations in the body of the report. An index of the records obtained prior to 1904 has been published in Water-Supply Paper 119.

Numbers of water-supply papers containing results of stream measurements, 1899-1935  
(For basins included see p. 3)

Year	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1899 a...	35	b 35, 36	36	36	c 36, 37	37	37	37	d 37, 38	39, e 39	38, f 39	38	38	38
1900 g...	47, h 48	48	48	49	49	50	50	50	50	51	51	51	51	51
1901 i...	66	66, 75	66	66	k 65, 66, 75	66	66	66	66, 75	66, 75	66, 75	66	66	66
1902...	87	b 87, 88	88	88	k 87, 88	88	88	88	88	88	88	88	88	88
1903...	92	b 92, 93	93	93	k 92, 93	93	93	93	93	93	93	93	93	93
1904...	o 124, p 125, q 126	125	125	125	k 125, 126	126	126	126	126	126	126	126	126	126
1905...	o 125, p 126, q 127	127	127	127	k 127, 128	128	128	128	128	128	128	128	128	128
1906...	o 126, p 127, q 128	128	128	128	k 128, 129	129	129	129	129	129	129	129	129	129
1907...	o 203, p 204, q 205	204	204	204	k 204, 205	205	205	205	205	205	205	205	205	205
1908...	o 201, p 202, q 203	203	203	203	k 203, 204	204	204	204	204	204	204	204	204	204
1909...	261	262	262	262	262	262	262	262	262	262	262	262	262	262
1910...	281	282	282	282	282	282	282	282	282	282	282	282	282	282
1911...	301	302	302	302	302	302	302	302	302	302	302	302	302	302
1912...	321	322	322	322	322	322	322	322	322	322	322	322	322	322
1913...	351	352	352	352	352	352	352	352	352	352	352	352	352	352
1914...	381	382	382	382	382	382	382	382	382	382	382	382	382	382
1915...	411	412	412	412	412	412	412	412	412	412	412	412	412	412
1916...	431	432	432	432	432	432	432	432	432	432	432	432	432	432
1917...	451	452	452	452	452	452	452	452	452	452	452	452	452	452
1918...	471	472	472	472	472	472	472	472	472	472	472	472	472	472
1919-20...	501	502	502	502	502	502	502	502	502	502	502	502	502	502
1921...	521	522	522	522	522	522	522	522	522	522	522	522	522	522
1922...	541	542	542	542	542	542	542	542	542	542	542	542	542	542
1923...	561	562	562	562	562	562	562	562	562	562	562	562	562	562
1924...	581	582	582	582	582	582	582	582	582	582	582	582	582	582
1925...	601	602	602	602	602	602	602	602	602	602	602	602	602	602
1926...	621	622	622	622	622	622	622	622	622	622	622	622	622	622
1927...	641	642	642	642	642	642	642	642	642	642	642	642	642	642
1928...	661	662	662	662	662	662	662	662	662	662	662	662	662	662
1929...	681	682	682	682	682	682	682	682	682	682	682	682	682	682
1930...	696	697	698	698	698	698	698	698	698	698	698	698	698	698
1931...	711	712	712	712	712	712	712	712	712	712	712	712	712	712
1932...	726	727	728	728	728	728	728	728	728	728	728	728	728	728
1933...	741	742	742	742	742	742	742	742	742	742	742	742	742	742
1934...	756	757	758	758	758	758	758	758	758	758	758	758	758	758
1935...	771	772	772	772	772	772	772	772	772	772	772	772	772	772
1936...	786	787	788	788	788	788	788	788	788	788	788	788	788	788
1937...	801	802	802	802	802	802	802	802	802	802	802	802	802	802
1938...	821	822	822	822	822	822	822	822	822	822	822	822	822	822
1939...	851	852	852	852	852	852	852	852	852	852	852	852	852	852

a Rating tables and index to Water-Supply Papers 35-39 contained in Water-Supply Paper 39. Tables of monthly discharge for 1899 in 21st Annual Report, part 4.

b James River only.

c Gallatin River.

d Green and Gunnison Rivers and Colorado River above Gunnison River.

e Redwood and Yampa Rivers and south Pacific slope basins.

f 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.

g Monthly discharge for 1900 in 22d Annual Report, part 4.

h Missahkon and Schuykill Rivers to James River.

i Scioto River.

j Loup, Platte, and Elkhorn Rivers and tributaries below Platte River.

k Tributaries of Mississippi River from east.

m Lake Ontario and tributaries to St. Lawrence River proper.

n Hudson Bay only.

o New England rivers only.

p Hudson River to Delaware River, inclusive.

q Atlantic River to Hudson River, inclusive.

r Platte and Basin in California, except Truckee and Carson River Basins.

s The Great Basin in California, except Truckee and Carson River Basins.

t Below junction with Gila River.

u Rogue, Umpqua, and Siletz Rivers only.

From time to time reports have been published that are compilations of records for various areas, usually a single State or drainage basin. These reports contain records previously published (some of which have been revised), as well as some records not contained in the annual series of water-supply papers. The following table gives the numbers and titles of these reports, arranged in alphabetical order by States and drainage basins.

Reports containing compilation of discharge by States and drainage basins

Water-Supply Paper	Year ending	State or drainage basin and title
STATE		
107	1903	Alabama, Water powers of, with an appendix on stream measurements in Mississippi.
298	1912	California, Water resources of, part 1, Stream measurements in Sacramento River Basin.
299	1912	California, Water resources of, part 2, Stream measurements in San Joaquin River Basin.
300	1912	California, Water resources of, part 3, Stream measurements in the Great Basin and Pacific coast river basins.
447	1918	California, Surface water supply of the southern Pacific slope of.
597e	1927	California, Surface water supply of Sacramento River Basin.
636d	1927	California, Surface water supply of San Joaquin River Basin.
636e	1927	California, Surface water supply of Pacific slope basins in.
637a	1927	California, Surface water supply of minor San Francisco Bay, northern Pacific, and Great basins in.
74	1900	Colorado, Water resources of.
197	1905	Georgia, Water resources of.
415	1915	Massachusetts, Surface waters of.
230	1906	Nebraska, Surface water supply of.
370	1910	Oregon, Surface water supply of.
650	1937	Texas, Summary of records of surface waters of.
424	1916	Vermont, Surface waters of.
492	1919	Washington, Summary of hydrometric data in.
469	1921	Wyoming, Surface waters of, and their utilization.
DRAINAGE BASIN		
395	1914	Colorado River (Colo., Utah, etc.) and its utilization, 1916.
617	1927	Colorado River, upper (Colo., Utah), and its utilization, 1929.
517	1920	Great Salt Lake Basin, Water powers of, 1924.
618	1926	Green River (Wyo., Utah) and its utilization, 1930.
198	1906	Kennebec River Basin (Maine), Water resources of, 1907.
536	1920	Milk River. (See St. Mary and Milk Rivers.)
279	1909	New-Kanawha River Basin (W. Va., Va., N. C.), Surface water supply of, 1925.
192	1906	Penobscot River Basin (Maine), Water resources of, 1912.
358	1913	Potomac River Basin (W. Va., Va., Md., etc.), 1907.
491	1917	Rio Grande Basin (N. Mex., Tex., etc.), Water resources of, 1888-1913.
109	1904	St. Mary and Milk Rivers (Mont. and Canada), Water supply of, 1920.
		Susquehanna River Basin (Pa., Md.), Hydrography of, 1905.

In addition to the records noted above, records of discharge have been published in State reports. Some of these are not contained in the publications of the Geological Survey or are revisions of records previously published in its water-supply papers. The following table contains a list of these reports.

State reports containing compilation of records of discharge

State	Year ending	Report	Issued by
Alabama....	1915	Bull. 17, Water powers of Alabama.....	Geological Survey of Alabama.
Arkansas....	1928	Stream gaging report 1.....	Arkansas Geological Survey.
Georgia....	1920	Bull. 36, Water powers of Georgia.....	Geological Survey of Georgia.
Illinois....	1937	Stream flow data of Illinois.....	Division of Waterways.
Do.....	1911	Water resources of Illinois.....	Rivers and Lakes Commission.
Indiana....	1927	Pub. 72, Surface water supply of Indiana.	Department of Conservation.
Do.....	a1930	Pub. 112, Surface water supplt of Indiana.	Do.
Iowa.....	1932	Stream-flow records of Iowa.....	Iowa State Planning Board.
Kansas.....	b1919	Surface waters of Kansas.....	Kansas Water Commission.
Do.....	c1924	.....do.....	Do.

## State reports containing compilation of records of discharge--Continued

State	Year ending	Report	Issued by
Kansas.....	<sup>d</sup> 1928	Surface waters of Kansas.....	Kansas State Board of Agriculture.
Do.....	<sup>e</sup> 1935	Stream-flow data of Kansas.....	Do.
Kentucky...	1920	Surface waters of Kentucky.....	Kentucky Geological Survey.
Minnesota..	1912	Water resources investigation of Minnesota.	State Drainage Commission.
Missouri...	1926	Reports of Bureau of Geology and Mines, vol. 20, 2d series, Water Resources of Missouri.	Missouri Bureau of Geology and Mines.
Nebraska...	1914	1st hydrographic report.....	Bureau of Water Power, Irrigation and Drainage.
Do.....	<sup>f</sup> 1928	2d hydrographic report.....	Do.
New Jersey.	1928	Bull. 33, Surface water supply of New Jersey.	Department of Conservation and Development.
Do.....	<sup>g</sup> 1934	Special Report 5, Surface water supply of New Jersey.	State Water Policy Commission.
New Mexico.	1925	Surface water supply of New Mexico....	Office of the State Engineer.
North Carolina.	1923	Bull. 34, Discharge records of North Carolina streams.	Department of Conservation and Development.
Do.....	<sup>h</sup> 1936	Bull. 39, Discharge records of North Carolina streams.	Do.
Oregon.....	1914	Bull. 4, Water resources of the State of Oregon.	Office of the State Engineer.
Do.....	<sup>i</sup> 1924	Bull. 7, Water resources of the State of Oregon.	Do.
Do.....	<sup>j</sup> 1930	Bull. 8, Water resources of the State of Oregon.	Do.
Do.....	<sup>k</sup> 1936	Bull. 9, Water resources of the State of Oregon.	Do.
Pennsylvania	1911	Report of Water Supply Commission of Pennsylvania.	Water Supply Commission of Pennsylvania.
Do.....	<sup>l</sup> 1932	Stream-flow records of Pennsylvania...	Department of Forests and Waters.
Tennessee..	1924	Bull. 34, Water resources of Tennessee.	Department of Education.
Do.....	<sup>m</sup> 1930	Bull. 40, Surface waters of Tennessee.	Do.
Utah.....	1905	5th Biennial Report, State Engineer...	Office of the State Engineer.
Virginia...	1927	Bull. 31, Water resources of Virginia.	Conservation and Development Commission.
Washington.	1933	Bull. 5, Monthly and yearly summaries of hydrometric data.	Department of Conservation and Development.
Wisconsin..	1914	1st report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.
Do.....	<sup>n</sup> 1923	2nd report of Railroad Commission of Wisconsin to Legislature on water powers.	Railroad Commission of Wisconsin.

a Includes records for the years 1927-30.  
b Includes records for the years 1895-1919.  
c Includes records for the years 1919-24.  
d Includes records for the years 1924-28.  
e Includes records for the years 1928-35.  
f Includes records for the years 1914-28.  
g Includes records for the years 1928-34.  
h Includes records for the years 1889-1936;  
records of daily and monthly discharge  
are not included.

i Includes records for the years 1914-24.  
j Includes records for the years 1924-30.  
k Includes records for the years 1930-36.  
l Includes records for the years 1928-32.  
m Includes average weekly discharge for  
the years 1920-30.  
n Includes records for the years 1914-23.

Note.— In addition to the records contained in the reports listed above, the following States have issued annual or biennial reports in which are contained records of discharge: California, Colorado, Idaho, Indiana, Missouri, Montana, Nebraska, New Mexico, New York (also New York City Board of Water Supply), North Dakota, Oregon, Pennsylvania, Utah, Washington, and Wyoming.

## RECORDS OF DISCHARGE COLLECTED BY AGENCIES OTHER THAN THE GEOLOGICAL SURVEY

Records of daily discharge for the area covered by this report were collected during the water year October 1937 to September 1938 by agencies other than the Geological Survey at the following locations: By the Southern Colorado Power Co. (records since 1905) on West Beaver Creek near Victor, Colo.; by the Soil Conservation Service (beginning in 1938) from four areas of less than 50 acres each near Colorado Springs, Colo., three areas of less than 150 acres each near Vega, Tex., four areas of less than 100 acres each near Muskogee, Okla., and four areas of less than 25 acres each near Bentonville, Okla. These



records are not published but are contained in the files of the organizations named.

Records of daily discharge have been collected by the Corps of Engineers, U. S. Army, at many gaging stations in this area, but the information for the water year 1937-38 was not received in time to be included in this report. For a complete list of gaging stations being operated by the Corps of Engineers in this area during the water year 1936-37, see Water-Supply Paper 827, page 8.

#### COOPERATION

The work in the several States was done under cooperative agreements as follows: In Arkansas (except for the station on White River at Beaver), with the State Highway Commission, W. W. Mitchell, director; and the Arkansas Geological Survey, George C. Branner, State geologist. In Colorado, with the office of the State engineer, M. C. Hinderlider, State engineer. In Kansas, with the water-resources division of the Kansas State Board of Agriculture, George S. Knapp, chief engineer. In Kentucky, with the Department of Highways, T. H. Cutler, chief engineer. In Louisiana, with the Louisiana State University and Agricultural and Mechanical College, L. J. Lassalle, dean, College of Engineering. In Missouri and for the station on White River at Beaver, Ark., with the Missouri Geological Survey and Water Resources, H. A. Buehler, State geologist; the Missouri Highway Department, C. W. Brown, chief highway engineer; the Missouri Park Department, I. T. Bode, director; the city of Joplin, J. J. Saunders, commissioner, Department of Streets and Public Improvements; and the city of Springfield, Will C. Lohmeyer, commissioner, Department of Public Property and Public Utilities. In New Mexico, with the office of the State engineer, Thomas M. McClure, State engineer. In Oklahoma, with the Oklahoma Planning and Resources Board, Division of Water Resources, F. L. Vaughn, director, and the city of Oklahoma City, Water Department, M. B. Cunningham, superintendent. In Tennessee, with the Tennessee Division of Geology, Walter F. Pond, State geologist. In Texas, with the Texas State Board of Water Engineers, C. S. Clark, chairman, A. H. Dunlap, and J. W. Pritchett.

Acknowledgments are due also to the Corps of Engineers, United States Army, the Mississippi River Commission, and the United States Weather Bureau for financial assistance in collecting records published herein.

Assistance in collecting records was rendered also by the following organizations and corporations: In Arkansas, by the Arkansas Power & Light Co. and the White River Power Co.; in Colorado, by the Arkansas Valley Ditch Association; in Mississippi, by the Vicksburg Bridge Co.; in Missouri, by the Little River Drainage District and the Empire District Electric Co.

Funds for the construction, repair, and improvement of gaging stations were allocated to the Geological Survey by the Federal Emergency Administration of Public Works.

#### DIVISION OF WORK

The data for stations in the several States were collected and prepared for publication under supervision of district engineers as follows: In Arkansas (except for White River at Beaver), in Oklahoma (except for Red River near Terral), and for Mississippi River at Memphis, Tenn.--J. H. Gardiner (to Sept. 12, 1938), succeeded by J. L. Saunders;

in Colorado--Robert Follansbee, the work being done in collaboration with M. C. Hinder-  
lider, State engineer, and L. T. Burgess, State chief hydrographer; in Kansas--J.B. Spiegel;  
in Kentucky--F. M. Veatch; in Louisiana and Mississippi--D. H. Barber; in Missouri and for  
White River at Beaver, Ark.--H. C. Beckman; in New Mexico--Berkeley Johnson; in Tennessee  
except for Mississippi River at Memphis--C. E. McCashin; in Texas and for Red River near  
Terral, Okla.--C. E. Ellsworth.

## MISSISSIPPI RIVER MAIN STEM

Mississippi River at St. Louis, Mo.

Location.— Water-stage recorder, lat.  $38^{\circ}37'44''$ , long.  $90^{\circ}10'54''$ , at foot of Washington Avenue, just downstream from west pier of Eads Bridge, St. Louis, and 15 miles below mouth of Missouri River. Zero of gage is 379.94 feet above mean sea level (general adjustment of 1929) and 379.80 feet above mean Gulf level.

Drainage area.— 701,000 square miles (authority, Mississippi River Commission).

Records available.— March 1933 to September 1938. Daily gage heights have been published in Reports of Mississippi River Commission since January 1861, in reports of U. S. Weather Bureau since January 1890. Results of discharge measurements made intermittently since 1866 by Corps of Engineers, U. S. Army, and Mississippi River Commission are published in reports of those organizations.

Extremes.— Maximum discharge during year, 434,000 second-feet May 27 (gage height, 26.57 feet); minimum, 27,600 second-feet Dec. 12 (gage height, -5.52 feet).  
1933-38: Maximum discharge, 649,000 second-feet June 7, 1935; maximum gage height, 33.52 feet June 9, 1935; minimum discharge, that of Dec. 12, 1937.  
Maximum stage known, 41.39 feet June 28, 1844.

Remarks.— Records excellent. Fifty discharge measurements were made during the year.

Gage height at 8 a.m., in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-2.55	-1.43	-2.88	-0.73	5.13	9.36	23.03	12.49	22.33	17.07	10.37	5.92
2	-2.54	-1.34	-2.80	-.97	6.07	9.29	23.04	13.13	21.68	16.81	9.13	5.44
3	-2.59	-1.35	-2.86	-1.51	6.81	8.83	22.01	13.38	20.98	15.65	8.45	5.24
4	-2.70	-1.36	-2.69	-1.18	6.50	8.64	20.59	13.07	20.71	15.49	8.67	5.29
5	-2.66	-1.35	-2.65	-1.16	6.31	8.38	18.90	13.23	20.55	15.40	8.32	4.72
6	-2.81	-1.08	-2.72	-1.62	5.82	7.68	17.53	13.25	21.14	15.69	8.25	4.56
7	-2.77	-.88	-3.32	-1.56	5.34	7.32	17.42	12.85	21.16	15.93	8.34	3.64
8	-2.47	-.71	-3.61	-1.35	5.22	7.08	18.09	12.71	20.87	16.67	8.34	3.67
9	-2.21	-.96	-4.44	-1.57	5.56	6.69	21.11	14.74	20.59	17.46	8.61	3.50
10	-2.20	-1.21	-4.79	-1.87	6.82	6.65	21.97	16.67	20.98	17.90	8.23	3.80
11	-2.37	-1.46	-5.25	-1.76	8.50	8.40	23.17	15.66	21.79	18.05	8.74	4.81
12	-2.52	-1.47	-5.47	-1.92	10.08	9.52	22.89	14.86	24.52	17.90	8.77	5.27
13	-2.67	-1.42	-5.50	-2.46	11.08	9.73	22.39	14.89	26.21	17.65	9.04	7.31
14	-2.65	-1.40	-5.28	-2.48	11.48	10.33	22.10	14.90	24.67	17.53	9.07	9.68
15	-2.47	-1.54	-5.06	-2.40	11.61	12.55	21.32	15.56	22.92	17.40	7.88	10.87
16	-2.40	-1.70	-4.74	-2.49	11.66	15.24	20.31	15.46	21.49	17.11	7.10	11.06
17	-2.36	-1.68	-4.11	-2.35	11.64	14.23	19.34	15.17	21.39	17.16	6.10	11.37
18	-2.24	-1.70	-3.44	-2.29	11.99	12.98	18.37	14.52	21.65	18.10	5.93	13.00
19	-2.16	-1.68	-2.92	-2.35	12.78	11.97	17.44	14.48	21.97	18.90	5.87	12.95
20	-2.54	-1.37	-2.52	-2.65	14.17	11.29	16.55	14.98	21.92	19.44	7.10	14.65
21	-2.54	-1.45	-2.49	-2.69	14.43	10.69	15.63	15.97	21.60	19.21	8.17	16.35
22	-2.50	-1.52	-2.60	-2.65	13.91	10.57	15.34	17.17	20.63	18.42	8.86	16.75
23	-2.41	-1.59	-2.73	-2.60	13.27	10.70	15.16	20.02	19.36	17.77	9.35	16.43
24	-2.45	-1.72	-2.73	-2.58	12.99	11.59	14.72	23.08	18.12	17.38	9.17	16.66
25	-2.50	-1.93	-2.21	-1.37	12.32	13.03	14.09	25.22	17.23	16.68	8.53	17.11
26	-2.24	-1.92	-1.89	2.47	11.03	12.69	13.46	26.33	17.37	14.83	9.18	17.67
27	-1.93	-1.92	-1.74	4.95	10.16	12.13	12.89	26.55	17.47	12.68	8.86	17.99
28	-1.75	-2.07	-1.54	5.57	9.38	12.21	12.75	26.23	17.15	11.65	8.39	18.35
29	-1.50	-2.56	-1.30	5.25	-	12.68	12.81	26.38	16.83	11.38	7.68	18.85
30	-1.35	-2.83	-1.36	5.00	-	15.60	12.85	24.32	17.36	10.78	7.46	19.10
31	-1.36	-	-1.60	4.89	-	20.97	-	23.31	-	10.46	6.81	-

## MISSISSIPPI RIVER MAIN STEM

Discharge, in second-feet, of Mississippi River at St. Louis, Mo., water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	46,200	54,200	43,800	58,700	107,000	148,000	358,000	179,000	352,000	236,000	154,000	110,000
2	46,100	54,500	44,200	56,700	116,000	146,000	356,000	186,000	319,000	226,000	139,000	107,000
3	45,600	54,500	44,400	54,900	120,000	142,000	335,000	188,000	306,000	217,000	136,000	106,000
4	45,800	54,400	45,100	56,100	119,000	140,000	308,000	185,000	302,000	214,000	137,000	104,000
5	45,300	54,900	46,600	55,100	117,000	136,000	279,000	189,000	304,000	216,000	133,000	100,000
6	44,200	56,700	44,000	52,500	113,000	130,000	282,000	188,000	310,000	220,000	133,000	98,700
7	44,800	58,100	40,400	53,100	110,000	127,000	283,000	185,000	308,000	224,000	134,000	92,200
8	47,000	58,800	37,800	54,400	110,000	124,000	286,000	185,000	302,000	234,000	134,000	92,200
9	48,400	57,000	33,600	52,600	116,000	120,000	339,000	218,000	298,000	246,000	135,000	91,400
10	48,300	55,200	33,500	51,100	128,000	128,000	373,000	234,000	306,000	252,000	131,000	96,200
11	47,200	53,800	28,800	51,800	146,000	140,000	378,000	220,000	327,000	252,000	137,000	102,000
12	46,000	53,800	27,800	50,200	161,000	150,000	367,000	212,000	386,000	248,000	136,000	108,000
13	45,100	54,100	27,900	46,600	171,000	162,000	354,000	210,000	410,000	245,000	140,000	128,000
14	45,700	54,100	29,100	46,700	175,000	159,000	341,000	214,000	373,000	242,000	138,000	159,000
15	46,800	53,000	31,100	47,000	176,000	190,000	321,000	221,000	337,000	239,000	127,000	161,000
16	47,100	52,100	32,600	46,600	176,000	213,000	298,000	218,000	314,000	236,000	120,000	166,000
17	47,700	52,100	37,400	47,600	175,000	197,000	277,000	212,000	314,000	240,000	111,000	174,000
18	48,200	52,100	40,400	47,900	180,000	183,000	256,000	205,000	318,000	253,000	110,000	190,000
19	48,400	53,200	43,800	47,100	191,000	172,000	239,000	206,000	323,000	267,000	110,000	192,000
20	47,400	54,400	46,500	45,500	205,000	164,000	223,000	213,000	321,000	274,000	121,000	216,000
21	46,200	53,700	46,500	45,100	208,000	168,000	214,000	227,000	312,000	288,000	130,000	236,000
22	46,500	53,300	45,600	45,400	200,000	167,000	212,000	247,000	293,000	255,000	137,000	240,000
23	47,000	52,700	44,700	45,900	191,000	160,000	209,000	298,000	288,000	247,000	140,000	238,000
24	46,800	51,600	45,500	47,900	188,000	174,000	202,000	356,000	248,000	240,000	138,000	239,000
25	46,900	50,500	48,900	51,600	176,000	186,000	196,000	398,000	239,000	228,000	134,000	247,000
26	48,700	50,600	50,500	88,200	165,000	180,000	188,000	424,000	240,000	204,000	140,000	256,000
27	50,700	50,200	52,000	106,000	155,000	177,000	182,000	431,000	240,000	175,000	136,000	262,000
28	52,100	48,800	53,400	110,000	149,000	177,000	180,000	422,000	238,000	169,000	132,000	267,000
29	53,600	45,700	54,900	107,000	-	186,000	182,000	400,000	234,000	165,000	125,000	272,000
30	54,400	44,000	54,100	105,000	-	236,000	180,000	373,000	240,000	169,000	124,000	276,000
31	54,300	-	54,600	104,000	-	321,000	-	362,000	-	167,000	117,000	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	1,478,500	54,400	44,200	47,690	2,933,000
November.....	1,591,700	56,600	44,000	53,060	3,157,000
December.....	1,306,000	54,900	27,800	42,130	2,590,000
Calendar year 1937.....	50,606,700	372,000	27,800	138,600	100,400,000
January.....	1,878,200	110,000	45,100	60,590	3,725,000
February.....	4,346,000	208,000	107,000	155,200	8,620,000
March.....	5,167,000	321,000	120,000	166,700	10,250,000
April.....	8,157,000	378,000	180,000	271,900	16,180,000
May.....	7,994,000	431,000	179,000	257,900	15,860,000
June.....	9,082,000	410,000	234,000	302,700	18,010,000
July.....	7,047,000	274,000	157,000	227,300	13,980,000
August.....	4,069,000	164,000	110,000	131,300	8,071,000
September.....	5,118,700	275,000	91,400	170,600	10,180,000
Water year 1937-38.....	57,235,100	431,000	27,800	156,800	113,500,000

Note.- Daily discharge computed from mean daily gage heights not from 8 a.m. gage reading given on preceding page.

## Mississippi River at Cape Girardeau, Mo.

Location.- Water-stage recorder, lat. 37°18'06", long. 89°31'05", at downstream end of concrete retaining wall, 400 feet below St. Louis-San Francisco Railway station at Cape Girardeau and 52 miles above mouth of Ohio River. Zero of gage is 304.65 feet above mean sea level (general adjustment of 1929) and 304.43 feet above mean Gulf level. Auxiliary staff gages at Mocassin Springs, 14 miles upstream, and Grays Point, 6 miles downstream, used to determine slope.

Drainage area.- 716,000 square miles (authority, Mississippi River Commission).

Records available.- March 1933 to February 1938 (discontinued). Daily gage heights have been published in reports of Mississippi River Commission since May 1896, in reports of U. S. Weather Bureau from February 1891 to February 1894 and since December 1904. Results of discharge measurements made intermittently since 1903 by Corps of Engineers, U. S. Army, and Mississippi River Commission at Thebes, 6 miles downstream, and referred to Cape Girardeau gage are contained in reports of those organizations.

Extremes.- Maximum discharge during period, 266,000 second-feet Feb. 22 (gage height 22.53 feet); minimum, 23,400 second-feet Dec. 13 (gage height, 3.03 feet).

1933-38: Maximum discharge, 623,000 second-feet June 10, 1935; maximum gage height, 36.26 feet June 11, 1935; minimum discharge, that of Dec. 13, 1937. Maximum stage known, 42.53 feet July 4, 1844.

Remarks.- Records excellent for October and November and good for December to February except those for period affected by ice jam upstream, Dec. 10-16, which were computed on basis of extension of rating curve and records for stations upstream and downstream and are fair. Seven discharge measurements made during the period. Stage-discharge relation occasionally affected by backwater from Ohio River. Discharge determined on basis of slope as obtained by use of auxiliary staff gages, gage heights from which were furnished by Corps of Engineers, U. S. Army.

Gage height at S a.m., in feet, period October 1937 to February 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.48	8.01	6.93	8.37	14.42							
2	7.37	8.06	6.75	8.28	13.82							
3	7.35	8.00	6.70	8.41	14.02							
4	7.33	7.97	6.74	8.19	14.23							
5	7.47	7.98	6.77	7.96	14.25							
6	7.56	7.97	6.79	7.96	14.07							
7	7.36	7.97	7.07	7.84	13.68							
8	7.37	8.18	7.30	7.61	13.20							
9	7.49	8.32	6.71	7.51	12.92							
10	7.68	8.31	6.08	7.67	12.93							
11	7.78	8.20	5.22	8.05	13.42							
12	7.67	8.02	3.80	7.90	14.49							
13	7.51	7.97	3.04	7.96	15.75							
14	7.38	7.83	3.70	7.63	16.76							
15	7.26	7.79	4.17	6.92	17.23							
16	7.26	7.78	4.74	6.80	17.51							
17	7.34	7.71	7.36	6.86	17.91							
18	7.58	7.61	9.54	6.82	19.20							
19	7.70	7.63	9.58	6.89	21.19							
20	7.93	7.60	9.25	6.92	21.68							
21	7.89	7.67	9.06	7.15	22.09							
22	7.81	7.75	8.94	7.72	22.49							
23	7.71	7.70	8.69	7.38	22.32							
24	7.68	7.64	8.46	7.56	21.33							
25	7.67	7.57	8.26	8.40	20.33							
26	7.56	7.47	8.19	8.26	19.72							
27	7.47	7.35	8.30	9.15	18.80							
28	7.55	7.44	8.37	12.14	17.92							
29	7.69	7.43	8.41	14.16	-							
30	7.83	7.23	8.44	14.19	-							
31	7.95	-	8.48	15.40	-							

## MISSISSIPPI RIVER MAIN STEM

Discharge, in second-feet, of Mississippi River at Cape Girardeau, Mo., for period October 1937  
to February 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49,800	56,300	48,900	60,400	128,000							
2	48,600	56,200	47,300	60,900	122,000							
3	48,600	56,300	47,300	61,900	126,000							
4	48,600	56,300	48,100	59,500	127,000							
5	49,900	56,300	48,200	58,000	126,000							
6	49,300	56,300	48,200	59,100	123,000							
7	48,600	56,200	50,300	56,500	118,000							
8	48,900	58,100	52,400	54,500	112,000							
9	49,500	58,600	46,600	53,600	110,000							
10	51,200	58,900	42,100	56,800	112,000							
11	52,400	57,600	36,600	59,300	121,000							
12	50,200	58,800	27,100	58,600	141,000							
13	50,300	55,300	24,000	57,900	154,000							
14	49,500	54,700	28,800	54,100	168,000							
15	48,900	55,400	30,500	48,600	176,000							
16	48,900	55,400	41,100	48,100	181,000							
17	49,900	54,700	59,400	48,100	189,000							
18	50,900	55,800	73,600	48,100	216,000							
19	52,800	55,800	71,100	49,100	246,000							
20	53,000	53,800	68,400	49,100	256,000							
21	54,400	55,900	67,000	52,500	261,000							
22	53,500	55,600	66,100	54,000	266,000							
23	52,900	55,800	63,600	51,900	257,000							
24	52,800	54,700	61,700	56,300	234,000							
25	52,800	54,500	59,800	60,100	218,000							
26	51,500	52,900	59,800	60,800	209,000							
27	51,100	53,200	60,900	74,900	191,000							
28	53,200	54,600	61,300	107,000	178,000							
29	54,100	52,900	61,700	130,000	-							
30	55,600	51,100	61,900	134,000	-							
31	56,300	-	62,200	141,000	-							
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						1,588,000	56,300	48,600	51,230	3,150,000		
November.....						1,660,400	58,900	51,100	55,350	3,293,000		
December.....						1,626,000	73,600	24,000	52,460	3,226,000		
Calendar year 1937.....						56,085,100	419,000	24,000	153,700	11,200,000		
January.....						2,023,700	141,000	48,100	65,280	4,014,000		
February.....						4,859,000	266,000	110,000	173,500	9,658,000		
March.....												
April.....												
May.....												
June.....												
July.....												
August.....												
September.....												
The period.....										23,320,000		

Note.- Daily discharge computed from mean daily gage heights, not from 8 a.m. gage readings given on preceding page.

## Mississippi River at Memphis, Tenn.

Location.— Water-stage recorder, lat. 35°07'37", long. 90°04'25", at Memphis, 50 feet below Harahan Bridge, 1.3 miles below Beale Street gage, 14 miles below mouth of Wolf River, 70 miles above mouth of St. Francis River, 164 miles above mouth of White River, and 171 miles above mouth of Arkansas River. Zero of gage is 183.91 feet above mean sea level (general adjustment of 1929), 184.21 feet above mean Gulf level (1912 Mississippi River Commission), and 190.86 feet on Memphis datum (1881 Mississippi River Commission).

Drainage area.— 932,800 square miles (authority, Mississippi River Commission).

Records available.— April 1934 to September 1938 in reports of Geological Survey. Daily gage heights only as follows: Since November 1871 (from Beale Street gage) in reports of Mississippi River Commission; December 1890 to August 1932 (from Beale Street gage), September 1932 to December 1934 (from staff gage 1,000 feet downstream), and since December 1934 (from water-stage recorder at present site) in reports of U. S. Weather Bureau. To adjust gage heights obtained at present site to those obtained at Beale Street gage add 0.3 foot for each 10 feet of stage.

Results of 43 discharge measurements made during period 1882-1904 and referred to the Beale Street gage, and of 61 made in 1933, all by Corps of Engineers, U. S. Army, and Mississippi River Commission, are published in reports of the latter organization.

Extremes.— Maximum discharge during year, 971,000 second-feet Apr. 20 (gage height, 32.97 feet); minimum, 96,900 second-feet Dec. 17 (gage height, 0.71 foot).

1934-38: Maximum discharge, 1,980,000 second-feet Feb. 8, 1937; maximum gage height, 48.69 feet Feb. 10, 1937; minimum discharge, 79,200 second-feet Aug. 25, 1936 (gage height, -0.01 foot).

Maximum stage known prior to 1937, 46.55 feet at Beale Street gage or about 45.2 feet at present site, Apr. 9, 1913.

Remarks.— Records excellent. During the year 76 discharge measurements were made. Gage-height record collected in cooperation with U. S. Weather Bureau.

Gage height at 8 a.m., in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.36	8.83	3.33	19.32	20.63	25.06	29.61	26.50	27.86	18.99	17.93	8.10
2	2.33	8.85	3.62	19.61	21.49	24.70	29.91	24.99	28.64	19.00	18.10	7.65
3	2.55	8.93	4.07	19.19	22.06	24.34	30.36	23.42	29.05	18.78	18.70	7.48
4	2.22	9.01	4.79	18.53	22.42	23.90	30.88	21.75	29.24	18.48	19.23	7.35
5	2.50	9.20	5.30	17.68	22.66	23.44	31.36	20.21	29.26	18.20	19.31	7.43
6	2.56	9.83	5.40	16.76	22.98	23.13	31.78	18.72	29.00	17.98	19.13	7.60
7	2.94	10.98	5.18	15.80	23.08	22.40	32.10	17.47	28.53	17.90	19.08	7.50
8	3.64	12.08	4.75	15.09	22.80	21.70	32.31	16.48	27.98	17.92	19.13	6.83
9	4.18	12.94	4.40	14.47	22.12	21.15	32.39	15.24	27.08	17.89	19.27	6.10
10	4.16	13.30	4.11	13.94	21.07	21.25	32.01	13.94	26.08	17.75	19.44	5.70
11	4.42	13.00	3.60	13.47	19.73	21.44	31.52	13.27	24.80	17.72	19.59	5.40
12	4.80	12.26	2.90	13.01	18.37	22.03	31.21	13.22	23.37	17.87	19.71	5.04
13	5.10	10.86	2.76	12.57	17.02	22.81	31.20	13.72	21.92	18.01	19.64	4.87
14	4.99	8.26	2.98	12.11	16.11	23.76	31.33	14.34	21.31	17.96	19.46	5.40
15	4.19	5.41	2.19	11.62	15.79	24.77	31.68	14.26	21.46	17.74	19.13	6.72
16	3.62	4.36	1.19	10.96	15.94	25.86	31.88	14.01	21.99	17.52	18.51	7.84
17	3.05	4.38	.71	9.73	16.47	26.66	32.21	13.70	22.38	17.40	17.55	8.41
18	3.08	4.49	1.29	7.81	17.91	27.59	32.45	13.55	22.35	17.37	16.45	9.04
19	3.47	4.77	2.69	6.42	19.39	28.43	32.68	13.64	22.13	17.52	15.40	9.84
20	3.65	5.03	4.77	6.17	20.71	28.94	32.84	13.87	21.40	17.66	14.41	10.46
21	4.23	5.12	7.20	6.50	22.32	29.23	32.90	14.02	20.69	18.02	13.63	10.91
22	4.99	5.02	9.16	7.47	22.53	29.41	32.94	13.96	20.28	18.75	12.80	11.37
23	5.58	4.70	10.90	7.47	24.46	29.42	32.72	14.09	20.03	19.59	11.30	11.66
24	6.36	4.58	12.49	8.02	25.17	29.32	32.29	14.96	19.84	20.08	10.01	11.44
25	6.90	4.75	14.02	9.68	25.63	29.13	31.78	15.67	19.57	20.01	9.58	11.43
26	7.31	4.70	15.25	11.91	25.74	29.04	31.24	16.87	19.24	19.41	9.33	11.74
27	7.90	4.38	16.37	14.00	25.65	29.00	30.57	18.80	18.88	18.60	9.18	11.67
28	8.63	4.00	17.41	15.80	25.44	28.96	29.61	21.23	18.58	18.13	9.12	11.54
29	8.82	3.86	17.96	17.18	-	29.23	28.91	23.61	18.49	18.16	8.83	11.53
30	8.81	3.64	18.50	18.31	-	29.34	27.77	25.51	18.71	18.27	8.50	11.66
31	8.82	-	18.95	19.68	-	29.50	-	26.96	-	18.10	8.34	-

Note.— Above gage heights are 8 a.m. readings from recorder chart.

## MISSISSIPPI RIVER MAIN STEM

Discharge, in thousands of second-feet, of Mississippi River at Memphis, Tenn., water year  
October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	107	232	138	521	575	690	846	701	804	500	473	225
2	107	234	142	521	605	673	862	653	823	500	485	217
3	109	234	151	509	622	663	882	602	831	491	503	214
4	106	236	163	485	632	646	902	550	835	482	515	212
5	107	243	173	459	639	632	915	506	827	473	515	212
6	111	268	173	433	642	619	927	464	815	467	506	214
7	118	286	167	406	639	592	932	433	792	467	503	208
8	129	312	168	384	622	572	932	406	770	467	503	196
9	136	330	153	368	595	556	923	373	737	467	506	182
10	138	337	146	355	556	559	902	345	698	464	509	174
11	144	326	138	342	512	569	878	334	653	467	512	169
12	150	305	127	332	470	588	870	337	602	470	515	162
13	156	263	127	322	439	615	886	362	562	473	515	160
14	151	206	127	312	419	649	906	365	556	470	509	174
15	139	160	115	303	411	664	923	365	575	464	497	202
16	130	148	101	286	422	726	940	358	592	459	479	223
17	123	148	97	258	439	759	949	352	602	456	453	236
18	125	151	110	217	462	785	958	360	598	456	422	252
19	130	166	134	194	528	811	962	355	585	462	395	268
20	134	160	174	190	572	827	966	360	559	467	368	282
21	145	160	217	198	625	835	966	365	540	479	350	293
22	158	168	256	212	663	835	962	363	528	503	322	303
23	169	163	291	212	690	831	949	371	521	524	284	307
24	184	161	334	229	712	823	927	395	518	537	281	303
25	194	155	373	270	719	813	902	417	512	534	254	306
26	202	153	408	324	722	811	874	459	503	509	249	310
27	214	148	442	379	715	811	845	518	494	485	247	310
28	229	144	470	430	704	811	815	598	485	476	247	305
29	232	142	485	470	-	823	785	673	485	479	243	307
30	232	139	500	509	-	831	748	733	494	479	236	315
31	232	-	512	546	-	838	-	777	-	473	232	-
Month				Thousands of second-foot-days		Discharge in thousands of second-feet				Run-off in thousands of acre-feet		
						Maximum		Minimum		Mean		
October.....				4,741		232		106		162.9		9,404
November.....				6,228		337		139		207.6		12,360
December.....				7,102		512		97		229.1		14,090
Calendar year 1937.....				185,771		1,970		97		509.0		368,500
January.....				10,976		546		190		354.1		21,770
February.....				16,371		722		411		584.7		32,470
March.....				22,277		838		556		718.6		44,190
April.....				27,035		966		748		901.2		53,620
May.....				14,230		777		334		459.0		28,220
June.....				18,906		835		485		630.2		37,500
July.....				14,900		537		456		480.6		29,560
August.....				12,608		515		232		406.7		25,010
September.....				7,240		315		160		241.3		14,360
Water year 1937-38.....				162,614		966		97		445.5		322,500

Note.- Daily discharge computed from mean daily gage heights, not from 8 a.m. gage readings given on preceding page.



## Mississippi River near Vicksburg, Miss.

Location.- Water-stage recorder, lat. 32°18'45", long. 90°54'25", in T. 16 N., R. 3 E., at combined highway and railway bridge of Vicksburg Bridge Co., 1½ miles below mouth of Yazoo River and 3 miles southwest of Vicksburg. Zero of gage is 46.16 feet above mean sea level.

Drainage area.- 1,144,500 square miles (authority, Mississippi River Commission).

Records available.- July 1931 to September 1938 in reports of Geological Survey. Daily gage heights only as follows: April 1930 to June 1931, in reports of Geological Survey; since November 1871 (at Yazoo Canal gage, 1½ miles upstream), in reports of Mississippi River Commission; May 1873 to September 1934 (at Yazoo Canal gage) and since September 1934 (at water-stage recorder at present site) in reports of U. S. Weather Bureau. The two gages are at the same datum, but the Yazoo Canal gage reads 0.2 foot when gage at present site reads 0.00 foot, and the difference increases to 2 feet at gage height 60.0 feet. Discharge for 1858 and for scattered periods since 1903 published in reports of Mississippi River Commission.

Extremes.- Maximum discharge during year, 1,190,000 second-feet Apr. 23; maximum gage height, 40.4 feet Apr. 26; minimum discharge, 139,000 second-feet Dec. 21; minimum gage height, -3.11 feet Dec. 21.

1930-38: Maximum discharge, 2,080,000 second-feet Feb. 17, 1937; maximum gage height, 53.2 feet Feb. 21, 1937; minimum discharge, 101,000 second-feet Aug. 29, 31, Sept. 1, 2, 1936; minimum gage height, -3.52 feet Aug. 31, 1936.

Maximum gage height recorder (Corps of Engineers, U. S. Army), 56.6 feet, present gage, May 4, 1927. Minimum discharge observed (Corps of Engineers, U. S. Army), 97,000 second-feet Oct. 26, 1895.

Remarks.- Records excellent. During the year 142 discharge measurements were made.

Gage height at 8 a.m., in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-0.42	5.19	1.68	17.87	20.32	34.79	34.05	39.74	26.92	22.44	17.93	7.31
2	-.67	5.41	1.23	18.73	21.62	34.62	34.62	39.37	28.52	21.80	17.72	6.98
3	-.64	5.48	.82	19.39	22.71	34.90	35.20	38.88	29.73	21.39	17.69	6.43
4	-.48	5.45	.46	19.90	23.64	34.79	35.70	38.20	30.66	21.20	17.46	6.02
5	-.64	5.43	.20	20.16	24.48	34.63	36.24	37.36	31.43	21.04	17.45	5.58
6	-.85	5.43	.13	20.14	25.07	34.47	36.75	36.18	32.10	20.72	17.69	5.14
7	-.99	5.45	.30	19.92	25.64	34.12	37.48	34.71	32.64	20.37	18.14	4.84
8	-1.24	5.52	.72	19.42	26.97	33.78	38.10	35.06	33.05	19.97	18.60	4.65
9	-1.37	5.82	1.16	18.70	26.14	33.31	38.60	31.09	33.37	19.68	18.95	4.61
10	-1.25	6.63	1.33	17.96	26.28	32.90	38.72	29.02	33.60	19.37	18.92	4.48
11	-.82	7.82	1.27	17.13	26.23	32.32	38.88	26.88	33.70	19.09	18.87	4.16
12	-.18	9.01	.99	16.30	26.92	31.80	39.06	24.66	33.57	18.73	18.82	3.67
13	.40	9.94	.64	15.50	26.34	31.32	39.18	22.60	33.20	18.43	18.87	3.12
14	.75	10.48	.27	14.77	24.61	30.96	39.26	21.12	32.60	18.04	18.93	2.62
15	.94	10.60	-.25	14.00	23.64	30.73	39.32	20.37	31.77	17.85	19.10	2.16
16	1.15	10.46	-.74	13.28	22.45	30.56	39.40	19.98	30.89	17.80	19.24	1.81
17	1.28	9.68	-1.05	12.61	21.31	30.66	39.52	19.70	30.18	17.71	19.13	1.79
18	1.35	8.35	-1.32	11.88	20.49	30.88	39.71	19.44	29.64	17.55	18.65	2.33
19	1.11	6.88	-1.80	11.07	20.90	31.31	39.82	19.01	29.48	17.32	18.35	3.31
20	.55	5.48	-2.50	10.04	22.82	31.89	39.96	18.47	29.32	17.32	17.64	4.22
21	.01	4.45	-3.04	8.74	24.96	32.30	40.11	17.93	29.00	17.15	16.73	5.10
22	-.25	3.88	-2.93	7.22	27.10	32.70	40.24	17.52	28.46	17.10	15.61	6.03
23	-.22	3.63	-1.00	5.92	29.00	33.18	40.25	17.27	27.72	17.20	14.48	6.80
24	.07	3.52	2.08	5.55	30.87	33.47	40.31	17.16	27.01	17.37	13.45	7.43
25	.65	3.40	4.97	6.33	32.13	33.70	40.36	17.00	26.44	17.78	12.93	7.96
26	1.49	3.21	7.45	7.87	33.50	33.83	40.38	16.92	25.96	18.26	12.13	8.42
27	2.38	2.86	9.75	9.87	34.12	33.89	40.37	17.49	25.48	18.75	10.98	8.71
28	3.15	2.60	11.83	12.45	34.56	33.86	40.31	19.20	24.90	19.03	9.88	8.79
29	3.78	2.33	13.58	14.77	-	33.94	40.20	21.10	24.12	18.96	9.00	8.85
30	4.28	2.06	15.12	16.89	-	33.92	40.00	23.08	23.27	18.65	8.27	8.89
31	4.76	-	16.63	18.82	-	33.92	-	25.41	-	18.20	7.80	-

## MISSISSIPPI RIVER MAIN STEM

Discharge, in thousands of second-feet, of Mississippi River near Vicksburg, Miss., water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	153	256	206	556	626	1,060	984	1,140	811	609	531	305
2	150	260	199	570	652	1,060	1,010	1,110	858	597	531	290
3	152	260	193	579	677	1,060	1,030	1,080	892	592	531	279
4	153	260	188	588	700	1,040	1,040	1,030	912	590	528	267
5	152	260	185	590	720	1,020	1,060	994	930	588	528	261
6	148	260	185	597	740	1,010	1,060	945	948	579	535	256
7	146	260	188	583	756	998	1,100	889	984	572	549	252
8	142	263	196	558	766	984	1,110	941	977	567	558	252
9	142	274	207	537	776	967	1,130	787	987	563	560	252
10	147	287	209	515	787	942	1,140	737	994	560	558	249
11	154	305	207	493	761	921	1,140	684	984	551	553	240
12	164	336	202	472	740	904	1,160	633	974	544	558	228
13	172	358	194	461	704	881	1,160	590	956	553	563	219
14	175	360	185	432	677	867	1,160	576	912	515	565	211
15	178	360	178	416	645	864	1,160	563	878	508	572	206
16	183	357	172	406	609	863	1,160	556	847	509	572	202
17	185	343	169	394	581	865	1,170	551	828	513	565	207
18	185	319	162	378	581	904	1,170	546	817	522	546	218
19	178	292	154	362	609	915	1,160	540	814	516	531	236
20	169	269	144	341	662	930	1,170	531	806	513	513	252
21	166	249	141	319	720	939	1,180	520	792	509	491	289
22	164	240	150	292	779	958	1,190	513	766	513	468	287
23	164	236	156	272	867	980	1,190	500	745	520	445	302
24	169	235	240	274	945	994	1,180	493	724	524	428	317
25	177	233	290	292	994	994	1,180	485	707	531	416	330
26	193	230	338	326	1,030	990	1,180	500	700	540	402	340
27	211	226	380	370	1,070	987	1,180	515	692	551	376	356
28	224	221	422	428	1,080	980	1,180	553	682	558	355	356
29	235	218	460	465	-	960	1,170	611	657	556	334	336
30	242	212	493	542	-	974	1,150	672	633	546	322	340
31	249	-	526	592	-	974	-	743	-	533	313	-

Month	Thousands of second-foot-days	Discharge in thousands of second-feet			Run-off in thousands of acre-feet
		Maximum	Minimum	Mean	
October.....	5,422	249	142	174.9	10,750
November.....	8,239	360	212	274.6	16,340
December.....	7,551	526	141	237.1	14,580
Calendar year 1937.....	227,957	2,080	141	624.5	452,200
January.....	14,012	597	272	452.0	27,790
February.....	21,254	1,080	581	769.1	42,160
March.....	29,845	1,060	864	962.7	59,200
April.....	34,064	1,190	984	1,135	67,580
May.....	21,428	1,140	485	691.2	42,500
June.....	26,167	994	633	838.9	49,920
July.....	16,917	609	506	545.7	33,560
August.....	15,295	572	313	493.4	30,340
September.....	8,077	340	202	269.2	16,020
Water year 1937-38.....	207,071	1,190	141	567.3	410,700

Note.- Daily discharge computed from mean daily gage heights, not from 8 a.m. gage readings given on preceding page.

## Mississippi River near New Orleans, La.

Location.- Water-stage recorder, lat. 29°57', long. 90°10', in T. 13 S., R. 10 E. St. Helena meridian, at Huey P. Long Bridge, 5 miles west of New Orleans and 126 miles above mouth of Mississippi River. Zero of gage is at mean Gulf level (general adjustment of 1929), 0.15 foot below mean Gulf level (datum of Corps of Engineers, U. S. Army).

Drainage area.- 1,243,600 square miles (authority, Mississippi River Commission).

Records available.- Daily gage heights only as follows: November 1934 to September 1938 in reports of Geological Survey, since 1871 (at gage of Corps of Engineers, U. S. Army, 2½ miles downstream), in reports of Mississippi River Commission; May 1873 to December 1922 (at gage of U. S. Weather Bureau at foot of Canal Street, 11 miles downstream) and since January 1923 (at gage of Corps of Engineers above mentioned), in reports of U. S. Weather Bureau. Discharge for 1851, 1852, and scattered periods since 1879 are published in reports of Mississippi River Commission.

Extremes.- Maximum gage height during year, 16.81 feet Apr. 30; minimum, 0.04 foot Dec. 20.

1934-38: Maximum gage height, 19.28 feet Mar. 1, 1937; minimum, that of Dec. 20, 1937.

Maximum gage height observed, 21.3 feet Apr. 25, 1922; minimum, -1.6 feet Dec. 27, 1872. Both maximum and minimum observations were made 2½ miles downstream on gage of Corps of Engineers, U. S. Army, with zero 0.13 foot below mean Gulf level (datum of Corps of Engineers, U. S. Army). This gage reads practically the same below 19.0 feet as does the gage of the Geological Survey, but above 19.0 feet it reads lower, the difference increasing to a maximum of 0.10 foot.

Remarks.- Records excellent. Gage heights affected by tides. Flow diverted at times through Bonnet Carre floodway and Atchafalaya River.

Gage height at 8 a.m., in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.42	1.34	1.23	3.80	5.60	12.93	13.71	16.67	8.94	9.53	6.48	3.28
2	2.80	1.44	1.20	4.64	6.25	13.15	13.75	16.65	9.76	9.19	6.39	3.14
3	2.18	1.41	1.16	5.24	6.77	13.37	13.79	16.65	10.60	8.79	6.21	2.95
4	1.67	1.64	1.34	5.65	7.21	13.39	13.78	16.67	11.29	8.36	6.14	2.89
5	1.24	1.62	1.57	5.89	7.61	13.54	13.80	16.49	11.70	8.02	6.05	2.68
6	1.43	1.64	1.45	6.30	7.97	13.49	14.00	16.39	12.07	8.07	5.90	2.49
7	1.20	1.65	1.25	6.41	8.28	13.39	14.49	16.35	12.43	7.82	5.90	2.38
8	1.41	1.97	1.47	6.44	8.57	13.34	14.88	16.05	12.59	7.48	5.90	2.40
9	1.80	2.30	1.49	6.21	8.80	13.26	14.82	15.73	12.74	7.20	5.94	2.70
10	1.74	2.16	1.65	6.13	9.02	13.29	15.04	15.35	12.97	6.91	6.11	2.50
11	1.86	2.38	1.09	6.03	9.23	13.27	15.14	14.74	13.16	6.65	6.27	2.40
12	1.98	2.56	.89	5.85	9.41	13.26	15.20	14.19	13.15	6.47	6.40	2.25
13	2.14	2.46	1.06	5.48	9.62	13.24	15.24	13.40	13.02	6.56	6.61	2.27
14	2.30	2.05	.77	5.37	9.67	13.16	15.37	12.71	13.04	6.18	6.72	2.33
15	2.12	1.96	.81	5.13	9.57	13.29	15.49	11.94	13.00	6.00	6.92	2.42
16	2.37	2.40	.98	5.03	9.56	13.06	15.66	11.25	12.76	5.84	6.87	2.59
17	2.51	1.80	1.30	4.90	9.37	13.02	15.76	11.72	12.58	5.73	7.03	2.52
18	1.96	1.96	1.23	4.80	9.04	12.79	15.78	11.46	12.45	5.67	7.13	2.60
19	2.11	2.29	.98	4.53	8.80	12.90	15.97	11.33	12.29	5.62	7.12	2.39
20	1.49	2.04	1.02	4.43	8.47	12.74	16.03	10.10	12.12	5.65	6.97	2.26
21	1.49	2.21	.96	4.26	8.40	12.77	16.16	9.66	12.11	5.72	6.71	2.20
22	1.67	1.98	.96	3.98	9.00	12.97	16.29	9.30	12.01	5.81	6.56	1.78
23	1.60	2.22	1.17	3.65	9.42	13.24	16.39	8.96	11.86	5.79	5.89	1.69
24	1.62	2.32	.75	2.54	10.27	13.18	16.41	8.60	11.60	5.83	5.60	1.67
25	1.71	2.80	.79	2.57	10.91	13.26	16.52	8.30	11.30	5.76	5.10	1.90
26	1.92	2.45	.91	2.03	11.41	13.38	16.60	8.03	10.99	5.70	4.74	2.22
27	1.66	2.05	1.26	2.01	12.00	13.41	16.71	7.91	10.63	5.67	4.41	2.48
28	1.69	1.61	1.57	2.42	12.54	13.67	16.66	7.69	10.34	5.71	4.19	2.98
29	1.56	1.37	1.94	3.13	-	13.71	16.74	7.62	10.11	5.99	4.11	3.20
30	1.25	1.17	2.55	4.09	-	13.75	16.73	7.84	9.81	6.25	3.74	3.02
31	1.25	-	3.04	4.93	-	13.60	-	8.27	-	6.49	3.64	-

## MERAMEC RIVER BASIN

## Meramec River near Steelville, Mo.

Location.- Water-stage recorder, lat. 37°59'55", long. 91°21'35", in NE¼ sec. 21, T. 38 N., R. 4 W., at county highway bridge 400 feet downstream from St. Louis and San Francisco Railroad bridge, 0.7 mile upstream from Whittenburg Creek and 2½ miles north of Steelville. Zero of gage is 660.28 feet (revised) above mean sea level (general adjustment of 1929).

Drainage area.- 830 square miles.

Records available.- December 1922 to September 1938.

Average discharge.- 15 years (1923-38), 583 second-feet.

Extremes.- Maximum discharge during year, 14,700 second-feet May 24 (gage height, 14.14 feet); minimum, 100 second-feet Oct. 7, 8 (gage height, 0.64 foot).

1922-38: Maximum discharge, 47,800 second-feet June 26, 1933 (gage height, 23.39 feet); minimum, 74 second-feet July 22, 1934 (gage height, 0.35 foot).

Maximum stage known, 26.5 feet Aug. 20, 1915 (discharge, about 60,000 second-feet).

Remarks.- Records good. Discharge for period Aug. 18 to Sept. 2 computed on basis of staff gage readings made once daily.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Feb. 19 to Mar. 27)

0.60	88	2.50	845	9.00	6,940
.80	147	3.00	1,140	11.00	9,500
1.00	212	4.00	1,820	13.00	12,700
1.20	283	5.00	2,640	14.00	14,500
1.50	397	7.00	4,640	14.20	14,900
2.00	607				

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	111	117	141	189	563	554	3,090	652	722	309	354	114
2	108	120	141	182	462	499	1,470	563	652	294	279	135
3	102	117	144	179	401	482	1,040	486	585	283	240	147
4	111	120	147	176	370	458	820	466	546	272	219	144
5	108	132	147	169	347	503	698	507	491	261	205	147
6	108	129	144	163	324	722	607	585	458	247	196	222
7	102	132	141	160	324	553	550	1,070	458	247	186	216
8	102	141	136	157	324	466	787	5,440	441	240	179	163
9	108	138	136	153	305	449	2,550	1,920	445	230	169	147
10	111	138	135	147	294	462	2,010	1,110	449	219	157	138
11	111	138	147	147	313	499	1,340	795	445	205	153	132
12	117	135	120	141	358	470	985	938	413	199	150	135
13	117	135	123	138	347	503	820	3,140	385	196	147	147
14	114	132	123	138	320	1,660	696	2,060	378	199	153	160
15	114	129	126	135	305	1,200	607	1,600	374	196	147	147
16	114	126	169	138	374	2,230	675	1,080	389	192	147	150
17	120	126	557	135	3,410	1,770	722	1,110	734	219	147	153
18	126	123	2,150	132	11,100	1,080	722	1,110	890	244	141	157
19	138	123	1,100	132	11,700	928	652	1,110	2,170	431	129	147
20	144	123	652	150	4,370	745	607	928	1,630	350	123	141
21	150	120	495	247	2,220	607	607	770	928	309	120	138
22	144	120	405	607	1,580	553	550	2,370	675	269	126	135
23	138	120	554	507	1,240	503	499	6,220	554	236	123	135
24	138	117	513	1,020	1,020	499	469	13,400	492	219	117	135
25	126	120	263	1,980	928	453	425	4,210	425	205	117	132
26	123	120	258	1,080	872	417	397	2,270	385	199	114	129
27	120	126	251	652	770	381	374	1,900	370	199	108	126
28	117	138	236	520	630	350	366	1,610	347	209	117	123
29	117	138	219	441	-	1,220	401	1,140	328	226	117	120
30	117	141	212	417	-	3,540	521	928	316	209	114	120
31	117	-	205	533	-	5,780	-	820	-	296	114	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	3,684	150	102	119	0.143	0.16	7,310
November.....	3,834	141	117	128	.154	.17	7,600
December.....	9,908	2,150	120	320	.386	.44	19,650
Calendar year 1937.....	178,435	13,200	102	489	.589	7.98	353,900
January.....	11,065	1,980	132	357	.450	.50	21,950
February.....	45,571	11,700	294	1,628	1.96	2.04	90,390
March.....	30,576	5,780	350	966	1.19	1.37	60,650
April.....	26,048	3,090	366	698	1.05	1.17	51,870
May.....	62,108	13,400	466	2,003	2.41	2.78	123,200
June.....	17,865	2,170	316	596	.713	.80	35,450
July.....	7,609	451	192	245	.295	.34	15,090
August.....	4,908	354	108	168	.190	.22	8,730
September.....	4,325	222	114	144	.173	.19	8,580
Water year 1937-38.....	227,501	13,400	102	623	.751	10.18	451,200

Peak discharge.- Feb. 19 (7 a.m.) 14,320 sec.-ft.; Mar. 31 (1 p.m.) 6,940 sec.-ft.; May 8 (3 p.m.) 7,420 sec.-ft.; May 13 (4 a.m.) 4,220 sec.-ft.; May 22 (7:30 p.m.) 4,860 sec.-ft.; May 24 (2:30 p.m.) 14,700 sec.-ft.

## Meramec River near Eureka, Mo.

Location.- Water-stage recorder, lat. 36°30'20", long. 90°35'30", in SE¼ sec. 32, T. 44 N., R. 4 E., at bridge on U. S. Highway 66, 2 miles east of Eureka and 12½ miles upstream from Fishpot Creek. Prior to Sept. 30, 1937 wire-weight gage at same site and datum. Zero of gage is 406.18 feet above mean sea level (general adjustment of 1929).

Drainage area.- 3,800 square miles.

Records available.- August 1903 to July 1906 and October 1921 to September 1938.

Average discharge.- 17 years (1921-38), 3,004 second-feet.

Extremes.- Maximum discharge during year, 46,100 second-feet May 6 (gage height, 25.47 feet); minimum, 420 second-feet Oct. 3 (gage height, 0.49 foot).

1921-38: Maximum discharge observed, 64,000 second-feet Apr. 3, 1927 (gage height, 29.47 feet, former site and datum); maximum gage height, 30.89 feet Mar. 14, 1935; minimum discharge, 196 second-feet Aug. 27, 31, Sept. 1, 1936; minimum gage height, 0.33 foot Oct. 2, 3, 1932, former site and datum.

Maximum stage known, 40.2 feet, present site and datum, Aug. 22, 1915 (discharge, about 175,000 second-feet).

Remarks.- Records good. Gage heights computed from graph based on daily gage readings and trace of recorder pen, because of variable draw-down in gage well.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 16				Feb. 17 to Sept. 30			
0.50	425	5.00	4,610	0.70	429		
1.00	739	6.00	6,000	1.00	635		
1.50	1,100	8.00	9,100	1.50	1,025		
2.00	1,460	10.00	12,400	2.00	1,450		
2.50	1,900	14.00	19,600	2.50	1,900		
3.00	2,375	18.00	27,600	3.00	2,380		
3.50	2,885	22.00	36,800	3.50	2,885		
4.00	3,435	26.00	47,500				

Note.- Same as preceding table above 3.50 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	454	514	640	988	2,780	3,210	28,900	2,230	4,610	1,630	2,550	469
2	425	514	640	950	2,480	2,990	25,600	2,990	4,370	1,500	1,810	442
3	425	483	672	878	2,280	2,780	14,400	2,990	3,550	1,410	1,450	436
4	454	454	706	908	2,040	2,580	6,450	2,580	3,100	1,360	1,240	442
5	483	483	706	774	1,860	2,780	5,000	2,990	2,780	1,240	1,020	442
6	878	514	706	706	1,770	2,990	4,130	2,680	2,530	1,150	881	442
7	640	514	706	672	1,640	3,320	3,780	2,780	2,480	1,050	833	482
8	576	514	640	672	1,560	3,660	7,660	4,220	2,430	953	801	515
9	544	544	640	672	1,520	2,990	15,200	9,100	2,380	937	755	549
10	514	544	739	672	1,560	2,990	17,700	9,560	3,780	945	732	543
11	483	544	739	672	1,810	2,880	13,900	5,240	28,500	937	695	515
12	454	544	640	672	1,860	2,780	8,780	3,900	44,300	937	658	482
13	454	544	640	706	1,990	4,020	6,000	4,870	32,600	921	635	536
14	454	544	607	739	1,900	9,720	4,740	7,350	27,200	881	606	1,010
15	425	514	576	706	1,770	15,300	4,010	6,860	9,680	873	570	1,070
16	454	514	706	706	1,810	21,300	4,010	5,850	4,370	929	563	809
17	454	514	4,720	706	6,080	22,300	4,740	4,490	4,740	945	563	770
18	454	514	9,420	672	19,600	12,400	5,850	4,250	4,490	2,760	563	755
19	607	514	9,260	672	32,900	7,050	4,610	5,700	5,000	5,090	563	718
20	843	514	5,700	672	43,100	5,270	4,010	5,700	5,410	3,290	549	635
21	988	483	3,780	706	42,000	4,370	3,550	4,610	5,410	2,430	543	672
22	814	483	2,780	3,440	28,400	3,780	3,210	4,740	4,130	1,810	536	606
23	808	483	2,180	2,990	9,100	3,580	2,990	14,100	3,210	1,540	515	577
24	706	483	1,860	2,780	6,600	3,320	2,780	29,000	2,780	1,410	488	570
25	640	454	1,600	3,780	5,410	2,990	2,580	38,200	2,480	1,240	495	556
26	544	454	1,440	5,410	4,610	2,990	2,430	34,600	2,290	1,150	502	556
27	514	454	1,360	6,000	4,010	2,780	2,230	25,500	2,090	1,090	488	522
28	514	514	1,290	3,550	3,550	2,530	2,090	10,500	1,950	1,410	478	502
29	514	544	1,180	2,280	-	4,510	2,000	9,100	1,810	1,090	455	488
30	514	607	1,100	2,280	-	13,800	2,000	7,500	1,720	953	469	475
31	514	-	1,060	2,420	-	27,400	-	5,550	-	1,580	488	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	17,645	988	425	569	0.150	0.17	35,000
November.....	15,297	607	454	510	0.134	.15	30,340
December.....	59,433	9,420	576	1,917	.504	.58	117,900
Calendar year 1937.....	1,108,533	34,500	370	3,037	.799	10.85	2,198,000
January.....	50,751	6,000	672	1,637	.451	.50	100,700
February.....	235,990	43,100	1,520	8,428	2.22	2.31	468,100
March.....	205,330	27,400	2,530	6,624	1.74	2.01	407,300
April.....	215,330	26,900	2,000	7,178	1.89	2.11	427,100
May.....	281,510	38,200	2,230	9,981	2.39	2.76	558,400
June.....	226,170	44,300	1,720	7,539	1.99	2.21	448,600
July.....	45,431	5,090	873	1,466	.386	.45	90,110
August.....	25,491	2,550	455	758	.199	.23	46,590
September.....	17,586	1,070	436	586	.154	.17	34,880
Water year 1937-38.....	1,393,964	44,300	425	3,819	1.00	13.65	2,765,000

Peak discharge.- Dec. 19 (5 a.m.) 10,500 sec.-ft.; May 15 (4 a.m.) 9,740 sec.-ft.; June 12 (12:15 p.m.) 46,100 sec.-ft.

## Bourbeuse River at Union, Mo.

Location.- Wire-weight gage, lat. 38°26'45", long. 90°59'30", in SW $\frac{1}{4}$  sec. 26, T. 43 N., R. 1 W., at bridge on U. S. Highway 50, 800 feet upstream from Flat Creek, half a mile east of Union and 7 miles upstream from Birch Creek. Zero of gage is 491.58 feet above mean sea level (general adjustment of 1929).

Drainage area.- 787 square miles.

Records available.- June 1921 to September 1938.

Average discharge.- 17 years, 659 second-feet.

Extremes.- Maximum discharge during year, 28,200 second-feet June 13 (gage height, 20.23 feet); minimum, 25 second-feet October 3 (gage height, 0.26 foot).  
1921-38: Maximum discharge, that of June 13, 1938; minimum, 14 second-feet Aug. 31, Sept. 1, 1936 (gage height, 0.22 foot).  
Maximum stage known, 25.5 feet Aug. 22, 1915, from floodmark (discharge, about 50,000 second-feet).

Remarks.- Records good. Gage read once daily below and twice daily above gage height 8.0 feet. Gage-height records collected in cooperation with U. S. Weather Bureau.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	26	27	38	67	254	366	10,300	1,090	682	135	87	36
2	26	29	38	64	307	327	6,050	960	830	125	84	44
3	25	31	38	64	346	287	1,430	710	477	122	75	42
4	27	30	45	61	238	249	960	410	348	105	70	37
5	45	35	45	58	208	327	682	770	266	122	72	38
6	40	32	45	55	194	327	525	525	213	89	65	41
7	40	32	44	53	170	1,520	432	368	249	84	61	38
8	28	31	44	53	162	1,020	1,640	500	251	75	61	37
9	26	30	44	52	158	800	4,840	1,520	368	72	59	36
10	28	44	47	52	289	454	6,720	1,090	3,250	70	59	35
11	28	33	44	52	271	389	3,770	575	12,900	65	57	35
12	27	29	43	51	289	432	2,070	500	19,200	65	53	36
13	28	28	44	50	326	1,370	1,230	710	24,800	65	51	37
14	27	31	46	48	271	4,360	770	2,640	5,920	75	49	89
15	27	39	45	47	271	7,530	628	1,630	1,160	70	49	61
16	26	36	55	47	254	4,750	500	960	895	97	47	166
17	26	33	368	47	1,610	3,270	655	575	600	84	45	153
18	28	38	326	48	5,880	1,670	830	500	525	213	44	122
19	34	39	721	51	9,600	1,020	525	1,370	1,160	1,090	44	135
20	33	38	548	53	12,000	710	432	1,090	575	454	42	100
21	32	36	326	53	7,170	525	327	710	432	307	44	79
22	29	34	223	53	2,010	432	327	1,310	389	199	42	65
23	36	33	168	51	1,440	477	368	5,760	348	249	41	59
24	34	32	134	110	1,090	348	368	8,390	287	173	40	49
25	33	33	116	168	895	368	287	9,760	249	144	38	44
26	32	33	99	3,250	655	477	231	5,390	231	141	38	40
27	31	35	91	1,270	525	389	213	2,110	196	111	37	38
28	30	38	85	572	432	287	193	1,160	176	199	37	37
29	30	40	78	367	-	1,790	166	3,150	153	119	37	35
30	29	40	72	326	-	4,780	179	1,630	147	97	37	33
31	28	-	69	254	-	8,700	-	960	-	75	36	-
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off			
									Inches	Acres-feet		
October.....				939	45	25	30.3	0.040	0.05	1,860		
November.....				1,019	44	27	34.0	.044	.05	2,020		
December.....				4,149	721	38	134	.175	.20	8,230		
Calendar year 1937.....				247,366	12,900	25	678	.684	11.99	490,600		
January.....				7,647	3,250	47	243	.517	.37	14,970		
February.....				47,515	12,000	158	1,697	2.21	2.30	94,240		
March.....				49,553	8,700	249	1,598	2.08	2.40	98,290		
April.....				47,669	10,300	166	1,589	2.07	2.31	94,550		
May.....				59,223	9,760	368	1,910	2.49	2.87	117,500		
June.....				77,259	24,800	147	2,975	3.36	3.76	163,200		
July.....				5,091	1,090	65	164	.214	.25	10,100		
August.....				1,603	87	37	51.7	.067	.08	3,180		
September.....				1,799	166	33	60.0	.078	.09	3,570		
Water year 1937-38.....				303,366	24,800	25	831	1.08	14.72	601,700		

## Big River at Byrnesville, Mo.

Location.- Wire-weight gage, lat. 36°21'45", long. 90°39'05", in SE¼ sec. 12, T. 42 N., R. 3 E., at county highway bridge, 200 feet below dam and mill at Byrnesville, and 4 miles upstream from Head Creek. Zero of gage is 433.69 feet (revised) above mean sea level (general adjustment of 1929).

Drainage area.- 892 square miles.

Records available.- May 1922 to September 1938.

Average discharge.- 16 years, 813 second-feet.

Extremes.- Maximum discharge during year, 24,600 second-feet Feb. 19 (gage height, 22.53 feet); minimum observed, 85 second-feet Oct. 4, Aug. 28; minimum gage height observed, 2.01 feet Aug. 28.

1922-38: Maximum discharge, 31,700 second-feet Mar. 12, 1935 (gage height, 24.65 feet), from rating curve extended above 25,000 second-feet; minimum, 25 second-feet Aug. 30, 1936; minimum gage height, 1.50 feet Aug. 14, 1934.

Maximum stage known, 30.2 feet in August 1916, from floodmarks (discharge, about 80,000 second-feet).

Remarks.- Records good. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	98	104	215	303	1,350	755	10,200	556	1,000	346	682	110
2	98	130	216	303	755	682	3,390	566	900	324	349	124
3	91	137	198	282	527	682	1,900	471	715	303	282	124
4	91	144	198	262	586	649	1,500	418	649	282	243	117
5	206	144	198	262	527	950	1,250	418	586	282	215	117
6	471	158	189	243	499	900	1,100	393	527	262	206	117
7	262	158	181	234	499	950	950	597	527	262	189	124
8	189	161	130	234	499	682	3,150	2,630	527	243	181	124
9	151	161	137	215	444	616	7,540	2,210	499	224	173	124
10	130	161	130	215	471	900	4,120	1,160	783	224	173	137
11	117	144	137	224	499	755	2,160	800	14,900	215	181	137
12	117	130	130	215	586	682	1,600	900	6,900	206	166	130
13	110	117	137	206	682	1,100	1,300	1,900	1,550	198	158	168
14	98	130	144	198	586	3,360	1,100	1,000	1,000	198	151	527
15	91	130	158	198	527	6,240	950	1,200	755	224	151	393
16	98	117	353	189	625	10,500	1,150	900	800	262	151	243
17	98	124	4,270	198	5,080	10,900	2,280	800	2,350	234	144	181
18	137	130	7,350	189	13,300	2,780	2,220	1,250	1,750	2,150	144	166
19	243	117	4,230	198	28,500	1,850	1,400	2,000	1,450	3,460	137	168
20	418	117	1,700	198	18,200	1,550	1,100	1,500	1,650	931	137	168
21	393	110	1,200	520	4,690	1,300	950	1,200	1,300	527	137	161
22	303	110	850	3,320	2,380	1,100	800	1,300	900	418	130	144
23	234	110	682	1,800	1,900	1,100	715	9,180	682	369	130	130
24	215	117	556	1,250	1,600	1,000	616	16,600	586	324	124	130
25	173	117	499	2,490	1,350	800	586	16,100	527	282	124	124
26	151	117	444	2,000	1,100	755	527	3,100	499	262	117	124
27	144	124	444	1,050	1,000	649	499	3,270	471	262	98	110
28	130	130	418	715	900	616	444	2,730	418	262	91	117
29	124	151	369	649	-	2,820	444	2,110	393	234	110	124
30	124	215	346	649	-	8,180	444	1,500	369	324	110	124
31	117	-	324	1,300	-	13,600	-	1,200	-	303	104	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	5,422	471	91	175	0.196	0.23	10,750
November.....	3,985	215	104	133	.149	.17	7,900
December.....	26,532	7,350	130	856	.960	1.11	52,630
Calendar year 1937.....	349,757	14,600	65	958	1.07	14.59	693,700
January.....	20,309	3,320	189	655	.734	.85	40,280
February.....	84,682	23,500	444	3,024	3.39	3.53	167,900
March.....	73,253	13,600	616	2,557	2.87	3.31	157,200
April.....	56,385	10,200	444	1,879	2.11	2.35	111,900
May.....	79,769	16,600	393	2,573	2.88	3.32	158,200
June.....	45,943	14,900	369	1,531	1.72	1.92	91,130
July.....	14,397	3,460	198	464	.520	.60	28,560
August.....	5,508	682	91	178	.200	.23	10,920
September.....	4,755	527	110	158	.177	.20	9,430
Water year 1937-38.....	426,920	23,500	91	1,170	1.31	17.82	846,700

## MAYFIELD CREEK BASIN

Mayfield Creek at Lovelaceville, Ky.

Location.- Wire-weight gage, lat. 36°57', long. 88°49', at bridge on U. S. Highway 82, on line of Ballard and Carlisle Counties, 0.8 mile south of Lovelaceville and 3 miles upstream from Wilson Creek.

Drainage area.- 192 square miles.

Records available.- April to September 1938.

Extremes.- Maximum discharge during period, 6,020 second-feet Aug. 1 (gage height, 17.9 feet, from graph based on gage readings); minimum daily discharge, 9.8 second-feet June 15, July 10; minimum gage height, 2.49 feet Sept. 10.  
Maximum stage known, 21.1 feet January 1937 (discharge, 19,800 second-feet, by slope-area method).

Remarks.- Records above 1,500 second-feet good, between 1,500 and 200 second-feet fair, below 200 second-feet poor. Gage read once daily below and twice daily above 10.0 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	17	17	16	5,500	18
2							-	16	99	15	2,710	1,200
3							-	16	43	16	285	86
4							-	16	18	15	178	26
5							-	16	15	14	115	17
6							-	15	15	13	91	14
7							-	15	14	14	725	12
8							-	16	14	27	124	12
9							-	15	14	16	215	11
10							-	14	14	9.8	40	10
11							-	14	28	14	33	1,050
12							-	17	12	16	115	76
13							-	16	9.8	22	33	215
14							-	16	12	15	26	124
15							-	14	12	13	24	25
16							-	14	385	12	34	16
17							-	14	27	12	31	18
18							42	37	70	133	22	16
19							35	16	580	28	20	15
20							29	213	1,500	16	20	15
21							25	49	485	12	19	14
22							24	23	325	13	19	14
23							22	590	37	12	18	14
24							21	980	27	12	17	14
25							21	144	28	12	17	13
26							19	69	23	11	16	13
27							19	30	20	12	16	13
28							19	23	19	12	16	13
29							18	43	19	124	17	12
30							58	33	17	680	107	12
31							-	21	-	4,100	32	-
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....												
November.....												
December.....												
Calendar year .....												
January.....				-	-	-	-	-				
February.....				-	-	-	-	-				
March.....				-	-	-	-	-				
April 18-30.....				352	58	18	27	0.141	0.07			
May.....				2,512	980	14	81	.422	.49			
June.....				3,898.8	1,500	9.8	130	.677	.76			
July.....				5,436.8	4,100	9.8	175	.912	1.05			
August.....				10,635	5,500	16	344	1.79	2.06			
September.....				3,106	1,200	10	103	.536	.60			
Water year .....												



## Castor River at Zalma, Mo.

Location.- Wire-weight gage, lat. 37°08'45", long. 90°04'30", in SE¼ sec. 29, T. 29 N., R. 9 E., at bridge on State Highway 51 in Zalma, 2½ miles downstream from Perkins Creek. Zero of gage is 350.38 feet above mean sea level (general adjustment of 1929).

Drainage area.- 395 square miles.

Records available.- September 1921 to September 1938.

Average discharge.- 17 years, 513 second-feet.

Extremes.- Maximum discharge observed during year, 14,900 second-feet Feb. 19 (gage height, 23.72 feet); minimum observed, 34 second-feet Sept. 23 (gage height, 1.21 feet).

1921-38: Maximum discharge, 40,400 second-feet Jan. 14, 1937, from rating curve extended above 25,000 second-feet; maximum gage height, 28.20 feet Mar. 11, 1935; minimum discharge, 16 second-feet Aug. 31, 1936 (gage height, 0.81 foot).

Remarks.- Records good except those for period of doubtful gage-height record, Oct. 1 to Feb. 9, which are fair. Gage read once daily below 11.0 feet and twice daily above.

Rating table, water year 1937-38 (gage height, in feet, and discharge in second-feet)  
(Shifting-control method used Sept. 17-30)

1.2	34	4.0	374	15.0	3,760
1.6	60	5.0	566	18.0	5,320
2.0	92	7.0	987	20.0	6,400
2.5	145	9.0	1,460	22.0	8,400
3.0	210	10.0	1,720	24.0	16,400
3.5	286	12.0	2,460		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	71	134	286	320	1,190	431	4,210	338	469	183	586	60
2	87	128	270	286	811	412	1,800	270	488	183	286	56
3	79	123	254	270	706	374	1,270	254	374	157	239	56
4	128	118	254	254	626	338	958	239	320	469	198	53
5	164	118	259	239	566	320	747	239	270	356	170	53
6	286	112	224	224	507	303	626	224	239	183	157	53
7	196	112	210	224	450	270	546	270	224	164	140	53
8	140	123	196	210	412	270	686	431	210	151	128	50
9	134	134	183	196	356	270	1,950	356	224	157	118	46
10	112	157	164	196	356	320	1,670	286	224	145	107	50
11	102	183	157	196	356	320	987	270	254	128	102	40
12	102	170	151	183	374	303	811	239	210	118	102	46
13	97	164	151	170	356	326	686	239	210	107	97	46
14	92	145	157	157	431	4,300	606	303	183	102	88	60
15	88	140	164	157	606	4,110	526	254	164	92	118	53
16	88	140	170	151	1,010	4,000	766	239	303	92	123	60
17	83	140	633	151	2,750	2,600	1,890	239	412	97	112	53
18	140	134	3,350	145	7,370	1,480	1,280	239	566	254	107	43
19	393	128	2,320	145	13,300	1,110	892	239	726	431	102	38
20	374	128	1,370	186	7,040	899	747	224	833	224	83	46
21	320	123	785	846	3,270	686	646	210	626	183	79	43
22	270	123	686	1,700	1,770	586	566	196	450	151	75	50
23	239	123	606	1,190	1,330	526	488	356	374	134	71	34
24	196	123	546	1,530	1,090	488	450	1,430	374	123	67	40
25	183	118	507	2,240	862	431	412	1,170	393	112	64	46
26	164	118	431	1,180	653	412	356	877	320	102	60	43
27	157	118	412	863	546	374	320	666	303	97	60	43
28	157	170	393	666	488	513	303	490	270	107	60	46
29	145	239	374	586	-	3,990	286	1,550	239	196	64	46
30	140	254	374	1,260	-	7,070	303	1,170	210	286	64	43
31	134	-	356	1,750	-	4,720	-	606	-	768	60	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	5,041	393	67	163	0.413	0.48	10,000
November.....	4,240	254	112	141	0.357	0.40	8,410
December.....	16,373	3,350	151	528	1.34	1.54	32,480
Calendar year 1937.....	227,598	24,800	21	624	1.58	21.44	451,500
January.....	17,871	2,240	145	576	1.46	1.68	35,450
February.....	49,392	13,300	356	1,764	4.47	4.66	97,950
March.....	42,582	7,070	270	1,373	3.48	4.01	84,400
April.....	27,894	4,210	286	929	2.35	2.62	55,310
May.....	14,113	1,550	196	455	1.15	1.33	27,990
June.....	10,462	833	164	349	0.894	0.99	20,750
July.....	6,052	768	92	195	0.494	0.57	12,000
August.....	3,895	586	60	125	0.316	0.36	7,710
September.....	1,449	60	34	48.3	0.122	0.14	2,870
Water year 1937-38.....	199,304	13,300	34	546	1.38	18.78	395,300

South Fork of Obion River near Greenfield, Tenn.

Location.-- Staff gage, lat. 36°07', long. 88°49', at bridge on U. S. Highway 45E (State Highway 43), 2½ miles south of Greenfield, Weakley County, and 10 miles above confluence with Middle Fork of Obion River.

Drainage area.-- 431 square miles.

Records available.-- July 1929 to September 1938.

Extremes.-- Maximum discharge observed during year, 7,060 second-feet June 2 (gage height, 14.40 feet); minimum observed, 94 second-feet Sept. 8-11; minimum gage height observed, 2.20 feet Oct. 1.

1929-38: Maximum discharge, 25,600 second-feet Jan. 21-22, 1937 (gage height, 17.82 feet, from floodmarks), from rating curve extended above 15,000 second-feet; minimum observed, 94 second-feet Aug. 28 to Sept. 1, Oct. 22, 1938, Sept. 8-10, 1938; minimum gage height observed, 1.5 feet on several days in August and September 1930.

Remarks.-- Records fair. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	116	160	195	1,460	1,640	237	895	142	1,050	105	2,260	113
2	540	160	195	1,140	1,440	265	391	142	5,440	113	2,060	105
3	912	160	195	555	645	377	377	142	2,880	156	1,860	105
4	1,100	160	195	335	455	321	265	154	2,260	113	1,260	97
5	1,150	160	195	307	363	847	237	420	2,260	105	294	97
6	335	160	195	279	307	1,910	237	195	1,820	105	176	97
7	195	160	181	265	293	2,060	363	154	656	105	147	97
8	160	160	167	265	237	2,160	1,460	767	809	101	138	94
9	148	879	167	251	237	2,160	1,440	349	268	101	129	94
10	148	863	160	251	251	1,820	963	174	243	243	129	94
11	142	705	160	265	251	1,460	405	142	186	186	219	97
12	142	377	160	265	237	895	321	142	156	158	639	380
13	142	307	195	265	237	540	265	293	138	138	176	265
14	131	237	279	251	630	349	223	525	129	113	166	129
15	131	206	265	237	1,640	321	209	265	121	105	186	138
16	131	237	349	237	1,250	799	209	167	121	101	189	121
17	391	251	555	237	895	540	209	184	1,010	129	129	105
18	1,520	223	963	237	2,260	349	209	160	656	442	138	105
19	1,760	209	540	223	3,960	480	195	174	953	410	138	105
20	1,050	195	321	279	5,770	705	160	154	1,300	554	121	105
21	405	195	265	1,760	3,960	349	480	237	792	989	121	105
22	307	195	735	2,380	2,060	321	600	349	208	197	113	105
23	265	195	1,440	2,510	1,760	335	293	293	176	176	113	105
24	209	181	963	4,570	1,060	279	209	510	147	138	105	105
25	195	181	510	5,440	435	251	209	209	129	129	105	101
26	181	181	391	3,400	335	321	181	160	138	129	105	101
27	167	181	1,560	2,510	321	735	154	142	219	113	105	101
28	167	251	1,820	1,640	279	480	154	167	121	113	105	97
29	167	307	1,540	799	-	1,720	142	1,140	121	105	105	97
30	160	209	929	1,140	-	1,790	142	912	113	268	147	97
31	160	-	570	1,760	-	1,440	-	265	-	2,380	121	-
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				12,727	1,760	116	411	0.954	1.10			
November.....				8,048	879	160	268	.622	.69			
December.....				16,355	1,820	160	528	1.23	1.42			
Calendar year 1937 .....				302,542	25,000	97	829	1.92	26.13			
January.....				35,513	5,440	223	1,146	2.66	3.07			
February.....				31,188	3,960	237	1,114	2.58	2.69			
March.....				26,616	2,160	237	859	1.99	2.29			
April.....				11,597	1,460	142	387	.898	1.00			
May.....				9,199	1,140	142	297	.689	.79			
June.....				24,620	5,440	113	821	1.90	2.12			
July.....				8,300	2,380	101	268	.622	.72			
August.....				11,739	2,260	105	379	.879	1.01			
September.....				3,547	380	94	118	.274	.31			
Water year 1937-38 .....				199,449	5,440	94	546	1.27	17.21			

## Obion River at Obion, Tenn.

Location.- Chain gage, lat. 36°15', long. 89°12', at toll bridge on U. S. Highway 51 (State Highway 3), a quarter of a mile south of Obion, Obion County, and 7 miles below mouth of North Fork of Obion River. Zero of gage is 261.23 feet above mean Gulf level.

Drainage area.- 1,880 square miles.

Records available.- July 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 17,200 second-feet Feb. 21 (gage height, 17.04 feet); minimum observed, 318 second-feet Sept. 30 (gage height, 0.70 foot).

1929-38: Maximum discharge, 99,500 second-feet Jan. 24, 1937 (gage height, 25.4 feet, from floodmarks); minimum discharge observed, 232 second-feet Sept. 1, 1938 (gage height, -0.04 foot); minimum daily discharge, 15 second-feet Feb. 4, 1937, due to backwater from Mississippi River; reversed flow of 57 second-feet was measured by current meter on that date.

Remarks.- Records poor. Gage read twice daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	453	472	715	4,100	4,750	2,820	7,500	668	*2,020	455	2,520	667
2	565	435	702	3,980	5,250	2,470	6,000	654	*2,030	440	3,460	698
3	1,050	420	654	3,710	4,700	2,230	4,800	652	*2,220	448	9,350	741
4	1,800	410	620	3,540	3,900	2,040	3,530	638	2,470	460	9,350	767
5	2,170	400	*590	3,290	3,620	2,060	3,110	650	3,020	466	7,750	555
6	2,300	410	555	3,040	3,180	1,900	2,770	745	3,320	440	6,640	378
7	2,370	412	*550	2,760	2,900	2,030	2,400	848	7,000	408	4,900	368
8	2,420	426	515	2,470	2,620	2,370	2,270	795	8,500	*380	3,640	357
9	2,400	525	470	2,290	2,390	2,590	2,400	522	7,500	*364	3,190	357
10	2,080	740	445	2,000	2,190	3,150	2,470	992	6,200	*352	2,590	368
11	1,400	1,110	465	1,290	1,910	3,590	2,570	1,010	4,800	*344	2,220	400
12	786	1,600	442	922	1,270	4,700	2,610	880	3,640	*411	1,890	433
13	620	1,730	426	782	1,020	4,500	2,570	738	2,750	613	1,680	594
14	553	1,720	458	728	1,580	4,020	2,480	835	2,060	632	1,450	805
15	520	1,380	504	695	2,340	3,460	2,220	895	1,540	535	1,220	927
16	508	995	638	675	2,640	3,260	1,860	964	1,460	478	1,190	875
17	860	792	862	650	3,320	3,130	1,340	918	1,460	467	1,010	754
18	*1,970	705	1,200	628	5,850	3,240	1,060	992	1,190	1,850	780	613
19	*2,380	665	1,710	620	9,800	3,580	962	1,240	1,820	2,280	632	502
20	*2,520	648	1,920	600	14,100	3,650	922	922	2,140	2,280	698	411
21	2,830	632	1,900	895	16,600	3,390	880	328	2,200	2,130	652	378
22	3,190	615	2,030	2,160	16,400	3,160	856	1,120	2,220	1,850	513	357
23	3,320	580	2,200	2,410	13,200	2,910	922	2,320	2,200	1,640	444	357
24	3,240	545	2,220	2,980	10,000	2,660	955	2,470	2,050	1,290	411	357
25	2,990	528	2,240	7,000	7,700	2,430	932	2,560	1,880	927	389	347
26	2,620	514	2,250	12,000	5,800	2,260	795	2,710	*1,500	698	378	347
27	2,280	532	2,400	*13,000	4,300	2,180	712	2,840	*716	575	368	357
28	1,720	570	2,540	*10,700	3,300	2,280	668	2,660	545	490	378	357
29	925	615	2,740	7,900	-	2,730	635	2,290	520	555	502	328
30	705	660	3,290	6,150	-	3,300	636	1,980	490	927	713	318
31	560	-	3,870	5,100	-	7,300	-	2,060	-	2,220	683	-
Month				Second-foot-days		Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....				54,104		3,320	453	1,745	0.928		1.07	
November.....				27,786		1,730	400	726	.386		.43	
December.....				42,121		3,870	426	1,358	.723		.83	
Calendar year 1937 .....				1,524,334		99,500	15	3,628	1.93		26.23	
January.....				109,065		13,000	600	3,518	1.87		2.16	
February.....				156,530		16,600	1,020	5,590	2.97		3.09	
March.....				95,370		7,300	1,900	3,076	1.64		1.89	
April.....				63,855		7,500	658	2,198	1.13		1.26	
May.....				40,716		2,840	635	1,313	.698		.80	
June.....				81,951		8,500	490	2,732	1.45		1.62	
July.....				27,405		2,280	344	884	.470		.54	
August.....				71,571		9,350	368	2,309	1.23		1.42	
September.....				16,073		927	318	502	.267		.30	
Water year 1937-38 .....				779,527		16,600	318	2,136	1.14		15.41	

\*Gage-height record incomplete; discharge computed on basis of partial gage-height record and records for North Fork of Obion River near Union City, South Fork of Obion River near Greenfield, and Rutherford Fork of Obion River near Bradford.

## Rutherford Fork of Obion River near Bradford, Tenn.

Location.- Chain gage, lat. 36°04', long. 88°54', at bridge on county road, 2 miles below State Highway 54, 5½ miles southwest of Bradford, Gibson County, and 17 miles above confluence with South Fork of Obion River.

Drainage area.- 190 square miles.

Records available.- July 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 4,690 second-feet Feb. 19 (gage height, 17.02 feet); minimum observed, 25 second-feet Aug. 28, Sept. 23-30; minimum gage height observed, 0.95 foot Oct. 1.

1929-38: Maximum discharge observed, 9,730 second-feet Jan. 22, 1937 (gage height, 20.06 feet), from rating curve extended above 5,000 second-feet; minimum observed, 13 second-feet on several days during October 1931 and August 1934; minimum gage height observed, 0.68 foot July 16, 1937.

Remarks.- Records fair. Gage read twice daily.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used June 21 to July 30)

Oct. 1 to Jan. 21				Jan. 22 to June 1				June 2 to Sept. 30			
1.0	34	6.0	850	1.2	28	3.5	297	1.2	14	4.0	312
1.2	44	7.0	1,050	1.4	37	4.0	395	1.4	20	5.0	510
1.4	57	8.0	1,260	1.6	49	5.0	597	1.6	30	6.0	725
1.6	75	9.0	1,500	1.8	64	6.0	810	1.8	40	7.0	950
1.8	100	10.0	1,760	2.0	82	8.0	1,250	2.0	53	8.0	1,200
2.0	130	11.0	2,030	2.2	103	10.0	1,750	2.2	68	10.0	1,740
2.5	210	12.0	2,340	2.5	138	12.0	2,340	2.5	96	12.0	2,340
3.0	295	13.0	2,670	2.8	179	14.0	3,020	2.8	128	14.0	3,020
4.0	475	14.0	3,020	3.0	210	16.0	3,950	3.0	152	16.0	3,950
5.0	660	15.0	3,440					3.5	226		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	32	47	61	622	555	82	226	49	1,750	34	681	34
2	850	47	54	421	278	73	151	49	3,590	32	166	32
3	1,360	47	50	261	179	126	126	43	552	46	77	30
4	945	47	50	170	126	103	103	43	173	46	60	30
5	774	47	57	130	92	1,100	103	335	152	34	53	29
6	261	47	57	114	82	2,370	92	64	68	32	46	28
7	81	47	54	100	92	898	555	179	89	32	43	27
8	57	170	54	87	73	278	1,350	278	86	30	40	28
9	54	641	57	75	64	681	597	62	91	34	37	28
10	47	529	57	70	64	1,620	226	56	159	37	37	28
11	44	278	57	70	64	639	151	49	77	34	37	27
12	42	178	57	81	64	260	103	49	53	37	86	46
13	42	122	54	70	64	166	92	138	43	34	43	50
14	42	94	57	65	103	126	82	210	40	32	37	32
15	42	65	65	61	516	126	73	82	37	30	210	30
16	42	65	100	57	194	475	73	56	34	30	43	29
17	365	65	146	57	639	138	64	49	594	30	32	28
18	2,280	65	227	57	4,210	92	64	49	106	276	210	27
19	926	70	194	57	4,360	316	64	49	128	60	46	27
20	459	65	130	61	1,750	316	73	49	594	68	40	26
21	244	57	81	3,100	416	126	210	49	116	950	34	26
22	227	64	403	3,900	316	114	395	64	60	86	32	26
23	170	50	793	2,880	278	194	128	103	46	128	29	26
24	94	50	439	3,220	179	114	82	395	43	46	30	25
25	70	50	331	1,920	138	82	64	103	37	37	30	25
26	61	50	295	681	126	744	56	64	37	32	29	25
27	61	54	1,600	243	103	1,120	56	49	96	32	27	25
28	57	65	679	126	92	597	49	43	40	30	25	25
29	54	87	439	126	-	2,410	49	179	34	30	28	25
30	50	75	331	766	-	1,300	56	114	34	96	368	25
31	50	-	408	1,490	-	516	-	56	-	2,940	40	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	9,883	2,280	32	319	1.68	1.93
November.....	3,328	641	47	111	.584	.65
December.....	7,432	1,600	50	240	1.26	1.45
Calendar year 1937 .....	141,249	9,210	21	387	2.04	27.63
January.....	21,138	3,900	57	682	3.59	4.14
February.....	15,205	4,360	64	543	2.86	2.98
March.....	17,200	2,410	73	555	2.92	3.37
April.....	5,511	1,360	49	184	.968	1.08
May.....	3,177	395	43	102	.537	.62
June.....	8,938	3,590	34	298	1.57	1.75
July.....	5,395	2,940	30	174	.916	1.06
August.....	2,716	681	25	87.6	.461	.55
September.....	869	50	26	29.0	.153	.17
Water year 1937-38 .....	100,792	4,360	25	276	1.45	19.73

## North Fork of Obion River near Union City, Tenn.

Location.-- Staff gage, lat. 36°24', long. 89°00', 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 1938.

Extremes.-- Maximum discharge during year, 8,480 second-feet Feb. 19 (gage height, 17.4 feet, from floodmarks); minimum discharge observed, 103 second-feet July 9, Sept. 24, 25; minimum gage height observed, 4.75 feet July 9.  
1929-38: Maximum discharge, 49,200 second-feet Jan. 22, 1937 (gage height, 22.0 feet, from floodmarks); minimum discharge observed, 85 second-feet Aug. 10, 1931; minimum gage height observed, 3.4 feet Aug. 27, Sept. 10, 1931.

Remarks.-- Records poor. Gage read once daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	115	135	201	1,210	691	262	453	159	242	108	*2,890	115
2	*190	125	190	*539	469	262	327	152	905	108	*2,610	111
3	*525	115	190	*212	351	262	293	146	469	108	853	111
4	245	115	190	*190	304	262	252	146	*224	108	262	115
5	*256	115	190	*190	272	591	262	159	*159	105	173	115
6	*179	115	190	*190	262	827	272	252	*134	105	152	111
7	146	115	190	*190	262	*573	327	224	*129	105	*134	105
8	146	115	190	*190	242	327	1,300	173	140	105	*134	108
9	146	135	179	190	224	407	1,200	159	124	103	129	105
10	146	179	179	190	224	827	421	152	124	105	*134	111
11	146	223	179	201	233	555	272	152	119	108	173	115
12	146	212	179	201	233	365	224	159	119	206	166	351
13	*146	201	179	201	224	379	215	159	119	166	146	262
14	*146	190	212	201	315	995	215	181	111	124	159	166
15	*146	168	223	201	1,840	537	206	173	134	108	169	129
16	*146	157	267	201	2,250	2,530	197	166	206	105	173	124
17	378	146	352	190	1,120	*3,130	189	159	*206	119	159	115
18	1,020	146	735	190	*6,100	1,340	189	173	*146	1,300	146	119
19	895	135	525	201	*8,480	573	189	224	*1,200	537	124	115
20	466	135	391	201	*7,250	465	181	181	1,120	272	115	115
21	267	135	302	469	2,320	421	181	181	573	159	115	108
22	245	135	267	2,550	755	365	181	631	315	134	115	108
23	*223	146	290	1,740	519	351	173	2,390	*206	124	115	105
24	190	168	314	3,410	393	351	173	2,060	*146	108	115	103
25	179	245	267	3,410	327	315	166	801	124	105	111	103
26	179	223	483	1,090	304	407	166	519	*124	105	111	105
27	158	223	2,770	437	282	485	166	501	*124	108	111	105
28	127	212	2,420	262	272	407	166	315	*115	119	173	105
29	157	201	1,150	293	-	2,530	166	651	*115	485	224	105
30	157	201	391	1,200	-	2,690	166	407	*115	469	173	105
31	146	-	801	2,000	-	879	-	262	-	4,390	124	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	7,787	1,020	115	251	0.512	0.59
November.....	4,866	245	115	162	.351	.37
December.....	14,616	2,770	179	471	.961	1.11
Calendar year 1937 .....	330,083	44,300	97	904	1.84	25.12
January.....	22,140	3,410	190	714	1.46	1.68
February.....	36,498	8,480	224	1,304	2.66	2.77
March.....	24,690	3,130	262	796	1.62	1.87
April.....	8,938	1,300	166	298	.608	.68
May.....	12,177	2,390	146	393	.802	.92
June.....	8,097	1,200	111	270	.551	.61
July.....	10,411	4,390	103	336	.686	.79
August.....	10,508	2,890	111	339	.692	.80
September.....	3,776	351	103	126	.257	.29
Water year 1937-38 .....	164,494	8,480	103	451	.920	12.48

\*Discharge computed on basis of weather records and records for Rutherford Fork of Obion River near Bradford and South Fork of Obion River near Greenfield.

## South Fork of Forked Deer River at Jackson, Tenn.

Location.- Chain gage, lat. 35°36', long. 88°49', at bridge on U. S. Highway 45, 75 feet below mouth of Meridian Creek and 1 mile south of Jackson, Madison County. Zero of gage is 331.14 feet above mean Gulf level.

Drainage area.- 574 square miles.

Records available.- July 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 9,670 second-feet Jan. 24 (gage height, 17.48 feet); minimum observed, 95 second-feet Aug. 27, 28; minimum gage height observed, 2.88 feet Oct. 1.

1929-38: Maximum discharge observed, about 35,800 second-feet Jan. 21, 1935 (gage height, 22.66 feet), from rating curve extended above 15,000 second-feet; minimum observed, 73 second-feet July 1, 1936; minimum gage height observed, 1.58 feet July 9, 1929.

Remarks.- Records fair above and poor below 1,000 second-feet. Gage read twice daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	109	197	242	1,480	1,150	345	2,040	227	1,910	144	571	345
2	242	206	223	731	730	363	1,390	195	2,740	138	876	195
3	925	197	223	525	546	1,120	546	180	648	144	1,180	180
4	475	188	214	451	499	622	417	172	294	180	363	151
5	600	206	214	379	436	499	363	165	260	144	243	138
6	242	214	223	379	417	3,350	311	158	243	132	195	132
7	214	206	206	356	399	906	702	158	243	126	158	132
8	197	214	197	290	363	596	2,900	596	2,650	126	158	132
9	197	925	197	290	345	1,180	1,870	211	758	158	328	126
10	188	550	197	290	345	4,220	1,390	172	1,330	126	144	120
11	188	550	197	356	345	1,970	876	158	816	126	132	195
12	180	379	188	311	328	1,590	499	158	363	132	151	195
13	180	333	214	290	328	846	381	165	277	144	138	188
14	180	311	270	270	345	596	328	227	280	126	115	211
15	172	251	251	270	381	522	294	195	260	120	144	417
16	164	242	290	270	345	477	294	180	277	115	132	165
17	356	290	550	270	345	436	363	172	1,430	115	126	138
18	1,680	251	1,010	251	4,310	436	456	188	456	158	110	126
19	813	251	451	251	4,410	477	417	172	996	758	105	115
20	356	251	427	251	1,490	522	277	180	1,210	1,490	105	110
21	379	251	290	4,850	675	436	1,180	158	675	675	105	110
22	379	223	500	6,380	1,180	417	1,870	846	345	675	105	110
23	311	214	1,900	8,090	846	499	1,240	1,060	260	399	100	110
24	242	206	841	9,410	622	436	436	1,620	243	227	100	110
25	232	223	525	7,210	522	399	345	499	195	172	100	105
26	232	232	311	4,610	499	436	311	345	188	126	100	105
27	232	242	2,150	2,700	399	596	260	294	399	115	95	105
28	223	333	2,260	876	363	622	227	260	195	110	95	105
29	206	290	1,320	596	-	3,420	211	1,430	165	110	596	105
30	206	270	758	571	-	3,000	243	1,300	151	522	2,190	100
31	206	-	704	2,110	-	3,000	-	456	-	1,090	816	-
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile		Run-off in inches		
October.....				10,506	1,680	109	339	0.591		0.68		
November.....				8,696	925	188	290	.505		.56		
December.....				17,543	2,260	188	566	.986		1.14		
Calendar year 1937 .....				298,670	14,800	96	818	1.43		19.35		
January.....				55,364	9,410	251	1,786	3.11		3.59		
February.....				22,963	4,410	328	820	1.43		1.49		
March.....				34,334	4,220	345	1,108	1.93		2.23		
April.....				12,437	2,900	211	748	1.30		1.45		
May.....				12,297	1,620	158	397	.692		.80		
June.....				20,237	2,740	151	675	1.18		1.32		
July.....				8,923	1,490	110	288	.502		.58		
August.....				9,876	2,190	95	319	.556		.64		
September.....				4,576	417	100	153	.267		.30		
Water year 1937-38 .....				227,752	9,410	95	624	1.09		14.78		

## South Fork of Forked Deer River at Chestnut Bluff, Tenn.

Location.- Staff gage, lat. 35°52', long. 89°21', at highway bridge, 1 mile west of Chestnut Bluff, Crockett County, and 12 miles above confluence with North Fork of Forked Deer River. Zero of gage is 256.71 feet above mean Gulf level.

Drainage area.- 1,080 square miles.

Records available.- July 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 12,500 second-feet Jan. 24 (gage height, 18.75 feet); minimum observed, 148 second-feet Sept. 30 (gage height, 9.82 feet).

1929-38: Maximum discharge, 33,300 second-feet Jan. 22, 1935 (gage height, 22.5 feet, from floodmarks), from rating curve extended above 20,000 second-feet; minimum discharge observed, 108 second-feet, Sept. 11, 1934; minimum gage height observed, 3.2 feet Aug. 5-13, 1930.

Remarks.- Records poor. Gage read twice daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	178	272	378	2,920	5,030	590	4,100	430	1,860	308	1,000	1,860
2	255	272	325	2,840	4,260	505	3,960	430	1,790	290	930	1,210
3	1,000	272	308	2,920	3,820	800	3,700	378	1,940	290	930	485
4	1,720	272	308	2,500	2,840	1,490	3,340	325	2,180	342	1,140	342
5	2,660	272	325	1,420	1,840	1,280	2,180	430	1,560	342	545	290
6	2,420	290	325	930	1,070	2,420	1,140	342	740	290	545	238
7	1,790	308	272	800	865	2,750	930	308	505	255	325	220
8	1,000	308	238	685	885	3,700	2,100	412	1,640	258	272	205
9	635	740	238	545	590	4,450	2,660	590	2,180	238	238	190
10	485	1,490	220	485	505	4,820	2,750	360	2,260	238	272	127
11	412	1,490	190	505	505	4,260	3,020	290	1,940	238	220	190
12	378	1,280	187	545	505	4,620	2,920	272	1,070	220	238	205
13	360	930	238	505	465	4,620	2,180	290	590	238	220	545
14	342	685	272	430	545	4,260	1,070	448	412	255	205	360
15	325	545	342	430	685	3,340	800	545	325	238	308	505
16	308	430	342	378	685	1,790	685	342	635	220	308	545
17	325	360	545	378	800	930	635	272	1,490	220	255	342
18	1,940	448	1,140	378	3,570	360	740	360	2,180	255	220	255
19	2,340	412	1,420	360	5,760	930	800	290	2,660	505	190	220
20	2,580	325	865	342	7,900	1,640	635	255	2,500	1,000	184	205
21	2,260	360	590	2,750	7,550	1,350	930	360	2,100	1,490	178	187
22	1,350	325	635	4,620	6,900	740	1,790	800	1,280	1,280	172	178
23	930	290	2,180	9,400	6,020	740	1,940	1,640	685	930	169	175
24	635	272	2,580	12,000	4,430	740	1,790	1,640	505	545	172	166
25	485	272	2,750	11,100	2,840	430	1,000	1,940	465	395	166	163
26	430	290	2,260	10,200	1,490	800	685	1,790	395	325	166	172
27	395	308	2,180	10,200	630	1,490	590	800	378	290	160	178
28	360	325	2,840	9,800	740	1,350	505	485	448	255	154	166
29	325	545	2,920	8,620	-	3,120	448	465	378	238	184	160
30	308	505	3,120	7,900	-	2,920	430	1,720	342	342	1,280	151
31	290	-	3,120	6,900	-	3,570	-	2,020	-	590	1,720	-
<hr/>												
Month				Second-foot-days		Maximum	Minimum	Mean	Per square mile		Run-off in inches	
October.....				29,221		2,660	178	943	0.873		1.01	
November.....				14,893		1,490	272	496	.459		.51	
December.....				33,653		3,120	187	1,086	1.01		1.16	
Calendar year 1937 .....				575,627		26,600	142	1,577	1.46		19.83	
January.....				113,786		12,000	342	3,671	3.40		3.92	
February.....				73,625		7,900	465	2,629	2.43		2.54	
March.....				66,765		4,620	350	2,154	1.99		2.30	
April.....				50,453		4,100	430	1,682	1.56		1.74	
May.....				21,029		2,020	255	878	.828		.72	
June.....				37,453		2,660	325	1,248	1.16		1.29	
July.....				12,900		1,490	220	416	.385		.44	
August.....				13,066		1,720	154	421	.390		.45	
September.....				10,295		1,860	151	343	.318		.35	
Water year 1937-38 .....				477,139		12,000	151	1,307	1.21		16.43	

## Middle Fork of Forked Deer River near Alamo, Tenn.

Location.-- Staff gage, lat. 35°52', long. 89°04", at bridge on State Highway 54, 5 miles north of Alamo, Crockett County, and 15 miles above confluence with North Fork of Forked Deer River.

Drainage area.-- 410 square miles.

Records available.-- July 1929 to September 1938.

Extremes.-- Maximum discharge observed during year, 9,000 second-feet Jan. 22 (gage height, 14.00 feet); minimum observed, 91 second-feet Sept. 5, 9, 28, 29; minimum gage height observed, 1.70 feet Oct. 1, 2.

1928-38: Maximum discharge observed, 19,500 second-feet Jan. 21, 1935 (gage height, 15.46 feet), from rating curve extended above 10,000 second-feet; minimum observed, 68 second-feet June 30, July 1, 1936; minimum gage height observed, 1.26 feet July 1, 11, 17, 1931.

Remarks.-- Records fair. Gage read once daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	116	161	1,800	1,060	224	770	145	550	116	866	145
2	187	123	145	914	842	214	550	138	1,960	116	335	97
3	726	123	145	572	419	550	253	130	1,240	110	178	97
4	866	116	145	550	335	1,010	214	123	962	110	153	97
5	958	116	123	293	356	1,270	196	528	616	116	130	91
6	293	116	123	273	273	3,570	187	153	161	116	123	97
7	196	116	130	243	243	1,830	506	138	462	110	123	97
8	145	196	130	233	214	1,010	1,410	253	1,580	110	123	97
9	138	506	130	196	205	818	1,060	224	704	110	116	91
10	130	594	130	196	196	3,150	748	145	682	110	116	97
11	130	440	123	214	205	1,690	335	130	398	110	116	97
12	123	293	123	214	205	1,170	293	123	314	110	110	97
13	116	196	130	196	196	506	214	123	170	103	110	103
14	116	170	130	196	253	335	196	224	153	103	110	110
15	116	161	130	196	273	293	205	187	145	103	205	103
16	116	153	130	187	273	484	205	170	682	103	153	110
17	377	145	214	187	616	273	178	153	3,570	97	123	110
18	2,280	145	335	178	4,500	224	170	138	1,900	153	110	103
19	1,610	170	293	178	6,900	196	170	138	1,110	187	110	97
20	842	161	196	419	3,150	440	153	153	726	243	116	97
21	356	153	273	4,900	1,610	314	398	145	398	293	110	97
22	335	145	866	9,000	660	243	506	153	205	138	110	97
23	253	145	1,220	6,900	660	704	335	205	161	178	110	97
24	178	145	866	6,150	484	314	253	704	145	123	110	97
25	161	138	594	4,200	335	224	170	550	138	110	103	97
26	153	130	704	2,080	214	550	153	170	123	110	103	97
27	145	170	1,720	1,110	273	1,040	138	138	116	110	110	97
28	130	293	1,830	462	243	986	130	110	116	110	103	91
29	130	224	1,440	335	-	3,450	123	110	123	110	224	91
30	130	196	890	778	-	2,210	123	293	123	419	1,220	97
31	123	-	550	378	-	1,220	-	170	-	2,670	638	-
Month	Second-foot-days		Maximum		Minimum		Mean		Per square mile		Run-off in inches	
October.....	11,642		2,280		103		376		0.917		1.06	
November.....	5,895		594		116		196		.478		.53	
December.....	14,119		1,830		123		455		1.11		1.28	
Calendar year 1937 .....	243,119		15,000		91		666		1.62		22.06	
January.....	43,697		9,000		178		1,410		3.44		3.96	
February.....	25,193		6,900		196		900		2.20		2.29	
March.....	30,512		3,570		196		984		2.40		2.77	
April.....	10,342		1,410		123		345		.941		.94	
May.....	6,254		704		110		202		.493		.57	
June.....	18,333		3,570		116		644		1.57		1.76	
July.....	6,807		2,670		97		220		.537		.62	
August.....	6,467		1,220		103		209		.510		.59	
September.....	2,991		145		91		99.7		.243		.27	
Water year 1937-38 .....	183,262		9,000		91		502		1.22		16.63	



## Hatchie River at Bolivar, Tenn.

Location.- Staff gage, lat. 35°16', long. 88°59', at bridge on State Highway 18, 250 feet upstream from Illinois Central Railroad bridge, 2,000 feet below mouth of Spring Creek, and 1 mile north of Bolivar, Hardeman County. Zero of gage is 323.86 feet above mean Gulf level.

Drainage area.- 1,430 square miles.

Records available.- July 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 12,900 second-feet Jan. 27 (gage height, 15.95 feet); minimum observed, 165 second-feet Aug. 28, 29; minimum gage height observed, 1.98 feet Sept. 30.  
1929-38: Maximum discharge observed, 43,400 second-feet Jan. 20, 1935 (gage height, 20.00 feet); minimum observed, 114 second-feet Sept. 1, 1936 (gage height, 1.08 feet).

Remarks.- Records good except those above 800 second-feet during the period May 22 to September 30 which are fair. Gage read twice daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	228	423	1,170	2,980	7,300	1,900	4,640	2,570	1,850	826	1,070	826
2	318	408	990	2,980	6,980	1,490	4,440	1,950	2,300	650	1,360	1,070
3	766	393	782	2,880	6,380	1,280	4,640	1,410	2,470	538	1,770	986
4	1,400	393	702	2,780	5,820	1,220	4,640	1,080	2,680	618	1,900	730
5	1,750	408	670	2,690	5,560	1,450	4,440	874	2,680	810	1,510	474
6	1,590	408	686	2,360	5,080	2,170	4,060	810	2,570	730	938	315
7	1,210	408	686	1,830	4,640	2,470	3,710	1,030	2,300	554	588	255
8	782	438	654	1,520	4,240	2,680	4,440	1,080	2,050	428	490	225
9	513	702	574	1,450	3,710	3,220	5,080	1,000	1,900	378	428	210
10	408	974	528	1,340	2,800	5,080	5,080	890	2,000	362	410	225
11	363	1,400	498	1,210	1,900	5,320	6,680	762	2,230	362	378	255
12	348	1,410	483	1,130	1,470	5,080	8,380	634	2,470	362	426	255
13	333	1,210	513	1,120	1,250	5,320	8,000	586	2,680	346	410	270
14	333	1,070	558	1,090	1,130	6,100	6,980	586	2,680	362	410	300
15	318	910	622	990	1,100	6,580	6,100	570	2,580	410	442	394
16	303	782	670	926	1,070	6,100	5,320	538	1,850	602	378	315
17	363	702	686	878	1,030	5,820	5,080	508	2,230	938	362	315
18	878	670	846	846	1,270	5,080	4,640	490	2,630	986	330	300
19	1,010	702	1,150	830	2,050	4,640	4,240	538	3,710	1,000	300	255
20	1,200	702	1,150	798	2,800	4,240	4,240	668	4,240	1,640	255	225
21	1,100	670	1,020	1,310	3,070	3,540	5,320	602	5,080	2,380	225	210
22	878	654	890	5,820	3,380	2,800	5,820	842	4,060	2,800	210	195
23	686	608	1,090	7,640	3,540	2,470	5,580	1,450	3,540	2,570	195	188
24	590	558	1,340	10,100	3,380	1,950	5,820	1,950	3,220	2,050	195	188
25	558	543	1,560	10,600	3,220	1,700	5,820	2,300	2,930	1,640	188	180
26	513	543	1,650	12,300	3,070	1,410	5,820	2,300	2,170	1,200	180	180
27	483	543	1,790	12,300	2,800	1,240	5,560	1,770	1,610	842	172	188
28	483	606	2,060	11,200	2,380	1,180	5,080	1,220	1,450	554	165	180
29	528	750	2,440	9,660	-	1,810	4,640	1,000	1,400	554	225	172
30	498	1,090	2,690	8,380	-	3,710	4,060	1,150	1,130	778	300	172
31	453	-	2,780	8,000	-	4,640	-	1,360	-	1,030	506	-
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches			
October.....				21,184	1,750	228	683	0.478	0.55			
November.....				21,076	1,410	393	703	.492	.55			
December.....				33,928	2,780	483	1,094	.765	.88			
Calendar year 1937 .....				710,891	25,000	185	1,948	1.36	18.50			
January.....				129,918	12,300	798	4,191	2.93	3.36			
February.....				92,420	7,300	1,030	3,301	2.31	2.40			
March.....				103,500	6,380	1,180	3,339	2.33	2.69			
April.....				158,330	8,380	3,710	5,278	3.69	4.12			
May.....				54,614	2,570	490	1,113	.778	.90			
June.....				76,790	5,080	1,130	2,560	1.79	2.00			
July.....				29,298	2,800	546	945	.661	.76			
August.....				16,712	1,900	165	539	.377	.43			
September.....				10,053	1,070	172	335	.234	.26			
Water year 1937-38 .....				727,723	12,300	185	1,994	1.39	18.92			

## HATCHIE RIVER BASIN

Hatchie River near Stanton, Tenn.

Location.- Staff gage, lat. 35°31', long. 89°21', at bridge on U. S. Highway 70, 1 mile below Nashville, Chattanooga & St. Louis Railway bridge, 4 miles north of Stanton, Haywood County, and 4 miles above mouth of Muddy Creek. Zero of gage is 287.34 feet above mean Gulf level.

Drainage area.- 1,940 square miles.

Records available.- July 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 13,000 second-feet Jan. 31 (gage height, 16.30 feet); minimum observed, 333 second-feet Sept. 26-30; minimum gage height observed, 2.46 feet Sept. 30.  
1929-38: Maximum discharge observed, 59,000 second-feet Jan. 22, 1935 (gage height, 20.35 feet); minimum observed, 278 second-feet Sept. 1, 1936 (gage height, 1.66 feet).

Remarks.- Records good. Gage read twice daily.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet) (Shifting-control method used Sept. 5-15)

Oct. 1 to Jan. 31					Feb. 1 to Sept. 30						
2.5	395	7.0	1,140	14.5	4,270	2.4	319	9.0	1,550	14.5	4,750
3.0	460	9.0	1,550	15.0	5,400	3.0	405	10.0	1,850	15.0	5,900
3.5	525	11.0	2,060	15.5	7,400	4.0	573	11.0	2,230	15.5	8,150
4.0	595	12.0	2,430	16.0	10,600	5.0	750	12.0	2,700	16.0	11,200
4.5	672	13.0	2,990	16.5	14,700	6.0	933	13.0	3,240	16.5	14,900
5.0	760	14.0	3,700			7.0	1,120	13.5	3,610		
						8.0	1,320	14.0	4,100		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	421	625	779	2,430	11,900	3,530	3,890	5,600	2,070	2,700	971	766
2	421	610	821	2,640	10,600	3,530	3,890	5,120	2,070	2,230	1,050	804
3	525	595	1,060	2,700	9,300	3,450	4,100	4,750	2,600	1,610	1,240	840
4	625	567	1,120	2,700	8,150	3,380	4,600	4,330	2,700	1,220	1,520	876
5	912	567	1,060	2,700	7,600	3,240	4,750	3,990	2,700	1,010	1,640	971
6	1,140	553	950	2,750	7,100	3,790	4,600	3,530	2,600	914	1,760	933
7	1,300	553	874	2,810	6,650	3,690	4,600	2,950	2,550	914	1,790	786
8	1,380	567	836	2,810	5,900	3,680	4,920	2,070	2,600	914	1,640	642
9	1,400	640	817	2,810	5,600	3,000	6,250	1,450	2,900	840	1,260	556
10	1,220	724	779	2,750	5,350	3,700	5,900	1,320	2,950	768	933	468
11	950	912	742	2,700	4,920	4,460	5,600	1,280	3,000	678	750	454
12	742	1,120	689	2,430	4,750	4,350	5,120	1,220	2,950	624	678	454
13	625	1,280	672	2,120	4,460	4,920	5,120	1,140	2,800	607	642	696
14	567	1,420	656	1,850	4,100	5,600	5,600	1,140	2,600	607	642	642
15	539	1,420	672	1,700	3,790	5,600	8,160	1,160	2,400	573	642	642
16	512	1,340	706	1,380	3,380	5,350	8,700	1,010	2,400	573	750	678
17	512	1,240	742	1,280	2,850	5,600	7,600	914	2,600	590	732	607
18	912	1,100	779	1,200	3,060	6,250	7,100	858	2,850	678	660	522
19	1,260	988	836	1,120	7,100	7,100	6,250	822	3,120	1,120	573	498
20	1,360	912	912	1,060	5,350	6,650	5,900	786	3,530	1,080	539	454
21	1,340	874	1,040	2,060	4,600	5,900	5,600	858	4,460	1,160	505	421
22	1,260	855	1,180	4,640	4,330	5,350	5,350	1,030	4,600	1,340	471	390
23	1,280	836	1,400	7,400	4,100	5,350	5,900	1,200	4,460	1,460	454	375
24	1,080	798	1,140	6,450	3,790	4,920	5,900	2,150	4,330	1,640	421	361
25	1,030	779	874	9,900	3,630	4,460	6,250	2,500	4,330	1,790	405	347
26	874	760	1,480	11,400	3,450	4,100	5,900	2,190	4,100	1,910	390	347
27	779	724	1,800	11,400	3,530	3,890	5,600	2,070	3,890	2,030	375	333
28	724	706	2,060	10,600	3,530	3,700	5,600	2,070	3,700	2,070	361	333
29	656	706	2,300	12,200	-	3,890	5,600	2,150	3,450	1,730	361	333
30	640	742	2,300	12,200	-	4,600	5,600	2,350	3,180	1,220	556	333
31	640	-	2,260	13,000	-	4,100	-	2,350	-	1,030	804	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	27,626	1,400	421	891	0.459	0.53
November.....	25,513	1,420	553	860	.458	.49
December.....	34,446	2,300	656	1,111	.573	.66
Calendar year 1937.....	1,035,150	42,900	356	2,836	1.46	19.87
January.....	145,190	13,000	1,060	4,684	2.41	2.78
February.....	159,770	11,900	2,850	5,456	2.81	2.93
March.....	141,010	7,100	3,000	4,549	2.34	2.70
April.....	189,940	8,700	3,890	5,665	2.92	3.26
May.....	66,358	5,600	786	2,141	1.10	1.27
June.....	94,490	4,600	2,070	3,150	1.62	1.81
July.....	37,620	2,700	573	1,214	.626	.72
August.....	25,515	1,790	361	823	.424	.49
September.....	16,892	971	333	563	.290	.32
Water year 1937-38.....	937,370	13,000	333	2,566	1.32	17.96

## Wolf River at Rossville, Tenn.

Location.- Chain gage, lat. 35°04', long. 89°33', at county highway bridge, half a mile north of Rossville, Fayette County, and 8 miles downstream from Moscow and mouth of North Fork of Wolf River.

Drainage area.- 531 square miles.

Records available.- July 1929 to September 1938.

Extremes.- Maximum discharge observed during year, 7,590 second-feet Jan. 24 (gage height, 10.20 feet); minimum observed, 147 second-feet Sept. 4-10, 22, 23, 25-30; minimum gage height observed, 3.48 feet Oct. 1.  
1929-38: Maximum discharge, about 31,000 second-feet Jan. 20, 1935 (gage height, 13.75 feet, from floodmarks), from rating curve extended above 2,000 second-feet; minimum discharge observed, 125 second-feet Oct. 1-27, 1931; minimum gage height observed, 2.24 feet Aug. 12-14, 1930.

Remarks.- Records good. Probably slight regulation during low-water periods caused by operation of mill dam at Moscow. Gage read twice daily.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Nov. 15 to Jan. 20)

Oct. 1 to Jan. 22				Jan. 23 to Sept. 30			
3.4	139	7.4	765	3.6	147	8.0	1,100
4.0	194	7.8	960	4.0	193	8.2	1,280
4.5	246	8.0	1,090	5.0	323	8.5	1,750
5.5	366	8.2	1,300	6.0	465	8.8	2,650
6.0	430	8.5	1,800	6.8	610	9.5	5,100
6.5	510	8.8	2,500	7.5	820	10.2	7,590
7.0	630						

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	148	204	224	750	900	309	3,700	269	1,230	243	337	169
2	166	194	214	765	820	295	1,890	269	1,100	217	351	169
3	235	194	204	602	820	309	1,230	256	1,100	205	295	*158
4	282	194	214	475	860	309	740	243	1,400	193	269	147
5	342	194	224	430	820	351	421	230	1,100	193	323	147
6	354	194	214	378	512	784	337	217	530	193	295	147
7	342	194	204	306	392	960	435	217	309	*181	217	147
8	270	258	214	258	392	960	1,480	230	269	181	193	147
9	204	194	246	323	1,190	3,890	217	269	181	193	147	147
10	175	391	194	246	309	4,750	4,750	205	365	169	181	147
11	175	404	175	235	295	4,750	2,300	205	421	181	193	*158
12	166	430	175	235	295	4,050	1,400	205	407	181	217	169
13	166	459	184	224	282	2,480	960	217	465	169	193	181
14	166	459	194	224	282	1,340	568	230	588	169	181	205
15	167	444	194	224	295	900	379	217	512	169	193	256
16	167	306	214	214	282	548	365	217	309	169	205	217
17	204	246	224	204	295	860	960	217	960	169	193	193
18	378	224	235	204	960	351	1,550	217	1,230	181	193	169
19	330	214	224	204	3,000	351	1,880	217	1,100	193	181	169
20	318	214	224	204	2,300	407	4,750	243	1,280	480	169	*158
21	342	214	235	552	1,550	393	3,700	230	3,350	710	169	158
22	354	204	235	2,100	1,340	407	3,000	230	3,000	860	158	147
23	330	204	306	6,500	1,230	393	1,750	407	2,650	1,020	158	147
24	258	194	306	7,220	960	379	1,180	435	2,000	1,280	158	158
25	214	194	306	5,450	656	450	960	351	1,180	1,180	158	147
26	214	194	354	4,050	496	530	1,020	365	568	450	158	147
27	204	194	630	2,480	406	450	710	323	435	243	158	147
28	194	214	730	1,550	351	548	407	230	337	205	158	147
29	204	214	660	1,100	-	1,750	309	230	323	351	158	147
30	214	214	602	780	-	3,350	282	512	295	632	158	147
31	*214	-	630	860	-	5,450	-	1,180	-	323	169	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off in inches
October.....	7,477	378	148	241	0.454	0.52
November.....	7,861	459	194	262	.493	.55
December.....	9,137	730	175	295	.566	.64
Calendar year 1937.....	233,111	11,400	139	639	1.20	16.34
January.....	39,250	7,220	204	1,266	2.38	2.75
February.....	21,425	3,000	282	755	1.44	1.50
March.....	40,244	5,450	295	1,298	2.44	2.82
April.....	47,283	4,750	282	1,576	2.97	3.31
May.....	9,031	1,180	205	291	.548	.63
June.....	29,082	3,350	269	969	1.82	2.04
July.....	11,271	1,280	169	364	.685	.79
August.....	6,332	351	158	204	.384	.44
September.....	4,892	256	147	163	.307	.34
Water year 1937-38.....	233,283	7,220	147	639	1.20	16.33

\*Gage height missing; discharge computed from gage height determined on basis of graph plotted through gage heights for preceding and following days.

## ST. FRANCIS RIVER BASIN

St. Francis River near Patterson, Mo.

Location.- Wire-weight gage, lat. 37°11'40", long. 90°30'10", in N $\frac{1}{2}$  sec. 16, T. 29 N., R. 5 E., at bridge on State Highway 34, one mile upstream from Clark Creek and 3 miles east of Patterson. Zero of gage is 372.45 feet above mean sea level (general adjustment of 1929).

Drainage area.- 956 square miles.

Records available.- June 1921 to September 1938.

Average discharge.- 17 years, 1,140 second-feet.

Extremes.- Maximum discharge during year, 37,300 second-feet Feb. 18 (gage height, 20.65 feet, from graph based on gage readings); minimum discharge observed, 28 second-feet Sept. 2 (gage height, 0.12 foot).

1921-38: Maximum discharge, 79,200 second-feet Mar. 11, 1935 (gage height, 28.70 feet) from rating curve extended above 55,000 second-feet; minimum, 8 second-feet Aug. 30 to Sept. 1, 1936; minimum gage height, that of Sept. 2, 1938.

Maximum stage known, 31.8 feet in August 1915, from floodmarks (discharge, 100,000 second-feet, estimated).

Remarks.- Records good. Gage read once daily below 10.0 feet and twice daily above.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Oct. 1-3)

0.1	26	1.0	151	2.5	542	6.0	2,570	12.0	11,700
.3	43	1.2	168	3.0	759	7.0	3,540	15.0	19,200
.5	63	1.5	233	4.0	1,260	8.0	4,710	20.0	35,000
.8	100	2.0	367	5.0	1,830	10.0	7,750		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	123	466	448	2,320	853	9,280	582	713	199	352	30
2	43	131	431	414	1,480	759	3,330	582	624	178	257	28
3	43	131	131	398	1,370	713	2,260	466	503	168	199	49
4	668	115	123	352	1,160	668	1,710	414	448	257	168	47
5	1,830	115	309	337	1,050	624	1,420	367	352	188	131	45
6	582	108	270	323	901	806	1,210	352	309	149	115	44
7	337	337	257	286	853	759	1,100	367	296	158	99	44
8	248	233	245	232	759	624	1,810	1,420	262	168	93	41
9	199	140	210	270	713	582	7,090	713	282	188	99	40
10	156	149	199	282	668	668	3,130	448	296	131	86	39
11	140	178	188	245	901	853	2,030	398	352	115	76	38
12	140	168	199	233	1,260	853	1,590	352	270	100	67	38
13	131	178	188	222	1,050	1,330	1,310	431	257	94	61	39
14	123	168	188	222	950	5,800	1,100	901	245	87	54	38
15	115	168	178	222	1,210	6,580	1,000	668	210	79	48	42
16	108	149	227	309	2,080	16,200	4,380	503	233	74	90	39
17	131	140	6,960	199	12,100	4,630	6,160	466	503	89	74	38
18	210	131	12,500	199	34,700	2,250	2,980	448	503	398	70	39
19	282	149	4,120	188	20,200	1,890	1,830	624	1,710	1,310	66	36
20	352	140	2,100	310	8,220	1,480	1,480	624	1,830	542	64	34
21	448	131	1,480	5,280	3,820	1,280	1,210	624	1,050	323	56	33
22	309	123	1,210	2,780	2,650	1,050	1,050	582	713	245	53	34
23	270	123	1,050	2,250	2,030	950	950	6,720	542	210	49	35
24	222	123	853	4,860	1,710	901	759	12,900	431	168	46	34
25	210	131	759	8,360	1,420	806	668	3,500	466	149	38	34
26	199	123	668	3,100	1,260	759	582	1,960	431	131	35	34
27	168	131	624	1,770	1,100	668	503	1,420	337	115	33	34
28	149	323	582	1,310	950	1,000	466	2,100	282	414	32	33
29	140	382	542	1,050	-	17,100	431	1,590	257	1,000	31	32
30	131	503	503	1,680	-	11,900	582	1,260	222	352	35	32
31	108	-	466	3,760	-	20,400	-	901	-	503	50	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	8,236	1,830	43	266	0.278	0.32	16,340
November.....	5,234	503	108	174	.182	.20	10,380
December.....	38,226	12,500	123	1,233	1.29	1.49	75,820
Calendar year 1937.....	500,026	36,100	21	1,370	1.43	19.47	991,800
January.....	41,951	8,360	188	1,363	1.42	1.64	83,210
February.....	108,895	34,700	668	3,889	4.07	4.24	216,000
March.....	105,716	20,400	582	3,410	3.57	4.12	209,700
April.....	63,391	9,280	431	2,113	2.21	2.47	125,700
May.....	44,683	12,900	352	1,441	1.51	1.74	86,630
June.....	14,949	1,830	210	498	.821	.58	29,650
July.....	8,302	1,310	74	268	.280	.32	16,470
August.....	2,707	352	30	87.3	.091	.10	6,370
September.....	1,123	49	28	37.4	.039	.04	2,530
Water year 1937-38.....	443,413	34,700	28	1,215	1.27	17.26	879,500

\*Gage height missing; discharge estimated.

## St. Francis River at Fisk, Mo.

Location.- Wire-weight gage, lat. 36°46'50", long. 90°12'10", in SW $\frac{1}{4}$  sec. 28, T. 25 N., R. 8 E., at bridge on U. S. Highway 60 at Fisk and 6 miles upstream from Mingo ditch 15. Zero of gage is 307.46 feet (revised) above mean sea level (general adjustment of 1929).

Drainage area.- 1,370 square miles (not including that of Mingo Creek, drainage from which is diverted by ditches that empty into St. Francis River 6 miles downstream from Fisk).

Records available.- October 1927 to September 1938.

Average discharge.- 11 years, 1,422 second-feet.

Extremes.- 1927-38: Maximum discharge, about 50,000 second-feet as measured by Corps of Engineers, U. S. Army (discharge in river channel at Fisk plus overflow between Fisk and Dudley, including drainage of an additional local area of about 186 square miles), sometime during flood of March 1935, when levee on left bank broke in many places between Wappapello and Fisk; maximum gage height, 26.89 feet May 15, 1933, from flood-mark; minimum discharge, 94 second-feet Aug. 22-28, 30, 31, Sept. 1, 1936; minimum gage height, 1.24 feet Aug. 27, 28, 1936.

Remarks.- Records good. Gage read twice daily during period Oct. 1 to June 22; once daily thereafter. Discharge for Feb. 20-22, Apr. 2 does not include that part of the flow through levee breaks on left bank between Wappapello and Fisk that was carried by Mingo ditch 15 and two other channels between this ditch and Dudley.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	102	256	501	935	3,430	2,470	10,900	1,130	1,730	546	1,200	159
2	102	247	577	897	3,580	2,280	11,900	1,110	1,640	487	935	159
3	115	238	609	783	3,130	2,030	10,900	1,090	1,530	421	676	159
4	122	229	593	728	2,590	1,840	7,800	1,050	1,240	354	609	159
5	122	229	546	659	2,310	1,710	5,370	994	1,030	360	546	159
6	231	229	516	609	2,050	1,580	3,860	935	728	338	487	159
7	897	473	473	577	1,980	1,490	3,200	783	593	372	408	152
8	783	238	447	561	1,730	1,470	2,980	710	593	338	316	152
9	593	247	408	516	1,580	1,450	3,350	710	531	396	285	152
10	421	256	384	473	1,430	1,400	4,570	878	501	408	265	145
11	338	265	349	447	1,280	1,510	5,000	935	916	349	265	145
12	285	285	327	434	1,200	1,490	4,200	821	1,010	305	256	145
13	256	295	316	421	1,400	1,510	3,280	676	802	285	247	145
14	238	305	305	408	1,530	1,700	2,840	676	593	256	238	145
15	220	295	295	384	1,660	2,970	2,560	764	421	238	238	145
16	212	295	295	372	2,050	4,620	2,340	897	516	229	229	138
17	204	285	316	360	2,800	6,560	3,280	897	693	220	220	138
18	396	265	1,400	349	5,320	7,500	5,220	821	1,321	220	220	138
19	501	256	4,300	338	8,200	6,800	5,600	783	1,660	338	212	138
20	593	256	5,830	327	14,100	5,070	4,360	746	1,750	783	212	138
21	577	256	5,070	349	17,100	3,770	3,390	728	2,000	1,240	204	132
22	546	247	3,810	1,230	12,900	3,080	2,740	821	1,820	1,070	204	132
23	531	238	3,080	3,450	9,400	2,710	2,390	878	1,690	840	196	132
24	487	238	2,460	3,950	6,370	2,390	2,100	2,160	1,400	659	188	132
25	421	229	2,080	4,380	4,680	2,120	1,860	4,770	1,130	516	180	132
26	372	229	1,820	6,520	3,640	1,910	1,730	6,140	1,060	327	180	126
27	338	229	1,490	6,070	3,120	1,600	1,580	5,000	916	285	173	132
28	316	229	1,280	4,820	2,710	1,640	1,400	3,640	783	305	166	132
29	295	238	1,300	3,440	-	2,500	1,260	2,910	659	338	166	126
30	276	275	1,190	2,830	-	5,810	1,200	2,620	593	625	159	126
31	265	-	1,040	2,830	-	9,400	-	2,080	-	935	159	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	11,154	897	102	360	0.263	0.30	22,120
November.....	7,608	305	229	254	.185	.21	15,090
December.....	43,367	5,830	295	1,399	1.02	1.18	86,020
Calendar year 1937.....	636,433	29,200	96	1,744	1.27	17.28	1,262,000
January.....	50,447	6,520	327	1,627	1.19	1.37	100,100
February.....	123,180	17,100	1,200	4,399	3.21	3.34	244,300
March.....	94,580	9,400	1,400	3,051	2.23	2.57	187,600
April.....	123,160	11,900	1,200	4,105	3.00	3.35	244,300
May.....	49,153	6,140	676	1,586	1.16	1.34	97,490
June.....	31,839	2,000	421	1,061	.774	.86	63,150
July.....	14,413	1,240	220	465	.339	.39	28,590
August.....	10,059	1,200	159	324	.236	.27	19,910
September.....	4,272	159	126	142	.104	.12	8,470
Water year 1937-38.....	563,212	17,100	102	1,543	1.13	15.30	1,117,000

## St. Francis River at Marked Tree, Ark.

Location.— Water-stage recorder, lat. 35°31'58", long. 90°25'25", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 35, T. 11 N., R. 6 E., at Marked Tree, 4.8 miles (revised) downstream from Little River, and 7 miles downstream from dam of Pinsett County Drainage District No. 7. Auxiliary wire-weight gage, used in determining slope, lat. 35°32'18", long. 90°25'30", near center of NW $\frac{1}{4}$  sec. 35, 3 miles upstream from recording gage. Zero of gages is 196.44 feet above mean sea level (U. S. Weather Bureau benchmark).

Records available.— February 1918 and September 1927 to May 1931 (miscellaneous measurements only), July 1934 to September 1938.

Extremes.— Maximum discharge during year, 4,380 second-feet May 8; maximum gage height, 9.39 feet May 9 (caused by break in levee 7 miles upstream); minimum discharge, 94 second-feet Sept. 29 (gage height, 0.10 foot), caused by regulation.  
1934-38: Maximum discharge, 7,120 second-feet Feb. 6, 7, 1937; minimum, that of Sept. 29, 1938.

Remarks.— Records good. Gage-height record collected in cooperation with U. S. Weather Bureau. Discharge determined by slope method. Flood flows diverted through St. Francis River floodway 7 miles north of station, at dam of Pinsett County Drainage District No. 7 and bypassed to vicinity of Parkin, Ark. Low flows regulated at times by operation of gates at dam.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	276	460	430	806	1,170	1,810	1,400	533	2,920	381	206	250
2	284	448	430	778	1,160	1,810	1,330	520	2,820	362	207	248
3	318	440	418	778	1,110	1,750	1,250	498	2,800	351	211	250
4	315	428	423	753	1,060	1,730	1,170	487	2,840	335	211	268
5	346	423	423	753	1,050	1,630	1,100	481	2,870	324	211	278
6	366	420	407	728	948	1,610	1,030	469	2,850	313	216	278
7	379	420	407	702	920	1,440	996	1,690	2,660	302	226	279
8	375	423	394	685	905	1,360	996	4,240	2,500	302	224	278
9	362	411	394	652	889	1,340	1,070	4,290	2,060	290	224	276
10	358	547	382	642	812	1,400	1,090	4,050	1,030	280	222	241
11	347	598	375	610	796	1,360	1,100	3,790	595	260	217	125
12	347	585	375	599	768	1,270	1,100	3,560	506	265	207	115
13	335	598	363	581	753	1,290	1,070	3,600	475	260	201	112
14	323	598	507	562	728	1,180	1,070	3,530	453	252	211	120
15	323	572	521	545	728	1,120	1,010	2,920	436	243	222	113
16	311	546	504	545	778	1,060	1,000	2,490	434	239	211	110
17	343	534	406	528	861	947	949	2,820	430	230	198	108
18	402	523	406	504	1,540	893	911	3,280	424	238	196	107
19	451	499	423	504	1,900	860	861	3,300	590	242	194	104
20	532	505	458	493	1,840	823	824	2,970	554	242	188	102
21	593	498	469	751	1,870	806	788	3,090	526	238	184	102
22	581	486	499	1,120	1,940	778	765	3,150	527	231	180	102
23	564	480	579	1,160	1,890	771	738	3,370	504	227	316	102
24	559	462	609	1,210	1,860	737	754	3,370	481	221	341	101
25	563	457	622	1,250	1,880	702	705	3,240	468	217	338	100
26	540	450	649	1,420	1,890	695	675	3,210	447	211	325	99
27	523	450	690	1,430	1,850	702	635	3,150	428	207	328	98
28	504	450	715	1,300	1,850	778	587	3,090	465	200	328	96
29	491	443	765	1,140	-	1,250	560	3,090	413	194	297	97
30	485	443	765	1,090	-	1,320	544	3,150	393	194	284	96
31	473	-	758	1,180	-	1,410	-	3,030	-	211	252	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						12,959	593	276	418	25,700		
November.....						14,597	598	411	487	28,950		
December.....						15,586	765	375	503	30,910		
Calendar year 1937.....						402,827	7,120	169	1,104	799,000		
January.....						25,799	1,430	493	832	51,170		
February.....						35,746	1,940	728	1,277	70,800		
March.....						36,622	1,810	696	1,151	72,640		
April.....						28,078	1,400	544	936	55,690		
May.....						84,458	4,290	469	2,724	167,500		
June.....						34,889	2,920	393	1,163	69,200		
July.....						8,082	381	194	261	16,030		
August.....						7,375	341	180	238	14,630		
September.....						4,755	279	96	158	9,430		
Water year 1937-38.....						308,946	4,290	96	846	612,800		

## St. Francis River floodway near Marked Tree, Ark.

Location.- Staff gage, lat. 35°36', long. 90°27', in SE¼ sec. 10, T. 11 N., R. 6 E., at dam of Poinsett County Drainage District 7, 3 miles north of Marked Tree. Zero of gage is 198.71 feet above Memphis datum and 192.08 feet above mean sea level (Morgan Engineering Co. benchmark).

Records available.- September 1927 to September 1931, July 1934 to September 1938.

Extremes.- Maximum discharge observed during year, 22,200 second-feet Mar. 2-4 (gage height, 27.4 feet); minimum observed, 25 second-feet May 29-30 (gage height, 18.6 feet).

1927-31, 1934-38: Maximum discharge observed, 48,300 second-feet Jan. 26-28, 1937; no flow at times during each year of period 1934-37.

Remarks.- Records good. Gage-height record furnished by Poinsett County Drainage District 7. Records show water diverted out of St. Francis River and bypassing Marked Tree; water returned to St. Francis River immediately below Parkin, Ark. Gage read twice daily.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet) (Shifting-control method used Dec. 29 to Jan. 2. May 7 to June 9)

Oct. 1 to Jan. 2				Jan. 3 to Sept. 30			
20.0	1,060	18.7	25	19.4	475	23.0	5,110
21.0	1,960	18.8	45	19.6	700	23.5	6,500
22.0	3,060	18.9	80	20.0	1,180	24.0	8,250
22.5	3,720	19.0	150	21.0	2,300	25.0	12,170
23.0	4,640	19.1	195	22.0	3,445	26.0	16,220
23.5	5,960	19.2	275	22.5	4,150	28.0	25,010
24.0	7,700						

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,670	3,440	2,060	7,300	7,880	21,600	11,800	7,520	130	3,080	1,750	820
2	1,760	3,300	2,060	8,100	8,620	22,200	13,000	6,830	370	3,080	1,750	700
3	2,060	3,180	2,060	8,620	10,200	22,200	13,000	6,500	700	2,960	1,970	820
4	2,160	3,080	2,060	8,620	10,600	22,200	13,400	5,890	940	2,850	2,300	700
5	2,160	2,940	2,060	8,620	11,000	21,800	13,800	5,610	1,180	2,630	2,630	700
6	2,160	2,820	1,960	8,620	11,400	20,900	14,600	5,350	1,520	2,520	2,850	585
7	2,160	2,700	1,960	7,880	11,400	19,600	15,400	4,500	1,750	2,300	3,200	475
8	2,160	2,590	1,860	7,520	11,400	18,300	17,100	3,440	2,190	2,190	3,440	475
9	2,260	2,700	1,860	6,850	11,400	17,500	18,800	2,740	2,410	2,190	3,700	475
10	2,260	2,820	1,860	6,190	11,400	16,600	20,000	2,190	2,740	2,080	3,700	475
11	2,260	2,820	1,860	6,190	11,000	15,400	20,500	1,640	2,960	1,860	3,840	475
12	2,160	2,700	1,860	5,350	11,000	14,600	20,900	1,180	3,200	1,750	3,840	475
13	2,160	2,700	1,760	5,110	11,000	13,400	21,400	940	3,200	1,640	3,700	475
14	2,060	2,700	1,670	4,690	10,600	12,600	20,500	940	3,080	1,520	3,570	585
15	1,960	2,700	1,670	4,500	10,200	11,800	19,600	940	2,960	1,410	3,320	585
16	1,960	2,820	1,670	4,150	9,780	10,600	18,800	1,060	2,850	1,410	3,200	585
17	2,060	2,820	1,860	3,990	10,200	10,200	17,900	820	2,850	1,300	2,960	585
18	2,160	2,820	1,960	3,990	11,000	9,000	16,600	940	2,740	1,300	2,740	585
19	2,260	2,820	2,060	3,700	11,400	8,250	15,800	820	2,740	1,410	2,520	585
20	2,260	2,820	2,060	3,570	13,000	8,250	15,000	820	2,740	1,410	2,410	475
21	2,480	2,820	2,260	3,700	15,000	7,880	14,200	585	2,850	1,410	2,190	475
22	2,700	2,700	2,480	3,840	17,100	7,880	13,800	370	2,850	1,520	2,080	475
23	2,940	2,590	2,590	3,990	18,300	7,880	13,000	275	2,850	1,640	1,860	475
24	3,180	2,480	2,820	4,150	19,600	7,880	12,200	195	3,080	1,750	1,640	475
25	3,440	2,480	3,180	4,320	20,500	7,880	11,400	130	3,080	1,750	1,410	475
26	3,580	2,370	3,440	4,690	20,500	7,880	10,600	130	3,200	1,750	1,410	370
27	3,580	2,260	3,720	5,350	20,900	8,250	9,780	80	3,200	1,750	1,180	370
28	3,720	2,260	4,040	5,890	21,400	8,620	9,000	45	3,200	1,750	1,060	370
29	3,580	2,260	4,640	6,500	-	9,390	8,620	25	3,200	1,750	1,060	370
30	3,580	2,160	5,380	7,170	-	10,200	7,880	25	3,200	1,640	1,060	370
31	3,580	-	6,270	7,880	-	11,000	-	80	-	1,640	940	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	78,470	3,720	1,670	2,531	155,600
November.....	81,650	3,440	2,160	2,722	162,000
December.....	79,050	6,270	1,670	2,550	156,800
Calendar year 1937.....	2,555,930	48,300	740	7,002	5,069,000
January.....	181,020	8,620	3,570	5,839	359,000
February.....	367,760	21,400	7,880	13,140	729,500
March.....	411,940	22,200	7,880	13,290	817,100
April.....	448,380	21,400	7,880	14,950	889,300
May.....	62,610	7,520	25	2,020	124,200
June.....	74,070	3,200	130	2,469	146,900
July.....	59,240	3,080	1,300	1,911	117,500
August.....	75,280	3,840	940	2,428	149,500
September.....	15,860	820	370	529	31,500
Water year 1937-38.....	1,935,350	22,200	25	5,302	3,839,000

## Little River ditch 81 near Kennett, Mo.

Location.- Wire-weight gage, lat. 36°14'10", long. 89°58'55", in NE¼ sec. 4, T. 18 N., R. 10 E., at bridge on State Highway 84, about 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level (Little River Drainage District benchmark).

Records available.- October 1926 to September 1938.

Average discharge.- 12 years, 252 second-feet.

Extremes.- Maximum discharge observed during year, 1,940 second-feet Feb. 18 (gage height, 11.46 feet); minimum observed, 87 second-feet Sept. 29 (gage height, 2.67 feet).  
1926-38: Maximum discharge, 2,760 second-feet (including some overflow from levee breaks on St. Francis River) Apr. 21, 1927 (gage height, 15.11 feet, from graph based on gage readings); minimum discharge, 40 second-feet Aug. 11, 1934; minimum gage height, 2.31 feet Sept. 5-8, 1930.

Remarks.- Records good. Gage read once daily below 8.0 feet and twice daily above.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	92	104	92	237	527	282	1,460	148	116	104	489	86
2	86	104	92	222	398	267	1,490	148	180	98	347	86
3	110	104	92	134	194	252	1,230	141	160	98	237	86
4	154	104	92	194	314	237	927	141	148	98	194	81
5	134	104	92	194	282	237	660	148	134	98	167	81
6	128	98	92	180	267	208	470	141	128	92	154	81
7	116	92	86	180	252	208	381	154	128	92	141	76
8	110	98	92	160	237	194	347	141	128	98	134	76
9	104	98	86	160	222	194	398	141	122	98	122	76
10	98	104	92	154	208	208	364	134	122	92	116	70
11	98	134	86	148	208	222	314	134	116	86	116	70
12	98	141	86	148	194	208	282	134	116	86	116	76
13	98	134	92	141	160	208	252	141	110	86	122	86
14	92	122	86	141	208	208	237	141	110	86	110	81
15	86	116	86	134	267	180	222	141	110	61	110	81
16	86	116	86	154	508	208	208	128	110	81	116	76
17	86	110	122	134	470	208	237	128	116	81	110	76
18	208	104	208	128	1,770	208	208	134	116	167	110	76
19	292	104	222	128	1,840	194	208	126	134	180	104	76
20	237	104	208	122	1,460	194	194	122	141	141	104	76
21	208	98	180	160	1,120	180	180	122	128	122	98	76
22	180	98	180	252	885	167	180	116	122	110	98	76
23	167	98	252	267	680	167	167	134	116	104	92	76
24	160	92	267	314	603	194	167	134	116	104	92	76
25	148	92	237	527	508	180	167	128	104	98	86	70
26	141	98	208	546	416	167	160	128	110	92	86	70
27	128	92	222	398	347	180	154	122	104	86	86	69
28	122	98	347	314	314	180	298	122	104	86	86	68
29	122	98	298	282	-	434	154	122	110	92	86	67
30	116	98	267	252	-	700	154	116	104	104	86	68
31	110	-	237	452	-	1,100	-	116	-	222	86	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						4,105	282	86	132	8,140		
November.....						3,157	141	92	105	6,260		
December.....						4,885	347	86	158	9,690		
Calendar year 1937.....						109,054	2,310	67	299	216,300		
January.....						6,937	546	122	224	13,760		
February.....						14,859	1,840	180	531	29,470		
March.....						7,974	1,100	167	257	15,820		
April.....						11,870	1,490	154	396	23,540		
May.....						4,108	148	116	133	8,150		
June.....						3,663	180	104	122	7,270		
July.....						3,263	222	81	105	6,470		
August.....						4,201	489	86	136	8,330		
September.....						2,289	86	67	76.3	4,540		
Water year 1937-38.....						71,311	1,840	67	195	141,400		



## Little River ditch 1 near Kennett, Mo.

Location.- Wire-weight gage, lat. 36°14'10", long. 89°58'50", in NE¼ sec. 4, T. 18 N., R. 10 E., at bridge on State Highway 84, about 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level (Little River Drainage District benchmark).

Records available.- October 1926 to September 1938.

Average discharge.- 12 years, 480 second-feet.

Extremes.- Maximum discharge observed during year, 3,940 second-feet Feb. 19, 20; maximum gage height observed, 12.65 feet Feb. 19; minimum discharge observed, 32 second-feet Sept. 29, 30; minimum gage height observed, 3.62 feet Dec. 15.

1926-38: Maximum discharge, 7,520 second-feet (including some overflow from levee breaks on St. Francis River) Apr. 25, 1927: maximum gage height observed, 16.80 feet Jan. 25, 1937; minimum discharge, 8 second-feet Sept. 13-18, 1932: minimum gage height, 2.57 feet Sept. 18, 1932.

Remarks.- Records poor. Gage read once daily below 8.0 feet and twice daily above.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	128	97	434	1,320	603	3,360	243	114	104	1,950	83
2	41	128	92	406	975	574	3,290	230	197	101	1,440	85
3	56	122	92	378	810	546	3,050	230	183	88	1,020	81
4	120	112	92	350	720	490	2,640	230	163	92	735	78
5	138	116	92	322	661	462	1,950	218	142	92	581	75
6	171	112	92	308	603	434	1,400	218	129	88	471	68
7	138	126	149	295	546	378	1,120	206	124	86	366	65
8	114	108	87	269	490	364	905	194	127	85	317	64
9	101	104	110	243	462	364	840	194	106	78	286	61
10	88	114	128	230	434	378	780	162	104	78	240	65
11	77	138	112	230	406	406	661	182	101	72	226	52
12	73	138	88	218	378	406	603	171	103	68	226	56
13	64	149	85	206	360	406	546	182	106	65	197	78
14	59	138	82	206	378	406	490	182	108	64	190	54
15	53	128	80	194	434	378	462	160	99	58	183	68
16	53	128	84	182	870	490	434	149	99	52	183	52
17	56	122	112	194	870	546	406	138	103	52	170	49
18	149	106	350	182	3,230	490	406	153	110	101	158	46
19	490	116	490	160	3,940	462	378	144	166	435	144	46
20	462	104	406	160	3,880	406	364	127	211	301	133	44
21	406	104	322	194	2,930	378	350	129	255	226	129	44
22	336	103	295	434	2,000	350	336	133	240	170	122	44
23	269	95	406	518	1,540	350	322	146	211	140	112	42
24	256	95	518	546	1,280	350	295	156	170	137	106	42
25	230	94	462	1,200	1,010	336	295	135	163	120	104	40
26	218	95	378	1,320	870	336	282	127	144	120	97	39
27	194	94	364	905	750	308	269	127	131	93	95	39
28	171	103	690	690	690	295	256	122	124	86	88	37
29	160	99	574	518	-	406	256	122	114	86	80	32
30	149	97	518	518	-	1,360	256	112	114	114	90	32
31	138	-	462	1,120	-	2,470	-	120	-	226	86	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						5,077	490	41	164	10,070		
November.....						3,416	149	94	114	6,780		
December.....						7,909	690	80	255	15,690		
Calendar year 1937.....						216,108	7,260	16	592	428,700		
January.....						13,130	1,320	160	424	26,040		
February.....						32,827	3,940	350	1,172	65,110		
March.....						15,928	2,470	295	514	31,590		
April.....						27,002	3,360	256	900	53,680		
May.....						5,162	243	112	167	10,240		
June.....						4,233	255	99	141	8,400		
July.....						3,678	435	52	119	7,300		
August.....						10,325	1,950	80	333	20,480		
September.....						1,641	86	32	54.7	3,250		
Water year 1937-38.....						180,328	3,940	32	357	268,500		

## ST. FRANCIS RIVER BASIN

Little River ditch 66 near Kennett, Mo.

Location.- Wire-weight gage, lat. 36°14'10", long. 89°58'45". in NE¼ sec. 4, T. 18 N., R. 10 E., at bridge on State Highway 84, about 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level (Little River Drainage District benchmark).

Records available.- October 1926 to September 1938.

Average discharge.- 12 years. 411 second-feet.

Extremes.- Maximum discharge observed during year, 3,170 second-feet Feb. 20 (gage height, 15.88 feet); minimum observed, 34 second-feet Sept. 28-30 (gage height, 2.84 feet). 1926-38: Maximum discharge, 4,350 second-feet Jan. 24, 25, 1937 (gage height, 18.15 feet); minimum, 7 second-feet Aug. 29, 1936 (gage height, 2.33 feet).

Remarks.- Records good. Gage read once daily below 8.0 feet and twice daily above. An auxiliary ditch, Little River ditch 66-A, receives part of the flow through cut-offs above stage 6.4 feet. Above stage 13 feet the low, narrow bank between the main and auxiliary ditches is submerged, and the two unite to form one stream in the vicinity of the gage. To segregate the discharge of each ditch, the division line between the two is taken as the top of the bank that separates them at low stages.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	90	95	300	1,600	517	3,050	182	204	122	1,160	69
2	58	86	95	267	1,360	460	3,130	174	182	122	1,520	62
3	69	86	90	251	1,040	442	3,130	167	251	116	1,310	58
4	86	86	90	235	849	406	3,010	167	167	111	918	58
5	95	90	95	219	695	370	2,790	154	147	100	635	54
6	111	86	90	204	575	352	2,380	154	134	95	460	51
7	95	86	86	189	517	317	1,690	147	122	90	352	51
8	86	90	90	182	442	300	1,180	134	116	90	300	48
9	81	90	77	174	406	283	1,010	134	111	86	251	48
10	77	90	90	167	388	283	1,040	134	106	116	204	48
11	77	95	122	160	334	317	918	147	106	90	189	45
12	73	100	86	154	334	370	783	147	134	81	167	39
13	73	106	90	147	253	352	635	147	334	73	167	45
14	73	106	86	140	317	334	517	140	251	69	160	48
15	69	100	81	140	317	1,090	460	134	182	69	140	45
16	69	106	81	134	536	1,800	424	128	154	65	128	45
17	69	100	95	128	805	1,970	388	122	134	62	128	45
18	106	100	219	122	1,710	1,880	352	128	334	116	116	45
19	300	100	334	116	2,900	1,660	334	134	655	140	106	42
20	370	95	317	111	3,130	1,210	317	128	966	267	100	42
21	334	95	283	128	2,830	966	283	128	990	174	95	42
22	283	90	267	219	2,280	655	251	122	827	128	90	42
23	235	90	300	370	1,600	536	167	122	536	100	86	42
24	189	86	352	388	1,420	498	219	128	352	90	81	39
25	167	86	334	827	1,060	479	219	122	300	81	73	39
26	147	86	300	1,310	849	442	219	134	267	73	69	36
27	128	86	283	1,040	695	370	189	128	219	69	69	36
28	116	90	406	761	595	334	169	116	174	62	62	34
29	111	90	424	555	-	352	189	116	147	65	62	34
30	106	95	370	442	-	1,391	174	122	134	73	62	34
31	100	-	317	595	-	2,450	-	235	-	147	65	-
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					4,015	370	68	130	7,960			
November.....					2,782	106	56	92.7	5,520			
December.....					6,045	424	77	195	11,990			
Calendar year 1937.....					171,767	4,350	45	471	340,700			
January.....					10,175	1,310	111	328	20,180			
February.....					30,067	3,130	283	1,074	59,640			
March.....					23,186	2,450	283	748	45,990			
April.....					29,637	3,130	167	988	58,780			
May.....					4,375	235	116	141	8,680			
June.....					6,736	990	106	291	17,330			
July.....					3,142	267	62	101	6,230			
August.....					9,325	1,520	62	301	18,500			
September.....					1,366	69	34	45.5	2,710			
Water year 1937-38.....					132,851	3,130	34	364	263,500			

## Little River ditch 66-A near Kennett, Mo.

Location.- Chain gage, lat. 36°14'10", long. 89°58'45", in NE¼ sec. 4, T. 18 N., R. 10 E., at bridge on State Highway 64, about 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level (Little River Drainage District benchmark).

Records available.- January 1927 to September 1938.

Average discharge.- 11 years, 56.6 second-feet.

Extremes.- Maximum discharge observed during year, 1,050 second-feet Feb. 20 (gage height, 15.83 feet); no flow on many days.  
1927-38: Maximum discharge, 2,340 second-feet (including some overflow from levee breaks on Mississippi River) Apr. 25, 1927 (gage height, 17.6 feet, from graph based on gage readings); no flow on many days.

Remarks.- Records fair. Gage read once daily below 8.0 feet and twice daily above. See page for relation to Little River ditch 66.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	180	0	986		0		83	
2				0	148	0	1,030		0		180	
3				0	73	0	1,030		0		130	
4				0	42	0	964		0		58	
5				0	20	0	832		0		10	
6				0	0	0	584		0		0	
7				0	0	0	252		0		0	
8				0	0	0	100		0		0	
9				0	0	0	58		0		0	
10				0	0	0	63		0		0	
11				0	0	0	42		0		0	
12				0	0	0	24		0		0	
13				0	0	0	6		0		0	
14				0	0	0	0		0		0	
15				0	0	73	0		0		0	
16				0	0	300	0		0		0	
17				0	0	370	0		0		0	
18				0	276	328	0		0		0	
19				0	898	230	0		0		0	
20				0	1,010	106	0		46		0	
21				0	876	54	0		56		0	
22				0	548	10	0		32		0	
23				0	300	0	0		0		0	
24				0	148	0	0		0		0	
25				33	73	0	0		0		0	
26				136	34	0	0		0		0	
27				68	14	0	0		0		0	
28				27	0	0	0		0		0	
29				0	-	0	0		0		0	
30				0	-	142	-		0		0	
31				0	-	620	-		-		0	
Month				Second-foot-days		Maximum	Minimum	Mean	Run-off in acre-feet			
October.....				0		0	0	0	0			
November.....				0		0	0	0	0			
December.....				0		0	0	0	0			
Calendar year 1937.....				28,792		1,650	0	78.9	57,100			
January.....				264		136	0	8.52	524			
February.....				4,640		1,010	0	186	9,200			
March.....				2,233		620	0	72.0	4,430			
April.....				5,971		1,030	0	199	11,840			
May.....				0		0	0	0	0			
June.....				134		56	0	4.47	268			
July.....				0		0	0	0	0			
August.....				461		180	0	14.9	914			
September.....				0		0	0	0	0			
Water year 1937-38.....				13,703		1,030	0	37.5	27,170			

## ST. FRANCIS RIVER BASIN

Little River ditch 251 near Kennett, Mo.

Location.- Wire-weight gage, lat. 36°14'10", long. 89°58'40", in NW¼ 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 (Little River Drainage District benchmark).

Records available.- November 1926 to September 1938.

Average discharge.- 11 years, 716 second-feet.

Extremes.- Maximum discharge observed during year, 5,090 second-feet Feb. 20 (gage height, 15.76 feet); minimum observed, 151 second-feet Oct. 2; minimum gage height observed, 3.19 feet Sept. 29, 30.

1926-38: Maximum discharge, 6,730 second-feet Jan. 24-26, 1937; maximum gage height, 18.20 feet Jan. 25, 1937; minimum discharge, 52 second-feet Sept. 5-8, 1930 (gage height, 2.10 feet).

Remarks.- Records good. Gage read once daily below 8.0 feet and twice daily above.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	168	269	269	745	2,700	1,030	4,880	435	413	333	2,220	248
2	151	251	269	685	2,310	962	5,000	435	413	315	2,610	233
3	180	251	251	625	1,820	930	4,940	413	435	315	2,350	233
4	218	234	251	597	1,550	936	4,620	413	392	297	1,740	218
5	251	234	269	542	1,370	775	4,470	392	372	280	1,410	218
6	269	234	251	516	1,160	745	3,830	392	333	280	1,100	218
7	251	234	251	490	1,090	697	2,740	372	315	280	897	204
8	234	251	251	465	962	659	1,980	352	315	264	745	204
9	202	251	234	440	899	632	1,710	352	297	264	632	204
10	202	251	202	440	869	632	1,740	352	280	315	553	190
11	202	269	234	416	806	716	1,560	352	280	264	504	190
12	194	269	234	416	775	775	1,410	372	333	248	457	190
13	187	288	251	393	715	716	1,200	352	605	233	457	190
14	187	288	234	393	715	716	1,060	352	504	218	435	190
15	187	269	234	393	775	1,820	930	352	392	218	413	190
16	187	269	234	370	1,440	2,890	867	333	352	218	372	190
17	187	269	269	370	1,710	3,150	605	315	333	204	372	177
18	269	269	490	348	3,010	3,060	775	333	605	315	352	177
19	655	269	775	327	4,630	2,660	716	333	1,130	372	333	177
20	806	269	715	327	5,040	2,020	697	315	1,630	745	315	177
21	745	251	655	370	4,520	1,630	632	315	1,670	579	315	177
22	655	251	597	542	3,680	1,200	579	315	1,410	480	297	177
23	542	251	655	899	2,920	1,030	553	315	962	392	280	177
24	440	251	937	930	2,550	994	528	315	697	352	290	177
25	393	234	806	1,710	1,860	962	504	315	579	315	264	164
26	370	234	715	2,260	1,520	898	504	333	528	280	248	164
27	348	234	655	1,820	1,340	745	480	315	457	264	248	164
28	307	251	1,030	1,440	1,200	716	480	297	392	248	248	164
29	307	251	1,060	1,160	-	775	457	297	372	248	233	164
30	288	269	930	962	-	2,440	435	315	352	264	233	164
31	269	-	806	1,230	-	3,930	-	490	-	392	233	-
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					9,841	806	151	317	19,520			
November.....					7,665	288	234	256	15,200			
December.....					14,944	1,060	202	482	29,640			
Calendar year 1937.....					316,927	6,730	117	868	628,500			
January.....					22,621	2,260	327	730	44,870			
February.....					53,735	5,040	715	1,919	106,600			
March.....					41,721	3,930	632	1,346	82,750			
April.....					51,272	5,000	435	1,709	101,700			
May.....					10,929	480	297	353	21,680			
June.....					17,138	1,670	280	571	35,990			
July.....					9,792	745	204	316	19,420			
August.....					21,116	2,610	233	681	41,880			
September.....					5,710	248	164	190	11,330			
Water year 1937-38.....					266,484	5,040	151	730	528,600			

## Little River ditch 259 near Kennett, Mo.

Location.- Wire-weight gage, lat. 36°14'10", long. 89°58'35", in NW¼ sec. 3, T. 18 N., R. 10 E., at bridge on State Highway 84, about 4 miles east of Kennett. Zero of gage is about 240 feet above mean sea level (Little River Drainage District benchmark).

Records available.- November 1926 to September 1938.

Average discharge.- 11 years, 112 second-feet.

Extremes.- Maximum discharge observed during year, 1,940 second-feet Feb. 19 (gage height, 11.10 feet); minimum observed, 7 second-feet Sept. 20, 29, 30; minimum gage height observed, 1.35 feet July 12.

1926-38: Maximum discharge, 4,140 second-feet (including some overflow from levee breaks on Mississippi River) April 29, 1927 (gage height, 15.57 feet, from graph based on gage readings); no flow Aug. 3 to Sept. 2, 1936; minimum gage height, 1.23 feet Aug. 30 to Sept. 1, 1937.

Remarks.- Records fair. Gage read once daily below 8.0 feet and twice daily above.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	13	37	35	282	369	130	564	41	20	16	1,150	12
2	11	30	32	219	265	118	387	40	315	14	1,080	11
3	24	30	31	175	234	112	315	36	204	14	835	11
4	112	28	31	142	189	101	282	35	118	13	522	10
5	90	28	28	130	162	96	234	33	79	13	298	9
6	59	28	26	118	142	84	204	31	64	12	204	10
7	43	27	24	101	118	79	182	29	51	12	149	9
8	34	26	25	90	106	74	162	28	44	12	118	9
9	27	25	20	84	96	68	204	26	38	11	96	9
10	24	30	20	74	90	149	175	24	36	11	68	9
11	22	68	19	74	79	142	142	24	31	11	59	9
12	20	79	19	68	79	118	124	24	28	9	55	9
13	18	74	21	59	79	112	106	25	28	10	48	10
14	14	64	20	59	96	96	96	26	24	10	40	9
15	15	55	20	51	564	90	112	26	23	9	34	9
16	14	51	22	51	1,360	182	84	24	24	9	34	9
17	16	48	38	51	1,220	156	219	23	44	9	28	9
18	351	48	369	44	1,900	130	182	24	36	15	24	8
19	501	43	282	43	1,940	118	118	24	37	266	22	8
20	315	41	204	40	1,900	106	96	25	41	156	20	7
21	219	38	149	90	1,560	90	84	24	41	96	18	8
22	156	36	130	501	1,060	79	68	23	37	64	17	8
23	118	32	480	333	564	74	84	23	31	48	16	8
24	96	31	351	732	387	106	59	22	27	38	14	8
25	84	30	250	993	282	79	55	22	24	22	14	8
26	68	29	175	585	219	68	55	20	22	26	13	8
27	64	29	234	315	175	90	51	20	22	22	12	8
28	55	32	817	219	156	101	48	19	19	19	12	8
29	51	38	501	175	-	1,150	43	21	18	19	12	7
30	44	38	333	175	-	1,220	44	20	17	18	12	7
31	40	-	250	648	-	839	-	20	-	387	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	2,718	501	11	87.7	5,390
November.....	1,193	79	25	39.8	2,370
December.....	4,956	817	19	160	9,850
Calendar year 1937.....	79,930	3,420	6	219	158,600
January.....	8,721	993	40	217	13,330
February.....	18,382	1,940	79	549	30,510
March.....	6,137	1,220	68	198	12,170
April.....	4,519	564	43	151	8,960
May.....	800	41	19	25.8	1,590
June.....	1,543	315	17	51.4	3,060
July.....	1,395	387	9	45.0	2,770
August.....	5,034	1,150	12	162	9,980
September.....	264	12	7	8.8	524
Water year 1937-38.....	50,662	1,940	7	139	100,600

## White River at Beaver, Ark.

Location.- Wire-weight gage, lat. 36°28'20", long. 93°45'55", in sec. 20, T. 21 N., R. 26 W., at Missouri & North Arkansas Railway bridge, a quarter of a mile east of Beaver, and 2½ miles upstream from Leatherwood Creek. Zero of gage is 883.04 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,270 square miles.

Records available.- July 1909 to December 1910, May 1923 to September 1938.

Average discharge.- 15 years (1923-38), 1,663 second-feet.

Extremes.- Maximum discharge during year, 40,300 second-feet Feb. 19 (gage height, 26.80 feet); minimum observed, 48 second-feet Sept. 30 (gage height, 2.22 feet).  
1909-10, 1923-38: Maximum discharge observed, 65,000 second-feet Apr. 16, 1927 (gage height, 37.0 feet); minimum discharge, 3.0 second-feet Aug. 31, Sept. 1, 1936; minimum gage height, 1.55 feet, present datum, Oct. 1-8, 1909.

Remarks.- Records good. Gage read twice daily.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Dec. 17-23)

2.2	46	2.8	182	6.0	2,330	20.0	26,100
2.3	56	3.0	262	7.0	3,250	26.0	38,500
2.4	73	3.3	412	8.0	4,400		
2.5	93	4.0	845	10.0	7,550		
2.6	118	5.0	1,540	14.0	14,700		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	241	130	237	750	2,000	2,160	7,040	1,460	3,520	470	190	73
2	212	127	228	688	1,690	2,080	4,400	1,320	2,590	412	175	73
3	193	118	228	656	1,460	1,920	3,350	1,250	2,160	385	162	70
4	186	108	237	624	1,390	1,840	2,780	1,110	1,760	353	148	85
5	172	108	228	593	1,260	2,240	2,420	1,040	1,540	318	142	83
6	158	103	220	562	1,180	2,590	2,080	975	1,320	294	136	75
7	146	110	212	531	1,110	2,420	2,000	2,000	1,840	290	127	87
8	139	110	205	500	1,110	2,000	2,240	4,020	2,420	276	116	81
9	165	110	197	470	1,040	1,920	3,250	3,160	2,690	280	108	77
10	285	130	212	441	975	1,840	4,540	2,000	2,240	280	98	66
11	216	228	190	441	910	1,920	3,900	1,620	2,860	280	96	63
12	186	1,460	175	412	810	1,920	3,160	1,390	3,350	245	83	63
13	168	1,250	175	385	845	1,840	2,590	3,900	3,900	220	103	66
14	155	910	182	358	845	1,690	2,240	2,500	2,500	197	103	73
15	148	750	190	348	2,920	1,690	2,080	2,500	1,840	186	124	77
16	139	656	599	328	19,900	1,620	2,590	1,840	1,540	190	118	139
17	136	562	4,050	313	32,200	1,540	5,110	1,540	1,620	190	124	108
18	133	531	10,600	299	33,500	1,460	3,660	1,390	1,760	175	155	93
19	142	470	9,360	290	38,800	1,390	2,780	1,320	1,690	168	136	81
20	142	441	4,000	299	22,700	1,760	2,500	1,620	1,620	228	130	73
21	136	412	2,690	470	9,120	2,960	2,590	2,330	1,460	212	130	68
22	197	358	2,080	562	6,220	2,160	3,560	1,840	1,180	190	110	66
23	280	338	1,690	878	4,820	1,920	6,220	7,630	1,040	168	100	63
24	258	318	1,460	4,440	3,900	1,690	3,900	22,600	910	155	91	59
25	228	299	1,320	18,200	3,250	1,540	2,960	12,700	814	146	85	56
26	201	285	1,180	14,100	2,880	1,880	2,500	4,670	719	133	81	55
27	176	276	1,040	4,980	2,590	3,250	2,160	3,350	656	124	75	53
28	166	262	975	3,250	2,330	6,280	1,920	3,060	593	130	71	51
29	155	254	910	2,500	-	10,700	1,760	4,540	562	139	70	50
30	148	245	845	2,160	-	15,700	1,690	7,620	500	470	64	48
31	142	-	782	2,080	-	9,890	-	6,960	-	280	70	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	5,546	285	133	179	0.141	0.16	11,000
November.....	11,459	1,480	103	382	.301	.34	22,730
December.....	46,697	10,600	175	1,506	1.19	1.37	92,620
Calendar year 1937.....	611,116	19,300	82	1,400	1.10	14.97	1,014,000
January.....	62,908	18,200	290	2,029	1.60	1.84	124,800
February.....	201,846	38,800	845	7,209	6.68	5.92	400,400
March.....	95,810	15,700	1,390	3,091	2.43	2.80	180,000
April.....	93,970	7,040	1,690	3,132	2.47	2.76	186,400
May.....	115,255	22,600	975	3,718	2.93	3.38	228,600
June.....	53,214	3,900	500	1,774	1.40	1.56	105,500
July.....	7,583	470	124	245	.193	.22	15,040
August.....	3,531	190	64	114	.090	.10	7,000
September.....	2,175	139	48	72.6	.067	.06	4,310
Water year 1937-38.....	699,993	38,800	48	1,918	1.61	20.51	1,388,000

## White River near Reeds Spring, Mo.

Location.— Wire-weight gage, lat. 36°37'20", long. 93°25'20", in NE¼SE¼ sec. 9, T. 22 N., R. 23 W., at bridge on State Highway 13, 5½ miles downstream from James River, and 12 miles south of Reeds Spring. Zero of gage is 739.00 feet above mean sea level (general adjustment of 1929).

Drainage area.— 3,690 square miles.

Records available.— February to September 1938.

Extremes.— Maximum discharge observed during year, 95,100 second-feet Feb. 18 (gage height, 31.00 feet); minimum observed, 204 second-feet Sept. 30 (gage height, 0.53 feet).

Maximum stage known, 47.96 feet April 14, 1927.

Remarks.— Records good. Gage read twice daily. Records collected in cooperation with the Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used July 10 to Aug. 28)

0.5	191	3.5	2,380	12.0	21,000
1.0	412	4.2	3,300	15.0	30,300
1.6	736	5.0	4,590	20.0	47,800
2.2	1,140	7.0	8,340	25.0	57,800
2.8	1,650	9.0	12,900	31.0	95,100

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					-	6,020	16,700	3,760	10,300	1,560	1,060	412
2					-	5,480	12,400	3,450	7,740	1,470	797	388
3					-	5,120	9,180	3,160	6,390	1,380	736	388
4					-	4,760	7,940	2,880	6,020	1,300	677	365
5					-	5,840	6,960	2,620	5,480	1,220	620	388
6					-	6,020	6,020	2,380	4,590	1,140	620	365
7					-	6,020	5,660	3,600	5,660	1,140	620	344
8					-	5,120	8,540	10,300	14,400	1,140	1,060	344
9					-	4,760	11,900	11,900	8,960	1,140	1,060	344
10					-	4,590	12,400	7,150	7,940	1,140	797	344
11					-	4,420	11,000	5,300	7,740	1,060	677	320
12					-	4,590	9,400	4,420	7,340	993	592	299
13					-	4,420	7,740	16,400	7,740	993	736	299
14					-	4,250	6,770	13,500	6,390	925	706	320
15					-	4,080	6,020	8,960	5,120	860	620	320
16					-	3,920	7,540	7,940	4,590	797	592	299
17					-	3,600	8,740	6,770	6,770	860	565	388
18					92,300	3,450	9,180	6,390	6,590	925	538	388
19					89,300	3,160	7,150	5,940	6,200	993	512	344
20					63,200	3,920	6,390	6,390	5,300	860	512	320
21					27,100	4,940	6,390	6,580	4,590	925	486	320
22					16,600	5,300	7,150	6,460	3,760	925	461	276
23					12,900	4,250	9,400	19,200	3,300	797	456	276
24					11,000	3,760	8,960	43,100	2,880	736	365	267
25					9,620	3,450	6,960	36,700	2,500	677	388	254
26					8,340	3,450	6,020	16,000	2,580	677	344	242
27					7,540	7,180	5,120	10,700	2,150	648	320	233
28					6,580	8,770	3,760	8,740	2,040	565	299	225
29					-	24,800	4,420	17,000	1,840	648	276	216
30					-	30,000	4,250	15,000	1,740	797	456	204
31					-	26,400	-	15,000	-	1,300	365	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....							
November.....							
December.....							
Calendar year .....							
January.....	-	-	-	-	-	-	-
February 18-28 .....	344,480	92,300	6,590	31,320	8.49	3.47	693,300
March.....	215,840	30,000	3,160	6,963	1.89	2.18	428,100
April.....	240,060	16,700	3,760	8,002	2.17	2.42	476,200
May.....	327,590	43,100	2,380	10,570	2.86	3.30	649,800
June.....	171,430	14,400	1,740	6,714	1.65	1.73	340,000
July.....	30,591	1,560	565	997	.267	.31	60,690
August.....	18,272	1,060	276	589	.160	.18	36,240
September.....	8,469	412	204	316	.086	.10	18,620
The period.....							2,693,000

## White River at Forsyth, Mo.

Location.- Water-stage recorder, lat. 36°40'55", long. 93°06'05", in SE $\frac{1}{4}$  sec. 33, T. 24 N., R. 20 W., in Forsyth, at bridge on State Highway 78, a quarter of a mile below Swan Creek. Zero of gage is 640.64 feet above mean sea level (general adjustment of 1929).

Drainage area.- 4,610 square miles.

Records available.- January to September 1928, February 1930 to September 1938.

Extremes.- Maximum discharge during year, 110,000 second-feet Feb. 18 (gage height, 29.84 feet); minimum, 49 second-feet Sept. 11 (gage height, 1.70 feet); minimum daily discharge, 76 second-feet Aug. 28.  
1928, 1930-38: Maximum discharge, 127,000 second-feet Mar. 11, 1935 (gage height, 35.23 feet); minimum, 30 second-feet Sept. 2, 3, 1938; minimum gage height, 1.20 feet Sept. 25, 1932, July 14, 1934; minimum daily discharge, 34 second-feet Sept. 3, 1936. Maximum stage known, 45.36 feet, from floodmarks, Apr. 16, 1927 (discharge, about 160,000 second-feet).

Remarks.- Records good. Discharge for period of missing gage heights, Oct. 8-10, computed on basis of tail-gage readings at power plant. Flow regulated by operation of hydroelectric plant of Empire District Electric Co. 2 miles upstream.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	763	255	422	1,290	6,500	7,060	22,500	11,370	14,000	1,410	506	315
2	724	447	349	*1,610	6,100	6,610	16,900	3,990	12,900	1,240	875	362
3	*509	518	553	1,940	5,780	5,980	*12,600	3,480	7,920	*1,470	1,010	270
4	569	575	622	1,750	5,540	5,820	10,200	2,890	7,450	1,570	720	*532
5	616	336	*1,110	1,610	4,540	6,010	8,650	3,060	*6,790	1,130	1,090	281
6	551	672	621	2,010	*960	*5,850	7,450	2,090	5,920	923	724	414
7	403	*287	568	1,770	3,060	5,850	6,780	4,790	15,500	972	*349	584
8	523	332	368	1,250	3,050	6,070	8,160	*7,140	21,300	1,450	652	455
9	729	441	495	*494	3,120	5,920	13,200	13,100	14,900	718	437	
10	*426	674	715	1,020	3,120	5,650	*14,500	9,970	11,400	*1,670	977	611
11	474	780	965	986	2,490	5,240	13,800	7,220	9,970	1,030	1,420	*186
12	435	449	*385	820	2,670	4,870	11,700	6,130	*9,160	781	825	507
13	476	1,230	907	873	*1,600	*4,920	9,690	19,100	8,650	855	602	310
14	590	*2,000	561	855	2,790	4,180	8,400	22,500	8,400	860	*140	172
15	599	1,720	397	813	8,040	4,370	7,450	*13,400	6,780	926	333	186
16	685	1,090	963	*1,030	33,800	4,130	7,680	11,100	8,560	714	475	408
17	*548	1,500	8,960	895	71,500	3,840	*9,160	9,970	7,000	*597	354	285
18	582	1,650	17,000	867	106,000	3,680	10,500	8,900	7,920	983	863	*398
19	520	976	*19,000	646	102,000	3,650	9,160	7,920	*7,680	832	527	236
20	428	1,030	15,200	781	*79,900	*3,450	7,680	7,920	6,780	848	603	287
21	606	*481	8,920	3,200	42,200	4,700	7,450	7,920	6,130	1,020	*279	326
22	569	993	6,670	5,080	22,300	4,750	7,450	*8,460	5,710	931	518	357
23	441	880	5,970	*4,100	16,800	4,820	8,900	34,700	3,720	501	670	270
24	*483	594	4,370	14,500	13,900	4,480	*10,800	44,000	2,560	*765	316	476
25	599	485	3,480	27,200	11,600	4,110	8,900	46,200	1,710	561	264	*224
26	582	524	*3,270	35,000	9,960	4,770	7,220	26,200	*2,150	659	276	400
27	622	868	4,200	23,900	*8,850	*4,390	6,340	14,800	2,740	527	150	295
28	571	*514	3,640	12,300	7,880	9,630	5,920	11,700	2,150	483	*76	200
29	740	1,040	1,880	8,800	-	31,900	5,500	*15,100	1,970	793	198	196
30	577	868	976	*7,450	-	34,500	4,890	22,300	2,530	965	530	147
31	*402	-	1,000	7,050	-	33,100	-	16,900	-	*1,430	282	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	17,420	763	402	562	0.122	0.14	34,550
November.....	24,209	2,000	255	807	.175	.20	48,020
December.....	114,437	19,000	349	3,692	.801	.92	227,000
Calendar year 1937.....	1,850,148	48,700	181	5,069	1.10	14.92	3,669,000
January.....	171,830	35,000	494	5,543	1.20	1.38	340,800
February.....	586,060	106,000	960	20,930	4.54	4.73	1,162,000
March.....	244,300	34,500	3,450	7,881	1.71	1.97	484,600
April.....	289,530	22,500	4,890	9,651	2.09	2.33	574,300
May.....	415,520	46,200	2,090	13,400	2.91	3.36	823,800
June.....	227,730	21,300	1,710	7,591	1.65	1.84	461,700
July.....	29,496	1,670	483	951	.208	.24	58,600
August.....	17,402	1,420	76	561	.122	.14	34,520
September.....	9,927	611	147	331	.072	.08	19,690
Water year 1937-38.....	2,147,650	106,000	76	5,884	1.28	17.33	4,259,000

Peak discharge.- Feb. 18 (6 p.m.) 110,000 sec.-ft.; Mar. 29 (8 p.m.) 37,600 sec.-ft.; May 24 (11 p.m.) 60,300 sec.-ft.

\*Sunday.



## White River near Flippin, Ark.

Location.-- Staff gage, lat. 36°19', long. 92°41', in NW¼ sec. 9, T. 19 N., R. 15 W., 2½ miles northeast of Flippin, 12 miles upstream from mouth of Crooked Creek, and 19½ miles upstream from mouth of North Fork of White River. Zero of gage is 420.92 feet above mean sea level (White River Power Co. benchmark).

Drainage area.-- 6,170 square miles.

Records available.-- October 1928 to September 1938.

Average discharge.-- 10 years, 6,035 second-feet.

Extremes.-- Maximum discharge observed during year, 134,000 second-feet Feb. 19 (gage height, 34.1 feet); minimum observed, 349 second-feet Sept. 1, 18 (gage height, 4.62 feet).

1928-38: Maximum discharge observed, 164,000 second-feet Mar. 12, 1935 (gage height, 38.1 feet); minimum observed, 105 second-feet Sept. 14, 15, 1936; minimum gage height observed, 4.08 feet Dec. 18, 1932.

Maximum stage known, 48.6 feet Apr. 16, 1927.

Remarks.-- Records good except those below 1,000 second-feet, which are fair. Gage read twice daily. Slight diurnal fluctuation at low water caused by operation of power plant at Forsyth, Mo.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

4.6	335	6.0	1,690	8.0	5,210	15.0	26,760	30.0	106,000
5.0	630	6.5	2,400	10.0	10,170	20.0	49,800	34.0	133,000
5.5	1,100	7.0	3,230	12.0	16,110	25.0	76,400		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	852	672	1,210	1,960	7,550	9,360	35,400	6,580	17,100	2,890	1,000	447
2	950	672	950	1,320	7,300	9,570	24,000	3,410	15,900	2,720	1,000	590
3	1,000	590	715	1,440	6,820	7,800	18,700	5,210	11,600	2,560	1,000	630
4	852	590	672	1,620	6,580	7,300	13,300	4,570	9,630	2,400	1,260	672
5	760	590	715	1,560	6,340	9,900	11,600	4,570	9,090	2,560	1,380	590
6	805	550	630	1,620	5,650	7,550	10,700	3,970	8,310	2,560	1,210	512
7	760	590	1,260	1,690	5,210	7,060	9,630	4,170	23,700	2,100	1,210	715
8	715	550	1,100	1,690	4,990	8,570	9,090	10,700	30,800	1,690	1,000	512
9	715	590	900	1,820	4,370	7,300	11,900	10,200	24,000	1,560	950	715
10	715	550	852	1,440	3,970	7,550	14,200	14,900	17,400	1,560	805	672
11	805	590	715	1,380	3,410	7,060	15,200	12,400	13,900	1,320	900	630
12	760	630	715	1,260	3,230	7,300	14,900	9,630	12,200	1,320	1,050	630
13	760	715	1,000	1,210	2,890	7,060	12,400	32,900	10,700	1,160	1,440	715
14	805	715	900	1,100	3,060	6,580	11,600	32,700	9,900	1,320	950	512
15	760	1,690	715	1,210	8,310	6,110	9,900	22,900	9,900	1,440	950	550
16	760	2,250	900	1,160	22,600	5,210	16,400	18,800	8,310	1,100	900	550
17	760	2,260	1,360	1,100	70,400	5,210	15,300	14,900	8,570	1,440	590	419
18	805	1,440	10,400	1,210	120,000	4,990	11,600	13,600	9,090	1,260	550	377
19	805	1,960	20,100	1,210	132,000	5,210	10,700	12,200	12,200	1,050	760	550
20	805	1,560	18,400	1,160	117,000	6,820	10,200	11,600	9,630	1,260	672	405
21	760	1,380	14,200	1,160	81,400	6,340	9,900	11,000	8,310	1,260	760	512
22	760	1,100	9,900	1,500	46,800	6,820	9,900	11,900	7,300	1,210	760	412
23	715	1,320	7,060	6,110	25,200	6,340	9,630	47,800	6,820	1,260	630	398
24	672	805	6,110	11,900	16,100	6,110	10,400	57,300	5,430	1,260	590	419
25	760	1,100	5,650	23,700	16,100	5,650	14,600	55,300	3,410	900	672	475
26	672	805	3,780	29,600	13,600	5,430	14,800	43,800	2,720	950	630	419
27	760	630	3,780	36,300	11,600	7,550	8,830	24,400	2,890	900	550	590
28	715	590	3,590	23,700	10,400	8,830	7,800	17,400	3,780	950	590	398
29	715	900	4,570	14,600	-	31,800	7,550	18,100	3,060	1,050	475	475
30	715	805	3,590	9,900	-	43,800	6,820	20,800	3,060	900	512	426
31	715	-	1,960	8,570	-	39,900	-	20,100	-	1,380	590	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	23,908	1,000	672	771	0.125	0.14	47,420
November.....	29,179	2,250	550	973	.158	.18	57,880
December.....	128,419	20,100	630	4,143	.671	.77	254,700
Calendar year 1937.....	2,345,638	58,900	372	6,426	1.04	14.14	4,652,000
January.....	195,200	36,300	1,100	6,297	1.02	1.18	387,200
February.....	762,880	132,000	2,890	27,250	4.42	4.60	1,513,000
March.....	311,080	43,800	4,990	10,040	1.63	1.88	617,000
April.....	384,760	35,400	6,820	12,820	2.08	2.32	763,100
May.....	573,810	57,300	3,410	18,510	3.00	3.46	1,138,000
June.....	318,710	30,900	2,720	10,620	1.72	1.92	632,200
July.....	47,290	2,890	900	1,525	.247	.28	83,800
August.....	26,536	1,440	475	850	.138	.16	52,240
September.....	16,917	715	377	530	.086	.10	31,670
Water year 1937-38.....	2,817,479	132,000	377	7,719	1.25	16.99	5,688,000

## WHITE RIVER BASIN

White River at Batesville, Ark.

Location.-- Staff gage, on upper lock wall of dam 1, lat. 35°45', long. 91°38', in NE¼ sec. 21, T. 13 N., R. 6 W., at Batesville, about 1 mile downstream from Polk Bayou. Zero of gage is 244.00 feet above mean Gulf level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.-- 11,100 square miles.

Records available.-- July 1937 to September 1938.

Extremes.-- 1937: Maximum discharge during period, 21,400 second-feet Sept. 12 (gage height, 10.5 feet, from gage reading at flood crest); minimum discharge observed, 1,600 second-feet several times in August and September (gage height, 6.7 feet). 1937-38: Maximum discharge during year, 200,000 second-feet Feb. 19 (gage height, 26.7 feet, from gage reading at flood crest), from rating curve extended above 110,000 second-feet; minimum observed, 1,340 second-feet Sept. 20-30 (gage height, 6.6 feet).

Maximum stage known, 30.7 feet Feb. 1, 1916.

Remarks.-- Records good except those below 2,000 second-feet and above 120,000 second-feet, which are fair. Gage read twice daily, oftener during periods of rapidly changing stage. Gage readings furnished by Corps of Engineers, U. S. Army.

Rating table, period July 1937 to September 1938 (gage height, in feet, and discharge, in second-feet)

6.6	1,340	8.0	6,430	12.0	33,450	20.0	111,100
7.0	2,490	9.0	11,660	15.0	63,100	23.0	147,900
7.5	4,300	10.0	17,960	17.0	82,800	27.0	204,200

Discharge, in second-feet, 1937-38

1937

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										4,690	3,540	1,740
2										3,910	3,170	1,740
3										3,910	2,830	2,040
4										3,540	2,490	5,110
5										5,530	2,180	3,170
6										4,300	2,830	2,340
7										5,970	2,830	2,040
8										3,910	2,830	1,890
9										3,540	2,490	1,600
10										3,540	2,490	2,040
11										5,110	2,830	2,490
12										4,300	2,490	10,000
13										4,690	2,490	18,600
14										4,690	2,490	10,500
15										3,540	2,180	7,380
16										3,170	1,890	6,430
17										3,170	1,890	5,110
18										3,170	1,600	3,560
19										3,170	1,600	2,340
20										3,910	1,600	2,180
21										5,970	1,740	2,490
22										7,380	1,740	2,490
23										6,430	3,000	2,040
24										6,430	2,490	1,890
25										5,970	2,040	2,660
26										5,110	1,890	2,490
27										4,690	1,600	2,180
28										3,540	1,600	2,180
29										3,170	1,600	1,890
30										3,170	1,740	1,890
31										3,170	1,890	-

Discharge, in second-feet, White River at Batesville, Ark., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,040	2,180	2,830	5,970	18,000	18,000	71,900	14,100	32,600	5,530	5,970	1,600
2	2,340	2,180	2,830	4,900	15,300	16,000	57,600	16,000	26,800	5,110	3,910	1,600
3	2,340	2,180	2,830	4,900	14,100	14,700	40,600	11,700	22,200	5,110	3,720	1,600
4	18,000	1,890	2,830	4,100	12,800	13,400	31,800	10,500	18,000	4,900	3,360	1,600
5	5,970	1,890	2,660	4,300	11,700	12,800	26,200	10,500	15,300	4,300	2,660	1,740
6	3,360	1,600	2,340	4,300	11,100	12,200	22,200	10,500	13,400	4,300	2,490	1,890
7	2,830	1,600	2,180	4,300	10,500	12,200	19,400	9,970	13,400	4,300	2,660	1,600
8	2,490	2,040	2,180	3,910	8,380	11,700	18,600	9,420	22,200	4,300	2,490	1,600
9	2,490	2,180	2,490	3,910	6,430	11,700	20,800	20,000	35,200	3,910	2,830	1,890
10	2,490	2,830	2,490	4,300	7,380	12,800	26,200	16,600	31,800	3,540	2,660	1,890
11	1,890	3,540	2,340	3,720	7,380	12,800	27,600	20,800	23,700	3,720	2,340	1,740
12	2,040	3,170	1,890	3,560	7,380	12,800	26,800	16,600	20,000	3,560	2,830	1,890
13	2,340	4,690	1,890	2,830	7,380	11,700	24,400	16,000	17,300	3,360	2,180	1,600
14	2,180	4,300	2,340	3,170	7,870	11,700	21,400	56,600	15,300	3,720	2,660	1,600
15	1,890	3,540	2,490	3,170	27,700	11,100	18,600	52,400	14,100	3,170	2,830	1,890
16	1,890	3,540	2,490	2,830	65,300	11,700	52,400	37,000	13,400	3,000	2,490	1,740
17	2,040	3,910	7,380	2,830	86,000	10,500	58,700	26,800	12,800	3,000	2,490	1,600
18	2,490	4,300	11,100	2,660	163,000	10,500	35,200	23,700	12,800	3,000	2,180	1,600
19	3,720	3,720	24,400	2,830	198,000	9,420	28,400	20,800	17,300	3,000	1,890	1,600
20	4,300	3,540	28,200	2,830	177,000	9,420	25,200	19,400	19,400	2,830	1,890	1,340
21	3,910	3,720	24,400	4,300	140,000	12,800	22,200	18,600	17,300	2,830	1,890	1,340
22	3,540	3,360	20,800	6,890	104,000	10,500	20,800	20,000	14,100	2,830	1,890	1,340
23	3,000	2,830	16,600	6,430	65,300	10,500	19,400	37,000	11,700	2,660	1,890	1,340
24	2,490	2,490	12,800	26,000	40,600	11,100	18,000	85,200	10,500	2,830	1,890	1,340
25	2,490	2,490	11,100	59,800	31,800	10,500	18,000	86,000	9,420	2,830	1,890	1,340
26	2,490	2,490	9,420	56,600	26,800	10,500	19,400	69,700	7,380	2,830	1,600	1,340
27	2,340	2,490	9,420	45,400	23,000	16,600	16,600	80,900	6,430	2,490	1,890	1,340
28	2,180	3,360	8,380	46,400	20,800	25,200	14,700	37,900	5,970	2,660	1,890	1,340
29	2,180	3,170	7,870	31,800	-	75,900	15,300	30,900	5,970	2,490	1,890	1,340
30	2,180	2,830	8,380	23,700	-	100,000	15,300	32,600	6,430	2,830	1,740	1,340
31	2,180	-	6,890	20,000	-	92,800	-	32,600	-	5,970	1,600	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
July 1937.....	136,790	7,380	3,170	4,413	0.398	0.46	271,300
August.....	70,070	3,540	1,600	2,260	.204	.24	139,000
September.....	114,300	18,600	1,600	3,810	.343	.38	226,700
The period.....							637,000
October 1937 .....	98,110	18,000	1,890	3,165	.285	.33	194,600
November.....	88,080	4,690	1,600	2,935	.264	.29	174,600
December.....	243,240	25,200	1,890	7,846	.707	.82	482,600
Calendar year .....							
January 1938 .....	401,840	59,800	2,660	12,960	1.17	1.35	797,000
February.....	1,315,000	198,000	6,430	46,960	4.23	4.40	2,608,000
March.....	623,540	100,000	9,420	20,110	1.81	2.09	1,237,000
April.....	831,700	71,900	14,700	27,720	2.50	2.79	1,660,000
May.....	930,790	86,000	9,420	30,020	2.70	3.11	1,846,000
June.....	491,600	35,200	5,970	16,390	1.48	1.65	975,100
July.....	110,710	5,970	2,490	3,871	.322	.37	219,600
August.....	76,590	5,970	1,600	2,471	.223	.26	151,900
September.....	47,010	1,890	1,340	1,567	.141	.16	93,240
Water year 1937-38 .....	5,258,180	198,000	1,340	14,410	1.30	17.62	10,430,000

## White River at De Valls Bluff, Ark.

Location.- Water-stage recorder, lat. 34°47', long. 91°27', in sec. 16, T. 2 N., R. 4 W., 1 mile northeast of De Valls Bluff and 23 miles upstream from mouth of Cache River. Zero of gage is 152.93 feet (revised) above mean sea level (general adjustment of 1929).

Drainage area.- 23,800 square miles.

Records available.- December 1927 to September 1938.

Extremes.- Maximum discharge during year, 134,000 second-feet Feb. 25; maximum gage height, 28.42 feet Feb. 27; minimum discharge, 4,990 second-feet Sept. 30 (gage height, 4.03 feet).

1927-38: Maximum discharge, 151,000 second-feet Jan. 23, 1937 (gage height, 29.20 feet); minimum, 3,200 second-feet Aug. 30 to Sept. 4, 1936 (gage height, 1.4 feet).

Maximum stage known, 34.6 feet Apr. 23, 1927.

Remarks.- Records good. Stage-discharge relation affected by backwater Feb. 25 to Mar. 10, April 11-14; discharge determined by slope method, using slope obtained from U. S. Weather Bureau gage at Clarendon, 25 miles downstream. On Feb. 23 levee breaks occurred above and below Georgetown, bypassing some of the flow of White River into Cache River.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,120	7,960	8,620	32,700	52,000	102,000	46,500	53,000	50,100	26,200	9,740	6,400
2	6,760	7,720	8,760	31,500	53,000	94,500	51,000	51,000	53,000	24,300	10,600	6,280
3	6,640	7,360	8,900	30,000	56,500	87,600	58,800	49,100	55,300	22,300	12,500	6,280
4	6,520	7,120	8,760	28,200	57,600	81,000	68,000	47,300	55,300	20,600	13,800	6,280
5	6,880	7,000	8,620	26,400	57,600	75,900	74,900	46,500	55,300	19,300	14,300	6,060
6	9,740	6,760	8,480	24,700	56,500	70,100	80,700	44,900	53,000	17,900	14,300	5,960
7	15,300	6,520	8,200	23,100	54,200	66,800	85,000	42,700	52,000	16,700	14,000	5,860
8	18,000	6,520	8,080	21,400	52,000	63,200	88,000	41,300	50,100	15,800	13,400	5,860
9	18,600	6,400	7,840	20,000	50,100	61,600	88,000	39,400	48,100	14,800	12,800	5,860
10	17,500	7,120	7,600	18,600	47,300	60,700	86,500	37,100	45,700	14,000	12,200	5,860
11	15,600	8,200	7,460	17,400	44,900	58,800	82,400	35,500	44,100	13,600	11,800	5,860
12	13,600	9,180	7,240	16,200	42,000	56,500	79,000	34,100	43,400	13,100	11,400	5,760
13	11,600	10,300	7,240	15,300	39,400	53,000	75,200	33,200	42,000	12,600	11,200	5,760
14	10,200	12,400	7,000	14,300	37,100	51,000	72,400	33,200	41,300	12,200	10,900	5,760
15	9,040	13,700	6,880	13,600	35,000	50,100	69,400	33,200	40,600	11,800	10,900	5,760
16	8,200	14,000	6,880	12,600	33,200	48,100	68,000	34,100	40,000	11,300	10,600	5,660
17	7,940	13,700	7,240	12,000	34,100	46,500	69,400	35,000	39,400	11,000	10,200	5,660
18	7,840	13,100	8,480	11,400	44,900	44,900	68,000	36,000	38,200	10,700	9,600	5,660
19	7,960	12,600	11,300	11,000	51,000	43,400	68,000	37,100	36,600	10,400	9,320	5,660
20	8,200	12,200	17,700	10,700	57,600	42,000	69,400	37,600	35,000	10,300	8,900	5,460
21	9,040	12,000	23,100	13,800	74,900	40,000	70,700	38,200	34,500	10,400	8,480	5,460
22	11,400	11,800	26,400	23,600	98,100	37,600	72,000	38,800	35,000	10,400	8,200	5,360
23	13,200	11,300	29,700	31,500	118,000	36,600	70,700	39,400	35,000	10,900	7,840	5,260
24	13,400	10,900	32,300	38,200	130,000	35,000	70,700	39,400	35,000	11,400	7,720	5,260
25	12,600	10,400	33,600	42,700	132,000	33,200	69,400	39,400	35,000	11,900	7,480	5,170
26	11,900	10,000	34,100	44,900	125,000	31,900	68,000	40,000	34,100	11,800	7,360	5,170
27	11,000	9,460	34,500	46,500	118,000	30,700	65,400	40,600	33,200	11,400	7,240	5,080
28	10,200	9,040	34,500	47,300	110,000	30,000	61,400	41,300	31,900	10,900	7,000	5,080
29	9,460	8,760	34,100	47,300	-	32,700	58,800	42,000	30,000	10,400	6,760	5,080
30	8,900	8,480	34,100	48,100	-	37,100	56,500	43,400	28,200	10,000	6,640	5,080
31	8,480	-	33,600	50,100	-	42,000	-	46,500	-	9,740	6,520	-
Month						Second-foot-days	Maximum	Minimum	Mean		Run-off in acre-feet	
October.....						332,720	18,600	6,520	10,730		659,900	
November.....						292,000	14,000	6,400	9,733		579,200	
December.....						521,300	34,500	6,880	16,820		1,034,000	
Calendar year 1937.....						9,123,980	151,000	5,460	25,000		18,100,000	
January.....						825,100	50,100	10,700	26,620		1,637,000	
February.....						1,662,000	132,000	35,200	66,500		3,693,000	
March.....						1,644,500	102,000	30,000	53,050		3,262,000	
April.....						2,112,200	88,000	46,500	70,410		4,189,000	
May.....						1,250,300	53,000	33,200	40,330		2,480,000	
June.....						1,250,400	55,300	28,200	41,680		2,480,000	
July.....						428,140	26,200	9,740	13,810		849,200	
August.....						313,700	14,300	6,520	10,120		622,200	
September.....						169,600	6,400	5,080	5,663		336,400	
Water year 1937-38.....						11,001,960	132,000	5,080	30,140		21,820,000	

Location.- Water-stage recorder, lat. 36°03', long. 94°07', in NE¼ sec. 24, T. 16 N., R. 30 W., 3 miles southeast of Fayetteville, and ¾ miles upstream from mouth. Zero of gage is 883.26 feet above mean sea level (Arkansas State highway benchmark).

Records available.- July 1937 to September 1938.

Extremes.- 1937: Maximum discharge during period, 725 second-feet Aug. 15 (gage height, 5.40 feet); no flow, July 23-25, July 27 to Aug. 3, Aug. 6-14.  
1937-38: Maximum discharge during year, 6,930 second-feet Feb. 18 (gage height, 16.18 feet) from rating curve extended above 3,600 second-feet; minimum, 0.5 second-foot Oct. 29, 30, Nov. 2, 3, Sept. 24-30.

Remarks.- Records good except those below 20 second-feet, which are poor. Discharge for periods of missing gage heights, Sept. 8-19, 23-30, estimated on basis of rainfall records, recorded range in stage, and hydrograph characteristics for station. City of Payetteville diverts water for municipal use above station.

Rating table, 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used July 23 to Nov. 8, 1937, Sept. 20-22, 1938)

1.7	0.4	4.0	250
1.8	.8	5.0	570
2.0	2.4	6.0	970
2.3	10	8.0	1,920
2.6	25	10.0	3,000
3.0	60	13.0	4,760
3.5	135	16.0	6,770

## Discharge, in second feet, 1937-38

1937

[illegible]

Discharge, in second-feet, West Fork of White River near Fayetteville, Ark.,  
1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.5	0.6	8.4	44	135	96	337	82	156	18	0.9	1.4
2	4.5	.5	8.1	42	124	97	247	70	119	15	.9	2.8
3	4.5	.5	9.4	39	114	86	191	81	91	13	.7	1.0
4	4.5	.8	10	37	97	75	154	57	76	11	.8	.6
5	4.5	1.4	8.7	34	82	238	133	53	62	9.4	.8	.6
6	4.1	1.2	6.8	34	98	103	117	80	52	7.8	.9	.6
7	3.4	.8	6.5	39	90	82	193	1,330	136	6.8	1.0	.8
8	2.3	25	6.3	37	77	77	310	334	108	2.4	1.2	.8
9	4.5	4.7	5.5	32	72	96	427	175	104	1.4	1.3	.7
10	3.1	129	5.0	24	66	110	482	150	150	1.3	1.5	.7
11	2.5	41	5.0	22	61	85	316	94	660	1.2	3.8	.6
12	3.4	33	5.0	21	57	73	239	81	448	1.3	1.3	.7
13	3.4	28	6.3	18	52	68	193	262	236	1.3	.8	4.5
14	2.1	23	8.7	18	279	64	156	175	144	2.6	.7	2.6
15	1.6	20	11	16	3,840	72	468	112	105	2.3	.6	1.2
16	1.2	28	525	16	3,160	56	1,100	95	86	15	8.5	1.1
17	1.2	24	2,500	15	3,900	49	451	82	208	13	15	1.1
18	2.1	19	604	14	3,760	46	313	73	139	3.8	1.5	1.1
19	4.5	16	286	14	1,100	290	231	257	213	2.2	.8	1.1
20	4.5	14	182	16	605	280	337	191	130	2.3	.7	1.0
21	3.8	12	131	37	437	148	713	100	92	2.0	.7	.6
22	2.5	11	110	41	355	122	709	323	65	1.8	.9	.6
23	2.1	10	107	615	274	103	394	1,400	51	1.6	.8	.6
24	1.6	9.7	91	2,960	216	86	286	665	42	1.4	.6	.5
25	1.0	8.7	77	785	173	72	220	361	36	1.6	.6	.5
26	.8	8.1	68	382	148	230	180	250	41	1.3	.6	.5
27	.6	8.1	62	247	126	970	148	295	36	.9	.6	.5
28	.6	11	59	182	108	1,090	143	189	31	.8	.6	.5
29	.5	11	51	167	-	1,900	114	310	24	1.3	.6	.5
30	.5	9.0	48	253	-	825	97	250	21	1.8	.9	.5
31	.6	-	46	169	-	500	-	164	-	1.3	1.1	-

  

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
July 23-31, 1937.....	0.3	0.3	0	0.03	0.6
August.....	320.3	116	0	10.3	635
September.....	779.7	219	.5	26.0	1,550
The Period.....					2,190
October 1937 .....	81.0	4.5	.5	2.61	161
November.....	509.1	129	.5	17.0	1,010
December.....	4,857.7	2,300	5.0	157	9,640
Calendar year .....					
January 1938 .....	6,370	2,960	14	205	12,630
February.....	19,606	3,900	52	700	38,890
March.....	8,189	1,900	46	264	16,240
April.....	9,389	1,100	97	313	18,620
May.....	10,102	3,400	53	326	20,040
June.....	3,862	660	21	129	7,660
July.....	146.9	18	.8	4.74	291
August.....	51.7	15	.6	1.67	103
September.....	30.5	4.5	.5	1.02	60
Water year 1937-38 .....	63,194.9	3,900	.5	173	125,300

Peak discharge.- Feb. 15, 1938 (12:15 p.m.) 5,120 sec.-ft.; Feb. 18, 1938 (1:45 a.m.) 6,930 sec.-ft.; May 23, 1938 (8:30 a.m.) 6,180 sec.-ft.

## James River at Galena, Mo.

Location.- Wire-weight gage, lat. 36°48'20", long. 93°27'50", in NW¼ sec. 7, T. 24 N., R. 23 W., at bridge on State Highways 13 and 44, in Galena, half a mile above Rayley Creek. Zero of gage is 923.37 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,000 square miles.

Records available.- October 1921 to September 1938.

Average discharge.- 16 years (1922-38), 1,002 second-feet.

Extremes.- Maximum discharge during year, 16,400 second-feet Feb. 19 (gage height, 14.08 feet, from graph based on gage readings); minimum observed, 82 second-feet Sept. 29, 30 (gage height, 1.10 feet).  
1921-38: Maximum discharge, 60,400 second-feet Mar. 11, 1935 (gage height, 27.05 feet); minimum, 22 second-feet Aug. 26, 27, 29, 30, Sept. 4, 1936; minimum gage height, 0.45 foot Aug. 30, 1936.

Remarks.- Records good. Gage read twice daily or oftener.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used May 7-23)

Oct. 1 to May 7

May 8 to Sept. 30

1.4	80	2.6	439	7.0	4,400	1.0	69	2.2	350	4.0	1,480
1.6	113	2.8	555	8.0	5,730	1.2	96	2.4	435	5.0	2,300
1.8	154	3.0	676	10.0	8,800	1.4	130	2.6	540	6.0	3,250
2.0	203	4.0	1,355	12.0	12,372	1.6	172	2.8	660	8.0	5,950
2.2	263	5.0	2,200	15.0	18,300	1.8	220	3.0	790	11.0	10,600
2.4	337	6.0	3,220			2.0	280	3.5	1,130		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	92	97	154	863	1,340	2,590	707	1,640	512	208	107
2	89	102	90	133	769	1,190	1,920	738	1,480	485	208	112
3	88	88	97	133	707	1,120	1,480	646	1,270	435	195	110
4	109	88	106	133	615	1,060	1,260	555	1,480	390	184	109
5	121	95	104	133	555	1,060	1,120	526	1,270	390	184	109
6	123	95	109	131	496	992	992	439	1,060	390	172	130
7	113	102	113	123	496	927	927	3,220	4,550	350	758	121
8	99	99	115	125	469	927	1,190	6,100	2,570	390	692	107
9	133	109	117	125	439	863	2,490	2,950	1,800	370	370	109
10	129	113	121	117	439	863	2,490	2,130	1,960	332	280	106
11	125	117	127	117	412	863	2,010	1,720	1,560	314	220	102
12	113	121	127	119	385	863	1,650	1,480	1,410	297	314	99
13	127	109	125	111	361	927	1,410	3,050	1,200	280	208	110
14	106	111	113	111	385	863	1,260	2,590	1,060	280	184	121
15	115	111	99	109	707	992	1,120	1,960	990	264	172	110
16	108	113	133	106	2,690	863	1,260	1,800	1,800	248	161	106
17	117	106	385	99	6,320	800	1,190	2,040	2,480	280	161	102
18	111	111	585	94	13,900	769	1,060	2,220	2,300	350	150	109
19	133	108	927	106	12,800	738	992	2,130	1,800	297	150	112
20	129	106	676	127	5,870	738	927	1,960	1,480	280	140	112
21	121	100	496	263	4,400	707	927	1,800	1,270	264	130	109
22	115	99	385	927	3,330	676	863	1,980	1,130	248	121	106
23	125	99	337	1,060	2,690	646	863	5,390	990	234	121	99
24	113	102	297	1,920	2,300	615	769	9,670	922	220	121	93
25	102	95	263	5,180	2,010	555	738	4,970	822	220	109	90
26	102	102	232	2,390	1,820	555	676	3,150	758	195	112	86
27	111	100	203	1,480	1,650	585	646	2,390	725	172	107	88
28	99	99	203	1,120	1,480	585	800	2,130	660	195	109	88
29	106	89	190	927	-	2,690	927	2,390	600	412	106	82
30	92	95	177	927	-	4,790	769	2,130	570	314	112	83
31	95	-	166	927	-	3,000	-	1,960	-	248	112	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	3,464	133	88	112	0.112	0.13	6,870
November.....	3,076	121	88	103	.103	.11	6,100
December.....	7,315	927	90	236	.236	.27	14,510
Calendar year 1937.....	388,482	14,000	88	1,064	1.06	14.43	770,600
January.....	19,527	5,180	94	630	.630	.73	38,730
February.....	69,358	13,900	361	2,477	2.48	2.58	137,600
March.....	34,162	4,790	555	1,102	1.10	1.27	67,760
April.....	37,316	2,590	646	1,244	1.24	1.38	74,020
May.....	78,621	9,670	439	2,472	2.47	2.85	152,000
June.....	43,607	4,550	570	1,454	1.45	1.62	86,490
July.....	9,886	512	172	311	.311	.36	19,150
August.....	6,371	758	106	206	.206	.24	12,640
September.....	3,127	130	82	104	.104	.12	6,200
Water year 1937-38.....	313,600	13,900	82	859	.859	11.66	622,100

## WHITE RIVER BASIN

Wilson Creek near Springfield, Mo.

Location.- Water-stage recorder, lat. 37°11'35", long. 93°20'20", in NW¼SE¼ sec. 26, T. 29 N., R. 22 W., three-quarters of a mile downstream from Jordan Creek and 2 miles southwest of Springfield. Zero of gage is 1,196.16 feet (revised) above mean sea level (general adjustment of 1929).

Drainage area.- 19.4 square miles.

Records available.- May 1932 to September 1938.

Extremes.- Maximum discharge during year, 980 second-feet June 16 (gage height, 5.35 feet, from range of stage on recorder chart); minimum, 3.8 second-feet Oct. 15, 16 (gage height, 0.25 foot); minimum daily discharge, 5.6 second-feet Oct. 16.

1932-38: Maximum discharge, about 2,440 second-feet June 27, 1932 (gage height, 7.62 feet); minimum, 2.1 second-feet Sept. 13, 1936; minimum gage height, that of Oct. 15, 16, 1937; minimum daily discharge, 3.2 second-feet Oct. 8, 1932, Sept. 11, 1936.

Remarks.- Records fair except those for periods of missing gage heights, which are poor. Sewage from Springfield enters creek above this station. Springfield water supply is pumped from Little Sac River Basin.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used July 17 to Sept. 30)

0.30	4.6	2.50	192
.40	7.1	3.00	259
.50	11	3.50	349
.80	30	4.00	480
1.00	46	4.50	654
1.50	88	5.00	844
2.00	135	5.55	980

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	*11	7.5	6.8	*8	13	29	*34	14	30	*12	8.7	7.1
2	*11	7.9	6.6	7.1	12	26	*23	15	26	11	8.7	6.8
3	*11	7.5	12	6.6	12	25	*22	15	24	*11	8.3	7.9
4	*18	13	9.8	7.5	11	22	*22	16	23	*10	8.3	23
5	*13	7.9	*9	7.1	11	34	21	13	*26	*10	8.7	21
6	*12	6.6	*8	7.1	11	19	19	13	*45	*30	8.3	12
7	*13	6.6	*9	6.6	17	21	42	130	*38	*21	7.5	11
8	*17	7.9	*8	6.8	13	19	75	35	*30	15	8.7	10
9	*14	9.8	*8	7.1	12	20	47	27	*50	11	8.7	9.8
10	*12	7.1	*7	6.6	12	22	36	24	*40	9.0	8.3	8.7
11	10	13	*7	6.6	11	46	32	28	*28	10	7.9	7.1
12	*8	8.3	6.6	6.6	10	15	28	29	19	9.8	7.9	8.7
13	*6	7.9	*7	6.6	14	18	26	26	*19	9.4	7.1	9.7
14	5.8	7.9	8.3	6.8	22	19	24	22	*21	9.0	7.1	7.5
15	5.8	7.5	12	6.8	51	19	38	18	*94	8.3	7.9	6.8
16	5.6	6.8	32	6.4	58	17	31	48	*250	30	10	6.6
17	*13	7.5	27	5.8	120	16	26	26	*170	22	8.3	7.1
18	*20	5.8	*22	7.1	122	14	25	24	*58	12	7.9	11
19	*15	6.4	10	7.5	83	14	24	32	*48	11	7.1	7.9
20	7.1	5.8	*8	44	67	13	38	28	*39	9.4	7.5	7.1
21	6.8	6.1	*8	24	56	13	22	24	36	9.0	7.1	7.1
22	6.6	6.1	7.9	16	53	13	21	66	*33	9.4	7.9	7.1
23	6.8	6.1	8.3	23	47	12	21	157	*30	9.0	8.3	7.1
24	5.8	5.8	8.3	75	40	11	21	68	*28	8.3	7.5	7.1
25	7.1	6.1	7.1	30	35	10	21	53	*33	9.0	7.5	7.5
26	*7	7.1	6.8	22	32	22	19	45	*27	8.7	7.9	7.5
27	7.5	6.4	7.9	18	29	11	18	41	17	8.3	7.5	7.1
28	6.6	7.1	7.9	17	28	40	22	36	*15	8.7	6.8	6.8
29	6.6	7.1	7.1	16	-	45	14	39	*13	7.9	7.9	6.8
30	6.6	6.8	6.4	36	-	*42	15	30	*12	8.3	7.9	7.1
31	6.4	-	10	15	-	*40	-	29	-	6.3	7.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	302.1	20	5.6	9.75	0.503	0.58	599
November.....	223.4	13	5.8	7.45	.384	.43	443
December.....	309.8	32	6.4	9.99	.515	.59	614
Calendar year 1937.....	9,860.9	435	5.6	27.0	1.39	18.90	19,560
January.....	466.7	75	5.8	15.1	.778	.90	926
February.....	1,072	122	10	39.3	1.97	2.05	2,130
March.....	657	45	10	21.2	1.09	1.26	1,300
April.....	827	75	14	27.6	1.42	1.58	1,640
May.....	1,171	157	13	37.8	1.95	2.25	2,320
June.....	1,317	250	12	43.9	2.26	2.52	2,610
July.....	365.8	30	7.9	11.8	.608	.70	726
August.....	246.7	10	6.8	7.96	.410	.47	489
September.....	268.0	23	6.6	8.93	.460	.51	532
Water year 1937-38.....	7,226.5	250	5.6	19.8	1.02	13.84	14,330

\*Missing gage height; discharge computed on basis of rainfall records.



## Buffalo River near Rush, Ark.

Location.- Staff gage, lat. 36°07', long. 92°34', in SE¼ sec. 10, T. 17 N., R. 15 W., immediately upstream from Rush Creek, 1½ miles southeast of Rush and 24 miles upstream from mouth. Zero of gage is 458.70 feet above mean sea level (White River Power Co. benchmark).

Drainage area.- 1,110 square miles.

Records available.- October 1928 to September 1938.

Average discharge.- 10 years, 1,289 second-feet.

Extremes.- Maximum discharge observed during year, 68,100 second-feet Feb. 18 (gage height, 25.2 feet), from rating curve extended above 28,000 second-feet; minimum observed, 46 second-feet Sept. 29, 30 (gage height, 0.74 foot).

1928-38: Maximum discharge observed, that of Feb. 18, 1938; minimum observed, 15 second-feet Aug. 30 to Sept. 2, 1936; minimum gage height, 0.6 foot Sept. 25-30, Oct. 1-3, 7-9, 1929, Sept. 10-22, 1932.

Maximum stage known, 49.5 feet Apr. 21, 1927, former site and datum (discharge, about 107,000 second-feet).

Remarks.- Records good. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	95	135	221	670	2,010	1,480	5,620	2,150	1,080	242	201	68
2	85	131	210	625	1,680	1,300	4,600	1,740	910	232	182	68
3	98	127	210	582	1,420	1,180	3,320	1,420	810	221	172	79
4	127	120	201	532	1,240	1,130	2,720	1,240	715	201	155	82
5	163	112	201	464	1,080	1,080	2,290	1,740	715	191	135	98
6	196	112	201	460	1,020	1,020	2,010	1,540	670	182	116	92
7	159	112	191	424	965	910	1,870	1,240	762	172	112	92
8	116	120	191	382	860	860	2,430	3,950	1,180	172	112	92
9	120	127	182	363	810	965	4,110	2,150	1,180	172	112	85
10	120	143	182	363	715	965	3,790	1,360	965	155	109	79
11	109	2,570	172	344	715	910	3,020	1,180	1,080	147	109	74
12	108	2,290	172	318	670	910	2,570	1,020	1,020	147	109	71
13	106	1,610	163	300	625	910	2,150	1,740	715	139	109	71
14	106	1,080	163	288	670	1,060	1,870	4,770	670	139	106	71
15	98	762	172	276	21,800	1,020	1,740	2,670	625	131	106	71
16	98	625	306	259	27,300	1,080	14,500	2,150	540	131	106	59
17	120	516	1,430	242	41,000	1,080	9,670	1,610	508	131	106	59
18	253	476	6,680	232	63,900	1,020	5,280	1,360	516	131	106	59
19	540	439	4,270	232	29,400	1,020	3,950	1,180	860	123	102	59
20	715	396	2,430	221	11,300	965	3,020	1,300	1,610	123	102	59
21	625	356	1,740	221	7,040	1,020	2,720	1,480	1,300	116	95	59
22	453	330	1,420	312	5,450	965	3,170	1,420	810	116	95	59
23	363	294	1,240	1,680	4,430	910	3,020	11,000	625	116	95	59
24	276	270	1,080	17,500	3,470	910	2,570	8,390	484	116	88	59
25	232	253	965	16,500	2,570	910	2,150	4,430	410	116	88	51
26	210	242	860	7,600	2,150	860	1,870	3,320	376	116	82	51
27	191	232	810	4,270	1,870	1,870	1,680	2,430	337	116	82	51
28	172	232	810	2,870	1,680	4,940	1,870	2,290	512	116	76	48
29	143	232	762	2,290	-	18,700	3,320	2,430	286	116	76	46
30	135	221	715	2,010	-	12,500	2,290	1,740	259	226	71	46
31	135	-	715	2,150	-	7,990	-	1,360	-	232	71	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	6,465	715	85	209	0.188	0.22	12,820
November.....	14,665	2,570	112	469	.441	.49	29,090
December.....	29,065	6,680	163	958	.845	.97	57,950
Calendar year 1937.....	445,622	27,300	64	1,221	1.10	14.92	883,900
January.....	65,000	17,500	221	2,097	1.89	2.18	128,900
February.....	237,840	63,900	625	8,494	7.65	7.97	471,700
March.....	72,460	18,700	860	2,337	2.11	2.43	143,700
April.....	104,890	14,500	1,680	3,496	3.15	3.52	208,000
May.....	78,000	11,000	1,020	2,516	2.27	2.62	154,700
June.....	22,332	1,610	259	744	.670	.76	44,290
July.....	4,794	242	116	154	.139	.16	9,490
August.....	3,366	201	71	109	.098	.11	6,720
September.....	2,017	98	46	67.2	.060	.07	4,000
Water year 1937-38.....	640,904	63,900	46	1,756	1.58	21.49	1,271,000

## WHITE RIVER BASIN

## North Fork of White River at Tecumseh, Mo.

Location.- Wire-weight gage, lat. 36°36'16", long. 92°17'19", in NW¼ sec. 16, T. 22 N., R. 12 W., at bridge on State Highway 80, at Tecumseh, half a mile downstream from Bryant Creek. Zero of gage is 547.75 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,180 square miles.

Records available.- October 1921 to September 1938.

Average discharge.- 16 years (1922-38), 1,235 second-feet.

Extremes.- Maximum discharge during year, 23,600 second-feet Feb. 18 (gage height, 18.80 feet, from graph based on gage readings); minimum observed, 414 second-feet on many days; minimum gage height observed, 0.88 foot Dec. 11.

1921-38: Maximum discharge observed, 53,000 second-feet June 13, 1928 (gage height, 24.00 feet), from rating curve extended above 40,000 second-feet; minimum discharge, 280 second-feet Sept. 16, 1936; minimum gage height, 0.74 foot Aug. 16, 30, 31, 1936.

Maximum stage known, 31.6 feet in July 1905, from floodmarks.

Remarks.- Records good. Gage read twice daily.

Rating table, water year 1937-38 (gage height in feet, and discharge, in second-feet)  
(Shifting-control method used Oct. 1 to Dec. 16)

0.8	414	2.0	1,370	5.0	5,490	13.0	19,200
1.0	520	2.5	1,980	7.0	8,540	16.0	28,400
1.3	720	3.0	2,640	10.0	13,500	17.0	29,200
1.6	963						

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	414	439	414	551	1,060	1,480	3,200	2,370	2,370	963	720	520
2	414	439	414	520	963	1,450	2,640	1,860	2,110	963	694	520
3	439	414	414	520	920	1,370	2,370	1,730	1,860	963	649	551
4	439	414	439	520	877	1,320	2,110	1,540	1,730	920	649	551
5	439	439	439	520	836	1,480	1,980	1,980	1,600	877	616	551
6	439	439	414	520	836	1,320	1,860	1,730	1,480	877	616	551
7	414	439	439	520	796	1,210	1,730	1,860	1,860	877	836	616
8	414	439	414	520	758	1,160	2,370	4,330	2,110	836	796	551
9	439	439	414	492	720	1,160	2,920	2,640	1,730	796	694	520
10	439	464	414	492	720	1,260	2,500	2,110	1,600	796	649	520
11	414	464	414	492	720	1,260	2,240	1,860	1,540	796	616	520
12	414	439	414	492	720	1,210	1,980	1,600	1,430	758	616	520
13	414	439	414	492	684	1,210	1,860	3,200	1,320	758	616	551
14	414	439	414	492	758	1,210	1,730	3,340	1,260	758	616	616
15	414	439	414	492	2,370	1,260	1,600	2,640	1,210	720	582	616
16	414	464	464	492	3,340	1,260	3,930	2,240	1,160	720	649	551
17	464	439	1,540	492	9,480	1,210	3,670	2,370	1,370	720	616	551
18	439	439	1,860	492	22,800	1,160	2,920	2,500	1,430	758	582	551
19	492	439	1,210	464	9,940	1,100	2,500	2,370	1,860	720	582	520
20	492	439	920	492	5,640	1,540	2,240	2,500	2,500	720	582	520
21	464	414	796	551	4,040	1,430	1,980	2,370	1,860	720	551	520
22	464	414	758	582	3,340	1,320	1,860	2,780	1,540	720	551	520
23	439	414	684	726	2,780	1,370	1,600	16,600	1,430	720	551	520
24	439	414	649	3,250	2,370	1,320	1,540	8,700	1,320	694	551	520
25	439	414	616	3,720	2,110	1,260	1,480	4,760	1,260	694	520	520
26	439	414	582	2,090	1,980	1,320	1,370	3,760	1,370	649	551	492
27	439	439	582	1,480	1,860	1,730	1,320	3,060	1,260	649	551	492
28	439	439	582	1,260	1,600	1,980	1,480	3,060	1,160	758	551	492
29	439	439	582	1,100	-	8,980	1,430	3,060	1,060	836	582	492
30	439	414	582	1,100	-	5,660	2,240	3,760	1,060	758	551	492
31	439	-	551	1,100	-	4,180	-	2,780	-	758	520	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	13,593	492	414	438	0.371	0.43	26,960
November.....	13,020	464	414	434	.368	.41	25,820
December.....	19,243	1,860	414	621	.526	.61	38,170
Calendar year 1937 .....	408,652	12,000	413	1,120	.749	12.90	810,500
January.....	27,006	3,720	464	871	.738	.85	53,570
February.....	85,018	22,800	684	3,036	2.57	2.68	168,600
March.....	56,160	8,980	1,100	1,812	1.54	1.78	111,400
April.....	64,660	3,930	1,320	2,155	1.83	2.04	128,200
May.....	100,360	15,500	1,540	3,237	2.74	3.16	199,100
June.....	46,860	2,500	1,060	1,562	1.32	1.47	92,930
July.....	24,232	963	649	782	.663	.76	48,060
August.....	18,986	836	520	612	.519	.60	37,880
September.....	16,027	616	492	534	.453	.51	31,790
Water year 1937-38.....	485,145	22,800	414	1,329	1.13	15.30	962,300

## North Fork of White River near Henderson, Ark.

Location.- Staff gage, lat. 36°22', long. 92°14', in NE¼SW¼ sec. 26, T. 20 N., R. 12 W., 1 mile southeast of Henderson, 1 mile downstream from Bennetts Bayou, and 19 miles upstream from mouth. Zero of gage is 430.67 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,640 square miles.

Records available.- July 1909 to December 1910, October 1928 to September 1938.

Average discharge.- 10 years (1928-38), 1,464 second-feet.

Extremes.- Maximum discharge observed during year, 47,700 second-feet Feb. 18 (gage height, 19.00 feet) from logarithmic extension of rating curve above 11,000 second-feet; minimum observed, 413 second-feet Nov. 28, Dec. 8-13 (gage height, 1.42 feet).

1928-38: Maximum discharge observed, 62,900 second-feet Mar. 11, 1935 (gage height, 22.2 feet) from logarithmic extension of rating curve above 11,000 second-feet; minimum observed, 312 second-feet Aug. 1-3, 15-17, 23, Sept. 1, 1936 (gage height, 1.34 feet).

Maximum stage known, 29.5 feet in August 1915.

Remarks.- Records good. Gage read twice daily.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.4	413	5.0	4,690
1.6	513	6.0	6,630
2.0	790	8.0	11,290
2.5	1,240	11.0	19,700
3.0	1,770	15.0	32,700
4.0	3,070	19.0	47,700

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	436	436	436	573	1,440	2,010	5,050	3,370	3,070	1,190	960	543
2	436	436	436	573	1,340	1,890	4,000	2,520	2,790	1,140	870	543
3	436	436	436	543	1,190	1,770	3,370	2,260	2,520	1,100	870	543
4	436	436	436	543	1,140	1,660	3,070	2,130	2,260	1,100	790	543
5	460	436	436	543	1,100	1,890	2,790	2,010	2,010	1,050	710	638
6	436	436	436	513	1,050	1,770	2,520	2,010	1,890	1,000	638	638
7	436	436	436	513	960	1,550	2,390	2,130	1,890	960	750	606
8	436	436	413	513	915	1,650	3,520	5,820	2,130	1,000	790	573
9	436	460	413	573	915	1,650	4,000	4,170	2,390	960	750	573
10	436	486	413	543	870	2,010	3,680	2,650	2,130	960	710	543
11	436	486	413	513	830	1,770	3,070	2,260	1,890	915	710	543
12	436	486	413	513	790	1,770	2,790	2,130	1,770	870	674	543
13	436	460	413	486	790	1,660	2,520	9,560	1,660	870	674	543
14	436	460	436	486	1,050	1,660	2,390	5,430	1,550	830	638	638
15	436	436	436	460	3,480	1,650	2,520	3,840	1,550	830	638	606
16	436	436	486	460	5,050	2,010	11,500	3,220	1,550	790	674	573
17	486	436	3,120	460	17,000	1,770	6,220	2,930	2,790	790	674	573
18	486	460	3,070	460	39,100	1,660	5,050	3,070	2,650	830	638	543
19	573	436	2,930	460	21,600	1,890	4,540	3,070	2,520	790	638	543
20	543	436	2,130	460	10,000	3,520	3,520	2,930	3,220	790	606	543
21	513	436	1,340	573	6,220	2,390	3,070	2,790	2,390	790	573	513
22	486	436	870	638	4,870	2,130	2,520	2,930	1,890	790	573	513
23	486	436	850	966	4,000	2,010	2,390	25,800	1,770	790	573	513
24	460	436	750	9,330	3,370	2,010	2,130	15,300	1,660	750	573	513
25	460	436	710	6,630	2,930	1,890	2,010	7,490	1,550	750	543	513
26	460	436	674	3,520	2,650	2,260	1,890	5,240	1,550	710	543	513
27	460	436	674	2,260	2,390	3,070	1,770	4,170	1,440	710	543	513
28	436	413	638	1,660	2,130	4,730	2,520	3,680	1,340	750	543	513
29	436	436	606	1,550	-	24,100	2,010	7,460	1,340	870	573	513
30	436	436	606	1,660	-	12,300	1,890	5,050	1,240	1,440	573	486
31	436	-	573	1,770	-	7,050	-	3,840	-	1,240	543	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	14,214	573	436	459	0.290	0.32	28,190
November.....	13,303	486	413	443	.270	.30	26,390
December.....	26,409	3,120	413	852	.520	.60	52,380
Calendar year 1937.....	581,457	30,200	413	1,593	.971	13.19	1,153,000
January.....	40,745	9,330	460	1,314	.801	.92	80,820
February.....	139,170	39,100	790	4,970	3.03	3.15	276,000
March.....	100,850	24,100	1,550	3,253	1.98	2.22	200,000
April.....	100,870	11,500	1,770	3,356	2.05	2.29	199,700
May.....	151,260	25,800	2,010	4,879	2.98	3.44	300,000
June.....	60,400	3,220	1,240	2,013	1.23	1.37	119,800
July.....	28,355	1,440	710	915	.558	.64	56,240
August.....	20,555	960	543	663	.404	.47	40,770
September.....	16,494	638	486	550	.335	.37	32,720
Water year 1937-38.....	712,425	39,100	413	1,950	1.19	16.15	1,413,000

## Black River at Leeper, Mo.

Location.— Water-stage recorder, lat. 37°04'30", long. 90°42'35", in SW¼ sec. 27, T. 28 N., R. 3 E., at Missouri Southern Railroad bridge, at Leeper, and 2½ miles downstream from McKenzie Creek. Prior to Oct. 22, 1937, chain gage at same site and datum. Zero of gage is 424.66 feet above mean sea level (general adjustment of 1929).

Drainage area.— 957 square miles.

Records available.— June 1921 to September 1938.

Average discharge.— 17 years, 956 second-feet.

Extremes.— Maximum discharge during year, 36,200 second-feet Feb. 18 (gage height, 15.42 feet); minimum, 244 second-feet Sept. 29, 30; minimum gage height, 1.46 feet Oct. 2, 1921-38; Maximum discharge, 78,400 second-feet May 14, 1933 (gage height, 20.1 feet); minimum, 133 second-feet Aug. 11, 1934 (gage height, 1.22 feet).

Maximum stage known, about 24.7 feet in March 1904, from floodmarks (discharge, 125,000 second-feet, estimated).

Remarks.— Records excellent. Gage-height record collected in cooperation with the U. S. Weather Bureau.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used September 3-9)

Oct. 1 to Dec. 17				Dec. 18 to June 16 Sept. 7 to Sept. 30				June 17 to Sept. 8			
1.2	197	5.0	2,940	1.5	208			1.3	200		
1.4	238	6.0	4,300	1.7	257			1.7	293		
1.6	286	7.0	6,000	2.0	339			2.0	396		
2.0	404	8.0	8,000	2.3	442			2.3	508		
2.4	572	10.0	12,800	2.6	584			2.6	664		
2.8	790	12.0	18,600	2.9	775			2.8	790		
3.5	1,310	13.5	24,700	3.3	1,105						
4.0	1,780	15.0	33,400	3.8	1,580						
4.5	2,320	16.0	40,800								

Note.— Same as preceding table above 3.8 feet.

Note.— Same as rating table for Oct. 1 to Dec. 17 above 2.8 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	266	274	411	451	1,340	1,340	5,430	998	1,200	707	770	307
2	252	281	404	419	1,040	1,240	3,330	1,020	1,080	658	694	304
3	261	286	391	404	1,020	1,170	2,440	972	964	614	608	299
4	286	286	381	390	922	1,110	1,990	914	866	577	542	293
5	404	291	371	373	882	1,070	1,680	890	805	546	495	285
6	340	312	359	370	835	1,040	1,530	874	747	513	470	280
7	318	309	366	364	761	1,020	1,430	855	719	462	473	278
8	307	340	346	361	705	981	1,430	1,240	705	470	462	267
9	302	340	340	351	660	964	2,380	1,340	696	460	435	262
10	302	332	332	342	641	956	2,160	1,100	686	452	423	252
11	291	323	323	342	641	947	1,780	939	733	444	401	252
12	281	318	318	339	692	930	1,580	930	686	427	379	254
13	291	312	315	330	699	972	1,430	961	618	408	376	254
14	286	312	312	327	726	1,200	1,340	1,120	584	397	369	252
15	271	312	315	319	798	1,530	1,290	1,100	548	368	359	254
16	281	309	352	313	1,140	3,740	2,040	1,010	660	372	359	257
17	271	304	1,390	310	4,940	2,680	4,020	964	2,045	434	359	257
18	329	309	4,020	307	28,600	1,990	2,740	1,100	1,490	1,070	359	257
19	371	302	2,500	307	15,100	1,680	2,100	1,380	2,440	1,000	352	257
20	384	302	1,680	322	6,840	1,480	1,780	1,240	3,330	811	343	254
21	384	289	1,240	705	4,300	1,380	1,580	1,100	1,940	694	333	254
22	388	296	1,020	2,380	3,200	1,240	1,380	1,040	1,440	602	330	254
23	362	291	860	1,680	2,660	1,160	1,290	2,780	1,230	556	327	252
24	340	289	753	2,320	2,100	1,130	1,200	9,240	1,150	513	321	252
25	318	291	641	3,600	1,830	1,080	1,150	3,870	1,070	477	315	252
26	312	294	574	2,210	1,680	1,030	1,100	2,380	1,040	468	313	252
27	302	312	542	1,530	1,630	998	1,030	1,940	965	473	307	250
28	299	394	504	1,240	1,580	981	990	1,730	888	464	310	250
29	286	391	476	1,070	-	5,430	947	1,990	811	556	307	244
30	286	415	455	1,240	-	7,580	981	1,630	751	664	304	244
31	284	-	438	1,530	-	6,570	-	1,340	-	713	304	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	9,645	404	252	311	0.525	0.37	19,130
November.....	9,426	415	274	314	.328	.37	18,700
December.....	22,689	4,020	312	732	.765	.86	46,000
Calendar year 1937.....	356,788	22,400	228	978	1.02	13.86	707,700
January.....	26,526	3,600	307	858	.994	1.03	52,610
February.....	81,562	22,600	641	2,913	3.04	3.17	161,800
March.....	56,619	7,580	930	1,826	1.91	2.20	112,300
April.....	55,543	5,430	947	1,852	1.94	2.16	110,200
May.....	50,037	9,240	835	1,614	1.69	1.95	99,250
June.....	32,877	3,330	548	1,096	1.15	1.23	65,210
July.....	17,408	1,070	372	562	.587	.68	34,530
August.....	12,499	770	304	403	.421	.49	24,790
September.....	7,879	307	244	263	.275	.31	16,530
Water year 1937-38.....	362,715	22,600	244	1,049	1.10	14.89	769,200

Peak discharge.— Dec. 18 (7 a.m.) 4,750 sec.-ft.; Feb. 18 (8:30 p.m.) 36,200 sec.-ft.; Mar. 30 (3 a.m.) 8,440 sec.-ft.; Apr. 17 (8 a.m.) 4,450 sec.-ft.; May 27 (7 a.m.) 11,500 sec.-ft.; June 20 (4 a.m.) 4,300 sec.-ft.

## Black River at Pocahontas, Ark.

Location.- Wire-weight gage, lat. 36°15', long. 90°58', in SW¼ sec. 27, R. 1 E., T. 19 N., at Pocahontas, 1½ miles downstream from Fourche Creek, 6 miles downstream from Current River and 15 miles upstream from Spring River. Zero of gage is 242.43 feet above mean Gulf level ( Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 4,900 square miles.

Records available.- July 1937 to September 1938.

Extremes.- 1937: Maximum discharge observed during period, 6,270 second-feet July 20 (gage height, 8.18 feet); minimum observed, 1,680 second-feet Sept. 24 (gage height, 0.94 foot).  
1937-38: Maximum discharge during year, 30,100 second-feet Feb. 25 (gage height, 21.94 feet); minimum observed, 1,780 second-feet Oct. 2 (gage height, 1.11 feet).  
Maximum stage known, 25.9 feet in April 1927.

Remarks.- Records good. Gage read twice daily. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

Rating table, period July 1937 to September 1938 (gage height, in feet, and discharge, in second-feet)

0.9	1,680	14.0	11,010
2.0	2,200	17.0	14,010
4.0	3,340	19.0	17,090
6.0	4,650	20.0	19,900
8.0	6,110	21.0	24,200
10.0	7,710	22.0	30,800

Discharge, in second-feet, 1937-38

1937

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										-	2,250	1,760
2										-	2,250	1,760
3										-	2,200	1,850
4										-	2,150	1,950
5										-	2,150	2,350
6										-	2,100	2,400
7										-	2,100	2,300
8										-	2,100	2,150
9										-	2,100	2,050
10										-	2,100	2,100
11										-	2,050	2,250
12										-	2,050	2,350
13										-	2,000	2,150
14										-	2,000	2,050
15										-	1,950	1,950
16										5,650	1,900	1,900
17										5,490	1,900	1,850
18										5,070	1,850	1,800
19										5,560	1,850	1,760
20										6,050	1,850	1,760
21										4,790	1,800	1,720
22										4,090	1,800	1,720
23										3,520	1,950	1,720
24										2,980	2,100	1,720
25										2,920	1,900	1,760
26										2,740	1,850	1,950
27										2,620	1,850	1,850
28										2,500	1,800	1,850
29										2,450	1,800	1,850
30										2,350	1,760	1,850
31										2,300	1,760	-

Discharge, in second-feet, Black River at Pochontas, Ark., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,800	2,000	2,150	5,210	8,190	19,600	21,400	7,310	7,950	4,860	6,990	2,000
2	1,760	1,950	2,150	5,070	8,030	17,300	22,700	7,070	7,310	4,650	7,310	2,000
3	1,800	1,900	2,150	4,860	8,030	16,000	24,200	6,910	6,750	4,370	6,510	2,000
4	2,050	1,900	2,050	4,580	7,870	15,300	26,000	6,670	6,430	4,020	5,870	2,050
5	3,340	1,900	2,100	4,300	7,630	14,100	27,300	6,190	6,270	3,700	5,560	2,050
6	2,620	1,900	2,100	3,880	7,390	13,000	27,300	5,710	6,110	3,460	5,350	2,050
7	2,200	1,900	2,100	3,580	7,150	12,200	26,000	5,350	5,950	3,280	5,030	2,050
8	2,050	1,950	2,050	3,280	6,910	11,200	24,800	5,140	5,710	3,340	5,790	2,050
9	2,000	1,950	2,050	3,040	6,750	10,300	23,200	4,860	5,560	3,100	4,790	2,050
10	2,000	2,100	2,000	2,860	6,510	9,230	21,400	6,670	5,280	3,040	4,510	2,000
11	1,950	2,680	2,000	2,800	6,190	8,510	20,600	6,750	4,930	2,920	3,950	1,950
12	1,900	2,500	2,000	2,680	5,870	7,550	19,600	6,030	4,720	2,920	3,460	1,850
13	1,850	2,350	2,000	2,560	5,490	6,750	17,800	6,270	4,510	2,860	3,040	1,850
14	1,850	2,300	2,000	2,500	5,280	6,190	16,700	5,560	4,300	2,740	2,920	1,850
15	1,800	2,350	2,000	2,450	5,850	5,790	15,600	5,420	4,090	2,680	2,800	1,850
16	1,800	2,200	2,050	2,400	9,070	5,630	15,300	5,350	4,790	2,620	2,740	1,850
17	1,900	2,200	2,300	2,400	10,100	5,630	16,300	5,350	5,560	2,560	2,620	1,850
18	2,050	2,150	3,820	2,350	13,100	5,950	16,900	5,140	5,950	3,580	2,560	1,850
19	2,680	2,100	4,570	2,300	17,300	6,190	16,500	5,000	6,750	5,630	2,500	1,850
20	3,100	2,100	5,210	2,300	18,900	6,110	14,900	4,930	8,110	7,390	2,500	1,850
21	2,980	2,050	5,490	2,620	23,200	5,950	14,800	5,070	8,830	6,590	2,450	1,850
22	2,920	2,000	5,210	3,400	25,000	5,710	13,800	5,210	8,750	5,420	2,450	1,850
23	2,800	2,000	5,630	3,760	25,700	5,630	13,000	5,420	8,270	4,650	2,300	1,850
24	2,740	2,000	5,560	5,280	29,400	5,490	12,400	5,630	7,550	4,020	2,100	1,850
25	2,400	1,950	5,140	7,230	30,100	5,490	10,900	7,390	6,670	3,400	2,100	1,800
26	2,500	2,000	5,070	7,870	28,700	5,630	9,790	9,470	6,270	3,100	2,100	1,800
27	2,300	1,950	5,490	8,270	27,300	6,190	9,230	10,800	5,870	2,920	2,100	1,800
28	2,200	1,950	5,870	7,950	22,200	6,350	8,590	11,000	5,560	3,100	2,100	1,800
29	2,100	2,050	5,560	7,150	-	8,550	8,030	11,000	5,350	4,790	2,100	1,800
30	2,050	2,100	5,350	6,830	-	15,000	7,550	10,400	5,140	5,790	2,100	1,800
31	2,000	-	5,210	7,870	-	18,900	-	8,270	-	6,750	2,050	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-foot
July 16-31, 1937.....	61,040	6,030	2,300	3,815	0.779	0.46	121,100
August.....	61,270	2,250	1,760	1,978	.403	.46	121,500
September.....	58,460	2,400	1,720	1,949	.398	.44	116,000
Water year .....							
October 1937 .....	69,490	3,340	1,760	2,242	.458	.53	137,800
November.....	62,430	2,680	1,900	2,081	.425	.47	123,900
December.....	108,440	5,870	2,000	3,498	.714	.82	215,100
Calendar year .....							
January 1938 .....	133,630	8,270	2,300	4,311	.680	1.01	265,100
February.....	390,190	30,100	5,290	13,940	2.84	2.96	773,900
March.....	292,420	19,600	5,490	9,433	1.93	2.22	570,000
April.....	522,590	27,300	7,550	17,420	3.56	3.97	1,037,000
May.....	207,340	11,000	4,860	6,688	1.36	1.57	411,300
June.....	185,290	8,830	4,090	6,176	1.26	1.41	367,500
July.....	124,250	7,390	2,560	4,008	.818	.94	246,400
August.....	111,350	7,310	2,050	3,592	.733	.85	220,900
September.....	57,100	2,050	1,800	1,903	.398	.45	113,300
Water year 1937-38 .....	2,264,520	30,100	1,760	6,204	1.27	17.18	4,482,000

## Current River near Eminence, Mo.

Location.- Water-stage recorder, lat. 37°11'00", long. 91°15'30", in SW 1/4 sec. 15, T. 29 N., R. 3 W., 1 mile downstream from Jacks Fork and 8 miles northeast of Eminence. Zero of gage is 568.80 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,230 square miles.

Records available.- August 1921 to September 1938.

Average discharge.- 17 years, 1,457 second-feet.

Extremes.- Maximum discharge during year, 31,200 second-feet Feb. 18 (gage height, 16.48 feet); minimum, 470 second-feet Nov. 21-25 (gage height, 1.31 feet).

1921-38: Maximum discharge, 59,600 second-feet Mar. 11, 1935 (gage height, 24.35 feet); minimum, 360 second-feet July 21-25, July 27 to Aug. 13, 1934; minimum gage height, 1.08 feet Aug. 3-10, 1934.

Remarks.- Records excellent except those for period of missing gage heights, September 19-30, which were computed on basis of records for Current River at Van Buren and Jacks Fork at Eminence and are fair.

Rating table, water year 1937-38 (gage height in feet, and discharge, in second-feet)

Oct. 1 to May 7					May 8 to Sept. 30				
1.1	370	6.0	5,420		1.0	400	3.0	2,010	
1.3	470	8.0	9,010		1.2	511	4.0	3,040	
1.5	600	10.0	13,200		1.4	636	5.0	4,220	
2.0	1,010	12.0	17,900		1.6	778	6.0	5,600	
3.0	1,920	14.0	23,300		2.0	1,100			
4.0	2,920	16.0	29,500						
5.0	4,000	17.0	32,800						

Note.- Same as preceding table at and above 8.0 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	500	500	530	600	1,440	1,820	5,110	2,620	2,310	1,230	1,180	664
2	500	500	530	565	1,460	1,730	4,000	2,220	2,010	1,180	1,060	670
3	500	500	530	565	1,370	1,640	3,320	1,920	1,820	1,140	951	664
4	530	500	530	565	1,190	1,550	2,820	1,730	1,720	1,100	911	664
5	565	530	530	530	1,100	1,550	2,520	1,820	1,580	1,060	863	664
6	530	530	530	530	1,060	1,460	2,220	1,730	1,500	1,020	983	691
7	500	530	500	530	1,010	1,370	2,020	2,060	1,540	1,020	991	670
8	500	530	500	530	965	1,280	3,100	6,940	1,500	1,013	871	657
9	500	530	500	500	920	1,280	3,310	3,650	1,580	975	840	643
10	500	530	500	500	880	1,260	4,260	2,820	1,900	951	793	630
11	500	530	500	500	880	1,280	3,430	2,410	1,870	919	763	623
12	500	500	500	500	880	1,280	3,020	2,160	1,630	887	749	616
13	500	500	500	500	840	1,280	2,620	2,210	1,450	879	727	636
14	500	500	500	500	880	1,280	2,320	2,670	1,360	871	720	650
15	500	470	500	500	1,100	1,640	2,120	2,610	1,270	863	749	636
16	500	500	640	500	2,560	2,420	3,730	2,160	1,600	847	742	636
17	500	500	1,890	500	9,000	2,320	4,390	2,060	3,090	3,630	727	623
18	530	500	4,380	500	25,400	2,020	3,430	2,560	4,620	3,800	720	623
19	600	500	2,420	500	13,600	1,820	2,920	2,720	5,040	1,580	705	610
20	600	500	1,640	530	7,920	1,730	2,620	2,560	3,840	1,320	698	580
21	600	470	1,280	1,460	5,580	1,550	2,320	2,310	2,930	1,140	670	580
22	530	470	1,100	2,020	4,390	1,460	2,020	2,110	2,360	1,060	670	580
23	530	470	965	1,640	3,760	1,550	1,820	11,400	2,160	999	657	570
24	500	470	890	2,960	3,220	1,580	1,640	13,500	1,960	959	650	560
25	500	470	800	4,990	2,820	1,460	1,550	6,060	1,680	927	643	560
26	500	500	760	2,720	2,520	1,460	1,460	5,100	1,870	887	650	560
27	500	500	720	1,920	2,320	1,370	1,370	5,180	1,580	871	643	550
28	500	600	680	1,550	2,020	1,370	1,370	3,840	1,450	895	636	560
29	500	600	640	1,370	-	7,480	1,280	3,960	1,360	1,820	650	560
30	500	565	600	1,460	-	8,000	1,550	3,260	1,270	1,230	650	560
31	500	-	600	1,730	-	7,180	-	2,720	-	1,630	650	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	16,015	600	500	517	0.420	0.48	31,770
November.....	15,295	600	470	510	.415	.48	30,340
December.....	27,675	4,380	500	893	.726	.84	54,890
Calendar year 1937.....	481,030	15,800	470	1,318	1.07	14.53	954,100
January.....	34,265	4,990	500	1,105	.898	1.04	67,980
February.....	101,285	25,400	840	3,617	2.94	3.06	200,900
March.....	66,410	8,000	1,280	2,142	1.74	2.01	131,700
April.....	82,660	6,310	1,280	2,755	2.24	2.50	164,000
May.....	110,970	13,500	1,730	3,580	2.91	3.36	220,100
June.....	61,850	5,040	1,270	2,062	1.68	1.87	122,700
July.....	38,700	3,800	847	1,248	1.01	1.18	76,750
August.....	23,912	1,180	636	771	.627	.72	47,450
September.....	18,500	691	550	617	.502	.56	36,690
Water year 1937-38.....	597,537	25,400	470	1,637	1.33	18.06	1,185,000

Peak discharge.- Feb. 18 (5:30 p.m.) 31,200 sec.-ft.; Mar. 29 (11 p.m.) 13,700 sec.-ft.; April 9 (6 a.m.) 7,860 sec.-ft.; May 6 (a.m.) 11,000 sec.-ft.; May 23 (12 p.m.) 26,000 sec.-ft.; June 18 (9:30 p.m.) 8,100 sec.-ft.

## Current River at Van Buren, Mo.

Location.- Water-stage recorder, lat. 36°59', long. 91°01', in NE¼NW¼ sec. 25, T. 27 N., R. 1 W., at bridge on U. S. Highway 60, in Van Buren, 700 feet downstream from Davis Creek. Zero of gage is 445.78 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,640 square miles.

Records available.- June 1921 to September 1938 in reports of U. S. Geological Survey. September 1912 to June 1921 in reports of University of Missouri and of Missouri Geological Survey.

Average discharge.- 17 years (1921-38), 1,845 second-feet.

Extremes.- Maximum discharge during year, 37,700 second-feet Feb. 19 (gage height, 12.86 feet); minimum, 651 second-feet Nov. 23-26, Dec. 11; (gage height, 0.43 foot). 1921-38: Maximum discharge, 86,600 second-feet Mar. 11, 1935 (gage height, 19.84 feet); minimum, 490 second-feet Aug. 26-28, 30, 31, 1936.

Maximum stage known, 28.0 feet Mar. 26, 1904, from floodmarks.

Remarks.- Records excellent except those for period of missing gage heights, May 25-29, which were computed on basis of records for station at Eminence and are fair.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Jan. 25 to Feb. 17.)

Oct. 1 to Feb. 17			Feb. 18 to Sept. 30		
0.4	630	2.0 2,070	0.7	700	3.0 3,440
.6	775	2.5 2,710	.8	775	4.0 5,550
.8	930	3.0 3,490	1.0	935	5.0 8,090
1.0	1,100	3.5 4,420	1.5	1,380	7.0 14,100
1.5	1,540		2.0	1,900	9.0 21,200
			2.5	2,600	11.0 29,400

Note.- Same as following table above 3.5 feet.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	665	686	768	906	2,070	2,170	7,550	2,450	3,180	1,520	1,900	908
2	665	693	738	898	1,900	2,030	5,530	2,680	2,680	1,480	1,520	950
3	679	686	715	890	1,740	1,900	4,420	2,240	2,380	1,450	1,380	950
4	760	679	722	890	1,640	1,780	3,720	2,030	2,170	1,340	1,290	933
5	782	700	715	882	1,540	1,780	3,180	2,050	2,100	1,290	1,200	916
6	745	700	700	882	1,500	1,720	2,840	2,100	1,960	1,240	1,130	925
7	700	700	708	874	1,450	1,620	2,520	1,900	1,960	1,240	1,480	916
8	693	700	686	866	1,360	1,520	3,210	6,120	1,900	1,240	1,200	892
9	686	700	672	866	1,320	1,520	6,780	4,410	1,840	1,160	1,160	892
10	686	722	665	866	1,320	1,570	5,680	3,090	2,100	1,140	1,100	883
11	686	715	658	866	1,270	1,520	4,420	2,600	2,450	1,110	1,060	875
12	676	700	658	866	1,270	1,520	3,720	2,310	2,100	1,070	1,030	858
13	686	700	672	850	1,270	1,520	3,180	2,240	1,840	1,060	994	850
14	679	700	693	850	1,320	1,570	2,840	2,450	1,720	1,050	959	850
15	679	693	686	842	1,450	1,670	2,600	2,600	1,620	1,030	968	842
16	672	693	730	835	2,130	2,450	4,290	2,310	1,620	1,010	985	842
17	700	700	1,400	835	2,620	2,680	6,010	2,170	3,960	1,260	966	842
18	775	686	3,620	835	25,700	2,380	4,850	2,380	4,010	10,900	960	835
19	820	686	2,830	828	28,000	2,170	3,910	2,760	7,890	3,350	933	812
20	850	679	1,960	820	12,700	1,960	3,350	2,680	5,650	2,100	900	788
21	820	672	1,590	1,040	8,370	1,780	2,920	2,450	4,110	1,720	875	781
22	768	672	1,400	1,960	6,140	1,670	2,680	2,240	3,180	1,570	867	788
23	758	665	1,270	1,800	4,850	1,620	2,560	5,500	2,760	1,450	842	766
24	715	658	1,180	2,310	4,010	1,570	2,170	20,000	2,680	1,540	827	766
25	715	658	1,100	5,390	3,440	1,520	2,100	7,200	2,170	1,290	827	758
26	715	658	1,030	3,490	3,000	1,480	1,960	6,000	2,310	1,240	819	751
27	715	672	998	2,500	2,760	1,480	1,840	6,000	2,100	1,190	835	751
28	715	805	964	2,130	2,450	1,480	1,780	5,000	1,840	1,200	796	744
29	700	842	930	1,850	-	6,260	1,720	6,000	1,870	1,990	804	744
30	693	805	906	1,850	-	12,200	1,840	4,320	1,870	2,240	875	744
31	693	-	906	2,020	-	9,220	-	3,530	-	2,310	867	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	22,281	850	665	719	0.438	0.50	44,190
November.....	21,025	842	658	701	.427	.48	41,700
December.....	33,270	3,620	658	1,073	.654	.75	65,990
Calendar year 1937.....	644,305	22,000	658	1,765	1.08	14.59	1,278,000
January.....	43,587	5,390	820	1,406	.857	.99	86,450
February.....	133,590	28,000	1,270	4,771	2.91	3.03	265,000
March.....	77,330	12,200	1,480	2,495	1.52	1.75	153,400
April.....	105,990	7,560	1,720	3,533	2.15	2.40	210,200
May.....	121,790	20,000	1,900	3,929	2.40	2.77	241,600
June.....	79,510	7,880	1,570	2,650	1.62	1.81	157,700
July.....	54,540	10,900	1,010	1,759	1.07	1.23	108,200
August.....	32,332	1,900	716	1,045	.636	.73	64,130
September.....	25,152	950	744	838	.511	.57	49,890
Water year 1937-38.....	750,397	28,000	658	2,056	1.25	17.01	1,488,000

Peak discharge.- Feb. 19 (5 a.m.) 37,700 sec.-ft.; Mar. 30 (9 a.m.) 15,100 sec.-ft.; Apr. 9 (5 p.m.) 8,370 sec.-ft.; May 24 (12 M.) 26,800 sec.-ft.; June 19 (5 a.m.) 10,100 sec.-ft.; July 18 (8 a.m.) 19,000 sec.-ft.



## Current River at Doniphan, Mo.

Location.- Water-stage recorder, lat. 36°37', long. 90°51', in NW¼NW¼ sec. 27, T. 23 N., R. 2 E., half a mile upstream from State Highway 14, 1 mile west of Doniphan, and 2½ miles upstream from Briar Creek. Zero of gage is 322.21 feet above mean sea level (general adjustment of 1929).

Drainage area.- 2,030 square miles.

Records available.- June 1921 to September 1938.

Average discharge.- 17 years, 2,759 second-feet.

Extremes.- Maximum discharge during year, 57,300 second-feet Feb. 19 (gage height, 15.72 feet); minimum, 1,110 second-feet Dec. 12 (gage height, 2.08 feet).

1921-38: Maximum discharge, 94,400 second-feet Mar. 12, 1935 (gage height, 23.89 feet, former site and datum); minimum, 880 second-feet Aug. 1-14, 16, 1934, Aug. 30, 31, Sept. 1, 1936; minimum gage height, 1.75 feet Aug. 4, 7, 9-11, 1934, former site and datum.

Maximum stage known, 26.8 feet, former site and datum, sometime during March 1904, from floodmarks (discharge, about 130,000 second-feet, from rating curve extended above 60,000 second-feet).

Remarks.- Records excellent.

Rating table, water year 1937-38 (gage height, in feet and discharge, in second-feet)

2.0	1,020	5.0	4,930	12.0	21,200
2.5	1,570	7.0	8,250	14.0	28,500
3.0	2,150	9.0	12,200	16.0	38,700
4.0	3,500	10.0	14,700		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1,130	1,160	1,300	1,520	3,010	3,640	10,100	3,080	3,780	2,270	2,870	1,380
2	1,130	1,150	1,250	1,520	2,870	3,500	7,570	3,780	3,430	2,210	2,340	1,360
3	1,160	1,150	1,230	1,460	2,660	3,290	6,210	3,430	3,150	2,150	2,090	1,380
4	1,620	1,150	1,230	1,430	2,530	3,150	5,390	3,220	2,940	2,090	1,910	1,380
5	1,820	1,160	1,230	1,390	2,340	3,080	4,780	3,080	2,800	2,030	1,790	1,380
6	1,350	1,170	1,200	1,370	2,270	3,010	4,340	3,150	2,660	1,970	1,740	1,370
7	1,260	1,180	1,180	1,350	2,150	2,870	4,060	3,080	2,600	1,910	1,790	1,360
8	1,230	1,200	1,160	1,330	2,050	2,730	4,060	3,360	2,800	1,910	1,910	1,340
9	1,210	1,180	1,140	1,310	1,970	2,660	5,390	6,380	2,530	1,850	1,740	1,350
10	1,200	1,230	1,130	1,300	1,910	2,660	7,230	4,340	2,660	1,850	1,680	1,310
11	1,170	1,240	1,120	1,270	1,850	2,660	5,870	3,780	2,870	1,790	1,620	1,300
12	1,160	1,230	1,120	1,270	1,790	2,600	5,080	3,430	2,870	1,740	1,570	1,280
13	1,150	1,220	1,120	1,230	1,790	2,800	4,630	3,290	2,600	1,740	1,520	1,280
14	1,140	1,200	1,130	1,220	1,850	2,800	4,200	3,290	2,400	1,680	1,520	1,310
15	1,140	1,200	1,130	1,180	2,030	2,730	3,920	3,500	2,460	1,680	1,570	1,300
16	1,130	1,200	1,140	1,170	2,600	3,150	6,620	3,360	2,600	1,620	1,570	1,270
17	1,240	1,200	1,740	1,180	5,020	3,780	7,740	3,220	3,920	1,680	1,520	1,270
18	1,330	1,180	3,920	1,170	16,200	3,640	6,890	3,080	4,340	5,480	1,520	1,260
19	1,450	1,170	4,930	1,160	32,900	3,430	5,710	3,430	6,720	6,310	1,520	1,250
20	1,440	1,160	3,640	1,180	25,300	3,220	4,930	3,640	6,380	3,150	1,450	1,240
21	1,440	1,140	2,870	1,350	11,500	3,010	4,480	3,430	4,930	2,530	1,440	1,230
22	1,360	1,130	2,530	2,090	6,080	2,870	4,060	3,360	4,060	2,210	1,420	1,220
23	1,300	1,130	2,270	2,870	6,550	2,800	3,780	3,500	3,640	2,030	1,400	1,220
24	1,260	1,130	2,090	3,080	5,710	2,730	3,640	9,140	3,500	1,910	1,390	1,210
25	1,250	1,120	1,910	4,630	5,080	2,730	3,430	16,100	3,150	1,850	1,350	1,200
26	1,240	1,130	1,790	5,870	4,630	2,660	3,290	6,890	2,940	1,790	1,340	1,240
27	1,230	1,140	1,740	4,060	4,340	2,660	3,080	6,550	3,080	1,740	1,350	1,240
28	1,220	1,250	1,680	3,360	3,920	2,600	3,010	6,040	2,730	1,740	1,350	1,200
29	1,210	1,340	1,620	2,940	-	10,800	2,870	4,930	2,530	1,790	1,320	1,170
30	1,200	1,340	1,570	2,870	-	12,500	2,870	4,780	2,400	2,940	1,320	1,160
31	1,170	-	1,570	2,940	-	12,700	-	4,200	-	2,940	1,330	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	39,040	1,620	1,130	1,259	0.620	0.71	77,430
November.....	35,580	1,340	1,120	1,186	.584	.65	70,570
December.....	54,690	4,930	1,120	1,764	.869	1.00	108,500
Calendar year 1937.....	971,300	28,700	1,120	2,661	1.31	17.80	1,927,000
January.....	62,070	5,870	1,160	2,002	.986	1.14	123,100
February.....	164,880	32,900	1,790	5,889	2.90	3.02	327,000
March.....	119,060	12,700	2,600	3,841	1.89	2.18	236,200
April.....	149,230	10,100	2,870	4,974	2.45	2.73	296,000
May.....	139,840	16,100	3,080	4,811	2.22	2.56	277,400
June.....	98,270	6,720	2,400	3,309	1.63	1.82	196,900
July.....	79,680	6,510	1,680	2,277	1.12	1.29	140,000
August.....	50,230	2,870	1,320	1,620	.798	.92	99,630
September.....	38,380	1,380	1,160	1,270	.630	.70	76,130
Water year 1937-38.....	1,022,840	32,900	1,120	2,802	1.38	18.72	2,028,000

Peak discharge.- Feb. 19 (8 p.m.) 37,300 sec.-ft.; Mar. 31 (3 a.m.) 15,000 sec.-ft.; Apr. 10 (6 a.m.) 7,910 sec.-ft.; Apr. 16 (6 p.m.) 9,150 sec.-ft.; May 25 (9 a.m.) 20,500 sec.-ft.; June 19 (6 p.m.) 8,430 sec.-ft.

## Round Spring at Round Spring, Mo.

Location.- Staff gage, lat. 37°17', long. 91°26', in SE¼ sec. 20, T. 30 N., R. 4 W., inside spring basin at hamlet of Round Spring, about 1,000 feet upstream from confluence with Current River. Zero of gage is 665.06 feet above mean sea level (general adjustment of 1929).

Records available.- October 1928 to September 1938.

Average discharge.- 10 years, 39.8 second-feet.

Extremes.- Maximum discharge observed during year, 498 second-feet Feb. 18, during period of backwater from Current River; minimum observed, 10 second-feet Dec. 10-12; minimum gage height, 1.08 feet Jan. 4, 5, 8, 9, 13-17, 19, 20.

1928-38: Maximum discharge observed, 520 second-feet May 14, 1933, during period of backwater from Current River; maximum gage height, 14.59 feet Mar. 11, 12, 1935, from floodmarks; minimum discharge observed, that of Dec. 10-12, 1937.

Remarks.- Records fair except those for periods of backwater from Current River, which are poor. Gage read once daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	13	12	12	41	76	307	96	78	52	36	23
2	15	13	12	12	33	68	245	82	72	52	35	23
3	14	13	12	12	33	56	172	76	64	51	35	23
4	16	14	12	11	32	51	131	62	66	51	32	23
5	16	15	12	11	33	51	114	56	57	47	29	24
6	16	15	12	12	31	41	98	47	50	44	28	24
7	14	14	12	13	26	39	87	200	53	44	*44	24
8	14	16	11	12	24	38	172	121	53	41	40	24
9	13	15	11	12	24	36	215	87	53	39	33	23
10	13	17	10	13	23	33	172	74	55	39	32	23
11	13	15	10	13	23	31	145	72	64	36	32	23
12	12	15	10	14	21	31	119	72	49	36	31	23
13	12	15	11	12	21	32	102	89	52	36	31	24
14	13	15	11	12	23	32	87	98	51	32	31	24
15	12	15	11	12	26	35	78	85	44	32	31	24
16	14	16	13	12	132	56	133	66	45	32	32	25
17	15	16	80	13	+230	56	131	66	144	36	26	24
18	14	17	42	*13	+498	51	126	87	172	193	26	24
19	14	16	35	13	+455	47	107	76	201	116	25	24
20	14	16	51	13	+410	41	94	87	252	80	25	25
21	14	15	25	39	364	59	83	85	172	62	24	25
22	13	15	20	38	291	36	70	72	134	52	23	25
23	14	15	18	32	230	42	64	+340	111	49	23	24
24	14	15	*17	133	179	41	60	+350	98	44	25	24
25	*14	15	16	145	143	41	54	331	87	41	24	23
26	14	16	15	47	121	42	54	280	76	35	23	24
27	13	15	15	45	105	58	52	156	66	35	23	23
28	14	14	14	39	87	44	47	145	62	33	23	24
29	13	13	12	32	-	+140	45	122	54	42	23	24
30	13	13	12	45	-	291	98	101	54	39	23	24
31	13	-	12	49	-	373	-	90	-	39	23	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						428	16	12	13.8	849		
November.....						447	17	13	14.9	887		
December.....						546	80	10	17.6	1,080		
Calendar year 1937.....						16,304	350	10	44.7	32,340		
January.....						890	145	11	28.7	1,770		
February.....						3,659	498	21	131	7,260		
March.....						2,028	373	31	65.4	4,020		
April.....						3,462	307	45	115	6,870		
May.....						3,791	360	47	122	7,520		
June.....						2,678	291	44	89.3	5,310		
July.....						1,560	193	32	50.3	3,090		
August.....						891	44	23	28.7	1,770		
September.....						714	25	23	23.8	1,420		
Water year 1937-38.....						21,094	498	10	57.8	41,850		

\*Missing gage height; discharge computed on basis of records for Current River near Eminence, Alley Spring at Alley, Greer Spring at Greer, and rainfall records.

+Stage-discharge relation affected by backwater from Current River; discharge computed on basis of above-mentioned records.

## Jacks Fork at Eminence, Mo.

Location.- Wire-weight gage, lat. 37°09'15", long. 91°21'30", in W $\frac{1}{2}$  sec. 26, T. 29 N., R. 4 W., at bridge on State Highway 19, one mile downstream from Pine Hollow and Eminence. Zero of gage is 617.91 feet above mean sea level (general adjustment of 1929).

Drainage area.- About 376 square miles.

Records available.- October 1921 to September 1938.

Average discharge.- 17 years, 442 second-feet.

Extremes.- Maximum discharge during year, 14,800 second-feet May 23 (gage height, 11.03 feet, from graph based on gage readings); minimum observed, 102 second-feet Sept. 30 (gage height, 2.12 feet).

1921-38: Maximum discharge observed, about 40,000 second-feet June 13, 1928 (gage height, 16.24 feet, former site and datum); minimum, 64 second-feet Aug. 28, 1936; minimum gage height, that of Sept. 30, 1938.

Remarks.- Records good. Gage read twice daily.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Oct. 1 to Nov. 12, Sept. 17-30)

Oct. 1 to Feb. 16

Feb. 17 to Sept. 30

2.3	104	2.1	102	6.0	3,490
2.5	169	2.3	185	6.5	4,270
2.7	247	2.5	271	7.0	5,140
3.0	396	2.7	360	8.0	7,100
3.5	694	3.0	504	9.0	9,360
4.0	1,080	3.5	793	10.0	11,900
4.5	1,550	4.0	1,150	11.0	14,800
5.0	2,120	4.5	1,580	11.5	16,400
		5.0	2,120		

Note.- Same as following table  
above 5.0 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	116	113	142	166	424	584	1,460	859	530	360	315	135
2	113	116	135	162	370	530	1,080	668	479	360	262	139
3	116	116	135	159	338	530	928	611	454	358	241	160
4	142	116	129	149	313	504	793	556	430	315	198	161
5	135	120	129	149	293	504	668	556	406	289	202	168
6	129	120	129	145	265	479	640	556	406	297	185	189
7	123	120	129	142	256	479	668	504	406	302	219	184
8	116	120	123	142	247	454	859	1,490	430	289	228	160
9	116	120	120	135	222	454	2,500	859	430	275	224	143
10	123	129	120	132	218	454	1,230	668	479	254	202	155
11	116	129	116	132	214	479	1,000	611	584	245	194	127
12	116	129	116	129	202	479	894	556	504	237	194	122
13	116	116	123	129	195	530	729	584	430	232	185	135
14	120	116	120	123	214	479	668	640	406	228	177	147
15	120	116	123	123	337	611	640	611	383	237	194	166
16	120	116	155	123	1,140	793	1,230	556	360	237	194	160
17	129	123	567	116	3,740	729	1,490	530	761	360	185	156
18	149	120	1,770	120	10,400	640	1,150	584	1,150	479	228	139
19	162	120	728	120	4,320	611	928	668	1,680	383	177	135
20	162	116	508	120	2,290	556	826	611	1,080	338	160	127
21	159	116	396	169	1,520	556	729	611	793	306	160	122
22	155	116	343	396	1,230	530	668	665	668	284	156	122
23	149	113	303	343	1,000	556	611	7,670	584	267	151	118
24	135	110	275	598	826	556	556	3,730	530	254	143	118
25	129	113	247	1,450	793	530	530	1,620	479	241	143	114
26	129	113	226	728	729	504	504	1,150	556	228	135	110
27	120	116	214	538	668	504	479	928	479	219	135	106
28	120	155	199	424	611	538	454	826	430	228	135	110
29	116	155	184	370	-	4,350	454	698	406	280	143	110
30	116	155	176	396	-	2,510	556	611	383	280	143	102
31	116	-	173	451	-	1,890	-	556	-	504	135	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	3,983	162	113	128	0.340	0.39	7,900
November.....	3,653	165	110	122	.324	.36	7,260
December.....	8,553	1,770	116	269	.715	.82	16,570
Calendar year 1937.....	134,646	6,060	108	369	.981	13.29	267,100
January.....	8,579	1,450	116	277	.737	.85	17,020
February.....	33,375	10,400	195	1,192	3.17	3.30	66,200
March.....	23,903	4,350	454	771	2.05	2.36	47,410
April.....	25,922	2,500	454	864	2.30	2.57	51,420
May.....	32,243	7,870	504	1,040	2.77	3.19	63,950
June.....	17,026	1,680	360	570	1.52	1.70	35,910
July.....	9,146	504	219	295	.785	.90	18,140
August.....	5,743	315	135	185	.492	.57	11,390
September.....	4,080	189	102	156	.362	.40	8,090
Water year 1937-38.....	176,076	10,400	102	482	1.28	17.41	349,200

## Alley Spring at Alley, Mo.

Location.- Staff gage, lat.  $37^{\circ}09'05''$ , long.  $91^{\circ}26'30''$ , in SE $\frac{1}{4}$  sec. 25, T. 29 N., R. 5 W., at Alley, 400 feet below outlet. Zero of gage is 664.35 feet (revised) above mean sea level (general adjustment of 1929).

Records available.- October 1928 to September 1938.

Average discharge.- 10 years, 122 second-feet.

Extremes.- Maximum discharge observed during year, 969 second-feet May 23 (gage height, 4.28 feet); minimum discharge, 66 second-feet Oct. 8-17, Oct. 29 to Nov. 27; minimum gage height, 1.25 feet Dec. 10.

1928-29: Maximum discharge observed, 1,060 second-feet Mar. 11, 1935; maximum gage height, that of May 23, 1938; minimum discharge, 54 second-feet Oct. 15-18, 1934 (gage height, 1.21 feet).

Remarks.- Records good. Occasional run-off from small valley above spring is included in records. Gage read once daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	68	66	68	84	160	191	434	243	201	152	108	88
2	68	66	68	84	150	186	371	226	193	145	107	87
3	68	66	67	84	141	182	338	213	186	145	105	87
4	68	66	67	82	131	175	282	197	175	142	104	87
5	68	66	67	82	125	172	248	189	165	136	103	87
6	68	66	67	82	125	163	219	180	160	131	102	89
7	68	66	67	81	118	155	197	172	160	129	102	89
8	66	66	68	81	110	148	193	201	155	128	104	90
9	66	66	68	79	109	144	338	193	153	125	102	87
10	66	66	67	79	105	144	338	188	153	122	101	87
11	66	66	68	79	103	147	304	179	215	118	98	87
12	66	66	68	80	103	148	272	168	191	116	87	87
13	66	66	68	78	103	145	239	182	177	115	95	86
14	66	66	69	78	101	142	217	193	156	113	95	86
15	66	66	69	78	118	142	199	193	153	113	95	84
16	66	66	71	78	213	230	213	184	150	110	83	84
17	66	66	195	78	464	230	324	175	186	108	83	84
18	66	66	255	79	900	193	304	205	232	175	92	84
19	68	66	199	77	704	179	270	213	427	170	92	84
20	68	66	165	77	581	163	234	205	407	152	81	84
21	68	66	142	90	510	152	213	201	341	142	90	83
22	68	66	123	114	471	145	195	189	293	134	90	83
23	68	66	110	111	384	142	179	851	250	131	91	83
24	68	66	105	136	338	150	179	583	217	128	90	83
25	68	66	98	158	321	155	172	534	193	124	90	83
26	68	66	95	175	274	150	185	456	182	119	90	83
27	68	66	92	189	239	139	158	374	175	118	90	83
28	68	66	90	188	213	139	153	332	165	114	89	83
29	66	68	88	145	-	400	145	277	161	113	89	82
30	66	68	86	136	-	456	145	270	156	109	89	82
31	66	-	86	170	-	456	-	221	-	109	89	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						2,082	68	66	67.2	4,130		
November.....						1,986	68	66	66.2	3,940		
December.....						2,016	255	67	97.3	5,980		
Calendar year 1937.....						47,100	704	66	129	93,410		
January.....						3,182	189	77	103	6,310		
February.....						7,424	900	101	265	14,720		
March.....						5,863	456	139	189	11,630		
April.....						7,238	434	145	241	14,560		
May.....						8,187	851	168	284	16,240		
June.....						6,128	427	150	204	12,150		
July.....						3,986	175	108	129	7,910		
August.....						2,966	108	89	95.7	5,680		
September.....						2,556	90	82	85.2	5,070		
Water year 1937-38.....						54,614	900	66	150	108,300		

## Big Spring near Van Buren, Mo.

Location.- Staff gage, lat. 36°57', long. 91°00', in sec. 6, T. 26 N., R. 1 E., 400 feet downstream from spring outlet and 4 miles southeast of Van Buren. Zero of gage is 429.08 feet above mean sea level (general adjustment of 1929).

Records available.- January to June 1922, April 1923 to September 1938.

Extremes.- Maximum discharge observed during year, 1,120 second-feet Feb. 19, during period of backwater from Current River; minimum observed, 297 second-feet Oct. 1-3, 6-10, 20, 27-29, Jan. 18-20.  
1922-38: Maximum discharge, 1,300 second-feet (estimated) sometime in June 1928, during period of backwater from Current River; minimum, 247 second-feet July 4-6, 12, 1938.

Remarks.- Records fair except those for periods of missing gage heights and those for periods of backwater from Current River, which are poor. Gage read once daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	297	301	310	316	372	653	*900	478	489	404	390	339
2	297	301	310	316	368	624	*860	529	463	400	372	337
3	297	301	308	312	359	536	*840	516	453	395	363	335
4	301	301	308	312	354	511	*800	505	443	390	354	341
5	301	301	308	312	354	500	*750	494	440	384	350	337
6	297	301	308	308	350	489	*720	489	+435	379	350	337
7	297	301	308	308	346	484	665	484	+425	377	359	332
8	297	304	308	304	337	478	645	535	415	361	350	332
9	297	304	308	304	332	478	*840	411	372	345	332	332
10	297	304	306	304	328	468	*960	*610	428	370	346	330
11	301	304	306	304	328	456	*920	*575	489	368	346	330
12	301	304	304	304	328	453	*860	569	443	368	343	328
13	301	304	304	304	328	448	828	511	423	365	341	328
14	301	304	304	301	324	438	727	489	409	365	341	328
15	299	304	320	301	363	453	*680	484	409	365	341	328
16	299	304	346	301	*460	449	*740	484	411	363	341	328
17	299	308	354	301	*760	516	*870	478	*520	368	341	324
18	299	308	372	297	*1,100	489	*900	500	610	*600	359	324
19	299	308	381	297	*1,120	463	*840	505	*780	599	341	322
20	297	308	377	297	*1,080	443	*800	494	*730	463	341	320
21	301	308	359	324	*1,020	433	*740	489	685	395	341	320
22	301	308	350	354	*980	423	727	478	737	372	341	320
23	301	308	332	372	*940	415	653	475	511	363	359	320
24	301	308	328	453	*900	409	610	528	522	363	339	316
25	301	312	324	443	*880	404	578	*860	489	361	337	316
26	301	312	324	413	828	400	522	*890	443	359	337	316
27	297	312	324	400	727	395	505	*850	436	354	337	316
28	297	312	320	395	685	428	494	*790	423	352	337	316
29	297	312	320	386	-	*800	489	*690	409	354	337	316
30	301	312	320	377	-	*980	484	*600	406	381	337	316
31	301	-	316	372	-	*950	-	578	-	404	337	-
Month				Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet				
October.....				9,273	301	297	299	18,390				
November.....				9,179	312	301	306	18,210				
December.....				10,067	381	304	325	19,970				
Calendar year 1937.....				160,175	1,250	294	439	317,700				
January.....				10,399	453	297	335	20,610				
February.....				16,651	1,120	324	595	33,030				
March.....				15,845	980	395	511	31,430				
April.....				21,967	960	484	732	45,570				
May.....				17,537	890	473	566	34,780				
June.....				14,687	780	406	490	29,130				
July.....				12,132	600	352	391	24,060				
August.....				10,714	390	337	346	21,250				
September.....				9,784	541	316	326	19,410				
Water year 1937-38.....				168,225	1,120	297	433	313,800				

\*Stage-discharge relation affected by backwater from Current River; discharge computed on basis of records for Greer Spring at Greer, Alley Spring at Alley, and rainfall records.

†Missing gage height; discharge computed on basis of above-mentioned records.

## WHITE RIVER BASIN

## Spring River at Imboden, Ark.

Location.- Wire-weight gage, lat.  $36^{\circ}12'$ , long.  $91^{\circ}10'$ , in E $\frac{1}{2}$  sec. 15, T. 18 N., R 2 W., at Imboden, 8 miles upstream from Eleven Point River and 11 miles upstream from confluence with Black River. Zero of gage is 254.07 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,140 square miles.

Records available.- July 1937 to September 1938.

Extremes.- 1937: Maximum discharge observed, 8,300 second-feet Sept. 4 (gage heights, 14.48 feet); minimum observed, 355 second-feet Sept. 20, 22-24, 30 (gage height, 3.28 feet).

1937-38: Maximum discharge observed during year, 47,800 second-feet Feb. 18 (gage height, 23.97 feet); minimum observed, 336 second-feet Sept. 28 (gage height, 3.27 feet).

Maximum stage known, about 30.9 feet in August 1915.

Remarks.- Records fair. Slight diurnal fluctuation caused by operation of power plant at Mammoth Springs, Ark. Gage read twice daily. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

Rating table, water years 1936-37 and 1937-38 (gage height, in feet, and discharge, in second-feet)

3.3	355	15.0	8,750
3.6	486	16.0	9,800
4.0	690	17.0	11,200
4.6	976	18.0	13,400
5.0	1,290	19.0	17,300
6.0	1,960	20.0	22,200
8.0	3,350	21.0	27,700
10.0	4,750	22.0	33,900
12.0	6,250	24.0	47,800

Discharge, in second-feet, 1937-38

1937

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										-	559	440
2										-	534	418
3										-	534	486
4										-	510	3,180
5										-	486	1,620
6										-	510	801
7										-	510	636
8										-	584	659
9										-	486	510
10										-	463	510
11										-	463	486
12										-	463	440
13										-	396	440
14										-	418	418
15										-	440	418
16										-	440	418
17										-	440	396
18										636	463	376
19										2,440	418	376
20										2,720	418	555
21										1,420	418	376
22										976	1,160	355
23										858	916	355
24										745	690	355
25										690	534	801
26										690	486	463
27										636	463	396
28										636	440	376
29										610	396	376
30										584	396	355
31										559	418	-

Discharge, in second-feet, of Spring River at Imboden, Ark., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	355	396	584	1,040	1,820	1,820	5,880	1,820	1,620	916	916	440
2	376	463	584	1,040	1,550	1,760	4,120	1,760	1,420	916	745	440
3	463	418	534	916	1,420	1,550	3,350	1,550	1,290	858	663	440
4	3,280	418	559	858	1,290	1,550	2,930	1,420	1,230	801	610	440
5	2,030	440	486	801	1,230	1,550	2,650	1,420	1,230	801	584	440
6	858	418	463	801	1,160	1,420	2,440	1,360	1,160	745	584	463
7	690	396	486	745	1,100	1,360	2,160	1,290	1,230	745	1,100	463
8	584	396	486	690	1,040	1,360	3,770	1,290	1,230	916	801	463
9	559	440	440	690	1,040	1,420	3,910	1,230	1,160	801	663	440
10	463	801	463	690	976	1,960	3,000	1,160	1,550	745	584	440
11	463	1,620	418	663	916	1,760	2,510	1,100	1,360	745	559	418
12	463	976	440	663	916	1,620	2,300	1,100	1,420	690	559	440
13	440	801	418	610	858	1,550	2,100	2,030	1,620	690	534	440
14	418	663	463	610	1,100	1,490	1,960	2,790	1,040	690	510	440
15	396	610	440	584	6,780	1,490	2,100	1,820	976	663	534	440
16	396	610	510	559	6,570	1,550	14,900	1,490	1,230	690	559	440
17	440	584	3,210	584	8,390	1,550	9,200	1,420	1,760	636	559	440
18	663	559	3,350	559	35,200	1,420	4,190	1,360	1,360	663	534	396
19	1,100	534	2,370	559	18,000	1,420	3,210	1,290	4,500	636	510	396
20	858	486	1,490	559	6,810	1,420	2,790	1,230	5,580	636	510	376
21	690	486	1,230	1,160	4,050	1,420	2,510	1,160	2,790	610	466	376
22	636	486	1,620	1,230	3,580	1,360	2,370	1,230	1,820	584	463	376
23	534	463	2,030	1,290	2,580	1,290	2,100	2,720	1,550	584	463	396
24	510	463	1,620	3,650	2,160	1,230	1,960	4,330	1,360	584	463	376
25	486	463	1,360	3,210	1,690	1,230	1,690	2,230	1,690	559	463	376
26	486	463	1,160	2,230	1,690	1,760	1,760	1,820	1,160	559	440	376
27	463	463	2,100	1,820	2,160	2,650	1,690	1,620	1,100	534	440	376
28	463	534	1,620	1,490	1,960	2,650	1,690	1,760	1,100	559	486	355
29	440	663	1,360	1,360	-	29,400	1,550	2,650	1,040	663	440	376
30	440	663	1,160	2,100	-	23,200	1,690	3,140	916	801	440	355
31	440	-	1,160	2,300	-	14,000	-	2,030	-	1,290	440	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
July 18-31, 1937.....	14,200	2,720	559	1,014	28,170
August.....	15,852	1,160	396	511	31,440
September.....	17,491	3,190	355	593	34,690
The period.....					94,300
October 1937.....	20,883	3,280	355	674	41,420
November.....	17,176	1,620	396	573	34,070
December.....	34,614	3,350	418	1,117	68,660
Calendar year.....					
January 1938.....	36,041	3,630	559	1,163	71,490
February.....	118,216	35,200	858	4,222	234,600
March.....	111,210	29,400	1,230	3,587	220,600
April.....	98,580	14,800	1,550	3,286	195,500
May.....	54,620	4,330	1,100	1,762	108,300
June.....	48,232	5,580	916	1,608	95,670
July.....	22,310	1,290	534	720	44,250
August.....	17,642	1,100	440	569	34,990
September.....	12,433	463	355	414	24,660
Water year 1937-38.....	591,957	35,200	355	1,622	1,174,000

## Eleven Point River near Bardley, Mo.

Location.- Wire-weight gage, lat. 36°38'55", long. 91°12'03", in NW¼ sec. 20, T. 23 N., R. 2 W., at bridge on State Highway 42, about 7 miles southwest of Bardley, and 7½ miles upstream from Fredericks Fork. Zero of gage is 410.84 feet above mean sea level (general adjustment of 1929).

Drainage area.- 690 square miles.

Records available.- October 1921 to September 1938.

Average discharge.- 17 years, 748 second-feet.

Extremes.- Maximum discharge during year, 9,100 second-feet Feb. 19 (gage height, 9.97 feet, from graph based on gage readings); minimum observed, 216 second-feet Dec. 10-12 (gage height, 1.96 feet).

1921-38: Maximum discharge 40,000 second-feet Apr. 14, 1927 (gage height, 18.74 feet, present datum, from floodmarks) from rating curve extended above 15,000 second-feet; minimum discharge, 188 second-feet Aug. 30, 31, Sept. 1, 6, 16, 1936; minimum gage height, 1.06 feet, present datum, Sept. 6-11, 1925.

Maximum stage known, 19.7 feet, present datum, from floodmarks, in August 1915 (discharge, about 44,000 second-feet, from rating curve extended above 15,000 second-feet).

Remarks.- Records good. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	264	248	240	312	568	1,150	2,250	1,070	1,000	660	568	400
2	260	248	237	294	538	1,070	1,890	1,000	1,000	660	538	400
3	264	248	233	284	538	1,070	1,710	1,000	930	660	510	426
4	325	240	233	284	481	1,000	1,550	930	930	628	510	400
5	289	240	233	280	481	1,000	1,470	930	895	628	481	400
6	272	240	230	280	481	930	1,390	930	860	628	481	400
7	264	237	230	272	454	895	1,390	895	860	597	481	400
8	264	244	228	264	426	860	1,550	860	860	692	481	374
9	264	244	228	264	426	860	1,710	826	826	628	481	374
10	260	264	216	260	400	860	1,630	826	826	597	481	374
11	256	248	216	260	400	860	1,550	826	792	597	481	374
12	252	248	216	256	400	826	1,470	826	792	568	454	374
13	252	248	230	256	374	860	1,390	860	792	568	454	374
14	252	244	226	248	400	860	1,230	930	758	568	454	400
15	248	240	226	244	454	826	1,260	895	725	568	481	374
16	248	240	230	244	907	860	2,640	895	725	538	454	374
17	268	240	374	248	1,680	860	1,630	860	1,230	568	454	374
18	280	240	597	244	7,020	860	1,230	860	895	568	454	374
19	294	237	510	244	6,520	860	1,000	860	930	568	426	350
20	276	233	454	240	2,220	826	1,230	895	895	538	426	350
21	268	230	400	276	1,460	792	1,550	860	860	538	426	350
22	268	230	400	374	1,150	792	1,390	930	826	538	426	350
23	260	226	400	374	930	758	1,510	1,540	792	538	426	350
24	252	226	374	538	1,150	758	1,230	4,780	758	510	400	350
25	252	226	350	826	1,390	725	1,230	1,730	758	510	400	350
26	252	233	350	692	1,390	758	1,150	1,390	725	510	400	325
27	256	226	320	628	1,310	792	1,070	1,310	725	510	400	325
28	252	268	325	568	1,230	1,120	1,070	1,230	692	538	400	325
29	252	256	320	538	-	6,290	1,000	1,150	692	597	400	325
30	252	248	316	568	-	4,310	1,070	1,070	692	568	400	325
31	248	-	320	597	-	2,720	-	1,070	-	597	400	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	8,164	325	248	263	0.381	0.44	16,190
November.....	7,240	268	226	241	.349	.39	14,360
December.....	9,482	597	216	306	.443	.51	18,810
Calendar year 1937.....	248,849	13,900	195	682	.988	13.43	493,600
January.....	11,257	826	240	363	.508	.61	22,330
February.....	35,158	7,020	374	1,256	1.82	1.90	69,730
March.....	38,008	6,290	725	1,226	1.78	2.05	75,390
April.....	43,240	2,640	1,000	1,441	2.09	2.33	85,770
May.....	35,034	4,780	826	1,130	1.64	1.89	69,490
June.....	25,041	1,230	692	835	1.21	1.35	49,670
July.....	17,981	692	510	580	.841	.97	35,660
August.....	14,028	568	400	453	.657	.76	27,820
September.....	11,041	426	325	368	.533	.59	21,900
Water year 1937-38.....	255,674	7,020	216	700	1.01	13.79	507,100



## Greer Spring at Greer, Mo.

Location.- Water-stage recorder, lat. 36°47'10", long. 91°20'50", in SE¼SW¼ sec. 36, T. 25 N., R. 4 W., 300 feet below lower outlet of spring, 1 mile upstream from Eleven Point River, and 1 mile north of Greer. Zero of gage is 564.00 feet above mean sea level (general adjustment of 1929).

Records available.- August to December 1904 and November 1921 to September 1938.

Average discharge.- 16 years (1922-38), 339 second-feet.

Extremes.- Maximum discharge during year, 779 second-feet Feb. 18 (gage height, 1.55 feet); minimum, 144 second-feet Dec. 14 (gage height, 0.27 foot).  
1921-38: Maximum discharge, 905 second-feet Jan. 14, 1937 (gage height, 1.84 feet); minimum, 116 second-feet Aug. 26-31, Sept. 14-17, 1938; minimum gage height 0.27 foot Aug. 28-31, Sept. 14-17, 1936, Dec. 14, 1937.

Remarks.- Records good; they include occasional run-off from small drainage area above station.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	164	155	153	176	288	574	631	480	502	368	300	244
2	161	155	153	173	281	582	624	474	491	368	300	240
3	164	155	155	170	273	543	612	469	474	364	296	240
4	164	155	155	170	266	526	605	464	469	360	292	244
5	164	155	153	170	254	514	593	458	458	355	288	244
6	164	155	153	170	251	502	580	453	448	355	285	240
7	164	155	153	167	240	491	568	448	443	350	285	244
8	164	155	150	164	237	480	574	443	432	346	288	244
9	164	158	147	161	234	469	599	437	427	346	288	240
10	161	158	147	164	230	464	586	432	422	342	285	240
11	161	158	147	164	223	458	574	427	417	337	277	240
12	161	158	147	164	217	453	580	422	412	337	277	240
13	161	158	147	161	213	453	568	427	407	337	277	237
14	158	155	147	158	220	443	555	443	412	333	273	240
15	158	155	147	158	292	443	549	437	412	329	269	237
16	158	153	153	158	397	469	580	432	407	325	266	234
17	158	153	230	158	502	469	612	427	422	325	266	234
18	164	153	277	155	731	469	605	432	417	329	258	230
19	164	150	269	155	718	464	599	437	417	329	258	230
20	164	150	248	153	697	453	593	437	422	329	258	230
21	164	150	234	170	677	448	574	443	417	321	258	226
22	161	150	220	191	670	443	562	453	412	316	254	226
23	161	150	213	191	657	437	549	497	407	316	251	226
24	161	150	204	266	650	432	537	555	402	316	251	223
25	161	153	197	337	638	432	526	555	397	316	251	223
26	158	153	191	329	624	427	514	549	392	312	248	220
27	158	153	188	308	612	437	508	543	387	308	248	220
28	155	155	185	300	599	453	497	531	382	304	248	217
29	158	153	126	298	-	638	486	526	378	304	248	217
30	158	153	122	288	-	638	480	520	375	300	248	213
31	155	-	179	296	-	638	-	514	-	304	244	-
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					4,991	164	155	161	9,900			
November.....					4,619	158	150	154	9,160			
December.....					5,609	277	147	181	11,130			
Calendar year 1937.....					102,375	684	147	280	203,100			
January.....					6,253	337	153	201	12,560			
February.....					11,891	731	213	425	23,590			
March.....					15,122	638	427	488	29,990			
April.....					17,019	631	480	567	33,760			
May.....					14,565	555	422	470	28,890			
June.....					12,668	502	373	422	25,110			
July.....					10,281	368	300	352	20,380			
August.....					8,356	300	244	269	16,530			
September.....					6,985	244	213	233	13,860			
Water year 1937-38.....					118,306	731	147	324	234,700			

Peak discharge.- Feb. 18 (8 a.m.) 779 sec.-ft.; Mar. 29 (2 a.m.) 711 sec.-ft.

## Strawberry River near Poughkeepsie, Ark.

Location.- Wire-weight gage, lat. 36°07', long. 91°27', in NW¼ sec. 19, T. 17 N., R. 4 W., half a mile downstream from Hurricane Creek and 2½ miles northeast of Poughkeepsie. Zero of gage is 298.07 feet above mean sea level (Corps of Engineers, U. S. Army benchmark). Prior to May 12, 1938, staff gage at same site and datum.

Drainage area.- 470 square miles.

Records available.- October 1937 to September 1938.

Extremes.- Maximum discharge during year, 21,500 second-feet Feb. 18 (gage height, 23.6 feet, from reading at flood crest); minimum discharge observed, 17 second-feet Sept. 21 (gage height, 1.25 feet).

Remarks.- Records poor. Gage read at least once daily Oct. 1 to May 12 and twice daily May 13 to Sept. 30, but oftener during periods of rapidly changing stage. Records collected in cooperation with Corps of Engineers, U. S. Army.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	138	220	315	650	898	620	2,880	315	475	177	302	111
2	138	220	289	503	800	532	1,750	315	315	167	138	87
3	700	220	289	475	710	503	1,440	289	315	157	128	77
4	9,590	220	265	475	650	475	1,080	242	302	157	100	72
5	5,230	220	242	421	590	475	920	242	277	157	98	65
6	892	198	242	394	561	448	860	220	265	148	87	52
7	690	198	242	367	532	448	860	220	315	148	79	56
8	532	198	220	315	532	421	920	198	328	148	100	62
9	475	198	220	315	503	394	1,300	198	289	157	87	62
10	475	616	198	289	421	448	980	198	328	138	96	68
11	421	1,280	198	265	394	620	770	177	421	138	89	72
12	367	762	198	265	367	475	710	157	367	138	93	68
13	315	561	198	265	341	475	620	1,030	289	128	86	70
14	367	367	198	265	772	475	561	1,950	242	119	75	68
15	315	315	220	265	8,970	448	502	691	209	111	91	68
16	289	315	220	242	7,210	421	9,660	475	220	117	111	65
17	448	289	2,610	242	9,680	394	3,560	448	289	115	95	62
18	740	289	2,340	220	19,200	315	1,490	394	645	102	89	52
19	2,470	265	1,040	220	11,600	315	978	394	11,900	115	75	36
20	1,340	265	70	220	3,340	341	860	341	3,000	109	75	33
21	591	242	367	1,240	2,060	341	860	315	1,050	113	72	18
22	475	242	831	1,250	1,610	341	860	373	710	128	87	21
23	421	242	2,060	951	1,260	315	770	3,490	475	104	61	34
24	341	242	1,140	2,720	1,120	315	620	1,700	394	102	58	34
25	315	220	800	1,810	920	289	475	830	341	93	68	46
26	315	220	561	980	860	944	394	740	302	82	60	40
27	289	220	1,180	770	770	2,000	341	923	277	80	63	40
28	242	6,930	1,080	710	680	2,710	315	916	242	91	62	41
29	220	699	980	650	-	17,400	394	1,980	209	127	126	41
30	220	397	710	1,650	-	13,400	341	1,120	188	220	119	45
31	220	-	650	1,690	-	8,520	-	620	-	620	148	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						29,571	9,590	138	954	58,640		
November.....						16,780	6,930	198	659	33,280		
December.....						20,873	2,610	198	673	41,390		
Calendar year .....												
January.....						21,074	2,720	220	680	41,790		
February.....						77,379	19,200	341	2,764	155,400		
March.....						55,418	17,400	289	1,788	109,900		
April.....						38,071	9,660	315	1,269	76,500		
May.....						21,511	3,490	157	694	42,660		
June.....						24,979	11,900	188	833	49,530		
July.....						4,506	620	80	145	8,940		
August.....						2,989	302	51	96	5,950		
September.....						1,666	111	18	56	3,500		
Water year 1937-38.....						314,817	19,200	18	862	624,500		

## Little Red River near Heber Springs, Ark.

Location.- Staff gage, lat. 35°32', long. 92°01' (revised), in NE¼ sec. 1, T. 10 N., R. 10 W., 2½ miles downstream from Peter Creek and 3 miles (revised) northeast of town of Heber Springs.

Drainage area.- 1,160 square miles.

Records available.- September 1927 to June 1935, March 1936 to September 1938.

Extremes.- 1936: Maximum discharge observed during period, 3,400 second-feet Apr. 30 (gage height, 10.3 feet); no flow at times during August and September.

1936-37: Maximum discharge observed during year, 41,800 second-feet Jan. 15 (gage height, 29.4 feet); minimum observed, 6 second-feet Aug. 19-22 (gage height, 2.6 feet).

1937-38: Maximum discharge observed during year, 73,100 second-feet Feb. 18 (gage height, 41.9 feet); minimum observed, 9 second-feet Sept. 30 (gage height, 2.73 feet).

1927-35, 1936-38: Maximum discharge observed, 74,400 second-feet (revised) Apr. 6, 1928 (gage height, 42.35 feet); no flow at times in October 1929, August 1930, and August and September 1936.

Maximum stage known, 44.0 feet in April 1927 (discharge, 78,900 second-feet).

Remarks.- Records good except those below about 50 second-feet, which are poor. Gage read once daily Mar. 3, 1936, to Apr. 1, 1938; twice daily thereafter. Records collected in cooperation with Corps of Engineers, U. S. Army.

Revisions.- Revised figures of discharge for high-water periods in water years 1927-28, 1929-30, 1932-33, 1934-35 are given in the following table. They supersede those published in Water-Supply Papers 667, 702, 747, 787:

Date	Discharge	Date	Discharge
1928	Sec.-ft.	1933	Sec.-ft.
Apr. 6	71,200	May 16	62,900
6	*74,400	16	*62,900
1930		1935	
May 11	61,411	May 5	65,000
11	*65,200	5	*73,300

  

Period	Second-foot days	Mean (sec.-ft.)	Second-foot per square mile	Run-off Inches Acre-feet	
April 1928.....	259,080	8,636	7.44	8.30	513,900
Water year 1927-28	809,812	2,213	1.91	25.98	1,608,000
May 1930.....	163,288	5,267	4.54	5.23	324,000
Water year 1929-30	606,037	1,660	1.43	19.43	1,202,000
May 1933.....	179,810	5,800	5.00	5.76	357,000
Water year 1932-33	680,851	1,865	1.61	21.83	1,349,000
May 1935.....	255,800	8,252	7.11	8.20	507,400
Period 1934-1935..	-	-	-	-	2,011,000

\*Maximum discharge for water year in which it occurred.

Discharge, in second-feet, 1936-38  
1936

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	891	2,390	111	8	3	0
2						-	805	2,110	96	418	3	0
3						1,550	805	1,920	96	248	3	0
4						1,390	891	1,440	82	127	3	0
5						1,330	724	1,230	82	46	2	0
6						1,440	3,160	982	69	37	2	1
7						1,440	1,850	805	57	22	1	1
8						1,330	1,440	685	69	16	1	1
9						1,230	1,130	574	225	16	1	1
10						1,670	1,080	505	96	16	1	0
11						1,440	1,330	440	69	16	1	0
12						1,130	1,150	440	69	11	1	0
13						982	1,080	472	57	11	1	0
14						805	982	647	46	11	1	0
15						574	891	472	46	11	1	0
16						539	805	440	46	8	1	0
17						685	724	379	46	8	1	1
18						847	647	225	37	6	1	1
19						610	539	323	37	9	1	1
20						610	539	350	37	6	1	290
21						610	505	379	29	6	1	472
22						610	539	350	22	6	1	440
23						647	685	297	22	6	1	297
24						2,620	2,040	272	22	11	1	248
25						2,390	1,180	225	22	11	1	647
26						2,050	847	203	22	8	1	764
27						1,790	724	182	16	6	1	505
28						1,440	320	144	11	6	1	350
29						1,230	3,690	127	11	4	0	248
30						1,180	3,320	144	8	4	0	248
31						805	-	127	-	3	0	-

## WHITE RIVER BASIN

Discharge, in second-feet, of Little Red River near Heber Springs, Ark.,  
1936-38--Continued

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	248	936	182	8,360	8,610	1,550	1,330	1,260	203	127	57	46
2	248	805	182	7,220	5,600	1,390	1,180	20,800	182	96	57	37
3	225	5,660	203	7,650	4,460	1,230	1,080	19,000	182	82	46	69
4	248	7,000	225	5,020	3,580	1,180	982	7,440	162	69	46	1,550
5	203	3,320	535	3,670	2,990	1,230	936	4,790	225	1,260	37	2,440
6	144	2,460	15,700	2,910	2,530	1,280	847	3,580	272	1,600	37	1,910
7	144	1,790	15,700	6,750	2,250	1,230	764	2,830	272	505	29	1,130
8	248	1,280	6,980	11,300	2,060	1,230	805	2,110	350	248	29	764
9	1,080	1,130	4,050	16,100	2,320	1,230	1,390	1,390	297	203	22	610
10	1,330	936	3,150	16,900	2,050	1,180	1,440	1,920	297	162	16	440
11	1,030	764	2,530	8,780	1,730	1,080	1,280	1,500	350	144	16	350
12	764	764	1,980	6,820	1,500	1,130	1,180	1,230	505	182	11	297
13	574	610	1,670	11,600	1,360	1,030	1,030	1,180	472	203	11	248
14	409	536	1,390	26,400	1,280	1,190	936	2,050	379	272	8	225
15	379	472	1,180	32,400	1,180	1,330	847	1,850	574	203	8	203
16	297	409	936	11,300	1,080	1,330	805	1,440	379	182	8	162
17	272	409	936	6,560	982	1,230	724	1,230	409	127	8	144
18	225	379	847	5,480	849	1,130	695	1,030	505	82	8	127
19	182	323	764	4,050	3,710	1,080	647	847	695	111	6	171
20	162	297	695	5,060	2,430	1,390	610	724	472	96	6	6
21	144	272	610	15,800	7,360	1,850	610	610	379	379	6	82
22	162	248	574	27,600	6,310	1,610	1,130	536	350	505	8	69
23	203	203	501	19,500	4,460	1,390	2,320	440	297	350	11	57
24	162	225	472	12,400	3,400	3,990	1,790	505	248	248	16	46
25	1,640	225	440	9,140	2,750	5,110	3,150	409	203	182	29	37
26	15,800	203	409	7,560	2,250	3,470	2,390	409	162	162	111	57
27	6,820	203	409	6,190	1,850	2,750	1,850	379	144	127	111	69
28	2,910	182	1,700	5,720	1,730	2,250	1,610	297	127	96	92	272
29	2,110	162	2,380	6,190	-	1,920	1,440	272	144	82	69	203
30	1,610	162	4,570	7,900	-	1,670	1,180	248	144	69	69	162
31	1,230	-	18,700	11,100	-	1,500	-	248	-	69	46	-

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	248	936	2,050	5,840	1,550	12,700	8,150	764	440	1,230	54
2	127	248	805	1,790	4,150	1,390	6,420	4,780	610	350	764	47
3	127	248	724	1,610	3,580	1,230	4,360	2,050	539	297	505	37
4	1,920	225	695	1,390	2,910	1,180	3,320	1,390	472	272	379	46
5	1,130	203	610	1,390	2,460	1,130	2,750	1,230	440	248	284	96
6	695	182	574	1,130	2,110	1,130	2,250	1,330	505	225	237	65
7	610	182	536	1,030	1,850	936	2,110	982	505	203	203	42
8	472	162	505	936	1,550	847	3,320	847	409	203	172	38
9	350	182	472	805	1,440	805	3,670	764	379	574	144	36
10	272	225	440	724	1,280	574	3,760	647	539	323	119	35
11	248	2,710	409	695	1,230	1,180	3,320	574	695	272	99	31
12	203	3,300	379	647	1,130	1,080	2,680	472	539	203	99	30
13	182	2,200	350	610	982	1,030	2,180	3,100	440	162	93	30
14	162	1,610	350	574	724	982	1,790	4,900	440	127	79	36
15	144	1,330	350	539	8,010	936	1,560	2,430	323	111	67	34
16	127	1,080	379	505	21,400	891	24,600	1,500	248	96	75	28
17	127	1,080	10,100	472	24,400	847	20,300	1,130	225	96	83	29
18	162	1,230	16,700	440	64,800	805	7,180	936	610	82	75	31
19	5,130	1,280	6,310	409	49,200	764	4,800	847	5,900	111	77	57
20	4,720	1,230	3,950	379	12,900	764	5,580	724	7,860	182	162	21
21	2,430	936	2,630	1,920	7,220	805	3,070	647	2,390	182	225	19
22	1,600	805	2,590	9,120	4,910	805	4,660	610	1,670	144	172	18
23	1,230	724	2,750	7,100	3,950	764	5,140	9,710	1,180	127	135	17
24	936	647	3,150	19,100	3,070	847	2,990	10,500	891	127	106	16
25	724	574	2,680	21,100	2,390	805	2,600	3,940	695	111	89	14
26	539	539	2,250	8,130	2,250	764	2,110	2,570	574	111	73	12
27	539	505	1,190	4,910	2,050	1,880	1,730	1,850	1,030	82	63	11
28	472	610	4,780	3,690	1,730	13,200	1,550	1,550	764	69	58	11
29	409	891	3,240	1,250	-	45,800	1,390	1,280	610	96	65	10
30	350	1,130	2,590	4,030	-	60,100	1,230	1,180	539	144	111	9
31	297	-	2,320	8,750	-	29,800	-	982	-	1,670	67	-

Discharge, in second-feet, of Little Red River near Heber  
Springs, Ark., 1936-38--Continued

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
March 3-31, 1936.....	34,774	2,620	539	1,199	1.03	1.11	69,970
April.....	35,843	3,690	505	1,195	1.03	1.15	71,090
May.....	19,279	2,390	127	622	.536	.62	38,240
June.....	1,658	225	8	55.3	.048	.05	3,290
July.....	1,121	418	3	36.2	.031	.04	2,220
August.....	38	3	0	1.2	.001	.001	75
September.....	4,516	764	0	151	.129	.14	8,960
The period.....							192,800
October 1936 .....	41,203	15,800	144	1,329	1.15	1.33	81,720
November.....	32,368	7,000	162	1,079	.930	1.04	64,200
December.....	90,788	18,700	182	2,929	2.52	2.90	180,100
Calendar year .....							
January 1937 .....	333,070	32,400	2,910	10,740	9.26	10.68	660,600
February.....	82,681	8,610	849	2,953	2.55	2.86	164,000
March.....	52,150	5,110	1,030	1,682	1.45	1.67	103,400
April.....	36,968	3,150	610	1,232	1.06	1.18	75,320
May.....	82,557	20,800	248	2,665	2.30	2.66	163,700
June.....	9,370	985	127	312	.269	.30	18,580
July.....	8,213	1,600	69	265	.228	.26	16,290
August.....	1,022	111	6	33.0	.028	.03	2,030
September.....	12,013	2,440	37	400	.345	.38	23,830
Water year 1936-37 .....	782,401	32,400	6	2,144	1.85	25.08	1,552,000
October 1937 .....	26,558	5,130	127	857	.739	.85	52,680
November.....	26,516	3,300	162	894	.762	.86	52,590
December.....	75,817	16,700	350	2,446	2.11	2.43	150,400
Calendar year 1937 .....	746,933	32,400	6	2,046	1.76	23.94	1,481,000
January 1938 .....	106,205	21,100	379	3,426	2.95	3.40	210,600
February.....	239,516	64,800	724	8,554	7.37	7.68	475,100
March.....	175,621	60,100	574	5,665	4.68	5.63	349,300
April.....	143,130	24,600	1,230	4,771	4.11	4.59	283,900
May.....	73,602	10,500	472	2,374	2.05	2.36	146,000
June.....	32,755	7,850	225	1,092	.941	1.05	64,970
July.....	7,440	1,670	69	240	.207	.24	14,760
August.....	6,090	1,230	58	196	.169	.19	12,080
September.....	960	96	9	32.0	.028	.03	1,900
Water year 1937-38 .....	914,210	64,800	9	2,505	2.16	29.30	1,813,000

## Laguer Bayou near Stuttgart, Ark.

Location.- Staff gage, lat. 34°31'55", long. 91°21'20", in NW¼ sec. 17, T. 2 S., R. 3 W., 11 miles east of Stuttgart and 24 miles upstream from confluence with Little Laguer Bayou. Zero of gage is 175.14 feet above mean Gulf level.

Records available.- August 1935 to September 1938.

Extremes.- Maximum discharge observed during year, 2,280 second-feet Jan. 25 (gage height, 14.74 feet); minimum observed, 0.5 second-foot June 7 (gage height, 0.44 foot).

1935-38: Maximum discharge, 2,960 second-feet Jan. 24, 1937 (gage height, 16.9 feet, from floodmark); no flow during periods in May, June, and August 1936 and August 1937.

Remarks.- Records poor. Flow affected by seasonal diversions for irrigation. Gage read twice daily.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	45	22	29	530	1,230	697	1,030	9	2	20	8	10
2	39	15	22	530	1,110	575	1,000	8	2	15	8	10
3	55	13	17	500	1,000	416	910	6	1	11	6	11
4	102	10	15	470	910	275	833	5	1	11	5	13
5	148	8	15	429	816	206	748	4	1	9	4	14
6	148	6	11	390	748	114	650	3	1	7	6	12
7	108	5	9	358	650	45	690	3	5	6	5	12
8	77	5	9	285	560	27	782	2	4	5	5	13
9	59	7	8	235	470	264	910	2	3	6	4	12
10	51	148	8	190	390	748	1,000	1	37	6	4	12
11	43	364	7	127	305	799	1,030	1	22	6	5	11
12	35	429	6	77	239	782	930	1	8	5	7	13
13	29	442	5	47	162	714	850	1	4	3	7	15
14	25	416	5	31	97	620	782	1	3	3	7	14
15	22	351	5	22	72	545	714	1	9	2	41	13
16	18	338	5	17	55	485	620	3	9	2	102	16
17	25	315	35	15	171	442	560	8	63	2	97	17
18	102	285	162	13	986	390	500	55	51	2	77	17
19	222	257	198	11	1,560	485	429	97	97	2	59	18
20	266	230	169	10	2,000	455	325	97	134	10	43	20
21	257	206	134	484	2,120	377	239	59	82	4	29	23
22	190	190	155	1,500	1,960	305	148	27	51	4	20	29
23	141	169	455	1,960	1,850	295	102	14	33	4	15	37
24	97	148	545	2,200	1,440	257	77	9	22	4	12	43
25	82	134	575	2,280	1,260	214	67	7	16	3	9	39
26	63	114	560	2,200	1,080	176	55	5	14	3	8	31
27	59	92	590	1,890	955	176	41	4	15	2	8	27
28	51	72	575	1,620	833	248	29	3	39	3	8	27
29	43	55	560	1,410	-	620	18	2	39	18	8	23
30	37	39	545	1,320	-	748	13	2	27	7	8	17
31	29	-	530	1,290	-	955	-	2	-	8	9	-
Month				Second-foot-days		Maximum	Minimum	Mean	Run-off in acre-feet			
October.....				2,668		266	18	86.1	5,290			
November.....				4,885		442	5	163	9,690			
December.....				5,962		590	5	192	11,530			
Calendar year 1937.....				77,337		2,920	0	212	153,400			
January.....				22,411		2,280	10	723	44,450			
February.....				24,829		2,120	55	887	49,250			
March.....				13,455		955	27	434	26,690			
April.....				16,072		1,030	13	536	31,880			
May.....				442		97	1	14.3	877			
June.....				800		134	1	26.7	1,590			
July.....				193		20	2	6.22	383			
August.....				634		102	4	20.5	1,260			
September.....				569		43	10	19.0	1,120			
Water year 1937-38.....				92,920		2,280	1	255	184,300			

## Arkansas River at Granite, Colo.

Location.- Water-stage recorder, lat. 39°03', long. 106°16', in sec. 31, T. 11 S., R. 79 W., at Granite, just upstream from Cache Creek.

Drainage area.- 431 square miles.

Records available.- April to October 1895, May 1897 to September 1899, April 1910 to September 1927 and October 1933 to September 1938 in reports of Geological Survey. May 1897 to September 1899 and April 1910 to September 1938 in reports of State engineer.

Average discharge.- 28 years (1910-38), 337 second-feet.

Extremes.- Maximum discharge during year, 2,320 second-feet June 6 (gage height, 5.45 feet); minimum daily discharge, 65 second-feet Feb. 18-24.

1895, 1897-99, 1910-38: Maximum discharge, 2,900 second-feet June 16, 1924 (gage height, 4.57 feet); minimum not determined.

Remarks.- Records good. Discharge for period of ice effect, Dec. 30 to Mar. 9, computed on basis of two discharge measurements, weather records, and records for station at Salida. Small diversions for irrigation above station. Sugar Loaf and Twin Lakes reservoirs are on tributaries above station (combined capacity, 72,120 acre-feet). The following records, furnished by the office of the State Engineer, show diversions from Colorado River Basin to Arkansas River Basin above station.

Ditch or tunnel	Diverting from-	Diversion in acre-feet
Ewing ditch.....	Eagle River and tributaries.....	1,410
Buck-Ivanhoe tunnel.....	Fryingpan Creek.....	5,558
Twin Lakes tunnel.....	Roaring Fork.....	45,462
Premont Pass ditch.....	Tenmile Creek.....	1,669
Wurtz ditch.....	Eagle River.....	2,607
Columbine ditch.....	Tomichi Creek.....	1,797
Total.....	.....	58,503

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	127	105	92	76	72	76	77	460	1,740	1,380	898	443
2	125	101	92	80	71	80	66	387	1,740	1,120	918	462
3	123	99	97	94	71	85	66	387	1,790	1,140	937	382
4	150	101	94	87	71	90	88	363	2,020	1,030	951	283
5	169	97	88	70	70	95	95	354	2,140	990	964	287
6	175	90	88	72	70	100	93	327	2,070	1,360	1,010	283
7	175	101	88	68	70	105	88	254	1,920	1,310	1,040	266
8	169	99	85	70	69	115	88	245	1,260	1,210	1,020	287
9	112	90	88	70	69	125	90	259	1,600	1,290	964	259
10	116	94	90	70	69	130	99	276	1,620	1,130	990	232
11	112	99	92	72	69	106	99	312	1,580	1,100	744	280
12	112	99	88	76	68	102	112	312	1,550	1,110	467	298
13	110	92	87	77	68	104	130	309	1,720	1,320	443	229
14	105	88	85	76	68	102	139	357	1,650	1,380	428	211
15	121	99	82	76	68	97	122	434	1,430	1,360	405	232
16	127	97	85	76	66	106	120	526	1,420	1,130	386	239
17	123	141	82	76	66	106	137	557	1,500	694	364	236
18	132	144	80	76	65	101	138	570	1,330	645	331	229
19	127	141	82	75	65	92	306	630	1,650	876	638	219
20	116	144	85	75	65	104	312	634	891	676	750	214
21	119	103	90	74	65	104	291	641	1,390	473	756	211
22	119	99	92	74	65	92	294	688	2,020	511	782	208
23	119	97	84	74	65	88	336	598	2,020	462	762	205
24	110	123	76	74	65	96	342	553	1,610	409	750	214
25	105	119	76	73	66	90	378	543	1,610	377	750	203
26	101	108	79	73	68	84	390	609	1,530	396	769	202
27	101	94	84	73	70	81	366	782	1,540	592	872	197
28	103	94	84	73	72	84	378	1,000	1,380	615	763	194
29	101	94	84	72	-	81	409	1,330	1,570	795	270	180
30	99	92	88	72	-	75	441	1,490	1,700	931	328	166
31	101	-	88	72	-	84	-	1,600	-	904	344	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	3,784	175	99	122	7,510
November.....	3,144	144	88	105	6,240
December.....	2,675	97	76	86.3	5,310
Calendar year 1937.....	105,962	1,690	54	290	210,200
January.....	2,314	94	68	74.6	4,590
February.....	1,906	72	65	68.1	3,780
March.....	2,979	130	75	96.1	5,810
April.....	8,153	441	66	205	12,210
May.....	17,790	1,600	248	574	35,290
June.....	49,391	2,140	891	1,646	97,970
July.....	28,536	1,380	377	921	56,600
August.....	21,854	1,040	270	705	43,350
September.....	7,556	462	166	252	14,990
Water year 1937-38.....	148,087	2,140	65	406	293,800

Peak discharge.- June 6 (12 m.) 2,320 sec.-ft.; June 7 (11 a.m.) 2,230 sec.-ft.; June 22 (1 p.m.) 2,240 sec.-ft.

## Arkansas River at Salida, Colo.

Location.- Water-stage recorder, lat. 38°31', long. 106°01', in sec. 31, T. 50 N., R. 9 E., at Salida, 3 miles upstream from South Arkansas River.

Drainage area.- 1,210 square miles.

Records available.- April 1895 to October 1903, November 1909 to September 1927, and October 1933 to September 1938 in reports of Geological Survey. April 1895 to October 1903 and November 1909 to September 1938 in reports of State engineer.

Average discharge.- 28 years (1910-38), 628 second-feet.

Extremes.- Maximum discharge during year, 3,930 second-feet July 14 (gage height, 4.62 feet); minimum daily discharge, 169 second-feet Mar. 31.

1895-1903, 1909-1938: Maximum discharge, 5,100 second-feet June 16, 1924 (gage height, 7.2 feet, former site and datum); minimum daily discharge, 140 second-feet Sept. 19-21, 1902.

Remarks.- Records excellent. Diversions for irrigation above station. Flow regulated by storage in Clear Creek Reservoir (capacity, 11,444 acre-feet) and as noted in description for station at Granite, Colo.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	248	223	233	206	230	226	182	558	2,350	2,190	1,100	615
2	268	220	233	213	233	226	175	555	2,400	1,850	1,140	738
3	260	223	244	223	223	230	182	575	2,490	1,620	1,180	809
4	252	220	244	230	226	230	192	548	2,830	1,540	1,190	622
5	276	216	237	230	226	226	196	516	3,070	1,380	1,210	615
6	331	206	240	223	216	260	196	480	3,240	1,640	1,170	700
7	308	196	240	209	209	268	186	430	2,720	1,760	1,210	636
8	317	203	233	220	226	272	179	357	1,940	1,540	1,220	636
9	289	196	233	220	223	272	179	362	2,390	1,680	1,200	636
10	240	189	240	216	223	240	179	368	2,350	1,500	1,230	561
11	240	192	256	216	223	220	182	404	2,260	1,500	1,190	595
12	237	196	260	220	226	226	189	420	2,160	1,440	730	685
13	240	199	272	226	216	230	203	425	2,480	1,630	685	760
14	237	199	264	226	206	233	233	458	2,500	2,200	700	602
15	240	206	252	226	209	206	256	561	2,240	2,200	678	588
16	256	289	248	226	213	209	233	738	2,180	1,810	650	602
17	256	223	248	220	220	220	230	752	2,210	1,470	575	595
18	260	260	240	226	206	216	260	785	2,570	1,350	529	555
19	260	244	226	226	206	203	331	776	2,520	1,070	629	529
20	244	248	213	220	230	206	394	801	1,640	966	768	498
21	237	244	213	220	213	206	368	793	1,900	842	826	498
22	237	213	223	223	216	189	394	834	2,840	921	851	498
23	240	209	220	226	209	172	409	752	3,060	785	860	485
24	240	220	226	213	209	176	430	715	2,590	678	877	485
25	230	230	230	199	206	172	425	678	2,370	664	860	491
26	226	226	213	209	209	186	468	776	2,350	671	904	463
27	230	216	223	220	213	179	463	975	2,460	799	921	452
28	226	230	216	226	220	182	452	1,260	2,200	895	948	441
29	223	240	220	230	-	182	504	1,720	2,260	1,050	575	425
30	223	237	209	230	-	172	542	2,020	2,570	1,140	458	378
31	226	-	216	226	-	169	-	2,160	-	1,130	529	-
Month					Second-foot-days		Maximum	Minimum	Mean		Run-off in acre-feet	
October.....					7,797		331	223	252		15,470	
November.....					6,613		289	189	220		13,120	
December.....					7,265		272	209	234		14,410	
Calendar year 1937.....					178,948		2,020	163	490		355,000	
January.....					6,844		230	199	221		13,570	
February.....					6,085		233	206	217		12,070	
March.....					6,603		272	169	213		13,100	
April.....					8,812		542	175	294		17,480	
May.....					23,582		2,160	357	761		46,770	
June.....					73,110		3,240	1,640	2,437		145,000	
July.....					41,891		2,200	664	1,351		83,090	
August.....					27,593		1,230	458	890		54,730	
September.....					17,183		809	378	573		34,100	
Water year 1937-38.....					233,388		3,240	169	639		462,900	

Peak discharge.- June 6 (6 a.m.) 3,310 sec.-ft.; July 14 (6 p.m.) 3,930 sec.-ft.; July 17 (11 p.m.) 2,970 sec.-ft.



Arkansas River at Canon City, Colo.

Location.- Water-stage recorder, lat. 38°26', long. 105°15', in sec. 32, T. 18 S., R. 70 W., in Canon City, just upstream from Sand Creek.

Drainage area.- 3,090 square miles.

Records available.- May 1888 to September 1927 and October 1933 to September 1938 in reports of Geological Survey. May 1888 to September 1938 in reports of State engineer.

Average discharge.- 51 years (1887-1938), 731 second-feet.

Extremes.- Maximum discharge during year, 4,810 second-feet Aug. 11 (gage height, 5.58 feet); minimum daily discharge, 155 second-feet Nov. 7, 8.

1888-1938: Maximum discharge, 19,000 second-feet Aug. 2, 1921 (gage height, 10.7 feet), from rating curve extended above 4,000 second-feet; minimum daily discharge, 90 second-feet Apr. 7, 1935.

Remarks.- Records good. Diversions for irrigation above station. For statements on regulation see descriptions for stations at Granite and at Salida.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	206	197	266	301	288	282	224	534	2,570	2,570	1,010	650
2	210	199	280	298	277	294	232	539	2,750	2,170	984	852
3	215	186	298	328	288	294	242	508	2,860	1,880	1,110	1,240
4	217	184	314	320	282	317	220	518	3,060	1,800	1,080	1,080
5	222	166	310	317	274	277	234	464	3,270	1,510	1,080	757
6	224	164	310	314	268	282	250	478	3,510	1,560	1,070	716
7	237	155	328	294	250	288	227	469	3,200	1,760	1,110	723
8	242	155	317	285	244	285	224	442	2,780	1,620	1,170	638
9	250	161	314	307	250	288	224	438	2,510	1,640	1,160	670
10	234	163	335	320	257	288	229	394	2,720	1,590	1,290	625
11	203	164	343	320	252	255	222	390	2,640	1,540	1,750	607
12	203	163	343	317	255	247	220	410	2,520	1,520	955	696
13	206	161	354	331	250	252	227	426	2,630	1,550	625	912
14	203	161	354	331	239	268	234	406	2,860	1,790	607	690
15	206	172	339	324	247	260	294	487	2,580	2,410	583	709
16	210	188	347	304	268	227	317	663	2,480	1,970	566	716
17	224	239	347	288	280	224	291	814	2,460	1,870	518	764
18	227	224	331	285	291	227	277	792	2,870	1,590	478	703
19	229	255	314	301	291	222	314	807	2,810	1,290	451	683
20	229	277	301	280	320	210	402	860	2,510	1,040	600	657
21	222	285	285	285	324	212	430	860	2,880	965	696	644
22	210	271	291	294	314	220	406	903	2,780	912	736	663
23	208	239	310	301	294	227	422	912	3,200	837	770	594
24	203	210	328	271	282	210	456	777	2,940	730	764	585
25	201	210	335	252	260	166	438	703	2,550	667	770	561
26	195	220	328	266	263	188	442	730	2,570	625	869	524
27	201	212	314	285	268	220	482	822	2,720	644	974	503
28	199	217	317	294	271	224	451	1,240	2,550	807	1,020	478
29	201	244	310	301	-	232	451	1,750	2,380	903	1,040	513
30	201	252	317	277	-	232	487	2,300	2,770	1,000	534	550
31	197	-	310	294	-	217	-	2,410	-	1,060	518	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	6,635	250	195	214	13,160
November.....	6,094	285	155	203	12,090
December.....	9,690	354	266	319	19,620
Calendar year 1937.....	192,835	2,420	155	528	382,500
January.....	9,285	331	252	300	18,420
February.....	7,647	324	239	273	15,170
March.....	7,635	317	166	246	15,140
April.....	9,569	487	220	319	18,980
May.....	24,246	2,410	390	782	48,090
June.....	82,330	3,510	2,510	2,744	163,300
July.....	43,610	2,570	625	1,407	86,500
August.....	26,888	1,750	451	867	53,330
September.....	20,701	1,240	478	690	41,060
Water year 1937-38.....	254,530	3,510	155	697	504,900

Peak discharge.- June 12 (4:40 p.m.) 3,750 sec.-ft.; July 15 (3:30 a.m.) 3,830 sec.-ft.; Aug. 11 (5 a.m.) 4,810 sec.-ft.

## ARKANSAS RIVER BASIN

Arkansas River near Pueblo, Colo.

Location.- Water-stage recorder, lat. 38°16', long. 104°41', in sec. 34, T. 20 S., R. 65 W., at intake of south-side waterworks, 4 miles west of center of Pueblo.

Drainage area.- 4,730 square miles.

Records available.- May 1885 to September 1886 (at present site), June to September 1887 (at site 5 miles upstream), and September 1894 to September 1927 and October 1933 to September 1938 (at present site) in reports of Geological Survey. May 1885 to September 1886 and September 1894 to September 1938 in reports of State engineer. (Records for May 1925 to September 1934 do not include water diverted above station into intake of north-side waterworks.)

Average discharge.- 34 years (1894-1924, 1934-38), 765 second-feet; 9 years (1925-34), 624 second-feet (not including water diverted above station into intake of north-side waterworks).

Extremes.- Maximum discharge during year, 11,200 second-feet Aug. 26; minimum daily discharge, 106 second-feet Mar. 25 1885-87, 1894-1938. Maximum discharge, 103,000 second-feet June 3, 1921 (gage height, 24.66 feet from gage at Pueblo), by slope-area method, including estimated discharge of Dry Creek, 19,500 second-feet; minimum daily discharge, 18 second-feet (including 13 second-feet diverted above station into intake of north-side waterworks) Apr. 7, 1935.

Remarks.- Records good except those for periods of ice effect, Dec. 9, 10, 15, 19, 20, 22-23, Jan. 8-10, 28-31, Feb. 1, 16-18, which were computed on basis of weather records and are fair. They include water diverted above station into intake of north-side waterworks for municipal supply of Pueblo. Diversions for irrigation above station. For statements on regulation see descriptions for stations at Salida and at Granite.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	141	180	255	244	272	206	187	436	2,200	2,470	986	1,470
2	137	216	247	227	263	207	178	620	2,510	2,030	858	1,180
3	144	230	231	245	267	207	165	878	2,690	1,740	953	1,070
4	145	225	246	246	263	224	156	578	2,840	1,710	1,070	1,400
5	137	238	239	255	280	224	147	544	3,300	1,560	987	1,000
6	143	217	242	271	279	201	196	639	3,520	1,340	947	759
7	199	198	240	253	249	217	208	738	3,800	1,670	973	739
8	221	192	321	253	215	229	160	648	3,100	1,670	984	711
9	220	188	190	262	209	234	187	514	2,120	1,470	1,070	649
10	229	197	191	302	198	227	159	554	2,520	1,560	1,180	750
11	176	191	388	354	182	200	137	539	2,530	1,410	2,290	694
12	162	200	326	395	187	168	126	580	2,380	1,340	1,240	1,210
13	194	193	314	306	194	150	131	632	2,560	1,280	729	2,450
14	214	205	326	306	190	173	150	547	2,740	1,640	610	895
15	209	206	325	276	191	175	347	508	2,590	2,390	582	833
16	231	203	302	240	165	171	265	691	2,360	2,170	539	974
17	245	245	313	229	150	142	246	901	2,350	1,980	497	743
18	260	257	333	211	202	141	210	1,020	2,390	1,460	422	679
19	229	301	323	204	265	151	197	949	2,790	1,320	350	680
20	231	286	296	211	250	136	279	889	2,550	1,280	420	668
21	213	318	315	210	253	125	324	891	1,520	1,100	585	631
22	213	303	292	230	235	129	293	987	2,090	850	650	595
23	199	276	287	193	225	160	306	854	2,840	763	683	586
24	183	280	263	217	226	134	373	773	2,950	716	710	577
25	197	263	292	216	231	106	331	635	3,120	651	750	512
26	172	267	296	180	207	120	284	556	2,620	588	3,210	497
27	227	278	329	198	228	164	491	675	2,370	647	1,050	461
28	176	266	288	220	218	176	475	811	2,440	700	1,210	439
29	167	283	268	205	-	169	444	1,420	2,130	755	1,290	425
30	182	276	272	210	-	176	452	1,840	2,300	898	1,100	488
31	178	-	248	238	-	159	-	1,920	-	1,070	656	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	5,972	253	137	193	11,850
November.....	7,176	318	180	239	14,230
December.....	8,798	388	190	284	17,450
Calendar year 1937.....	176,071	3,080	75	482	349,200
January.....	7,596	395	180	245	15,070
February.....	6,304	293	150	225	12,500
March.....	5,401	234	106	174	10,710
April.....	7,520	491	126	251	14,920
May.....	24,467	1,920	436	789	48,530
June.....	78,290	3,800	1,520	2,610	155,300
July.....	42,228	2,470	588	1,362	83,760
August.....	29,569	3,210	350	954	58,650
September.....	26,765	3,070	425	892	55,090
Water year 1937-38.....	250,086	3,800	106	685	496,100

Peak discharge.- Aug. 26 (7:30 a.m.) 11,200 sec.-ft.; Sept. 1 (7 p.m.) 8,530 sec.-ft.; Sept. 13 (5 a.m.) 7,380 sec.-ft.

## Arkansas River near Nepesta, Colo.

Location.- Water-stage recorder above diversion dam of Oxford Farmers Co. canal, lat. 38° 11', long. 104° 10', in sec. 31, T. 21 S., R. 60 W., 1½ miles west of Nepesta.

Drainage area.- 9,130 square miles.

Records available.- September 1897 to October 1903, July 1909 to November 1912, and October 1933 to September 1938 in reports of Geological Survey. September 1897 to October 1903, July 1909 to November 1912, and January 1914 to September 1938 in reports of State engineer.

Extremes.- Maximum discharge during year, 9,380 second-feet Sept. 4 (gage height, 5.72 feet); minimum daily discharge, 57 second-feet Oct. 8.  
1897-1903, 1909-12, 1914-38: Maximum discharge, 180,000 second-feet at point 9 miles upstream June 4, 1921, by slope-area method; no flow at times during 1902, 1910, 1931, and 1934.

Remarks.- Records good except those for period of ice effect, Jan. 8, 24-27, 30, which were computed on basis of weather records and are fair. Storage reservoirs and diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	107	149	289	266	337	293	245	520	1,690	2,120	485	1,140
2	103	151	286	272	384	289	234	621	1,600	1,690	405	2,120
3	112	189	283	269	324	286	242	676	1,640	1,710	374	3,510
4	107	189	286	328	300	279	220	882	1,910	1,910	632	6,160
5	107	184	263	303	286	289	228	772	2,150	1,620	547	2,100
6	100	186	263	328	283	269	212	946	2,350	1,340	422	1,360
7	90	181	266	272	263	248	234	882	2,850	1,220	416	1,560
8	57	184	283	260	257	217	239	824	3,990	1,140	379	1,200
9	88	181	311	248	236	245	226	746	1,670	914	405	898
10	88	179	303	296	254	217	212	914	2,220	962	389	772
11	98	189	394	300	242	215	179	1,050	2,200	962	3,290	1,140
12	134	169	394	311	223	272	184	898	1,750	882	898	1,580
13	121	179	269	350	217	239	151	1,140	1,710	759	759	3,940
14	162	184	307	360	215	228	142	1,030	1,800	914	587	1,260
15	191	174	405	341	212	296	181	978	1,730	2,180	520	1,180
16	184	205	394	307	220	296	303	1,440	1,400	2,380	492	1,160
17	217	220	266	257	251	279	293	1,560	1,260	1,840	416	1,200
18	209	194	341	263	242	245	263	1,840	1,820	1,600	394	709
19	226	196	337	248	226	239	242	1,820	1,580	2,320	300	978
20	220	215	303	289	230	242	266	1,500	2,100	1,730	242	866
21	217	236	254	283	248	204	328	1,500	1,400	962	149	824
22	207	311	228	276	365	194	332	1,520	1,560	1,010	158	746
23	199	394	251	248	296	204	286	866	2,030	811	136	709
24	169	341	374	245	296	228	283	1,160	1,870	798	151	643
25	181	337	370	240	283	207	341	1,050	1,460	759	138	643
26	189	316	355	245	289	202	374	914	2,400	632	3,460	643
27	176	316	355	250	266	181	2,150	837	1,730	798	866	574
28	199	337	245	263	263	209	837	962	2,030	538	538	520
29	162	303	226	228	-	223	601	1,460	1,750	898	914	485
30	149	332	202	220	-	236	556	1,380	2,080	643	882	485
31	142	-	260	316	-	251	-	1,620	-	520	665	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						4,711	226	57	152	9,340		
November.....						6,921	394	149	251	13,730		
December.....						9,361	405	202	302	18,570		
Calendar year 1937.....						177,248	3,360	50	486	351,600		
January.....						8,682	360	220	280	17,220		
February.....						7,498	384	212	268	14,870		
March.....						7,522	296	181	243	14,920		
April.....						10,884	2,150	142	353	20,990		
May.....						34,908	1,980	520	1,126	69,240		
June.....						57,730	3,990	1,260	1,924	114,500		
July.....						38,562	2,380	520	1,244	76,490		
August.....						20,409	3,460	136	658	40,480		
September.....						41,095	6,150	485	1,370	81,510		
Water year 1937-38.....						247,983	6,150	57	679	491,900		

Peak discharge.- June 7 (11:45 p.m.) 7,700 sec.-ft.; Aug. 26 (1 p.m.) 7,760 sec.-ft., Sept. 4 (3 a.m.) 9,380 sec.-ft.

## Arkansas River at La Junta, Colo.

Location.- Water-stage recorder, lat. 37°59', long. 103°31', in sec. 2, T. 24 S., R. 55 W., at East Bridge in La Junta, just upstream from mouth of King Arroya.

Drainage area.- 12,200 square miles.

Records available.- May to August 1889, December 1893 to December 1895, January to December 1901, April to October 1903, August to November 1908, April 1912 to December 1913, and October 1933 to September 1938 in reports of Geological Survey. December 1893 to December 1895, January to December 1901, April to October 1903, August to November 1908, and April 1912 to September 1938 in reports of State engineer. This station has been maintained at several different locations in La Junta, but all records are equivalent.

Average discharge.- 26 years (1912-38), 265 second-feet.

Extremes.- Maximum discharge, 13,400 second-feet Sept. 4 (gage height, 6.22 feet); minimum daily discharge, 10 second-feet Nov. 3.

1889, 1893-95, 1901, 1903, 1908, 1912-38: Maximum discharge, 200,000 second-feet June 4, 1921 (gage height, 18.4 feet), by slope-area method; no flow Jan. 20-23, Mar. 20-22, 1915.

Remarks.- Records good. Storage reservoirs and diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	21	11	31	60	74	36	28	273	282	809	143	486
2	20	11	61	99	109	71	55	118	440	619	74	331
3	20	10	87	135	199	64	109	108	257	438	40	206
4	17	11	77	150	150	55	179	133	416	639	22	7,820
5	16	19	99	146	130	48	45	247	825	567	30	1,800
6	16	48	76	145	90	37	28	532	114	614	62	350
7	16	44	48	157	78	36	108	471	626	551	66	214
8	16	34	61	244	46	134	464	463	3,770	556	61	222
9	16	37	48	291	20	183	253	486	516	571	36	114
10	14	26	55	192	19	79	92	425	449	448	162	132
11	13	19	260	160	14	16	31	383	740	488	677	293
12	14	15	384	36	16	65	31	431	475	474	52	513
13	14	21	339	36	21	178	19	459	248	440	43	1,100
14	16	14	59	44	16	16	25	351	655	333	410	461
15	15	24	31	170	21	14	27	395	505	562	218	228
16	26	16	72	204	33	19	28	436	136	643	79	238
17	54	12	120	104	51	17	36	418	187	1,370	41	569
18	34	16	47	102	104	31	19	560	128	767	37	291
19	90	19	40	106	231	87	27	596	588	467	69	167
20	63	23	26	151	186	40	45	615	294	115	42	272
21		55	50	22	181	13	34	566	104	767	32	324
22	41	107	25	167	214	11	79	358	119	55	21	363
23	29	173	90	172	302	18	40	24	612	114	19	350
24	19	245	125	147	129	20	56	25	471	455	25	414
25	15	160	142	153	56	20	53	290	544	492	24	490
26	17	140	266	328	41	23	45	336	483	419	592	428
27	20	140	272	196	40	27	149	238	336	361	1,060	384
28	21	156	118	101	31	26	853	292	590	416	232	354
29	21	41	57	129	-	23	286	440	503	227	151	341
30	14	25	47	103	-	26	225	730	692	337	419	302
31	11	-	38	196	-	27	-	674	-	423	551	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						774	90	11	25.0	1,540		
November.....						1,667	245	10	55.6	3,310		
December.....						3,223	384	22	104	6,590		
Calendar year 1937.....						65,375	5,050	10	179	129,700		
January.....						4,605	328	36	149	9,130		
February.....						2,565	302	14	91.6	5,090		
March.....						1,460	183	11	47.1	2,900		
April.....						3,469	853	19	116	6,880		
May.....						11,893	730	24	384	23,590		
June.....						16,105	3,770	104	537	31,940		
July.....						15,535	1,370	55	501	30,610		
August.....						5,488	1,060	19	177	10,890		
September.....						19,577	7,820	114	653	38,530		
Water year 1937-38.....						86,361	7,820	10	237	171,500		

## Arkansas River at Caddoa, Colo.

Location.- Water-stage recorder, lat. 38°04', long. 102°57', in sec. 7, T. 23 S., R. 49 W., half a mile north of Caddoa and 2.3 miles upstream from Caddoa Creek. Zero of gage is 3,760.23 feet above mean sea level.

Drainage area.- 19,000 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge during period, 11,800 second-feet July 18 (gage height, 5.85 feet); minimum daily discharge, 33 second-feet Mar. 26.

Remarks.- Records good. Storage reservoirs and diversions for irrigation above station.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	45	205	388	576	344	480
2						-	58	201	243	621	197	1,190
3						-	55	155	315	567	102	1,180
4						-	55	115	410	558	69	2,340
5						-	76	147	356	540	61	5,990
6						-	76	261	540	472	70	1,450
7						51	50	612	358	540	74	888
8						53	65	416	864	558	59	549
9						89	213	368	1,180	603	48	402
10						110	144	338	506	594	44	305
11						98	84	338	720	464	230	300
12						69	53	356	912	448	960	320
13						56	45	395	763	380	418	1,220
14						93	47	594	630	344	176	2,160
15						80	45	402	710	275	142	829
16						50	47	432	829	514	131	480
17						42	44	380	2,100	1,000	110	374
18						44	40	388	1,020	3,280	89	700
19						40	37	498	650	1,610	87	368
20						45	37	489	1,270	1,500	78	310
21						42	38	549	660	3,100	61	332
22						35	45	821	275	1,820	50	315
23						37	40	1,060	234	670	42	338
24						35	41	852	514	489	48	332
25						35	82	338	425	523	48	368
26						33	89	315	498	506	50	480
27						40	56	300	506	432	532	362
28						51	167	270	380	332	630	300
29						48	440	248	540	540	549	275
30						50	252	315	455	455	498	248
31						48	-	464	-	344	472	-
Month	Second-foot-days					Maximum	Minimum	Mean	Run-off in acre-feet			
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-	-	-
February.....						-	-	-	-	-	-	-
March 7-31 .....						1,374	110	33	55.0			2,730
April.....						2,566	440	37	85.5			5,090
May.....						12,424	1,060	115	401			24,640
June.....						19,281	2,100	234	643			38,240
July.....						24,655	3,280	275	795			45,900
August.....						5,469	960	42	209			12,830
September.....						25,185	5,990	248	840			49,950
The period.....												182,400

## ARKANSAS RIVER BASIN

## Arkansas River at Lamar, Colo.

Location.- Water-stage recorder, lat. 38°06', long. 102°37', in sec. 30, T. 22 S., R. 46 W., at highway bridge, 1 mile north of Lamar.

Drainage area.- 19,800 square miles.

Records available.- May to December 1913 and October 1933 to September 1938 in reports of Geological Survey. May 1913 to September 1938 in reports of State engineer.

Average discharge.- 25 years, 281 second-feet.

Extremes.- Maximum discharge during year, 8,900 second-feet Sept. 5 (gage height, 5.48 feet); minimum daily discharge, 1.2 second-feet May 15.  
1913-38: Maximum discharge, 165,000 second-feet June 5, 1921, by slope-area method; no flow at times during 1913-15.

Remarks.- Records good except those for periods of ice effect, Dec. 14-26, 29-31, Jan. 1-10, 12-15, Jan. 27 to Feb. 2, Feb. 17-20, 22, 23, which were computed on basis of five discharge measurements and weather records and are fair. Storage reservoirs and diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.8	2.2	2.2	7	3.0	4.5	3.3	2.4	28	3.8	4.3	4.8
2	3.6	2.0	2.7	3	4.0	4.0	3.3	1.8	12	7.9	3.6	411
3	3.2	2.0	2.8	3	34	3.8	2.8	1.8	7.5	4.0	3.6	509
4	3.0	2.1	2.4	10	36	3.8	2.8	1.8	36	3.3	3.6	1,480
5	3.0	2.0	2.4	5	28	3.2	3.2	1.8	11	3.2	3.8	3,550
6	3.2	1.8	2.6	15	9.6	2.4	3.0	3.2	36	2.6	3.6	933
7	2.4	1.8	2.6	24	5.8	2.2	3.6	28	22	10	14	290
8	2.2	2.1	2.1	10	5.3	2.8	4.3	9.6	54	8.3	28	56
9	2.1	2.1	2.4	8	4.8	3.5	5.8	2.1	988	9.6	8.3	16
10	2.0	2.1	3.0	10	4.6	2.8	6.2	1.4	43	9.6	15	8.7
11	1.8	2.2	3.3	32	5.0	3.0	5.0	1.4	170	9.6	38	7.5
12	2.1	2.4	3.2	20	4.0	3.2	4.3	1.4	320	4.0	796	7.5
13	2.2	2.4	3.2	10	3.2	3.0	3.3	1.5	76	5.6	33	270
14	2.2	2.4	20	6.0	3.6	2.8	3.8	1.5	73	27	2.2	1,540
15	2.4	2.6	75	7.0	3.8	4.0	4.0	1.2	27	7.9	3.0	354
16	3.0	2.4	120	3.3	3.8	3.3	3.3	1.7	139	3.3	35	45
17	2.8	2.6	10	3.3	3.8	3.0	3.0	2.6	2,570	4.8	68	12
18	2.7	2.4	4	3.3	3.8	3.2	2.7	3.8	810	3,120	50	45
19	3.6	2.2	4	3.8	3.8	3.0	2.4	2.4	255	2,180	73	76
20	2.1	2.1	4	3.8	4.0	2.6	2.2	2.8	2,740	1,660	13	14
21	2.1	2.2	4	3.3	4.3	2.4	2.1	3.2	418	2,140	7.5	11
22	2.1	2.2	4	2.8	5.3	2.6	2.1	33	28	1,920	6.2	7.5
23	2.1	2.2	4	2.6	4.0	2.7	2.0	1,210	5.8	155	5.8	5.8
24	2.0	2.4	4	2.1	7.1	2.7	2.0	378	5.0	31	5.0	12
25	1.7	2.6	4	3.2	6.2	2.4	2.1	27	5.3	27	5.3	12
26	2.0	2.7	4	3.0	5.8	2.8	2.6	11	4.5	12	15	11
27	2.2	2.1	9.6	3.0	5.8	2.8	3.0	8.7	4.3	12	6.2	8.3
28	2.2	2.2	12	3.0	5.0	3.2	2.2	7.5	4.0	34	4.6	8.3
29	2.4	2.2	12	3.0	-	3.2	2.6	7.1	4.3	15	5.0	8.3
30	2.4	2.2	15	3.0	-	3.2	2.7	18	5.0	14	4.8	8.3
31	2.4	-	8	3.0	-	3.3	-	24	-	12	4.3	-
Month				Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet				
October.....				77.0	3.8	1.7	2.48	153				
November.....				66.9	2.7	1.8	2.23	133				
December.....				352.5	120	2.1	11.4	699				
Calendar year 1937.....				33,215.3	6,800	1.7	91.0	65,880				
January.....				219.7	32	2.1	7.09	436				
February.....				217.4	36	3.0	7.76	431				
March.....				95.5	4.8	2.2	3.08	189				
April.....				95.7	6.2	2.0	3.19	190				
May.....				1,801.7	1,210	1.2	58.1	3,570				
June.....				8,901.5	2,740	4.8	297	17,660				
July.....				11,456.5	3,120	2.6	370	22,720				
August.....				1,268.7	796	2.2	40.9	2,520				
September.....				9,722.0	3,550	4.8	324	19,280				
Water year 1937-38.....				34,275.1	3,550	1.2	93.9	67,980				

## Arkansas River at Holly, Colo.

Location.- Water-stage recorder, lat. 38°02', long. 102°06', in sec. 14, T. 23 S., R. 42 W., just upstream from Wild Horse Creek, 300 feet downstream from highway bridge and half a mile south of Holly.

Drainage area.- 25,000 square miles.

Records available.- December 1893 to December 1894, May 1901 to April 1902 (station published as at Barton or at Byron), October 1907 to September 1927, and October 1933 to September 1938 in reports of Geological Survey. October 1907 to September 1938 in reports of State engineer.

Average discharge.- 31 years (1907-38), 350 second-feet.

Extremes.- Maximum discharge during year, 13,100 second-feet July 19 (gage height, 5.80 feet); minimum daily discharge, 4.0 second-feet Oct. 10.

1893-4, 1901-2, 1907-38: Maximum discharge, 130,000 second-feet Oct. 20, 1908 (gage height, 11.0 feet, former datum), by slope-area method; no flow Aug. 9, 1924, May 27 to June 6, June 26 to July 3, 1925.

Remarks.- Records fair. Discharge for days of ice effect, Jan. 23, 24, 30, 31, computed on basis of weather records. Storage reservoirs and several diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	23	17	23	71	41	25	30	9.5	2,120	16	109	4.4
2	20	16	24	69	71	23	27	10	1,010	35	64	44
3	18	16	26	80	64	23	21	11	520	18	52	428
4	16	18	26	56	83	23	21	9.5	367	16	44	2,700
5	13	17	23	60	91	21	23	11	242	19	56	7,170
6	11	20	26	61	94	18	21	27	242	20	28	4,310
7	9.5	20	28	47	105	18	13	200	235	20	22	3,060
8	7.7	20	18	75	75	19	19	185	196	19	19	1,530
9	5.9	20	20	82	59	25	24	111	1,050	20	18	1,090
10	4.0	18	22	92	49	22	28	57	506	20	17	824
11	18	17	30	88	44	21	21	44	156	19	18	714
12	12	16	36	58	37	22	21	38	272	20	89	428
13	11	16	30	82	28	19	21	40	367	16	306	2,350
14	10	15	67	92	34	19	21	43	251	12	75	1,240
15	11	15	75	92	23	23	19	35	242	23	44	1,860
16	15	15	40	77	14	24	22	35	1,200	559	177	1,030
17	17	15	71	73	16	22	23	37	1,680	810	138	597
18	15	15	82	92	16	25	20	38	2,230	958	675	350
19	16	14	84	140	14	25	20	37	1,020	6,530	306	240
20	20	14	82	56	17	24	20	30	2,340	2,100	205	284
21	20	13	73	52	17	27	21	31	1,500	1,490	148	184
22	18	13	73	47	18	22	20	71	695	2,310	99	143
23	20	18	82	35	25	23	22	1,060	420	1,030	73	113
24	16	17	60	22	26	25	22	795	272	506	42	82
25	15	13	61	18	24	24	35	408	222	284	26	71
26	13	13	56	34	24	19	31	195	114	198	17	60
27	13	12	59	49	25	22	1,250	88	108	251	9.9	50
28	13	11	71	75	25	34	44	64	102	154	11	42
29	13	14	71	91	-	33	16	64	97	143	21	38
30	13	21	84	60	-	31	12	127	35	116	15	30
31	15	-	97	45	-	28	-	3,080	-	154	7.7	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						442.1	23	4.0	14.3	877		
November.....						478	21	11	15.9	948		
December.....						1,619	97	18	52.2	3,210		
Calendar year 1937.....						63,525.1	7,770	4.0	174	126,000		
January.....						2,059	140	18	66.4	4,080		
February.....						1,159	105	14	41.4	2,300		
March.....						729	34	18	23.5	1,450		
April.....						1,908	1,250	12	63.6	3,780		
May.....						6,971.0	3,080	9.5	225	13,830		
June.....						19,811	2,340	35	660	39,290		
July.....						17,876	6,530	12	577	35,460		
August.....						2,909.6	875	7.7	95.9	5,770		
September.....						31,566.4	7,170	4.4	1,052	62,610		
Water year 1937-38.....						87,528.1	7,170	4.0	240	175,600		

## ARKANSAS RIVER BASIN

## Arkansas River at Syracuse, Kans.

Location.- Water-stage recorder, lat. 37°58', long. 101°45', in NW¼ 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 1938.

Average discharge.- 17 years (1921-38), 326 second-feet.

Extremes.- Maximum discharge during year, 16,000 second-feet Sept. 5 (gage height, 7.55 feet); minimum, 2 second-feet July 12 (gage height, 1.98 feet).  
1902-6, 1921-38: Maximum gage height, about 11.75 feet, present datum, June 6, 1921 (discharge not determined); minimum discharge, 1 second-foot at times in 1931, 1934, and 1937. Bank-full stage, 7.0 feet.

Remarks.- Records fair except those for periods of ice effect, Dec. 12-19, Feb. 19-28, which were computed on basis of one discharge measurement, engineer's notes, and canal records and are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8	8	27	114	73	68	14	114	2,210	78	146	11
2	7	7	20	106	95	58	14	122	860	65	125	17
3	7	7	19	100	117	53	16	117	362	46	102	1,520
4	6	7	19	103	154	50	14	111	190	37	87	4,160
5	4	7	13	100	140	53	14	111	55	29	70	8,560
6	4	7	10	97	131	56	13	142	48	19	60	7,690
7	4	7	9	89	128	48	8	916	23	12	50	4,090
8	4	6	9	89	140	41	9	595	22	8	44	2,720
9	4	6	8	103	122	46	16	397	142	7	52	1,630
10	4	6	9	100	103	56	25	277	1,240	4	62	1,010
11	3	6	10	97	103	58	30	221	386	4	81	724
12	4	6	30	73	108	58	22	173	216	4	102	582
13	4	7	53	84	97	56	20	173	333	3	221	1,390
14	4	8	41	100	86	53	22	163	279	3	226	1,010
15	4	8	56	122	86	50	18	176	257	39	203	2,190
16	7	7	81	128	50	53	9	160	503	454	409	1,410
17	6	7	108	117	53	48	8	125	1,260	354	494	876
18	7	7	86	108	60	34	8	140	2,480	474	464	593
19	16	7	95	117	60	32	8	122	908	4,700	464	484
20	19	7	81	137	78	32	7	122	1,410	3,140	199	484
21	20	7	78	111	81	27	7	120	2,080	1,240	142	362
22	20	8	86	103	84	22	7	154	828	2,540	105	268
23	20	16	89	100	89	19	8	613	503	1,260	75	216
24	22	27	95	84	97	18	13	640	263	445	57	181
25	20	16	84	36	84	14	66	386	230	299	48	162
26	19	14	86	41	84	16	106	102	165	241	37	146
27	19	27	73	68	89	16	972	33	162	194	30	132
28	19	34	81	97	78	20	613	19	145	177	25	118
29	19	30	86	114	78	19	137	8	132	177	22	105
30	13	27	84	63	-	18	117	3	108	158	17	93
31	8	-	103	63	-	16	-	1,010	-	150	14	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						325	22	3	10.5	645		
November.....						344	34	6	11.5	692		
December.....						1,729	108	8	55.8	3,430		
Calendar year 1937.....						54,806	7,450	1	150	108,700		
January.....						2,964	137	36	95.6	5,880		
February.....						2,650	140	50	94.6	5,260		
March.....						1,208	68	14	39.0	2,400		
April.....						2,341	972	7	78.0	4,640		
May.....						7,545	1,010	3	243	14,970		
June.....						17,799	2,480	22	633	35,300		
July.....						16,361	4,700	3	628	32,450		
August.....						4,293	494	14	138	8,510		
September.....						42,894	8,560	11	1,430	85,080		
Water year 1937-38.....						100,453	8,560	3	275	199,200		



## Arkansas River at Garden City, Kans.

Location.- Water-stage recorder, lat. 37°57', long. 100°52', in NW¼ sec. 19, T. 24 S., R. 32 W., half a mile south of Garden City.

Drainage area.- 28,600 square miles.

Records available.- June 1922 to September 1938.

Average discharge.- 16 years, 202 second-feet.

Extremes.- Maximum discharge during year, 9,060 second-feet Sept. 6 (gage height, 7.31 feet); no flow during several periods.  
1922-38: Maximum discharge, 21,200 second-feet Aug. 9, 1929; maximum gage height, 8.56 feet (based on resident engineer's notes) May 31, 1936; no flow during several periods. Bank-full stage, 7.0 feet.

Remarks.- Records fair except those for period of missing gage heights, Nov. 1 to Feb. 24, which were computed on basis of four discharge measurements and notes and estimates of discharge made by resident engineer and are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					0	8	0	7	139	0		0
2					0	5	0	3	290	0		0
3					0	4	0	0	86	0		5
4					0	6	0	0	18	0		142
5					0	4	0	0	6	0		565
6					0	4	0	5	10	0		3,930
7				3	0	3	0	14	8	0		1,240
8					0	2	0	42	3	0		528
9					0	4	0	62	4	0		139
10					0	5	0	28	1	0		32
11					0	4	0	17	55	0		44
12					0	3	0	8	44	0		21
13					0	2	0	5	8	0		37
14					0	1	1	2	4	0		260
15					0	1	1	0	1	0		189
16					0	0	0	3	0	17	0	324
17					0	0	0	3	0	5	0	220
18					0	0	0	4	0	16	0	164
19					0	0	0	4	0	790	0	306
20					0	0	0	6	0	180	2,120	265
21					0	0	0	8	0	336	438	189
22					0	1	0	6	1	388	454	156
23					0	3	0	8	47	95	502	107
24					0	6	0	8	21	26	255	56
25					0	7	0	8	19	8	132	26
26					0	10	0	15	11	0	110	16
27					0	8	0	52	8	0	90	10
28					0	6	0	47	6	0	70	0
29					0	-	0	26	4	0	40	0
30					0	-	0	14	2	0	10	0
31					0	-	0	-	0	-	5	-
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					0	0	0	0	0			
November.....					90	-	0	3	179			
December.....					133	-	-	4.3	264			
Calendar year 1937.....					18,372	2,680	0	50.3	36,440			
January.....					36	-	0	1.2	71			
February.....					41	10	0	1.5	81			
March.....					56	8	0	1.8	111			
April.....					214	52	0	7.1	424			
May.....					312	62	0	10.1	619			
June.....					2,638	790	0	84.6	5,030			
July.....					4,226	2,120	0	136	8,380			
August.....					0	0	0	0	0			
September.....					8,958	3,930	0	299	17,780			
Water year 1937-38.....					16,604	3,930	0	45.5	32,940			

## ARKANSAS RIVER BASIN

## Arkansas River at Larned, Kans.

Location.- Water-stage recorder, lat. 38°10', long. 99°06', in NE¼ sec. 5, T. 22 S., R. 16 W., at Larned, about 800 feet upstream from Pawnee River.

Drainage area.- 54,900 square miles.

Records available.- June 1922 to September 1938.

Average discharge.- 16 years, 218 second-feet.

Extremes.- Maximum discharge during year, 1,690 second-feet Sept. 8 (gage height, 4.15 feet); no flow at times on Aug. 31, Sept. 1, 2.  
1922-38: Maximum discharge, 14,300 second-feet Aug. 25, 1923 (gage height, 9.5 feet); no flow during several periods. Bank-full stage, 8.5 feet.

Remarks.- Records fair except those for periods of ice effect or of backwater from Pawnee River, which are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	6	17	28	12	71	30	56	*240	100	52	1
2	16	4	15	26	12	57	29	51	*220	90	38	4
3	15	4	15	22	13	56	29	54	*156	73	30	141
4	14	4	13	20	18	54	28	95	134	87	25	19
5	12	4	7	25	22	50	28	152	141	56	20	15
6	10	5	11	24	16	44	26	299	134	54	18	25
7	9	6	2	16	13	41	22	184	103	63	13	19
8	10	5	6	19	13	44	11	110	93	57	10	1,210
9	10	5	6	19	12	54	30	90	82	50	9	922
10	9	6	8	20	11	51	48	80	73	41	8	429
11	9	6	8	23	12	45	52	80	69	37	6	230
12	9	6	7	23	12	44	93	82	63	35	5	184
13	12	5	8	26	12	42	130	85	59	37	4	164
14	12	4	4	24	11	40	98	67	57	40	4	127
15	11	4	4	26	12	37	130	110	61	37	3	82
16	12	6	3	31	11	31	123	100	61	59	15	63
17	11	7	4	26	12	31	145	71	71	95	10	52
18	10	3	6	24	13	30	85	59	*71	120	15	65
19	9	6	5	22	11	30	71	57	*71	54	27	77
20	8	4	3	20	10	30	59	50	65	52	8	123
21	7	4	4	20	10	29	57	45	*90	51	6	113
22	6	6	6	20	12	26	57	57	*140	202	4	110
23	6	6	7	18	11	24	57	110	*155	474	3	106
24	6	6	6	16	6	25	54	358	220	326	2	95
25	6	12	4		4	27	48	454	320	326	2	90
26	6	18	6		11	26	46	*220	254	269	2	80
27	6	15	4	14	50	29	69	184	198	244	2	71
28	6	15	13		95	46	63	160	164	206	1	65
29	6	13	21		-	40	59	127	141	171	2	57
30	6	15	27		-	38	56	145	123	117	1	52
31	6	-	28		-	34	-	*180	-	75	1	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						291	16	6	9.4	577		
November.....						217	18	4	7.2	430		
December.....						284	28	3	9.2	563		
Calendar year 1937.....						20,553	1,250	0	56.3	40,770		
January.....						636	31	-	20.5	1,260		
February.....						457	95	4	16.3	906		
March.....						1,226	71	24	39.5	2,430		
April.....						1,533	145	11	61.1	3,640		
May.....						3,972	454	45	128	7,850		
June.....						3,539	320	57	128	7,610		
July.....						3,698	474	35	119	7,330		
August.....						3,549	52	1	11.3	692		
September.....						4,791	1,210	1	160	9,600		
Water year 1937-38.....						21,593	1,210	1	59.2	42,820		

\*Stage-discharge relation affected by backwater from Pawnee River; discharge computed on basis of two discharge measurements and gage-height graph.

Note.- Stage-discharge relation affected by ice Dec. 6 to Feb. 27; discharge computed on basis of three discharge measurements.

## Arkansas River at Wichita, Kans.

Location.— Water-stage recorder, lat. 37°41', long. 97°21', in SE¼ sec. 20, T. 27 S., R. 1 E., on Douglas Avenue bridge in Wichita, half a mile downstream from Little Arkansas River.

Drainage area.— 41,600 square miles.

Records available.— June 1921 to March 1935, at site 1½ miles upstream from Little Arkansas River, and July 1934 to September 1938, at present site, in reports of Geological Survey. July 1897 to September 1938, at present site (records of stage only), in reports of U. S. Weather Bureau.

Extremes.— Maximum discharge during year, 9,420 second-feet June 26 (gage height, 8.20 feet); minimum, 17 second-feet Jan. 26; minimum gage height, 0.79 feet Jan. 26. 1934-38: Maximum discharge, 12,500 second-feet June 3, 1935 (gage height, 9.67 feet); minimum, 3 second-feet Sept. 3, 1934 (gage height, 0.37 foot). Maximum stage observed by U. S. Weather Bureau, 13.5 feet June 10, 1923.

Remarks.— Records fair. Discharge computed by shifting-control method; that for period of faulty gage-height record, Oct. 1-13, Dec. 6, 7, determined from daily gage readings collected in cooperation with U. S. Weather Bureau.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	108	66	87	76	35	152	76	146	1,600	1,020	395	262
2	112	61	90	76	44	157	74	157	2,410	663	358	262
3	76	61	104	79	68	307	74	157	4,350	746	410	320
4	79	66	99	74	82	242	68	550	5,250	638	418	314
5	82	63	68	82	52	179	63	2,410	4,350	874	335	502
6	85	66	47	79	71	168	61	2,210	3,040	610	294	719
7	87	76	69	59	63	162	59	1,750	1,780	566	255	678
8	90	66	40	47	66	162	41	1,750	1,260	614	222	598
9	94	63	41	50	66	184	74	1,190	1,010	598	179	646
10	99	63	42	45	59	174	112	881	854	610	146	622
11	104	63	44	74	66	174	99	582	737	455	126	1,120
12	104	68	45	76	68	168	179	510	614	402	104	1,020
13	108	63	47	54	66	169	288	496	560	365	99	2,140
14	87	63	54	71	56	174	307	478	510	342	94	908
15	90	63	63	63	79	174	307	425	448	320	574	737
16	94	61	68	68	85	168	294	398	1,110	328	2,260	662
17	99	66	74	66	85	157	320	328	2,480	335	4,200	494
18	122	94	85	66	32	157	314	358	2,970	953	2,970	395
19	122	56	99	68	19	152	294	980	2,620	582	2,020	360
20	104	49	85	71	25	167	300	3,680	2,080	470	1,250	314
21	99	50	85	69	29	152	268	2,080	2,140	592	836	307
22	90	56	104	71	29	130	242	962	2,690	614	764	314
23	87	61	87	74	36	117	216	1,140	1,900	486	694	314
24	87	76	85	68	52	130	184	3,250	1,490	418	574	300
25	90	104	61	30	79	122	162	2,970	1,660	440	486	274
26	76	90	66	28	146	104	140	2,340	6,590	818	440	255
27	79	94	82	31	203	108	268	1,840	6,930	630	402	236
28	74	87	74	40	168	152	196	2,340	4,050	534	372	210
29	76	86	85	74	-	112	184	2,480	2,550	486	350	184
30	74	79	90	40	-	94	162	1,600	1,490	462	320	179
31	74	-	82	27	-	82	-	1,110	-	426	294	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						2,852	122	74	92.0	5,660		
November.....						2,083	104	49	69.4	4,130		
December.....						2,261	104	40	72.6	4,460		
Calendar year 1937.....						104,041	2,280	40	285	206,400		
January.....						1,895	82	27	61.1	3,760		
February.....						1,929	203	19	68.9	3,830		
March.....						4,839	307	82	156	9,600		
April.....						5,426	320	41	181	10,760		
May.....						41,588	3,680	146	1,342	82,430		
June.....						71,513	6,930	448	2,364	141,900		
July.....						17,066	1,020	320	561	33,890		
August.....						22,261	4,200	94	718	44,150		
September.....						15,636	2,140	179	521	31,010		
Water year 1937-38.....						189,359	6,930	19	519	375,600		

## ARKANSAS RIVER BASIN

## Arkansas River at Arkansas City, Kans.

Location.- Water-stage recorder, lat. 37°04', long. 97°03', in NW¼ sec. 25, T. 34 S., R. 3 E., at Chestnut Avenue highway bridge, half a mile west of Arkansas City and 5 miles upstream from Walnut River.

Drainage area.- 44,700 square miles.

Records available.- September 1902 to July 1906 (incomplete), September 1921 to September 1938.

Average discharge.- 17 years, (1921-38), 1,205 second-feet.

Extremes.- Maximum discharge during year, 19,600 second-feet May 21 (gage height, 16.53 feet); minimum, 118 second-feet Dec. 9 (gage height, 6.80 feet).  
1902-06, 1921-38: Maximum gage height, 25.64 feet June 11, 1923, from floodmarks (discharge not determined); minimum discharge, 1 second-foot Oct. 9, 1921, (due to diversion by Kansas Gas & Electric Co.'s power canal, which was washed out June 10, 1923). Minimum discharge after canal washed out, 30 second-feet Aug. 19, 1933. Bank-full stage, 16 feet.

Remarks.- Records good. Discharge computed by shifting-control method. Backwater may occur during flashy peaks on Walnut River.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	411	280	324	354	500	691	510	795	2,650	2,440	865	550
2	399	264	324	350	428	795	500	698	3,190	1,680	766	510
3	396	261	324	342	336	769	472	666	3,940	1,560	698	1,160
4	384	270	304	339	321	710	450	1,010	5,020	1,320	717	1,080
5	368	270	297	342	346	710	432	2,260	5,860	1,200	776	1,060
6	354	274	261	335	346	647	428	7,740	4,910	1,120	691	972
7	332	280	245	332	342	668	411	7,480	3,940	1,010	629	1,080
8	346	274	180	318	342	545	446	4,030	3,770	1,010	568	1,080
9	368	264	354	328	339	540	428	5,110	2,950	1,050	530	907
10	350	261	390	293	324	540	428	2,380	2,150	1,200	496	865
11	335	258	440	287	318	535	530	1,930	2,380	1,080	463	837
12	324	252	500	304	318	535	788	1,710	2,200	965	450	965
13	318	248	399	328	307	545	950	1,410	1,930	865	432	1,320
14	307	245	310	350	300	545	995	1,280	1,660	802	428	3,350
15	310	277	300	345	304	540	958	1,200	1,460	762	568	2,610
16	307	277	398	342	332	530	921	1,200	2,040	802	3,990	1,460
17	310	280	307	342	384	520	879	1,120	3,770	775	8,860	1,050
18	314	277	318	339	380	515	980	1,010	2,960	743	9,420	844
19	318	252	335	335	360	505	914	8,530	3,770	955	4,600	730
20	318	245	354	335	350	486	837	15,800	3,270	942	2,880	678
21	324	248	376	335	350	477	802	18,400	2,880	858	1,980	617
22	307	248	388	339	350	459	743	9,980	2,650	809	1,510	594
23	304	248	380	342	350	437	698	7,490	3,350	893	1,200	578
24	304	264	372	339	350	437	659	9,420	2,650	825	1,080	572
25	300	287	355	284	370	437	623	12,300	2,040	750	995	566
26	297	314	361	230	410	428	600	7,450	1,880	698	872	550
27	300	332	361	239	480	420	583	6,900	7,800	851	788	525
28	287	345	350	287	580	463	730	7,740	10,300	1,280	730	500
29	293	339	361	324	-	535	1,200	4,220	5,130	942	565	491
30	280	328	372	295	-	565	1,050	3,880	3,430	1,010	659	477
31	277	-	351	428	-	520	-	3,430	-	1,160	594	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						10,141	411	277	327	20,120		
November.....						8,263	345	245	275	16,390		
December.....						10,641	500	180	343	21,110		
Calendar year 1937.....						350,078	11,100	180	959	694,400		
January.....						10,081	428	230	325	20,000		
February.....						10,225	580	300	355	20,280		
March.....						16,970	795	420	547	33,660		
April.....						20,944	1,200	411	698	41,540		
May.....						165,508	18,400	665	5,049	310,400		
June.....						105,910	10,300	1,460	3,530	210,100		
July.....						32,565	2,440	698	1,051	64,590		
August.....						49,907	9,420	428	1,610	98,990		
September.....						28,438	3,350	477	948	55,410		
Water year 1937-38.....						460,595	18,400	180	1,262	913,600		

## Arkansas River at Ralston, Okla.

Location.- Wire-weight gage, lat. 36°30'10", long. 96°43'30", in NW¼ sec. 1, T. 23 N., R. 5 E., at bridge on State Highway 18, at Ralston, 2 miles downstream from Salt Creek and 2 miles upstream from Grayhorse Creek. Zero of gage is 776.80 feet above mean sea level (general adjustment of 1912).

Drainage area.- 54,100 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge observed during period, 75,600 second-feet May 23 (gage height, 16.44 feet); minimum observed, 685 second-feet Mar. 27 (gage height, 1.35 feet).  
Maximum stage known, 23.24 feet June 11, 1923 U. S. Weather Bureau gage, (at former site 1,200 feet downstream, on same datum).

Remarks.- Records good. Gage read twice daily. Records collected in cooperation with Corps of Engineers, U. S. Army, and U. S. Weather Bureau.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Aug. 22 to Sept. 30)

1.0	450	3.0	2,470	8.0	15,900
1.5	800	4.0	4,000	10.0	27,200
2.0	1,240	5.0	6,500	13.0	47,500
2.5	1,800	6.0	9,400	16.0	72,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	2,890	5,240	11,200	8,100	2,890	1,800
2						-	2,060	3,830	24,100	6,300	2,610	1,800
3						-	1,680	3,040	16,900	5,240	2,060	1,680
4						-	1,340	2,610	12,900	4,180	1,800	2,060
5						-	1,190	2,750	9,750	3,660	1,560	2,470
6						-	1,100	10,600	9,400	3,340	1,450	2,610
7						-	1,100	24,000	15,300	3,040	1,400	2,470
8						-	1,050	20,700	15,700	2,890	1,540	2,190
9						-	1,050	12,600	10,100	2,610	1,190	2,190
10						-	1,560	8,700	17,300	2,610	1,140	2,190
11						-	1,930	7,200	14,900	2,610	1,050	2,060
12						-	1,450	5,750	14,100	2,610	1,000	1,930
13						-	2,190	4,780	12,900	2,330	960	1,930
14						-	3,500	4,370	8,700	2,190	920	2,190
15						-	3,500	3,830	8,100	2,060	1,680	2,890
16						-	3,040	3,660	5,490	1,930	4,780	4,370
17						-	2,750	3,660	5,750	1,930	6,890	4,780
18						-	2,470	3,500	13,500	1,930	24,600	3,660
19						-	2,330	4,780	14,000	1,930	21,700	2,890
20						-	2,330	26,500	9,050	1,800	13,300	2,330
21						-	2,190	65,900	7,200	1,800	8,100	1,930
22						-	1,930	75,600	6,300	2,330	5,750	1,800
23						-	1,930	56,700	5,490	2,190	4,570	1,560
24						-	1,800	49,900	5,240	2,060	3,830	1,450
25						-	1,680	61,900	5,240	1,930	3,190	1,340
26						-	1,560	52,500	4,570	1,600	2,890	1,240
27						685	1,450	27,800	4,370	1,680	2,610	1,190
28						1,290	1,340	16,900	4,880	2,750	2,330	1,140
29						2,060	1,240	18,200	15,700	3,340	2,190	1,100
30						1,680	5,760	16,100	11,500	4,570	1,930	1,050
31						1,800	-	12,200	-	3,340	1,930	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March 27-31.....						7,515	2,060	685	1,503	14,910		
April.....						61,390	5,760	1,050	2,045	121,800		
May.....						625,400	75,600	2,610	20,170	1,240,000		
June.....						319,630	24,100	4,370	10,650	634,000		
July.....						91,080	8,100	1,680	2,938	180,700		
August.....						135,640	24,600	920	4,311	265,100		
September.....						64,290	4,780	1,050	2,143	127,500		
The period.....										2,564,000		

## ARKANSAS RIVER BASIN

## Arkansas River at Tulsa, Okla.

Location.- Wire-weight gage, lat. 36°08'40", long. 96°00'10", in NW¼ sec. 11, T. 19 N., R. 12 E., at bridge on U. S. Highway 66, in Tulsa, 17 miles downstream from Cimarron River. Zero of gage is 618.37 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 74,700 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge observed during period, 96,100 second-feet May 23 (gage height, 12.62 feet); minimum daily discharge observed, 852 second-feet Mar. 24, 25 (gage height, 0.46 foot).

Remarks.- Records good. Gage read twice daily. Records collected in cooperation with Corps of Engineers, U. S. Army, and U. S. Weather Bureau.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

0.4	800	3.0	7,960	11.0	66,500
.6	1,020	4.0	12,800	12.0	82,600
1.0	1,600	6.0	24,000	12.5	93,600
1.5	2,560	8.0	38,500		
2.0	3,960	10.0	56,000		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	9,360	6,180	17,000	14,800	4,980	2,240
2						-	5,360	7,960	15,900	11,800	3,960	2,140
3						-	4,620	5,760	34,500	9,840	3,200	2,040
4						-	3,340	4,280	21,600	7,060	2,930	2,040
5						-	2,660	3,340	17,600	5,760	2,460	2,460
6						-	2,240	3,340	13,300	4,980	2,140	2,560
7						-	1,960	14,300	13,800	4,280	1,860	2,560
8						-	2,140	26,800	21,000	4,120	1,680	2,560
9						-	1,960	23,400	19,200	4,280	1,680	2,680
10						-	1,680	15,900	12,800	3,640	1,520	3,490
11						-	2,140	11,800	28,200	3,490	1,440	4,280
12						-	2,240	9,840	31,700	3,340	1,360	3,340
13						-	2,340	7,960	22,200	3,340	1,360	3,060
14						-	1,960	6,180	19,800	2,930	1,360	3,200
15						-	3,060	6,360	13,800	2,680	1,290	4,620
16						-	3,960	4,980	10,300	2,560	14,900	9,360
17						-	3,800	4,120	8,880	2,340	18,600	7,960
18						-	3,340	4,120	8,420	2,240	21,000	7,060
19						-	3,060	4,620	13,300	2,240	30,000	4,980
20						-	5,360	7,220	14,800	2,140	25,400	3,800
21						-	3,960	42,900	10,300	2,240	16,400	3,060
22						-	3,060	69,000	5,980	2,040	11,300	2,560
23						-	2,800	86,600	15,400	2,040	7,960	2,340
24						852	2,450	76,800	11,300	2,340	6,180	2,140
25						852	2,240	91,100	9,360	2,340	5,760	1,960
26						905	2,140	75,000	9,840	2,140	4,620	1,860
27						3,200	2,040	52,400	8,420	1,950	3,800	1,770
28						11,100	1,950	31,000	7,060	2,800	3,340	1,600
29						39,400	3,960	22,200	6,620	7,060	2,930	1,520
30						11,800	4,280	24,000	16,400	7,500	2,680	1,440
31						9,360	-	21,600	-	6,620	2,340	-
Month	Second-foot-days					Maximum	Minimum	Mean	Run-off in acre-feet			
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-	-	-
February.....						-	-	-	-	-	-	-
March 24-31.....						77,469	39,400	852	9,680	153,700		
April.....						95,510	9,360	1,860	3,183	189,400		
May.....						770,060	91,100	3,340	24,840	1,527,000		
June.....						461,680	34,500	6,620	15,390	915,700		
July.....						136,930	14,800	1,980	4,417	271,600		
August.....						210,420	30,000	1,290	6,768	417,400		
September.....						96,660	9,360	1,440	3,220	191,700		
The period.....											3,666,000	

## Arkansas River near Muskogee, Okla.

Location.— Wire-weight gage, lat. 35°46', long. 95°18', in NW¼ sec. 21, T. 15 N., R. 19 E., 1 mile downstream from confluence of Neosho and Verdigris Rivers and 3½ miles northeast of Muskogee. Zero of gage is 471.38 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.— 96,800 square miles.

Records available.— March 1935 to September 1938.

Extremes.— Maximum discharge during year, 149,000 second-feet May 26 (gage height, 24.79 feet, from reading at crest of flood); minimum observed, 910 second-feet Nov. 8, 29 (gage height, 4.35 feet).

1935-38: Maximum discharge observed, 243,000 second-feet June 9, 1935 (gage height, 30.8 feet), from rating curve extended above 110,000 second-feet; minimum, 340 second-feet Aug. 11-14, 1936 (gage height, 3.80 feet).  
Maximum stage known, 34.1 feet in June 1923.

Remarks.— Records good. Gage read twice daily.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

4.3	850	8.0	11,000	18.0	76,000
4.6	1,250	10.0	19,500	22.0	114,000
5.0	2,050	12.0	30,900	25.0	152,000
6.0	4,550	15.0	51,400		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3,070	1,340	970	1,940	5,110	8,900	104,000	11,000	115,000	26,600	12,600	4,270
2	2,830	1,340	970	1,940	6,600	8,900	83,200	8,900	113,000	26,600	10,300	4,530
3	2,710	1,430	1,250	1,940	5,400	8,200	65,800	12,600	106,000	22,600	7,500	3,990
4	2,600	1,250	1,180	1,830	4,830	7,500	51,400	10,600	94,000	17,700	6,900	3,450
5	2,490	1,250	1,180	1,830	3,990	9,250	29,600	9,250	86,800	13,800	5,700	3,450
6	2,490	1,180	1,340	1,630	3,710	8,200	16,800	8,200	75,100	11,400	5,400	3,320
7	2,270	1,100	1,250	1,630	3,450	7,850	13,000	13,000	68,800	9,600	4,550	3,450
8	2,270	910	1,430	1,530	3,190	8,200	13,000	47,400	59,800	9,250	3,990	3,990
9	2,270	1,250	1,340	1,630	3,190	7,850	15,400	77,800	75,100	10,300	3,450	3,990
10	2,380	1,830	1,250	1,530	3,070	7,850	15,900	62,200	81,400	8,900	3,450	4,270
11	2,490	4,270	1,180	1,430	2,710	6,900	28,400	41,600	94,000	8,200	3,190	3,990
12	2,710	2,270	1,180	1,530	2,490	6,600	43,000	31,600	104,000	7,200	3,070	6,600
13	3,070	1,730	1,250	1,430	2,380	6,300	41,600	24,800	80,500	6,900	2,710	7,200
14	3,070	1,430	1,340	1,540	2,490	5,700	37,400	19,000	67,900	6,900	2,710	6,900
15	2,710	1,250	1,530	1,340	8,350	7,200	24,800	21,500	65,400	6,300	2,600	5,400
16	2,710	1,340	1,730	1,340	34,300	19,500	18,200	32,200	51,400	5,700	3,070	5,110
17	2,950	1,340	1,940	1,430	83,000	17,700	16,800	34,200	45,100	5,400	29,800	11,400
18	3,070	1,430	1,940	1,430	93,100	11,800	17,700	32,200	63,800	5,110	40,200	10,300
19	3,710	1,340	1,730	1,340	86,800	9,250	17,200	28,400	74,200	5,110	41,600	8,900
20	4,270	1,430	1,730	1,430	52,200	7,200	16,800	21,500	73,300	5,400	39,500	7,600
21	3,450	1,340	3,450	2,380	29,600	6,600	24,800	21,000	68,800	6,000	29,000	6,000
22	2,950	1,340	3,450	1,830	21,500	6,000	24,800	61,500	41,600	5,110	20,500	5,110
23	2,600	1,340	3,070	2,270	19,000	5,700	19,000	118,000	24,200	4,630	17,200	4,550
24	2,270	1,180	3,070	6,000	16,000	5,400	15,900	135,000	23,600	4,270	13,400	3,990
25	2,270	1,340	2,830	6,600	13,800	5,110	13,400	135,000	20,600	4,550	10,300	3,450
26	2,050	1,100	2,710	9,600	12,600	6,160	10,600	148,000	28,400	4,830	8,200	3,190
27	1,940	1,040	2,600	8,550	12,200	15,400	9,600	139,000	23,600	4,550	7,200	2,950
28	1,830	1,100	2,380	7,300	9,950	23,100	9,250	117,000	18,200	5,700	6,000	2,830
29	1,730	970	2,270	6,600	-	81,800	8,550	100,000	16,400	6,300	5,110	2,600
30	1,730	1,040	2,270	5,110	-	106,000	7,850	111,000	15,400	11,800	4,830	2,380
31	1,530	-	2,160	4,830	-	97,000	-	131,000	-	15,000	4,270	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	80,490	4,270	1,530	2,600	159,600
November.....	42,600	4,270	910	1,420	84,300
December.....	57,970	3,450	970	1,870	115,000
Calendar year 1937.....	5,006,410	135,000	910	13,720	9,929,000
January.....	92,540	9,600	1,340	2,990	183,600
February.....	544,010	93,100	2,380	19,430	1,079,000
March.....	539,120	106,000	5,110	17,390	1,069,000
April.....	811,750	104,000	7,850	27,060	1,600,000
May.....	1,764,450	148,000	8,200	56,920	3,500,000
June.....	1,875,300	115,000	15,400	62,510	3,720,000
July.....	291,910	26,600	4,270	9,420	579,000
August.....	358,300	41,600	2,600	11,550	710,700
September.....	149,560	11,400	2,380	4,980	296,300
Water year 1937-38.....	6,607,700	148,000	910	18,100	13,100,000

## Arkansas River at Van Buren, Ark.

Location.- Water-stage recorder, lat. 35°28'. long. 94°22', in sec. 24, T. 9 N., R. 32 W., at Van Buren, 1½ miles downstream from Lee Creek. Zero of gage is 372.36 feet above mean sea level (general adjustment of 1929)

Drainage area.- 150,300 square miles.

Records available.- October 1927 to September 1938.

Average discharge.- 11 years, 28,360 second-feet.

Extremes.- Maximum discharge during year, 375,000 second-feet Feb. 19 (gage height, 32.71 feet); minimum, 2,260 second-feet Dec. 12 (gage height, 3.16 feet).  
1927-38: Maximum discharge, 418,000 second-feet June 19, 1935; maximum gage height, 54.1 feet June 19, 1935, just before break in levee, minimum discharge, 216 second-feet Aug. 19, 21, 1934.  
Maximum stage known, 35.0 feet Apr. 16, 1927.

Remarks.- Records good. Discharge for periods of faulty intake action, Oct. 1 to Nov. 9, Mar. 27-30, May 8-29, June 7, 8, 11, 12, computed from stage graph based on observer's twice-daily readings. Gage-height record collected in cooperation with U. S. Weather Bureau.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5,480	3,000	2,820	5,720	12,700	25,800	179,000	18,400	146,000	24,300	22,300	5,850
2	4,900	2,820	2,740	5,480	21,700	23,300	168,000	16,800	136,000	28,300	20,000	5,480
3	4,700	2,740	2,660	5,100	11,100	20,400	133,000	16,400	126,000	34,800	16,000	5,220
4	4,400	2,660	2,660	4,900	10,800	18,000	89,300	16,800	118,000	29,400	14,700	5,600
5	4,100	2,500	2,740	4,700	9,600	16,400	67,800	17,600	110,000	24,800	9,900	5,100
6	3,900	2,420	2,740	4,400	8,700	18,800	49,800	15,600	99,700	20,000	8,400	4,700
7	3,700	2,340	2,580	4,300	8,400	20,000	42,100	20,400	94,500	17,600	7,600	4,600
8	3,600	2,340	2,580	4,100	7,850	19,600	53,200	35,400	78,100	16,800	7,100	4,500
9	3,600	2,340	2,580	3,900	7,100	17,600	59,600	73,400	63,600	14,400	6,220	4,600
10	3,500	4,500	2,500	3,800	6,850	16,400	59,600	102,000	74,500	13,800	5,720	4,800
11	3,300	16,600	2,340	3,600	6,350	15,600	55,000	86,400	98,400	13,000	5,350	4,700
12	3,400	23,300	2,340	3,600	6,220	14,800	51,400	55,000	136,000	12,400	5,000	4,800
13	3,600	19,400	2,340	3,400	5,850	14,100	56,800	43,600	155,000	11,700	5,100	13,100
14	3,600	13,000	2,420	3,300	7,350	12,700	53,200	41,400	122,000	10,800	5,100	16,400
15	3,700	8,100	2,500	3,200	58,600	12,000	48,200	39,300	91,900	10,200	4,600	13,400
16	3,800	6,850	3,600	3,100	143,000	12,400	56,800	36,600	73,300	9,600	4,600	11,700
17	3,900	7,850	20,300	2,900	238,000	17,200	45,800	41,400	56,800	9,300	6,850	9,600
18	4,000	9,600	36,600	2,900	332,000	24,300	40,700	40,700	47,400	9,000	25,000	9,600
19	4,500	9,000	30,000	2,620	369,000	20,800	37,200	37,900	65,600	8,400	46,600	13,400
20	6,350	7,100	27,300	2,820	384,000	17,200	31,200	34,200	85,400	8,100	42,100	11,700
21	10,200	5,720	23,800	5,500	278,000	14,800	28,300	29,400	86,700	7,600	42,100	9,600
22	9,900	4,900	16,400	10,500	189,000	12,700	36,600	44,800	85,400	7,600	33,000	8,100
23	6,350	4,400	11,400	15,200	116,000	12,000	47,400	134,000	57,700	7,600	22,300	6,850
24	4,900	4,100	9,900	31,600	71,100	11,400	46,000	189,000	35,400	7,100	20,000	5,980
25	4,500	3,800	9,300	45,000	45,800	10,200	37,900	197,000	28,600	6,800	16,400	5,350
26	3,900	3,600	8,400	50,600	35,400	9,900	31,200	181,000	30,600	7,600	12,700	5,000
27	3,800	3,400	7,600	49,800	31,200	13,000	25,300	190,000	29,400	10,500	10,200	4,700
28	3,600	3,200	7,100	42,800	28,300	30,600	21,300	179,000	37,900	9,300	8,700	4,400
29	3,400	3,100	6,850	30,600	-	98,900	19,200	157,000	32,400	8,400	7,600	4,200
30	3,200	2,900	6,350	19,600	-	176,000	18,000	131,000	26,800	9,300	6,850	4,000
31	3,100	-	5,980	13,400	-	189,000	-	128,000	-	16,800	6,220	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						138,480	10,200	3,100	4,467	274,700		
November.....						187,580	23,300	2,340	6,253	372,100		
December.....						269,420	36,600	2,420	8,691	534,400		
Calendar year 1937.....						7,609,770	150,000	2,420	20,860	15,090,000		
January.....						392,740	50,600	2,820	12,670	779,000		
February.....						2,404,970	369,000	5,850	85,890	4,770,000		
March.....						935,900	189,000	9,900	30,190	1,856,000		
April.....						1,687,900	179,000	18,000	56,280	3,348,000		
May.....						2,348,400	197,000	15,600	75,760	4,658,000		
June.....						2,428,300	155,000	26,800	80,940	4,816,000		
July.....						423,900	34,800	6,600	13,670	840,800		
August.....						455,310	46,600	4,600	14,690	903,100		
September.....						217,030	16,400	4,000	7,234	430,500		
Water year 1937-38.....						11,889,930	369,000	2,420	32,580	23,580,000		



## Arkansas River at Dardanelle, Ark.

Location.- Wire-weight gage, lat. 35°13', long. 93°09', in sec. 29, T. 7 N., R. 20 W., at Dardanelle, 5 miles downstream from Illinois Bayou. Zero of gage is 290.16 feet above mean sea level (general adjustment of 1929).

Drainage area.- 153,600 square miles.

Records available.- July 1937 to September 1938.

Extremes.- 1937-38: Maximum discharge observed, 396,000 second-feet Feb. 19, 20; maximum gage height observed, 29.55 feet Feb. 20; minimum discharge observed, 3,050 second-feet Nov. 4, 6, 7, Dec. 14; minimum gage height observed, 2.17 feet Nov. 6, 7. Maximum stage known, 33.0 feet Apr. 19, 1937.

Remarks.- Records good. Gage read twice daily July 1 to Aug. 1, 1937 and once daily thereafter. Gage readings furnished by U. S. Weather Bureau. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

## Discharge, in second-feet, 1937-38

1937

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										11,500	14,700	10,700
2										10,700	12,300	9,190
3										9,550	11,500	8,480
4										9,190	12,300	8,830
5										8,480	17,200	10,300
6										8,480	16,300	9,920
7										8,140	12,300	8,480
8										9,190	9,550	6,830
9										10,700	8,140	8,140
10										9,190	7,150	9,190
11										8,830	8,140	8,140
12										8,480	8,140	9,920
13										7,470	7,150	48,200
14										6,830	5,930	61,100
15										6,520	4,830	49,700
16										6,220	4,580	40,500
17										5,950	4,340	33,200
18										5,360	4,340	31,200
19										5,090	4,100	26,400
20										5,090	3,870	22,200
21										4,830	3,870	20,700
22										11,400	5,360	21,200
23										36,000	5,640	17,200
24										49,700	4,580	13,900
25										55,100	6,220	12,300
26										47,000	10,300	11,900
27										33,900	10,700	16,300
28										23,700	12,300	15,100
29										17,700	10,300	12,300
30										15,500	8,830	11,500
31										15,900	10,300	-

Discharge, in second-feet, of Arkansas River at Dardanelle, Ark., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7,800	3,870	4,340	9,190	26,400	35,900	201,000	22,100	136,000	28,600	10,700	7,900
2	6,830	3,650	4,100	8,830	21,200	33,800	190,000	21,600	141,000	25,100	18,400	7,100
3	6,220	3,440	3,870	8,480	20,700	31,000	169,000	20,600	145,000	24,100	21,100	7,100
4	5,930	3,050	3,970	7,800	18,700	29,200	138,000	19,200	132,000	33,100	18,400	6,100
5	5,640	3,240	3,650	7,470	16,700	26,200	103,000	18,800	126,000	31,700	15,600	5,860
6	5,360	3,050	3,440	6,830	15,900	24,100	80,600	19,600	119,000	26,800	12,600	6,340
7	4,830	3,050	3,650	6,520	14,700	22,600	64,700	19,200	109,000	22,600	10,300	5,860
8	4,580	3,440	3,440	6,220	13,900	25,100	60,300	20,100	106,000	19,600	9,040	5,410
9	4,340	3,240	3,440	5,930	15,100	25,100	70,200	33,100	94,300	17,600	8,180	4,980
10	4,100	4,340	3,440	5,640	11,900	26,100	73,600	72,400	76,200	15,200	7,630	4,770
11	4,100	13,900	3,440	5,360	11,100	23,600	70,200	103,000	78,200	14,400	6,840	4,980
12	4,100	17,700	3,240	4,830	10,300	22,100	64,700	87,800	103,000	14,000	6,100	5,190
13	4,100	25,800	3,240	4,830	9,650	21,100	56,300	62,600	133,000	13,200	5,880	4,980
14	4,100	21,200	3,050	4,580	9,920	20,100	59,300	49,600	157,000	12,900	5,410	5,410
15	4,100	19,700	3,240	4,580	56,200	19,200	60,300	45,000	147,000	12,200	5,410	13,200
16	3,870	15,100	3,240	4,340	146,000	18,400	80,600	45,000	116,000	11,600	5,630	15,600
17	4,340	11,100	8,140	4,100	245,000	18,400	77,000	40,700	96,900	10,600	5,410	12,900
18	5,640	9,920	26,400	4,100	376,000	17,600	63,600	45,200	79,400	10,300	5,630	11,600
19	5,930	9,190	46,100	3,870	396,000	23,600	52,300	45,000	61,400	10,300	19,700	9,960
20	6,220	11,600	41,300	4,340	396,000	26,600	46,800	43,200	73,500	9,640	42,300	10,900
21	7,470	8,480	33,900	10,700	362,000	25,100	45,000	39,900	90,400	8,750	44,100	10,900
22	8,140	9,190	31,800	20,700	290,000	22,100	49,600	44,100	90,400	8,480	42,300	11,600
23	12,300	7,150	25,800	30,000	196,000	20,100	43,200	35,000	94,300	7,900	37,500	10,300
24	10,700	6,520	20,200	85,500	124,000	17,600	49,500	158,000	71,300	7,900	29,000	8,750
25	8,140	5,930	15,900	94,000	81,600	16,800	54,300	197,000	46,800	7,900	22,600	7,630
26	6,520	5,360	13,900	76,000	57,300	16,400	45,800	203,000	33,800	7,630	19,600	6,840
27	5,640	5,090	13,500	71,600	45,000	19,800	39,100	194,000	32,400	7,100	16,400	6,100
28	5,090	4,830	12,300	68,300	39,900	25,600	32,400	190,000	28,600	8,180	13,200	5,830
29	4,580	4,680	11,600	61,100	-	75,800	27,400	185,000	36,900	11,200	11,200	6,190
30	4,340	4,340	10,700	47,900	-	141,000	24,600	173,000	35,200	10,600	9,960	4,770
31	4,100	-	9,920	37,400	-	135,000	-	149,000	-	9,540	8,750	-
Month				Second-foot-days		Maximum	Minimum	Mean	Run-off in acre-feet			
July 1937 .....				411,870		55,100	4,830	13,280	816,600			
August .....				265,280		17,200	3,870	8,567	526,100			
September .....				573,020		61,100	6,830	19,100	1,137,000			
The period .....									2,490,000			
October 1937 .....				179,150		12,300	3,870	5,779	355,300			
November .....				280,950		25,800	3,050	8,365	497,800			
December .....				380,050		46,100	3,050	12,260	753,800			
Calendar year .....												
January 1938 .....				721,040		94,000	3,870	23,280	1,430,000			
February .....				3,005,270		396,000	9,550	107,000	5,961,000			
March .....				1,055,900		185,000	16,400	54,060	2,094,000			
April .....				2,192,300		201,000	24,600	73,080	4,346,000			
May .....				2,457,600		203,000	18,800	79,280	4,876,000			
June .....				2,791,000		157,000	28,600	93,030	5,535,000			
July .....				459,500		33,100	7,100	14,790	909,400			
August .....				493,840		44,100	6,410	15,930	979,600			
September .....				233,840		16,600	4,770	7,795	463,800			
Water year 1937-38 .....				14,219,440		396,000	3,050	38,960	28,200,000			

## Arkansas River at Little Rock, Ark.

Location.- Water-stage recorder, lat. 34°45', long. 92°16', in sec. 3, T. 1 N., R. 12 W., at Little Rock. Zero of gage is 223.61 feet above mean sea level (general adjustment of 1929).

Drainage area.- 157,900 square miles.

Records available.- September 1927 to September 1931, October 1933 to September 1938.

Extremes.- Maximum discharge during year, 458,000 second-feet Feb. 21; maximum gage height, 26.2 feet Feb. 22; minimum discharge, 3,380 second-feet Nov. 8 (gage height, -1.40 feet).

1927-31, 1933-38: Maximum discharge, that of Feb. 21, 1938; maximum gage height, 28.18 feet June 22, 23, 1935; minimum discharge, 850 second-feet Aug. 23, 1934 (gage height, -4.16 feet).

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

Remarks.- Records good. Gage-height record collected in cooperation with U. S. Weather Bureau. Results of 75 discharge measurements furnished by Corps of Engineers, U. S. Army.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	11,300	4,820	6,600	19,700	76,400	76,400	236,000	29,200	141,000	36,100	11,700	10,100
2	9,180	4,420	6,140	17,600	62,800	62,800	231,000	26,600	137,000	31,200	11,700	8,970
3	8,260	4,150	5,980	16,100	52,800	52,800	211,000	24,800	144,000	27,200	19,200	8,090
4	7,920	4,020	5,680	14,200	46,900	46,100	193,000	23,000	137,000	26,600	23,600	7,750
5	6,920	3,760	5,240	13,400	41,300	40,600	154,000	21,900	126,000	32,600	20,200	7,420
6	6,290	3,640	4,960	12,100	36,800	35,400	121,000	20,800	120,000	33,300	17,100	6,760
7	5,850	3,510	4,920	11,300	33,300	31,200	101,000	21,300	113,000	28,600	14,200	6,920
8	5,390	3,640	4,960	10,500	29,200	29,200	86,800	21,300	104,000	25,400	12,100	6,920
9	4,960	3,760	4,620	9,710	26,000	31,900	82,600	20,800	101,000	21,900	10,500	6,290
10	4,560	6,440	4,680	8,970	23,000	34,000	91,200	34,700	89,000	19,200	9,710	5,850
11	4,280	15,200	4,420	8,260	20,200	31,900	93,400	74,400	76,400	17,100	8,790	5,680
12	4,160	27,900	4,280	7,920	18,100	29,800	87,800	97,800	80,600	16,100	8,260	5,540
13	4,020	34,000	4,280	7,580	16,100	27,200	79,500	86,800	106,000	15,200	7,580	5,640
14	3,890	42,100	4,150	7,060	15,200	25,400	72,400	65,600	134,000	14,700	7,060	5,680
15	3,890	39,800	4,020	6,760	15,800	24,200	72,400	53,700	145,000	14,200	7,060	5,680
16	3,890	33,300	4,150	6,440	60,100	22,500	90,100	47,700	125,000	13,400	6,760	10,100
17	4,560	26,800	5,540	6,440	173,000	21,900	110,000	46,100	107,000	12,500	6,760	16,100
18	5,240	23,600	10,900	6,140	296,000	21,300	106,000	43,700	91,200	12,100	6,600	16,100
19	6,440	21,900	33,300	5,980	370,000	20,800	92,300	43,700	75,400	11,700	6,600	13,800
20	7,920	19,700	60,000	6,140	418,000	26,600	81,600	46,100	64,600	12,100	10,100	11,700
21	11,700	19,200	57,300	12,900	452,000	32,600	74,400	44,500	76,400	11,300	39,000	11,300
22	15,800	17,600	49,600	34,000	418,000	29,200	68,400	41,300	89,000	10,500	46,900	13,400
23	14,700	14,700	46,900	53,700	360,000	26,000	67,500	38,300	91,200	10,100	46,100	13,400
24	15,200	12,100	42,900	74,400	269,000	25,000	65,600	83,800	64,800	9,710	38,300	11,300
25	13,800	10,100	36,800	132,000	185,000	20,800	70,400	163,000	66,600	9,710	31,200	9,340
26	10,900	8,790	30,500	135,000	142,000	19,700	67,500	199,000	47,700	9,710	24,800	8,260
27	8,440	7,920	27,200	125,000	113,000	19,700	58,200	197,000	37,600	9,160	21,300	7,080
28	6,920	7,420	26,600	120,000	92,300	25,000	48,600	189,000	34,700	8,790	18,100	6,600
29	6,140	7,080	26,600	114,000	-	46,900	40,600	185,000	31,900	9,160	15,200	6,290
30	5,390	7,080	24,800	103,000	-	120,000	34,000	176,000	56,100	12,600	12,500	5,680
31	5,100	-	21,900	91,200	-	193,000	-	158,000	-	12,900	11,300	-
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					232,740	15,600	3,890	7,508	461,600			
November.....					438,250	42,100	3,510	14,610	899,300			
December.....					579,020	60,000	4,020	18,680	1,148,000			
Calendar year 1937.....					11,408,330	170,000	3,510	31,260	22,630,000			
January.....					1,197,520	136,000	5,980	38,630	2,375,000			
February.....					3,852,100	452,000	15,200	137,600	7,641,000			
March.....					1,245,900	193,000	19,700	40,190	2,471,000			
April.....					2,988,400	236,000	34,000	99,610	5,927,000			
May.....					2,324,900	199,000	20,800	75,000	4,611,000			
June.....					2,519,200	148,000	31,900	95,970	5,532,000			
July.....					534,740	36,100	8,790	17,250	1,061,000			
August.....					330,320	46,900	6,600	17,110	1,052,000			
September.....					263,620	16,100	5,640	8,787	522,900			
Water year 1937-38.....					17,006,710	452,000	3,510	46,590	33,730,000			

## South Arkansas River near Salida, Colo.

Location.- Water-stage recorder, lat. 38°31', long. 106°00', in sec. 5, T. 49 N., R. 9 E., three-quarters of a mile upstream from mouth and 1½ miles southwest of Salida.

Drainage area.- 208 square miles.

Records available.- October 1933 to September 1938 in reports of Geological Survey. April 1922 to December 1924 (at site half a mile downstream) and June 1929 to September 1938 in reports of State engineer.

Extremes.- Maximum discharge during year, 316 second-feet May 29 (gage height, 3.27 feet); minimum daily discharge, 0.4 second-foot Aug. 6.

1922-24, 1929-38: Maximum daily discharge, 1,220 second-feet June 17, 1923; no flow at times during 1922, 1931-33, 1935, 1937.

Remarks.- Records good except those for periods of ice effect, Dec. 29, 30, Jan. 21-28, Feb. 18-21, which were computed on basis of weather records and are fair. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.6	2.9	36	40	48	44	36	77	227	35	1.4	5.2
2	4.5	3.6	47	27	51	45	29	49	227	24	1.8	18
3	3.6	3.8	44	22	48	47	25	37	224	19	2.7	61
4	3.1	4.5	44	39	41	45	25	30	215	16	2.7	84
5	2.9	3.6	48	34	37	39	26	24	212	8.0	1.8	68
6	2.5	3.6	44	24	41	27	28	30	205	1.4	.4	45
7	2.3	6.0	49	24	35	41	28	61	173	1.3	1.2	41
8	2.3	6.3	54	22	24	42	27	63	164	.7	1.5	51
9	1.8	4.5	47	22	37	39	25	44	144	.7	.5	35
10	1.6	4.9	51	16	41	29	24	37	131	.5	.6	30
11	1.8	3.8	52	17	42	25	25	35	108	.8	2.0	35
12	1.8	4.5	49	23	41	23	28	41	106	.8	1.3	44
13	2.0	5.6	48	37	40	23	28	45	110	.9	1.5	49
14	3.4	3.6	48	41	40	22	27	57	90	.8	2.5	44
15	2.7	3.6	51	37	41	19	29	100	75	1.3	2.0	42
16	3.1	4.9	51	36	42	19	29	142	71	2.3	1.4	54
17	3.6	14	49	36	42	20	28	135	60	1.8	1.5	57
18	4.9	17	51	40	40	19	34	123	55	1.3	1.5	49
19	8.0	16	55	39	40	17	41	98	40	1.5	1.5	42
20	6.3	19	58	29	40	15	45	96	33	1.0	1.5	40
21	4.9	19	41	30	40	14	44	90	34	9.1	2.9	40
22	4.5	19	44	31	49	13	44	77	45	3.1	2.5	39
23	4.9	16	44	31	37	12	49	61	52	1.6	2.5	36
24	4.5	16	48	32	36	16	54	57	49	.6	2.0	39
25	5.6	15	45	33	47	18	52	66	41	.5	1.3	36
26	4.9	16	45	34	55	24	57	79	36	.5	1.3	35
27	4.9	13	44	34	42	29	49	106	35	.6	1.3	30
28	3.8	21	57	35	42	34	47	173	31	.5	1.3	24
29	3.1	28	40	35	-	35	54	265	35	1.4	1.3	21
30	2.9	30	40	34	-	34	57	256	37	1.4	1.1	16
31	2.9	-	92	40	-	39	-	232	-	1.0	1.2	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						114.9	8.0	1.8	3.71	228		
November.....						328.7	30	2.9	11.0	652		
December.....						1,516	92	36	48.9	3,010		
Calendar year 1937.....						11,326.6	227	0	31.0	22,460		
January.....						974	41	16	31.4	1,930		
February.....						1,159	55	24	41.4	2,300		
March.....						886	47	12	27.9	1,720		
April.....						1,094	57	24	36.5	2,170		
May.....						2,786	265	24	89.9	5,530		
June.....						3,065	227	31	102	6,080		
July.....						148.3	35	.5	4.78	294		
August.....						50.0	2.9	.4	1.61	99		
September.....						1,210.2	84	5.2	40.5	2,400		
Water year 1937-38.....						13,312.1	285	.4	36.5	28,410		

Peak discharge.- May 29 (4 a.m.) 316 sec.-ft.; May 30 (1 a.m.) 294 sec.-ft.; June 3 (2 a.m.) 280 sec.-ft.

## Grape Creek near Westcliffe, Colo.

Location.- Water-stage recorder and concrete control, lat.  $38^{\circ}11'$ , long.  $105^{\circ}30'$ , in sec. 36, T. 21 S., R. 73 W., 3 miles northwest of Westcliffe.

Drainage area.- 346 square miles.

Records available.- December 1924 to June 1928 and October 1933 to September 1938 in reports of Geological Survey. December 1924 to June 1928 and March 1930 to September 1938 in reports of State engineer.

Extremes.- Maximum discharge during year, 236 second-feet June 8 (gage height, 1.97 feet); minimum daily discharge recorded, 6.0 second-feet Oct. 5, 6 (probably less during period of no record).  
1924-28, 1930-38: Maximum discharge, about 1,400 second-feet July 22, 1930 (gage height, 4.60 feet), computed by weir formula with overflow estimated; minimum daily discharge, 0.1 second-foot June 19-22, 1936.

Remarks.- Records good; none for Nov. 11 to Mar. 10. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	8.0	9.6				-	33	28	97	110	12	30
2	8.4	9.2				-	31	33	86	86	9.6	43
3	8.4	9.2				-	33	26	95	64	9.6	106
4	7.2	8.8				-	60	26	109	50	9.2	62
5	6.0	8.8				-	135	23	127	38	8.0	43
6	6.0	9.2				-	66	25	139	27	8.0	44
7	7.6	10				-	38	40	162	18	8.4	52
8	8.4	10				-	43	71	200	14	8.4	43
9	8.4	9.6				-	42	113	176	11	7.2	40
10	8.4	9.6				-	35	63	133	8.8	8.0	37
11	8.0	-			*19	29	26	41	128	8.0	25	40
12	8.4	-				29	24	34	103	7.6	26	65
13	10	-				29	22	34	111	8.4	21	116
14	9.2	-				28	21	32	166	13	23	116
15	8.8	-				27	51	32	146	42	22	103
16	9.6	-				24	100	44	122	33	19	95
17	14	-				24	178	59	106	30	17	102
18	12	-				24	65	56	93	41	14	76
19	10	-				24	39	49	80	44	8.0	59
20	9.6	-				24	33	44	61	55	7.2	53
21	9.6	-				24	30	36	58	71	6.8	46
22	9.6	-				22	27	33	51	50	6.4	40
23	9.6	-				26	29	38	70	41	6.8	36
24	9.6	-				27	27	33	86	33	6.8	36
25	9.6	-				24	26	21	71	25	6.4	33
26	9.2	-				25	21	19	120	22	7.2	30
27	9.2	-				25	31	25	136	22	8.8	27
28	8.8	-				29	32	40	131	20	7.6	25
29	9.2	-				35	24	60	127	25	8.0	20
30	9.2	-				35	24	85	144	20	10	18
31	9.6	-				25	-	114	-	14	27	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						279.6	14	6.0	9.02	555		
November 1-10.....						94.0	10	8.8	9.40	186		
December.....						-	-	-	-	-		
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March 1-31.....						559	35	22	26.6	1,110		
April.....						1,344	176	21	44.8	2,670		
May.....						1,377	114	19	44.4	2,730		
June.....						3,434	200	51	114	6,810		
July.....						1,050.8	110	7.6	33.9	2,080		
August.....						372.4	27	6.4	12.0	739		
September.....						1,636	116	18	54.5	3,240		
Water year .....												

Peak discharge.- June 8 (9 a.m.) 236 sec.-ft.; Aug. 11 (8 p.m.) 110 sec.-ft.; Sept. 17 (11 a.m.) 113 sec.-ft.

\*Discharge measurement.

## ARKANSAS RIVER BASIN

St. Charles River at San Isabel, Colo.

Location.- Water-stage recorder and 10-foot rectangular weir, lat. 37°59', long. 104°54', in sec. 12, T. 24 S., R. 69 W., above high-water line of Lake Isabel, three-quarters of a mile southwest of San Isabel.

Drainage area.- 18.8 square miles.

Records available.- October 1936 to September 1938.

Extremes.- 1936-38: Maximum daily discharge, 138 second-feet Apr. 20, 1938; minimum daily, 0.3 second-foot Jan. 7-8, Feb. 11-13, 1938.

Remarks.- Complete records furnished by U. S. Forest Service. None Jan. 1 to Mar. 31, 1937. Discharge for May to September 1938 computed on basis of twice-daily staff-gage readings. No diversions above station.

## Discharge, in second-feet, 1936-38

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	-	-					2.1	11	19	30	2.3	1.4
2	7.7	-					2.1	12	24	24	2.3	1.0
3	-	-					2.1	13	29	11	2.3	2.1
4	-	-					1.9	12	22	7.1	2.3	3.9
5	-	-					1.9	13	20	6.2	2.3	4.9
6	-	11.9					2.1	14	18	5.9	2.1	4.9
7	-	-					1.9	12	17	5.4	1.9	3.9
8	-	-					1.7	33	16	5.4	1.9	6.8
9	12.6	-					2.7	36	16	4.8	1.7	6.8
10	-	-					4.1	27	14	4.8	1.7	3.6
11	-	-					8.3	23	13	5.4	1.5	2.7
12	-	-					11	22	12	5.9	1.9	2.1
13	-	-					15	22	12	4.8	2.5	1.9
14	-	-					19	25	11	5.9	2.1	1.9
15	-	-					27	23	11	4.6	1.7	1.7
16	11.5	6.2					40	22	11	3.6	1.5	1.7
17	-	-					24	20	9.6	3.6	1.3	1.9
18	-	-					17	20	8.6	3.6	1.2	1.9
19	-	-					22	20	7.7	3.6	1.3	1.9
20	-	3.0					24	18	7.1	3.4	1.5	1.7
21	-	-					36	16	6.8	3.1	1.5	1.5
22	-	-					47	14	6.5	2.9	1.2	1.5
23	13.6	-					11	14	6.2	2.9	1.0	1.5
24	-	-					12	14	5.7	3.1	.9	1.4
25	-	-					14	17	6.2	3.6	3.1	1.4
26	-	-					28	14	8.3	3.4	6.8	1.4
27	-	3.4					34	13	9.9	3.6	8.3	1.4
28	-	-					21	12	6.5	3.6	3.2	1.4
29	-	-					16	20	5.9	3.4	1.9	1.5
30	17.8	-					17	38	12	2.7	1.5	2.3
31	-	-					-	30	-	2.5	1.5	-

Discharge, in second-feet, of St. Charles River at San Isabel, Colo., 1936-38--Continued  
1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.5	2.1	2.7	0.5	1.9	1.2	*1.5	26	18	8.5	9.5	7.0
2	2.1	2.1	2.5	.6	1.7	1.2	*1.5	28	18	8.8	8.5	8.0
3	1.9	2.1	2.5	.5	1.5	1.2	*1.5	28	14	9.3	8.5	15
4	1.9	2.1	.5	.8	1.4	1.2	*1.6	31	14	7.5	9.0	11
5	1.9	1.9	.8	.6	.6	1.2	1.7	18	14	9.8	8.0	6.2
6	1.9	1.9	.8	1.0	1.2	1.2	1.9	12	15	9.8	8.0	6.5
7	1.9	1.9	.6	.3	1.2	1.2	2.1	12	52	9.0	8.0	5.6
8	1.9	1.6	.5	.3	1.0	1.2	2.1	22	31	9.0	8.0	5.0
9	1.9	1.7	.5	.5	.8	3.2	1.7	19	22	7.8	7.0	5.0
10	1.9	1.7	.5	.4	.4	3.4	1.7	16	18	11	7.5	5.0
11	1.9	1.7	.6	.4	.3	1.9	1.5	18	18	10	8.0	5.0
12	1.9	2.3	.8	.4	.3	1.2	4.1	24	16	9.8	8.0	7.5
13	2.1	1.4	.8	.4	.3	1.4	4.1	38	20	9.8	7.5	10
14	2.1	1.8	.9	.5	.4	1.4	4.1	86	24	82	7.0	5.5
15	2.1	1.6	.9	.6	.5	1.5	4.1	99	22	60	7.0	5.4
16	2.5	1.4	.8	.5	2.9	1.7	12	92	22	58	6.0	5.4
17	2.7	2.5	.8	.6	2.1	1.5	13	86	17	46	6.0	8.9
18	2.7	1.9	.6	.5	2.1	1.2	13	62	12	40	5.5	3.9
19	2.1	2.1	3.2	.8	.5	1.9	17	38	12	40	5.0	3.9
20	2.1	1.7	2.5	.8	.5	1.9	138	36	12	62	5.0	3.9
21	2.1	1.7	1.2	1.0	.5	1.7	121	38	12	36	5.0	3.8
22	2.1	1.7	1.2	.6	.3	1.5	44	32	12	28	5.0	3.8
23	2.5	2.5	1.4	.5	1.4	1.5	*50	30	12	24	5.0	3.6
24	2.5	2.1	.9	1.2	1.0	1.4	*70	28	12	24	5.0	2.7
25	2.3	1.9	2.9	2.5	.6	1.4	95	28	12	24	5.0	6.1
26	2.3	2.1	3.9	1.0	.6	1.5	44	21	16	28	5.0	5.1
27	2.1	4.4	1.9	.8	1.0	1.5	30	20	18	24	5.5	3.8
28	2.1	5.4	.6	.6	1.0	1.5	27	20	26	22	6.0	3.8
29	2.1	3.4	.6	.6	-	1.7	24	20	10	20	6.1	3.8
30	2.1	3.2	.5	2.9	-	1.7	34	20	10	14	5.5	3.5
31	2.1	-	.5	2.1	-	1.5	-	19	-	12	6.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October 1936 .....	390.6	-	-	12.6	775
November.....	207	-	-	6.9	411
December.....	93	-	-	3.0	184
Calendar year .....					
January .....	-	-	-	-	-
February.....	-	-	-	-	-
March.....	-	-	-	-	-
April 1937.....	465.9	47	1.7	15.5	924
May.....	600	38	11	19.4	1,190
June.....	372.0	29	5.7	12.4	738
July.....	183.8	30	2.5	5.93	365
August.....	68.2	8.3	.9	2.20	135
September.....	74.0	6.8	1.0	2.47	147
Water year .....					
October 1937 .....	66.7	2.7	1.9	2.15	132
November.....	65.6	5.4	1.4	2.19	130
December.....	39.4	3.9	.5	1.27	78
Calendar year .....					
January 1938 .....	25.0	2.9	.3	.81	50
February.....	28.5	2.9	.3	1.02	57
March.....	48.7	3.4	1.2	1.67	97
April.....	767.2	138	1.5	26.6	1,620
May.....	1,068	99	12	34.6	2,120
June.....	531	52	10	17.7	1,060
July.....	764.1	82	7.5	24.6	1,620
August.....	205.9	9.5	5.0	6.64	408
September.....	173.6	15	2.7	5.79	344
Water year 1937-38.....	3,783.7	138	.3	10.4	7,510

\*Gage height missing; discharge estimated.

Huerfano River at Manzanares Crossing, near Redwing, Colo.

Location.— Water-stage recorder, lat.  $37^{\circ}44'$ , long.  $105^{\circ}20'$ , in sec. 5, T. 27 S., R. 71 W., at Manzanares Crossing,  $3\frac{1}{2}$  miles southwest of Redwing.

Drainage area.— 76 square miles.

Records available.— October 1933 to September 1938 in reports of Geological Survey. July 1923 to September 1938 in reports of State engineer. No winter records prior to 1936.

Extremes.— Maximum discharge during year, 272 second-feet June 13 (gage height, 1.57 feet); minimum not determined.

1923-38: Maximum gage height, 4.80 July 27, 1934 (discharge not determined); minimum discharge not determined.

Remarks.— Records good except those for periods of ice effect, Nov. 27 to Dec. 1, Dec. 4-9, Dec. 14 to Mar. 9, which were computed on basis of five discharge measurements, weather records, and records for Cucharas River near La Veta, and are fair. Several diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	18	14	18		*10	11	13	95	236	107	30	34
2	17	15	14		-	11	16	75	230	91	30	44
3	18	16	12		-	11	14	79	236	83	34	61
4	16	16	9.8		-	11	14	72	236	77	38	57
5	16	14	9.8		-	11	16	64	228	71	39	55
6	17	15	10		-	10	16	59	219	66	35	48
7	19	16	10		-	10	15	55	219	64	36	46
8	18	14	10		-	14	14	56	202	61	34	54
9	17	13	10		-	15	16	57	192	57	30	49
10	16	14	13		-	10	15	57	178	56	33	44
11	15	14	12		-	11	16	60	168	54	37	59
12	16	12	11		-	12	21	61	182	54	50	95
13	16	13	11		-	12	21	63	240	54	49	85
14	16	12	11		-	10	19	75	195	69	44	68
15	16	12	10		-	12	19	110	169	67	40	55
16	20	12	10		-	14	21	155	149	56	34	51
17	19	14	10		-	14	22	209	131	53	32	47
18	18	12	10		-	12	25	205	114	49	32	41
19	17	16	12		-	14	34	195	104	50	29	37
20	16	16	14		-	14	41	172	100	53	28	35
21	16	16	16	*6.1	*12	12	46	162	107	50	24	34
22	16	14	16		-	11	53	134	134	47	22	34
23	17	14	16		-	17	66	107	143	45	22	31
24	16	12	18		-	14	72	112	122	44	22	30
25	16	12	18		-	14	71	140	122	40	21	29
26	15	12	18		-	14	69	192	117	36	21	27
27	15	13	16		-	14	71	212	107	39	22	24
28	14	13	16		-	13	72	230	114	37	22	24
29	15	14	16		-	12	77	247	140	34	21	22
30	14	15	14		-	12	97	236	140	34	24	22
31	15	-	10		-	14	-	219	-	31	34	-
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					510	20	14	16.5	1,010			
November.....					415	16	12	13.8	823			
December.....					401.6	18	9.8	13.0	797			
Calendar year 1937.....					15,578.2	199	4	42.7	30,990			
January.....					269.7	-	-	8.7	535			
February.....					274.4	-	-	9.8	544			
March.....					386	17	10	12.5	766			
April.....					1,082	97	13	36.1	2,150			
May.....					3,965	247	55	128	7,650			
June.....					4,962	236	100	185	9,840			
July.....					1,729	107	31	55.8	3,430			
August.....					968	50	21	31.2	1,920			
September.....					1,340	95	22	44.7	2,660			
Water year 1937-38.....					16,302.7	247	-	44.7	32,340			

Peak discharge.— June 13 (5 p.m.) 272 sec.-ft.; July 14 (1 a.m.) 162 sec.-ft.; Aug. 12 (4:30 p.m.) 158 sec.-ft.

\*Discharge measurement.



## Huerfano River at Badito, Colo.

Location.- Chain gage, lat.  $37^{\circ}43'$ , long.  $105^{\circ}00'$ , in sec. 4, T. 27 S., R. 68 W., at Badito, just upstream from Owl Creek.

Drainage area.- 519 square miles.

Records available.- August to December 1912, March to September 1938.

Extremes.- Maximum discharge during period, 689 second-feet Aug. 11 (gage height, 4.83 feet, from floodmarks), by slope-area method; minimum daily discharge, 0.2 second-foot Mar. 16, 17.  
1912, 1938: Maximum discharge, that of Aug. 11, 1938; minimum daily discharge, that of Mar. 16, 17, 1938.

Remarks.- Records fair. Gage read twice daily. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	3.5	128	35	86	22	46
2						-	1.9	80	44	70	21	50
3						-	2.1	62	40	46	21	165
4						-	1.7	61	56	37	23	98
5						-	1.9	45	82	27	21	56
6						2.4	2.4	42	90	20	15	51
7						3.0	4.2	58	111	20	16	52
8						5.8	3.9	53	108	20	15	52
9						3.9	1.2	60	63	20	12	53
10						3.7	2.5	63	53	21	8.5	39
11						1.4	2.5	58	42	21	33	37
12						.5	3.5	80	44	15	30	80
13						.4	2.5	85	75	20	23	104
14						1.5	4.0	102	100	103	36	80
15						.4	15	143	60	52	17	79
16						.2	38	153	53	104	11	74
17						.2	35	183	42	84	10	60
18						1.2	25	174	43	37	13	72
19						1.1	23	136	37	39	14	45
20						.5	21	119	33	39	20	48
21						.8	16	114	30	43	19	44
22						.5	34	103	41	42	17	38
23						3.0	35	92	56	33	19	36
24						1.5	39	58	53	33	17	39
25						1.0	44	43	49	26	17	26
26						3.0	60	37	108	22	16	28
27						2.4	60	29	84	19	18	23
28						2.5	54	37	75	14	41	19
29						1.4	57	65	76	15	23	18
30						2.7	52	74	97	16	19	15
31						2.4	-	51	-	18	23	-
Month	Second-foot-days					Maximum	Minimum	Mean	Run-off in acre-feet			
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-	-	-
February.....						-	-	-	-	-	-	-
March 6-31.....						47.2	5.8	0.2	1.82			94
April.....						645.8	60	1.2	21.5			1,280
May.....						2,588	183	29	83.5			5,130
June.....						1,890	111	30	63.0			3,750
July.....						1,162	104	14	37.5			2,300
August.....						510.5	11	8.5	19.7			1,210
September.....						1,627	165	15	54.2			3,230
The period.....												16,990



Cucharas River at Boyd ranch, near La Veta, Colo.

Location.- Water-stage recorder, lat. 37°25', long. 105°03', in sec. 24, T. 30 S., R. 69 W., 6 miles south of La Veta.

Drainage area.- 75 square miles.

Records available.- October 1934 to September 1938.

Extremes.- Maximum discharge during year, 185 second-feet July 14 (gage height, 2.03 feet); minimum daily discharge, 3.2 second-feet Feb. 14, 15.

1935-38: Maximum discharge, 291 second-feet June 3, 1937 (gage height, 2.43 feet); minimum daily discharge, 2 second-feet on several days during period November 1934 to January 1935.

Remarks.- Records good except those for periods of ice effect, Feb. 20 to Mar. 4, Apr. 1, 2 (computed on basis of one discharge measurement, weather records, and records for Huerfano River near Redwing), and those for period of missing gage heights, May 29 to June 24 (computed on basis of one discharge measurement and records for Huerfano River near Redwing), all of which are fair. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	7.5	16	4.9	7.5	8.0	11	76	152	49	21	20
2	9.0	8.5	10	4.9	7.5	8.0	14	61	150	46	22	18
3	7.5	9.0	7.0	3.8	6.0	8.0	15	58	140	45	24	20
4	6.6	8.5	7.5	5.2	4.9	8.0	9.0	56	135	40	33	20
5	7.0	8.5	7.5	4.9	5.2	8.5	12	50	128	36	23	19
6	8.0	8.5	7.5	6.3	8.0	5.6	14	46	118	36	24	19
7	8.5	8.5	7.5	12	5.2	6.3	12	45	109	34	23	16
8	8.5	9.0	7.5	14	4.6	10	18	47	100	33	21	17
9	9.5	8.0	6.3	12	4.2	12	16	46	90	32	19	16
10	8.5	9.0	7.0	11	4.2	6.3	16	51	77	30	20	18
11	8.5	8.5	7.0	15	3.8	6.3	11	66	70	27	21	18
12	10	7.0	6.3	16	4.6	7.5	18	80	105	27	21	18
13	12	6.3	4.6	14	4.2	7.5	18	86	96	26	20	16
14	9.5	6.3	4.9	9.5	3.2	6.6	18	113	87	68	18	16
15	9.0	6.3	5.6	4.9	3.2	5.2	14	136	85	46	16	17
16	14	5.2	5.6	4.2	5.6	6.6	14	144	82	38	15	18
17	13	5.6	5.2	3.5	6.0	7.0	18	134	80	35	15	19
18	10	5.6	5.6	3.5	9.5	9.5	25	125	71	35	15	18
19	9.5	7.5	6.3	4.6	10	8.0	29	111	66	33	14	15
20	8.5	7.0	10	8.5	8.0	8.5	33	102	61	38	14	15
21	8.5	6.0	12	8.5	8.0	9.5	40	104	65	38	13	16
22	8.5	6.0	12	9.0	8.0	9.5	41	115	72	35	12	14
23	9.5	6.0	12	6.6	8.0	9.5	47	94	75	31	11	14
24	8.0	6.0	16	12	8.0	10	47	85	60	29	12	16
25	7.0	5.6	16	16	8.0	10	48	85	61	27	11	16
26	6.6	6.0	16	14	8.0	10	48	86	63	26	11	16
27	6.6	7.0	14	14	8.0	12	49	89	56	26	12	14
28	7.0	7.5	14	12	8.0	10	46	107	54	26	15	14
29	7.0	9.0	14	9.5	-	6.3	54	170	54	25	14	12
30	7.5	12	12	9.5	-	6.3	67	165	54	24	14	12
31	7.5	-	5.2	7.5	-	8.5	-	155	-	22	19	-
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					270.8	14	6.6	8.74	537			
November.....					221.4	12	5.2	7.38	439			
December.....					288.1	16	4.6	9.29	571			
Calendar year 1937.....					12,653.0	272	4.6	34.7	25,090			
January.....					281.3	16	3.5	9.07	558			
February.....					179.4	10	3.2	6.41	356			
March.....					255.0	12	5.2	8.23	506			
April.....					822.0	67	9.0	27.4	1,630			
May.....					2,887	170	45	93.1	5,730			
June.....					2,615	152	54	87.2	5,190			
July.....					1,063	68	22	34.3	2,110			
August.....					543	33	11	17.5	1,080			
September.....					499	20	12	16.6	990			
Water year 1937-38.....					9,925.0	170	3.2	27.2	19,700			

## ARKANSAS RIVER BASIN

Apishapa River at Aguilar, Colo.

Location.- Water-stage recorder, lat. 37°24', long. 104°39', in sec. 34, T. 30 S., R. 65 W., at southwest edge of Aguilar, 2 miles upstream from Gonzales Canyon.

Drainage area.- 149 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge during period, 5,200 second-feet Aug. 10 (gage height, 14.32 feet), by slope-area method; no flow Mar. 1 to Apr. 26, June 4-25, July 6-13, Aug. 14-30.

Maximum stage known, 20.73 feet (present datum) Aug. 11, 1930.

Remarks.- Records fair. Several small diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	18	5.8	9.0	2.2	13
2							0	13	7.6	13	.9	12
3							0	13	1.9	14	22	9.6
4							0	14	0	15	.4	18
5							0	18	0	6.0	0	16
6							0	18	0	0	0	18
7							0	18	0	0	1.1	56
8							0	50	0	0	1.6	16
9							0	23	0	0	1.2	12
10							0	40	0	0	349	14
11							0	60	0	0	8.0	12
12							0	55	0	0	9.6	10
13							0	56	0	0	5.0	7.2
14							0	70	0	26	0	7.6
15							0	65	0	24	0	8.0
16							0	73	0	20	0	5.3
17							0	54	0	68	0	3.0
18							0	45	0	60	0	6.1
19							0	37	0	64	0	5.0
20							0	26	0	73	0	4.2
21							0	30	0	76	0	4.6
22							0	40	0	56	0	5.3
23							0	19	0	41	0	5.7
24							0	17	0	26	0	5.7
25							0	15	0	20	0	3.6
26							0	13	117	17	0	3.3
27							14	18	23	39	0	2.7
28							15	9.4	192	13	0	2.4
29							16	14	11	11	0	1.1
30							19	13	6.6	8.6	0	1.5
31							-	16	-	4.2	10	-
Month						Second-foot-days	Maximum	Minimum		Mean	Run-off in acre-feet	
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	0	-	-	-		
March.....						0	0	0	0	0		
April.....						63	19	0	0	2.1		
May.....						990.4	85	9.4	31.9	1,980		
June.....						364.9	192	0	12.2	724		
July.....						703.8	76	0	22.7	1,400		
August.....						411.0	349	0	13.3	815		
September.....						287.9	55	1.1	9.60	571		
The period.....											5,600	

## Purgatoire River at Trinidad, Colo.

Location.- Water-stage recorder, lat. 37°10', long. 104°30', in sec. 13, T. 33 S., R. 64 W., at foot of State Street in Trinidad.

Drainage area.- 742 square miles.

Records available.- May 1896 to July 1899, August to December 1905, November 1906 to March 1907, October 1907 to November 1912, and October 1933 to September 1938 in reports of Geological Survey. May 1896 to July 1899, August to December 1905, November 1906 to March 1907, October 1907 to November 1912, and April 1916 to September 1938 in reports of State engineer.

Average discharge.- 26 years (1907-12, 1916-18, 1919-38), 87.3 second-feet.

Extremes.- Maximum discharge during year, 14,800 second-feet June 4 (gage height, 9.50 feet), by slope-area method; minimum daily discharge, 2.5 second-feet Aug. 28, 1896-99, 1905, 1908-12, 1916-38: Maximum discharge, 45,400 second-feet Sept. 30, 1904 (gage height, 16.6 feet, from Commercial Street gage); minimum daily discharge, 1.2 second-feet Jan. 1, 1936.

Remarks.- Records fair. Discharge for periods of ice effect, Nov. 23, 26-30, Dec. 14-17, Dec. 25 to Jan. 1, Jan. 4, 5, Feb. 25, 26, computed on basis of one discharge measurement and weather records. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	24	16	16	22	32	16	148	1,080	220	16	190
2	31	20	17	13	25	24	20	188	300	200	12	53
3	22	22	18	18	22	20	18	172	310	155	45	180
4	19	22	18	12	21	19	17	168	701	170	225	156
5	17	21	17	10	30	20	17	146	285	148	103	56
6	16	21	24	7.1	17	22	18	157	280	121	90	210
7	16	20	12	11	22	17	14	178	285	94	74	81
8	17	22	8.1	11	21	21	18	191	310	81	85	59
9	16	22	11	13	20	23	20	231	245	63	55	59
10	17	21	13	15	19	20	20	219	240	45	55	59
11	18	20	36	17	18	18	19	239	280	35	195	94
12	20	21	30	18	18	18	18	321	235	27	143	121
13	30	20	18	20	18	17	18	372	265	19	107	121
14	30	16	12	21	17	17	20	427	320	99	70	81
15	27	16	17	24	15	15	21	400	280	130	85	103
16	41	18	14	24	10	14	19	287	280	121	56	148
17	51	20	12	20	11	14	17	316	275	763	42	107
18	37	15	12	14	12	18	16	278	255	370	35	81
19	33	15	13	13	14	21	16	235	285	210	24	74
20	30	14	15	11	14	16	24	201	225	325	19	70
21	29	29	14	10	17	14	40	198	210	166	19	56
22	30	25	14	28	19	14	52	287	205	112	18	49
23	29	22	17	44	20	14	52	195	210	90	13	49
24	29	20	20	28	20	14	51	163	250	70	11	45
25	28	19	19	14	20	14	97	148	345	130	6.4	45
26	27	17	18	14	25	14	79	160	395	81	4.0	45
27	27	10	18	19	34	15	103	193	320	547	3.0	42
28	24	15	19	22	34	16	73	247	290	121	2.5	40
29	24	15	19	20	-	14	71	335	310	42	22	37
30	24	15	20	16	-	16	92	410	245	27	99	37
31	25	-	19	17	-	15	-	292	-	27	402	-
Month				Second-foot-days		Maximum	Minimum	Mean	Run-off in acre-feet			
October.....				825		51	16	26.6	1,640			
November.....				578		29	10	19.3	1,150			
December.....				534.1		36	8.1	17.2	1,080			
Calendar year 1937.....				35,614.1		1,180	4	92.1	66,690			
January.....				540.1		44	7.1	17.4	1,070			
February.....				555		34	10	19.8	1,100			
March.....				546		32	14	17.6	1,080			
April.....				1,068		103	14	35.5	2,110			
May.....				7,508		427	145	242	14,990			
June.....				9,506		1,080	205	317	18,850			
July.....				4,839		753	19	156	9,600			
August.....				2,145.9		402	2.5	69.2	4,280			
September.....				2,558		210	37	85.3	5,070			
Water year 1937-38.....				31,202.1		1,080	2.5	85.5	61,880			

Peak discharge.- June 4 (6 p.m.) 14,800 sec.-ft.; July 17 (4 p.m.) 14,700 sec.-ft.; July 27 (4 p.m.) 5,810 sec.-ft.

## Purgatoire River at Ninemile Dam, near Higbee, Colo.

Location.- Water-stage recorder above diversion dam of Ninemile ditch, lat. 37°45', long. 103°28', in sec. 32, T. 26 S., R. 54 W., 4 miles southwest of Higbee and 4 miles downstream from Smith Canyon.

Drainage area.- 2,900 square miles.

Records available.- October 1933 to September 1938 in reports of Geological Survey. October 1924 to September 1938 in reports of State engineer.

Average discharge.- 14 years, 97.7 second-feet.

Extremes.- Maximum discharge during year, 8,050 second-feet Aug. 11 (gage height, 5.70 feet); no flow Aug. 29.  
1924-38: Maximum discharge, 64,500 second-feet Sept. 15, 1934 (gage height, 12.60 feet), by slope-area method; no flow at times in nearly every year.

Remarks.- Records good except those for periods of ice effect, which were computed on basis of one discharge measurement, and weather records and are fair. Discharge for periods Oct. 6-13, Apr. 18 to May 5, May 15-21, May 27 to June 1, July 3-14, 24-27, Aug. 1-4, 8, 9, 14-16, 18-31, Sept. 24-30 measured through Parshall flume. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.0	15	15	12	*10	16	14	26	23	77	70	1,830
2	3.0	14	18	*12	26	16	17	20	175	64	42	1,120
3	13	13	16	12	23	17	17	18	551	37	26	435
4	13	15	15	*11	19	17	16	14	175	21	17	242
5	9.8	13	15	11	22	18	15	13	204	22	213	398
6	7.3	14	13	*10	14	16	19	22	504	20	163	405
7	6.3	13	11	*10	14	15	16	36	237	17	61	264
8	5.6	13	8.2	*14	14	15	15	25	574	14	29	259
9	4.6	14	4.1	21	13	17	15	61	242	10	15	197
10	4.6	16	5.4	18	13	16	14	65	163	8.2	123	167
11	4.6	16	7.0	*20	14	14	13	55	495	2.8	2,190	139
12	4.4	14	5.4	21	14	17	13	45	617	1.5	340	233
13	6.6	16	4.7	*22	13	15	16	191	253	1.0	118	1,590
14	8.6	17	*5.0	31	13	15	16	142	305	.5	89	361
15	9.2	18	9.0	21	13	18	16	41	237	105	61	101
16	13	18	*6.0	22	*12	17	14	35	746	270	56	65
17	121	20	*5.7	22	*12	14	11	29	573	712	136	49
18	197	20	*6.0	22	*13	15	10	25	259	1,190	31	44
19	73	31	*10	24	*15	16	8.4	23	126	540	21	42
20	52	23	*10	24	20	15	11	18	98	1,700	17	39
21	38	32	*11	22	22	11	12	29	104	1,100	14	35
22	35	56	*10	15	*15	11	13	525	96	242	14	32
23	23	21	*10	14	17	16	14	659	80	152	8.6	32
24	27	22	*12	*12	16	14	15	149	71	90	5.9	25
25	23	24	*15	*12	14	13	16	77	73	65	3.1	19
26	22	25	16	13	15	11	12	55	77	44	2.2	18
27	21	40	15	*13	17	13	10	37	228	29	1.5	15
28	20	34	*14	*13	18	13	9.4	39	146	275	.3	16
29	17	22	*13	14	-	11	8.7	30	120	312	0	14
30	20	17	*13	*10	-	11	24	26	82	118	36	12
31	17	-	*12	*9	-	11	-	22	-	69	30	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						827.6	197	3.0	26.7	1,640		
November.....						626	56	13	20.9	1,240		
December.....						330.5	18	4.1	10.7	656		
Calendar year 1937.....						32,227.4	3,170	0	98.3	63,920		
January.....						508	31	9	16.4	1,010		
February.....						441	26	10	15.8	875		
March.....						454	18	11	14.6	900		
April.....						420.5	24	8.4	14.0	834		
May.....						2,530	639	13	81.6	5,020		
June.....						7,734	746	23	258	15,340		
July.....						7,329.0	1,700	.5	236	14,840		
August.....						3,932.6	2,190	0	127	7,800		
September.....						8,188	1,630	12	273	16,240		
Water year 1937-38.....						35,321.2	2,190	0	91.3	66,100		

Peak discharge.- July 17 (9:30 p.m.) 5,530 sec.-ft.; July 20 (7 p.m.) 6,950 sec.-ft.; Aug. 11 (10 a.m.) 8,050 sec.-ft.

\*Stage-discharge relation affected by ice.

## Purgatoire River at Highland Dam, near Las Animas, Colo.

Location.- Water-stage recorder above diversion dam of Highland ditch, lat. 37°55', long. 103°18', in sec. 1, T. 25 S., R. 53 W., 11 miles southwest of Las Animas.

Drainage area.- 3,320 square miles.

Records available.- October 1933 to September 1938 in reports of Geological Survey. October 1931 to September 1938 in reports of State engineer.

Extremes.- Maximum discharge during year, 9,370 second-feet July 18 (gage height, 6.12 feet); no flow Oct. 13, 14, July 15, Aug. 25-30.  
1931-38: Maximum discharge, 33,000 second-feet Sept. 15, 1934 (gage height, 14.00 feet, from floodmarks), by slope-area method; no flow at times during period 1932-38.

Remarks.- Records good except those for days of ice effect, Dec. 9, 25, 26, Jan. 24, 25, and those for periods of missing gage heights, Oct. 11, July 10-14, Aug. 22-24, all of which were estimated and are fair. Diversions for irrigation above station.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.4	11	13	17	6.3	19	16	5.1	24	34	42	266
2	1.8	8.8	13	14	8.0	17	17	8.6	29	36	42	1,040
3	5.4	9.4	12	16	8.6	16	19	10	398	33	26	654
4	1.7	9.4	12	15	10	16	17	12	140	22	14	358
5	12	9.7	11	11	9.0	18	16	11	65	15	25	216
6	7.0	10	12	7.9	9.4	19	17	64	318	11	98	358
7	4.1	8.5	11	8.4	7.9	18	15	74	169	9.8	54	230
8	2.5	7.9	*5.0	7.6	6.9	17	16	41	311	8.8	30	121
9	1.8	9.4	4.0	8.8	9.2	22	17	31	195	6.9	8.5	126
10	.6	10	5.8	8.5	11	20	20	49	306	3.0	7.0	91
11	.6	12	10	7.5	11	18	11	82	433	2.5	1,670	77
12	.6	14	20	9.6	11	16	10	70	168	2.0	704	75
13	0	11	19	8.0	11	16	9.4	174	415	1.5	181	1,200
14	0	9.1	11	10	9.8	17	11	150	181	1.0	93	520
15	1.4	14	16	14	11	21	14	93	318	0	70	145
16	5.6	14	14	13	11	21	15	67	624	305	55	79
17	15	15	14	14	8.8	19	13	47	1,570	286	47	54
18	244	13	21	11	10	20	10	30	433	2,310	155	47
19	98	9.7	15	9.4	16	22	8.6	23	209	1,020	48	46
20	67	11	13	8.5	16	20	8.0	20	315	1,000	24	47
21	49	14	16	11	15	19	7.9	19	70	2,200	14	46
22	38	27	11	8.0	20	18	7.9	57	89	33	3.0	34
23	29	34	9.8	7.2	15	17	6.1	1,470	73	164	2.0	28
24	23	28	9.1	5.0	14	17	5.6	358	64	93	1.0	23
25	18	24	10	2.0	20	18	5.6	105	47	67	0	19
26	14	20	15	5.5	20	17	5.2	73	38	55	0	16
27	12	20	18	5.2	19	18	55	65	40	44	0	14
28	12	21	17	6.9	20	19	19	41	160	59	0	11
29	12	21	17	8.2	-	18	9.0	50	80	174	0	11
30	10	14	20	2.0	-	18	6.5	34	59	82	0	10
31	11	-	20	1.0	-	15	-	38	-	56	6.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	698.5	244	0	22.5	1,390
November.....	459.9	34	7.9	14.7	873
December.....	414.7	21	4.0	13.4	825
Calendar year 1937.....	36,539.7	3,760	0	100	72,480
January.....	281.0	17	1.0	9.06	557
February.....	344.9	20	6.3	12.3	684
March.....	566	22	15	18.3	1,120
April.....	407.8	55	5.2	13.6	809
May.....	3,371.7	1,470	5.1	109	6,690
June.....	7,381	1,570	24	246	14,640
July.....	8,134.5	2,310	0	282	16,130
August.....	3,420.0	1,670	0	110	6,780
September.....	5,942	1,200	10	198	11,790
Water year 1937-38.....	31,402.0	2,510	0	86.0	62,290

Peak discharge.- July 18 (4 a.m.) 9,730 sec.-ft.; July 21 (12:30 a.m.) 4,700 sec.-ft.; Aug. 11 (6 p.m.) 5,340 sec.-ft.

\*Discharge measurement.

## Holly drain near Holly, Colo.

Location.— Water-stage recorder, lat. 38°03', long. 102°03', in sec. 16, T. 23 S., R. 41 W., just downstream from Cheyenne Creek and 100 yards west of Colorado-Kansas State line.

Records available.— January 1924 to September 1927 and October 1933 to September 1938 in reports of Geological Survey. January 1924 to September 1938 in reports of State engineer.

Extremes.— Maximum discharge during year, 1,470 second-feet Sept. 3 (gage height, 10.29 feet) from rating curve extended above 500 second-feet logarithmically and on basis of slope-area determinations; minimum daily discharge, 0.5 second-feet Aug. 31. 1924-38: Maximum discharge, that of Sept. 3, 1938; minimum daily discharge, that of Aug. 31, 1938.

Remarks.— Records fair. Discharge for periods of ice effect, Dec. 14-17, Jan. 14, 24-26, 30, 31, Feb. 18-23, computed on basis of one discharge measurement and weather records. After Aug. 28, 1935, records include flow of Wild Horse Creek but not flow of that part of Holly drain west of Wild Horse Creek.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	7.7	9.4	7.6	9.4	24	3.8	5.0	13	15	6.4	4.1
2	12	5.3	8.6	7.2	4.1	17	5.3	5.5	42	10	4.3	118
3	6.7	6.7	9.0	7.6	4.1	15	12	6.2	41	11	5.2	386
4	7.2	5.6	8.6	6.9	4.2	23	13	6.9	12	9.2	2.7	96
5	12	4.8	8.8	6.2	4.5	24	8.6	5.0	14	11	2.0	25
6	13	5.6	9.2	5.5	4.9	24	4.8	76	24	6.7	2.6	22
7	15	6.4	8.5	4.9	4.8	23	6.4	272	9.6	5.9	2.4	25
8	9.8	7.4	7.4	4.9	4.8	26	7.6	52	14	6.7	2.0	60
9	5.9	11	6.9	4.8	5.6	32	6.9	39	202	5.8	1.3	67
10	4.2	14	8.8	4.5	4.6	32	8.6	32	32	6.4	.7	71
11	2.6	19	12	4.6	6.1	29	13	31	34	4.8	1.1	56
12	2.5	19	16	4.1	18	29	9.4	32	39	2.5	1.5	32
13	4.0	18	28	3.6	18	27	5.6	26	77	2.8	.7	25
14	7.2	19	20	3.5	17	22	9.4	25	88	1.2	5.0	22
15	7.2	18	16	4.6	22	23	11	19	107	12	4.1	53
16	8.8	17	14	5.5	18	21	6.6	15	143	33	328	58
17	23	20	12	7.6	19	17	4.8	16	179	243	69	94
18	24	20	10	5.9	19	17	6.6	10	64	86	34	91
19	17	18	9.0	5.5	18	22	8.3	9.0	168	230	10	69
20	14	20	9.2	6.6	20	22	8.3	7.2	296	45	8.1	56
21	14	17	9.0	4.3	19	16	7.0	6.4	74	50	10	33
22	15	20	8.6	3.6	25	17	4.9	19	99	69	9.4	15
23	16	23	7.9	3.5	30	15	6.7	77	87	71	7.6	21
24	19	23	7.6	3.0	44	12	9.4	47	58	51	6.6	20
25	19	22	7.2	2.5	42	9.6	226	43	8.5	49	4.9	20
26	15	22	6.9	2.2	42	8.3	32	50	50	35	3.3	15
27	13	16	6.6	2.4	36	7.4	74	30	15	27	2.3	18
28	9.0	20	6.6	2.5	30	4.6	8.8	18	14	23	1.6	22
29	7.2	9.4	6.7	2.6	-	4.0	5.2	12	11	30	4.5	16
30	11	9.2	6.1	2.6	-	3.9	6.7	52	21	6.4	4.8	11
31	11	-	7.0	3.0	-	3.8	-	29	-	13	.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	361.3	24	2.5	11.7	717
November.....	444.1	23	4.8	14.8	881
December.....	311.8	28	6.1	10.1	618
Calendar year 1937.....	3,195.4	26	1.0	8.75	6,540
January.....	143.8	7.6	2.2	4.64	285
February.....	496.1	44	4.1	17.7	984
March.....	570.6	32	3.8	18.4	1,130
April.....	540.9	226	3.8	18.0	1,070
May.....	1,072.2	272	5.0	34.6	2,130
June.....	2,036.4	296	8.8	67.9	4,040
July.....	1,172.4	243	1.2	37.8	2,330
August.....	542.6	328	.5	17.5	1,080
September.....	1,618.1	386	4.1	53.9	3,210
Water year 1937-38.....	9,310.3	386	.5	25.5	18,480

Peak discharge.— May 7 (4 a.m.) 665 sec.-ft.; July 19 (1 a.m.) 1,320 sec.ft.; Sept. 3 (2 a.m.) 1,470 sec.ft.



## Amazon canal near Hartland, Kans.

Location.— Water-stage recorder, lat. 37°53', long. 101°22', in SE $\frac{1}{4}$  sec. 9 T. 25 S., R. 37 W., half a mile west of Hartland and 2 $\frac{1}{2}$  miles below point of diversion from Arkansas River.

Records available.— 1921-24 (irrigation season only) and October 1930 to September 1938 in reports of Geological Survey. 1921-24 (irrigation seasons only) in reports of Kansas Water Commission. October 1924 to September 1935 in reports of Division of Water Resources, State Board of Agriculture.

Extremes.— Maximum discharge during year, 434 second-feet June 15 (gage height, 8.75 feet), from rating curve extended above 350 second-feet; no flow during long periods. 1921-24, 1930-38: Maximum discharge, 490 second-feet Aug. 28, 1933 (gage height, 8.80 feet); no flow during long periods.

Remarks.— Records fair. Canal diverts water for irrigation from left bank of Arkansas River in sec. 12, T. 25 S., R. 38 W.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1				0	0		0	0	338	0	0	0
2				0	43		0	0	276	0	0	0
3				0	95		0	0	201	0	0	96
4				0	112		0	0	169	0	0	219
5				0	100		0	0	0	0	0	329
6				0	97		0	0	0	0	0	341
7				0	92		0	0	0	0	0	350
8				0	96		0	0	0	0	0	356
9				0	97		0	0	0	0	0	303
10				0	82		0	0	158	0	0	202
11				0	73		0	0	141	0	0	199
12				0	69		0	0	128	0	0	176
13				0	65		0	0	129	0	0	127
14				0	23		0	0	6	0	5	262
15				0	0		0	0	31	0	0	264
16				0	0		0	0	0	190	0	266
17				0	0		0	0	0	174	0	202
18				0	0		0	0	187	218	0	137
19				0	0		0	0	223	258	22	111
20				0	0		0	0	240	240	54	111
21				0	0		0	0	263	288	0	112
22				0	0		0	13	292	37	0	130
23				0	0		0	7	295	271	0	134
24				0	0		0	184	144	315	0	134
25				0	0		0	229	0	287	0	134
26				0	0		247	226	0	223	0	119
27				0	0		238	204	0	169	0	14
28				22	0		243	193	0	147	0	8
29				79	—		0	162	0	93	0	10
30				0	—		0	112	0	112	0	8
31				0	—		—	114	—	0	0	—
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						0	0	0	0	0		
November.....						0	0	0	0	0		
December.....						0	0	0	0	0		
Calendar year 1937.....						6,184	290	0	16.9	12,270		
January.....						101	79	0	3.3	200		
February.....						1,043	112	0	37.2	2,070		
March.....						0	0	0	0	0		
April.....						728	247	0	24.3	1,440		
May.....						1,444	229	0	46.6	2,860		
June.....						3,022	338	0	107	6,390		
July.....						3,022	315	0	97.5	5,990		
August.....						81	54	0	2.6	161		
September.....						4,854	356	0	162	9,630		
Water year 1937-38.....						14,494	356	0	39.7	28,740		

## South Side ditch near Hartland, Kans.

Location.- Water-stage recorder, lat. 37°52', long. 101°22', in SE¼ sec. 15, T. 25 S., R. 37 W., three-quarters of a mile south of Hartland and 1½ miles below point of diversion from Arkansas River.

Records available.- 1921-24 (irrigation seasons only) and October 1930 to September 1938 in reports of Geological Survey, 1921-24 (irrigation seasons) in reports of Kansas Water Commission. October 1924 to September 1935 in reports of Division of Water Resources of State Board of Agriculture.

Extremes.- Maximum discharge during year, 367 second-feet Sept. 6 (gage height, 8.62 feet); no flow during long periods.  
1921-24, 1930-38: Maximum discharge, that of Sept. 6, 1938; no flow during long periods.

Remarks.- Records fair. Discharge for period of ice effect, Feb. 17-19, computed on basis of gage heights and weather records. Ditch diverts water for irrigation from right bank of Arkansas River in sec. 16, T. 25 S., R. 37 W.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1					0	66	18	0	94	0	177	0
2					0	60	16	0	97	0	160	0
3					0	52	15	0	106	0	59	96
4					0	51	8	0	86	0	0	259
5					0	46	0	0	91	0	0	277
6					0	48	0	0	86	0	0	319
7					0	50	0	0	92	0	0	284
8					0	45	0	0	92	0	0	247
9					0	50	0	0	26	0	0	155
10					0	48	0	0	54	0	0	108
11					0	54	0	0	59	0	0	106
12					0	55	0	0	67	0	0	77
13					0	53	0	0	17	0	0	133
14					16	48	0	0	0	0	0	69
15					64	48	0	0	2	0	0	80
16					44	47	0	0	0	122	0	67
17					6	48	0	0	65	64	0	112
18					1	44	0	0	112	169	0	126
19					0	39	0	0	117	236	0	93
20					0	38	0	0	98	146	0	117
21					9	36	0	0	135	121	0	144
22					4	33	0	0	176	134	0	103
23					3	32	0	0	104	113	0	66
24					83	31	0	188	91	42	0	35
25					85	26	0	260	0	53	0	19
26					80	22	0	191	0	122	0	9
27					74	21	0	104	0	85	0	19
28					70	28	0	33	0	133	0	0
29					-	24	0	7	0	203	0	0
30					-	20	0	18	0	167	0	0
31					-	18	-	109	-	177	0	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						0	0	0	0	0		
November.....						0	0	0	0	0		
December.....						0	0	0	0	0		
Calendar year 1937.....						3,212	234	0	8.8	6,370		
January.....						0	0	0	0	0		
February.....						539	85	0	19.2	1,070		
March.....						1,281	66	18	41.3	2,540		
April.....						57	18	0	1.9	113		
May.....						910	260	0	29.4	1,800		
June.....						1,867	176	0	62.2	3,700		
July.....						2,087	236	0	67.3	4,140		
August.....						396	177	0	12.8	785		
September.....						3,120	319	0	104	6,190		
Water year 1937-38.....						10,257	319	0	28.1	20,340		

## Great Eastern canal at Lakin, Kans.

Location.- Water-stage recorder, lat.  $37^{\circ}57'$ , long.  $101^{\circ}15'$ , in NE $\frac{1}{4}$  sec. 22, T. 24 S., R. 36 W., at highway bridge one mile north of Lakin and 8 miles northeast of Hartland. Prior to Sept. 2, 1938, at site half a mile upstream.

Records available.- 1921-24 (irrigation seasons only) and October 1930 to September 1938 in reports of Geological Survey. 1921-24 (irrigation seasons only) in reports of Kansas Water Commission. November 1924 to September 1935 in reports of Division of Water Resources of State Board of Agriculture.

Extremes.- Maximum discharge during year, 1,100 second-feet (estimated) July 21 (gage height, 9.91 feet, affected by backwater from highway bridge); no flow during long periods.

1921-24, 1930-38: Maximum gage height, 10.50 feet May 28, 1936, affected by backwater from highway bridge (discharge not determined); no flow during long periods.

Remarks.- Records fair except those for periods of ice effect and those for periods of faulty intake action, which are poor. Canal diverts water from left bank of Arkansas River in sec. 16, T. 25 S., R. 37 W. for irrigation or for storage in Lake McKinney.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	
1	0	5	1	70	0		0	90	*835	0	0	0	
2	0	5	1		0		0	75	646	0	0	0	
3	0	5	1		0		0	63	355	0	28	83	
4	0	0	1		0		0	67	*104	0	82	394	
5	0	0	1		0		0	55	176	0	73	774	
6	0	0	1	40	0		0	68	159	0	56	774	
7	0	0	0		0		0	222	122	0	42	878	
8	0	0	0		0		0	355	88	0	30	723	
9	0	0	0		70	0	0	162	74	0	*22	469	
10	0	0	0		55	0	0	0	300	0	*17	198	
11	0	0	0	70	0		0	0	222	0	*12	110	
12	0	0	0	30	0		0	0	90	0	*8	91	
13	0	0	1	40	0		0	0	43	0	*4	458	
14	0	0	2	70	0		30	0	240	0	161	579	
15	0	0	2	80	0		28	0	327	0	97	535	
16	0	0	2	85	0		5	0	*309	224	67	698	
17	0	0	3	85	0		0	0	469	0	309	502	
18	0	0	5	86	*6		0	0	646	293	274	*23	
19	0	0	}	78	*15		0	0	686	431	158	0	
20	0	0		85	10		0	0	526	606	21	0	
21	0	0	}	105	15		0	0	526	646	0	0	
22	0	0			20		0	40	586	586	0	0	
23	0	0			25		0	36	384	526	0	7	
24	0	0			10		0	210	57	282	0	42	
25	0	3			0		88	265	*149	81	0	25	
26	0	3	}	0	0		164	90	96	0	0	15	
27	0	3		59	0		211	0	0	0	0	2	
28	0	3		118	0		346	0	0	64	0	0	
29	6	3		68	-		194	0	0	171	0	0	
30	6	2		0	-		127	0	0	115	0	0	
31	6	-		0	-		-	*237	-	35	0	-	
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....						18	6	0	0.6	36			
November.....						32	5	0	1.1	63			
December.....						461	-	0	14.9	914			
Calendar year 1937.....						11,647	879	0	31.9	23,100			
January.....						1,997	118	0	64.4	3,960			
February.....						101	25	0	3.6	200			
March.....						0	0	0	0	0			
April.....						1,193	346	0	39.8	2,370			
May.....						2,035	355	0	65.6	4,040			
June.....						8,215	835	0	274	16,290			
July.....						4,060	646	0	131	8,050			
August.....						1,461	309	0	47.1	2,900			
September.....						7,380	878	0	246	14,640			
Water year 1937-38.....						26,953	878	0	73.8	53,460			

\*Faulty intake action; discharge computed from graph drawn on basis of partial gage-height record.

Note.- Stage-discharge relation affected by ice Dec. 13 to Jan. 17 and Feb. 19-24. Discharge computed on basis of four discharge measurements, gage heights, and weather records.

## Farmers ditch near Garden City, Kans.

Location.- Water-stage recorder, lat.  $38^{\circ}00'$ , long.  $101^{\circ}04'$ , in NW $\frac{1}{4}$  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.- 1921-24 (irrigation seasons only) and October 1930 to September 1938 in reports of Geological Survey. 1921-24 (irrigation seasons only) in reports of Kansas Water Commission; March 1925 to September 1935 in reports of Division of Water Resources of State Board of Agriculture.

Extremes.- Maximum discharge during year, 318 second-feet July 21 (gage height, 8.63 feet); no flow during long periods.  
1921-24, 1930-38: Maximum discharge, that of July 21, 1938; no flow during long periods.

Remarks.- Records fair. Ditch diverts water for irrigation from left bank of Arkansas River in sec. 12, T. 24 S., R. 35 W.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12						0	12	148	78	24	3
2	14						0	8	178	57	17	4
3	10						0	0	154	41	13	4
4	6						0	0	114	26	11	0
5	4						0	0	79	16	10	124
6	3						0	0	28	11	9	196
7	2						0	0	19	9	7	206
8	2						0	129	6	5	6	224
9	1						0	126	0	0	4	162
10	0						0	214	0	0	3	60
11	0						0	166	0	0	3	72
12	0						0	126	1	0	3	41
13	0						0	95	1	0	1	1
14	0						0	84	0	0	4	4
15	0						0	76	0	0	10	7
16	0						0	71	2	133	8	2
17	0						0	62	0	162	7	1
18	0						0	48	0	219	34	8
19	0						0	42	0	174	12	14
20	0						0	37	44	255	192	24
21	0						0	33	69	273	162	34
22	0						0	67	170	291	142	38
23	0						0	126	80	210	110	29
24	0						0	130	61	228	76	28
25	0						0	201	134	183	56	24
26	0						0	84	64	118	40	18
27	0						5	5	146	61	26	43
28	0						47	0	146	41	17	81
29	0						106	0	122	75	12	100
30	0						24	0	102	98	2	106
31	0						-	0	-	36	2	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						54	14	0	1.7	107		
November.....						0	0	0	0	0		
December.....						0	0	0	0	0		
Calendar year 1937.....						5,941	228	0	16.3	11,790		
January.....						0	0	0	0	0		
February.....						0	0	0	0	0		
March.....						0	0	0	0	0		
April.....						160	106	0	6.0	357		
May.....						1,842	214	0	62.6	3,880		
June.....						1,868	178	0	61.9	3,690		
July.....						2,798	291	0	90.3	5,550		
August.....						1,023	192	1	33.0	2,030		
September.....						1,658	224	0	55.3	3,290		
Water year 1937-38.....						9,513	291	0	26.1	18,870		

## Garden City canal near Garden City, Kans.

Location.— Water-stage recorder, lat. 38°00', long. 101°02', in SW¼ sec. 3, T. 24 S., R. 34 W., 1½ miles below diversion from Arkansas River, 3 miles west of Holcomb, and 9 miles west of Garden City. Zero of gage is 2,895.88 feet above mean sea level (general adjustment of 1929).

Records available.— 1921-24 (irrigation seasons only) and October 1930 to September 1938 in reports of Geological Survey. 1921-24 (irrigation seasons only) in reports of Kansas Water Commission. October 1924 to September 1935 in reports of Division of Water Resources of State Board of Agriculture.

Extremes.— Maximum discharge during year, 85 second-feet Sept. 6 (gage height, 9.00 feet); no flow during long periods.

1921-24, 1930-38: Maximum discharge, 87 second-feet Sept. 8, 1937 (gage height, 8.90 feet); no flow during long periods.

Remarks.— Records poor. Monthly flow for period December to February computed on basis of observations made by resident engineer. Canal diverts water for irrigation from left bank of Arkansas River in sec. 12, T. 24 S., R. 35 W. through Farmers ditch.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						0	8	2	7	3	0	1
2						0	4	2	4	0	0	2
3						0	4	2	2	0	0	2
4						0	4	4	0	0	0	1
5						0	5	6	0	0	0	19
6						0	5	6	0	0	0	67
7						0	0	12	0	0	0	52
8						0	0	12	5	1	0	43
9						0	0	12	10	7	0	25
10						0	9	10	1	4	0	26
11						0	11	8	2	3	0	30
12						0	15	7	6	2	0	13
13						0	16	5	4	1	0	3
14						0	13	3	0	2	0	14
15						0	22	3	0	2	0	17
16						0	10	3	21	5	0	16
17						0	11	3	11	0	0	13
18						0	12	3	0	11	0	23
19						0	9	3	1	9	0	28
20							9	3	2	20	0	30
21						}	10	2	5	0	0	31
22							10	5	43	0	0	28
23							11	12	12	27	0	21
24							0	9	0	18	0	10
25							0	15	0	2	0	0
26						3	7	7	0	2	0	0
27						6	8	13	0	1	0	0
28						9	3	18	0	1	0	0
29						9	2	13	0	1	1	0
30						7	2	12	0	1	9	0
31						7	-	16	-	0	3	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						0	0	0	0	0		
November.....						0	0	0	0	0		
December.....						12	-	-	.4	24		
Calendar year 1937.....						523	52	0	1.4	1,040		
January.....						7	-	0	.2	14		
February.....						13	-	0	.5	26		
March.....						65	9	0	2.1	129		
April.....						218	22	0	7.3	432		
May.....						231	16	2	7.5	458		
June.....						136	43	0	4.5	270		
July.....						127	27	0	4.1	252		
August.....						13	9	0	.4	26		
September.....						513	67	0	17.1	1,020		
Water year 1937-38.....						1,335	67	0	3.7	2,650		

## Pawnee River near Larned, Kans.

Location.- Water-stage recorder, lat. 38°11', long. 99°19', in NW¼ sec. 33, T. 21 S., R. 18 W., about 300 feet downstream from Moffet Dam and 1½ miles west of Larned.

Drainage area.- 2,300 square miles.

Records available.- November 1924 to September 1938.

Average discharge.- 14 years, 46.6 second-feet.

Extremes.- Maximum discharge during year, 2,570 second-feet June 1 (gage height, 20.0 feet); no flow during long periods.

1924-38: Maximum discharge, 20,000 second-feet (estimated) May 28, 1935 (gage height, 31.96 feet); no flow during periods in 1926, 1930, 1931, 1933, 1935-38. Bank-full stage, 24 feet.

Remarks.- Records fair. Discharge for periods of missing gage heights, Dec. 8-15, Jan. 15 to Feb. 2, July 30 to Aug. 10, computed on basis of engineer's notes, weather records, and records for Arkansas River at Larned.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Dec. 16 to Mar. 26)

2.7	0	5.0	48	10.0	436
3.0	3	6.0	93	12.0	750
3.4	8	7.0	156	15.0	1,320
3.8	16	8.0	234	18.0	2,020
4.2	26				

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	4	5	2	2	3	2	16	2,060	18	40	0
2	0	5	5	2	2	11	2	11	2,070	15	20	1
3	0	2	5	2	2	2	2	10	308	12	6	142
4	0	3	5	2	2	2	2	20	78	9	4	107
5	0	3	5	2	2	2	4	52	46	9	3	614
6	0	3	*4	2	2	2	4	35	34	8	3	614
7	0	4	*3	2	2	2	11	16	26	13	3	563
8	0	4	2	2	2	2	63	10	22	10	3	226
9	0	3	2	2	2	3	33	10	20	8	3	62
10	0	3	1	2	2	2	20	10	21	8	3	32
11	0	3	1	2	2	1	26	10	30	7	†3	22
12	0	3	1	2	2	0	29	23	38	104	†3	15
13	0	3	1	2	2	2	39	42	29	78	†3	13
14	0	3	1	3	2	2	54	64	64	146	†4	8
15	0	3	1		2	1	49	29	54	160	†4	6
16	0	3	2		3	1	50	16	50	37	†4	5
17	0	3	2		4	0	40	12	328	254	†5	4
18	0	3	2		3	0	28	9	1,400	392	†648	4
19	0	3	2		2	0	21	7	560	65	†41	4
20	0	3	2		2	0	16	6	308	29	†12	3
21	0	4	2		2	1	13	5	1,240	51	†4	3
22	0	4	2		2	2	11	6	1,340	359	†3	4
23	0	4	2	2	2	1	9	25	614	318	†2	4
24	0	4	2		2	1	7	88	107	73	1	3
25	1	4	2		2		7	666	62	27	0	3
26	2	4	2		2	1	6	486	46	16	0	3
27	2	4	2		2	2	9	122	41	10	0	3
28	2	5	2		3	5	8	66	38	8	0	3
29	3	5	2		-	6	12	41	28	68	0	3
30	3	5	2		-	4	22	66	22	194	1	3
31	3	-	2		-	3	-	818	-	70	0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	16	3	0	0.5	32
November.....	105	5	2	3.5	208
December.....	74	5	1	2.4	147
Calendar year 1937.....	7,608	981	0	20.8	15,090
January.....	63	3	2	2.0	125
February.....	61	4	2	2.2	121
March.....	57	6	0	1.8	115
April.....	519	83	2	20.6	1,230
May.....	2,796	818	5	90.2	5,650
June.....	11,094	2,070	20	370	22,000
July.....	2,559	392	7	82.5	5,080
August.....	825	648	0	26.6	1,640
September.....	2,477	614	0	82.6	4,910
Water year 1937-38.....	20,746	2,070	0	56.8	41,160

Peak discharge.- May 25 (11:30 p.m.) 938 sec.-ft.; June 1 (11:30 p.m.) 2,570 sec.-ft.; June 18 (7 p.m.) 1,850 sec.-ft.; June 22 (8 a.m.) 1,450 sec.-ft.; July 17 (11:30 p.m.) 835 sec.-ft.; Sept. 6 (1 a.m.) 938 sec.-ft.

\*Stage-discharge relation slightly affected by ice.  
†Discharge computed from once-daily gage readings.

## Little Arkansas River at Valley Center, Kans.

Location.- Water-stage recorder, lat. 37°50', long. 97°23', in SW $\frac{1}{4}$  sec. 36, T. 25 S., R. 1 W., at county highway bridge, half a mile west of Valley Center, and 16 miles upstream from confluence with Arkansas River.

Drainage area.- 1,316 square miles.

Records available.- February 1935 to September 1938. June 1922 to February 1935 at site 2 miles downstream.

Average discharge.- 16 years, 145 second-feet.

Extremes.- Maximum discharge during year, 10,400 second-feet June 26 (gage height, 19.38 feet) from rating curve extended above 5,000 second-feet; minimum, 20 second-feet Mar. 27 (gage height, 1.99 feet).

1922-38: Maximum discharge observed, 10,500 second-feet June 11, 1923 (gage height, 18.02 feet, former site and datum); minimum, 1 second-foot Dec. 27, 1933.

Remarks.- Records fair. Discharge for periods of ice effect Dec. 6, 8-10, Jan. 25, 26, 31 Feb. 1, 18, 22-24 computed on basis of weather records and records for nearby stations.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	24	24	26	25	22	40	28	31	883	292	48	56
2	23	24	26	25	22	41	26	33	1,010	218	47	98
3	22	24	26	25	23	39	26	42	1,310	176	45	82
4	22	24	25	25	24	38	26	1,320	996	143	43	284
5	22	24	25	25	26	35	27	2,750	353	124	42	312
6	22	26	24	25	26	31	27	1,200	236	110	40	559
7	21	25	24	24	24	29	28	1,300	182	110	39	170
8	22	26	24	24	24	28	30	1,080	143	110	38	108
9	23	25	24	24	24	29	30	440	121	101	38	88
10	23	25	25	24	24	30	34	234	104	97	37	71
11	24	25	25	24	24	29	48	152	95	89	35	61
12	24	25	24	26	25	29	152	112	86	84	35	894
13	24	25	24	26	25	29	143	92	80	78	37	683
14	24	25	24	26	24	29	123	79	72	74	56	146
15	24	25	24	26	25	29	102	69	120	70	470	80
16	24	25	24	28	26	27	83	64	969	70	3,140	64
17	25	25	25	29	28	25	72	60	2,330	530	2,720	59
18	25	26	26	29	35	24	62	60	1,760	415	1,640	53
19	25	26	27	30	71	24	57	500	1,520	131	974	51
20	27	25	26	30	56	23	64	2,320	776	92	395	49
21	26	24	26	28	45	22	43	790	410	77	260	48
22	25	24	27	27	34	22	35	318	292	71	194	48
23	25	24	26	26	27	22	31	910	273	67	141	47
24	25	24	26	25	25	22	30	2,570	254	63	109	45
25	25	24	26	25	25	22	30	1,560	341	58	92	44
26	25	25	26	24	29	22	29	1,450	9,140	56	82	42
27	24	25	26	24	35	21	36	1,210	4,210	55	76	41
28	24	26	26	23	41	25	44	1,560	2,060	56	69	40
29	24	26	25	24	-	30	37	1,040	895	56	66	40
30	24	25	25	23	-	33	33	555	440	52	62	39
31	24	-	26	23	-	30	-	503	-	50	59	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						742	27	21	23.9	1,470		
November.....						745	26	24	24.8	1,480		
December.....						783	27	24	25.3	1,550		
Calendar year 1937.....						43,728	2,220	18	120	66,710		
January.....						791	30	23	25.5	1,570		
February.....						839	71	22	30.0	1,660		
March.....						879	41	21	28.4	1,740		
April.....						1,526	152	26	50.9	3,030		
May.....						24,904	2,320	31	803	49,400		
June.....						31,861	9,140	72	1,065	63,390		
July.....						5,775	530	50	122	7,490		
August.....						11,309	3,140	35	365	22,430		
September.....						4,404	894	39	147	8,740		
Water year 1937-38.....						82,658	9,140	21	226	164,000		

Peak discharge.- May 5 (6:30 a.m.) 3,350 sec.-ft.; May 20 (3 a.m.) 3,680 sec.-ft.; May 24 (8 a.m.) 2,920 sec.-ft.; June 26 (12 m.) 10,400 sec.-ft.; Aug. 16 (6:30 p.m.) 3,760 sec.-ft.; Sept. 12 (9:30 p.m.) 2,380 sec.-ft.

## Ninnescah River near Peck, Kans.

Location.— Wire-weight gage, lat. 37°28', long. 97°25', in NW¼ sec. 10, T. 30 S., R. 1 W., at county highway bridge, 3 miles northwest of Peck, and 28 miles upstream from confluence with Arkansas River.

Drainage area.— 2,092 square miles.

Records available.— April to September 1938.

Extremes.— Maximum discharge observed during period, 11,100 second-feet May 20 (gage height, 15.70 feet); minimum observed, 28 second-feet Aug. 14 (gage height, 1.75 feet).

Maximum stage known, determined in 1938, about 26.4 feet June 9, 1923, from floodmark at observer's house (discharge not determined).

Remarks.— Records good. Gage read twice daily. Records collected in cooperation with the Corps of Engineers, U. S. Army.

Rating table, period April to September 1938 (gage height, in feet, and discharge, in second-feet)

1.7	13	4.0	845	8.0	2,970
2.0	94	5.0	1,280	10.0	4,600
2.4	225	6.0	1,750	12.0	5,610
2.8	371	7.0	2,510	14.0	8,910
3.5	640				

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							188	352	1,700	601	316	136
2							165	316	1,320	464	178	112
3							149	1,100	886	371	371	562
4							140	3,250	681	316	202	562
5							136	5,600	562	278	146	562
6							133	5,800	464	245	109	601
7							130	1,850	390	249	94	408
8							82	1,160	352	504	65	334
9							95	1,010	352	484	46	278
10							133	845	316	316	41	227
11							562	601	390	253	33	202
12							640	562	390	195	30	334
13							601	484	371	172	28	970
14							504	278	297	227	28	886
15							426	426	278	260	722	334
16							562	426	316	206	6,300	238
17							185	445	640	198	2,620	195
18							106	371	601	188	1,500	176
19							334	6,000	640	181	927	168
20							371	7,270	640	168	722	162
21							260	1,650	601	162	523	155
22							260	1,1	523	149	371	149
23							245	2,830	408	143	334	140
24							245	5,500	371	130	260	130
25							227	1,900	352	118	230	127
26							216	1,060	2,070	97	202	118
27							804	1,550	3,400	94	181	112
28							970	1,850	1,800	143	162	94
29							681	1,460	1,280	927	140	82
30							352	1,360	845	970	195	88
31							-	1,010	-	464	162	-
Month							Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet	
October.....												
November.....												
December.....												
Calendar year .....												
January.....							-	-	-	-	-	
February.....							-	-	-	-	-	
March.....							-	-	-	-	-	
April.....							9,892	970	82	330	19,620	
May.....							59,476	7,270	278	1,919	118,000	
June.....							23,236	3,400	278	775	46,090	
July.....							9,273	970	94	299	18,390	
August.....							17,236	6,300	26	556	34,190	
September.....							8,641	970	82	288	17,140	
The period.....											253,400	



## Walnut River at Winfield, Kans.

Location.- Water-stage recorder, lat. 37°14', long. 97°00', in NE¼ sec. 33, T. 32 S., R. 4 E., at bridge on U. S. Highway 77, 1 mile south of Winfield and 1 mile upstream from Black Crook Creek.

Drainage area.- 1,894 square miles.

Records available.- November 1921 to September 1938.

Average discharge.- 16 years (1922-38), 587 second-feet.

Extremes.- Maximum discharge during year, 22,200 second-feet May 20 (gage height, 29.70 feet); minimum, 16 second-feet Feb. 15 (gage height, 2.68 feet).  
1921-38: Maximum discharge observed, 94,400 second-feet Nov. 18, 1928 (gage height, 40.61 feet) on basis of study by Burns and McDonald Engineering Co.; no flow Nov. 11, 1928, July 27 to Sept. 20, 1936. Bank-full stage, 30 feet.

Remarks.- Records good except those for periods of shifting control, Nov. 26 to Mar. 28, Sept. 14-30, which are fair.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Nov. 26 to Mar. 28, and Sept. 14-30)

2.5	15	7.0	2,100
2.7	34	9.0	3,350
2.9	65	11.0	4,700
3.1	106	14.0	6,900
3.5	209	20.0	11,600
4.0	380	26.0	17,000
5.0	900	30.0	22,900

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	48	28	98	47	22	790	276	212	3,020	475	94	94
2	48	26	68	45	21	652	212	177	2,040	376	94	78
3	47	24	55	47	21	530	194	162	1,020	308	82	358
4	45	24	50	65	21	332	186	175	818	273	68	403
5	44	24	47	57	25	225	177	913	752	244	59	238
6	40	23	39	48	26	164	154	3,800	608	215	50	235
7	37	23	33	45	24	135	140	1,080	790	251	47	170
8	42	24	42	40	22	119	159	485	970	244	44	117
9	52	28	47	39	22	119	170	344	1,290	215	39	90
10	52	28	40	36	21	128	225	292	1,140	203	36	72
11	52	30	33	30	20	159	1,050	244	2,100	177	33	57
12	50	29	33	28	20	144	1,410	222	1,620	162	30	54
13	50	30	33	25	19	128	960	200	818	154	27	98
14	47	28	45	28	18	117	598	180	576	164	24	533
15	40	37	52	30	18	106	495	175	480	189	216	420
16	36	45	59	33	21	96	535	206	5,610	149	2,340	254
17	37	47	61	34	32	86	485	212	9,920	154	4,560	170
18	42	48	64	34	40	80	372	239	3,870	157	3,030	119
19	47	44	66	34	64	76	302	13,800	1,230	152	569	94
20	50	37	64	34	74	68	319	21,000	818	157	302	76
21	47	34	61	34	61	83	308	20,100	652	135	209	66
22	48	36	87	34	52	59	235	10,200	565	128	162	59
23	47	46	54	34	47	54	212	10,700	510	147	130	55
24	39	47	54	34	39	48	192	12,400	625	144	110	52
25	37	45	50	30	37	50	180	11,300	658	94	94	48
26	34	40	48	26	37	48	167	4,910	1,280	82	84	47
27	32	50	45	26	44	47	167	3,350	5,120	82	74	45
28	30	57	45	26	416	76	340	8,400	2,180	155	64	44
29	30	59	47	26	-	818	354	3,290	684	90	59	42
30	29	56	47	28	-	724	279	1,500	495	78	140	40
31	27	-	47	23	-	394	-	1,280	-	68	130	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	1,306	52	27	42.1	2,590
November.....	1,129	86	23	37.6	2,240
December.....	1,584	98	33	51.1	3,140
Calendar year 1937.....	228,271	15,800	23	625	452,800
January.....	1,101	63	23	35.5	2,180
February.....	1,282	416	18	45.8	2,540
March.....	6,635	818	47	214	13,160
April.....	10,883	1,410	140	383	21,590
May.....	131,528	21,000	162	4,243	260,800
June.....	52,239	9,920	480	1,741	103,600
July.....	5,641	475	78	132	11,190
August.....	13,000	4,560	24	419	25,750
September.....	4,208	533	40	140	8,350
Water year 1937-38.....	230,536	21,000	18	632	457,300

Peak discharge.- May 20 (2 a.m.) 22,200 sec.-ft.; May 23 (8 p.m.) 12,600 sec.-ft.; May 28 (2 p.m.) 9,440 sec.-ft.; June 17 (1 a.m.) 11,600 sec.-ft.; June 27 (11 a.m.) 5,400 sec.-ft.; Aug. 17 (3:30 p.m.) 5,050 sec.-ft.

## Salt Fork of Arkansas River at Tonkawa, Okla.

Location.— Wire-weight gage, lat. 36°40', long. 97°19', in NE¼ sec. 4, T. 25 N., R. 1 W., in Tonkawa, 4 miles downstream from Thompson Creek and 8 miles upstream from Chikaskia River. Zero of gage is 930.10 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.— 4,480 square miles.

Records available.— September 1903 to October 1905, January 1936 to September 1938.

Extremes.— Maximum discharge during year, 40,800 second-feet May 20 (gage height, 22.82 feet, from gage reading at flood crest); minimum observed, 33 second-feet Aug. 7 (gage height, 5.19 feet).

1903-5, 1936-38: Maximum discharge, that of May 20, 1938; minimum discharge observed, 0.5 second-foot Aug. 23, 1936 (gage height, 4.65 feet).

Remarks.— Records fair. Discharge for May 20-22, 24, 25, when stage-discharge relation was affected by backwater from Chikaskia River, computed from temporary rating curve based on one discharge measurement. Gage read twice daily, oftener on days of rapidly changing stage.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

5.1	26	6.3	300	9.0	2,200	18.0	17,600
5.3	43	6.6	440	10.0	3,190	20.0	24,200
5.5	67	7.0	660	11.0	4,450	21.0	29,200
5.7	105	7.5	980	12.0	5,950	22.0	35,100
6.0	190	8.0	1,350	14.0	9,350	23.0	42,100

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	81	67	53	52	41	345	214	1,270	13,300	720	368	169
2	81	63	53	54	44	290	160	840	11,900	600	280	160
3	74	62	47	60	40	260	122	1,050	5,310	440	218	260
4	76	64	51	57	43	225	103	3,190	2,390	348	197	260
5	64	67	53	59	38	197	94	10,300	1,670	322	142	322
6	62	64	54	54	36	166	82	10,700	1,270	300	62	260
7	57	67	53	54	39	148	67	7,690	1,270	260	36	204
8	54	67	52	54	40	120	81	3,560	1,510	280	88	211
9	225	63	54	58	47	125	81	2,020	3,670	280	97	322
10	260	59	50	62	46	178	101	1,760	4,310	368	68	300
11	300	63	51	51	43	440	465	1,510	2,790	242	82	225
12	390	64	62	45	45	260	980	1,270	1,930	225	77	184
13	322	60	50	52	41	225	690	1,050	1,670	194	90	720
14	390	55	52	45	39	142	570	840	1,120	178	77	540
15	570	47	64	45	43	120	570	660	840	163	99	660
16	515	48	70	51	47	103	465	1,120	690	175	2,590	1,060
17	570	62	61	50	64	74	390	1,640	720	214	11,700	690
18	490	64	81	60	92	81	322	3,430	750	204	5,790	415
19	260	52	69	47	108	74	300	10,400	720	211	3,190	280
20	110	39	63	45	101	70	225	37,300	840	490	1,430	218
21	99	40	62	50	92	70	204	18,700	1,050	720	840	175
22	88	43	66	53	103	67	197	9,480	780	515	660	157
23	84	41	62	50	97	59	214	10,800	515	345	515	133
24	103	42	62	57	81	53	260	29,600	540	280	415	122
25	115	40	64	38	82	57	184	12,800	415	300	390	110
26	105	44	63	38	204	48	280	6,750	415	260	322	97
27	88	47	59	39	197	52	242	3,430	660	197	280	81
28	84	46	62	50	300	74	3,010	2,490	2,290	345	260	81
29	81	50	59	46	-	105	4,760	2,490	1,350	780	225	74
30	70	47	54	48	-	780	2,220	2,200	1,050	1,190	211	70
31	64	-	53	43	-	368	-	1,510	-	600	197	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	5,932	570	54	191	11,770
November.....	1,617	67	39	53.9	3,210
December.....	1,839	81	47	59.3	3,650
Calendar year 1937.....	144,387	13,600	8	396	286,400
January.....	1,557	62	38	50.2	3,090
February.....	2,192	300	36	79.3	4,350
March.....	5,366	780	48	173	10,640
April.....	17,653	4,760	67	568	35,010
May.....	202,030	37,300	660	6,517	400,700
June.....	67,735	13,300	415	2,268	134,400
July.....	11,746	1,190	163	379	23,300
August.....	31,016	11,700	36	1,001	61,620
September.....	8,570	1,060	70	286	17,000
Water year 1937-38.....	357,253	37,300	36	979	708,600

## Chikaskia River near Blackwell, Okla.

Location.— Wire-weight gage above diversion dam of city of Blackwell, lat. 36°49', long. 97°17', on line between secs. 14 and 15, T. 27 N., R. 1 W., a quarter of a mile north of city limits of Blackwell and half a mile upstream from Bitter Creek. Prior to Apr. 29, 1938, wire-weight gage at site 2½ miles upstream.

Drainage area.— 1,690 square miles (1,680 square miles at former site).

Records available.— January 1936 to September 1938.

Extremes.— Maximum discharge during year, 26,800 second-feet May 20 (gage height, 24.05 feet, from gage reading at flood crest); minimum discharge observed, 18 second-feet Oct. 7 (gage height, 2.52 feet, former site and datum).  
1935-38: Maximum discharge, that of May 20, 1938; minimum discharge observed, 1 second-foot May 24, 25, 1937.  
Maximum stage known, 27.0 feet June 10, 1923, present site and datum.

Remarks.— Records fair. Gage read twice daily. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army. City of Blackwell diverts water for municipal supply above station.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Apr. 28 (Shifting-control method used Nov. 21 to Feb. 17)						Apr. 29 to Sept. 30					
2.5	15	3.6	111	6.0	545	0.3	18	1.5	370	9.0	5,560
2.7	24	4.0	172	8.0	995	.4	20	2.0	740	15.0	8,870
2.9	37	4.5	258	10.0	1,495	.5	28	3.0	1,540	18.0	11,200
3.2	64	5.0	350			.6	43	4.0	2,300	20.0	13,800
						.8	84	5.0	3,000	22.0	18,400
						1.0	134	7.0	4,380	24.0	26,500
						1.2	207				

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	28	24	39	46	28	198	*100	304	1,060	396	47	55
2	26	26	38	45	27	223	*88	221	1,020	217	37	51
3	29	26	43	46	29	180	71	179	740	154	31	129
4	26	27	46	44	32	164	62	780	505	131	28	147
5	23	29	39	42	48	140	60	5,210	422	112	26	89
6	20	25	44	47	44	111	58	8,060	346	93	26	226
7	17	24	*42	44	37	91	82	2,100	780	89	26	134
8	22	31	39	43	38	82	66	1,300	900	86	22	80
9	118	31	31	36	35	88	67	860	3,700	80	20	63
10	29	28	28	36	33	94	388	620	542	98	20	45
11	38	28	25	38	34	98	565	505	740	89	19	40
12	41	31	26	47	31	96	645	402	620	76	27	40
13	34	31	36	48	36	92	645	368	363	63	31	310
14	31	30	46	43	32	84	407	334	277	59	26	620
15	28	30	53	40	36	77	156	266	221	63	89	299
16	29	34	50	43	49	73	312	322	334	71	1,550	141
17	32	37	32	43	70	59	545	266	266	84	7,430	86
18	29	40	65	44	83	60	249	250	147	76	1,620	69
19	28	43	63	41	*84	57	180	6,930	175	78	1,020	55
20	104	39	63	39	*86	54	172	22,200	175	76	505	49
21	54	34	63	36	88	50	156	13,800	171	69	294	47
22	35	34	50	38	85	50	126	2,550	236	61	203	43
23	27	35	55	38	39	47	104	7,000	316	55	150	38
24	28	34	42	48	40	46	96	10,600	217	59	126	40
25	31	39	*46	39	50	47	93	5,210	175	55	123	37
26	28	45	50	21	56	42	91	1,540	167	51	84	34
27	25	49	42	20	118	42	164	1,340	402	43	76	34
28	28	48	42	21	140	104	1,400	900	470	207	76	34
29	29	45	46	24	-	76	1,620	1,380	334	112	67	32
30	27	42	49	24	-	156	505	1,740	363	69	141	28
31	27	-	50	23	-	125	-	900	-	55	82	-
Month							Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet	
October.....							1,070	118	17	34.5	2,120	
November.....							1,022	49	24	34.1	2,030	
December.....							1,383	65	25	44.6	2,740	
Calendar year .....												
January.....							1,186	48	20	38.2	2,360	
February.....							1,507	140	27	53.8	2,990	
March.....							2,905	223	42	93.7	5,760	
April.....							9,152	1,520	58	306	18,150	
May.....							98,427	22,200	179	3,175	195,200	
June.....							16,224	3,700	147	541	32,180	
July.....							3,027	396	43	97.6	6,000	
August.....							14,022	7,450	19	452	27,810	
September.....							3,086	620	28	103	6,140	
Water year 1937-38.....							153,020	22,200	17	419	303,600	

\*Discharge estimated on basis of precipitation records and hydrograph.

## Cimarron River at Oilton, Okla.

Location.- Wire-weight gage, lat. 36°06', long. 96°35', in SW¼ sec. 28, T. 19 N., R. 7 E., at highway bridge half a mile north of Oilton, 4½ miles upstream from Buckeye Creek, 6 miles downstream from Lagoon Creek, and 35 miles upstream from confluence with Arkansas River.

Records available.- July 1934 to September 1938.

Extremes.- Maximum discharge during year, 38,400 second-feet Mar. 28 (gage height, 12.85 feet, reading at crest of flood); minimum discharge observed, 58 second-feet Dec. 10; minimum gage height observed, 3.89 feet Feb. 14.  
1934-38: Maximum discharge observed, 72,300 second-feet June 21, 1935 (gage height, 16.8 feet), from rating curve extended above 35,000 second-feet; no flow Sept. 6, 13-16, 1936.

Remarks.- Records fair. Discharge for March 20, 21 interpolated. Gage read twice daily during low water, oftener during floods.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	131	61	67	70	154	2,720	2,940	2,070	2,620	850	288
2	131	122	62	67	70	149	1,620	2,010	7,840	1,690	600	247
3	128	115	62	67	68	135	1,110	1,320	4,600	1,110	665	347
4	120	118	62	67	67	135	735	1,160	3,390	850	460	307
5	118	118	62	66	68	126	600	1,110	2,300	665	390	307
6	115	111	61	66	67	149	460	6,450	1,760	570	288	288
7	109	109	61	64	65	207	412	3,850	4,090	435	240	540
8	106	111	59	66	66	182	460	3,620	2,720	632	188	512
9	265	115	59	65	64	170	485	3,390	1,840	632	160	1,370
10	200	170	58	64	66	157	540	3,390	2,890	512	176	2,100
11	307	122	60	65	64	154	512	2,400	7,400	600	167	1,370
12	390	111	62	66	64	137	460	1,690	7,400	632	188	1,110
13	307	96	66	67	64	135	512	1,210	5,840	390	230	1,060
14	435	103	66	67	64	140	975	810	4,090	347	182	1,110
15	512	98	69	66	154	147	975	665	2,510	269	327	4,600
16	1,060	101	68	66	412	126	1,060	665	1,690	288	4,710	4,340
17	1,160	83	67	65	735	122	975	665	1,260	269	10,300	1,830
18	810	75	68	65	772	122	890	772	1,110	240	6,200	665
19	540	66	68	66	244	117	772	1,620	1,020	207	3,850	485
20	435	62	68	66	182	113	1,160	12,600	1,020	194	2,720	368
21	368	67	68	66	347	110	1,020	9,930	975	188	1,620	288
22	288	64	68	67	247	107	810	6,950	5,610	220	1,060	307
23	247	64	68	78	197	104	632	10,200	5,110	188	810	247
24	220	64	67	79	160	101	540	25,600	3,390	165	1,370	194
25	207	64	66	79	137	96	665	27,400	3,390	165	932	173
26	191	63	64	64	122	108	540	9,280	2,940	176	700	167
27	179	62	64	71	135	412	735	5,180	1,840	244	600	124
28	165	62	64	71	147	11,800	1,090	3,850	1,690	1,470	632	118
29	154	62	64	74	-	9,460	4,520	2,830	2,400	3,390	435	113
30	149	61	68	67	-	3,160	3,850	3,850	2,100	1,540	368	111
31	140	-	68	66	-	4,600	-	2,300	-	932	307	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						9,698	1,160	106	313	19,240		
November.....						2,770	170	61	92.3	5,490		
December.....						1,998	69	58	64.5	3,960		
Calendar year 1937.....						183,059	16,300	14	502	363,100		
January.....						2,100	79	64	67.7	4,170		
February.....						4,918	772	64	176	9,750		
March.....						32,935	11,800	96	1,062	65,330		
April.....						31,835	4,520	412	1,061	63,140		
May.....						159,707	27,400	665	5,152	316,800		
June.....						96,485	7,840	975	3,216	191,400		
July.....						21,830	3,390	165	704	43,300		
August.....						41,725	10,500	180	1,346	82,760		
September.....						28,086	4,600	111	836	49,760		
Water year 1937-38.....						431,087	27,400	58	1,181	855,100		

## Council Creek near Stillwater, Okla.

Location.- Water-stage recorder and concrete control, lat. 36°07', long. 96°52', in SE 1/4 sec. 15, T. 19 N., R. 4 E., 10 miles east of Stillwater. Zero of gage is 838.28 feet above mean sea level (general adjustment of 1912).

Drainage area.- 30.2 square miles.

Records available.- March 1934 to September 1938.

Extremes.- Maximum discharge during year, 3,740 second-feet Mar. 28 (gage height, 13.74 feet) from rating curve extended above 2,700 second-feet by logarithmic method; no flow during several periods.  
1934-38: Maximum discharge, that of Mar. 28, 1938; no flow during several periods of each year.

Remarks.- Records good.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0		0	0.01	0.02	0.07	3.9	1.3	0.78	0.58	0.01	0
2	0		0	.01	.02	.07	2.7	1.3	.58	.22	0	0
3	0		0	.02	.02	.07	2.3	1.6	42	.13	0	0
4	0		0	.04	.02	.07	2.3	17	91	.07	0	0
5	0		0	.04	.02	.07	1.9	1.6	1.6	.04	0	0
6	0		0	.04	.02	.02	1.9	28	5.8	.01	0	0
7	0		0	.02	.01	.04	2.7	13	285	0	0	0
8	0		0	.01	.02	.07	3.9	1.6	3.9	3.0	0	0
9	8.5		0	.04	.04	.13	28	1.3	3.9	.22	0	0
10	.04		0	.07	.04	.07	25	1.3	16	.02	0	0
11	0		0	.07	.04	.07	9.8	1.3	436	0	0	0
12	0		0	.07	.04	.07	3.1	1.3	7.0	0	0	0
13	0		.05	.04	.04	.07	1.6	1.3	3.1	0	0	2.0
14	0		1.0	.07	.07	.13	1.3	1.0	2.8	0	0	.31
15	0		1.0	.07	.58	.13	1.9	1.0	10	0	56	0
16	0		.58	.07	1.3	.13	2.3	2.3	7.7	0	496	0
17	3.5		.22	.04	15	.38	1.9	1.6	3.1	0	3.5	0
18	.22		.13	.01	1.8	.58	1.6	1.0	1.6	0	1.6	0
19	.01		.04	.02	.22	.58	1.6	13	1.3	0	.78	0
20	0		.02	.04	.22	1.0	3.9	1.0	1.0	0	.58	0
21	0		.01	.04	.22	.78	8.4	4.4	1.0	0	.13	0
22	0		.02	.04	.22	.78	2.8	97	1.0	0	.04	0
23	0		.02	.22	.58	.78	1.3	49	1.0	0	.01	0
24	0		.02	.22	.07	1.0	1.3	2.3	.78	0	0	0
25	0		.02	.13	.07	.78	1.0	1.0	1.6	0	0	0
26	0		.02	.04	.07	7.7	1.0	1.0	1.3	0	0	0
27	0		.04	.04	.07	6.0	1.6	1.0	.78	0	0	0
28	0		.04	.07	.07	1,200	1.3	.78	.58	85	0	0
29	0		.04	.04	-	26	1.3	101	.78	56	0	0
30	0		.04	.04	-	210	1.3	6.4	.78	.78	0	0
31	0		.04	.01	-	9.3	-	1.3	-	.13	0	-
Month				Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off			
									Inches	Acre-feet		
October.....				12.27	8.5	0	0.396	0.013	0.01	24		
November.....				0	0	0	0	0	0	0		
December.....				3.35	1.0	0	.108	.0036	.004	6.6		
Calendar year 1937.....				1,058.35	338	0	2.90	.096	1.29	2,100		
January.....				1.69	.22	.01	.055	.0018	.002	3.4		
February.....				20.91	15	.01	.747	.025	.05	41		
March.....				1,466.74	1,200	.02	47.3	1.57	1.81	2,910		
April.....				124.90	28	1.0	4.16	.138	.15	248		
May.....				357.98	101	.78	11.5	.382	.44	710		
June.....				933.76	436	.58	31.1	1.03	1.15	1,850		
July.....				146.20	85	0	4.72	.156	.18	290		
August.....				558.65	496	0	18.0	.596	.69	1,110		
September.....				2.31	2.0	0	.077	.0025	.003	4.6		
Water year 1937-38.....				3,628.76	1,200	0	9.94	.329	4.47	7,200		

Peak discharge.- Mar. 28 (2 p.m.) 3,740 sec.-ft.; June 11 (5 a.m.) 1,940 sec.-ft.; Aug. 16 (3 a.m.) 1,980 sec.-ft.

## Verdigris River at Independence, Kans.

Location.- Water-stage recorder, lat.  $37^{\circ}13'$ , long.  $95^{\circ}41'$ , in NE $\frac{1}{4}$  sec. 32, T. 32 S., R. 16 E., at bridge on U. S. Highway 160, 2 miles east of Independence and  $3\frac{1}{2}$  miles below Elk River.

Drainage area.- 2,952 square miles.

Records available.- October 1930 to September 1938. April to September 1904 (scattered gage heights) and November 1921 to September 1930 at site three-quarters of a mile up-stream.

Average discharge.- 17 years (1921-38), 1,484 second-feet.

Extremes.- Maximum discharge during year, 32,300 second-feet May 21, 26 (gage height, 38.44 feet); minimum daily discharge, 2 second-feet Oct. 22, 26-28.

1904, 1921-38: Maximum discharge 124,000 second-feet (estimated), Oct. 3, 1927 (gage height, 46.04 feet, former site); no flow during periods in 1932, 1934, and 1938.

Remarks.- Records good except those for period of faulty intake action, June 20 to July 15, and those for periods of shifting control, Oct. 8 to Feb. 17, Aug. 17 to Sept. 30, all of which are fair.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	30	4	10	28	12	263	2,750	250	8,760	1,100	293	30
2	26	3	12	28	8	417	1,150	238	19,600	720	219	25
3	24	3	12	27	7	566	805	208	17,500	520	161	23
4	22	3	10	24	8	460	664	376	6,580	450	136	24
5	25	4	8	21	8	417	566	2,240	2,410	400	128	73
6	22	6	11	21	6	304	504	2,580	1,790	300	114	28
7	22	6	12	19	5	236	474	3,550	7,350	250	100	88
8	11	6	10	17	5	208	598	1,640	6,230	210	83	98
9	16	5	8	19	5	192	1,310	1,110	3,650	200	77	67
10	12	4	9	19	5	171	5,300	823	6,090	180	74	42
11	10	4	10	20	5	157	8,750	614	8,480	167	66	31
12	8	4	8	18	4	199	6,670	630	10,200	161	65	31
13	7	4	8	19	4	278	3,560	4,820	7,470	143	65	390
14	6	4	9	18	4	231	1,790	8,680	2,430	126	65	314
15	6	5	11	16	6	614	1,240	6,430	1,460	108	92	417
16	6	9	14	15	8	376	1,890	1,410	11,200	128	1,320	304
17	11	8	18	14	21	278	1,690	1,190	17,700	143	283	217
18	4	9	28	21	256	343	1,500	933	5,180	125	1,150	116
19	3	10	23	21	201	317	1,030	6,810	2,090	116	504	77
20	3	8	24	27	173	276	933	22,300	1,600	113	266	58
21	3	8	23	22	132	222	1,150	30,600	1,400	128	167	51
22	3	8	23	19	111	184	841	28,200	1,200	139	114	41
23	4	8	29	21	128	270	712	25,600	1,000	126	92	36
24	3	8	26	31	180	197	566	28,200	900	120	73	33
25	3	8	21	22	210	151	489	31,600	840	106	58	30
26	2	8	27	19	283	128	431	31,100	805	103	49	27
27	2	10	22	19	286	108	403	24,700	1,400	100	42	24
28	2	16	22	19	335	2,970	376	17,100	1,500	2,480	40	30
29	3	16	29	21	-	10,500	351	13,800	1,250	2,120	35	25
30	3	12	32	77	-	5,160	296	8,120	1,200	2,000	29	22
31	4	-	32	27	-	8,900	-	5,000	-	534	35	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						305	30	2	9.8	605		
November.....						211	18	3	7.0	419		
December.....						541	32	3	17.5	1,070		
Calendar year 1937.....						362,046	23,200	2	992	718,100		
January.....						709	77	14	22.9	1,410		
February.....						2,416	335	4	86.3	4,790		
March.....						36,093	10,500	108	1,164	71,590		
April.....						48,773	8,750	296	1,626	96,740		
May.....						310,852	31,600	208	10,030	616,600		
June.....						159,055	19,600	805	5,302	315,500		
July.....						13,616	2,480	100	439	21,010		
August.....						5,991	1,320	29	193	11,880		
September.....						2,772	417	22	92.4	5,500		
Water year 1937-38.....						581,344	31,600	2	1,593	1,153,000		

Peak discharge.- May 21 (7:30 p.m.) 32,300 sec.-ft.; May 26 (2 a.m.) 32,300 sec.-ft.; June 2 (6 p.m.) 21,400 sec.-ft.; June 17 (2 a.m.) 20,600 sec.-ft.

## Verdigris River near Claremore, Okla.

Location.- Wire-weight gage, lat.  $36^{\circ}18'30''$ , long.  $95^{\circ}41'50''$ , on line between secs. 10 and 15, T. 21 N., R. 15 E.,  $2\frac{1}{2}$  miles downstream from Caney River,  $4\frac{1}{2}$  miles west of Claremore, and 12 miles upstream from Bird Creek.

Drainage area.- 6,520 square miles.

Records available.- December 1935 to September 1938.

Extremes.- 1935-36: Maximum discharge observed during period, 29,500 second-feet Sept. 28 (gage height, 33.95 feet); no flow at times.  
 1936-37: Maximum discharge during year, 38,700 second-feet Oct. 11 (gage height, 41.20 feet, reading at flood crest); minimum discharge observed, 13 second-feet July 10 (gage height, 3.60 feet).  
 1937-38: Maximum discharge during year, 39,900 second-feet May 29 (gage height, 42.14 feet, reading at flood crest); minimum discharge observed 13 second feet Nov. 5, 7, 9, 19 (gage height, 3.60 feet).  
 Maximum stage known, 46.2 feet in June 1935.

Remarks.- Records good except those for periods of ice effect, Dec. 26, 1935 to Jan. 1, 1936, Jan. 27 to Feb. 23, 1936 and for periods of doubtful or missing gage-height record, Mar. 12 to Apr. 27, Sept. 16-21, 1936, which were estimated on basis of records for station at Independence, Kansas and are poor. Gage read twice daily.

Rating table, 1935-38 (gage height, in feet, and discharge, in second-feet)

3.2	0	4.2	124	6.0	1,290	20.0	14,100
3.4	2	4.4	195	8.0	3,270	25.0	19,200
3.5	6	4.7	333	10.0	5,050	30.0	24,700
3.6	13	5.0	507	12.0	6,800	35.0	30,700
3.8	36	5.5	862	15.0	9,500	40.0	37,100
4.0	72						

Discharge, in second-feet, 1935-38  
1935-36

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			-	390	190	748	76	416	476	107	1	0
2			-	416	185	540	70	6,550	540	7,790	0	0
3			-	606	176	476	65	12,700	355	5,730	0	0
4			-	902	170	376	65	4,110	229	1,870	0	0
5		1,670	2,670	165	344	65	1,290	246	942	0	0	0
6			5,640	2,070	160	278	65	942	5,300	308	0	0
7			9,050	1,470	155	274	65	445	19,600	184	0	0
8			8,420	1,290	150	237	70	416	14,900	161	0	0
9			6,080	1,110	145	229	80	3,990	9,320	127	0	0
10			3,070	1,020	140	203	80	8,330	2,870	102	0	0
11			2,570	862	135	208	80	4,370	902	36	0	0
12			1,970	785	135	215	80	4,370	507	28	0	0
13			1,670	785	130	220	80	3,170	376	36	0	0
14			1,470	785	130	220	80	1,770	229	33	0	0
15			1,470	785	125	220	80	1,570	229	23	0	0
16			1,200	748	120	210	75	862	154	18	0	200
17			1,110	640	120	200	70	840	154	6	0	1,500
18			953	572	115	190	65	540	107	6	0	6,300
19			824	506	115	180	60	445	104	10	0	10,000
20			824	572	115	170	55	323	66	2	0	9,000
21			675	507	110	160	60	445	56	1	0	6,500
22			711	445	110	145	62	572	79	1	0	3,470
23			640	349	110	135	55	711	54	5	0	1,870
24			606	308	107	125	50	507	44	3	0	1,870
25			507	283	180	115	45	507	39	0	0	983
26			470	250	308	110	45	902	26	4	0	1,360
27			440	245	748	100	45	1,200	18	1	0	15,900
28			420	230	1,200	95	184	2,870	13	0	0	26,600
29			400	220	862	90	711	1,470	13	0	0	23,000
30			380	210	-	85	1,200	862	15	0	0	7,340
31			370	200	-	80	-	540	-	1	0	-

## ARKANSAS RIVER BASIN

Discharge, in second-feet, of Verdigris River near Claremore, Okla., 1935-38--Continued  
1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2,070	260	118	1,470	8,780	711	1,380	711	1,670	165	11,100	56
2	1,290	1,000	131	1,110	4,900	640	1,380	711	1,020	131	5,300	56
3	711	17,000	140	1,380	4,710	606	1,290	445	862	96	1,870	49
4	507	22,900	124	1,290	2,870	640	1,470	387	6,080	91	572	36
5	387	11,000	195	1,020	1,770	640	3,170	344	7,970	118	572	229
6	387	2,770	195	862	2,370	606	8,510	387	9,950	91	507	507
7	6,870	1,290	308	824	2,770	572	9,410	785	8,240	72	445	216
8	*25,400	902	785	785	2,870	540	5,640	862	3,200	72	303	77
9	*35,100	640	711	785	4,200	507	8,420	572	4,400	49	242	2,230
10	37,400	606	540	507	4,110	445	9,140	445	16,600	23	195	12,200
11	38,700	572	445	507	2,970	445	4,280	445	25,300	445	165	9,590
12	37,800	507	360	476	2,570	387	2,470	476	29,500	640	140	2,870
13	30,100	387	283	416	1,870	540	1,370	3,170	28,500	283	124	1,200
14	21,600	416	283	5,740	1,570	711	1,770	2,270	13,300	283	102	711
15	10,600	353	274	16,000	1,290	748	3,660	2,070	4,340	176	96	507
16	1,770	308	237	9,320	1,200	2,670	2,570	1,670	17,100	124	77	387
17	1,200	283	203	4,280	1,020	1,870	1,770	942	21,700	3,480	49	308
18	942	260	216	5,390	1,020	1,300	1,470	676	10,400	5,900	84	507
19	785	229	212	3,070	902	1,200	1,290	572	3,070	10,800	56	308
20	676	195	233	6,440	785	1,470	1,670	476	1,870	19,000	102	785
21	606	242	203	9,410	748	1,570	1,970	308	1,380	25,100	353	323
22	445	323	242	5,730	1,470	1,470	2,470	229	1,020	25,700	640	229
23	387	187	216	3,660	1,670	1,200	2,170	283	862	13,800	445	150
24	445	157	212	3,470	1,380	2,470	1,670	4,040	711	2,990	274	118
25	785	150	203	2,770	1,110	7,340	2,470	6,890	507	1,380	131	77
26	540	131	203	2,170	1,020	9,410	1,870	4,280	507	1,020	118	96
27	862	110	355	1,670	862	5,900	1,110	4,540	416	824	91	72
28	640	176	785	1,570	785	2,870	711	6,980	360	572	72	64
29	507	140	1,960	2,170	-	1,870	640	6,080	260	445	91	68
30	387	110	3,470	10,600	-	1,570	445	2,570	203	1,050	96	52
31	445	-	1,380	20,500	-	1,470	-	3,660	-	7,070	84	-

\*Stage-discharge relation affected by backwater from Bird Creek; discharge determined from estimated gage-height graph.

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	49	23	35	56	1,200	983	*31,000	711	19,800	640	1,470	68
2	36	17	31	52	711	942	*26,700	640	12,300	748	711	60
3	33	16	35	54	445	824	17,600	540	16,700	640	445	52
4	30	15	35	52	274	785	5,290	507	22,700	872	323	49
5	33	15	33	52	229	983	2,170	676	20,400	640	203	58
6	33	17	36	54	195	862	1,770	2,710	9,050	476	157	60
7	33	15	36	52	176	748	1,670	10,900	4,280	387	160	50
8	23	15	36	52	161	640	2,470	20,400	7,790	333	118	42
9	39	14	36	52	144	572	2,870	12,600	14,700	260	113	36
10	74	18	41	52	137	572	6,710	4,370	10,000	246	96	50
11	52	19	42	52	121	507	12,200	2,270	7,340	274	91	64
12	36	23	42	52	118	445	14,200	1,670	13,800	246	84	91
13	23	24	42	54	107	416	13,500	1,470	18,900	203	72	99
14	26	20	42	52	96	387	7,700	3,170	18,300	212	56	94
15	23	18	44	47	308	2,920	3,750	7,610	14,000	212	64	1,030
16	23	15	49	42	902	4,020	2,670	8,600	6,620	203	216	1,870
17	52	15	49	36	3,170	2,370	4,200	4,370	9,320	150	13,400	902
18	54	16	52	36	7,160	1,380	4,880	3,840	20,600	118	9,050	606
19	62	15	56	35	4,800	942	3,070	2,770	21,800	124	2,470	195
20	84	19	56	36	2,470	748	3,170	4,220	9,800	176	1,470	50
21	56	36	52	39	1,570	676	3,170	16,000	2,670	187	862	199
22	49	38	72	44	1,200	785	2,370	24,600	1,970	124	572	144
23	36	36	77	50	1,200	640	2,070	30,200	1,670	144	387	110
24	33	28	72	246	1,470	540	1,670	34,100	1,380	150	274	96
25	26	33	64	265	1,470	445	1,380	36,200	1,470	124	220	72
26	21	28	58	333	1,380	606	1,200	37,400	1,670	127	157	68
27	26	26	60	246	1,110	3,070	983	38,400	1,570	127	131	52
28	22	58	212	212	1,070	4,460	902	39,500	1,470	1,070	84	44
29	27	35	56	216	-	*19,000	824	39,900	1,380	1,380	72	38
30	27	33	52	220	-	*26,500	748	38,800	1,380	3,370	77	36
31	28	-	54	984	-	*30,000	-	32,400	-	2,570	77	-

\*Stage-discharge relation affected by backwater from Bird Creek; discharge determined from hydrograph based on two discharge measurements and discharges for adjacent days.



Discharge, in second-feet, of Verdigris River near Claremore, Okla., 1935-38--Continued

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October	-	-	-	-	-
November	-	-	-	-	-
December 5-31, 1935	53,759	9,050	370	1,991	106,600
Calendar year					
January 1936	22,341	2,670	200	721	44,310
February	6,610	1,200	107	228	13,110
March	6,978	748	80	225	13,840
April	3,852	1,200	45	129	7,700
May	67,615	12,700	323	2,188	134,500
June	57,251	19,800	13	1,908	113,600
July	17,534	7,790	0	566	34,780
August	1	1	0	.03	2
September	115,893	26,600	0	3,863	229,900
The period					698,300
October 1936	256,344	38,700	387	8,269	508,500
November	63,584	22,900	110	2,119	126,100
December	15,222	3,470	118	491	30,190
Calendar year 1936	633,455	38,700	0	1,731	1,257,000
January 1937	125,652	20,500	416	4,053	249,200
February	63,292	8,780	748	2,260	125,500
March	54,388	9,410	387	1,754	107,900
April	88,456	9,410	445	2,949	175,400
May	58,276	6,980	229	1,880	115,600
June	221,598	29,500	203	7,387	439,600
July	121,990	25,700	23	3,935	242,000
August	24,276	11,100	49	783	48,150
September	33,878	12,200	36	1,129	67,200
Water year 1936-37	1,126,956	38,700	23	3,088	2,235,000
October 1937	1,169	84	21	37.7	2,320
November	678	38	14	22.6	1,340
December	1,503	77	31	48.5	2,980
Calendar year 1937	795,156	29,500	14	2,179	1,577,000
January 1938	3,825	984	35	123	7,590
February	33,394	7,160	96	1,193	66,240
March	108,568	30,000	397	3,502	215,300
April	182,907	31,000	748	6,097	352,800
May	461,544	39,900	507	14,890	915,600
June	294,830	22,700	1,380	9,828	584,800
July	16,133	3,370	118	520	32,000
August	33,672	13,400	56	1,086	66,790
September	6,395	1,870	36	213	12,680
Water year 1937-38	1,144,618	39,900	14	3,136	2,270,000

## Caney River near Collinsville, Okla.

Location.— Wire-weight gage, lat. 36°23'40", long. 95°48'40", in SW $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 10, T. 22 N., R. 14 E., five-eighths of a mile upstream from Horsepen Creek, 2 $\frac{1}{2}$  miles northeast of Collinsville, 4 $\frac{1}{2}$  miles downstream from Rabb Creek, and 15 miles upstream from confluence with Verdigris River. Zero of gage is 565.02 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.— 2,090 square miles.

Records available.— December 1935 to September 1938.

Extremes.— Maximum discharge during year, 13,100 second-feet Apr. 2 (gage height, 31.27 feet, from floodmarks); maximum gage height observed, 31.33 feet May 28 (backwater from Verdigris River); minimum discharge, 5 second-feet Nov. 15 (gage height, 6.38 feet).

1935-38: Maximum discharge observed, 18,000 second-feet Oct. 13, 1936 (gage height, 32.05 feet), from rating curve extended above 13,000 second-feet; no flow Aug. 9 to Sept. 15, 1936.

Maximum stage known, about 39 feet at times in 1926 and 1927.

Remarks.— Records fair. Discharge for periods of backwater from Verdigris River, May 25 to June 1, June 4, 5, 17-19, computed on basis of three discharge measurements, gage heights, and records for Verdigris River near Claremore. Gage read twice daily. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

6.4	6	14.0	2,430
6.6	32	18.0	3,930
7.0	106	22.0	5,830
7.5	221	26.0	6,180
8.0	361	29.0	10,600
9.0	682	31.0	12,700
10.0	1,030		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	10	8	14	14	302	375	12,700	184	1,280	184	110	8
2	10	7	14	14	221	302	12,200	172	2,010	180	63	6
3	8	6	14	14	110	260	5,980	149	4,290	136	47	11
4	8	6	18	14	82	221	1,170	145	2,760	134	35	11
5	8	6	14	14	63	208	785	331	2,800	108	29	10
6	7	6	13	14	51	172	648	2,010	2,990	90	23	7
7	6	6	12	14	53	160	920	4,020	1,450	85	20	7
8	6	6	11	14	47	110	1,380	6,160	3,200	73	17	7
9	20	6	13	14	44	119	1,240	5,080	5,130	69	17	6
10	26	13	13	14	35	114	2,640	1,700	2,500	65	16	6
11	16	9	13	13	30	119	4,240	682	1,700	56	11	6
12	13	8	13	13	32	114	4,600	517	3,770	56	9	6
13	8	6	13	12	29	123	3,410	485	6,540	53	9	6
14	8	6	14	12	26	102	1,620	1,140	8,050	49	8	6
15	8	5	14	12	78	1,160	960	682	6,930	46	8	14
16	6	8	17	12	234	890	1,080	453	2,120	42	992	716
17	10	6	21	12	549	750	2,460	890	2,000	440	4,600	247
18	14	6	26	12	1,280	391	2,220	1,900	2,640	39	3,040	98
19	13	12	24	12	1,100	247	1,100	1,100	1,720	35	601	56
20	21	17	24	12	995	172	1,340	1,730	995	32	196	37
21	20	14	24	13	517	184	960	5,230	615	32	119	26
22	17	12	27	14	453	247	716	7,660	453	53	75	21
23	14	12	35	27	391	172	549	9,520	376	75	53	14
24	13	12	30	53	422	123	485	10,600	315	39	42	12
25	13	12	29	37	549	114	375	11,300	391	29	30	10
26	12	12	26	49	517	274	331	11,100	361	27	26	6
27	12	14	26	51	422	1,200	288	11,000	302	29	20	8
28	12	16	23	71	391	3,640	260	10,300	391	125	20	8
29	11	16	21	65	-	9,120	234	5,900	274	196	17	7
30	10	16	20	75	-	10,200	208	2,600	221	234	14	7
31	6	-	18	136	-	11,500	-	1,630	-	247	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	368	26	6	11.9	730
November.....	289	17	5	9.6	573
December.....	594	35	11	19.2	1,180
Calendar year 1937.....	177,767	8,570	1	387	352,600
January.....	853	136	12	27.5	1,690
February.....	9,023	1,580	25	322	17,900
March.....	42,884	11,500	102	1,383	65,060
April.....	66,880	12,700	208	2,229	132,700
May.....	116,370	11,300	145	3,754	230,800
June.....	68,475	8,050	221	2,282	135,800
July.....	2,639	247	27	85.1	5,230
August.....	10,279	4,600	8	332	20,390
September.....	1,390	716	6	46.3	2,780
Water year 1937-38.....	320,044	12,700	5	877	634,800

## Bird Creek near Owasso, Okla.

Location.— Wire-weight, lat. 36°14'50", long. 95°52'00", on line between NE $\frac{1}{4}$  sec. 1, T. 20 N., R. 13 E., and NW $\frac{1}{4}$  sec. 6, T. 20 N., R. 14 E., half a mile upstream from Ranch Creek,  $\frac{1}{2}$  miles upstream from Mingo Creek,  $\frac{1}{2}$  miles southwest of Owasso, and 14 miles upstream from confluence with Verdigris River. Zero of gage is 559.03 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.— 1,030 square miles.

Records available.— December 1935 to September 1938.

Extremes.— Maximum discharge during year, 19,700 second-feet Mar. 29, from hydrograph based on current-meter measurement near flood crest and gage heights; maximum gage height, 26.2 feet Mar. 30 (backwater from Verdigris River), from stage graph based on gage readings; minimum discharge observed, 7 second-feet July 24–27, Aug. 11–15, Sept. 7; minimum gage height observed, 5.21 feet Aug. 12–15, Sept. 7.

1935–38: Maximum discharge, that of Mar. 29, 1938; maximum gage height, that of Mar. 30, 1938; minimum discharge observed, 2 second-feet July 31, Aug. 1, 12–16, 1936, and July 5, 1937 (gage height, 5.13 feet).

Maximum stage known, 26.3 feet Apr. 15, 1929 (stage reached by flood of June 1935, erroneously published in Water-Supply Paper 827 as 29.2 feet, has been corrected to 26.2 feet).

Remarks.— Records fair except those for periods of backwater from Verdigris River, Mar. 29 to Apr. 1, May 23 to June 1 (computed on basis of six discharge measurements, observed gage heights, rainfall records, and records for Verdigris River near Claremore), and those below 10 second-feet, which are poor. Gage read twice daily.

Rating table, water year 1937–38 (gage height, in feet, and discharge, in second-feet)

5.2	6	6.5	325	10.0	3,600
5.4	19	7.0	625	12.0	5,300
5.6	39	7.5	1,000	15.0	8,000
5.8	71	8.0	1,470	20.0	13,200
6.0	122	9.0	2,610	25.0	20,400

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July.	Aug.	Sept.
1	22	13	25	20	165	108	2,120	71	450	27	52	14
2	21	13	23	20	82	97	765	67	465	23	43	10
3	21	13	24	19	58	89	435	64	252	60	34	15
4	20	12	25	20	46	78	320	64	275	16	29	14
5	20	11	24	20	40	66	239	78	660	15	22	12
6	18	11	24	20	71	58	226	114	214	18	18	9
7	17	12	24	20	62	55	580	3,350	1,690	16	13	9
8	16	13	24	19	55	52	1,470	3,080	3,180	30	11	11
9	96	13	24	19	52	50	1,140	625	580	64	10	11
10	122	18	24	19	42	55	1,470	275	1,180	30	8	10
11	116	46	23	19	31	55	1,270	176	3,330	23	7	9
12	97	35	23	18	30	62	840	141	2,610	18	7	8
13	52	28	23	18	27	67	465	116	800	15	7	15
14	38	24	26	18	26	136	285	135	320	15	7	26
15	34	24	31	18	603	2,350	230	105	680	15	14	15
16	36	31	36	18	1,640	1,100	802	97	730	15	4,510	18
17	100	32	32	18	3,420	295	1,580	100	1,140	15	9,340	16
18	82	34	32	18	3,770	158	369	138	408	15	664	16
19	69	34	31	18	1,120	114	214	206	198	15	250	11
20	60	30	31	18	560	85	2,960	202	125	13	116	11
21	53	26	30	23	380	69	1,380	176	85	11	76	11
22	37	23	27	73	305	66	495	218	73	10	39	13
23	29	23	26	186	300	62	285	1,320	53	10	32	12
24	23	23	26	141	270	58	194	2,420	35	7	30	12
25	23	23	24	97	218	56	161	550	53	7	27	16
26	19	23	23	71	190	291	128	250	148	7	23	18
27	16	24	23	55	151	4,230	116	230	89	7	19	18
28	16	24	23	46	125	6,260	102	550	42	125	13	18
29	14	24	23	45	-	18,400	89	600	35	730	13	18
30	13	23	24	158	-	17,000	60	240	27	239	12	17
31	13	-	21	295	-	10,200	-	120	-	87	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	1,302	122	13	42.0	2,580
November.....	683	46	11	22.8	1,350
December.....	795	36	21	25.6	1,500
Calendar year 1937.....	64,267.5	5,000	2	176	127,400
January.....	1,567	295	18	50.5	5,110
February.....	13,839	3,770	26	484	27,450
March.....	61,821	18,400	50	1,994	122,600
April.....	20,610	2,960	80	687	40,880
May.....	15,858	3,330	64	512	31,450
June.....	20,007	3,330	27	667	39,680
July.....	1,694	730	7	54.6	3,360
August.....	15,438	9,340	7	498	30,620
September.....	411	26	8	13.7	815
Water year 1937–38.....	154,025	18,400	7	422	305,500

## ARKANSAS RIVER BASIN

Neosho River near Iola, Kans.

Location.- Water-stage recorder, lat. 37°53', long. 95°26', in NE¼ sec. 9, T. 25 S., R. 18 E., one mile below Elm Creek and 3 miles southwest of Iola.

Drainage area.- 3,795 square miles.

Records available.- October 1917 to September 1938. August 1895 to November 1903 at site 4 miles upstream at city water works, July 1904 to September 1938 (gage heights only) in reports of U. S. Weather Bureau.

Average discharge.- 21 years (1917-38), 1,180 second-feet.

Extremes.- Maximum discharge during year, 40,200 second-feet May 24 (gage height, 28.26 feet); minimum, 8 second-feet Nov. 2.

1895-1903. 1917-38: Maximum gage height, 33.2 feet Sept. 13, 1926 (discharge not determined); no flow for several days in September and October 1897 Aug. 19 to Sept. 15, Sept. 21, 22, 1936. Bank-full stage, 27 feet.

Remarks.- Records good.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Oct. 1 to Mar. 1)

2.9	60	3.7	355	6.0	1,920	18.0	15,700
3.0	89	4.0	505	8.0	3,720	22.0	21,300
3.2	149	4.5	765	10.0	5,700	26.0	29,300
3.4	221	5.0	1,070	14.0	10,400	28.0	38,600

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	13	45	38	12	855	738	169	20,900	3,540	520	176
2	50	17	38	28	23	855	430	176	21,700	2,140	390	176
3	45	30	38	28	24	738	314	183	9,190	1,560	435	191
4	40	25	32	40	25	480	254	288	3,540	1,180	370	490
5	45	30	25	38	21	288	213	2,450	2,450	975	283	688
6	25	25	28	45	21	217	437	5,870	2,450	655	243	425
7	25	24	32	30	20	149	1,470	11,200	10,100	738	213	1,410
8	45	38	19	28	23	121	738	12,000	3,580	704	194	1,140
9	48	25	23	28	21	137	699	8,600	3,090	666	183	795
10	24	19	20	24	18	292	3,250	2,580	2,450	650	163	505
11	35	18	19	28	28	465	6,030	1,340	6,690	738	156	346
12	24	12	35	32	19	337	3,090	6,180	11,300	694	149	274
13	24	15	25	35	19	252	2,100	16,400	10,000	685	140	390
14	23	24	25	24	17	210	1,380	18,200	15,400	485	130	337
15	21	20	56	21	18	310	1,140	14,400	11,100	430	143	274
16	21	21	48	25	18	301	1,470	3,900	12,500	430	146	445
17	28	20	35	23	24	247	1,380	1,780	9,200	445	1,510	328
18	24	21	38	25	40	243	855	1,340	7,400	540	4,700	243
19	32	23	23	25	53	180	655	9,240	7,400	475	5,500	210
20	28	40	25	42	61	152	738	20,000	3,580	500	3,540	191
21	32	25	25	30	64	112	590	22,700	2,100	500	1,140	176
22	28	21	30	19	42	112	440	24,500	1,560	425	635	166
23	23	30	25	23	25	115	337	30,400	1,260	380	490	156
24	20	32	28	35	24	98	274	39,100	1,140	337	405	152
25	19	25	32	38	35	89	252	37,600	1,220	470	346	146
26	17	45	42	35	42	74	230	32,500	2,140	500	308	145
27	24	38	30	12	155	74	210	27,900	5,500	370	261	137
28	24	32	50	35	349	552	194	24,500	7,760	324	239	124
29	24	32	32	25	-	4,800	173	24,200	7,760	699	221	134
30	24	40	38	17	-	3,180	169	23,600	6,690	825	194	130
31	23	-	40	19	-	2,060	-	19,200	-	650	187	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	907	50	17	29.3	1,800
November.....	790	45	12	26.0	1,550
December.....	1,001	56	19	32.3	1,990
Calendar year 1937.....	307,784	11,300	12	843	610,500
January.....	895	45	12	28.9	1,780
February.....	1,239	349	12	44.2	2,460
March.....	18,095	4,800	74	584	35,890
April.....	30,230	6,030	169	1,008	59,960
May.....	442,505	39,100	169	14,274	877,700
June.....	209,480	21,700	1,140	6,983	415,500
July.....	23,810	3,540	324	768	47,230
August.....	23,532	5,500	150	759	46,580
September.....	10,491	1,410	124	350	20,810
Water year 1937-38.....	762,966	39,100	12	2,090	1,513,000

Peak discharge.- Apr. 11 (8 a.m.) 6,800 sec.-ft.; May 24 (7 a.m.) 40,200 sec.-ft.; May 30 (12:05 a.m.) 27,900 sec.-ft.; June 7 (1 p.m.) 11,200 sec.-ft.; June 19 (5 a.m.) 8,120 sec.-ft.; June 29 (12:30 a.m.) 8,120 sec.-ft.

## Neosho River near Parsons, Kans.

Location.- Water-stage recorder, lat. 37°20', long. 95°08', in NE¼ sec. 21, T. 31 S., R. 21 E., at bridge on U. S. Highway 160, half a mile upstream from mouth of Hickory Creek, three-quarters of a mile upstream from St. Louis-San Francisco Railway bridge, and 8½ miles east of Parsons.

Drainage area.- 4,828 square miles.

Records available.- June 1929 to September 1938. October 1921 to June 1929 at site half a mile downstream. Records include flow of Hickory Creek.

Average discharge.- 17 years, 2,052 second-feet.

Extremes.- Maximum discharge during year, 33,400 second-feet May 29, 31, (gage height, 28.20 feet); minimum, 19 second-feet Nov. 9-11 (gage height, 1.18 feet).  
1921-38: Maximum discharge observed, 48,100 second-feet Nov. 24, 1928 (gage height, 27.50 feet, at former site); no flow Aug. 26-31, Sept. 1-10, 12, 13, 1934, July 31 to Sept. 17, 1936. Bank-full stage, 24 feet.

Remarks.- Records good except those for periods of missing gage heights, Jan. 31, Feb. 1-7, Mar. 25-27, Aug. 4-9, which were computed on basis of records for station at Iola, and are fair.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.2	20	2.0	142	4.0	975	14.0	10,300
1.4	36	2.3	228	5.0	1,610	20.0	18,100
1.6	65	2.6	334	7.0	3,080	24.0	25,400
1.8	100	3.0	495	10.0	5,740	27.0	38,000

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	63	20	59	63	60	354	4,130	252	32,400	6,560	839	196
2	59	21	55	59	53	692	1,640	251	30,200	3,160	669	184
3	54	24	57	57	45	1,090	865	218	28,000	1,810	487	182
4	67	24	60	59	45	947	603	228	26,200	1,610	520	184
5	44	24	62	55	52	763	487	454	16,500	1,280	420	409
6	39	23	63	51	56	521	413	1,880	4,430	1,090	360	892
7	39	21	60	48	58	354	389	6,500	18,400	947	310	625
8	40	20	52	49	49	286	1,480	10,300	22,400	839	260	919
9	45	19	45	52	49	225	1,610	11,900	17,000	788	230	1,410
10	41	19	41	57	45	196	3,480	9,940	6,820	739	215	1,000
11	37	19	41	54	41	196	7,440	3,820	6,040	692	199	692
12	31	22	40	46	40	350	8,500	1,880	10,300	715	173	483
13	45	27	39	45	40	499	4,700	5,760	12,900	763	157	425
14	37	31	39	41	37	393	2,770	13,400	11,500	669	147	534
15	32	31	42	41	40	377	2,020	16,700	12,100	560	164	474
16	31	33	46	42	41	357	1,710	17,800	20,000	529	1,260	357
17	33	29	52	42	46	369	2,160	10,100	24,400	516	450	327
18	33	26	57	42	75	357	2,020	2,770	20,500	499	388	421
19	33	24	70	40	170	308	1,380	4,070	14,000	534	3,990	319
20	30	24	68	45	157	294	1,280	15,100	8,500	581	5,260	245
21	29	24	62	46	140	248	2,310	17,800	4,790	525	3,990	206
22	28	25	57	46	129	199	1,250	20,100	2,690	560	1,810	190
23	28	26	49	52	122	167	839	24,900	2,020	581	919	173
24	27	26	45	63	127	147	647	27,000	1,680	491	669	164
25	26	29	44	62	129	130	529	28,000	1,480	421	521	150
26	26	33	46	60	142	120	450	28,600	1,880	377	429	144
27	27	35	46	54	315	130	401	30,600	2,090	538	294	140
28	28	41	49	52	429	187	346	32,400	5,260	647	77	129
29	26	49	54	52	-	7,910	308	33,400	7,900	442	248	122
30	24	57	62	62	-	7,330	280	32,400	8,380	369	248	112
31	21	-	65	66	-	5,450	-	32,900	-	865	222	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	1,123	63	21	36.2	2,230
November.....	826	57	19	27.6	1,640
December.....	1,627	70	39	52.5	3,230
Calendar year 1937.....	553,140	25,900	19	1,615	1,097,000
January.....	1,603	66	40	51.7	3,180
February.....	2,735	429	37	97.7	5,420
March.....	30,946	7,910	120	998	61,580
April.....	56,457	5,600	280	1,881	111,900
May.....	441,493	33,400	218	14,240	875,600
June.....	380,360	32,400	1,480	12,580	754,400
July.....	30,557	6,560	369	986	60,530
August.....	25,915	5,260	77	836	51,400
September.....	11,808	1,410	112	394	23,420
Water year 1937-38.....	985,350	33,400	19	2,700	1,954,000

Peak discharge.- May 9 (4.30 p.m.) 12,000 sec.-ft.; May 16 (1 p.m.) 18,100 sec.-ft.; May 29 (3 p.m.) 33,400 sec.-ft.; May 31 (3 p.m.) 33,400 sec.-ft.; June 13 (2 p.m.) 13,200 sec.-ft.; June 17 (4 p.m.) 25,400 sec.-ft.

## Neosho River near Grove, Okla.

Location.- Wire-weight gage, lat. 36°33'25", long. 94°44'45", in SE¼ sec. 27, T. 25 N., R. 23 E., 3 miles downstream from Spring Branch and 3¼ miles northwest of Grove. Zero of gage is 669.11 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 10,000 square miles.

Records available.- February 1925 to September 1938.

Average discharge.- 13 years, 6,598 second-feet.

Extremes.- Maximum discharge observed during year, 79,200 second-feet May 30 (gage height, 23.85 feet); minimum observed, 313 second-feet Nov. 5 (gage height, 0.23 foot).  
1925-38: Maximum discharge observed, 133,000 second-feet Apr. 15, 1927 (gage height, 34.6 feet), from rating curve extended above 85,000 second-feet; minimum observed, 32 second-feet Aug. 28, 1936 (gage height, -0.49 foot).

Remarks.- Records good. Regulation at low stages by power plants upstream. Gage read twice daily.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

0.3	355	3.0	3,320	13.0	30,400
0.6	550	4.0	4,930	16.0	42,700
1.0	890	5.0	6,700	20.0	61,100
1.5	1,400	7.0	11,400	24.0	80,200
2.0	1,970	10.0	20,000		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	745	403	448	700	2,740	4,590	34,300	2,600	59,200	10,900	1,140	1,090
2	1,190	448	480	700	2,210	3,780	18,400	2,090	53,200	9,400	1,730	700
3	1,240	415	448	660	1,620	3,620	11,200	2,090	42,300	5,780	1,620	660
4	745	415	480	660	1,510	3,940	7,310	2,090	40,100	4,260	1,400	620
5	660	319	480	700	1,400	3,780	5,960	2,340	41,400	3,940	1,140	620
6	585	409	515	620	1,290	4,100	5,270	1,900	40,100	2,880	890	550
7	700	415	448	585	1,240	3,320	4,930	14,500	32,000	2,600	940	745
8	700	379	448	585	1,240	4,100	5,270	32,000	39,200	2,740	990	1,190
9	620	515	403	585	1,240	2,880	6,900	23,900	39,200	2,470	890	1,040
10	745	515	620	585	1,190	2,880	15,000	18,100	36,700	2,340	745	1,400
11	700	515	585	480	1,090	2,600	25,400	15,400	28,600	2,210	840	1,620
12	660	448	448	515	990	2,210	22,300	9,660	23,300	2,340	840	1,340
13	620	480	480	515	1,090	2,210	17,200	6,510	20,300	1,400	515	990
14	620	448	515	480	1,040	2,470	11,200	13,000	19,400	1,660	620	890
15	585	480	515	550	1,280	4,260	7,960	17,800	16,900	1,730	550	1,040
16	550	480	515	480	7,600	6,510	19,400	19,900	1,510	700	1,190	
17	660	480	515	448	17,800	4,760	21,600	45,000	1,510	3,600	890	
18	550	515	1,400	480	32,700	3,470	6,140	17,500	45,400	1,850	4,790	745
19	700	480	2,740	480	28,400	2,740	6,320	9,900	41,400	2,880	1,850	700
20	515	480	1,730	515	14,800	2,470	5,960	11,200	40,100	1,860	2,870	745
21	585	515	1,400	585	9,900	1,850	8,420	20,000	25,300	1,620	5,780	620
22	550	415	1,340	1,700	7,960	1,850	7,520	22,600	10,400	1,510	5,100	550
23	550	448	1,290	1,970	6,900	1,850	7,100	25,700	6,700	1,510	3,170	515
24	515	415	1,140	2,940	6,510	1,620	4,760	33,500	5,270	1,400	1,850	515
25	480	448	1,140	5,700	5,780	1,610	4,100	34,700	4,930	1,730	1,290	620
26	397	415	1,040	3,940	4,930	1,730	3,940	32,000	5,440	1,400	1,040	448
27	560	448	990	3,620	4,930	1,970	4,100	32,000	6,520	1,290	790	391
28	480	448	890	2,600	4,420	1,730	2,880	52,300	5,270	1,290	745	448
29	480	480	840	2,210	-	15,100	2,740	55,400	6,120	1,620	585	415
30	515	415	745	2,090	-	33,100	2,600	72,300	10,400	1,970	1,730	415
31	480	-	790	2,740	-	50,400	-	50,000	-	1,970	1,970	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	19,672	1,240	397	635	39,020
November.....	13,486	515	319	450	26,750
December.....	26,818	2,740	403	833	51,210
Calendar year 1937.....	2,261,861	70,100	319	6,197	4,486,000
January.....	41,418	5,700	448	1,336	82,150
February.....	175,800	32,700	990	6,207	344,700
March.....	183,400	50,400	1,610	5,916	363,800
April.....	278,200	34,300	2,600	9,273	551,800
May.....	654,080	72,300	1,900	21,100	1,287,000
June.....	809,850	59,200	4,930	27,000	1,606,000
July.....	33,750	10,900	1,730	2,702	166,100
August.....	58,710	8,780	515	1,700	104,500
September.....	23,702	1,620	391	790	47,010
Water year 1937-38.....	2,359,886	72,300	319	6,465	4,680,000

## Cottonwood River at Cottonwood Falls, Kans.

Location.— Water-stage recorder, lat.  $38^{\circ}22'$ , long.  $96^{\circ}31'$ , in NE $\frac{1}{4}$  sec. 28, T. 19 S., R. 8 E., 1 mile east of Cottonwood Falls and  $3\frac{1}{2}$  miles upstream from mouth of South Fork of Cottonwood River. Zero of gage is 1,147.41 feet above mean sea level by preliminary determination (general adjustment of 1929).

Drainage area.— 1,444 square miles.

Records available.— February 1935 to September 1938. April 1932 to February 1935 at site in Cottonwood Falls.

Extremes.— Maximum discharge during year, 12,000 second-feet May 23 (gage height, 17.24 feet); minimum, 10 second-feet Oct. 5, 17 (gage height, 1.91 feet).  
1932-38: Maximum discharge observed, that of May 23, 1938; minimum discharge, 1 second-foot Aug. 15 to Sept. 13, 1934, Sept. 19-23, 1936.

Remarks.— Records good.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	12	18	24	24	16	27	37	51	1,560	513	141	93
2	11	18	22	24	14	37	37	51	908	440	127	135
3	12	16	22	26	14	43	34	49	658	374	114	141
4	11	17	22	26	16	45	30	5,380	572	344	104	301
5	10	18	20	26	18	41	27	10,700	482	285	97	952
6	11	18	19	26	16	35	26	7,700	434	266	93	805
7	11	16	19	24	16	34	27	1,430	386	266	86	350
8	11	16	18	24	17	30	34	721	350	368	81	161
9	12	14	18	24	17	34	39	539	332	476	77	124
10	11	14	18	22	16	34	88	422	315	285	72	107
11	11	15	17	21	18	32	135	374	494	234	70	100
12	11	16	16	20	18	34	332	4,050	410	206	70	97
13	13	16	19	20	18	35	686	763	305	187	70	104
14	13	16	21	20	17	34	374	440	428	174	68	114
15	12	18	20	20	17	34	206	320	2,080	165	358	107
16	11	21	22	20	16	30	149	285	3,270	181	4,130	100
17	10	20	26	21	17	29	120	261	3,030	210	4,550	93
18	11	24	29	20	20	27	93	266	1,190	234	1,540	88
19	11	22	27	20	24	24	61	6,790	617	206	428	81
20	11	20	27	22	24	26	70	8,200	470	174	261	79
21	11	21	27	22	22	26	59	5,630	398	158	202	77
22	11	20	30	21	21	22	53	2,810	350	326	168	79
23	11	19	29	21	20	20	49	8,860	362	416	162	77
24	11	20	30	22	20	20	45	10,900	332	174	138	76
25	11	20	27	19	20	19	43	7,950	1,260	135	124	68
26	11	21	27	26	21	18	43	2,050	5,960	124	114	68
27	11	21	26	16	24	17	47	3,640	6,790	133	110	66
28	11	21	22	17	24	35	49	2,640	1,850	270	104	61
29	11	22	26	19	-	41	53	3,470	756	362	102	61
30	12	22	24	19	-	35	53	3,470	604	171	95	59
31	17	-	26	17	-	37	-	2,240	-	174	90	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	354	17	10	11.4	702
November.....	560	24	14	15.7	1,110
December.....	720	30	16	23.2	1,430
Calendar year 1937.....	71,641	5,590	5	196	141,900
January.....	669	26	16	21.6	1,330
February.....	521	24	14	18.6	1,030
March.....	955	45	17	30.8	1,890
April.....	3,119	686	26	104	6,190
May.....	102,452	10,900	49	3,305	203,200
June.....	35,953	6,790	305	1,232	73,300
July.....	8,031	513	124	269	15,930
August.....	13,936	4,650	68	450	27,640
September.....	4,823	952	59	161	9,570
Water year 1937-38.....	173,093	10,900	10	474	343,300

Peak discharge.— May 12(5 a.m.) 7,620 sec.-ft.; May 19 (8 p.m.) 10,400 sec.-ft.; May 23 (8:30 p.m.) 12,000 sec.-ft.; May 27 (4:30 a.m.) 4,800 sec.-ft.; May 29 (6:30 p.m.) 5,630 sec.-ft. June 27 (10 a.m.) 7,540 sec.-ft.

## ARKANSAS RIVER BASIN

Spring River near Waco, Mo.

Location.- Water-stage recorder, lat. 37°14'45", long. 94°33'55", on line between SE $\frac{1}{4}$  sec. 7 and NE $\frac{1}{4}$  sec. 18, T. 29 N., R. 33 W., at county highway bridge, three-quarters of a mile downstream from Blackberry Creek, and  $\frac{1}{2}$  miles east of Waco. Zero of gage is 833.94 feet (revised) above mean sea level (general adjustment of 1929).

Drainage area.- 1,160 square miles.

Records available.- April 1924 to September 1938.

Average discharge.- 14 years, 887 second-feet.

Extremes.- Maximum discharge during year, 16,000 second-feet May 31 (gage height, 18.50 feet); minimum, 28 second-feet Jan. 4 (gage height, 1.14 feet).  
1924-38: Maximum discharge, 57,400 second-feet Aug. 17, 1927 (gage height, 28.8 feet, from floodmarks); minimum, 11 second-feet July 24, 1934 (gage height, 0.80 foot).

Remarks.- Records good. Flow slightly regulated by operation of small mills above station.

Rating tables, water year 1937-38 (gage height, in feet, and discharge in second-feet)  
(Shifting-control method used Oct. 21 to Dec. 8)

Oct. 1 to Nov. 15

Nov. 16 to Sept. 30

0.8	11	1.2	42	0.9	15	1.8	120	3.4	712	8.0	4,250
.9	16	1.4	71	1.0	19	2.0	169	3.8	914	10.0	6,160
1.0	22	1.6	89	1.1	25	2.2	227	4.0	1,020	12.0	8,260
1.1	30	1.8	151	1.2	33	2.4	293	5.0	1,690	16.0	12,800
				1.4	54	2.8	444	6.0	2,480	19.0	18,400
				1.6	82	3.0	527	7.0	3,340		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	85	46	63	54	177	464	5,390	362	8,100	440	172	86
2	81	73	62	51	134	424	2,470	366	2,840	412	156	79
3	73	68	63	38	116	404	956	329	1,520	381	146	76
4	65	66	52	47	116	381	762	325	3,740	355	129	76
5	97	71	59	49	120	381	663	333	7,050	344	127	60
6	90	59	47	43	100	389	594	354	4,120	329	125	93
7	99	66	62	58	89	351	545	3,930	6,540	297	120	80
8	74	49	66	42	93	336	1,300	6,700	7,660	293	127	98
9	99	80	51	59	106	325	2,310	2,920	6,990	293	122	76
10	50	80	58	59	95	307	6,950	1,020	2,510	436	118	72
11	64	66	64	59	87	307	6,200	712	2,650	322	114	70
12	97	62	44	45	87	293	3,520	663	2,310	259	108	62
13	90	65	46	46	80	286	1,550	712	1,520	233	108	97
14	73	55	47	47	72	293	1,020	888	1,100	227	100	87
15	73	50	54	44	95	1,170	888	640	940	221	104	86
16	73	91	74	44	95	1,020	940	594	8,830	209	120	79
17	76	65	63	37	254	697	966	712	8,790	224	125	74
18	56	67	58	36	1,560	410	787	653	2,430	340	116	74
19	112	68	46	46	2,560	325	653	640	1,520	348	116	60
20	106	60	42	47	1,480	283	1,580	966	1,100	259	95	80
21	68	54	74	60	993	273	2,230	940	888	221	84	76
22	73	43	66	60	838	256	1,420	863	787	197	98	72
23	85	63	58	60	812	233	787	1,490	712	189	93	68
24	74	63	60	87	787	224	640	2,900	663	177	80	64
25	59	60	48	118	712	215	594	1,690	640	172	87	63
26	68	48	44	110	616	197	531	993	1,080	169	102	62
27	80	67	37	116	567	200	485	787	787	164	84	62
28	70	63	58	108	523	246	444	688	640	156	79	59
29	73	51	58	108	-	2,460	440	7,640	540	262	68	59
30	73	59	51	134	-	4,650	404	6,100	489	227	96	54
31	58	-	51	180	-	9,660	-	14,600	-	180	96	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	2,414	112	50	77.9	0.067	0.08	4,790
November.....	1,869	91	43	62.3	.054	.06	3,710
December.....	1,726	74	37	55.7	.048	.06	3,420
Calendar year 1937.....	359,699	16,300	37	985	.849	11.55	715,200
January.....	2,051	180	36	66.2	.057	.07	4,070
February.....	13,375	2,560	72	478	.412	.43	26,530
March.....	27,450	9,660	197	886	.764	.88	54,470
April.....	47,019	6,200	404	1,567	1.35	1.51	93,260
May.....	62,520	14,600	325	2,017	1.74	2.01	124,000
June.....	85,126	8,830	489	2,838	2.45	2.73	168,800
July.....	8,336	440	156	269	.232	.27	16,530
August.....	3,415	172	68	110	.095	.11	6,770
September.....	2,194	98	54	73.1	.063	.07	4,350
Water year 1937-38.....	257,505	14,600	36	705	.608	8.28	510,700

Peak discharge.- March 31 (6 a.m.) 12,300 sec.-ft.; April 11 (2 a.m.) 7,480 sec.-ft.; May 8 (5 p.m.) 7,920 sec.-ft.; May 31 (2 p.m.) 16,000 sec.-ft.; June 9 (2 a.m.) 9,460 sec.-ft.; June 16 (7 p.m.) 14,300 sec.-ft.



## Turkey Creek at Joplin, Mo.

Location.- Water-stage recorder, lat. 37°06'50", long. 94°31'35", in NW¼ sec. 34, T. 28 N., R. 33 W., 80 feet downstream from bridge on Lone Elm Road, a quarter of a mile downstream from Joplin Creek, and about 1 mile northwest of Joplin. Zero of gage is 903.98 feet above mean sea level (general adjustment of 1929).

Drainage area.- 33 square miles.

Records available.- July 1932 to September 1938.

Extremes.- Maximum discharge during year, 864 second-feet Mar. 30 (gage height, 6.47 feet), from rating curve extended above 700 second-feet; minimum discharge, 0.1 second-foot Aug. 29, Sept. 10; minimum gage height, 0.24 foot Sept. 10.  
1932-38: Maximum discharge, 1,980 second-feet Oct. 6, 1936 (gage height, 9.86 feet) from rating curve extended above 700 second-feet; no flow for several days in July and August 1934 and during period July to September 1936.

Remarks.- Records good except those below 5 second-feet, which are fair. Joplin storm sewers divert considerable flow around gage.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Jan. 30					Jan. 31 to Sept. 30		
0.3	0.2	1.0	31	5.0	0.3	0.4	0.6
.4	.7	1.5	71	6.0	.4	1.7	.8
.5	1.7	2.0	111	6.5	.5	4.4	18
.6	4.8	3.0	198				
.8	16	4.0	340				

Note.- Same as preceding table above 1.0 foot.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.6	1.2	3.2	2.0	8.3	17	60	17	28	14	2.8	0.5
2	.5	1.3	5.3	1.7	8.3	17	45	16	20	14	2.8	.7
3	.6	1.2	7.3	2.0	8.3	17	36	15	19	12	1.7	1.0
4	.6	1.5	6.8	2.0	7.9	25	31	19	18	12	1.4	.9
5	.8	1.4	4.5	1.7	7.5	24	26	13	17	12	1.4	.9
6	.6	1.3	4.2	1.7	10	14	25	56	16	12	1.6	1.2
7	.6	1.3	4.2	1.7	7.5	12	29	129	35	12	1.3	.4
8	4.6	1.5	4.2	2.0	7.1	11	30	31	29	12	1.3	.5
9	1.8	1.4	3.9	2.0	7.1	16	105	26	25	10	1.7	.7
10	.7	2.0	3.9	2.3	7.1	14	126	23	21	5.8	1.4	.4
11	.7	1.5	4.2	2.3	6.7	12	86	21	66	7.9	1.6	.7
12	.7	1.4	4.2	2.3	6.4	10	53	31	31	7.5	1.4	1.2
13	.7	1.4	4.2	2.9	6.4	14	45	22	23	6.7	1.4	1.3
14	.7	1.4	4.8	2.9	6.4	13	36	20	20	6.4	1.3	1.2
15	.7	1.3	6.4	2.9	20	46	48	22	18	5.6	1.2	.4
16	.7	3.6	8.1	2.9	20	19	34	43	148	6.4	11	.3
17	1.1	1.4	4.2	2.9	41	17	26	23	202	9.2	2.8	.5
18	3.5	1.3	4.6	2.9	24	15	24	21	66	11	2.0	.7
19	1.7	4.2	4.2	2.9	17	16	23	49	41	7.5	1.6	.4
20	1.0	5.3	3.9	31	15	13	68	26	33	5.6	1.6	.5
21	.9	5.8	2.9	5.8	14	15	33	22	28	6.4	1.2	.4
22	.7	5.8	3.2	4.2	17	14	26	28	23	9.9	1.0	.4
23	.7	4.5	3.2	18	15	14	24	49	20	4.4	1.0	.7
24	.7	4.5	2.6	19	17	13	23	27	18	3.9	.9	.8
25	1.1	4.8	2.0	6.3	18	12	21	23	50	3.9	.4	.9
26	1.2	4.8	2.0	5.3	17	14	20	21	36	3.9	.4	.9
27	1.4	5.8	2.3	4.5	17	11	18	21	20	3.3	.8	.5
28	1.5	4.2	2.3	4.2	14	16	18	19	18	6.0	.7	.4
29	1.5	3.6	1.6	4.2	-	96	17	68	16	4.1	.9	.4
30	1.6	3.9	2.3	26	-	286	17	24	15	4.4	.8	.5
31	1.4	-	2.3	8.8	-	120	-	25	-	3.3	.4	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	35.4	4.6	0.5	1.14	0.035	0.04	70
November.....	84.6	5.8	1.2	2.62	.085	.09	168
December.....	121.9	8.1	1.6	3.93	.119	.14	242
Calendar year 1937.....	6,055.1	446	.5	16.6	.503	6.84	12,010
January.....	181.3	31	1.7	5.85	.177	.20	360
February.....	371.0	41	6.4	13.2	.400	.42	736
March.....	993	286	10	32.0	.970	1.12	1,970
April.....	1,173	126	17	39.1	1.16	1.32	2,330
May.....	933	129	13	30.3	.916	1.06	1,860
June.....	1,120	202	15	37.3	1.13	1.26	2,220
July.....	246.1	14	3.3	7.94	.241	.28	488
August.....	51.8	11	.4	1.67	.061	.06	103
September.....	31.9	13	.3	1.06	.032	.04	63
Water year 1937-38.....	5,348.0	286	.3	14.7	.445	6.03	10,610

Peak discharge.- Mar. 30 (10:30 a.m.) 349 sec.-ft., (4:00 p.m.) 652 sec.-ft., (6:00 p.m.) 864 sec.-ft.; May 7 (1:00 a.m.) 376 sec.-ft.; June 16 (10:30 a.m.) 331 sec.-ft.; June 17 (10:00 a.m.) 480 sec.-ft.

## Shoal Creek near Joplin, Mo.

Location.— Water-stage recorder, lat. 37°02'05", long. 94°32'30", in NE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 28, T. 27 N., R. 33 W., at Grand Falls hydroelectric plant of Empire District Electric Co., 4 miles south of Joplin and 11 miles downstream from Bayham Branch. Zero of gage is 857.28 feet above mean sea level (general adjustment of 1929).

Drainage area.— 458 square miles.

Records available.— April 1924 to September 1938.

Average discharge.— 14 years, 421 second-feet.

Extremes.— Maximum discharge during year, 6,610 second-feet June 8 (gage height, 10.10 feet), from rating curve extended above 2,000 second-feet; minimum, 1.5 second-feet Aug. 17 (gage height, 0.68 foot), during repair of turbines; minimum daily discharge, 63 second-feet Jan. 12, 14.

1924-38: Maximum discharge, about 28,900 second-feet Mar. 12, 1935 (gage height, 18.25 feet), from rating curve extended above 9,000 second-feet; minimum discharge, that of Aug. 17, 1938; minimum gage height, 0.60 foot Aug. 4, 1938; minimum daily discharge, 16 second-feet Aug. 6, 1934.

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

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	140	109	88	94	227	520	1,040	324	1,850	340	177	189
2	134	107	83	67	193	502	885	321	1,050	327	162	136
3	135	91	87	95	196	479	778	326	742	308	180	132
4	139	96	104	96	189	459	680	309	640	306	166	129
5	134	101	86	81	161	453	629	323	583	295	163	124
6	138	115	89	73	190	430	585	304	531	273	140	123
7	139	89	93	98	174	397	534	1,560	1,260	272	161	117
8	137	100	82	79	161	371	592	1,950	3,500	308	149	107
9	144	104	72	94	169	371	768	728	919	287	144	99
10	136	102	66	79	162	376	779	599	995	256	131	114
11	134	108	101	86	148	357	749	528	796	245	126	98
12	131	95	72	63	152	326	691	504	613	247	147	101
13	126	112	106	84	135	341	632	503	698	239	136	120
14	119	103	88	63	147	325	585	586	631	225	121	103
15	118	95	98	102	158	338	556	476	580	223	143	107
16	118	106	96	66	245	313	559	527	764	218	149	104
17	123	99	117	84	763	307	554	620	922	247	129	110
18	120	110	100	73	2,640	303	504	492	729	266	142	102
19	134	93	121	74	2,600	293	484	502	614	248	126	97
20	122	96	114	115	1,550	282	576	670	562	216	129	104
21	117	95	114	104	1,110	264	578	523	522	228	118	97
22	112	92	101	109	933	278	510	499	486	198	109	93
23	112	96	120	145	875	283	488	970	462	198	108	98
24	106	94	109	167	789	251	464	1,290	438	199	111	99
25	117	97	104	230	700	237	442	867	418	192	117	97
26	107	92	104	263	643	248	421	748	461	188	100	75
27	105	100	97	261	593	256	389	725	418	184	114	102
28	102	92	99	240	558	277	367	663	398	190	107	90
29	114	89	95	225	-	1,220	387	713	350	189	142	76
30	102	103	106	231	-	1,360	349	1,460	363	178	157	95
31	93	-	93	226	-	1,450	-	1,690	-	203	336	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acres-feet
October.....	3,803	144	93	123	0.269	0.31	7,540
November.....	2,988	115	86	98.6	.215	.24	5,970
December.....	3,003	121	66	96.9	.212	.24	5,960
Calendar year 1937.....	142,006	3,870	66	389	.649	11.63	281,600
January.....	3,890	283	63	125	.273	.31	7,720
February.....	16,371	2,640	136	598	1.28	1.33	32,470
March.....	13,647	1,450	237	440	.961	1.11	27,070
April.....	17,535	1,040	349	584	1.28	1.43	34,760
May.....	22,200	1,950	304	716	1.66	1.80	44,030
June.....	23,485	3,600	350	783	1.71	1.91	46,580
July.....	7,513	340	178	242	.628	.61	14,900
August.....	4,429	356	100	143	.312	.36	8,780
September.....	3,199	159	75	107	.234	.26	6,340
Water year 1937-38.....	122,000	3,600	63	334	.729	9.91	242,000

Peak discharge.— Feb. 19 (1 a.m.) 4,720 sec.-ft.; Mar. 31 (3 p.m.) 1,740 sec.-ft.; May 8 (4 a.m.) 3,890 sec.-ft.; May 23 (11 p.m.) 2,190 sec.-ft.; June 1 (2 a.m.) 3,770 sec.-ft.; June 8 (7 a.m.) 6,610 sec.-ft.

## Illinois River near Tahlequah, Okla.

Location.— Wire-weight gage, lat. 35°55', long. 94°55', in SE¼ sec. 26, T. 17 N., R. 22 E., at bridge on U. S. Highway 62, 2½ miles northeast of Tahlequah and 5 miles upstream from Barren Fork. Zero of gage is 664.14 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.— 933 square miles.

Records available.— December 1935 to September 1938.

Extremes.— Maximum discharge observed during year, 39,400 second-feet Feb. 18 (gage height, 19.87 feet), from rating curve extended above 25,000 second-feet; minimum discharge, 109 second-feet Sept. 29, 30; minimum gage height, 6.16 feet Nov. 7.

1935-36: Maximum discharge observed, that of Feb. 18, 1938; minimum, 5 second-feet Aug. 31, 1936 (gage height, 5.67 feet).

Highest stages known, 26 feet on unknown date, 22.3 feet sometime in 1927.

Remarks.— Records good. Gage read twice daily during periods of low water, oftener during periods of rapidly changing stage. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Oct. 1 to Feb. 15				Feb. 16 to Sept. 30			
6.2	120	7.5	900	6.4	125	8.0	1,440
6.5	225	8.0	1,460	6.7	230	9.0	2,960
7.0	480			7.0	380	10.0	4,800
				7.5	800	12.0	9,200

Note.— Same as following table above 8.3 feet.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	254	129	144	390	1,060	1,510	4,040	860	1,860	350	230	137
2	221	129	144	372	800	1,310	2,960	800	1,380	358	206	134
3	254	126	150	350	755	1,240	2,320	690	1,180	356	190	125
4	209	120	157	335	630	1,120	2,000	640	985	315	183	131
5	197	115	150	320	590	1,440	1,720	640	860	295	176	128
6	189	123	144	310	590	3,140	1,510	590	745	295	162	125
7	174	115	147	292	515	2,320	1,380	690	745	295	158	125
8	168	138	150	278	480	1,880	1,510	4,070	1,510	310	155	117
9	174	160	144	274	480	1,650	2,160	2,320	1,510	347	149	114
10	171	154	141	265	450	1,510	2,000	1,390	1,050	305	146	114
11	189	147	141	249	420	1,440	1,790	1,050	2,340	285	143	114
12	221	182	138	245	395	1,580	1,510	860	3,320	270	143	125
13	201	225	138	225	360	1,180	1,310	920	3,140	262	137	143
14	182	217	141	233	384	1,050	1,180	2,090	1,930	248	137	166
15	168	201	144	217	847	920	1,120	1,790	1,510	248	155	206
16	160	193	168	209	7,060	920	1,050	1,310	1,240	248	183	295
17	169	182	260	201	24,400	860	4,040	1,050	1,050	236	356	230
18	174	189	2,460	201	34,700	800	2,150	860	1,180	268	476	190
19	171	182	2,500	201	24,800	800	1,580	800	1,120	350	380	169
20	174	171	1,720	201	8,390	690	1,510	1,510	920	295	305	152
21	160	168	1,280	301	5,000	1,050	1,790	2,320	800	266	239	140
22	157	160	1,060	310	3,860	985	2,480	1,440	640	248	206	131
23	150	154	900	396	3,140	800	3,320	1,790	590	230	183	128
24	141	154	800	790	2,640	690	2,320	7,770	550	244	169	125
25	141	157	710	3,480	2,320	640	1,930	4,160	510	218	156	122
26	138	157	630	3,140	2,000	745	1,650	2,480	510	206	149	120
27	135	150	550	2,000	1,790	1,950	1,380	2,320	475	202	143	114
28	129	150	515	1,590	1,650	3,690	1,240	2,000	440	198	137	112
29	129	144	480	1,280	-	9,240	1,120	1,860	440	198	154	109
30	129	147	444	1,160	-	11,400	985	1,860	410	198	131	109
31	129	-	420	950	-	6,120	-	1,790	-	183	143	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	5,357	254	129	173	10,630
November.....	4,742	225	115	158	9,410
December.....	17,070	2,600	138	551	35,860
Calendar year 1937.....	280,198	11,900	87	768	555,800
January.....	20,765	3,480	201	670	41,190
February.....	130,507	34,700	360	4,661	268,900
March.....	64,440	11,400	640	2,079	127,300
April.....	57,065	4,040	985	1,902	113,200
May.....	54,710	7,770	590	1,765	108,500
June.....	34,540	3,320	410	1,151	68,510
July.....	8,513	380	183	268	16,490
August.....	5,938	475	131	192	11,780
September.....	4,270	295	109	142	8,470
Water year 1937-38.....	407,717	34,700	109	1,117	808,700

## ARKANSAS RIVER BASIN

Canadian River near Bell ranch, N. Mex.

Location.- Water-stage recorder, lat. about 35°32', long. about 104°15', in Pablo Montoya grant, 1 mile upstream from mouth of Perra Creek and about 9 miles west of Bell ranch.

Records available.- October 1930 to September 1938 in reports of Geological Survey. July 1915 to July 1917, August 1927 to December 1931 in reports of State engineer.

Extremes.- Maximum discharge during year, about 20,300 second-feet June 14 (gage height, 10.35 feet); no flow at times.

1930-38: Maximum discharge, about 47,800 second-feet June 3, 1937 (gage height, 15.8 feet from floodmarks), by slope-area method; no flow at times.

Remarks.- Records fair except those for periods of ice effect, and missing or incomplete gage heights, which are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	15	5	12	24	20	8	2	0	364	550	165	17
2	16	4	10	31	22	6	3	0	271	400	84	284
3	17	5	9	31	28	8	2	0	165	300	53	1,460
4	15	6	9	30	33	9	1	0	96	250	33	7,300
5	14	7	9	30	28	9	1	0	185	180	23	4,490
6	12	8	9	25	25	11	0	0	319	130	247	5,270
7	10	9	8	20	27	12	0	0	220	100	225	1,450
8	10	7	8	15	18	12	0	0	527	80	104	941
9	7	6	7	15	14	11	0	0	235	60	55	594
10	7	6	7	15	16	7	0	0	245	44	37	370
11	7	7	7	15	14	7	0	0	211	28	46	283
12	6	6	7	15	12	6	0	0	1,470	25	751	370
13	6	5	10	20	11	5	0	0	5,990	14	338	460
14	9	6	12	22	12	5	0	0	8,280	15	176	271
15	8	5	12	28	9	2	0	0	3,500	211	132	265
16	12	6	11	26	7	2	0	0	800	532	86	215
17	15	6	9	26	7	2	0	0	350	439	71	165
18	9	5	8	31	8	2	0	0	211	1,080	73	432
19	7	5	7	27	9	2	0	7	129	800	230	390
20	7	10	7	27	11	3	0	4	102	800	211	245
21	7	7	8	26	23	3	0	1	225	1,900	126	189
22	6	6	8	25	33	1	0	42	82	1,630	64	189
23	6	5	9	20	12	2	0	8	51	863	34	180
24	4	7	9	20	11	0	0	1	46	404	20	120
25	4	7	10	38	10	0	0	0	31	235	15	107
26	4	7	10	17	9	0	0	0	808	157	7	89
27	6	7	8	20	9	0	0	16	4,180	107	4	77
28	9	7	12	26	8	1	0	26	1,800	169	2	84
29	8	9	20	23	-	1	0	13	600	301	1	132
30	8	8	25	20	-	1	0	82	700	135	7	94
31	7	-	22	20	-	1	-	456	-	198	3	-
Month				Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet				
October.....				278	17	4	9.0	551				
November.....				193	10	4	6.4	383				
December.....				319	25	7	10.3	635				
Calendar year 1937.....				104,511	20,000	0	286	207,300				
January.....				728	38	15	23.5	1,440				
February.....				446	33	7	15.9	885				
March.....				139	12	0	4.5	276				
April.....				9	3	0	.3	18				
May.....				656	456	0	21.2	1,300				
June.....				31,993	8,280	31	1,066	63,460				
July.....				12,117	1,900	14	391	24,050				
August.....				3,421	751	1	110	6,760				
September.....				26,503	7,500	17	853	52,570				
Water year 1937-38.....				75,802	8,280	0	210	152,300				

Peak discharge.- June 12 (11:30 p.m.) 14,700 sec.-ft.; June 14 (11:45 a.m.) 20,300 sec.-ft.;

Sept. 4 (7 p.m.) 14,500 sec.-ft.

Notes.- Discharge for periods of ice effect, Dec. 5-8, 10-12, 16-25, 29, 30, Jan. 5-13, 22, 24, 27, Jan. 30 to Feb. 1, Feb. 6, 18, 19, 24, 25, computed on basis of four discharge measurements, gage heights, weather records and records for station at Logan. Discharge for periods of missing or incomplete gage heights, June 14-17, June 27 to July 9, computed on basis of partial gage-height record, weather records and records for station at Logan.

## Canadian River at Logan, N. Mex.

Location.— Water-stage recorder, lat. 35°21', long. 103°26', in sec. 15, T. 13 N., R. 33 E., half a mile south of Logan, three-quarters of a mile above Chicago, Rock Island & Pacific Railway bridge, 5 miles below Ute Creek, and 5 miles above Tucumcari Creek.

Records available.— June 1904 to February 1905, December 1906 to May 1914, October 1930 to September 1938 in reports of Geological Survey. June 1904 to February 1905, December 1908 to May 1914, October 1922 to December 1931 in reports of State engineer.

Extremes.— Maximum discharge during year, about 48,000 second-feet Sept. 5 (gage height, 12.57 feet); no flow at times.

1930-38: Maximum discharge, 110,000 second-feet June 3, 1937 (gage height, 18.91 feet); no flow at times.

Maximum stage known, approximately 36.55 feet at site three-quarters of a mile below present station (zero of that gage was 3,651.0 feet above mean sea level).

Records.— Records poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6	1	0	0	9	43	2	6	1,070	916	314	*30
2	4	1	0	1	8	38	3	0	1,970	574	186	*70
3	3	1	0	1	6	22	2	0	624	496	210	2,930
4	3	1	0	0	5	15	2	0	114	419	132	9,150
5	3	0	0	0	7	10	1	0	58	294	72	21,300
6	2	0	0	1	4	9	0	0	24	398	46	24,300
7	2	0	0	0	3	8	0	0	78	200	39	11,800
8	2	0	0	1	3	8	0	0	1,440	147	21	1,750
9	2	0	0	0	3	9	0	0	743	120	91	809
10	2	0	0	1	5	7	0	0	200	88	102	630
11	2	0	0	1	8	6	0	0	88	68	184	464
12	2	0	0	0	8	5	0	0	*60	54	489	363
13	1	0	1	2	6	2	0	0	7,230	39	334	370
14	1	0	5	9	8	1	0	0	5,240	37	384	464
15	1	0	3	9	8	1	0	0	10,500	333	178	335
16	712	0	3	7	8	1	0	0	1,780	776	135	240
17	152	0	2	8	8	1	0	0	832	1,390	186	220
18	65	0	2	7	9	0	0	0	512	5,290	150	215
19	28	0	2	7	12	1	0	0	456	4,350	90	200
20	14	0	1	8	26	0	0	0	377	1,640	*64	398
21	9	0	1	9	36	0	0	0	282	3,320	129	300
22	8	0	1	11	35	0	0	0	220	2,640	210	220
23	6	0	1	15	39	0	0	0	6	370	1,760	170
24	6	0	1	15	42	0	0	1	349	953	64	147
25	5	0	1	9	48	0	0	0	321	583	40	144
26	4	0	1	12	54	0	64	0	7,870	464		129
27	4	0	1	13	50	0	23	0	2,790	384		114
28	3	0	1	13	39	0	1	0	6,120	774	*30	102
29	2	0	1	18	-	0	0	0	2,060	681		86
30	2	0	1	15	-	0	125	8,160	844	776		78
31	2	-	1	11	-	0	-	5,890	-	488		-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						1,058	712	1	34.1	2,100		
November.....						4	1	0	.1	7.9		
December.....						30	5	0	1.0	60		
Calendar year 1937.....						407,205	57,500	0	1,116	807,600		
January.....						209	18	0	6.7	415		
February.....						499	54	3	17.8	990		
March.....						187	43	0	6.0	371		
April.....						223	125	0	7.4	442		
May.....						14,063	8,160	0	454	27,890		
June.....						54,622	10,500	24	1,821	108,300		
July.....						30,452	5,290	37	982	60,400		
August.....						4,156	489	21	134	8,240		
September.....						77,528	24,300	30	2,584	153,600		
Water year 1937-38.....						183,031	24,300	0	501	363,000		

Peak discharge.— June 13 (1 p.m.) 29,000 sec.-ft.; Sept. 5 (6 a.m.) 48,000 sec.-ft.; Sept. 6 (3 p.m.) 42,700 sec.-ft.

\*Gage-height record missing or incomplete; discharge computed on basis of partial gage heights, weather records, and records for station near Bell ranch.

## ARKANSAS RIVER BASIN

Canadian River near Amarillo, Tex.

Location.- Wire-weight gage, lat. 35°28'10", long. 101°52'45", at bridge on U. S. Highway 385, 2,000 feet downstream from Pitcher Creek, 2.0 miles downstream from Panhandle & Santa Fe Railway bridge, and 19 miles north of Amarillo, Potter County. Zero of gage is 2,989.12 feet above mean sea level (general adjustment of 1929).

Drainage area.- 19,830 square miles.

Records available.- January 1924 to December 1925 and April to September 1938.

Extremes.- Maximum discharge during period, about 48,000 second-feet June 15 (gage-height 10.50 feet, from floodmarks), from rating curve extended above 26,000 second-feet; minimum daily discharge, 0.3 second-foot Aug. 31, Sept. 1.  
1924-25, 1938: Maximum discharge, that of June 15, 1938; no flow at times.  
Maximum stage known, about 24.0 feet sometime in May 1914, but a higher stage probably occurred during flood of October 1904.

Remarks.- Daily records poor, monthly records fair. Gage read twice daily, oftener during periods of flood. No large diversion above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	116	6,880	670	351	0.3
2							-	5.0	1,640	397	198	0.6
3							2.2	2,200	5,320	847	172	60
4							2.5	41	1,290	557	105	4,050
5							2.3	6.4	580	397	62	14,300
6							2.3	4.2	1,290	340	395	14,400
7							2.0	3.2	408	340	40	14,500
8							2.0	1.3	5,750	1,220	23	9,200
9							2.0	1.5	3,350	17	17	6,600
10							2.0	.6	1,960	105	9.2	1,820
11							2.2	.7	700	55	1.5	1,060
12							2.0	1.3	498	32	985	847
13							2.2	34	374	565	162	655
14							2.0	13	6,500	386	105	763
15							1.8	1.6	14,500	826	288	472
16							1.8	275	8,300	1,500	550	550
17							2.0	1,370	1,380	826	305	408
18							1.5	250	5,760	2,980	1,120	270
19							1.3	7.6	1,080	16,500	305	270
20							1.5	2.5	565	7,380	244	227
21							1.1	1.3	205	4,720	68	205
22							1.3	1,030	185	5,670	65	198
23							2.8	572	172	3,230	121	270
24							2.0	435	172	2,240	10	328
25							2.3	548	565	939	4.2	253
26							3.6	1,290	244	763	1.1	211
27							956	204	7,070	565	6.0	189
28							98	20	3,450	459	11	143
29							45	143	1,750	253	3.9	114
30							22	296	2,200	863	.8	119
31							-	16,700	-	262	.3	-
Month							Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet	
October.....												
November.....												
December.....												
Calendar year .....												
January.....							-	-	-	-		
February.....							-	-	-	-		
March.....							-	-	-	-		
April 3-30.....							1,169.7	956	1.1	41.6	2,320	
May.....							25,576.7	16,700	.6	825	50,730	
June.....							32,138.0	14,500	172	2,738	162,900	
July.....							55,884.0	16,500	17	1,603	110,800	
August.....							5,719.0	1,120	.3	184	11,540	
September.....							72,452.9	14,500	.3	2,415	145,700	
The period.....											461,800	

## Canadian River near Canadian, Tex.

Location.— Wire-weight gage, lat. 35°55', long. 100°22', at bridge on U. S. Highway 80, 220 feet below Panhandle & Santa Fe Railway, 1.2 miles downstream from Red Deer Creek and 1.6 miles northeast of Canadian, Hemphill County. Zero of gage is 2,301.50 feet above mean sea level (general adjustment of 1929).

Drainage area.— 23,280 square miles.

Records available.— July 1924 to August 1925 (gage heights only), April to September 1938.

Extremes.— Maximum discharge during period, about 37,000 second-feet Sept. 8 (gage height, 7.50 feet, from floodmarks), from rating curve extended above 22,000 second-feet; minimum daily discharge, 0.2 second-foot Aug. 28 and Sept. 1.

1924-25, 1938: Maximum discharge not determined; maximum gage height, that of Sept. 8, 1938; no flow at times.

Maximum stage known, about 20 feet Oct. 2, 1904.

Remarks.— Records poor. Gage read twice daily, oftener during floods. No large diversions above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	120	12,800	5,370	298	0.2
2							-	342	6,150	1,950	365	1.4
3							-	387	2,440	1,000	310	23
4							-	1,130	1,220	684	145	122
5							-	1,060	1,580	500	99	1,700
6							-	224	684	365	53	11,100
7							-	140	2,220	409	20	20,600
8							-	85	1,740	332	6.2	23,000
9							-	51	17,900	409	1.8	8,700
10							-	16	4,610	200	.8	5,700
11							-	2.6	4,050	102	.8	3,500
12							-	.8	1,520	35	275	3,220
13							-	.6	710	9.8	49	4,270
14							-	.4	452	90	7.4	2,480
15							-	.4	805	134	170	1,250
16							-	3,820	11,600	548	79	840
17							-	1,950	13,100	376	99	788
18							-	3,970	6,820	1,220	278	376
19							-	1,390	4,380	548	500	294
20							-	150	2,650	10,500	409	262
21							47	35	814	7,260	160	224
22							67	208	436	5,260	70	170
23							73	1,530	278	2,750	55	135
24							34	1,000	238	2,350	43	113
25							13	218	2,710	2,650	13	102
26							7.4	113	1,860	1,580	2.3	150
27							640	370	484	736	.6	125
28							250	292	3,870	452	.2	102
29							135	43	8,320	376	.6	85
30							43	15	4,040	696	.8	82
31							-	407	-	170	.6	-
Month	Second-foot-days		Maximum		Minimum		Mean		Run-off in acre-feet			
October.....												
November.....												
December.....												
Calendar year .....												
January.....	-		-		-		-		-		-	
February.....	-		-		-		-		-		-	
March.....	-		-		-		-		-		-	
April 21-30.....	1,289.4		640		7.4		129		2,560			
May.....	19,070.8		3,970		.4		615		37,830			
June.....	120,432		17,900		238		4,016		259,000			
July.....	48,901.8		10,300		9.8		1,577		97,000			
August.....	3,512.1		500		.2		113		6,970			
September.....	89,494.6		23,000		.2		2,983		177,500			
The period.....											560,900	

Vermejo River near Dawson, N. Mex.

Location.- Water-stage recorder, lat. 36°42', long. 104°47', about T. 28 N., R. 20 E., in Maxwell grant, 2½ miles north of Dawson, Colfax County.

Drainage area.- 250 square miles.

Records available.- October 1930 to September 1938 in reports of Geological Survey.

October 1915 to May 1923, February 1927 to December 1931 in reports of State engineer.

Extremes.- Maximum discharge during year, about 4,130 second-feet Aug. 3 (gauge height, 7.81 feet) from rating curve extended above 200 second-feet; minimum daily discharge, 0.4 second-foot Feb. 17.

1930-38: Maximum discharge, about 4,650 second-feet Aug. 7, 1936 (gauge height, 7.99 feet); no flow at times.

Remarks.- Records fair except those for periods of missing or incomplete gage heights, which are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7	3.2	2	2	2	3.8	5.1	112	58	45	20	48
2		3.2				2.6	5.4	102	55	36	20	34
3		3.2				2.3	6.7	91	52	33	403	51
4		3.2				1.8	7.2	79		30	285	118
5		3.2				1.6	7.2	66		26	71	77
6	6	2.9	2	1.4	2	1.1	7.6	66		23	39	63
7		2.9				1.1	7.6	58		21	30	238
8		3.2				2.0	8.9	51		18	26	53
9		3.2				2.0	11	56		16	23	40
10		2.9				1.8	13	53		14	37	50
11	8	2.9	2.6	1.4	3.5	1.6	14	63	40	13	20	53
12		2.9				1.4	14	77		13	15	52
13		2.6				1.4	14	77		14	25	42
14		2.1				1.4	14	82		70	30	35
15		2.6				2.0	1.4	17		40	20	30
16	8.0	2.6	4.8	1.8	1.6	1.8	18	102		20	10	30
17	8.5	2.0	3.5	.4	1.8	18	18	93		15	20	32
18	6.7	2.0	3.8	.9	1.8	18	18	84		90	15	27
19	5.4	1.8	4.5	.5	1.8	18	18		23	40	10	23
20	5.1	1.8	1.8	1.3	1.8	35			23	80	5	20
21	4.5	3.2	2.1	.6	2.0	82			22	40	3	19
22	4.5	5.1	1.6	.6	2.0	82			21	25	1.6	17
23	4.5	2.6	1.4	.8	2.0	60			22	15	1.8	16
24	4.2	2.6	1.4	.9	2.0			80	22	8.9	1.4	14
25	4.2	3.8	2.1	.8	2.1				86	8.5	1.3	14
26	4.2	2.9	2	.9	2.3	80			85	9.8	1.3	14
27	4.2			1.8	2.9				84	15	1.4	14
28	3.8	2.5		5.1	4.2				69	73	1.1	13
29	3.8			-	3.8				59	51	19	13
30	3.5			-	4.2			63	52	28	25	12
31	3.5	-		-	4.2		-	60	-	23	14	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						183.6	-	3.5	5.92	364		
November.....						84.6	5.1	1.8	2.82	168		
December.....						77.5	-	-	2.50	154		
Calendar year 1937.....						8,287.8	270	.4	22.7	16,440		
January.....						66.8	4.8	1.1	2.15	132		
February.....						47.9	5.1	.4	1.71	95		
March.....						67.8	4.2	1.1	2.19	134		
April.....						1,043.7	-	5.1	34.8	2,070		
May.....						2,408	112	51	77.7	4,780		
June.....						1,333	86	21	44.4	2,640		
July.....						1,956.2	90	8.5	30.8	1,900		
August.....						1,192.9	403	1.1	36.5	2,370		
September.....						1,262	238	12	42.1	2,500		
Water year 1937-38.....						8,724.0	403	.4	23.9	17,310		

Peak discharge.- Aug. 3 (11 p.m.) 4,130 sec.-ft.; Sept. 7 (1 a.m.) 2,040 sec.-ft.; July 20 (7 p.m.) 890 sec.-ft.

Note.- Gage-height record missing or incomplete, Oct. 1-15, Nov. 27 to Jan. 8, Jan. 26 to Feb. 13, Apr. 20, 24-30, May 19-29, June 4-18, 26, July 13-23, Aug. 11-21, Sept. 9, 10; discharge computed on basis of weather records and records for Rayado River at Sauble ranch, near Cimarron and Cimarron River at Springer.



## Cieneguilla Creek near Eagle Nest, N. Mex.

Location.- Water-stage recorder, lat. 36°30', long. 105°14', in Maxwell grant, a quarter of a mile below Schoolhouse Draw, about 3,500 feet upstream from high-water line of Eagle Nest Reservoir, and 6 miles south of Eagle Nest, Colfax County.

Records available.- October 1930 to September 1938 in reports of Geological Survey. April 1928 to December 1931 in reports of State engineer.

Extremes.- Maximum discharge recorded during year, 140 second-feet June 26 (gage height, 3.52 feet); minimum daily discharge recorded, 0.2 second-foot Aug. 27.

1930-38: Maximum discharge, about 310 second-feet Aug. 23, 1935 (gage height, 4.65 feet); no flow June 15, 16, 18-23, July 14-27, 1936.

Remarks.- Records fair except those for periods of ice effect, Nov. 28 to Dec. 13, Mar. 12-14, 16-18, Mar. 25 to Apr. 5, and for days of uncertain or missing gage heights Apr. 15 and May 30, which were computed on basis of records for Sixmile Creek near Eagle Nest and Moreno Creek at Eagle Nest, weather records and available gage heights and are poor. Diversions for irrigation above station.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.0	2.1	1.9			-	2.5	51	4.2	2.1	0.9	2.2
2	2.8	2.1	2.1			-	3	42	4.8	1.9	.9	3.0
3	2.4	1.9	1.8			-	7	45	4.5	1.9	1.0	3.1
4	1.9	1.9	2.0			-	15	43	4.8	1.6	4.0	2.6
5	1.7	1.9	2.0			-	17	34	4.8	1.2	3.5	2.6
6	1.9	1.9	2.0			-	17	32	3.5	.6	1.7	2.6
7	2.1	2.2	2.0			-	17	35	3.1	.5	1.2	2.2
8	2.1	3.0	2.1			-	16	33	5.0	.5	.9	2.2
9	2.4	2.4	2.1			4.8	13	35	3.1	.4	.6	2.2
10	2.4	2.2	2.1			5.0	13	33	2.1	.4	.8	1.5
11	2.4	2.2	2.2			6.3	14	34	2.1	.4	1.2	2.8
12	2.4	2.2	2.3			7	18	26	2.1	.4	1.3	3.1
13	3.3	1.9	2.3	*2.9		8	22	28	3.0	.5	1.2	2.8
14	2.6	1.7	-			7	21	25	4.0	2.2	1.3	1.9
15	2.2	2.1	-			3.5	17	22	2.1	3.5	1.6	4.5
16	3.5	1.6	-			5	23	23	1.9	3.8	1.0	5.5
17	3.1	1.9	-		*4.0	6	27	20	1.4	5.0	.6	4.5
18	2.8	2.4	-			8	35	17	.8	2.8	1.2	3.0
19	2.4	1.5	-			9.0	52	14	1.0	3.0	.6	2.4
20	2.2	2.4	-			8.7	69	12	1.0	3.8	.4	2.2
21	2.2	2.6	-			9.0	89	12	.5	2.1	.4	2.1
22	2.4	2.6	-			9.0	74	12	.4	1.9	.4	1.9
23	2.4	2.1	-			9.4	71	12	.4	1.4	.5	1.7
24	2.4	1.7	-			9.0	65	12	1.4	.9	.5	1.9
25	2.2	2.1	-			9	56	11	2.8	.7	.4	1.9
26	2.4	1.9	-			9	51	9.0	21	2.4	.3	1.7
27	2.1	1.7	-			7	52	7.8	4.5	1.5	.2	1.7
28	2.2	2.2	-			7	60	6.6	2.8	1.6	.3	1.7
29	2.2	2.5	-			7	52	5.8	4.2	1.5	.5	1.7
30	2.1	2.0	-			8	51	5	3.3	1.5	.8	1.7
31	1.9	-	-			4	-	4.5	-	1.2	6.0	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						76.9	6.0	1.7	2.48	153		
November.....						62.9	3.0	1.5	2.10	125		
December 1-13.....						26.9	2.3	1.8	2.07	53		
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March 9-31.....						164.7	9.0	3.5	7.16	327		
April.....						1,038.5	89	2.5	34.6	2,060		
May.....						703.7	51	4.5	22.7	1,400		
June.....						100.6	21	.4	3.35	200		
July.....						53.2	5.0	.4	1.72	106		
August.....						36.2	6.0	.2	1.17	72		
September.....						75.1	5.5	1.5	2.50	149		
Water year .....												

Peak discharge.- Apr. 20 (9-12 p.m.) 95 sec.-ft.; Apr. 22 (1 a.m.) 89 sec.-ft.; June 26 (4 p.m.) 140 sec.-ft.

\*Discharge measurement.

## Cimarron River at Ute Park, N. Mex.

Location.- Water-stage recorder, lat.  $36^{\circ}34'$ , long.  $105^{\circ}04'$ , in Maxwell grant, half a mile below mouth of Ute Creek and about 1 mile east of post office at Ute Park, Colfax County.

Drainage area.- 235 square miles.

Records available.- July 1907 to December 1914, October 1930 to September 1938 in reports of Geological Survey. July 1907 to December 1931 in reports of State engineer.

Extremes.- Maximum discharge during year, 253 second-feet July 18 (gage height, 3.27 feet); minimum daily discharge, 2.3 second-feet February 18.  
1930-38: Maximum discharge and stage, those of July 18, 1938; minimum daily discharge, 1.5 second-feet Jan. 18-20, 1936.

Remarks.- Records good except those for periods of ice effect, and of backwater from beaver dam, which are poor. Flow regulated by storage in Eagle Nest Reservoir (capacity, 78,800 acre-feet). Diversions for irrigation above station.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	16	17	5			4.8	20	61	144	24	20	65
2	13	17	5			5.0	20	74	146	23	24	53
3	9.5	16	5.7	5.0		4.8	14	77	144	22	16	27
4	12	14				5.7	22	67	134	20	20	13
5	13	14				4.8	25	62	134	19	31	12
6	17	10				4.5	28	62	149	55	25	11
7	20	8.3			4.5	6.0	25	53	151	59	20	11
8	21	14		4.0		7.2	25	35	151	59	40	11
9	16	14				6.9	25	52	149	50	76	12
10	11	14				6.7	21	52	148	53	82	12
11	19	14	5.2			6.7	32	55	127	73	100	13
12	20	14	5.0			7.7	33	59	125	76	101	13
13	19	13	5.0	4.5		8.0	35	62	137	88	89	12
14	19	11			3.9	8.9	36	60	90	101	79	12
15	18	14			3.9	6.4	36	61	86	105	31	12
16	13	14				14	25	79	84	80	24	13
17	14	10	4.5		3.2	18	21	80	84	74	17	12
18	25	10		5.0	2.3	14	37	82	83	109	16	11
19	26	9.8				16	40	82	82	77	14	11
20	26	10				12	47	88	80	74	11	11
21	26	9.8			3.5	17	52	82	79	72	8.0	11
22	26	10				14	53	82	77	69	7.4	11
23	22	10	5.0	4.5		16	46	94	65	39	6.9	11
24	18	10				15	45	92	66	34	7.4	11
25	28	9.8				16	56	95	61	36	14	11
26	28				4.0	14	58	105	69	36	15	11
27	26					14	62	130	37	38	10	11
28	26	7.5	5.5	4.0	4.8	16	64	114	32	36	23	11
29	20					20	65	97	28	30	42	11
30	15					20	61	108	26	24	66	10
31	11	-				20	-	142	-	22	67	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						593.5	28	9.5	19.1	1,180		
November.....						345.2	17	-	11.5	685		
December.....						155.4	-	-	5.01	308		
Calendar year 1937.....						12,381.5	153	2.5	33.9	24,550		
January.....						139.0	-	-	4.48	276		
February.....						113.3	-	2.3	4.05	225		
March.....						350.1	20	4.5	11.3	694		
April.....						1,129	65	14	37.6	2,240		
May.....						2,444	142	35	78.8	4,850		
June.....						2,968	151	26	98.9	5,890		
July.....						1,666	109	19	53.7	3,300		
August.....						1,102.7	101	6.9	35.6	2,190		
September.....						466	65	10	15.2	904		
Water year 1937-38.....						11,462.2	151	23	31.4	22,740		

Peak discharge.- July 15 (2 p.m.) 124 sec.-ft.; July 18 (2 p.m.) 253 sec.-ft.; Aug. 11 (6 p.m.) 121 sec.-ft.

Note.- Stage-discharge relation affected by ice, Nov. 20, 23, Nov. 26 to Dec. 2, Dec. 4-10, Dec. 14 to Feb. 13, Feb. 19-27, Mar. 31, Apr. 1, 2, 7-9; discharge computed on basis of one discharge measurement, gage heights, weather records and records for Cimarron River at Springer, and Regado River near Cimarron. Stage-discharge relation affected by construction of beaver dam on control, Feb. 14-18, 28, Mar. 1-25.

## Cimarron River at Springer, N. Mex.

**Location.**— Water-stage recorder, lat.  $36^{\circ}22'$ , long.  $104^{\circ}37'$ , in sec. 33, T. 25 N., R. 22 E., 300 feet below highway bridge, an eighth of a mile west of Springer, 6 miles below mouth of Rayado River and 6 miles above confluence with Canadian River.

**Records available.**— July 1907 to December 1909, October 1930 to September 1938 in reports of Geological Survey. August 1907 to December 1909, January 1921 to December 1931 in reports of State engineer.

**Extremes.**— Maximum discharge during year, about 2,330 second-feet June 27 (gage height, 7.34 feet), from rating curve extended above 1,300 second-feet; minimum daily discharge, 0.8 second-foot Oct. 4, 6, 7.  
1930-38: Maximum discharge, about 3,690 second-feet June 3, 1937 (gage height, 9.15 feet), from rating curve extended above 1,300 second-feet; minimum daily discharge, 0.1 second-foot Apr. 11, 1933.

**Remarks.**— Records fair except those for periods of missing gage heights, June 3-17, Aug. 17-21, Sept. 25-30, which were computed on basis of records for Cimarron River at Ute Park, and Mora River near Golondrinas and weather records and are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	1.0	2.5	2.8	3.3	2.3	3.5	2.0	5.0	3.7	12	4.5	6.6
2	1.0	2.5	3.0	3.5	2.3	2.6	2.0	4.2	5.3	8.9	4.0	18
3	1.0	2.8	2.8	3.5	2.3	2.5	2.2	4.7	6	7.5	3.3	12
4	.8	2.8	2.8	3.5	2.5	2.3	1.9	4.2	6	6.2	2.0	634
5	.8	2.5	2.8	3.5	2.3	2.2	1.7	4.0	6	5.3	2.0	103
6	.8	2.8	3.0	3.3	2.3	2.2	1.7	4.2	5	4.5	3.7	51
7	.8	2.8	3.0	3.3	2.3	2.3	1.9	5.0	5	3.7	2.3	46
8	.9	2.8	2.8	3.3	2.8	2.8	1.5	5.0	5	3.3	1.9	17
9	.9	3.0	3.0	3.3	2.5	3.3	1.9	5.0	5	2.5	1.6	12
10	1.0	3.0	3.0	3.0	2.3	3.0	1.7	5.0	5	2.3	305	13
11	.9	3.0	3.0	3.0	2.3	2.8	1.5	4.0	5	2.0	109	36
12	1.2	3.0	3.0	3.0	2.3	2.3	1.5	3.7	5	2.0	14	14
13	1.2	3.0	3.0	3.0	2.3	2.3	1.5	4.0	70	22	8.9	11
14	1.3	3.0	3.0	2.8	2.3	2.3	1.7	4.0	25	55	7.2	10
15	1.5	2.8	2.8	2.8	2.3	2.3	1.6	3.7	15	21	5.6	8.9
16	2.0	2.8	2.8	2.8	2.3	2.3	1.7	4.5	10	6.6	4.7	20
17	2.2	2.8	3.0	2.8	2.5	2.3	1.6	4.5	8	5.9	30	12
18	2.3	2.8	2.8	2.8	2.8	2.2	1.6	4.5	6.2	17	10	9.3
19	2.2	2.8	2.8	3.0	2.8	2.3	1.5	4.5	5.6	22	6	7.8
20	2.2	2.8	2.8	3.0	3.3	2.2	1.6	4.0	4.7	58	5	7.2
21	2.3	2.8	2.8	3.0	3.0	2.2	2.0	3.7	4.0	32	4	7.5
22	2.3	2.8	2.8	3.0	2.8	2.2	2.0	5.0	3.5	19	3.7	6.9
23	2.5	2.8	2.8	2.8	2.8	2.2	1.9	5.6	3.5	15	3.3	6.6
24	2.5	2.8	2.8	2.5	3.0	2.2	1.7	5.0	4.0	9.3	3.0	6.6
25	2.5	2.8	2.8	2.8	3.3	2.2	1.7	4.0	112	6.9	3.5	6.3
26	2.3	2.8	3.0	2.5	3.3	2.2	2.2	3.5	501	6.6	2.8	6.1
27	2.3	2.5	3.0	2.5	3.5	2.2	2.5	3.7	682	7.8	2.5	5.8
28	2.3	2.8	3.0	2.5	3.5	2.2	2.5	3.3	36	6.9	2.2	5.5
29	2.3	2.8	3.3	2.5	-	2.2	6.2	3.5	19	7.8	2.3	5.3
30	2.3	2.8	3.3	2.3	-	2.0	6.2	5.6	14	6.6	2.2	5.0
31	2.3	-	3.3	2.5	-	1.7	-	5.6	-	4.7	2.2	-
Month				Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet				
October.....				52.0	2.5	0.8	1.68	103				
November.....				84.3	3.0	2.5	2.81	187				
December.....				90.9	3.3	2.8	2.93	180				
Calendar year 1937.....				4,880.7	1,610	.8	13.4	9,680				
January.....				91.4	3.5	2.3	2.95	181				
February.....				74.3	3.5	2.3	2.65	147				
March.....				73.7	3.5	1.7	2.38	146				
April.....				63.2	6.2	1.5	2.11	125				
May.....				136.2	5.6	3.3	4.39	270				
June.....				1,585.5	682	3.5	52.8	3,140				
July.....				390.3	58	2.0	12.5	774				
August.....				552.4	305	1.6	18.1	1,180				
September.....				1,110.4	634	5.0	37.0	2,200				
Water year 1937-38.....				4,314.6	682	.8	11.8	8,560				

**Peak discharge.**— June 27 (1 a.m.) 2,330 sec.-ft.; Aug. 10 (6 p.m.) 1,380 sec.-ft.; Sept. 4 (8 a.m.) 1,280 sec.-ft.

Rayado River at Sauble ranch, near Cimarron, N. Mex.

Location.- Water-stage recorder, lat. 36°22', long. 104°58', in T. 25 N., R. 19 E., at Sauble ranch in Maxwell grant 10 miles southwest of Cimarron.

Records available.- May 1911 to December 1914 at site 3 miles upstream, October 1930 to September 1938 in reports of Geological Survey. January 1915 to December 1931 in reports of State engineer.

Extremes.- Maximum discharge during year, 85 second-feet June 1 (gage height, 2.25 feet); maximum gage height, 2.30 feet Apr. 20; minimum daily discharge, not determined 1930-37: Maximum discharge, about 543 second-feet Apr. 13, 1937 (gage height, 3.56 feet), from rating curve extended above 140 second-feet; minimum daily discharge, 0.5 second-foot Dec. 8, 1932 and Nov. 22, 1934.

Remarks.- Records fair except those for periods of ice effect and missing gage heights, which are poor.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						4.8	3.1	38	17	4.8	4.2	4.6
2						5.4		31	14	4.8	4.0	10
3						6.1	4	32	13	5.1	4.8	14
4						6.4	6.1	30	13	4.4	6.8	13
5						5.1	8.8	25	13	3.8	4.6	11
6						4.6	9.1	23	10	3.6	3.8	14
7						4	7.4	23	11	3.8	3.5	10
8						4.5	7.4	20	13	3.8	3.6	8.1
9						4.5	7.4	25	10	3.5	3.5	6.6
10						4.5	7.1	23	9.5	3.5	4.4	8.3
11						4.8	5	9.8	24	9.1	3.3	6.1
12						5.1	5.4	16	20	10	3.5	9.1
13						5.4	5.4	15	20	13	4.2	5.1
14						5.0	5.8	12	20	13	8.8	4.8
15						4.5	6.6	7.1	23	9.5	8.5	6.6
16						4.0	5.6	10	25	8.5	5.1	4.4
17						3.3	5	15	26	7.8	5.6	3.8
18						3.5	4.5	20	26	7.4	8.8	4.0
19						3.5	4.8	31	25	6.8	8.8	3.6
20						4.0	5.6	44	25	6.4	16	3.1
21						3.5	6.8	57	24	5.8	20	2.9
22						3.5	6.8	40	23	5.6	9.8	2.7
23						3.5	6.1	40	23	5.4	8.8	2.9
24						3.5	5.8	39	21	6.8	6.8	2.7
25						4.0	8.1	34	19	6.8	5.8	2.6
26						4.0	10	31	18	8.1	5.6	2.4
27						4.0	6.1	30	18	7.4	5.1	2.4
28						4.4	6.1	43	17	6.1	5.1	2.9
29						-	4.8	36	15	7.8	4.4	3.3
30						-	4.4	35	14	6.4	4.8	2.6
31						-	3.1	-	14	-	5.1	3.8
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						117.8	-	-	3.80	234		
November.....						74.9	-	-	2.50	149		
December.....						101.0	-	-	3.26	200		
Calendar year 1937.....						8,007.0	258	-	21.9	15,880		
January.....						118.5	-	-	3.82	235		
February.....						113.5	5.4	-	4.05	225		
March.....						170.7	10	3.1	5.51	339		
April.....						628.3	57	3	20.9	1,250		
May.....						710	38	14	22.9	1,410		
June.....						281.2	17	5.4	9.37	558		
July.....						195.0	20	3.3	6.29	387		
August.....						125.0	9.1	2.4	4.03	248		
September.....						292.0	28	4.6	9.73	579		
Water year 1937-38.....						2,927.9	57	-	8.02	5,814		

Peak discharge.- Apr. 20 (11 p.m.) 80 sec.-ft.; Apr. 28 (1 a.m.) 72 sec.-ft.; June 1 (5 p.m.) 85 sec.-ft.

Note.- Discharge for periods of ice effect, Nov. 26, Jan. 8 to Feb. 10, 14, 15, 18-27, Mar. 7-11, 17, 18, Apr. 2, 3, and missing or incomplete gage heights Oct. 1-14, Oct. 17 to Nov. 24, Nov. 27 were computed on basis of four discharge measurements, weather records and records for Cimarron River at Springer and Vermejo River near Dawson.

Colmor intake canal near Ocate, N. Mex.

Location.- Water-stage recorder, lat.  $36^{\circ}09'$ , long.  $104^{\circ}53'$ , in SW $\frac{1}{4}$  sec. 12, T. 22 N., R. 10 E., 130 feet downstream from head gate, 5 miles southwest of Lake Charette, and 10 miles south of Ocate.

Records available.- May 1933 to September 1938.

Extremes.- Maximum discharge during year, about 605 second-feet June 12 or 13 (gage height, 4.83 feet), from rating curve extended above 50 second-feet on basis of hydraulic properties of canal; no flow for long periods.

1933-38: Maximum discharge, about 695 second-feet Aug. 28, 1933, June 1, 1937 (gage heights, 5.14 and 5.17 feet, respectively), from rating curve extended above 50 second-feet on basis of hydraulic properties of canal; maximum gage height, 5.17 feet June 1, 1937; no flow for long periods.

Remarks.- Records poor. Diversions for irrigation above station. Canal delivers water to Lake Charette, which serves as a reservoir for Colmor irrigation district.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1									0	0		0
2									0	0		20
3									0	0		0
4									0	0		60
5									0	0		0
6									0	0		40
7									0	0		0
8									0	0		0
9									0	0		0
10									0	0		0
11									0	0		0
12									15	0		0
13									30	0		0
14									0	0		0
15									0	0		0
16									0	0		0
17									0	0		0
18									0	0		0
19									0	40		0
20									.1	0		0
21									0	30		0
22									0	0		0
23									0	0		0
24									0	0		0
25									0	0		0
26									0	0		0
27									0	0		0
28									0	0		0
29									0	0		0
30									0	0		0
31									-	0		-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						0	0	0	0	0		
November.....						0	0	0	0	0		
December.....						0	0	0	0	0		
Calendar year 1937 .....						973.7	207	0	2.67	1,930		
January.....						0	0	0	0	0		
February.....						0	0	0	0	0		
March.....						0	0	0	0	0		
April.....						0	0	0	0	0		
May.....						0	0	0	0	0		
June.....						45.1	30	0	1.50	89		
July.....						70	40	0	2.3	139		
August.....						0	0	0	0	0		
September.....						120	60	0	4.0	238		
Water year 1937-38.....						235.1	60	0	.64	466		

Peak discharge.- June 12 or 13, 605 sec.-ft.; July 19, 350 sec.-ft.; Sept. 4, 362 sec.-ft.

Note.- Gage heights missing Oct. 10-14, Nov. 20-23, Dec. 9 to Jan. 6, Jan. 25 to Feb. 14, Apr. 3-30, May 7-30, June 9-19, June 22 to July 24, July 29 to Aug. 22, Sept. 1-30; discharge computed on basis of range of stage, weather records, and records for all the Canadian River tributaries.

## ARKANSAS RIVER BASIN

Mora River at La Cueva, N. Mex.

Location.- Water-stage recorder, lat. 35°58', long. 105°14', in Mora grant, at highway bridge at La Cueva, Mora County, below wasteway from La Cueva Canal, a quarter of a mile below Las Vegas-Mora Highway bridge, and half a mile below La Cueva dam site.

Records available.- August 1903 to July 1911, April 1931 to September 1938.

Extremes.- 1936-37: Maximum discharge during year, 710 second-feet June 1 (gage height, 4.95 feet), from rating curve extended above 400 second-feet, minimum daily discharge, 2.5 second-feet (estimated) March 4-13.

1937-38: Maximum discharge during year, 1,210 second-feet June 26 (gage height, 7.18 feet), from rating curve extended above 400 second-feet; minimum daily discharge, 3.0 second-feet July 10.

1931-38: Maximum discharge and gage height, those of June 26, 1938; no flow at times.

Remarks.- Records fair except those for periods of ice effect and of missing gage heights, which are poor. Diversions for irrigation above station. Records for the water year October 1936 to September 1937 supersede those published in Water-Supply Paper 827 (p. 135).

Discharge, in second-feet, 1936-38

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	20	9.4	*6	*5.5	*7.5	†4	6.1	49	237	92	18	8.0
2	20	10	*7	*5	*8.5	†3.5	11	49	187	102	15	6.6
3	19	9.4	7.5	*6	*9	†3	22	52	210	109	14	5.1
4	19	8.7	8.7	*7	*9.5	†2.5	23	63	187	94	12	5.1
5	17	8.7	*6.5	*9	*10	†2.5	23	63	161	75	†10	10
6	16	8.0	*6.5	*10	*10	†2.5	20	67	143	50	†8	7.5
7	17	9.4	*7	*7.5	*8	†2.5	18	59	132	33	†5	14
8	15	9.4	*7	*6.5	*6	†2.5	17	63	119	28	†6	14
9	12	8.0	*7	*7	*5	†2.5	20	78	105	23	4.6	†13
10	12	7.5	*6	*8	*6.5	†2.5	20	98	103	34	†5	†12
11	9.4	7.5	*6	*9	*7	†2.5	31	111	96	74	†5	†14
12	8.7	7.0	*6.5	*10	*8	†2.5	62	111	91	62	†5	†12
13	12	7.0	*6.5	*12	*9	†2.5	82	102	85	44	†4	10
14	14	7.0	*6.5	*11	*8	†3	82	103	80	29	†4	†9
15	14	6.6	6.6	*10	*7	†3.5	92	117	47	19	†4	†9
16	14	7.0	4.6	*9	*7	†4	129	127	21	11	5.6	†8
17	12	7.5	*4.5	*6.5	*7	†4	117	108	19	7.0	†6	†8
18	11	8.0	*4.5	*8.5	*7.5	†4.5	114	94	14	10	†5	†8
19	10	7.5	6.1	*9	*6	†5	119	92	13	10	†5	†7
20	9.4	7.0	*5.5	*7.5	*6	5.1	94	90	14	11	†5	†7
21	9.4	6.6	*5.5	*6.5	*6	4.6	82	78	14	12	†5	†8
22	9.4	*6.5	*5.5	*6.5	*6	5.1	84	87	14	12	†5	†8
23	11	7.0	5.6	*7.5	*5	6.6	94	76	12	12	4.6	†8
24	10	7.0	5.6	*7.5	*4	7.5	78	92	12	9.4	4.6	†9
25	8.7	7.0	6.1	*6.5	*3	7.0	67	90	17	12	5.6	†8
26	8.0	7.0	5.1	*5.5	*4	8.0	63	78	45	14	8.7	†8
27	8.0	7.0	5.1	*6	*5	7.0	63	87	130	14	7.5	†9
28	8.7	7.0	8.0	*7.5	*5	9.4	58	74	122	14	5.1	†9
29	8.7	7.5	6.1	*6	-	8.0	55	103	96	16	3.7	†9
30	9.4	7.5	*5.5	*7.5	-	6.1	52	127	80	19	4.6	†9
31	10	-	*5.5	*7	-	8.7	-	143	-	†22	6.1	-

\*Stage-discharge relation affected by ice; discharge computed on basis of two discharge measurements, weather records, and records for stations near Golondrinas and Shoemaker.

†Gage height missing; discharge computed on basis of records for Mora River near Golondrinas and Coyote Creek near Golondrinas.

Discharge, in second-feet, Mora River at La Cueva, N. Mex., 1936-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	+8	9.4	7.5	6.6	*7	8.0	5.1	12	15	50	11	102
2	+8	12	5.6	7.5	7.5	7.5	+5.5	12	14	42	7.5	119
3	+8	12	5.6	6.6	*7.5	7.5	+6	13	10	39	5.6	168
4	+8	10	4.6	6.1	7.5	6.6	7.5	14	7.0	38	6.1	129
5	+8	12	4.2	*5.1	8.0	7.0	6.1	10	14	32	4.6	105
6	+8	14	*4.5	*4.5	*7.5	7.0	+5	22	21	21	4.2	146
7	+7	14	*4	*6	7.5	5.6	+4.5	34	30	11	5.1	119
8	+7	14	*3.5	*6	7.5	6.6	+5	35	84	7.5	4.6	94
9	+7	17	*4	*6	9.4	7.0	+5.5	31	62	5.1	4.6	90
10	+6	14	4.6	*5.5	8.7	6.1	+6	32	50	3.0	13	120
11	+6	12	4.2	*6	7.0	5.6	6.1	22	46	3.2	+190	140
12	+9	11	4.6	*6	7.0	6.6	6.6	20	51	3.7	+40	106
13	+11	+11	4.6	*7	7.0	6.6	5.1	18	76	3.2	+20	96
14	12	+12	*4	*8	6.6	5.6	6.1	12	84	4.6	+10	73
15	11	12	*4	*9	6.6	6.1	4.6	22	63	4.6	+10	151
16	12	14	*4.5	*10	7.0	4.6	5.1	29	52	5.1	+9	103
17	12	12	4.6	11	7.0	6.1	4.6	31	42	4.2	+9	86
18	13	11	3.7	11	*7	6.1	4.6	23	34	5.6	+9	65
19	17	14	*4	12	*7.5	4.6	5.6	19	30	10	+9	55
20	14	12	*5	12	7.5	4.2	4.6	14	23	41	+9	55
21	11	14	*6	11	+9	5.6	5.1	11	14	45	+9	45
22	18	11	*7	*9	*8	4.2	4.6	21	7.0	15	+9	39
23	18	9.4	*8	*7	*8	4.6	4.6	18	7.0	9.4	+9	33
24	17	6.6	*8.5	*6	7.5	4.2	+6	13	9.4	7.5	8.7	29
25	18	5.6	*8.5	*5.5	*7	3.2	7.5	14	26	7.0	10	25
26	13	7.5	*9	*6	7.0	6.1	8.0	14	186	12	+9	20
27	12	6.6	9.4	*6.5	8.0	6.1	7.0	16	153	10	+8	20
28	10	6.1	*7.5	*7	7.5	7.0	6.1	17	59	8.7	8	12
29	9.4	6.1	*7.5	*6.5	-	6.6	10	16	85	8.0	7.0	11
30	10	7.5	*6.5	*6	-	6.1	8.0	14	63	8.7	7	11
31	9.4	-	*5.1	*6	-	5.6	-	15	-	12	+7.0	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October 1936	382.8	20	8.0	12.3	759
November	230.7	10	6.5	7.69	458
December	190.1	8.7	4.5	6.13	377
Calendar year 1936	4,794.6	75	2.8	13.1	9,520
January 1937	242.0	12	5	7.81	480
February	190.5	10	3	6.80	378
March	142.6	9.4	2.5	4.60	283
April	1,798.1	129	6.1	59.9	3,570
May	2,691	143	49	86.8	5,340
June	2,606	237	12	86.9	5,170
July	1,071.4	109	7.0	34.6	2,130
August	206.7	18	3.7	6.67	410
September	272.3	14	5.1	9.08	540
Water year 1936-37	10,024.2	237	2.5	27.5	19,900
October 1937	337.8	18	6	10.9	670
November	329.8	17	5.6	11.0	654
December	173.3	9.4	3.5	5.59	344
Calendar year 1937	10,061.5	237	2.5	27.6	19,970
January 1938	223.4	12	4.5	7.21	443
February	210.3	9.4	6.6	7.61	417
March	184.3	8.0	3.2	5.95	366
April	176.1	10	4.5	5.87	349
May	594	35	10	19.2	1,180
June	1,417.4	186	7.0	47.2	2,810
July	477.1	50	3.0	15.4	946
August	473.0	190	4.2	15.3	938
September	2,367	168	11	78.9	4,690
Water year 1937-38	6,963.5	190	3.0	19.1	13,810

Peak discharge.- June 26, 1938, (6 p.m.) 1,210 sec.-ft.; Sept. 3, 1938 (4 p.m.) 863 sec.-ft.; Sept. 15, 1938 (3 p.m.) 585 sec.-ft.

\*Stage-discharge relation affected by ice; discharge computed on basis of one discharge measurement, weather records, and records for stations near Golondrinas and Shoemaker.

†Gage height missing; discharge computed on basis of records for stations near Golondrinas and Shoemaker.

## ARKANSAS RIVER BASIN

Mora River near Golondrinas, N. Mex.

Location.- Water-stage recorder, lat. 35°53', long. 105°07', in Mora grant, half a mile above mouth of Coyote Creek, and 2 miles east of Golondrinas, Mora County.

Records available.- August 1903 to September 1904 (gage heights only, at former site at Weber, N. Mex.), October 1930 to September 1938 in reports of Geological Survey. March 1915 to December 1931 in reports of State engineer.

Extremes.- Maximum discharge during year, about 1,200 second-feet June 26 (gage height, 7.78 feet), from rating curve extended above 500 second-feet; minimum daily discharge, 1.2 second-feet Mar. 28, 30, May 4.  
1930-38: Maximum discharge, about 1,250 second-feet June 1, 1937 (gage height, 8.10 feet), from rating curve extended above 500 second-feet; no flow at times.

Remarks.- Records fair except those for periods of ice effect, and those for periods of missing or incomplete gage heights, which are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	7.5	6.7	6.5	8.5	9	8.4	1.6	1.3	8.8	60	14	44
2	7.5	5.9	6	10	7.5	8.4	1.8	1.3	7.3	50	8.8	189
3	7.5	7.8	5.6	9	8	7.0	1.5	1.3	5.9	40	6.2	287
4	7.3	6.4	4	8	7.5	5.9	1.4	1.2	3.8	40	8.1	372
5	7.8	7.3	3.5	8.5	8	4.5	1.5	1.4	2.6	35	6.4	205
6	7.0	8.8	4	7	7	4.9	2.2	1.6	8.4	30	4.0	270
7	5.1	10	4.5	7	7.5	4.9	4.9	19	13	20	4.0	200
8	6.7	9.4	3.5	7	7	5.6	3.8	22	112	10	4.7	85
9	6.4	7.3	4	7	7.5	5.4	2.2	21	80	7	3.0	68
10	5.1	7.3	4.5	8	9.1	5.6	2.8	22	56	5	2.8	103
11	4.9	5.9	4.5	7	8.4	5.6	2.1	19	52	3	132	176
12	8.1	5.9	4.5	7.5	8.4	5.4	2.1	15	87	3	99	88
13	10	6.2	4.9	8	5.6	5.1	1.6	12	114	3	27	90
14	9.7	9.1	4.5	8.5	5.9	5.4	1.6	7.0	122	3	11	57
15	9.7	9.4	5.5	8.5	6.2	5.9	1.6	9.1	83	5	13	84
16	9.4	8.4	6.5	8.4	6.4	5.9	2.1	20	61	5	10	132
17	11	9.1	8	10	6.2	5.6	2.1	19	52	5	8.4	90
18	8.8	8.1	6.5	11	6	6.7	2.1	15	40	5	8.4	58
19	13	11	7.5	11	7	7.5	2.1	15	56	30	7.5	42
20	12	13	8	8	8.1	6.4	2.1	8.4	32	31	7.0	40
21	9.1	12	9	9	10	5.4	1.8	7.5	20	70	6.7	34
22	10	11	9.4	7	9	5.4	2.1	8.4	13	40	6.4	28
23	13	10	9.7	5.5	8.5	4.3	2.1	14	12	20	5.9	26
24	13	7.5	9.7	5	7	3.8	2.2	7.5	13	10	4.0	24
25	12	7.0	9.4	6	7.5	2.7	2.1	5.9	95	10	2.6	22
26	11	6	10	6.5	8	2.7	2.2	6.4	300	15	1.5	20
27	7.8	7	10	7	8.1	1.5	2.0	7.3	480	23	1.5	20
28	7.3	6	10	7.5	8.8	1.2	1.6	8.4	100	11	1.5	20
29	6.4	5.5	11	7	-	1.5	1.6	11	120	10	1.6	16
30	6.4	6	12	6	-	1.2	1.8	10	80	20	1.8	15
31	7.5	-	9.1	6.5	-	1.5	-	8.4	-	46	1.4	-
Month				Second-foot-days		Maximum	Minimum	Mean	Run-off in acre-feet			
October.....				268.0		13	4.9	8.65	532			
November.....				241.0		13	5.5	8.03	478			
December.....				215.7		12	3.5	6.96	428			
Calendar year 1937.....				11,316.2		368	2.0	31.0	22,400			
January.....				240.9		11	5	7.77	478			
February.....				210.2		10	5.4	7.51	417			
March.....				151.1		8.4	1.2	4.87	300			
April.....				62.7		4.9	1.4	2.09	124			
May.....				326.4		22	1.2	10.5	647			
June.....				2,209.8		480	2.6	75.7	4,380			
July.....				665.0		70	3	21.5	1,320			
August.....				420.2		132	1.4	13.6	833			
September.....				2,905.0		372	15	96.8	5,760			
Water year 1937-38.....				7,916.0		480	1.2	21.7	15,700			

Peak discharge.- June 26 (8 p.m.) 1,200 sec.-ft.; Sept. 3 (8 p.m.) 957 sec.-ft.; Sept. 6 (9 p.m.) 1,010 sec.-ft.

Note.- Discharge for periods of ice effect, Nov. 26 to Dec. 11, Dec. 14-21, Jan. 1-15, Jan. 20 to Feb. 8, Feb. 18, 19, 22-26; and missing or incomplete gage heights, June 25 to July 19, July 21-25, Sept. 6, 7, computed on basis of one discharge measurement, gage heights, weather records, and records for station at La Cueva.



## Mora River near Shoemaker, N. Mex.

Location.- Water-stage recorder, lat. 35°48', long. 104°48', in sec. 10, T. 18 N., R. 20 E., 5½ miles east of Shoemaker and about 23 miles above confluence with Canadian River.

Drainage area.- 1,160 square miles.

Records available.- October to December 1914, October 1930 to September 1938 in reports of Geological Survey. October 1914 to December 1931 in reports of State engineer.

Extremes.- Maximum discharge during year, about 5,900 second-feet June 12 (gage height, about 8.0 feet, from extension of incomplete recorder graph), from rating curve extended above 3,000 second-feet; minimum daily discharge, 1.4 second-feet June 8.  
1930-38: Maximum gage height, 10.41 feet June 3, 1937 (discharge not determined); no flow at times.

Remarks.- Records fair except those for periods of ice effect, and of missing or incomplete gage heights, which are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.3	2.8	2.6	*15	*15	2.3	3.8	3.0	1.7	+80	17	2.8
2	2.3	2.5	2.8	*14	*14	2.1	4.4	2.8	1.7	+60	8-8	110
3	2.3	2.3	3.3	*15	*15	1.9	3.6	2.5	1.6	+50		270
4	2.3	2.6	2.8	*13	16	1.9	3.3	2.8	1.7	+40		838
5	2.3	3.0	2.8	*14	15	1.9	3.8	2.5	1.6	+30		475
6	2.3	3.6	2.8	*12	*14	1.9	3.0	2.8	1.4	+30	+5	297
7		3.6	*2.5	*13	13	2.1	2.3	2.8	1.6	+20		437
8		3.6	3.0	*13	13	2.3	3.3	2.8	+190	+15		188
9		3.3	2.8	*13	15	2.3	3.6	2.8	35			120
10	+2	3.6	3.0	*15	12	2.1	3.6	3.0	16			102
11		*3	2.6	*14	3.8	2.1	3.3	2.8	5.2		12	191
12		*3	2.6	*15	2.5	2.1	3.3	2.6	+850	+5	+50	143
13		*3.5	2.8	*16	2.1	2.1	3.0	2.8	+1,240		24	112
14		3.6	2.6	*17	1.7	2.1	3.3	2.6	+700		6.4	92
15		1.9	2.6	18	1.9	2.3	3.6	2.8	121		+8	82
16	2.1	3.6	2.6	21	1.7	2.3	3.8	2.8	74		+7	221
17	2.3	3.6	2.5	20	1.9	2.3	3.8	2.5	54	+10	+7	137
18	1.9	3.3	2.6	16	2.5	2.6	3.8	2.5	44	+370	9.2	102
19	1.7	3.3	2.5	16	2.3	3.0	3.6	2.3	32	+350	8.8	82
20	1.7	3.6	*7	15	2.6	3.0	3.6	2.1	24	+130	7	70
21	1.9	4.4	*14	14	2.5	3.8	3.6	2.1	20	+450	5	65
22	1.9	4.7	*17	*15	2.1	4.1	3.3	2.1	17	+300	4	56
23	2.3	3.6	*16	*14	2.1	3.6	3.0	2.1	17	+30	2.3	46
24	2.6	3.6	*17	*12	2.1	2.8	3.3	2.3	17	+15	2.1	40
25	2.1	3.6	*14	*11	2.1	3.0	3.3	2.3	24	11	1.9	37
26	1.9	3.3	*14	12	2.1	3.6	3.0	1.9	400	10	1.9	34
27	2.1	3.0	*14	*13	2.3	4.1	2.6	1.9	+1,000	12	1.9	29
28	3.3	3.0	*16	*14	2.3	4.4	3.3	1.7	+200	17	1.9	42
29	3.6	3.3	*17	*13	-	3.0	3.3	1.7	+400	102	1.9	35
30	2.5	2.8	*19	*12	-	2.6	3.8	1.9	+150	17	1.8	+30
31	2.3	-	*17	*13	-	2.8	-	1.9	-	8.8	1.8	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	67.9	3.6	1.7	2.19	135
November.....	100.7	4.7	2.3	3.36	200
December.....	233.8	19	2.5	7.54	464
Calendar year 1937.....	16,151.6	4,140	1.7	44.3	32,040
January.....	448	21	11	14.5	889
February.....	192.6	16	1.7	6.82	362
March.....	82.5	4.4	1.9	2.66	164
April.....	102.3	4.4	2.3	3.41	203
May.....	75.5	3.0	1.7	2.44	150
June.....	5,631.5	1,240	1.4	188	11,170
July.....	2,197.8	450	-	70.9	4,360
August.....	233.7	50	1.8	7.54	464
September.....	4,485.8	838	2.8	150	8,900
Water year 1937-38.....	13,842.1	1,240	1.4	37.9	27,460

Peak discharge.- June 12 (10 p.m.) about 5,900 sec.-ft.; June 13 (9 p.m.) about 5,080 sec.-ft.; July 20 (11 p.m.) 2,840 sec.-ft.

\*Stage-discharge relation affected by ice; discharge computed on basis of gage heights, weather records and records for stations at La Cueva and near Golondrinas.

+Gage height missing or incomplete; discharge computed on basis of incomplete gage heights, weather records and records for stations at La Cueva and near Golondrinas.

## Coyote Creek near Golondrinas, N. Mex.

Location.- Water-stage recorder, lat.  $35^{\circ}55'$ , long.  $105^{\circ}10'$ , in Mora grant, a third of a mile below Coyote Creek dam site, about 2 miles above confluence with Mora River, and 2 miles northeast of Golondrinas, Mora County. Prior to April 28, 1938, station at site 0.4 mile downstream at independent datum.

Records available.- October 1930 to September 1938 in reports of Geological Survey. April 1928 to December 1931 in reports of State engineer.

Extremes.- Maximum discharge during year, about 714 second-feet June 26 (gage height, 4.52 feet), from rating curve extended above 15 second-feet on basis of rating for former station; minimum daily discharge, 1.3 second-feet Apr. 5.

1930-38: Maximum discharge, about 3,020 second-feet Aug. 30, 1936 (gage height, 10.1 feet former site and datum) from rating curve extended above 250 second-feet; minimum daily discharge, 0.3 second-foot June 14, 15, July 5, 1934.

Remarks.- Records fair except those above 15 second-feet and those for periods of ice effect, which are poor. Diversions for irrigation above station.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4.1	5.4				6.1	1.7	2.4	1.4	+10	+4	8.8
2	4.3	5.2				5.7	2.2	2.2	1.4	+8	+5	9.1
3	4.5	5.2	*4.0	*3.5	*4.5	4.3	2.1	2.0	1.4	+6		13
4	4.5	5.2				4.6	1.8	2.1	1.4	+5		9.3
5	4.3	5.4				4.7	1.3	2.2	1.4	+4		8.9
6	4.3	5.7				4.3	1.6	2.4	1.4		+4	14
7	4.6	5.4				4.5	1.7	2.9	7.8			8.2
8	5.0	5.4	*3.5	*3.0	*5.5	4.5	1.7	3.9	3.5			6.4
9	5.0	5.4				4.1	1.9	2.7	2.6			8.4
10	4.7	5.7				4	1.7	4.4	2.6	+3		16
11	5.2	5.7				4	1.7	2.6	2.4		+15	9.3
12	5.0	5.7				3.6	1.7	2.6	4.6		+10	9.1
13	5.2	5.7	*4.0	*3.5	*4.5	3.4	1.9	2.6	25		+7	8.2
14	5.4	6.1				3	1.7	2.4	+10	+20	+5	7.3
15	5.7	6.4				2.9	1.7	2.5	+6	+10	+5	9.8
16	5.2	5.7				3.1	1.7	2.6	+3	+5		11
17	5.4	*5.5		3.2		2.5	1.7	2.4	3.1	+30		9.1
18	5.2	5.7		2.8	*5.0	2.4	1.9	2.4	3.1	+20		8.4
19	5.2	*5	*3.5	2.6		2.2	1.9	2.4	3.1	+10		8.2
20	5.2	*6		2.5		2.1	1.7	2.1	3.0	+15	+5	8.2
21	5.4	7.0				1.9	1.7	1.9	3.1	+15		8.0
22	5.7	6.7				1.7	1.7	1.9	2.6	+10		7.7
23	5.7	6.7				1.7	1.7	1.9	3.0	+7		7.5
24	5.4	*6	3.9	*2.5	*6.0	2.1	1.8	1.9	3.1	+5	4.1	7.5
25	5.4	*5	4.1			2.4	1.9	1.9	11	+4	3.9	7.3
26	5.4		4.7			2.5	2.2	1.6	90	3.9	3.5	7.1
27	5.2		4.5		*5.5	2.5	2.4	1.6	29		3.5	8.9
28	5.0		4.1	*3.5		2.4	2.4	1.6	+20	+4	4.0	8.9
29	5.0		5.4			2.2	2.7	1.6	+25		4.0	+10
30	5.2		6.7			1.8	2.9	1.6	+20	+5	4.0	+7
31	5.4		4.1			1.6		1.6		+4		
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						156.7	5.7	4.1	5.05	311		
November.....						165.4	7.0	-	5.51	328		
December.....						123.4	6.7	-	3.98	245		
Calendar year 1937.....						3,562.6	268	2.1	9.76	7,068		
January.....						98.1	-	-	3.16	195		
February.....						144.0	-	-	5.14	286		
March.....						98.6	6.1	1.6	3.18	195		
April.....						56.7	2.9	1.3	1.89	112		
May.....						70.9	4.4	1.6	2.29	141		
June.....						295.0	90	1.4	9.83	585		
July.....						232.9	30	-	7.51	462		
August.....						167.1	15	-	5.07	312		
September.....						268.4	16	6.4	8.95	522		
Water year 1937-38.....						1,867.2	90	1.3	5.12	3,705		

Peak discharge.- June 26 (1 a.m.) 398 sec.-ft.; June 26 (7 p.m.) 714 sec.-ft.; July 17 (10 p.m.) 185 sec.-ft.

\*Stage-discharge relation affected by ice; discharge computed on basis of two discharge measurements, gage heights, weather records and records for stations on Mora River at La Cueva and near Golondrinas.

+Gage heights missing or incomplete; discharge based on incomplete gage-height record and records for stations on Mora River at La Cueva and near Golondrinas.

## North Canadian River near El Reno, Okla.

Location.— Water-stage recorder, lat. 35°34', long. 97°58', on line between secs. 32 and 33, T. 13 N., R. 7 W., at bridge on U. S. Highway 81, 2 miles north of El Reno. Zero of gage is 1,299.02 feet above mean sea level (general adjustment of 1929), from benchmark of U. S. Weather Bureau.

Drainage area.— 12,100 square miles.

Records available.— October 1902 to April 1908, March to September 1938.

Extremes.— Maximum discharge during period, 7,950 second-feet May 21 (gage height, 11.10 feet); no flow Sept. 1, 2.  
1902-8, 1938: Maximum discharge, that of May 21, 1938; no flow Sept. 1, 2, 1938.  
Flood of 1923 reached a stage of 1,326.5 feet above mean sea level at railroad bridge 1 mile upstream from station.

Remarks.— Records fair. Station operated in cooperation with Corps of Engineers, U. S. Army.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	103	728	782	550	35	0
2						-	74	568	1,320	374	30	0
3						111	70	500	2,820	245	54	1.2
4						105	68	610	1,940	174	64	1.0
5						95	70	1,100	1,170	125	51	1.2
6						105	67	989	789	98	66	1.0
7						109	61	2,800	789	84	81	130
8						93	74	2,800	768	103	51	2,090
9						96	111	1,480	618	67	34	2,980
10						88	105	874	1,140	57	28	1,320
11						88	105	664	1,100	56	26	842
12						87	121	580	895	51	22	804
13						85	135	520	842	46	24	582
14						77	123	450	810	41	19	1,270
15						74	168	596	677	38	17	480
16						72	336	392	592	37	46	360
17						66	324	340	605	36	105	304
18						63	352	300	870	32	53	238
19						59	344	687	530	30	38	171
20						54	340	4,750	707	30	32	132
21						48	284	7,200	1,280	63	27	107
22						45	262	3,190	1,400	160	23	93
23						41	228	1,920	780	117	19	82
24						36	195	3,390	515	138	15	74
25						35	201	4,630	495	80	12	62
26						42	296	4,210	502	56	9.8	56
27						50	428	1,800	729	45	6.6	51
28						105	825	1,220	446	55	3.2	44
29						105	2,150	890	414	61	1.0	41
30						119	1,100	705	446	50	.4	37
31						153	-	616	-	40	.4	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March 3-31.....						2,309	153	35	79.6	4,580		
April.....						9,130	2,160	61	304	18,110		
May.....						51,237	7,200	300	1,653	101,600		
June.....						26,771	2,820	414	892	53,100		
July.....						3,139	550	30	101	6,226		
August.....						993.4	105	.4	33.1	1,970		
September.....						12,154	2,980	0	405	24,110		
The period.....										209,700		

## North Canadian River near Wetumpka, Okla.

Location.- Wire-weight gage, lat. 35°15'40", long. 96°12'40", in SW $\frac{1}{4}$  sec. 12, T. 9 N., R. 10 E., at bridge on U. S. Highway 75, 2 $\frac{1}{2}$  miles northeast of Wetumpka, 4 $\frac{1}{2}$  miles upstream from Newoka Creek and 70 miles upstream from Deep Fork. Zero of gage is 683.73 feet above mean sea level (Corps of Engineers, U. S. Army benchmark).

Drainage area.- 13,900 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge during period, 7,440 second-feet Mar. 29 (gage height, 15.64 feet, from floodmarks); minimum discharge observed, 81 second-feet Sept. 12 (gage height, 1.24 feet).

Remarks.- Records good. Flow regulated by storage in Lake Overholster (capacity, 17,000 acre-feet), 190 miles upstream. Gage read twice daily. Records collected in cooperation with Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)  
(Shifting-control method used Mar. 30 to Apr. 19)

1.3	91	6.0	1,680
1.5	129	8.0	2,580
2.0	250	10.0	3,520
2.5	380	12.0	4,700
3.0	530	14.0	6,100
4.0	850	15.6	7,440

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	2,720	970	1,530	930	530	95
2						-	1,370	1,330	1,130	710	325	96
3						-	1,050	1,640	850	680	300	95
4						-	850	1,170	710	650	262	100
5						-	680	1,050	1,070	590	212	300
6						-	620	1,050	1,910	590	200	151
7						-	710	1,840	1,860	560	175	102
8						-	1,010	3,040	1,460	530	163	95
9						-	745	2,580	1,170	780	151	96
10						-	590	2,560	1,530	620	163	95
11						-	530	2,360	2,040	410	288	91
12						-	500	2,140	3,060	550	262	376
13						-	470	1,290	3,080	325	250	1,130
14						-	470	970	2,450	300	200	530
15						-	440	780	1,600	288	175	650
16						-	440	680	1,210	275	224	530
17						-	410	650	1,210	262	890	410
18						-	380	620	1,290	262	360	702
19						-	365	580	1,090	275	200	500
20						-	768	1,280	930	470	151	410
21						-	3,720	1,010	1,460	338	151	350
22						-	4,670	1,140	1,090	275	140	275
23						-	3,570	4,740	890	325	127	225
24						-	1,680	3,940	1,330	238	163	175
25						-	1,290	3,270	1,290	238	163	151
26						-	1,090	3,080	2,220	212	129	151
27						3,560	1,080	3,040	1,530	200	121	129
28						3,270	1,450	2,680	1,460	300	117	123
29						7,080	970	2,580	1,090	734	111	115
30						6,990	850	2,360	930	1,420	102	109
31						5,470	-	1,680	-	890	102	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....					
November.....					
December.....					
Calendar year .....					
January.....	-	-	-	-	-
February.....	-	-	-	-	-
March 27-31.....	26,170	7,080	3,360	5,234	51,910
April.....	35,508	4,670	365	1,184	70,430
May.....	58,130	4,740	690	1,875	115,300
June.....	43,890	3,080	710	1,463	87,060
July.....	14,997	1,420	200	464	29,750
August.....	6,907	890	102	223	13,700
September.....	8,757	1,130	91	292	17,370
The period.....					385,500

## Deep Fork near Dewar, Okla.

Location.- Wire-weight gage, lat. 35°28'50", long. 95°52'50", in SE $\frac{1}{4}$  sec. 25, T. 12 N., R. 13 E., at bridge on U. S. Highway 286, 3 $\frac{1}{2}$  miles east of Dewar, 3 $\frac{1}{2}$  miles upstream from Wolf Creek, and 43 miles upstream from confluence with North Canadian River.

Drainage area.- 2,300 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge during period, 10,100 second-feet Apr. 4 (gage height, 21.43 feet, gage read at flood crest); minimum discharge observed, 9 second-feet Sept. 30 (gage height, 1.18 feet).

Remarks.- Records good. Gage read twice daily during low stages, oftener during high stages. Records collected in cooperation with Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.2	11	17.0	4,170
2.0	123	18.0	4,700
3.0	273	19.0	5,500
4.0	437	20.0	6,560
6.0	800	20.5	7,560
8.0	1,230	21.0	8,940
12.0	2,300	21.4	10,100
15.0	3,300		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	5,500	445	2,780	1,440	686	21
2						-	6,120	337	1,850	1,090	522	19
3						-	8,380	305	1,020	540	337	20
4						-	10,100	228	337	321	183	24
5						-	8,940	190	213	258	108	21
6						-	7,320	183	168	130	73	21
7						-	6,400	1,040	138	101	60	23
8						-	5,800	1,540	305	101	48	44
9						-	4,120	1,910	743	101	39	44
10						-	2,330	1,700	724	88	37	53
11						-	1,590	1,570	1,520	403	34	46
12						-	667	1,830	2,990	488	32	34
13						-	576	2,510	3,500	321	31	32
14						-	471	2,100	1,910	168	37	116
15						-	420	1,300	1,230	108	59	66
16						-	403	596	1,460	83	67	41
17						-	353	369	1,390	69	386	21
18						-	305	273	840	58	648	21
19						-	289	337	437	53	960	30
20						-	318	762	353	49	800	55
21						-	1,370	1,020	337	45	576	49
22						-	3,460	1,760	273	45	505	41
23						-	2,980	4,980	273	48	273	54
24						-	2,450	4,070	337	55	108	31
25						337	2,100	2,670	305	52	76	27
26						867	1,940	2,160	1,180	52	65	24
27						3,380	1,940	2,130	1,750	44	45	20
28						4,120	1,940	2,700	1,880	86	37	18
29						6,000	1,460	2,330	1,640	305	32	16
30						5,900	755	2,670	1,440	1,040	27	11
31						5,310	-	2,780	-	1,070	25	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March 25-31.....						25,914	6,000	337	3,702	51,400		
April.....						90,797	10,100	289	3,027	180,100		
May.....						48,795	4,980	183	1,574	96,780		
June.....						33,223	3,500	138	1,107	65,900		
July.....						8,312	1,440	44	284	17,450		
August.....						6,916	960	25	223	13,720		
September.....						1,023	116	11	34.1	2,030		
The period.....										427,400		

## Poteau River at Poteau, Okla.

Location.- Wire-weight gage, lat. 35°03'35", long. 94°36'10", in SE $\frac{1}{4}$ SW $\frac{1}{4}$  sec. 19, T. 7 N., R. 28 E., at highway bridge 100 feet upstream from St. Louis-San Francisco Railroad bridge, one mile northeast of Poteau, and 2 miles upstream from Nail Creek. Zero of gage is 409.4 feet above mean sea level (Corps of Engineers, U. S. Army, benchmark).

Drainage area.- 1,240 square miles.

Records available.- March to September 1938.

Extremes.- Maximum discharge observed during period, 16,500 second-feet Mar. 30 (gage height, 27.96 feet); minimum observed, 2.1 second-feet Sept. 28 (gage height, 1.62 feet).  
Maximum stage known, 39.0 feet June 22, 1935 (discharge, about 100,000 second-feet). Flood of Feb. 19, 1938, reached a stage of 38.3 feet (discharge, 73,000 second-feet).

Remarks.- Records fair except those for days of rapidly changing stage, which are poor.  
Gage read twice daily. Records collected in cooperation with Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

1.5	0	4.0	520	13.0	3,200	23.0	7,500
1.8	12	5.0	860	15.0	3,650	25.0	9,370
2.0	30	7.0	1,580	17.0	4,250	26.0	10,650
2.5	110	9.0	2,200	19.0	5,100	27.0	12,900
3.0	229	11.0	2,700	21.0	6,100	28.0	16,500
3.5	367						

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	8,010	352	618	98	56	18
2						-	4,050	310	520	69	49	18
3						-	2,220	268	338	49	76	17
4						-	1,260	242	242	40	216	17
5						-	970	*210	204	35	23	50
6						-	860	179	167	32	28	66
7						-	1,990	282	150	30	26	45
8						-	6,310	1,050	146	24	20	32
9						-	8,760	1,620	179	22	114	27
10						-	8,460	1,750	216	24	106	20
11						-	5,350	585	426	18	26	20
12						-	2,850	352	2,110	17	19	17
13						-	1,720	506	2,300	19	13	16
14						-	1,230	2,110	1,510	18	9.4	14
15						-	1,160	2,400	686	32	6.1	12
16						-	4,070	2,650	367	155	9.4	12
17						-	7,740	1,340	338	204	970	8.1
18						-	6,540	618	282	216	720	8.1
19						-	3,220	552	296	204	790	7.4
20						-	1,750	457	324	179	338	6.2
21						-	1,370	396	324	62	324	4.2
22						-	1,620	338	268	38	119	3.8
23						-	1,810	2,820	216	36	81	3.8
24						-	1,480	3,300	155	26	59	3.4
25						-	1,200	2,400	119	22	40	2.9
26						-	755	1,620	108	15	35	2.9
27						-	750	1,120	81	15	32	2.5
28						2,800	686	3,150	83	14	26	2.1
29						8,760	457	2,950	69	14	21	2.5
30						14,900	396	1,900	66	35	19	2.5
31						13,800	-	932	-	48	17	-
Month						Second-foot-days	Maximum	Minimum		Mean	Run-off in acre-feet	
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-	-	
February.....						-	-	-	-	-	-	
March 28-31.....						40,260	14,900	2,900	10,060	79,860		
April.....						89,014	8,760	396	2,967	176,600		
May.....						38,769	3,300	179	1,280	76,880		
June.....						12,908	2,300	66	430	25,600		
July.....						1,810	216	14	58.4	3,590		
August.....						4,399.9	970	8.1	142	8,710		
September.....						461.4	66	2.1	15.4	915		
The period.....											372,100	

\*Interpolated.

## Frog Bayou near Mountainburg, Ark.

Location.- Staff gage above concrete weir in spillway of Fort Smith Dam, lat. 35°39'40", long. 94°09'10", in NW¼NE¼ sec. 2, T. 11 N., R. 30 W., 2½ miles northeast of Mountainburg, three-quarters of a mile upstream from Warloop Creek, 1½ miles upstream from Howard Fork, and 3 miles downstream from Jones Fork. Zero of gage is 800.00 feet above mean sea level (general adjustment of 1929, U. S. Coast and Geodetic Survey 1933).

Drainage area.- 65 square miles.

Records available.- July 1936 to September 1938.

Extremes.- Maximum discharge observed during year, 6,500 second-feet Feb. 18 (gage height, 28.2 feet); no flow Oct. 1 to Dec. 16, June 29 to Sept. 30.  
1936-38: Maximum discharge observed, that of Feb. 18, 1938; no flow during long periods of each year.

Remarks.- Records fair. Discharge represents spillway overflow from Lake Fort Smith. Gage-height record furnished by City of Fort Smith, Water Department. Gage read twice daily.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

25.0	0	25.4	240	26.4	1,860
25.05	8	25.5	340	26.7	2,530
25.1	25	25.7	580	27.0	3,250
25.2	75	25.9	680	27.5	4,500
25.3	150	26.1	1,250	28.0	5,900

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1			0	35	82	90	310	65	168			
2			0	35	75	82	240	55	120			
3			0	25	75	75	204	50	75			
4			0	25	75	75	168	50	75			
5			0	25	75	75	135	45	65			
6			0	25	70	70	135	35	55			
7			0	25	70	65	168	90	60			
8			0	25	70	65	290	75	60			
9			0	21	70	70	340	60	50			
10			0	21	65	75	320	45	35			
11			0	21	65	75	260	30	100			
12			0	21	65	75	204	25	150			
13			0	21	60	75	168	55	112			
14			0	18	595	75	142	45	75			
15			0	18	4,270	70	168	30	65			
16			0	18	2,770	65	400	25	45			
17			360	18	4,020	65	320	35	65			
18			400	18	3,440	65	240	30	75			
19			222	18	1,210	70	186	25	60			
20			142	14	580	75	250	25	45			
21			120	30	412	75	231	25	35			
22			82	55	310	75	300	68	25			
23			75	623	250	75	260	796	18			
24			75	1,990	231	75	204	300	18			
25			65	620	204	75	177	186	11			
26			55	320	177	75	150	150	5			
27			45	250	135	168	135	142	2			
28			45	195	105	322	120	120	2			
29			40	150	-	1,110	90	381	0			
30			35	142	-	556	75	352	0			
31			35	120	-	460	-	222	-			

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	0	0	0	0	0
November.....	0	0	0	0	0
December.....	1,796	400	0	57.9	3,560
Calendar year 1937.....	27,995	1,480	0	76.7	55,520
January.....	4,942	1,990	14	159	9,800
February.....	19,626	4,270	60	701	38,930
March.....	4,518	1,110	65	146	8,960
April.....	6,290	400	75	215	12,670
May.....	3,637	796	25	117	7,210
June.....	1,671	168	0	55.7	3,310
July.....	0	0	0	0	0
August.....	0	0	0	0	0
September.....	0	0	0	0	0
Water year 1937-38.....	42,580	4,270	0	117	84,440

## ARKANSAS RIVER BASIN

Petit Jean Creek at Danville, Ark.

Location.- Wire-weight gage, lat.  $35^{\circ}04'$ , long.  $93^{\circ}24'$ , in SE $\frac{1}{4}$  sec. 25, T. 5 N., R. 23 W., at highway bridge at Danville, a quarter of a mile downstream from Dutch Creek. Zero of gage is 303.24 feet above mean sea level (general adjustment of 1929).

Drainage area.- 765 square miles.

Records available.- July 1937 to September 1938.

Extremes.- 1937: Maximum discharge observed during period, 1,830 second-feet Sept. 5 (gage height, 14.34 feet); minimum observed, 2.8 second-feet Aug. 21, 22 (gage height, 1.75 feet).

1937-38: Maximum discharge observed during year, 45,400 second-feet Feb. 18 (gage height, 29.30 feet); minimum observed, 2.4 second-feet Sept. 3 (gage height, 1.73 feet).

Maximum stage known, 30.0 feet June 18, 1935 (discharge, about 52,000 second-feet).

Remarks.- Records fair except those for days of rapidly changing stage, which are poor. Gage read twice daily. Results of 25 discharge measurements furnished by Corps of Engineers, U. S. Army. Gage-height record collected in cooperation with U. S. Weather Bureau.

Rating table, July 1937 to September 1938 (gage height, in feet, and discharge, in second-feet)

1.7	2	3.5	124	12.0	1,370	23.0	8,650
1.9	6	4.0	185	15.0	1,990	25.0	16,200
2.1	15	5.0	336	18.0	2,820	27.0	27,500
2.3	26	6.0	466	20.0	3,500	29.0	42,700
2.6	45	7.0	581	21.0	4,200		
3.0	75	9.0	860	22.0	5,800		

Discharge, in second-feet, 1937-38

1937

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1										25	842	4.8
2										26	196	4.5
3										25	75	130
4										20	48	1,030
5										18	37	1,600
6										19	30	1,090
7										24	24	1,520
8										18	28	812
9										20	24	405
10										52	17	1,050
11										56	12	727
12										48	6.4	356
13										28	6.4	196
14										22	5.8	130
15										18	5.2	93
16										15	4.2	75
17										16	5.5	59
18										14	7.6	52
19										13	6.8	45
20										12	4.0	41
21										10	2.9	34
22										8.4	2.9	33
23										7.6	6.0	30
24										5.5	7.6	27
25										4.8	4.2	26
26										4.8	28	36
27										4.8	19	225
28										4.2	14	152
29										17	8.8	84
30										48	7.6	56
31										496	6.0	-



Discharge, in second-feet, of Petit Jean Creek at Danville, Ark., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	42	63	225	785	4,450	800	4,900	350	210	42	52	3.5
2	34	56	196	685	3,360	619	3,220	289	168	37	32	2.9
3	30	52	183	632	2,520	569	2,090	240	135	34	29	2.8
4	29	48	170	557	1,790	511	1,260	196	118	30	25	306
5	36	45	183	466	1,210	466	815	183	108	28	20	404
6	34	41	196	430	939	442	658	158	108	25	16	166
7	31	39	170	391	845	391	671	183	98	22	12	50
8	30	41	152	378	845	335	1,870	256	84	23	12	52
9	22	314	135	350	671	335	3,460	289	75	20	8.4	44
10	19	1,890	124	289	581	478	3,690	240	67	18	6.8	36
11	17	5,820	118	272	545	569	3,150	170	118	15	5.5	24
12	15	8,350	108	240	533	442	2,190	140	350	15	4.8	18
13	14	6,300	103	225	511	378	1,410	135	557	17	4.2	14
14	14	3,710	272	210	466	335	923	391	335	33	4.5	52
15	12	2,400	272	183	1,350	306	741	699	196	22	9.2	581
16	12	1,600	130	170	3,150	545	3,660	466	140	18	6.8	272
17	20	1,560	1,400	158	7,790	581	8,050	321	113	20	59	93
18	291	1,640	3,460	152	34,500	378	6,300	240	103	18	478	48
19	1,150	1,260	4,320	146	35,300	321	3,690	183	146	289	364	34
20	2,240	923	3,590	140	18,700	478	2,700	170	404	124	113	25
21	1,600	685	2,670	1,760	9,700	430	2,460	158	417	88	59	19
22	585	557	1,790	4,890	5,060	442	2,580	140	256	56	39	16
23	364	489	1,660	9,350	3,500	335	1,990	799	158	37	32	14
24	256	430	1,760	19,700	2,730	306	1,370	2,550	113	28	24	12
25	196	391	1,500	26,000	1,970	256	967	2,090	93	20	18	6.0
26	152	364	1,140	20,200	1,330	256	770	909	75	17	13	8.4
27	130	335	1,170	10,400	1,020	593	606	466	63	15	11	7.2
28	108	289	1,480	5,060	830	1,390	511	378	56	12	8.8	6.0
29	93	272	1,320	3,360	-	3,930	442	336	48	42	7.6	5.8
30	84	240	1,180	2,820	-	8,350	417	306	45	25	5.5	13
31	71	-	939	3,990	-	8,050	-	289	-	84	4.5	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
July 1937.....	1,100.1	496	4.2	35.5	2,180
August.....	1,421.9	842	2.9	49.1	2,960
September.....	10,033.3	1,600	4.5	334	19,900
The period.....					25,040
October.....	7,841	2,240	12	253	15,550
November.....	40,205	8,350	39	1,340	79,750
December.....	32,096	4,320	103	1,035	65,660
Calendar year.....					
January.....	114,379	26,000	140	3,690	226,900
February.....	145,196	35,300	466	5,221	290,000
March.....	33,621	8,350	256	1,085	66,690
April.....	67,581	8,050	417	2,253	134,000
May.....	13,720	2,550	135	443	27,210
June.....	4,948	567	45	165	9,810
July.....	1,274	259	12	41.1	2,530
August.....	1,434.6	478	4.2	47.9	2,940
September.....	2,357.6	581	2.8	78.6	4,880
Water year 1937-38.....	465,703.2	35,300	2.8	1,276	923,700

## Fourche La Fave River near Nimrod, Ark.

Location.- Staff gage, lat. 34°57', long. 93°09', in SW $\frac{1}{4}$  sec. 32, T. 4 N., R. 20 W., 4 $\frac{1}{2}$  miles west of Nimrod and about 9 miles upstream from South Fourche La Fave River.

Drainage area.- 682 square miles.

Records available.- October 1937 to September 1938.

Extremes.- Maximum discharge observed during year, 42,300 second-feet Feb. 19 (gage height, 29.7 feet), from rating curve extended above 16,000 second-feet by velocity-area studies; minimum observed, 2 second-feet Sept. 2-5, 30; minimum gage height observed, 3.62 feet Sept. 4.

Flood of April 1927 reached a stage of 28.15 feet (discharge, 37,600 second-feet).

Remarks.- Records fair except those below 100 second-feet, which are poor. Gage read once daily prior to May 20 and twice daily thereafter. Records collected in co-operation with Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

3.5	1	4.6	82	7.0	920	16.0	13,000
3.7	3	5.0	148	8.0	1,580	20.0	19,600
3.9	10	5.5	265	9.0	2,510	24.0	27,200
4.1	24	6.0	444	11.0	5,400	27.0	34,500
4.3	45	6.5	665	13.0	8,400	30.0	45,200

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	130	148	265	1,170	5,010	711	2,770	329	178	49	43	3
2	113	130	265	1,040	2,390	619	1,750	329	168	44	16	2
3	97	97	212	920	1,750	573	1,370	265	139	40	15	2
4	82	97	212	768	1,510	528	1,040	237	130	36	12	2
5	82	113	212	665	1,230	486	663	237	122	34	9	2
6	68	113	189	573	920	486	758	237	130	32	9	3
7	68	82	189	528	863	403	809	212	122	26	9	3
8	55	97	148	444	758	365	2,670	237	97	32	38	4
9	55	403	148	403	665	365	6,490	237	94	33	90	28
10	55	4,020	148	365	573	711	4,430	189	91	37	24	27
11	55	15,200	130	296	528	619	2,510	189	68	32	14	24
12	43	9,550	130	296	486	528	1,750	168	96	31	22	14
13	43	2,590	148	265	444	486	1,300	189	105	56	36	10
14	43	1,590	148	237	403	486	978	212	113	31	39	10
15	43	1,160	130	237	978	486	942	237	92	32	32	10
16	43	1,100	130	212	2,000	486	8,100	189	97	42	25	15
17	68	2,510	2,610	212	11,800	444	10,900	168	97	36	29	14
18	68	2,900	6,450	189	29,700	403	3,670	148	92	28	97	12
19	1,800	1,830	4,210	189	40,600	365	2,090	148	122	39	62	10
20	8,180	1,440	2,390	168	25,700	329	1,830	139	130	51	44	9
21	3,330	1,100	1,670	2,370	4,550	329	1,590	130	122	44	22	7
22	1,590	920	1,300	13,000	2,390	329	1,370	122	122	35	43	6
23	809	768	2,000	14,000	1,920	329	1,230	130	97	32	14	5
24	486	573	2,390	21,600	1,510	329	1,100	528	88	34	10	5
25	365	573	2,000	33,600	1,300	329	978	313	79	55	8	4
26	296	528	1,510	22,400	1,100	329	711	224	72	48	7	4
27	265	444	1,590	3,430	920	365	619	178	65	38	5	4
28	265	365	2,510	1,830	809	403	486	178	63	31	5	3
29	237	329	2,180	1,590	-	6,590	444	329	56	28	4	3
30	237	296	1,670	1,670	-	13,600	403	265	53	50	4	2
31	212	-	1,370	5,420	-	5,990	-	212	-	29	3	-
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					19,283	8,180	43	622	38,250			
November.....					51,056	15,200	82	1,702	101,300			
December.....					38,854	6,450	130	1,253	77,070			
Calendar year .....												
January.....					130,077	33,600	168	4,196	258,000			
February.....					142,807	40,600	403	5,100	283,300			
March.....					38,801	13,600	329	1,252	76,960			
April.....					66,151	10,900	403	2,205	131,200			
May.....					6,905	528	122	223	13,700			
June.....					3,110	178	53	104	6,170			
July.....					1,167	56	28	37.6	2,310			
August.....					790	97	3	25.5	1,570			
September.....					247	28	2	8.2	490			
Water year 1937-38.....					499,248	40,600	2	1,368	990,300			

## Bayou Meto near Stuttgart, Ark.

Location.— Wire-weight gage, lat.  $34^{\circ}27'15''$ , long.  $91^{\circ}37'00''$ , in SE $\frac{1}{4}$  sec. 11, T. 3 S., R. 8 W., at highway bridge,  $5\frac{1}{2}$  miles southwest of Stuttgart and 8 miles upstream from Crooked Creek. Auxiliary wire-weight gage, lat.  $34^{\circ}24'25''$ , long.  $91^{\circ}38'30''$ , in NW $\frac{1}{4}$  sec. 36, T. 3 S., R. 6 W., 5.4 miles downstream from main gage, used to determine slope. Zero of gage is 169.94 feet above mean sea level (general adjustment of 1929).

Records available.— October 1935 to September 1938.

Extremes.— 1936-37: Maximum discharge observed during year, 6,550 second-feet (revised) Jan. 26, 27 (gage height, 25.50 feet).  
1937-38: Maximum discharge observed during year, 3,050 second-feet Feb. 1 (gage height, 23.26 feet); no flow at times in June, July, and August.  
1938-39: Maximum discharge observed, that of Jan. 26, 27, 1937; no flow at times in each year.

Remarks.— Records fair except those below about 10 second-feet, which are poor. Discharge computed by slope method. Flow affected by diversions for irrigation. At high stages, probably above 24 feet, overflow into Crooked Creek occurs above station. Gages read twice daily. Records for water year 1936-37 supersede those published in Water-Supply Paper 827.

Discharge, in second-feet, 1936-38

1936-37

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		0	28	411	5,120	1,310	393	179	26	3	0	0
2		3	34	745	4,880	1,270	369	193	30	6	0	0
3		34	36	787	4,570	1,220	352	201	56	7	0	1
4		95	38	810	4,360	991	320	172	74	5	0	1
5		137	41	850	4,140	1,070	280	172	102	4	0	2
6		165	224	878	4,060	1,010	229	179	130	2	0	5
7		179	475	888	3,830	907	229	172	168	1	0	10
8		209	669	924	3,720	971	209	165	165	0	0	13
9		241	772	979	3,400	968	211	165	165	0	0	24
10		273	863	1,060	3,190	964	215	165	165	0	0	50
11		265	860	1,110	3,100	915	210	151	158	0	0	65
12		233	902	1,190	2,950	868	210	144	151	0	0	62
13		179	892	1,240	2,840	868	234	289	137	0	0	59
14		158	858	1,260	2,560	870	234	359	116	0	0	53
15		130	836	1,300	2,340	850	234	393	95	0	0	56
16		102	786	1,470	2,260	765	228	403	74	0	0	56
17		83	732	1,480	2,190	716	210	458	65	0	0	71
18		68	697	1,710	2,060	630	195	469	53	0	0	89
19		44	681	1,890	2,070	606	172	470	44	0	0	74
20		12	641	2,320	1,930	470	168	451	41	0	0	66
21		6	682	2,790	1,860	425	151	431	36	0	0	62
22		6	446	3,710	1,840	374	151	413	13	0	0	63
23		9	330	4,360	1,740	306	137	335	0	0	0	44
24		16	279	5,240	1,680	267	95	321	0	0	2	36
25		18	215	6,340	1,580	281	83	278	0	0	2	27
26		19	133	6,550	1,500	303	77	201	0	0	1	30
27		19	103	6,430	1,420	342	95	130	1	0	0	25
28		21	116	6,040	1,400	393	116	95	1	0	0	24
29		22	134	6,010	-	420	144	68	1	0	0	20
30		23	158	5,810	-	422	158	44	1	0	0	17
31		-	278	5,550	-	411	-	31	-	0	0	-

## ARKANSAS RIVER BASIN

Discharge, in second-feet, of Bayou Meto near Stuttgart, Ark., 1936-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	31	83	158	1,100	3,050	2,700	1,230	1,020	4	18	0	13
2	41	65	130	1,110	2,980	2,650	1,280	932	2	11	0	15
3	53	50	109	1,110	2,980	2,600	1,320	820	1	6	0	14
4	71	38	102	1,110	2,980	2,510	1,390	685	0	3	9	15
5	83	34	96	1,100	2,980	2,440	1,420	530	0	2	53	16
6	83	27	83	1,090	2,930	2,340	1,470	384	0	1	74	16
7	77	22	77	1,070	2,870	2,270	1,600	276	0	0	83	16
8	77	20	71	1,050	2,750	2,190	1,780	178	0	0	83	13
9	83	28	62	1,000	2,700	2,120	1,950	109	5	0	95	11
10	102	109	56	950	2,600	2,100	2,120	68	3	0	102	10
11	102	220	53	900	2,530	2,070	2,190	50	2	0	109	6
12	109	340	50	844	2,410	2,000	2,230	41	2	0	95	5
13	102	428	47	777	2,340	1,930	2,260	36	1	0	65	4
14	95	478	44	713	2,250	1,860	2,230	36	0	0	77	5
15	77	513	44	606	2,190	1,810	2,190	34	0	0	95	6
16	59	551	44	510	2,110	1,750	2,160	29	0	0	116	7
17	53	598	68	403	1,970	1,720	2,100	36	0	0	123	7
18	68	610	109	321	2,030	1,640	2,040	77	0	0	137	6
19	95	615	168	245	2,160	1,680	1,960	95	0	0	161	5
20	123	609	225	186	2,360	1,610	1,840	83	0	0	161	4
21	151	585	297	408	2,560	1,440	1,800	68	1	0	151	3
22	179	556	359	1,120	2,650	1,360	1,710	60	0	0	144	3
23	215	519	548	1,530	2,750	1,320	1,620	38	4	0	123	4
24	255	469	745	1,730	2,750	1,260	1,550	31	14	0	102	4
25	284	414	862	2,090	2,810	1,180	1,470	26	27	0	83	5
26	280	365	925	2,430	2,810	1,110	1,420	20	34	0	65	7
27	283	310	976	2,690	2,750	1,080	1,350	18	36	0	50	8
28	220	285	1,040	2,750	2,750	996	1,310	11	41	0	36	9
29	179	281	1,060	2,810	-	1,050	1,220	8	36	0	26	9
30	144	193	1,080	2,900	-	1,110	1,140	6	26	0	20	8
31	109	-	1,090	2,950	-	1,170	-	5	-	0	15	-
Month				Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet				
October 1936 .....				0	0	0	0	0				
November .....				2,769	273	0	92.3	5,490				
December .....				13,833	902	28	446	27,440				
Calendar year 1936 .....				56,897	902	0	101	73,190				
January 1937 .....				82,132	6,550	411	2,649	162,900				
February .....				78,550	5,120	1,400	2,805	165,800				
March .....				22,162	1,310	267	715	43,960				
April .....				6,099	393	77	203	12,100				
May .....				7,697	470	31	248	15,270				
June .....				2,058	166	0	68.6	4,080				
July .....				30	6	0	1.0	60				
August .....				5	2	0	.2	9.9				
September .....				1,097	89	0	36.6	2,180				
Water year 1936-37 .....				216,432	6,550	0	593	429,300				
October 1937 .....				3,864	284	31	125	7,660				
November .....				9,354	615	20	311	18,510				
December .....				10,757	1,090	44	347	21,540				
Calendar year 1937 .....				223,785	6,550	0	613	443,900				
January .....				39,593	2,950	186	1,277	78,530				
February .....				72,990	3,050	1,970	2,607	144,800				
March .....				54,836	2,700	996	1,769	108,800				
April .....				51,340	2,280	1,140	1,711	101,800				
May .....				5,797	1,020	5	187	11,500				
June .....				239	41	0	8.0	474				
July .....				41	18	0	1.3	81				
August .....				2,451	151	0	79.1	4,860				
September .....				253	16	3	8.4	502				
Water year 1937-38 .....				251,495	3,050	0	689	498,800				

## Prairie Dog Town Fork of Red River near Estelline, Tex.

Location.- Wire-weight gage, lat. 34°35', long. 100°26', at bridge on U. S. Highway 370, 180 feet upstream from Fort Worth and Denver City Railway bridge, 1.7 miles miles northwest of Estelline, Hall County, and 6.9 miles upstream from Baylor Creek. Prior to September 1925 at same datum at site 405 feet downstream. Zero of gage is 1,754.60 feet above mean sea level (adjustment of 1929).

Drainage area.- 6,969 square miles, of which about 2,930 square miles is probably non-contributing.

Records available.- January 1924 to September 1925 and April to September 1938.

Extremes.- Maximum discharge during period, about 40,000 second-feet June 16 (gage height, 8.30 feet, from floodmarks), from rating curve extended above 13,000 second-feet; no flow at times.  
1924-24, 1938: Maximum discharge, that of June 16, 1938; no flow at times.  
Maximum stage known, about 14.0 feet, on present gage, in May 1914.

Remarks.- Records poor. Gage read twice daily, oftener during flood. No diversions.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							0	0	4.6	3.2	10	0
2							0	0	0	2.3	0	0
3							0	0	375	0	0	0
4							0	0	54	0	0	0
5							0	0	21	0	0	1,840
6							0	0	2.6	0	0	305
7							0	0	0	0	0	10
8							0	0	41	45.6	0	0
9							0	0	137	217	0	0
10							0	0	14	36	0	0
11							0	0	4.4	8.5	0	0
12							0	0	0	0	0	0
13							0	0	0	0	0	586
14							0	0	0	0	0	1,040
15							0	0	1,770	0	0	13
16							0	0	13,200	68	0	0
17							0	2,110	260	142	789	0
18							0	381	70	52	7.0	0
19							0	2,390	27	5.6	0	0
20							0	450	0	115	0	0
21							0	210	0	75	0	0
22							0	451	0	165	0	0
23							0	1,300	9.3	36	0	0
24							0	175	9.8	24.6	0	0
25							0	36	4,160	25	0	0
26							0	41	2,930	104	0	0
27							0	12	470	29	0	0
28							0	2.0	82	7.6	0	0
29							0	0	85	1,160	0	0
30							0	0	107	114	0	0
31							-	7.2	-	32	0	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March.....						-	-	-	-	-		
April.....						0.6	0.6	0	0.02	1.2		
May.....						8,665.2	2,390	0	280	17,190		
June.....						25,833.6	13,200	0	794	47,270		
July.....						2,857.8	1,160	0	92.2	5,670		
August.....						806.0	789	0	26.0	1,600		
September.....						3,792.0	1,840	0	126	7,520		
The period.....										79,250		

## Red River near Terral, Okla.

Location.- Wire-weight gage, lat. 33°52'50", long. 97°56'15", at bridge on U. S. Highway 81, a quarter of a mile downstream from Chicago, Rock Island and Gulf Railway bridge, 1.2 miles south of Terral, Jefferson County, and 3.2 miles downstream from Little Wichita River. Zero of gage is 770.31 feet above mean sea level (general adjustment of 1929).

Drainage area.- 28,280 square miles, of which about 5,860 square miles is probably non-contributing.

Records available.- April to September 1938.

Extremes.- Maximum discharge during period, 43,700 second-feet May 24 (gage height, 17.85 feet, from floodmarks); minimum observed, 155 second-feet Sept. 30.

Maximum stage known, 27.2 feet May 19, 1935; floods of 1891 and May 1908 are reported to have reached about the same stage.

Remarks.- Records good. Gage read twice daily, oftener during floods. Flow slightly regulated by Lake Kemp on Wichita River, in Baylor County, Tex., principal diversion is for irrigation in vicinity of Wichita Falls, Tex.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							12,900	1,960	3,150	3,300	995	284
2							5,700	1,040	2,300	2,300	770	288
3							4,150	1,040	1,850	1,890	950	302
4							1,950	1,850	2,850	1,280	995	230
5							1,410	20,000	6,500	950	770	230
6							1,280	14,600	9,950	770	690	206
7							1,150	8,150	7,300	690	360	266
8							1,040	14,600	6,500	690	615	302
9							860	10,400	13,100	652	480	284
10							730	7,300	36,200	615	480	234
11							690	4,700	17,600	580	450	198
12							652	3,800	16,100	615	420	244
13							652	2,850	9,050	615	370	266
14							652	2,850	7,300	690	345	612
15							690	8,150	6,100	730	311	480
16							860	5,700	5,700	615	311	395
17							905	3,620	4,900	615	450	1,130
18							1,040	6,200	21,600	652	370	1,220
19							1,950	8,150	8,150	770	2,740	860
20							1,690	8,150	6,500	690	2,300	652
21							1,410	12,900	4,900	1,040	1,040	480
22							1,410	15,800	2,850	1,100	770	395
23							1,220	37,200	2,180	1,220	690	320
24							950	38,300	1,620	950	652	276
25							770	32,000	1,410	1,220	615	239
26							730	25,600	1,810	1,340	512	210
27							1,770	11,600	21,900	1,620	395	198
28							7,700	6,500	12,700	1,550	320	190
29							6,900	4,700	6,500	1,280	288	180
30							3,150	4,320	2,420	1,100	280	158
31							-	4,150	-	1,040	284	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March.....						-	-	-	-	-		
April.....						66,981	12,900	652	2,253	132,900		
May.....						327,560	38,300	1,040	10,570	649,700		
June.....						249,790	36,200	1,410	8,326	495,500		
July.....						32,969	3,300	580	1,064	65,390		
August.....						21,518	2,740	280	694	42,680		
September.....						11,248	1,220	158	375	22,310		
The period.....										1,408,000		

## Red River near Colbert, Okla.

Location.- Water-stage recorder, lat. 33°49', long. 96°32', in SW¼ sec. 25, T. 8 S., R. 7 E., at Missouri-Kansas-Texas Railroad bridge, 2 miles south of Colbert and 10 miles downstream from Washita River. Zero of gage is 507.36 feet above mean sea level (general adjustment of 1929).

Drainage area.- 38,700 square miles.

Records available.- October 1923 to September 1938.

Average discharge.- 15 years, 5,076 second-feet.

Extremes.- Maximum discharge during year, 138,000 second-feet Feb. 18 (gage height, 19.60 feet); minimum, 470 second-feet Jan. 19; minimum gage height, 1.19 feet Dec. 11.  
1923-38: Maximum discharge, 201,000 second-feet May 21, 1935 (gage height, 23.95 feet); minimum, 75 second-feet Aug. 21, 1934 (gage height, 0.05 foot, present datum).  
Maximum stage known, 35.5 feet May 26, 1908.

Remarks.- Records fair. Discharge for July 3-13 computed from once-daily readings of gage by U. S. Weather Bureau. Gage-height record collected in cooperation with U. S. Weather Bureau. Results of 10 discharge measurements furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	680	1,100	530	892	2,040	5,810	45,000	10,000	9,410	7,960	2,630	828
2	632	1,020	530	852	1,660	5,400	30,400	9,260	8,540	6,090	2,550	800
3	608	972	542	800	1,430	4,650	14,400	8,950	7,870	4,890	2,320	743
4	596	918	554	771	1,510	4,200	9,120	4,650	6,370	4,540	1,970	756
5	584	860	554	736	1,220	3,670	7,960	3,770	5,140	3,580	1,730	715
6	560	820	542	701	1,110	3,290	6,940	12,100	4,650	3,200	1,430	701
7	524	814	542	668	1,040	3,290	9,120	23,500	5,140	2,870	1,440	729
8	500	807	524	638	990	3,200	6,660	25,900	17,600	2,550	1,520	807
9	554	965	518	625	936	4,240	4,650	25,100	20,300	2,250	1,530	764
10	560	1,390	500	620	900	4,770	4,310	26,800	14,700	2,250	1,260	674
11	554	1,300	500	602	854	3,480	3,880	25,100	42,500	2,250	1,300	800
12	709	1,190	500	596	860	2,950	3,570	17,700	26,900	1,970	1,200	1,190
13	7,640	1,190	500	566	852	2,710	3,380	10,600	22,000	1,970	1,370	972
14	25,900	1,230	506	530	828	2,550	3,200	11,600	14,200	1,770	1,260	1,210
15	16,400	2,110	560	524	828	3,290	5,720	9,270	9,120	1,550	1,080	1,000
16	10,000	2,110	1,370	512	15,800	3,770	6,230	7,090	8,540	1,560	954	1,000
17	10,300	1,350	7,830	500	107,000	2,630	4,650	6,830	8,540	1,560	884	844
18	7,950	1,070	6,660	490	132,000	2,040	4,310	10,800	7,970	1,560	1,210	754
19	4,690	684	3,770	480	98,300	1,760	3,770	7,240	22,300	1,610	1,230	990
20	3,850	771	2,790	552	68,500	1,760	3,350	6,660	10,900	1,660	1,690	1,120
21	3,380	736	2,180	2,990	45,000	1,720	3,380	11,100	8,250	1,830	1,900	1,440
22	2,870	680	2,250	2,630	19,600	1,550	4,650	13,400	6,300	1,660	1,320	1,830
23	2,550	662	2,550	9,140	11,600	1,470	6,300	23,900	6,370	1,720	2,020	1,620
24	2,250	632	2,550	13,800	9,410	1,590	5,400	46,600	5,270	1,660	2,550	1,360
25	2,110	620	1,640	12,600	7,960	1,600	5,140	56,000	4,200	1,790	1,760	1,190
26	2,110	608	1,310	8,250	6,510	2,180	4,650	51,000	3,670	2,400	1,420	1,020
27	1,900	572	1,190	5,950	6,230	10,200	4,200	44,000	3,290	2,260	1,270	900
28	1,660	560	1,060	4,200	5,950	37,600	3,380	26,800	10,300	2,110	1,210	820
29	1,460	554	1,020	3,570	-	71,100	7,670	15,000	14,900	2,180	1,090	771
30	1,290	548	945	3,030	-	63,000	8,540	14,700	10,300	2,320	961	736
31	1,200	-	953	2,550	-	60,000	-	12,600	-	2,550	900	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						117,011	25,900	500	3,775	232,100		
November.....						29,043	2,110	548	968	57,610		
December.....						47,930	7,830	500	1,548	95,170		
Calendar year 1937.....						1,178,684	55,000	426	3,229	2,338,000		
January.....						81,366	13,800	480	2,625	161,400		
February.....						554,748	132,000	828	19,810	1,100,000		
March.....						321,470	71,100	1,470	10,370	637,600		
April.....						234,460	45,000	3,200	7,315	465,000		
May.....						578,510	55,000	3,770	13,560	1,147,000		
June.....						346,040	42,500	3,290	11,530	686,400		
July.....						79,900	7,960	1,560	2,577	158,500		
August.....						46,779	2,630	864	1,509	92,780		
September.....						29,074	1,830	674	969	57,670		
Water year 1937-38.....						2,466,381	132,000	490	6,757	4,891,000		

## RED RIVER BASIN

Red River at Garland, Ark.

Location.— Water-stage recorder, lat. 33°21', long. 93°42', in SE $\frac{1}{4}$  sec. 17, T. 16 S., R. 25 W., at Garland. Zero of gage is 203.08 feet above mean sea level (general adjustment of 1929).

Drainage area.— 51,500 square miles.

Records available.— October 1927 to December 1931, June 1934 to September 1938.

Extremes.— Maximum discharge during year, 327,000 second-feet Feb. 25; maximum gage height, 35.97 feet Feb. 24, just before break in levee above gage; minimum discharge, 1,500 second-feet Sept. 26-28; minimum gage height, 2.56 feet Oct. 16.  
1927-31, 1934-38: Maximum discharge, that of Feb. 25, 1938; maximum gage height, that of Feb. 24, 1938; minimum discharge, 400 second-feet Oct. 8-19, 1931.  
Maximum stage known prior to 1938, 35.4 feet, present datum, in April 1927 (discharge not determined).

Remarks.— Records fair. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	4,420	*4,280	3,880	32,600	99,200	139,000	108,000	10,700	47,400	7,710	5,660	2,530
2	3,880	*4,010	3,760	30,800	83,600	108,000	120,000	10,200	37,800	9,960	7,610	2,430
3	3,630	*3,760	3,510	27,900	70,900	82,900	131,000	9,710	29,500	15,300	9,010	2,230
4	3,610	*3,630	3,270	24,200	62,100	67,000	139,000	11,200	23,400	13,800	9,470	2,130
5	3,270	*3,390	3,160	20,100	53,300	65,300	135,000	13,400	18,300	11,000	9,470	2,030
6	3,050	*3,270	3,060	16,200	45,500	51,300	113,000	13,800	14,700	9,240	9,010	2,030
7	2,830	*3,160	2,940	13,400	38,700	39,200	102,000	12,900	12,900	8,130	7,710	1,940
8	*2,730	*3,160	2,940	11,200	32,500	30,800	90,800	11,200	12,000	7,310	6,630	1,850
9	*2,630	*3,390	2,830	9,710	26,200	23,800	90,200	10,200	13,400	6,730	4,660	1,760
10	*2,430	*4,280	2,830	8,660	20,100	19,000	90,900	11,800	14,400	6,180	4,010	1,670
11	*2,430	6,180	2,730	7,610	15,000	19,700	87,900	23,400	19,300	5,660	3,630	1,670
12	*2,330	12,300	2,630	6,730	11,500	22,700	80,200	30,400	30,400	5,170	3,390	1,670
13	*2,330	22,700	2,630	6,180	9,960	23,800	71,500	34,700	32,100	4,860	3,270	1,670
14	*2,230	26,600	2,630	5,660	9,470	23,100	63,200	35,200	46,900	4,660	3,160	1,670
15	*2,230	26,600	2,630	5,330	9,010	20,400	55,800	33,800	51,800	4,280	3,160	1,760
16	*2,230	27,000	2,530	5,010	9,950	16,900	48,800	31,200	49,300	4,140	2,940	1,850
17	*10,300	28,700	3,060	4,860	13,400	14,400	45,300	30,000	42,200	4,010	2,830	1,760
18	19,300	30,400	3,280	4,860	32,400	12,800	58,900	26,600	34,300	4,010	2,730	1,760
19	18,000	28,700	20,100	4,280	78,200	12,600	64,200	20,800	26,200	4,010	2,630	1,670
20	12,600	26,000	36,900	4,140	100,000	12,900	63,200	16,200	23,100	4,010	2,630	1,760
21	12,900	20,400	42,300	4,280	130,000	12,900	56,800	14,000	24,200	4,140	2,630	1,850
22	14,000	15,600	41,000	11,000	170,000	12,000	50,300	13,200	27,500	4,280	2,530	1,850
23	12,600	12,300	36,900	42,400	206,000	11,500	44,100	13,800	29,500	4,010	2,330	1,760
24	11,600	9,710	34,300	72,700	*272,000	11,000	38,700	13,200	22,700	3,880	2,530	1,670
25	10,200	7,920	32,600	94,900	*321,000	11,000	33,000	13,800	16,600	3,750	2,630	1,650
26	*7,920	6,540	31,200	114,000	*294,000	10,200	27,900	26,800	13,200	3,630	2,630	1,500
27	*6,540	5,660	30,400	140,000	*234,000	9,950	23,100	46,900	11,500	3,630	2,530	1,500
28	*5,830	5,010	30,000	167,000	*181,000	11,000	17,900	55,800	10,400	3,610	2,530	1,500
29	*5,330	4,560	31,700	149,000	"	20,500	14,000	59,400	9,470	3,510	2,430	1,580
30	*4,710	4,280	33,000	131,000	"	64,500	11,800	60,500	8,560	3,630	2,430	1,760
31	*4,140	"	33,000	116,000	"	91,700	"	56,800	"	4,560	2,630	"
Month					Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet			
October.....					198,930	19,300	2,230	6,417	394,600			
November.....					362,480	30,400	3,160	12,080	719,000			
December.....					492,370	42,300	2,530	15,880	976,600			
Calendar year 1937.....					5,843,210	63,810	1,760	16,010	11,590,000			
January.....					1,280,110	187,000	4,140	41,290	2,639,000			
February.....					2,628,980	321,000	3,010	93,890	5,215,000			
March.....					1,061,960	139,000	9,950	34,300	2,108,000			
April.....					2,079,600	139,000	11,800	69,320	4,125,000			
May.....					769,610	60,500	9,710	24,830	1,526,000			
June.....					764,030	51,800	8,560	25,130	1,496,000			
July.....					182,590	15,300	3,510	58,900	362,200			
August.....					130,140	9,470	2,330	4,198	288,100			
September.....					54,390	2,630	1,600	1,813	107,900			
Water year 1937-38.....					9,995,180	321,000	1,500	27,380	19,830,000			

\*Gage-height record faulty; discharge computed from stage graph constructed on basis of observer's twice-daily readings.

†Bypass flow through levee break half a mile above gage; discharge determined from hydrograph based on two discharge measurements and records for days preceding and following break.



## Salt Fork of Red River at Mangum, Okla.

Location.- Wire-weight gage, lat. 34°52', long. 99°31', in SW 1/4 sec. 34, T. 5 N., R. 22 W., at bridge on State Highway 34, half a mile south of Mangum. Zero of gage is 1,490.78 feet above mean sea level (general adjustment of 1929).

Drainage area.- 1,390 square miles.

Records available.- April 1905 to June 1906, October 1937 to September 1938.

Extremes.- Maximum discharge observed during year, 24,400 second-feet June 16 (gage height, 14.7 feet), from rating curve extended above 6,000 second-feet; no flow at times.  
1905-6, 1937-38: Maximum discharge observed, that of June 16, 1938; no flow at times.

Remarks.- Records poor. Gage read twice daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0.1	0.5	0.9	5.3	3.8	16	5.5	5.3	58	117	106	0
2	0	.5	.9	5.1	3.4	11	4.1	3.8	60	95	61	0
3	.1	7.3	1.0	4.4	3.4	6.1	2.8	2.3	17	47	47	0
4	0	7.6	1.1	3.9	2.3	5.5	2.3	6.9	6	29	16	0
5	0	.5	.5	3.8	3.6	5.5	2.0	4.1	8	20	16	0
6	0	.5	.5	3.9	2.4	2.8	2.0	2.2	8	12	4.0	207
7	0	1.2	1.4	3.9	2.5	.7	*6	1.9	15	18	1.9	82
8	0	.5	2.8	3.9	2.4	2.1	*8	.7	21	9.5	1	22
9	24	.5	2.6	3.9	2.3	3.6	10	.5	74	47	.8	3.4
10	1.3	1.0	2.8	3.9	1.9	8.4	6.1	.3	3,360	78	.4	*2
11	.4	.5	2.8	4.3	1.9	20	42	.2	267	35	.3	*1
12	.5	.5	2.4	4.3	2.2	20	59	.1	176	9.5	.3	35
13	2.4	.6	1.3	4.4	1.9	5.5	23	.1	43	8.3	.2	283
14	.5	.5	5.7	4.1	1.5	2.5	1,400	.1	14	4.6	0	460
15	.2	.4	7.1	3.4	6.9	2.3	920	0	1,850	3.0	0	213
16	4.4	.4	7.3	3.6	16	1.5	250	1,780	11,100	3.4	0	162
17	24	.5	7.3	3.6	34	1.0	16	1,520	1,390	100	0	78
18	6.1	.3	6.5	3.6	38	.4	9.5	912	664	20	0	47
19	4.8	.3	6.1	3.6	38	.3	6.5	5,210	301	29	0	26
20	13	.3	5.3	3.6	42	.4	6.5	1,130	249	522	0	16
21	1.7	.3	5.1	5.1	34	.2	6.5	259	235	486	0	8.9
22	.9	.4	5.0	6.1	28	.1	6.5	634	181	213	0	7.7
23	1.0	.7	4.6	6.5	68	0	5.7	694	133	138	0	3.4
24	.7	.9	5.1	6.5	32	0	4.3	392	100	61	0	2.3
25	.7	.9	5.0	6.3	21	0	1.9	159	1,020	38	0	1.6
26	.5	1.0	4.6	6.3	17	.5	3.1	60	712	20	0	*1
27	.4	1.0	5.0	5.3	18	1.3	1,410	21	285	15	0	*.5
28	.4	1.0	5.3	5.0	20	32	665	154	194	7.1	0	.2
29	.4	1.0	5.3	4.3	-	89	15	60	155	473	0	.2
30	.5	1.0	5.3	3.9	-	23	8.4	34	138	342	0	.2
31	.5	-	5.3	3.8	-	21	-	19	-	194	0	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						89.5	24	0	2.89	178		
November.....						32.6	7.6	.3	1.09	65		
December.....						122.2	7.3	.5	3.94	242		
Calendar year .....												
January.....						139.6	6.5	3.4	4.50	277		
February.....						448.4	68	1.5	16.0	889		
March.....						282.7	89	0	9.12	561		
April.....						4,907.7	1,410	1.9	164	9,730		
May.....						13,066.5	5,210	0	422	25,920		
June.....						22,824.0	11,100	6.0	761	45,270		
July.....						3,194.4	522	3.0	103	6,340		
August.....						254.9	106	0	8.22	508		
September.....						1,643.4	460	0	54.8	3,260		
Water year 1937-38.....						47,005.9	11,100	0	129	93,240		

\*Gage-height missing; discharge estimated.

## Pease River near Crowell, Tex.

Location.— Wire-weight gage, lat. 34°08', long. 99°41', at Quanah-Crowell highway bridge, 7 miles upstream from Kansas City, Mexico & Orient Railway bridge and 8 miles north of Crowell, Foard County. Zero of gage is 1,330.44 feet above mean sea level (Texas State Highway Department benchmark). Prior to Apr. 24, 1938, chain gage at same site and datum.

Drainage area.— 2,937 square miles, of which about 533 square miles is probably non-contributing.

Records available.— January 1924 to September 1938.

Average discharge.— 13 years (1924-26, 1927-38), 193 second-feet.

Extremes.— Maximum discharge during year, about 40,000 second-feet June 25 (gage height, 8.1 feet, from floodmarks), from rating curve extended above 21,000 second-feet; no flow at times.

1924-38: Maximum discharge, about 86,000 second-feet Sept. 18, 1936 (gage height, 13.0 feet, from graph based on gage readings), from rating curve extended above 24,000 second-feet. No flow at times.

Maximum stage known, 19.6 feet June 4, 1891.

Remarks.— All records poor for period Oct. 1 to Mar. 31. Daily records poor, monthly records fair for period Apr. 1 to Sept. 30. Gage read once daily, oftener during floods, which occurred during period April to September. No diversions.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	2.0	1.7	4.7	3.5	1.4	19	39	3.8	11	101	55	0.5
2	2.0	172	4.7	3.2	2.3	19	18	1.6	8.5	58	26	0
3	.6	11	5.0	3.2	.6	17	9.2	1.2	8.5	43	11	0
4	.2	8.5	6.4	3.2	.6	13	7.8	3,720	22	34	7.8	0
5	0	65	6.4	3.2	.2	11	7.1	110	7.1	23	4.4	0
6	0	36	5.0	3.2	0	9.9	6.4	3,210	8.5	16	3.2	0
7	0	11	4.7	3.2	0	7.8	7.8	286	584	16	1.8	0
8	228	11	4.4	3.5	0	5.0	12	24	10,400	14	1.4	0
9	565	9.2	3.8	3.5	0	5.0	24	13	8,910	16	1.0	0
10	538	8.5	3.5	3.5	0	5.7	22	11	1,530	19	.6	0
11	83	7.8	7.1	3.2	0	6.4	19	54	493	14	.4	0
12	7,500	4.4	6.5	3.2	0	5.0	9.2	352	228	9.2	.4	0
13	207	3.5	9.2	3.2	0	4.1	7.1	2,650	97	7.1	0	0
14	278	3.2	11	3.2	39	3.2	51	723	63	7.1	0	0
15	116	3.2	13	3.2	296	1.6	235	264	2,060	7.8	0	114
16	51	3.5	16	3.2	39	1.0	62	123	5,290	20	2.2	48
17	51	3.5	13	3.2	31	.6	31	78	976	32	1,310	9.9
18	36	3.2	43	3.2	43	.2	16	148	200	232	1,680	5.0
19	38	3.2	8.5	2.9	29	.2	11	448	84	510	460	1.8
20	34	4.1	5.0	2.9	17	.2	7.1	431	29	221	194	.8
21	23	3.5	4.4	4.4	16	0	4.7	268	16	450	94	.2
22	18	4.4	3.8	7.8	14	0	4.1	2,280	13	262	53	0
23	18	4.7	3.8	7.8	18	0	4.4	1,180	11	384	34	0
24	11	4.7	4.1	5.7	23	0	3.8	353	14	102	23	0
25	7.1	4.4	4.1	4.4	24	0	5.7	101	10,700	39	13	1.6
26	5.7	3.8	4.4	3.8	26	201	19	65	4,620	43	8.5	.6
27	5.0	7.8	4.7	3.2	23	608	265	89	969	71	7.1	0
28	5.0	7.1	4.7	2.3	22	608	14	198	549	55	4.4	0
29	4.7	4.7	4.4	1.8	—	296	9.2	39	364	65	3.2	0
30	4.4	4.7	4.1	1.6	—	101	5.7	24	221	333	.2	0
31	4.1	—	3.8	1.4	—	58	—	17	—	156	1.2	—
Month												
							Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet	
October.....							9,836.0	7,500	0	317	19,510	
November.....							423.3	172	1.7	14.1	840	
December.....							229.2	43	3.5	7.39	455	
Calendar year 1937.....							71,323.9	14,600	0	195	141,600	
January.....							108.8	7.8	1.4	3.51	216	
February.....							665.3	296	0	23.8	1,320	
March.....							2,006.9	608	0	64.7	3,980	
April.....							957.3	265	3.6	31.9	1,900	
May.....							17,445.6	3,720	1.2	563	34,600	
June.....							48,476.6	10,700	7.1	1,616	98,150	
July.....							3,460.2	610	7.1	112	6,880	
August.....							3,973.8	1,680	0	128	7,880	
September.....							182.7	114	0	6.09	362	
Water year 1937-38.....							87,765.7	10,700	0	240	174,100	

Cache Creek near Walters, Okla.

Location.- Wire-weight gage, lat. 34°20', long. 98°17', in SE¼ sec. 19, T. 2 S., R. 10 W., at bridge on U. S. Highway 70 N, 1¼ miles east of Walters and 12 miles upstream from West Cache Creek.

Drainage area.- 630 square miles.

Records available.- April to September 1938.

Extremes.- Maximum discharge observed during period, 5,500 second-feet May 24 (gage height, 26.02 feet); minimum, 2.1 second-feet Aug. 31, Sept. 1 (gage height, 2.75 feet).

Maximum known stage, about 30 feet (date unknown).

Remarks.- Records good. Flow regulated by storage in Lake Lawtonka. Gage read twice daily during periods of low water, oftener during periods of rapidly changing stage. Records collected in cooperation with Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

2.5	2.9	3.6	50	6.0	312	13.0	1,200	23.0	5,670
3.0	7.6	4.0	92	8.0	545	17.0	1,820	26.0	5,500
3.5	25	5.0	202	10.0	800	20.0	2,460		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							-	43	268	30	9.0	2.1
2							-	38	257	29	7.9	2.6
3							-	32	246	27	6.9	37
4							-	845	334	24	6.3	44
5							-	1,510	1,470	30	6.3	39
6							-	213	483	24	5.6	35
7							-	335	268	21	4.9	30
8							-	1,480	497	19	5.3	25
9							-	295	401	18	4.9	19
10							-	136	279	17	4.9	43
11							-	103	158	16	4.4	41
12							-	81	160	13	4.4	48
13							-	51	147	11	4.4	70
14							-	235	76	10	4.1	114
15							-	92	66	10	4.1	158
16							-	125	58	10	3.9	98
17							-	290	52	13	3.9	53
18							-	125	50	11	4.7	43
19							-	92	47	10	5.3	36
20							-	301	43	9.0	4.4	32
21							-	169	41	9.0	3.9	30
22							191	210	38	9.0	3.3	27
23							180	3,400	37	7.9	3.3	30
24							246	4,940	32	7.6	3.0	53
25							158	1,040	32	7.6	2.7	47
26							114	449	36	7.6	2.6	43
27							367	345	45	268	2.4	41
28							290	334	38	285	2.4	32
29							120	554	35	32	2.4	18
30							57	334	32	16	2.4	10
31							-	334	-	11	2.1	-
Month						Second-foot-days	Maximum	Minimum	Mean		Run-off in acre-feet	
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-		-	
February.....						-	-	-	-		-	
March.....						-	-	-	-		-	
April 22-30.....						1,723	367	57	191		3,420	
May.....						18,561	4,940	32	599		36,820	
June.....						5,746	1,470	32	192		11,400	
July.....						1,012.7	285	7.6	32.7		2,010	
August.....						136.1	9.0	2.1	4.39		270	
September.....						1,500.7	158	2.1	43.4		2,560	
The period.....											56,600	

## Wichita River at Wichita Falls, Tex.

Location.- Wire-weight gage, lat. 33°54'30", long. 98°32'05", at Tenth Street bridge in Wichita Falls, 4 miles upstream from Fort Worth and Denver City Railway bridge and about 7 miles upstream from Holliday Creek. Zero of gage is 924.3 feet above mean sea level (general adjustment of 1929).

Drainage area.- 3,105 square miles, of which 1,988 square miles is above Lake Kemp Dam.

Records available.- March to September 1938. February 1900 to January 1902 and October 1910 to December 1911 (gage heights only), at site 4 miles downstream.

Extremes.- Maximum discharge observed during period, 7,240 second-feet June 10 (gage height, 17.00 feet); minimum observed, 40 second-feet Apr. 22.  
1900-1902, 1910-1911, 1938: Maximum discharge not determined; minimum not determined, but less than 15 second-feet.

Maximum discharge known, 50,000 second-feet June 8, 1915 (gage height not determined), computed by Big Wichita River Irrigation Co.; maximum gage height known since completion of Lake Kemp Dam in 1920, 20.6 feet, present gage, Sept. 16, 1936 (discharge, 10,000 second-feet, from 1938 rating curve extended above 7,200 second-feet.

Remarks.- Records good. Gage read twice daily, oftener during floods. Flow partly regulated by storage in Lake Kemp (capacity, between 500,000 and 600,000 acre-feet). Since completion of dam in 1920 no flow has been permitted to pass over spillway. Water is diverted at diversion dam (capacity of diversion reservoir, about 40,000 acre-feet), about 50 miles upstream, for irrigation in vicinity of Wichita Falls. Forty-two thousand acres of land are available for irrigation.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1							383	154	1,440	258	383	174
2							347	163	1,520	202	311	160
3							293	85	1,660	114	311	117
4							167	1,750	2,700	101	317	130
5							111	3,010	2,700	137	640	167
6							91	2,250	1,840	194	393	183
7							78	1,640	1,300	216	329	167
8							75	1,880	2,220	233	329	94
9							66	2,030	5,470	233	293	69
10							66	1,690	7,010	216	275	59
11							66	1,520	4,240	216	258	62
12							56	1,520	2,480	208	240	285
13							50	1,520	2,810	208	240	216
14							59	1,520	1,960	208	222	184
15							167	1,570	1,700	188	160	167
16							184	1,620	1,620	236	130	107
17							107	1,790	1,570	383	137	94
18							78	1,660	1,520	275	163	98
19							72	1,570	1,480	275	208	98
20							66	1,570	966	258	198	82
21							50	1,840	495	258	293	98
22							48	2,910	311	275	402	89
23							66	5,280	219	275	365	82
24							72	6,030	163	293	311	53
25							66	3,940	137	402	188	56
26							98	2,480	154	420	167	56
27							734	2,280	154	383	160	53
28							1,020	2,230	157	383	160	53
29							380	1,930	191	420	184	50
30							167	1,700	236	457	188	56
31						446	-	1,570	-	420	191	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March.....						-	-	-	-	-		
April.....						5,271	1,020	46	176	10,460		
May.....						62,702	6,030	85	2,023	124,400		
June.....						50,913	7,010	137	1,697	101,000		
July.....						8,336	467	101	289	16,530		
August.....						8,136	640	130	262	18,140		
September.....						3,288	285	50	110	6,520		
The period.....										275,000		

## Little Wichita River near Archer City, Tex.

Location.- Water-stage recorder and concrete control, lat. 35°40', long. 98°36', at Archer City-Wichita Falls Highway bridge, 1.5 miles downstream from confluence of North and Middle Forks of Little Wichita River and 4.8 miles north of Archer City, Archer County. Zero of gage is 934.75 feet above mean sea level (general adjustment of 1929).

Drainage area.- 496 square miles.

Records available.- May 1932 to September 1938.

Extremes.- Maximum discharge during year, 2,780 second-feet Mar. 30 (gage height, 22.43 feet); no flow at times.

1932-38: Maximum gage height, 25.67 feet Sept. 17, 1936 (discharge not determined); no flow at times.

Remarks.- Records good. No diversions above station.

Rating table, water year 1937-38 (gage height, in feet, and discharge in second-feet)

4.1	0	4.6	11.7	5.2	74	7.0	296	22.0	2,620
4.2	.2	4.7	17.8	5.4	105	9.0	460	23.0	2,960
4.3	1.5	4.8	24.3	5.6	145	12.0	780		
4.4	3.3	4.9	33.5	5.8	180	16.0	1,376		
4.5	6.9	5.0	46	6.0	205	20.0	2,094		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.2	0.1	0.2	1.4	1.5	42	9.3	0.9	17	10	
2	0	.1	0	.1	1.1	1.1	19	4.6	.6	13	3.6	
3	0	.1	.1	.1	.9	.9	10	2.7	1.4	4.6	1.5	
4	0	.1	.1	.1	.6	.7	5.7	299	396	2.1	.9	
5	0	.1	.1	.1	.4	.6	3.1	661	994	1.7	.8	
6	0	.1	.1	.1	.3	.3	2.3	396	501	.8	.8	
7	0	.1	.1	.1	.2	.2	1.7	35	90	.6	.3	
8	0	0	0	0	.2	.2	1.2	14	631	1.4	.2	
9	147	.1	0	0	.2	.2	.9	7.2	970	66	.1	
10	764	103	0	0	.2	.2	.8	3.6	1,080	46	.1	
11	563	125	0	0	.2	.1	.6	2.0	1,530	9.7	0	
12	102	32	0	0	.1	.1	.4	1.7	982	3.4	0	
13	640	13	0	0	.1	.1	.6	1.4	1,540	2.1	0	
14	467	5.3	.1	0	.1	.1	.6	100	2,060	1.2	0	
15	87	2.7	6.7	0	348	.1	1.2	74	214	.9	0	
16	28	1.5	70	0	1,260	.1	1.8	16	19	.8	0	
17	21	.9	74	0	2,270	0	45	7.2	16	.4	0	
18	14	.6	78	0	2,010	0	15	3.3	16	.2	0	
19	6.5	.3	26	0	1,570	0	7.4	2.3	4.2	8.1	0	
20	3.3	.2	12	0	549	0	3.6	1.5	2.0	5.7	0	
21	2.0	.2	6.5	0	36	0	2.3	1.2	1.2	2.7	0	
22	1.2	.1	3.1	0	22	0	1.5	.4	.8	5.8	0	
23	.8	.1	1.8	712	15	0	.9	675	.7	87	0	
24	.6	.1	1.1	1,370	10	0	.7	871	.6	15	0	
25	.3	.1	.8	711	7.3	0	.6	1,080	.4	6.5	0	
26	.2	.1	.4	40	4.3	48	.3	122	.9	4.3	0	
27	.2	.1	.3	15	2.9	859	4.5	14	22	2.9	0	
28	.2	.1	.2	8.2	2.1	1,380	318	6.5	5.6	19	0	
29	.2	.1	.2	4.3	-	1,860	118	2.9	25	12	0	
30	.2	.1	.2	2.7	-	2,650	22	1.8	6.0	7.2	0	
31	.2	-	.2	1.5	-	1,060	-	1.5	-	3.0	-	
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						2,848.9	764	0	91.9	5,650		
November.....						286.5	125	0	9.55	568		
December.....						282.2	78	0	9.10	560		
Calendar year 1937.....						13,823.3	871	0	37.9	27,420		
January.....						2,865.5	1,370	0	92.4	5,660		
February.....						8,112.6	2,270	.1	290	16,090		
March.....						7,863.5	2,650	0	254	15,600		
April.....						631.6	318	.3	21.1	1,260		
May.....						4,463.7	1,080	1.2	144	8,860		
June.....						11,131.3	2,080	.4	371	22,060		
July.....						361.1	87	.2	11.3	698		
August.....						18.3	10	0	.59	36		
September.....						0	0	0	0	0		
Water year 1937-38.....						38,656.2	2,650	0	106	77,060		

Peak discharge.- Oct. 10 (1:45 p.m.) 868 sec.-ft.; Mar. 30 (12:30 p.m.) 2,780 sec.-ft.; June 14 (6:15 a.m.) 2,350 sec.-ft.



## Washita River at Carnegie, Okla.

Location.— Water-stage recorder, lat. 35°07', long. 98°36', on line between secs. 5 and 6, T. 7 N., R. 13 W., at bridge on U. S. Highway 54, 0.3 mile upstream from power dam of Southwestern Light and Power Co. and half a mile north of Carnegie. Zero of gage is 1,273.80 feet above mean sea level (general adjustment of 1929).

Drainage area.— 3,170 square miles.

Records available.— November 1937 to September 1938.

Extremes.— Maximum discharge during period, 7,080 second-feet May 23 (gage height, 11.14 feet); minimum, 23 second-feet Dec. 12.  
Maximum stage known, 18.4 feet, date unknown.

Remarks.— Records good except those for periods of missing gage heights, May 9-15, 18, 19, June 28-29, July 8, 9, 17, 18, July 22 to Aug. 8, Aug. 10-22, which were computed on basis of records for station at Clinton and are fair. Records of daily discharge include flow through hydroelectric plant. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1		-	42	32	35	55	160	1,050	368	249	90	31
2		-	42	31	33	54	90	640	330	230	105	41
3		-	44	31	32	54	62	366	487	193	90	45
4		-	44	32	31	52	50	1,110	1,710	172	75	38
5		-	44	32	35	50	45	2,580	429	160	65	45
6		40	44	32	37	47	44	950	277	152	60	45
7		40	45	32	40	44	44	2,090	288	141	58	35
8		40	44	32	37	44	50	1,700	358	430	55	31
9		45	38	32	36	45	62	385	685	260	52	32
10		48	37	32	36	45	68	210	880	190	50	36
11		50	36	32	37	45	111	180	1,890	149	49	32
12		48	24	32	37	47	180	165	1,200	155	49	104
13		48	25	35	36	46	342	150	500	127	80	704
14		47	32	35	38	45	337	145	407	119	115	799
15		41	32	35	45	41	586	140	330	163	75	277
16		36	32	35	57	42	729	435	614	711	45	108
17		42	32	37	86	40	600	724	1,300	470	60	66
18		44	32	38	157	38	271	385	808	350	45	62
19		44	31	38	130	37	152	230	458	239	45	48
20		44	31	38	88	35	110	966	385	166	47	44
21		44	31	40	72	33	140	2,510	915	135	45	40
22		44	30	41	59	32	588	3,640	718	280	42	33
23		44	31	42	62	32	1,230	6,520	358	185	40	29
24		44	31	41	66	32	880	4,500	249	190	37	26
25		44	31	40	75	32	300	2,600	277	150	35	26
26		44	31	40	75	33	214	1,610	815	110	33	25
27		42	31	38	62	42	166	1,160	1,020	90	31	26
28		42	31	41	55	325	160	1,800	670	85	30	26
29		42	31	45	-	620	492	608	500	83	30	27
30		42	32	42	-	434	492	454	330	81	31	27
31		-	32	37	-	239	-	412	-	80	32	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						-	-	-	-	-		
November 6-30.....						1,091	50	38	43.6	2,160		
December.....						1,073	45	24	34.6	2,130		
Calendar year .....												
January.....						1,118	45	31	36.1	2,220		
February.....						1,589	157	31	56.8	3,150		
March.....						2,762	620	32	89.1	5,480		
April.....						8,755	1,230	44	292	17,370		
May.....						40,225	6,520	140	1,298	79,790		
June.....						19,556	1,890	249	652	38,790		
July.....						6,236	711	80	203	12,460		
August.....						1,698	115	30	54.7	3,360		
September.....						2,908	799	25	96.9	5,770		
The period.....										172,700		

Peak discharge.— May 5 (7 a.m.) 2,960 sec.-ft.; May 8 (2 a.m.) 2,780 sec.-ft.; May 23 (10 a.m.) 7,080 sec.-ft.

## Washita River at Anadarko, Okla.

Location.- Wire-weight gage, lat. 35°05', long. 98°14' (revised), in NW¼ sec. 15, T. 7 N., R. 10 W., half a mile north of Anadarko and 5 miles upstream from Sugar Creek.

Drainage area.- 3,830 square miles (revised).

Records available.- October 1902 to June 1908 and January 1936 to March 1938 (discontinued). May 1924 to June 1925 at site about 7 miles downstream.

Extremes.- Maximum discharge observed during period, 206 second-feet Feb. 19 (gage height, 3.36 feet); minimum observed, 49 second-feet Oct. 31, Nov. 4 (gage height, 2.18 feet). 1902-8, 1936-38: Maximum discharge observed, 10,800 second-feet June 8, 1936 (gage height, 21.69 feet); minimum observed, 23 second-feet Aug. 31, 1936 (gage height, 1.75 feet).

Remarks.- Records poor. Operation of hydroelectric plant 10 miles upstream causes diurnal fluctuation during low water. Gage read twice daily.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	144	68	76	76	72	112						
2	126	68	68	81	76	108						
3	126	59	81	86	76	108						
4	126	55	81	76	86	104						
5	126	63	86	76	86	94						
6	135	68	86	76	86	94						
7	112	68	76	76	81	94						
8	108	68	76	86	86	-						
9	117	81	76	81	81	-						
10	126	86	76	86	86	-						
11	154	90	72	81	90	-						
12	135	94	72	81	86	-						
13	154	81	76	86	81	-						
14	135	81	76	76	90	-						
15	126	76	94	86	108	-						
16	126	68	99	76	126	-						
17	117	68	86	76	154	-						
18	117	68	86	81	184	-						
19	144	72	86	76	184	-						
20	154	72	76	86	174	-						
21	126	72	90	90	154	-						
22	86	86	76	81	135	-						
23	90	76	86	86	117	-						
24	81	76	86	90	108	-						
25	81	76	86	86	117	-						
26	68	76	81	86	117	-						
27	76	81	76	86	117	-						
28	68	76	90	72	117	-						
29	63	76	86	81	-	-						
30	59	72	81	76	-	-						
31	59	-	86	86	-	-						
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						3,465	154	59	112	6,870		
November.....						2,221	94	55	74.0	4,410		
December.....						2,529	99	68	81.5	5,020		
Calendar year 1937.....						102,005	4,480	55	279	202,300		
January.....						2,525	90	72	81.5	5,010		
February.....						3,075	184	72	110	6,100		
March 1-7.....						714	112	94	102	1,420		
April.....												
May.....												
June.....												
July.....												
August.....												
September.....												
The period.....										28,830		



## Washita River near Pauls Valley, Okla.

Location.- Wire-weight gage, lat. 34°46', long. 97°15', near center of sec. 1, T. 3 N., R. 1 W., 2½ miles northwest of Pauls Valley, 5½ miles downstream from Owl Creek and 7½ miles upstream from Washington Creek. Zero of gage is 856.14 feet above mean sea level (general adjustment of 1929).

Drainage area.- 5,390 square miles.

Records available.- March to September 1938. May to December 1899 (gage heights only) at site about 9 miles downstream.

Extremes.- Maximum discharge during period, 8,880 second-feet May 23 (gage height, 24.92 feet, from floodmarks); minimum discharge observed, 104 second-feet Sept. 29 (gage height, 4.93 feet).

Remarks.- Records good. Gage read twice daily. Gage heights for Mar. 29 to Apr. 15 determined at site 2,000 feet downstream and referred to present site on basis of curve of relation. Slight diurnal fluctuation during low water due to operation of power plant at Chikasha. Records collected in cooperation with Corps of Engineers, U. S. Army.

Rating tables, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

Mar. 29 to May 5				May 6 to Sept. 30			
6.5	380	16.0	3,170	4.9	100	7.0	410
7.0	438	18.0	4,090	5.3	132	8.0	554
8.0	728	20.0	5,150	5.8	160	9.0	920
10.0	1,250	22.0	6,380	6.0	210	10.0	1,210
12.0	1,810	25.0	7,040	6.5	308	12.0	1,810
14.0	2,420	26.0	9,000	Note.- Same as preceding table above 12.0 feet.			

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						-	936	554	1,670	1,030	366	116
2						-	676	466	1,240	892	252	118
3						-	936	422	1,060	732	210	140
4						-	728	1,450	976	602	270	252
5						-	626	2,040	892	554	210	170
6						-	532	1,300	892	432	196	116
7						-	466	5,190	1,640	458	170	108
8						-	400	6,200	1,670	554	150	108
9						-	400	4,350	1,210	434	170	104
10						-	422	2,640	1,150	864	160	124
11						-	400	2,250	948	530	150	124
12						-	422	1,450	920	458	140	116
13						-	400	894	937	530	140	124
14						-	444	832	1,330	458	140	170
15						-	444	626	1,600	410	150	268
16						-	444	626	1,200	506	140	299
17						-	466	864	1,050	732	971	784
18						-	532	758	1,430	732	753	578
19						-	780	628	1,060	434	395	434
20						-	806	1,120	1,150	346	270	306
21						-	754	1,110	1,280	432	180	270
22						-	832	1,970	1,060	578	196	182
23						-	936	7,780	864	578	196	180
24						-	780	7,940	784	458	150	140
25						-	532	7,440	976	346	140	124
26						-	626	7,090	1,000	306	140	124
27						-	1,590	5,100	1,060	306	132	124
28						-	1,370	5,080	810	410	124	108
29						-	7,710	884	3,720	1,030	368	108
30						-	5,950	626	2,360	948	432	108
31						-	2,320	-	2,190	-	506	124
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....												
November.....												
December.....												
Calendar year .....												
January.....						-	-	-	-	-		
February.....						-	-	-	-	-		
March 29-31.....						15,960	7,710	2,320	5,320	31,660		
April.....						20,190	1,590	400	673	40,060		
May.....						86,412	7,940	422	2,787	171,400		
June.....						33,737	1,670	784	1,125	66,920		
July.....						16,578	1,030	306	535	32,880		
August.....						7,013	971	124	226	13,910		
September.....						6,025	764	104	201	11,960		
The period.....										368,800		

## Washita River near Durwood, Okla.

Location.- Wire-weight gage, lat.  $34^{\circ}14'$ , long.  $96^{\circ}58'$ , in center of sec. 3, T. 4 S., R. 3 E., at Mulkey Bridge on State Highway 18,  $\frac{1}{2}$  miles downstream from Caddo Creek and 3 miles north of Durwood.

Drainage area.- 7,310 square miles.

Records available.- August 1928 to September 1938.

Average discharge.- 10 years, 1,392 second-feet.

Extremes.- Maximum discharge during year, 68,000 second-feet Feb. 17 (gage height, 41.20 feet, from floodmarks); minimum discharge observed, 105 second-feet Nov. 28 (gage height, 3.25 feet).

1928-38: Maximum discharge, that of Feb. 17, 1938; minimum discharge observed, 17 second-feet Aug. 14, 1934 (gage height, 2.77 feet).

Maximum stage known, about 42 feet sometime in May 1908 (stage and date revised).

Remarks.- Records good. Gage read twice daily. Results of several discharge measurements furnished by Corps of Engineers, U. S. Army.

Rating table, water year 1937-38 (gage height, in feet, and discharge, in second-feet)

3.2	86	5.0	1,020	17.0	7,900	30.0	19,700	38.0	42,500
3.5	211	8.0	2,970	22.0	11,100	35.0	31,700	41.0	66,100
4.0	456	12.0	5,200	26.0	14,400	37.0	37,600		

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	250	149	141	193	282	1,020	9,700	1,480	3,150	1,150	588	175
2	268	141	132	198	277	900	3,330	1,080	2,450	1,150	508	175
3	259	132	132	198	277	900	2,640	960	1,800	783	430	170
4	220	128	158	198	263	841	2,190	900	1,480	900	355	166
5	193	145	141	188	253	841	1,930	3,540	1,410	783	330	405
6	193	120	124	184	244	783	1,600	3,870	1,280	698	330	355
7	162	128	132	184	230	726	1,340	5,520	1,150	642	308	239
8	158	128	141	170	225	698	1,540	11,200	2,260	615	308	180
9	220	145	132	180	225	670	1,150	13,200	3,210	726	282	145
10	193	206	132	184	230	670	1,080	11,500	2,970	642	239	162
11	166	330	137	166	244	642	1,020	5,450	2,060	900	258	149
12	230	263	132	162	239	642	960	3,570	5,150	726	258	170
13	456	277	132	166	225	615	960	5,350	2,580	588	258	206
14	277	253	175	162	216	588	900	3,390	1,480	588	230	482
15	244	272	268	170	5,790	726	1,410	2,460	1,740	615	230	282
16	258	225	642	170	32,600	588	1,340	1,740	2,000	561	220	249
17	296	162	1,080	170	57,200	534	1,020	2,190	1,600	561	430	355
18	405	166	588	166	34,400	534	960	2,120	1,480	615	783	561
19	360	141	430	166	20,100	508	900	2,260	1,670	960	1,340	726
20	306	137	355	184	8,000	588	960	2,260	1,640	642	642	561
21	239	149	296	176	3,690	561	1,150	2,000	1,220	534	430	456
22	211	141	287	380	2,640	642	1,280	1,880	1,600	482	355	380
23	220	128	272	3,400	2,260	615	1,740	6,620	1,540	615	268	308
24	175	128	239	4,700	1,860	508	1,600	13,600	1,060	670	277	272
25	166	120	234	1,340	1,540	482	1,220	15,700	900	588	258	220
26	170	124	216	726	1,340	841	960	10,800	1,220	534	225	216
27	175	141	220	561	1,220	5,400	2,280	8,380	2,190	456	211	198
28	175	132	198	456	1,080	9,500	8,500	6,640	1,410	430	225	164
29	162	149	249	435	-	16,700	4,370	6,050	1,280	456	193	180
30	168	137	216	380	-	21,000	2,840	5,300	1,540	508	184	162
31	149	-	220	306	-	18,000	-	3,690	-	508	180	-

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October.....	7,094	456	149	229	14,070
November.....	4,997	330	120	167	9,910
December.....	7,951	1,080	124	256	15,770
Calendar year 1937.....	245,015	9,200	98	671	486,000
January.....	16,398	4,700	162	529	32,610
February.....	177,150	57,200	216	6,327	351,400
March.....	88,263	21,000	482	2,847	176,100
April.....	62,670	9,700	900	2,089	124,300
May.....	164,670	15,700	900	5,312	326,600
June.....	56,040	5,150	900	1,868	111,200
July.....	20,626	1,150	430	665	40,910
August.....	11,129	1,340	180	359	22,070
September.....	8,487	726	145	283	16,830
Water year 1937-38.....	625,465	57,200	120	1,714	1,241,000

## Little River near Horatio, Ark.

Location.- Water-stage recorder, lat. 38°55', long. 94°23', in NW¼ sec. 11 (revised), T. 10 S., R. 32 W., 1½ miles above Canney Creek, 2 miles southwest of Horatio, and about 28 miles (revised) above confluence with Cossatot River.

Records available.- December 1930 to September 1938.

Extremes.- Figures of maximum discharge for water years 1931-32, 1934-35, 1935-36 have been revised as shown in the following table:

Water Year	Date	Discharge (sec.-ft.)	Gage height (feet)
1931-32	Jan. 24	50,800	31.84
1934-35	May 6	82,100	34.80
1935-36	Dec. 8	31,800	28.85

Maximum discharge during water year 1937-38, 110,000 second-feet Jan. 25 (gage height, 36.93 feet), from rating curve extended above 60,000 second-feet; minimum, 15 second-feet Sept. 30 (gage height, 3.59 feet).

1930-38: Maximum discharge, that of Jan. 25, 1938; minimum, 1 second-foot Aug. 18 to Sept. 1, 1934; minimum gage height, 3.09 feet Aug. 25-27, 1934.

Maximum stage known, 38 feet sometime in August 1915.

Remarks.- Records good except those for days of rapidly changing stage and those above 60,000 second-feet, which are fair.

Revisions.- Revised figures of discharge for high-water periods in the water years 1931-32, 1934-35, and 1935-36, superseding those published in Water-Supply Papers 732, 787, and 807, are given below:

Date	Discharge (second-feet)	Date	Discharge (second-feet)	Date	Discharge (second-feet)
1932		1935		1935	
Jan. 6	49,400	Jan. 21	43,200	May 20	31,800
7	36,300	22	49,500	21	32,800
18	30,600	23	31,800	June 17	28,600
23	32,300	May 5	39,600	18	46,000
24	50,800	6	79,700	19	66,000
25	43,200	7	69,500	20	57,000
26	41,800	8	55,200	21	46,800
27	36,900	9	50,000	22	38,100
28	29,400	10	29,400	23	30,200
Feb. 17	33,800	17	29,000	Dec. 8	30,600
18	45,300	19	29,400		
19	39,300				
20	35,300				

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	920	454	862	7,500	12,500	3,200	39,700	1,250	4,330	478	349	32
2	699	410	806	6,160	10,000	2,730	33,700	1,130	2,750	412	412	30
3	622	367	752	4,900	7,600	2,450	25,600	1,010	2,030	370	478	27
4	547	326	699	3,910	5,860	2,240	18,700	952	1,670	330	390	26
5	454	287	673	3,260	4,780	2,030	11,800	837	1,320	310	310	26
6	410	265	673	2,780	4,060	1,320	7,040	781	1,070	273	256	29
7	346	265	699	2,380	3,520	1,610	9,000	837	952	256	228	29
8	306	261	673	2,100	2,990	1,430	16,400	894	894	228	190	27
9	250	306	622	1,890	2,510	2,030	20,600	1,070	894	199	162	27
10	246	1,490	596	1,680	2,270	6,130	19,700	1,600	1,010	183	140	27
11	229	12,000	547	1,470	2,030	5,950	17,800	1,460	1,320	162	119	32
12	215	15,600	524	1,400	1,880	4,420	14,200	1,130	2,270	154	132	34
13	212	11,100	500	1,280	1,740	3,430	9,100	952	8,300	140	95	32
14	205	7,200	477	1,220	1,740	2,830	5,590	1,190	9,700	132	95	63
15	188	4,180	477	1,100	4,240	2,430	4,600	3,790	7,500	124	95	59
16	171	3,420	547	1,040	7,800	2,350	18,300	4,060	4,330	124	87	57
17	215	5,440	4,710	980	14,500	2,190	31,800	2,670	2,750	114	76	57
18	250	6,340	17,100	920	69,900	1,830	24,400	1,880	3,610	117	72	55
19	604	5,170	18,000	862	105,000	1,740	18,300	1,880	5,230	114	63	52
20	4,850	4,000	15,700	980	86,000	1,670	13,300	2,030	5,140	186	55	45
21	4,000	3,180	12,700	7,220	59,900	1,670	8,100	1,950	4,150	349	52	41
22	2,700	2,540	8,000	23,900	41,900	1,600	4,960	1,670	3,070	370	50	38
23	2,240	2,100	5,980	48,400	26,700	1,530	3,920	1,610	2,110	310	45	35
24	1,680	1,820	7,200	31,200	17,600	1,460	3,200	4,600	1,530	256	42	31
25	1,340	1,540	7,300	66,500	10,600	1,320	2,590	6,130	1,130	225	42	26
26	1,100	1,400	6,070	63,900	5,760	1,190	2,170	4,600	894	136	39	25
27	920	1,280	6,430	47,600	4,320	2,610	1,890	3,160	781	168	38	24
28	752	1,160	8,300	33,100	3,580	10,300	1,610	6,310	648	148	39	20
29	647	1,040	8,600	22,400	-	21,800	1,490	10,400	549	151	39	17
30	572	980	8,800	13,900	-	37,500	1,370	9,810	502	273	36	16
31	500	-	8,500	12,000	-	35,500	-	7,100	-	292	35	-

## RED RIVER BASIN

Discharge, in second-feet of Little River near Horatio, Ark., water  
years 1931-32, 1934-35, 1935-36, 1937-38

Month	Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet
October 1931 .....	23,075	5,890	-	744	45,700
November.....	44,820	9,600	120	1,450	88,700
December.....	215,950	19,600	1,820	6,900	424,000
Calendar year 1931 .....	316,854	20,600	74	2,238	1,619,000
January 1932 .....	701,680	50,800	2,860	22,630	1,392,000
February.....	387,820	45,300	2,240	13,850	769,200
March.....	86,510	9,810	930	2,790	172,000
April.....	78,960	7,100	810	2,630	156,000
May.....	44,630	5,530	225	1,440	88,600
June.....	56,155	11,400	160	1,870	111,000
July.....	152,520	16,200	210	4,920	303,000
August.....	3,858	360	44	124	7,620
September.....	1,040	56	24	34.7	2,060
Water year 1931-32 .....	1,795,018	50,800	24	4,904	3,560,000
October 1934 .....	12,200	2,310	47	394	24,200
November.....	92,997	17,800	35	3,100	184,600
December.....	71,470	7,100	685	2,305	141,600
Calendar year 1934 .....	722,440	24,900	1	1,979	1,433,000
January 1935 .....	307,480	43,200	1,610	9,919	609,900
February.....	63,490	3,660	1,120	2,268	125,900
March.....	334,660	21,500	2,460	10,800	663,800
April.....	228,030	21,300	1,120	7,601	452,300
May.....	732,090	79,700	2,540	23,620	1,452,000
June.....	490,180	68,000	1,540	16,540	972,200
July.....	20,259	2,100	151	653	40,140
August.....	2,891	190	49	93.3	5,730
September.....	2,989	735	26	100	5,960
Water year 1934-35 .....	2,358,686	79,700	26	6,462	4,678,000
October 1935 .....	20,532	5,890	100	662	40,720
November.....	120,760	10,100	700	4,025	239,500
December.....	189,470	30,600	751	6,111	378,800
Calendar year 1935 .....	2,274,601	42,200	26	6,232	4,511,000
January 1936 .....	21,540	1,120	460	695	42,720
February.....	23,430	3,340	460	808	46,470
March.....	64,110	6,610	500	2,068	127,200
April.....	10,950	760	220	365	21,720
May.....	85,860	12,100	360	2,770	170,300
June.....	3,841	320	26	128	7,620
July.....	6,751	1,470	16	217	13,350
August.....	164	12	2	5.3	325
September.....	13,580	6,900	2	453	26,940
Water year 1935-36 .....	560,968	30,600	2	1,533	1,112,000
October 1937 .....	28,420	4,860	171	917	56,370
November.....	93,921	13,600	261	3,131	186,300
December.....	153,517	18,000	477	4,952	304,500
Calendar year 1937 .....	1,417,835	26,100	17	3,884	2,812,220
January 1938 .....	507,932	95,500	862	16,380	1,007,000
February.....	521,080	105,000	1,740	18,610	1,034,000
March.....	171,040	37,500	1,190	5,517	339,300
April.....	390,930	39,700	1,370	13,030	775,400
May.....	88,943	10,400	781	2,869	176,400
June.....	82,434	9,700	502	2,748	163,500
July.....	7,134	478	114	230	14,150
August.....	4,261	478	35	137	8,450
September.....	1,039	63	16	34.6	2,060
Water year 1937-38 .....	2,050,651	105,000	16	5,618	4,067,000

Note.- The figures of monthly discharge for water years 1931-32, 1934-35, and 1935-36 supersede those published in Water-Supply Papers 732, 787, and 807.

## Sulphur River near Darden, Tex.

Location.- Water-stage recorder, lat. 33°15', long. 94°37', at bridge on U. S. Highway 67, 0.5 mile upstream from St. Louis Southwestern Railway bridge and 1 mile southwest of Darden, Bowie County. Zero of gage is 220.6 feet (revised) above mean sea level (general adjustment of 1929).

Drainage area.- 2,754 square miles.

Records available.- October 1923 to September 1938.

Average discharge.- 15 years, 1,978 second-feet.

Extremes.- Maximum discharge during year, 92,900 second-feet Jan. 25 (gage height, 34.9 feet, from floodmarks) from rating curve extended above 70,000 second-feet; minimum, 1.1 second-feet Oct. 11-13, 16, 17.  
1923-38: Maximum discharge, that of Jan. 25, 1938; no flow at times.

Remarks.- Records fair. Gage heights for periods Jan. 25-26, Mar. 5 to Apr. 15 computed on basis of graph plotted from daily gage readings by U. S. Weather Bureau and flood-mark of Jan. 25. No diversion.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	3.4	25	125	22,200	10,300	3,720	27,400	420	422	50	73	2.8
2	3.2	19	96	19,700	7,700	2,650	25,800	323	243	222	378	2.3
3	3.0	16	77	16,100	5,250	1,560	20,300	223	222	410	360	3.1
4	2.6	13	65	13,000	3,400	920	16,100	204	194	405	224	36
5	2.5	11	54	10,500	2,520	560	13,000	182	125	385	133	33
6	2.1	8.4	44	7,700	1,530	510	10,700	174	99	385	67	24
7	1.9	7.4	37	4,940	945	430	11,100	154	90	365	56	17
8	1.6	7.2	35	3,650	685	314	5,450	130	90	232	35	12
9	1.2	12	34	2,600	480	285	5,740	106	185	127	26	9.6
10	1.2	20	30	1,960	412	490	5,100	67	1,020	70	20	8.0
11	1.1	17	26	1,410	332	1,080	7,850	74	2,000	40	16	6.6
12	1.1	904	27	1,030	325	2,070	14,000	63	4,110	28	25	5.8
13	1.2	1,760	27	880	295	2,500	14,500	55	9,710	22	75	5.2
14	1.4	2,150	27	725	275	2,410	12,000	50	11,100	18	51	4.8
15	1.2	2,700	26	560	255	1,580	9,900	46	9,000	16	74	4.6
16	1.1	3,520	167	422	240	1,020	8,750	40	8,250	13	74	3.8
17	2.6	3,650	1,250	304	268	575	7,600	58	6,750	11	48	3.6
18	5.0	4,420	1,680	285	2,320	362	9,720	57	5,100	10	35	6.2
19	5.8	4,360	2,220	235	4,540	314	25,800	46	2,910	9.2	31	20
20	6.0	5,700	2,900	199	24,600	315	27,400	36	1,650	8.2	27	66
21	295	6,080	4,270	425	45,000	275	20,900	32	975	7.2	26	52
22	590	6,280	6,960	4,780	43,000	235	16,100	28	695	6.4	22	32
23	580	4,320	10,300	11,800	33,000	620	12,000	29	445	6.8	18	25
24	346	2,940	12,500	47,100	23,600	1,070	9,000	28	240	6.2	14	22
25	196	2,140	11,100	89,600	16,700	740	6,500	28	174	7.0	11	16
26	158	1,500	9,000	80,800	12,000	830	4,500	49	142	6.6	8.6	14
27	138	1,040	11,500	60,000	9,000	590	2,970	354	113	6.2	7.0	11
28	110	720	13,500	40,200	6,250	915	2,140	258	60	59	5.6	8.6
29	79	380	13,000	29,000	-	3,240	1,240	226	66	150	5.2	7.2
30	52	210	16,100	20,300	-	5,580	748	275	56	116	4.2	6.0
31	33	-	23,600	14,500	-	14,800	-	543	-	93	3.6	-
Month				Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet				
October.....				2,626.2	590	1.1	84.8	5,210				
November.....				55,110	6,260	7.2	1,837	109,300				
December.....				140,799	23,600	26	4,542	279,300				
Calendar year 1937.....				792,296.3	23,600	.9	2,171	1,571,000				
January.....				506,705	89,600	199	16,350	1,005,000				
February.....				255,222	45,000	240	9,115	506,200				
March.....				52,560	14,800	235	1,695	104,300				
April.....				354,308	27,400	748	11,810	702,800				
May.....				4,390	543	28	141	8,690				
June.....				66,256	11,100	56	2,209	131,400				
July.....				3,269.8	410	5.6	106	6,530				
August.....				1,975.4	378	3.6	63.7	3,920				
September.....				473.4	66	2.3	15.6	939				
Water year 1937-38.....				1,443,706.8	89,600	1.1	3,955	2,864,000				

Peak discharge.- Jan. 25 (1-3 p.m.) 92,900 sec.-ft.; Apr. 19 (10 p.m.) 29,600 sec.-ft.

## RED RIVER BASIN

Cypress Creek near Jefferson, Tex.

Location.- Water-stage recorder, lat. 32°45', long. 94°29', at Farrell bridge on Jefferson-Harleton Highway, 8 miles west of Jefferson, Marion County, and 14 miles upstream from Black Cypress Creek.

Drainage area.- 848 square miles.

Records available.- July 1924 to September 1938.

Average discharge.- 14 years, 582 second-feet.

Extremes.- Maximum discharge during year, 24,800 second-feet Jan. 28 (gage height, 24.94 feet), from rating curve extended above 16,000 second-feet; minimum, 2.0 second-feet Sept. 30.

1924-38: Maximum discharge, 26,100 second-feet (revised) May 20, 1930 (gage height, 25.37 feet, from floodmarks), from rating curve extended above 16,000 second-feet; no flow at times.

Remarks.- Records good. No diversions.

Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	5.1	20	99	11,300	2,820	1,680	1,060	548	69	36	32	5.4
2	6.1	17	96	7,460	2,310	1,490	1,340	352	81	29	27	5.6
3	5.9	15	92	4,820	1,970	1,300	2,330	262	69	29	24	5.2
4	5.4	14	92	3,500	1,720	1,120	2,820	217	68	39	21	4.8
5	4.5	13	89	2,670	1,620	968	2,600	188	65	66	21	4.3
6	3.9	13	89	2,200	1,330	748	2,250	169	75	85	17	3.9
7	3.6	12	86	1,930	1,150	596	1,970	168	70	66	14	3.6
8	3.2	12	86	1,720	968	500	1,760	162	74	43	12	3.2
9	3.1	46	85	1,620	828	442	1,550	165	89	31	11	3.0
10	3.1	165	85	1,380	708	428	1,380	161	89	25	11	2.7
11	3.1	165	86	1,250	632	400	1,420	144	82	20	10	2.6
12	3.0	161	89	1,120	564	388	2,310	138	86	17	9.0	2.6
13	3.5	148	92	1,000	516	376	3,100	144	120	16	8.1	2.3
14	4.3	168	96	890	484	376	2,920	161	113	13	7.4	3.4
15	4.4	176	99	788	456	376	2,370	144	89	14	7.2	3.8
16	4.6	221	137	708	428	376	2,200	134	72	32	21	3.8
17	7.6	272	348	632	428	352	1,970	180	60	37	41	5.5
18	12	302	442	648	711	332	1,720	253	61	41	29	12
19	19	322	470	470	1,210	352	1,520	272	80	33	21	13
20	20	322	500	414	1,490	484	2,210	253	99	26	20	18
21	26	332	616	376	1,850	596	4,730	244	134	46	20	18
22	26	342	574	400	4,170	548	4,960	221	127	50	16	13
23	28	342	880	752	5,260	470	3,940	204	96	42	13	9.0
24	36	312	1,100	1,500	4,270	470	3,010	184	92	102	10	6.6
25	41	262	1,170	15,600	3,390	532	2,310	148	76	130	7.7	5.2
26	43	200	1,260	24,000	2,670	516	1,930	113	53	120	6.4	4.4
27	42	165	1,560	18,500	2,200	516	1,650	96	40	127	5.5	3.7
28	37	127	3,400	12,600	1,930	680	1,350	86	38	116	4.9	3.1
29	30	113	7,990	8,000	-	842	1,100	84	43	81	4.4	2.5
30	26	106	16,200	5,100	-	1,100	808	79	38	54	4.1	2.2
31	22	-	14,800	3,720	-	1,100	-	71	-	40	4.3	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						482.3	43	3.0	15.6	967		
November.....						4,855	342	12	162	9,630		
December.....						51,708	15,200	85	1,668	102,600		
Calendar year 1937.....						231,805.4	15,200	1.4	635	459,800		
January.....						136,868	24,000	376	4,415	271,500		
February.....						47,963	5,250	428	1,713	95,130		
March.....						20,344	1,680	332	656	40,550		
April.....						66,578	4,960	808	2,219	132,100		
May.....						5,715	548	71	184	11,340		
June.....						2,338	134	38	77.9	4,640		
July.....						1,605	130	13	51.8	3,180		
August.....						460.0	41	4.1	14.8	912		
September.....						176.4	18	2.2	5.88	350		
Water year 1937-38.....						339,092.7	24,000	2.2	929	672,600		

## Ouachita River near Mountain Pine, Ark.

Location.- Water-stage recorder, lat.  $34^{\circ}35'50''$ , long.  $93^{\circ}12'30''$ , in NW $\frac{1}{4}$  sec. 1, T. 2 S., R. 21 W., three quarters of a mile downstream from Mill Creek, 2 miles downstream from Blakely Creek, and 4 miles northwest of Mountain Pine. Zero of gage is 404.29 feet above mean sea level.

Drainage area.- 1,100 square miles.

Records available.- June 1936 to September 1938.

Extremes.- Maximum discharge during year, 92,100 second-feet Feb. 18 (gage height, 32.2 feet, from floodmarks), from rating curve extended above 11,000 second-feet, logarithmically and by slope-area method; minimum, 30 second-feet Sept. 29 (gage height, 2.32 feet).

1936-38: Maximum discharge, that of Feb. 18, 1938; minimum, 11 second-feet Sept. 14, 1936 (gage height, 2.06 feet).

Maximum stage known, about 37 feet in May 1923.

Remarks.- Records fair. Discharge for period of missing gage heights, Feb. 19-24, computed on basis of records of inflow into reservoir above Carpenter Dam, 20 miles downstream.

## Discharge, in second-feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	103	196	419	2,340	6,060	1,230	8,580	694	518	170	175	47
2	118	180	398	1,960	3,950	1,070	5,270	554	428	155	155	43
3	118	171	378	1,660	2,940	965	3,530	483	366	143	148	41
4	132	164	374	1,390	2,340	840	2,580	436	327	132	160	49
5	317	158	370	1,190	1,910	795	2,020	406	295	123	153	50
6	272	151	359	1,070	1,620	750	1,910	374	271	117	139	55
7	190	148	345	965	1,390	670	4,490	406	249	107	123	68
8	146	169	334	847	1,190	610	10,400	464	235	101	165	67
9	134	236	321	762	1,070	1,740	10,600	441	238	99	109	70
10	130	10,700	308	688	930	3,810	6,340	436	251	99	95	63
11	136	12,900	295	628	874	2,760	4,360	394	254	99	83	68
12	132	5,920	286	582	795	2,120	3,200	352	277	95	111	64
13	115	5,140	289	535	750	1,660	2,460	341	328	119	86	64
14	108	1,960	289	497	713	1,350	1,910	386	700	94	78	68
15	101	1,440	289	464	1,150	1,230	1,710	528	582	83	79	51
16	99	2,700	311	441	2,760	1,180	15,100	576	441	83	85	50
17	130	4,750	8,740	423	23,400	1,000	15,200	468	410	86	113	52
18	275	3,670	10,800	402	82,600	874	5,790	402	345	99	107	50
19	890	2,520	6,060	366	62,100	795	3,950	348	900	374	103	46
20	1,480	1,860	3,670	374	16,000	925	2,820	318	1,000	324	86	41
21	1,490	1,440	2,520	6,590	6,500	930	2,580	292	788	394	78	40
22	890	1,150	2,340	27,400	4,800	802	2,700	382	576	338	73	39
23	600	1,000	4,490	30,900	3,730	881	2,070	2,520	436	263	79	38
24	468	854	3,960	42,300	2,800	1,040	1,660	2,290	359	213	81	37
25	402	743	3,080	48,600	2,120	909	1,310	1,390	304	188	75	36
26	341	670	2,340	12,300	1,810	732	1,110	895	260	160	65	36
27	301	599	2,340	4,750	1,570	776	930	684	238	143	61	34
28	259	549	4,490	3,400	1,390	1,240	802	694	215	160	55	32
29	247	502	4,090	2,640	-	14,700	712	647	198	162	51	31
30	227	459	3,200	2,700	-	14,900	670	828	182	170	50	34
31	210	-	2,700	6,050	-	15,400	-	640	-	153	50	-

  

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
October.....	10,564	1,480	99	341	0.310	0.56	20,950
November.....	61,099	12,900	148	2,037	1.65	2.06	121,200
December.....	70,175	10,800	266	2,264	2.06	2.38	139,200
Calendar year 1937.....	644,597	43,400	43	1,766	1.61	21.81	1,279,000
January.....	205,232	48,600	374	6,620	6.02	6.94	407,100
February.....	239,147	82,600	718	8,541	7.76	8.08	474,300
March.....	78,702	15,400	610	2,539	2.51	2.66	156,100
April.....	126,764	15,200	670	4,225	3.84	4.28	251,400
May.....	20,249	2,620	292	653	.594	.69	40,160
June.....	12,042	1,000	182	401	.365	.41	23,800
July.....	5,068	594	83	163	.148	.17	10,050
August.....	3,071	175	50	99.1	.090	.10	6,090
September.....	1,473	83	31	49.1	.045	.05	2,920
Water year 1937-38.....	833,586	82,500	31	2,284	2.08	28.17	1,653,000

Peak discharge.- Jan. 23 (2 a.m.) 40,500 sec.-ft.; Jan. 24 (10 p.m.) 61,800 sec.-ft.; Feb. 18 (about noon) 92,100 sec.-ft.

## Ouachita River near Malvern, Ark.

Location.- Water-stage recorder, lat.  $34^{\circ}23'$ , long.  $92^{\circ}51'$ , in NW $\frac{1}{4}$  sec. 16, T. 4 S., R. 17 W., at Rockport Bridge, 2 miles northwest of Malvern, and 6 miles downstream from Rammel Dam. Zero of gage is 227.83 feet above mean sea level (general adjustment of 1912).

Drainage area.- 1,570 square miles.

Records available.- March 1903 to April 1905, June 1922 to September 1924, March 1937 to September 1938. January 1925 to March 1937, at site at Rammel Dam, six miles upstream.

Extremes.- 1937: Maximum discharge during period, 21,500 second-feet May 2 (gage height, 15.78 feet); minimum, 78 second-feet July 18 (gage height, 0.85 foot); minimum daily discharge, 88 second-feet July 4.  
1937-38: Maximum discharge during year, 103,000 second-feet Feb. 18 (gage height, 26.74 feet), from rating curve extended above 55,000 second-feet on basis of computed flow over power dam 6 miles upstream; minimum, 92 second-feet Oct. 31 (gage height, 0.95 foot); minimum daily discharge, 110 second-feet July 30, Aug. 1.  
1903-05, 1922-24, 1937-38: Maximum discharge, about 140,000 second-feet (revised) May 15, 1923 (gage height, 30.3 feet); minimum discharge observed, 40 second-feet Dec. 18-20, 1904.

Remarks.- Records good. Discharge for July 24 to Sept. 24 computed on basis of records at former gaging station at Rammel Dam. Flow regulated by operation of Rammel Dam, 6 miles upstream.

Rating table, period March 1937 to September 1938 (gage height, in feet, and discharge, in second-feet)

0.8	72	2.0	367	4.0	1,400	8.0	5,360	14.0	17,560	20.0	37,600
1.0	100	2.6	580	5.0	2,140	10.0	8,710	15.0	19,680	22.0	49,200
1.3	160	3.0	785	6.0	3,000	12.0	13,020	16.0	22,000	24.0	65,300
1.6	238	3.5	1,080	7.0	4,060	13.0	15,350	18.0	28,500	26.0	92,100

Discharge, in second-feet, 1937-38

1937

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1						1,500	2,300	3,150	952	162	123	677
2						2,080	1,900	17,200	562	228	141	356
3						1,500	1,720	14,200	396	240	155	381
4						1,970	1,400	10,700	260	88	154	209
5						3,450	1,580	3,250	131	223	349	219
6						2,140	1,470	2,380	4,810	104	142	241
7						4,060	1,440	2,300	1,710	524	124	290
8						3,300	1,380	2,060	696	598	123	587
9						3,500	1,090	1,660	1,290	485	146	534
10						3,000	635	1,840	2,140	269	310	586
11						2,140	356	1,650	1,080	100	134	286
12						2,140	786	1,180	680	165	150	141
13						3,200	972	5,360	318	297	151	161
14						3,610	790	5,170	993	149	162	430
15						4,300	711	4,560	642	266	217	671
16						2,910	1,130	2,460	579	264	192	418
17						2,360	664	2,300	412	147	213	699
18						2,360	615	2,300	782	104	151	542
19						2,360	681	2,300	706	169	142	163
20						2,300	438	1,100	394	177	153	595
21						2,060	1,860	1,030	645	245	167	914
22						1,860	4,060	660	740	181	139	943
23						1,680	7,090	472	628	146	141	1,070
24						4,300	5,700	969	836	114	141	1,680
25						8,870	2,370	696	804	150	144	453
26						2,710	2,460	451	441	129	146	169
27						2,300	2,220	266	137	159	154	604
28						2,060	2,300	455	728	312	131	729
29						2,300	2,300	298	330	183	137	745
30						2,380	2,300	219	598	164	132	841
31						2,380	-	340	-	187	293	-

Note.- Gage heights missing, July 24 to Sept. 24; discharge is that computed at former gaging station at Rammel Dam.



Discharge, in second-feet, Ouachita River near Malvern, Ark., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	553	660	2,660	4,110	6,100	3,100	16,300	788	982	261	110	604
2	702	1,110	2,340	2,280	7,120	3,110	7,750	795	1,140	374	230	882
3	164	645	2,300	2,490	5,350	2,900	4,550	622	1,060	148	179	279
4	630	425	2,310	2,390	2,620	2,910	4,610	1,240	416	208	258	194
5	824	293	1,830	2,610	2,480	2,700	2,870	1,020	342	328	128	212
6	817	221	618	2,490	2,240	814	4,570	857	653	240	204	311
7	1,180	160	824	2,490	2,420	1,770	10,300	621	202	323	138	643
8	1,140	425	1,320	2,580	2,520	2,030	12,700	554	621	442	310	764
9	1,030	299	1,100	2,250	2,540	5,760	16,300	236	756	242	340	936
10	219	2,120	1,090	2,460	2,340	4,980	10,600	362	261	348	166	734
11	598	4,420	696	2,620	1,890	3,020	6,840	357	146	247	304	142
12	878	7,660	383	2,610	1,100	2,860	4,820	650	285	452	260	192
13	445	4,450	820	2,470	672	2,580	2,830	806	164	454	160	346
14	1,110	2,360	996	2,320	1,730	2,700	2,830	206	212	265	298	1,350
15	1,040	5,160	1,040	918	2,170	2,970	2,790	140	256	169	128	642
16	360	5,890	1,280	375	2,360	2,980	21,600	574	520	132	296	408
17	395	2,960	1,020	1,170	21,300	2,730	21,700	348	860	167	129	479
18	974	5,000	2,210	1,600	90,700	1,820	11,100	541	687	184	222	134
19	590	6,470	2,270	1,800	59,500	1,950	4,990	568	446	172	186	172
20	906	2,620	2,450	2,800	20,200	1,140	4,690	980	444	538	184	319
21	1,350	2,310	2,460	20,000	11,600	1,920	4,240	610	934	180	194	190
22	1,320	2,630	5,560	46,800	6,960	2,150	2,830	455	1,230	233	224	242
23	297	2,710	6,980	38,400	4,210	2,360	2,750	4,380	649	144	373	374
24	176	2,670	6,380	48,600	3,010	1,370	2,600	3,730	701	164	453	372
25	1,040	2,370	2,900	43,700	2,990	1,920	2,850	2,540	532	168	454	145
26	1,520	2,690	2,420	16,100	2,970	2,010	2,760	1,410	381	340	249	371
27	1,440	2,530	5,570	9,260	2,790	924	2,790	790	584	222	318	398
28	1,550	2,310	2,980	5,840	3,080	3,560	2,160	875	524	215	132	516
29	1,170	2,540	3,440	4,080	-	25,500	1,710	246	616	162	415	1,380
30	968	2,700	6,340	5,140	-	20,000	2,010	1,360	416	110	566	786
31	192	-	4,350	3,860	-	27,700	-	1,560	-	223	257	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
March 1937						87,140	8,870	1,500	2,811	172,800		
April						54,718	7,090	356	1,824	108,500		
May						93,196	17,200	219	3,006	184,900		
June						24,722	4,810	131	824	49,040		
July						7,027	898	88	227	13,940		
August						5,157	349	123	166	10,230		
September						16,366	1,680	141	546	32,500		
The period.										571,900		
October 1937						25,578	1,560	164	825	50,730		
November						78,738	7,660	160	2,625	156,200		
December						78,937	6,980	383	2,546	156,600		
Calendar year												
January 1938						286,103	48,600	375	9,229	567,500		
February						274,862	90,700	572	9,816	545,200		
March						144,238	27,700	814	4,653	286,100		
April						200,440	21,700	1,710	6,681	397,600		
May						30,221	4,380	140	975	59,940		
June						17,000	1,230	146	567	33,720		
July						7,865	538	110	254	15,600		
August						7,845	556	110	253	15,560		
September						14,517	1,380	134	484	28,790		
Water year 1937-38						1,166,344	90,700	110	3,195	2,314,000		



Discharge, in second-feet, Little Missouri River near Murfreesboro, Ark., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	14	20	75	846	972	369	3,390	164	229	90	564	13
2	13	20	72	726	897	322	1,960	149	191	58	209	13
3	13	18	64	614	726	334	1,440	141	134	54	134	10
4	13	17	66	507	614	288	1,060	114	134	47	92	13
5	13	17	60	440	474	271	887	110	114	42	66	14
6	18	17	60	395	421	229	2,640	101	101	41	56	14
7	23	17	60	316	427	209	2,640	114	86	38	44	15
8	18	17	60	271	364	162	5,470	137	137	34	40	16
9	15	284	56	240	322	846	3,000	123	191	34	34	15
10	14	1,590	56	219	306	2,290	2,070	104	271	36	30	15
11	14	1,340	52	204	294	1,240	1,440	88	153	34	27	16
12	12	650	52	182	271	887	1,100	82	322	33	24	15
13	14	440	52	164	260	766	887	650	542	34	66	16
14	14	577	58	130	542	650	726	726	288	32	56	29
15	14	229	64	126	1,440	577	726	305	186	32	200	24
16	14	688	153	126	972	577	7,860	209	137	42	92	21
17	21	905	7,440	420	11,100	402	2,640	178	1,240	60	56	16
18	35	577	2,880	117	20,200	389	1,640	191	2,400	240	42	13
19	104	507	1,640	107	4,760	402	1,150	149	1,640	245	36	11
20	117	352	1,150	316	2,640	376	887	126	930	117	30	10
21	104	282	688	11,300	1,860	352	650	104	766	277	26	10
22	68	245	805	15,800	1,340	282	930	117	474	110	24	10
23	44	204	2,180	9,200	1,020	766	577	5,860	322	110	21	10
24	36	162	1,440	16,400	846	474	507	2,180	234	104	20	9
25	35	153	972	4,190	688	382	421	1,060	186	70	20	9
26	28	130	805	2,290	614	364	688	145	145	50	17	9
27	26	104	1,750	1,540	507	507	299	614	120	42	15	9
28	24	88	2,070	1,150	440	1,440	250	688	104	38	14	8
29	21	88	1,440	972	-	10,400	229	507	92	688	14	8
30	22	68	1,150	805	-	3,390	219	376	82	507	13	9
31	19	-	972	1,340	-	10,800	-	288	-	805	12	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
July 10-31, 1937.....	527	78	15	24.0	0.063	0.06	1,050
August.....	1,580	508	12	51.0	.134	.15	3,130
September.....	1,025	141	12	34.2	.090	.10	2,030
.....							
October 1937.....	940	117	12	30.3	.080	.09	1,860
November.....	9,726	1,590	17	324	.853	.95	19,290
December.....	28,342	7,440	52	914	2.41	2.78	56,220
Calendar year .....							
January 1938.....	73,153	18,400	107	2,360	6.21	7.16	145,100
February.....	55,296	20,200	260	1,975	5.20	5.42	109,700
March.....	40,783	10,800	182	1,316	3.46	3.99	80,890
April.....	48,059	7,860	219	1,602	4.22	4.71	95,320
May.....	16,443	5,860	82	530	1.39	1.60	32,610
June.....	11,950	2,400	82	398	1.05	1.17	23,700
July.....	4,144	805	32	134	.353	.41	8,220
August.....	1,894	364	12	61.1	.161	.19	3,760
September.....	400	29	8	13.3	.036	.04	793
Water year 1937-38 .....	291,130	20,200	8	798	2.10	28.51	577,500

## RED RIVER BASIN

## Saline River near Rye, Ark.

Location.- Wire-weight gage, lat. 33°42', long. 92°02', on line between secs. 3 and 4, T. 12 S., R. 9 W., 4 miles southwest of Rye, 5 miles above Hudgin Creek, and 12 miles above former gaging station near Warren.

Drainage area.- 2,040 square miles.

Records available.- August 1937 to September 1938. August 1928 to September 1929 at site 12 miles downstream (published as Saline River near Warren, Ark).

Extremes.- 1937: Maximum discharge during period, 1,250 second-feet Sept. 15 (gage height, 9.0 feet, from graph based on gage readings); minimum observed, 32 second-feet Aug. 20 (gage height, 4.48 feet).

1937-38: Maximum discharge during year, 42,300 second-feet Jan. 27 (gage height, 28.0 feet, from graph based on gage readings); minimum observed, 19 second-feet Sept. 20 (gage height, 4.28 feet).

Maximum stage known, 30.5 feet in April 1927.

Remarks.- Records good. Gage read twice daily.

Rating table, period Aug. 6, 1937 to Sept. 30, 1938 (gage height, in feet, and discharge, in second-feet)

4.3	20	5.3	137	7.0	525	17.0	5,620	24.0	16,500
4.5	33	5.6	193	8.0	655	20.0	8,280	25.0	21,000
4.7	51	6.0	275	10.0	1,690	22.0	11,230	26.0	26,900
5.0	89	6.5	391	13.0	3,190	23.0	13,410	28.0	42,300

Discharge, in second-feet, 1937-38  
1937

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1											-	*48
2											-	37
3											-	37
4											-	37
5											-	35
6											50	52
7											51	100
8											51	89
9											*47	*82
10											46	112
11											174	128
12											275	120
13											70	555
14											45	1,090
15											44	*1,210
16											38	*1,050
17											36	865
18											41	343
19											35	264
20											32	254
21											35	244
22											63	164
23											71	155
24											468	128
25											275	155
26											203	137
27											155	98
28											100	83
29											76	72
30											68	67
31											52	-

\*Gage not read; discharge computed from graph constructed on basis of prior and subsequent readings.

Discharge, in second-feet, Saline River near Rye, Ark., 1937-38--Continued

1937-38

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	62	174	1,090	7,950	25,000	11,200	4,400	*3,080	3,080	155	244	49
2	67	155	715	8,060	15,800	9,560	4,800	*1,780	1,130	155	254	45
3	83	137	715	8,170	12,900	8,170	5,620	1,130	585	*128	391	41
4	95	120	715	7,550	12,000	6,320	7,000	820	*468	*112	343	*41
5	76	112	715	6,820	11,600	*4,440	8,750	645	*416	96	525	40
6	63	101	715	5,620	9,710	3,080	12,000	555	343	88	495	39
7	58	95	680	4,380	8,750	2,360	15,100	525	297	83	*367	37
8	58	98	645	3,740	7,850	1,870	16,500	442	275	72	275	35
9	67	128	585	2,920	6,910	1,870	16,100	416	264	67	244	33
10	83	976	525	1,690	6,400	3,630	15,100	391	264	*72	203	32
11	51	2,510	468	1,330	5,060	4,620	14,500	367	254	75	174	*30
12	51	2,360	416	1,290	5,800	*4,560	13,400	367	244	68	155	29
13	58	2,360	416	1,290	2,610	5,340	13,400	320	244	63	137	29
14	58	2,360	416	1,250	1,820	4,990	14,200	297	193	59	*128	27
15	58	2,360	391	1,210	2,660	4,860	14,000	275	174	58	120	27
16	65	4,440	391	970	3,740	5,060	14,000	244	174	*56	120	26
17	83	5,200	555	715	4,200	5,270	12,000	244	203	*55	112	26
18	174	4,560	785	555	5,760	5,920	10,900	468	*203	55	203	*25
19	343	4,560	1,420	495	7,180	6,560	9,870	930	*223	128	193	23
20	555	*4,500	1,820	585	9,710	*6,910	8,650	930	253	213	174	20
21	442	*4,620	2,060	646	11,000	6,910	7,650	890	223	254	*146	21
22	391	4,740	2,360	1,090	19,500	6,400	7,180	855	203	184	128	20
23	416	4,740	3,360	8,020	38,300	5,550	7,450	890	297	*174	112	20
24	525	4,680	3,850	12,500	35,900	4,990	7,550	1,090	297	*970	96	20
25	555	4,440	4,080	14,000	27,600	4,320	8,390	1,420	*244	1,130	89	*21
26	468	3,190	4,860	19,000	21,500	4,080	9,140	1,960	*203	890	82	21
27	367	2,460	5,340	39,900	18,100	3,460	8,750	2,360	184	555	75	21
28	345	1,820	6,400	39,100	13,200	2,870	7,850	2,760	193	416	*67	*21
29	320	1,640	7,450	31,100	-	3,240	6,400	3,080	164	320	62	20
30	244	1,330	7,850	23,200	-	3,740	4,680	3,360	155	297	58	20
31	203	-	8,060	23,200	-	4,080	-	3,460	-	*264	53	-

Month	Second-foot-days	Maximum	Minimum	Mean	Per square mile	Run-off	
						Inches	Acre-feet
August 6-31, 1937.....	2,601	468	32	100	0.049	0.10	5,160
September.....	7,801	1,210	35	260	.127	.14	15,470
Water year .....							
October 1937 .....	6,482	555	51	209	.102	.12	12,860
November.....	70,966	5,200	95	2,366	1.16	1.29	140,800
December.....	69,848	8,060	391	2,253	1.10	1.27	138,500
Calendar year .....							
January 1938 .....	278,545	39,900	495	8,979	4.40	5.07	552,100
February.....	348,660	38,300	1,820	12,450	6.10	6.35	691,400
March.....	156,330	11,200	1,870	5,043	2.47	2.85	310,100
April.....	305,310	16,500	4,400	10,180	4.99	5.57	605,600
May.....	36,351	3,460	244	1,173	5.75	6.63	72,100
June.....	11,430	3,080	156	381	.187	.21	22,670
July.....	7,312	1,130	55	236	.116	.13	14,600
August.....	5,925	525	53	188	.092	.11	11,860
September.....	859	49	20	28.6	.014	.02	1,700
Water year 1937-38 .....	1,297,618	39,900	20	3,555	1.74	29.62	2,574,000

\*Gage not read; discharge computed from graph constructed on basis of prior and subsequent readings.

## Bayou Duplantier at City Lake, Baton Rouge, La.

Location.- Water-stage recorder and concrete control, lat. 30°26', long. 91°11', in T. 7 S., R. 1 W., at triple-box culvert at lower end of City Park Lake in Baton Rouge.

Drainage area.- 0.808 square mile.

Records available.- April 1933 to August 1938.

Extremes.- Maximum discharge during period, 54 second-feet Feb. 22 (gage height, 0.832 feet); no flow at times.

1933-38: Maximum discharge, 173 second-feet June 16, 1934 (gage height, 1.43 feet); no flow at times.

Remarks.- Records poor, because of inability to obtain reliable discharge measurements. Flow past station affected by evaporation loss from surface of lake and artificial inflow from outside the drainage area.

Rating table, period Oct. 1, 1937 to Aug. 7, 1938 (gage height, in feet, and discharge, in second-feet)

0.04	0	0.20	1.5	0.43	11.3
.07	.1	.24	2.5	.48	14.8
.10	.2	.28	3.7	.52	18.0
.13	.4	.32	5.3	.56	21.6
.16	.7	.38	8.3	.59	24.6

Discharge, in second-feet, water year September 1937 to October 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	0	0.2	0	1.4	0.4	0.3	0.2	0.1	0.3	0.5	2.8	
2	1.2	.2	0	2.0	.4	.3	.2	0	.5	.3	3.3	
3	2.4	.2	0	.8	.3	.3	0	0	.3	.3	4.5	
4	1.2	.1	.1	.5	.3	.3	0	0	.2	.6	4.9	
5	.6	.1	.6	.3	.3	.3	.1	.1	.2	.4	2.3	
6	.4	0	.4	3.8	.3	.7	2.9	.2	.3	1.5	1.1	
7	.3	0	.3	2.8	.3	.4	5.1	.4	.3	2.8	.6	
8	.2	0	2.8	1.2	.3	.3	4.7	.4	.2	1.3	-	
9	.2	0	2.1	.7	.2	.3	1.8	.3	.3	1.0	-	
10	.2	.7	.9	9.1	.2	.3	1.3	.2	.3	.9	-	
11	.1	.6	.5	4.1	.2	.3	.5	.2	.3	1.2	-	
12	0	.4	.4	2.3	.2	.2	.4	.1	.4	.9	-	
13	0	.3	.4	1.2	.1	.2	.4	.2	.9	.7	-	
14	0	.3	.4	.8	.1	.2	.3	.4	.6	.9	-	
15	0	.2	.4	.5	.2	.2	.3	.3	.4	.7	-	
16	0	.2	.7	.4	.2	.2	.2	.2	.8	.5	-	
17	.5	.1	1.3	.4	.2	.2	.2	.2	.9	.4	-	
18	7.1	0	.7	.4	3.3	.2	6.0	.4	.8	.7	-	
19	2.5	.5	.5	.4	4.4	.1	3.9	.4	.8	.6	-	
20	1.0	.3	.4	.3	1.6	.2	4.5	.3	3.6	.6	-	
21	.6	.2	.3	.3	.3	.4	3.1	.3	2.7	1.1	-	
22	.5	.2	.8	.3	24	1.4	1.5	.2	1.3	1.9	-	
23	.3	.1	2.9	.8	4.6	3.4	.6	.1	1.3	2.2	-	
24	.2	.1	1.4	2.0	2.1	2.2	.4	.1	1.4	1.3	-	
25	.1	.1	.8	.7	1.0	1.1	.3	.2	1.2	1.3	-	
26	.3	.1	.6	.3	.6	.7	.3	.2	.8	.8	-	
27	.3	.1	.5	.2	.5	.5	.2	.3	1.1	.5	-	
28	.3	.1	.4	.2	.4	.3	.2	.5	.6	.7	-	
29	.2	.1	.4	.2	-	.3	.2	.3	.6	.6	-	
30	.2	.1	.3	.2	-	.3	.1	.5	.6	.7	-	
31	.2	-	.3	.6	-	.2	-	.5	-	.8	-	

Month	Observed					Adjustment for evaporation from lake (inches)	Adjustment for inflow from outside area (inches)	Adjusted runoff in inches*
	Second-foot-days	Maximum	Minimum	Mean	Per square mile			
October.....	21.1	7.1	0	0.68	0.842	0.97	0.60	1.41
November.....	5.6	.7	0	.19	.235	.26	.44	.54
December.....	21.6	2.9	0	.70	.866	1.00	.28	1.12
Calendar year 1937	441.4	52	0	1.21	1.50	20.31	7.53	22.77
January.....	39.0	9.1	.2	1.26	1.56	1.80	.37	2.01
February.....	49.8	24	.1	1.78	2.20	2.29	.40	2.54
March.....	18.3	3.4	.1	.53	.656	.76	.55	1.15
April.....	39.9	60	0	1.33	1.95	1.84	.87	2.35
May.....	7.6	.5	0	.25	.309	.36	.82	.52
June.....	24.0	3.6	.2	.80	.990	1.10	.97	1.15
July.....	28.5	2.6	.3	.92	1.14	1.31	.87	1.11
August 1-7.....	19.5	4.9	.6	2.79	3.45	.90	.15	.82
September.....	-	-	-	-	-	-	-	-
Water year 1937-38								

\*Adjusted for evaporation loss from City Lake and artificial inflow from outside drainage area.

## Atchafalaya River at Krotz Springs, La.

Location.- Water-stage recorder, lat. 30°32', long. 91°44', in T. 6 S., R. 7 E., Louisiana meridian, at highway bridge on State Highway 7, half a mile north of Krotz Springs, 10 miles above mouth of Bayou Courtableau, 16 miles above Alabama Bayou, and 42 miles below mouth of Red River (head of Atchafalaya River). Zero of gage is at mean Gulf level (datum of Corps of Engineers, U. S. Army).

Records available.- October 1934 to September 1938.

Extremes.- Maximum discharge during year, 358,000 second-feet Apr. 29 (gage height, 33.1 feet); minimum, 32,400 second-feet Oct. 12 (gage height, 5.40 feet).  
1934-38: Maximum discharge, 443,000 second-feet Feb. 28, 1937 (gage height, 37.80 feet), discharge measurement; minimum, 17,800 second-feet Aug. 31, 1936; minimum gage height, 3.58 feet Sept. 6, 1936.

Maximum stage known, 38.5 feet above mean Gulf level May 15, 1927, at Missouri Pacific Railroad bridge half a mile downstream.

Remarks.- Records excellent.

Gage height at 8 a.m., in feet, water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	6.37	9.03	10.05	17.99	20.63	28.31	29.03	33.02	24.28	22.79	17.68	11.94
2	6.16	9.18	9.90	18.97	21.53	28.51	29.08	32.98	25.05	22.30	17.55	11.47
3	6.13	9.31	9.67	19.77	22.28	28.66	29.20	32.91	25.67	21.70	17.44	11.07
4	6.00	9.39	9.43	20.38	22.88	28.86	29.38	32.80	26.08	21.21	17.37	10.67
5	5.92	9.38	9.27	20.87	23.44	28.90	29.51	32.73	26.46	20.82	17.23	10.33
6	6.06	9.34	8.93	21.24	23.89	29.08	29.68	32.53	26.67	20.52	17.14	9.96
7	6.10	9.25	8.73	21.47	24.35	29.20	30.24	32.33	26.91	20.22	17.10	9.67
8	5.97	9.21	8.65	21.50	24.53	29.10	30.53	32.03	27.07	19.92	17.19	9.38
9	5.80	9.21	8.61	21.44	24.76	29.02	30.88	31.70	27.17	19.69	17.40	9.11
10	5.72	9.30	8.62	21.34	24.90	29.10	31.05	31.17	27.40	19.48	17.82	8.96
11	5.52	9.41	8.66	21.10	25.05	29.00	31.20	30.66	27.50	19.14	18.03	8.87
12	5.42	9.71	8.63	20.84	25.16	28.85	31.32	30.02	27.60	18.87	18.08	8.78
13	5.64	10.42	8.60	20.47	25.12	28.76	31.42	29.10	27.60	18.60	18.08	8.57
14	5.74	11.18	8.28	20.15	25.04	28.64	31.55	28.10	27.60	18.35	18.07	8.26
15	5.85	11.84	7.97	19.76	24.79	28.48	31.63	27.20	27.40	18.10	18.20	7.98
16	6.07	12.38	7.70	19.42	24.59	28.35	31.80	26.28	27.22	17.83	19.06	7.62
17	6.33	12.77	7.49	19.09	24.10	28.33	31.86	25.68	26.98	17.60	19.40	7.30
18	6.83	13.06	7.18	18.70	23.65	28.15	32.13	25.84	26.78	17.42	19.40	7.12
19	7.11	13.18	6.85	18.54	23.46	28.09	32.30	25.44	26.57	17.27	19.22	7.08
20	7.35	12.84	6.61	17.92	23.45	28.22	32.44	24.95	26.30	17.11	18.95	7.19
21	7.51	12.45	6.36	17.51	23.72	28.26	32.55	24.46	26.28	17.18	18.60	7.47
22	7.60	12.03	6.12	17.00	24.48	28.36	32.75	23.97	25.98	17.08	18.10	7.85
23	7.39	11.89	6.43	16.36	25.26	28.53	32.70	23.48	25.78	16.98	17.60	8.29
24	7.53	11.40	7.25	15.89	25.91	28.47	32.71	23.15	25.58	17.00	16.99	8.77
25	7.50	11.20	6.88	15.36	26.53	28.60	32.85	22.73	25.11	17.02	16.32	9.27
26	7.61	11.07	10.39	15.53	26.99	28.65	32.90	22.38	24.77	17.08	15.71	9.69
27	7.82	10.96	12.02	16.74	27.50	28.70	32.97	22.09	24.42	17.23	15.18	10.02
28	8.14	10.73	13.52	16.39	28.07	28.80	33.00	22.01	24.20	17.40	14.55	10.35
29	8.59	10.48	14.87	17.31	-	28.80	33.05	22.27	23.73	17.62	13.90	10.57
30	8.65	10.30	16.02	18.42	-	28.86	33.04	22.70	23.31	17.72	13.15	10.70
31	8.87	-	16.98	19.64	-	28.85	-	23.48	-	17.73	12.48	-

Discharge, in second-feet, of Atchafalaya River at Krotz Springs, La.,  
water year October 1937 to September 1938

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	36,600	54,500	59,800	128,000	156,000	265,000	268,000	353,000	199,000	179,000	120,000	71,600
2	36,600	55,800	58,500	141,000	166,000	266,000	273,000	350,000	207,000	170,000	119,000	69,500
3	34,200	56,500	56,500	146,000	175,000	265,000	277,000	347,000	214,000	162,000	117,000	67,400
4	33,600	56,500	54,500	151,000	182,000	261,000	278,000	345,000	222,000	156,000	117,000	61,900
5	33,600	56,500	53,200	154,000	189,000	263,000	282,000	339,000	229,000	152,000	116,000	61,200
6	35,400	55,200	51,800	160,000	194,000	271,000	287,000	337,000	232,000	149,000	116,000	60,500
7	35,400	53,800	51,800	164,000	197,000	273,000	293,000	330,000	238,000	145,000	118,000	58,500
8	34,800	52,500	52,500	164,000	198,000	273,000	298,000	323,000	242,000	142,000	117,000	55,800
9	34,200	53,200	51,800	159,000	201,000	270,000	304,000	316,000	242,000	138,000	120,000	53,800
10	33,600	55,200	52,500	158,000	202,000	271,000	308,000	304,000	242,000	136,000	124,000	53,200
11	33,000	56,500	52,500	153,000	205,000	271,000	310,000	295,000	242,000	134,000	126,000	53,200
12	32,400	59,200	51,800	150,000	206,000	271,000	310,000	280,000	242,000	132,000	126,000	52,500
13	33,600	64,800	50,500	146,000	206,000	268,000	310,000	263,000	242,000	130,000	128,000	51,200
14	34,200	69,500	47,900	141,000	206,000	266,000	308,000	249,000	242,000	128,000	126,000	49,200
15	35,400	74,400	46,600	136,000	205,000	263,000	312,000	232,000	243,000	126,000	126,000	47,900
16	36,600	77,300	44,700	132,000	201,000	261,000	314,000	219,000	242,000	122,000	138,000	46,600
17	37,800	80,200	43,400	126,000	194,000	260,000	316,000	212,000	238,000	118,000	140,000	43,400
18	39,700	81,600	41,500	122,000	189,000	258,000	323,000	212,000	235,000	115,000	137,000	42,200
19	40,900	81,600	39,700	119,000	186,000	256,000	330,000	206,000	229,000	114,000	135,000	42,200
20	42,800	78,700	38,400	114,000	186,000	258,000	332,000	201,000	224,000	115,000	132,000	44,700
21	43,400	75,100	36,600	109,000	183,000	258,000	332,000	194,000	223,000	116,000	126,000	46,600
22	44,100	71,600	36,600	104,000	203,000	280,000	334,000	189,000	220,000	116,000	120,000	49,900
23	45,400	68,100	39,700	97,800	214,000	261,000	332,000	185,000	216,000	116,000	114,000	53,200
24	43,400	66,700	45,300	95,300	224,000	261,000	334,000	181,000	213,000	117,000	109,000	55,800
25	44,100	65,300	55,800	94,100	234,000	261,000	334,000	175,000	207,000	117,000	103,000	58,500
26	45,300	64,600	68,100	94,800	243,000	261,000	337,000	170,000	205,000	117,000	98,600	58,800
27	46,600	63,900	80,200	100,000	254,000	261,000	345,000	168,000	201,000	119,000	94,800	61,900
28	48,600	63,200	92,600	107,000	261,000	263,000	350,000	168,000	195,000	120,000	91,100	64,600
29	60,500	62,500	102,000	118,000	-	263,000	356,000	171,000	192,000	122,000	96,700	65,300
30	61,800	61,900	110,000	131,000	-	265,000	356,000	178,000	185,000	124,000	79,400	65,300
31	53,200	-	117,000	145,000	-	265,000	-	188,000	-	122,000	74,400	-
Month						Second-foot-days	Maximum	Minimum	Mean	Run-off in acre-feet		
October.....						1,228,800	53,200	32,400	39,640	2,437,000		
November.....						1,936,200	81,600	52,500	64,540	3,840,000		
December.....						1,783,800	117,000	36,600	57,540	3,538,000		
Calendar year 1937.....						55,146,900	439,000	32,400	151,100	109,400,000		
January.....						4,069,100	164,000	94,100	130,900	8,051,000		
February.....						5,870,000	261,000	156,000	202,500	11,250,000		
March.....						8,189,000	273,000	256,000	264,200	16,240,000		
April.....						9,443,000	356,000	268,000	314,800	18,730,000		
May.....						7,679,000	353,000	168,000	247,700	15,230,000		
June.....						6,702,000	243,000	185,000	223,400	13,290,000		
July.....						4,068,000	178,000	114,000	131,200	8,069,000		
August.....						3,593,000	140,000	74,400	115,900	7,127,000		
September.....						1,667,400	71,600	42,200	55,580	3,307,000		
Water year 1937-38.....						56,019,300	356,000	32,400	153,500	111,100,000		

\*Discharge computed from gage-height graph constructed on basis of adjacent recorder graph and one or more gage readings each day.



In addition to the records of stream flow obtained at gaging stations in the lower Mississippi River Basin and reported in the preceding pages, measurements of flow were made also at other points, as indicated in the following table.

Miscellaneous discharge measurements in lower Mississippi River Basin during water year October 1937 to September 1938

Meramec River Basin

Date	Stream	Tributary to or diverting from	Locality	Drainage area (sq. mi.)	Discharge (sec.-ft.)
Dec. 31	Lost River.....	Meramec River....	In Missouri Caverns (underground)	-	1.30
Sept. 5	....do.....	....do.....	4 miles southeast of Leesburg, Mo.	-	1.19

Headwater diversion channel basin

May 5	Whitewater River	Headwater diversion channel.	NW $\frac{1}{4}$ sec. 14, T. 31 N., R. 11 E., at Burfordville, Mo.	-	216
24	....do.....	....do.....	....do.....	-	1,300
24	....do.....	....do.....	....do.....	-	1,040
24	....do.....	....do.....	....do.....	-	915
25	....do.....	....do.....	....do.....	-	508
June 11	....do.....	....do.....	....do.....	-	783
Aug. 29	....do.....	....do.....	....do.....	-	20.5
Sept. 15	....do.....	....do.....	....do.....	-	208

St. Francis River Basin

June 10	Blue Spring.....	St. Francis River	Sec. 4, T. 27 N., R. 6 E., 6 miles southeast of Greenville, Mo.	-	57.4
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White River Basin

Aug. 7	White River.....	Mississippi River	In tailrace of Empire District Electric Co.'s power plant near Forsyth, Mo.	-	62.1
7	....do.....	....do.....	....do.....	-	831
7	....do.....	....do.....	....do.....	-	908
7	....do.....	....do.....	....do.....	-	1,130
7	....do.....	....do.....	....do.....	-	1,280
8	....do.....	....do.....	....do.....	-	1,450
8	....do.....	....do.....	....do.....	-	2,000
8	....do.....	....do.....	....do.....	-	2,200
8	....do.....	....do.....	....do.....	-	2,380
June 3	Roaring River Spring.	Roaring River....	Sec. 27, T. 22 N., R. 27 W., 7 miles south of Cassville, Mo.	-	2,540
Oct. 13	Eleven Point River.*	Spring River.....	Sec. 4, T. 18 N., R. 1 W., at Birdell, Ark.	-	108
Nov. 3	....do.....	....do.....	....do.....	-	426
Dec. 2	....do.....	....do.....	....do.....	-	411
Feb. 10	....do.....	....do.....	....do.....	-	425
23	....do.....	....do.....	....do.....	-	788
Mar. 24	....do.....	....do.....	....do.....	-	2,780
Apr. 3	....do.....	....do.....	....do.....	-	1,110
May 11	....do.....	....do.....	....do.....	-	2,990
June 15	....do.....	....do.....	....do.....	-	1,150
July 13	....do.....	....do.....	....do.....	-	978
Aug. 17	....do.....	....do.....	....do.....	-	754
Sept. 22	....do.....	....do.....	....do.....	-	634
Dec. 12	Little Red River	White River.....	SE $\frac{1}{4}$ sec. 36, T. 8 N., R. 7 W., 3 miles northeast of Searcy, Ark.	-	477
30	....do.....	....do.....	....do.....	-	495
Jan. 23	....do.....	....do.....	....do.....	-	4,580
28	....do.....	....do.....	....do.....	-	16,200
Feb. 19	....do.....	....do.....	....do.....	-	6,040
20	....do.....	....do.....	....do.....	-	55,300
Mar. 1	....do.....	....do.....	....do.....	-	58,400
11	....do.....	....do.....	....do.....	-	2,290
21	....do.....	....do.....	....do.....	-	1,630
Apr. 1	....do.....	....do.....	....do.....	-	1,180
2	....do.....	....do.....	....do.....	-	43,200
May 15	....do.....	....do.....	....do.....	-	26,700
24	....do.....	....do.....	....do.....	-	4,700
25	....do.....	....do.....	....do.....	-	14,600
June 18	....do.....	....do.....	....do.....	-	9,740
July 16	....do.....	....do.....	....do.....	-	562
Aug. 19	....do.....	....do.....	....do.....	-	125
				-	116

\*Two discharge measurements were made at this point in water year 1936-37. They are as follows: July 16, 703 sec.-ft.; Sept. 15, 462 sec.-ft.

## MISCELLANEOUS DISCHARGE MEASUREMENTS

Miscellaneous discharge measurements in lower Mississippi River Basin during  
water year October 1937 to September 1938--Continued

## Arkansas River Basin

Date	Stream	Tributary to or diverting from-	Locality	Drainage area (sq. mi.)	Discharge (sec.-ft.)
Mar. 19	Garden City canal.	Arkansas River...	Near Holcomb, Kans.....	-	6.2
May 25	Neosho River.....	.....do.....	Near Chanute, Kans.....	-	37,600
25	.....do.....	.....do.....	Near Burlington, Kans.....	-	20,500
Jan. 5	Petit Jean Creek.....	.....do.....	Sec. 31, T. 6 N., R. 26 W., 1 mile south of Magazine, Ark., above mouth of Revilee Creek.	289	*100
11	.....do.....	.....do.....	.....do.....	289	*49
21	.....do.....	.....do.....	.....do.....	289	*5,500
22	.....do.....	.....do.....	.....do.....	289	*3,930
22	.....do.....	.....do.....	.....do.....	289	*3,310
22	.....do.....	.....do.....	.....do.....	289	*2,730
23	.....do.....	.....do.....	.....do.....	289	*1,330
23	.....do.....	.....do.....	.....do.....	289	*4,430
23	.....do.....	.....do.....	.....do.....	289	*6,190
Feb. 15	.....do.....	.....do.....	.....do.....	289	*3,220
18	.....do.....	.....do.....	.....do.....	289	*20,700
18	.....do.....	.....do.....	.....do.....	289	*19,900
19	.....do.....	.....do.....	.....do.....	289	*5,810
19	.....do.....	.....do.....	.....do.....	289	2,230
Mar. 9	.....do.....	.....do.....	Sec. 6 T. 5 N., R. 26 W., 1½ miles south of Magazine, Ark., below mouth of Revilee Creek.	339	*150
28	.....do.....	.....do.....	.....do.....	339	*1,050
29	.....do.....	.....do.....	.....do.....	339	*7,760
30	.....do.....	.....do.....	.....do.....	339	1,540
Apr. 4	.....do.....	.....do.....	.....do.....	339	*340
May 3	.....do.....	.....do.....	.....do.....	339	67.8
5	.....do.....	.....do.....	.....do.....	339	*55.4
27	.....do.....	.....do.....	.....do.....	339	*127
June 16	.....do.....	.....do.....	.....do.....	339	34.0
July 6	.....do.....	.....do.....	.....do.....	339	*5.42
Aug. 4	.....do.....	.....do.....	.....do.....	339	*6.12
5	.....do.....	.....do.....	.....do.....	339	3.63
25	.....do.....	.....do.....	.....do.....	339	*5.66
Sept. 3	.....do.....	.....do.....	.....do.....	339	11.2
Mar. 30	Revilee Creek....	Petit Jean Creek.	SW¼ sec. 31, T. 6 N., R. 26 W., ½ mile southeast of Magazine, Ark., at mouth. (Drainage area 50 square miles.)	50	235
May 3	.....do.....	.....do.....	.....do.....	50	12.4
Mar. 12	Fourche La Fave River.	Arkansas River...	Sec. 15, T. 4 N., R. 17 W., half a mile southeast of Perryville, Ark.	1,020	1,170
31	.....do.....	.....do.....	.....do.....	1,020	12,200
Apr. 4	.....do.....	.....do.....	.....do.....	1,020	2,050
May 4	.....do.....	.....do.....	.....do.....	1,020	299
18	.....do.....	.....do.....	.....do.....	1,020	198

\*Discharge measurement made by Corps of Engineers, U. S. Army.

## Red River Basin

June 15	Lake Creek.....	Salt Fork of Red River.	Near Lelia Lake, Tex., lat. 34°53' long. 100°43'.	-	40,800
or 16	.....do.....	.....do.....	Near Headly, Tex., lat. 34°56', long. 100°42'.	-	64,700
June 15	.....do.....	.....do.....	.....do.....	-	141
or 16	Caddo River.....	Ouachita River...	Sec. 29, T. 6 S., R. 19 W., 3½ miles north of Arkadelphia, Ark., 2 miles above mouth.	-	19,700
Dec. 16	.....do.....	.....do.....	.....do.....	-	1,110
Jan. 21	.....do.....	.....do.....	.....do.....	-	2,460
Feb. 24	.....do.....	.....do.....	.....do.....	-	3,840
Mar. 9	.....do.....	.....do.....	.....do.....	-	7,440
10	.....do.....	.....do.....	.....do.....	-	169
Apr. 8	.....do.....	.....do.....	.....do.....	-	131
May 4	.....do.....	.....do.....	.....do.....	-	51.1
June 9	.....do.....	.....do.....	.....do.....	-	65.8
July 7	.....do.....	.....do.....	.....do.....	-	
Aug. 3	.....do.....	.....do.....	.....do.....	-	

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